

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
5789	40BR-F	ROCK ISLAND	15	1

1-18-13 LETTING ITEM 080

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

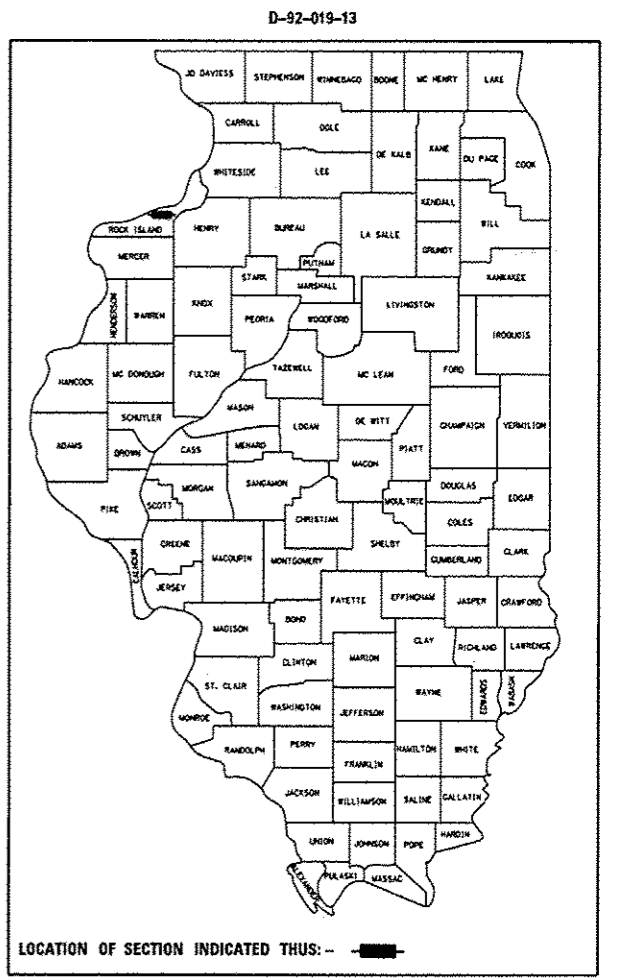
**PROPOSED  
HIGHWAY PLANS**

FAU ROUTE 5789 (US 6)  
SECTION 40BR-F

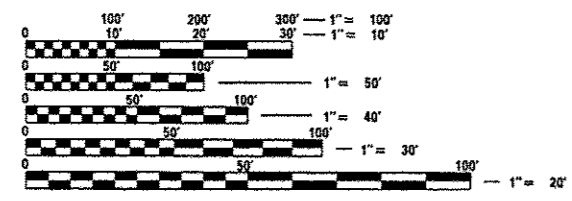
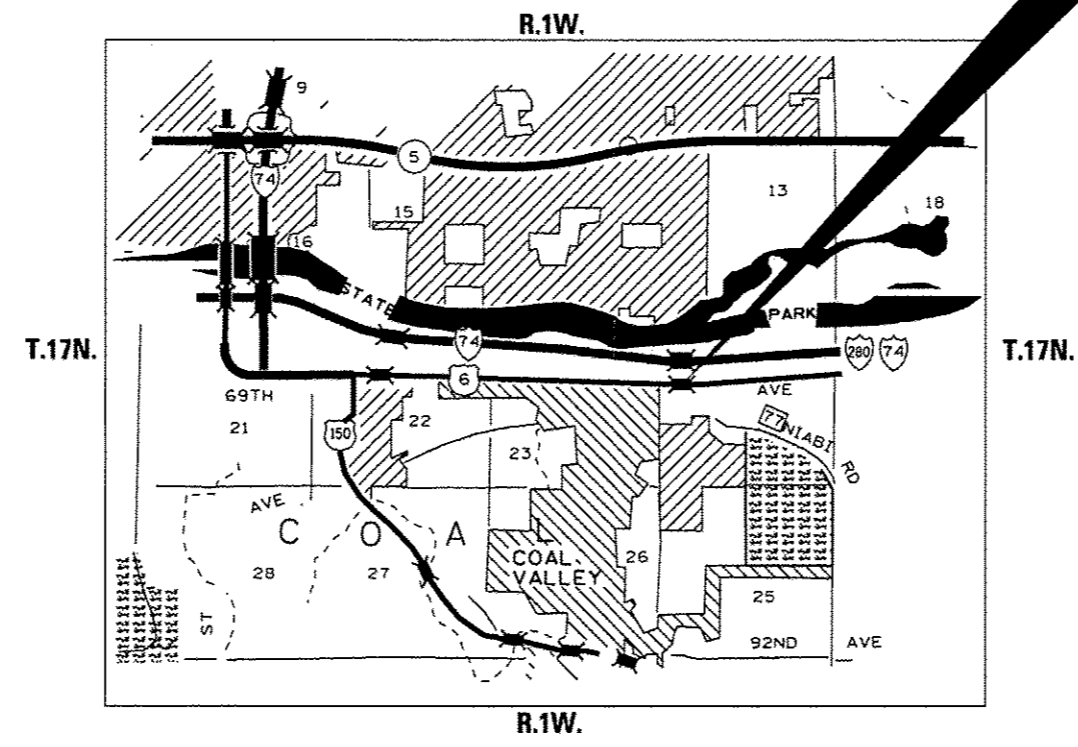
ROCK ISLAND COUNTY  
C-92-031-13

**INDEX**

- 1 COVER SHEET
- 2 SUMMARY OF QUANTITIES
- 3 - 15 STRUCTURE PLANS



**IMPROVEMENT BEGINS & ENDS  
STA. 383 + 39.88**  
STRUCTURE REPLACEMENT OVER SHAFPER CREEK  
AT STA. 383 + 39.88  
1 MILE WEST OF HENRY COUNTY LINE



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

COAL VALLEY TOWNSHIP, SECTION 23 & 24

GROSS LENGTH OF PROJECT = 89.5 LIN. FT. = 0.02 MILES  
NET LENGTH OF PROJECT = 89.5 LIN. FT. = 0.02 MILES

CONTRACT NO. 64J44

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

SUBMITTED Oct 19 20 12  
Paul A. Roeta  
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

Dec 7 20 12  
John D. Barambelli PE, Jc  
acting ENGINEER OF DESIGN AND ENVIRONMENT

Dec 7 20 12  
William R. Frey Jr  
acting DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

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

PROJECT ENGINEER: REBECCA MARRUFFO  
SENIOR SQUAD LEADER: FAITH DUNCAN (815)-284-5364

# SUMMARY OF QUANTITIES

CODE NUMBER	ITEM	UNIT	TOTAL QUANTITY
50500205	FURNISHING STRUCTURAL STEEL	L. SUM	1
50500455	STORAGE OF STRUCTURAL STEEL	CAL DA	60
<del>67100100</del>	<del>MOBILIZATION</del>	<del>L. SUM</del>	<del>1</del>

0011  
100% STATE

*Rev.*

FILE NAME *	USER NAME * renkasw	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>SUMMARY OF QUANTITIES</b>	F.A.U RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
a:\pv\work\axidot\renkasw\09323613\020	R12.sht-500.dgn	DRAWN -	REVISED -			578S	4DBR-F	ROCK ISLAND	15	2
PLOT SCALE * 100.0000' / 1" =	CHECKED -	REVISED -	SCALE: _____ SHEET NO. ___ OF ___ SHEETS STA. _____ TO STA. _____							
PLOT DATE * Thu Oct 18 14:44:05 2012	DATE -	REVISED -	FED. ROAD DIST. NO. - [ILLINOIS] FED. AID PROJECT							
						CONTRACT NO. 64J44				

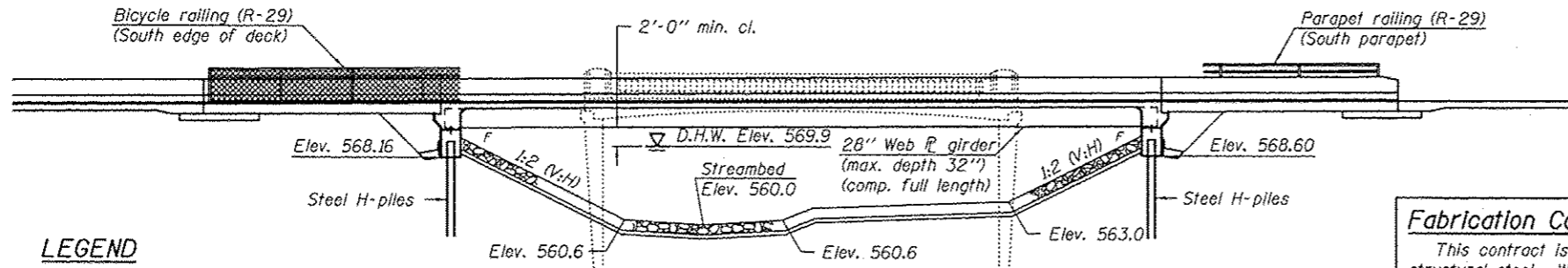
Benchmark: U.S.G.S. datum "□" cut in the center and top of South headwall of concrete culvert Sta. 387+50, Rt. 30'-8", Elev. 569.31.

Existing structure: Structure no. 081-0061, built in 1937 as F.A. Rte. 138, Section 40B, Station 325+35, as a single span 54'-8" back-to-back abutment, 47'-4" out-to-out reinforced concrete haunched slab and rigid frame. The existing structure is to be replaced with a single span bridge on integral abutments. Traffic is to be maintained utilizing stage construction.

No salvage.

**INDEX OF SHEETS**

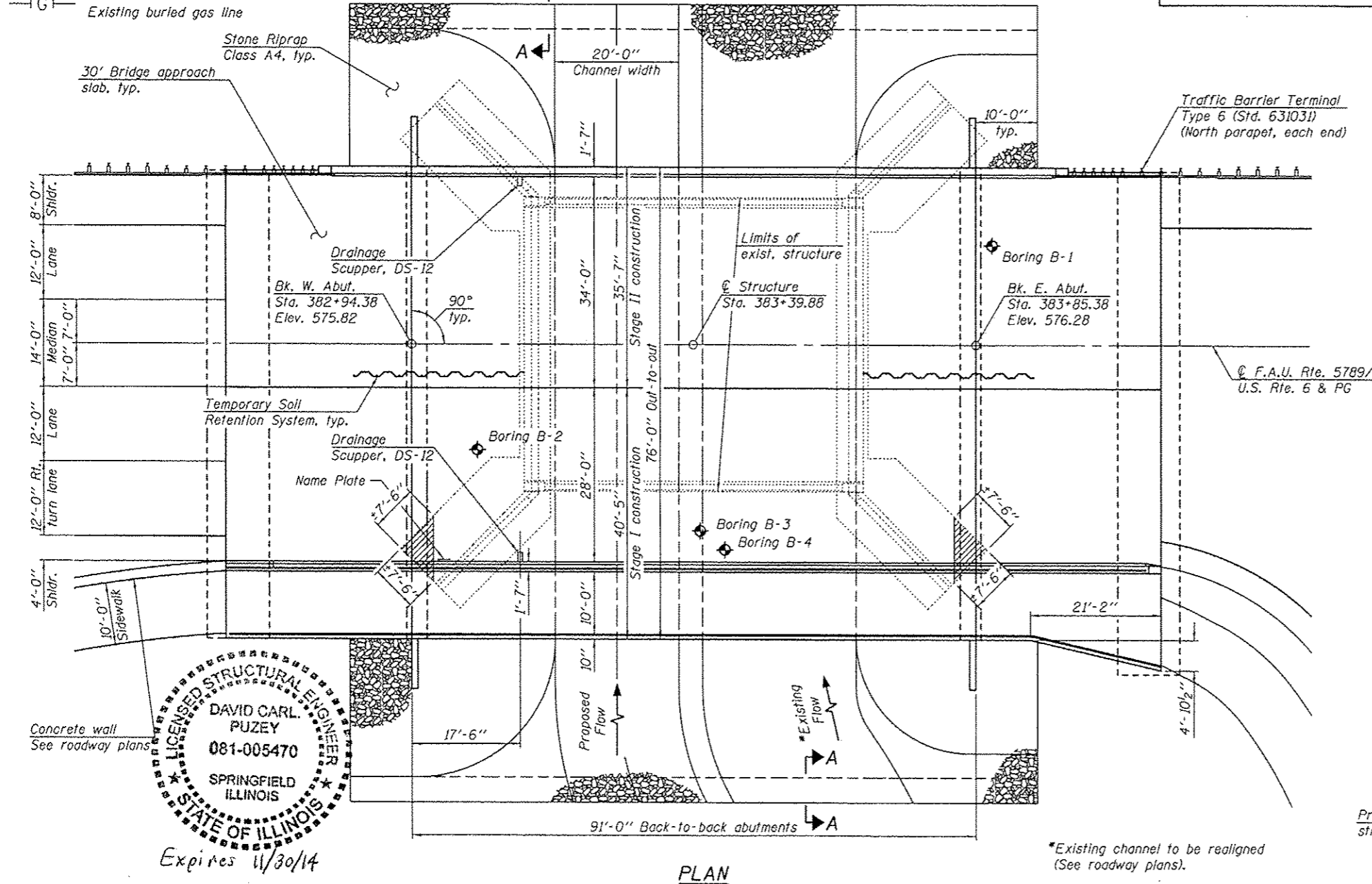
- 1 General Plan and Elevation
- 2 General Data & Temporary Soil Retention System Details
- 3 Stage Construction Details
- 4-6 Top of Slab Elevations
- 7 Superstructure
- 8-9 Diaphragm Details
- 10 Structural Steel
- 11 Structural Steel Details
- 12 West Abutment
- 13 East Abutment



**ELEVATION**

**Fabrication Contract:**  
This contract is for the furnishing of structural steel. Work shown that is not related to the fabrication of the structural steel is not included in this contract (N.I.C.) and is for information only.

