

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-2-F	LAKE	28	1
FED. ROAD DIST. NO.	ILLINOIS	CONTRACT NO. 60P54		

D-91-199-00

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATIONS
DIVISION OF HIGHWAYS

**PROPOSED
HIGHWAY PLANS**

F.A.P. ROUTE 330 (IL ROUTE 21 – MILWAUKEE AVENUE)
OVER BULL CREEK
(NORTH OF IL-137)
SECTION: 128R-2-F
BEAMS AND BEARINGS FABRICATION
LAKE COUNTY
C-91-574-11

PROJECT LOCATED IN LIBERTYVILLE
TOWNSHIP, LAKE COUNTY, IL

FOR INDEX OF SHEETS, SEE SHEET NO. 2

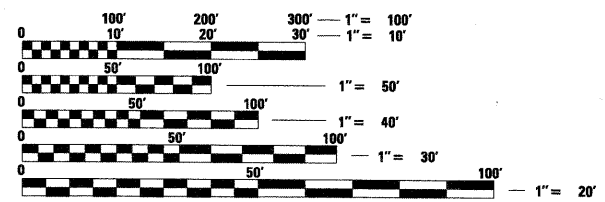
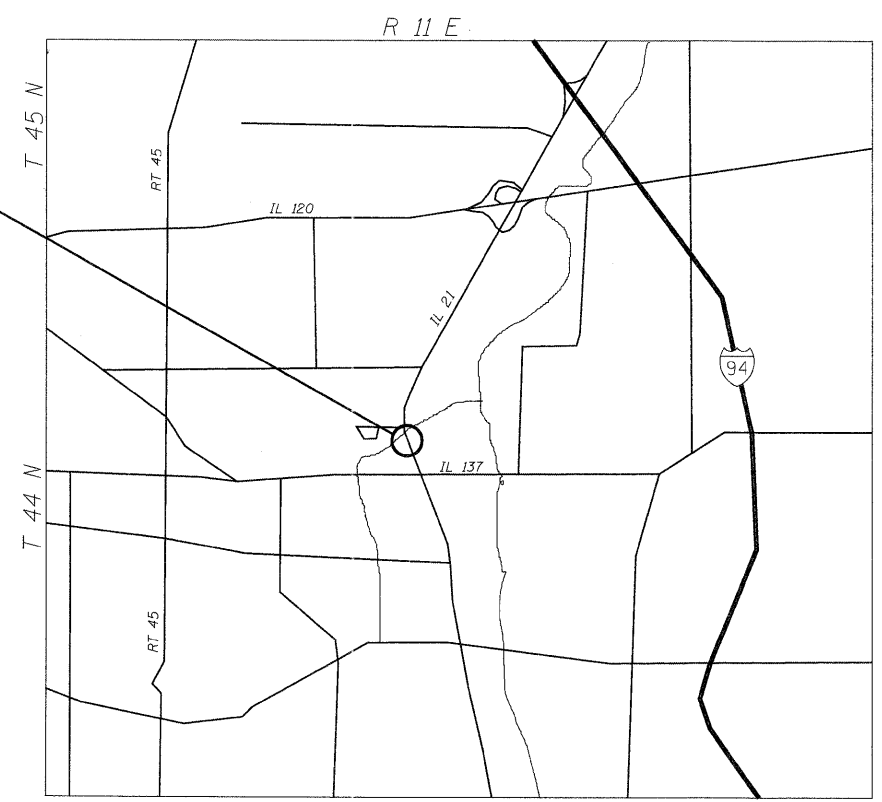
DESIGN DESIGNATION
ARTERIAL

ADT 28000 (2010)
POSTED SPEED LIMIT 45 MPH
DESIGN SPEED LIMIT 45 MPH

EXISTING SN 049-0027
PROPOSED SN 049-0199



IL 21 BRIDGE OVER BULL CREEK
0.5 MI NORTH OF IL ROUTE 137
PROPOSED BEAMS AND BEARINGS FABRICATION
EXISTING S.N. 049-0027
PROPOSED S.N. 049-0199
EXISTING BRIDGE LENGTH 32.83 FT
PROPOSED BRIDGE LENGTH 75.0 FT
STA. 248+40.34 TO STA. 249+15.35



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.

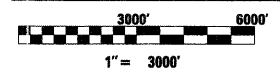
J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123
OR 811

PROJECT MANAGER: SERIN KELLER (847) 705-4556
PROJECT ENGINEER: TIMOTHY SCHMIDT (847) 705-4482

CONTRACT NO. 60P54

LIBERTYVILLE TOWNSHIP

LOCATION MAP



NET AND GROSS LENGTH OF PROJECT = 75.0' = 0.014 MI

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED MAY 18, 20 11

Dina M. O'Keefe DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

July 1 20 11
Scott E. Stitt, P.E. acting ENGINEER OF DESIGN AND ENVIRONMENT

July 1 20 11
Christine M. Reed DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS

LONGO, INC.
CONSULTING ENGINEERS
1560 WALL ST, SUITE 222
NAPERVILLE, ILLINOIS 60563 PH: (630) 577-9100

WILLIAM H. REED
062-047827
REGISTERED
PROFESSIONAL
ENGINEER
ILLINOIS
William H. Reed
Expires 11-30-11

MACTEC
Engineering and Consulting, Inc.
8745 W. Higgins Rd., Suite 300
Chicago, IL 60631

JIE YANG
081-182255
REGISTERED PROFESSIONAL ENGINEER
STATE OF ILLINOIS
Expires 11-30-2012

SHEET NO. TITLE

1 TITLE SHEET
 2 INDEX OF SHEETS, SUMMARY OF QUANTITIES AND HIGHWAY STANDARDS
 3-28 BRIDGE PLANS

SUMMARY OF QUANTITIES			URBAN 100% COUNTY	XX% FEDERAL, XX% STATE	
CODE NO.	ITEM	UNIT	TOTAL	BRIDGE 0011	
* 50500205	FURNISHING STRUCTURAL STEEL	L SUM	1	1	
52100010	ELASTOMERIC BEARING ASSEMBLY, TYPE I	EACH	11	11	
* 50500455	STORAGE OF STRUCTURAL STEEL	CAL DAY	120	120	
52100300	STORAGE OF ELASTOMERIC BEARING ASSEMBLIES	CAL DAY	120	120	

* SPECIAL PROVISION

STATE STANDARDS

SHEET NO. TITLE

000001-06 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS

COMMITMENTS

NONE

LOVCO, INC.
 CONSULTING ENGINEERS
 1560 WALL ST, SUITE 222
 NAPERVILLE, ILLINOIS 60563 PH (630) 577-9100

USER NAME =	DESIGNED - ST	REVISED -
	CHECKED - MJY	REVISED -
PLOT SCALE =	DRAWN - ST	REVISED -
PLOT DATE = 05/18/2011	CHECKED - MJY	REVISED -

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**INDEX OF SHEETS, SUMMARY OF QUANTITIES AND HIGHWAY STANDARDS
 STRUCTURE NO. 049-0199**

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-3	LAKE	28	2
CONTRACT NO. 60P54				
ILLINOIS FED. AID PROJECT				

Rev.

B.M.: Chisled box on top of S.E. wingwall of bridge. Elevation 669.64

Existing Structure: SN 049-0027 built as SBI Route 172, Section 128 in 1928 and rehabilitated in 1976. The structure is a simple span with precast concrete channel beams and closed type abutments. Skewed 24 degrees right hand forward 32'-10" Bk.-Bk. abutments and 41'-3" O.-O. deck.

Scope of Work:: Existing superstructure is to be removed. Existing substructure is to be removed to 1 ft. below the existing groundline. A wider and longer new substructure is to be built. Traffic to be maintained using stage construction.

No Salvage.

LOADING HL - 93

Allow 50#/sq. ft. For future wearing surface.

DESIGN SPECIFICATIONS

2007 AASHTO LRFD Bridge Design Specifications with 2008 and 2009 Interims

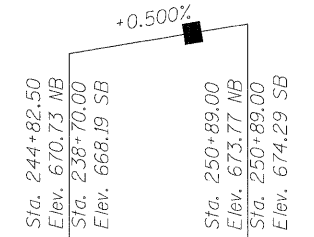
DESIGN STRESSES

FIELD UNITS

$f'_c = 3,500$ psi
 $f_y = 60,000$ psi (Reinforcement)
 $f_y = 50,000$ psi (M270 Grade 50W)

SEISMIC DATA

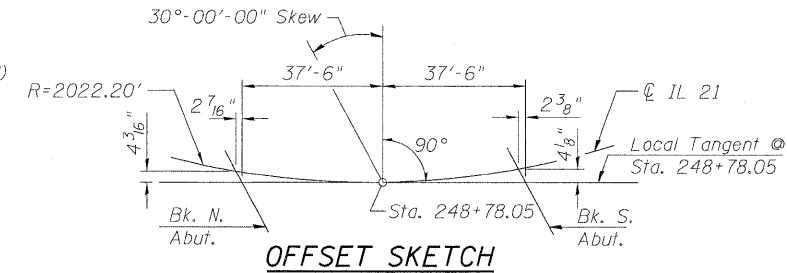
Seismic Performance Zone (SPZ) = 1
 Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.077g
 Design Spectral Acceleration at 0.2 sec. (S_{D5}) = 0.128g
 Soil Site Class = D



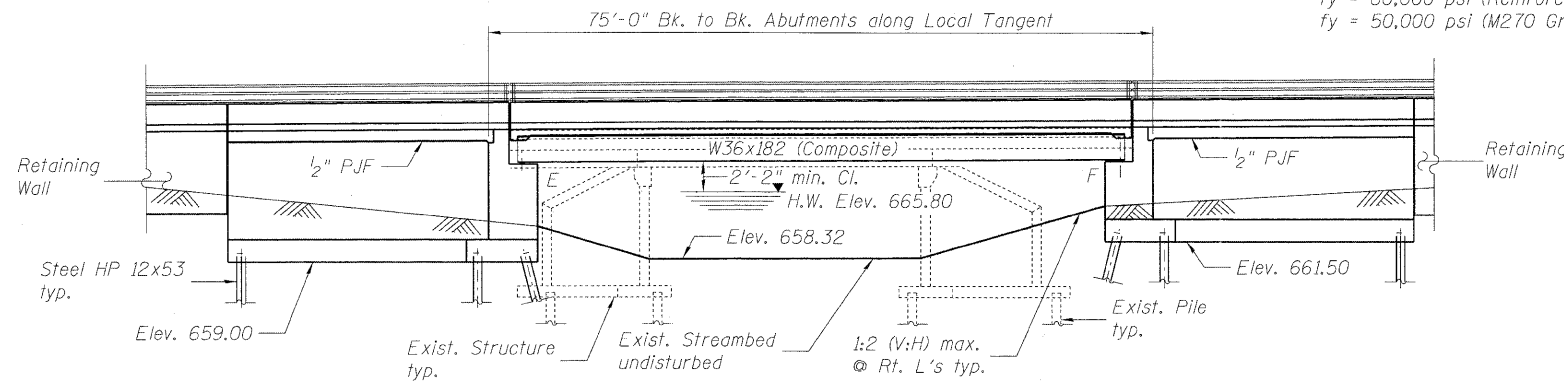
PROFILE GRADE

CURVE DATA

(@ IL 21)
 $\Delta = 46^\circ-11'-38''$
 $D = 2^\circ-50'-00''$
 $T = 862.41'$
 $L = 1,630.37'$
 $E = 176.22'$
 $R = 2,022.20'$
 $S.E. = 2.90\%$
 P.C. Sta. = 243+66.70
 P.T. Sta. = 259+97.07
 P.I. Sta. = 252+29.11



OFFSET SKETCH



ELEVATION

STATION 248+80
 BUILT 20... BY
 STATE OF ILLINOIS
 F.A.P. 330 SEC. 128R-3
 LOADING HL-93
 STRUCTURE NO. 049-0199

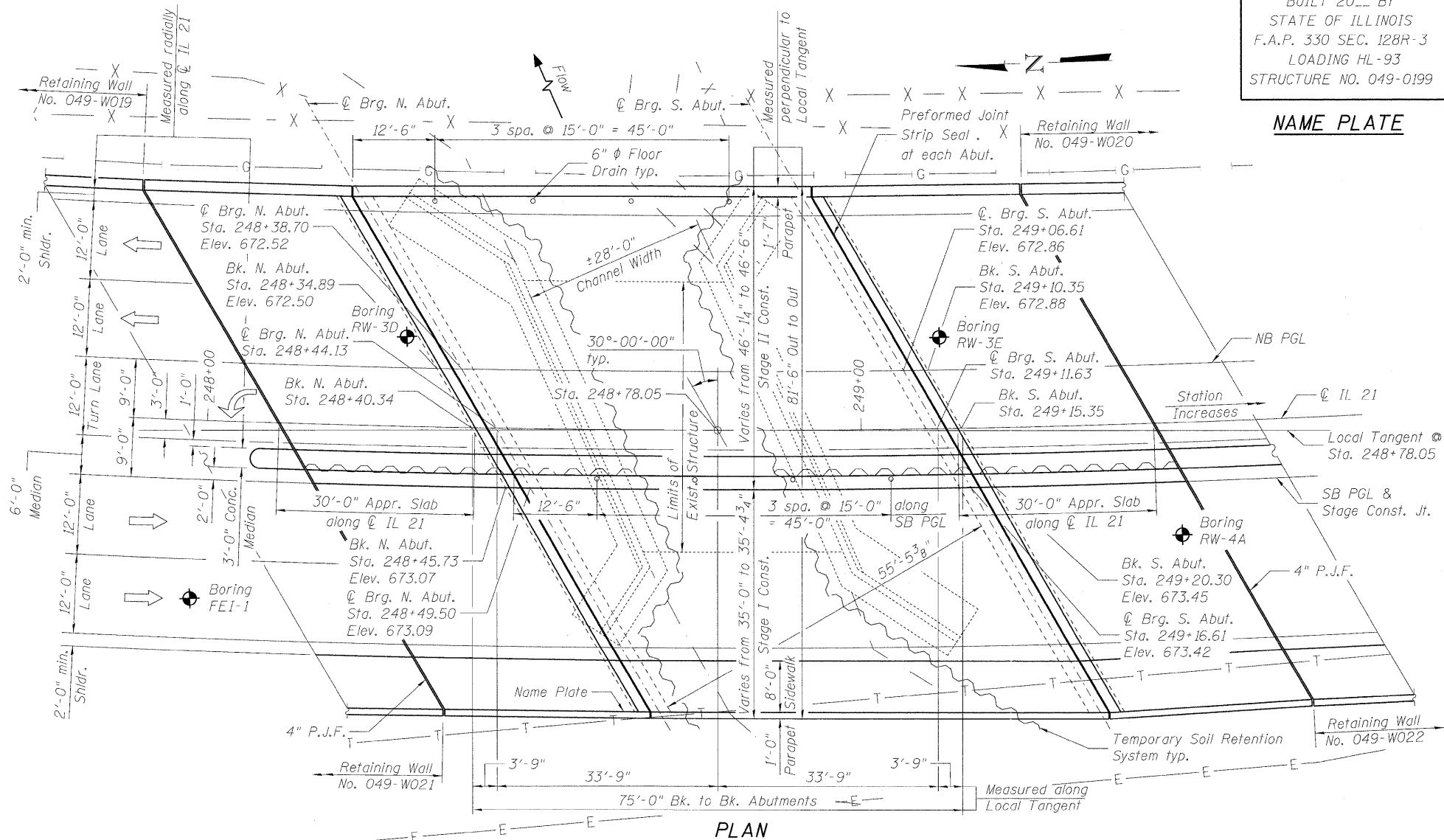
NAME PLATE

Drainage Area = 12.1 Sq. Mi. Low Grade Elev. 668.50 @ Sta. 238+25.00

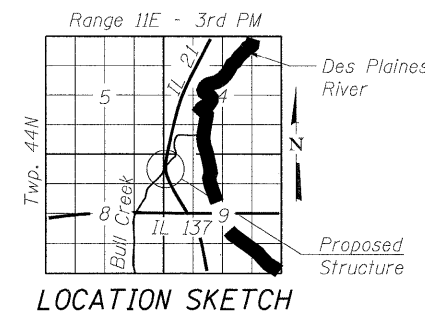
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Head - Ft.		Headwater El.		
			Exist.	Prop.	H.W.E. Exist.	Prop.	Exist.	Prop.	
Design	10	535	134	213	664.2	0.4	0.0	664.6	664.2
Base	50	1087	177	301	665.8	1.3	0.3	667.1	666.1
Overtopping	>500				666.4	1.7	0.4	668.1	666.8
Max. Calc.	500	2400	228	432	667.7	2.1	0.7	669.8	668.5

DESIGN SCOUR ELEVATION

N. Abut.	S. Abut.
Elev. 654.00	Elev. 656.00



PLAN



LOCATION SKETCH

APPROVED
 FOR STRUCTURAL ADEQUACY ONLY
Dr. Carl P... Engineer of Bridges and Structures

GENERAL PLAN AND ELEVATION
ILLINOIS ROUTE 21 OVER BULL CREEK
 F.A.P. 330 SEC. 128R-3
 LAKE COUNTY
 STATION 248+78.05
 STRUCTURE NO. 049-0199



FILE NAME = #FILE#	USER NAME =	DESIGNED - JY	REVISIONS -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL PLAN AND ELEVATION STRUCTURE NO. 049-0199	F.A.P. RTE. = 330	SECTION = 128R-2-F	COUNTY = LAKE	TOTAL SHEETS = 28	SHEET NO. = 3	
	PLOT SCALE =	CHECKED - WPM	REVISIONS -			CONTRACT NO. 60P54					
	PLOT DATE = 12/28/2018	DRAWN - JY	REVISIONS -			ILLINOIS FED. AID PROJECT					
		CHECKED - WPM	REVISIONS -			SHEET NO. 1 OF 43 SHEETS					

GENERAL NOTES

Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts in painted areas and M164 Type 3 in unpainted areas. Bolts - 7/8"φ, holes - 15/16"φ, unless otherwise noted.

Calculated weight of Structural Steel = 153,700 lbs (50W)

All structural steel shall be AASHTO M 270 Grade 50W except expansion joints which shall be AASHTO M 270 Grade 36. All structural steel shall be cleaned as specified in the Special Provision for "Surface Preparation and Painting Requirements for Weathering Steel".

No field welding is permitted except as specified in the contract documents.

Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60. See Special Provisions.

Reinforcement bars designated (E) shall be epoxy coated.

Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

Concrete Sealer shall be applied to the designated areas of the exposed surfaces of backwalls, bridge seats, and front faces of pile caps under abutment deck joints.

Concrete Superstructure (or Concrete Wearing Surface) shall have a seven day minimum cure.

Slipforming of parapets is not allowed.

All structural steel and exposed surfaces of bearings within a distance of 9 ft. each way from the deck joints shall be painted as specified in the Special Provision for "Surface Preparation and Painting Requirements for Weathering Steel".

The embankment configuration shown shall be the minimum that must be placed and compacted prior to construction of the abutments.

Backfill shall be placed behind the abutment after the superstructure has been poured and falsework removed. See Article 502.10 of the Standard Specifications.

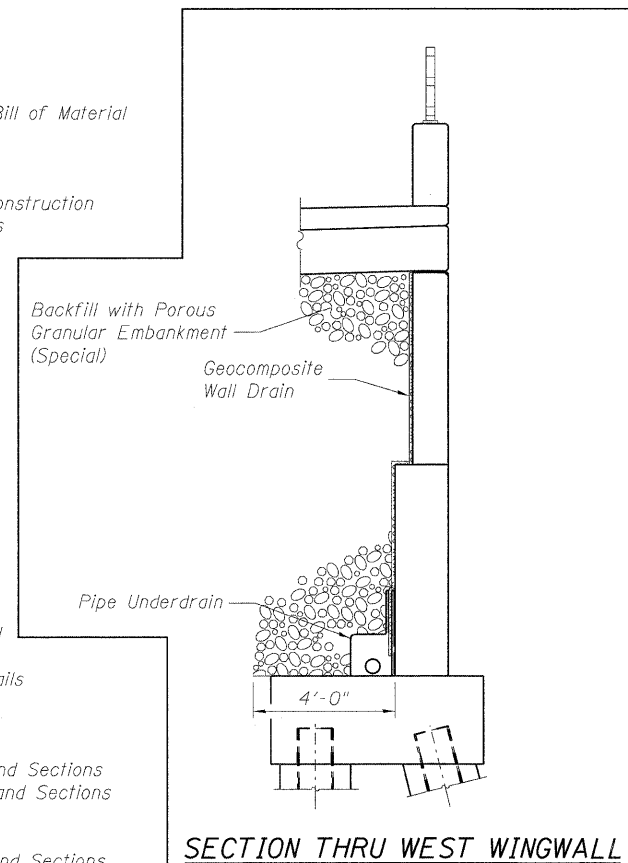
Excavation behind existing abutment walls shall be performed to balance front and back soil pressure before removing the existing superstructure. The Contractor shall sawcut the upper portion of the existing abutment at the stage removal line before Stage I removal to ensure the remaining portion will not be prematurely damaged.

There will be no in-stream work April 20th through June 15th of any year for the Des Plaines Tributary No. 1 and Bull Creek.

The existing load post on the bridge will remain during construction.

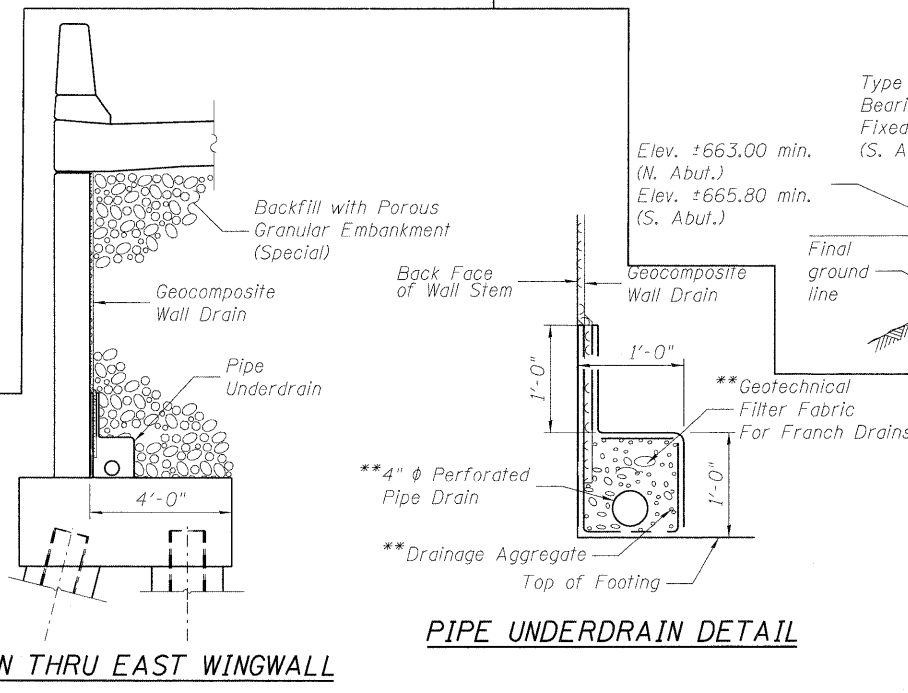
INDEX OF DRAWINGS

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- 4 Substructure Excavation Details
- 5 Stage Construction - Superstructure
- 6 Temporary Concrete Barrier For Stage Construction
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- 8 Top of Slab Elevations - 1 of 2
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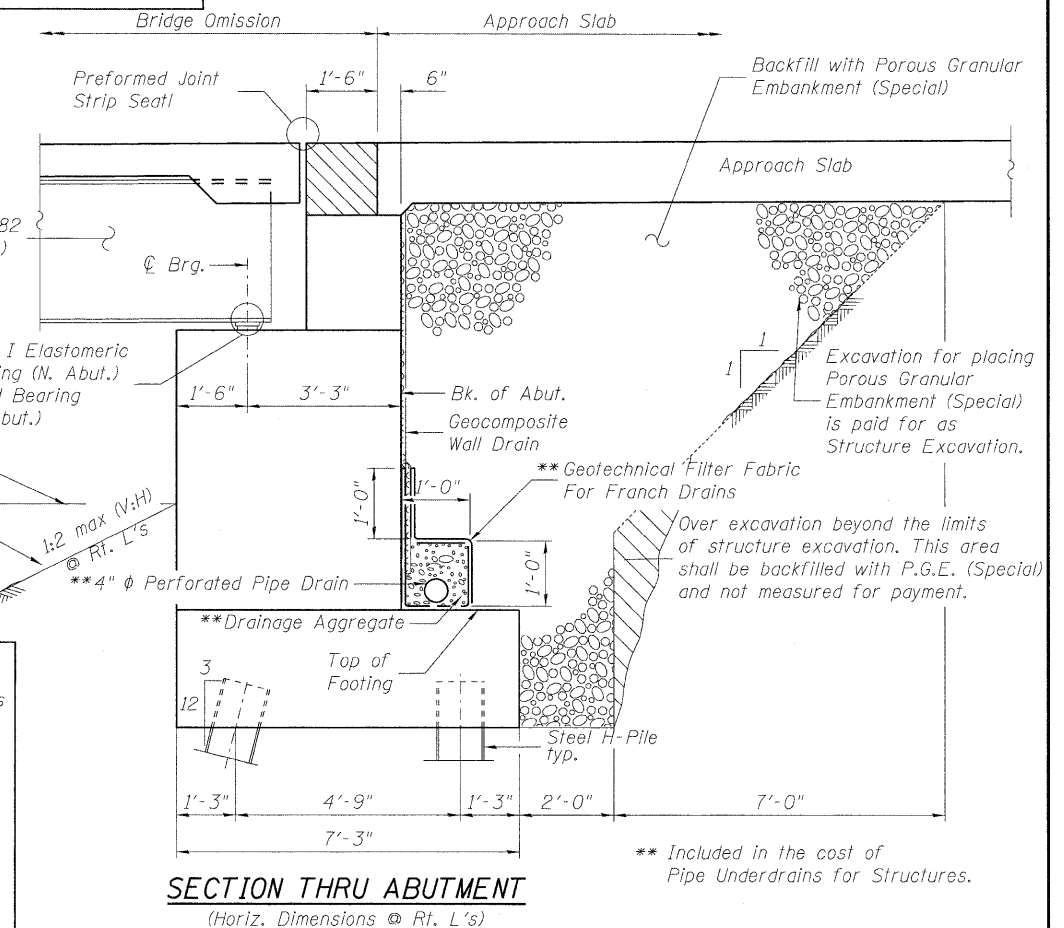


SECTION THRU WEST WINGWALL

FOR INFORMATION ONLY



PIPE UNDERDRAIN DETAIL



SECTION THRU ABUTMENT

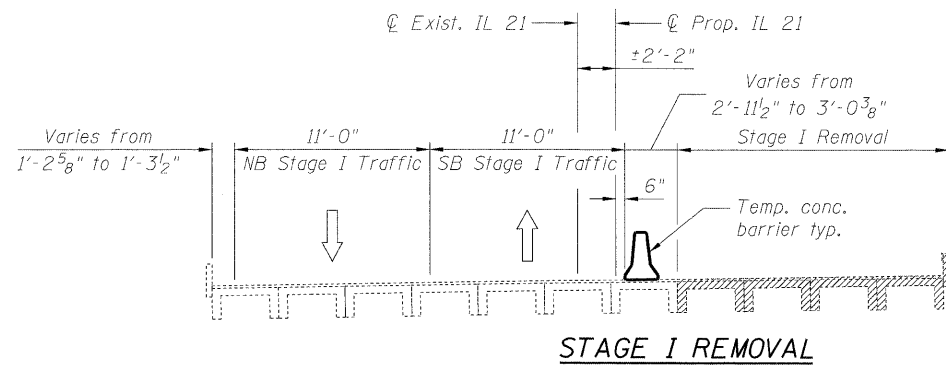
(Horiz. Dimensions @ Rt. L's)

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

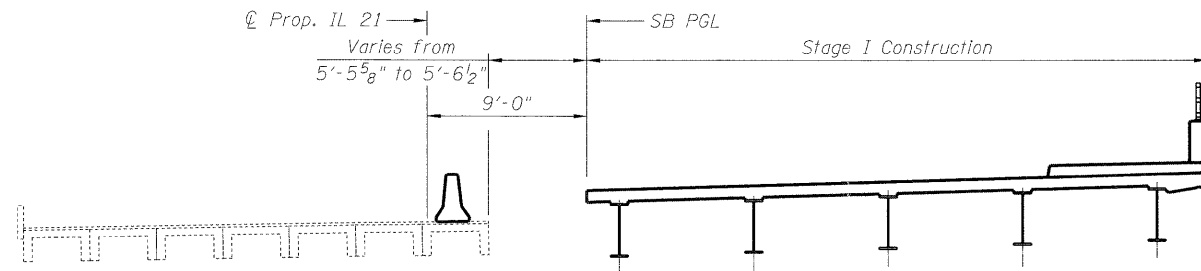
*** - THIS WORK IS NOT IN THE FABRICATION CONTRACT AND SHEET IS NOT INCLUDED IN THESE PLANS.

