

BRIDGE & APPROACHES - PPCB LETTING DATE
IBRC-C008(39)--8E-08 4-18-2006

BOONE COUNTY

BOONE COUNTY - DESIGN NO. 106

CONVENTIONAL SIGNS	
	DIVIDED HIGHWAY
	PAVED ROAD
	BITUMINOUS ROAD
	GRAVEL ROAD
	EARTH ROAD
	INTERSTATE HIGHWAY
	UNITED STATES HIGHWAY
	STATE HIGHWAY
	COUNTY HIGHWAY
	RAILROAD
	PIPELINE
	AIRPORT
	HYDROLOGY
	BRIDGE
	STATE BOUNDARY
	COUNTY BOUNDARY
	CORPORATE LIMIT LINE
	TOWNSHIP LINE
	SECTION LINE

Iowa Department of Transportation
 Highway Division

PLANS OF PROPOSED IMPROVEMENTS ON THE
SECONDARY ROAD SYSTEM
BOONE COUNTY
 BRIDGE & APPROACHES - PPCB
ON 120th ST OVER SQUAW CREEK

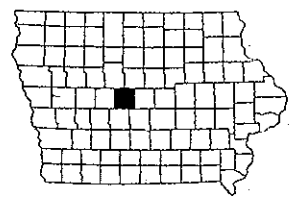
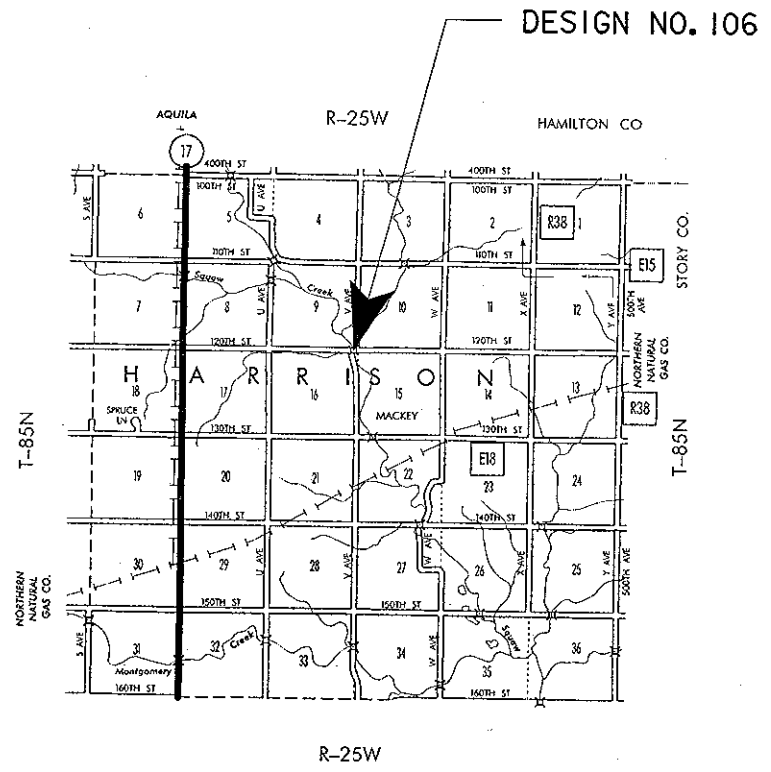
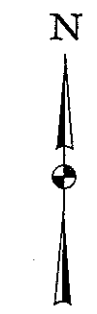
THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2001, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

VALUE ENGINEERING SAVES. REFER TO THE GENERAL NOTES IN THESE PLANS.

TOTAL SHEETS	38
PROJECT NUMBER	
IBRC-C008(39)--8E-08	
R.O.W. PROJECT NUMBER	
PROJECT IDENTIFICATION NUMBER	

INDEX OF SHEETS	
NO.	DESCRIPTION
1	TITLE SHEET
2	BRIDGE ESTIMATE SHEET
2-23	BRIDGE DESIGN NO. 106
C.01	ROADWAY ESTIMATE SHEET
B.01-X.03	ROADWAY SHEETS
Q.01	SOIL BORING LOGS

REVISIONS
 SEE REVISION SHEET IA 11-06-06



LOCATION MAP
 ALL WORKING DRAWINGS INCLUDED SHOP DRAWINGS AND FALSEWORK DRAWINGS WILL BE REVIEWED BY:
 IOWA DOT - OFFICE OF BRIDGES AND STRUCTURES
 800 LINCOLN WAY
 AMES, IA 50010

STANDARD ROAD PLANS
 STANDARD ROAD PLANS ARE LISTED ON SHEET C.01

STRUCTURAL DESIGN

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa

Signature Stuart S. Nielsen Date _____

Printed or Typed Name

My license renewal date is December 31, 2006

Pages or sheets covered by this seal: SHEETS 15 THRU 21 OF 38

INDEX OF SEALS		
SHEET NO.	NAME	TYPE
1	JAMES S. NELSON	STRUCTURAL DESIGN
1	STUART S. NIELSEN	STRUCTURAL DESIGN
C.01	DAVID T. ANTHONY	ROADWAY DESIGN

STRUCTURAL DESIGN

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa

Signature James S. Nelson Date _____

Printed or Typed Name

My license renewal date is December 31, 2007

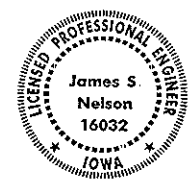
Pages or sheets covered by this seal: SHEETS 1 THRU 14 AND 22 THRU 23 OF 38

LISTING OF PROJECT REVISIONS

DATE	SHEET NUMBER	DESCRIPTION OF REVISIONS
11-06-06	1A	REVISION SHEET ADDED.
11-06-06	3	REVISED GRADE ON BRIDGE. REASON: TO CORRECT DECK EMBEDMENT IN EAST END SPAN
11-06-06	7	REVISED BEAM SPACING DIMENSIONS AND ADDED KEYWAY DIMENSIONS. REASON: ERROR IN BEAM SPACING DIMENSIONS AND KEYWAY DIMENSIONS INADVERTANTLY OMITTED.
11-06-06	9	REVISED DIAPHRAGM END CAP DIMENSION AND MODIFIED PREFORM EXPANSION MATERIAL DETAIL. REASON: END CAP DIMENSION INADVERTANTLY OMITTED AND CORRECTED PREFORM EXPANSION MATERIAL DETAIL.
11-06-06	10	REVISED SLAB CROSS SECTION AREA AND ADDED TOP OF DIAPHRAGM LINE. REASON: ERROR IN CROSS SECTION AREA AND TOP OF DIAPHRAGM LINE INADVERTANTLY OMITTED.
11-06-06	15	DELETE THIS SHEET. REASON: REPLACED BY SHEET 15A.
11-06-06	15A	ADD THIS SHEET. REASON: TOP OF SLAB ELEVATION LOCATIONS REVISED TO AID CONTRACTOR AND GRADE ADJUSTMENT TO CORRECT EMBEDMENT.
11-06-06	19	REVISED CLOSURE POUR HOOKS. REASON: CLOSURE POUR HOOKS CONFLICTED WITH PLACEMENT OF THE TOP MAT OF WELDED WIRE REINFORCING
11-06-06	20	REVISED 5d7 BAR LABEL AND REMOVED FORMWORK DETAIL. REASON: 5d7 INADVERTANTLY MIS-LABELED.
11-06-06	22	REVISED BARRIER RAIL TO ADD CRACK CONTROL JOINTS. REASON: JOINTS INADVERTANTLY OMITTED
11-06-06	Q.02	ADDED SHEET Q.02. REASON: SHEET Q.02 IN ADVERTANTLY OMITTED FROM PLANS LET.

DATE	SHEET NUMBER	DESCRIPTION OF REVISIONS
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STRUCTURAL DESIGN



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

James S. Nelson 11-06-06
Signature Date

Printed or Typed Name **James S. Nelson**

My license renewal date is December 31, **2007**.

Pages or sheets covered by this seal: **SHEETS 1, 1A, 3, 7, 9, 10, 15, 15A, 19, 20, 22, AND Q.02**

BOONE COUNTY
DESIGN NO. 106
REVISION SHEET

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

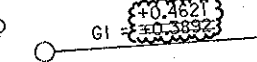
BENCH MARK: 50+11, 7' LT., NW CORNER HANDRAIL, ELEV. = 982.17.

PROFILE GRADE

BRIDGE

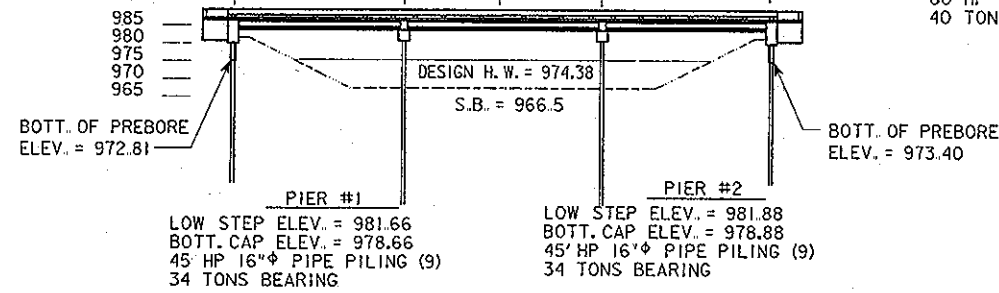
VPI STA. = 49+30.00
ELEV. = 985.11

VPI STA. = 51+35.60
ELEV. = 985.91



EAST ABUTMENT
LOW STEP ELEV. = 981.90
BOTT ABUT. ELEV. = 978.40
BERM ELEV. = 980.40
60' HP 10x57 PILING (5)
40 TONS BEARING

WEST ABUTMENT
LOW STEP ELEV. = 981.31
BOTT ABUT. ELEV. = 977.81
BERM ELEV. = 979.81
55' HP 10x57 PILING (5)
40 TONS BEARING