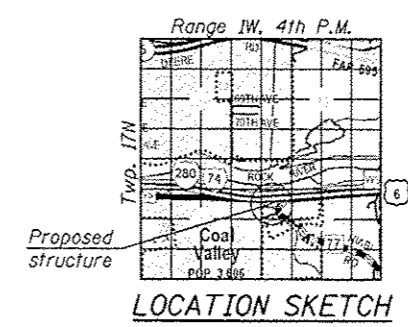
**LEGEND**  
Indicates limits of removal of existing wingwall footing. Cast included with Removal of Existing Structure.  
Existing buried gas line



**PLAN**

STATION 383+39.88  
BUILT 20 BY  
STATE OF ILLINOIS  
F.A.U. RTE. 5789 SEC. 40 BR  
LOADING HL-93  
STRUCTURE NO. 081-0163

**NAME PLATE**  
See Std. 515001



**PROFILE GRADE**  
(Along C.F.A.U. Rte. 5789)

**DESIGN SPECIFICATIONS**  
2010 AASHTO LRFD Bridge Design Specifications, 5th Edition, with 2010 Interims

**DESIGN STRESSES**  
**FIELD UNITS**  
f'c = 3,500 psi  
fy = 60,000 psi (Reinforcement)  
fy = 50,000 psi (M270 Grade 50W)

**LOADING HL-93**  
Allow 50#/sq. ft. for future wearing surface.

**SEISMIC DATA**  
Seismic Performance Zone (SPZ) = 1  
Design Spectral Acceleration at 1.0 sec. (SD1) = 0.06g  
Design Spectral Acceleration at 0.2 sec. (SDs) = 0.10g  
Soil Site Class = C

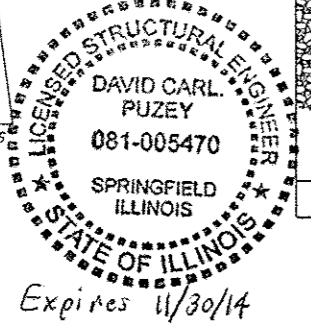
**GENERAL PLAN & ELEVATION**  
**U.S. RTE. 6 OVER SHAFFER CREEK**  
**F.A.U. RTE 5789 - SEC. 40 BR-F**  
**ROCK ISLAND COUNTY**  
**STATION 383+39.88**  
**STRUCTURE NO. 081-0163**

DESIGNED - <i>Stephan M. Ryan</i>	EXAMINED - <i>David Carl Puzey</i>	DATE - 11/20/12
CHECKED - <i>Ray Bruch</i>	PASSED - <i>David Carl Puzey</i>	
DRAWN - n.f. Juong		
CHECKED - <i>SMR/NK3/GPA</i>		

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN & ELEVATION  
STRUCTURE NO. 081-0163  
SHEET NO. 1 OF 13 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
5789	40 BR-F	ROCK ISLAND	15	3
				CONTRACT NO. 64J44

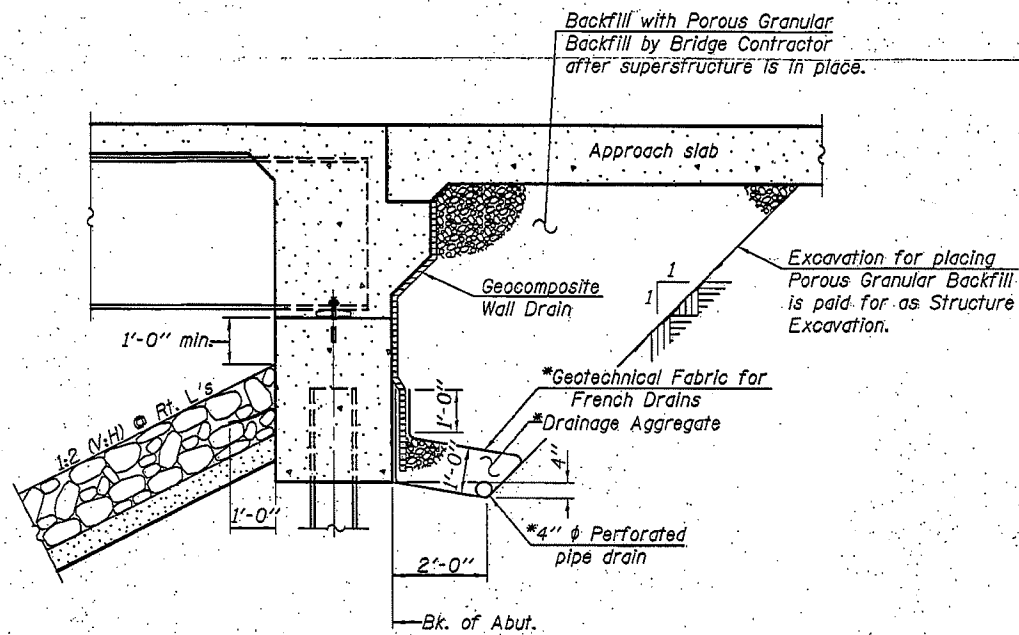


**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Furnishing Structural Steel	L. Sum	1		1
Storage of Structural Steel	Cal. Da.			30

**GENERAL NOTES**

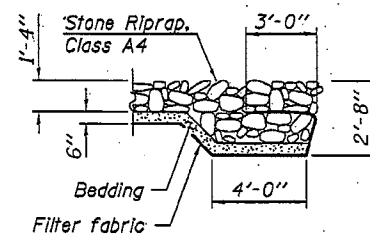
Fasteners shall be ASTM A325 Type 3. Bolts 3/4" in.  $\phi$ , holes 15/16"  $\phi$ , unless otherwise noted.  
 Calculated weight of Structural Steel to be furnished = 288,130 lbs (M 270 Grade 50W).  
 All structural steel shall be AASHTO M 270 Grade 50W.  
 No field welding is permitted except as specified in the contract documents.  
 Structural steel shall only be painted for a distance equal to the depth of embedment into the concrete cap plus 3 inches. Painted areas shall be primed in the shop with a Department approved zinc rich primer. Field painting will not be required.



**SECTION THRU INTEGRAL ABUTMENT**

\*Included in the cost of Pipe Underdrains for Structures.

Note:  
 All drainage system components shall extend to 2'-0" from the end of each wingwall except an outlet pipe shall extend until intersecting with the side slopes. The pipes shall drain into concrete headwalls. (See Article 601.05 of the Standard Specifications and Highway Standard 60110).



**SECTION A-A**

**PRE-FINAL**

**DESIGN SCOUR ELEVATION TABLE**

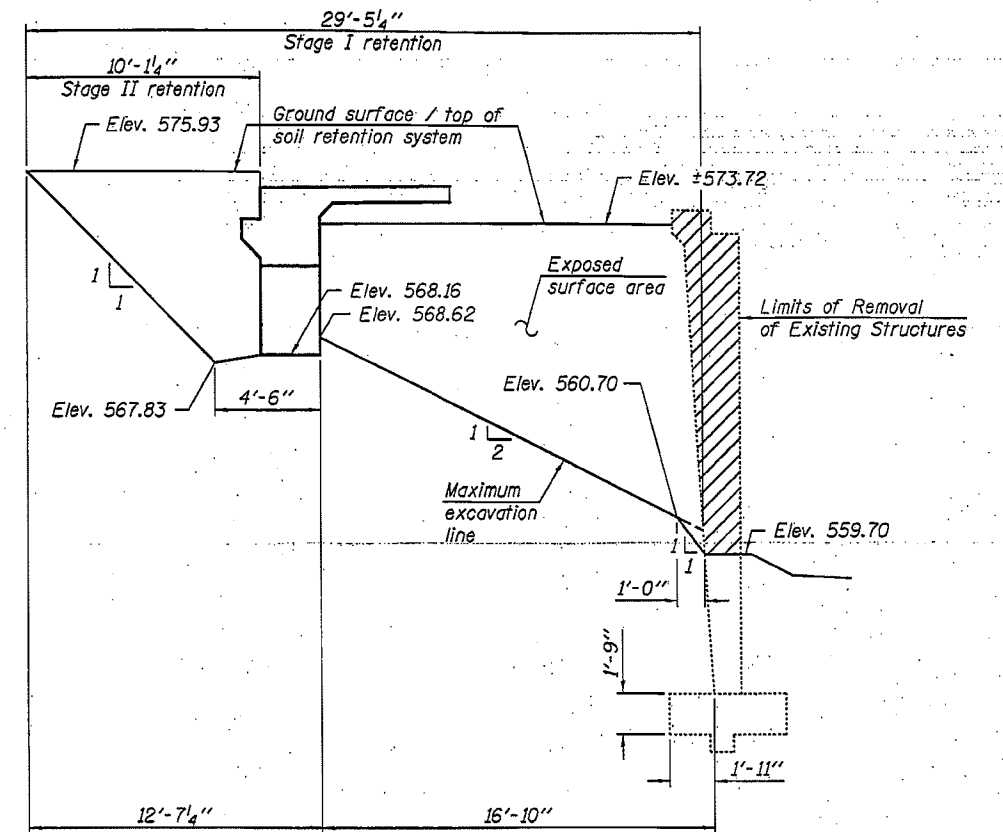
Design Scour Elevation (ft.)	W. Abut.	E. Abut.
	568.16	568.60

**WATERWAY INFORMATION**

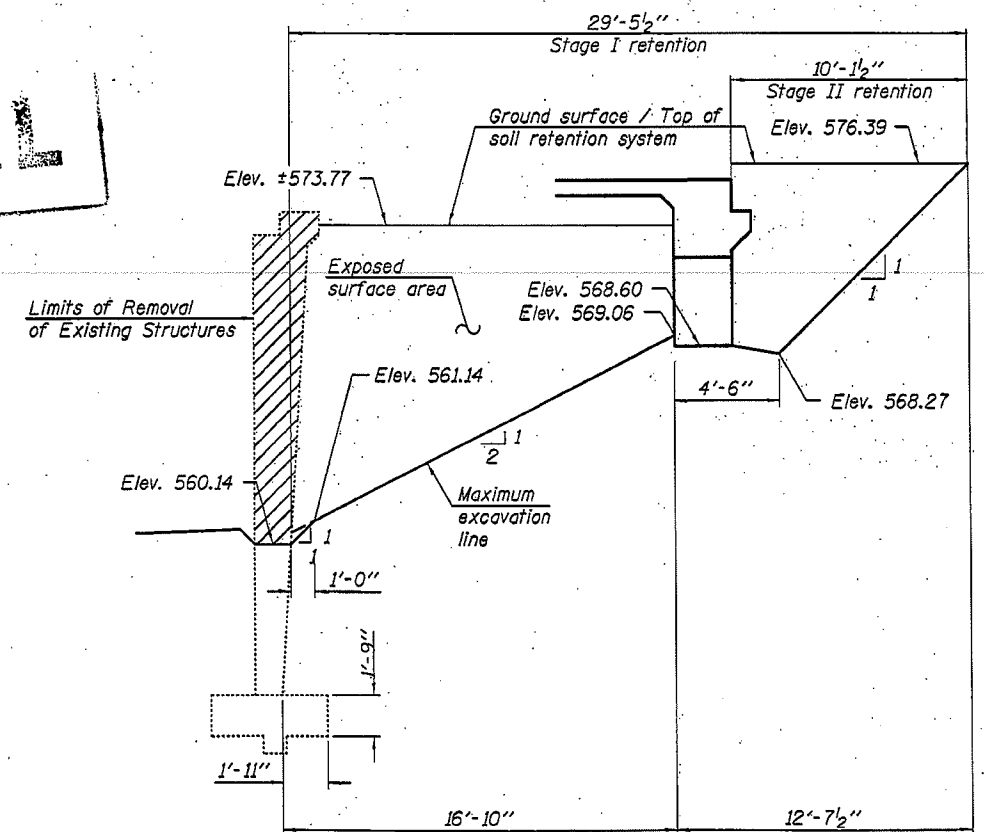
Flood Yr.	Freq.	* Q C.F.S.	Opening Sq. Ft.		** Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
	10	1050	313	503	569.5	0.1	0.0	569.6	569.5
Design	50	1300	333	535	569.9	0.1	0.1	570.0	570.0
Base	100	1350	338	543	570.0	0.1	0.1	570.1	570.1
Overtopping									
Max. Calc.	500	1550	353	567	570.3	0.2	0.1	570.5	570.4