THESE PLANS ARE FOR THE FABRICATION OF THE STRUCTURAL STEEL AND BEARINGS. ALL WORK SHOWN THAT IS NOT RELATED TO THE FABRICATION IS FOR INFORMATION ONLY. IT IS NOT INCLUDED IN THIS CONTRACT AND IS IDENTIFIED AS "NOT INCLUDED IN THIS CONTRACT" OR "FOR INFORMATION ONLY."

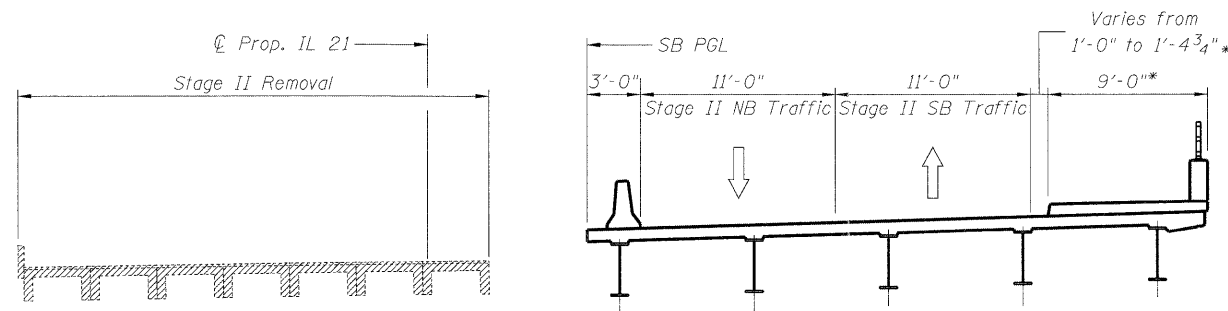




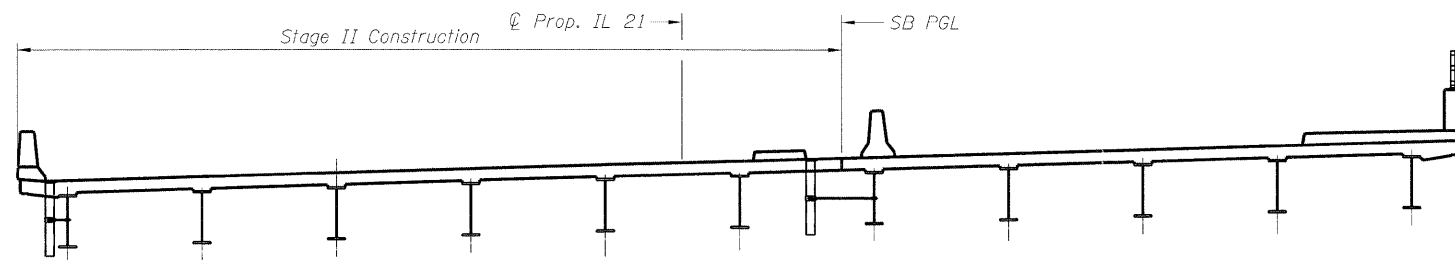
STAGE I REMOVAL



STAGE I CONSTRUCTION



STAGE II REMOVAL



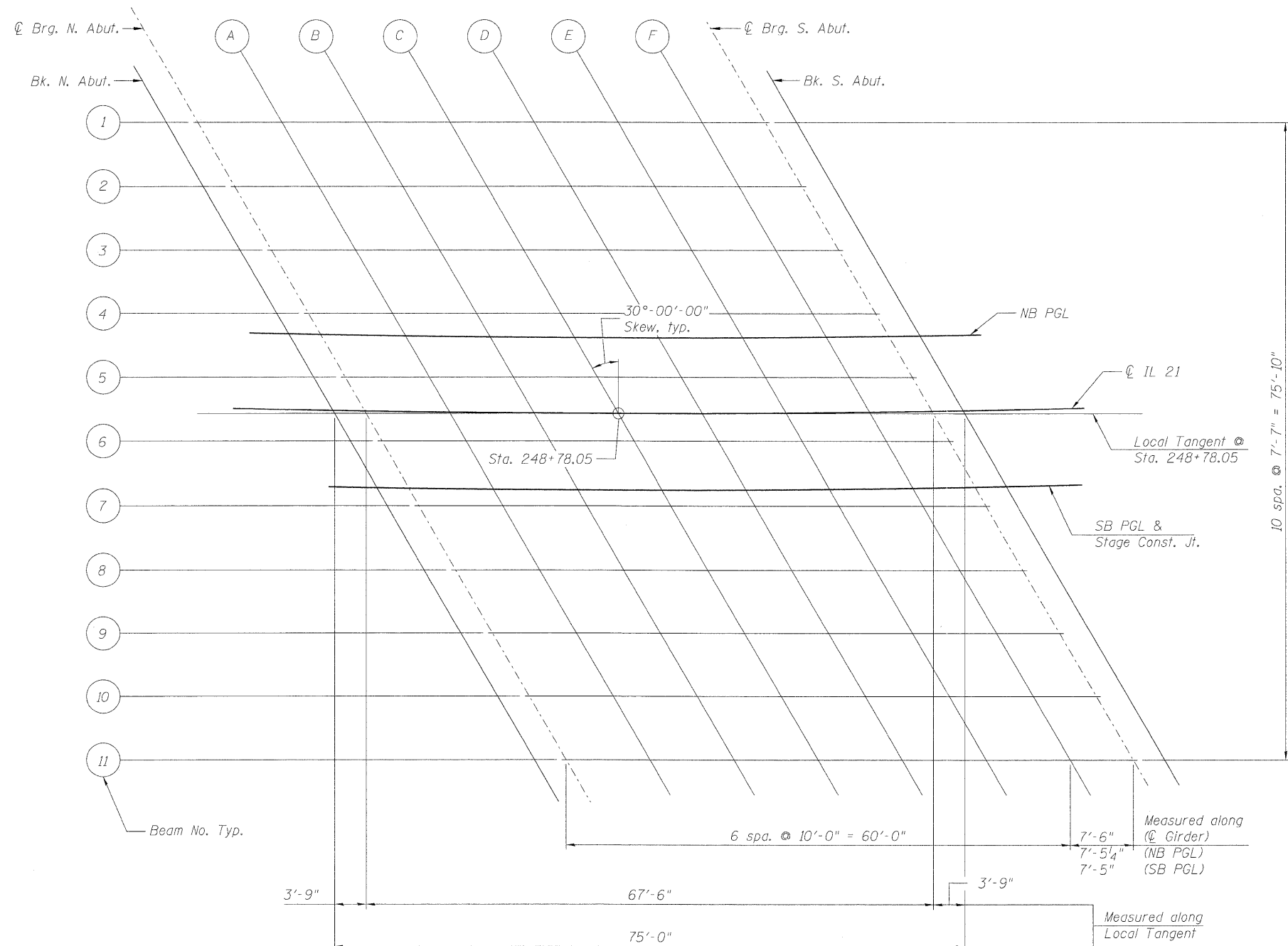
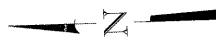
STAGE II CONSTRUCTION

Notes:

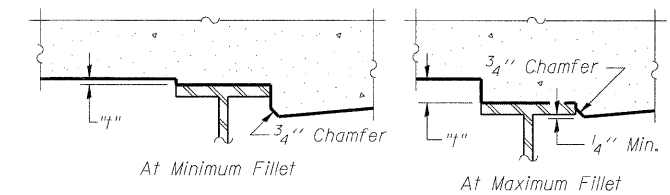
1. All staging cross sections are looking South.
2. For quantity of Temporary Concrete Barrier, see roadway plans.
3. Hatched areas indicate Removal of Existing Superstructures.
- * 4. All horizontal dimensions are measured radially along proposed @ IL 21 unless denoted with "*", which is measured perpendicular to the Local Tangent @ Sta. 248+78.05.

FOR INFORMATION ONLY **MACTEC**

FILE NAME - *FILEL.S	USER NAME =	DESIGNED - JY	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	STAGE CONSTRUCTION - SUPERSTRUCTURE STRUCTURE NO. 049-0199	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE =	CHECKED - WPM	REVISED -			330	128R-2-F	LAKE	28	5
	PLOT DATE = 12/20/2010	DRAWN - JY	REVISED -			CONTRACT NO. 60P54				
		CHECKED - WPM	REVISED -			ILLINOIS FED. AID PROJECT				
SHEET NO. 5 OF 43 SHEETS										

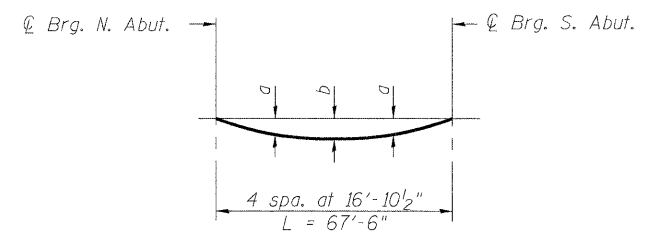


PLAN



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 8 and 9 of 43, minus slab thickness, equals the fillet heights "t" above top flange of beams.

FILLET HEIGHTS



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 8 and 9 of 43.

Beam No.	a	b
1 thru 6	7/8"	1 1/4"
7 thru 11	1"	1 1/2"

FOR INFORMATION ONLY **MACTEC**

FILE NAME = #FILEL4	USER NAME =	DESIGNED - KO	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	TOP OF SLAB ELEVATIONS - PLAN AND DETAILS STRUCTURE NO. 049-0199	F.A.P. RTE. = 330	SECTION = 128R-2-F	COUNTY = LAKE	TOTAL SHEETS = 28	SHEET NO. = 6
	PLOT SCALE =	DRAWN - KO	REVISED -			CONTRACT NO. 60P54				
PLOT DATE = 12/20/2010	CHECKED - WPM	REVISED -	SHEET NO. 7 OF 43 SHEETS			ILLINOIS FED. AID PROJECT				

BEAM 1

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	248+19.54	-33.89	671.70	671.70
CL. Brg. N. Abut.	248+23.36	-33.94	671.72	671.72
A	248+33.53	-34.18	671.76	671.81
B	248+43.70	-34.38	671.81	671.89
C	248+53.87	-34.52	671.85	671.96
D	248+64.04	-34.62	671.90	672.00
E	248+74.21	-34.66	671.95	672.03
F	248+84.39	-34.66	672.00	672.04
CL. Brg. S. Abut.	248+92.01	-34.62	672.04	672.04
BK. S. Abut.	248+95.83	-34.59	672.06	672.06

BEAM 2

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	248+24.20	-26.38	671.94	671.94
CL. Brg. N. Abut.	248+28.00	-26.47	671.96	671.96
A	248+38.13	-26.69	672.00	672.05
B	248+48.26	-26.87	672.05	672.14
C	248+58.39	-26.99	672.09	672.21
D	248+68.52	-27.06	672.14	672.25
E	248+78.65	-27.08	672.19	672.28
F	248+88.78	-27.06	672.24	672.28
CL. Brg. S. Abut.	248+96.37	-27.00	672.28	672.28
BK. S. Abut.	249+00.18	-26.96	672.30	672.30

BEAM 3

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	248+28.82	-18.91	672.18	672.18
CL. Brg. N. Abut.	248+32.61	-18.99	672.20	672.20
A	248+42.72	-19.19	672.24	672.29
B	248+52.82	-19.34	672.29	672.38
C	248+62.93	-19.44	672.34	672.45
D	248+73.04	-19.49	672.38	672.49
E	248+83.15	-19.49	672.44	672.52
F	248+93.26	-19.44	672.49	672.53
CL. Brg. S. Abut.	249+00.82	-19.37	672.53	672.53
BK. S. Abut.	249+04.61	-19.33	672.53	672.53

BEAM 4

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	248+33.41	-11.42	672.42	672.42
CL. Brg. N. Abut.	248+37.18	-11.51	672.44	672.44
A	248+47.24	-11.68	672.48	672.53
B	248+57.29	-11.81	672.53	672.62
C	248+67.35	-11.89	672.58	672.69
D	248+77.40	-11.92	672.63	672.73
E	248+87.46	-11.89	672.68	672.76
F	248+97.51	-11.82	672.73	672.77
CL. Brg. S. Abut.	249+05.05	-11.74	672.77	672.77
BK. S. Abut.	249+08.83	-11.68	672.79	672.79

NB PGL

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	248+34.89	-9.00	672.50	672.50
CL. Brg. N. Abut.	248+38.70	-9.00	672.52	672.52
A	248+48.85	-9.00	672.57	672.62
B	248+58.97	-9.00	672.62	672.71
C	248+69.05	-9.00	672.67	672.78
D	248+79.11	-9.00	672.72	672.83
E	248+89.13	-9.00	672.77	672.85
F	248+99.13	-9.00	672.82	672.86
CL. Brg. S. Abut.	249+06.61	-9.00	672.86	672.86
BK. S. Abut.	249+10.35	-9.00	672.88	672.88

BEAM 5

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	248+37.96	-3.94	672.66	672.66
CL. Brg. N. Abut.	248+41.69	-4.01	672.68	672.68
A	248+51.71	-4.16	672.72	672.77
B	248+61.73	-4.27	672.77	672.86
C	248+71.75	-4.32	672.82	672.93
D	248+81.77	-4.33	672.87	672.98
E	248+91.79	-4.29	672.92	673.00
F	249+01.81	-4.19	672.97	673.01
CL. Brg. S. Abut.	249+09.32	-4.09	673.01	673.01
BK. S. Abut.	249+13.08	-4.03	673.03	673.03

BEAM 6

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	248+42.48	3.56	672.90	672.90
CL. Brg. N. Abut.	248+46.22	3.50	672.92	672.92
A	248+56.21	3.37	672.96	673.02
B	248+66.19	3.28	673.01	673.10
C	248+76.17	3.25	673.06	673.17
D	248+86.15	3.27	673.11	673.22
E	248+96.13	3.33	673.16	673.25
F	249+06.11	3.45	673.22	673.25
CL. Brg. S. Abut.	249+13.59	3.56	673.26	673.26
BK. S. Abut.	249+17.34	3.63	673.28	673.28

SB PGL & STAGE CONSTRUCTION JOINT

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	248+45.73	9.00	673.07	673.07
CL. Brg. N. Abut.	248+49.50	9.00	673.09	673.09
A	248+59.53	9.00	673.14	673.20
B	248+69.52	9.00	673.19	673.28
C	248+79.49	9.00	673.24	673.35
D	248+89.43	9.00	673.29	673.40
E	248+99.34	9.00	673.34	673.43
F	249+09.22	9.00	673.39	673.43
CL. Brg. S. Abut.	249+16.61	9.00	673.43	673.43
BK. S. Abut.	249+20.30	9.00	673.45	673.45

BEAM 7

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	248+46.97	11.07	673.14	673.14
CL. Brg. N. Abut.	248+50.70	11.02	673.16	673.16
A	248+60.65	10.91	673.20	673.26
B	248+70.59	10.85	673.25	673.34
C	248+80.54	10.83	673.30	673.41
D	248+90.48	10.87	673.35	673.46
E	249+00.43	10.96	673.40	673.49
F	249+10.38	11.09	673.46	673.50
CL. Brg. S. Abut.	249+17.83	11.23	673.50	673.50
BK. S. Abut.	249+21.56	11.30	673.52	673.52

Note:
Stations and offsets are based on \odot IL21.

FOR INFORMATION ONLY **MACTEC**

FILE NAME =	USER NAME =	DESIGNED - KO	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	TOP OF SLAB ELEVATIONS - 1 OF 2 STRUCTURE NO. 049-0199	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
#FILE#		CHECKED - WPM	REVISED -			330	128R-2-F	LAKE	28	7	
		DRAWN - KO	REVISED -			CONTRACT NO. 60P54					
		PLLOT SCALE =	REVISED -			ILLINOIS FED. AID PROJECT					
		PLLOT DATE = 12/28/2010	CHECKED - WPM	REVISED -	SHEET NO. 8 OF 43 SHEETS						

BEAM 8

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	248+51.42	18.59	673.38	673.38
CL. Brg. N. Abut.	248+55.14	18.55	673.40	673.40
A	248+65.05	18.46	673.45	673.50
B	248+74.96	18.42	673.49	673.59
C	248+84.87	18.43	673.54	673.66
D	248+94.78	18.49	673.60	673.70
E	249+04.69	18.59	673.65	673.73
F	249+14.60	18.75	673.70	673.74
CL. Brg. S. Abut.	249+22.03	18.90	673.74	673.74
BK. S. Abut.	249+25.74	18.98	673.76	673.76

BEAM 9

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	248+55.84	26.12	673.62	673.62
CL. Brg. N. Abut.	248+59.55	26.09	673.64	673.64
A	248+69.42	26.02	673.69	673.74
B	248+79.29	26.00	673.74	673.83
C	248+89.16	26.03	673.79	673.90
D	248+99.03	26.11	673.84	673.95
E	249+08.90	26.24	673.89	673.97
F	249+18.78	26.42	673.95	673.98
CL. Brg. S. Abut.	249+26.17	26.58	673.99	673.99
BK. S. Abut.	249+29.87	26.67	674.01	674.01

BEAM 10

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	248+60.23	33.66	673.86	673.86
CL. Brg. N. Abut.	248+63.92	33.63	673.88	673.88
A	248+73.76	33.59	673.93	673.98
B	248+83.59	33.59	673.98	674.07
C	248+93.43	33.64	674.03	674.14
D	249+03.27	33.74	674.08	674.19
E	249+13.10	33.89	674.13	674.22
F	249+22.94	34.09	674.19	674.23
CL. Brg. S. Abut.	249+30.31	34.27	674.23	674.23
BK. S. Abut.	249+34.00	34.37	674.25	674.25

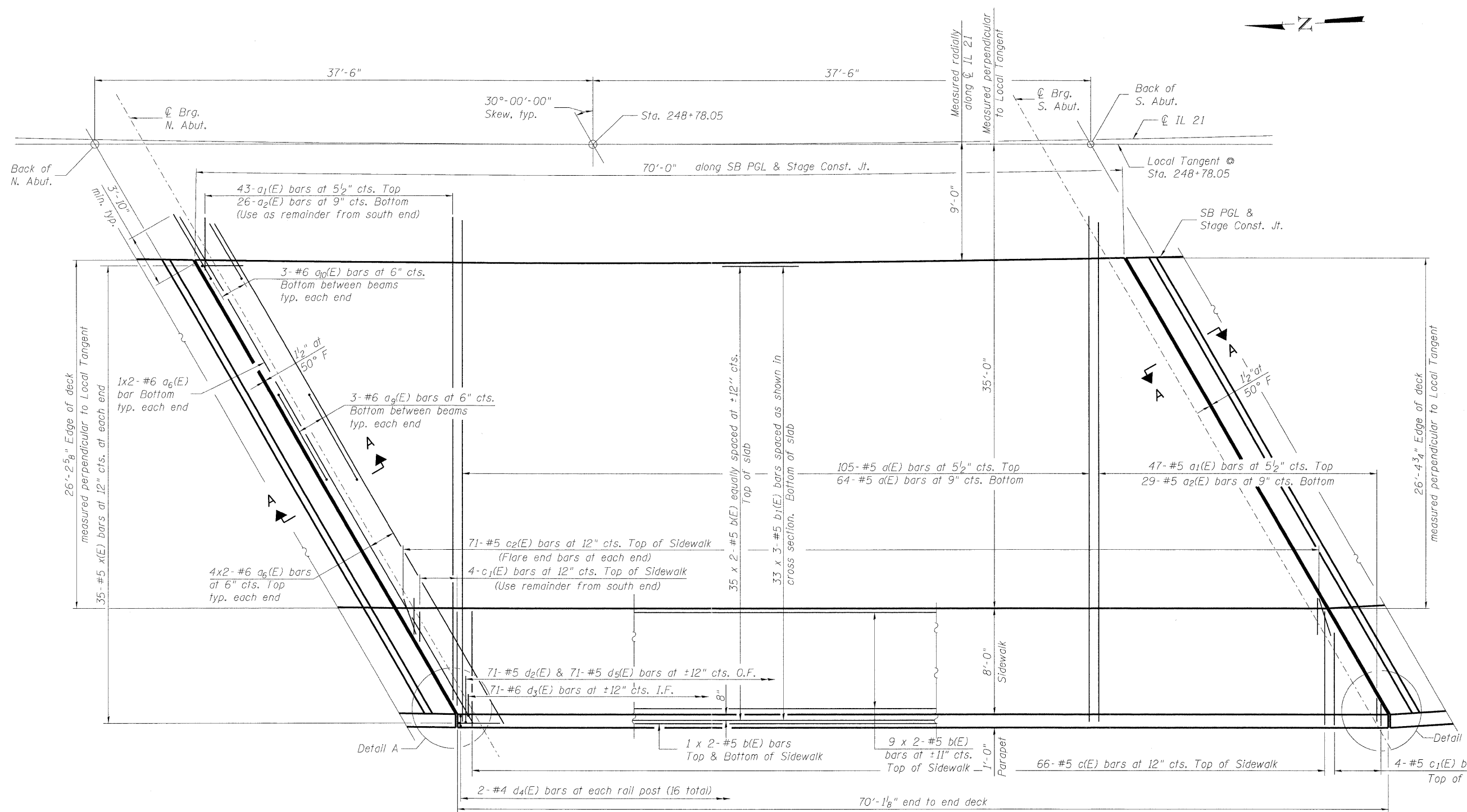
BEAM 11

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	248+64.59	41.21	674.10	674.10
CL. Brg. N. Abut.	248+68.27	41.19	674.12	674.12
A	248+78.07	41.17	674.17	674.22
B	248+87.87	41.19	674.22	674.30
C	248+97.67	41.26	674.27	674.37
D	249+07.47	41.39	674.32	674.42
E	249+17.27	41.55	674.38	674.45
F	249+27.07	41.77	674.43	674.47
CL. Brg. S. Abut.	249+34.42	41.97	674.47	674.47
BK. S. Abut.	249+38.09	42.08	674.50	674.50

Note:
Stations and offsets are based on @ IL21.

FOR INFORMATION ONLY 

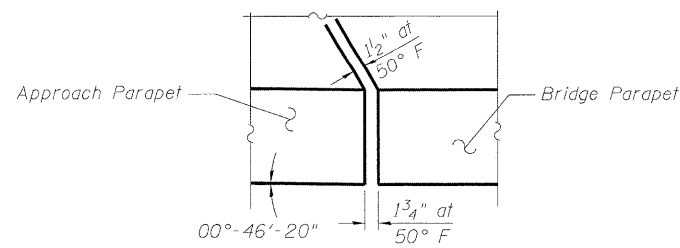
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\$FILEL\$		CHECKED - WPM	REVISED -			330	128R-2-F	LAKE	28	8	
		DRAWN - KO	REVISED -			CONTRACT NO. 60P54					
		PLLOT SCALE =	REVISED -			ILLINOIS FED. AID PROJECT					
		PLLOT DATE = 12/20/2010	CHECKED - WPM	REVISED -	SHEET NO. 9 OF 43 SHEETS						



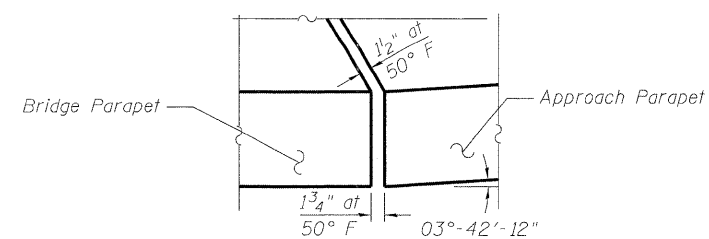
STAGE I DECK PLAN

Notes:

- Order $a_1(E)$, $a_2(E)$ and $c_1(E)$ bars full length. Cut to fit skew and use remainder of bars in opposite end.
- See Section A-A and rebar cutting diagram on sheet 17 of 43.
- Min. lap splice for #5 bar is 3'-3" and #6 bar is 3'-10" unless noted otherwise.