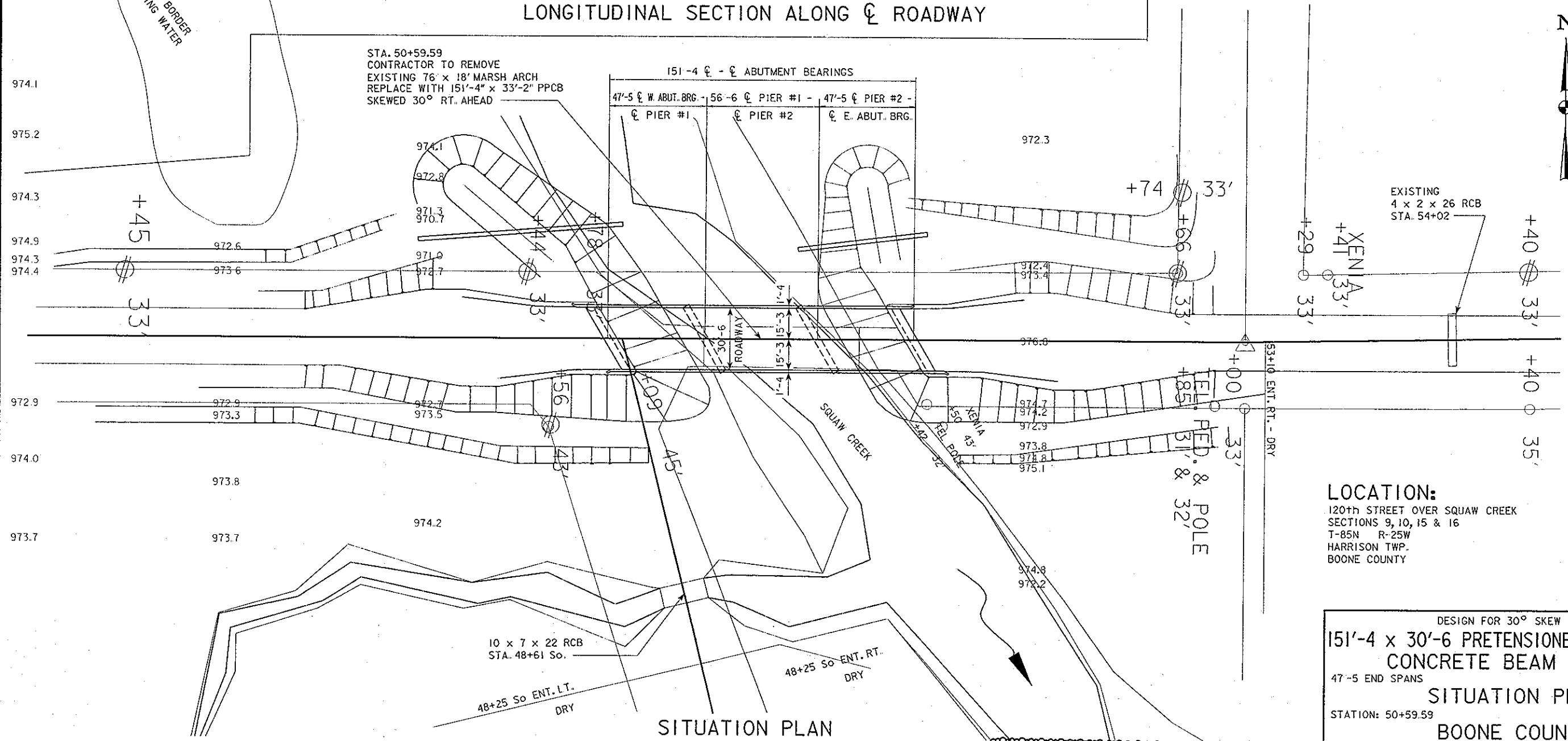
HYDRAULICS

DRAINAGE AREA :	88.0	SQ. MILES
DESIGN DISCHARGE :	3456	CFS
SLOPE :	4.627	FT./MILE
DESIGN HIGH WATER :	974.38	
AREA BELOW DESIGN H.W. :	692.1	SQ.FT.
AVERAGE VELOCITY :	4.99	FPS
Q 50 = 3456 CFS	STAGE: 974.38	
Q 100 = 4168 CFS	STAGE: 974.84	
Q 500 = 5210 CFS	STAGE: 975.43	
EXTEREME H.W. : 981.5 (1975 & 1993)		
Q EXTEREME H.W. : 31,189 CFS		

LONGITUDINAL SECTION ALONG C ROADWAY

STA. 50+59.59
CONTRACTOR TO REMOVE
EXISTING 76' x 18' MARSH ARCH
REPLACE WITH 151'-4" x 33'-2" PPCB
SKEWED 30° RT. AHEAD

151'-4" C - C ABUTMENT BEARINGS
47'-5" C W ABUT. BRG. - 56'-6" C PIER #1 - 47'-5" C PIER #2 -
C PIER #1 C PIER #2 C E. ABUT. BRG.



LOCATION:

120th STREET OVER SQUAW CREEK
SECTIONS 9, 10, 15 & 16
T-85N R-25W
HARRISON TWP.
BOONE COUNTY

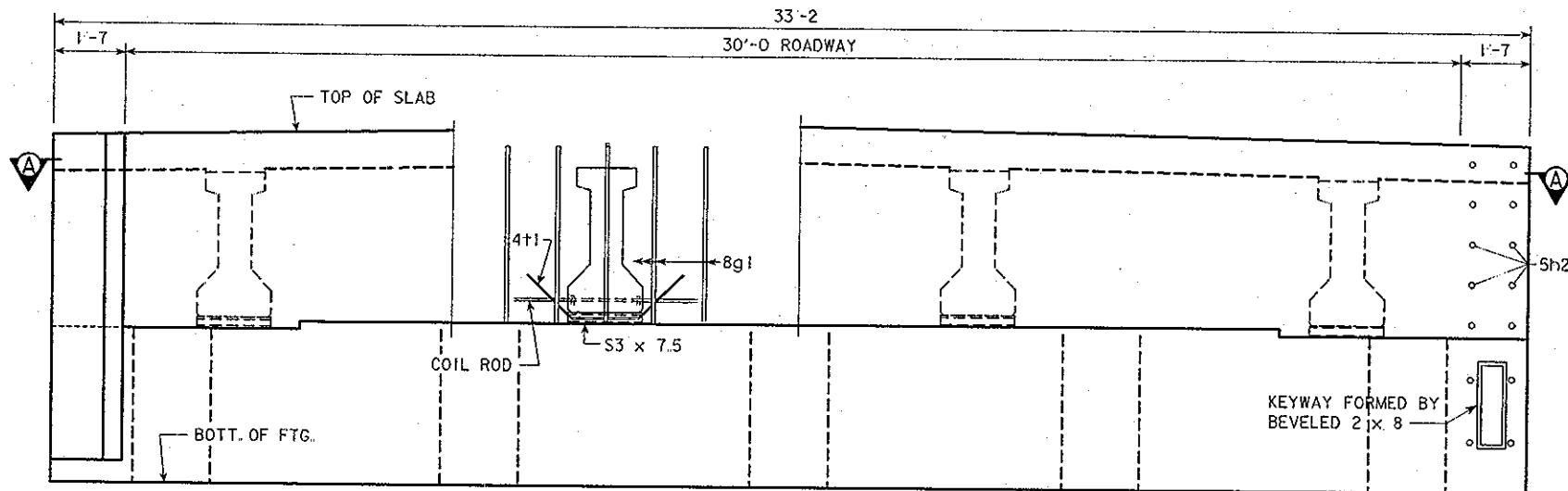
DESIGN FOR 30° SKEW (R.A.)
**151'-4" x 30'-6" PRETENSIONED PRESTRESSED
CONCRETE BEAM BRIDGE**
47'-5" END SPANS 56'-6" INTERIOR SPAN

SITUATION PLAN
STATION: 50+59.59 FEBRUARY, 2006
BOONE COUNTY

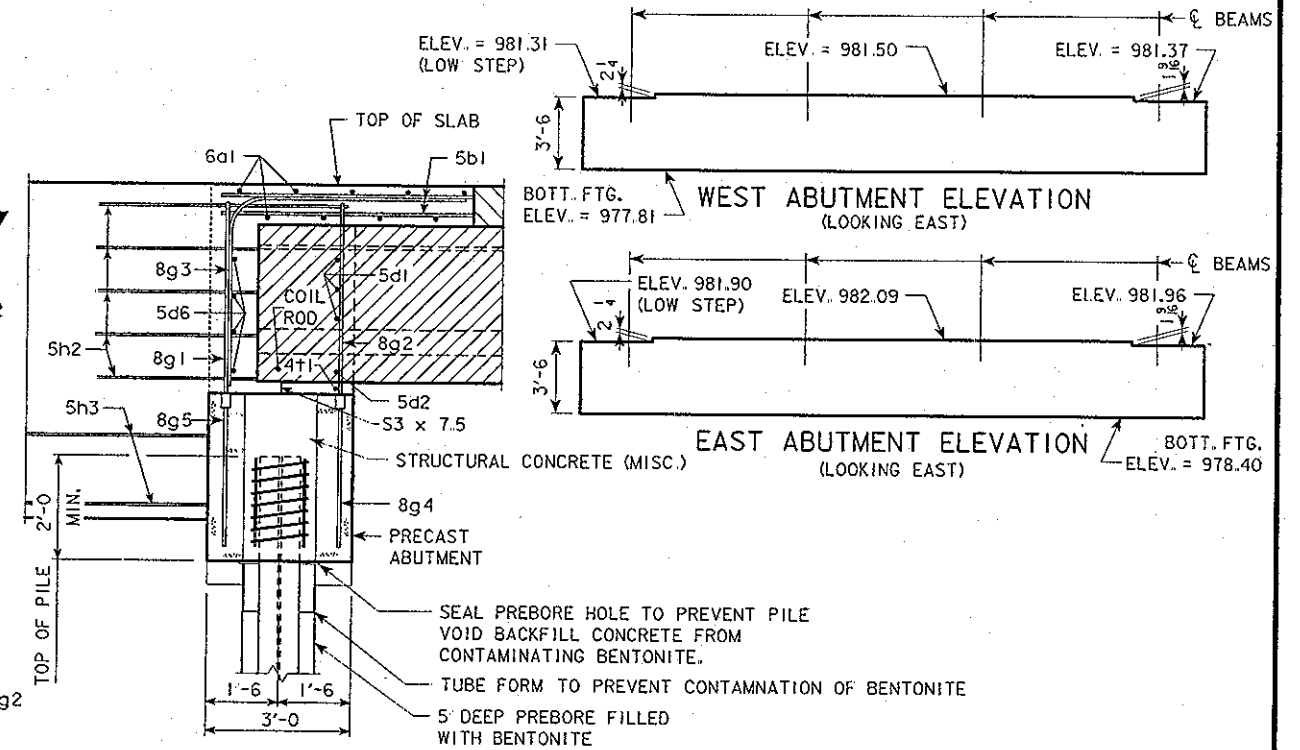
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 2 OF 22 FILE NO. 30101 DESIGN NO. 106

REVISED 11-06-06: CHANGED GRADE ON BRIDGE.

BENCH MARK: 50+11, 7' LT., NW CORNER HANDRAIL, ELEV. = 982.17.

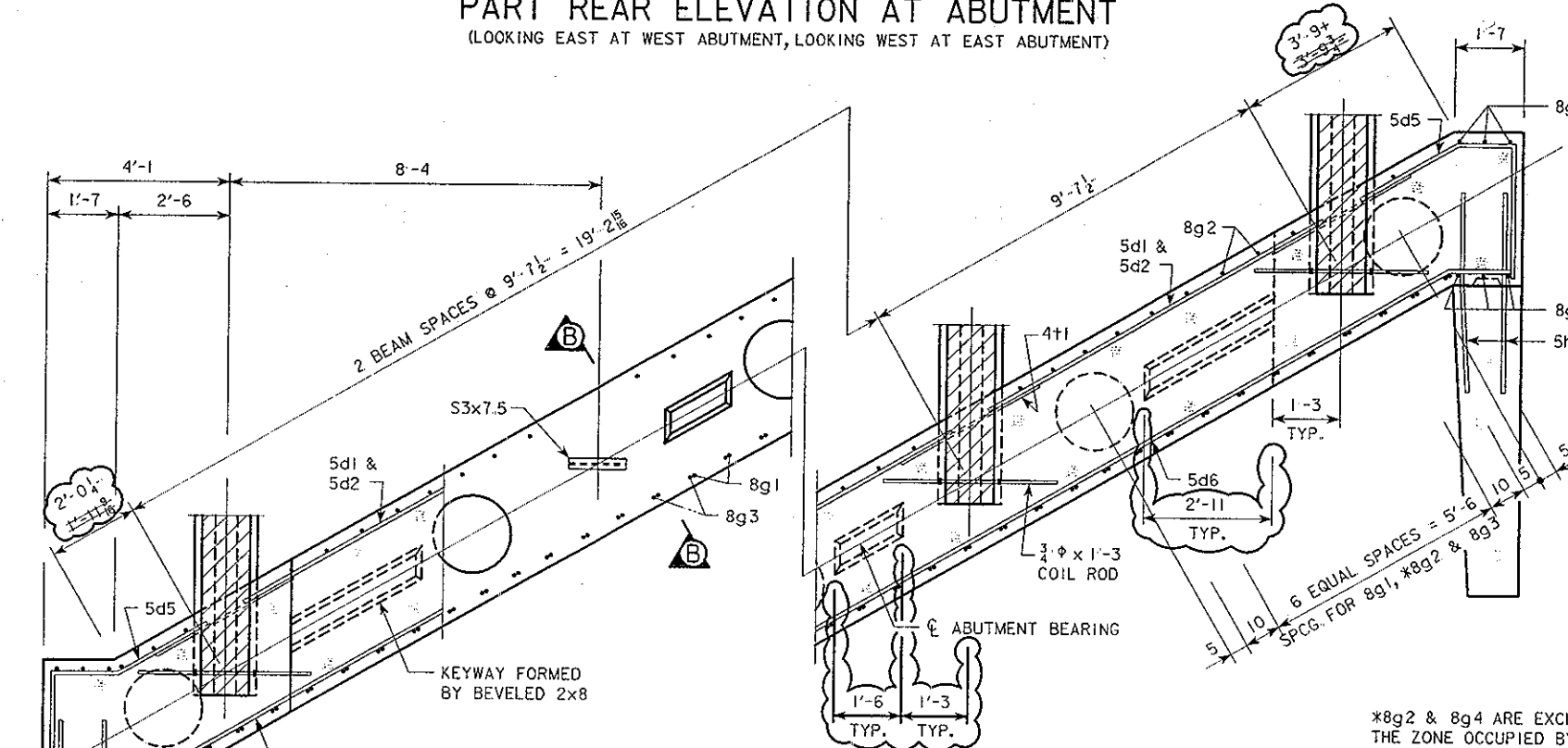


PART REAR ELEVATION AT ABUTMENT
(LOOKING EAST AT WEST ABUTMENT, LOOKING WEST AT EAST ABUTMENT)



PART SECTION B-B

NOTE: THE SPIRAL AT THE TOP OF EACH PILE TO BE 7 TURNS OF No. 2 BAR, 18" DIAMETER, 3' PITCH WITH 2 - $L\frac{1}{2}$ x $\frac{7}{8}$ x $\frac{1}{8}$ SPACERS PUNCHED TO HOLD SPIRAL.