10 Year velocity through existing bridge = 3.4 ft./sec.  
 10 Year velocity through proposed bridge = 2.1 ft./sec.

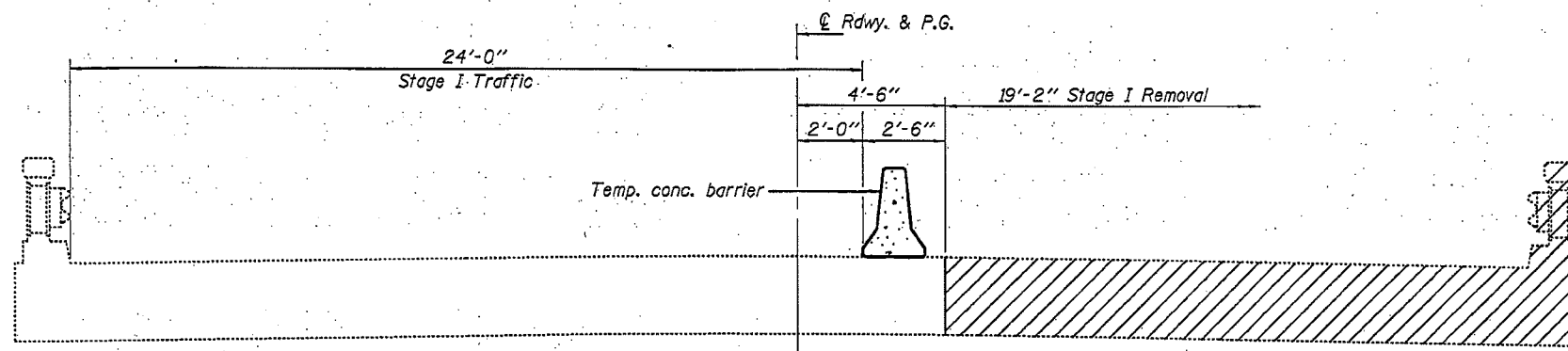
\* Total discharge reduced by amount lost to storage after overtopping Nlabi Zoo Road.  
 \*\* Shaffer Creek is under the control of the tailwaters of the Rock River at this location.



**TEMPORARY SOIL RETENTION SYSTEM (West Abutment)**

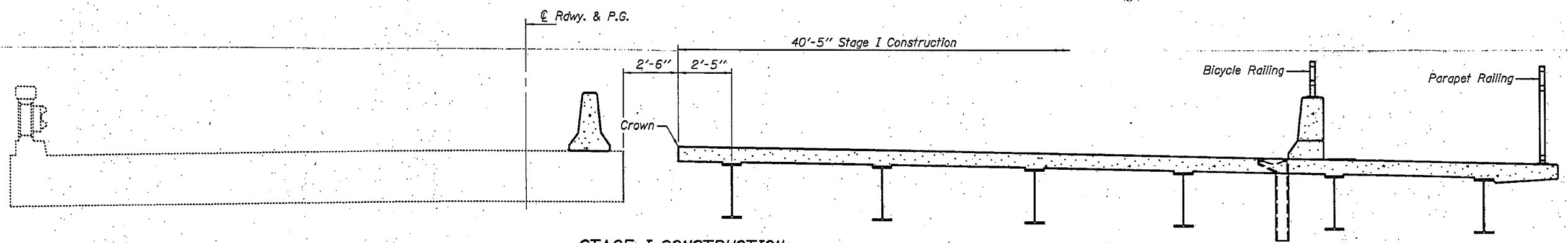


**TEMPORARY SOIL RETENTION SYSTEM (East Abutment)**

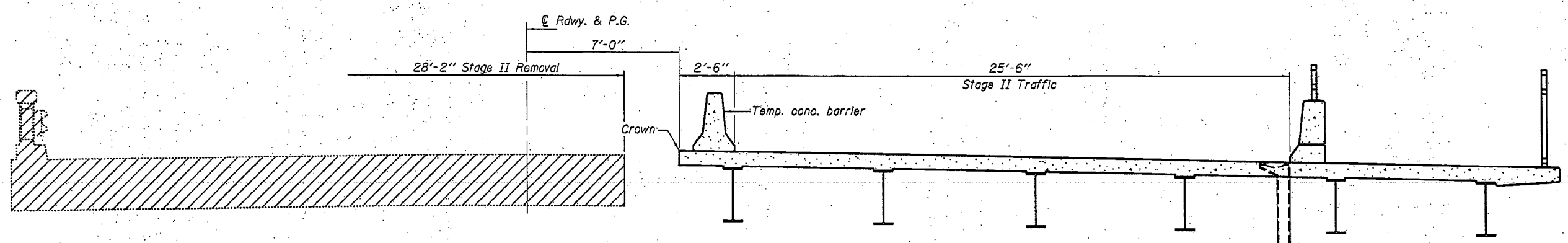


**STAGE I REMOVAL**

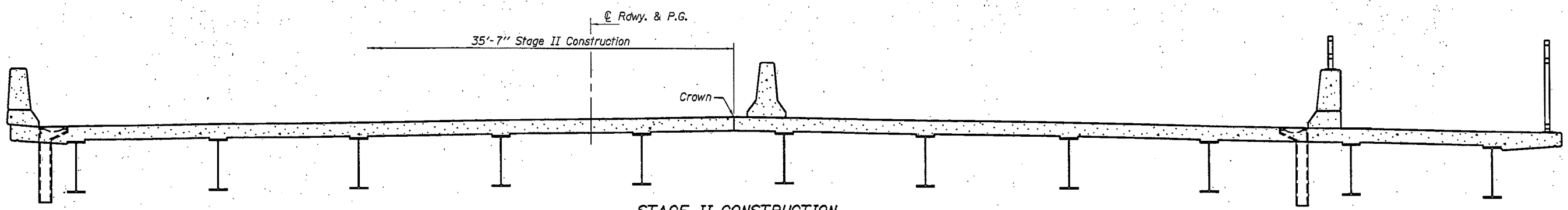
**PRE-FINAL**



**STAGE I CONSTRUCTION**



**STAGE II REMOVAL**

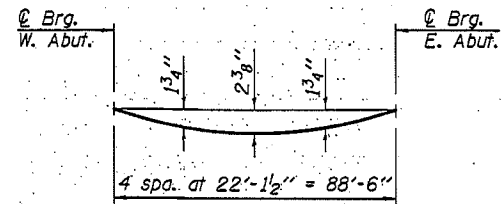


**STAGE II CONSTRUCTION**

Notes: All sections are looking east.  
Hatched area indicates removal of existing superstructure.  
For quantity of temporary concrete barrier, see Roadway Plans.

For Information only.

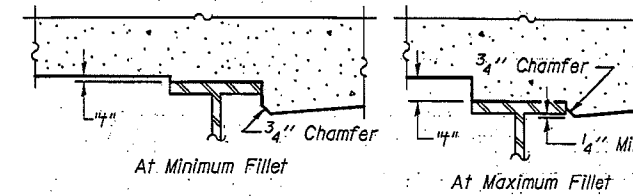
DESIGNED - NICHOLAS R. BARNETT	EXAMINED - <i>Joanne F. [Signature]</i>	DATE - _____	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>STAGE CONSTRUCTION DETAILS STRUCTURE NO. 081-0163</b>	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
CHECKED - RAY AHANCHI	ACTING ENGINEER OF BRIDGES DESIGN	REVISED _____			5789	40 BR-F	ROCK ISLAND			
DRAWN - h.t. duong	PASSED - <i>Carl [Signature]</i>	REVISED _____								
CHECKED - N.R.B. / G.R.A.	ACTING ENGINEER OF BRIDGES AND STRUCTURES	REVISED _____								
				SHEET NO. 3 OF 13 SHEETS		CONTRACT NO. 64J44 ILLINOIS FED. AID PROJECT				



**DEAD LOAD DEFLECTION DIAGRAM**

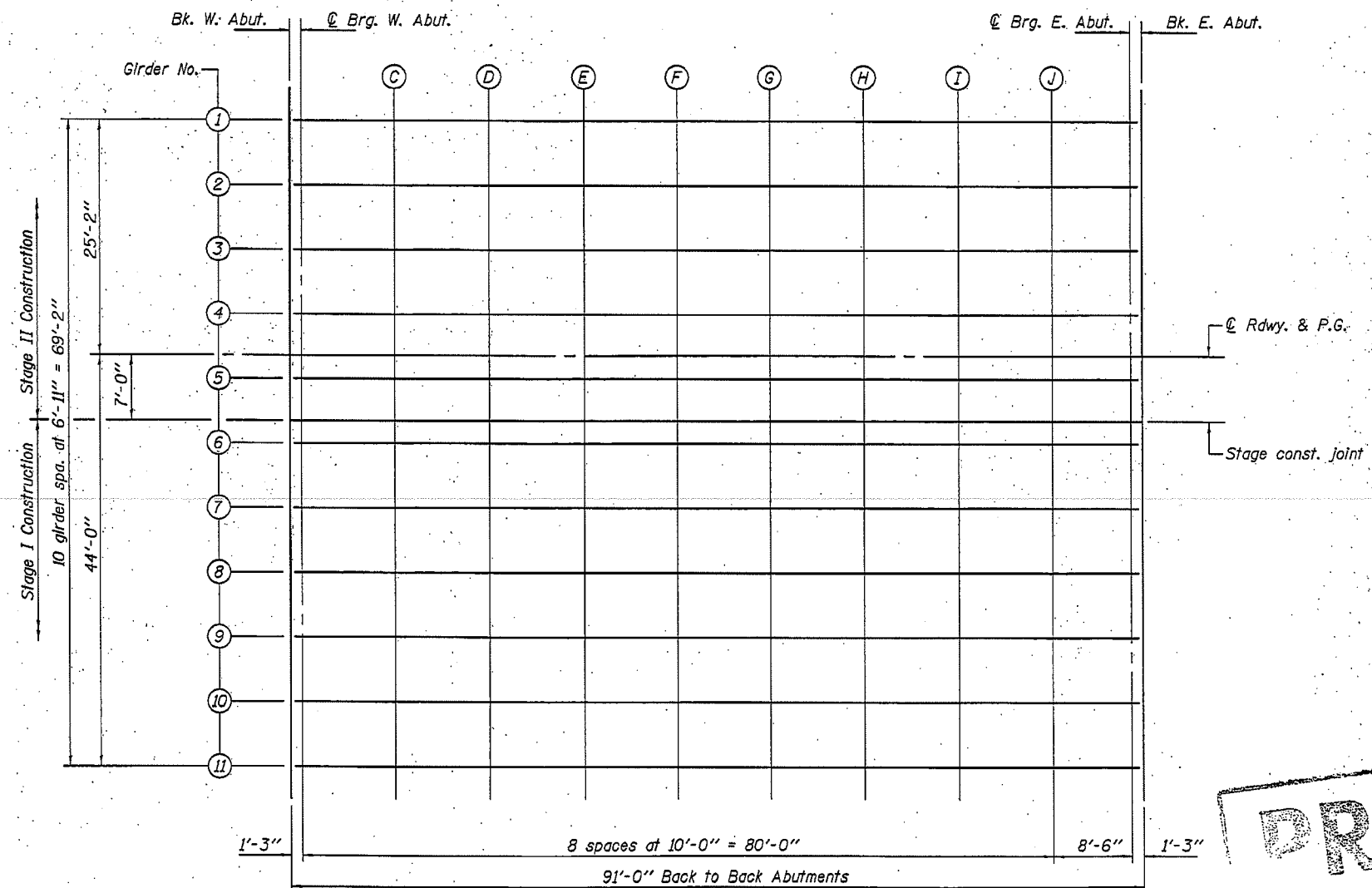
(Includes weight of concrete only.)

Note: The above deflections are not to be used in the field if the Engineer is working from the grade elevations adjusted for dead load deflections as shown on sheets 5 & 6 of 13.



To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown below. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on sheets 5 & 6 of 13, minus 8" slab thickness, equals the fillet heights "t" above top flange of girders.

**FILLET HEIGHTS**



**PLAN**

**PRE-FINAL**

For Information only.