DETAIL A



DETAIL B

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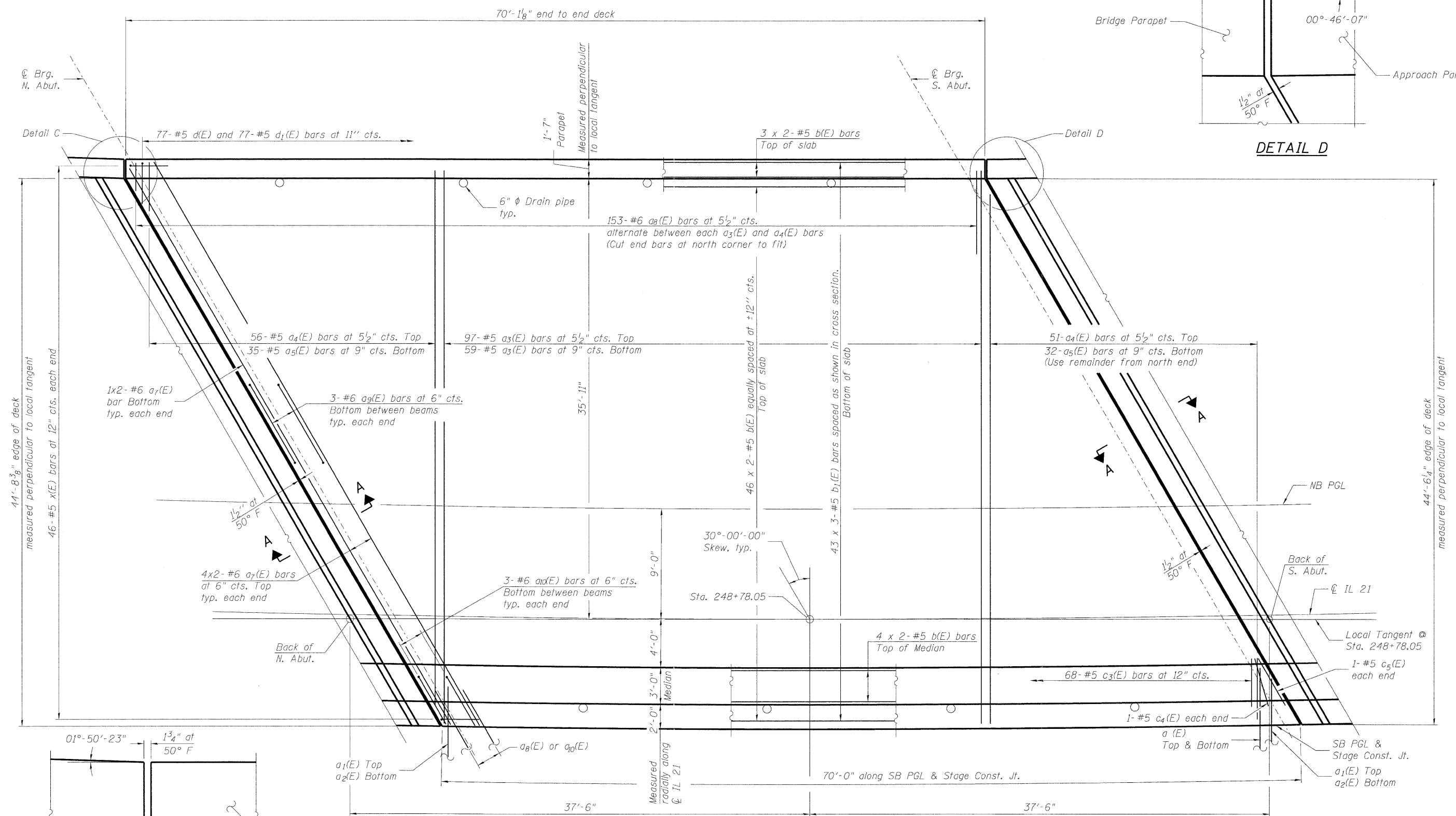
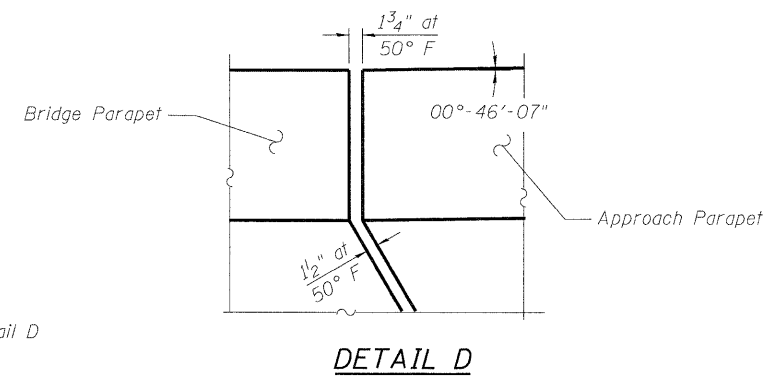
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	PLOT DATE = 12/28/2018	CHECKED - JY	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**STAGE I DECK PLAN
STRUCTURE NO. 049-0199**

SHEET NO. 12 OF 43 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	12BR-2-F	LAKE	28	9
CONTRACT NO. 60P54			ILLINOIS FED. AID PROJECT	



Detail C

Detail D

DETAIL D

DETAIL C

STAGE II DECK PLAN

- Notes:
1. Order $a_4(E)$ and $a_5(E)$ bars full length. Cut to fit skew and use remainder of bars in opposite end.
 2. See Section A-A and rebar cutting diagram on sheet 17 of 43.
 3. Min. lap splice for #5 bar is 3'-3" and #6 bar is 3'-10" unless noted otherwise.

FOR INFORMATION ONLY **MACTEC**

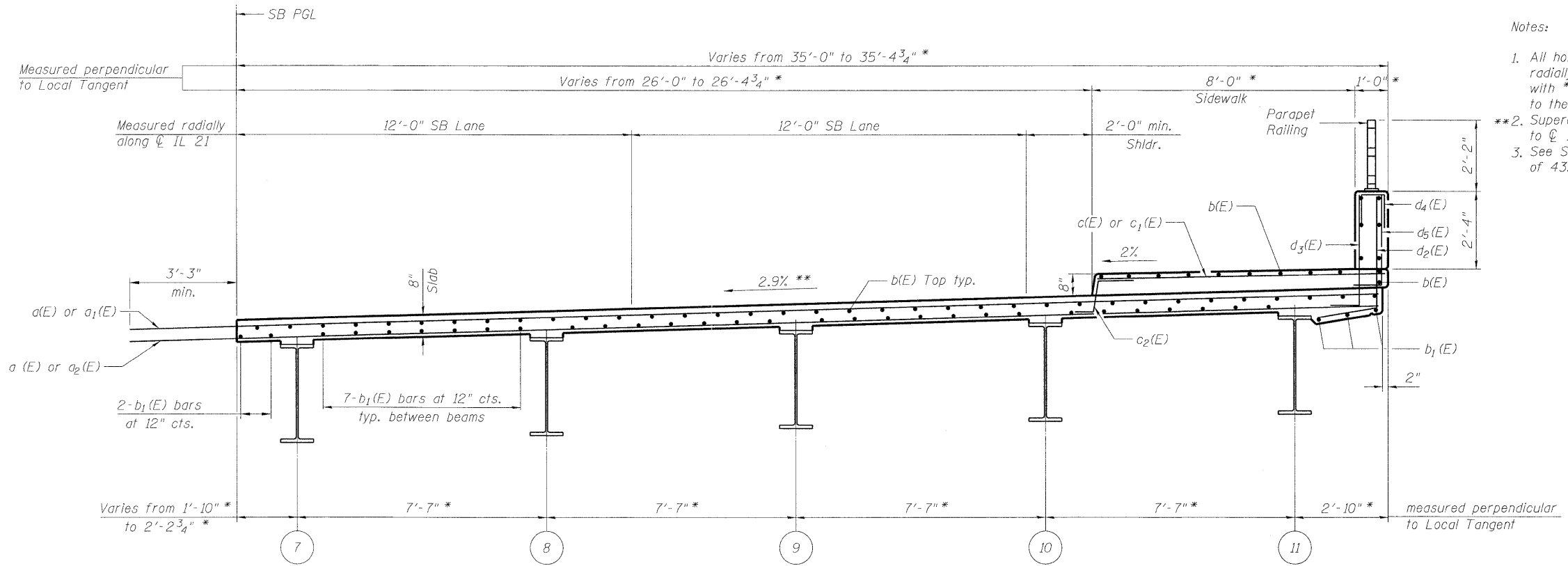
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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**STAGE II DECK PLAN
STRUCTURE NO. 049-0199**

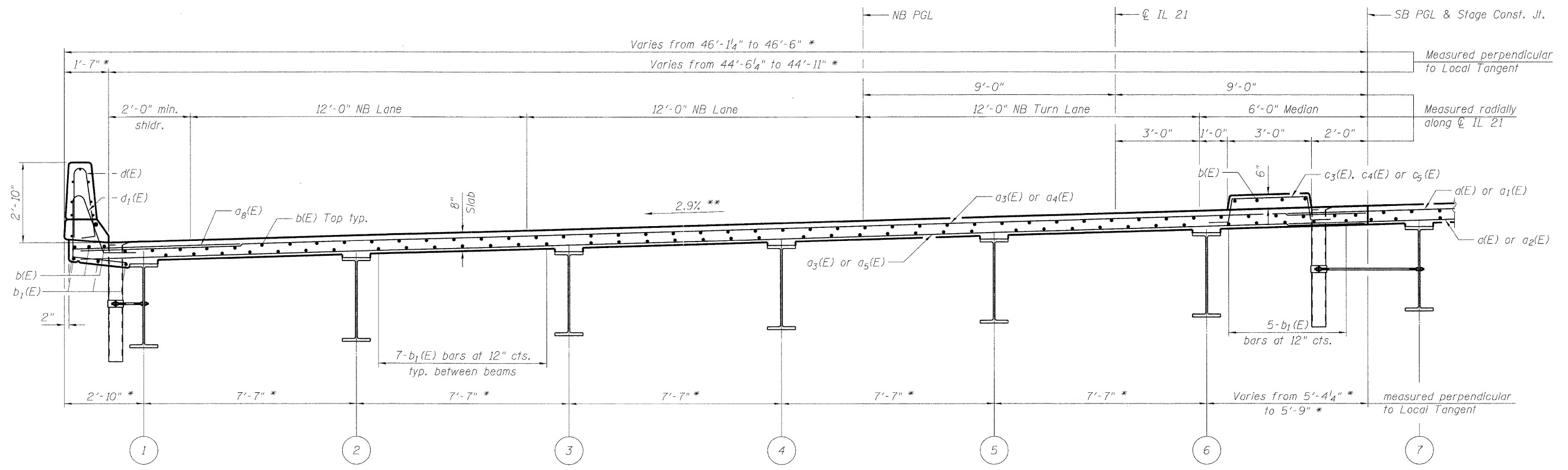
SHEET NO. 13 OF 43 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-2-F	LAKE	28	10
CONTRACT NO. 60P54				
ILLINOIS FED. AID PROJECT				



STAGE I DECK CROSS SECTION
(Looking South)

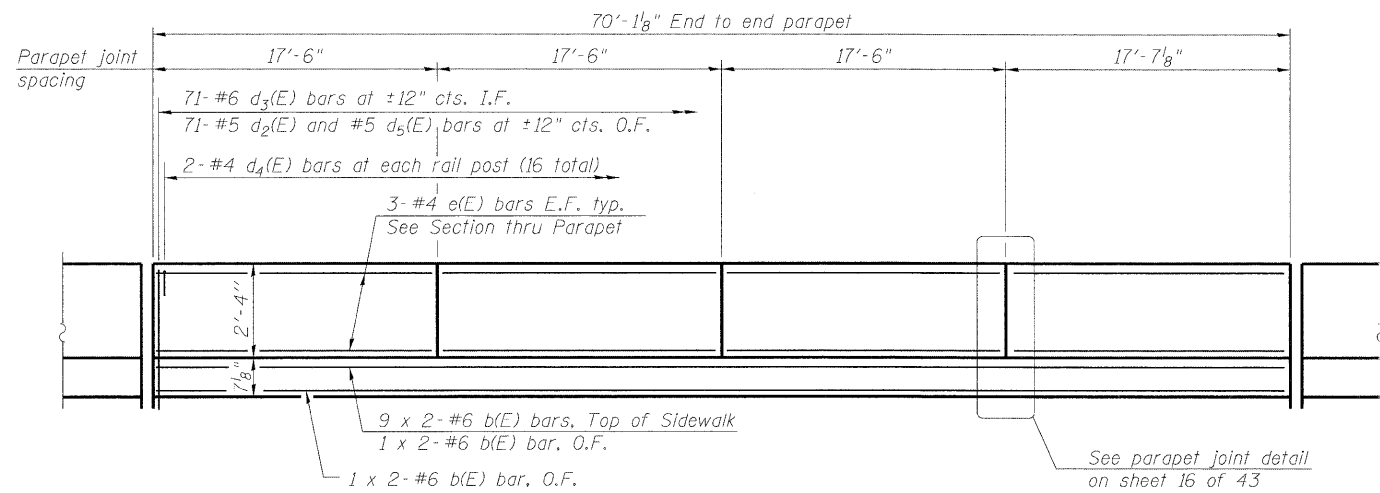
- Notes:
1. All horizontal dimensions are measured radially along CL IL 21 unless denoted with *, which is measured perpendicular to the Local Tangent @ Sta. 248+78.05.
 - **2. Superelevation on deck is perpendicular to CL IL 21.
 3. See Section thru Median on Sheet 17 of 43.



STAGE II DECK CROSS SECTION
(Looking South)

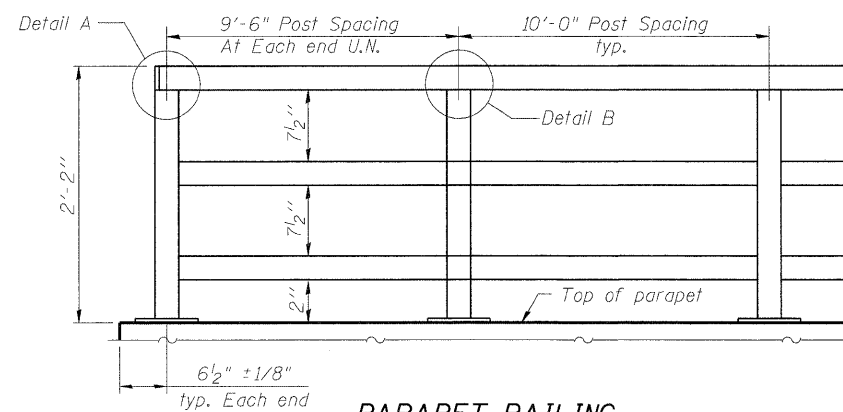
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		CHECKED - JY	REVISED -			[ILLINOIS] FED. AID PROJECT					

FOR INFORMATION ONLY **MACTEC**



INSIDE ELEVATION OF WEST PARAPET

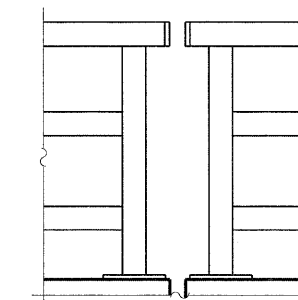
(Min. lap #4 bar = 2'-0")
(Min. lap #8 bar = 5'-2")



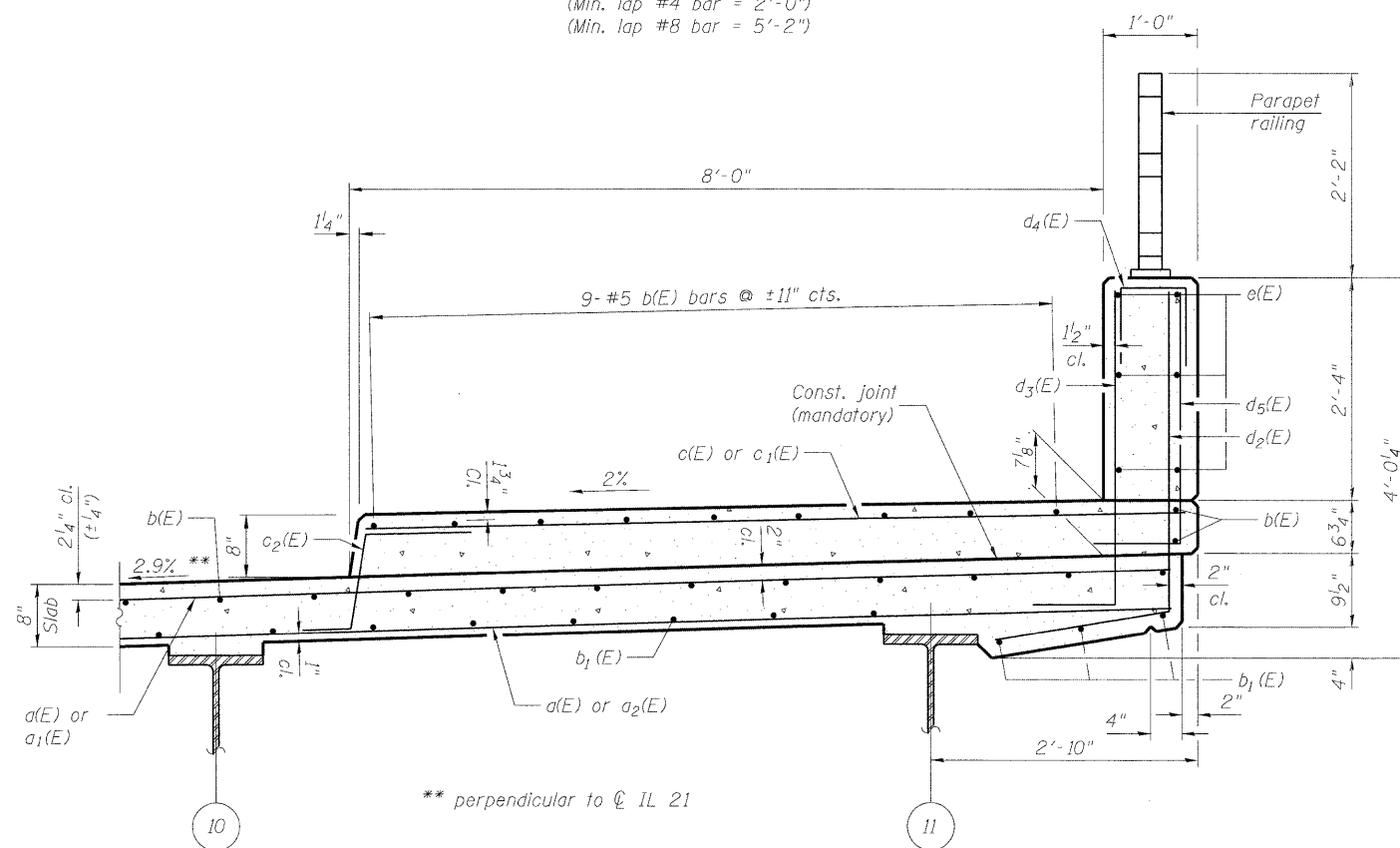
PARAPET RAILING ELEVATION

(Inside Face of Three Element Rail)

All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.

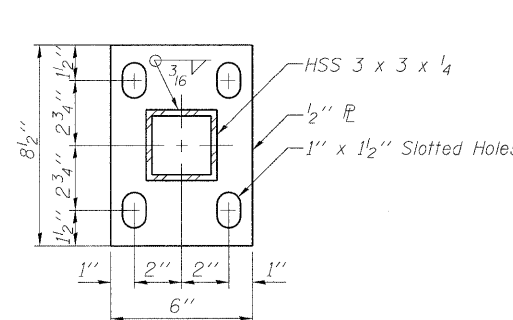


PARAPET RAILING ELEVATION AT ABUTMENT

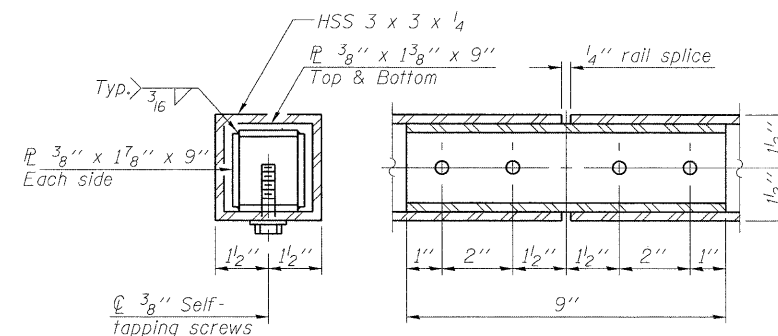


SECTION THRU WEST PARAPET

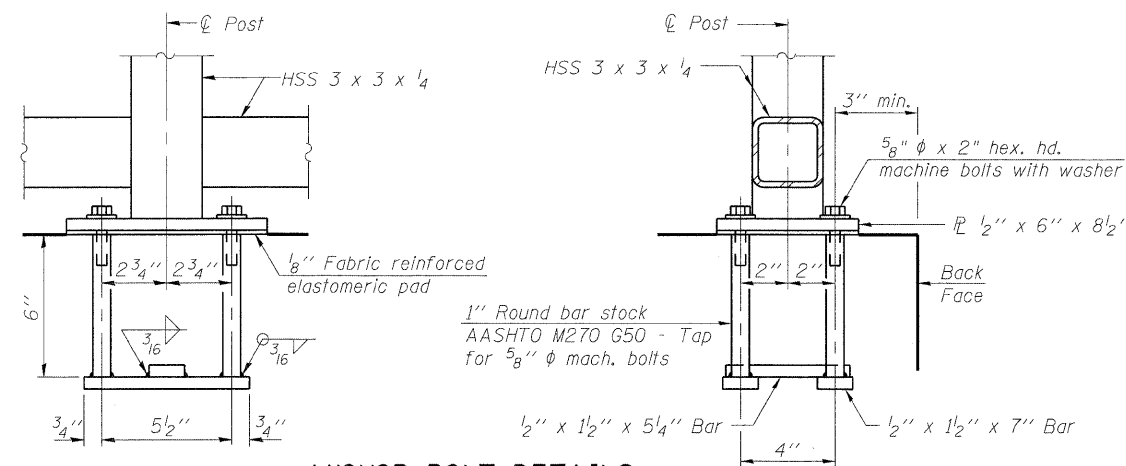
** perpendicular to \varnothing IL 21



BASE PL

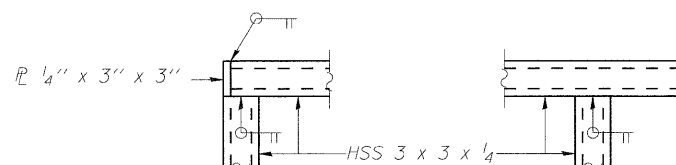


RAIL SPLICE



ANCHOR BOLT DETAILS

In lieu of the cast-in-place anchor device shown, the Contractor has the option of drilling and setting 5/8" \varnothing anchor rods according to Article 509.06 of the Standard Specifications. Embedment shall be according to the manufacturer's specifications.



DETAIL A

DETAIL B

FOR INFORMATION ONLY **MACTEC**

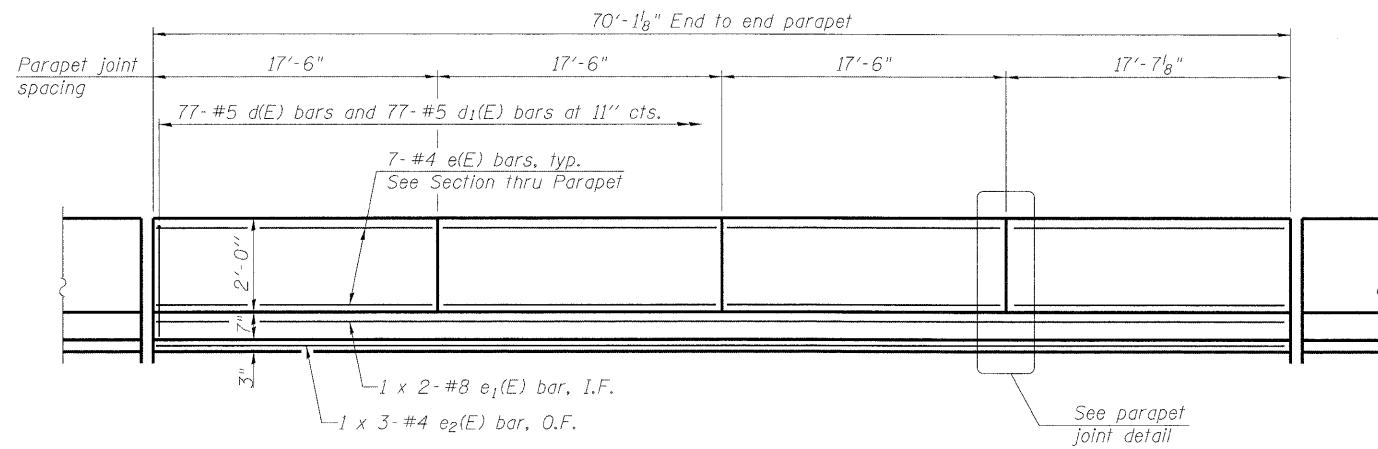
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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**WEST PARAPET ELEVATION AND DETAILS
STRUCTURE NO. 049-0199**

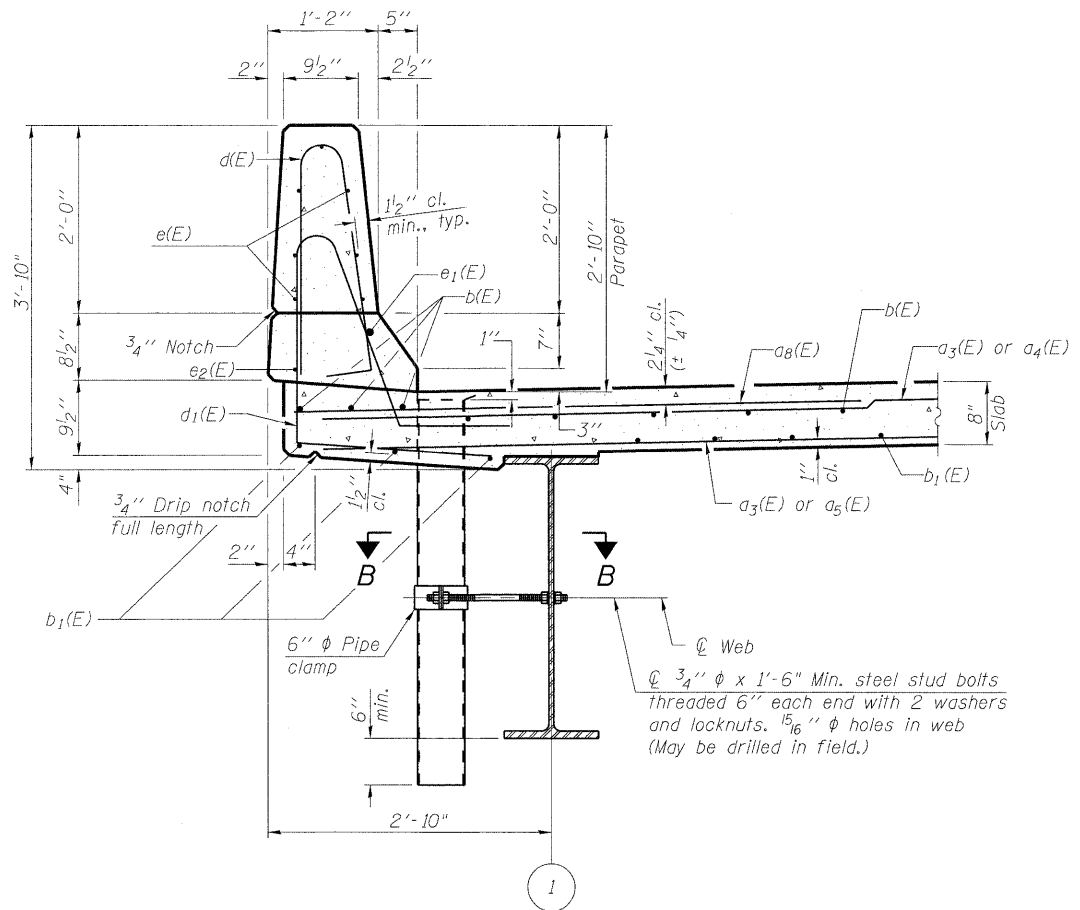
SHEET NO. 15 OF 43 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	12BR-2-F	LAKE	28	12
			CONTRACT NO. 60P54	
[ILLINOIS] FED. AID PROJECT				

