IOWA DOT

Highway Division

J44–06 CONTINUOUS CONCRETE SLAB BRIDGE STANDARDS

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GENERAL NOTES:

THE J44-06 BRIDGE STANDARDS, IF PROPERLY USED, PROVIDE THE STRUCTURAL PLANS NECESSARY TO CONSTRUCT THREE SPAN 44' ROADWAY CONTINUOUS CONCRETE SLAB BRIDGES WITH LENGTHS OF 70'-0, 80'-0, 90'-0, 100'-0, 110'-0, 120'-0, 130'-0, 140'-0 AND 150'-0.

THESE BRIDGES MAY BE BUILT ON A 0°, 15°, 30° OR 45° SKEW. THESE PLANS SHOW THE BRIDGES SKEWED IN ONE DIRECTION, BUT ALL DIMENSIONS AND DETAILS WOULD BE THE SAME FOR THE OPPOSITE SKEW.

THESE STANDARDS GIVE MOST OF THE INFORMATION NECESSARY TO BUILD THESE BRIDGES. HOWEVER, THE FOLLOWING ADDITIONAL INFORMATION IS REQUIRED FOR USE ON PRIMARY ROUTES. FOR SECONDARY ROUTES THE ENGINEER MAY NOT REQUIRE ALL SHEETS TO BE PROVIDED:

1. TITLE SHEET WITH ENGINEERS SEAL
2. ESTIMATED QUANTITIES TOTALS INCLUDING CLASS 20 EXCAVATION FOR BRIDGE
3. SITUATION PLAN LAYOUT OF BRIDGE
4. TOP OF SLAB ELEVATIONS LAYOUT
5. BOTTOM OF ABUTMENT FOOTING ELEVATIONS
6. BOTTOM OF PIER CAP ELEVATIONS
7. PILING DESIGN INFORMATION
8. SLOPE PROTECTION LAYOUT IF NEEDED
9. CONDUIT LAYOUT
10. LIGHTING LAYOUT IF NEEDED

FOR CLARITY, MOST SECTIONS SHOWN ON THE FOLLOWING SHEETS ARE DRAWN WITH BARRIER RAIL ONLY. THESE SECTIONS WILL BE IDENTICAL FOR OPEN RAIL DESIGN WITH ANY MODIFICATIONS SHOWN ON SHEET J44-48-06 AND J44-49-06.

THESE BRIDGES ARE DESIGNED FOR HL93 LOADING PLUS 20 LBS. PER SQ. FT. OF ROADWAY FOR FUTURE WEARING SURFACE. CONTROL OF CRACKING BY DISTRIBUTION OF REINFORCEMENT FOR SLAB DESIGN BASED ON PRE LRFD 2005 INTERIMS.

NOTE THAT WHEN APPROACH PAVEMENT IS TO BE PLACED, THE TEMPORARY PAVING BLOCKS SHALL BE REMOVED AND A PROPER JOINT FOR EXPANSION SHALL BE PROVIDED BETWEEN THE BRIDGE AND THE APPROACH PAVING.

THE FLOOR SLAB AS SHOWN INCLUDES ½" INTEGRAL WEARING SURFACE.

THE ABUTMENTS FOR THESE BRIDGES ARE BUILT INTEGRAL WITH THE SUPERSTRUCTURE. THEREFORE, IT IS IMPORTANT THAT A PROPER JOINT FOR EXPANSION BE PROVIDED BETWEEN THE BRIDGE AND APPROACH PAVING, WHEN APPROACH PAVING IS NEEDED.

THE ABUTMENT DESIGN UTILIZED ON THESE BRIDGES RESTRICTS THEIR USE IN THE FOLLOWING MANNER:

(1) THESE BRIDGES ARE NOT TO BE USED WHEN POINT BEARING FOR THE ABUTMENT STEEL PILING WOULD BE OBTAINED ON ROCK AT A DISTANCE LESS THAN 15 FEET FROM THE BOTTOM OF FOOTING.

(2) FOR THE 140 FOOT AND 150 FOOT LONG BRIDGES THE ABUTMENT PILING ARE TO BE DRIVEN THROUGH OVERSIZED HOLES PREBORED TO A MINIMUM OF 10 FEET BELOW THE BELOW THE BOTTOM OF FOOTING. THE PREBORED HOLES SHALL BE IN ACCORDANCE WITH SECTION 2501.03, Q OF THE STANDARD SPECIFICATIONS. THE ELEVATION OF THE BOTTOM OF THE PREBORED HOLE SHALL BE SHOWN ON THE PLANS.

(3) IF ROCK IS ENCOUNTERED LESS THAN 5 FOOT BELOW THE PREBORED HOLES, A SPECIAL ANALYSIS WILL BE REQUIRED. WHEN PREBORING IS NOT REQUIRED FOR THE ABUTMENT FOOTING AND ROCK IS ENCOUNTERED LESS THAN 10 FOOT BELOW THE BOTTOM OF ABUTMENT FOOTING, A SPECIAL ANALYSIS WILL BE REQUIRED.

THE PIERS AND ABUTMENTS FOR THESE STANDARDS HAVE BEEN DESIGNED FOR THE USE OF BOTH FRICTION AND POINT BEARING PILES. IT IS NECESSARY THAT THE TYPE AND LENGTH FOR BOTH THE ABUTMENT AND PIER PILES BE DESIGNATED ON THE FRONT SHEET OF THE PLANS.

THE INTEGRAL ABUTMENTS AND PILE BENTS FOR THESE J44 STANDARDS HAVE BEEN DESIGNED FOR THE USE OF VARIOUS TYPES OF PILE FOOTINGS AS FOLLOWS.

- INTEGRAL ABUTMENTS: TIMBER PILES OR HP 10x42 PILES AT BRIDGE DESIGN MANUAL(BDM) ARTICLE 6.2.6.1 STRUCTURAL RESISTANCE LEVEL-1 (SRL-1)
- PILE BENTS: STANDARD CONCRETE-FILLED STEEL PIPE PILES (PIOL), STANDARD PRESTRESSED CONCRETE PILES (PIOL), OR STANDARD H-PILES (PIOL AND SRL-1)

BECAUSE THESE BRIDGE STANDARDS HAVE BEEN REVISED FOR LRFD BASED ON 2012-COMPLETED IOWA STATE UNIVERSITY RESEARCH, FOR PILE FOUNDATIONS THE DESIGNER WILL NEED TO DETERMINE THE CONSTRUCTION CONTROL METHOD, CONTRACT LENGTH, AND DRIVING TARGET AND GIVE THAT INFORMATION ON THE FRONT SHEET OF THE PLANS. BRIDGE DESIGN MANUAL CADD NOTES E177, E718, E719, E818, AND E819 ARE APPROPRIATE FOR THAT PURPOSE. THE NOTES, AS WELL AS THE BRIDGE DESIGN MANUAL AND DESIGN EXAMPLES, ARE AVAILABLE ON THE OFFICE OF BRIDGES AND STRUCTURES WEB SITE: HTTP://WWW.IOWADOT.GOV/BRIDGE/INDEX.HTM.

STRUCTURAL RESISTANCE LEVEL-1 (SRL-1) REPLACES THE 50 TON STEEL PILE DESIGNATION.

FOR MORE INFORMATION ON SRL-1, SEE THE BRIDGE DESIGN MANUAL, LOCATED ON THE IOWA DEPARTMENT OF TRANSPORTATION, OFFICE OF BRIDGES AND STRUCTURES WEB SITE.

FOR PIERS SUBJECT TO SCOUR THE DESIGN BEARING SHALL BE OBTAINED BELOW SCOUR ELEVATION. SCOUR ELEVATION SHALL BE SHOWN ON THE FRONT SHEET.

KEYWAY DIMENSIONS SHOWN ON THE PLANS ARE BASED ON NOMINAL DIMENSIONS UNLESS STATED OTHERWISE. IN ADDITION, THE BEVEL USED ON THE KEYWAY SHALL BE LIMITED TO A MAXIMUM OF 10 DEGREES FROM VERTICAL.

THESE BRIDGE PLANS LABEL ALL REINFORCING STEEL WITH ENGLISH NOTATION (5a1 IS $\frac{5}{8}$ INCH DIAMETER BAR). ENGLISH REINFORCING STEEL RECEIVED IN THE FIELD MAY DISPLAY THE FOLLOWING "BAR DESIGNATION". THE "BAR DESIGNATION" IS THE STAMPED IMPRESSION ON THE REINFORCING BARS, AND IS EQUIVALENT TO THE BAR DIAMETER IN MILLIMETERS.

ENGLISH SIZE	3	4	5	6	7	8	9	10	11
BAR DESIGNATION	10	13	16	19	22	25	29	32	36

SPECIFICATIONS:

DESIGN: AASHTO LRFD, SERIES OF 2004 WITH INTERIM 2005.

CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2012, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 3rd Ed, SERIES OF 2004.

REINFORCING STEEL IN ACCORDANCE WITH LRFD AASHTO SECTION 5, GRADE 60.

CONCRETE IN ACCORDANCE WITH LRFD AASHTO SECTION 5, f'c = 3,500 PSI,

STRUCTURAL STEEL IN ACCORDANCE WITH LRFD AASHTO SECTION 6. ASTM A709 GRADE 36 OR GRADE 50 (AASHTO M270 GRADE 36 OR GRADE 50).

n = 9 FOR TENSION STEEL

2n = 18 FOR COMPRESSION STEEL

HL-93 LIVE LOAD PLUS 20 LBS. PER SQ. FT. FOR FUTURE WEARING SURFACE.

END SPAN LENGTH IS USED TO CALCULATE EQUIVALENT WIDTH IN LIVE LOAD DISTRIBUTION.

SIX FOOT OF APPROACH SLAB DEAD & LIVE LOAD INCLUDED IN ABUTMENT LOADS.

CONTROL OF CRACKING BY DISTRIBUTION OF REINFORCEMENT FOR SLAB DESIGN BASED ON PRE 2005 LRFD INTERMS.

REVISED 06-13: REVISION FOR LRFD PILE DESIGN.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

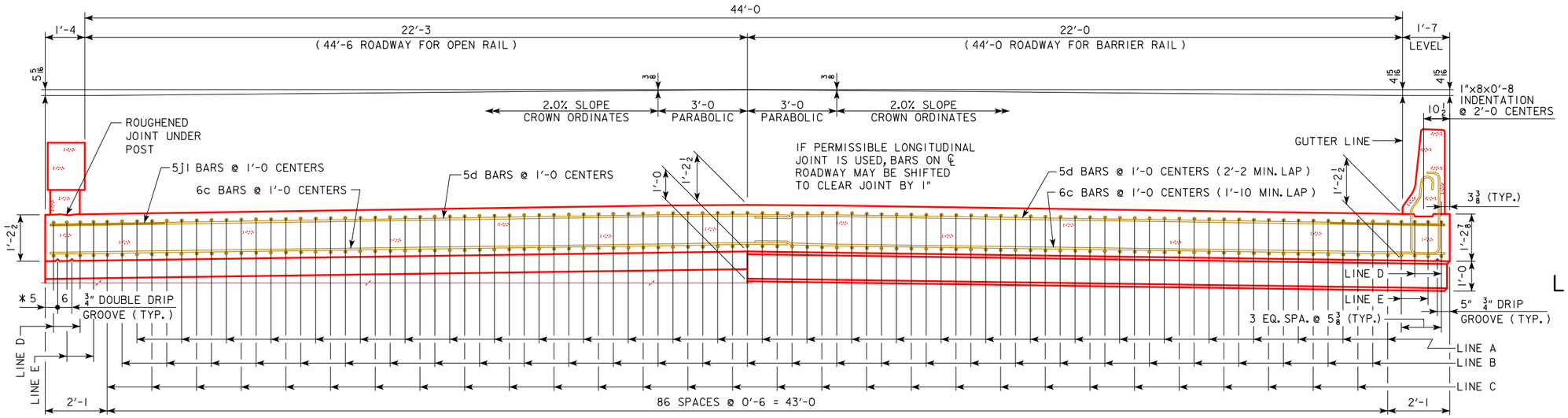
STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

INDEX AND GENERAL NOTES | J44-01-06

REVISED 07-16: DATE ON SHEET CHANGED TO CORRECT CLERICAL ERROR.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE. ADDED 3⅜ (TYP.) & 5⅜ (TYP.) HORIZONTAL DIMENSIONS TO LONGITUDINAL SLAB REINFORCING LINE D & E IN "HALF SECTION NEAR PIER".



* NOTE: DOUBLE DRIP GROOVES FOR OPEN RAIL OPTION ONLY.

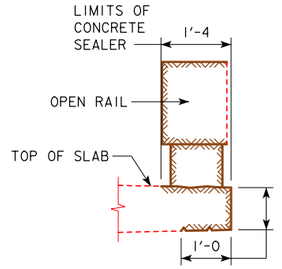
HALF SECTION NEAR ABUTMENT

SLAB CROSS-SECTIONAL AREA FOR OPEN RAIL = 56.99 SQ. FT.

HALF SECTION NEAR PIER

SLAB CROSS-SECTIONAL AREA FOR BARRIER RAIL = 57.04 SQ. FT.

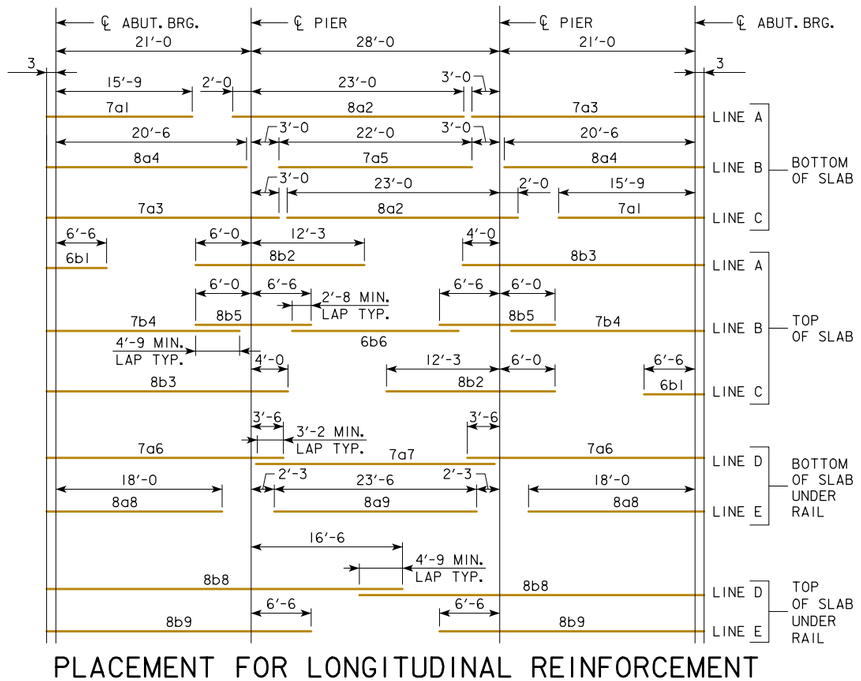
NOTE: TOP LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND 2½" CLEAR BELOW TOP OF SLAB. BOTTOM LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND 1½" CLEAR ABOVE BOTTOM OF SLAB. REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE AND ADEQUATELY SUPPORTED ON BAR CHAIRS BEFORE CONCRETE IS POURED.
I.M. 451.01 REQUIREMENTS SHALL APPLY FOR BAR CHAIRS.



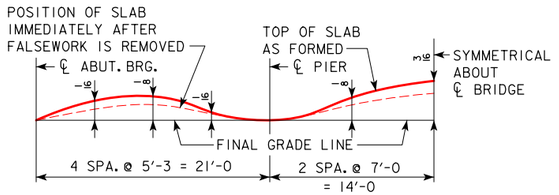
CONCRETE SEALER LIMITS FOR OPEN RAILS

CONCRETE SEALER SHALL BE APPLIED TO BOTH SIDES OF BRIDGE SLAB ON THE TOP, EDGE OF SLAB AND UNDER THE SLAB. THE CONCRETE SEALER SHALL ALSO BE APPLIED TO THE OPEN RAIL ON THE TOP, TRAFFIC FACE SIDE, BOTTOM OF RAIL, AND ON ALL SIDES OF THE OPEN RAIL POSTS.

THE CONCRETE SEALER LIMITS ARE SHOWN IN THE DETAIL AND SHALL APPLY TO THE FULL LENGTH OF BRIDGE. CONCRETE SEALER SHALL BE APPLIED IN ACCORDANCE WITH ARTICLE 2403.03, P, 3 OF THE STANDARD SPECIFICATIONS.



PLACEMENT FOR LONGITUDINAL REINFORCEMENT



FORM CAMBER DIAGRAM

THIS DIAGRAM SHOWS THE FORM CAMBER REQUIRED TO COMPENSATE FOR THE ANTICIPATED ULTIMATE DEAD LOAD DEFLECTION. THE ABOVE DIMENSIONS DO NOT INCLUDE ANY ALLOWANCE FOR FORM DEFLECTION OR FALSEWORK SETTLEMENT.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

SUPERSTRUCTURE DETAILS
70'-0 BRIDGE

J44-02-06

BILL OF REINFORCING STEEL FOR SUPERSTRUCTURE - 70' BRIDGE

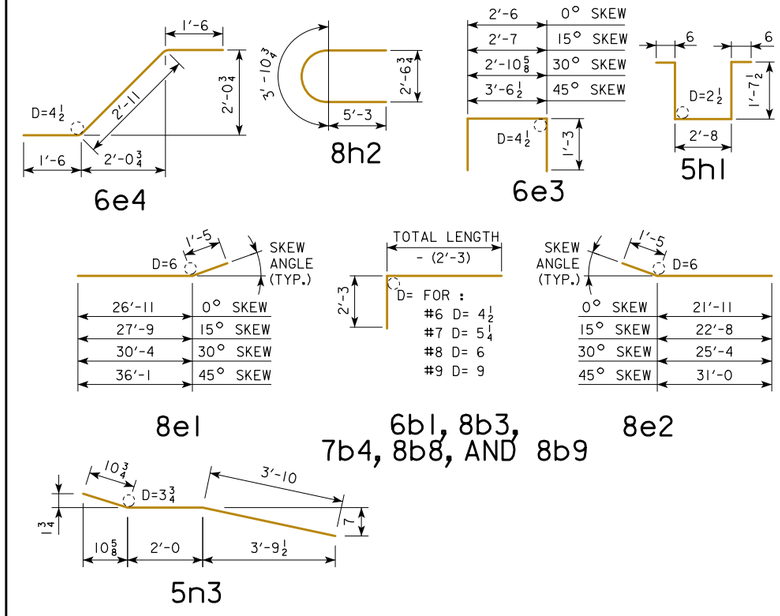
LOCATION \ SKEW	SHAPE	0° BAR	0° NO.	0° LENGTH	0° WEIGHT	15° NO.	15° LENGTH	15° WEIGHT	30° NO.	30° LENGTH	30° WEIGHT	45° NO.	45° LENGTH	45° WEIGHT
SLAB LONGITUDINAL BOTTOM		7a1	58	16'-0	1897	58	16'-0	1897	58	16'-0	1897	58	16'-0	1897
SLAB LONGITUDINAL BOTTOM		8a2	58	25'-0	3872	58	25'-0	3872	58	25'-0	3872	58	25'-0	3872
SLAB LONGITUDINAL BOTTOM		7a3	58	24'-3	2875	58	24'-3	2875	58	24'-3	2875	58	24'-3	2875
SLAB LONGITUDINAL BOTTOM		8a4	58	20'-9	3214	58	20'-9	3214	58	20'-9	3214	58	20'-9	3214
SLAB LONGITUDINAL BOTTOM		7a5	29	22'-0	1305	29	22'-0	1305	29	22'-0	1305	29	22'-0	1305
SLAB LONGITUDINAL BOTTOM, AT RAIL		7a6	8	24'-9	405	8	24'-9	405	8	24'-9	405	8	24'-9	405
SLAB LONGITUDINAL BOTTOM, AT RAIL		7a7	4	27'-4	224	4	27'-4	224	4	27'-4	224	4	27'-4	224
SLAB LONGITUDINAL BOTTOM, AT RAIL		8a8	8	18'-3	390	8	18'-3	390	8	18'-3	390	8	18'-3	390
SLAB LONGITUDINAL BOTTOM, AT RAIL		8a9	4	23'-6	251	4	23'-6	251	4	23'-6	251	4	23'-6	251
SLAB LONGITUDINAL TOP		6b1	58	9'-0	785	58	9'-0	785	58	9'-0	785	58	9'-0	785
SLAB LONGITUDINAL TOP		8b2	58	18'-3	2827	58	18'-3	2827	58	18'-3	2827	58	18'-3	2827
SLAB LONGITUDINAL TOP		8b3	58	27'-6	4259	58	27'-6	4259	58	27'-6	4259	58	27'-6	4259
SLAB LONGITUDINAL TOP		7b4	58	22'-3	2638	58	22'-3	2638	58	22'-3	2638	58	22'-3	2638
SLAB LONGITUDINAL TOP		8b5	58	12'-6	1936	58	12'-6	1936	58	12'-6	1936	58	12'-6	1936
SLAB LONGITUDINAL TOP		6b6	29	20'-4	886	29	20'-4	886	29	20'-4	886	29	20'-4	886
SLAB LONGITUDINAL TOP, AT RAIL		8b8	8	40'-0	855	8	40'-0	855	8	40'-0	855	8	40'-0	855
SLAB LONGITUDINAL TOP, AT RAIL		8b9	8	30'-0	641	8	30'-0	641	8	30'-0	641	8	30'-0	641
SLAB TRANSVERSE BOTTOM		6c1	67	25'-5	2558	67	26'-4	2650	56	25'-5	2138	46	25'-5	1757
SLAB TRANSVERSE BOTTOM		6c2	67	23'-3	2340	67	24'-1	2424	58	23'-3	2026	49	23'-3	1712
SLAB TRANSVERSE ENDS, BOTTOM		6c3	-	-	-	-	-	-	14	VARIES	303	22	VARIES	485
SLAB TRANSVERSE ENDS, BOTTOM		6c4	-	-	-	-	-	-	12	VARIES	255	22	VARIES	458
SLAB TRANSVERSE ENDS, BOTTOM		6c5	-	-	-	-	-	-	12	VARIES	208	20	VARIES	366
SLAB TRANSVERSE ENDS, BOTTOM		6c6	-	-	-	-	-	-	12	VARIES	227	19	VARIES	376
SLAB TRANSVERSE TOP		5d1	67	25'-9	1800	67	26'-8	1864	56	25'-9	1505	46	25'-9	1236
SLAB TRANSVERSE TOP		5d2	67	23'-3	1625	67	24'-1	1683	58	23'-3	1407	49	23'-3	1189
SLAB TRANSVERSE ENDS, TOP		5d3	-	-	-	-	-	-	14	VARIES	210	22	VARIES	337
SLAB TRANSVERSE ENDS, TOP		5d4	-	-	-	-	-	-	12	VARIES	177	22	VARIES	318
SLAB TRANSVERSE ENDS, TOP		5d5	-	-	-	-	-	-	12	VARIES	144	20	VARIES	254
SLAB TRANSVERSE ENDS, TOP		5d6	-	-	-	-	-	-	12	VARIES	158	19	VARIES	261
SLAB, TRANSVERSE AT ABUTMENT		8e1	18	28'-4	1362	18	29'-2	1402	18	31'-9	1526	18	37'-6	1803
SLAB, TRANSVERSE AT ABUTMENT		8e2	18	23'-4	1122	18	24'-1	1158	18	26'-9	1286	18	32'-5	1558
SLAB, HAIRPINS, AT ABUTMENT		6e3	100	5'-0	751	100	5'-1	764	100	5'-5	814	100	6'-1	914
SLAB, DIAGONALS, AT ABUTMENT		6e4	100	5'-11	889	100	5'-11	889	100	5'-11	889	100	5'-11	889
PIER CAP HOOPS		5h1	72	6'-11	520	72	6'-11	520	90	6'-11	650	108	6'-11	780
PIER CAP ENDS		8h2	4	14'-5	154	4	14'-5	154	4	14'-5	154	4	14'-5	154
PIER CAP, BOTTOM LONGITUDINAL		8h3	8	27'-5	586	8	28'-8	613	8	31'-8	677	8	37'-10	809
PIER CAP, BOTTOM LONGITUDINAL		8h4	8	21'-11	469	8	22'-4	478	8	24'-6	524	8	29'-8	634
PIER CAP, TOP LONGITUDINAL		8h5	4	28'-2	301	4	29'-6	316	4	32'-8	349	4	38'-11	416
PIER CAP, TOP LONGITUDINAL		8h6	4	23'-5	251	4	23'-11	256	4	26'-3	281	4	31'-6	337
TOP OF SLAB, TRANSVERSE, AT RAIL		5j1	132	8'-6	1171	132	8'-6	1171	126	8'-6	1118	124	8'-6	1100
WING, VERTICAL		5m1	40	4'-5	185	40	4'-5	185	40	4'-5	185	40	4'-5	185
WING, HORIZONTAL BACK FACE		5n1	24	6'-8	167	24	6'-8	167	24	6'-8	167	24	6'-8	167
WING, HORIZONTAL TRAFFIC FACE		5n3	24	6'-9	169	24	6'-9	169	24	6'-9	169	24	6'-9	169
SUB TOTAL - LBS.					45,680			46,123			46,807			47,924
BARRIER RAIL - SEE LIST ON RAIL SHEET J44-46-06					4957			4957			4957			4957
OPEN RAIL - SEE LIST ON RAIL SHEET J44-49-06					5100			5100			5100			5100
TOTAL - LBS. WITH MONOLITHIC PIER CAP		WITH BARRIER RAIL			50,637			51,080			51,764			52,881
		WITH OPEN RAIL			50,780			51,223			51,907			53,024
TOTAL - LBS. WITH NON-MONOLITHIC PIER CAP		WITH BARRIER RAIL			48,356			48,743			49,129			49,751
SAME AS ABOVE EXCEPT ALL "h" BARS DELETED		WITH OPEN RAIL			48,499			48,886			49,272			49,894

ESTIMATED QUANTITIES FOR SUPERSTRUCTURE - 70' BRIDGE

ITEM		SKEW	WITH MONOLITHIC PIER CAP 0°	15°	30°	45°	WITH NON-MONOLITHIC PIER CAP 0°	15°	30°	45°
WITH BARRIER RAIL	*STRUCTURAL CONCRETE (BRIDGE)	C.Y.	183.4	184.5	188.4	196.8	177.0	177.9	181.1	187.9
	REINFORCING STEEL EPOXY COATED	LBS.	50,637	51,080	51,764	52,881	48,356	48,743	49,129	49,751
CONCRETE BARRIER OR OPEN RAIL		LIN. FT.	162.0	162.2	162.9	164.5	162.0	162.2	162.9	164.5
WITH OPEN RAIL	*STRUCTURAL CONCRETE (BRIDGE)	C.Y.	183.3	184.4	188.3	196.7	176.9	177.8	180.9	187.8
	REINFORCING STEEL EPOXY COATED	LBS.	50,780	51,223	51,907	53,024	48,499	48,886	49,272	49,894

* INCLUDES 4 WINGS @ 0.68 C.Y. EACH; EXCLUDES RAIL CONCRETE.

BENT BAR DETAILS



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

NOTES:

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

THE TRANSVERSE REBARS ARE DETAILED WITH A SPLICE LAP. AT THE CONTRACTOR'S OPTION, THIS LAP MAY BE ELIMINATED BY FURNISHING FULL LENGTH BARS WITH NO REDUCTION IN PAY WEIGHT FOR SAME.

REVISED 07-09: OPEN RAIL REINF. QTYS. CHANGED WHICH CHANGED TOTAL REINF. QTYS.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWA DOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

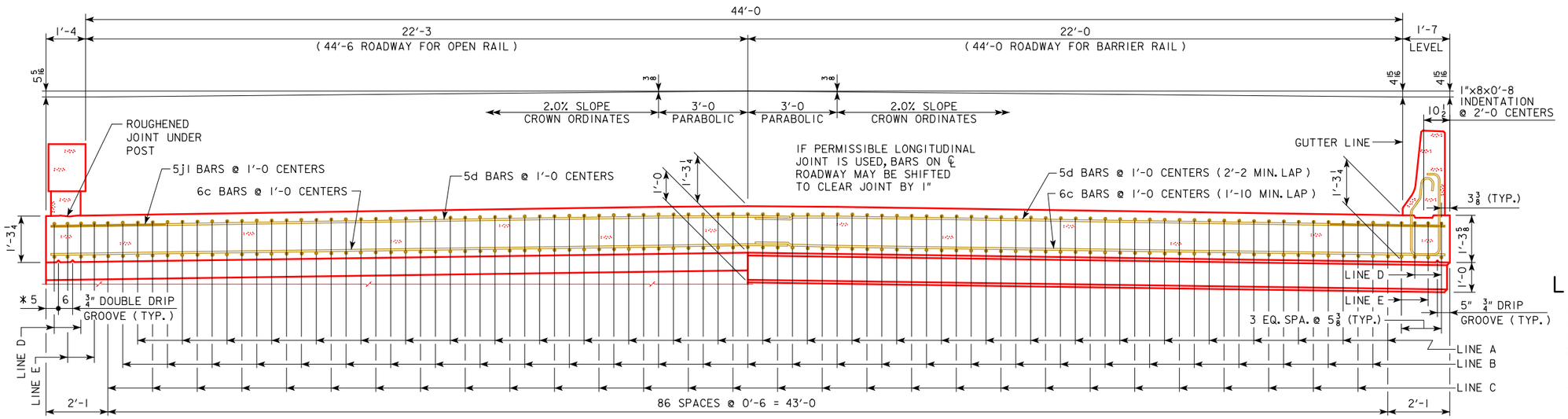
CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

SUPERSTRUCTURE DETAILS
70'-0 BRIDGE

J44-03-06

REVISED 07-16: DATE ON SHEET CHANGED TO CORRECT CLERICAL ERROR.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE. ADDED $3\frac{3}{8}$ (TYP.) & $5\frac{3}{8}$ (TYP.) HORIZONTAL DIMENSIONS TO LONGITUDINAL SLAB REINFORCING LINE D & E IN "HALF SECTION NEAR PIER".



* NOTE: DOUBLE DRIP GROOVES FOR OPEN RAIL OPTION ONLY.

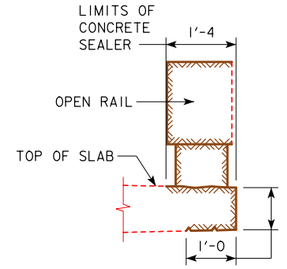
HALF SECTION NEAR ABUTMENT

SLAB CROSS-SECTIONAL AREA FOR OPEN RAIL = 59.94 SQ. FT.

HALF SECTION NEAR PIER

SLAB CROSS-SECTIONAL AREA FOR BARRIER RAIL = 59.99 SQ. FT.

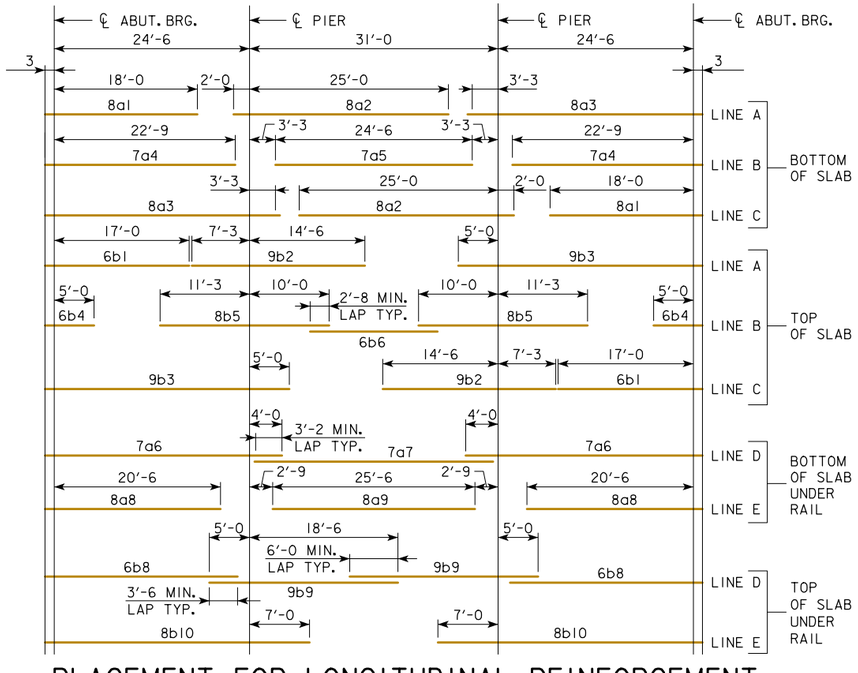
NOTE: TOP LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND $2\frac{1}{2}$" CLEAR BELOW TOP OF SLAB. BOTTOM LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND $1\frac{1}{2}$" CLEAR ABOVE BOTTOM OF SLAB. REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE AND ADEQUATELY SUPPORTED ON BAR CHAIRS BEFORE CONCRETE IS POURED.
I.M. 451.01 REQUIREMENTS SHALL APPLY FOR BAR CHAIRS.



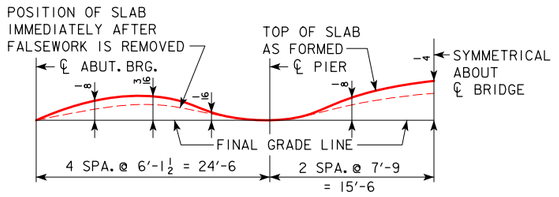
CONCRETE SEALER LIMITS FOR OPEN RAILS

CONCRETE SEALER SHALL BE APPLIED TO BOTH SIDES OF BRIDGE SLAB ON THE TOP, EDGE OF SLAB AND UNDER THE SLAB. THE CONCRETE SEALER SHALL ALSO BE APPLIED TO THE OPEN RAIL ON THE TOP, TRAFFIC FACE SIDE, BOTTOM OF RAIL, AND ON ALL SIDES OF THE OPEN RAIL POSTS.

THE CONCRETE SEALER LIMITS ARE SHOWN IN THE DETAIL AND SHALL APPLY TO THE FULL LENGTH OF BRIDGE. CONCRETE SEALER SHALL BE APPLIED IN ACCORDANCE WITH ARTICLE 2403.03, P, 3 OF THE STANDARD SPECIFICATIONS.



PLACEMENT FOR LONGITUDINAL REINFORCEMENT



FORM CAMBER DIAGRAM

THIS DIAGRAM SHOWS THE FORM CAMBER REQUIRED TO COMPENSATE FOR THE ANTICIPATED ULTIMATE DEAD LOAD DEFLECTION. THE ABOVE DIMENSIONS DO NOT INCLUDE ANY ALLOWANCE FOR FORM DEFLECTION OR FALSEWORK SETTLEMENT.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

SUPERSTRUCTURE DETAILS
80'-0 BRIDGE

J44-04-06

BILL OF REINFORCING STEEL FOR SUPERSTRUCTURE - 80' BRIDGE

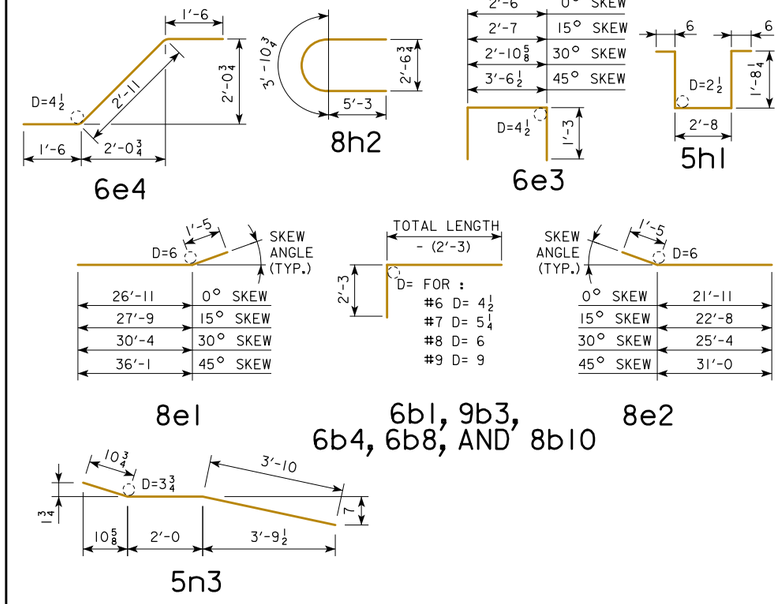
LOCATION / SKEW	SHAPE	0° BAR	0° NO.	0° LENGTH	0° WEIGHT	15° NO.	15° LENGTH	15° WEIGHT	30° NO.	30° LENGTH	30° WEIGHT	45° NO.	45° LENGTH	45° WEIGHT
SLAB LONGITUDINAL BOTTOM		8a1	58	18'-3	2827	58	18'-3	2827	58	18'-3	2827	58	18'-3	2827
SLAB LONGITUDINAL BOTTOM		8a2	58	27'-0	4182	58	27'-0	4182	58	27'-0	4182	58	27'-0	4182
SLAB LONGITUDINAL BOTTOM		8a3	58	28'-0	4337	58	28'-0	4337	58	28'-0	4337	58	28'-0	4337
SLAB LONGITUDINAL BOTTOM		7a4	58	23'-0	2727	58	23'-0	2727	58	23'-0	2727	58	23'-0	2727
SLAB LONGITUDINAL BOTTOM		7a5	29	24'-6	1453	29	24'-6	1453	29	24'-6	1453	29	24'-6	1453
SLAB LONGITUDINAL BOTTOM, AT RAIL		7a6	8	28'-9	471	8	28'-9	471	8	28'-9	471	8	28'-9	471
SLAB LONGITUDINAL BOTTOM, AT RAIL		7a7	4	29'-4	240	4	29'-4	240	4	29'-4	240	4	29'-4	240
SLAB LONGITUDINAL BOTTOM, AT RAIL		8a8	8	20'-9	444	8	20'-9	444	8	20'-9	444	8	20'-9	444
SLAB LONGITUDINAL BOTTOM, AT RAIL		8a9	4	25'-6	273	4	25'-6	273	4	25'-6	273	4	25'-6	273
SLAB LONGITUDINAL TOP		6b1	58	19'-6	1699	58	19'-6	1699	58	19'-6	1699	58	19'-6	1699
SLAB LONGITUDINAL TOP		9b2	58	21'-9	4290	58	21'-9	4290	58	21'-9	4290	58	21'-9	4290
SLAB LONGITUDINAL TOP		9b3	58	32'-0	6311	58	32'-0	6311	58	32'-0	6311	58	32'-0	6311
SLAB LONGITUDINAL TOP		6b4	58	7'-6	654	58	7'-6	654	58	7'-6	654	58	7'-6	654
SLAB LONGITUDINAL TOP		8b5	58	21'-3	3291	58	21'-3	3291	58	21'-3	3291	58	21'-3	3291
SLAB LONGITUDINAL TOP		6b6	29	16'-4	712	29	16'-4	712	29	16'-4	712	29	16'-4	712
SLAB LONGITUDINAL TOP, AT RAIL		6b8	8	25'-6	307	8	25'-6	307	8	25'-6	307	8	25'-6	307
SLAB LONGITUDINAL TOP, AT RAIL		9b9	8	23'-6	640	8	23'-6	640	8	23'-6	640	8	23'-6	640
SLAB LONGITUDINAL TOP, AT RAIL		8b10	8	34'-0	727	8	34'-0	727	8	34'-0	727	8	34'-0	727
SLAB TRANSVERSE BOTTOM		6c1	77	25'-5	2940	77	26'-4	3046	66	25'-5	2520	56	25'-5	2138
SLAB TRANSVERSE BOTTOM		6c2	77	23'-3	2689	77	24'-1	2786	68	23'-3	2375	59	23'-3	2061
SLAB TRANSVERSE ENDS, BOTTOM		6c3	-	-	-	-	-	-	14	VARIES	303	22	VARIES	485
SLAB TRANSVERSE ENDS, BOTTOM		6c4	-	-	-	-	-	-	12	VARIES	255	22	VARIES	458
SLAB TRANSVERSE ENDS, BOTTOM		6c5	-	-	-	-	-	-	12	VARIES	208	20	VARIES	366
SLAB TRANSVERSE ENDS, BOTTOM		6c6	-	-	-	-	-	-	12	VARIES	227	19	VARIES	376
SLAB TRANSVERSE TOP		5d1	77	25'-9	2069	77	26'-8	2142	66	25'-9	1773	56	25'-9	1505
SLAB TRANSVERSE TOP		5d2	77	23'-3	1868	77	24'-1	1935	68	23'-3	1649	59	23'-3	1431
SLAB TRANSVERSE ENDS, TOP		5d3	-	-	-	-	-	-	14	VARIES	210	22	VARIES	337
SLAB TRANSVERSE ENDS, TOP		5d4	-	-	-	-	-	-	12	VARIES	177	22	VARIES	318
SLAB TRANSVERSE ENDS, TOP		5d5	-	-	-	-	-	-	12	VARIES	144	20	VARIES	254
SLAB TRANSVERSE ENDS, TOP		5d6	-	-	-	-	-	-	12	VARIES	158	19	VARIES	261
SLAB, TRANSVERSE AT ABUTMENT		8e1	18	28'-4	1362	18	29'-2	1402	18	31'-9	1526	18	37'-6	1803
SLAB, TRANSVERSE AT ABUTMENT		8e2	18	23'-4	1122	18	24'-1	1158	18	26'-9	1286	18	32'-5	1558
SLAB, HAIRPINS, AT ABUTMENT		6e3	100	5'-0	751	100	5'-1	764	100	5'-5	814	100	6'-1	914
SLAB, DIAGONALS, AT ABUTMENT		6e4	100	5'-11	889	100	5'-11	889	100	5'-11	889	100	5'-11	889
PIER CAP HOOPS		5h1	72	7'-1	532	72	7'-1	532	90	7'-1	665	108	7'-1	798
PIER CAP ENDS		8h2	4	14'-5	154	4	14'-5	154	4	14'-5	154	4	14'-5	154
PIER CAP, BOTTOM LONGITUDINAL		8h3	8	27'-5	586	8	28'-8	613	8	31'-8	677	8	37'-10	809
PIER CAP, BOTTOM LONGITUDINAL		8h4	8	21'-11	469	8	22'-4	478	8	24'-6	524	8	29'-8	634
PIER CAP, TOP LONGITUDINAL		8h5	4	28'-2	301	4	29'-6	316	4	32'-8	349	4	38'-11	416
PIER CAP, TOP LONGITUDINAL		8h6	4	23'-5	251	4	23'-11	256	4	26'-3	281	4	31'-6	337
TOP OF SLAB, TRANSVERSE, AT RAIL		5j1	152	8'-6	1348	152	8'-6	1348	146	8'-6	1295	144	8'-6	1277
WING, VERTICAL		5m1	40	4'-5	185	40	4'-5	185	40	4'-5	185	40	4'-5	185
WING, HORIZONTAL BACK FACE		5n1	24	6'-8	167	24	6'-8	167	24	6'-8	167	24	6'-8	167
WING, HORIZONTAL TRAFFIC FACE		5n3	24	6'-9	169	24	6'-9	169	24	6'-9	169	24	6'-9	169
SUB TOTAL - LBS.					53,437			53,925			54,565			55,685
BARRIER RAIL - SEE LIST ON RAIL SHEET J44-46-06					5464			5464			5464			5464
OPEN RAIL - SEE LIST ON RAIL SHEET J44-49-06					5799			5799			5799			5799
TOTAL - LBS. WITH MONOLITHIC PIER CAP	WITH BARRIER RAIL				58,901			59,389			60,029			61,149
	WITH OPEN RAIL				59,236			59,724			60,364			61,484
TOTAL - LBS. WITH NON-MONOLITHIC PIER CAP	WITH BARRIER RAIL				56,608			57,040			57,379			58,001
SAME AS ABOVE EXCEPT ALL "h" BARS DELETED	WITH OPEN RAIL				56,943			57,375			57,714			58,336

ESTIMATED QUANTITIES FOR SUPERSTRUCTURE - 80' BRIDGE

ITEM		SKEW	WITH MONOLITHIC PIER CAP 0°	15°	30°	45°	WITH NON-MONOLITHIC PIER CAP 0°	15°	30°	45°
WITH BARRIER RAIL	*STRUCTURAL CONCRETE (BRIDGE)	C.Y.	212.9	214.1	217.9	226.2	206.6	207.5	210.6	217.3
	REINFORCING STEEL EPOXY COATED	LBS.	58,901	59,389	60,029	61,149	56,608	57,040	57,379	58,001
CONCRETE BARRIER OR OPEN RAIL		LIN. FT.	182.0	182.2	182.9	184.5	182.0	182.2	182.9	184.5
WITH OPEN RAIL	*STRUCTURAL CONCRETE (BRIDGE)	C.Y.	212.8	213.9	217.7	226.0	206.4	207.3	210.4	217.1
	REINFORCING STEEL EPOXY COATED	LBS.	59,236	59,724	60,364	61,484	56,943	57,375	57,714	58,336

* INCLUDES 4 WINGS @ 0.68 C.Y. EACH; EXCLUDES RAIL CONCRETE.

BENT BAR DETAILS



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

NOTES:

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

THE TRANSVERSE REBARS ARE DETAILED WITH A SPLICE LAP. AT THE CONTRACTOR'S OPTION, THIS LAP MAY BE ELIMINATED BY FURNISHING FULL LENGTH BARS WITH NO REDUCTION IN PAY WEIGHT FOR SAME.