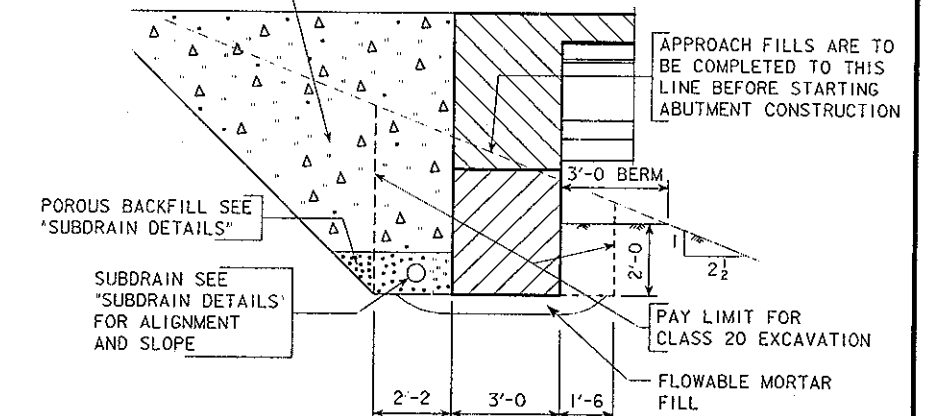
PART SECTION A - A

NOTE:
PLACE 8g3 BARS PARALLEL TO ϕ OF BRIDGE.
FIELD CUT TOP LEG OF 8g3 IF NECESSARY.

ABUTMENT NOTES:

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.
IF NECESSARY TO PREVENT DAMAGE TO THE END OF THE BRIDGE DECK OR BACKWALL FROM CONSTRUCTION EQUIPMENT, AN APPROPRIATE METHOD OF PROTECTION APPROVED BY THE ENGINEER SHALL BE PROVIDED BY THE BRIDGE CONTRACTOR AT NO EXTRA COST TO THE CONTRACTING AUTHORITY.

COMPACTED GRANULAR BACKFILL BETWEEN WINGS SEE "SUBDRAIN DETAILS"

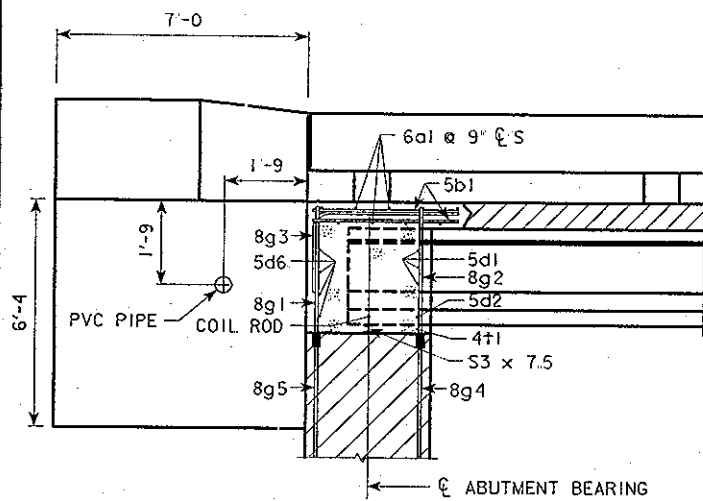


ABUTMENT EXCAVATION DETAILS

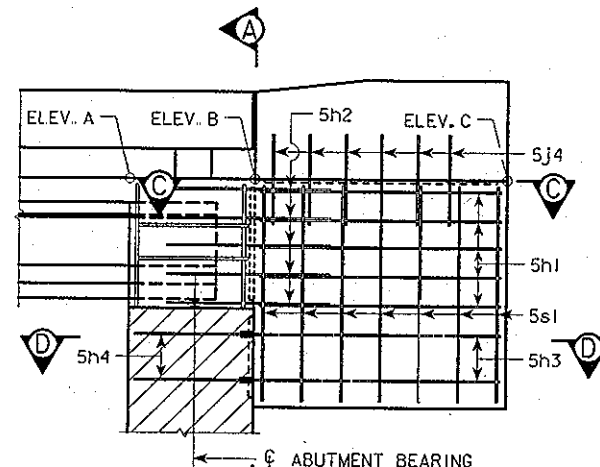
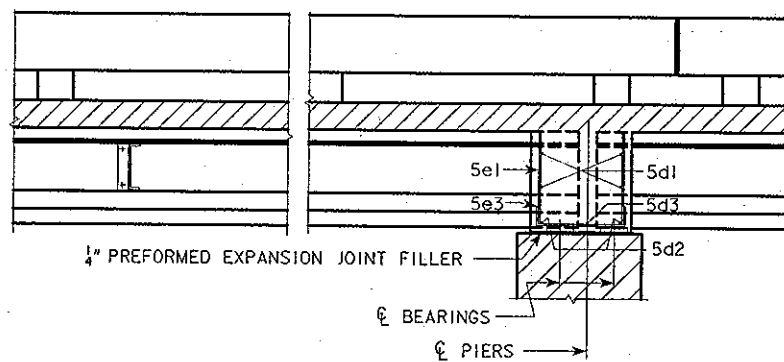
NOTE: BARRIER RAIL NOT SHOWN IN DETAILS.

DESIGN FOR 30° SKEW (R.A.)
151'-4 x 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
 47'-5 END SPANS 56'-6 INTERIOR SPAN
ABUTMENT DETAILS
 STATION: 50+59.59 FEBRUARY, 2006
BOONE COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 6 OF 22 FILE NO. 30101 DESIGN NO. 106

REVISED 11-06-06: BEAM SPACING DIMENSIONS CORRECTED AND KEYWAY DIMENSIONS ADDED.



PART LONGITUDINAL SECTION NEAR GUTTER

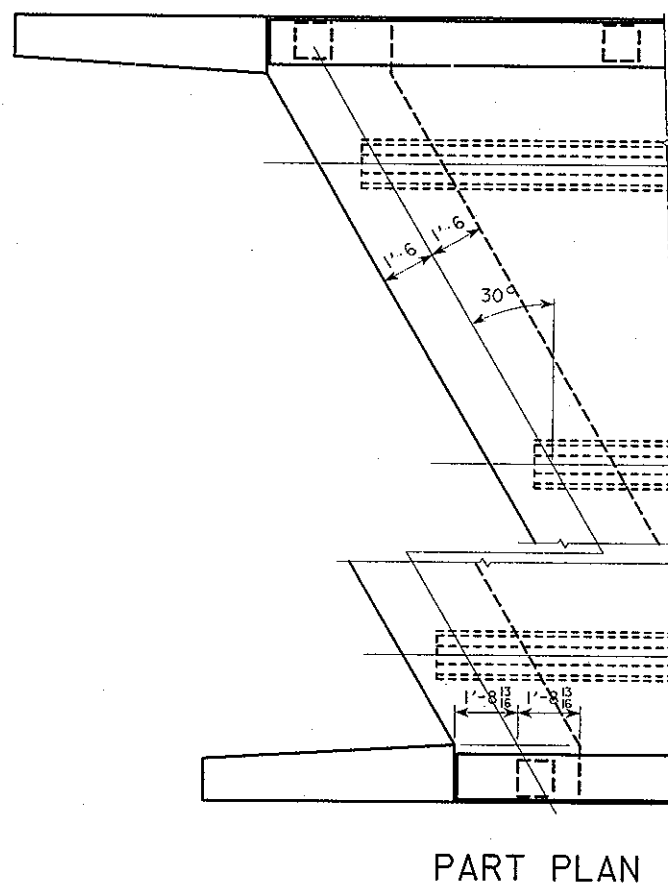


PART END VIEW AT ABUTMENT

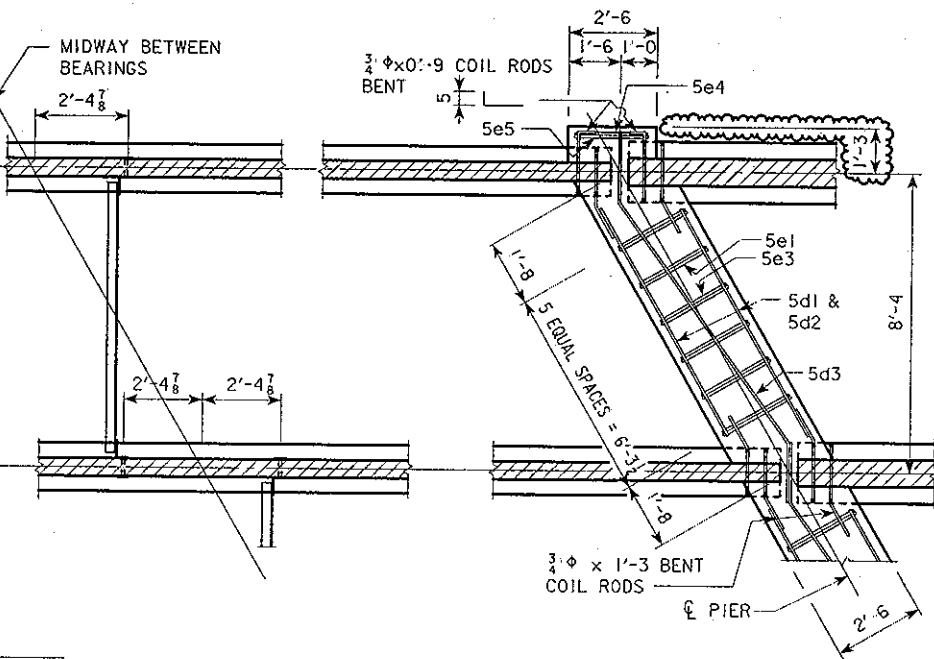
MATERIAL FOR NEOPRENE PADS TO BE OF 70 DUROMETER NEOPRENE

NEOPRENE PAD DETAILS

NOTE: COST OF NEOPRENE PADS SHALL BE INCLUDED IN THE PRICE BID FOR "PRETENSIONED PRESTRESSED CONCRETE BEAMS."



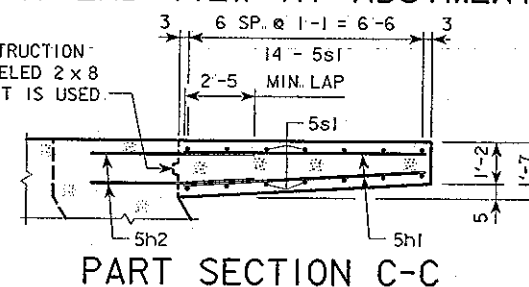
PART PLAN



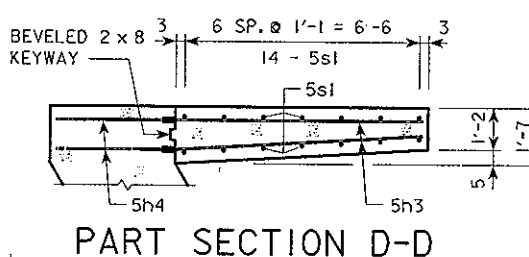
PART SECTION AT MID SPAN

PART SECTION AT PIER

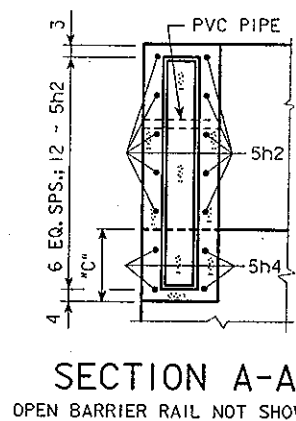
OPTIONAL CONSTRUCTION JOINT. USE BEVELED 2 x 8 KEYWAY IF JOINT IS USED.