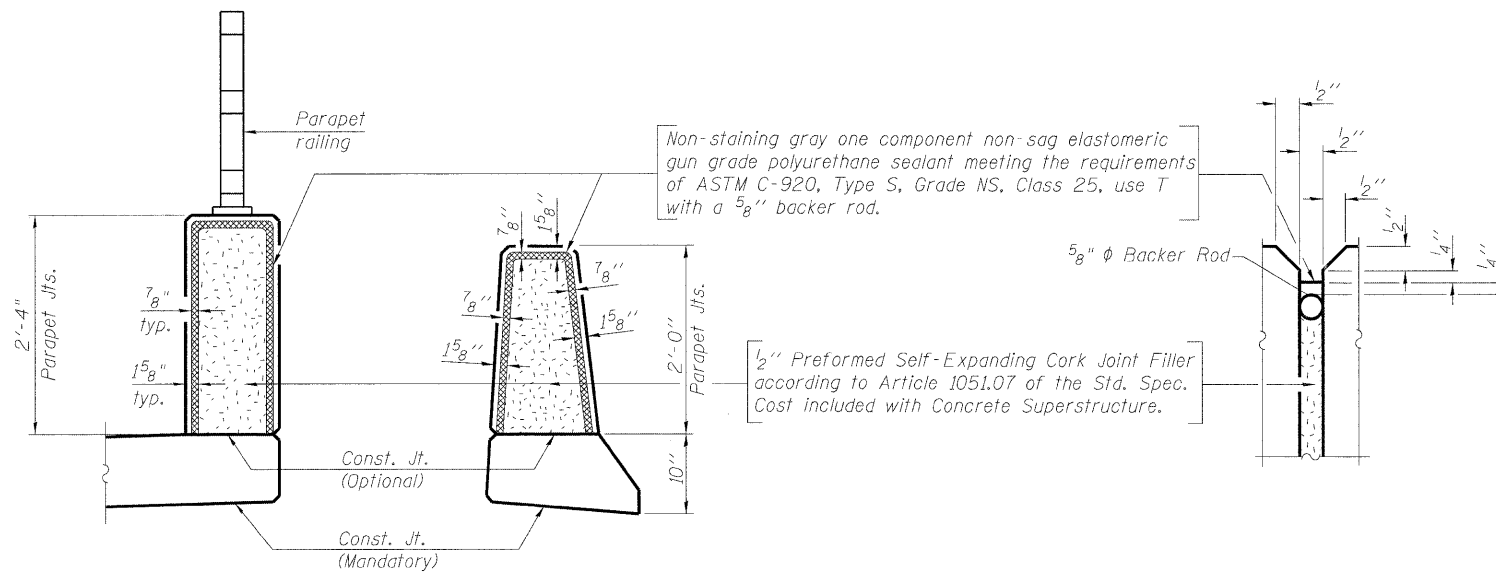


INSIDE ELEVATION OF EAST PARAPET

(Min. lap #4 bar = 2'-0")
 (Min. lap #8 bar = 5'-2")



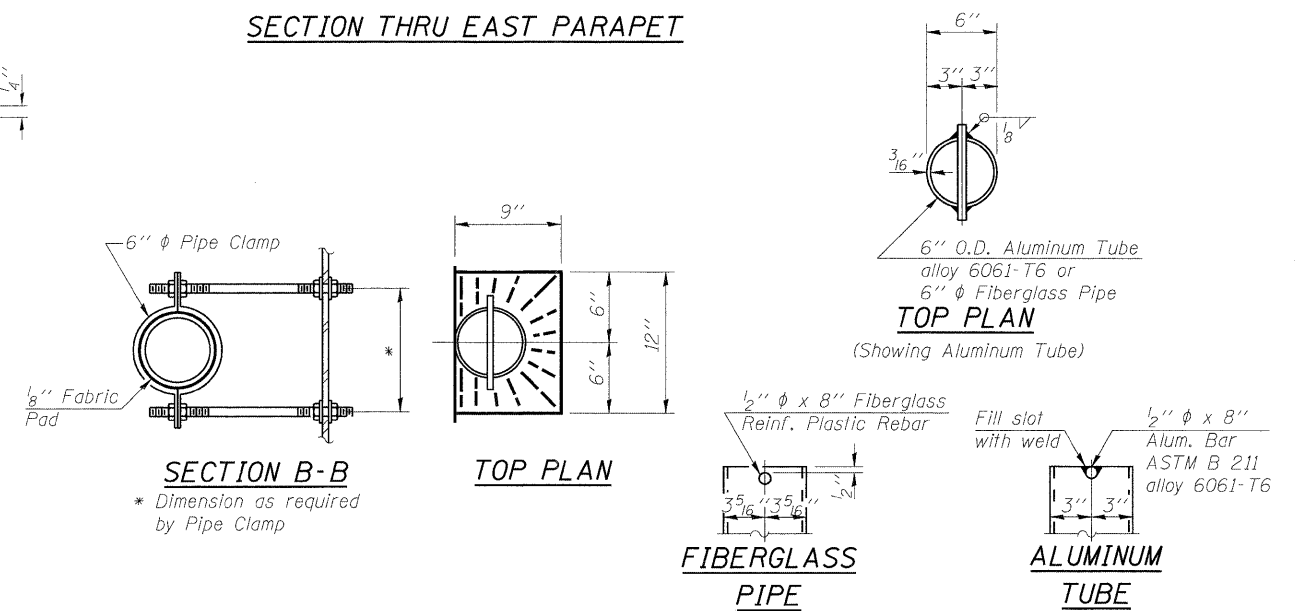
SECTION THRU EAST PARAPET



WEST PARAPET

EAST PARAPET

PARAPET JOINT DETAILS



Notes:

Drains shall be located clear of all diaphragms.
 The exterior surfaces of the floor drains shall be painted with the finish coat as specified in the special provisions for Cleaning and Painting New Metal Structures. The exterior surfaces of the drains shall be cleaned according to the Society of Protective Coatings' Spec. SSPC-SP1 prior to painting.
 Fiberglass pipe shall conform to ASTM D 2996, with short-time rupture strength hoop tensile stress of 30,000 p.s.i. minimum.
 Galvanize clamping device according to AASHTO M232. Cost of clamping device and inserts is included with Floor Drains.

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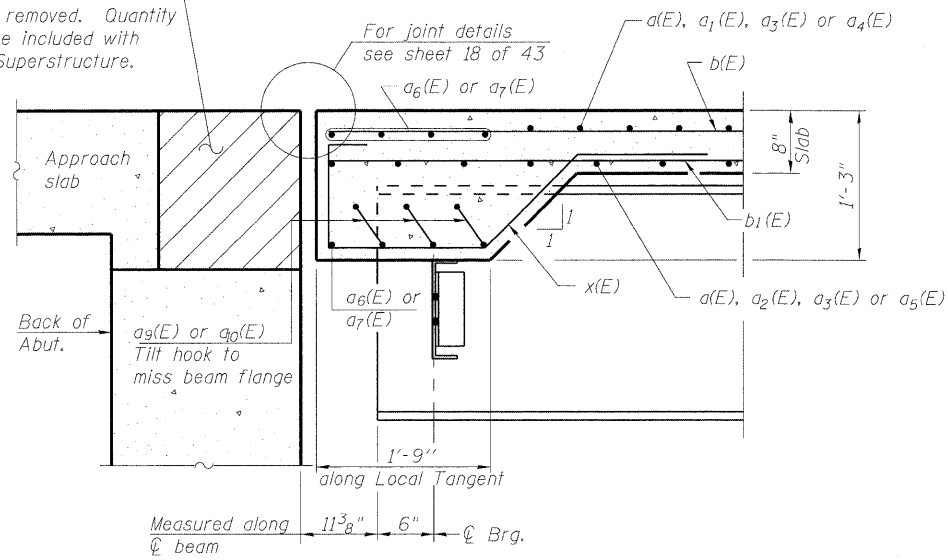
**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**EAST PARAPET ELEVATION AND DETAILS
 STRUCTURE NO. 049-0199**

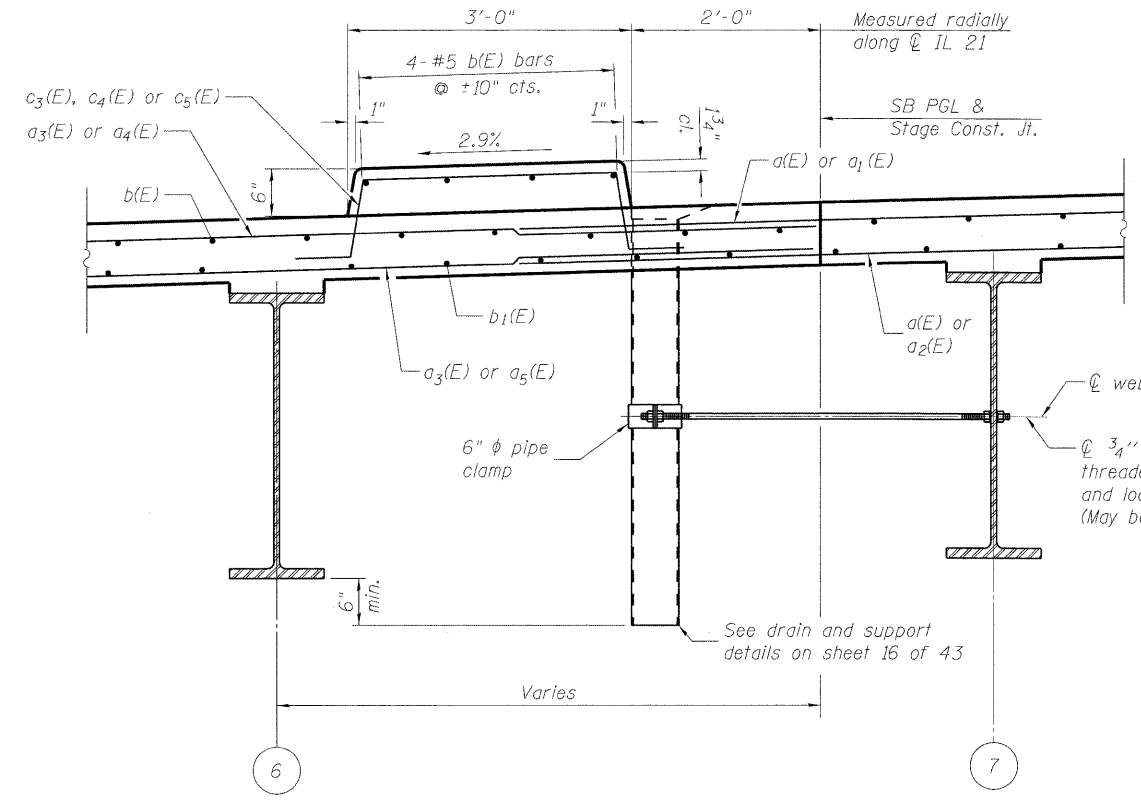
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-2-F	LAKE	28	13
CONTRACT NO. 60P54			ILLINOIS FED. AID PROJECT	

SHEET NO. 16 OF 43 SHEETS

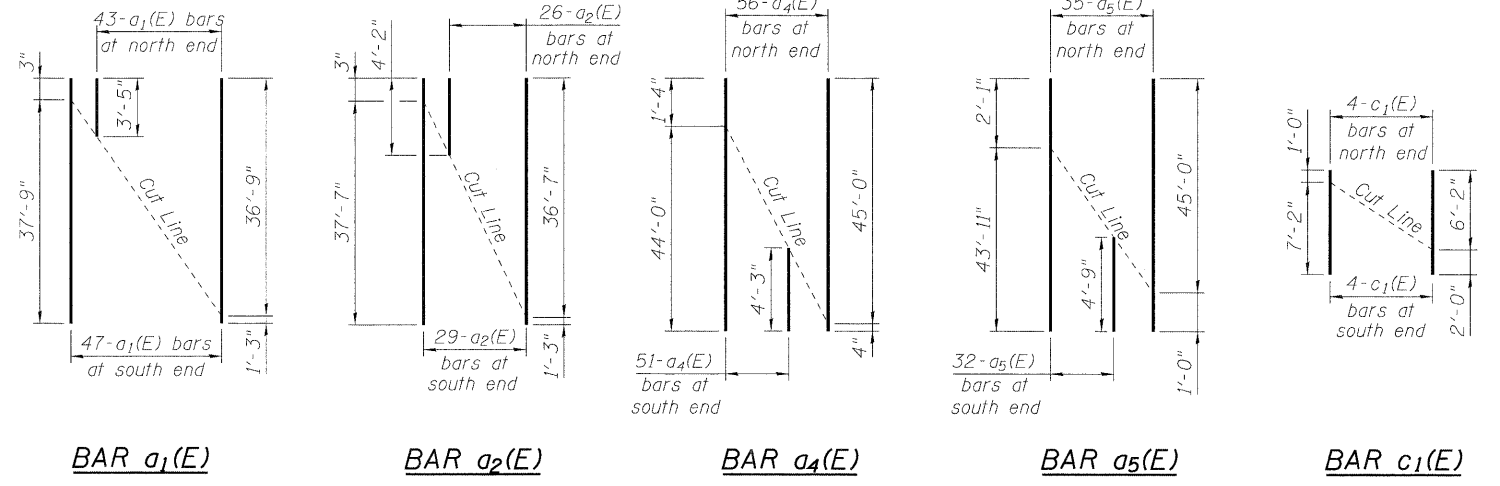
Hatched area to be poured after superstructure forms have been removed. Quantity of concrete included with Concrete Superstructure.



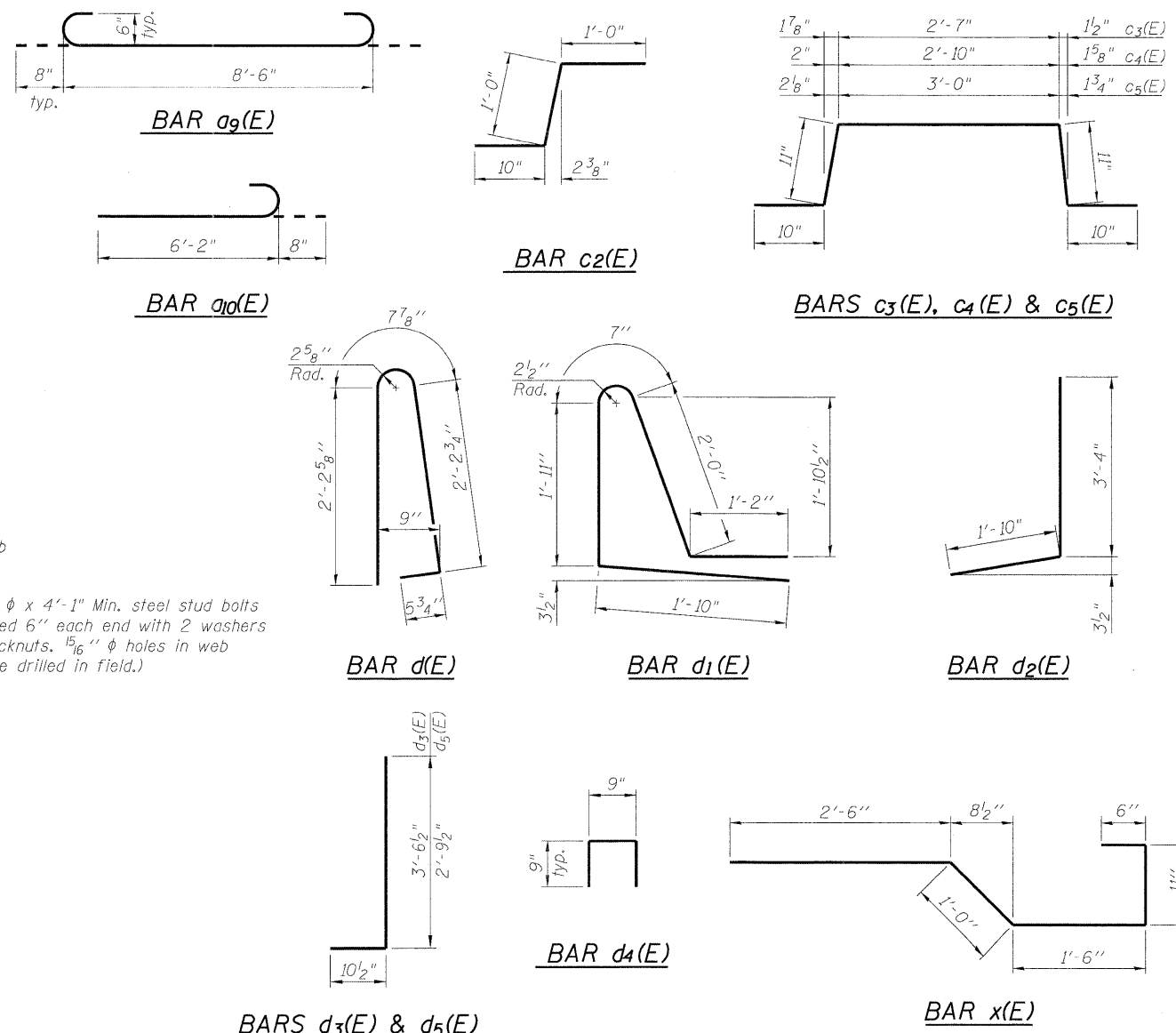
SECTION A-A



SECTION THRU MEDIAN



REBAR CUTTING DIAGRAM



SUPERSTRUCTURE BILL OF MATERIAL

Bar No.	Size	Length	Shape
a(E)	169	#5	38'-3"
a1(E)	47	#5	38'-0"
a2(E)	29	#5	37'-10"
a3(E)	156	#5	46'-1"
a4(E)	56	#5	45'-4"
a5(E)	35	#5	46'-0"
a6(E)	20	#6	24'-0"
a7(E)	20	#6	30'-10"
a8(E)	153	#6	6'-6"
a9(E)	54	#6	9'-10"
a10(E)	12	#6	6'-10"
b(E)	198	#5	36'-6"
b1(E)	228	#5	25'-6"
c(E)	66	#5	8'-8"
c1(E)	4	#5	8'-2"
c2(E)	71	#5	2'-10"
c3(E)	68	#5	6'-1"
c4(E)	2	#5	6'-4"
c5(E)	2	#5	6'-6"
d(E)	77	#5	5'-7"
d1(E)	77	#5	7'-6"
d2(E)	71	#5	5'-2"
d3(E)	71	#6	4'-5"
d4(E)	16	#4	2'-3"
d5(E)	71	#5	3'-8"
e(E)	52	#4	17'-2"
e1(E)	2	#8	37'-6"
e2(E)	3	#4	24'-3"
x(E)	162	#5	6'-5"
Floor Drains	Each		8
Concrete Superstructure	Cu. Yd.		177.5
Bridge Deck Grooving	Sq. Yd.		529
Protective Coat	Sq. Yd.		685
Reinforcement Bars, Epoxy Coated	Pound		44,670
Parapet Railing	Foot		70

Bars indicated thus 1 x 2 - #8 etc. indicates 1 line of bars with 2 lengths per line.

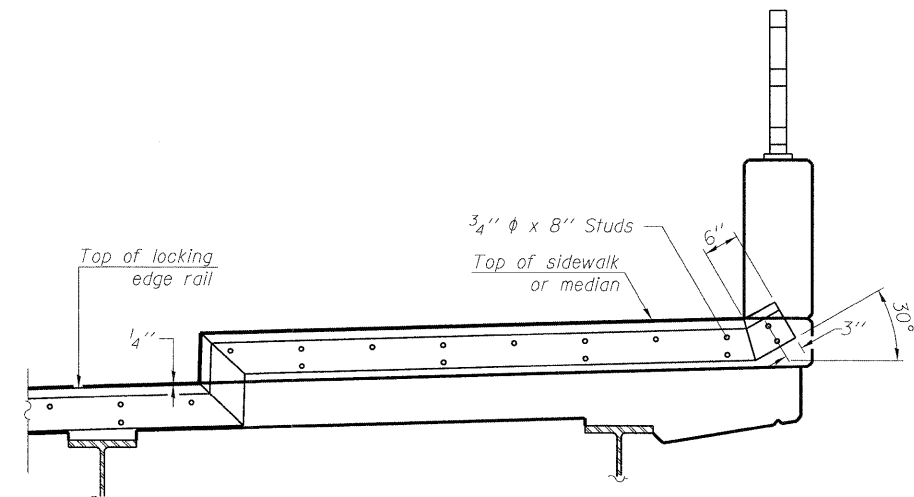
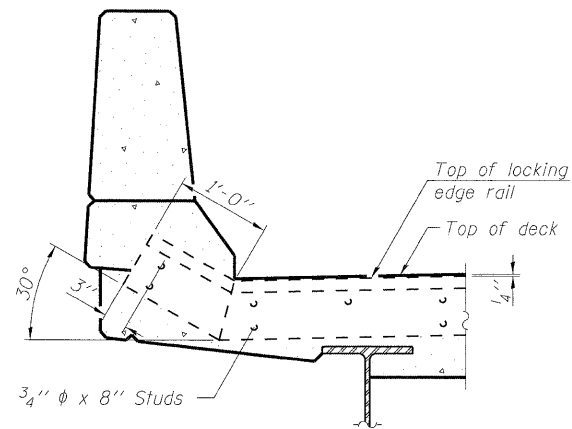
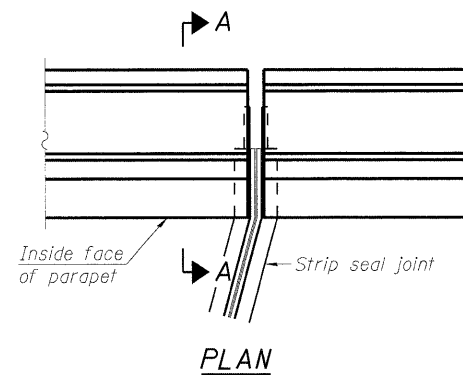
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

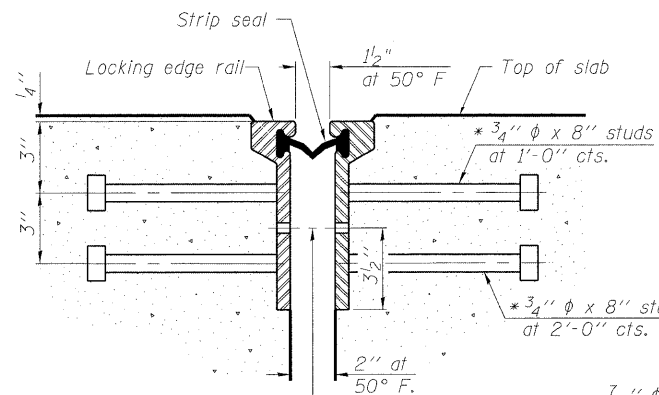
DECK DETAILS AND BILL OF MATERIAL
STRUCTURE NO. 049-0199
SHEET NO. 17 OF 43 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-2-F	LAKE	28	14
			CONTRACT NO. 60P54	
ILLINOIS FED. AID PROJECT				

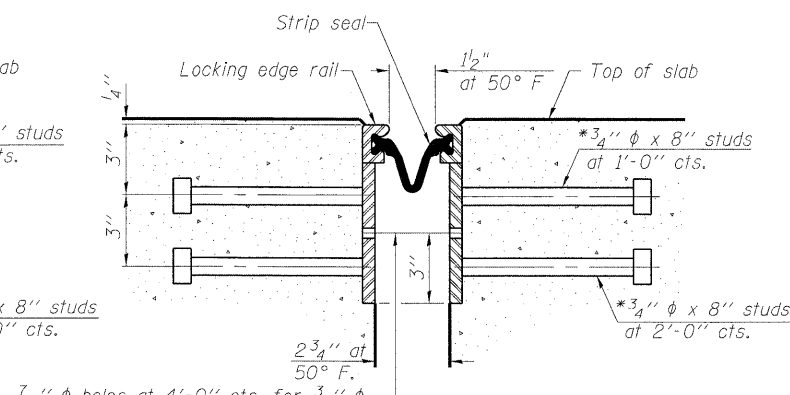
FOR INFORMATION ONLY MACTEC



Shorter plates with a single row of studs at 12" cts. may be necessary on medians which are shallower than 9". See manufacturer's recommendation.

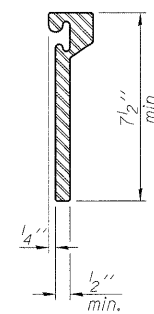


7/16" ϕ holes at 4'-0" cts. for 3/8" ϕ bolts. All bolts shall be burned, sawed, or chipped off flush with the plates after forms are removed, typ.

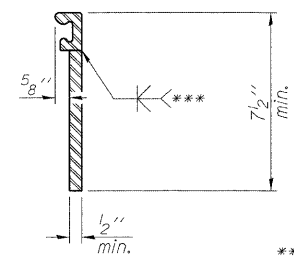


7/16" ϕ holes at 4'-0" cts. for 3/8" ϕ bolts. All bolts shall be burned, sawed, or chipped off flush with the plates after forms are removed, typ.

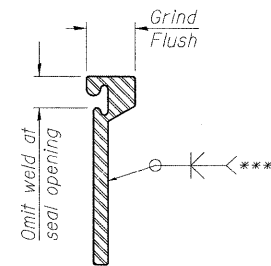
* Granular or solid flux filled headed studs conforming to Article 1006.32 of the Std. Specs., automatically end welded.



ROLLED EXTRUDED RAIL



WELDED RAIL



*** Back gouge not required if complete joint penetration is verified by mock-up.

LOCKING EDGE RAIL SPLICE

The inside of the locking edge rail groove shall be free of weld residue. Rolled rail shown, welded rail similar.

LOCKING EDGE RAILS

Notes:
 The strip seal shall be made continuous and shall have a minimum thickness of 1/4". The configuration of the strip seal shall match the configuration of the Locking Edge Rails. Open or "webbed" strip seal gland configurations are not permitted. The gland shall be sized for a maximum rated movement of 4 inches.
 The Locking Edge Rails depicted are conceptual only, except for the minimum dimensions shown. The actual configuration of the Locking Edge Rails and matching strip seal may vary from manufacturer to manufacturer. Flanged edge rails will not be allowed. Locking Edge Rails may be spliced at slope discontinuities.
 The manufacturer's recommended installation methods shall be followed.
 The joint opening and deck dimensions detailed on the superstructure are based on a rolled rail expansion joint. If the Contractor elects to use the welded rail expansion joint, the opening and deck dimensions shall be modified according to the dimensions detailed on this sheet. Required modifications shall be made at no additional cost to the State.
 All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications. Maximum space between rail segments at stage lines shall be 3/16", sealed with a suitable sealant.