REVISED 07-09: OPEN RAIL REINF. QTYS. CHANGED WHICH CHANGED TOTAL REINF. QTYS.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWA DOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

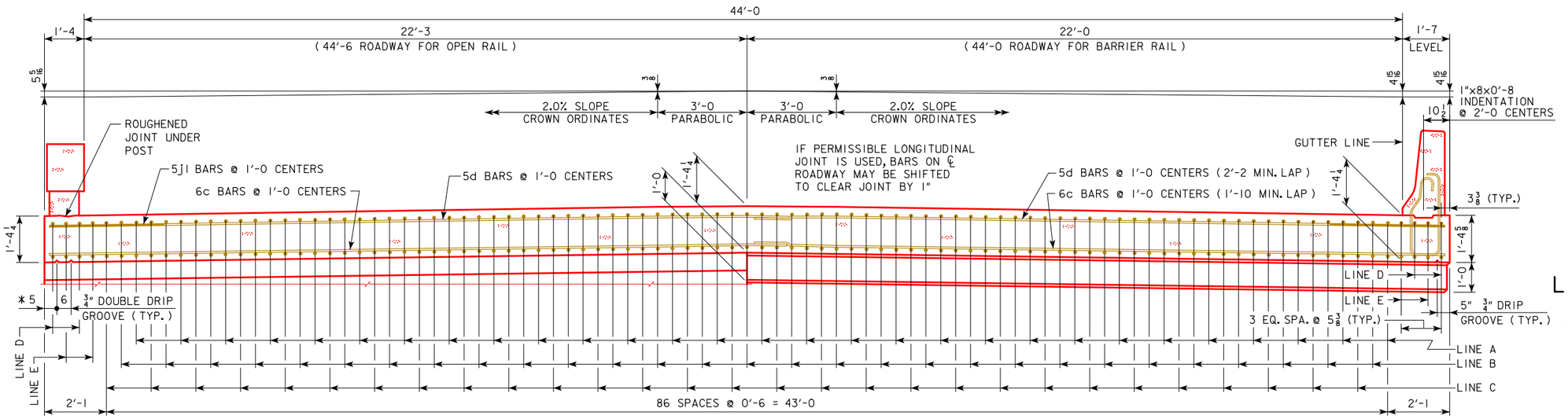
CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

SUPERSTRUCTURE DETAILS 80'-0 BRIDGE

J44-05-06

REVISED 07-16: DATE ON SHEET CHANGED TO CORRECT CLERICAL ERROR.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE. ADDED $3\frac{3}{8}$ (TYP.) & $5\frac{3}{8}$ (TYP.) HORIZONTAL DIMENSIONS TO LONGITUDINAL SLAB REINFORCING LINE D & E IN "HALF SECTION NEAR PIER".



* NOTE: DOUBLE DRIP GROOVES FOR OPEN RAIL OPTION ONLY.

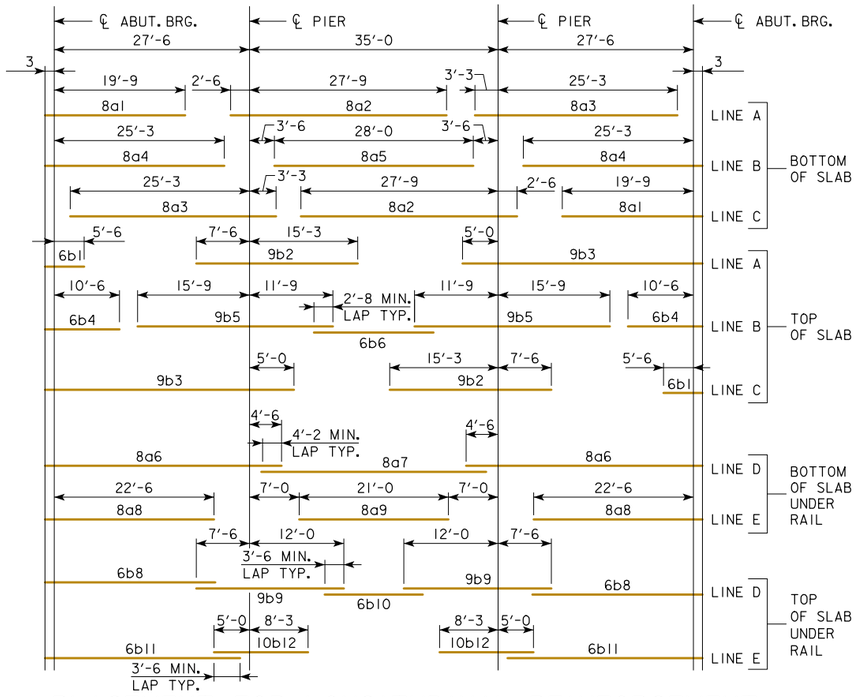
HALF SECTION NEAR ABUTMENT

SLAB CROSS-SECTIONAL AREA FOR OPEN RAIL = 63.87 SQ. FT.

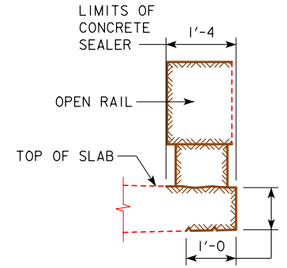
HALF SECTION NEAR PIER

SLAB CROSS-SECTIONAL AREA FOR BARRIER RAIL = 63.92 SQ. FT.

NOTE: TOP LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND $2\frac{1}{2}$" CLEAR BELOW TOP OF SLAB. BOTTOM LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND $1\frac{1}{2}$" CLEAR ABOVE BOTTOM OF SLAB. REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE AND ADEQUATELY SUPPORTED ON BAR CHAIRS BEFORE CONCRETE IS POURED.
I.M. 451.01 REQUIREMENTS SHALL APPLY FOR BAR CHAIRS.



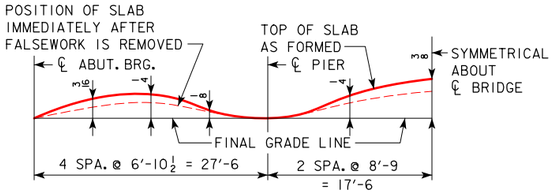
PLACEMENT FOR LONGITUDINAL REINFORCEMENT



CONCRETE SEALER LIMITS FOR OPEN RAILS

CONCRETE SEALER SHALL BE APPLIED TO BOTH SIDES OF BRIDGE SLAB ON THE TOP, EDGE OF SLAB AND UNDER THE SLAB. THE CONCRETE SEALER SHALL ALSO BE APPLIED TO THE OPEN RAIL ON THE TOP, TRAFFIC FACE SIDE, BOTTOM OF RAIL, AND ON ALL SIDES OF THE OPEN RAIL POSTS.

THE CONCRETE SEALER LIMITS ARE SHOWN IN THE DETAIL AND SHALL APPLY TO THE FULL LENGTH OF BRIDGE. CONCRETE SEALER SHALL BE APPLIED IN ACCORDANCE WITH ARTICLE 2403.03, P, 3 OF THE STANDARD SPECIFICATIONS.



FORM CAMBER DIAGRAM

THIS DIAGRAM SHOWS THE FORM CAMBER REQUIRED TO COMPENSATE FOR THE ANTICIPATED ULTIMATE DEAD LOAD DEFLECTION. THE ABOVE DIMENSIONS DO NOT INCLUDE ANY ALLOWANCE FOR FORM DEFLECTION OR FALSEWORK SETTLEMENT.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

SUPERSTRUCTURE DETAILS
90'-0 BRIDGE

J44-06-06

BILL OF REINFORCING STEEL FOR SUPERSTRUCTURE - 90' BRIDGE

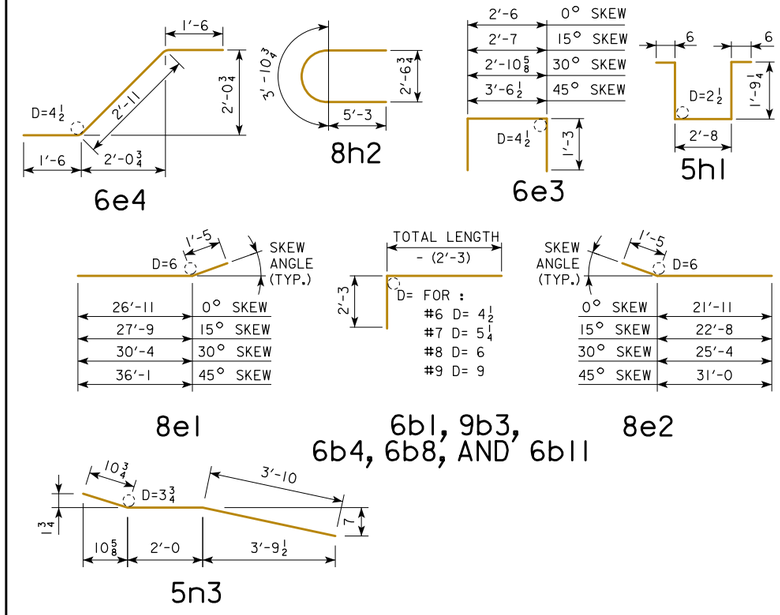
LOCATION \ SKEW	SHAPE	BAR	0° NO.	0° LENGTH	0° WEIGHT	15° NO.	15° LENGTH	15° WEIGHT	30° NO.	30° LENGTH	30° WEIGHT	45° NO.	45° LENGTH	45° WEIGHT
SLAB LONGITUDINAL BOTTOM		8a1	58	20'-0	3098	58	20'-0	3098	58	20'-0	3098	58	20'-0	3098
SLAB LONGITUDINAL BOTTOM		8a2	58	30'-3	4685	58	30'-3	4685	58	30'-3	4685	58	30'-3	4685
SLAB LONGITUDINAL BOTTOM		8a3	58	28'-6	4414	58	28'-6	4414	58	28'-6	4414	58	28'-6	4414
SLAB LONGITUDINAL BOTTOM		8a4	58	25'-6	3949	58	25'-6	3949	58	25'-6	3949	58	25'-6	3949
SLAB LONGITUDINAL BOTTOM		8a5	29	28'-0	2169	29	28'-0	2169	29	28'-0	2169	29	28'-0	2169
SLAB LONGITUDINAL BOTTOM, AT RAIL		8a6	8	32'-3	689	8	32'-3	689	8	32'-3	689	8	32'-3	689
SLAB LONGITUDINAL BOTTOM, AT RAIL		8a7	4	34'-4	367	4	34'-4	367	4	34'-4	367	4	34'-4	367
SLAB LONGITUDINAL BOTTOM, AT RAIL		8a8	8	22'-9	486	8	22'-9	486	8	22'-9	486	8	22'-9	486
SLAB LONGITUDINAL BOTTOM, AT RAIL		8a9	4	21'-0	225	4	21'-0	225	4	21'-0	225	4	21'-0	225
SLAB LONGITUDINAL TOP		6b1	58	8'-0	697	58	8'-0	697	58	8'-0	697	58	8'-0	697
SLAB LONGITUDINAL TOP		9b2	58	22'-9	4487	58	22'-9	4487	58	22'-9	4487	58	22'-9	4487
SLAB LONGITUDINAL TOP		9b3	58	35'-0	6902	58	35'-0	6902	58	35'-0	6902	58	35'-0	6902
SLAB LONGITUDINAL TOP		6b4	58	13'-0	1133	58	13'-0	1133	58	13'-0	1133	58	13'-0	1133
SLAB LONGITUDINAL TOP		9b5	58	27'-6	5423	58	27'-6	5423	58	27'-6	5423	58	27'-6	5423
SLAB LONGITUDINAL TOP		6b6	29	16'-10	734	29	16'-10	734	29	16'-10	734	29	16'-10	734
SLAB LONGITUDINAL TOP, AT RAIL		6b8	8	26'-0	313	8	26'-0	313	8	26'-0	313	8	26'-0	313
SLAB LONGITUDINAL TOP, AT RAIL		9b9	8	19'-6	531	8	19'-6	531	8	19'-6	531	8	19'-6	531
SLAB LONGITUDINAL TOP, AT RAIL		6b10	4	18'-0	109	4	18'-0	109	4	18'-0	109	4	18'-0	109
SLAB LONGITUDINAL TOP, AT RAIL		6b11	8	28'-6	343	8	28'-6	343	8	28'-6	343	8	28'-6	343
SLAB LONGITUDINAL TOP, AT RAIL		10b12	8	13'-3	457	8	13'-3	457	8	13'-3	457	8	13'-3	457
SLAB TRANSVERSE BOTTOM		6c1	87	25'-5	3322	87	26'-4	3442	76	25'-5	2902	66	25'-5	2520
SLAB TRANSVERSE BOTTOM		6c2	87	23'-3	3039	87	24'-1	3148	78	23'-3	2724	69	23'-3	2410
SLAB TRANSVERSE ENDS, BOTTOM		6c3	-	-	-	-	-	-	14	VARIES	303	22	VARIES	485
SLAB TRANSVERSE ENDS, BOTTOM		6c4	-	-	-	-	-	-	12	VARIES	255	22	VARIES	458
SLAB TRANSVERSE ENDS, BOTTOM		6c5	-	-	-	-	-	-	12	VARIES	208	20	VARIES	366
SLAB TRANSVERSE ENDS, BOTTOM		6c6	-	-	-	-	-	-	12	VARIES	227	19	VARIES	376
SLAB TRANSVERSE TOP		5d1	87	25'-9	2337	87	26'-8	2420	76	25'-9	2042	66	25'-9	1773
SLAB TRANSVERSE TOP		5d2	87	23'-3	2110	87	24'-1	2186	78	23'-3	1892	69	23'-3	1674
SLAB TRANSVERSE ENDS, TOP		5d3	-	-	-	-	-	-	14	VARIES	210	22	VARIES	337
SLAB TRANSVERSE ENDS, TOP		5d4	-	-	-	-	-	-	12	VARIES	177	22	VARIES	318
SLAB TRANSVERSE ENDS, TOP		5d5	-	-	-	-	-	-	12	VARIES	144	20	VARIES	254
SLAB TRANSVERSE ENDS, TOP		5d6	-	-	-	-	-	-	12	VARIES	158	19	VARIES	261
SLAB, TRANSVERSE AT ABUTMENT		8e1	18	28'-4	1362	18	29'-2	1402	18	31'-9	1526	18	37'-6	1803
SLAB, TRANSVERSE AT ABUTMENT		8e2	18	23'-4	1122	18	24'-1	1158	18	26'-9	1286	18	32'-5	1558
SLAB, HAIRPINS, AT ABUTMENT		6e3	100	5'-0	751	100	5'-1	764	100	5'-5	814	100	6'-1	914
SLAB, DIAGONALS, AT ABUTMENT		6e4	100	5'-11	889	100	5'-11	889	100	5'-11	889	100	5'-11	889
PIER CAP HOOPS		5h1	80	7'-3	605	80	7'-3	605	80	7'-3	605	120	7'-3	908
PIER CAP ENDS		8h2	4	14'-5	154	4	14'-5	154	4	14'-5	154	4	14'-5	154
PIER CAP, BOTTOM LONGITUDINAL		8h3	8	27'-5	586	8	28'-8	613	8	31'-8	677	8	37'-10	809
PIER CAP, BOTTOM LONGITUDINAL		8h4	8	21'-11	469	8	22'-4	478	8	24'-6	524	8	29'-8	634
PIER CAP, TOP LONGITUDINAL		8h5	4	28'-2	301	4	29'-6	316	4	32'-8	349	4	38'-11	416
PIER CAP, TOP LONGITUDINAL		8h6	4	23'-5	251	4	23'-11	256	4	26'-3	281	4	31'-6	337
TOP OF SLAB, TRANSVERSE, AT RAIL		5j1	172	8'-6	1525	172	8'-6	1525	166	8'-6	1472	164	8'-6	1454
WING, VERTICAL		5m1	40	4'-5	185	40	4'-5	185	40	4'-5	185	40	4'-5	185
WING, HORIZONTAL BACK FACE		5n1	24	6'-8	167	24	6'-8	167	24	6'-8	167	24	6'-8	167
WING, HORIZONTAL TRAFFIC FACE		5n3	24	6'-9	169	24	6'-9	169	24	6'-9	169	24	6'-9	169
SUB TOTAL - LBS.					60,555			61,088			61,551			62,840
BARRIER RAIL - SEE LIST ON RAIL SHEET J44-46-06					5950			5950			5950			5950
OPEN RAIL - SEE LIST ON RAIL SHEET J44-49-06					6330			6330			6330			6330
TOTAL - LBS. WITH MONOLITHIC PIER CAP		WITH BARRIER RAIL			66,505			67,038			67,501			68,790
		WITH OPEN RAIL			66,885			67,418			67,881			69,170
TOTAL - LBS. WITH NON-MONOLITHIC PIER CAP		WITH BARRIER RAIL			64,139			64,616			64,911			65,532
SAME AS ABOVE EXCEPT ALL "h" BARS DELETED		WITH OPEN RAIL			64,519			64,996			65,291			65,912

ESTIMATED QUANTITIES FOR SUPERSTRUCTURE - 90' BRIDGE

ITEM		SKEW	WITH MONOLITHIC PIER CAP 0°	15°	30°	45°	WITH NON-MONOLITHIC PIER CAP 0°	15°	30°	45°
WITH BARRIER RAIL	*STRUCTURAL CONCRETE (BRIDGE)	C.Y.	247.8	248.9	252.7	260.9	241.4	242.3	245.4	252.0
	REINFORCING STEEL EPOXY COATED	LBS.	66,505	67,038	67,501	68,790	64,139	64,616	64,911	65,532
CONCRETE BARRIER OR OPEN RAIL		LIN. FT.	202.0	202.2	202.9	204.5	202.0	202.2	202.9	204.5
WITH OPEN RAIL	*STRUCTURAL CONCRETE (BRIDGE)	C.Y.	247.7	248.8	252.5	260.7	241.3	242.2	245.2	251.8
	REINFORCING STEEL EPOXY COATED	LBS.	66,885	67,418	67,881	69,170	64,519	64,996	65,291	65,912

* INCLUDES 4 WINGS @ 0.68 C.Y. EACH; EXCLUDES RAIL CONCRETE.

BENT BAR DETAILS



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

NOTES:

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

THE TRANSVERSE REBARS ARE DETAILED WITH A SPLICE LAP. AT THE CONTRACTOR'S OPTION, THIS LAP MAY BE ELIMINATED BY FURNISHING FULL LENGTH BARS WITH NO REDUCTION IN PAY WEIGHT FOR SAME.

REVISED 07-09: OPEN RAIL REINF. QTYS. CHANGED WHICH CHANGED TOTAL REINF. QTYS.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

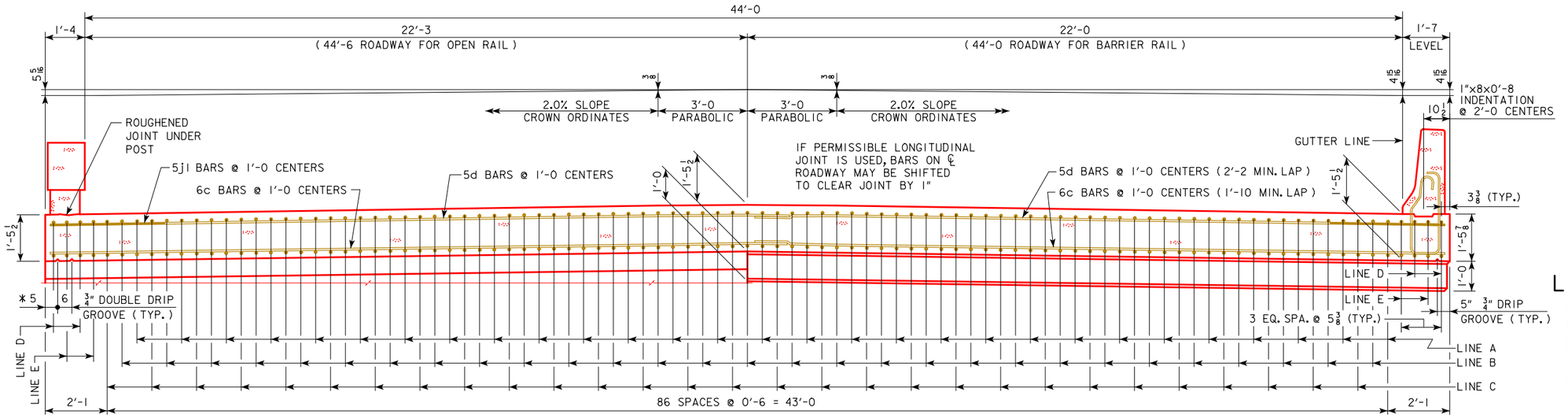
CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

SUPERSTRUCTURE DETAILS 90'-0 BRIDGE

J44-07-06

REVISED 07-16: DATE ON SHEET CHANGED TO CORRECT CLERICAL ERROR.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE. ADDED $3\frac{3}{8}$ (TYP.) & $5\frac{3}{8}$ (TYP.) HORIZONTAL DIMENSIONS TO LONGITUDINAL SLAB REINFORCING LINE D & E IN "HALF SECTION NEAR PIER".



* NOTE: DOUBLE DRIP GROOVES FOR OPEN RAIL OPTION ONLY.

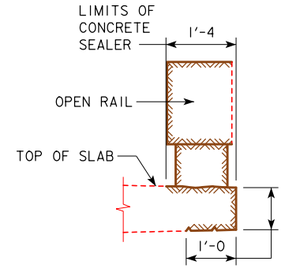
HALF SECTION NEAR ABUTMENT

SLAB CROSS-SECTIONAL AREA FOR OPEN RAIL = 68.78 SQ. FT.

HALF SECTION NEAR PIER

SLAB CROSS-SECTIONAL AREA FOR BARRIER RAIL = 68.83 SQ. FT.

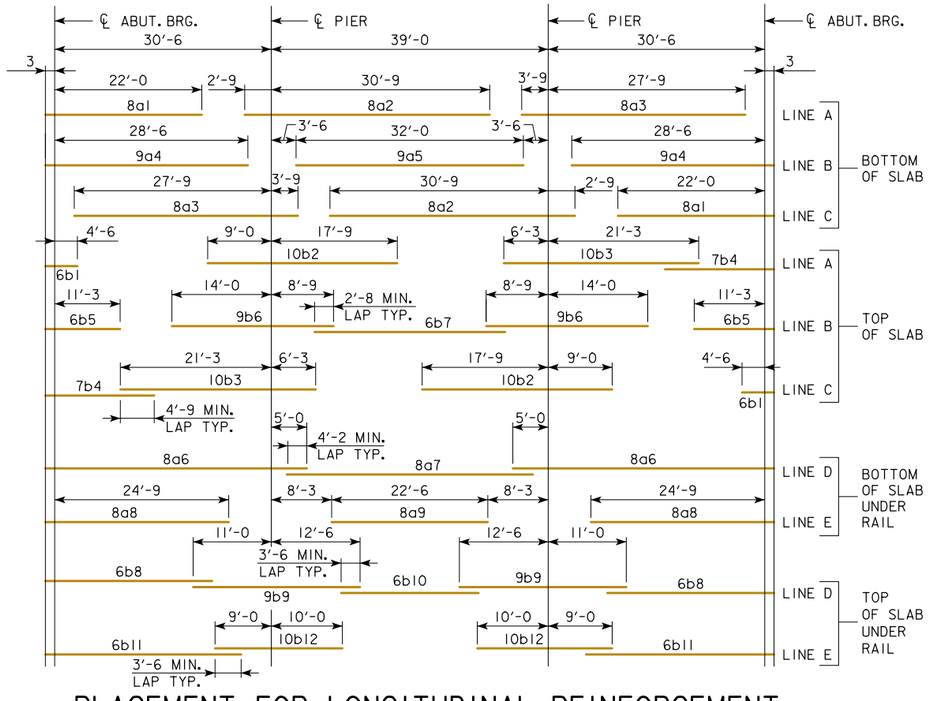
NOTE: TOP LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND $2\frac{1}{2}$" CLEAR BELOW TOP OF SLAB. BOTTOM LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND $1\frac{1}{2}$" CLEAR ABOVE BOTTOM OF SLAB. REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE AND ADEQUATELY SUPPORTED ON BAR CHAIRS BEFORE CONCRETE IS POURED. I.M. 451.01 REQUIREMENTS SHALL APPLY FOR BAR CHAIRS.



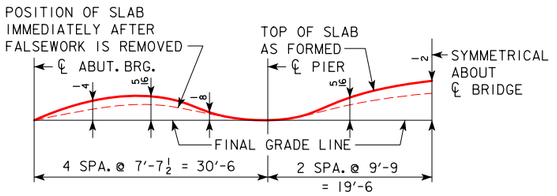
CONCRETE SEALER LIMITS FOR OPEN RAILS

CONCRETE SEALER SHALL BE APPLIED TO BOTH SIDES OF BRIDGE SLAB ON THE TOP, EDGE OF SLAB AND UNDER THE SLAB. THE CONCRETE SEALER SHALL ALSO BE APPLIED TO THE OPEN RAIL ON THE TOP, TRAFFIC FACE SIDE, BOTTOM OF RAIL, AND ON ALL SIDES OF THE OPEN RAIL POSTS.

THE CONCRETE SEALER LIMITS ARE SHOWN IN THE DETAIL AND SHALL APPLY TO THE FULL LENGTH OF BRIDGE. CONCRETE SEALER SHALL BE APPLIED IN ACCORDANCE WITH ARTICLE 2403.03, P, 3 OF THE STANDARD SPECIFICATIONS.



PLACEMENT FOR LONGITUDINAL REINFORCEMENT



FORM CAMBER DIAGRAM

THIS DIAGRAM SHOWS THE FORM CAMBER REQUIRED TO COMPENSATE FOR THE ANTICIPATED ULTIMATE DEAD LOAD DEFLECTION. THE ABOVE DIMENSIONS DO NOT INCLUDE ANY ALLOWANCE FOR FORM DEFLECTION OR FALSEWORK SETTLEMENT.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

SUPERSTRUCTURE DETAILS
100'-0 BRIDGE

J44-08-06

BILL OF REINFORCING STEEL FOR SUPERSTRUCTURE - 100' BRIDGE

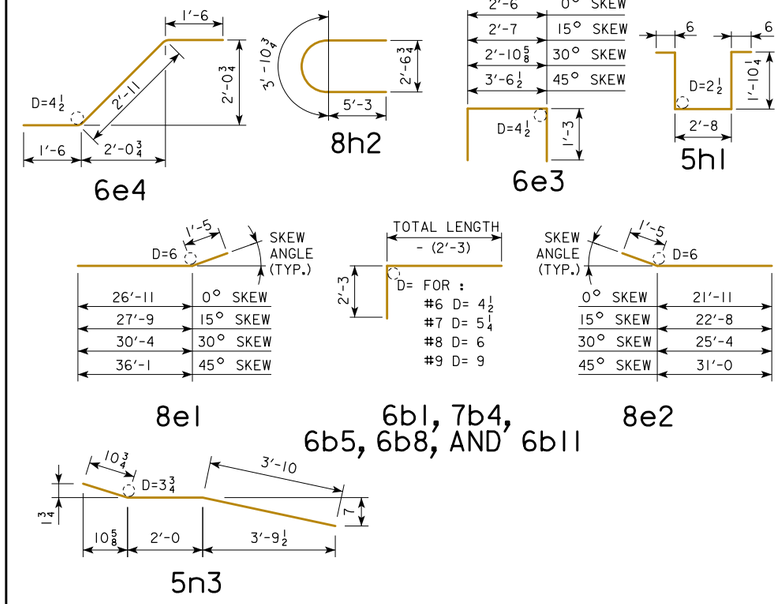
LOCATION \ SKEW	SHAPE	BAR	0° NO.	0° LENGTH	0° WEIGHT	15° NO.	15° LENGTH	15° WEIGHT	30° NO.	30° LENGTH	30° WEIGHT	45° NO.	45° LENGTH	45° WEIGHT
SLAB LONGITUDINAL BOTTOM		8a1	58	22'-3	3446	58	22'-3	3446	58	22'-3	3446	58	22'-3	3446
SLAB LONGITUDINAL BOTTOM		8a2	58	33'-6	5188	58	33'-6	5188	58	33'-6	5188	58	33'-6	5188
SLAB LONGITUDINAL BOTTOM		8a3	58	31'-6	4879	58	31'-6	4879	58	31'-6	4879	58	31'-6	4879
SLAB LONGITUDINAL BOTTOM		9a4	58	28'-9	5670	58	28'-9	5670	58	28'-9	5670	58	28'-9	5670
SLAB LONGITUDINAL BOTTOM		9a5	29	32'-0	3156	29	32'-0	3156	29	32'-0	3156	29	32'-0	3156
SLAB LONGITUDINAL BOTTOM, AT RAIL		8a6	8	35'-9	764	8	35'-9	764	8	35'-9	764	8	35'-9	764
SLAB LONGITUDINAL BOTTOM, AT RAIL		8a7	4	37'-4	399	4	37'-4	399	4	37'-4	399	4	37'-4	399
SLAB LONGITUDINAL BOTTOM, AT RAIL		8a8	8	25'-0	534	8	25'-0	534	8	25'-0	534	8	25'-0	534
SLAB LONGITUDINAL BOTTOM, AT RAIL		8a9	4	22'-6	241	4	22'-6	241	4	22'-6	241	4	22'-6	241
SLAB LONGITUDINAL TOP		6b1	58	7'-0	610	58	7'-0	610	58	7'-0	610	58	7'-0	610
SLAB LONGITUDINAL TOP		10b2	58	26'-9	6677	58	26'-9	6677	58	26'-9	6677	58	26'-9	6677
SLAB LONGITUDINAL TOP		10b3	58	27'-6	6864	58	27'-6	6864	58	27'-6	6864	58	27'-6	6864
SLAB LONGITUDINAL TOP		7b4	58	16'-6	1957	58	16'-6	1957	58	16'-6	1957	58	16'-6	1957
SLAB LONGITUDINAL TOP		6b5	58	13'-9	1198	58	13'-9	1198	58	13'-9	1198	58	13'-9	1198
SLAB LONGITUDINAL TOP		9b6	58	22'-9	4487	58	22'-9	4487	58	22'-9	4487	58	22'-9	4487
SLAB LONGITUDINAL TOP		6b7	29	26'-10	1169	29	26'-10	1169	29	26'-10	1169	29	26'-10	1169
SLAB LONGITUDINAL TOP, AT RAIL		6b8	8	25'-6	307	8	25'-6	307	8	25'-6	307	8	25'-6	307
SLAB LONGITUDINAL TOP, AT RAIL		9b9	8	23'-6	640	8	23'-6	640	8	23'-6	640	8	23'-6	640
SLAB LONGITUDINAL TOP, AT RAIL		6b10	4	21'-0	127	4	21'-0	127	4	21'-0	127	4	21'-0	127
SLAB LONGITUDINAL TOP, AT RAIL		6b11	8	27'-6	331	8	27'-6	331	8	27'-6	331	8	27'-6	331
SLAB LONGITUDINAL TOP, AT RAIL		10b12	8	19'-0	655	8	19'-0	655	8	19'-0	655	8	19'-0	655
SLAB TRANSVERSE BOTTOM		6c1	97	25'-5	3704	97	26'-4	3837	86	25'-5	3284	76	25'-5	2902
SLAB TRANSVERSE BOTTOM		6c2	97	23'-3	3388	97	24'-1	3509	88	23'-3	3074	79	23'-3	2759
SLAB TRANSVERSE ENDS, BOTTOM		6c3	-	-	-	-	-	-	14	VARIES	303	22	VARIES	485
SLAB TRANSVERSE ENDS, BOTTOM		6c4	-	-	-	-	-	-	12	VARIES	255	22	VARIES	458
SLAB TRANSVERSE ENDS, BOTTOM		6c5	-	-	-	-	-	-	12	VARIES	208	20	VARIES	366
SLAB TRANSVERSE ENDS, BOTTOM		6c6	-	-	-	-	-	-	12	VARIES	227	19	VARIES	376
SLAB TRANSVERSE TOP		5d1	97	25'-9	2606	97	26'-8	2698	86	25'-9	2310	76	25'-9	2042
SLAB TRANSVERSE TOP		5d2	97	23'-3	2353	97	24'-1	2437	88	23'-3	2134	79	23'-3	1916
SLAB TRANSVERSE ENDS, TOP		5d3	-	-	-	-	-	-	14	VARIES	210	22	VARIES	337
SLAB TRANSVERSE ENDS, TOP		5d4	-	-	-	-	-	-	12	VARIES	177	22	VARIES	318
SLAB TRANSVERSE ENDS, TOP		5d5	-	-	-	-	-	-	12	VARIES	144	20	VARIES	254
SLAB TRANSVERSE ENDS, TOP		5d6	-	-	-	-	-	-	12	VARIES	158	19	VARIES	261
SLAB, TRANSVERSE AT ABUTMENT		8e1	18	28'-4	1362	18	29'-2	1402	18	31'-9	1526	18	37'-6	1803
SLAB, TRANSVERSE AT ABUTMENT		8e2	18	23'-4	1122	18	24'-1	1158	18	26'-9	1286	18	32'-5	1558
SLAB, HAIRPINS, AT ABUTMENT		6e3	100	5'-0	751	100	5'-1	764	100	5'-5	814	100	6'-1	914
SLAB, DIAGONALS, AT ABUTMENT		6e4	100	5'-11	889	100	5'-11	889	100	5'-11	889	100	5'-11	889
PIER CAP HOOPS		5h1	66	7'-5	511	66	7'-5	511	88	7'-5	681	110	7'-5	851
PIER CAP ENDS		8h2	4	14'-5	154	4	14'-5	154	4	14'-5	154	4	14'-5	154
PIER CAP, BOTTOM LONGITUDINAL		8h3	8	27'-5	586	8	28'-8	613	8	31'-8	677	8	37'-10	809
PIER CAP, BOTTOM LONGITUDINAL		8h4	8	21'-11	469	8	22'-4	478	8	24'-6	524	8	29'-8	634
PIER CAP, TOP LONGITUDINAL		8h5	4	28'-2	301	4	29'-6	316	4	32'-8	349	4	38'-11	416
PIER CAP, TOP LONGITUDINAL		8h6	4	23'-5	251	4	23'-11	256	4	26'-3	281	4	31'-6	337
TOP OF SLAB, TRANSVERSE, AT RAIL		5j1	192	8'-6	1703	192	8'-6	1703	186	8'-6	1649	184	8'-6	1631
WING, VERTICAL		5m1	40	4'-5	185	40	4'-5	185	40	4'-5	185	40	4'-5	185
WING, HORIZONTAL BACK FACE		5n1	24	6'-8	167	24	6'-8	167	24	6'-8	167	24	6'-8	167
WING, HORIZONTAL TRAFFIC FACE		5n3	24	6'-9	169	24	6'-9	169	24	6'-9	169	24	6'-9	169
SUB TOTAL - LBS.					69,970			70,545			71,134			72,291
BARRIER RAIL - SEE LIST ON RAIL SHEET J44-46-06					6461			6461			6461			6461
OPEN RAIL - SEE LIST ON RAIL SHEET J44-49-06					6794			6794			6794			6794
TOTAL - LBS. WITH MONOLITHIC PIER CAP		WITH BARRIER RAIL			76,431			77,006			77,595			78,752
		WITH OPEN RAIL			76,764			77,339			77,928			79,085
TOTAL - LBS. WITH NON-MONOLITHIC PIER CAP		WITH BARRIER RAIL			74,159			74,678			74,929			75,551
SAME AS ABOVE EXCEPT ALL "h" BARS DELETED		WITH OPEN RAIL			74,492			75,011			75,262			75,884

ESTIMATED QUANTITIES FOR SUPERSTRUCTURE - 100' BRIDGE

ITEM		SKEW	WITH MONOLITHIC PIER CAP 0°	15°	30°	45°	WITH NON-MONOLITHIC PIER CAP 0°	15°	30°	45°
WITH BARRIER RAIL	*STRUCTURAL CONCRETE (BRIDGE)	C.Y.	289.2	290.2	293.9	302.0	282.8	283.6	286.6	293.1
	REINFORCING STEEL EPOXY COATED	LBS.	76,431	77,006	77,595	78,752	74,159	74,678	74,929	75,551
CONCRETE BARRIER OR OPEN RAIL		LIN. FT.	222.0	222.2	222.9	224.5	222.0	222.2	222.9	224.5
WITH OPEN RAIL	*STRUCTURAL CONCRETE (BRIDGE)	C.Y.	289.0	290.1	293.8	301.8	282.6	283.5	286.4	292.9
	REINFORCING STEEL EPOXY COATED	LBS.	76,764	77,339	77,928	79,085	74,492	75,011	75,262	75,884

* INCLUDES 4 WINGS @ 0.68 C.Y. EACH; EXCLUDES RAIL CONCRETE.

BENT BAR DETAILS



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

NOTES:

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

THE TRANSVERSE REBARS ARE DETAILED WITH A SPLICE LAP. AT THE CONTRACTOR'S OPTION, THIS LAP MAY BE ELIMINATED BY FURNISHING FULL LENGTH BARS WITH NO REDUCTION IN PAY WEIGHT FOR SAME.

REVISED 07-09: OPEN RAIL REINF. QTYS. CHANGED WHICH CHANGED TOTAL REINF. QTYS.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWA DOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

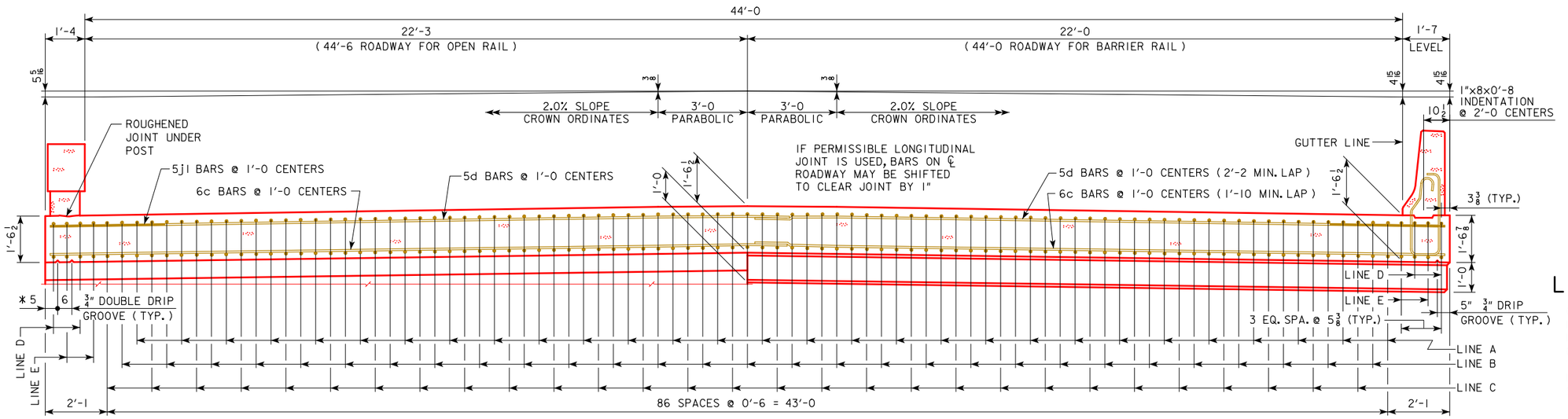
CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

SUPERSTRUCTURE DETAILS
100'-0 BRIDGE

J44-09-06

REVISED 07-16* DATE ON SHEET CHANGED TO CORRECT CLERICAL ERROR.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE. ADDED $3\frac{3}{8}$ (TYP.) & $5\frac{3}{8}$ (TYP.) HORIZONTAL DIMENSIONS TO LONGITUDINAL SLAB REINFORCING LINE D & E IN "HALF SECTION NEAR PIER".



* NOTE: DOUBLE DRIP GROOVES FOR OPEN RAIL OPTION ONLY.

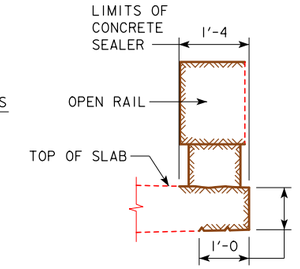
HALF SECTION NEAR ABUTMENT

SLAB CROSS-SECTIONAL AREA FOR OPEN RAIL = 72.72 SQ. FT.

HALF SECTION NEAR PIER

SLAB CROSS-SECTIONAL AREA FOR BARRIER RAIL = 72.76 SQ. FT.

NOTE: TOP LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND $2\frac{1}{2}$" CLEAR BELOW TOP OF SLAB. BOTTOM LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND $1\frac{1}{2}$" CLEAR ABOVE BOTTOM OF SLAB. REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE AND ADEQUATELY SUPPORTED ON BAR CHAIRS BEFORE CONCRETE IS POURED. I.M. 451.01 REQUIREMENTS SHALL APPLY FOR BAR CHAIRS.



CONCRETE SEALER LIMITS FOR OPEN RAILS

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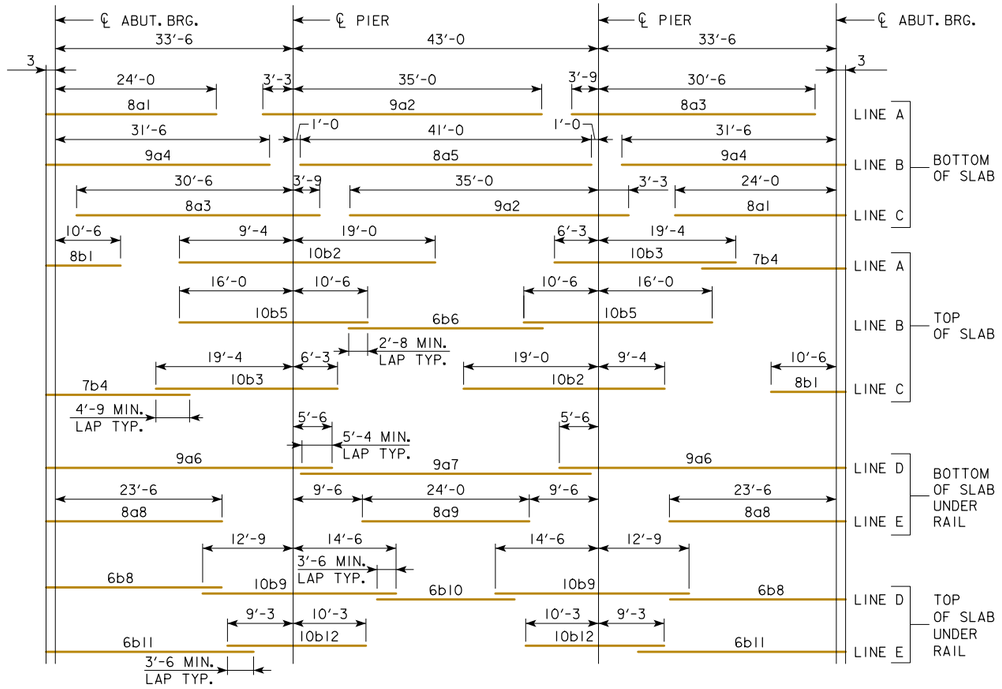
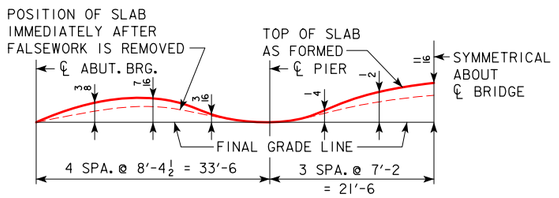


PLACEMENT FOR LONGITUDINAL REINFORCEMENT



FORM CAMBER DIAGRAM

THIS DIAGRAM SHOWS THE FORM CAMBER REQUIRED TO COMPENSATE FOR THE ANTICIPATED ULTIMATE DEAD LOAD DEFLECTION. THE ABOVE DIMENSIONS DO NOT INCLUDE ANY ALLOWANCE FOR FORM DEFLECTION OR FALSEWORK SETTLEMENT.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

SUPERSTRUCTURE DETAILS
110'-0 BRIDGE

J44-10-06

BILL OF REINFORCING STEEL FOR SUPERSTRUCTURE - 110' BRIDGE

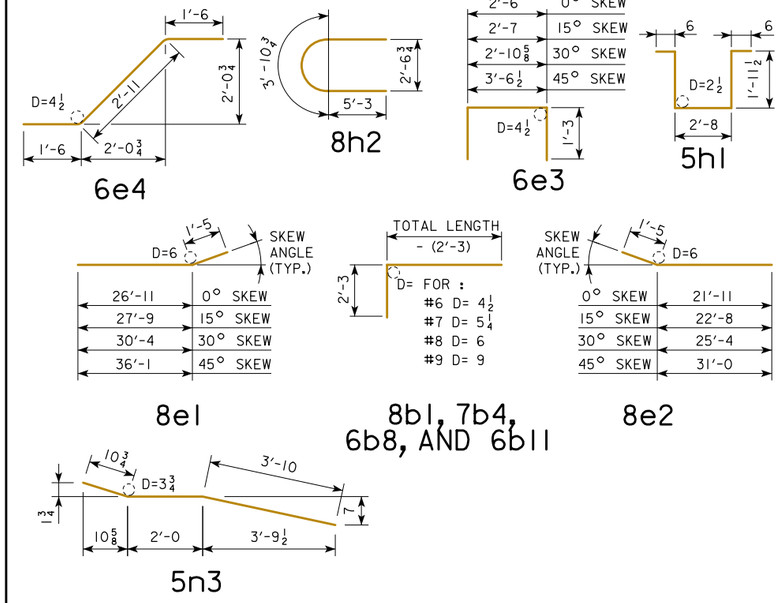
LOCATION \ SKEW	SHAPE	BAR	0° NO.	0° LENGTH	0° WEIGHT	15° NO.	15° LENGTH	15° WEIGHT	30° NO.	30° LENGTH	30° WEIGHT	45° NO.	45° LENGTH	45° WEIGHT
SLAB LONGITUDINAL BOTTOM		8a1	58	24'-3	3756	58	24'-3	3756	58	24'-3	3756	58	24'-3	3756
SLAB LONGITUDINAL BOTTOM		9a2	58	38'-3	7543	58	38'-3	7543	58	38'-3	7543	58	38'-3	7543
SLAB LONGITUDINAL BOTTOM		8a3	58	34'-3	5304	58	34'-3	5304	58	34'-3	5304	58	34'-3	5304
SLAB LONGITUDINAL BOTTOM		9a4	58	31'-9	6262	58	31'-9	6262	58	31'-9	6262	58	31'-9	6262
SLAB LONGITUDINAL BOTTOM		8a5	29	41'-0	3175	29	41'-0	3175	29	41'-0	3175	29	41'-0	3175
SLAB LONGITUDINAL BOTTOM, AT RAIL		9a6	8	39'-3	1068	8	39'-3	1068	8	39'-3	1068	8	39'-3	1068
SLAB LONGITUDINAL BOTTOM, AT RAIL		9a7	4	42'-8	581	4	42'-8	581	4	42'-8	581	4	42'-8	581
SLAB LONGITUDINAL BOTTOM, AT RAIL		8a8	8	23'-9	508	8	23'-9	508	8	23'-9	508	8	23'-9	508
SLAB LONGITUDINAL BOTTOM, AT RAIL		8a9	4	24'-0	257	4	24'-0	257	4	24'-0	257	4	24'-0	257
SLAB LONGITUDINAL TOP		8b1	58	13'-0	2014	58	13'-0	2014	58	13'-0	2014	58	13'-0	2014
SLAB LONGITUDINAL TOP		10b2	58	28'-4	7072	58	28'-4	7072	58	28'-4	7072	58	28'-4	7072
SLAB LONGITUDINAL TOP		10b3	58	25'-7	6385	58	25'-7	6385	58	25'-7	6385	58	25'-7	6385
SLAB LONGITUDINAL TOP		7b4	58	21'-5	2539	58	21'-5	2539	58	21'-5	2539	58	21'-5	2539
SLAB LONGITUDINAL TOP		10b5	58	26'-6	6614	58	26'-6	6614	58	26'-6	6614	58	26'-6	6614
SLAB LONGITUDINAL TOP		6b6	29	27'-4	1191	29	27'-4	1191	29	27'-4	1191	29	27'-4	1191
SLAB LONGITUDINAL TOP, AT RAIL		6b8	8	26'-9	322	8	26'-9	322	8	26'-9	322	8	26'-9	322
SLAB LONGITUDINAL TOP, AT RAIL		10b9	8	27'-3	939	8	27'-3	939	8	27'-3	939	8	27'-3	939
SLAB LONGITUDINAL TOP, AT RAIL		6b10	4	21'-0	127	4	21'-0	127	4	21'-0	127	4	21'-0	127
SLAB LONGITUDINAL TOP, AT RAIL		6b11	8	30'-3	364	8	30'-3	364	8	30'-3	364	8	30'-3	364
SLAB LONGITUDINAL TOP, AT RAIL		10b12	8	19'-6	672	8	19'-6	672	8	19'-6	672	8	19'-6	672
SLAB TRANSVERSE BOTTOM		6c1	107	25'-5	4085	107	26'-4	4233	96	25'-5	3665	86	25'-5	3284
SLAB TRANSVERSE BOTTOM		6c2	107	23'-3	3737	107	24'-1	3871	98	23'-3	3423	89	23'-3	3109
SLAB TRANSVERSE ENDS, BOTTOM		6c3	-	-	-	-	-	-	14	VARIES	303	22	VARIES	485
SLAB TRANSVERSE ENDS, BOTTOM		6c4	-	-	-	-	-	-	12	VARIES	255	22	VARIES	458
SLAB TRANSVERSE ENDS, BOTTOM		6c5	-	-	-	-	-	-	12	VARIES	208	20	VARIES	366
SLAB TRANSVERSE ENDS, BOTTOM		6c6	-	-	-	-	-	-	12	VARIES	227	19	VARIES	376
SLAB TRANSVERSE TOP		5d1	107	25'-9	2874	107	26'-8	2977	96	25'-9	2579	86	25'-9	2310
SLAB TRANSVERSE TOP		5d2	107	23'-3	2595	107	24'-1	2688	98	23'-3	2377	89	23'-3	2159
SLAB TRANSVERSE ENDS, TOP		5d3	-	-	-	-	-	-	14	VARIES	210	22	VARIES	337
SLAB TRANSVERSE ENDS, TOP		5d4	-	-	-	-	-	-	12	VARIES	177	22	VARIES	318
SLAB TRANSVERSE ENDS, TOP		5d5	-	-	-	-	-	-	12	VARIES	144	20	VARIES	254
SLAB TRANSVERSE ENDS, TOP		5d6	-	-	-	-	-	-	12	VARIES	158	19	VARIES	261
SLAB, TRANSVERSE AT ABUTMENT		8e1	18	28'-4	1362	18	29'-2	1402	18	31'-9	1526	18	37'-6	1803
SLAB, TRANSVERSE AT ABUTMENT		8e2	18	23'-4	1122	18	24'-1	1158	18	26'-9	1286	18	32'-5	1558
SLAB, HAIRPINS, AT ABUTMENT		6e3	100	5'-0	751	100	5'-1	764	100	5'-5	814	100	6'-1	914
SLAB, DIAGONALS, AT ABUTMENT		6e4	100	5'-11	889	100	5'-11	889	100	5'-11	889	100	5'-11	889
PIER CAP HOOPS		5h1	72	7'-7	570	72	7'-7	570	96	7'-7	760	96	7'-7	760
PIER CAP ENDS		8h2	4	14'-5	154	4	14'-5	154	4	14'-5	154	4	14'-5	154
PIER CAP, BOTTOM LONGITUDINAL		8h3	8	27'-5	586	8	28'-8	613	8	31'-8	677	8	37'-10	809
PIER CAP, BOTTOM LONGITUDINAL		8h4	8	21'-11	469	8	22'-4	478	8	24'-6	524	8	29'-8	634
PIER CAP, TOP LONGITUDINAL		8h5	4	28'-2	301	4	29'-6	316	4	32'-8	349	4	38'-11	416
PIER CAP, TOP LONGITUDINAL		8h6	4	23'-5	251	4	23'-11	256	4	26'-3	281	4	31'-6	337
TOP OF SLAB, TRANSVERSE, AT RAIL		5j1	212	8'-6	1880	212	8'-6	1880	206	8'-6	1827	204	8'-6	1809
WING, VERTICAL		5m1	40	4'-5	185	40	4'-5	185	40	4'-5	185	40	4'-5	185
WING, HORIZONTAL BACK FACE		5n1	24	6'-8	167	24	6'-8	167	24	6'-8	167	24	6'-8	167
WING, HORIZONTAL TRAFFIC FACE		5n3	24	6'-9	169	24	6'-9	169	24	6'-9	169	24	6'-9	169
SUB TOTAL - LBS.					78,840			79,463			80,027			81,014
BARRIER RAIL - SEE LIST ON RAIL SHEET J44-46-06					6962			6962			6962			6962
OPEN RAIL - SEE LIST ON RAIL SHEET J44-49-06					7261			7261			7261			7261
TOTAL - LBS. WITH MONOLITHIC PIER CAP		WITH BARRIER RAIL			85,802			86,425			86,989			87,976
		WITH OPEN RAIL			86,101			86,724			87,288			84,275
TOTAL - LBS. WITH NON-MONOLITHIC PIER CAP		WITH BARRIER RAIL			83,471			84,038			84,244			84,866
SAME AS ABOVE EXCEPT ALL "h" BARS DELETED		WITH OPEN RAIL			83,770			84,337			84,543			85,165

ESTIMATED QUANTITIES FOR SUPERSTRUCTURE - 110' BRIDGE

ITEM	SKEW	WITH MONOLITHIC PIER CAP 0°	15°	30°	45°	WITH NON-MONOLITHIC PIER CAP 0°	15°	30°	45°
WITH BARRIER RAIL	*STRUCTURAL CONCRETE (BRIDGE) C.Y.	330.2	331.3	335.0	342.9	323.8	324.7	327.6	334.0
	REINFORCING STEEL EPOXY COATED LBS.	85,802	86,425	86,989	87,976	83,471	84,038	84,244	84,866
CONCRETE BARRIER OR OPEN RAIL	LIN. FT.	242.0	242.2	242.9	244.5	242.0	242.2	242.9	244.5
WITH OPEN RAIL	*STRUCTURAL CONCRETE (BRIDGE) C.Y.	330.0	331.1	334.7	342.7	323.6	324.5	327.4	333.8
	REINFORCING STEEL EPOXY COATED LBS.	86,101	86,724	87,288	84,275	83,770	84,337	84,543	85,165

* INCLUDES 4 WINGS @ 0.68 C.Y. EACH; EXCLUDES RAIL CONCRETE.