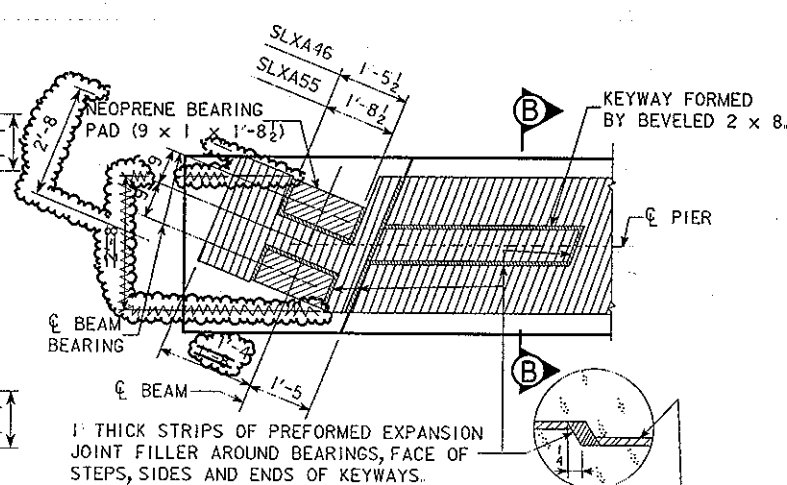
PART SECTION C-C



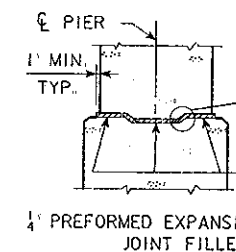
PART SECTION D-D



SECTION A-A
OPEN BARRIER RAIL NOT SHOWN.



PART PLAN

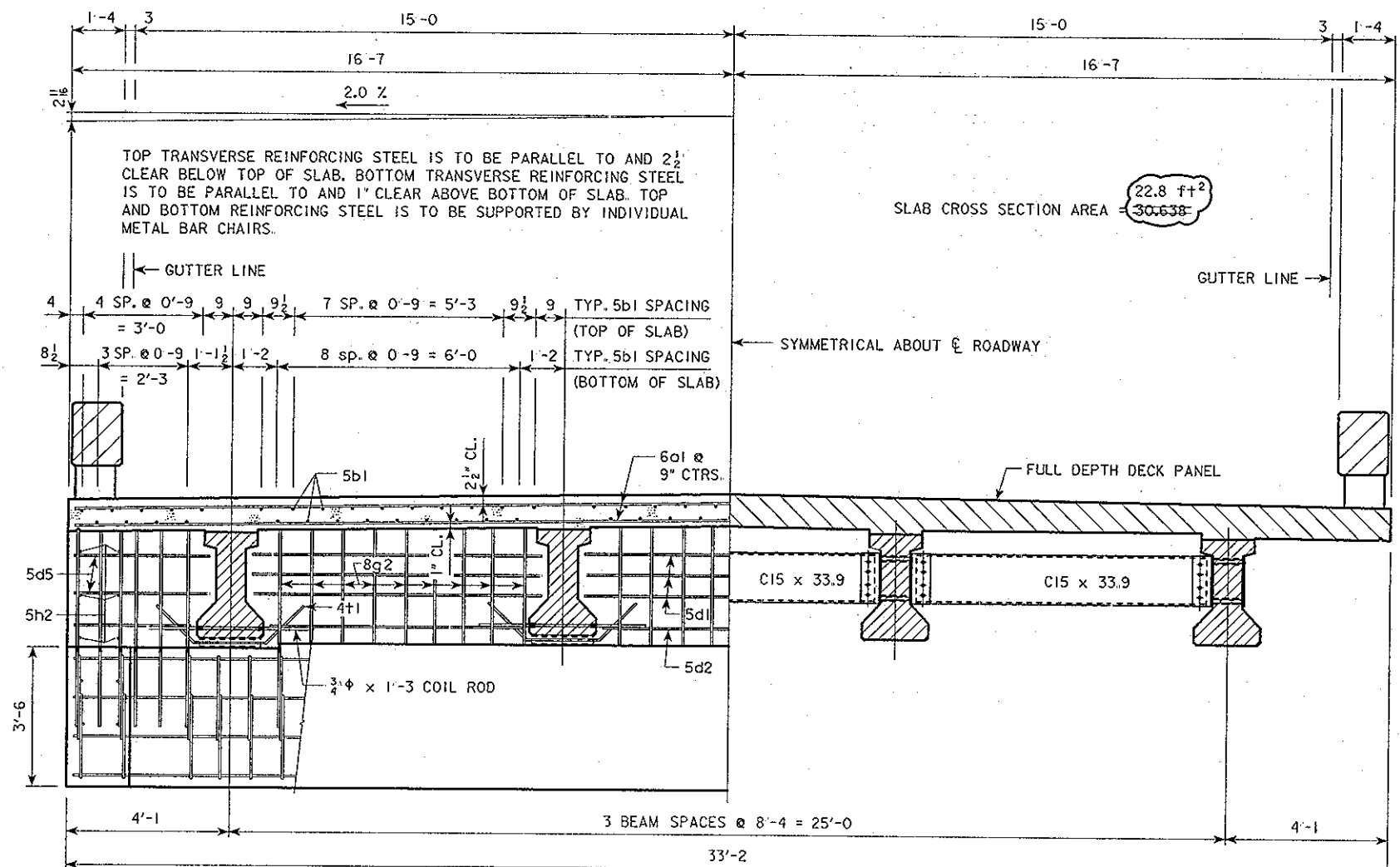


SECTION B-B
TOP OF PIER DETAILS

TABLE OF WING ELEVATIONS				
LOCATION	DIM "C"	ELEV. A	ELEV. B	ELEV. C
S.W. CORNER	2'-7 13/16	985.06	985.05	985.02
N.W. CORNER	2'-7 5/16	984.99	984.98	984.95
S.E. CORNER	2'-7 3/4	985.64	985.65	985.68
N.E. CORNER	2'-7 13/16	985.57	985.57	985.61

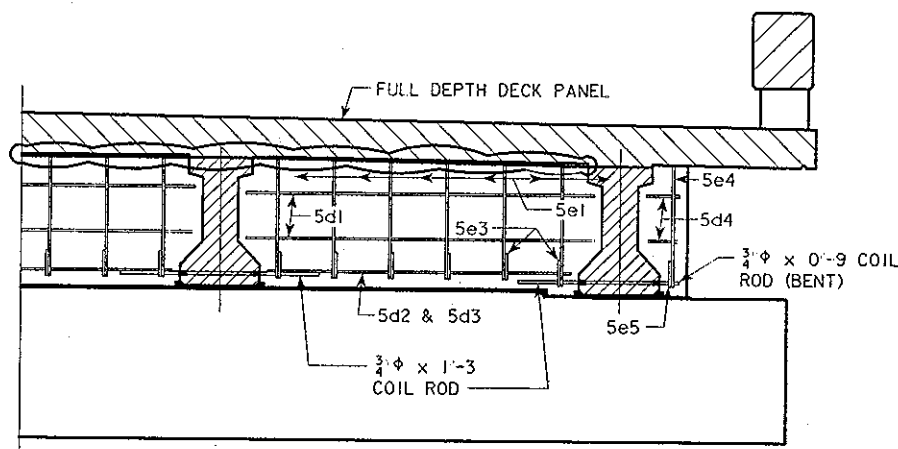
DESIGN FOR 30° SKEW (R.A.)
151'-4 x 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
 47'-5 END SPANS 56'-6 INTERIOR SPAN
SUPERSTRUCTURE DETAILS
 STATION: 50+59.59 FEBRUARY, 2006
BOONE COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 8 OF 22 FILE NO. 30101 DESIGN NO. 106

REVISED 11-06-06: ADDED DIAPHRAGM END DIMENSION AND REVISED PREFORM DETAIL.

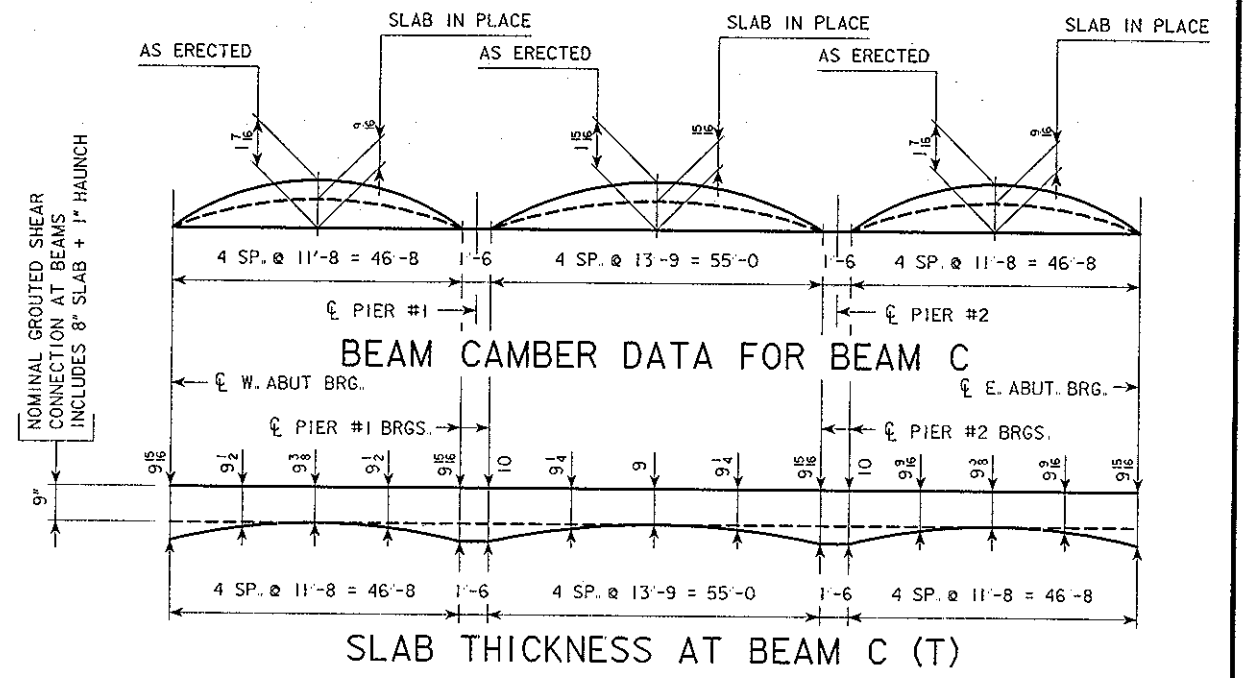
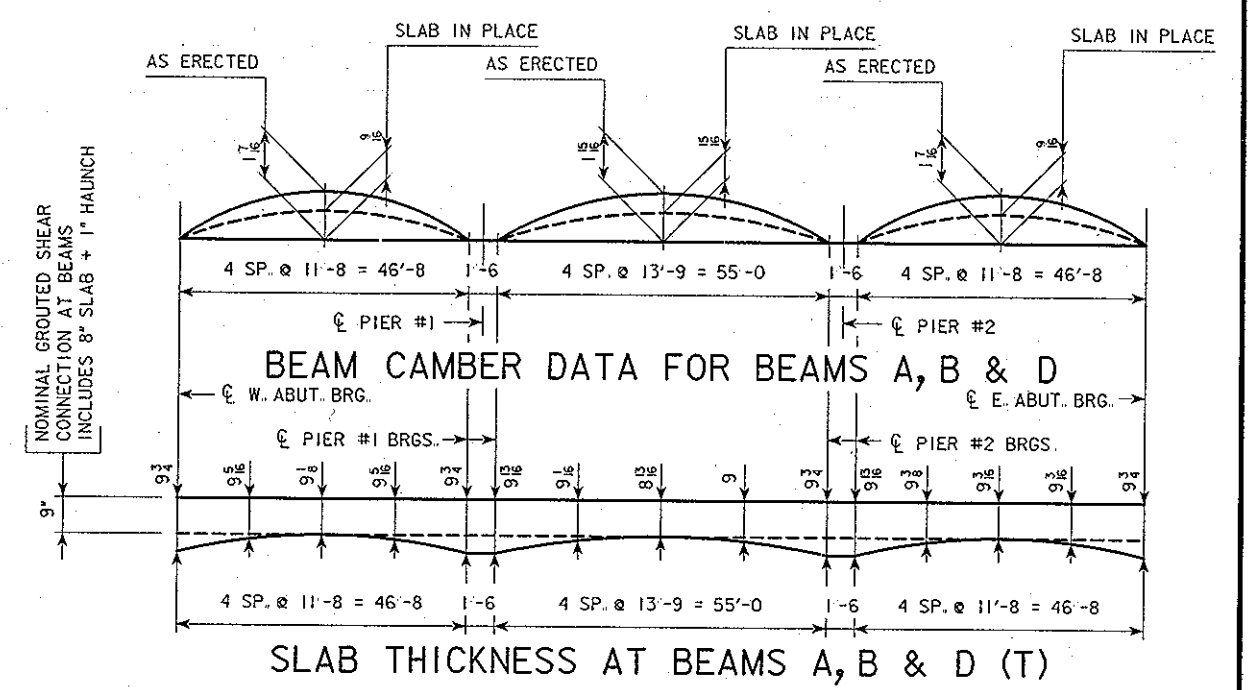