BILL OF MATERIAL

Item	Unit	Total
Prefomed Joint Strip Seal	Foot	190

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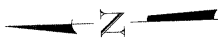
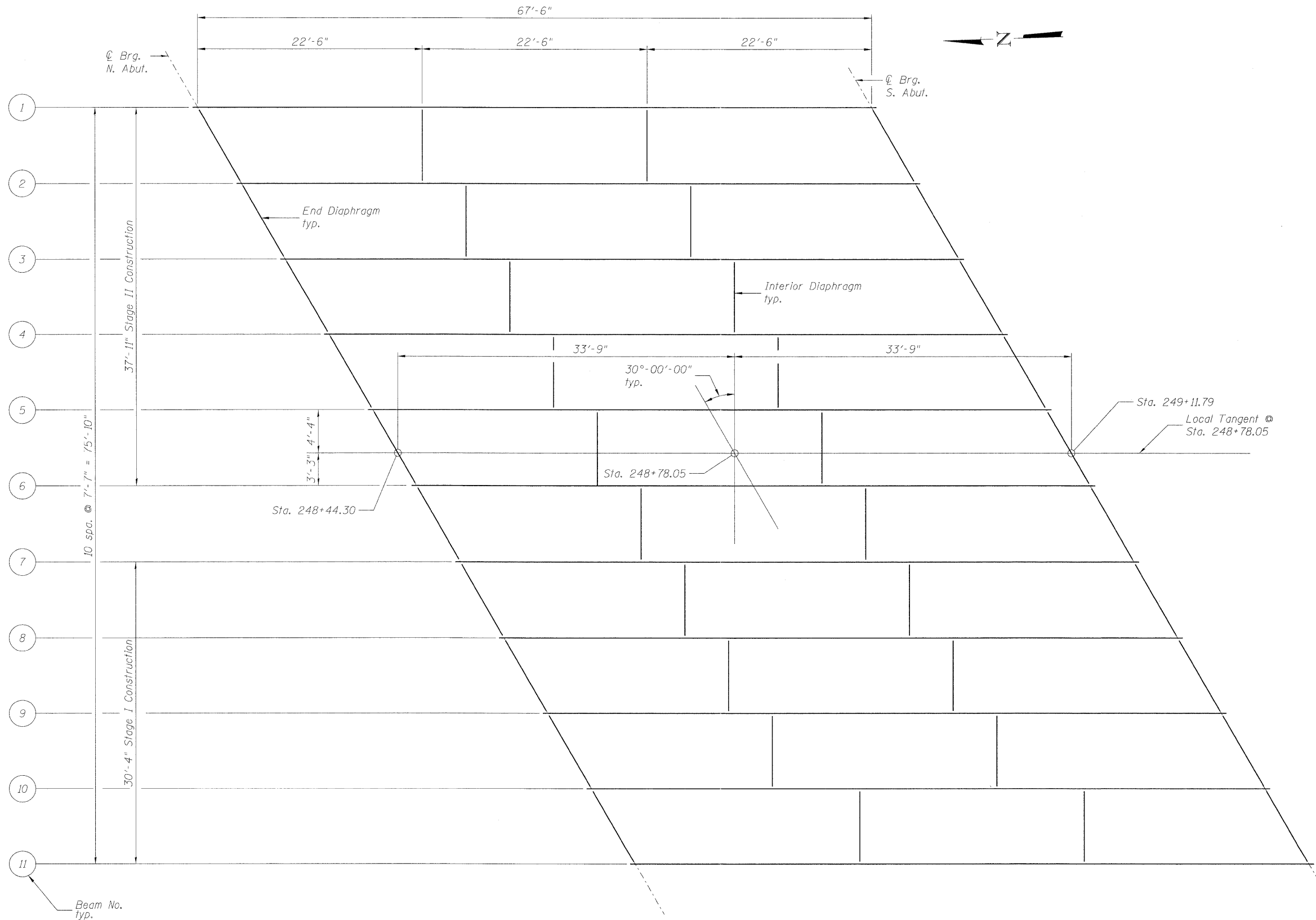
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#FILE#		CHECKED - RMK	REVISED -
	PLOT SCALE =	DRAWN - JY	REVISED -
	PLOT DATE = 12/28/2010	CHECKED - RMK	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PREFORMED JOINT STRIP SEAL
STRUCTURE NO. 049-0199

SHEET NO. 18 OF 43 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-2-F	LAKE	28	15
			CONTRACT NO. 60P54	
[ILLINOIS] FED. AID PROJECT				



BEAM FRAMING PLAN

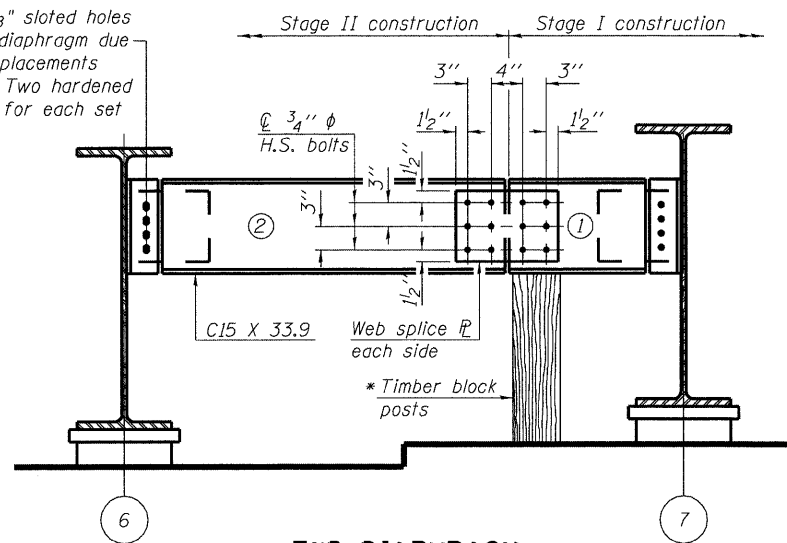


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	PLOT SCALE =	CHECKED - WPM	REVISED -			330	128R-2-F	LAKE	28	16
PLOT DATE = 12/20/2010	DRAWN - JY	REVISED -			SHEET NO. 26 OF 43 SHEETS					
	CHECKED - WPM	REVISED -			CONTRACT NO. 60P54					

ILLINOIS FED. AID PROJECT

* Cost of Timber Block Posts is included with Structural Steel.

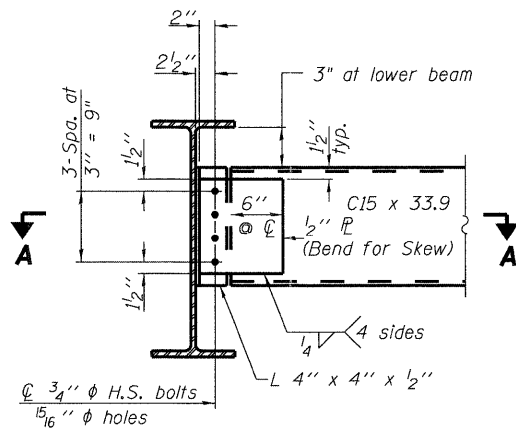
Provide $\frac{13}{16}$ " x $1\frac{7}{8}$ " slotted holes for stage const. diaphragm due to differential displacements on one side only. Two hardened washers required for each set of oversized holes.



END DIAPHRAGM

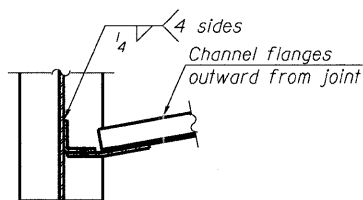
END DIAPHRAGM STAGE CONSTRUCTION SEQUENCE

- 1.) Order diaphragm in two sections.
- 2.) Attach section ① of diaphragm to Beam 7.
- 3.) Place timber block posts between section ① of diaphragm and abutment bearing section.
- 4.) Attach section ② of diaphragm to both Beam 6 and section ① of diaphragm during stage II construction with splice plates.
- 5.) Remove timber block posts.

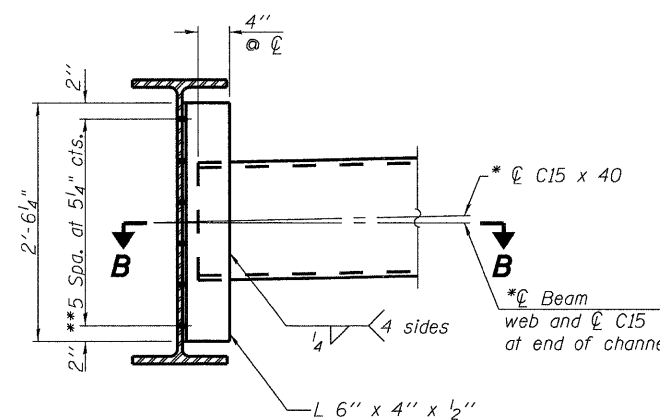


END DIAPHRAGM

Note:
Two hardened washers required for each set of oversized holes.

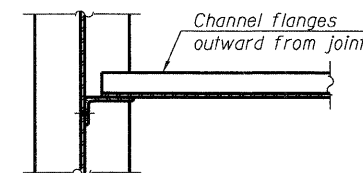


SECTION A-A

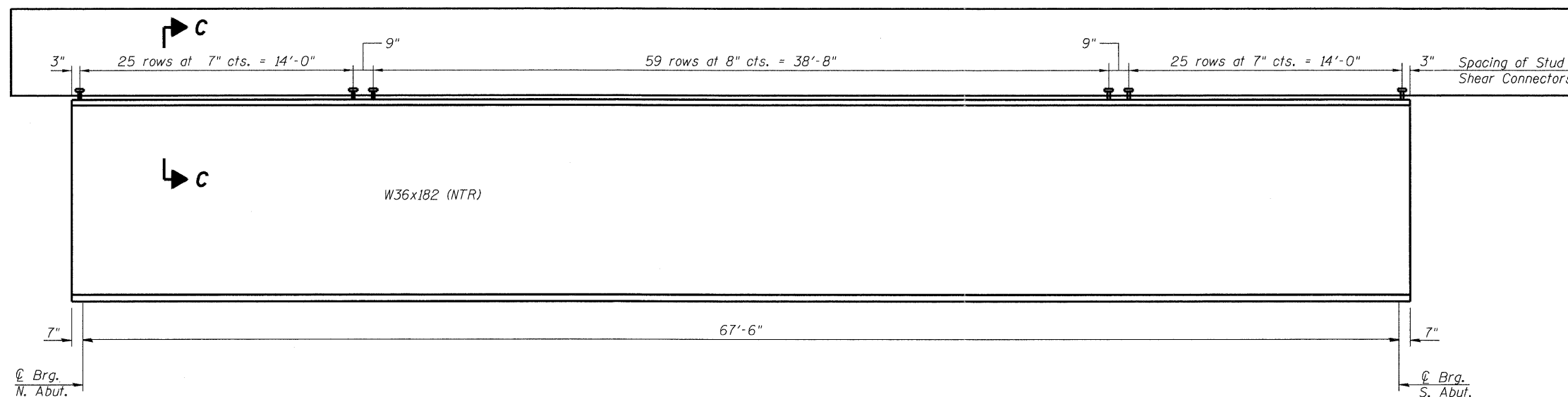


INTERIOR DIAPHRAGM

Note: (For Interior Diaphragm)
Two hardened washers required for each set of oversized holes.
*Alternate channels are permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section. The alternate, if utilized, shall be provided at no additional cost to the Department.
** $\frac{3}{4}$ " ϕ HS bolts, $\frac{15}{16}$ " ϕ holes, except at stage construction line which shall have $\frac{13}{16}$ " ϕ x $1\frac{7}{8}$ " ϕ slotted holes on one side only.



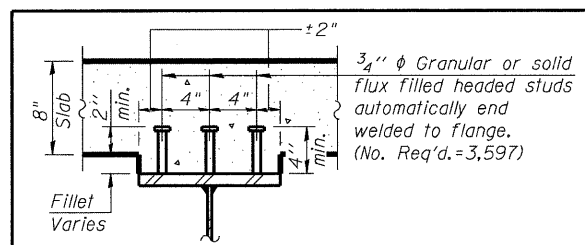
SECTION B-B



FOR INFORMATION ONLY

BEAM ELEVATION

"NTR" denotes plates to which notch toughness requirements are applicable.



SECTION C-C

FOR INFORMATION ONLY

NOT INCLUDED IN THIS CONTRACT

Notes:
All diaphragms, connecting plates, and angles shall be AASHTO M270 Grade 50W.
All cross frames or diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.
Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.



FILE NAME =	USER NAME =	DESIGNED - JY	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	BEAM ELEVATION, DIAPHRAGM AND STEEL DETAILS STRUCTURE NO. 049-0199	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
#FILE#		CHECKED - WPM	REVISED -			330	128R-2-F	LAKE	28	17	
	PLOT SCALE =	DRAWN - JY	REVISED -			CONTRACT NO. 60P54					
	PLOT DATE = 12/20/2010	CHECKED - WPM	REVISED -			SHEET NO. 27 OF 43 SHEETS					

INTERIOR BEAM MOMENT TABLE		
0.5 Span		
I_s	(in ⁴)	11,174
$I_c(n)$	(in ⁴)	28,812
$I_c(3n)$	(in ⁴)	20,915
S_s	(in ³)	615
$S_c(n)$	(in ³)	896
$S_c(3n)$	(in ³)	806
DC1	(k/')	0.98
M _{DC1}	(k)	558
DC2	(k/')	0.45
M _{DC2}	(k)	256
DW	(k/')	0.38
M _{DW}	(k)	216
$M_L + IM$	(k)	1,050
M_u (Strength I)	(k)	3,179
$\phi_r M_n$	(k)	4,438
f_s DC1	(ksi)	10.89
f_s DC2	(ksi)	3.82
f_s DW	(ksi)	3.22
f_s 1.3(L+IM)	(ksi)	18.27
f_s (Service II)	(ksi)	35.49
f_s (Total)(Strength I)	(ksi)	46.75
V_r	(k)	25.1

INTERIOR BEAM REACTION TABLE		
Abut.		
R _{DC1}	(k)	33
R _{DC2}	(k)	15
R _{DW}	(k)	10
$R_L + IM$	(k)	92
R _{Total}	(k)	150

**TOP OF BEAM ELEVATIONS
(FOR FABRICATION ONLY)**

Beam No.	☉ Brg. N. Abut.	☉ Brg. S. Abut.
Girder 1	670.97	671.29
Girder 2	671.21	671.53
Girder 3	671.45	671.78
Girder 4	671.69	672.02
Girder 5	671.93	672.26
Girder 6	672.17	672.51
Girder 7	672.41	672.75
Girder 8	672.65	672.99
Girder 9	672.89	673.24
Girder 10	673.13	673.48
Girder 11	673.37	673.72

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 (in⁴ and in³).

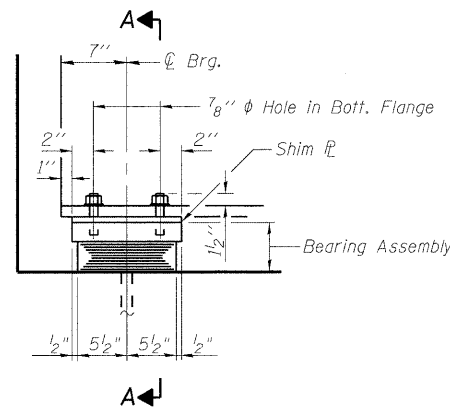
$I_c(n), S_c(n)$: Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing f_s (Total-Strength I, and Service II) due to short-term composite live loads (in⁴ and in³).

$I_c(3n), S_c(3n)$: 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) due to long-term composite (superimposed) dead loads (in⁴ and in³).

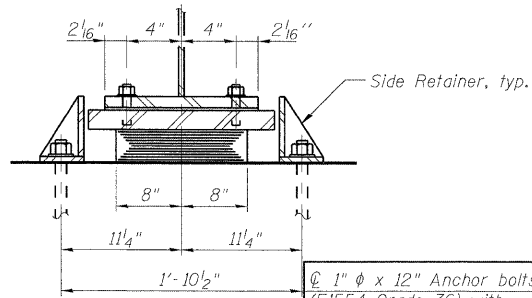
DC1: Un-factored non-composite dead load (kips/ft.).
M_{DC1}: Un-factored moment due to non-composite dead load (kip-ft.).
DC2: Un-factored long-term composite (superimposed excluding future wearing surface) dead load (kips/ft.).
M_{DC2}: Un-factored moment due to long-term composite (superimposed excluding 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 (kip-ft.).
 f_s (Service II): Sum of stresses as computed from the moments below (ksi).
M_{DC1} + M_{DC2} + M_{DW} + 1.3 M_{L + IM}
 f_s (Total)(Strength I): Sum of stresses as computed from the moments below (ksi).
1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{L + IM}
V_r: Maximum factored shear range in composite portion of span computed according to Article 6.10.10.



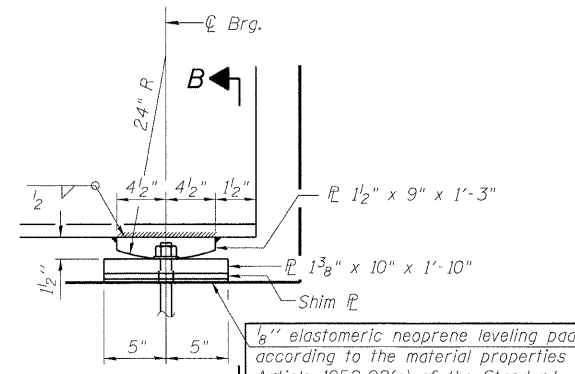
FILE NAME =	USER NAME =	DESIGNED - JY	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	BEAM MOMENT AND REACTION TABLE STRUCTURE NO. 049-0199	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
FILEL		CHECKED - WPM	REVISED -			330	128R-2-F	LAKE	28	18	
		DRAWN - JY	REVISED -			CONTRACT NO. 60P54					
		CHECKED - WPM	REVISED -			ILLINOIS FED. AID PROJECT					
				SHEET NO. 28 OF 43 SHEETS							



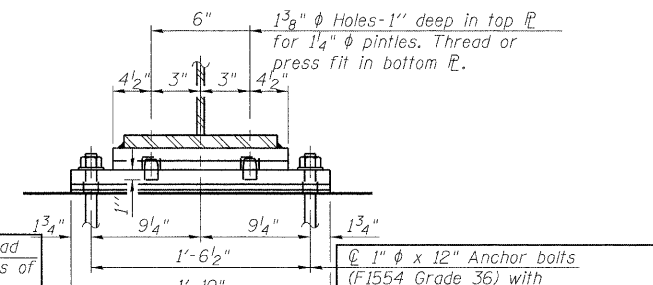
ELEVATION AT NORTH ABUTMENT



SECTION A-A

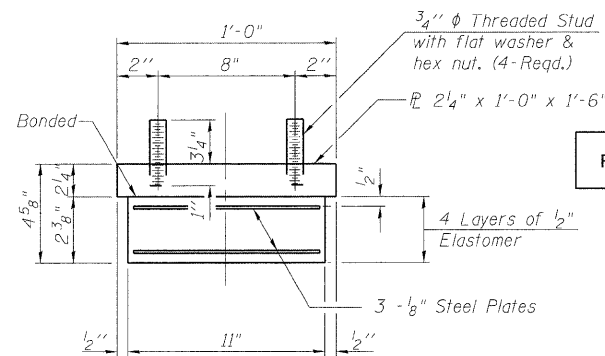


ELEVATION AT SOUTH ABUTMENT



SECTION B-B

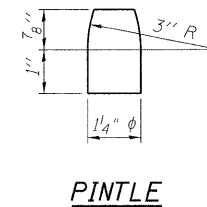
TYPE I ELASTOMERIC EXP. BRG.



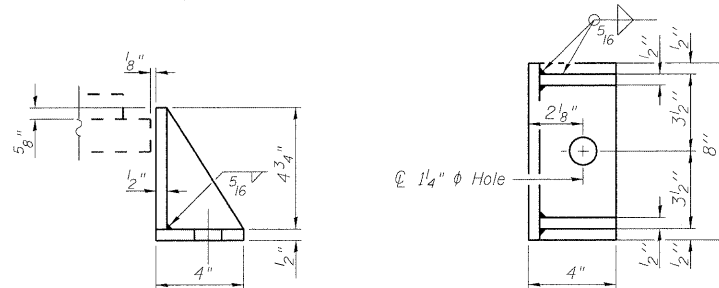
BEARING ASSEMBLY

Note:
Shim plates shall not be placed under Bearing Assembly.

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 (Fy=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.
Anchor bolts for side retainers may be cast in place or installed in holes drilled before or after members are in place.
Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
Side retainers and other steel members required for the elastomeric bearing assembly shall be included in the cost of Furnishing Elastomeric Bearing Assembly, Type I.



PINTLE



SIDE RETAINER

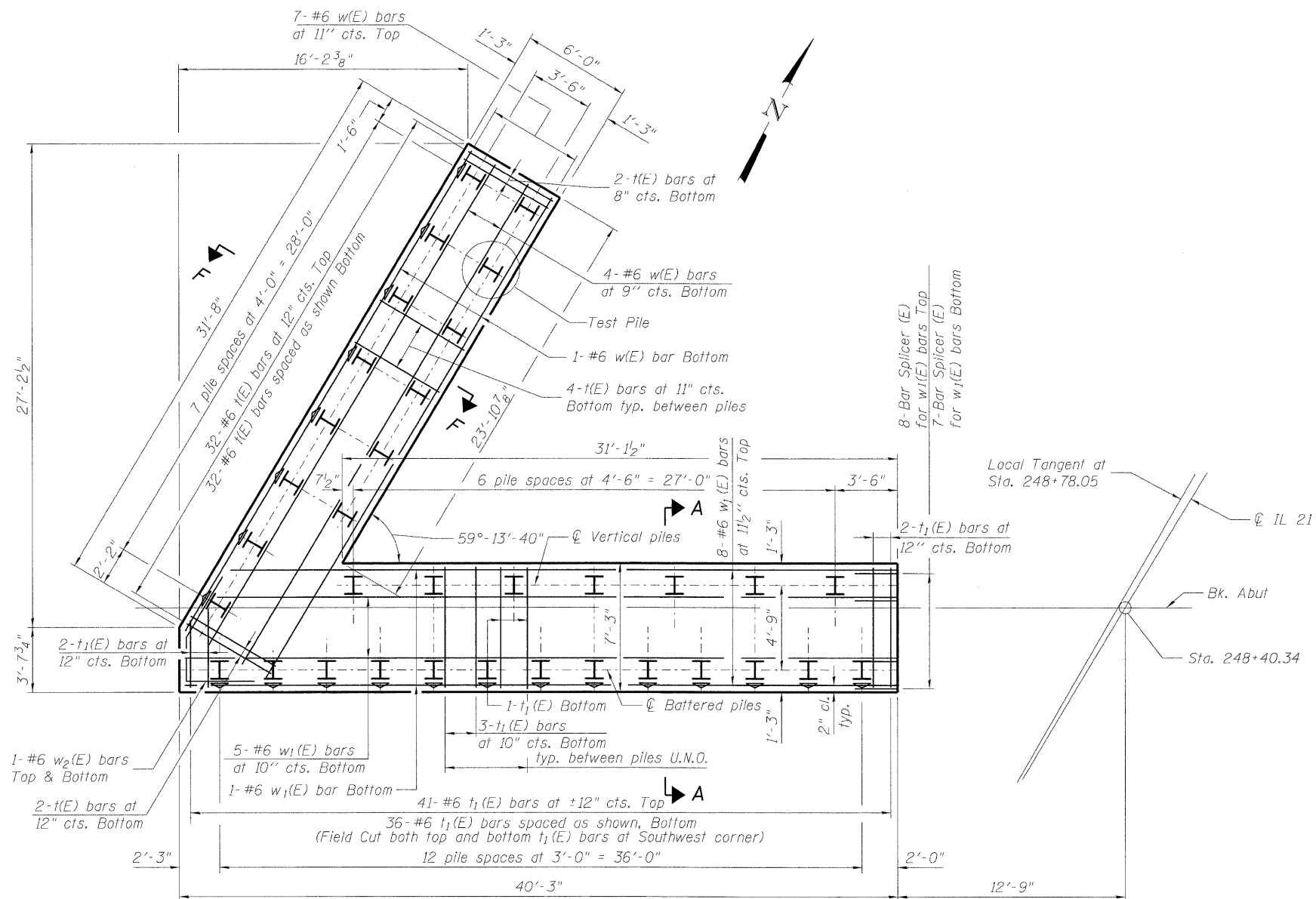
Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

BILL OF MATERIAL

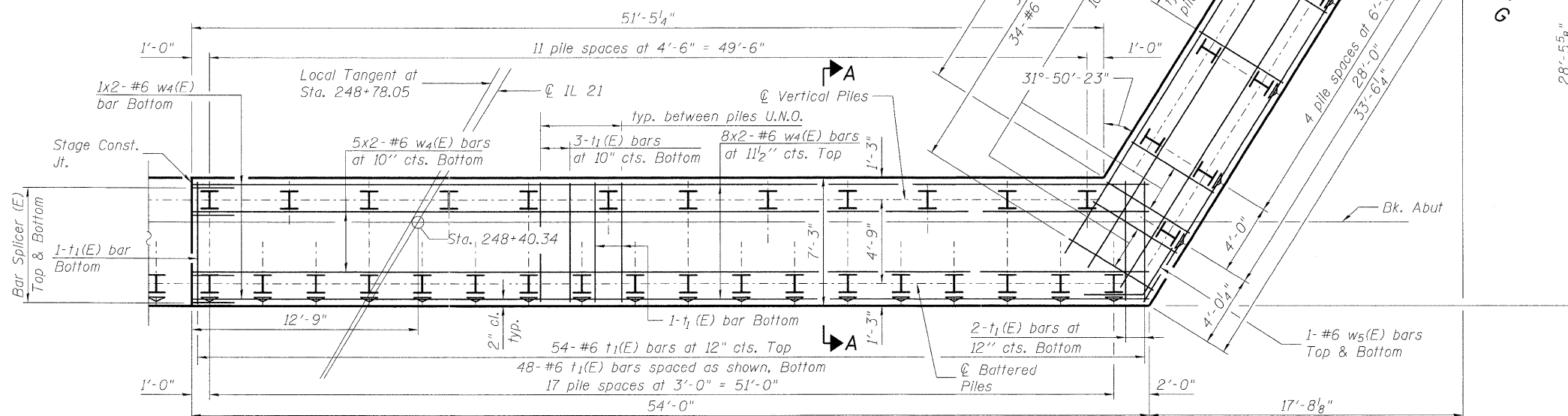
Item	Unit	Total
Furnishing Elastomeric Bearing Assembly Type I	Each	11
Anchor Bolts, 1"	Each	22



FILE NAME = #FILE#	USER NAME =	DESIGNED - JY	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	BEARING DETAILS STRUCTURE NO. 049-0199	F.A.P. RTE. 330	SECTION 128R-2-F	COUNTY LAKE	TOTAL SHEETS 28	SHEET NO. 19		
PLOT SCALE =	DRAWN - JY	REVISOR -	SHEET NO. OF 43 SHEETS			CONTRACT NO. 60P54		ILLINOIS FED. AID PROJECT				
PLOT DATE = 12/26/2010	CHECKED - KO	REVISOR -										



NORTH ABUTMENT STAGE I FOOTING PLAN



NORTH ABUTMENT STAGE II FOOTING PLAN

PILE DATA

Type: Steel HP 12x53 with pile shoes
 Nominal Required Bearing: 350 kips
 Factored Resistance Available: 145 kips
 Est. Length: 21 ft
 No. Production Piles: 74
 No. Test Piles: 1

Notes:

1. Cut w(E), w₁(E) and w₃(E) bars in field to fit or miss piles if necessary.
2. See Section A-A on sheet 31 of 43.
3. See Section F-F and Section G-G on sheet 33 of 43.
4. n(E) and n₁(E) bars are not shown for clarity. See Sheets 31 thru 33 for placement.