BENT BAR DETAILS



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

NOTES:

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

THE TRANSVERSE REBARS ARE DETAILED WITH A SPLICE LAP. AT THE CONTRACTOR'S OPTION, THIS LAP MAY BE ELIMINATED BY FURNISHING FULL LENGTH BARS WITH NO REDUCTION IN PAY WEIGHT FOR SAME.

REVISED 07-09: OPEN RAIL REINF. QTYS. CHANGED WHICH CHANGED TOTAL REINF. QTYS.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWA DOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

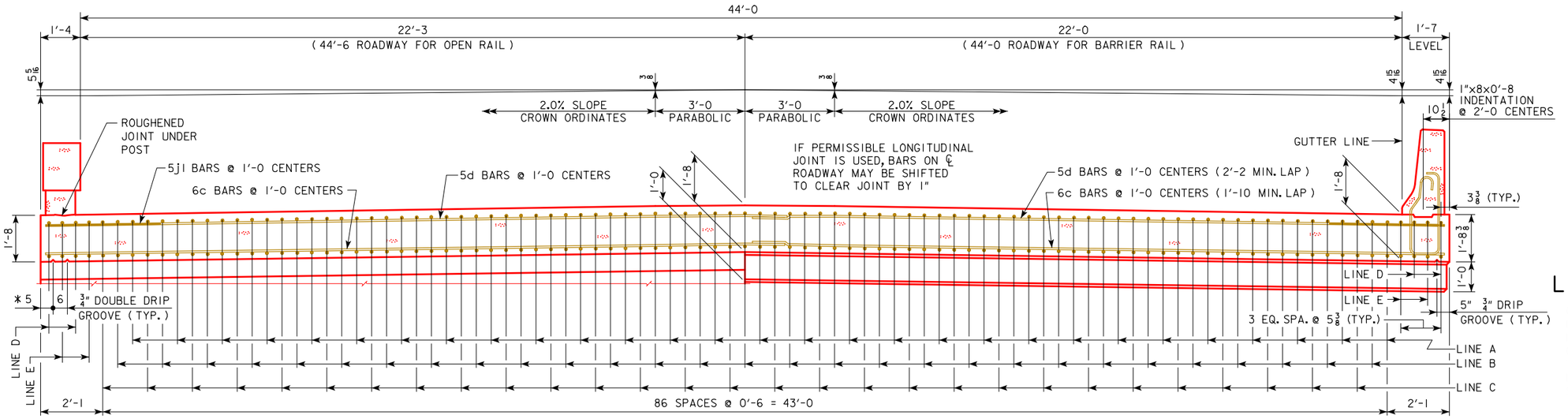
CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

SUPERSTRUCTURE DETAILS
110'-0 BRIDGE

J44-11-06

REVISED 07-16: DATE ON SHEET CHANGED TO CORRECT CLERICAL ERROR.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE. ADDED $3\frac{3}{8}$ (TYP.) & $5\frac{3}{8}$ (TYP.) HORIZONTAL DIMENSIONAL DIMENSIONS TO LONGITUDINAL SLAB REINFORCING LINE D & E IN "HALF SECTION NEAR PIER".



* NOTE: DOUBLE DRIP GROOVES FOR OPEN RAIL OPTION ONLY.

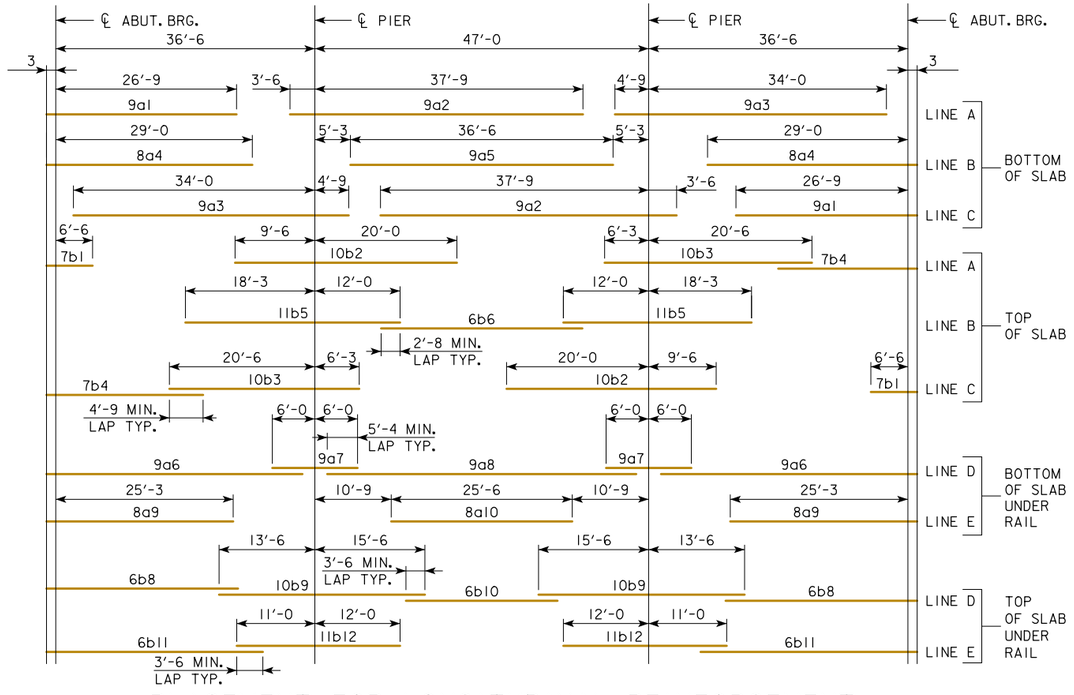
HALF SECTION NEAR ABUTMENT

SLAB CROSS-SECTIONAL AREA FOR OPEN RAIL = 78.61 SQ. FT.

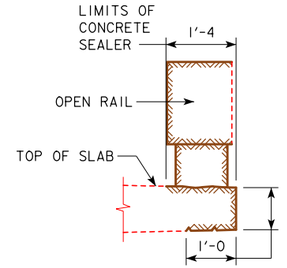
HALF SECTION NEAR PIER

SLAB CROSS-SECTIONAL AREA FOR BARRIER RAIL = 78.66 SQ. FT.

NOTE: TOP LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND $2\frac{1}{2}$" CLEAR BELOW TOP OF SLAB. BOTTOM LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND $1\frac{1}{2}$" CLEAR ABOVE BOTTOM OF SLAB. REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE AND ADEQUATELY SUPPORTED ON BAR CHAIRS BEFORE CONCRETE IS POURED. I.M. 451.01 REQUIREMENTS SHALL APPLY FOR BAR CHAIRS.



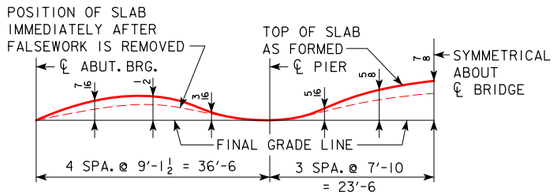
PLACEMENT FOR LONGITUDINAL REINFORCEMENT



CONCRETE SEALER LIMITS FOR OPEN RAILS

CONCRETE SEALER SHALL BE APPLIED TO BOTH SIDES OF BRIDGE SLAB ON THE TOP, EDGE OF SLAB AND UNDER THE SLAB. THE CONCRETE SEALER SHALL ALSO BE APPLIED TO THE OPEN RAIL ON THE TOP, TRAFFIC FACE SIDE, BOTTOM OF RAIL, AND ON ALL SIDES OF THE OPEN RAIL POSTS.

THE CONCRETE SEALER LIMITS ARE SHOWN IN THE DETAIL AND SHALL APPLY TO THE FULL LENGTH OF BRIDGE. CONCRETE SEALER SHALL BE APPLIED IN ACCORDANCE WITH ARTICLE 2403.03, P, 3 OF THE STANDARD SPECIFICATIONS.



FORM CAMBER DIAGRAM

THIS DIAGRAM SHOWS THE FORM CAMBER REQUIRED TO COMPENSATE FOR THE ANTICIPATED ULTIMATE DEAD LOAD DEFLECTION. THE ABOVE DIMENSIONS DO NOT INCLUDE ANY ALLOWANCE FOR FORM DEFLECTION OR FALSEWORK SETTLEMENT.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

SUPERSTRUCTURE DETAILS
120'-0 BRIDGE

J44-12-06

BILL OF REINFORCING STEEL FOR SUPERSTRUCTURE - 120' BRIDGE

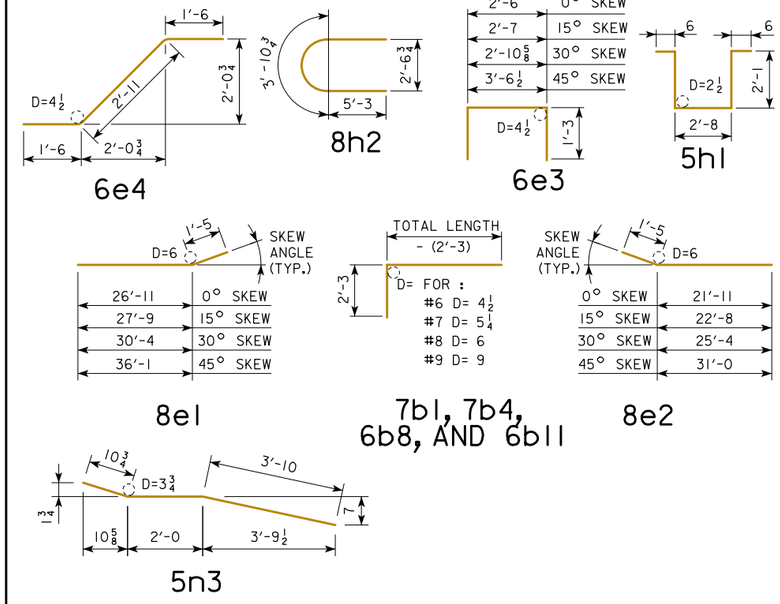
LOCATION \ SKEW	SHAPE	BAR	0° NO.	0° LENGTH	0° WEIGHT	15° NO.	15° LENGTH	15° WEIGHT	30° NO.	30° LENGTH	30° WEIGHT	45° NO.	45° LENGTH	45° WEIGHT
SLAB LONGITUDINAL BOTTOM		9a1	58	27'-0	5325	58	27'-0	5325	58	27'-0	5325	58	27'-0	5325
SLAB LONGITUDINAL BOTTOM		9a2	58	41'-3	8135	58	41'-3	8135	58	41'-3	8135	58	41'-3	8135
SLAB LONGITUDINAL BOTTOM		9a3	58	38'-9	7642	58	38'-9	7642	58	38'-9	7642	58	38'-9	7642
SLAB LONGITUDINAL BOTTOM		8a4	58	29'-3	4530	58	29'-3	4530	58	29'-3	4530	58	29'-3	4530
SLAB LONGITUDINAL BOTTOM		9a5	29	36'-6	3599	29	36'-6	3599	29	36'-6	3599	29	36'-6	3599
SLAB LONGITUDINAL BOTTOM, AT RAIL		9a6	8	36'-1	982	8	36'-1	982	8	36'-1	982	8	36'-1	982
SLAB LONGITUDINAL BOTTOM, AT RAIL		9a7	8	12'-0	327	8	12'-0	327	8	12'-0	327	8	12'-0	327
SLAB LONGITUDINAL BOTTOM, AT RAIL		9a8	4	45'-8	622	4	45'-8	622	4	45'-8	622	4	45'-8	622
SLAB LONGITUDINAL BOTTOM, AT RAIL		8a9	8	25'-6	545	8	25'-6	545	8	25'-6	545	8	25'-6	545
SLAB LONGITUDINAL BOTTOM, AT RAIL		8a10	4	25'-6	273	4	25'-6	273	4	25'-6	273	4	25'-6	273
SLAB LONGITUDINAL TOP		7b1	58	9'-0	1067	58	9'-0	1067	58	9'-0	1067	58	9'-0	1067
SLAB LONGITUDINAL TOP		10b2	58	29'-6	7363	58	29'-6	7363	58	29'-6	7363	58	29'-6	7363
SLAB LONGITUDINAL TOP		10b3	58	26'-9	6677	58	26'-9	6677	58	26'-9	6677	58	26'-9	6677
SLAB LONGITUDINAL TOP		7b4	58	23'-3	2757	58	23'-3	2757	58	23'-3	2757	58	23'-3	2757
SLAB LONGITUDINAL TOP		11b5	58	30'-3	9322	58	30'-3	9322	58	30'-3	9322	58	30'-3	9322
SLAB LONGITUDINAL TOP		6b6	29	28'-4	1235	29	28'-4	1235	29	28'-4	1235	29	28'-4	1235
SLAB LONGITUDINAL TOP, AT RAIL		6b8	8	29'-0	349	8	29'-0	349	8	29'-0	349	8	29'-0	349
SLAB LONGITUDINAL TOP, AT RAIL		10b9	8	29'-0	999	8	29'-0	999	8	29'-0	999	8	29'-0	999
SLAB LONGITUDINAL TOP, AT RAIL		6b10	4	23'-0	139	4	23'-0	139	4	23'-0	139	4	23'-0	139
SLAB LONGITUDINAL TOP, AT RAIL		6b11	8	31'-6	379	8	31'-6	379	8	31'-6	379	8	31'-6	379
SLAB LONGITUDINAL TOP, AT RAIL		11b12	8	23'-0	978	8	23'-0	978	8	23'-0	978	8	23'-0	978
SLAB TRANSVERSE BOTTOM		6c1	117	25'-5	4467	117	26'-4	4628	106	25'-5	4047	96	25'-5	3665
SLAB TRANSVERSE BOTTOM		6c2	117	23'-3	4086	117	24'-1	4233	108	23'-3	3772	99	23'-3	3458
SLAB TRANSVERSE ENDS, BOTTOM		6c3	-	-	-	-	-	-	14	VARIES	303	22	VARIES	485
SLAB TRANSVERSE ENDS, BOTTOM		6c4	-	-	-	-	-	-	12	VARIES	255	22	VARIES	458
SLAB TRANSVERSE ENDS, BOTTOM		6c5	-	-	-	-	-	-	12	VARIES	208	20	VARIES	366
SLAB TRANSVERSE ENDS, BOTTOM		6c6	-	-	-	-	-	-	12	VARIES	227	19	VARIES	376
SLAB TRANSVERSE TOP		5d1	117	25'-9	3143	117	26'-8	3255	106	25'-9	2847	96	25'-9	2579
SLAB TRANSVERSE TOP		5d2	117	23'-3	2838	117	24'-1	2939	108	23'-3	2619	99	23'-3	2401
SLAB TRANSVERSE ENDS, TOP		5d3	-	-	-	-	-	-	14	VARIES	210	22	VARIES	337
SLAB TRANSVERSE ENDS, TOP		5d4	-	-	-	-	-	-	12	VARIES	177	22	VARIES	318
SLAB TRANSVERSE ENDS, TOP		5d5	-	-	-	-	-	-	12	VARIES	144	20	VARIES	254
SLAB TRANSVERSE ENDS, TOP		5d6	-	-	-	-	-	-	12	VARIES	158	19	VARIES	261
SLAB, TRANSVERSE AT ABUTMENT		8e1	18	28'-4	1362	18	29'-2	1402	18	31'-9	1526	18	37'-6	1803
SLAB, TRANSVERSE AT ABUTMENT		8e2	18	23'-4	1122	18	24'-1	1158	18	26'-9	1286	18	32'-5	1558
SLAB, HAIRPINS, AT ABUTMENT		6e3	100	5'-0	751	100	5'-1	764	100	5'-5	814	100	6'-1	914
SLAB, DIAGONALS, AT ABUTMENT		6e4	100	5'-11	889	100	5'-11	889	100	5'-11	889	100	5'-11	889
PIER CAP HOOPS		5h1	78	7'-10	638	78	7'-10	638	78	7'-10	638	104	7'-10	850
PIER CAP ENDS		8h2	4	14'-5	154	4	14'-5	154	4	14'-5	154	4	14'-5	154
PIER CAP, BOTTOM LONGITUDINAL		8h3	8	27'-5	586	8	28'-8	613	8	31'-8	677	8	37'-10	809
PIER CAP, BOTTOM LONGITUDINAL		8h4	8	21'-11	469	8	22'-4	478	8	24'-6	524	8	29'-8	634
PIER CAP, TOP LONGITUDINAL		8h5	4	28'-2	301	4	29'-6	316	4	32'-8	349	4	38'-11	416
PIER CAP, TOP LONGITUDINAL		8h6	4	23'-5	251	4	23'-11	256	4	26'-3	281	4	31'-6	337
TOP OF SLAB, TRANSVERSE, AT RAIL		5j1	232	8'-6	2057	232	8'-6	2057	226	8'-6	2004	224	8'-6	1986
WING, VERTICAL		5m1	40	4'-5	185	40	4'-5	185	40	4'-5	185	40	4'-5	185
WING, HORIZONTAL BACK FACE		5n1	24	6'-8	167	24	6'-8	167	24	6'-8	167	24	6'-8	167
WING, HORIZONTAL TRAFFIC FACE		5n3	24	6'-9	169	24	6'-9	169	24	6'-9	169	24	6'-9	169
SUB TOTAL - LBS.					86,880			87,546			87,875			89,074
BARRIER RAIL - SEE LIST ON RAIL SHEET J44-46-06					7536			7536			7536			7536
OPEN RAIL - SEE LIST ON RAIL SHEET J44-49-06					8061			8061			8061			8061
TOTAL - LBS. WITH MONOLITHIC PIER CAP		WITH BARRIER RAIL			94,416			95,082			95,411			96,610
		WITH OPEN RAIL			94,941			95,607			95,936			97,135
TOTAL - LBS. WITH NON-MONOLITHIC PIER CAP		WITH BARRIER RAIL			92,017			92,627			92,788			93,410
SAME AS ABOVE EXCEPT ALL "h" BARS DELETED		WITH OPEN RAIL			92,542			93,152			93,313			93,935

ESTIMATED QUANTITIES FOR SUPERSTRUCTURE - 120' BRIDGE

ITEM		SKEW	WITH MONOLITHIC PIER CAP 0°	15°	30°	45°	WITH NON-MONOLITHIC PIER CAP 0°	15°	30°	45°
WITH BARRIER RAIL	*STRUCTURAL CONCRETE (BRIDGE)	C.Y.	382.7	383.8	387.3	395.1	376.3	377.2	380.0	386.2
	REINFORCING STEEL EPOXY COATED	LBS.	94,416	95,082	95,411	96,610	92,017	92,627	92,788	93,410
CONCRETE BARRIER OR OPEN RAIL		LIN. FT.	262.0	262.2	262.9	264.5	262.0	262.2	262.9	264.5
WITH OPEN RAIL	*STRUCTURAL CONCRETE (BRIDGE)	C.Y.	382.5	383.5	387.1	394.9	376.1	376.9	379.8	386.0
	REINFORCING STEEL EPOXY COATED	LBS.	94,941	95,607	95,936	97,135	92,542	93,152	93,313	93,935

* INCLUDES 4 WINGS @ 0.68 C.Y. EACH; EXCLUDES RAIL CONCRETE.

BENT BAR DETAILS



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

NOTES:

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

THE TRANSVERSE REBARS ARE DETAILED WITH A SPLICE LAP. AT THE CONTRACTOR'S OPTION, THIS LAP MAY BE ELIMINATED BY FURNISHING FULL LENGTH BARS WITH NO REDUCTION IN PAY WEIGHT FOR SAME.

REVISED 07-09: OPEN RAIL REINF. QTYS. CHANGED WHICH CHANGED TOTAL REINF. QTYS.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWA DOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

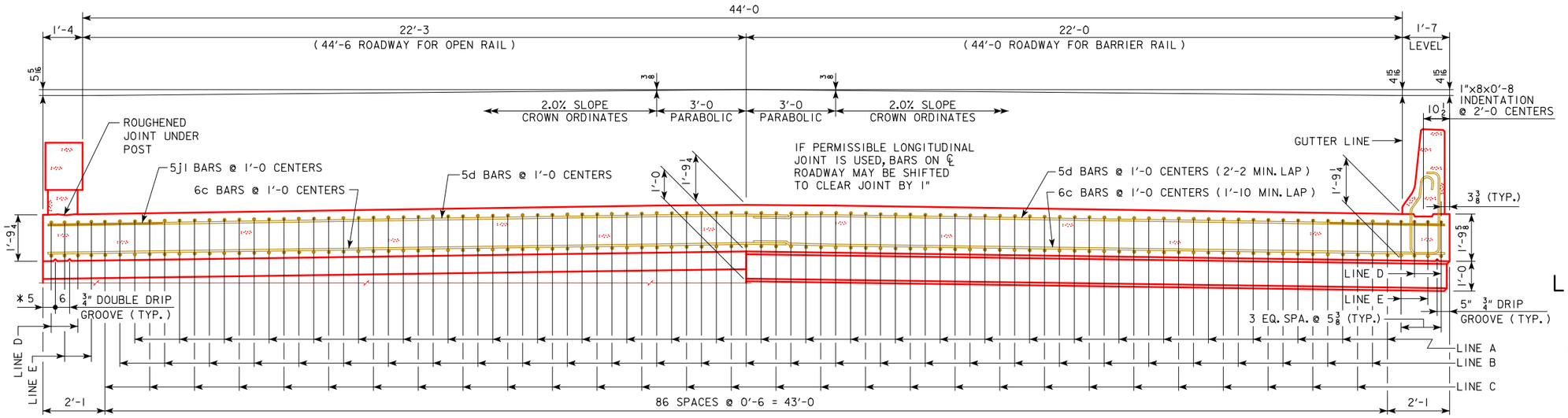
CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

SUPERSTRUCTURE DETAILS
120'-0 BRIDGE

J44-13-06

REVISED 07-16: DATE ON SHEET CHANGED TO CORRECT CLERICAL ERROR.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE. ADDED $3\frac{3}{8}$ (TYP.) & $5\frac{3}{8}$ (TYP.) HORIZONTAL DIMENSIONAL DIMENSIONS TO LONGITUDINAL SLAB REINFORCING LINE D & E IN "HALF SECTION NEAR PIER".



* NOTE: DOUBLE DRIP GROOVES FOR OPEN RAIL OPTION ONLY.

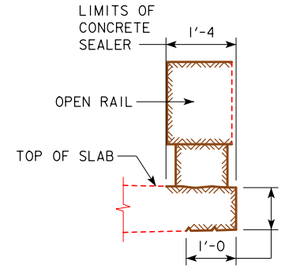
HALF SECTION NEAR ABUTMENT

SLAB CROSS-SECTIONAL AREA FOR OPEN RAIL = 83.52 SQ. FT.

HALF SECTION NEAR PIER

SLAB CROSS-SECTIONAL AREA FOR BARRIER RAIL = 83.57 SQ. FT.

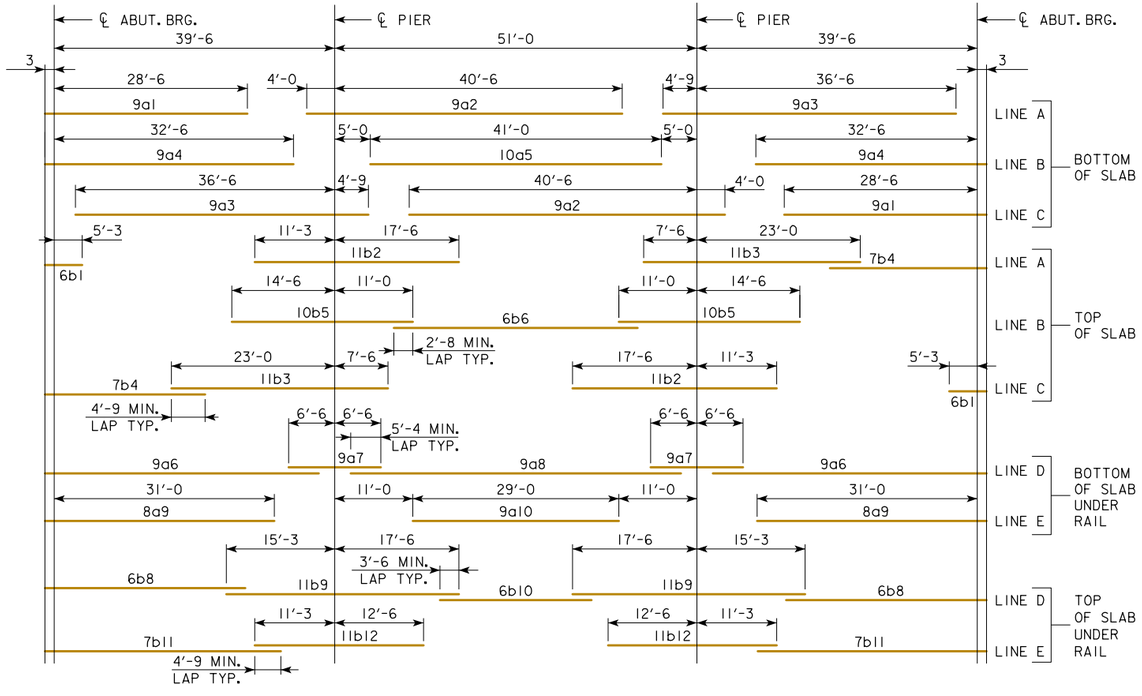
NOTE: TOP LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND $2\frac{1}{2}$" CLEAR BELOW TOP OF SLAB. BOTTOM LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND $1\frac{1}{2}$" CLEAR ABOVE BOTTOM OF SLAB. REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE AND ADEQUATELY SUPPORTED ON BAR CHAIRS BEFORE CONCRETE IS POURED. I.M. 451.01 REQUIREMENTS SHALL APPLY FOR BAR CHAIRS.



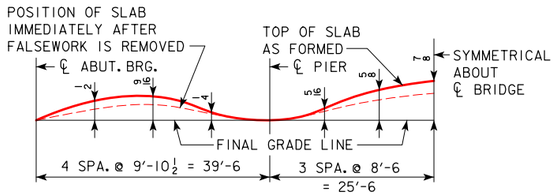
CONCRETE SEALER LIMITS FOR OPEN RAILS

CONCRETE SEALER SHALL BE APPLIED TO BOTH SIDES OF BRIDGE SLAB ON THE TOP, EDGE OF SLAB AND UNDER THE SLAB. THE CONCRETE SEALER SHALL ALSO BE APPLIED TO THE OPEN RAIL ON THE TOP, TRAFFIC FACE SIDE, BOTTOM OF RAIL, AND ON ALL SIDES OF THE OPEN RAIL POSTS.

THE CONCRETE SEALER LIMITS ARE SHOWN IN THE DETAIL AND SHALL APPLY TO THE FULL LENGTH OF BRIDGE. CONCRETE SEALER SHALL BE APPLIED IN ACCORDANCE WITH ARTICLE 2403.03, P, 3 OF THE STANDARD SPECIFICATIONS.



PLACEMENT FOR LONGITUDINAL REINFORCEMENT



FORM CAMBER DIAGRAM

THIS DIAGRAM SHOWS THE FORM CAMBER REQUIRED TO COMPENSATE FOR THE ANTICIPATED ULTIMATE DEAD LOAD DEFLECTION. THE ABOVE DIMENSIONS DO NOT INCLUDE ANY ALLOWANCE FOR FORM DEFLECTION OR FALSEWORK SETTLEMENT.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

SUPERSTRUCTURE DETAILS
130'-0 BRIDGE

J44-14-06

BILL OF REINFORCING STEEL FOR SUPERSTRUCTURE - 130' BRIDGE

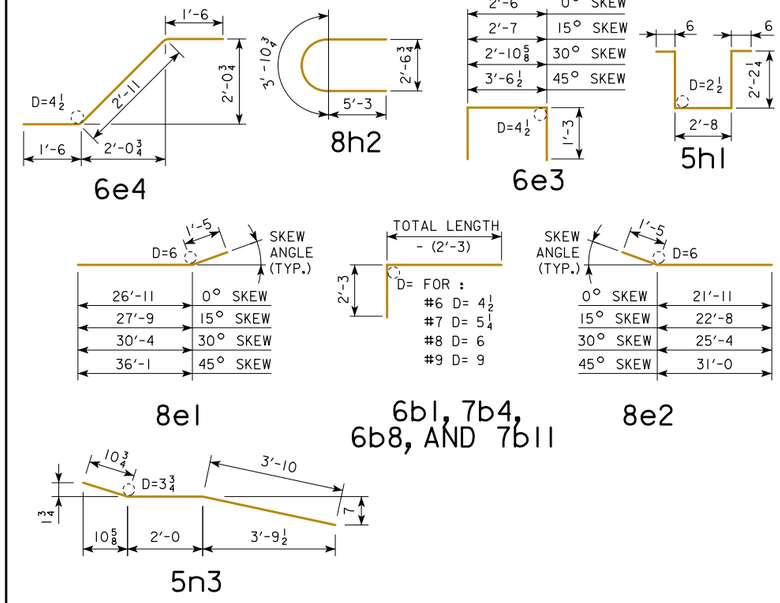
LOCATION \ SKEW	SHAPE	BAR	0° NO.	0° LENGTH	0° WEIGHT	15° NO.	15° LENGTH	15° WEIGHT	30° NO.	30° LENGTH	30° WEIGHT	45° NO.	45° LENGTH	45° WEIGHT
SLAB LONGITUDINAL BOTTOM		9a1	58	28'-9	5670	58	28'-9	5670	58	28'-9	5670	58	28'-9	5670
SLAB LONGITUDINAL BOTTOM		9a2	58	44'-6	8776	58	44'-6	8776	58	44'-6	8776	58	44'-6	8776
SLAB LONGITUDINAL BOTTOM		9a3	58	41'-3	8135	58	41'-3	8135	58	41'-3	8135	58	41'-3	8135
SLAB LONGITUDINAL BOTTOM		9a4	58	32'-9	6459	58	32'-9	6459	58	32'-9	6459	58	32'-9	6459
SLAB LONGITUDINAL BOTTOM		10a5	29	41'-0	5117	29	41'-0	5117	29	41'-0	5117	29	41'-0	5117
SLAB LONGITUDINAL BOTTOM, AT RAIL		9a6	8	38'-7	1050	8	38'-7	1050	8	38'-7	1050	8	38'-7	1050
SLAB LONGITUDINAL BOTTOM, AT RAIL		9a7	8	13'-0	354	8	13'-0	354	8	13'-0	354	8	13'-0	354
SLAB LONGITUDINAL BOTTOM, AT RAIL		9a8	4	48'-8	662	4	48'-8	662	4	48'-8	662	4	48'-8	662
SLAB LONGITUDINAL BOTTOM, AT RAIL		8a9	8	31'-3	668	8	31'-3	668	8	31'-3	668	8	31'-3	668
SLAB LONGITUDINAL BOTTOM, AT RAIL		9a10	4	29'-0	395	4	29'-0	395	4	29'-0	395	4	29'-0	395
SLAB LONGITUDINAL TOP		6b1	58	7'-9	676	58	7'-9	676	58	7'-9	676	58	7'-9	676
SLAB LONGITUDINAL TOP		11b2	58	28'-9	8860	58	28'-9	8860	58	28'-9	8860	58	28'-9	8860
SLAB LONGITUDINAL TOP		11b3	58	30'-6	9399	58	30'-6	9399	58	30'-6	9399	58	30'-6	9399
SLAB LONGITUDINAL TOP		7b4	58	23'-9	2816	58	23'-9	2816	58	23'-9	2816	58	23'-9	2816
SLAB LONGITUDINAL TOP		10b5	58	25'-6	6365	58	25'-6	6365	58	25'-6	6365	58	25'-6	6365
SLAB LONGITUDINAL TOP		6b6	29	34'-4	1496	29	34'-4	1496	29	34'-4	1496	29	34'-4	1496
SLAB LONGITUDINAL TOP, AT RAIL		6b8	8	30'-3	364	8	30'-3	364	8	30'-3	364	8	30'-3	364
SLAB LONGITUDINAL TOP, AT RAIL		11b9	8	32'-9	1393	8	32'-9	1393	8	32'-9	1393	8	32'-9	1393
SLAB LONGITUDINAL TOP, AT RAIL		6b10	4	23'-0	139	4	23'-0	139	4	23'-0	139	4	23'-0	139
SLAB LONGITUDINAL TOP, AT RAIL		7b11	8	35'-6	581	8	35'-6	581	8	35'-6	581	8	35'-6	581
SLAB LONGITUDINAL TOP, AT RAIL		11b12	8	23'-9	1010	8	23'-9	1010	8	23'-9	1010	8	23'-9	1010
SLAB TRANSVERSE BOTTOM		6c1	127	25'-5	4849	127	26'-4	5024	116	25'-5	4429	106	25'-5	4047
SLAB TRANSVERSE BOTTOM		6c2	127	23'-3	4436	127	24'-1	4594	118	23'-3	4121	109	23'-3	3807
SLAB TRANSVERSE ENDS, BOTTOM		6c3	-	-	-	-	-	-	14	VARIES	303	22	VARIES	485
SLAB TRANSVERSE ENDS, BOTTOM		6c4	-	-	-	-	-	-	12	VARIES	255	22	VARIES	458
SLAB TRANSVERSE ENDS, BOTTOM		6c5	-	-	-	-	-	-	12	VARIES	208	20	VARIES	366
SLAB TRANSVERSE ENDS, BOTTOM		6c6	-	-	-	-	-	-	12	VARIES	227	19	VARIES	376
SLAB TRANSVERSE TOP		5d1	127	25'-9	3411	127	26'-8	3533	116	25'-9	3116	106	25'-9	2847
SLAB TRANSVERSE TOP		5d2	127	23'-3	3080	127	24'-1	3191	118	23'-3	2862	109	23'-3	2644
SLAB TRANSVERSE ENDS, TOP		5d3	-	-	-	-	-	-	14	VARIES	210	22	VARIES	337
SLAB TRANSVERSE ENDS, TOP		5d4	-	-	-	-	-	-	12	VARIES	177	22	VARIES	318
SLAB TRANSVERSE ENDS, TOP		5d5	-	-	-	-	-	-	12	VARIES	144	20	VARIES	254
SLAB TRANSVERSE ENDS, TOP		5d6	-	-	-	-	-	-	12	VARIES	158	19	VARIES	261
SLAB, TRANSVERSE AT ABUTMENT		8e1	18	28'-4	1362	18	29'-2	1402	18	31'-9	1526	18	37'-6	1803
SLAB, TRANSVERSE AT ABUTMENT		8e2	18	23'-4	1122	18	24'-1	1158	18	26'-9	1286	18	32'-5	1558
SLAB, HAIRPINS, AT ABUTMENT		6e3	100	5'-0	751	100	5'-1	764	100	5'-5	814	100	6'-1	914
SLAB, DIAGONALS, AT ABUTMENT		6e4	100	5'-11	889	100	5'-11	889	100	5'-11	889	100	5'-11	889
PIER CAP HOOPS		5h1	60	8'-1	506	60	8'-1	506	90	8'-1	759	90	8'-1	759
PIER CAP ENDS		8h2	4	14'-5	154	4	14'-5	154	4	14'-5	154	4	14'-5	154
PIER CAP, BOTTOM LONGITUDINAL		8h3	8	27'-5	586	8	28'-8	613	8	31'-8	677	8	37'-10	809
PIER CAP, BOTTOM LONGITUDINAL		8h4	8	21'-11	469	8	22'-4	478	8	24'-6	524	8	29'-8	634
PIER CAP, TOP LONGITUDINAL		8h5	4	28'-2	301	4	29'-6	316	4	32'-8	349	4	38'-11	416
PIER CAP, TOP LONGITUDINAL		8h6	4	23'-5	251	4	23'-11	256	4	26'-3	281	4	31'-6	337
TOP OF SLAB, TRANSVERSE, AT RAIL		5j1	252	8'-6	2235	252	8'-6	2235	246	8'-6	2181	244	8'-6	2164
WING, VERTICAL		5m1	40	4'-5	185	40	4'-5	185	40	4'-5	185	40	4'-5	185
WING, HORIZONTAL BACK FACE		5n1	24	6'-8	167	24	6'-8	167	24	6'-8	167	24	6'-8	167
WING, HORIZONTAL TRAFFIC FACE		5n3	24	6'-9	169	24	6'-9	169	24	6'-9	169	24	6'-9	169
SUB TOTAL - LBS.					95,308			96,019			96,556			97,543
BARRIER RAIL - SEE LIST ON RAIL SHEET J44-46-06					8054			8054			8054			8054
OPEN RAIL - SEE LIST ON RAIL SHEET J44-49-06					8573			8573			8573			8573
TOTAL - LBS. WITH MONOLITHIC PIER CAP	WITH BARRIER RAIL				103,362			104,073			104,610			105,597
	WITH OPEN RAIL				103,881			104,592			105,129			106,116
TOTAL - LBS. WITH NON-MONOLITHIC PIER CAP	WITH BARRIER RAIL				101,095			101,750			101,866			102,488
SAME AS ABOVE EXCEPT ALL "h" BARS DELETED	WITH OPEN RAIL				101,614			102,269			102,385			103,007

ESTIMATED QUANTITIES FOR SUPERSTRUCTURE - 130' BRIDGE

ITEM		SKEW	WITH MONOLITHIC PIER CAP 0°	15°	30°	45°	WITH NON-MONOLITHIC PIER CAP 0°	15°	30°	45°
WITH BARRIER RAIL	*STRUCTURAL CONCRETE (BRIDGE)	C.Y.	435.0	436.0	439.5	447.1	428.6	429.4	432.2	438.2
	REINFORCING STEEL EPOXY COATED	LBS.	103,362	104,073	104,610	105,597	101,095	101,750	101,866	102,488
CONCRETE BARRIER OR OPEN RAIL		LIN. FT.	282.0	282.2	282.9	284.5	282.0	282.2	282.9	284.5
WITH OPEN RAIL	*STRUCTURAL CONCRETE (BRIDGE)	C.Y.	434.7	435.8	439.3	446.9	428.3	429.1	431.9	438.0
	REINFORCING STEEL EPOXY COATED	LBS.	103,881	104,592	105,129	106,116	101,614	102,269	102,385	103,007

* INCLUDES 4 WINGS @ 0.68 C.Y. EACH; EXCLUDES RAIL CONCRETE.

BENT BAR DETAILS



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

NOTES:

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

THE TRANSVERSE REBARS ARE DETAILED WITH A SPLICE LAP. AT THE CONTRACTOR'S OPTION, THIS LAP MAY BE ELIMINATED BY FURNISHING FULL LENGTH BARS WITH NO REDUCTION IN PAY WEIGHT FOR SAME.