DESIGNED - NICHOLAS R. BARNETT	EXAMINED - <i>James F. [Signature]</i>	DATE -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	TOP OF SLAB ELEVATIONS STRUCTURE NO. 081-0163	F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
CHECKED - RAY AHANCHI	PASSED - <i>[Signature]</i>	REVISED			5789	40 BR-F	ROCK ISLAND			
DRAWN - h.t. duong	ACTING ENGINEER OF BRIDGES AND STRUCTURES	REVISED			SHEET NO. 4 OF 13 SHEETS		CONTRACT NO. 64J44			
CHECKED - N.R.B. / G.R.A.					ILLINOIS FED. AID PROJECT					

**GIRDER 1**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	38+294.38	-25.17	575.40	575.40
CL. Brg. W. Abut.	382+95.63	-25.17	575.40	575.40
C	383+05.63	-25.17	575.45	575.52
D	383+15.63	-25.17	575.50	575.63
E	383+25.63	-25.17	575.55	575.72
F	383+35.63	-25.17	575.60	575.79
G	383+45.63	-25.17	575.65	575.84
H	383+55.63	-25.17	575.70	575.86
I	383+65.63	-25.17	575.75	575.87
J	383+75.63	-25.17	575.80	575.86
CL. Brg. E. Abut.	383+84.13	-25.17	575.85	575.85
Bk. E. Abut.	383+85.38	-25.17	575.85	575.85

**GIRDER 2**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	382+94.38	-18.25	575.54	575.54
CL. Brg. W. Abut.	382+95.63	-18.25	575.54	575.54
C	383+05.63	-18.25	575.59	575.66
D	383+15.63	-18.25	575.64	575.77
E	383+25.63	-18.25	575.69	575.86
F	383+35.63	-18.25	575.74	575.93
G	383+45.63	-18.25	575.79	575.98
H	383+55.63	-18.25	575.84	576.00
I	383+65.63	-18.25	575.89	576.01
J	383+75.63	-18.25	575.94	576.00
CL. Brg. E. Abut.	383+84.13	-18.25	575.99	575.99
Bk. E. Abut.	383+85.38	-18.25	575.99	575.99

**GIRDER 3**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	382+94.38	-11.33	575.65	575.65
CL. Brg. W. Abut.	382+95.63	-11.33	575.65	575.65
C	383+05.63	-11.33	575.70	575.77
D	383+15.63	-11.33	575.75	575.88
E	383+25.63	-11.33	575.80	575.96
F	383+35.63	-11.33	575.85	576.04
G	383+45.63	-11.33	575.90	576.09
H	383+55.63	-11.33	575.95	576.11
I	383+65.63	-11.33	576.00	576.12
J	383+75.63	-11.33	576.05	576.11
CL. Brg. E. Abut.	383+84.13	-11.33	576.09	576.09
Bk. E. Abut.	383+85.38	-11.33	576.10	576.10

**GIRDER 4**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	382+94.38	-4.42	575.75	575.75
CL. Brg. W. Abut.	382+95.63	-4.42	575.76	575.76
C	383+05.63	-4.42	575.81	575.87
D	383+15.63	-4.42	575.86	575.99
E	383+25.63	-4.42	575.91	576.07
F	383+35.63	-4.42	575.96	576.15
G	383+45.63	-4.42	576.01	576.19
H	383+55.63	-4.42	576.06	576.22
I	383+65.63	-4.42	576.11	576.23
J	383+75.63	-4.42	576.16	576.21
CL. Brg. E. Abut.	383+84.13	-4.42	576.20	576.20
Bk. E. Abut.	383+85.38	-4.42	576.21	576.21

**ROADWAY & PROFILE GRADE**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	382+94.38	0.00	575.82	575.82
CL. Brg. W. Abut.	382+95.63	0.00	575.83	575.83
C	383+05.63	0.00	575.88	575.94
D	383+15.63	0.00	575.93	576.06
E	383+25.63	0.00	575.98	576.14
F	383+35.63	0.00	576.03	576.22
G	383+45.63	0.00	576.08	576.26
H	383+55.63	0.00	576.13	576.29
I	383+65.63	0.00	576.18	576.30
J	383+75.63	0.00	576.23	576.28
CL. Brg. E. Abut.	383+84.13	0.00	576.27	576.27
Bk. E. Abut.	383+85.38	0.00	576.28	576.28

**GIRDER 5**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	382+94.38	2.50	575.86	575.86
CL. Brg. W. Abut.	382+95.63	2.50	575.87	575.87
C	383+05.63	2.50	575.92	575.98
D	383+15.63	2.50	575.97	576.10
E	383+25.63	2.50	576.02	576.18
F	383+35.63	2.50	576.07	576.26
G	383+45.63	2.50	576.12	576.30
H	383+55.63	2.50	576.17	576.33
I	383+65.63	2.50	576.22	576.34
J	383+75.63	2.50	576.27	576.32
CL. Brg. E. Abut.	383+84.13	2.50	576.31	576.31
Bk. E. Abut.	383+85.38	2.50	576.32	576.32

**STAGE CONSTRUCTION JOINT**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	382+94.38	7.00	575.93	575.93
CL. Brg. W. Abut.	382+95.63	7.00	575.94	575.94
C	383+05.63	7.00	575.99	576.05
D	383+15.63	7.00	576.04	576.17
E	383+25.63	7.00	576.09	576.25
F	383+35.63	7.00	576.14	576.33
G	383+45.63	7.00	576.19	576.37
H	383+55.63	7.00	576.24	576.40
I	383+65.63	7.00	576.29	576.41
J	383+75.63	7.00	576.34	576.39
CL. Brg. E. Abut.	383+84.13	7.00	576.38	576.38
Bk. E. Abut.	383+85.38	7.00	576.39	576.39

**PRE-FINAL**

For Information only.



**GIRDER 6**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	382+94.38	9.42	575.89	575.89
CL. Brg. W. Abut.	382+95.63	9.42	575.90	575.90
C	383+05.63	9.42	575.95	576.01
D	383+15.63	9.42	576.00	576.13
E	383+25.63	9.42	576.05	576.21
F	383+35.63	9.42	576.10	576.29
G	383+45.63	9.42	576.15	576.34
H	383+55.63	9.42	576.20	576.36
I	383+65.63	9.42	576.25	576.37
J	383+75.63	9.42	576.30	576.35
CL. Brg. E. Abut.	383+84.13	9.42	576.34	576.34
Bk. E. Abut.	383+85.38	9.42	576.35	576.35

**GIRDER 7**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	382+94.38	16.33	575.79	575.79
CL. Brg. W. Abut.	382+95.63	16.33	575.79	575.79
C	383+05.63	16.33	575.84	575.91
D	383+15.63	16.33	575.89	576.02
E	383+25.63	16.33	575.94	576.11
F	383+35.63	16.33	575.99	576.18
G	383+45.63	16.33	576.04	576.23
H	383+55.63	16.33	576.09	576.25
I	383+65.63	16.33	576.14	576.26
J	383+75.63	16.33	576.19	576.25
CL. Brg. E. Abut.	383+84.13	16.33	576.23	576.23
Bk. E. Abut.	383+85.38	16.33	576.24	576.24

**GIRDER 8**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	382+94.38	23.25	575.66	575.66
CL. Brg. W. Abut.	382+95.63	23.25	575.66	575.66
C	383+05.63	23.25	575.71	575.78
D	383+15.63	23.25	575.76	575.89
E	383+25.63	23.25	575.81	575.98
F	383+35.63	23.25	575.86	576.05
G	383+45.63	23.25	575.91	576.10
H	383+55.63	23.25	575.96	576.12
I	383+65.63	23.25	576.01	576.13
J	383+75.63	23.25	576.06	576.12
CL. Brg. E. Abut.	383+84.13	23.25	576.10	576.10
Bk. E. Abut.	383+85.38	23.25	576.11	576.11

**GIRDER 9**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	382+94.38	30.17	575.51	575.51
CL. Brg. W. Abut.	382+95.63	30.17	575.52	575.52
C	383+05.63	30.17	575.57	575.63
D	383+15.63	30.17	575.62	575.75
E	383+25.63	30.17	575.67	575.83
F	383+35.63	30.17	575.72	575.91
G	383+45.63	30.17	575.77	575.95
H	383+55.63	30.17	575.82	575.98
I	383+65.63	30.17	575.87	575.99
J	383+75.63	30.17	575.92	575.97
CL. Brg. E. Abut.	383+84.13	30.17	575.96	575.96
Bk. E. Abut.	383+85.38	30.17	575.97	575.97

**GIRDER 10**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	382+94.38	37.08	575.37	575.37
CL. Brg. W. Abut.	382+95.63	37.08	575.37	575.37
C	383+05.63	37.08	575.42	575.49
D	383+15.63	37.08	575.47	575.60
E	383+25.63	37.08	575.52	575.69
F	383+35.63	37.08	575.57	575.76
G	383+45.63	37.08	575.62	575.81
H	383+55.63	37.08	575.67	575.83
I	383+65.63	37.08	575.72	575.84
J	383+75.63	37.08	575.77	575.83
CL. Brg. E. Abut.	383+84.13	37.08	575.82	575.82
Bk. E. Abut.	383+85.38	37.08	575.82	575.82

**GIRDER 11**

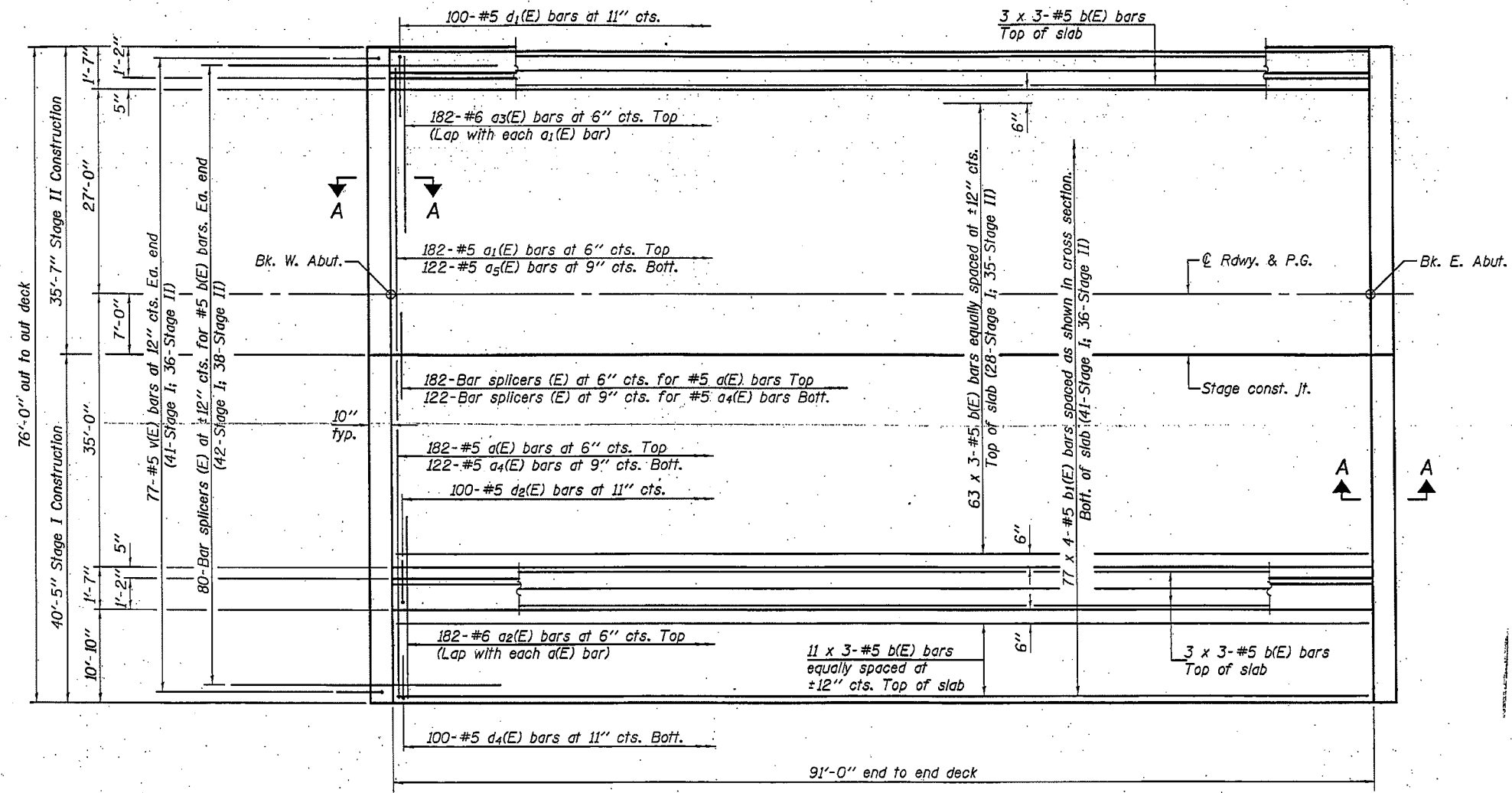
Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	382+94.38	44.00	575.22	575.22
CL. Brg. W. Abut.	382+95.63	44.00	575.23	575.23
C	383+05.63	44.00	575.28	575.34
D	383+15.63	44.00	575.33	575.46
E	383+25.63	44.00	575.38	575.54
F	383+35.63	44.00	575.43	575.62
G	383+45.63	44.00	575.48	575.67
H	383+55.63	44.00	575.53	575.69
I	383+65.63	44.00	575.58	575.70
J	383+75.63	44.00	575.63	575.68
CL. Brg. E. Abut.	383+84.13	44.00	575.67	575.67
Bk. E. Abut.	383+85.38	44.00	575.68	575.68

**PRE-FINAL**

For information only.