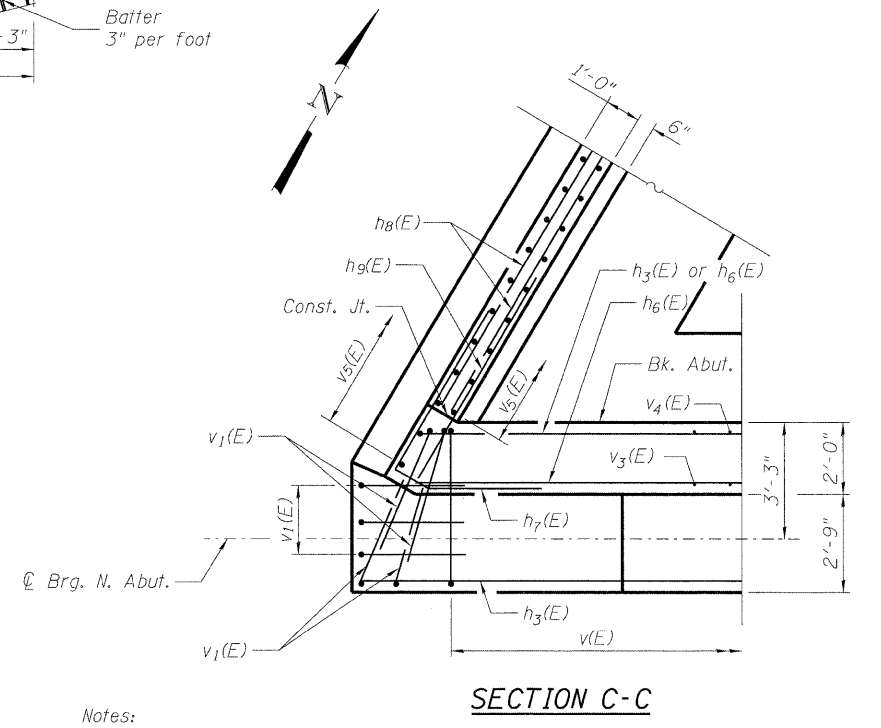
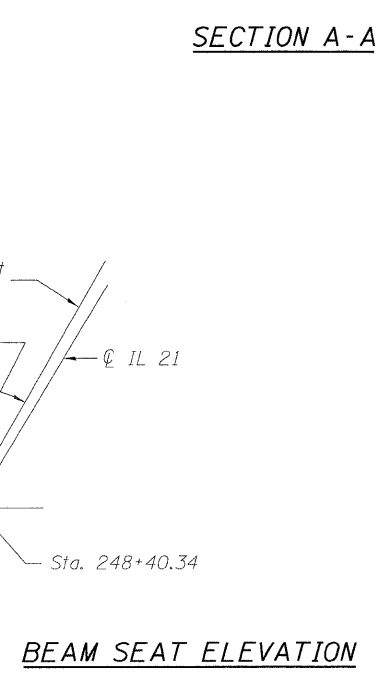
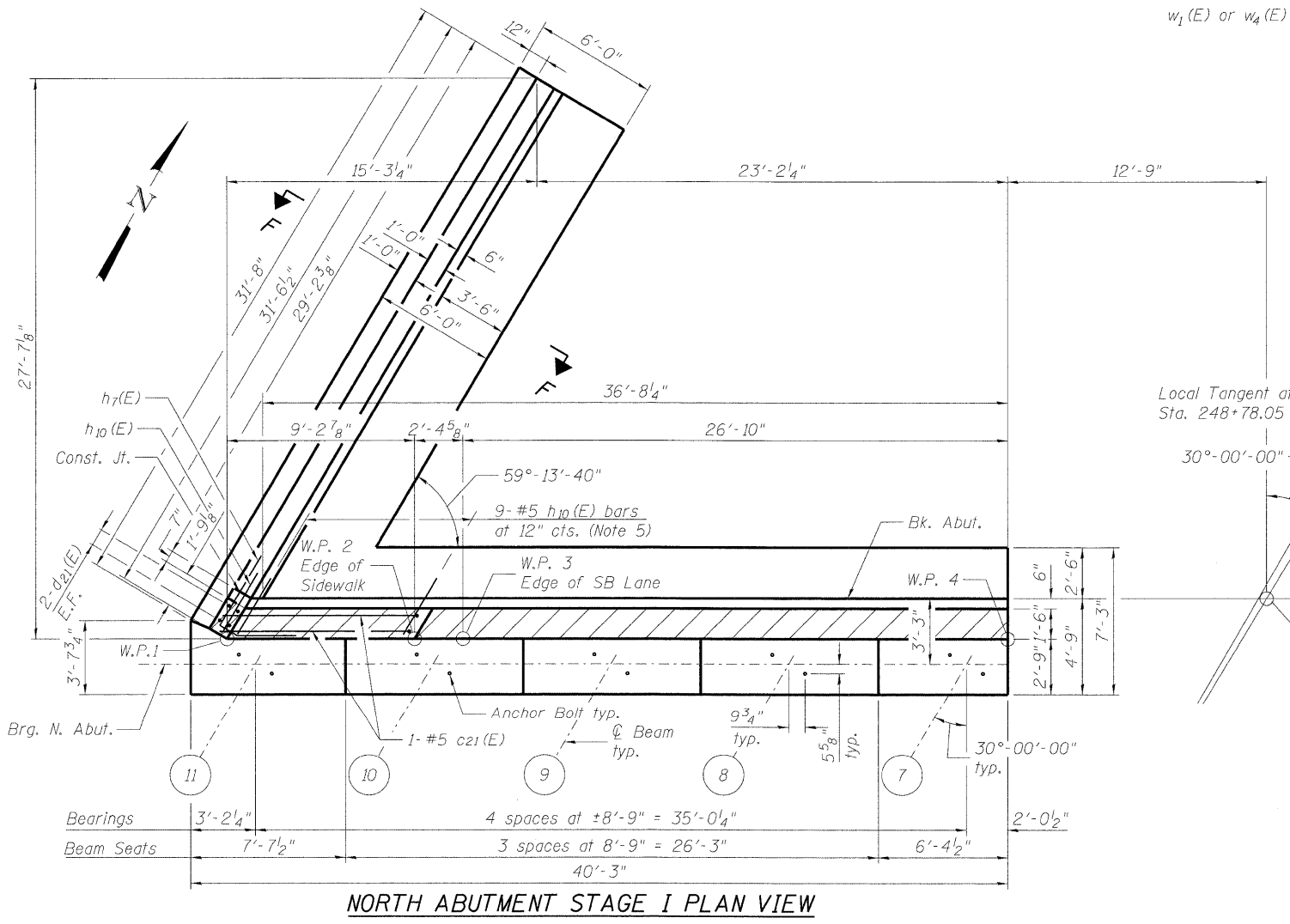
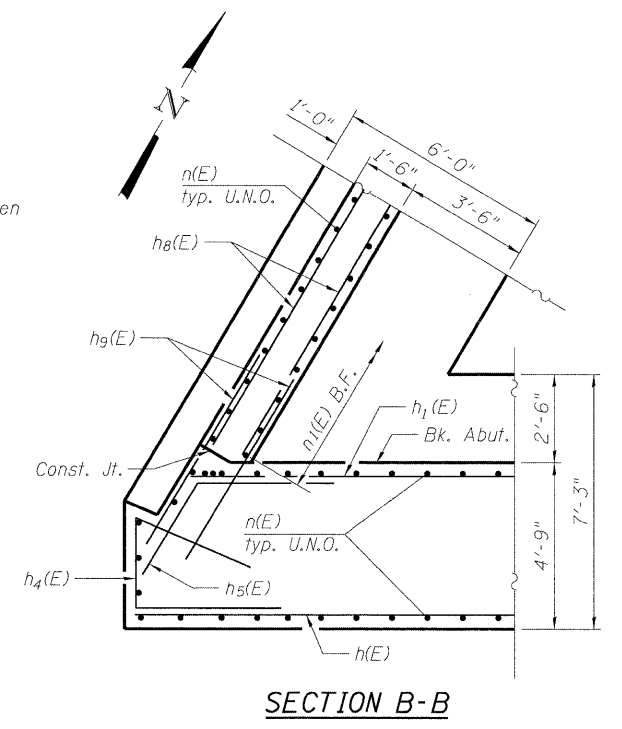
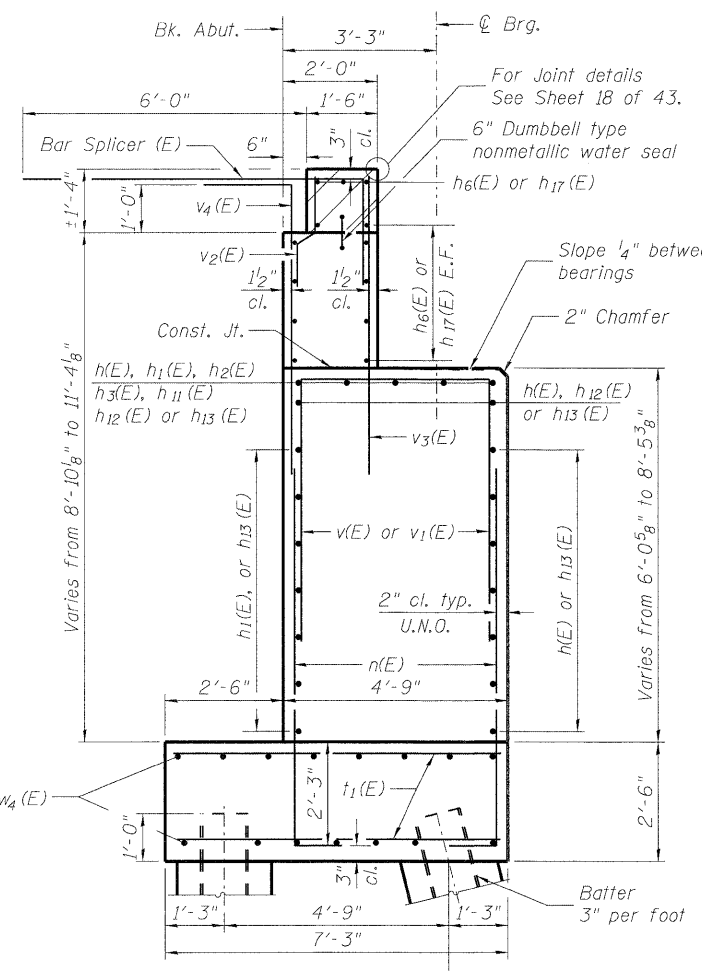
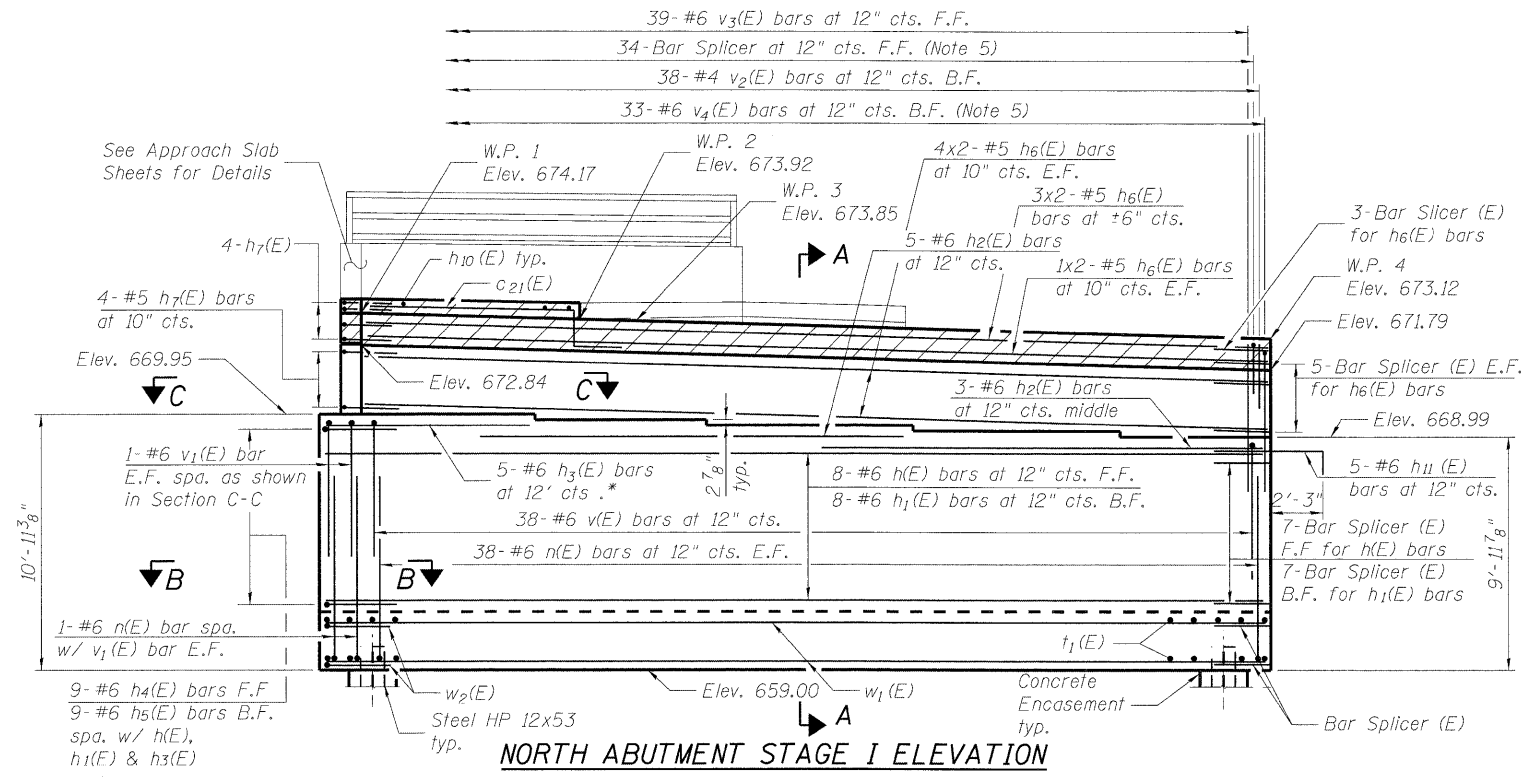
FOR INFORMATION ONLY **MACTEC**

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	PLOT DATE = 12/28/2018	CHECKED - RMK	REVISED -

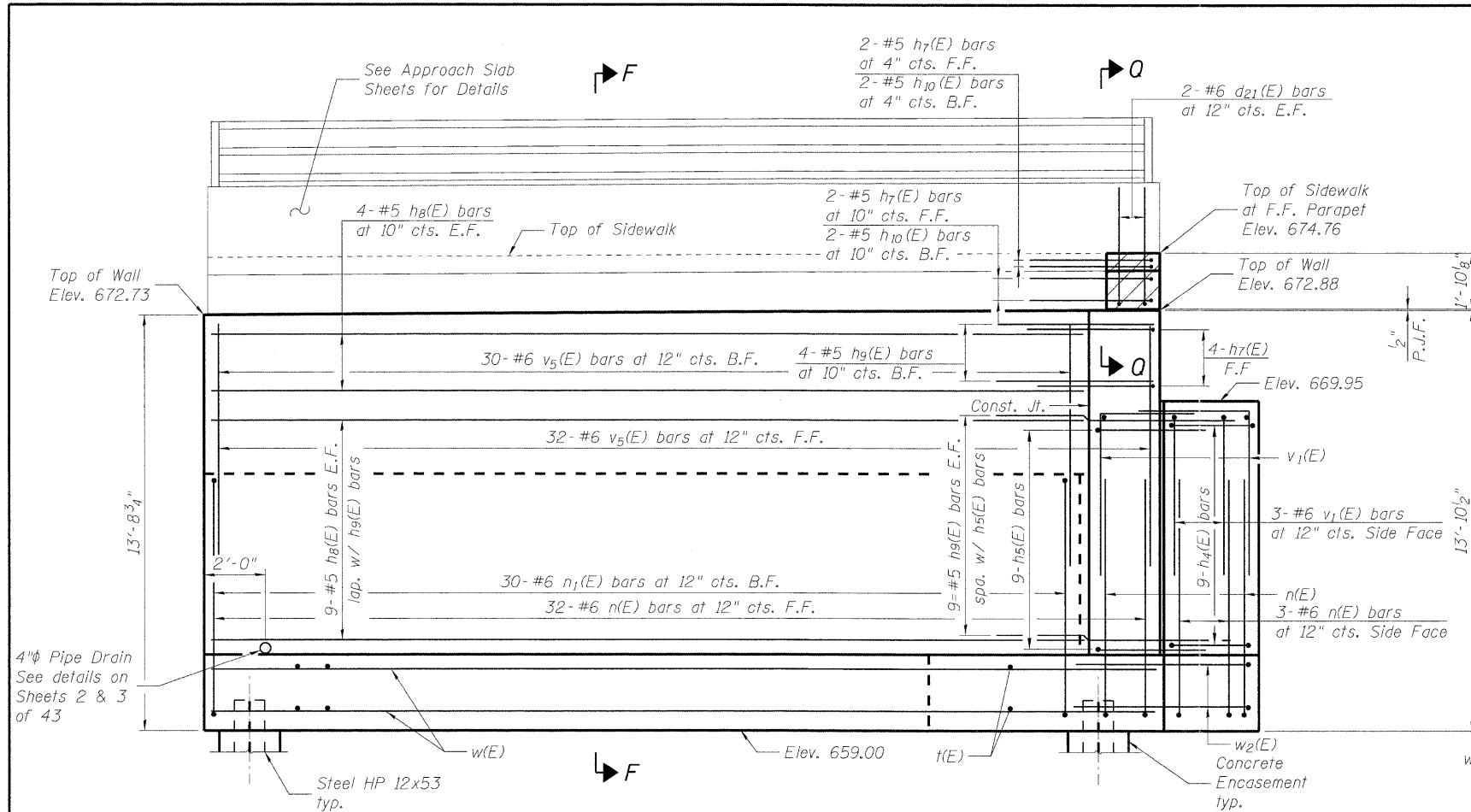
**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**NORTH ABUTMENT FOOTING PLAN
 STRUCTURE NO. 049-0199**

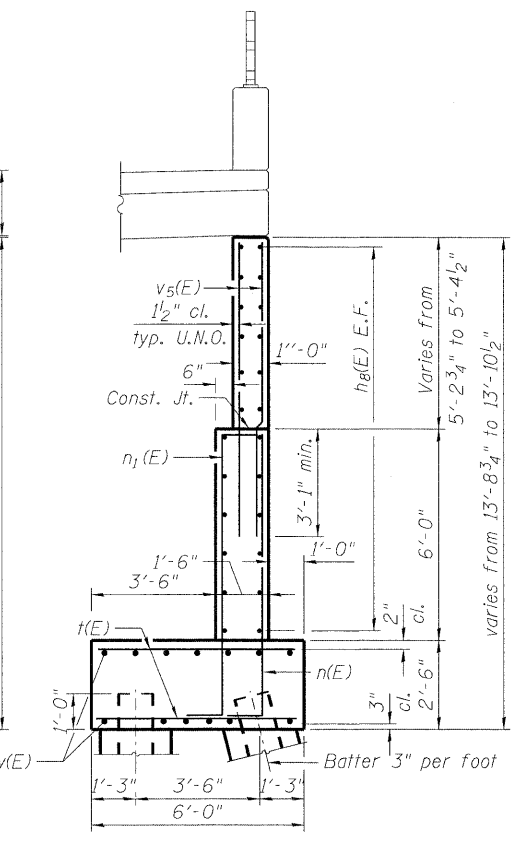
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-2-F	LAKE	28	20
CONTRACT NO. 60P54			ILLINOIS FED. AID PROJECT	



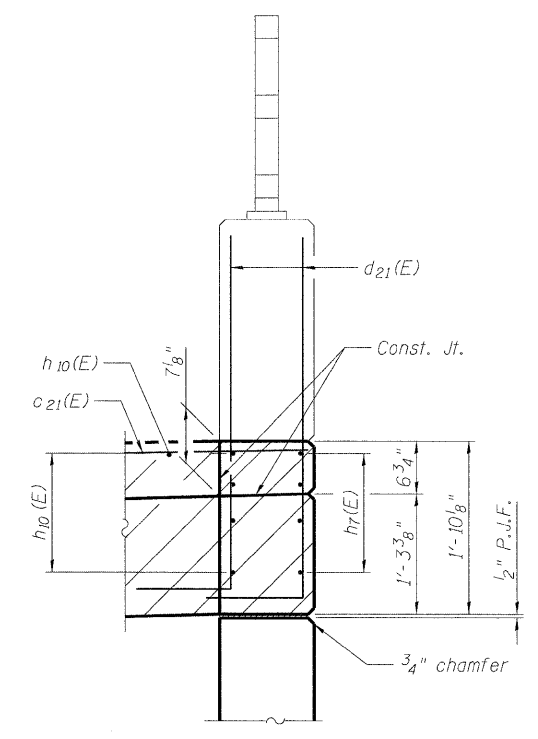
- Notes:
1. See Section F-F on sheet 33 of 43.
 2. Hatched area to be poured after superstructure false work has been removed. Quantity of concrete included with Concrete Superstructure.
 3. Space reinforcement in cap to miss anchor bolts.
 4. Pour steps monolithically with cap.
 5. Place bar splicer (E), v4(E) and h10(E) bars parallel to beams. Alternate bar splicer with v4(E) bars.
 - *6. Field cut h3(E) bars to fit.
 7. Min. lap splice for #5 bar is 2'-11" and #6 bar is 3'-6" unless noted otherwise.



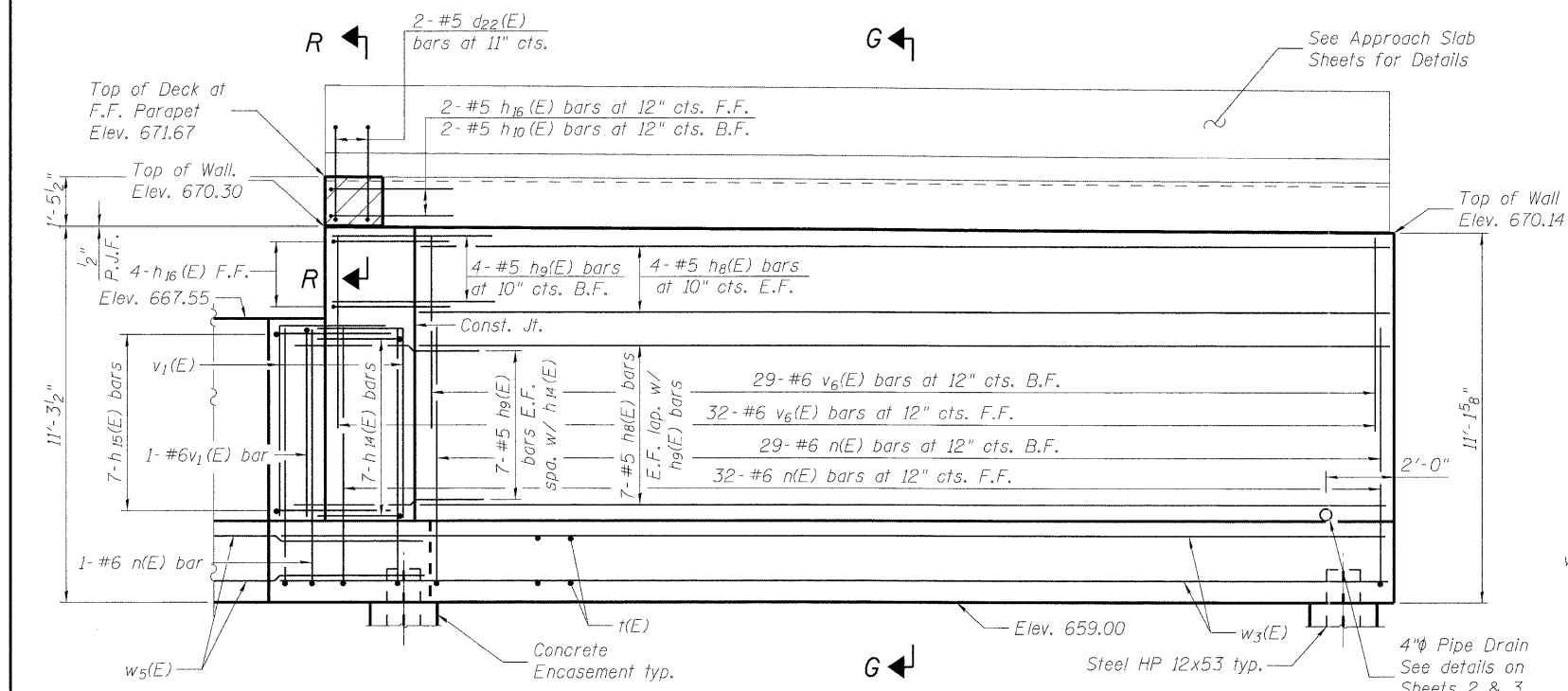
NORTH ABUTMENT WEST WINGWALL ELEVATION
(Looking East)



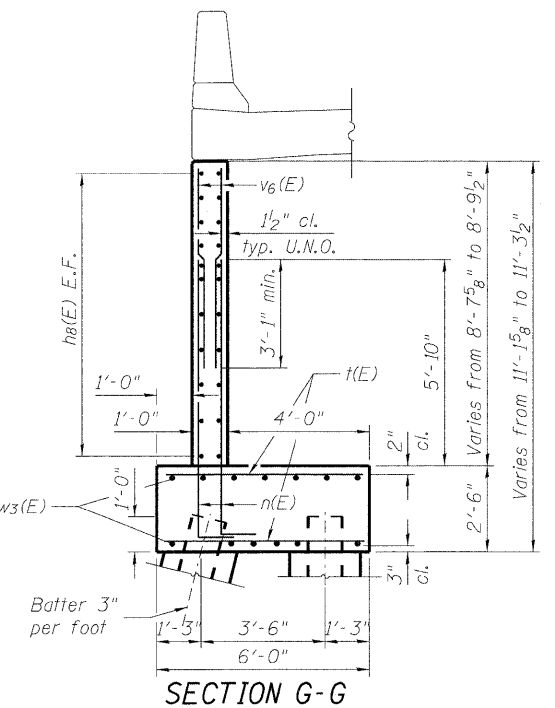
SECTION F-F



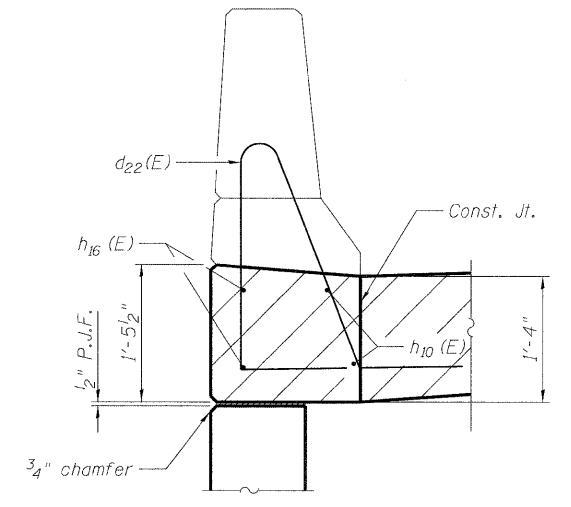
SECTION Q-Q



NORTH ABUTMENT EAST WINGWALL ELEVATION
(Looking West)