REVISED 07-09: OPEN RAIL REINF. QTYS. CHANGED WHICH CHANGED TOTAL REINF. QTYS.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWA DOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

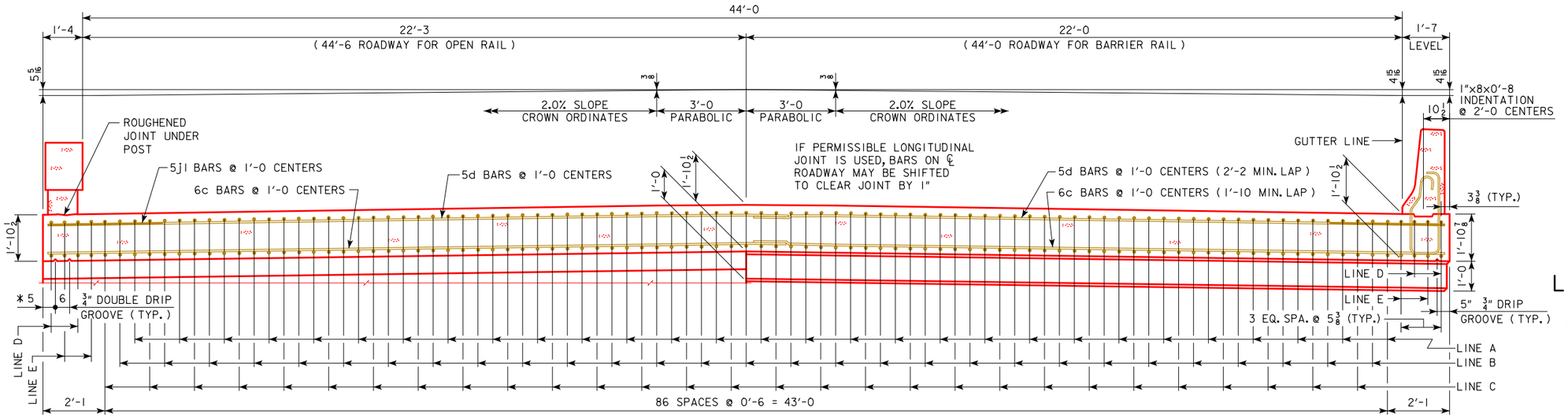
CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

SUPERSTRUCTURE DETAILS
130'-0 BRIDGE

J44-15-06

REVISED 07-16: DATE ON SHEET CHANGED TO CORRECT CLERICAL ERROR.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE. ADDED $3\frac{3}{8}$ (TYP.) & $5\frac{3}{8}$ (TYP.) HORIZONTAL DIMENSIONS TO LONGITUDINAL SLAB REINFORCING LINE D & E IN "HALF SECTION NEAR PIER".



* NOTE: DOUBLE DRIP GROOVES FOR OPEN RAIL OPTION ONLY.

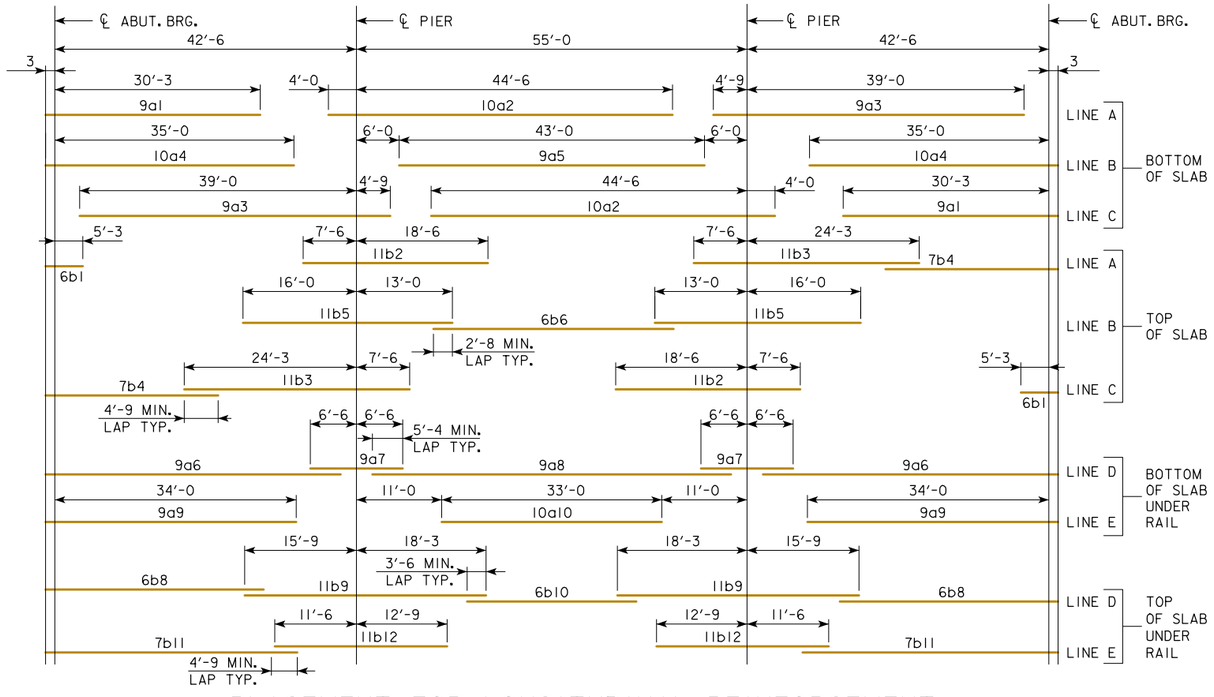
HALF SECTION NEAR ABUTMENT

SLAB CROSS-SECTIONAL AREA FOR OPEN RAIL = 88.44 SQ. FT.

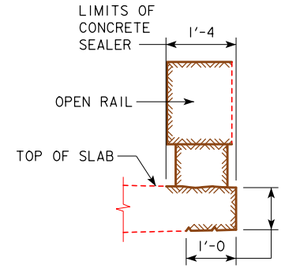
HALF SECTION NEAR PIER

SLAB CROSS-SECTIONAL AREA FOR BARRIER RAIL = 88.49 SQ. FT.

NOTE: TOP LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND $2\frac{1}{2}$" CLEAR BELOW TOP OF SLAB. BOTTOM LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND $1\frac{1}{2}$" CLEAR ABOVE BOTTOM OF SLAB. REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE AND ADEQUATELY SUPPORTED ON BAR CHAIRS BEFORE CONCRETE IS POURED. I.M. 451.01 REQUIREMENTS SHALL APPLY FOR BAR CHAIRS.



PLACEMENT FOR LONGITUDINAL REINFORCEMENT



CONCRETE SEALER LIMITS FOR OPEN RAILS

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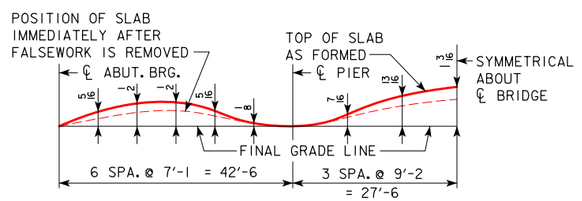


FORM CAMBER DIAGRAM

THIS DIAGRAM SHOWS THE FORM CAMBER REQUIRED TO COMPENSATE FOR THE ANTICIPATED ULTIMATE DEAD LOAD DEFLECTION. THE ABOVE DIMENSIONS DO NOT INCLUDE ANY ALLOWANCE FOR FORM DEFLECTION OR FALSEWORK SETTLEMENT.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

SUPERSTRUCTURE DETAILS
140'-0 BRIDGE

J44-16-06

BILL OF REINFORCING STEEL FOR SUPERSTRUCTURE - 140' BRIDGE

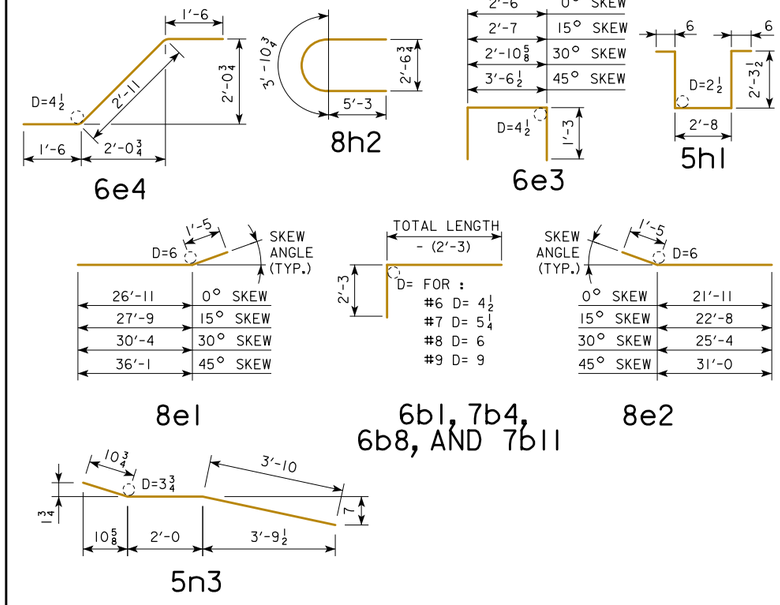
LOCATION \ SKEW	SHAPE	BAR	0° NO.	0° LENGTH	0° WEIGHT	15° NO.	15° LENGTH	15° WEIGHT	30° NO.	30° LENGTH	30° WEIGHT	45° NO.	45° LENGTH	45° WEIGHT
SLAB LONGITUDINAL BOTTOM		9a1	58	30'-6	6015	58	30'-6	6015	58	30'-6	6015	58	30'-6	6015
SLAB LONGITUDINAL BOTTOM		10a2	58	48'-6	12,105	58	48'-6	12,105	58	48'-6	12,105	58	48'-6	12,105
SLAB LONGITUDINAL BOTTOM		9a3	58	43'-9	8628	58	43'-9	8628	58	43'-9	8628	58	43'-9	8628
SLAB LONGITUDINAL BOTTOM		10a4	58	35'-3	8798	58	35'-3	8798	58	35'-3	8798	58	35'-3	8798
SLAB LONGITUDINAL BOTTOM		9a5	29	43'-0	4240	29	43'-0	4240	29	43'-0	4240	29	43'-0	4240
SLAB LONGITUDINAL BOTTOM, AT RAIL		9a6	8	41'-7	1132	8	41'-7	1132	8	41'-7	1132	8	41'-7	1132
SLAB LONGITUDINAL BOTTOM, AT RAIL		9a7	8	13'-0	354	8	13'-0	354	8	13'-0	354	8	13'-0	354
SLAB LONGITUDINAL BOTTOM, AT RAIL		9a8	4	52'-8	717	4	52'-8	717	4	52'-8	717	4	52'-8	717
SLAB LONGITUDINAL BOTTOM, AT RAIL		9a9	8	34'-3	932	8	34'-3	932	8	34'-3	932	8	34'-3	932
SLAB LONGITUDINAL BOTTOM, AT RAIL		10a10	4	33'-0	568	4	33'-0	568	4	33'-0	568	4	33'-0	568
SLAB LONGITUDINAL TOP		6b1	58	7'-9	676	58	7'-9	676	58	7'-9	676	58	7'-9	676
SLAB LONGITUDINAL TOP		11b2	58	26'-0	8013	58	26'-0	8013	58	26'-0	8013	58	26'-0	8013
SLAB LONGITUDINAL TOP		11b3	58	31'-9	9784	58	31'-9	9784	58	31'-9	9784	58	31'-9	9784
SLAB LONGITUDINAL TOP		7b4	58	25'-6	3024	58	25'-6	3024	58	25'-6	3024	58	25'-6	3024
SLAB LONGITUDINAL TOP		11b5	58	29'-0	8937	58	29'-0	8937	58	29'-0	8937	58	29'-0	8937
SLAB LONGITUDINAL TOP		6b6	29	34'-4	1496	29	34'-4	1496	29	34'-4	1496	29	34'-4	1496
SLAB LONGITUDINAL TOP, AT RAIL		6b8	8	32'-9	394	8	32'-9	394	8	32'-9	394	8	32'-9	394
SLAB LONGITUDINAL TOP, AT RAIL		11b9	8	34'-0	1446	8	34'-0	1446	8	34'-0	1446	8	34'-0	1446
SLAB LONGITUDINAL TOP, AT RAIL		6b10	4	25'-6	154	4	25'-6	154	4	25'-6	154	4	25'-6	154
SLAB LONGITUDINAL TOP, AT RAIL		7b11	8	38'-3	626	8	38'-3	626	8	38'-3	626	8	38'-3	626
SLAB LONGITUDINAL TOP, AT RAIL		11b12	8	24'-3	1031	8	24'-3	1031	8	24'-3	1031	8	24'-3	1031
SLAB TRANSVERSE BOTTOM		6c1	137	25'-5	5231	137	26'-4	5419	126	25'-5	4811	116	25'-5	4429
SLAB TRANSVERSE BOTTOM		6c2	137	23'-3	4785	137	24'-1	4956	128	23'-3	4470	119	23'-3	4156
SLAB TRANSVERSE ENDS, BOTTOM		6c3	-	-	-	-	-	-	14	VARIES	303	22	VARIES	485
SLAB TRANSVERSE ENDS, BOTTOM		6c4	-	-	-	-	-	-	12	VARIES	255	22	VARIES	458
SLAB TRANSVERSE ENDS, BOTTOM		6c5	-	-	-	-	-	-	12	VARIES	208	20	VARIES	366
SLAB TRANSVERSE ENDS, BOTTOM		6c6	-	-	-	-	-	-	12	VARIES	227	19	VARIES	376
SLAB TRANSVERSE TOP		5d1	137	25'-9	3680	137	26'-8	3811	126	25'-9	3385	116	25'-9	3116
SLAB TRANSVERSE TOP		5d2	137	23'-3	3323	137	24'-1	3442	128	23'-3	3104	119	23'-3	2886
SLAB TRANSVERSE ENDS, TOP		5d3	-	-	-	-	-	-	14	VARIES	210	22	VARIES	337
SLAB TRANSVERSE ENDS, TOP		5d4	-	-	-	-	-	-	12	VARIES	177	22	VARIES	318
SLAB TRANSVERSE ENDS, TOP		5d5	-	-	-	-	-	-	12	VARIES	144	20	VARIES	254
SLAB TRANSVERSE ENDS, TOP		5d6	-	-	-	-	-	-	12	VARIES	158	19	VARIES	261
SLAB, TRANSVERSE AT ABUTMENT		8e1	18	28'-4	1362	18	29'-2	1402	18	31'-9	1526	18	37'-6	1803
SLAB, TRANSVERSE AT ABUTMENT		8e2	18	23'-4	1122	18	24'-1	1158	18	26'-9	1286	18	32'-5	1558
SLAB, HAIRPINS, AT ABUTMENT		6e3	100	5'-0	751	100	5'-1	764	100	5'-5	814	100	6'-1	914
SLAB, DIAGONALS, AT ABUTMENT		6e4	100	5'-11	889	100	5'-11	889	100	5'-11	889	100	5'-11	889
PIER CAP HOOPS		5h1	64	8'-3	551	64	8'-3	551	96	8'-3	827	96	8'-3	827
PIER CAP ENDS		8h2	4	14'-5	154	4	14'-5	154	4	14'-5	154	4	14'-5	154
PIER CAP, BOTTOM LONGITUDINAL		8h3	8	27'-5	586	8	28'-8	613	8	31'-8	677	8	37'-10	809
PIER CAP, BOTTOM LONGITUDINAL		8h4	8	21'-11	469	8	22'-4	478	8	24'-6	524	8	29'-8	634
PIER CAP, TOP LONGITUDINAL		8h5	4	28'-2	301	4	29'-6	316	4	32'-8	349	4	38'-11	416
PIER CAP, TOP LONGITUDINAL		8h6	4	23'-5	251	4	23'-11	256	4	26'-3	281	4	31'-6	337
TOP OF SLAB, TRANSVERSE, AT RAIL		5j1	272	8'-6	2412	272	8'-6	2412	266	8'-6	2359	264	8'-6	2341
WING, VERTICAL		5m1	40	4'-5	185	40	4'-5	185	40	4'-5	185	40	4'-5	185
WING, HORIZONTAL BACK FACE		5n1	24	6'-8	167	24	6'-8	167	24	6'-8	167	24	6'-8	167
WING, HORIZONTAL TRAFFIC FACE		5n3	24	6'-9	169	24	6'-9	169	24	6'-9	169	24	6'-9	169
SUB TOTAL - LBS.					105,458			106,212			106,729			107,715
BARRIER RAIL - SEE LIST ON RAIL SHEET J44-46-06					8602			8602			8602			8602
OPEN RAIL - SEE LIST ON RAIL SHEET J44-49-06					9057			9057			9057			9057
TOTAL - LBS. WITH MONOLITHIC PIER CAP		WITH BARRIER RAIL			114,060			114,814			115,331			116,317
		WITH OPEN RAIL			114,515			115,269			115,786			116,772
TOTAL - LBS. WITH NON-MONOLITHIC PIER CAP		WITH BARRIER RAIL			111,748			112,446			112,519			113,140
SAME AS ABOVE EXCEPT ALL "h" BARS DELETED		WITH OPEN RAIL			112,203			112,901			112,974			113,595

ESTIMATED QUANTITIES FOR SUPERSTRUCTURE - 140' BRIDGE

ITEM		SKEW	WITH MONOLITHIC PIER CAP 0°	15°	30°	45°	WITH NON-MONOLITHIC PIER CAP 0°	15°	30°	45°
WITH BARRIER RAIL	*STRUCTURAL CONCRETE (BRIDGE)	C.Y.	490.8	491.9	495.3	502.8	484.5	485.3	488.0	493.9
	REINFORCING STEEL EPOXY COATED	LBS.	114,060	114,814	115,331	116,317	111,748	112,446	112,519	113,140
CONCRETE BARRIER OR OPEN RAIL		LIN. FT.	302.0	302.2	302.9	304.5	302.0	302.2	302.9	304.5
WITH OPEN RAIL	*STRUCTURAL CONCRETE (BRIDGE)	C.Y.	490.6	491.6	495.0	502.5	484.2	485.0	487.7	493.6
	REINFORCING STEEL EPOXY COATED	LBS.	114,515	115,269	115,786	116,772	112,203	112,901	112,974	113,595

* INCLUDES 4 WINGS @ 0.68 C.Y. EACH; EXCLUDES RAIL CONCRETE.

BENT BAR DETAILS



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

NOTES:

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

THE TRANSVERSE REBARS ARE DETAILED WITH A SPLICE LAP. AT THE CONTRACTOR'S OPTION, THIS LAP MAY BE ELIMINATED BY FURNISHING FULL LENGTH BARS WITH NO REDUCTION IN PAY WEIGHT FOR SAME.

REVISED 07-09: OPEN RAIL REINF. QTYS. CHANGED WHICH CHANGED TOTAL REINF. QTYS.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWA DOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

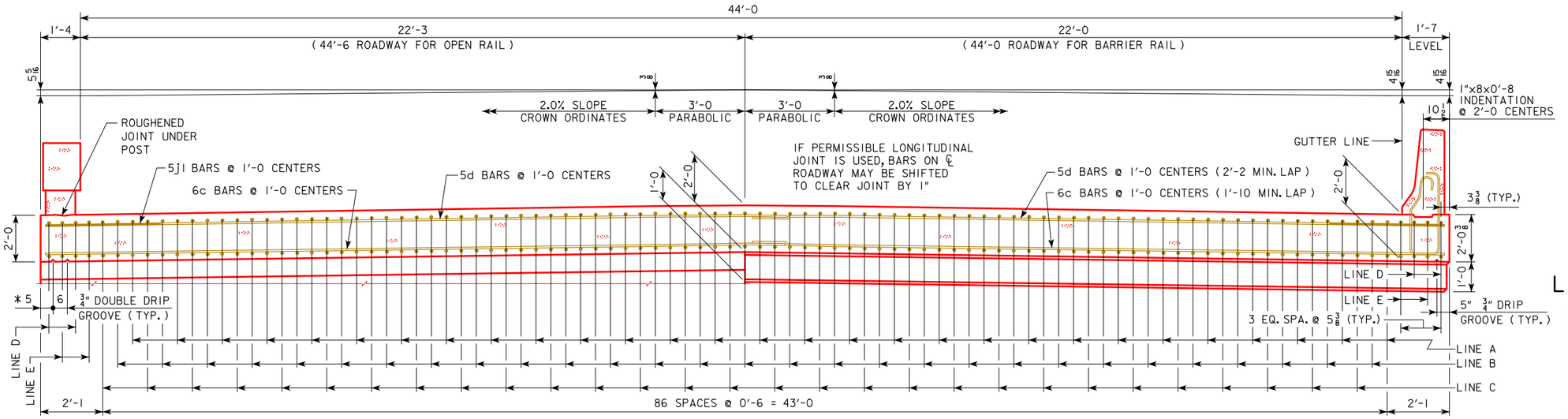
CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

SUPERSTRUCTURE DETAILS
140'-0 BRIDGE

J44-17-06

REVISED 07-16: DATE ON SHEET CHANGED TO CORRECT CLERICAL ERROR.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE. ADDED $3\frac{3}{8}$ (TYP.) & $5\frac{3}{8}$ (TYP.) HORIZONTAL DIMENSIONS TO LONGITUDINAL SLAB REINFORCING LINE D & E IN "HALF SECTION NEAR PIER".



* NOTE: DOUBLE DRIP GROOVES FOR OPEN RAIL OPTION ONLY.

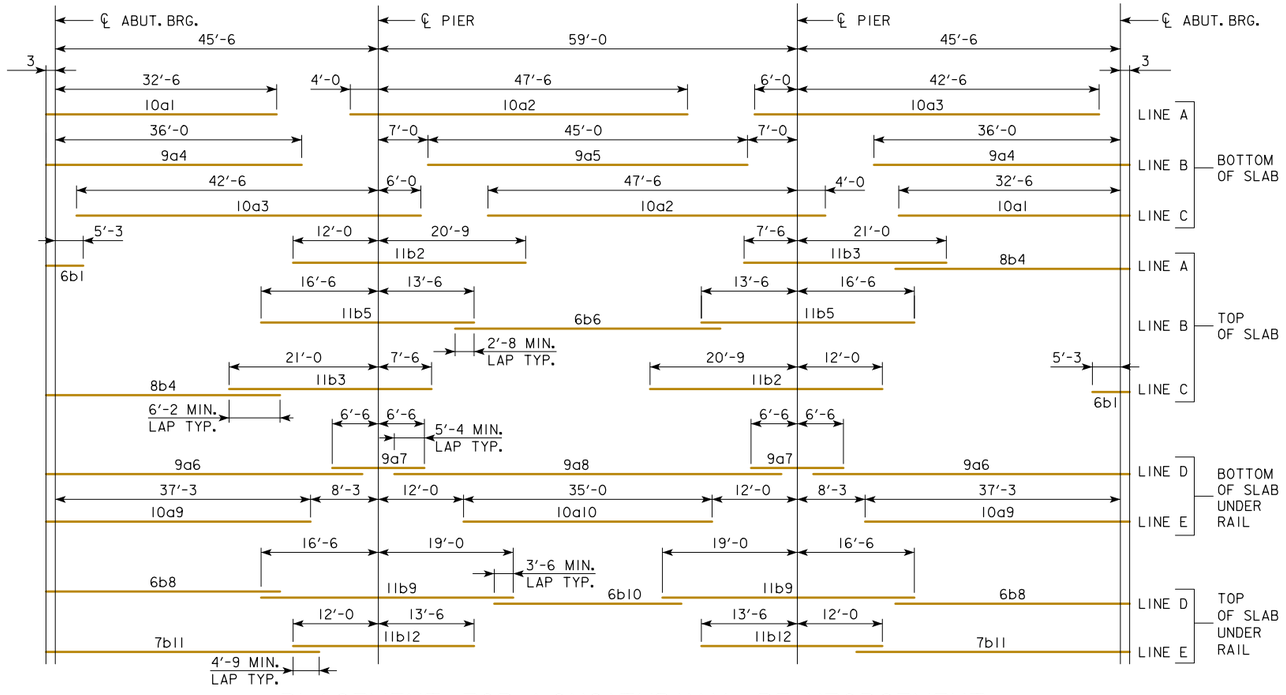
HALF SECTION NEAR ABUTMENT

SLAB CROSS-SECTIONAL AREA FOR OPEN RAIL = 94.33 SQ. FT.

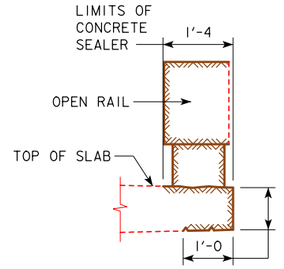
HALF SECTION NEAR PIER

SLAB CROSS-SECTIONAL AREA FOR BARRIER RAIL = 94.38 SQ. FT.

NOTE: TOP LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND $2\frac{1}{2}$" CLEAR BELOW TOP OF SLAB. BOTTOM LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND $1\frac{1}{2}$" CLEAR ABOVE BOTTOM OF SLAB. REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE AND ADEQUATELY SUPPORTED ON BAR CHAIRS BEFORE CONCRETE IS POURED. I.M. 451.01 REQUIREMENTS SHALL APPLY FOR BAR CHAIRS.



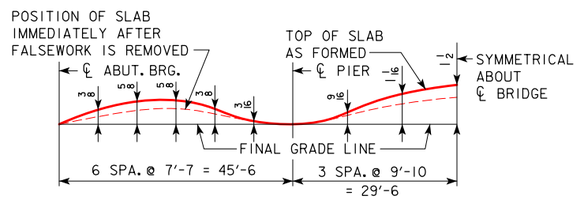
PLACEMENT FOR LONGITUDINAL REINFORCEMENT



CONCRETE SEALER LIMITS FOR OPEN RAILS

CONCRETE SEALER SHALL BE APPLIED TO BOTH SIDES OF BRIDGE SLAB ON THE TOP, EDGE OF SLAB AND UNDER THE SLAB. THE CONCRETE SEALER SHALL ALSO BE APPLIED TO THE OPEN RAIL ON THE TOP, TRAFFIC FACE SIDE, BOTTOM OF RAIL, AND ON ALL SIDES OF THE OPEN RAIL POSTS.

THE CONCRETE SEALER LIMITS ARE SHOWN IN THE DETAIL AND SHALL APPLY TO THE FULL LENGTH OF BRIDGE. CONCRETE SEALER SHALL BE APPLIED IN ACCORDANCE WITH ARTICLE 2403.03, P, 3 OF THE STANDARD SPECIFICATIONS.



FORM CAMBER DIAGRAM

THIS DIAGRAM SHOWS THE FORM CAMBER REQUIRED TO COMPENSATE FOR THE ANTICIPATED ULTIMATE DEAD LOAD DEFLECTION. THE ABOVE DIMENSIONS DO NOT INCLUDE ANY ALLOWANCE FOR FORM DEFLECTION OR FALSEWORK SETTLEMENT.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

SUPERSTRUCTURE DETAILS
150'-0 BRIDGE

J44-18-06

BILL OF REINFORCING STEEL FOR SUPERSTRUCTURE - 150' BRIDGE

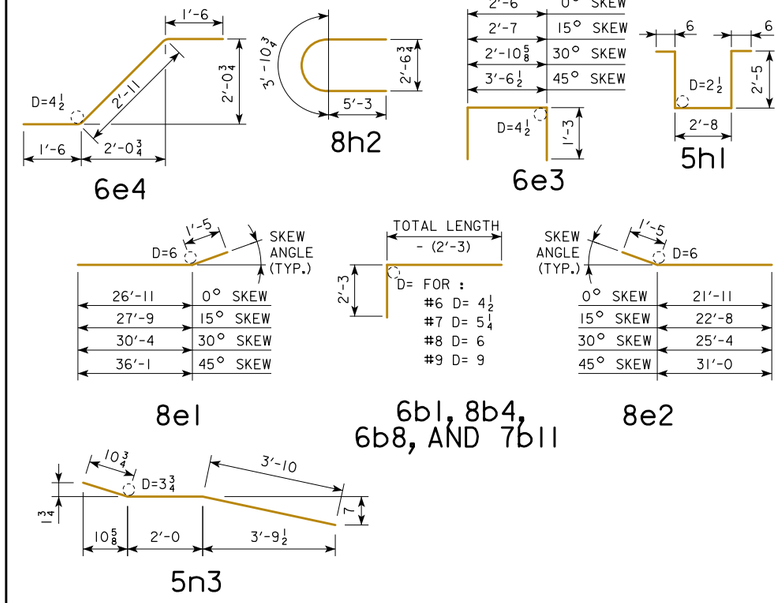
LOCATION \ SKEW	SHAPE	BAR	0° NO.	0° LENGTH	0° WEIGHT	15° NO.	15° LENGTH	15° WEIGHT	30° NO.	30° LENGTH	30° WEIGHT	45° NO.	45° LENGTH	45° WEIGHT
SLAB LONGITUDINAL BOTTOM		10a1	58	32'-9	8174	58	32'-9	8174	58	32'-9	8174	58	32'-9	8174
SLAB LONGITUDINAL BOTTOM		10a2	58	51'-6	12,854	58	51'-6	12,854	58	51'-6	12,854	58	51'-6	12,854
SLAB LONGITUDINAL BOTTOM		10a3	58	48'-6	12,105	58	48'-6	12,105	58	48'-6	12,105	58	48'-6	12,105
SLAB LONGITUDINAL BOTTOM		9a4	58	36'-3	7149	58	36'-3	7149	58	36'-3	7149	58	36'-3	7149
SLAB LONGITUDINAL BOTTOM		9a5	29	45'-0	4437	29	45'-0	4437	29	45'-0	4437	29	45'-0	4437
SLAB LONGITUDINAL BOTTOM, AT RAIL		9a6	8	44'-7	1213	8	44'-7	1213	8	44'-7	1213	8	44'-7	1213
SLAB LONGITUDINAL BOTTOM, AT RAIL		9a7	8	13'-0	354	8	13'-0	354	8	13'-0	354	8	13'-0	354
SLAB LONGITUDINAL BOTTOM, AT RAIL		9a8	4	56'-8	771	4	56'-8	771	4	56'-8	771	4	56'-8	771
SLAB LONGITUDINAL BOTTOM, AT RAIL		10a9	8	37'-6	1291	8	37'-6	1291	8	37'-6	1291	8	37'-6	1291
SLAB LONGITUDINAL BOTTOM, AT RAIL		10a10	4	35'-0	603	4	35'-0	603	4	35'-0	603	4	35'-0	603
SLAB LONGITUDINAL TOP		6b1	58	7'-9	676	58	7'-9	676	58	7'-9	676	58	7'-9	676
SLAB LONGITUDINAL TOP		11b2	58	32'-9	10,093	58	32'-9	10,093	58	32'-9	10,093	58	32'-9	10,093
SLAB LONGITUDINAL TOP		11b3	58	28'-6	8783	58	28'-6	8783	58	28'-6	8783	58	28'-6	8783
SLAB LONGITUDINAL TOP		8b4	58	33'-2	5137	58	33'-2	5137	58	33'-2	5137	58	33'-2	5137
SLAB LONGITUDINAL TOP		11b5	58	30'-0	9245	58	30'-0	9245	58	30'-0	9245	58	30'-0	9245
SLAB LONGITUDINAL TOP		6b6	29	37'-4	1627	29	37'-4	1627	29	37'-4	1627	29	37'-4	1627
SLAB LONGITUDINAL TOP, AT RAIL		6b8	8	35'-0	421	8	35'-0	421	8	35'-0	421	8	35'-0	421
SLAB LONGITUDINAL TOP, AT RAIL		11b9	8	35'-6	1509	8	35'-6	1509	8	35'-6	1509	8	35'-6	1509
SLAB LONGITUDINAL TOP, AT RAIL		6b10	4	28'-0	169	4	28'-0	169	4	28'-0	169	4	28'-0	169
SLAB LONGITUDINAL TOP, AT RAIL		7b11	8	40'-9	667	8	40'-9	667	8	40'-9	667	8	40'-9	667
SLAB LONGITUDINAL TOP, AT RAIL		11b12	8	25'-6	1084	8	25'-6	1084	8	25'-6	1084	8	25'-6	1084
SLAB TRANSVERSE BOTTOM		6c1	147	25'-5	5612	147	26'-4	5815	136	25'-5	5192	126	25'-5	4811
SLAB TRANSVERSE BOTTOM		6c2	147	23'-3	5134	147	24'-1	5318	138	23'-3	4820	129	23'-3	4505
SLAB TRANSVERSE ENDS, BOTTOM		6c3	-	-	-	-	-	-	14	VARIES	303	22	VARIES	485
SLAB TRANSVERSE ENDS, BOTTOM		6c4	-	-	-	-	-	-	12	VARIES	255	22	VARIES	458
SLAB TRANSVERSE ENDS, BOTTOM		6c5	-	-	-	-	-	-	12	VARIES	208	20	VARIES	366
SLAB TRANSVERSE ENDS, BOTTOM		6c6	-	-	-	-	-	-	12	VARIES	227	19	VARIES	376
SLAB TRANSVERSE TOP		5d1	147	25'-9	3949	147	26'-8	4089	136	25'-9	3653	126	25'-9	3385
SLAB TRANSVERSE TOP		5d2	147	23'-3	3565	147	24'-1	3693	138	23'-3	3347	129	23'-3	3129
SLAB TRANSVERSE ENDS, TOP		5d3	-	-	-	-	-	-	14	VARIES	210	22	VARIES	337
SLAB TRANSVERSE ENDS, TOP		5d4	-	-	-	-	-	-	12	VARIES	177	22	VARIES	318
SLAB TRANSVERSE ENDS, TOP		5d5	-	-	-	-	-	-	12	VARIES	144	20	VARIES	254
SLAB TRANSVERSE ENDS, TOP		5d6	-	-	-	-	-	-	12	VARIES	158	19	VARIES	261
SLAB, TRANSVERSE AT ABUTMENT		8e1	18	28'-4	1362	18	29'-2	1402	18	31'-9	1526	18	37'-6	1803
SLAB, TRANSVERSE AT ABUTMENT		8e2	18	23'-4	1122	18	24'-1	1158	18	26'-9	1286	18	32'-5	1558
SLAB, HAIRPINS, AT ABUTMENT		6e3	100	5'-0	751	100	5'-1	764	100	5'-5	814	100	6'-1	914
SLAB, DIAGONALS, AT ABUTMENT		6e4	100	5'-11	889	100	5'-11	889	100	5'-11	889	100	5'-11	889
PIER CAP HOOPS		5h1	68	8'-6	603	68	8'-6	603	68	8'-6	603	102	8'-6	905
PIER CAP ENDS		8h2	4	14'-5	154	4	14'-5	154	4	14'-5	154	4	14'-5	154
PIER CAP, BOTTOM LONGITUDINAL		8h3	8	27'-5	586	8	28'-8	613	8	31'-8	677	8	37'-10	809
PIER CAP, BOTTOM LONGITUDINAL		8h4	8	21'-11	469	8	22'-4	478	8	24'-6	524	8	29'-8	634
PIER CAP, TOP LONGITUDINAL		8h5	4	28'-2	301	4	29'-6	316	4	32'-8	349	4	38'-11	416
PIER CAP, TOP LONGITUDINAL		8h6	4	23'-5	251	4	23'-11	256	4	26'-3	281	4	31'-6	337
TOP OF SLAB, TRANSVERSE, AT RAIL		5j1	292	8'-6	2589	292	8'-6	2589	286	8'-6	2536	284	8'-6	2518
WING, VERTICAL		5m1	40	4'-5	185	40	4'-5	185	40	4'-5	185	40	4'-5	185
WING, HORIZONTAL BACK FACE		5n1	24	6'-8	167	24	6'-8	167	24	6'-8	167	24	6'-8	167
WING, HORIZONTAL TRAFFIC FACE		5n3	24	6'-9	169	24	6'-9	169	24	6'-9	169	24	6'-9	169
SUB TOTAL - LBS.					116,220			117,020			117,216			118,505
BARRIER RAIL - SEE LIST ON RAIL SHEET J44-46-06					9161			9161			9161			9161
OPEN RAIL - SEE LIST ON RAIL SHEET J44-49-06					9605			9605			9605			9605
TOTAL - LBS. WITH MONOLITHIC PIER CAP	WITH BARRIER RAIL				125,381			126,181			126,377			127,666
	WITH OPEN RAIL				125,825			126,625			126,821			128,110
TOTAL - LBS. WITH NON-MONOLITHIC PIER CAP	WITH BARRIER RAIL				123,017			123,761			123,789			124,411
SAME AS ABOVE EXCEPT ALL "h" BARS DELETED	WITH OPEN RAIL				123,461			124,205			124,233			124,855

ESTIMATED QUANTITIES FOR SUPERSTRUCTURE - 150' BRIDGE

ITEM		SKEW	WITH MONOLITHIC PIER CAP 0°	15°	30°	45°	WITH NON-MONOLITHIC PIER CAP 0°	15°	30°	45°
WITH BARRIER RAIL	*STRUCTURAL CONCRETE (BRIDGE)	C.Y.	555.7	556.7	560.1	567.4	549.3	550.1	552.8	558.5
	REINFORCING STEEL EPOXY COATED	LBS.	125,381	126,181	126,377	127,666	123,017	123,761	123,789	124,411
CONCRETE BARRIER OR OPEN RAIL		LIN. FT.	322.0	322.2	322.9	324.5	322.0	322.2	322.9	324.5
WITH OPEN RAIL	*STRUCTURAL CONCRETE (BRIDGE)	C.Y.	555.4	556.4	559.8	567.1	549.0	549.8	552.5	558.2
	REINFORCING STEEL EPOXY COATED	LBS.	125,825	126,625	126,821	128,110	123,461	124,205	124,233	124,855

* INCLUDES 4 WINGS @ 0.68 C.Y. EACH; EXCLUDES RAIL CONCRETE.

BENT BAR DETAILS



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

NOTES:

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

THE TRANSVERSE REBARS ARE DETAILED WITH A SPLICE LAP. AT THE CONTRACTOR'S OPTION, THIS LAP MAY BE ELIMINATED BY FURNISHING FULL LENGTH BARS WITH NO REDUCTION IN PAY WEIGHT FOR SAME.

REVISED 07-09: OPEN RAIL REINF. QTYS. CHANGED WHICH CHANGED TOTAL REINF. QTYS.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

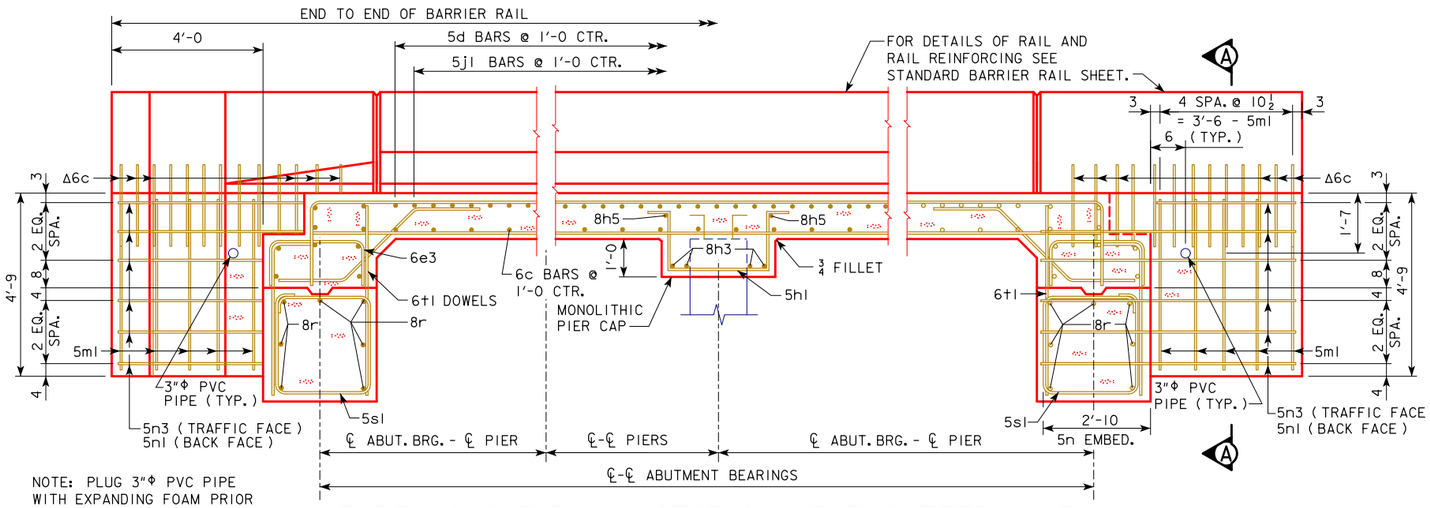
STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

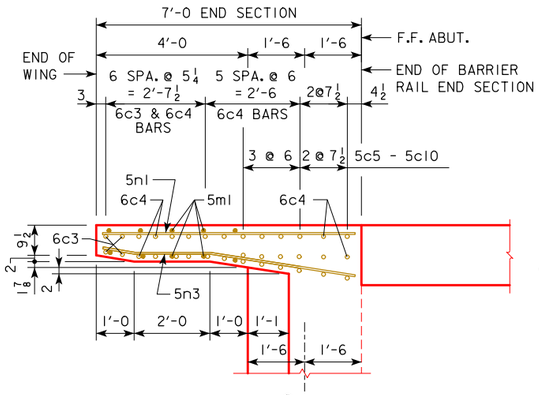
SUPERSTRUCTURE DETAILS
150'-0 BRIDGE

J44-19-06

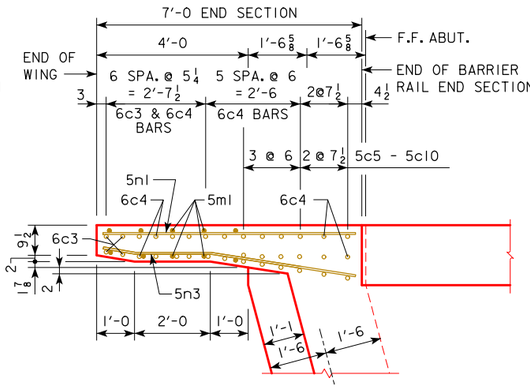


NOTE: PLUG 3"Φ PVC PIPE WITH EXPANDING FOAM PRIOR TO BACKFILLING BEHIND ABUTMENTS.

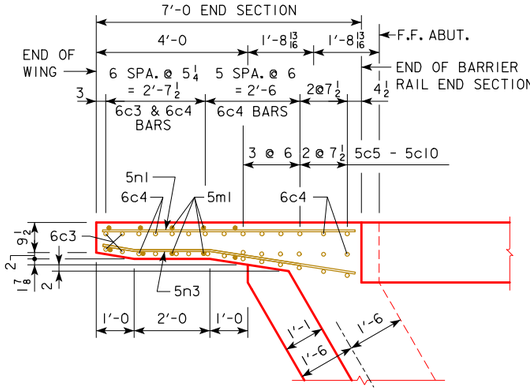
PART LONGITUDINAL SECTION NEAR GUTTER LINE



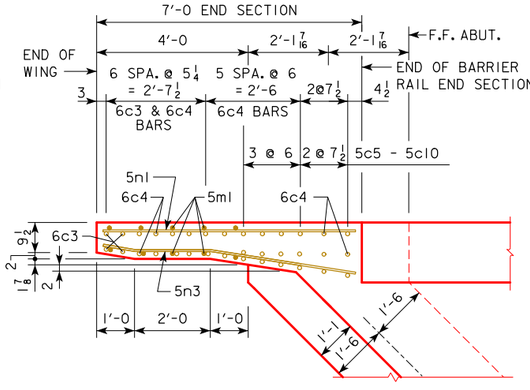
PART PLAN 0° SKEW
(RAILING NOT SHOWN)



PART PLAN 15° SKEW
(RAILING NOT SHOWN)

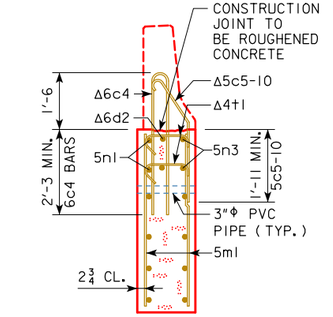


PART PLAN 30° SKEW
(RAILING NOT SHOWN)



PART PLAN 45° SKEW
(RAILING NOT SHOWN)

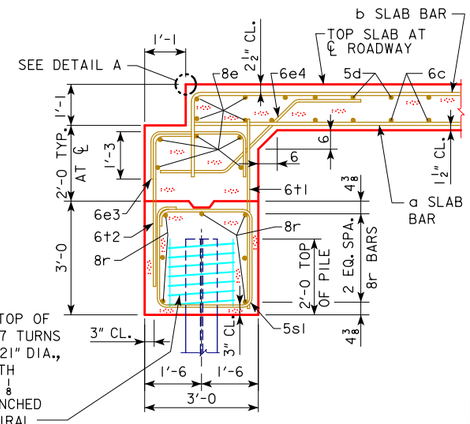
NOTE: REINFORCING LAYOUT IN PART PLANS 0°, 15°, 30° & 45° SKEWS ARE FOR BARRIER RAIL ONLY. SEE SHEET J44-48-06 FOR OPEN RAIL.



SECTION A-A

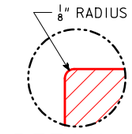
Δ NOTE: SEE END SECTION DETAILS IN THESE PLANS FOR DETAILS OF BARRIER RAIL END SECTION. REINFORCING BARS 6c3, 6c4, 5c5-10, 6d2 & 4t1 ARE INCLUDED IN THE SUPERSTRUCTURE QUANTITIES.

NOTE: 5m1 & 5n1 BARS ARE INCLUDED IN SUPERSTRUCTURE BAR LIST. 5c, 6c, 6d & 4t1 BARS ARE INCLUDED IN BARRIER RAIL BAR LIST.

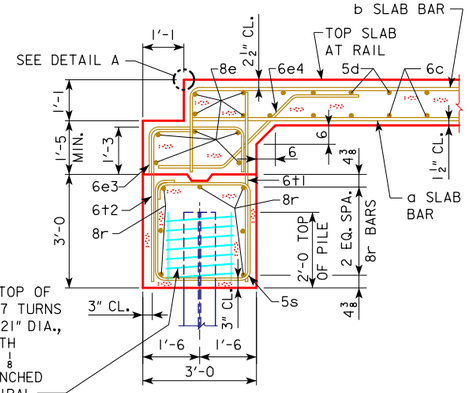


SPIRAL AT TOP OF EACH PILE. 7 TURNS OF #2 BAR, 21" DIA., 3" PITCH, WITH 3 - L⅞ × ⅞ × ⅛ SPACERS PUNCHED TO HOLD SPIRAL

SECTION NORMAL TO ABUTMENT AT ℄
(BRIDGE LENGTHS 70'-110')

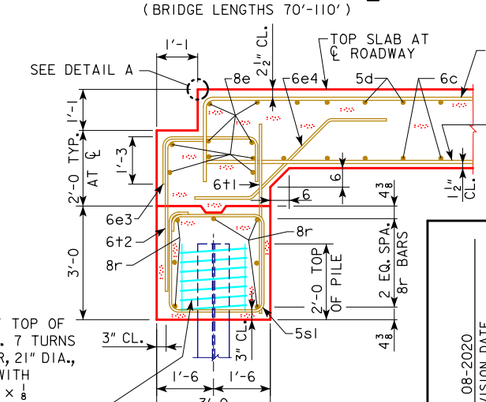


DETAIL A



SPIRAL AT TOP OF EACH PILE. 7 TURNS OF #2 BAR, 21" DIA., 3" PITCH, WITH 3 - L⅞ × ⅞ × ⅛ SPACERS PUNCHED TO HOLD SPIRAL

SECTION NORMAL TO ABUTMENT AT GUTTERLINE



SPIRAL AT TOP OF EACH PILE. 7 TURNS OF #2 BAR, 21" DIA., 3" PITCH, WITH 3 - L⅞ × ⅞ × ⅛ SPACERS PUNCHED TO HOLD SPIRAL

SECTION NORMAL TO ℄ ABUTMENT AT ℄
(BRIDGE LENGTHS 120'-150')

SUPERSTRUCTURE NOTES:

THIS BRIDGE IS DESIGNED FOR HL-93 LOADING PLUS AN ALLOWANCE OF 20 POUNDS PER SQUARE FOOT OF ROADWAY FOR FUTURE WEARING SURFACE.