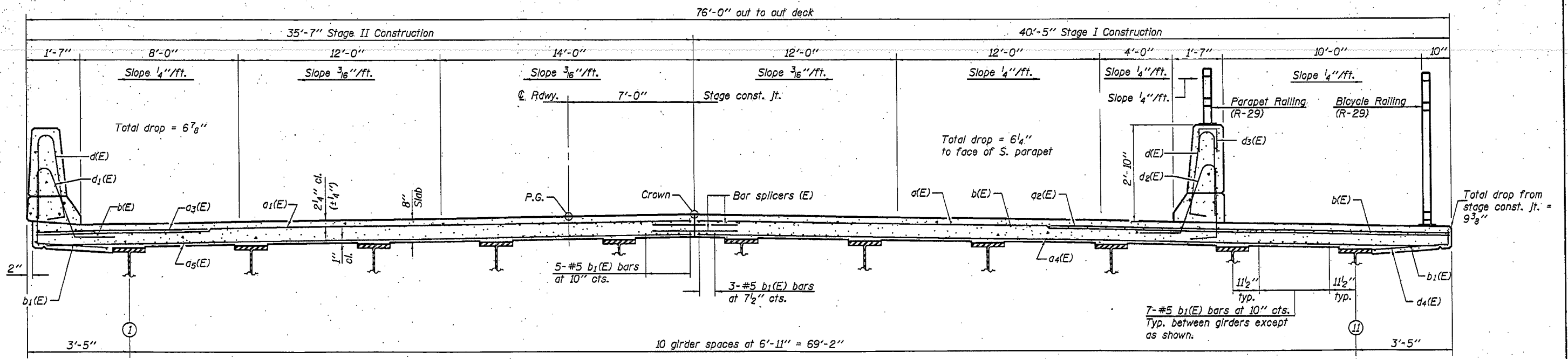
DESIGNED - NICHOLAS R. BARNETT	EXAMINED - <i>Joanne F. J. [Signature]</i>	DATE -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>TOP OF SLAB ELEVATIONS STRUCTURE NO. 081-0163</b>	F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
CHECKED - RAY AHANCHI	ACTING ENGINEER OF BRIDGES DESIGN	REVISED			5789	40 BR-F	ROCK ISLAND			
DRAWN - h.t. duong	PASSED - <i>[Signature]</i>	REVISED			SHEET NO. 6 OF 13 SHEETS		CONTRACT NO. 64J44			
CHECKED - N.R.B. / G.R.A.	ACTING ENGINEER OF BRIDGES AND STRUCTURES				ILLINOIS FED. AID PROJECT					





**PRE - FINAL**

**PLAN**



**CROSS SECTION**  
(Looking east)

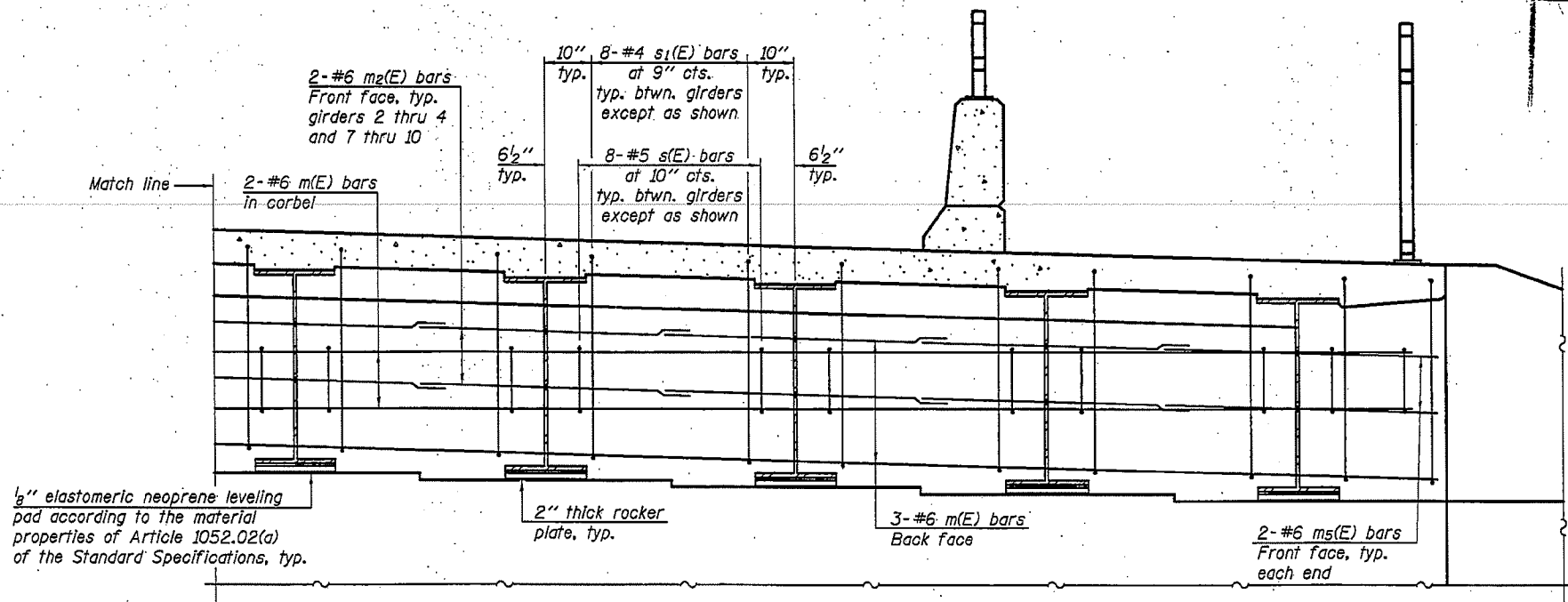
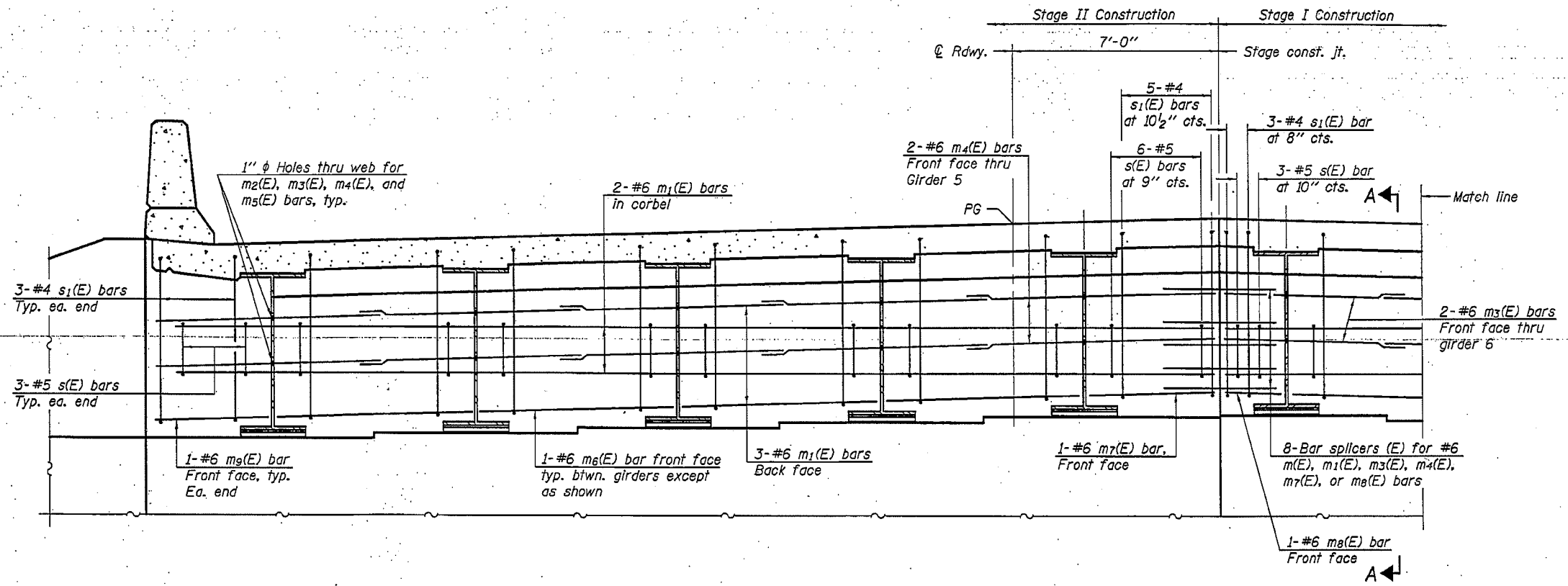
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CHECKED - RAY AHANCHI	ACTING ENGINEER OF BRIDGE DESIGN	REVISED
DRAWN - H.T. DUONG	PASSED - <i>[Signature]</i>	REVISED
CHECKED - N.R.B. / G.R.A.	ACTING ENGINEER OF BRIDGES AND STRUCTURES	

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

**SUPERSTRUCTURE**  
STRUCTURE NO. 081-0163  
SHEET NO. 7 OF 13 SHEETS

F.A.U. RTE. 5789	SECTION 40 BR-F	COUNTY ROCK ISLAND	TOTAL SHEETS	SHEET NO.
CONTRACT NO. 64J44			ILLINOIS FED. AID PROJECT	

For information only.



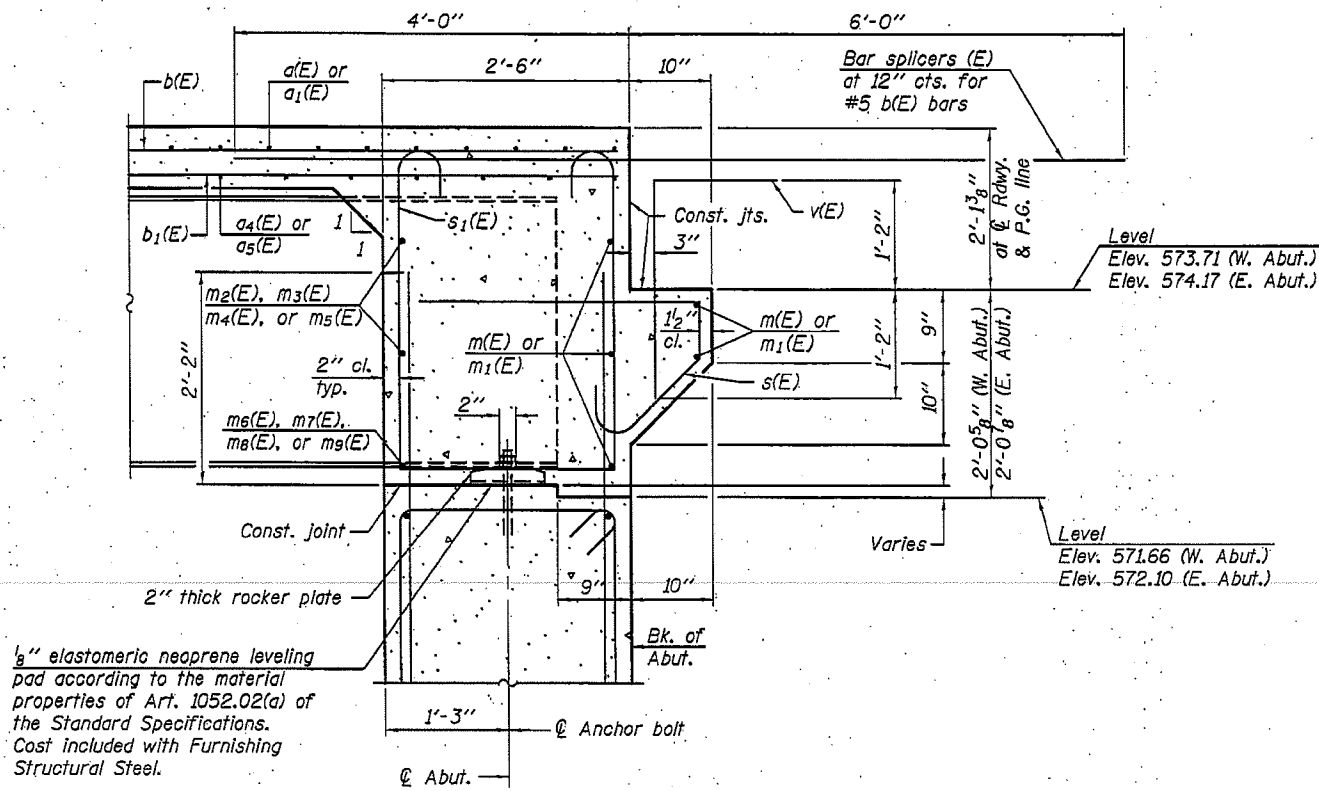
**PRE-FINAL**

**MIN. BAR LAP**  
#6 bar = 3'-4"

**DIAPHRAGM ELEVATION AT EAST ABUTMENT**  
(Looking east - West abutment similar)

For information only.