HALF SECTION NEAR ABUTMENT

HALF SECTION NEAR MID SPAN



HALF SECTION NEAR PIER



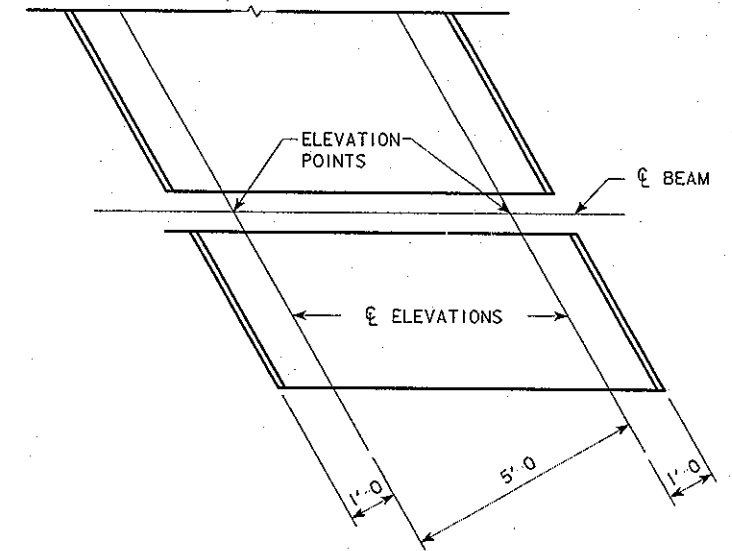
REVISED 11-06-06: CROSS SECTION AREA REVISED AND TOP OF DIAPHRAGM LINE ADDED.

DESIGN FOR 30° SKEW (R.A.)
 151'-4 x 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
 47'-5 END SPANS 56'-6 INTERIOR SPAN
 SUPERSTRUCTURE DETAILS
 STATION: 50+59.59 FEBRUARY, 2006
 BOONE COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 9 OF 22 FILE NO. 30101 DESIGN NO. 106

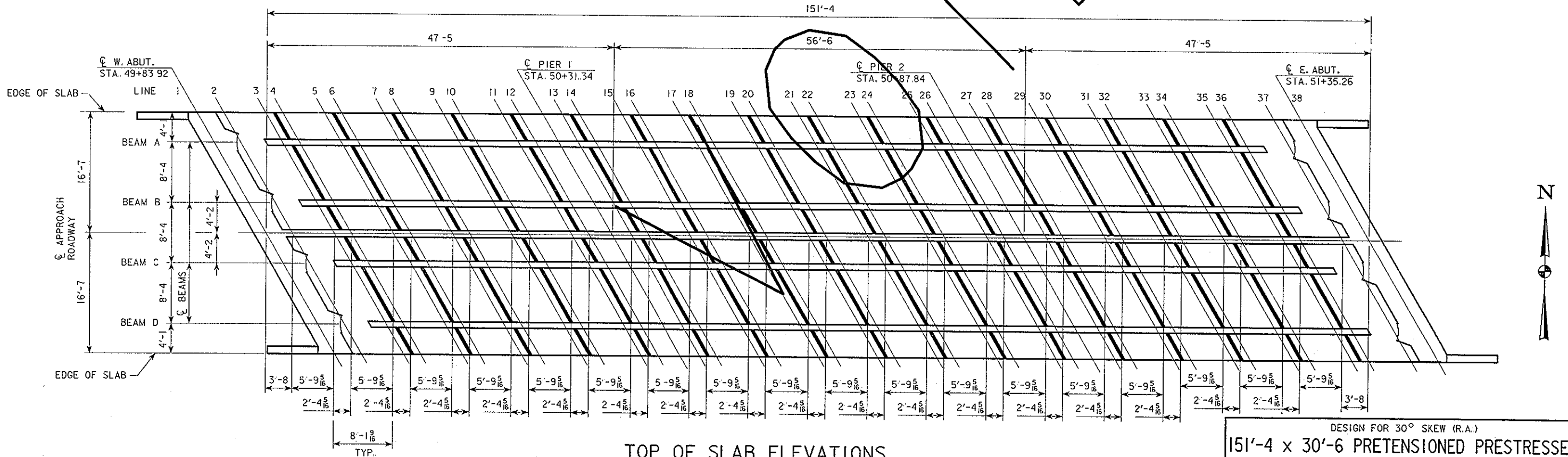
TOP OF SLAB ELEVATIONS																			
LOCATION	LINE 1	LINE 2	LINE 3	LINE 4	LINE 5	LINE 6	LINE 7	LINE 8	LINE 9	LINE 10	LINE 11	LINE 12	LINE 13	LINE 14	LINE 15	LINE 16	LINE 17	LINE 18	LINE 19
EDGE OF SLAB	984.95	984.97	984.99	985.00	985.02	985.03	985.05	985.06	985.08	985.09	985.11	985.12	985.15	985.16	985.18	985.19	985.21	985.22	985.24
BEAM LINE A	985.04	985.06	985.08	985.09	985.11	985.12	985.14	985.15	985.17	985.18	985.21	985.21	985.24	985.25	985.27	985.28	985.30	985.31	985.33
BEAM LINE B	985.23	985.24	985.26	985.27	985.30	985.30	985.33	985.34	985.36	985.37	985.39	985.40	985.42	985.43	985.45	985.46	985.49	985.49	985.52
APPROACH ROADWAY	985.32	985.33	985.36	985.37	985.39	985.40	985.42	985.43	985.45	985.46	985.48	985.49	985.51	985.52	985.55	985.56	985.58	985.59	985.61
BEAM LINE C	985.25	985.26	985.28	985.29	985.31	985.32	985.35	985.36	985.38	985.39	985.41	985.42	985.44	985.45	985.47	985.48	985.50	985.51	985.54
BEAM LINE D	985.10	985.11	985.13	985.14	985.17	985.18	985.20	985.21	985.23	985.24	985.26	985.27	985.29	985.30	985.32	985.33	985.36	985.37	985.39
EDGE OF SLAB	985.03	985.04	985.06	985.07	985.09	985.10	985.13	985.13	985.16	985.17	985.19	985.20	985.22	985.23	985.25	985.26	985.28	985.29	985.32

TOP OF SLAB ELEVATIONS																			
LOCATION	LINE 20	LINE 21	LINE 22	LINE 23	LINE 24	LINE 25	LINE 26	LINE 27	LINE 28	LINE 29	LINE 30	LINE 31	LINE 32	LINE 33	LINE 34	LINE 35	LINE 36	LINE 37	LINE 38
EDGE OF SLAB	985.25	985.27	985.28	985.30	985.31	985.34	985.35	985.37	985.38	985.40	985.41	985.43	985.44	985.46	985.47	985.49	985.50	985.53	985.54
BEAM LINE A	985.34	985.36	985.37	985.40	985.40	985.43	985.44	985.46	985.47	985.49	985.50	985.52	985.53	985.55	985.56	985.58	985.59	985.62	985.63
BEAM LINE B	985.53	985.55	985.56	985.58	985.59	985.61	985.62	985.64	985.65	985.68	985.68	985.71	985.72	985.74	985.75	985.77	985.78	985.80	985.82
APPROACH ROADWAY	985.62	985.64	985.65	985.67	985.68	985.70	985.71	985.74	985.75	985.77	985.78	985.80	985.81	985.83	985.84	985.86	985.87	985.89	985.91
BEAM LINE C	985.55	985.57	985.58	985.60	985.61	985.63	985.64	985.66	985.67	985.69	985.70	985.73	985.73	985.76	985.77	985.79	985.80	985.82	985.84
BEAM LINE D	985.40	985.42	985.43	985.45	985.46	985.48	985.49	985.51	985.52	985.55	985.56	985.58	985.59	985.61	985.62	985.64	985.65	985.67	985.69
EDGE OF SLAB	985.32	985.35	985.36	985.38	985.39	985.41	985.42	985.44	985.45	985.47	985.48	985.51	985.51	985.54	985.55	985.57	985.58	985.60	985.61

NOTE: DECK ELEVATIONS SHOWN ARE BASED ON THE FINAL BRIDGE DECK GRADE.



TYPICAL PANEL
(NOTE: PANEL ADJUSTMENTS MAY AFFECT HOW ELEVATIONS ARE LOCATED.)



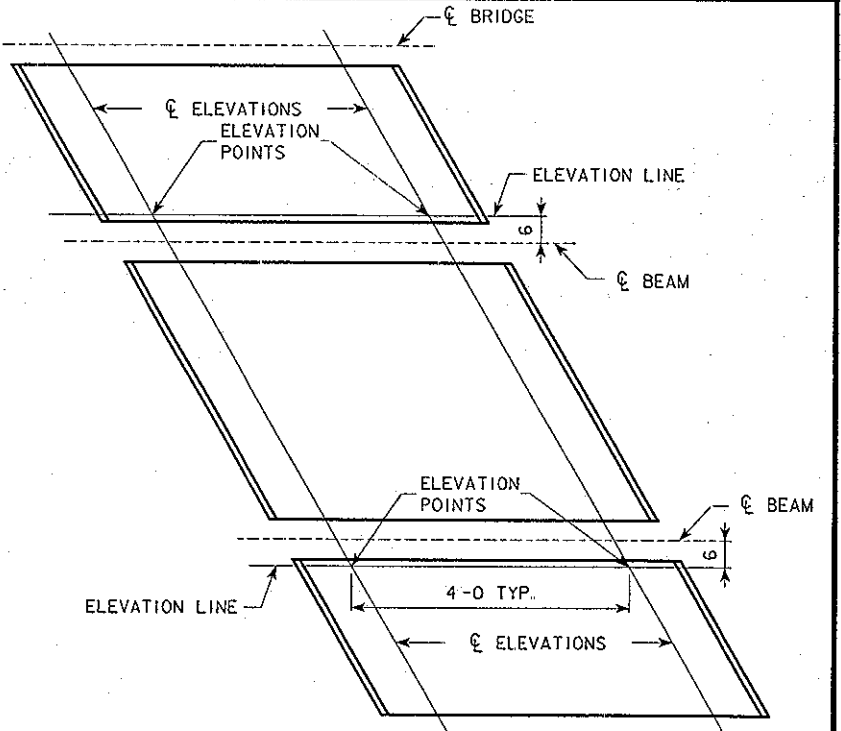
TOP OF SLAB ELEVATIONS

DESIGN FOR 30° SKEW (R.A.)
151'-4 x 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
 47'-5 END SPANS 56'-6 INTERIOR SPAN
TOP OF SLAB ELEVATIONS
 STATION: 50+59.59 FEBRUARY, 2006
BOONE COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 14 OF 22 FILE NO. 30101 DESIGN NO. 106

REVISED 11-06-06: THIS SHEET DELETED.