THE SLAB AS SHOWN INCLUDES A ½ INCH INTEGRAL WEARING SURFACE.

THE MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR SHALL BE 2 INCHES UNLESS OTHERWISE NOTED OR SHOWN. ALL REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE. SEE "BAR CHAIR NOTE".

ALL REINFORCING SHALL BE GRADE 60.

THE CONCRETE SLAB IS TO BE PLACED WITH A MINIMUM OF CONSTRUCTION JOINTS. PROCEDURES FOR PLACING SLAB CONCRETE SHALL BE SUBMITTED FOR APPROVAL TOGETHER WITH A STATEMENT OF THE PROPOSED METHOD AND EVIDENCE THAT THE CONTRACTOR POSSESSES THE NECESSARY EQUIPMENT AND FACILITIES TO ACCOMPLISH THE REQUIRED RESULT. SLAB FALSEWORK SHALL BE REMOVED PRIOR TO CONSTRUCTION OF THE BARRIER RAILS, UNLESS SLAB CONSTRUCTION IS STAGED.

NOTE THAT WHEN PORTLAND CEMENT APPROACH PAVEMENT IS PLACED, COMPRESSIBLE JOINT MATERIAL MUST BE USED BETWEEN PAVEMENT AND END OF BRIDGE.

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 STATE.

COST OF FURNISHING AND PLACING 3"Φ PVC PIPE IN EACH WING IS INCLUDED IN THE PRICE BID FOR STRUCTURAL CONCRETE.

BAR CHAIR NOTE:

TOP MAT OF REINFORCING STEEL IS TO BE SUPPORTED BY INDIVIDUAL BAR CHAIRS SPACED AT NOT MORE THAN 3'-0 CENTERS LONGITUDINALLY AND TRANSVERSELY. THE BOTTOM MAT OF REINFORCING STEEL IS TO BE SUPPORTED BY INDIVIDUAL BAR CHAIRS SPACED AT NOT MORE THAN 3'-0 CENTERS LONGITUDINALLY AND TRANSVERSELY, OR BY CONTINUOUS ROWS OF BAR HIGH CHAIRS OR SLAB BOLSTERS SPACED 4'-0 APART. I.M. 451.01 REQUIREMENTS SHALL APPLY FOR BAR CHAIRS, BAR HIGH CHAIRS, AND SLAB BOLSTERS.

REVISED 06-12: I.M. REQUIREMENT ADDED TO BAR CHAIR NOTE.
REVISED 10-2016: ADDED 4⅜" DIMENSION THAT WAS MISSING IN "SECTION NORMAL TO ABUTMENT AT CENTERLINE".
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE. REVISED SUPERSTRUCTURE NOTES TO STATE; "SLAB FALSEWORK SHALL BE REMOVED PRIOR TO CONSTRUCTION OF THE BARRIER RAILS, UNLESS SLAB CONSTRUCTION IS STAGED."

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

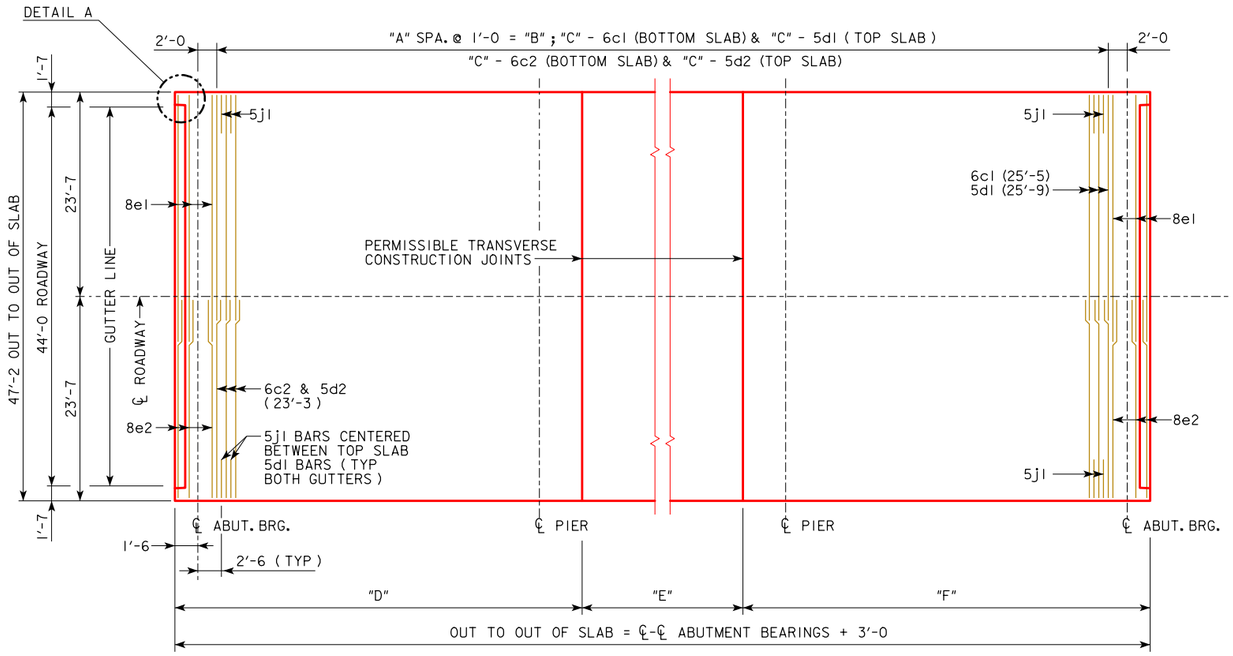
STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

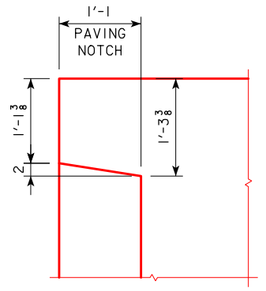
NOVEMBER, 2006

SUPERSTRUCTURE DETAILS ALL BRIDGES

J44-20-06



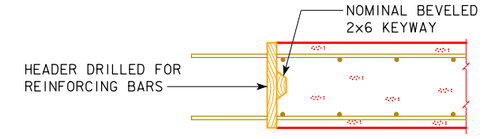
0° SKEW
TRANSVERSE REINFORCING STEEL LAYOUT



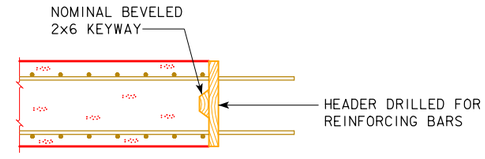
DETAIL A

0° TRANSV. REINF. DIMENSION TABLE

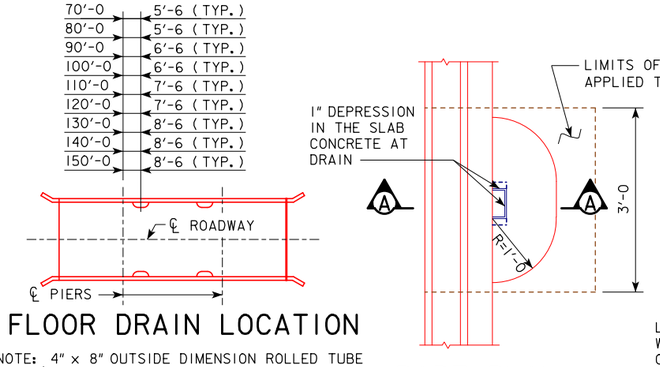
BRIDGE	"A"	"B"	"C"	"D"	"E"	"F"
70' BRIDGE	66	66'-0	67	28'-0	17'-0	28'-0
80' BRIDGE	76	76'-0	77	32'-0	19'-0	32'-0
90' BRIDGE	86	86'-0	87	36'-0	21'-0	36'-0
100' BRIDGE	96	96'-0	97	40'-0	23'-0	40'-0
110' BRIDGE	106	106'-0	107	44'-0	25'-0	44'-0
120' BRIDGE	116	116'-0	117	48'-0	27'-0	48'-0
130' BRIDGE	126	126'-0	127	52'-0	29'-0	52'-0
140' BRIDGE	136	136'-0	137	56'-0	31'-0	56'-0
150' BRIDGE	146	146'-0	147	60'-0	33'-0	60'-0



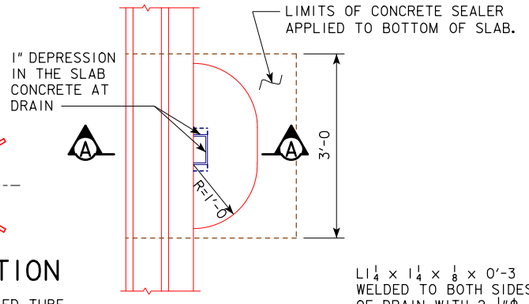
TRANSVERSE CONSTR. JOINT



LONGITUDINAL CONSTR. JOINT



FLOOR DRAIN LOCATION



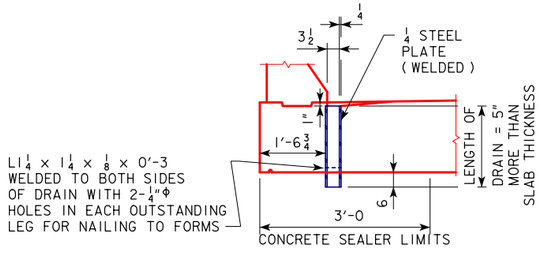
PART PLAN

NOTE: 4" x 8" OUTSIDE DIMENSION ROLLED TUBE WITH 1/4" WALL THICKNESS MAY BE SUBSTITUTED FOR THE WELDED DRAIN SHOWN.

FLOOR DRAIN DETAILS

(USE FOR BARRIER RAIL ONLY, NOT REQUIRED FOR OPEN RAIL)

NOTE: DRAINS ARE TO BE GALVANIZED. INCLUDE COST OF DRAINS IN PRICE BID FOR "STRUCTURAL CONCRETE". 4 DRAINS REQUIRED.



SECTION A-A

WEIGHT OF ONE FLOOR DRAIN			
SPAN	WEIGHT, LBS.	SPAN	WEIGHT, LBS.
70'-0	32	120'-0	41
80'-0	33	130'-0	43
90'-0	35	140'-0	45
100'-0	37	150'-0	48
110'-0	39		

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

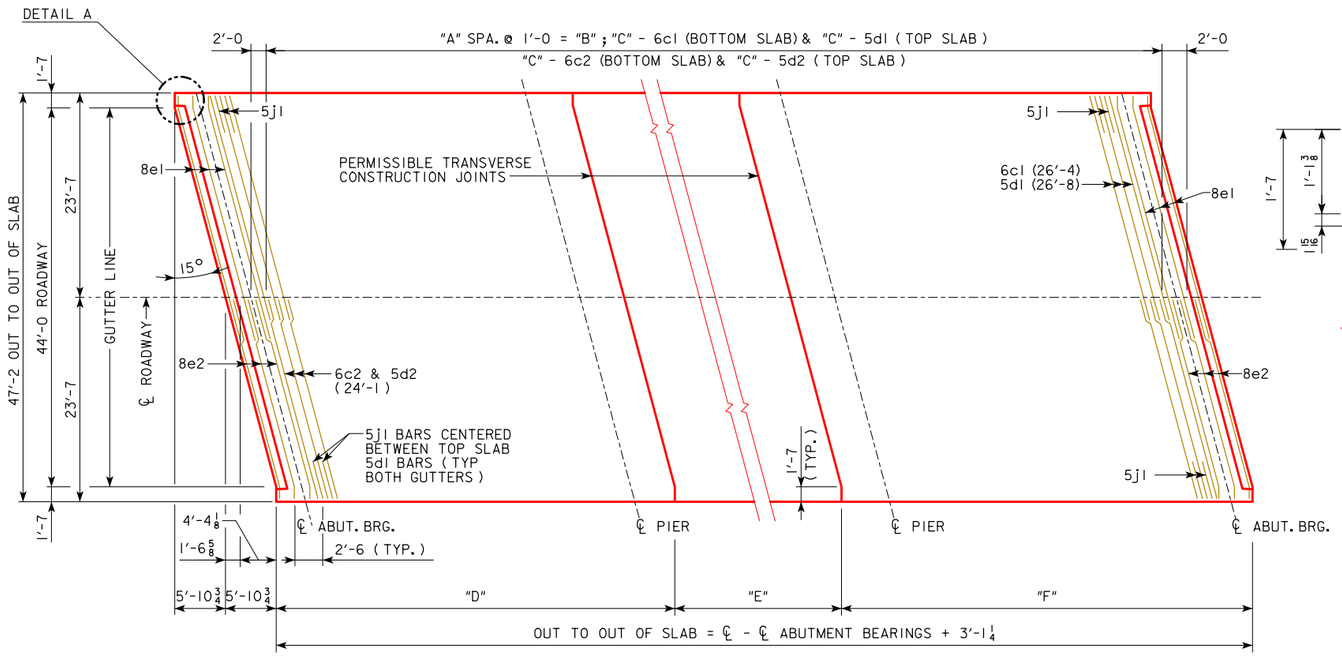
NOVEMBER, 2006

SUPERSTRUCTURE DETAILS ALL BRIDGES

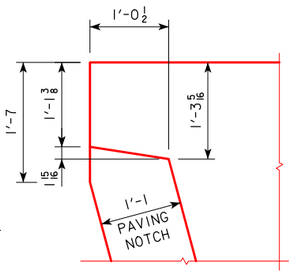
0° SKEW

J44-21-06

REVISED 07-09: CHANGED THE DRAIN ANGLES DETAILS ON SECTION A-A.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE. CORRECTED BAR LENGTH ON 6c2 & 5d2 BAR (WAS 21'-3).

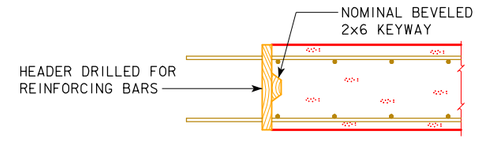


15° SKEW
TRANSVERSE REINFORCING STEEL LAYOUT

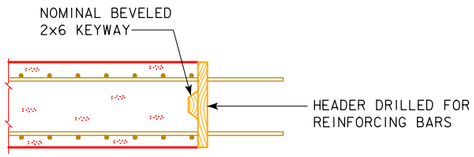


DETAIL A

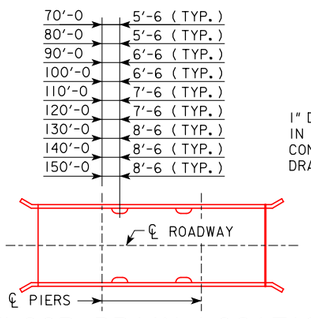
15° TRANSV. REINF. DIMENSION TABLE						
BRIDGE	"A"	"B"	"C"	"D"	"E"	"F"
70' BRIDGE	66	66'-0	67	28'-0⅝	17'-0	28'-0⅝
80' BRIDGE	76	76'-0	77	32'-0⅝	19'-0	32'-0⅝
90' BRIDGE	86	86'-0	87	36'-0⅝	21'-0	36'-0⅝
100' BRIDGE	96	96'-0	97	40'-0⅝	23'-0	40'-0⅝
110' BRIDGE	106	106'-0	107	44'-0⅝	25'-0	44'-0⅝
120' BRIDGE	116	116'-0	117	48'-0⅝	27'-0	48'-0⅝
130' BRIDGE	126	126'-0	127	52'-0⅝	29'-0	52'-0⅝
140' BRIDGE	136	136'-0	137	56'-0⅝	31'-0	56'-0⅝
150' BRIDGE	146	146'-0	147	60'-0⅝	33'-0	60'-0⅝



TRANSVERSE CONSTR. JOINT

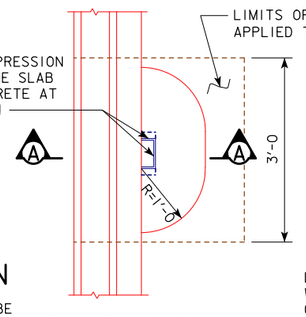


LONGITUDINAL CONSTR. JOINT

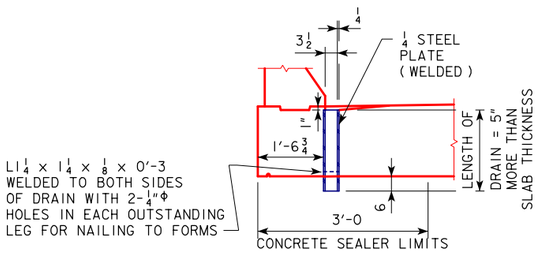


FLOOR DRAIN LOCATION

NOTE: 4" x 8" OUTSIDE DIMENSION ROLLED TUBE WITH ¼" WALL THICKNESS MAY BE SUBSTITUTED FOR THE WELDED DRAIN SHOWN.



PART PLAN



SECTION A-A

FLOOR DRAIN DETAILS

(USE FOR BARRIER RAIL ONLY, NOT REQUIRED FOR OPEN RAIL)

NOTE: DRAINS ARE TO BE GALVANIZED. INCLUDE COST OF DRAINS IN PRICE BID FOR "STRUCTURAL CONCRETE". 4 DRAINS REQUIRED.

WEIGHT OF ONE FLOOR DRAIN			
SPAN	WEIGHT, LBS.	SPAN	WEIGHT, LBS.
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80'-0	33	130'-0	43
90'-0	35	140'-0	45
100'-0	37	150'-0	48
110'-0	39		

REVISED 07-09: CHANGED THE DRAIN ANGLES DETAILS ON SECTION A-A.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

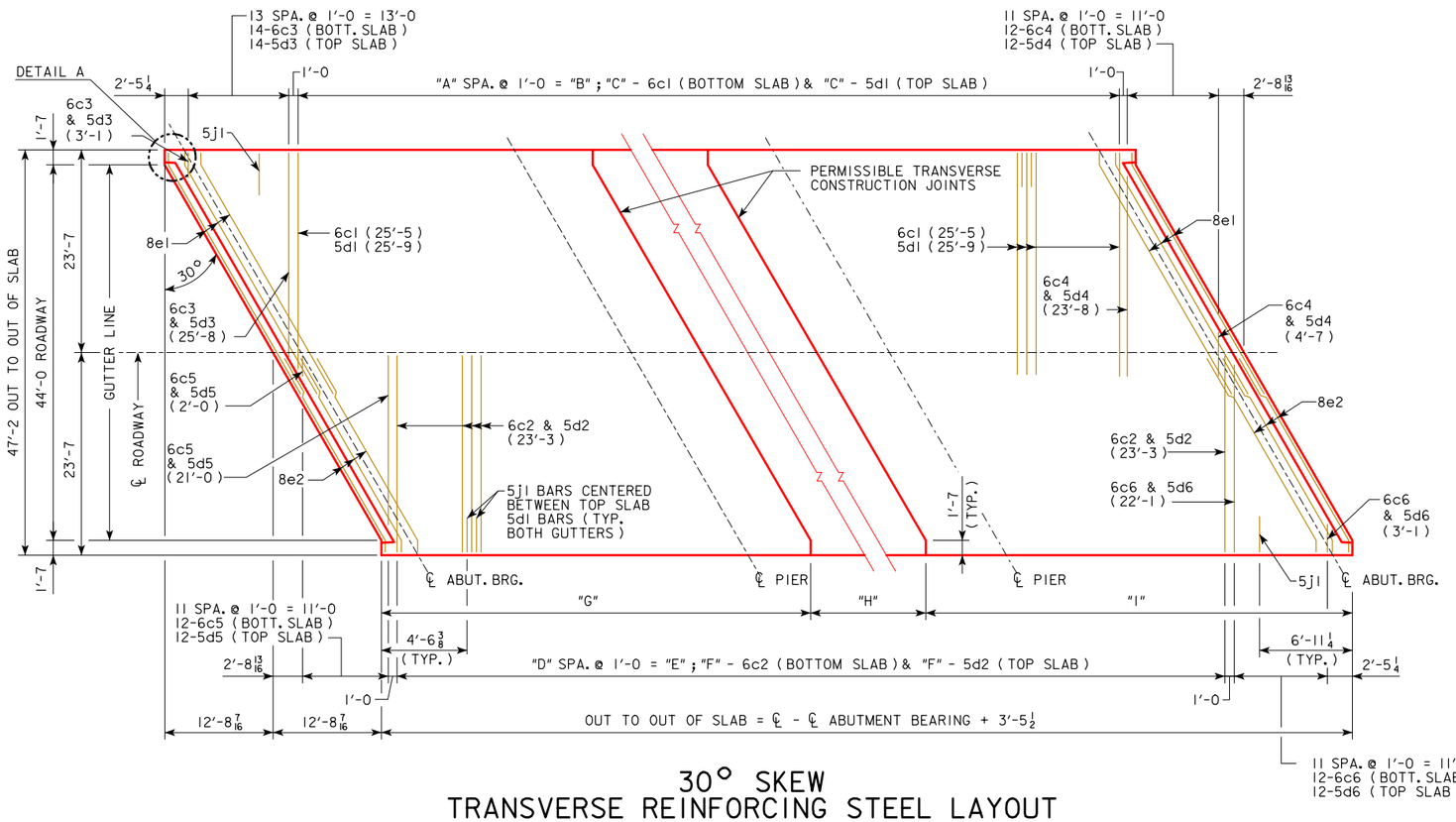
STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

SUPERSTRUCTURE DETAILS
ALL BRIDGES
15° SKEW

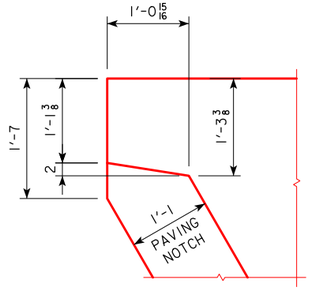
J44-22-06



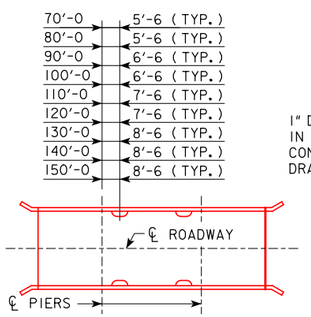
30° SKEW
TRANSVERSE REINFORCING STEEL LAYOUT

NOTE:
5d BARS ARE TO PASS UNDER
8e BARS IN CONFLICT AREAS.

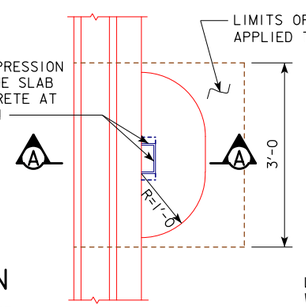
30° TRANSV. REINFORCING DIMENSION TABLE									
BRIDGE	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"I"
70' BRIDGE	55	55'-0	56	57	57'-0	58	27'-5 1/2	17'-0	29'-0
80' BRIDGE	65	65'-0	66	67	67'-0	68	31'-5 1/2	19'-0	33'-0
90' BRIDGE	75	75'-0	76	77	77'-0	78	35'-5 1/2	21'-0	37'-0
100' BRIDGE	85	85'-0	86	87	87'-0	88	39'-5 1/2	23'-0	41'-0
110' BRIDGE	95	95'-0	96	97	97'-0	98	43'-5 1/2	25'-0	45'-0
120' BRIDGE	105	105'-0	106	107	107'-0	108	47'-5 1/2	27'-0	49'-0
130' BRIDGE	115	115'-0	116	117	117'-0	118	51'-5 1/2	29'-0	53'-0
140' BRIDGE	125	125'-0	126	127	127'-0	128	55'-5 1/2	31'-0	57'-0
150' BRIDGE	135	135'-0	136	137	137'-0	138	59'-5 1/2	33'-0	61'-0



DETAIL A



FLOOR DRAIN LOCATION



PART PLAN

NOTE: 4" x 8" OUTSIDE DIMENSION ROLLED TUBE WITH 1/4" WALL THICKNESS MAY BE SUBSTITUTED FOR THE WELDED DRAIN SHOWN.

FLOOR DRAIN DETAILS

(USE FOR BARRIER RAIL ONLY, NOT REQUIRED FOR OPEN RAIL)

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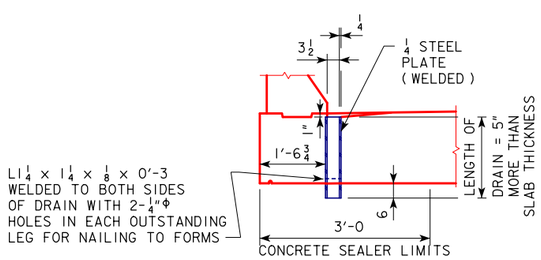
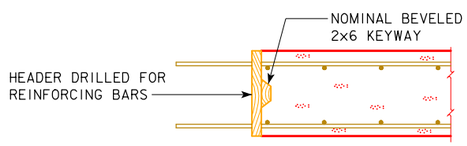
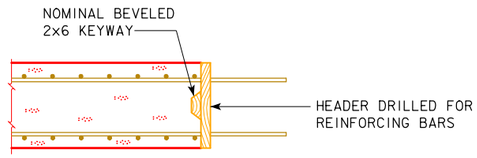


L1 1/4 x 1 1/4 x 1/8 x 0'-3 WELDED TO BOTH SIDES OF DRAIN WITH 2-1/4"Φ HOLES IN EACH OUTSTANDING LEG FOR NAILING TO FORMS

SECTION A-A



TRANSVERSE CONSTR. JOINT



LONGITUDINAL CONSTR. JOINT

WEIGHT OF ONE FLOOR DRAIN			
SPAN	WEIGHT, LBS.	SPAN	WEIGHT, LBS.
70'-0	32	120'-0	41
80'-0	33	130'-0	43
90'-0	35	140'-0	45
100'-0	37	150'-0	48
110'-0	39		

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

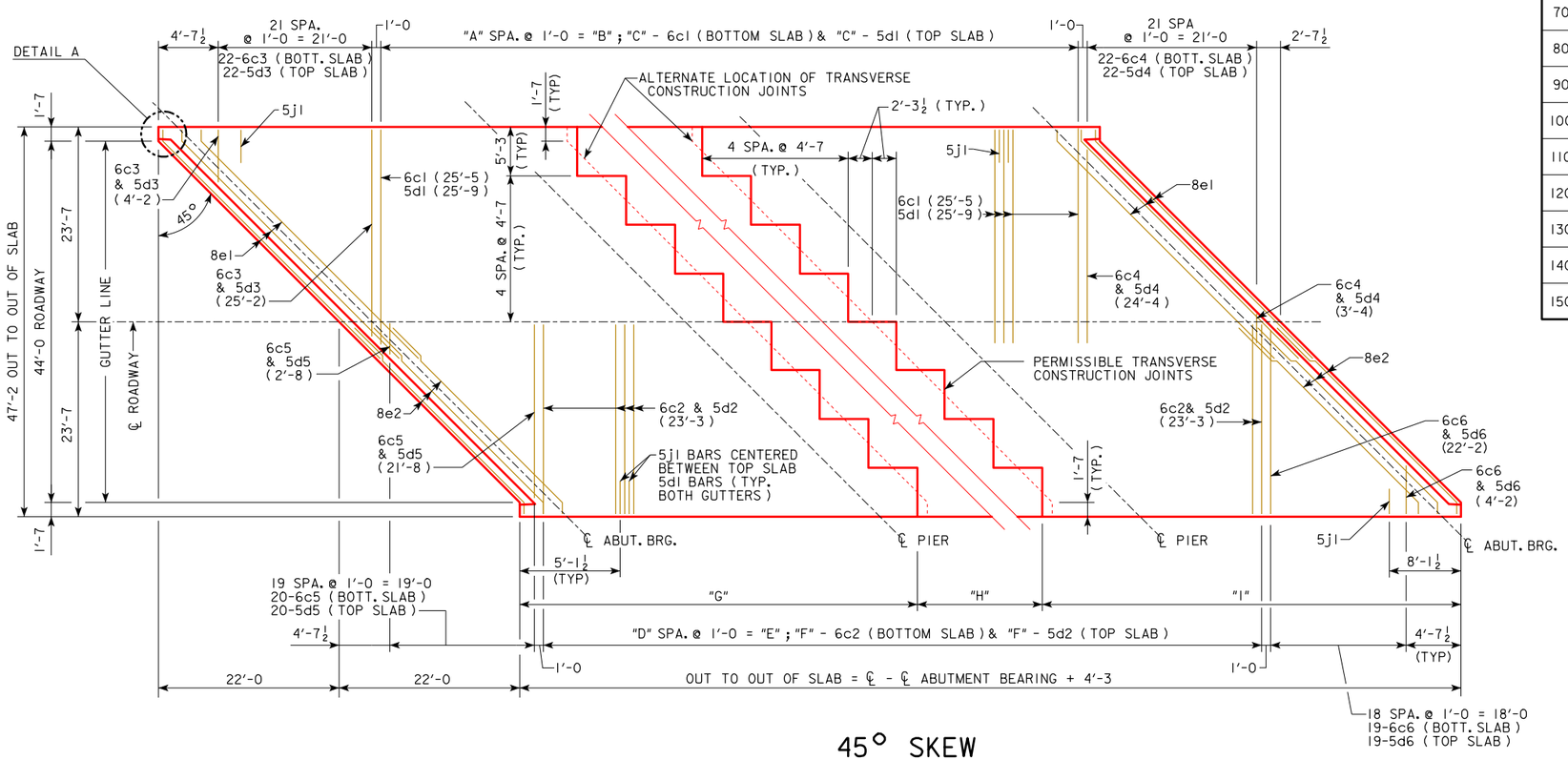
NOVEMBER, 2006

SUPERSTRUCTURE DETAILS ALL BRIDGES

30° SKEW

J44-23-06

REVISED 07-09: CHANGED THE DRAIN ANGLES DETAILS ON SECTION A-A.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

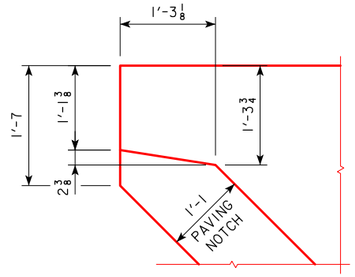


45° SKEW
TRANSVERSE REINFORCING STEEL LAYOUT

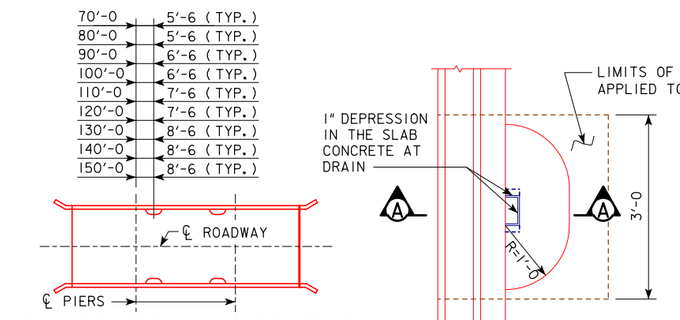
NOTE: 5d BARS ARE TO PASS UNDER 8e BARS IN CONFLICT AREAS.

45° TRANSV. REINFORCING DIMENSION TABLE

BRIDGE	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"I"
70' BRIDGE	45	45'-0	46	48	48'-0	49	27'-3	17'-0	30'-0
80' BRIDGE	55	55'-0	56	58	58'-0	59	31'-3	19'-0	34'-0
90' BRIDGE	65	65'-0	66	68	68'-0	69	35'-3	21'-0	38'-0
100' BRIDGE	75	75'-0	76	78	78'-0	79	39'-3	23'-0	42'-0
110' BRIDGE	85	85'-0	86	88	88'-0	89	43'-3	25'-0	46'-0
120' BRIDGE	95	95'-0	96	98	98'-0	99	47'-3	27'-0	50'-0
130' BRIDGE	105	105'-0	106	108	108'-0	109	51'-3	29'-0	54'-0
140' BRIDGE	115	115'-0	116	118	118'-0	119	55'-3	31'-0	58'-0
150' BRIDGE	125	125'-0	126	128	128'-0	129	59'-3	33'-0	62'-0

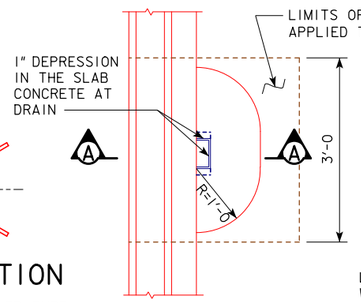


DETAIL A



FLOOR DRAIN LOCATION

NOTE: 4" x 8" OUTSIDE DIMENSION ROLLED TUBE WITH ¼" WALL THICKNESS MAY BE SUBSTITUTED FOR THE WELDED DRAIN SHOWN.

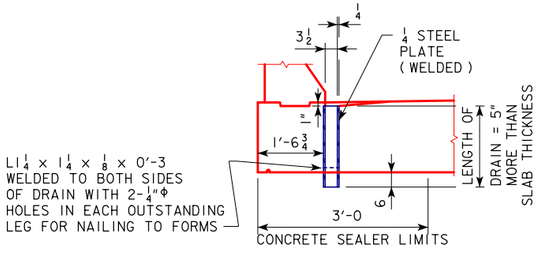


PART PLAN

FLOOR DRAIN DETAILS

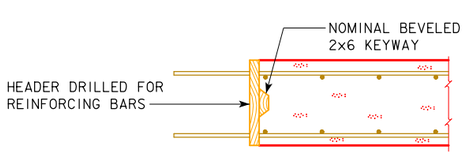
(USE FOR BARRIER RAIL ONLY, NOT REQUIRED FOR OPEN RAIL)

NOTE: DRAINS ARE TO BE GALVANIZED. INCLUDE COST OF DRAINS IN PRICE BID FOR "STRUCTURAL CONCRETE". 4 DRAINS REQUIRED.

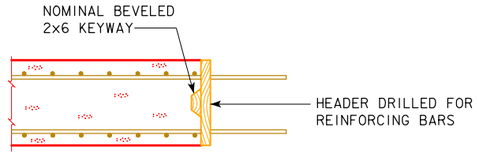


SECTION A-A

WEIGHT OF ONE FLOOR DRAIN			
SPAN	WEIGHT, LBS.	SPAN	WEIGHT, LBS.
70'-0	32	120'-0	41
80'-0	33	130'-0	43
90'-0	35	140'-0	45
100'-0	37	150'-0	48
110'-0	39		



TRANSVERSE CONSTR. JOINT



LONGITUDINAL CONSTR. JOINT

REVISED 07-09: CHANGED THE DRAIN ANGLES DETAILS ON SECTION A-A.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

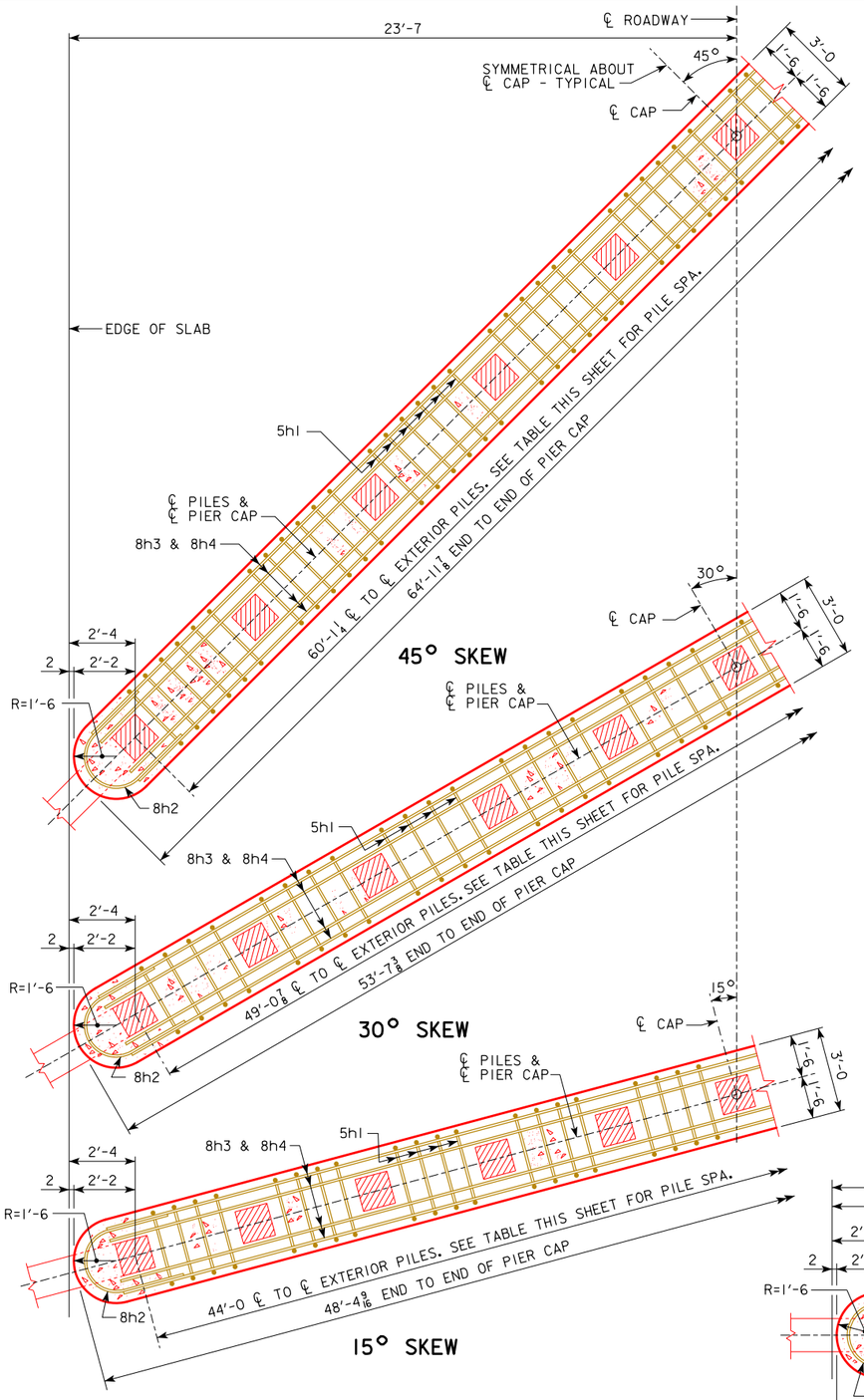
CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

SUPERSTRUCTURE DETAILS ALL BRIDGES

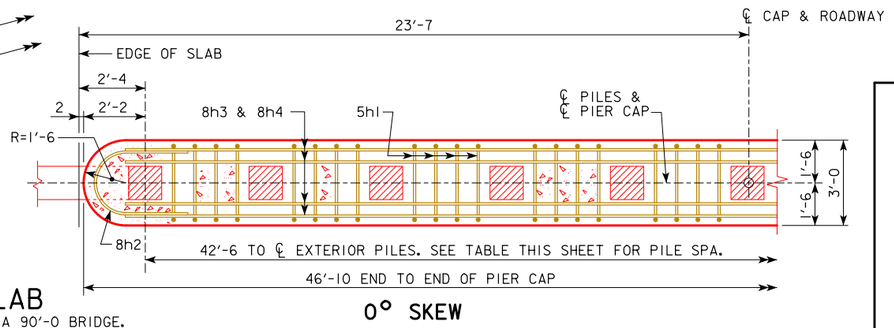
45° SKEW

J44-24-06



HALF SECTION BELOW SLAB

NOTE: NUMBER OF PILES AND STIRRUPS SHOWN ARE FOR A 90'-0 BRIDGE. CAP DIMENSIONS ARE TYPICAL FOR ALL BRIDGES.



TYPICAL NUMBERS OF PILES AND SPACINGS AND FACTORED PIER LOADS

BRIDGE LENGTH	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
① TYP. NO. OF PILES	10	10	11	12	13	14	16	17	18
TYP. PILE SPACES @ 0°	9 SPA. @ ABOUT 4'-9	9 SPA. @ ABOUT 4'-9	10 SPA. @ 4'-3	11 SPA. @ ABOUT 3'-10	12 SPA. @ ABOUT 3'-6	② 13 SPA. @ ABOUT 3'-3	③ 15 SPA. @ 2'-10	③ 16 SPA. @ ABOUT 2'-8	③ 17 SPA. @ 2'-6
TYP. PILE SPACES @ 15°	9 SPA. @ ABOUT 4'-11	9 SPA. @ ABOUT 4'-11	10 SPA. @ ABOUT 4'-5	11 SPA. @ 4'-0	12 SPA. @ 3'-8	13 SPA. @ ABOUT 3'-5	② 15 SPA. @ ABOUT 2'-11	③ 16 SPA. @ 2'-9	③ 17 SPA. @ ABOUT 2'-7
TYP. PILE SPACES @ 30°	9 SPA. @ ABOUT 5'-5	9 SPA. @ ABOUT 5'-5	10 SPA. @ ABOUT 4'-11	11 SPA. @ ABOUT 4'-6	12 SPA. @ ABOUT 4'-1	13 SPA. @ ABOUT 3'-9	② 15 SPA. @ ABOUT 3'-3	② 16 SPA. @ ABOUT 3'-1	② 17 SPA. @ ABOUT 2'-11
TYP. PILE SPACES @ 45°	9 SPA. @ ABOUT 6'-8	9 SPA. @ ABOUT 6'-8	10 SPA. @ ABOUT 6'-0	11 SPA. @ ABOUT 5'-6	12 SPA. @ ABOUT 5'-0	13 SPA. @ ABOUT 4'-7	15 SPA. @ ABOUT 4'-0	16 SPA. @ ABOUT 3'-9	17 SPA. @ ABOUT 3'-6
④ PU, STRENGTH I DESIGN LOAD FOR PIER (KIPS)	848 KIPS	942 KIPS	1049 KIPS	1166 KIPS	1280 KIPS	1415 KIPS	1549 KIPS	1689 KIPS	1846 KIPS

① THIS TYPICAL NUMBER OF PILES MAY NEED TO BE MODIFIED DEPENDING ON SELECTED PIOL PILE TYPE AND SIZE, HEIGHT, AND RESISTANCE. IF THE NUMBER OF PILES IS DIFFERENT THAN IN THE TABLE FOR THE BRIDGE LENGTH, THE NUMBER OF 5h1 BARS AND OTHER QUANTITIES NEED TO BE CHECKED AND ADJUSTED AS NEEDED. PILES 10 INCHES AND 12 INCHES IN SIZE MUST BE SPACED 2'-6 OR MORE, PILES 14 INCHES IN SIZE MUST BE SPACED 2'-11 OR MORE, AND PILES 16 INCHES IN SIZE MUST BE SPACED 3'-4 OR MORE.

② MAXIMUM PIOL PILE SIZE AT THIS SPACING IS 14 INCHES.

③ MAXIMUM PIOL PILE SIZE AT THIS SPACING IS 12 INCHES.

④ STRENGTH I PIER DESIGN LOAD INCLUDES DYNAMIC LOAD ALLOWANCE (IM), AND PIER CAP WEIGHT IS BASED ON 45° SKEW. USE THIS PU FOR DETERMINING NUMBER OF PILES AND PILE LENGTH.

PIER NOTES:

ALL MONOLITHIC PIER CAP REINFORCING AND CONCRETE IS INCLUDED IN SUPERSTRUCTURE ESTIMATE OF QUANTITIES.

THE MINIMUM CLEAR DISTANCE FROM THE FACE OF THE CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

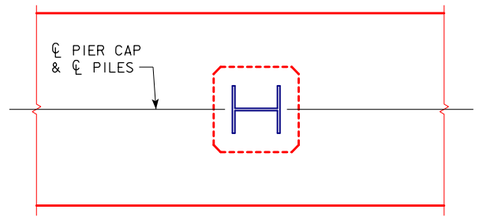
THE PIER PILES ARE TO BE DRIVEN TO FULL PENETRATION, IF PRACTICABLE, BUT IN NO CASE TO A BEARING VALUE LESS THAN THE PILE BEARING REQUIRED FOR EACH BRIDGE LENGTH AS SHOWN ON THIS SHEET. ADDITIONAL DRIVING CAPACITY MAY BE REQUIRED THROUGH SCOURABLE LAYERS. REFER TO GENERAL PLAN NOTES FOR ADDITIONAL INFORMATION.

CAP STEEL AS DETAILED ON PIOL STANDARD PILE DRAWING IS REQUIRED FOR MONOLITHIC PIER CAPS.

THE CONCRETE QUANTITIES ARE BASED ON THE USE OF TYPE 3 PILING. IF TYPE 1 OR TYPE 2 IS USED, THE CONCRETE QUANTITIES MAY BE ADJUSTED TO ACCOUNT FOR THE CONCRETE DISPLACED BY THE PILING.

ALL REINFORCING STEEL IS TO BE GRADE 60.

PIER PILING WAS DESIGNED FOR HL-93 LOADING WITH AN ALLOWANCE FOR 20 PSF FUTURE WEARING SURFACE.