DESIGNED - NICHOLAS R. BARNETT	EXAMINED - <i>James F. Smith</i> ACTING ENGINEER OF BRIDGES	DATE -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	DIAPHRAGM DETAILS STRUCTURE NO. 081-0163	F.A.U. RTE. 5789	SECTION 40 BR-F	COUNTY ROCK ISLAND	TOTAL SHEETS	SHEET NO.	
CHECKED - RAY AHANCHI	PASSED - <i>Carl Perry</i> ACTING ENGINEER OF BRIDGES AND STRUCTURES	REVISED			SHEET NO. 8 OF 13 SHEETS	CONTRACT NO. 64J44		ILLINOIS FED. AID PROJECT		
DRAWN - h.t. duong		REVISED								
CHECKED - N.R.B. / G.R.A.										



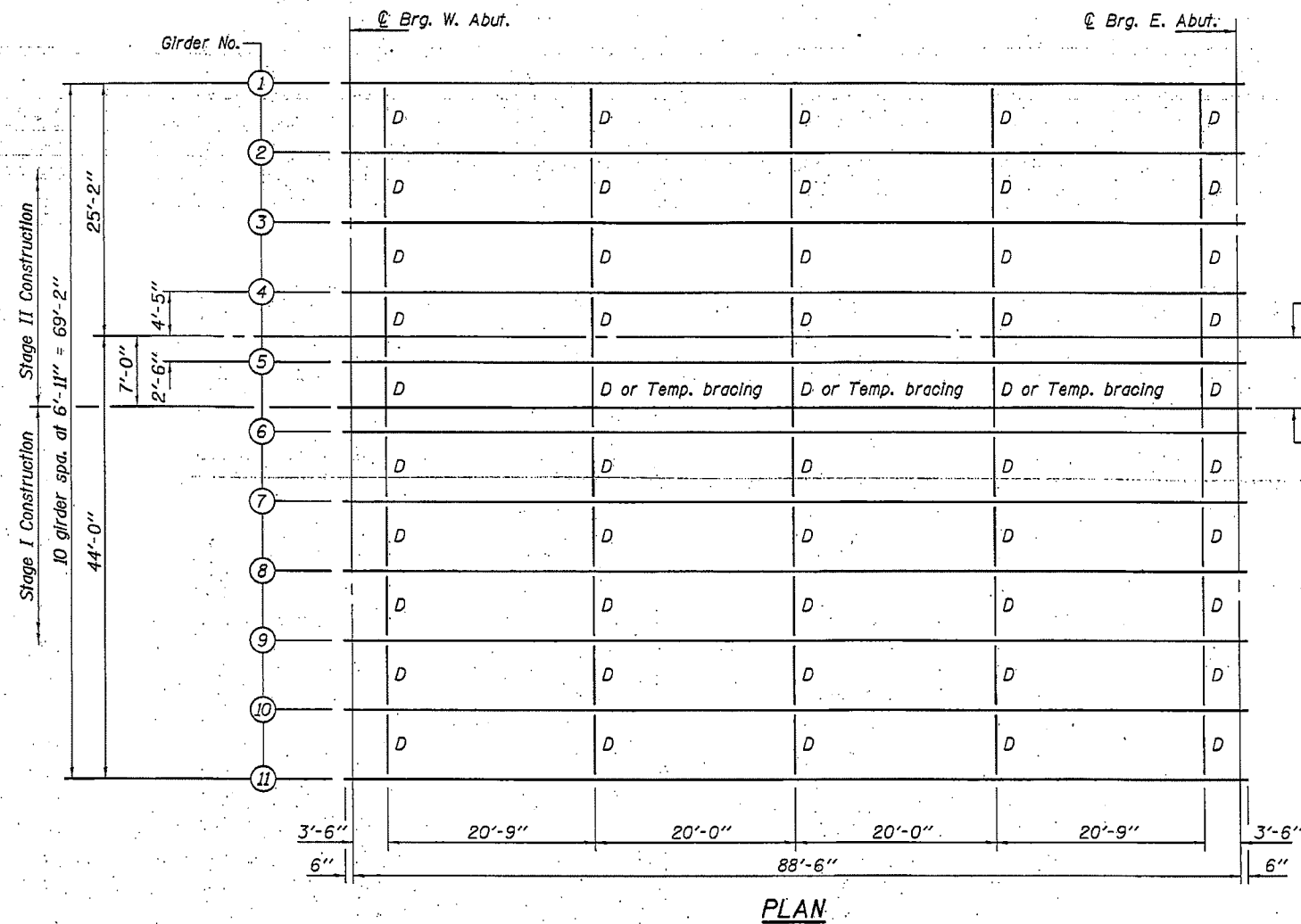
**MIN. BAR LAP**  
#6 bar = 3'-4"

**PRE-FINAL**

**SECTION A-A**

For Information only.

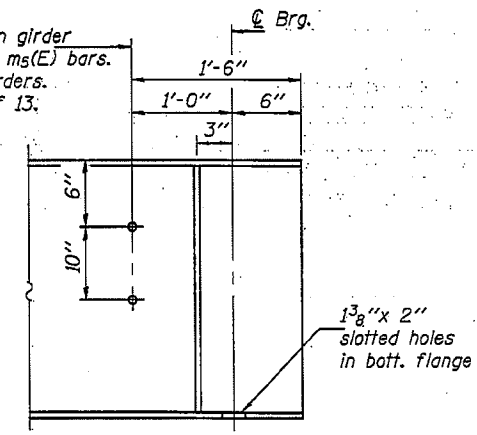
DESIGNED - NICHOLAS R. BARNETT	EXAMINED - <i>Joey F. [Signature]</i> ACTING ENGINEER OF BRIDGE DESIGN	DATE -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	DIAPHRAGM DETAILS STRUCTURE NO. 081-0163	F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
CHECKED - RAY AHANCHI	PASSED - <i>Carl [Signature]</i> ACTING ENGINEER OF BRIDGES AND STRUCTURES	REVISED			5789	40 BR-F	ROCK ISLAND			
DRAWN - h.t. duong		REVISED			CONTRACT NO. 64J44					
CHECKED - N.R.B. / G.R.A.					ILLINOIS FED. AID PROJECT					
			SHEET NO. 9 OF 13 SHEETS							



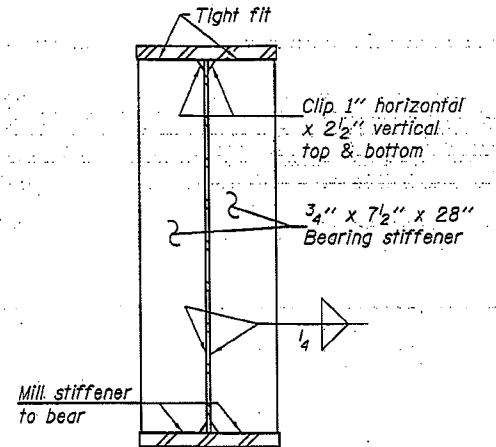
PLAN



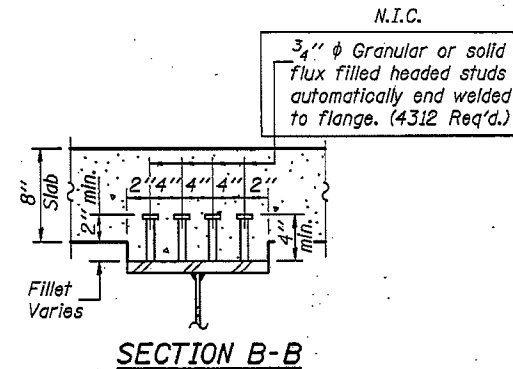
1" φ holes in girder for m2(E) thru m5(E) bars. Typ. for all girders. See sheet 8 of 13.



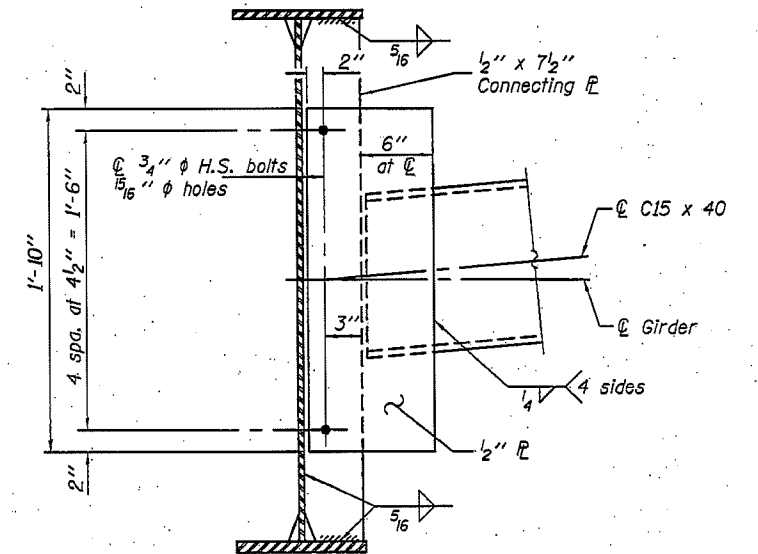
END OF GIRDER ELEVATION



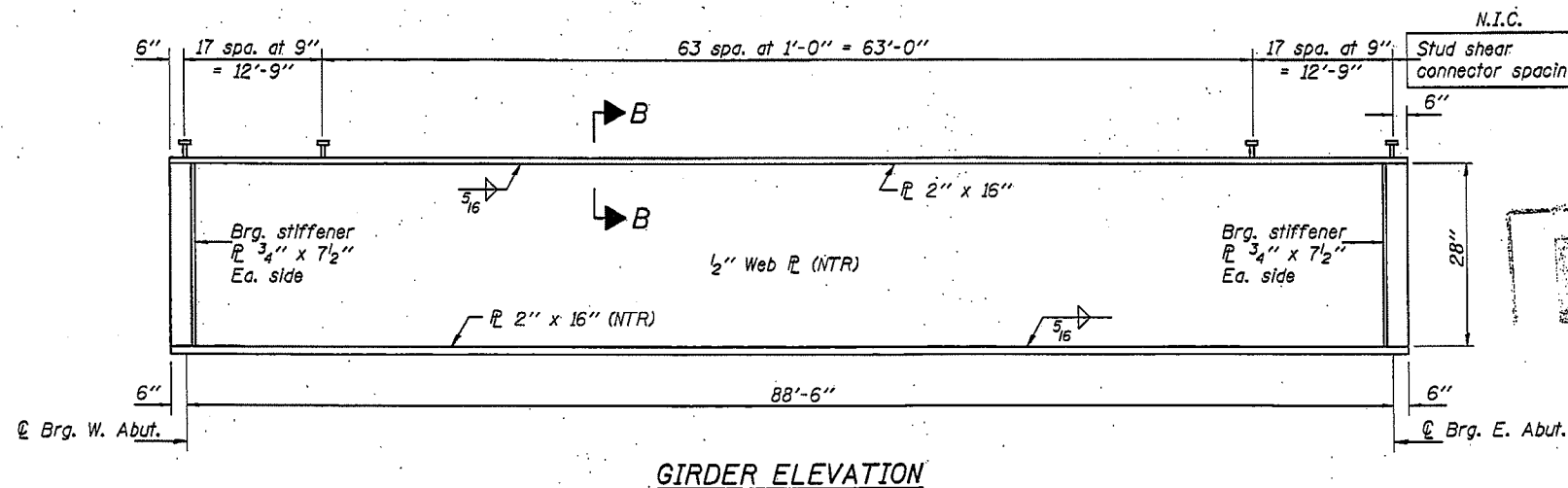
SECTION AT ABUTMENT



SECTION B-B



DIAPHRAGM D  
(50 Required)

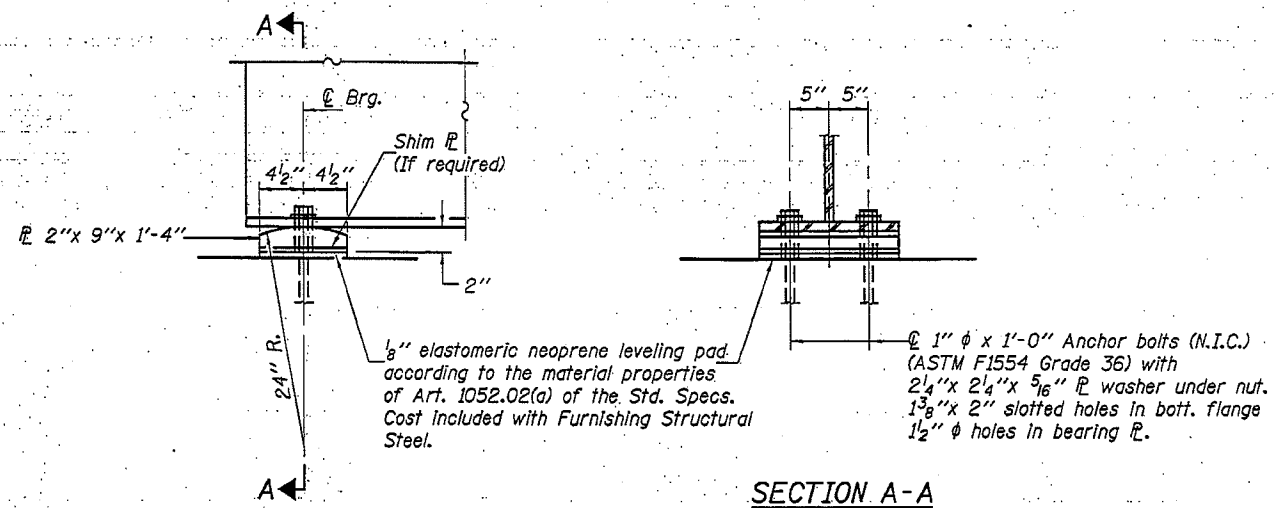


GIRDER ELEVATION

**PRE-FINAL**

Notes:  
 Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.  
 Omit connecting plates on exterior side of exterior girder. All structural steel shall be AASHTO M 270, Grade 50W.  
 All cross frames or diaphragms shall be installed as steel is erected and secured with erection pins and bolts.  
 Two hardened washers shall be required for all oversized holes in diaphragms.  
 Alternate channels C15x50 are permitted to facilitate material acquisition. Calculated weight of structural steel is based on lighter section. The alternate, if utilized, shall be provided at no cost to the department.