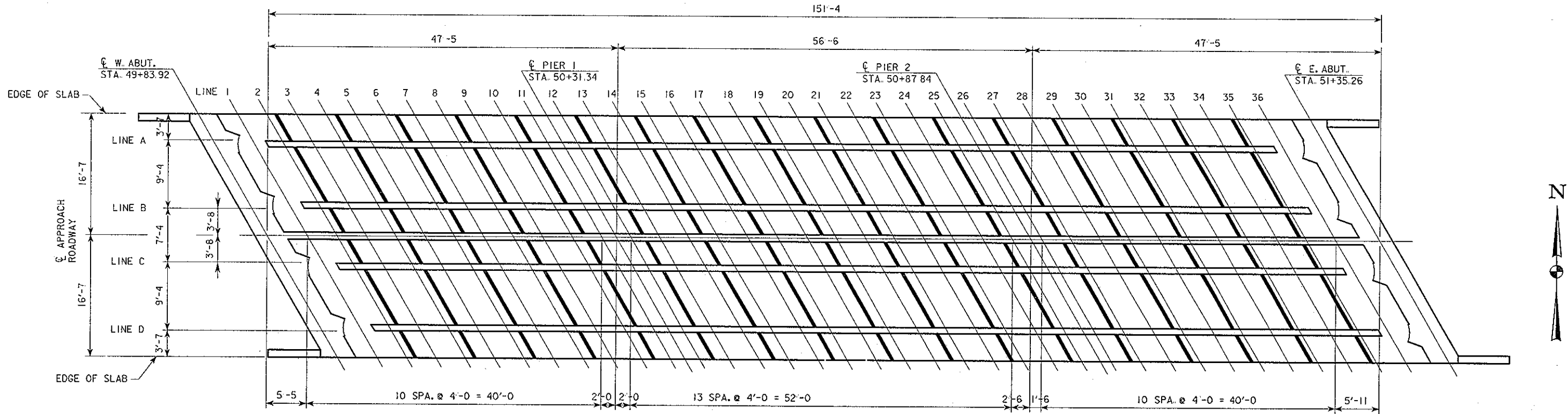
TOP OF SLAB ELEVATIONS																				
LOCATION	C/L W. ABUT.	LINE 1	LINE 2	LINE 3	LINE 4	LINE 5	LINE 6	LINE 7	LINE 8	LINE 9	LINE 10	LINE 11	C/L PIER 1	LINE 12	LINE 13	LINE 14	LINE 15	LINE 16	LINE 17	LINE 18
ELEVATION LINE A	985.06	985.09	985.11	985.13	985.14	985.16	985.18	985.20	985.22	985.24	985.26	985.27	985.28	985.29	985.31	985.33	985.35	985.37	985.39	985.40
ELEVATION LINE B	985.28	985.30	985.32	985.34	985.36	985.37	985.39	985.41	985.43	985.45	985.47	985.49	985.50	985.50	985.52	985.54	985.56	985.58	985.60	985.62
☉ APPROACH ROADWAY	985.36	985.38	985.40	985.42	985.44	985.46	985.48	985.50	985.51	985.53	985.55	985.57	985.58	985.59	985.61	985.62	985.64	985.66	985.68	985.70
ELEVATION LINE C	985.30	985.32	985.34	985.36	985.38	985.39	985.41	985.43	985.45	985.47	985.49	985.51	985.51	985.52	985.54	985.56	985.58	985.60	985.62	985.63
ELEVATION LINE D	985.13	985.16	985.18	985.20	985.21	985.23	985.25	985.27	985.29	985.31	985.33	985.34	985.35	985.36	985.38	985.40	985.42	985.44	985.45	985.47

TOP OF SLAB ELEVATIONS																				
LOCATION	LINE 19	LINE 20	LINE 21	LINE 22	LINE 23	LINE 24	LINE 25	C/L PIER 2	LINE 26	LINE 27	LINE 28	LINE 29	LINE 30	LINE 31	LINE 32	LINE 33	LINE 34	LINE 35	LINE 36	C/L E. ABUT.
ELEVATION LINE A	985.42	985.44	985.46	985.48	985.50	985.51	985.53	985.54	985.55	985.57	985.59	985.61	985.63	985.64	985.66	985.68	985.70	985.72	985.74	985.76
ELEVATION LINE B	985.63	985.65	985.67	985.69	985.71	985.73	985.74	985.76	985.76	985.78	985.80	985.82	985.84	985.86	985.87	985.89	985.91	985.93	985.95	985.98
☉ APPROACH ROADWAY	985.72	985.74	985.75	985.77	985.79	985.81	985.83	985.84	985.85	985.86	985.88	985.90	985.92	985.94	985.96	985.98	985.99	986.01	986.03	986.06
ELEVATION LINE C	985.65	985.67	985.69	985.71	985.73	985.75	985.76	985.78	985.78	985.80	985.82	985.84	985.86	985.88	985.89	985.91	985.93	985.95	985.97	985.99
ELEVATION LINE D	985.49	985.51	985.53	985.55	985.57	985.58	985.60	985.61	985.62	985.64	985.66	985.68	985.69	985.71	985.73	985.75	985.77	985.79	985.81	985.83



TYPICAL PANEL
(NOTE: PANEL ADJUSTMENTS MAY AFFECT HOW ELEVATIONS ARE LOCATED.)

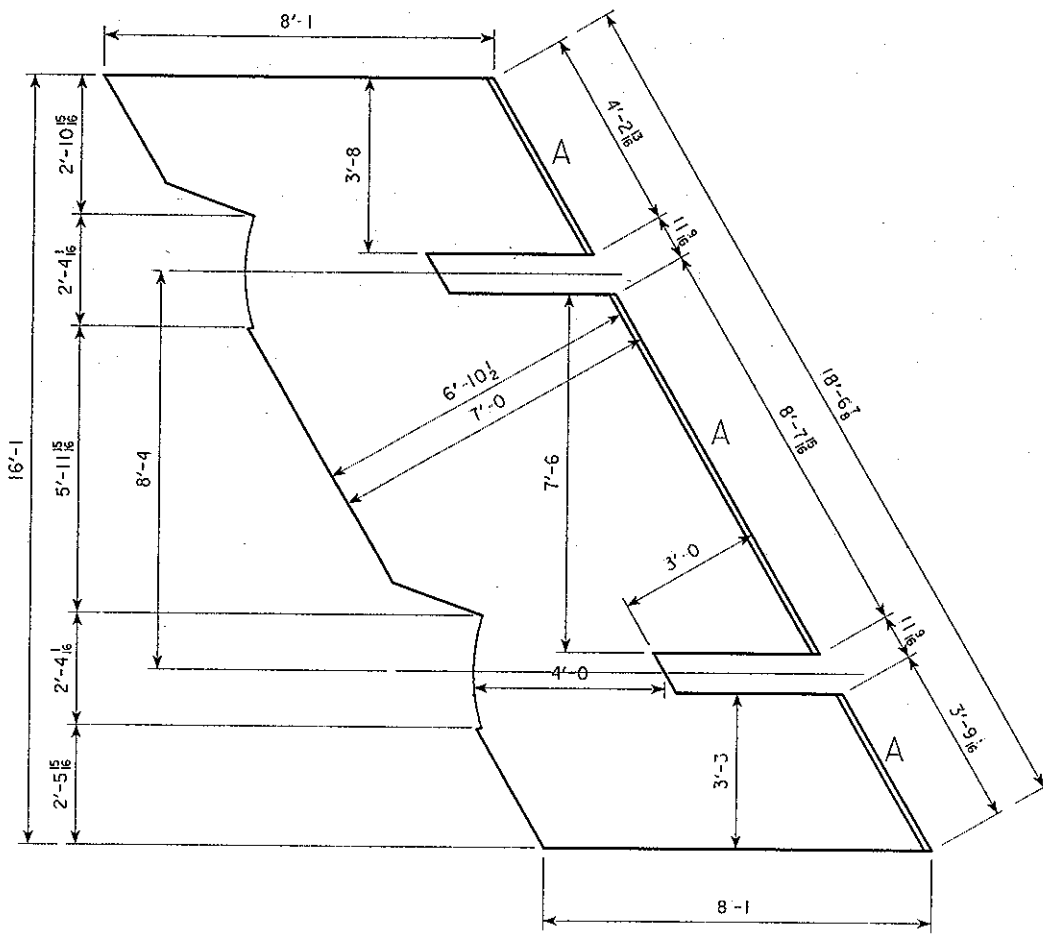
NOTE: DECK ELEVATIONS SHOWN ARE BASED ON THE FINAL BRIDGE DECK GRADE.



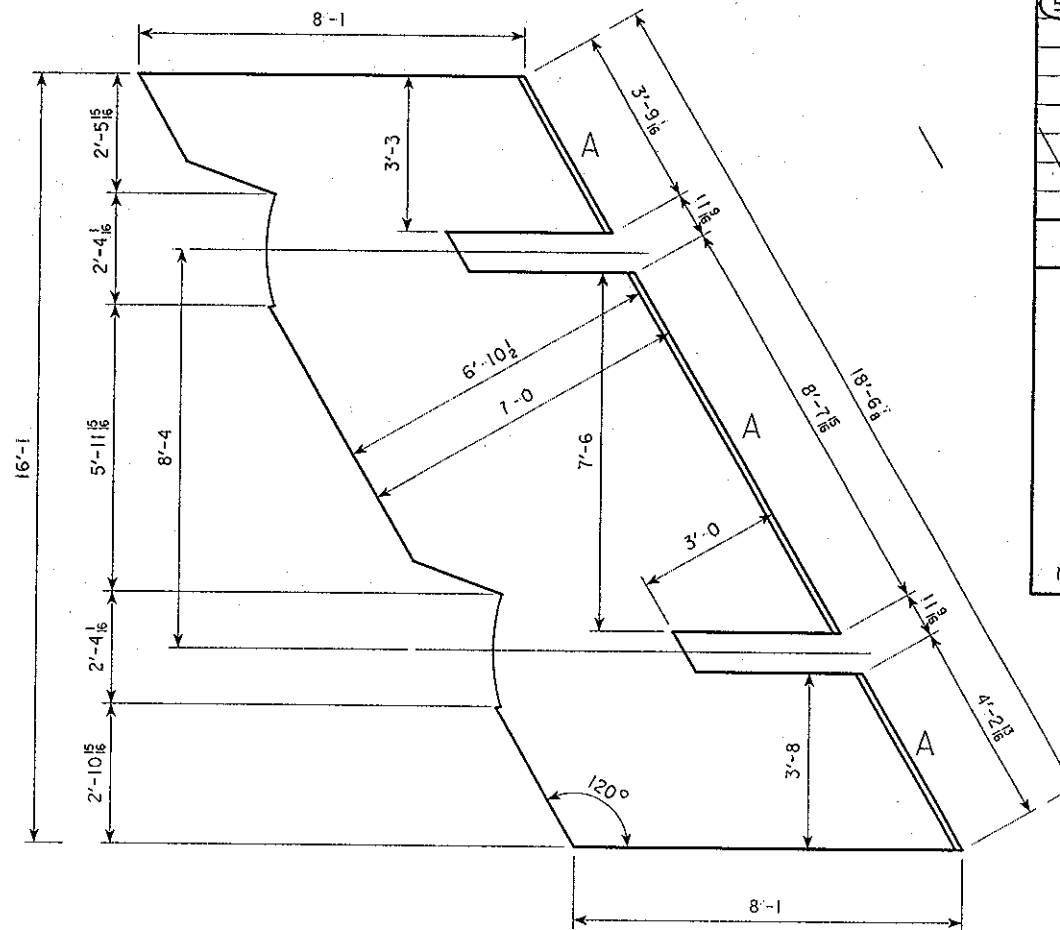
TOP OF SLAB ELEVATIONS

REVISED 11-06-06: THIS SHEET ADDED.