PILE ORIENTATION DETAIL FOR TYPE 3 TRESTLE BENT PILES

CORRECTION 05-14: CHANGED THE BAR LABEL FROM 5d1 TO 5h1 IN ENCIRCLED NOTE 1.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

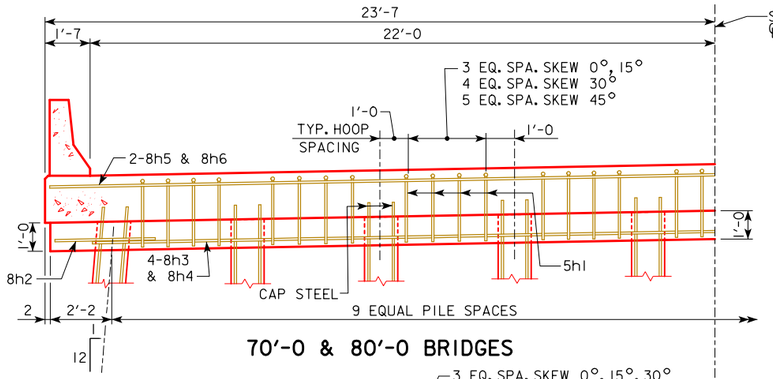
STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

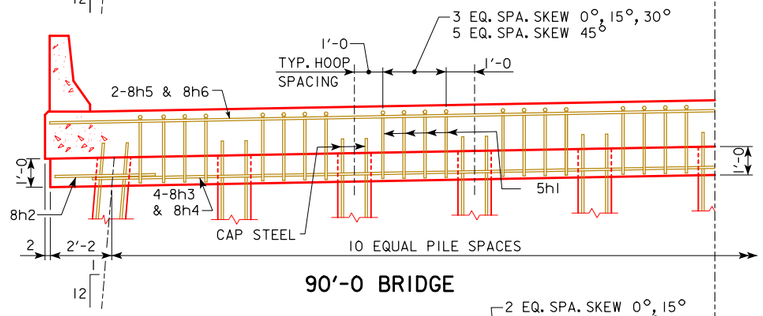
NOVEMBER, 2006

MONOLITHIC PIER CAP DETAILS ALL BRIDGES

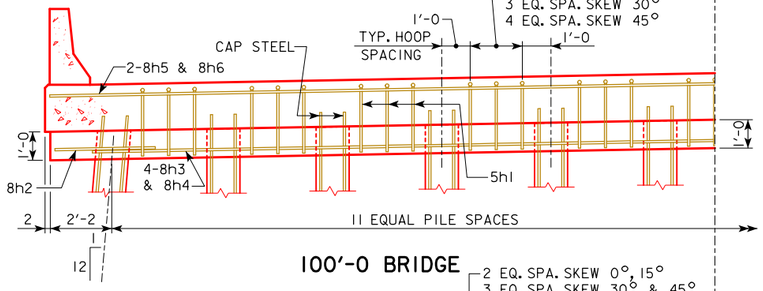
J44-25-06



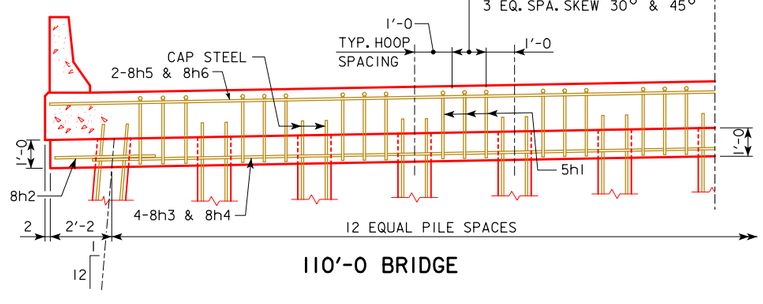
70'-0 & 80'-0 BRIDGES



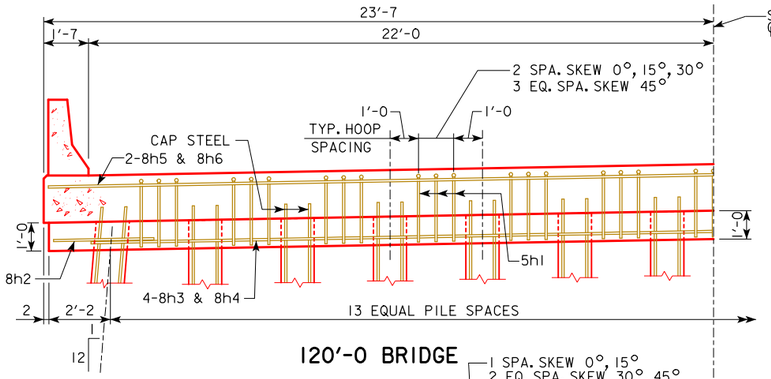
90'-0 BRIDGE



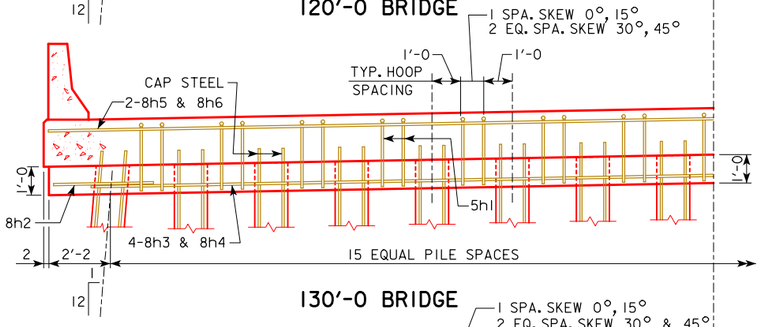
100'-0 BRIDGE



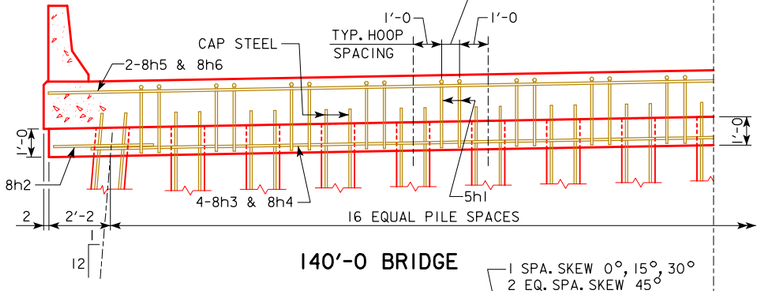
110'-0 BRIDGE



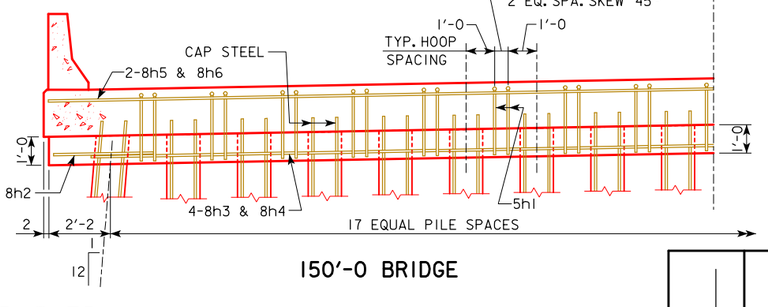
120'-0 BRIDGE



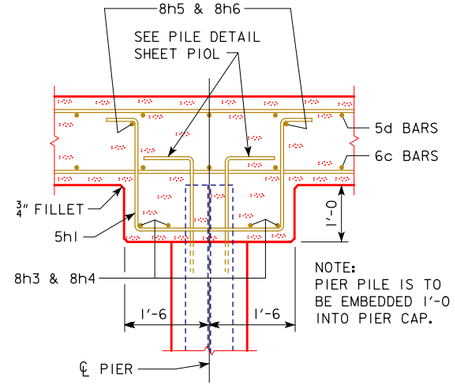
130'-0 BRIDGE



140'-0 BRIDGE



150'-0 BRIDGE



TYPICAL CAP SECTION

HALF SECTION NEAR PIER

SHOWING STIRRUP SPACING AND NUMBER OF PILING

NOTE: BOTTOM OF CAP ELEVATIONS WILL BE REQUIRED AT THE ℄ OF ROADWAY AND AT EACH EXTERIOR PILE.

REVISED 11-08: REVISED PILES REQUIRED FOR 130'-0 BRIDGE.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

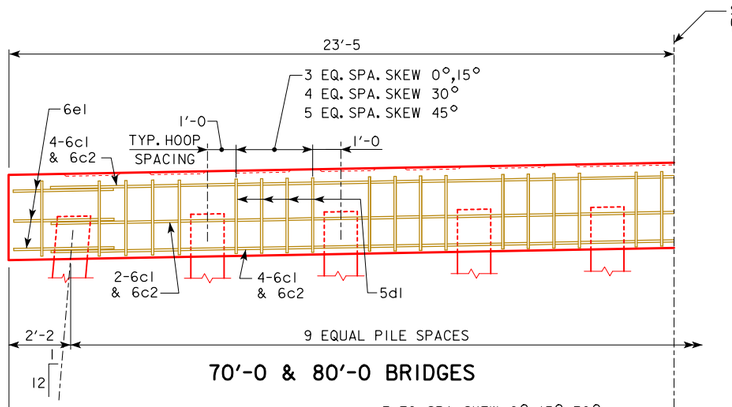
STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

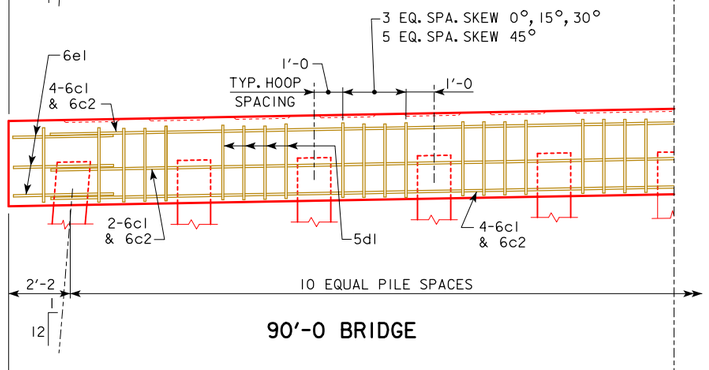
NOVEMBER, 2006

MONOLITHIC PIER CAP DETAILS ALL BRIDGES

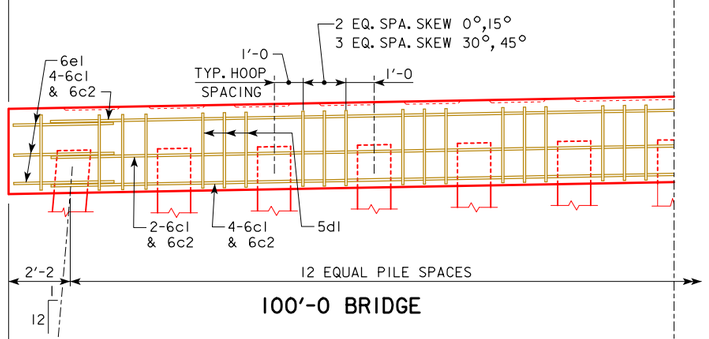
J44-26-06



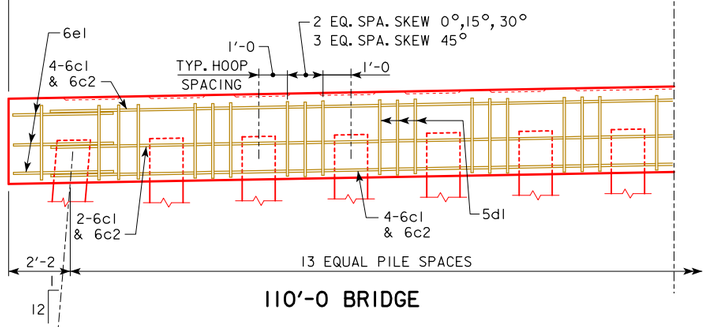
70'-0 & 80'-0 BRIDGES



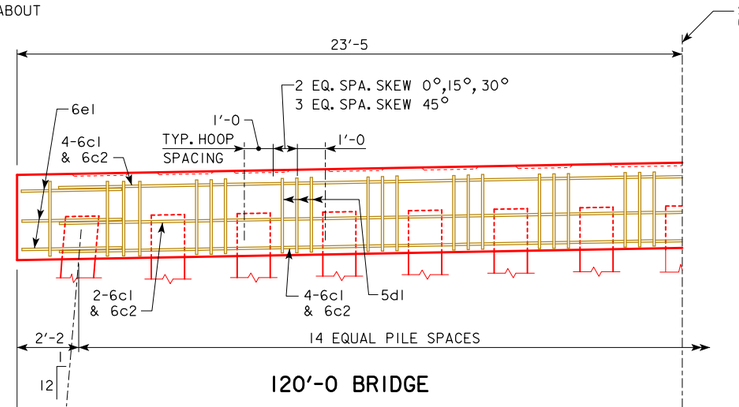
90'-0 BRIDGE



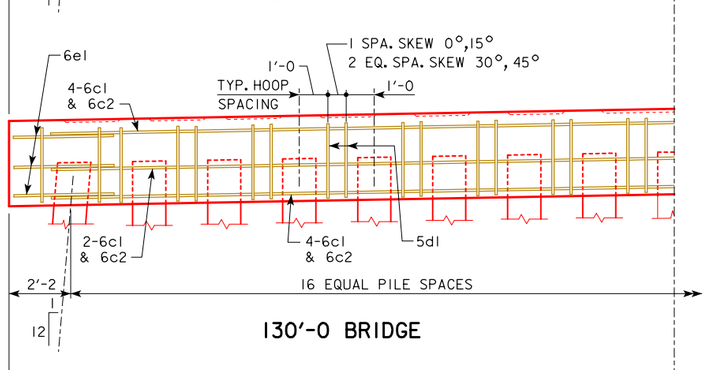
100'-0 BRIDGE



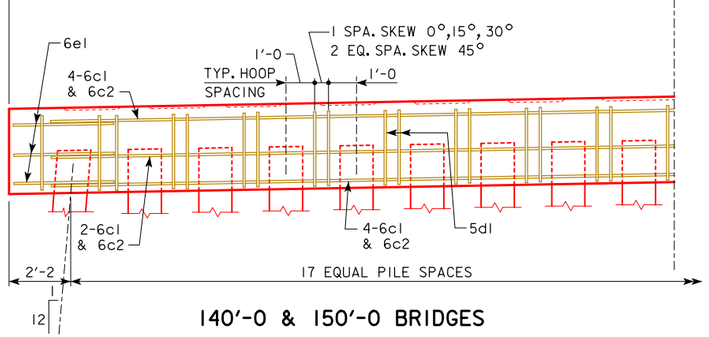
110'-0 BRIDGE



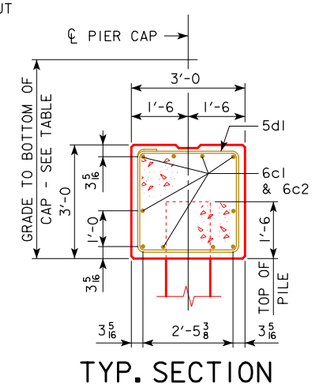
120'-0 BRIDGE



130'-0 BRIDGE

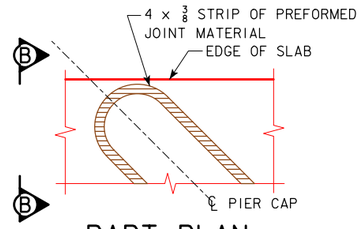


140'-0 & 150'-0 BRIDGES



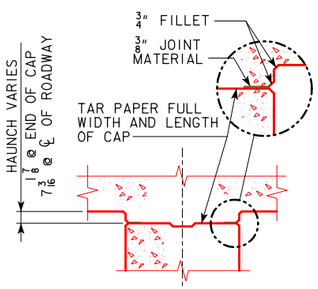
TYP. SECTION

GRADE TO BOTTOM OF CAP DIMENSION	
70'-0 BRIDGE	4'-9 11/16
80'-0 BRIDGE	4'-10 7/16
90'-0 BRIDGE	4'-11 7/16
100'-0 BRIDGE	5'-0 11/16
110'-0 BRIDGE	5'-1 11/16
120'-0 BRIDGE	5'-3 3/16
130'-0 BRIDGE	5'-4 7/16
140'-0 BRIDGE	5'-5 11/16
150'-0 BRIDGE	5'-7 3/16

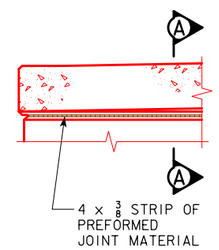


PART PLAN

SHOWING TREATMENT OF 4 x 3/8 STRIP OF PREFORMED JOINT MATERIAL AT ENDS OF PIER CAP. NOTE THAT JOINT MATERIAL IS TO GO ALL THE WAY AROUND PIER CAP FOR SQUARE AND SKEWED BRIDGES.



PART SECT A-A



PART SECT B-B

TYP. HALF ELEVATION PIER CAP
(LOOKING PARALLEL TO ℄ ROADWAY)

REVISED 11-08: REVISED PILES REQUIRED FOR 130'-0 AND 140'-0 BRIDGES. ADDED EXTRA 5d1 TO END OF CAP.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

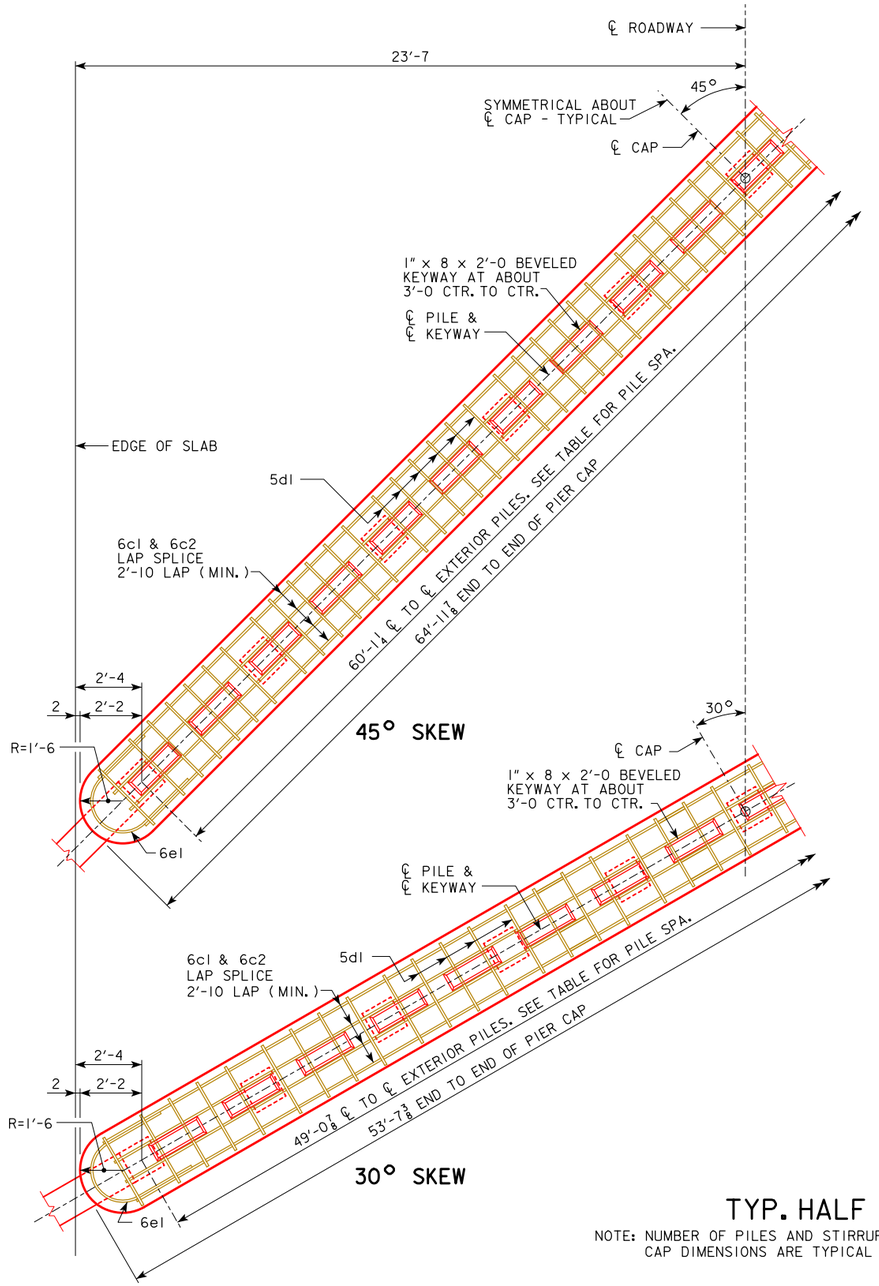
STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

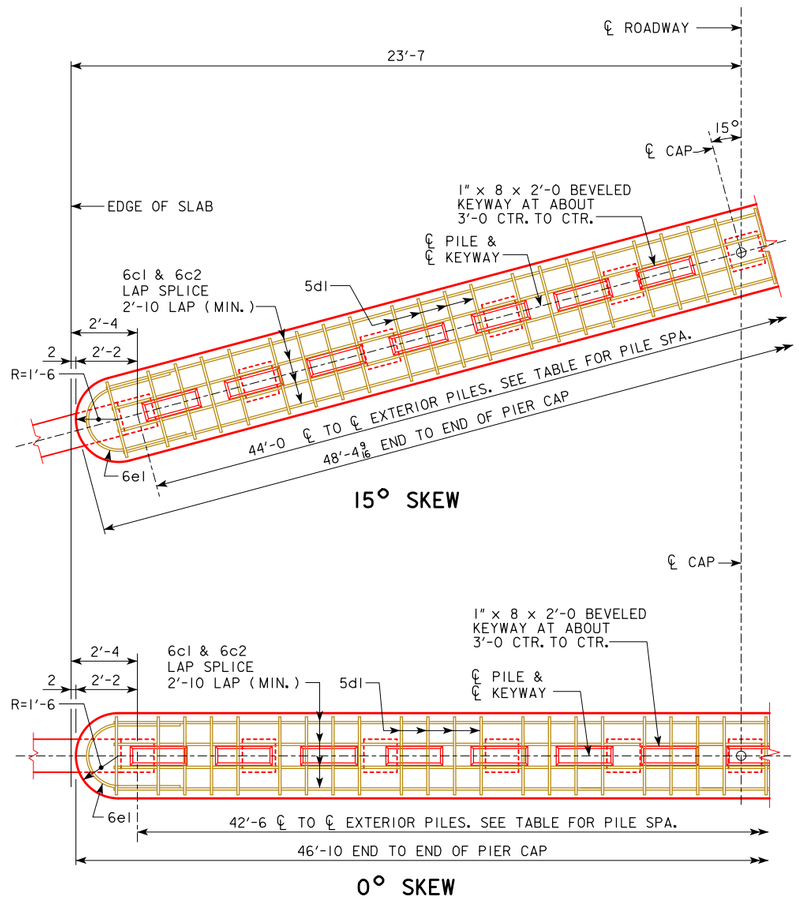
CONTINUOUS CONCRETE SLAB BRIDGES

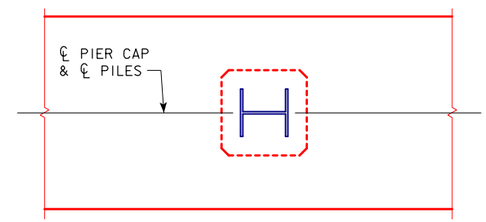
NOVEMBER, 2006

NON-MONOLITHIC PIER CAP DETAILS ALL BRIDGES

J44-27-06







PILE ORIENTATION DETAIL FOR TYPE 3 TRESTLE BENT PILES

TYP. HALF PLAN VIEW

NOTE: NUMBER OF PILES AND STIRRUPS SHOWN ARE FOR A 90'-0 BRIDGE.
CAP DIMENSIONS ARE TYPICAL FOR ALL BRIDGES.

REVISED 11-08: ADD TYPE 3 PILE ORIENTATION DETAIL. ADDED EXTRA 5d1 TO END OF CAP.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

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IOWADOT Highway Division

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CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

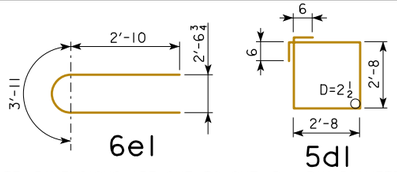
NON-MONOLITHIC PIER CAP DETAILS ALL BRIDGES

J44-28-06

BILL OF EPOXY REINFORCING STEEL - ONE PIER

BRIDGE LENGTH			70'-0 BRIDGE			80'-0 BRIDGE			90'-0 BRIDGE			100'-0 BRIDGE			110'-0 BRIDGE			120'-0 BRIDGE			130'-0 BRIDGE			140'-0 BRIDGE			150'-0 BRIDGE		
MARK	SKEW	SHAPE	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT
6c1	0°		10	25'-0	376	10	25'-0	376	10	25'-0	376	10	25'-0	376	10	25'-0	376	10	25'-0	376	10	25'-0	376	10	25'-0	376	10	25'-0	376
	15°		10	25'-9	387	10	25'-9	387	10	25'-9	387	10	25'-9	387	10	25'-9	387	10	25'-9	387	10	25'-9	387	10	25'-9	387	10	25'-9	387
	30°		10	28'-4	426	10	28'-4	426	10	28'-4	426	10	28'-4	426	10	28'-4	426	10	28'-4	426	10	28'-4	426	10	28'-4	426	10	28'-4	426
	45°		10	34'-0	511	10	34'-0	511	10	34'-0	511	10	34'-0	511	10	34'-0	511	10	34'-0	511	10	34'-0	511	10	34'-0	511	10	34'-0	511
6c2	0°		10	21'-11	330	10	21'-11	330	10	21'-11	330	10	21'-11	330	10	21'-11	330	10	21'-11	330	10	21'-11	330	10	21'-11	330	10	21'-11	330
	15°		10	22'-8	341	10	22'-8	341	10	22'-8	341	10	22'-8	341	10	22'-8	341	10	22'-8	341	10	22'-8	341	10	22'-8	341	10	22'-8	341
	30°		10	25'-4	381	10	25'-4	381	10	25'-4	381	10	25'-4	381	10	25'-4	381	10	25'-4	381	10	25'-4	381	10	25'-4	381	10	25'-4	381
	45°		10	31'-0	466	10	31'-0	466	10	31'-0	466	10	31'-0	466	10	31'-0	466	10	31'-0	466	10	31'-0	466	10	31'-0	466	10	31'-0	466
5d1	0°		38	11'-8	463	38	11'-8	463	42	11'-8	512	38	11'-8	463	41	11'-8	499	44	11'-8	536	34	11'-8	414	36	11'-8	439	36	11'-8	439
	15°		38	11'-8	463	38	11'-8	463	42	11'-8	512	38	11'-8	463	41	11'-8	499	44	11'-8	536	34	11'-8	414	36	11'-8	439	36	11'-8	439
	30°		47	11'-8	572	47	11'-8	572	42	11'-8	512	50	11'-8	609	41	11'-8	499	44	11'-8	536	50	11'-8	609	36	11'-8	439	36	11'-8	439
	45°		56	11'-8	682	56	11'-8	682	62	11'-8	755	50	11'-8	609	54	11'-8	658	58	11'-8	706	50	11'-8	609	53	11'-8	645	53	11'-8	645
6e1	ALL		6	9'-7	86	6	9'-7	86	6	9'-7	86	6	9'-7	86	6	9'-7	86	6	9'-7	86	6	9'-7	86	6	9'-7	86	6	9'-7	86

BENT BAR DETAILS



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

ESTIMATED QUANTITIES - ONE PIER

BRIDGE LENGTH	SKEW	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
STRUCTURAL CONCRETE (CU. YDS.)	0°	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4
	15°	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
	30°	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7
	45°	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
REINFORCING STEEL EPOXY COATED (LBS.)	0°	1255	1255	1304	1255	1291	1328	1206	1231	1231
	15°	1277	1277	1326	1277	1313	1350	1228	1253	1253
	30°	1465	1465	1405	1502	1392	1429	1502	1332	1332
	45°	1745	1745	1818	1672	1721	1769	1672	1708	1708
④ PILING (NO.)	ALL	10	10	11	13	14	15	17	18	18

TYPICAL NUMBERS OF PILES AND SPACINGS AND FACTORED PIER LOADS

	BRIDGE LENGTH	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
①	TYP. NO. OF PILES	10	10	11	13	14	15	17	18	18
	TYP. PILE SPACES @ 0°	9 SPA. @ ABOUT 4'-9	9 SPA. @ ABOUT 4'-9	10 SPA. @ 4'-3	12 SPA. @ ABOUT 3'-6	② 13 SPA. @ ABOUT 3'-3	② 14 SPA. @ ABOUT 3'-0	③ 16 SPA. @ ABOUT 2'-8	③ 17 SPA. @ 2'-6	③ 17 SPA. @ 2'-6
	TYP. PILE SPACES @ 15°	9 SPA. @ ABOUT 4'-11	9 SPA. @ ABOUT 4'-11	10 SPA. @ ABOUT 4'-5	12 SPA. @ 3'-8	13 SPA. @ ABOUT 3'-5	② 14 SPA. @ ABOUT 3'-2	③ 16 SPA. @ 2'-9	③ 17 SPA. @ ABOUT 2'-7	③ 17 SPA. @ ABOUT 2'-7
	TYP. PILE SPACES @ 30°	9 SPA. @ ABOUT 5'-5	9 SPA. @ ABOUT 5'-5	10 SPA. @ ABOUT 4'-11	12 SPA. @ ABOUT 4'-1	13 SPA. @ ABOUT 3'-9	14 SPA. @ ABOUT 3'-6	② 16 SPA. @ ABOUT 3'-1	② 17 SPA. @ ABOUT 2'-11	② 17 SPA. @ ABOUT 2'-11
	TYP. PILE SPACES @ 45°	9 SPA. @ ABOUT 6'-8	9 SPA. @ ABOUT 6'-8	10 SPA. @ ABOUT 6'-0	12 SPA. @ ABOUT 5'-0	13 SPA. @ ABOUT 4'-7	14 SPA. @ ABOUT 4'-4	16 SPA. @ ABOUT 3'-9	17 SPA. @ ABOUT 3'-6	17 SPA. @ ABOUT 3'-6
④	PU, STRENGTH I DESIGN LOAD FOR PIER (KIPS)	934 KIPS	1028 KIPS	1135 KIPS	1252 KIPS	1366 KIPS	1502 KIPS	1635 KIPS	1776 KIPS	1933 KIPS

① THIS TYPICAL NUMBER OF PILES MAY NEED TO BE MODIFIED DEPENDING ON SELECTED PIOL PILE TYPE AND SIZE, HEIGHT, AND RESISTANCE. IF THE NUMBER OF PILES IS DIFFERENT THAN IN THE TABLE FOR THE BRIDGE LENGTH, THE NUMBER OF 5d1 BARS AND OTHER QUANTITIES NEED TO BE CHECKED AND ADJUSTED AS NEEDED. PILES 10 INCHES AND 12 INCHES IN SIZE MUST BE SPACED 2'-6 OR MORE, PILES 14 INCHES IN SIZE MUST BE SPACED 2'-11 OR MORE, AND PILES 16 INCHES IN SIZE MUST BE SPACED 3'-4 OR MORE.

② MAXIMUM PIOL PILE SIZE AT THIS SPACING IS 14 INCHES.

③ MAXIMUM PIOL PILE SIZE AT THIS SPACING IS 12 INCHES.

④ STRENGTH I PIER DESIGN LOAD INCLUDES DYNAMIC LOAD ALLOWANCE (IM), AND PIER CAP WEIGHT IS BASED ON 45° SKEW. USE THIS PU FOR DETERMINING NUMBER OF PILES AND PILE LENGTH.

PIER NOTES:

FOR SKEWED BRIDGES BOTTOM OF PIER CAP IS TO BE SLOPED TO COMPENSATE FOR GRADE. THEREFORE BOTTOM OF CAP ELEVATIONS WILL BE REQUIRED AT THE ℄ OF ROADWAY AND AT EACH EXTERIOR PILE.

THE MINIMUM CLEAR DISTANCE FROM THE FACE OF THE CONCRETE TO NEAR REINFORCING BAR IS TO BE 2 INCHES UNLESS OTHERWISE NOTED OR SHOWN.

THE PIER PILES ARE TO BE DRIVEN TO FULL PENETRATION, IF PRACTICABLE, BUT IN NO CASE TO A BEARING VALUE LESS THAN THE PILE BEARING REQUIRED FOR EACH BRIDGE LENGTH AS SHOWN ON THIS SHEET.

THE CONCRETE QUANTITIES ARE BASED ON THE USE OF TYPE 3 PILING. IF TYPE 1 OR TYPE 2 IS USED, THE CONCRETE QUANTITIES MAY BE ADJUSTED TO ACCOUNT FOR THE CONCRETE DISPLACED BY THE PILING.

ALL REINFORCING STEEL IS TO BE GRADE 60.

PIER PILING WAS DESIGNED FOR HL-93 LOADING WITH AN ALLOWANCE FOR 20 LBS. PER SQ. FT. FUTURE WEARING SURFACE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

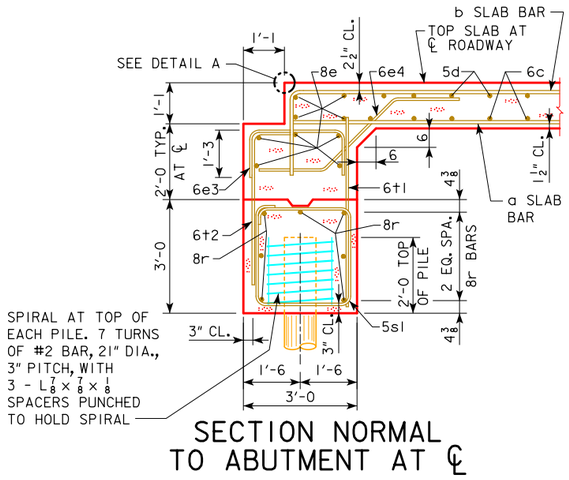
CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

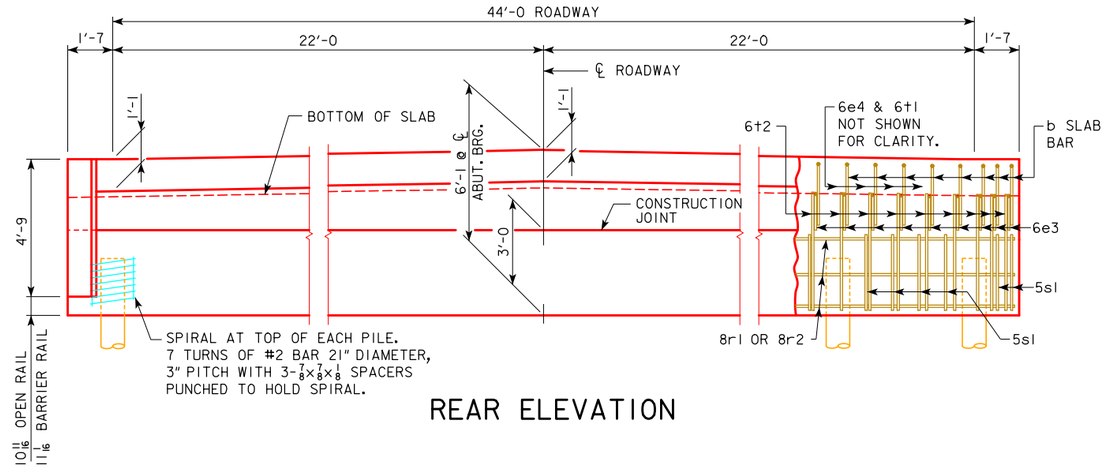
NON-MONOLITHIC PIER CAP DETAILS ALL BRIDGES

J44-29-06

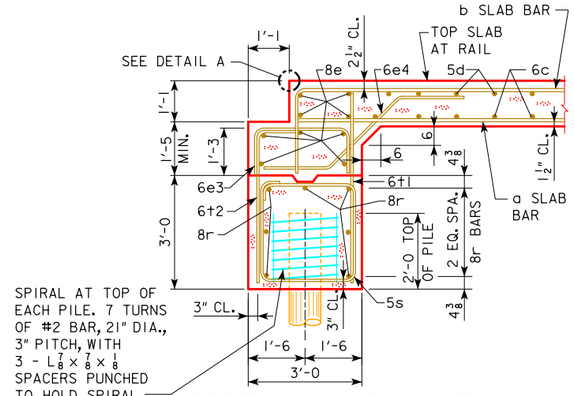
REVISED 06-13: REVISION FOR LRFD PILE DESIGN.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.



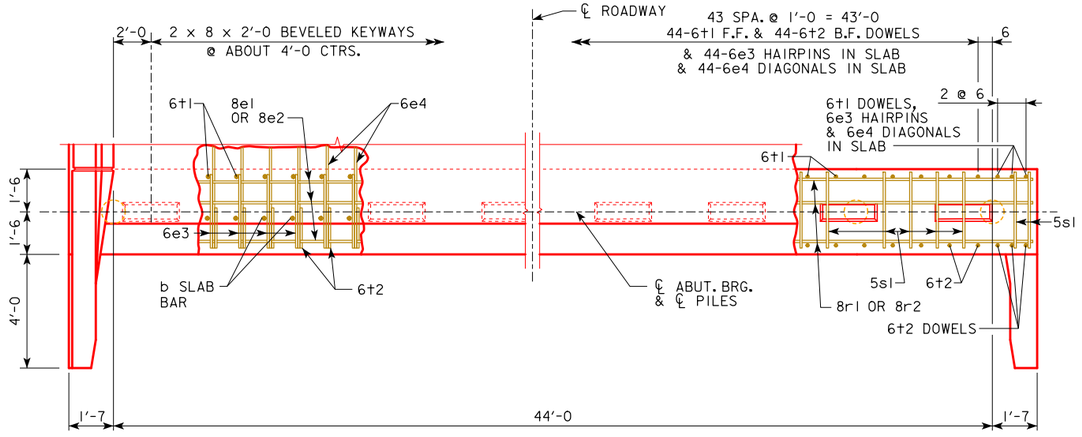
SECTION NORMAL TO ABUTMENT AT ℄



REAR ELEVATION



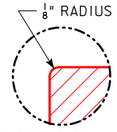
SECTION NORMAL TO ABUTMENT AT GUTTERLINE



PLAN VIEW

NOTE: WING REINFORCING AND RAIL NOT SHOWN.

6e3, 6e4, AND 8e ARE INCLUDED WITH SUPERSTRUCTURE QUANTITIES.



DETAIL A

ABUTMENT NOTES:

THE CONCRETE AND REINFORCING STEEL FOR THE WINGS IS INCLUDED WITH THE SUPERSTRUCTURE.

DETAILS ON THIS SHEET ARE TO BE USED ONLY WHEN ABUTMENTS ARE PLACED ON TIMBER PILES.

THE MINIMUM CLEAR DISTANCE FROM THE FACE OF THE CONCRETE TO NEAR REINFORCING BAR IS TO BE 2 INCHES UNLESS OTHERWISE NOTED OR SHOWN.

TIMBER PILES SHALL BE DRIVEN TO FULL PENETRATION IF PRACTICABLE BUT IN NO CASE TO A BEARING VALUE LESS THAN SHOWN IN DESIGN PLANS. TIMBER PILES SHALL NOT BE DRIVEN TO MORE THAN 160 TONS.

ALL REINFORCING STEEL IS TO BE GRADE 60.

ABUTMENT PILING WAS DESIGNED FOR HL-93 LOADING WITH AN ALLOWANCE FOR 20 LBS. PER SQ. FT. FUTURE WEARING SURFACE.

NUMBER OF PILES AND ABUTMENT DESIGN LOADS

BRIDGE LENGTH	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
PILING - NUMBER	10	11	11	12	13	13	14	16	17
PU, STRENGTH I DESIGN LOAD - KIPS	504	539	571	613	653	699	744	Δ 869	Δ 922

Δ INCLUDES DYNAMIC LOAD ALLOWANCE

NOTE: PU, STRENGTH I DESIGN LOAD (KIPS) IS NOT THE VALUE USED IN THE FIELD FOR DRIVING PILES.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

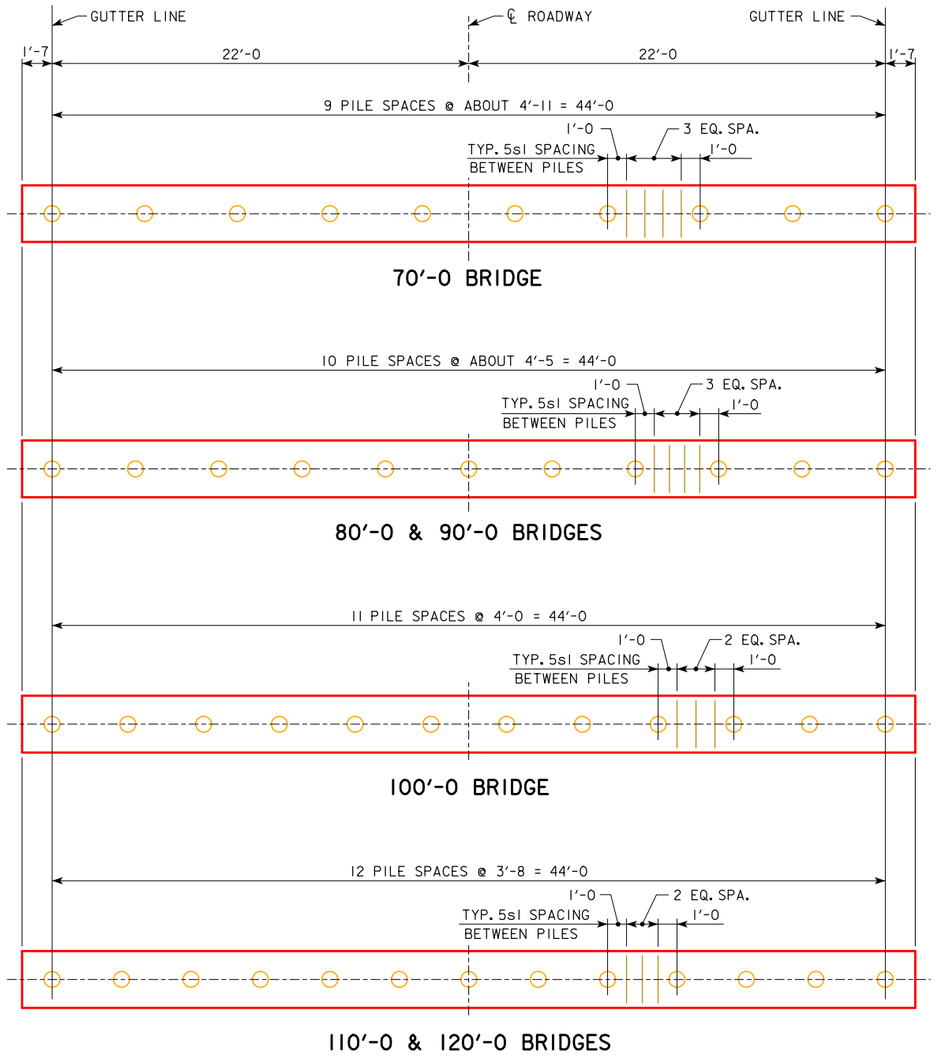
CONTINUOUS CONCRETE SLAB BRIDGES

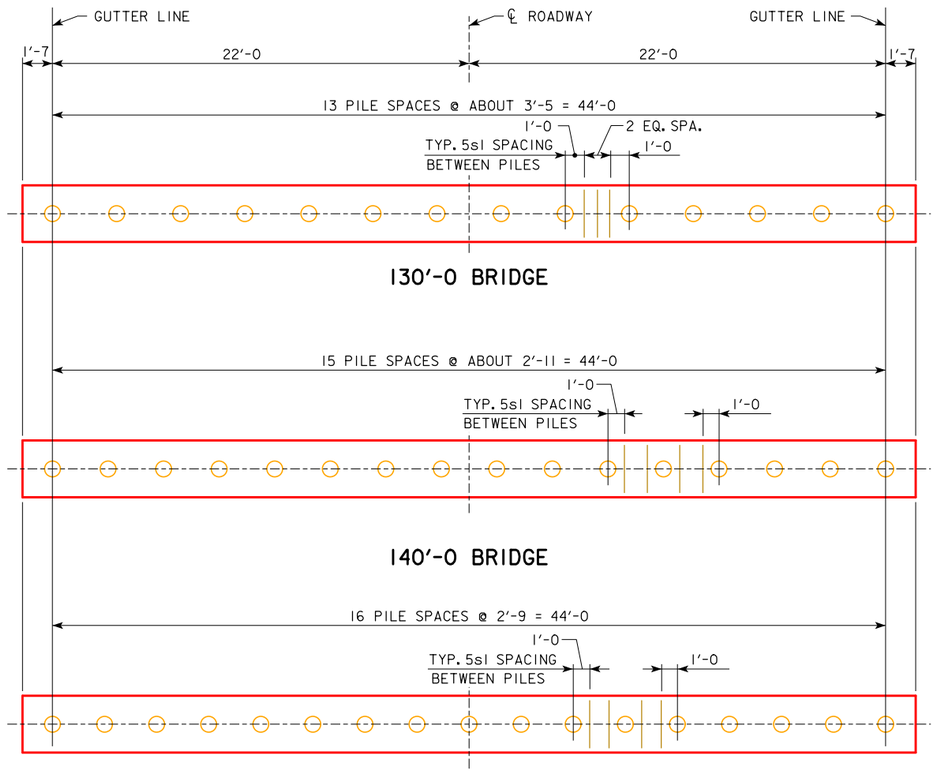
NOVEMBER, 2006

ABUTMENT DETAILS
0° SKEW - TIMBER PILING

J44-30-06

REVISED 06-13: REVISION FOR LRFD PILE DESIGN.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.