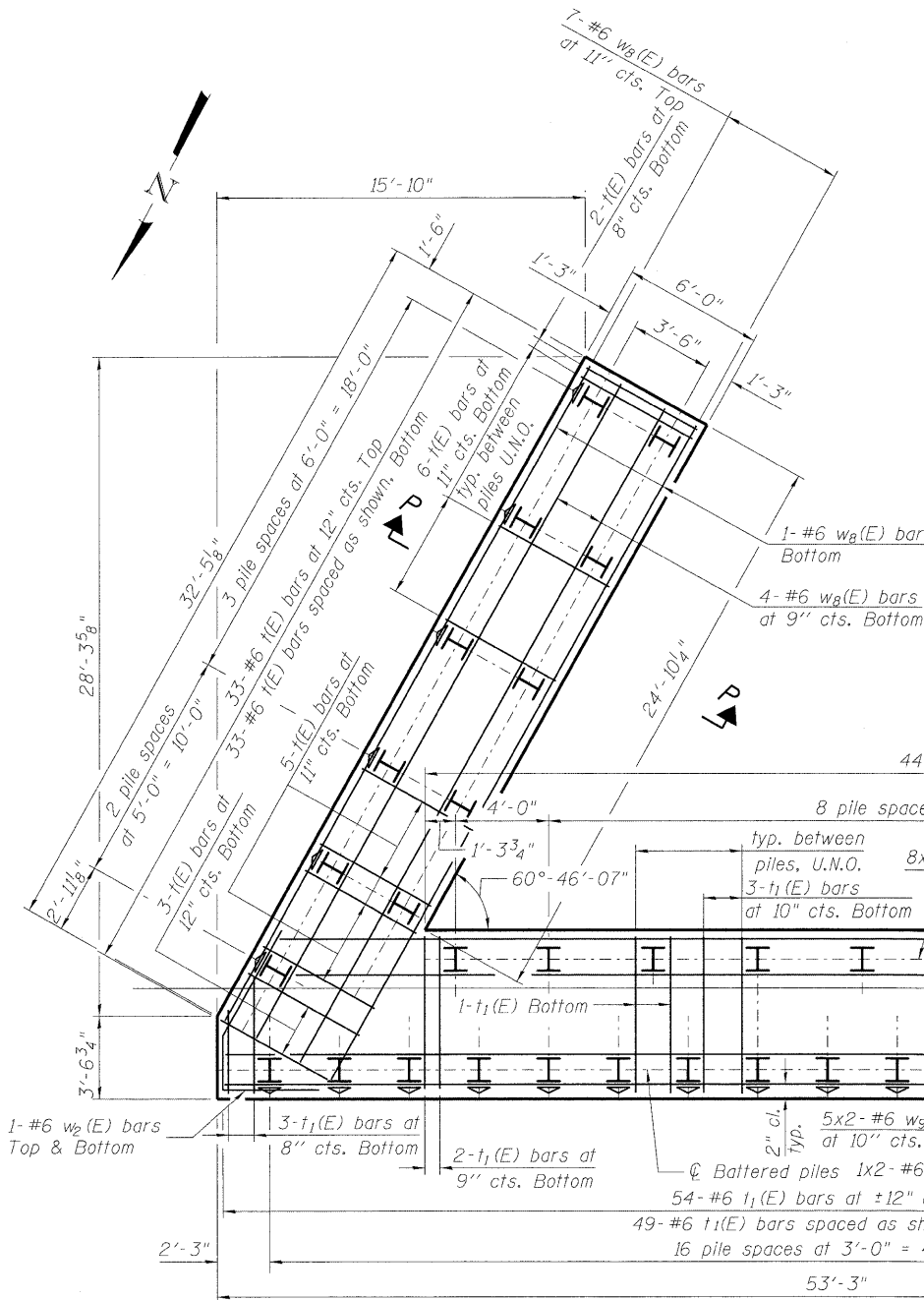
SECTION G-G



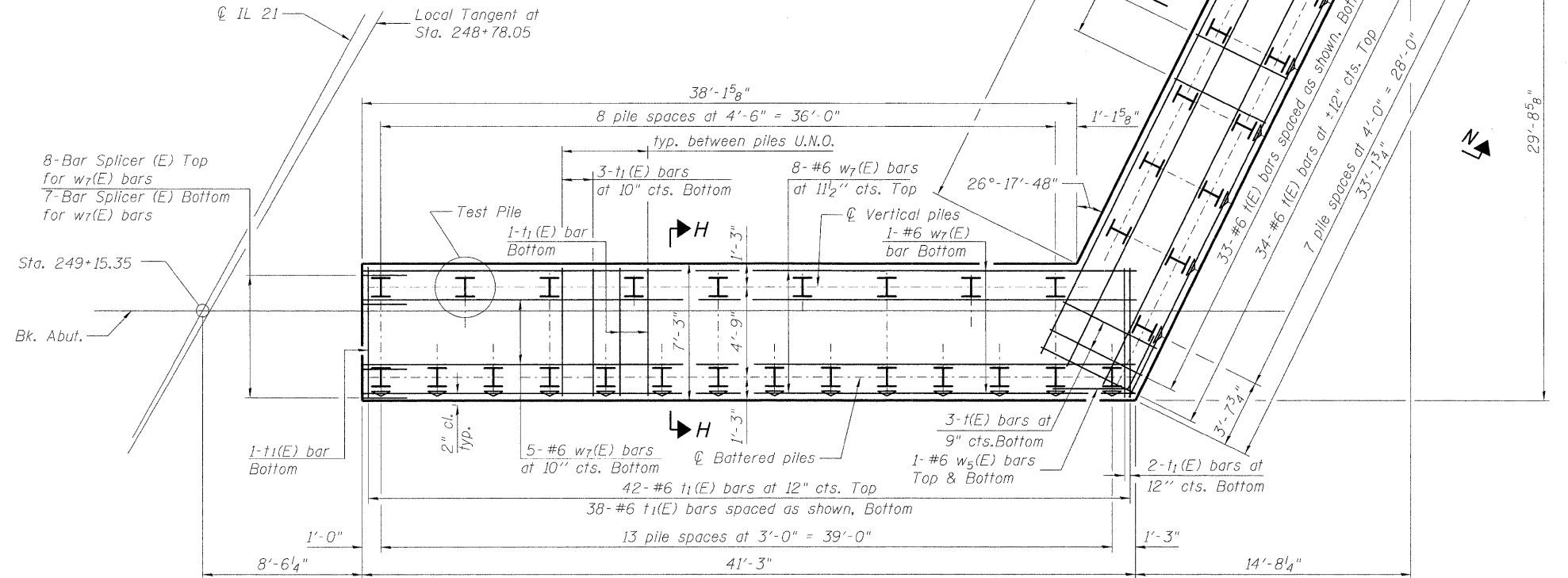
SECTION R-R

PILE DATA

Type: Steel HP 12x53 with pile shoes
 Nominal Required Bearing: 300 kips
 Factored Resistance Available: 136 kips
 Est. Length: 26 ft
 No. Production Piles: 75
 No. Test Piles: 1



SOUTH ABUTMENT STAGE II FOOTING PLAN



SOUTH ABUTMENT STAGE I FOOTING PLAN

Notes:

1. Cut $w_6(E)$, $w_8(E)$ and $w_9(E)$ bars in field to fit or miss piles if necessary.
2. See Section H-H on sheet 35 of 43.
3. See Section N-N and Section P-P on sheet 37 of 43.
4. $n_2(E)$, $n_3(E)$ and $n_4(E)$ bars are not shown for clarity. See Sheets 35 thru 37 for placement.

FILE NAME =	USER NAME =	DESIGNED - JY	REVISED -
#FILE#		CHECKED - WPM	REVISED -
	PLOT SCALE =	DRAWN - JY	REVISED -
	PLOT DATE = 12/20/2010	CHECKED - RMK	REVISED -

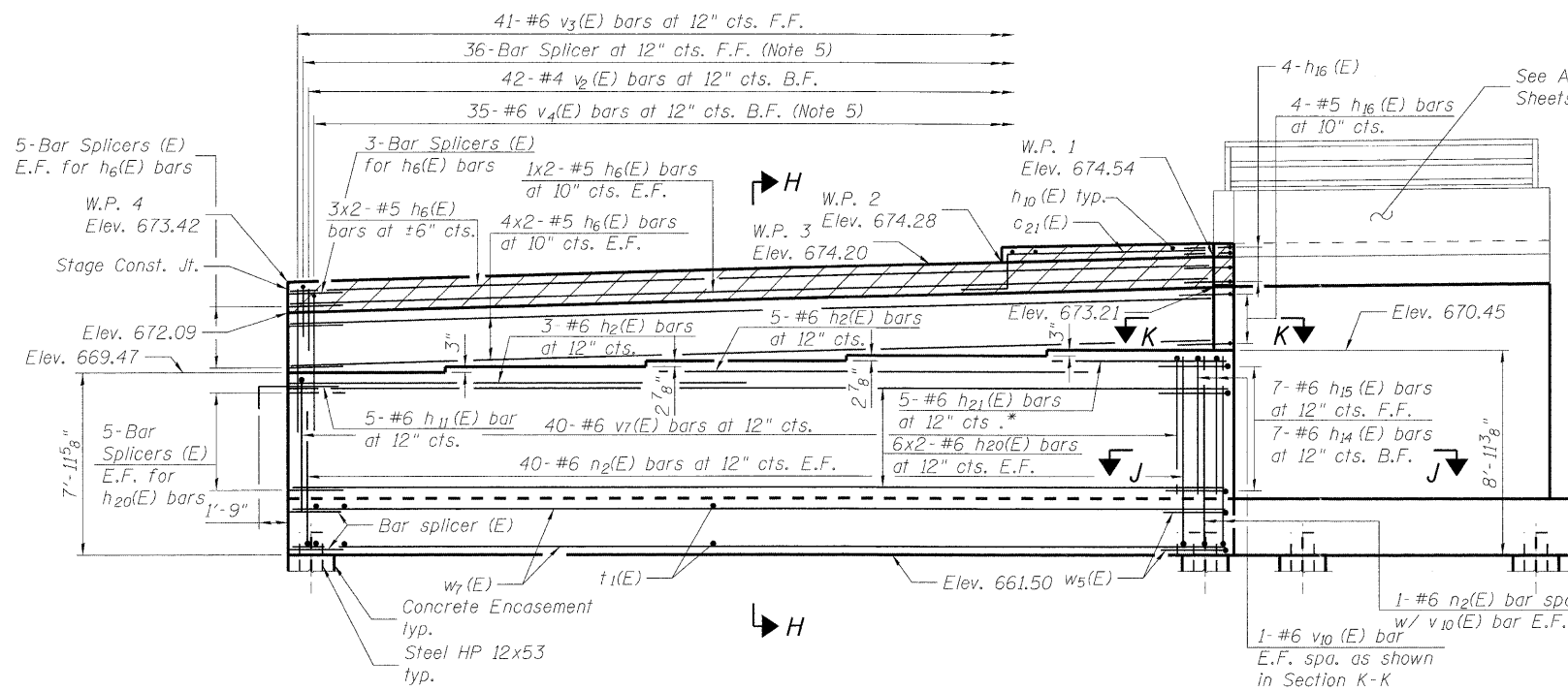
**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**SOUTH ABUTMENT FOOTING PLAN
 STRUCTURE NO. 049-0199**

SHEET NO. 34 OF 43 SHEETS

FOR INFORMATION ONLY **MACTEC**

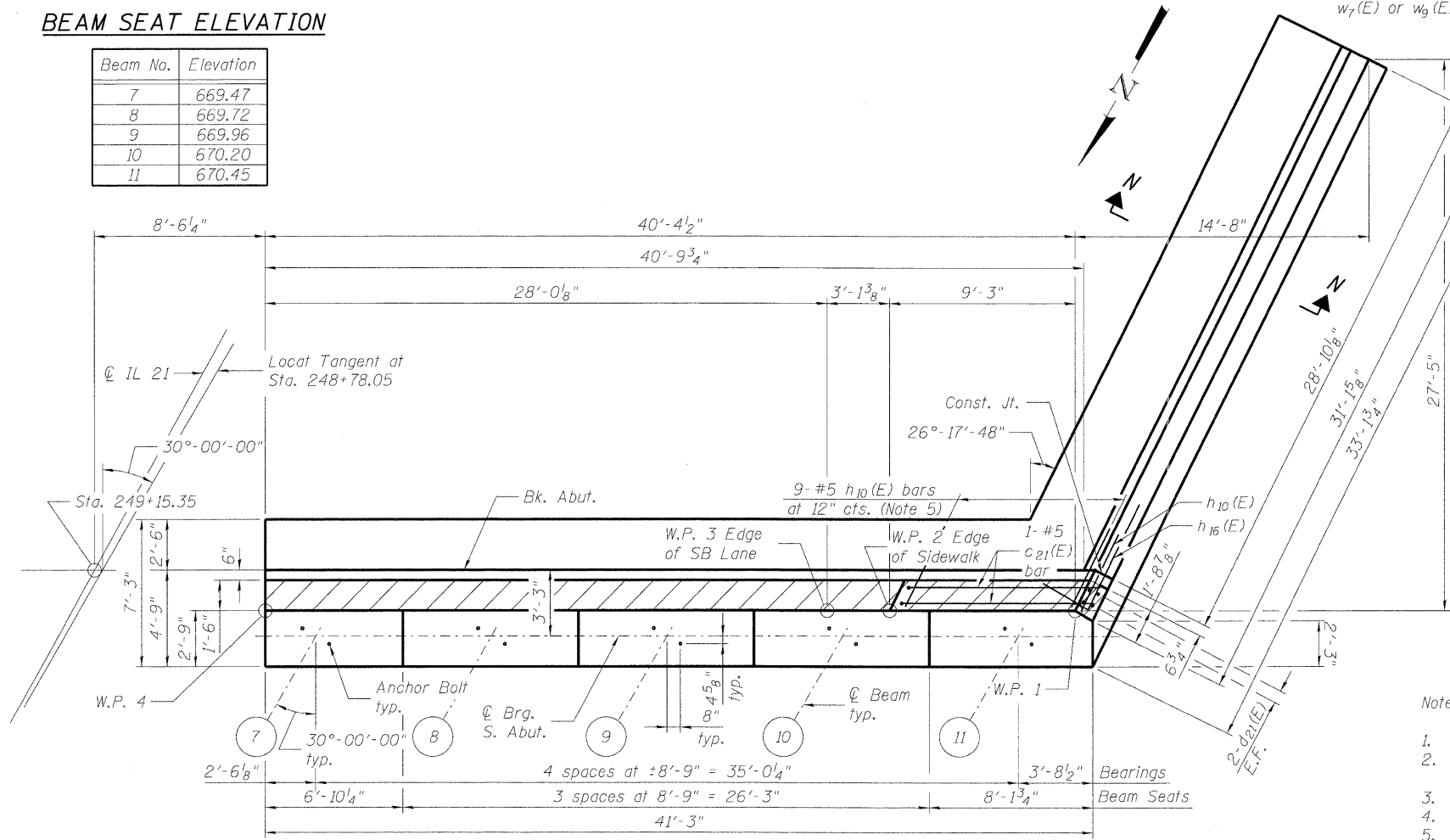
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-2-F	LAKE	28	24
			CONTRACT NO. 60P54	
ILLINOIS FED. AID PROJECT				



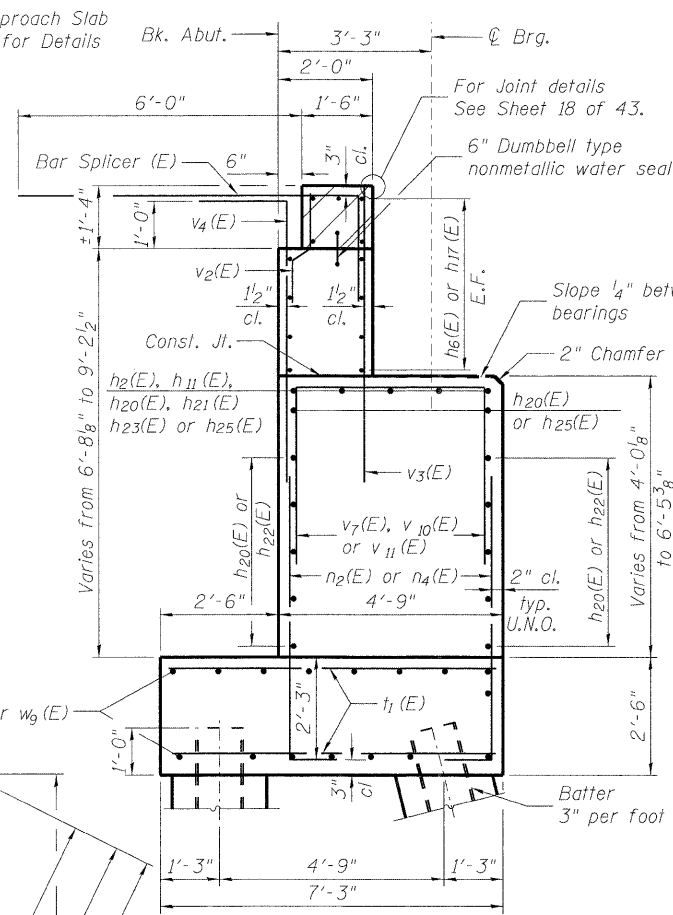
SOUTH ABUTMENT STAGE I ELEVATION

BEAM SEAT ELEVATION

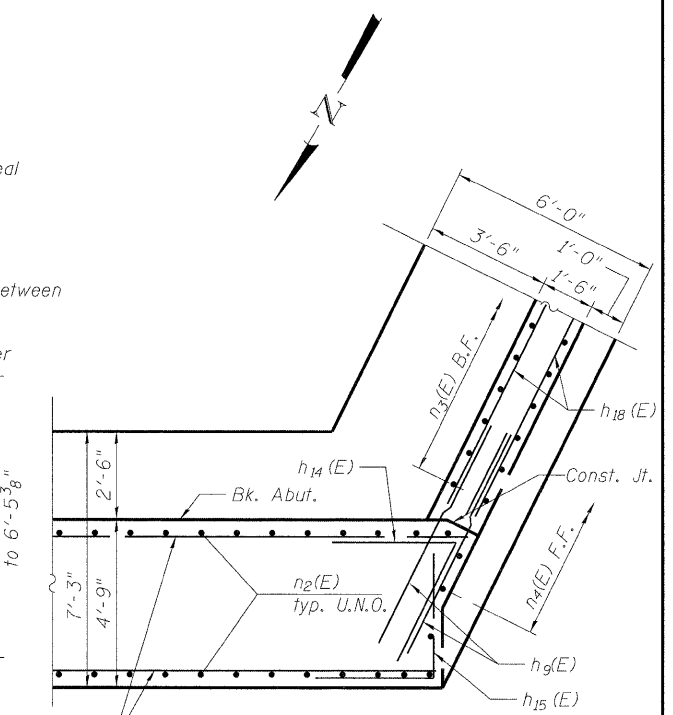
Beam No.	Elevation
7	669.47
8	669.72
9	669.96
10	670.20
11	670.45



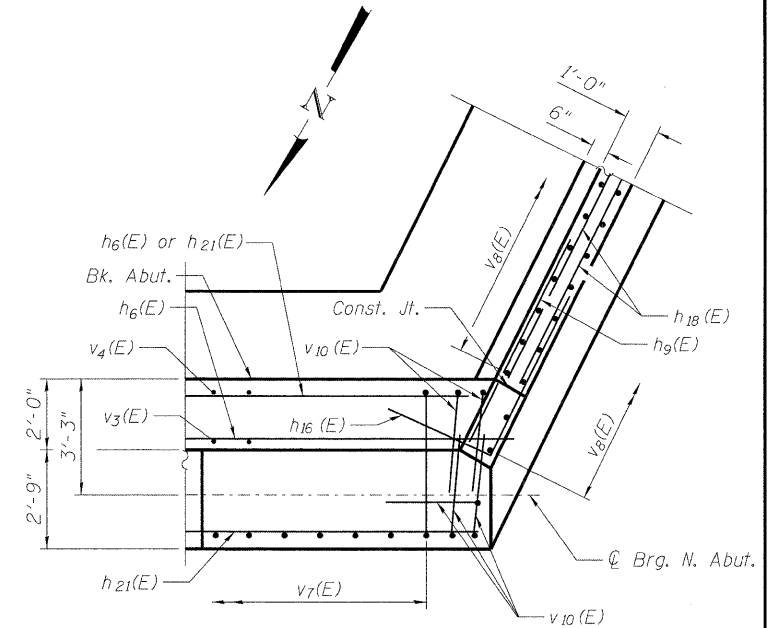
SOUTH ABUTMENT STAGE I PLAN VIEW



SECTION H-H



SECTION J-J

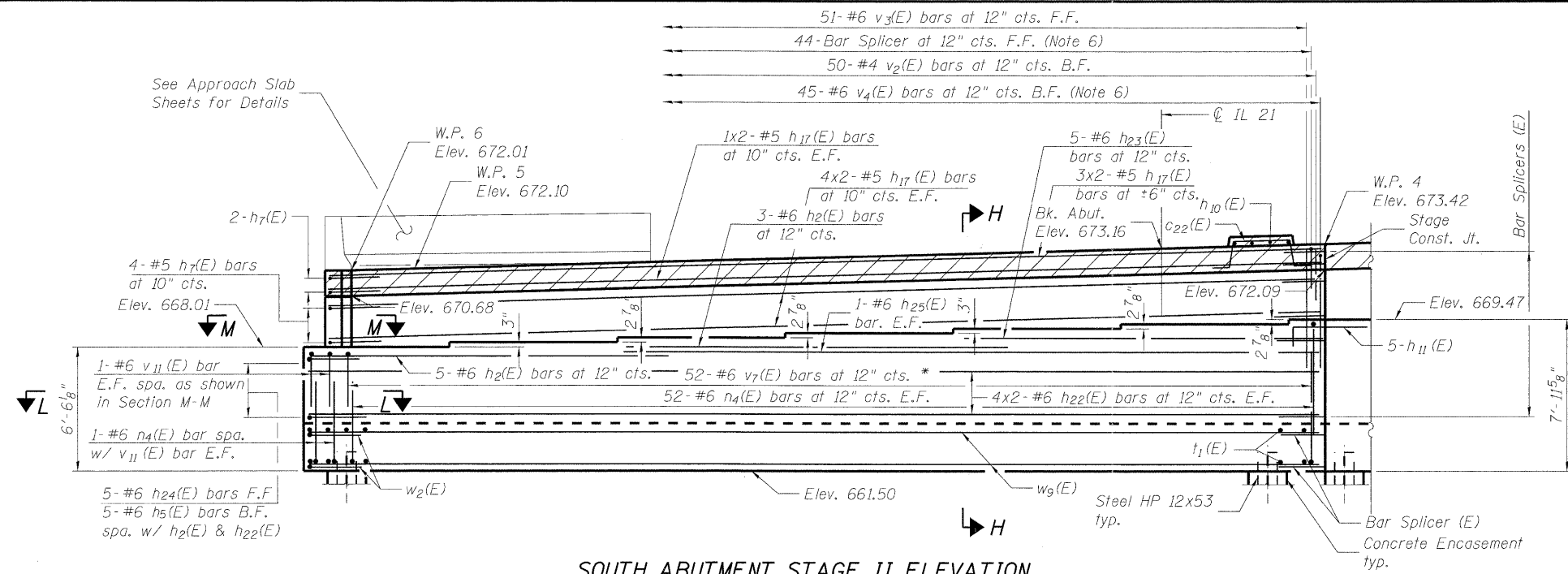


SECTION K-K

- Notes:
- See Section N-N on sheet 37 of 43.
 - Hatched area to be poured after superstructure false work has been removed. Quantity of concrete included with Concrete Superstructure.
 - Space reinforcement in cap to miss anchor bolts.
 - Pour steps monolithically with cap.
 - Place bar splicer (E), $v_4(E)$ and $h_{10}(E)$ bars parallel to beams. Alternate bar splicer with $v_4(E)$ bars.
 - Field cut $h_{21}(E)$ bars to fit.
 - Min. lap splice for #5 bar is 2'-11" and #6 bar is 3'-6" unless noted otherwise.