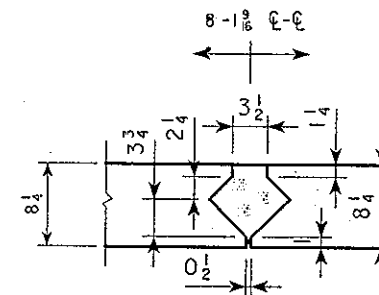
DESIGN FOR 30° SKEW (R.A.)
151'-4 x 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
 47'-5 END SPANS 56'-6 INTERIOR SPAN
TOP OF SLAB ELEVATIONS
 STATION: 50+59.59 FEBRUARY, 2006
BOONE COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 14A OF 22 FILE NO. 30101 DESIGN NO. 106



END PANEL TYPE 1



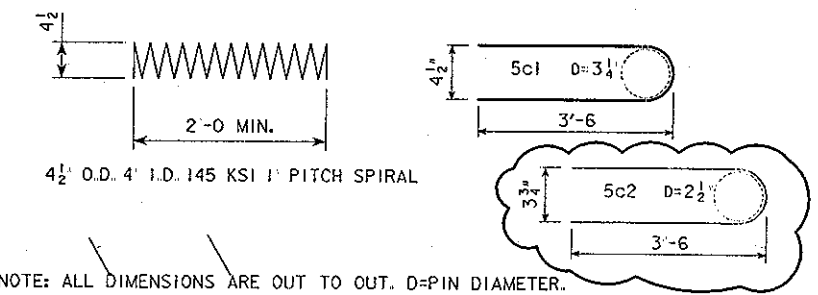
END PANEL TYPE 2



TYPICAL EDGE SIDE "A"

REINFORCING BAR LIST - ONE END PANEL					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
7a1	TRANSVERSE PANEL	---	8	18'-1	296
6b1	LONGITUDINAL PANEL	---	23	7'-4	253
6b2	ABUTMENT TIE-IN STEEL	---	19	4'-6	128
5c1	CLOSURE POUR HOOKS	U	16	7'-5	124
			8		62
5c2	CLOSURE POUR HOOKS	U	8	7'-5	62
	1/2" PRESTRESSED STRANDS 270 KSI-LL	---	4	18'-4	39
	4 1/2" O.D. 4" I.D. 145 KSI 1" PITCH SPIRAL	W	4	27'-4	114
	D14 X D14-2X2 WELDED WIRE REINFORCEMENT	W		124 SF	732
REINFORCING STEEL - TOTAL (LBS.)					1686

BENT BAR DETAILS

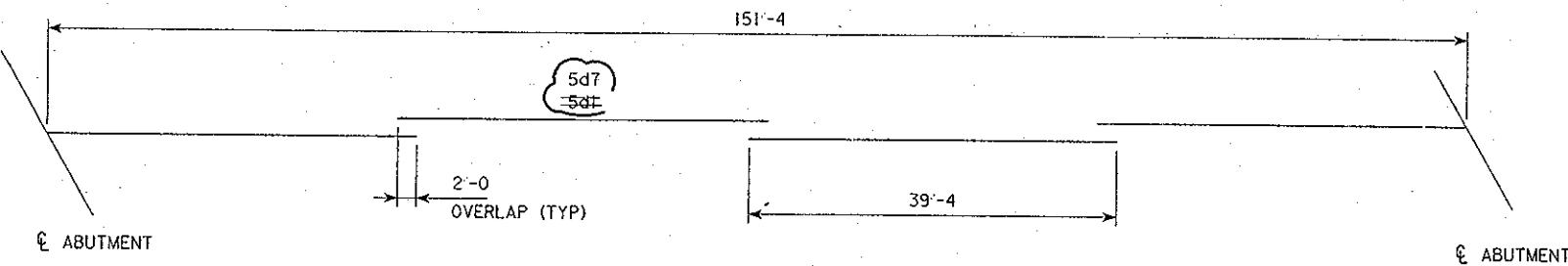


NOTE: ALL DIMENSIONS ARE OUT TO OUT. D=PIN DIAMETER.

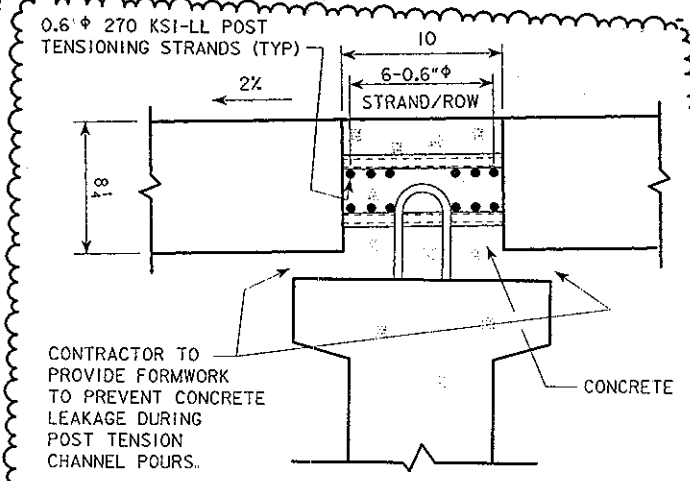
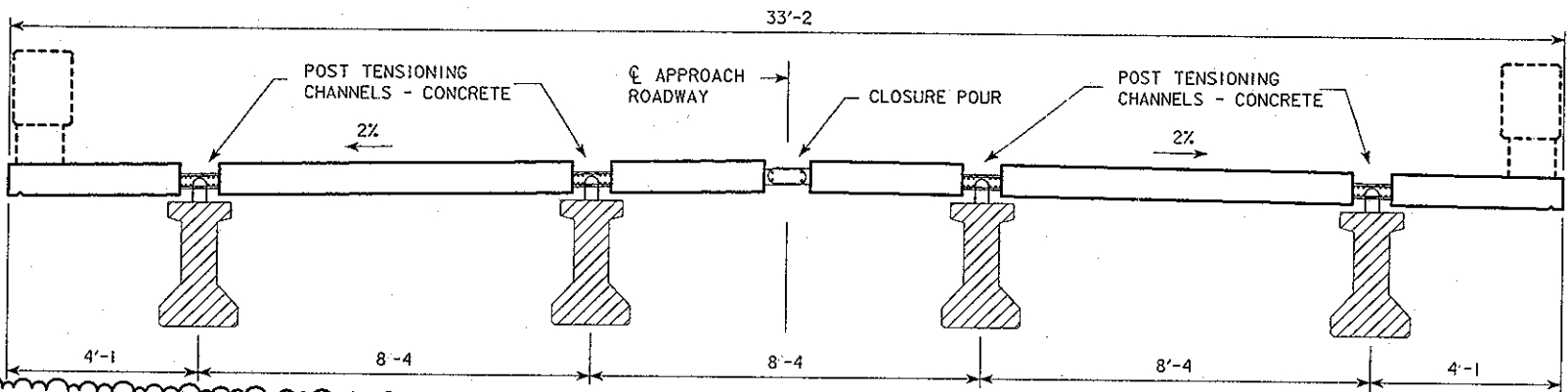
END PANEL CONC. QUANT.	
CONCRETE	TOTAL
ONE END PANEL	3.0
TOTAL (CY)	3.0

REVISED 11-06-06: BAR BEND DIAMETER CHANGED FOR CLOSURE POUR HOOKS TO ELIMINATE CONFLICT WITH THE TOP MAT WELDED WIRE REINFORCEMENT.

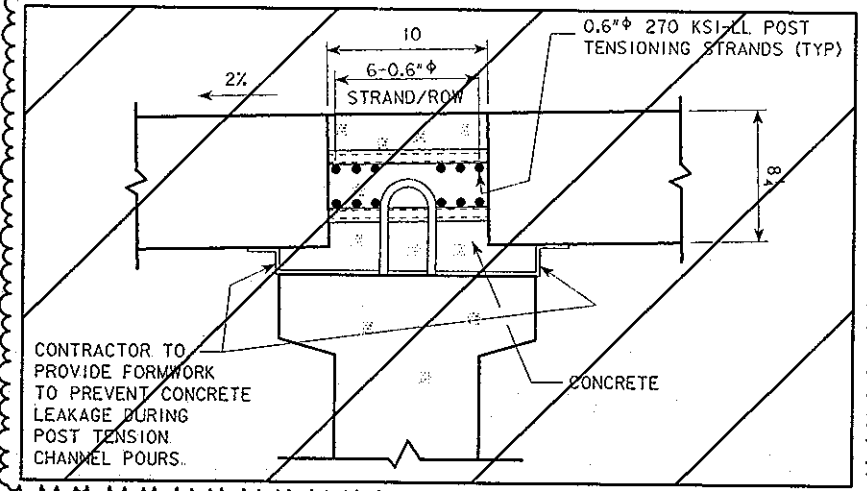
DESIGN FOR 30° SKEW (R.A.)
151'-4 x 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
 47'-5 END SPANS 56'-6 INTERIOR SPAN
DECK PANEL DETAILS
 STATION: 50+59.59 FEBRUARY, 2006
BOONE COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 18 OF 22 FILE NO. 30101 DESIGN NO. 106



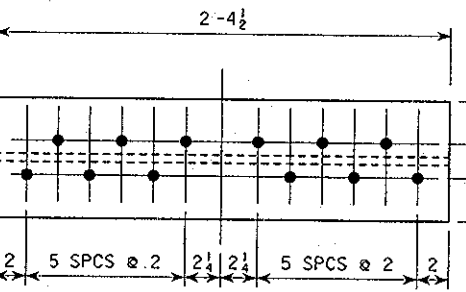
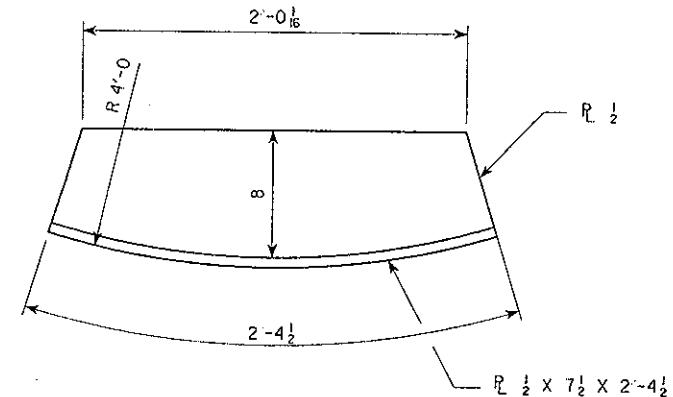
LONGITUDINAL CLOSURE POUR BARS



PANEL LAYOUT
(BARRIER RAILS INSTALLED AFTER P.T. GROUTING AND LONGITUDINAL CLOSURE POUR)



PRECAST DECK PANEL POST-TENSIONING CHANNEL



PANEL ANCHOR SYSTEM

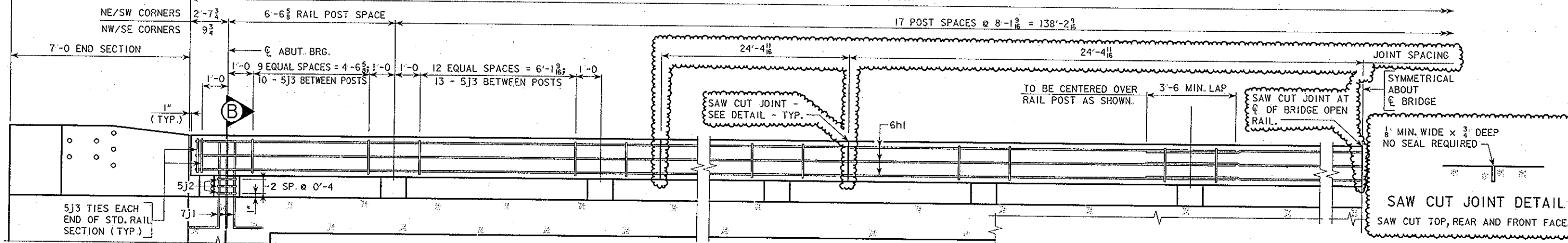
NOTE:
LOCATIONS OF ANCHOR HOLES MAY REQUIRE ADJUSTMENT DEPENDING ON THE FINAL ANCHORAGE SYSTEM CHOSEN BY THE CONTRACTOR. ANY CHANGES SHALL BE APPROVED BY THE ENGINEER.