PILE PLAN - 0° SKEW
WOOD PILING

REVISED 11-08: REVISED NUMBER OF PILES FOR 80'-0 AND 110'-0 BRIDGES.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

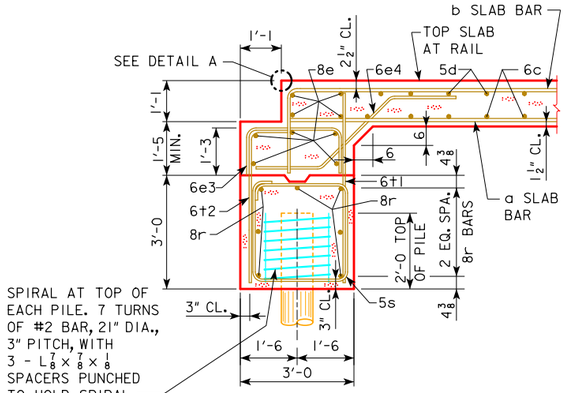
STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

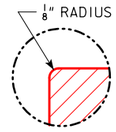
NOVEMBER, 2006

0° ABUTMENT DETAILS
0° SKEW - TIMBER PILING

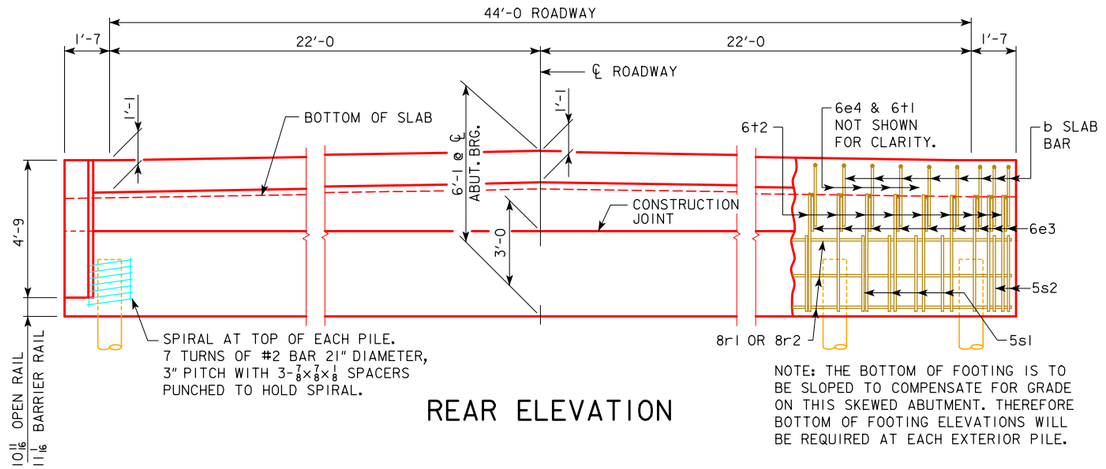
J44-31-06



SECTION NORMAL TO ABUTMENT AT GUTTERLINE

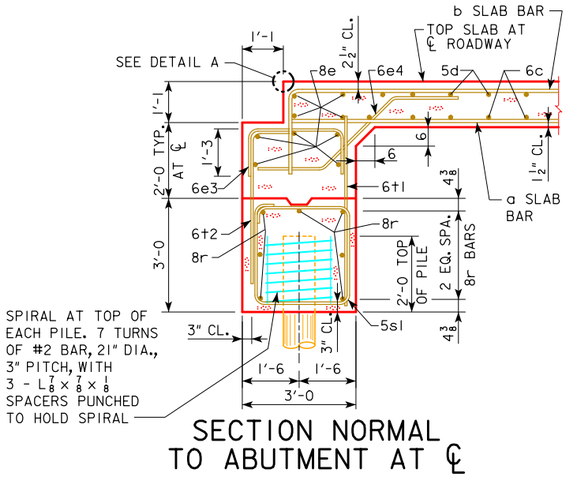


DETAIL A

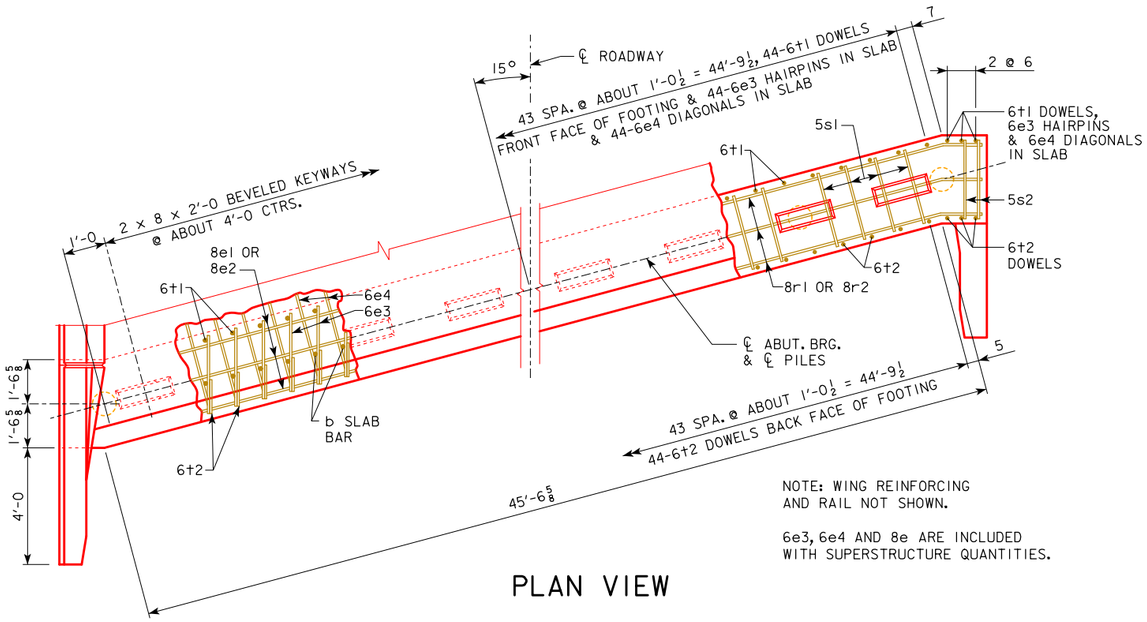


REAR ELEVATION

NOTE: THE BOTTOM OF FOOTING IS TO BE SLOPED TO COMPENSATE FOR GRADE ON THIS SKEWED ABUTMENT. THEREFORE BOTTOM OF FOOTING ELEVATIONS WILL BE REQUIRED AT EACH EXTERIOR PILE.



SECTION NORMAL TO ABUTMENT AT ℄



PLAN VIEW

NOTE: WING REINFORCING AND RAIL NOT SHOWN.

6e3, 6e4 AND 8e ARE INCLUDED WITH SUPERSTRUCTURE QUANTITIES.

ABUTMENT NOTES:

THE CONCRETE AND REINFORCING STEEL FOR THE WINGS IS INCLUDED WITH THE SUPERSTRUCTURE.

DETAILS ON THIS SHEET ARE TO BE USED ONLY WHEN ABUTMENTS ARE PLACED ON TIMBER PILES.

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ALL REINFORCING STEEL IS TO BE GRADE 60.

ABUTMENT PILING WAS DESIGNED FOR HL-93 LOADING WITH AN ALLOWANCE FOR 20 LBS. PER SQ. FT. FUTURE WEARING SURFACE.

NUMBER OF PILES AND ABUTMENT DESIGN LOADS

BRIDGE LENGTH	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
PILING - NUMBER	10	11	11	12	13	13	14	16	17
PU, STRENGTH I DESIGN LOAD - KIPS	509	544	577	618	658	705	749	Δ 875	Δ 927

Δ INCLUDES DYNAMIC LOAD ALLOWANCE

NOTE: PU, STRENGTH I DESIGN LOAD (KIPS) IS NOT THE VALUE USED IN THE FIELD FOR DRIVING PILES.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

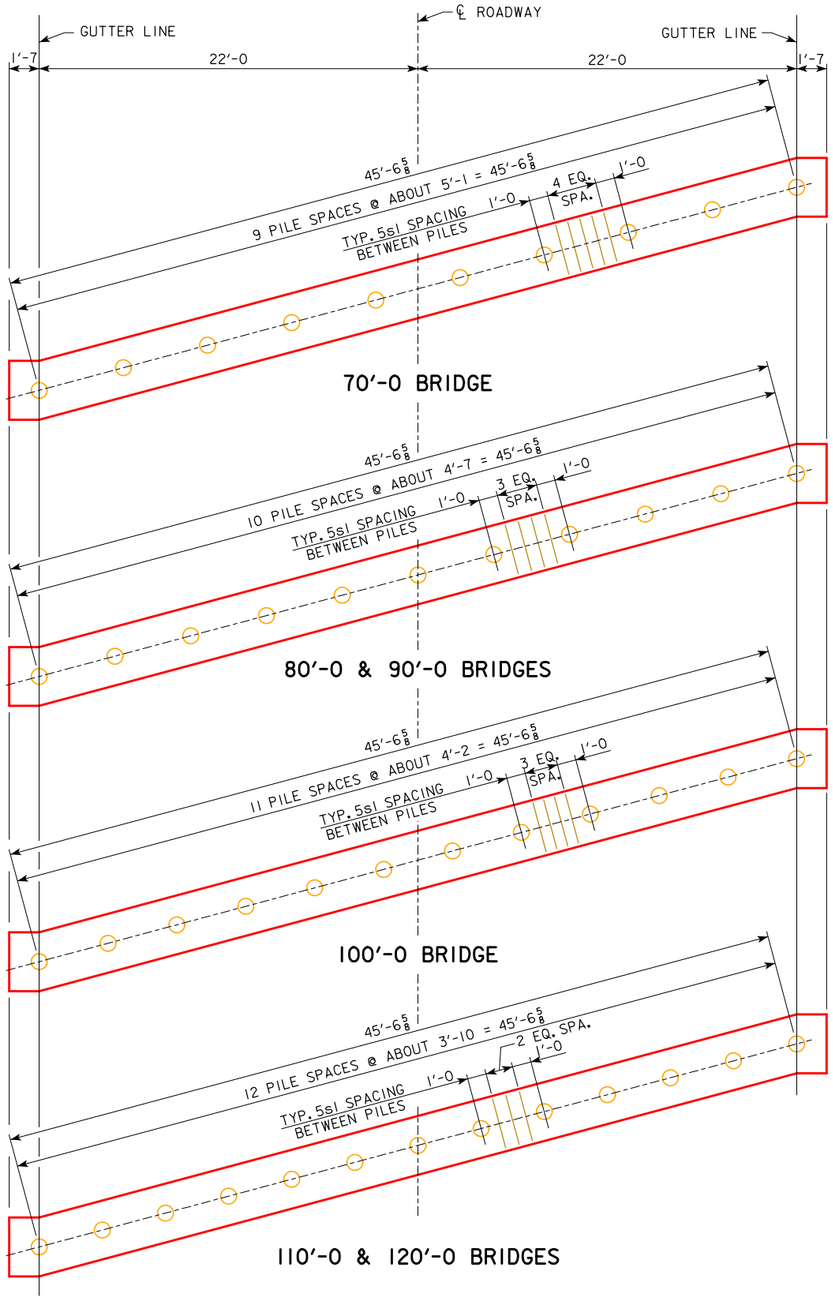
CONTINUOUS CONCRETE SLAB BRIDGES

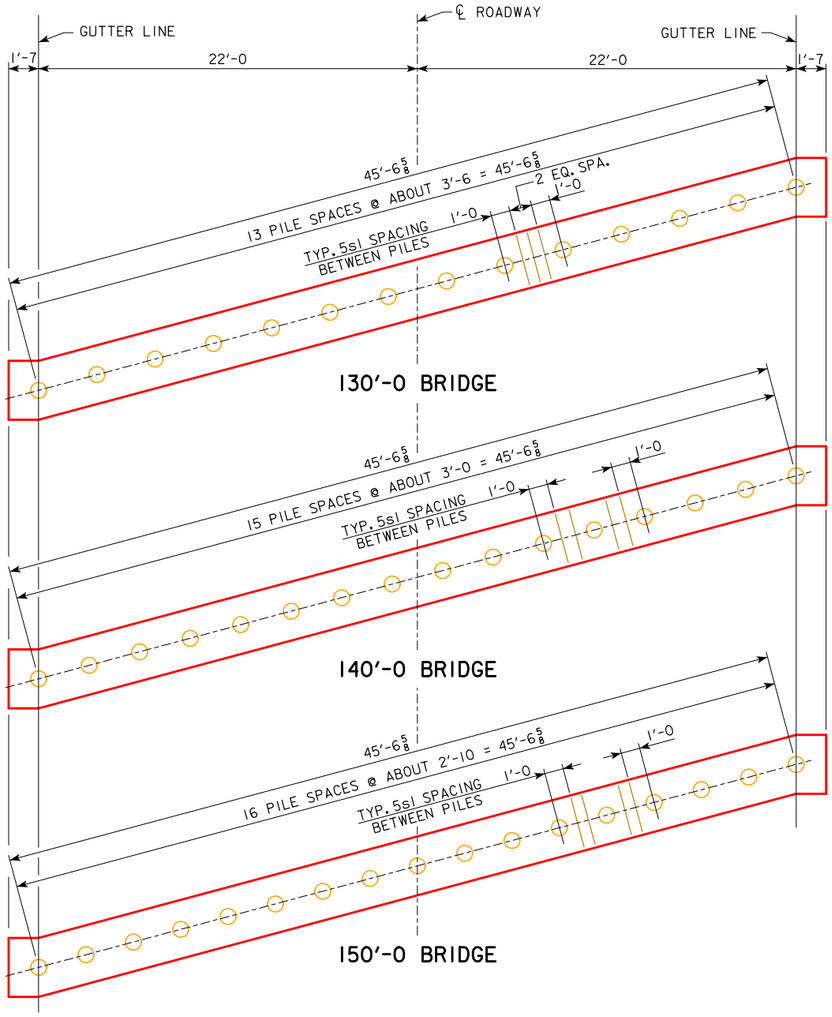
NOVEMBER, 2006

15° ABUTMENT DETAILS SKEW - TIMBER PILING

J44-32-06

REVISED 06-13: REVISION FOR LRFD PILE DESIGN.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.





PILE PLAN - 15° SKEW WOOD PILING

REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWA DOT Highway Division

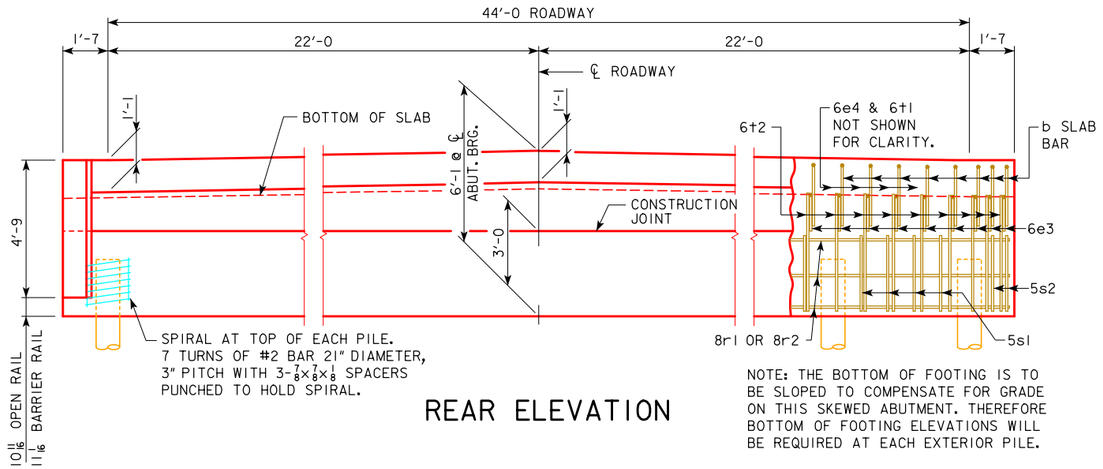
STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

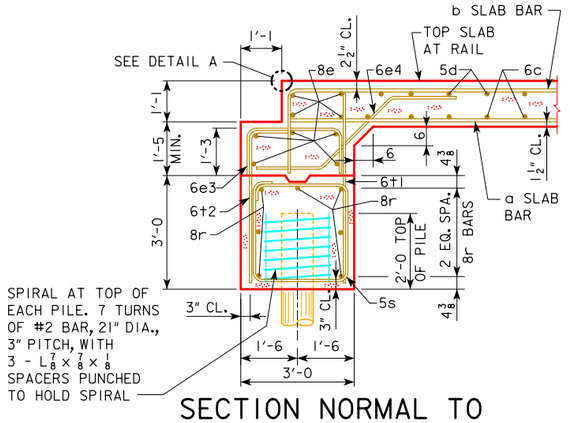
15° ABUTMENT DETAILS SKEW - TIMBER PILING

J44-33-06

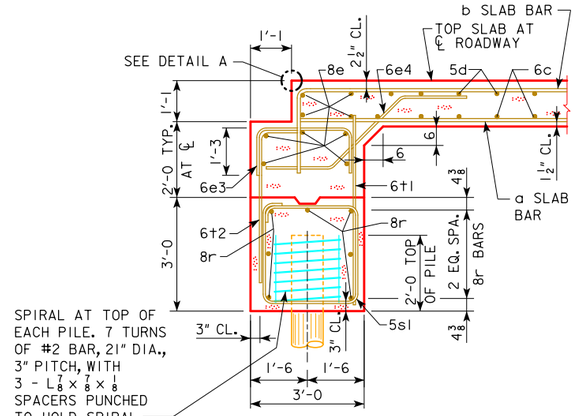


REAR ELEVATION

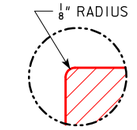
NOTE: THE BOTTOM OF FOOTING IS TO BE SLOPED TO COMPENSATE FOR GRADE ON THIS SKEWED ABUTMENT. THEREFORE BOTTOM OF FOOTING ELEVATIONS WILL BE REQUIRED AT EACH EXTERIOR PILE.



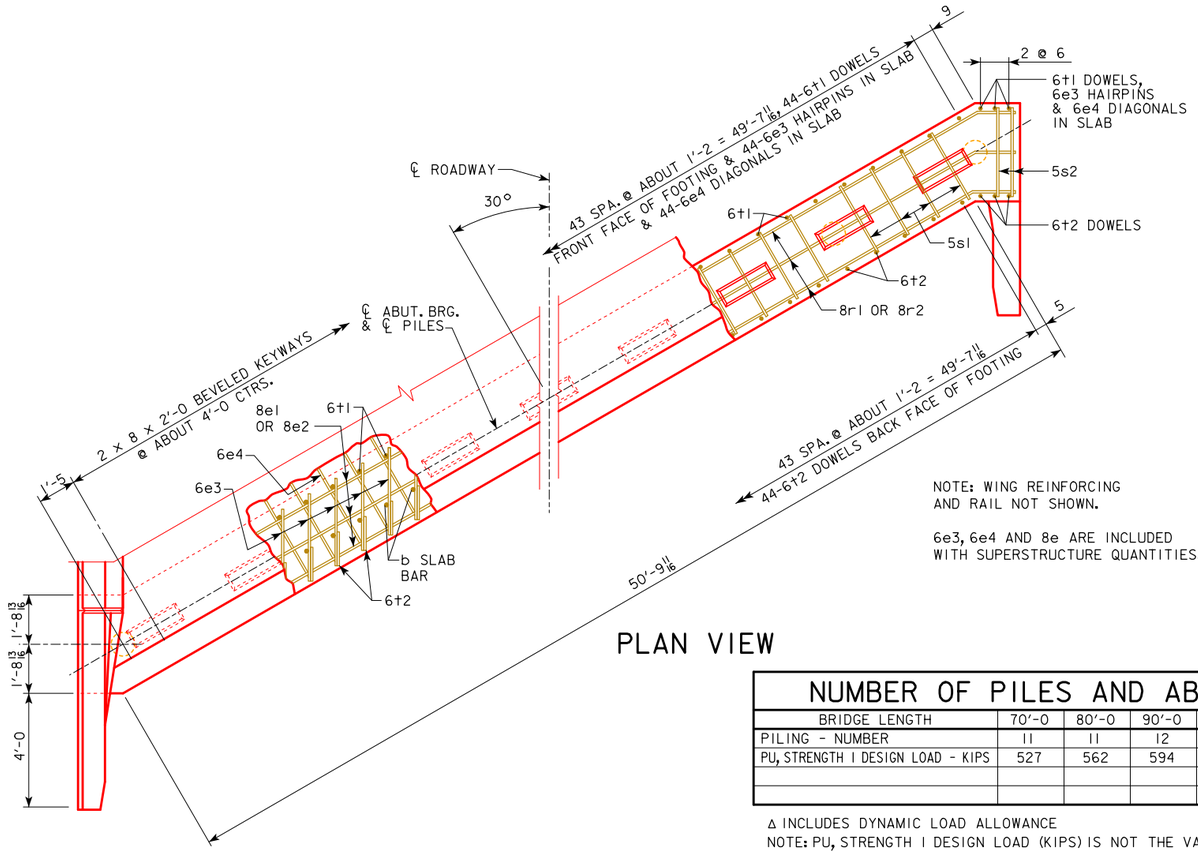
SECTION NORMAL TO ABUTMENT AT GUTTERLINE



SECTION NORMAL TO ABUTMENT AT ℄



DETAIL A



NOTE: WING REINFORCING AND RAIL NOT SHOWN.

6e3, 6e4 AND 8e ARE INCLUDED WITH SUPERSTRUCTURE QUANTITIES.

PLAN VIEW

NUMBER OF PILES AND ABUTMENT DESIGN LOADS

BRIDGE LENGTH	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
PILING - NUMBER	11	11	12	12	13	14	15	17	18
PU, STRENGTH I DESIGN LOAD - KIPS	527	562	594	636	676	723	768	Δ 893	Δ 946

Δ INCLUDES DYNAMIC LOAD ALLOWANCE

NOTE: PU, STRENGTH I DESIGN LOAD (KIPS) IS NOT THE VALUE USED IN THE FIELD FOR DRIVING PILES.

ABUTMENT NOTES:

THE CONCRETE AND REINFORCING STEEL FOR THE WINGS IS INCLUDED WITH THE SUPERSTRUCTURE.

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ALL REINFORCING STEEL IS TO BE GRADE 60.

ABUTMENT PILING WAS DESIGNED FOR HL-93 LOADING WITH AN ALLOWANCE FOR 20 LBS. PER SQ. FT. FUTURE WEARING SURFACE.

REVISED 06-13: REVISION FOR LRFD PILE DESIGN.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

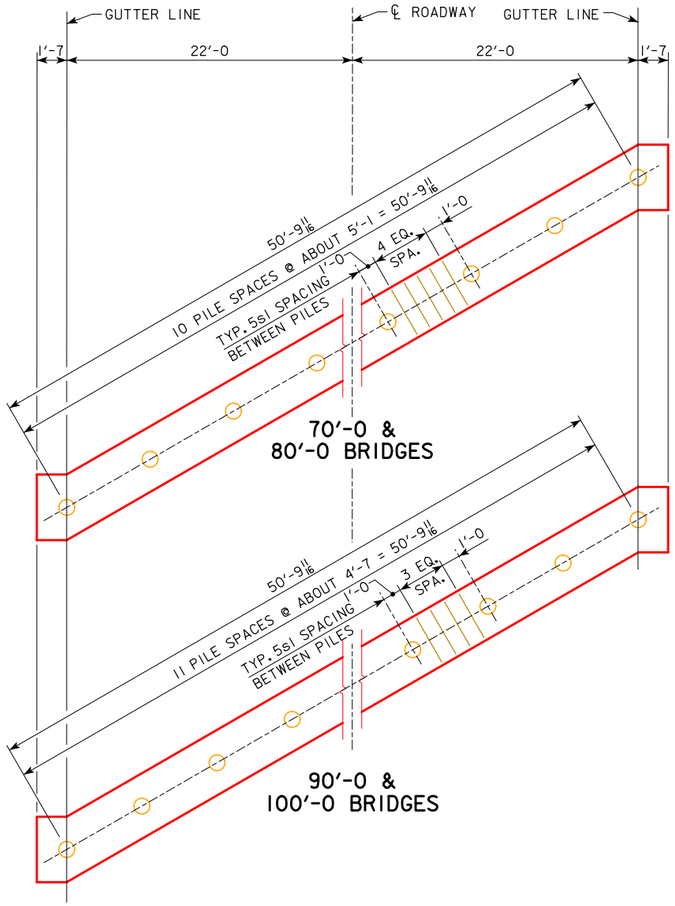
STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

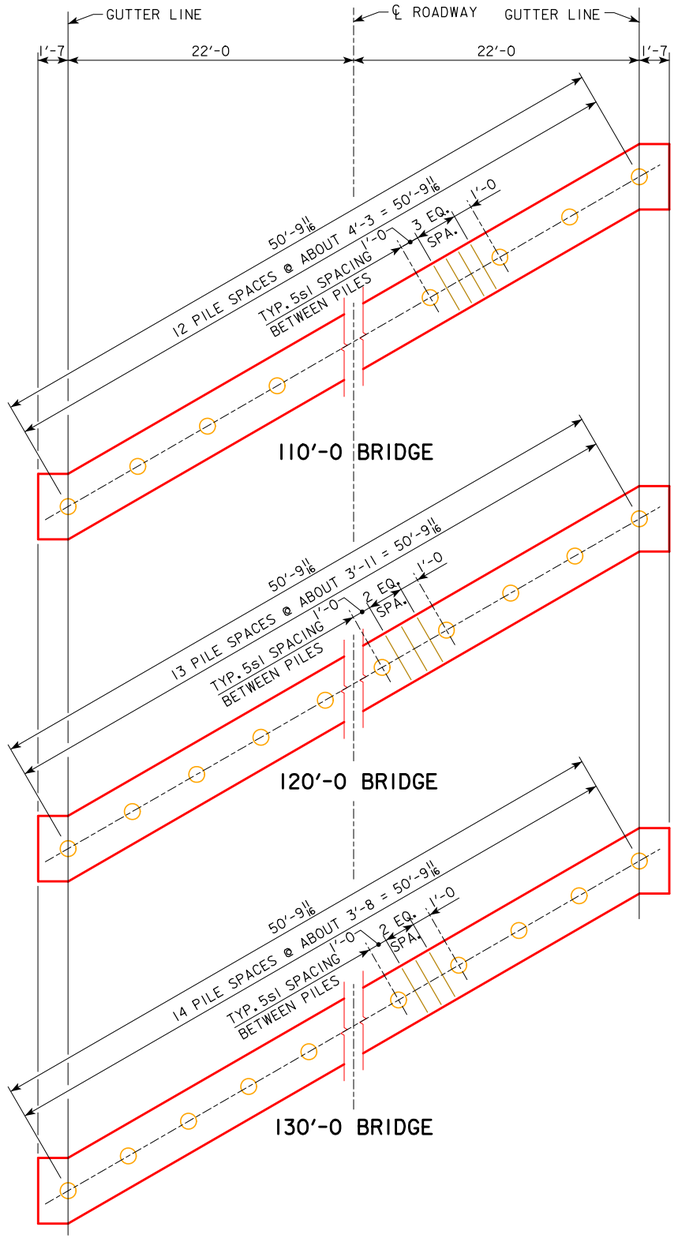
CONTINUOUS CONCRETE SLAB BRIDGES

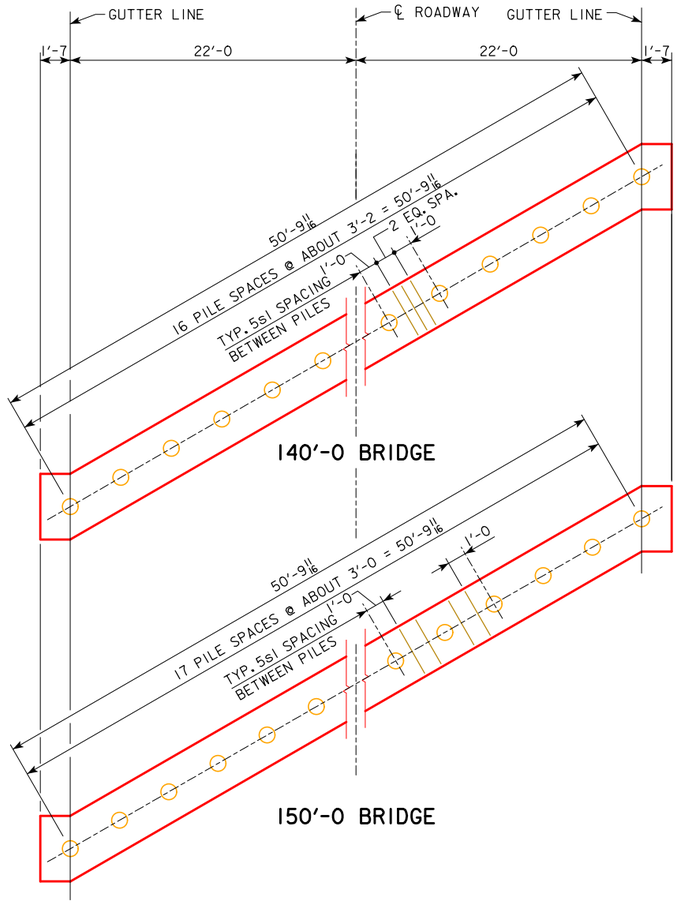
NOVEMBER, 2006

ABUTMENT DETAILS 30° SKEW - TIMBER PILING

J44-34-06







PILE PLAN - 30° SKEW
WOOD PILING

REVISED 11-08: REVISED NUMBER OF PILES FOR 70'-0 BRIDGE.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWA DOT Highway Division

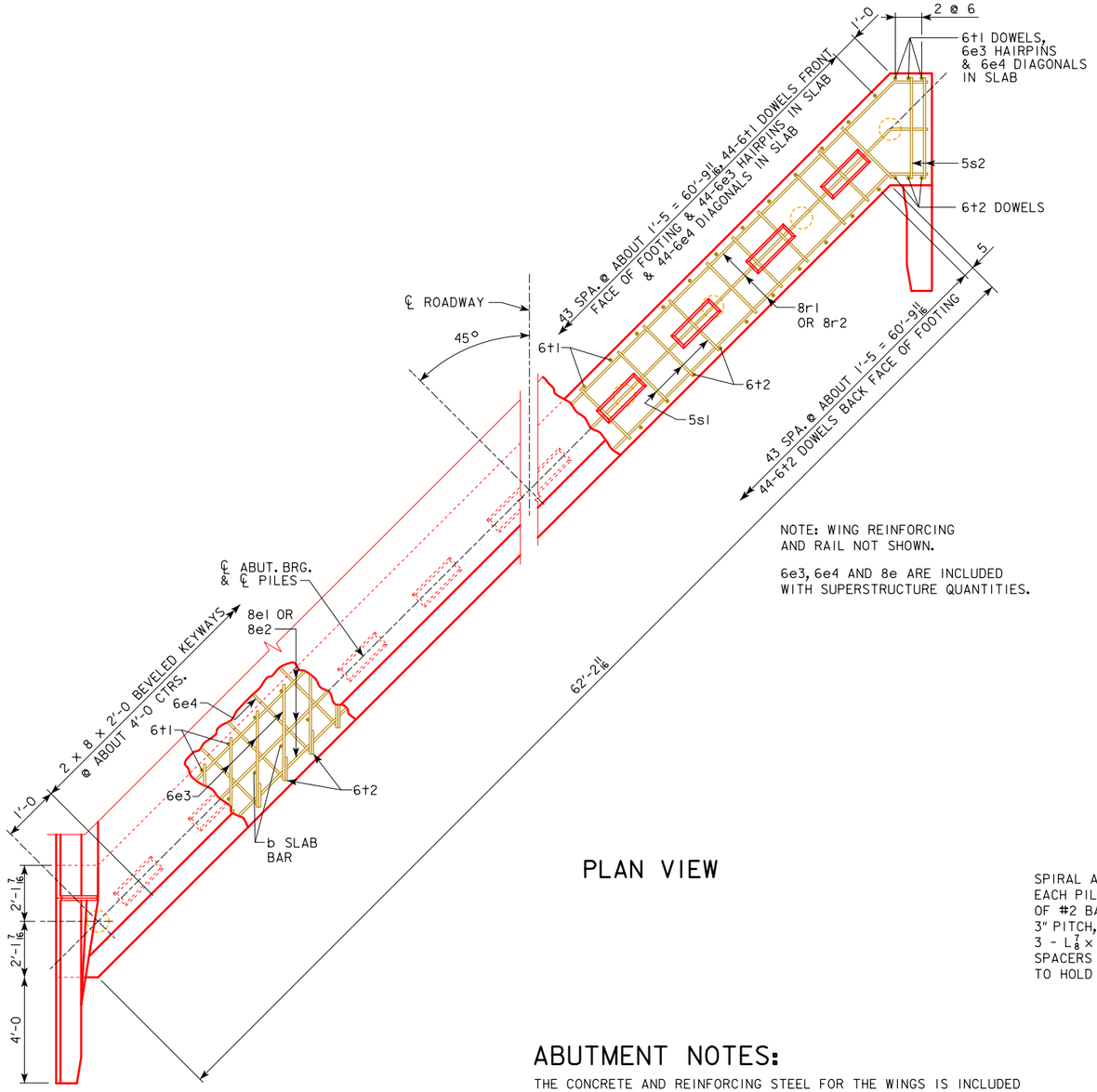
STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

ABUTMENT DETAILS 30° SKEW - TIMBER PILING

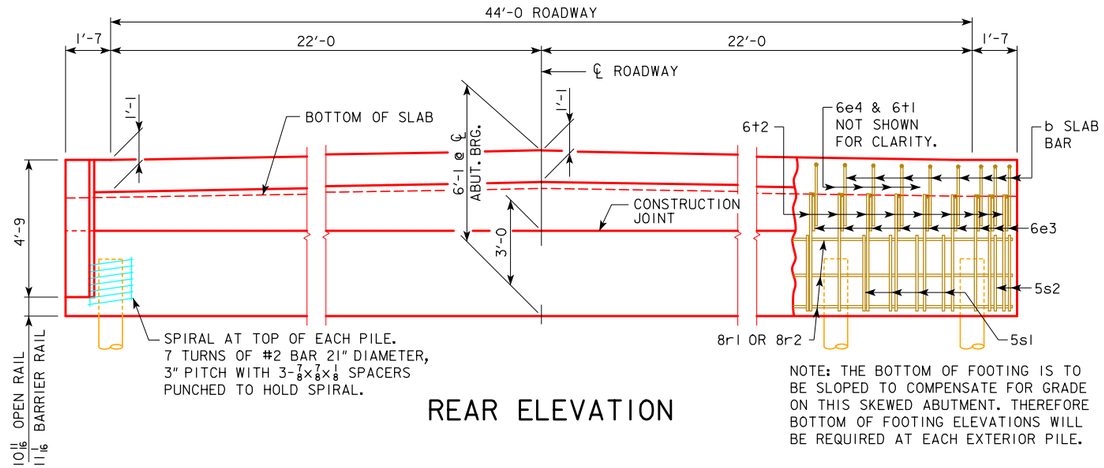
J44-35-06



NOTE: WING REINFORCING AND RAIL NOT SHOWN.

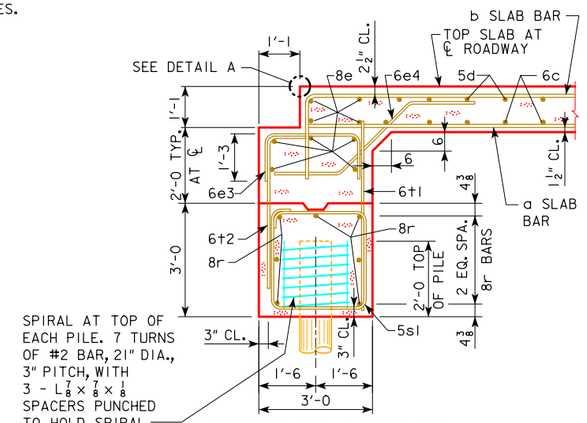
6e3, 6e4 AND 8e ARE INCLUDED WITH SUPERSTRUCTURE QUANTITIES.

PLAN VIEW

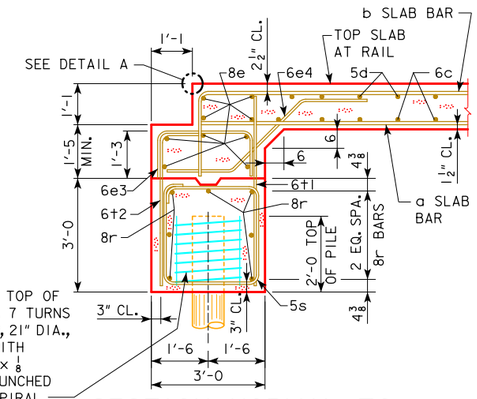


REAR ELEVATION

NOTE: THE BOTTOM OF FOOTING IS TO BE SLOPED TO COMPENSATE FOR GRADE ON THIS SKEWED ABUTMENT. THEREFORE BOTTOM OF FOOTING ELEVATIONS WILL BE REQUIRED AT EACH EXTERIOR PILE.



SECTION NORMAL TO ABUTMENT AT ℄



SECTION NORMAL TO ABUTMENT AT GUTTERLINE

ABUTMENT NOTES:

THE CONCRETE AND REINFORCING STEEL FOR THE WINGS IS INCLUDED WITH THE SUPERSTRUCTURE.

DETAILS ON THIS SHEET ARE TO BE USED ONLY WHEN ABUTMENTS ARE PLACED ON TIMBER PILES.

THE MINIMUM CLEAR DISTANCE FROM THE FACE OF THE CONCRETE TO NEAR REINFORCING BAR IS TO BE 2 INCHES UNLESS OTHERWISE NOTED OR SHOWN.

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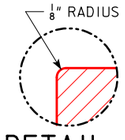
ALL REINFORCING STEEL IS TO BE GRADE 60.

ABUTMENT PILING WAS DESIGNED FOR HL-93 LOADING WITH AN ALLOWANCE FOR 20 LBS. PER SQ. FT. FUTURE WEARING SURFACE.



DETAIL A

REVISED 06-13: REVISION FOR LRFD PILE DESIGN.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

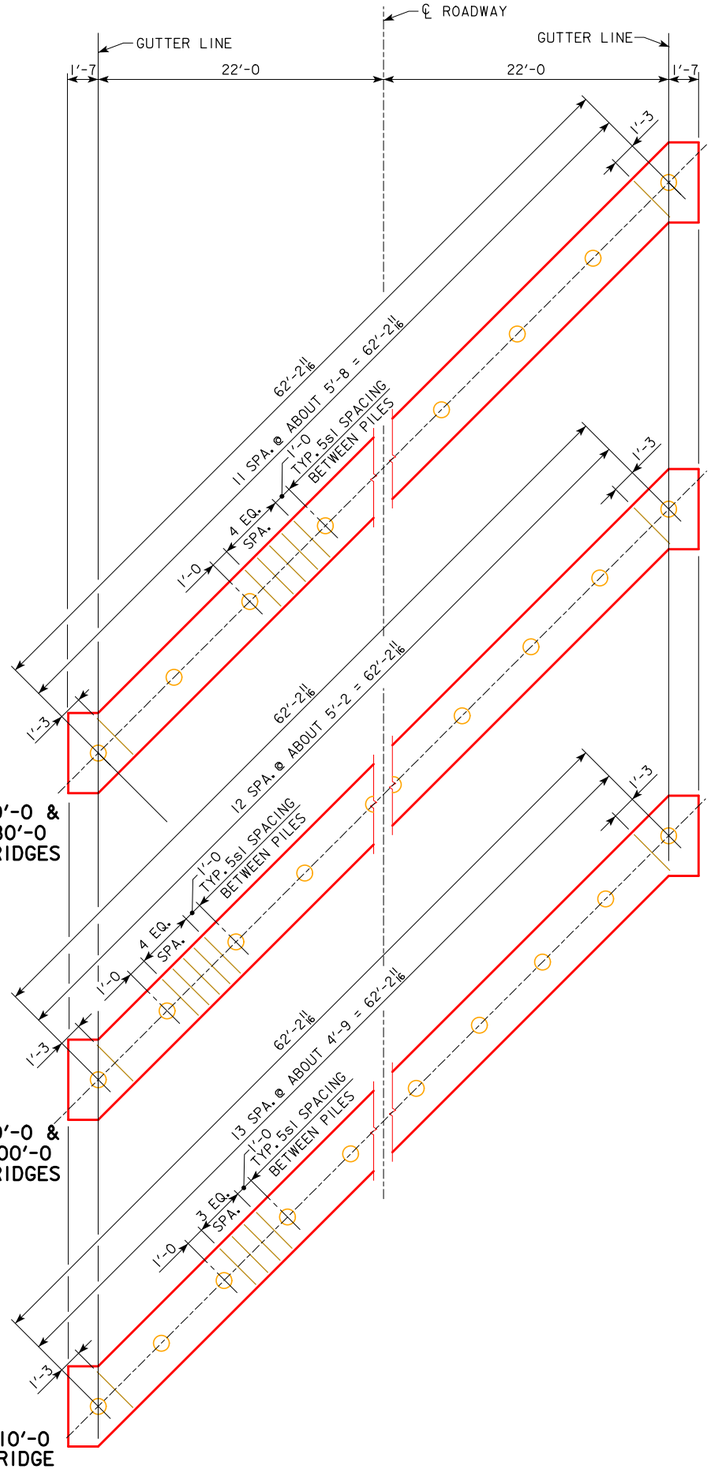
STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

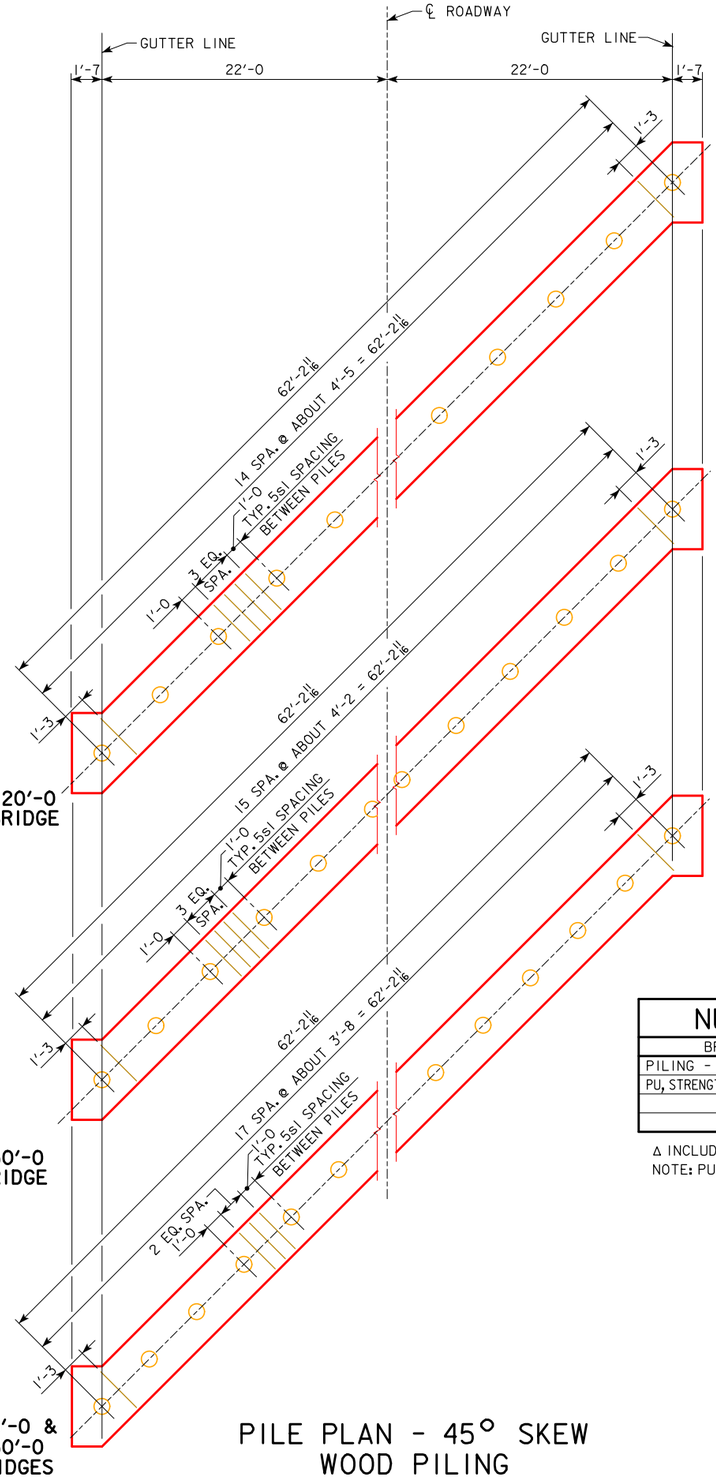
CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

ABUTMENT DETAILS 45° SKEW - TIMBER PILING

J44-36-06





PILE PLAN - 45° SKEW
WOOD PILING

NUMBER OF PILES AND ABUTMENT DESIGN LOADS

BRIDGE LENGTH	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
PILING - NUMBER	12	12	13	13	14	15	16	18	18
PU, STRENGTH I DESIGN LOAD - KIPS	566	599	632	674	715	762	807	Δ 933	Δ 986

Δ INCLUDES DYNAMIC LOAD ALLOWANCE
NOTE: PU, STRENGTH I DESIGN LOAD (KIPS) IS NOT THE VALUE USED IN THE FIELD FOR DRIVING PILES.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

ABUTMENT DETAILS
45° SKEW - TIMBER PILING

J44-37-06

REVISED 06-13: REVISION FOR LRFD PILE DESIGN.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

BILL OF REINFORCING STEEL - ONE ABUTMENT - 0° SKEW

BRIDGE LENGTH				70'-0		80'-0		90'-0		100'-0		110'-0		120'-0		130'-0		140'-0		150'-0	
MARK	LOCATION	SHAPE	LENGTH	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT
8r1	ABUTMENT FOOTING LONGITUDINAL		28'-4	7	530	7	530	7	530	7	530	7	530	7	530	7	530	7	530	7	530
8r2	ABUTMENT FOOTING LONGITUDINAL		23'-4	7	436	7	436	7	436	7	436	7	436	7	436	7	436	7	436	7	436
5s1	ABUTMENT FOOTING HOOPS		11'-0	40	459	44	505	44	505	37	425	40	459	40	459	43	493	34	390	36	413
6t1	FOOTING TO SLAB DOWELS		5'-0	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376
6t2	FOOTING TO SLAB DOWELS		5'-7	50	419	50	419	50	419	50	419	50	419	50	419	50	419	50	419	50	419
#2	PILE SPIRAL		38'-6	10	64	11	71	11	71	12	77	13	84	13	84	14	90	16	103	17	109
	SPIRAL SPACERS, $L\ \frac{7}{8}\times\frac{7}{8}\times\frac{1}{8}\times$ 0.70		1'-10	30	39	33	42	33	42	36	46	39	50	39	50	42	54	48	62	51	65
REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)					2323		2379		2379		2309		2354		2354		2398		2316		2348

BILL OF REINFORCING STEEL - ONE ABUTMENT - 15° SKEW

BRIDGE LENGTH				70'-0		80'-0		90'-0		100'-0		110'-0		120'-0		130'-0		140'-0		150'-0	
MARK	LOCATION	SHAPE	LENGTH	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT
8r1	ABUTMENT FOOTING LONGITUDINAL		29'-2	7	545	7	545	7	545	7	545	7	545	7	545	7	545	7	545	7	545
8r2	ABUTMENT FOOTING LONGITUDINAL		24'-1	7	450	7	450	7	450	7	450	7	450	7	450	7	450	7	450	7	450
5s1	ABUTMENT FOOTING HOOPS		11'-0	45	516	40	459	40	459	44	505	36	413	36	413	39	447	30	344	32	367
5s2	ABUTMENT FOOTING HOOPS		11'-3	4	47	4	47	4	47	4	47	4	47	4	47	4	47	4	47	4	47
6t1	FOOTING TO SLAB DOWELS		5'-0	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376
6t2	FOOTING TO SLAB DOWELS		5'-7	50	419	50	419	50	419	50	419	50	419	50	419	50	419	50	419	50	419
#2	PILE SPIRAL		38'-6	10	64	11	71	11	71	12	77	13	84	13	84	14	90	16	103	17	109
	SPIRAL SPACERS, $L\ \frac{7}{8}\times\frac{7}{8}\times\frac{1}{8}\times$ 0.70		1'-10	30	39	33	42	33	42	36	46	39	50	39	50	42	54	48	62	51	65
REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)					2456		2409		2409		2465		2384		2384		2428		2346		2378

BILL OF REINFORCING STEEL - ONE ABUTMENT - 30° SKEW

BRIDGE LENGTH				70'-0		80'-0		90'-0		100'-0		110'-0		120'-0		130'-0		140'-0		150'-0	
MARK	LOCATION	SHAPE	LENGTH	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT
8r1	ABUTMENT FOOTING LONGITUDINAL		31'-9	7	593	7	593	7	593	7	593	7	593	7	593	7	593	7	593	7	593
8r2	ABUTMENT FOOTING LONGITUDINAL		26'-9	7	500	7	500	7	500	7	500	7	500	7	500	7	500	7	500	7	500
5s1	ABUTMENT FOOTING HOOPS		11'-0	50	574	50	574	44	505	44	505	48	551	39	447	42	482	48	551	34	390
5s2	ABUTMENT FOOTING HOOPS		11'-11	4	50	4	50	4	50	4	50	4	50	4	50	4	50	4	50	4	50
6t1	FOOTING TO SLAB DOWELS		5'-0	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376
6t2	FOOTING TO SLAB DOWELS		5'-7	50	419	50	419	50	419	50	419	50	419	50	419	50	419	50	419	50	419
#2	PILE SPIRAL		38'-6	11	71	11	71	12	77	12	77	13	84	14	90	15	96	17	109	18	116
	SPIRAL SPACERS, $L\ \frac{7}{8}\times\frac{7}{8}\times\frac{1}{8}\times$ 0.70		1'-10	33	42	33	42	36	46	36	46	39	50	42	54	45	58	51	65	54	69
REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)					2625		2625		2566		2566		2623		2529		2574		2663		2513

BILL OF REINFORCING STEEL - ONE ABUTMENT - 45° SKEW

BRIDGE LENGTH				70'-0		80'-0		90'-0		100'-0		110'-0		120'-0		130'-0		140'-0		150'-0	
MARK	LOCATION	SHAPE	LENGTH	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT
8r1	ABUTMENT FOOTING LONGITUDINAL		37'-6	7	701	7	701	7	701	7	701	7	701	7	701	7	701	7	701	7	701
8r2	ABUTMENT FOOTING LONGITUDINAL		32'-5	7	606	7	606	7	606	7	606	7	606	7	606	7	606	7	606	7	606
5s1	ABUTMENT FOOTING HOOPS		11'-0	55	631	55	631	60	688	60	688	52	597	56	642	60	688	51	585	51	585
5s2	ABUTMENT FOOTING HOOPS		13'-6	4	56	4	56	4	56	4	56	4	56	4	56	4	56	4	56	4	56
6t1	FOOTING TO SLAB DOWELS		5'-0	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376
6t2	FOOTING TO SLAB DOWELS		5'-7	50	419	50	419	50	419	50	419	50	419	50	419	50	419	50	419	50	419
#2	PILE SPIRAL		38'-6	12	77	12	77	13	84	13	84	14	90	15	96	16	103	18	116	18	116
	SPIRAL SPACERS, $L\ \frac{7}{8}\times\frac{7}{8}\times\frac{1}{8}\times$ 0.70		1'-10	36	46	36	46	39	50	39	50	42	54	45	58	48	62	54	69	54	69
REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)					2912		2912		2980		2980		2899		2954		3011		2928		2928

NOTE: THE PILE SPIRALS AND SPIRAL SPACERS ARE TO BE NON-COATED REINFORCING BUT MAY BE EPOXY COATED AT THE CONTRACTORS OPTION AND EXPENSE.