FOR INFORMATION ONLY

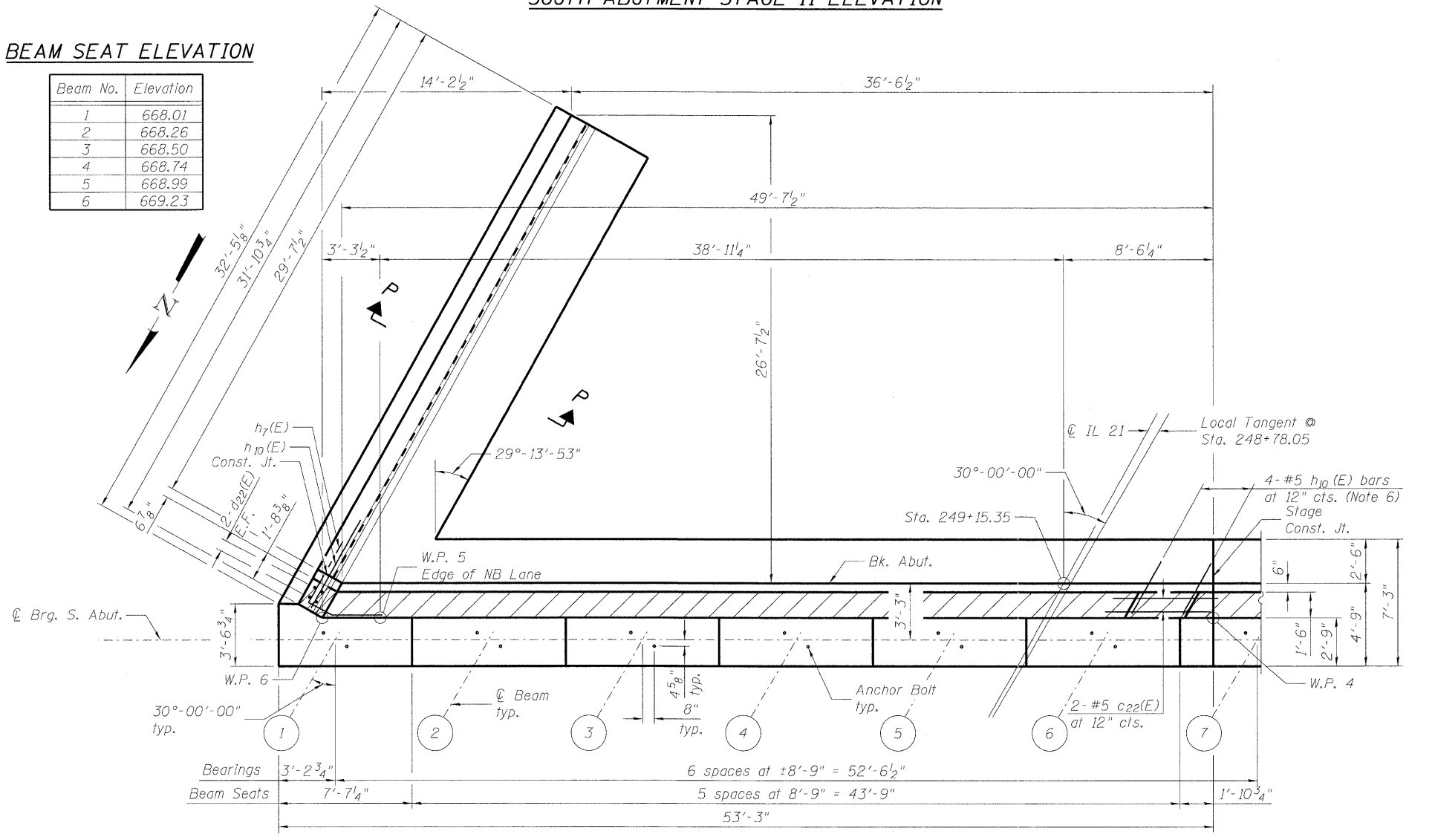




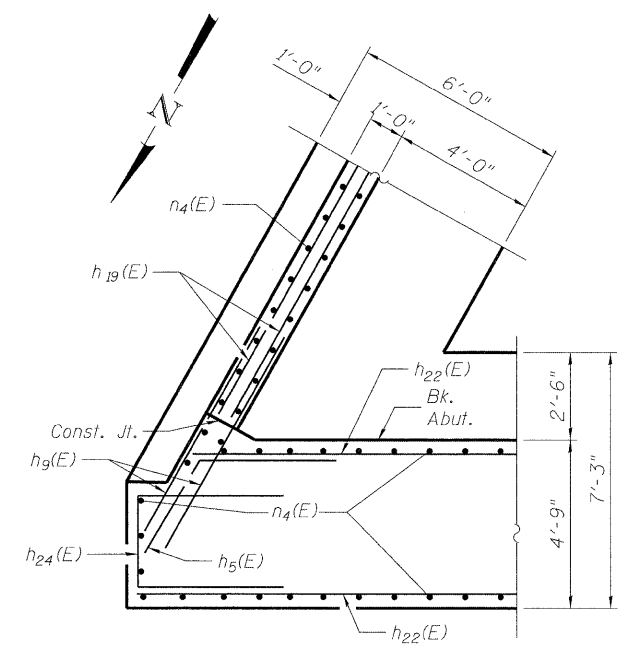
SOUTH ABUTMENT STAGE II ELEVATION

BEAM SEAT ELEVATION

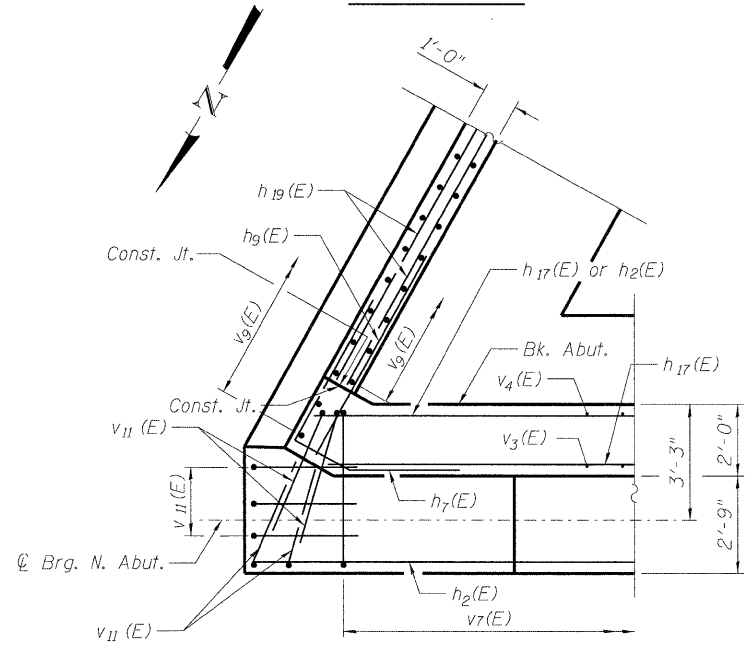
Beam No.	Elevation
1	668.01
2	668.26
3	668.50
4	668.74
5	668.99
6	669.23



SOUTH ABUTMENT STAGE II PLAN VIEW

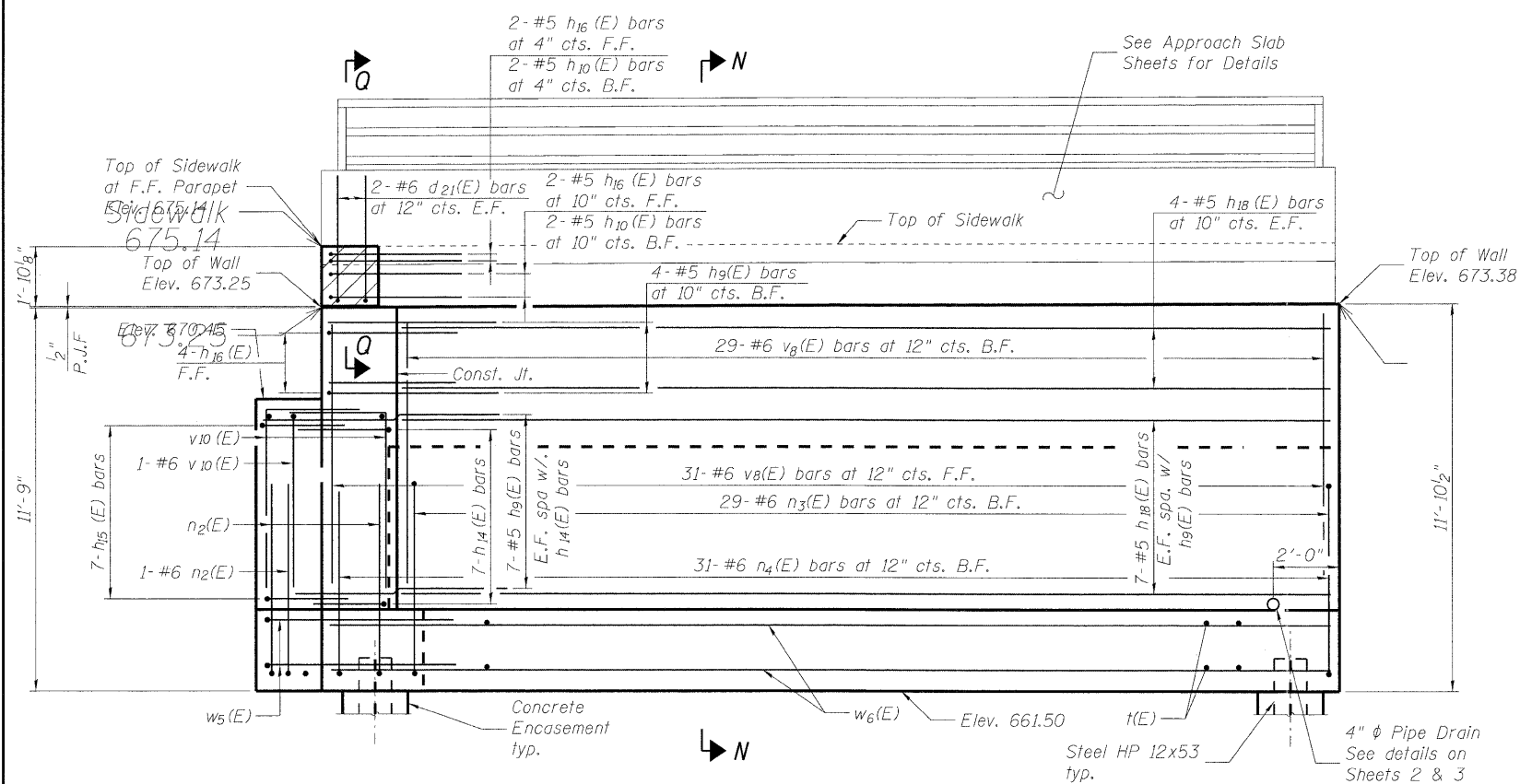


SECTION L-L

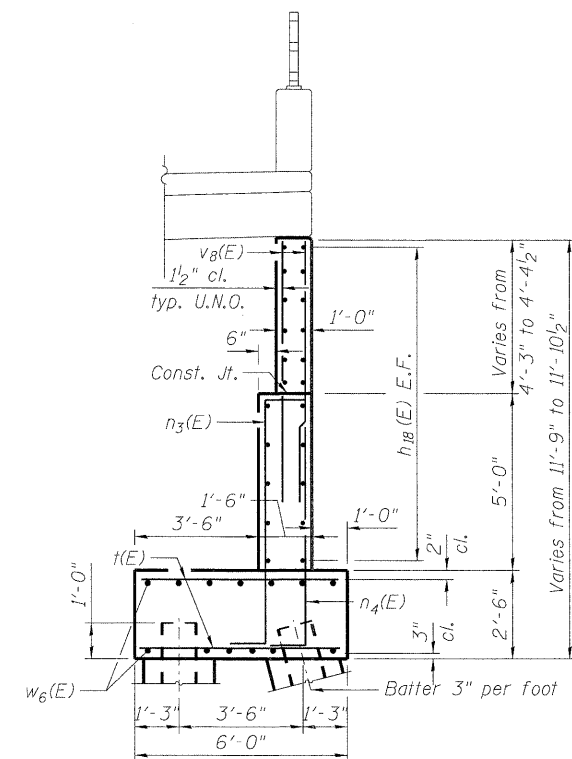


SECTION M-M

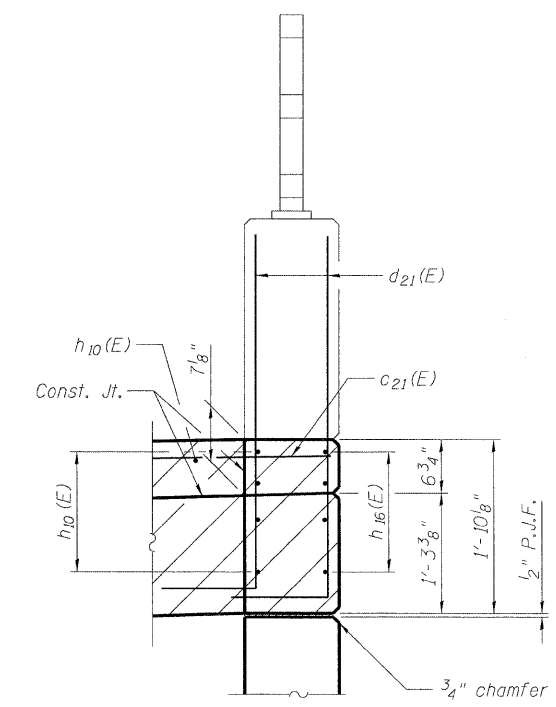
- Notes:
1. See Section H-H on sheet 35 of 43.
 2. See Section P-P on sheet 37 of 43.
 3. Hatched area to be poured after superstructure false work has been removed. Quantity of concrete included with Concrete Superstructure.
 4. Space reinforcement in cap to miss anchor bolts.
 5. Pour steps monolithically with cap.
 6. Place bar splicer (E), v4(E) and h10(E) bars parallel to beams. Alternate bar splicer with v4(E) bars.
 - * 7. Field cut v7(E) bars at the east corner to fit.
 8. Min. lap splice for #5 bar is 2'-11" and #6 bar is 3'-6" unless noted otherwise.



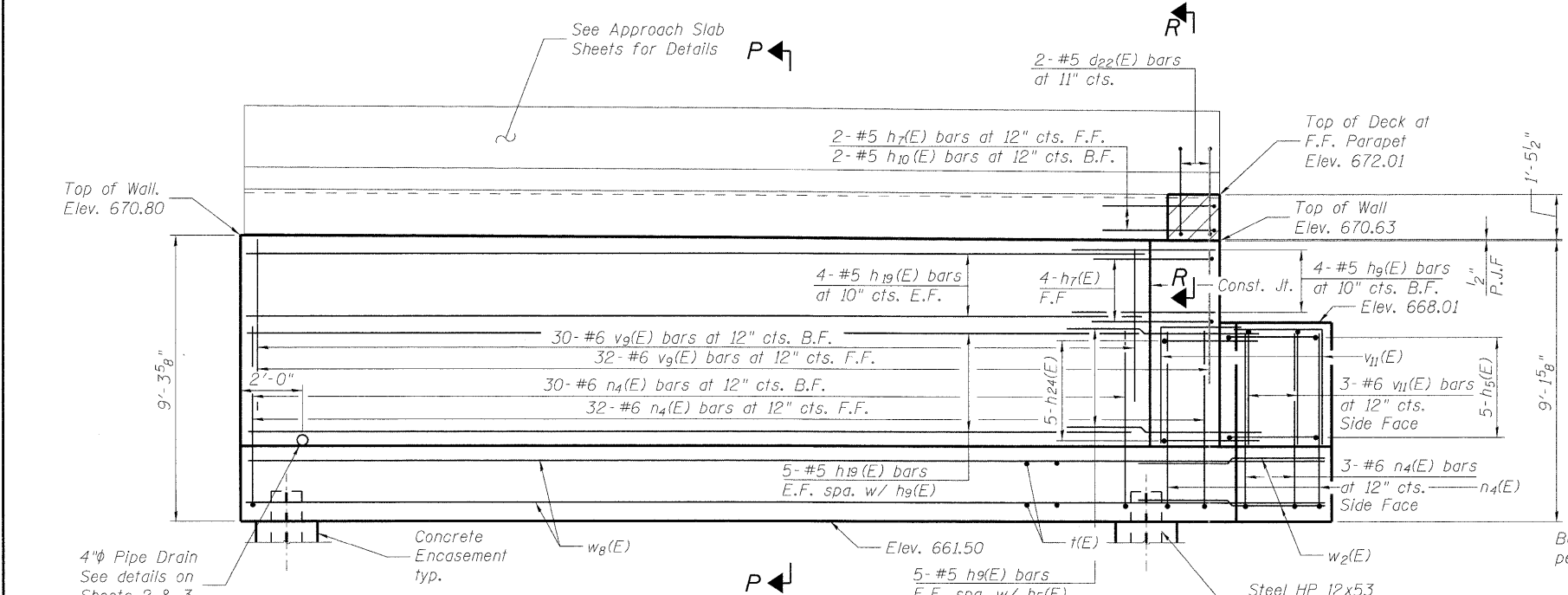
SOUTH ABUTMENT WEST WINGWALL ELEVATION
(Looking East)



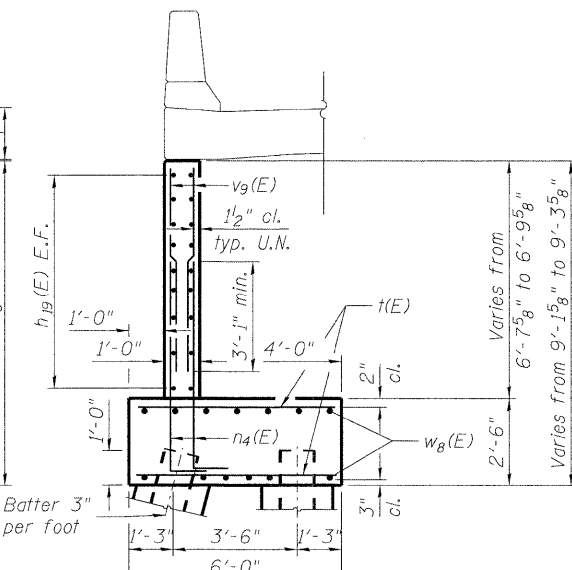
SECTION N-N



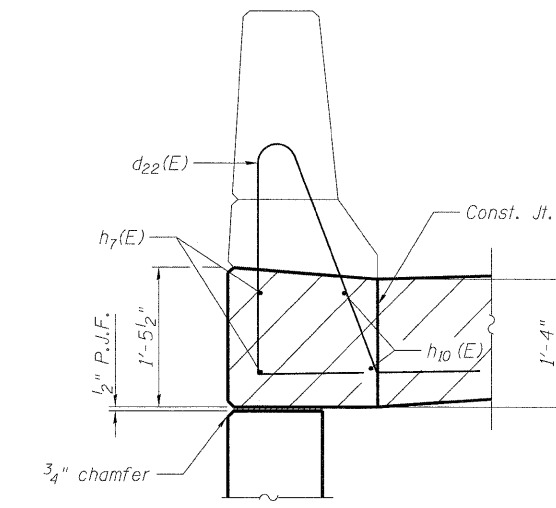
SECTION Q-Q



SOUTH ABUTMENT EAST WINGWALL ELEVATION
(Looking West)



SECTION P-P



SECTION R-R

FILE NAME = #FILEL#	USER NAME =	DESIGNED - JY	REVISED -
		CHECKED - RMK	REVISED -
		DRAWN - JY	REVISED -
		CHECKED - RMK	REVISED -
	PLOT DATE = 12/20/2010		

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

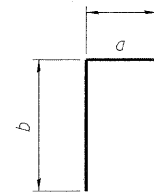
**SOUTH ABUTMENT WINGWALL
STRUCTURE NO. 049-0199**

SHEET NO. 37 OF 43 SHEETS

FOR INFORMATION ONLY **MACTEC**

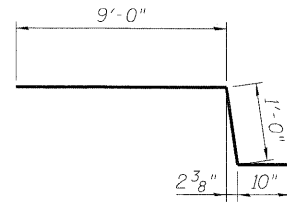
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-2-F	LAKE	28	27
CONTRACT NO. 60P54				

ILLINOIS FED. AID PROJECT

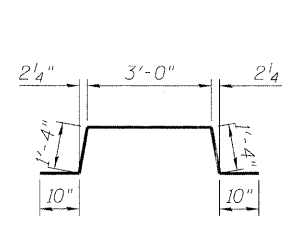


Bar	a	b
d21(E)	1'-0"	3'-10"
h11(E)	1'-0"	5'-8"
h15(E)	3'-6"	3'-6"
h16(E)	2'-11"	5'-7"
n(E)	1'-0"	8'-1"
n2(E)	1'-0"	7'-6"
n4(E)	1'-0"	6'-1"
v1(E)	4'-0"	5'-7"
v4(E)	1'-11"	6'-3"
v10(E)	1'-11"	4'-1"
v11(E)	1'-11"	3'-10"

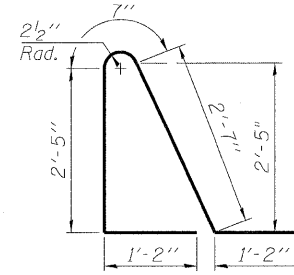
BARS $d_{21}(E)$, $h_{11}(E)$, $h_{15}(E)$, $h_{16}(E)$, $n(E)$, $n_2(E)$, $n_4(E)$, $v_1(E)$, $v_4(E)$, $v_{10}(E)$, and $v_{11}(E)$



BAR $c_{21}(E)$



BAR $c_{22}(E)$



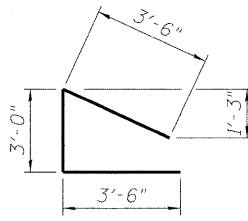
BAR $d_{22}(E)$

**NORTH ABUTMENT
BILL OF MATERIAL**

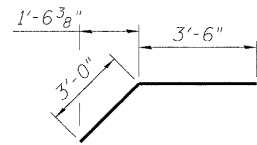
Bar	No.	Size	Length	Shape
c21(E)	2	#5	10'-10"	
c22(E)	2	#5	7'-4"	
d21(E)	4	#6	4'-10"	
d22(E)	2	#5	7'-11"	
h(E)	8	#6	40'-0"	
h1(E)	8	#6	38'-11"	
h2(E)	21	#6	19'-8"	
h3(E)	5	#6	7'-3"	
h4(E)	9	#6	10'-0"	
h5(E)	9	#6	6'-6"	
h6(E)	26	#5	22'-2"	
h7(E)	8	#5	9'-3"	
h8(E)	48	#5	29'-0"	
h9(E)	40	#5	6'-9"	
h10(E)	19	#5	4'-8"	
h11(E)	5	#6	6'-8"	
h12(E)	2	#6	37'-2"	
h13(E)	24	#6	29'-6"	
h14(E)	7	#6	7'-0"	
h15(E)	7	#6	7'-0"	
h16(E)	6	#5	8'-6"	
h17(E)	26	#5	29'-1"	
n(E)	287	#6	9'-1"	
n1(E)	30	#6	10'-1"	
l(E)	132	#6	5'-8"	
l1(E)	179	#6	6'-11"	
v(E)	91	#6	15'-7"	
v1(E)	12	#6	9'-7"	
v2(E)	92	#4	2'-11"	
v3(E)	92	#6	6'-3"	
v4(E)	80	#6	8'-2"	
v5(E)	62	#6	8'-3"	
v6(E)	61	#6	5'-11"	
w(E)	13	#6	31'-4"	
w1(E)	15	#6	40'-0"	
w2(E)	2	#6	10'-4"	
w3(E)	13	#6	33'-1"	
w4(E)	30	#6	28'-9"	
w5(E)	2	#6	7'-0"	
Structure Excavation	Cu. Yd.	835		
Concrete Structures	Cu. Yd.	257.1		
Concrete	Cu. Yd.	7.2		
Superstructure				
Concrete Encasement	Cu. Yd.	25.9		
Reinforcing Bars, Epoxy Coated	Pound	23,150		
Bar Splicers	Each	122		
Furnishing Steel Piles HP12x53	Foot	1,554		
Driving Piles	Foot	1,554		
Test Pile Steel HP12x53	Each	1		
Pile Shoes	Each	74		
Concrete Sealer	Sq. Ft.	1,193		
Geocomposite	Sq. Yd.	169		
Wall Drain				
Pipe Underdrains for Structures 4"	Foot	181		
Porous Granular Embankment, Special	Cu. Yd.	365		

**SOUTH ABUTMENT
BILL OF MATERIAL**

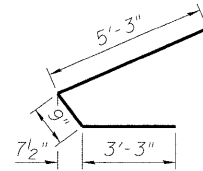
Bar	No.	Size	Length	Shape
c21(E)	2	#5	10'-10"	
c22(E)	2	#5	7'-4"	
d21(E)	4	#6	4'-10"	
d22(E)	2	#5	7'-11"	
h2(E)	16	#6	19'-8"	
h5(E)	5	#6	6'-6"	
h6(E)	26	#5	22'-2"	
h7(E)	6	#5	9'-3"	
h9(E)	32	#5	6'-9"	
h10(E)	19	#5	4'-8"	
h11(E)	5	#6	6'-8"	
h14(E)	7	#6	7'-0"	
h15(E)	7	#6	7'-0"	
h16(E)	8	#5	8'-6"	
h17(E)	26	#5	29'-1"	
h18(E)	22	#5	28'-8"	
h19(E)	18	#5	29'-5"	
h20(E)	24	#6	22'-11"	
h21(E)	5	#6	8'-10"	
h22(E)	16	#6	28'-4"	
h23(E)	5	#6	19'-3"	
h24(E)	5	#6	10'-2"	
h25(E)	2	#6	36'-9"	
n2(E)	85	#6	8'-6"	
n3(E)	29	#6	9'-1"	
n4(E)	204	#6	7'-1"	
l(E)	133	#6	5'-8"	
l1(E)	183	#6	6'-11"	
v2(E)	92	#4	2'-11"	
v3(E)	92	#6	6'-3"	
v4(E)	80	#6	8'-2"	
v7(E)	92	#6	12'-7"	
v8(E)	60	#6	8'-6"	
v9(E)	62	#6	5'-11"	
v10(E)	5	#6	6'-0"	
v11(E)	7	#6	5'-9"	
w2(E)	2	#6	10'-4"	
w5(E)	2	#6	7'-0"	
w6(E)	13	#6	32'-10"	
w7(E)	15	#6	41'-1"	
w8(E)	13	#6	32'-3"	
w9(E)	30	#6	28'-4"	
Structure Excavation	Cu. Yd.	737		
Concrete Structures	Cu. Yd.	219.3		
Concrete	Cu. Yd.	7.2		
Superstructure				
Concrete Encasement	Cu. Yd.	26.2		
Reinforcing Bars, Epoxy Coated	Pound	21,150		
Bar Splicers	Each	118		
Furnishing Steel Piles HP12x53	Foot	1,950		
Driving Piles	Foot	1,950		
Test Pile Steel HP12x53	Each	1		
Pile Shoes	Each	75		
Concrete Sealer	Sq. Ft.	1,004		
Geocomposite	Sq. Yd.	133		
Wall Drain				
Pipe Underdrains for Structures 4"	Foot	181		
Porous Granular Embankment, Special	Cu. Yd.	313		



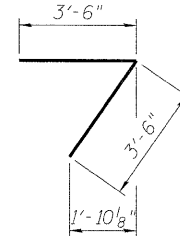
BAR $h_4(E)$



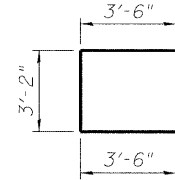
BAR $h_5(E)$



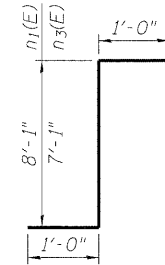
BAR $h_7(E)$



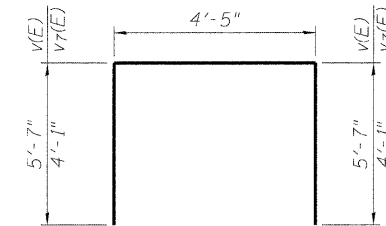
BAR $h_{14}(E)$



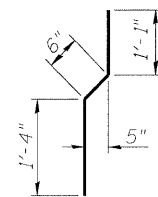
BAR $h_{24}(E)$



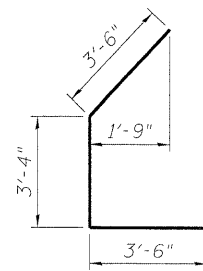
BARS $n_1(E)$ & $n_3(E)$



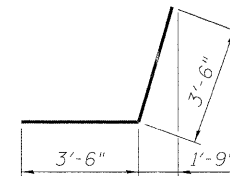
BARS $v(E)$ & $v_7(E)$



BAR $v_2(E)$



BAR $w_2(E)$



BAR $w_5(E)$

Notes:

- For details of Bar Splicers, see sheet 39 of 43.
- For details of piles and Concrete Encasement, see sheet 40 of 43.

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FILE NAME =	USER NAME =	DESIGNED - JY	REVISED -
#FILE#		CHECKED - RMK	REVISED -
		DRAWN - JY	REVISED -
		CHECKED - RMK	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ABUTMENT BILL OF MATERIAL
STRUCTURE NO. 049-0199

SHEET NO. 38 OF 43 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-2-F	LAKE	28	28
				CONTRACT NO. 60P54
ILLINOIS FED. AID PROJECT				