NOTES:
CONTRACTOR SHALL USE MANUFACTURING RECOMMENDED POST-TENSIONING MATERIALS, EQUIPMENT AND INSTALLATION GUIDELINES FOR THE POST TENSIONING OPERATIONS.
LEVELING DEVICES, DESIGNED BY THE CONTRACTOR, SHALL BE USED ON EACH PRECAST PANEL, AND SHALL BE APPROVED BY THE ENGINEER.
PLATES SHALL MEET THE REQUIREMENTS OF ASTM A709 GRADE 36. ALL PLATES SHALL BE GALVANIZED. GALVANIZING SHALL BE IN ACCORDANCE WITH ARTICLE 4100.07 OF THE STANDARD SPECIFICATIONS.
MATERIAL, INSTALLATION AND MANUFACTURING OF ALL COMPONENTS OF THE LEVELING DEVICES WILL BE CONSIDERED INCIDENTAL TO THE COSTS OF THE PRECAST PANELS.
THE LEVELING DEVICES SHALL BE TESTED ON THE FIRST PANEL PRODUCED, IN THE MANUFACTURER'S SHOP, BEFORE PROCEEDING TO THE FIELD INSTALLATION. NOTE THE PANELS WILL BE ON A 2% GRADE IN THE FIELD AND THE LEVELING DEVICES SHOULD BE CHECKED FOR SLIPPAGE AT THIS ANGLE.
LEVEL DEVICES MAY BE LEFT IN PLACE AND COVERED BY CONCRETE.
THE CONCRETE USED TO FILL THE TRANSVERSE JOINTS, LONGITUDINAL TENSIONING CHANNELS AND LONGITUDINAL CLOSURE POUR SHALL BE A CLASS 0-4WR, WITH THE FOLLOWING REQUIREMENTS:
MAXIMUM TOP SIZE OF AGGREGATE SHALL BE 3/8".
35% REPLACEMENT WITH GGBFS.
MAXIMUM WATER CEMENT RATIO OF 0.38.
THE SLUMP SHALL BE A MAXIMUM OF 3 INCHES AT THE PLANT AND A MID RANGE OR HIGH RANGE WATER REDUCER SHALL BE ADDED AT THE SITE.
THE MAXIMUM SLUMP FOR A MID RANGE WATER REDUCER SHALL BE 6 INCHES AND THE MAXIMUM SLUMP FOR A HIGH RANGE WATER REDUCER SHALL BE 8 INCHES.
CONCRETE TEMPERATURE AT PLACEMENT SHALL BE A MINIMUM OF 70 F.
THE MAXIMUM EVAPORATION RATE SHALL BE 0.1 PERCENT. WET BURLAP CURING SHALL BE PLACED IMMEDIATELY AFTER FINISHING AND COVERED WITH PLASTIC. CURING SHALL REMAIN IN PLACE AND KEPT WET UNTIL THE SPECIFIED STRENGTH IS REACHED. TEMPERATURES WILL BE MONITORED BY THE DISTRICT MATERIALS ENGINEER AND INSULATING BLANKETS MAY BE REQUIRED TO MAINTAIN TEMPERATURE.
OTHER MIXES MAY BE CONSIDERED PROVIDED THEY HAVE BEEN REVIEWED AND APPROVED BY THE DISTRICT MATERIALS ENGINEER.
SIDES OF THE PANELS SHALL BE SANDBLASTED BY THE FABRICATOR.
DISTRICT MATERIALS WILL PROVIDE COMPRESSIVE STRENGTH TESTING OF THE CONCRETE USED TO FILL THE TRANSVERSE AND LONGITUDINAL JOINTS. DISTRICT MATERIALS WILL SURE CURE THE CYLINDERS WITH THE ELEMENTS. POST TENSIONING SHALL NOT COMMENCE UNTIL THE CONCRETE IN THE TRANSVERSE JOINTS HAS REACHED 4000 PSI COMPRESSIVE STRENGTH. NO EQUIPMENT SHALL BE PLACED ON THE DECK UNTIL THE CONCRETE IN THE JOINTS HAS REACHED 6000 PSI.

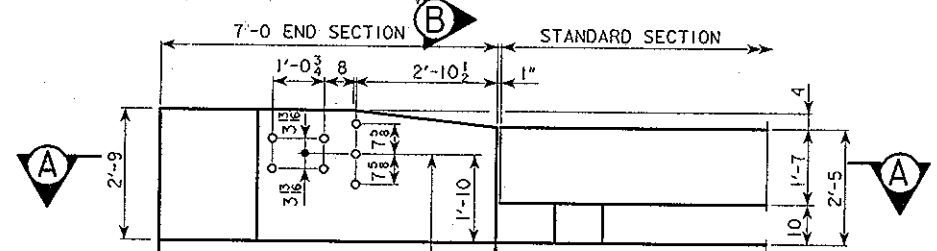
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DESIGN SHEET NO. 19 OF 22 FILE NO. 30101 DESIGN NO. 106

168'-9 3/8" END TO END OPEN RAIL (BID LENGTH)

154'-9 3/8" END TO END OF STANDARD OPEN RAIL SECTION

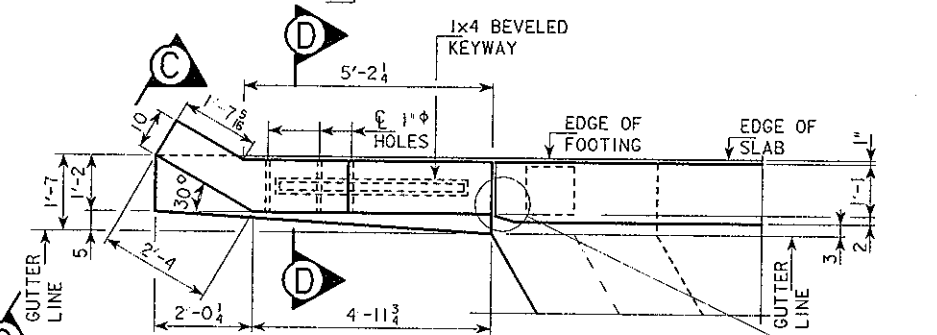


ELEVATION OF RAIL

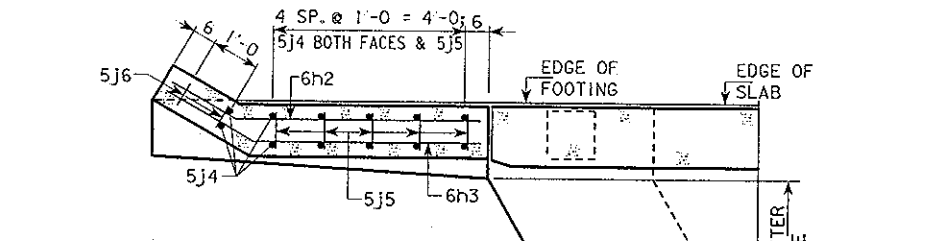


PART ELEVATION VIEW

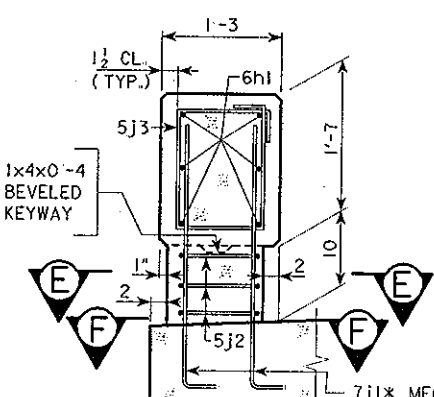
PROVIDE SEVEN HOLES FORMED WITH 1" PLASTIC CONDUIT. COST TO BE INCLUDED IN PRICE BID FOR CONCRETE BARRIER RAILING.



PART PLAN VIEW

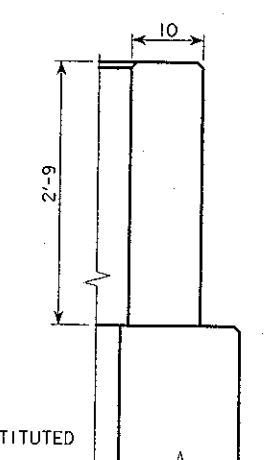


PART SECTION A-A
END SECTION DETAILS

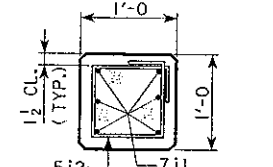


PART SECTION B-B

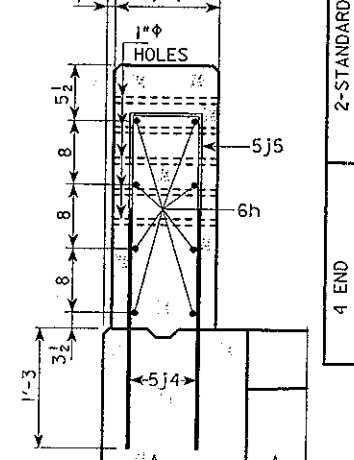
NOTE: ROUGHEN AREA OF SLAB AT EACH RAIL POST.



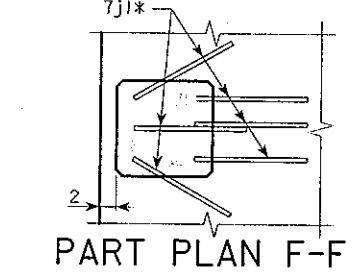
END VIEW C-C



PART SECTION E-E

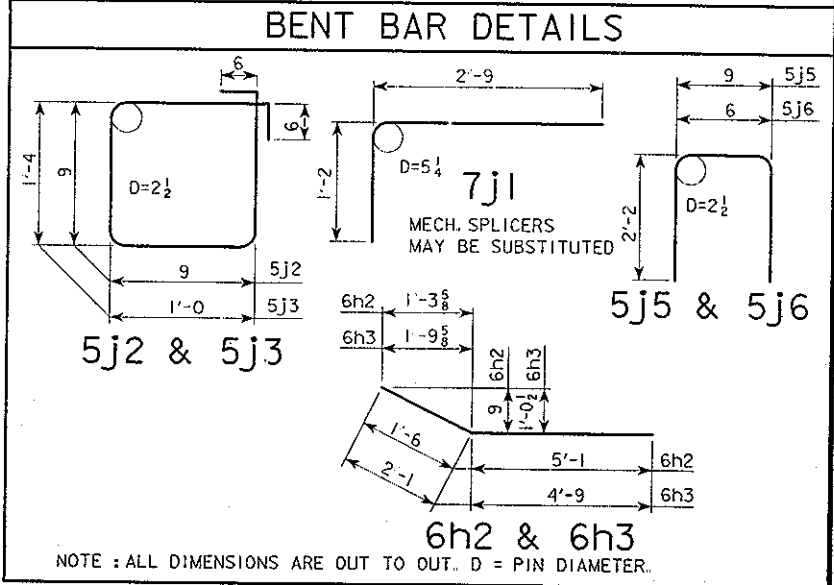


PART SECTION D-D



PART PLAN F-F

REINFORCING BAR LIST						
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT	
7j1	RAIL POST VERTICAL	L	240	3'-11"	1922	2-STANDARD SECTIONS
5j2	RAIL POST TIES	□	120	4'-0"	501	
5j3	RAIL TIES	□	490	5'-8"	2896	
6h1	RAIL LONGITUDINAL	—	48	43'-10"	3161	4 END SECTIONS
5j4	ANCHOR TO SLAB	—	48	2'-6"	125	
5j5	VERTICAL	□	20	5'-1"	106	
5j6	VERTICAL	□	8	4'-10"	40	
6h2	LONGITUDINAL	—	16	6'-7"	158	
6h3	LONGITUDINAL	—	16	6'-10"	164	
(INCLUDE WITH SUPERSTRUCTURE REINFORCING)				TOTAL (LBS.)	9073	



OPEN RAIL NOTES :

- ALL EXPOSED CORNERS OF 90° OR SHARPER ARE TO BE FILLETED WITH A 3/4" DRESSED AND BEVELED STRIP.
- MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.
- ALL OPEN RAIL CONCRETE IS TO BE CLASS C.
- ALL OPEN RAIL REINFORCING STEEL IS TO BE INCLUDED WITH THE SUPERSTRUCTURE REINFORCING.

THE CONCRETE OPEN RAIL IS TO BE BID ON A LINEAL FOOT BASIS MEASURED FROM END TO END OF RAIL. THE NUMBER OF LINEAL FEET OF OPEN RAIL INSTALLED WILL BE PAID FOR AT THE CONTRACT PRICE PER LINEAL FOOT. PRICE BID FOR CONCRETE OPEN RAIL SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, EXCLUDING REINFORCING STEEL, AND ALL OF THE EQUIPMENT AND LABOR REQUIRED TO ERECT THE RAIL IN ACCORDANCE WITH THESE PLANS AND CURRENT SPECIFICATIONS.

REVISED 11-06-06; CRACK CONTROL JOINTS ADDED.

ESTIMATED OPEN RAIL QUANTITIES		
ITEM	UNIT	QUANTITY
CONCRETE OPEN RAILING	L.F.	337.6

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