DESIGNED - NICHOLAS R. BARNETT	EXAMINED - <i>Joanne F. [Signature]</i>	DATE -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	STRUCTURAL STEEL STRUCTURE NO. 081-0163	F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEET NO.
CHECKED - RAY AHANCHI	PASSED - <i>[Signature]</i>	REVISED			5789	40 BR-F	ROCK ISLAND	
DRAWN - h.t. duong		REVISED			CONTRACT NO. 64J44			
CHECKED - N.R.B. / G.R.A.	ACTING ENGINEER OF BRIDGES AND STRUCTURES	REVISED			ILLINOIS FED. AID PROJECT			
				SHEET NO. 10 OF 13 SHEETS				



ELEVATION AT ABUTMENTS

ABUTMENT BEARING  
(22 Required)

SHIM PLATE LOCATION

	W. Abut.	E. Abut.
Girder 6	3/8"	
Girder 6		3/8"

INTERIOR GIRDER MOMENT TABLE		
0.5 Span		
$I_s$	(in <sup>4</sup> )	15336
$I_c(n)$	(in <sup>4</sup> )	32054
$I_c(3n)$	(in <sup>4</sup> )	23518
$S_s$	(in <sup>3</sup> )	959
$S_c(n)$	(in <sup>3</sup> )	1229
$S_c(3n)$	(in <sup>3</sup> )	1121
DC1	(k/')	1.016
M <sub>DC1</sub>	(k)	1014
DC2	(k/')	.150
M <sub>DC2</sub>	(k)	147
DW	(k/')	0.346
M <sub>DW</sub>	(k)	339
$M_L + IM$	(k)	1331
$M_u$ (Strength I)	(k)	4289
$\phi_r M_n$	(k)	5409
$f_s$ DC1	(ksi)	12.7
$f_s$ DC2	(ksi)	1.6
$f_s$ DW	(ksi)	3.6
$f_s$ ( $L + IM$ )	(ksi)	13.0
$f_s$ (Service II)	(ksi)	34.8
$0.95R_n F_y$	(ksi)	47.5
$V_r$	(k)	52.4

INTERIOR GIRDER REACTION TABLE		
		Abuts.
$R_{DC1}$	(k)	45.8
$R_{DC2}$	(k)	6.6
$R_{DW}$	(k)	15.3
$R_{L + IM}$	(k)	84.0
$R_{Total}$	(k)	151.7

$I_s, S_s$ : Non-composite moment of inertia and section modulus of the steel section used for computing  $f_s$  (Total-Strength I, and Service II) due to non-composite dead loads (in<sup>4</sup> and in<sup>3</sup>).

$I_c(n), S_c(n)$ : Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing  $f_s$  (Total-Strength I, and Service II) in uncracked sections due to short-term composite live loads (in<sup>4</sup> and in<sup>3</sup>).

$I_c(3n), S_c(3n)$ : Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing  $f_s$  (Total-Strength I, and Service II) in uncracked sections, due to long-term composite (superimposed) dead loads (in<sup>4</sup> and in<sup>3</sup>).

DC1: Un-factored non-composite dead load (kips/ft.).

$M_{DC1}$ : Un-factored moment due to non-composite dead load (kip-ft.).

DC2: Un-factored long-term composite (superimposed excluding future wearing surface) dead load (kips/ft.).

$M_{DC2}$ : Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).

DW: Un-factored long-term composite (superimposed future wearing surface only) dead load (kips/ft.).

$M_{DW}$ : Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).

$M_L + IM$ : Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

$M_u$  (Strength I): Factored design moment (kip-ft.).

$1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_L + IM$

$\phi_r M_n$ : Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft.).

$f_s$  DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).

$M_{DC1} / S_{nc}$

$f_s$  DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).

$M_{DC2} / S_c(3n)$  or  $M_{DC2} / S_c(cr)$  as applicable.

$f_s$  DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).

$M_{DW} / S_c(3n)$  or  $M_{DW} / S_c(cr)$  as applicable.

$f_s$  ( $L + IM$ ): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live load plus impact loads as calculated below (ksi).

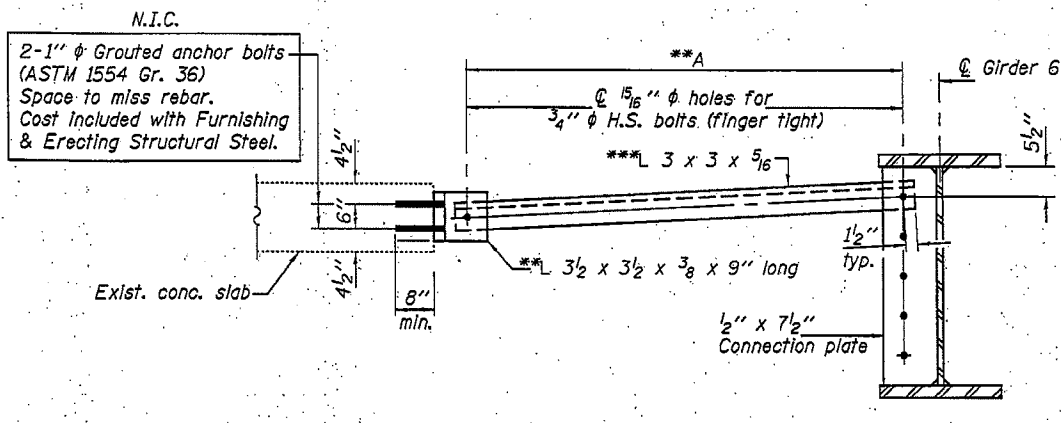
$M_L + IM / S_c(n)$  or  $M_{DW} / S_c(cr)$  as applicable.

$f_s$  (Service II): Sum of stresses as computed below (ksi).

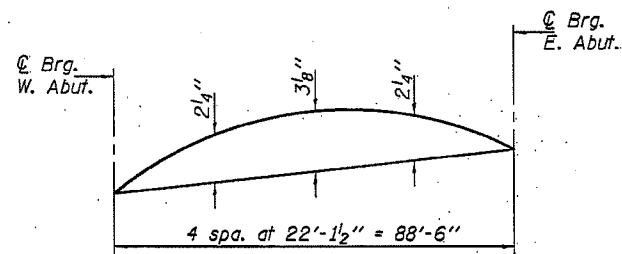
$f_{sDC1} + f_{sDC2} + f_{sDW} + 1.3 f_s (L + IM)$

$0.95R_n F_y$ : Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

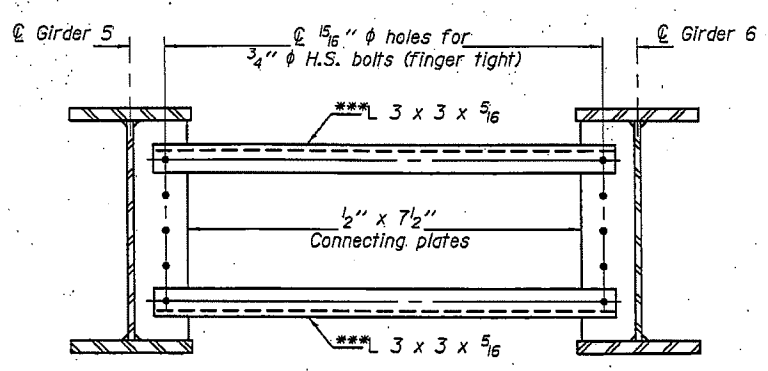
$V_r$ : Maximum factored shear range in span computed according to Article 6.10.10.



TEMPORARY BRACING FOR STAGE I CONSTRUCTION  
(3 Required)



CAMBER DIAGRAM



TEMPORARY BRACING FOR STAGE II CONSTRUCTION  
(3 Required)

Notes:

Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (F<sub>y</sub>=36ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.

Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.

Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

Two hardened washers required for each set of oversized holes.

\*\*The horizontal dimension A between the holes in the diaphragm connection plate and L 3 1/2 x 3 1/2 shall be measured in the field. The holes in the L 3 1/2 x 3 1/2 shall be field drilled at this dimension. Cost included with Furnishing Structural Steel.

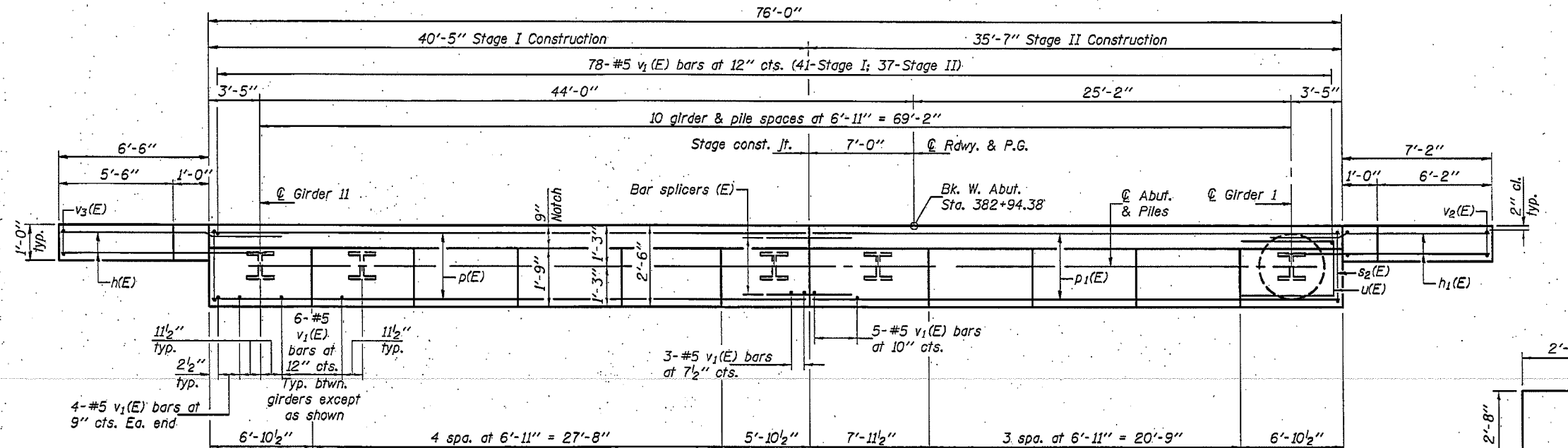
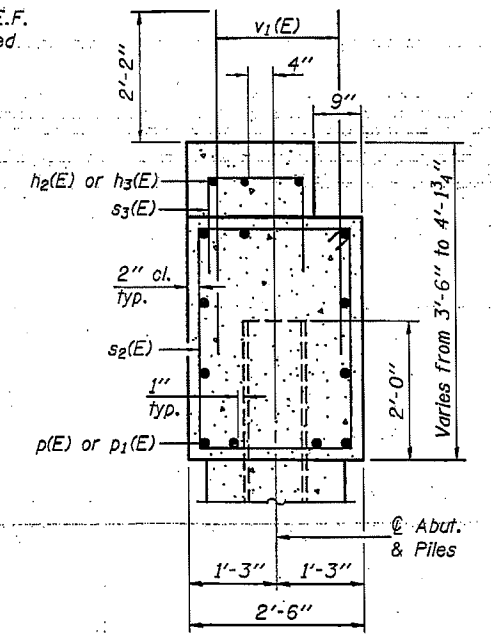
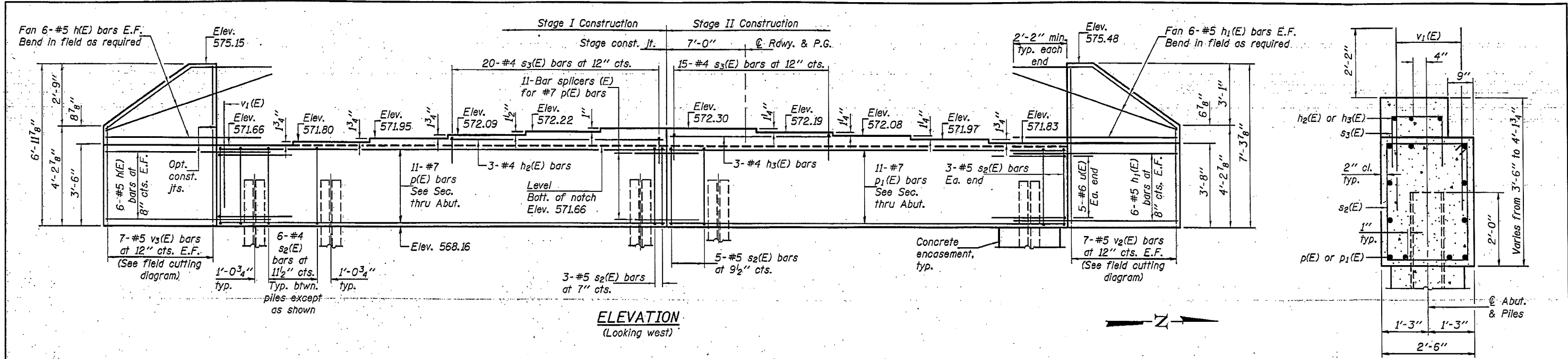
\*\*\*L 3 x 3 x 5/16 to be used as temporary during Stage I and Stage II deck pour. Remove and replace with diaphragm D after Stage II deck pour is complete. Use between Girders 5 & 6 only. Cost included with Furnishing Structural Steel.

PRE-FINAL

\*TOP OF WEB ELEVATIONS

	@ Brg. W. Abut.	@ Brg. E. Abut.
Girder 1	574.50	574.95
Girder 2	574.64	575.09
Girder 3	574.75	575.19
Girder 4	574.86	575.30
Girder 5	574.97	575.41
Girder 6	575.00	575.44
Girder 7	574.89	575.33
Girder 8	574.76	575.20
Girder 9	574.62	575.06
Girder 10	574.47	574.92
Girder 11	574.33	574.77

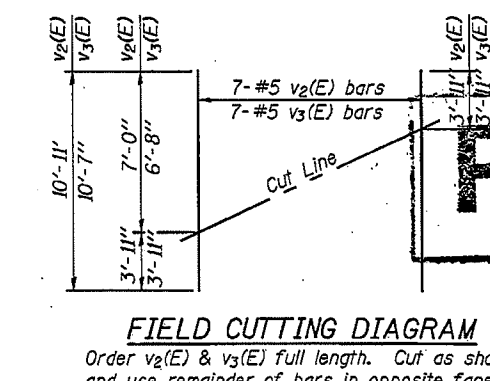
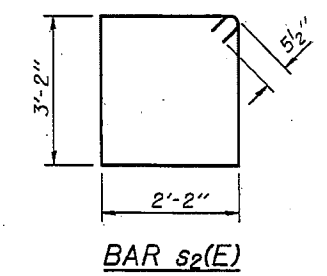
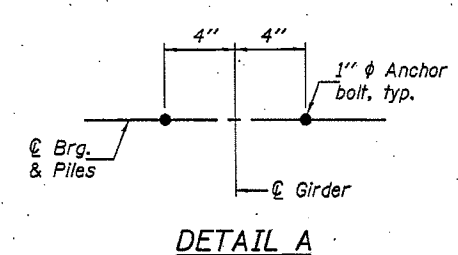
\*For fabrication use only.



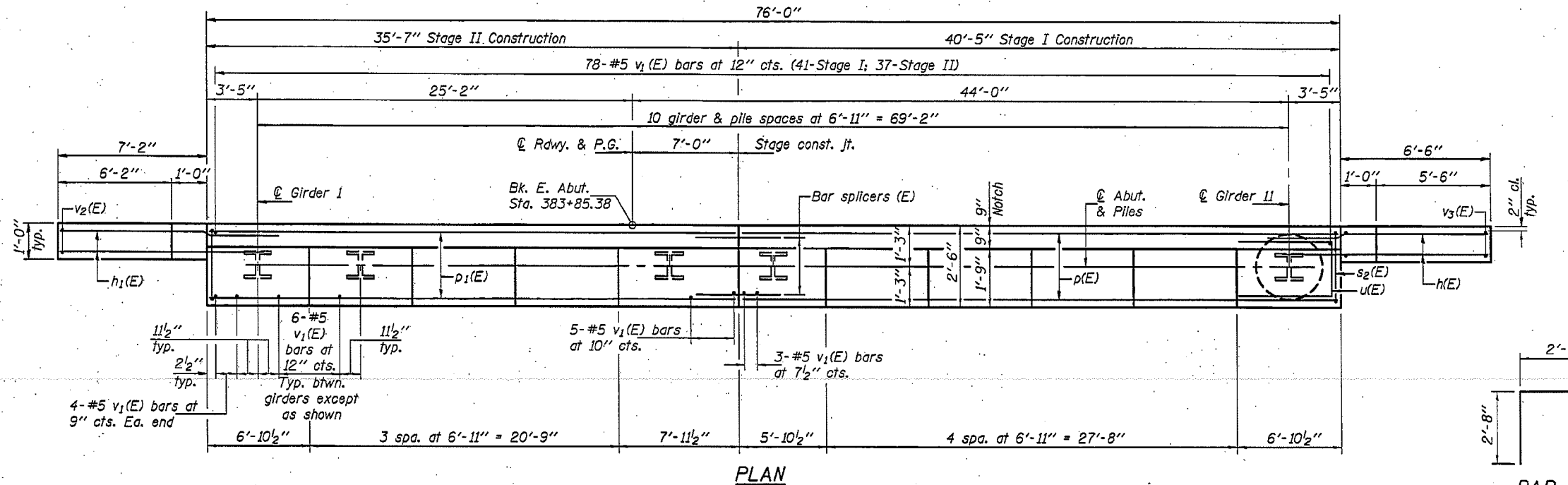
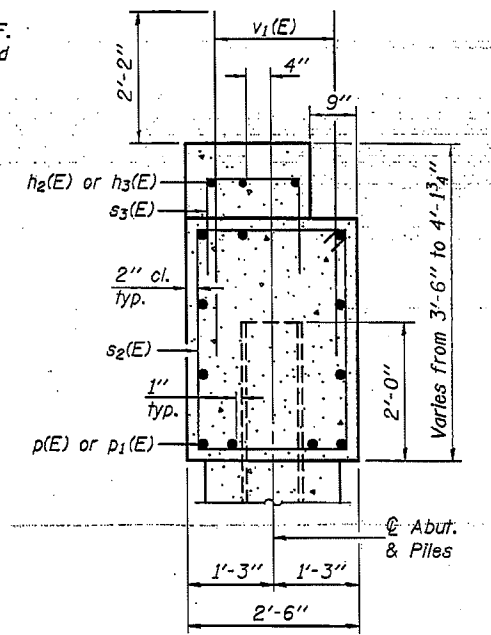
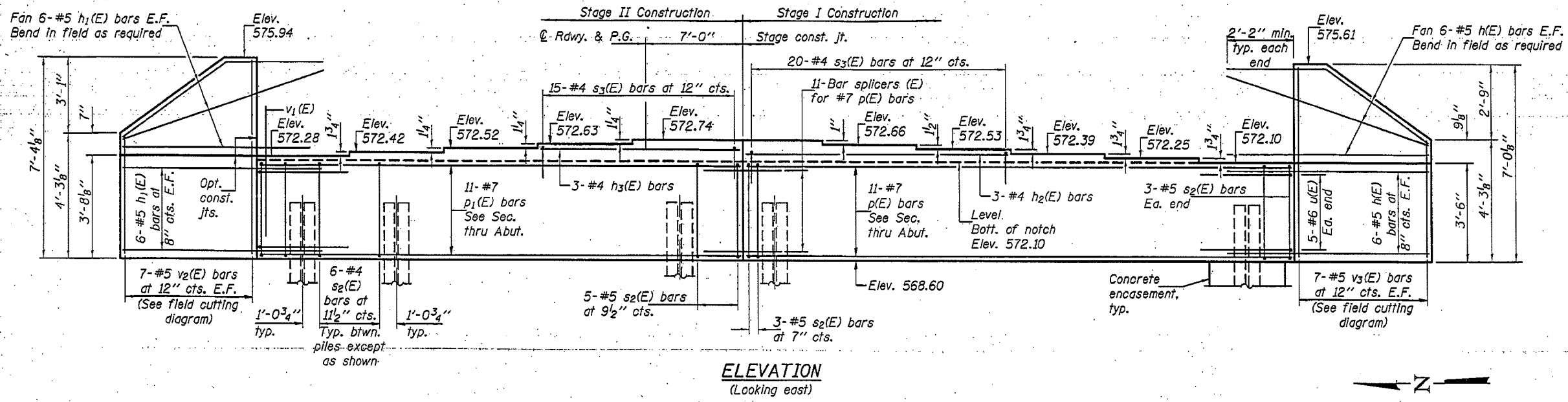
**BILL OF MATERIAL**

Bar No.	Size	Length	Shape
h(E)	24 #5	9'-2"	—
h1(E)	24 #5	9'-11"	—
h2(E)	3 #4	19'-5"	—
h3(E)	3 #4	14'-7"	—
p(E)	11 #7	40'-1"	—
p1(E)	11 #7	35'-3"	—
s2(E)	68 #4	11'-7"	□
s3(E)	35 #4	5'-9"	□
u(E)	10 #6	7'-5"	□
v1(E)	148 #5	4'-4"	—
v2(E)	7 #5	10'-11"	—
v3(E)	7 #5	10'-7"	—
Structure Excavation	Cu. Yd.	59.0	
Concrete Structures	Cu. Yd.	29.4	
Reinforcement Bars, Epoxy Coated	Pound	3840	
Furnishing Steel Piles HP10x42	Foot	253	
Driving Piles	Foot	253	
Concrete Encasement	Cu. Yd.	3.8	
Anchor Bolts 1"	Each	22	

**PILE DATA**  
 Type: Steel HP10x42  
 Nominal Required Bearing: 335 Kips  
 Factored Resistance Available: 184 Kips  
 Est. Length: 23'  
 No. Production Piles: 11  
 No. Test Piles: 0



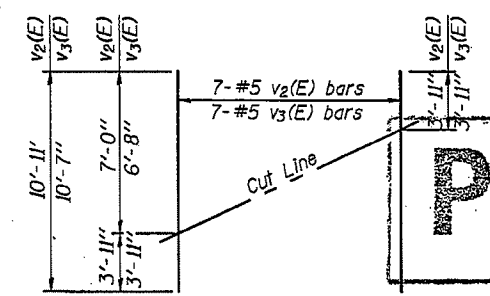
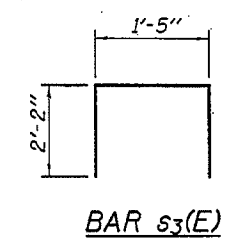
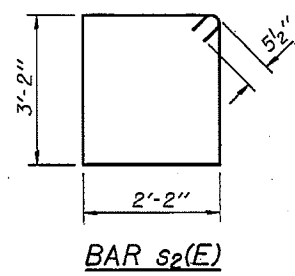
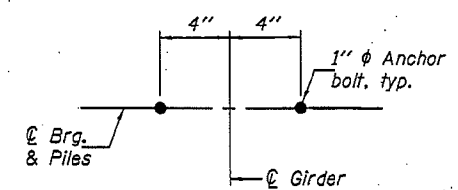
**PRE-FINAL**



**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h(E)	24	#5	9'-2"	
h1(E)	24	#5	9'-11"	
h2(E)	3	#4	19'-5"	
h3(E)	3	#4	14'-7"	
p(E)	11	#7	40'-1"	
p1(E)	11	#7	35'-3"	
s2(E)	68	#4	11'-7"	□
s3(E)	35	#4	5'-9"	□
u(E)	10	#6	7'-5"	□
v1(E)	148	#5	4'-4"	
v2(E)	7	#5	10'-11"	
v3(E)	7	#5	10'-7"	
Structure Excavation		Cu. Yd.	59.0	
Concrete Structures		Cu. Yd.	29.5	
Reinforcement Bars, Epoxy Coated		Pound	3840	
Furnishing Steel Piles HP10x42		Foot	230	
Driving Piles		Foot	230	
Test Pile Steel HP10x42		Each	1	
Concrete Encasement		Cu. Yd.	3.8	
Anchor Bolts 1"		Each	22	

**PILE DATA**  
 Type: Steel HP10x42  
 Nominal Required Bearing: 335 Kips  
 Factored Resistance Available: 184 Kips  
 Est. Length: 23'  
 No. Production Piles: 10  
 No. Test Piles: 1



**FIELD CUTTING DIAGRAM**  
 Order v2(E) & v3(E) full length. Cut as shown and use remainder of bars in opposite face.

**PRE-TRIAL**