ESTIMATED QUANTITIES - ONE ABUT. - 0° SKEW

LOCATION	UNIT	QUANTITY								
BRIDGE LENGTH		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
STRUCTURAL CONCRETE (BRIDGE)	C.Y.	15.1	15.1	15.1	15.0	14.9	14.9	14.9	14.8	14.8
REINFORCING STEEL EPOXY COATED	LBS.	2323	2379	2379	2309	2354	2354	2398	2316	2348
WOOD PILES (TREATED)	NO.	10	11	11	12	13	13	14	16	17
PREBORE HOLES	FT.	-	-	-	-	-	-	-	160	170

ESTIMATED QUANTITIES - ONE ABUT. - 15° SKEW

LOCATION	UNIT	QUANTITY								
BRIDGE LENGTH		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
STRUCTURAL CONCRETE (BRIDGE)	C.Y.	15.7	15.7	15.7	15.6	15.5	15.5	15.5	15.4	15.3
REINFORCING STEEL EPOXY COATED	LBS.	2456	2409	2409	2465	2384	2384	2428	2346	2378
WOOD PILES (TREATED)	NO.	10	11	11	12	13	13	14	16	17
PREBORE HOLES	FT.	-	-	-	-	-	-	-	160	170

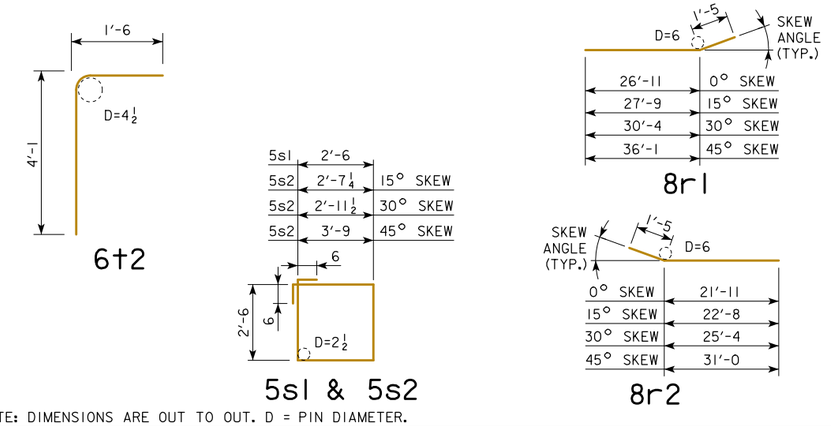
ESTIMATED QUANTITIES - ONE ABUT. - 30° SKEW

LOCATION	UNIT	QUANTITY								
BRIDGE LENGTH		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
STRUCTURAL CONCRETE (BRIDGE)	C.Y.	17.6	17.6	17.5	17.5	17.4	17.4	17.3	17.2	17.2
REINFORCING STEEL EPOXY COATED	LBS.	2625	2625	2566	2566	2623	2529	2574	2663	2513
WOOD PILES (TREATED)	NO.	11	11	12	12	13	14	15	17	18
PREBORE HOLES	FT.	-	-	-	-	-	-	-	170	180

ESTIMATED QUANTITIES - ONE ABUT. - 45° SKEW

LOCATION	UNIT	QUANTITY								
BRIDGE LENGTH		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
STRUCTURAL CONCRETE (BRIDGE)	C.Y.	21.6	21.6	21.5	21.5	21.5	21.4	21.3	21.2	21.2
REINFORCING STEEL EPOXY COATED	LBS.	2912	2912	2980	2980	2899	2954	3011	2928	2928
WOOD PILES (TREATED)	NO.	12	12	13	13	14	15	16	18	18
PREBORE HOLES	FT.	-	-	-	-	-	-	-	180	180

BENT BAR DETAILS



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

REVISED 07-09: CONCRETE QUANTITIES CHANGED.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

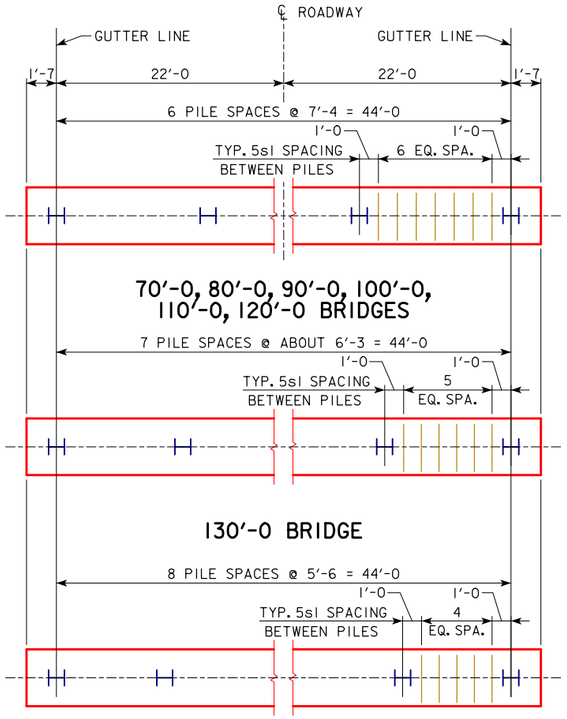
STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

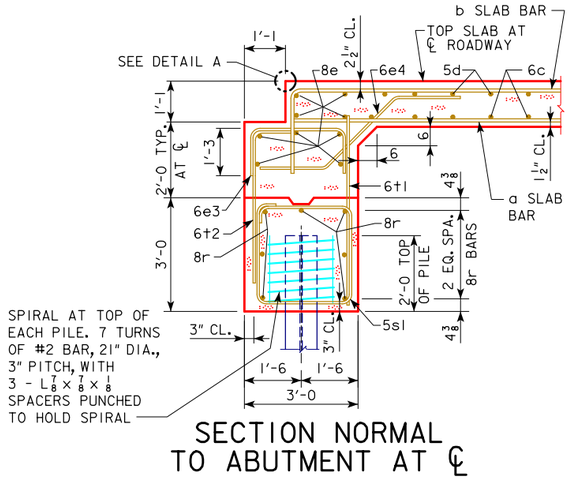
NOVEMBER, 2006

ABUTMENT DETAILS
TIMBER PILING

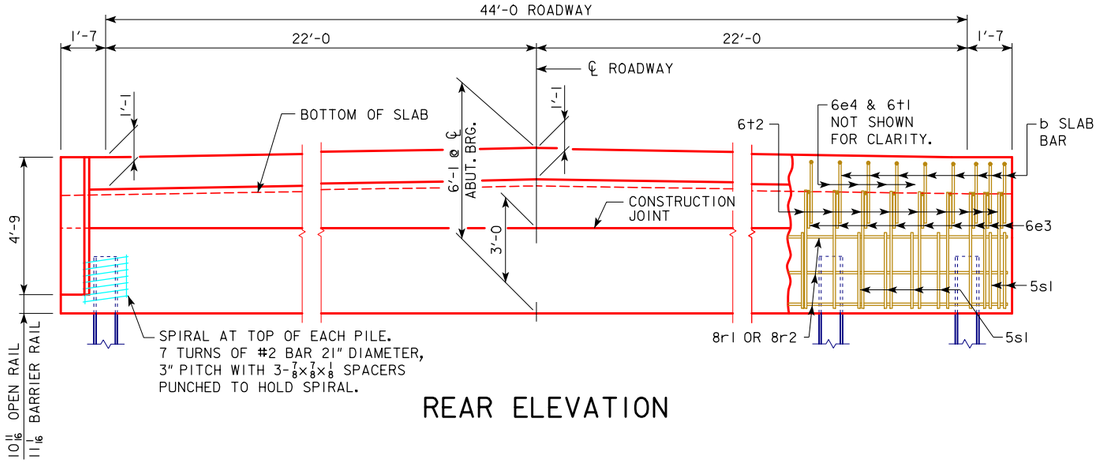
J44-38-06



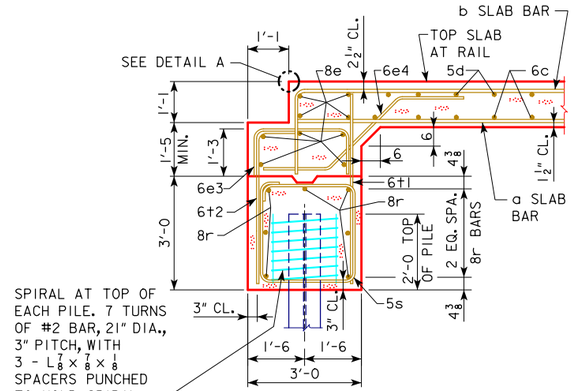
PILE PLAN - 0° SKEW STEEL PILING



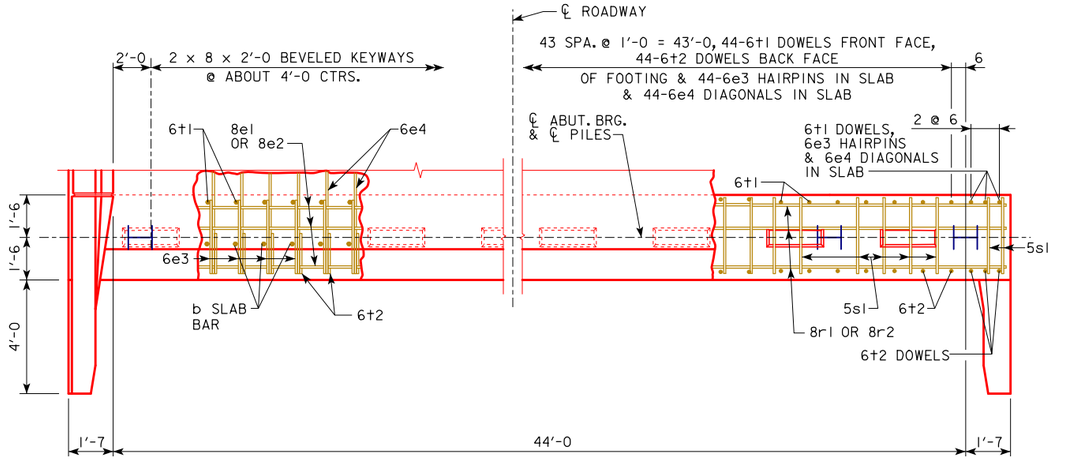
SECTION NORMAL TO ABUTMENT AT ℄



REAR ELEVATION



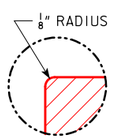
SECTION NORMAL TO ABUTMENT AT GUTTERLINE



PLAN VIEW

NOTE: WING REINFORCING AND RAIL NOT SHOWN.

6e3, 6e4 AND 8e ARE INCLUDED WITH SUPERSTRUCTURE QUANTITIES.



DETAIL A

ABUTMENT NOTES:

ALL PILING HP 10x42.

THE CONCRETE AND REINFORCING STEEL FOR THE WINGS IS INCLUDED WITH THE SUPERSTRUCTURE.

DETAILS ON THIS SHEET ARE TO BE USED ONLY WHEN ABUTMENTS ARE PLACED ON STEEL PILES. IF ROCK IS ENCOUNTERED CLOSER THAN 12' BELOW ABUTMENT FOOTING, SPECIAL ANALYSIS MAY BE REQUIRED.

THE MINIMUM CLEAR DISTANCE FROM THE FACE OF THE CONCRETE TO NEAR REINFORCING BAR IS TO BE 2 INCHES UNLESS OTHERWISE NOTED OR SHOWN.

STEEL ABUTMENT PILES SHALL BE DRIVEN TO FULL PENETRATION IF PRACTICABLE BUT IN NO CASE TO A BEARING VALUE LESS THAN SHOWN IN DESIGN PLANS.

ALL REINFORCING STEEL IS TO BE GRADE 60.

ABUTMENT PILING WAS DESIGNED FOR HL-93 LOADING WITH AN ALLOWANCE FOR 20 LBS. PER SQ. FT. FUTURE WEARING SURFACE.

NUMBER OF PILES AND ABUTMENT DESIGN LOADS

BRIDGE LENGTH	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
PILING - NUMBER	7	7	7	7	7	7	8	9	9
PU, STRENGTH I DESIGN LOAD - KIPS	504	539	571	613	653	699	744	Δ 869	Δ 922

Δ INCLUDES DYNAMIC LOAD ALLOWANCE

NOTE: PU, STRENGTH I DESIGN LOAD (KIPS) IS NOT THE VALUE USED IN THE FIELD FOR DRIVING PILES.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWA DOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

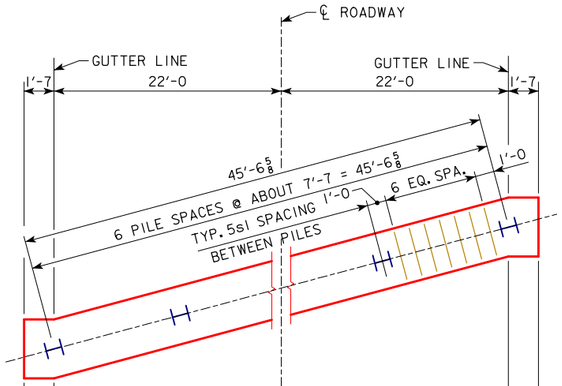
CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

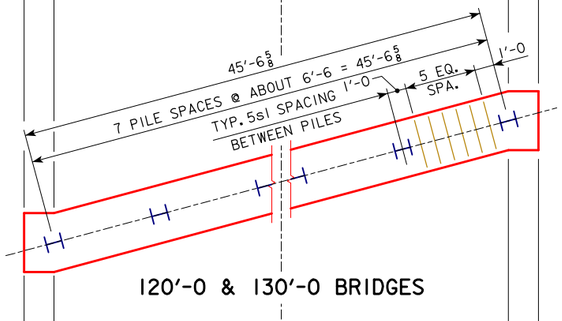
ABUTMENT DETAILS 0° SKEW - STEEL PILING

J44-39-06

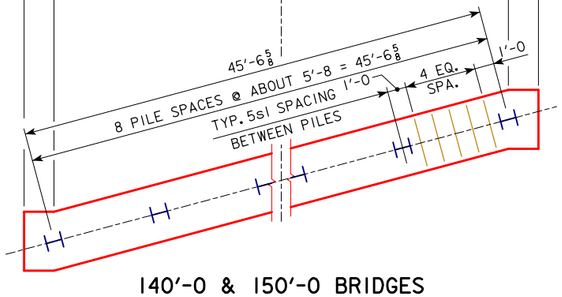
REVISED 06-13: REVISION FOR LRFD PILE DESIGN.
REVISED 10-2016: ADDED ⅛" DIMENSION THAT WAS MISSING IN "SECTION NORMAL TO ABUTMENT AT ℄".
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.



70'-0, 80'-0, 90'-0, 100'-0, & 110'-0 BRIDGES

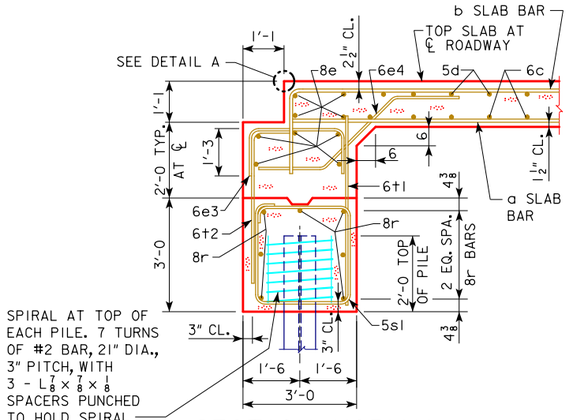


120'-0 & 130'-0 BRIDGES

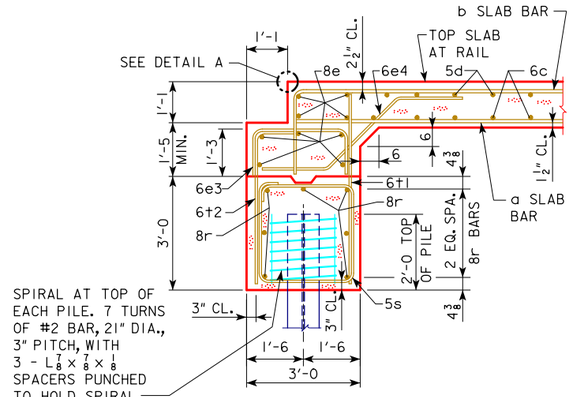


140'-0 & 150'-0 BRIDGES

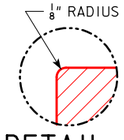
PILE PLAN - 15° SKEW STEEL PILING



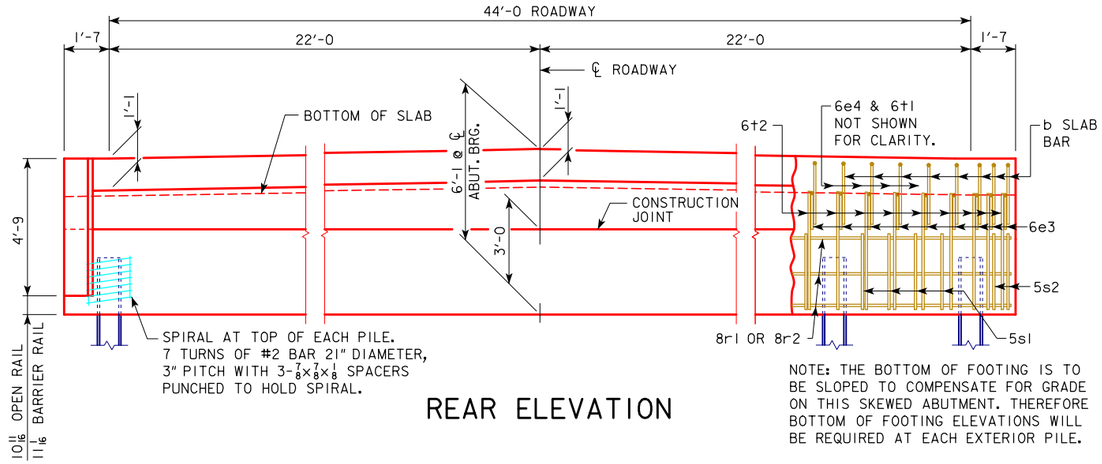
SECTION NORMAL TO ABUTMENT AT ℄



SECTION NORMAL TO ABUTMENT AT GUTTERLINE

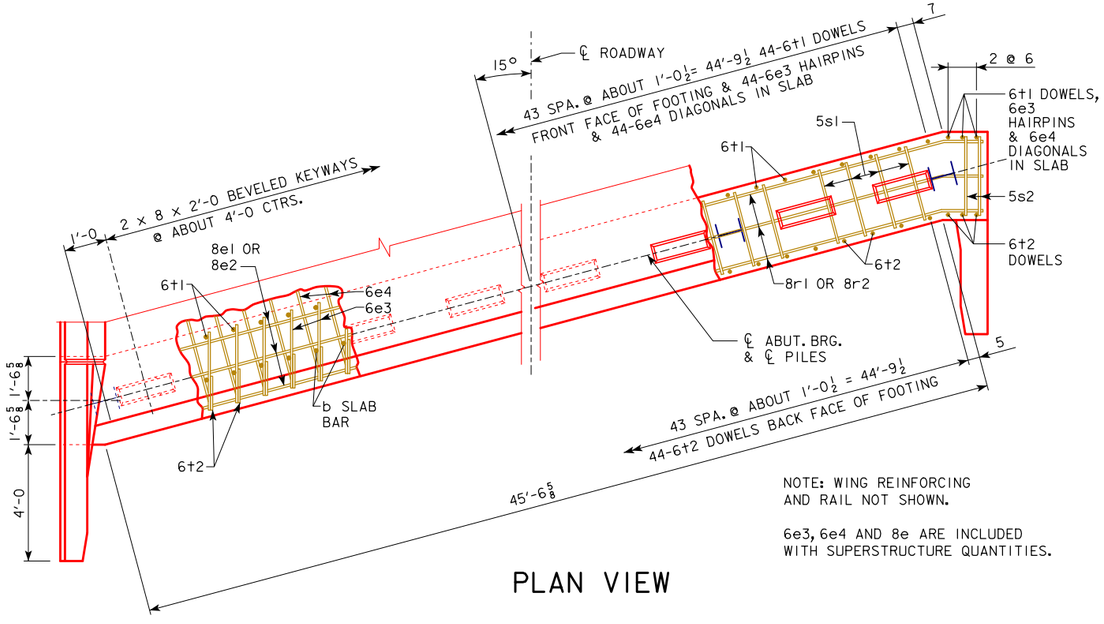


DETAIL A



REAR ELEVATION

NOTE: THE BOTTOM OF FOOTING IS TO BE SLOPED TO COMPENSATE FOR GRADE ON THIS SKEWED ABUTMENT. THEREFORE BOTTOM OF FOOTING ELEVATIONS WILL BE REQUIRED AT EACH EXTERIOR PILE.



NOTE: WING REINFORCING AND RAIL NOT SHOWN.

6e3, 6e4 AND 8e ARE INCLUDED WITH SUPERSTRUCTURE QUANTITIES.

PLAN VIEW

NUMBER OF PILES AND ABUTMENT DESIGN LOADS

BRIDGE LENGTH	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
PILING - NUMBER	7	7	7	7	7	8	8	9	9
PU, STRENGTH I DESIGN LOAD - KIPS	509	544	577	618	658	705	749	Δ 875	Δ 927

Δ INCLUDES DYNAMIC LOAD ALLOWANCE

NOTE: PU, STRENGTH I DESIGN LOAD (KIPS) IS NOT THE VALUE USED IN THE FIELD FOR DRIVING PILES.

ABUTMENT NOTES:

ALL PILING HP 10x42.

THE CONCRETE AND REINFORCING STEEL FOR THE WINGS IS INCLUDED WITH THE SUPERSTRUCTURE.

DETAILS ON THIS SHEET ARE TO BE USED ONLY WHEN ABUTMENTS ARE PLACED ON STEEL PILES. IF ROCK IS ENCOUNTERED CLOSER THAN 12' BELOW ABUTMENT FOOTING, SPECIAL ANALYSIS MAY BE REQUIRED.

THE MINIMUM CLEAR DISTANCE FROM THE FACE OF THE CONCRETE TO NEAR REINFORCING BAR IS TO BE 2 INCHES UNLESS OTHERWISE NOTED OR SHOWN.

STEEL ABUTMENT PILES SHALL BE DRIVEN TO FULL PENETRATION IF PRACTICABLE BUT IN NO CASE TO A BEARING VALUE LESS THAN SHOWN IN DESIGN PLANS.

ALL REINFORCING STEEL IS TO BE GRADE 60.

ABUTMENT PILING WAS DESIGNED FOR HL-93 LOADING WITH AN ALLOWANCE FOR 20 LBS. PER SQ. FT. FUTURE WEARING SURFACE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

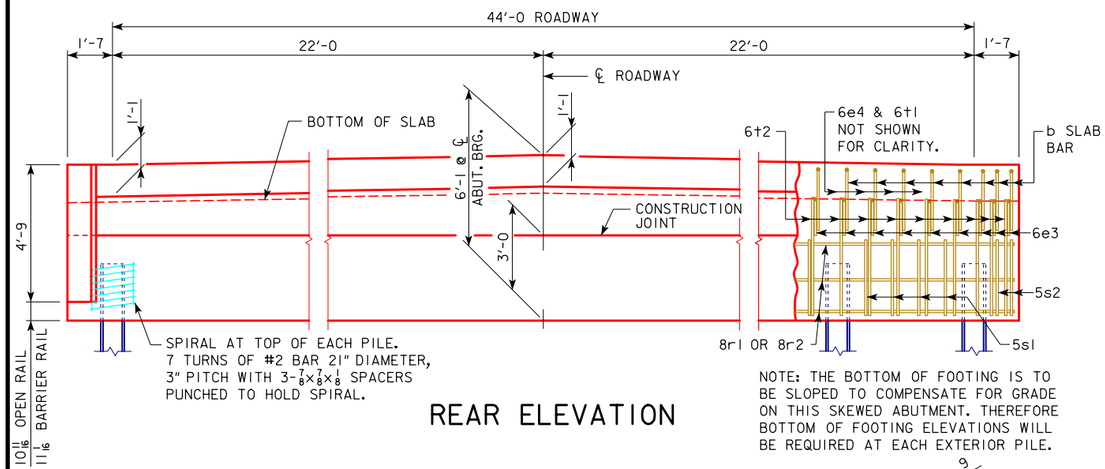
CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

ABUTMENT DETAILS
15° SKEW - STEEL PILING

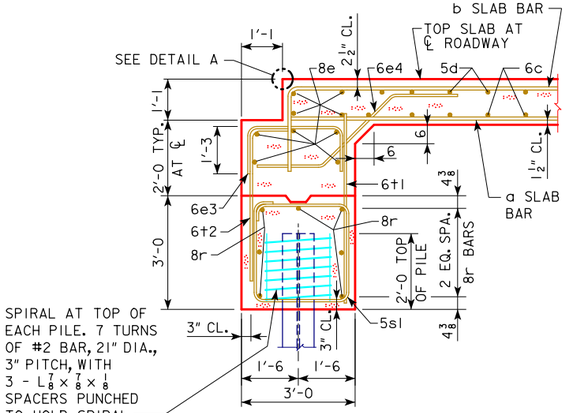
J44-40-06

REVISED 06-13: REVISION FOR LRFD PILE DESIGN.
REVISED 10-2016: ADDED 4 3/8" DIMENSION THAT WAS MISSING IN "SECTION NORMAL TO ABUTMENT AT ℄".
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

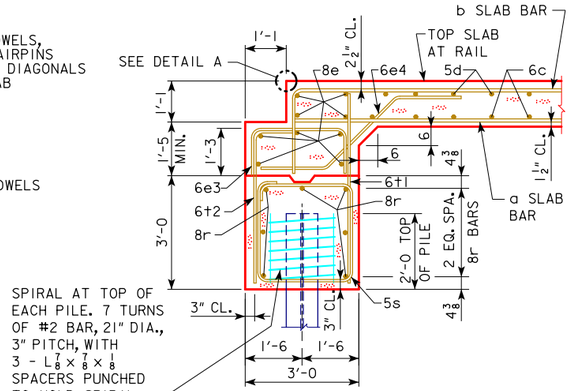


REAR ELEVATION

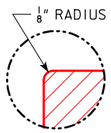
NOTE: THE BOTTOM OF FOOTING IS TO BE SLOPED TO COMPENSATE FOR GRADE ON THIS SKEWED ABUTMENT. THEREFORE BOTTOM OF FOOTING ELEVATIONS WILL BE REQUIRED AT EACH EXTERIOR PILE.



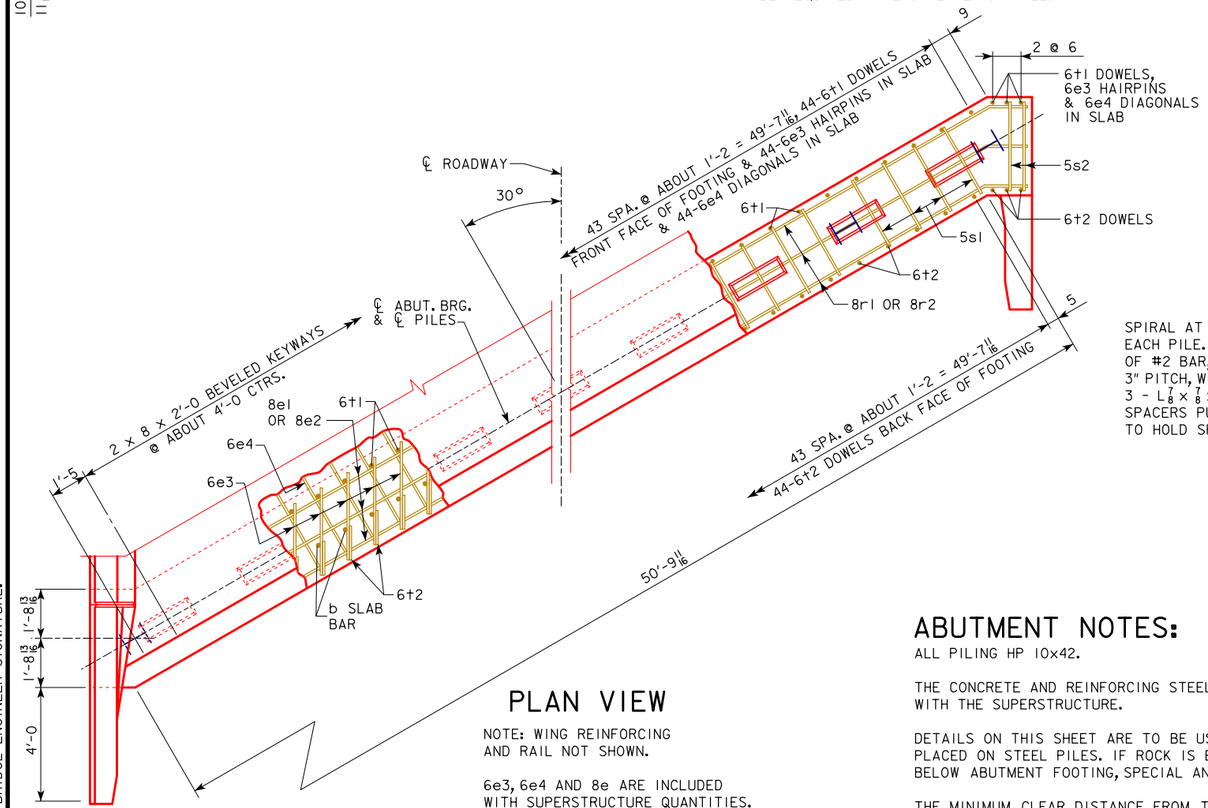
SECTION NORMAL TO ABUTMENT AT ℄



SECTION NORMAL TO ABUTMENT AT GUTTERLINE



DETAIL A



PLAN VIEW

NOTE: WING REINFORCING AND RAIL NOT SHOWN.

6e3, 6e4 AND 8e ARE INCLUDED WITH SUPERSTRUCTURE QUANTITIES.

NUMBER OF PILES AND ABUTMENT DESIGN LOADS

BRIDGE LENGTH	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
PILING - NUMBER	8	8	8	8	8	8	8	9	10
PU, STRENGTH I DESIGN LOAD - KIPS	527	562	594	636	676	723	768	Δ 893	Δ 946

Δ INCLUDES DYNAMIC LOAD ALLOWANCE

NOTE: PU, STRENGTH I DESIGN LOAD (KIPS) IS NOT THE VALUE USED IN THE FIELD FOR DRIVING PILES.

ABUTMENT NOTES:

ALL PILING HP 10x42.

THE CONCRETE AND REINFORCING STEEL FOR THE WINGS IS INCLUDED WITH THE SUPERSTRUCTURE.

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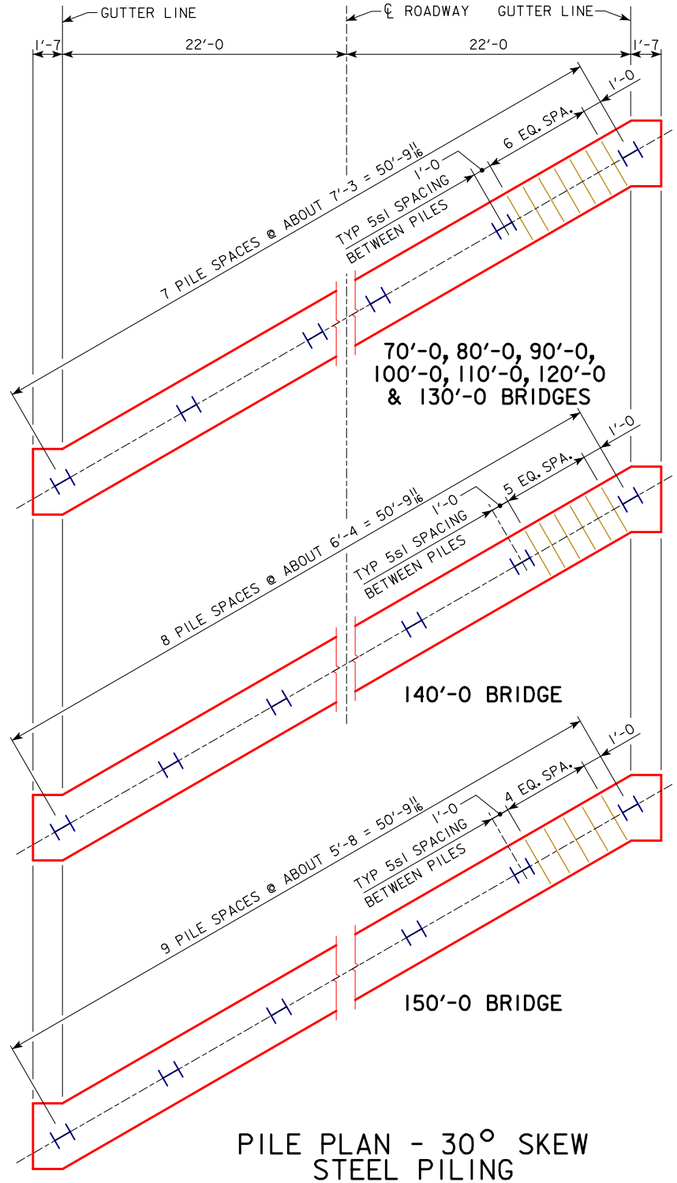
THE MINIMUM CLEAR DISTANCE FROM THE FACE OF THE CONCRETE TO NEAR REINFORCING BAR IS TO BE 2 INCHES UNLESS OTHERWISE NOTED OR SHOWN.

STEEL ABUTMENT PILES SHALL BE DRIVEN TO FULL PENETRATION IF PRACTICABLE BUT IN NO CASE TO A BEARING VALUE LESS THAN SHOWN IN DESIGN PLANS.

ALL REINFORCING STEEL IS TO BE GRADE 60.

ABUTMENT PILING WAS DESIGNED FOR HL-93 LOADING WITH AN ALLOWANCE FOR 20 LBS. PER SQ. FT. FUTURE WEARING SURFACE.



PILE PLAN - 30° SKEW STEEL PILING

REVISED 06-13: REVISION FOR LRFD PILE DESIGN.
REVISED 10-2016: ADDED 4 3/8" DIMENSION THAT WAS MISSING IN "SECTION NORMAL TO ABUTMENT AT ℄".
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWA DOT Highway Division

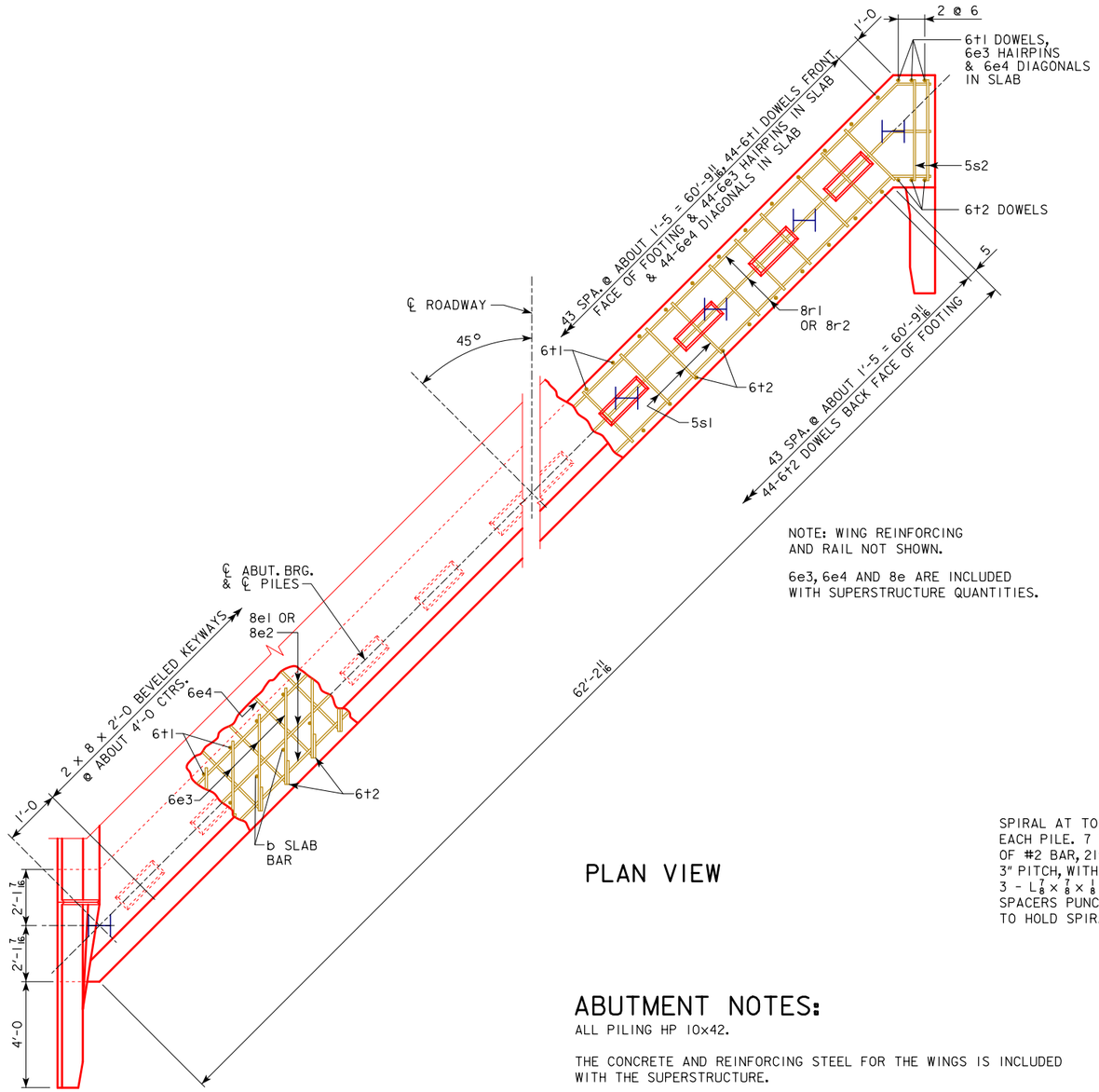
STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

ABUTMENT DETAILS 30° SKEW - STEEL PILING

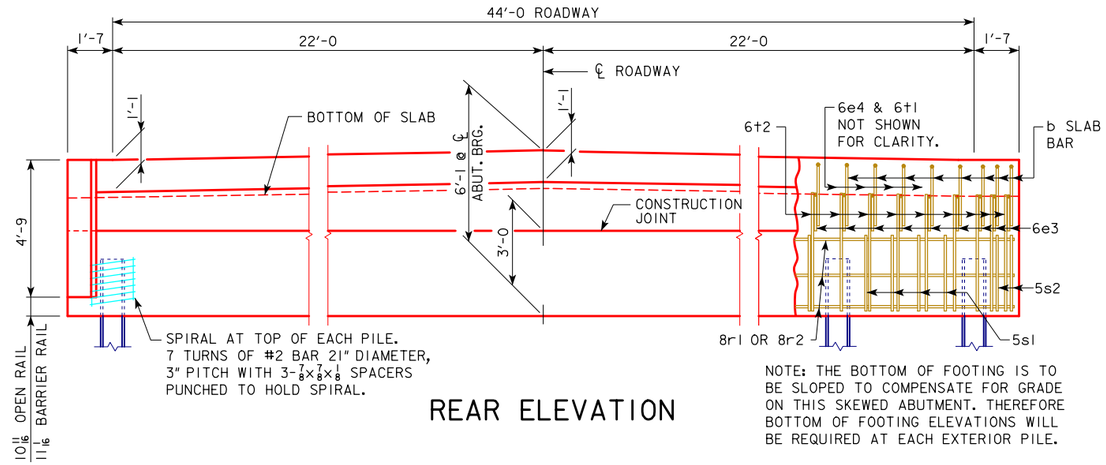
J44-41-06



PLAN VIEW

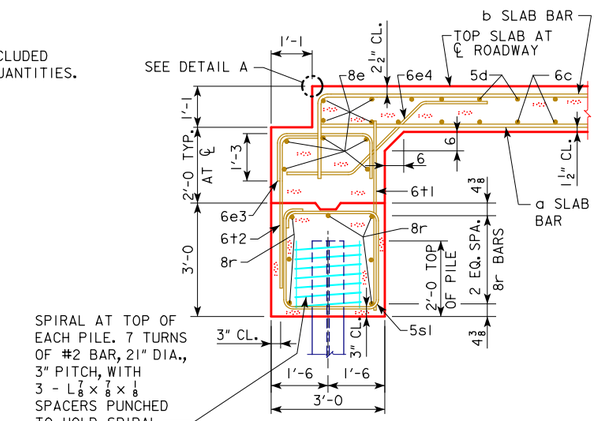
NOTE: WING REINFORCING AND RAIL NOT SHOWN.

6e3, 6e4 AND 8e ARE INCLUDED WITH SUPERSTRUCTURE QUANTITIES.

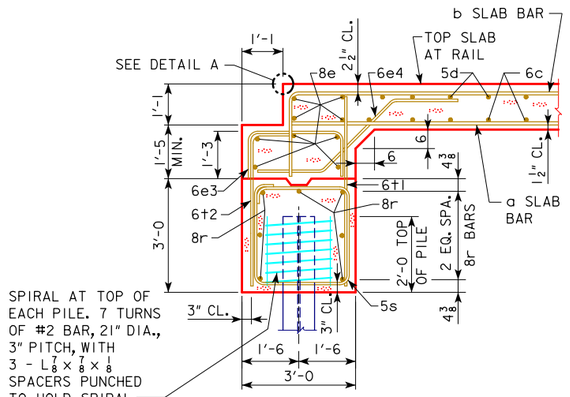


REAR ELEVATION

NOTE: THE BOTTOM OF FOOTING IS TO BE SLOPED TO COMPENSATE FOR GRADE ON THIS SKEWED ABUTMENT. THEREFORE BOTTOM OF FOOTING ELEVATIONS WILL BE REQUIRED AT EACH EXTERIOR PILE.



SECTION NORMAL TO ABUTMENT AT ℄



SECTION NORMAL TO ABUTMENT AT GUTTERLINE

ABUTMENT NOTES:

ALL PILING HP 10x42.

THE CONCRETE AND REINFORCING STEEL FOR THE WINGS IS INCLUDED WITH THE SUPERSTRUCTURE.

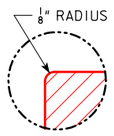
DETAILS ON THIS SHEET ARE TO BE USED ONLY WHEN ABUTMENTS ARE PLACED ON STEEL PILES. IF ROCK IS ENCOUNTERED CLOSER THAN 12' BELOW ABUTMENT FOOTING, SPECIAL ANALYSIS MAY BE REQUIRED.

THE MINIMUM CLEAR DISTANCE FROM THE FACE OF THE CONCRETE TO NEAR REINFORCING BAR IS TO BE 2 INCHES UNLESS OTHERWISE NOTED OR SHOWN.

STEEL ABUTMENT PILES SHALL BE DRIVEN TO FULL PENETRATION IF PRACTICABLE BUT IN NO CASE TO A BEARING VALUE LESS THAN SHOWN IN DESIGN PLANS.

ALL REINFORCING STEEL IS TO BE GRADE 60.

ABUTMENT PILING WAS DESIGNED FOR HL-93 LOADING WITH AN ALLOWANCE FOR 20 LBS. PER SQ. FT. FUTURE WEARING SURFACE.



DETAIL A

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

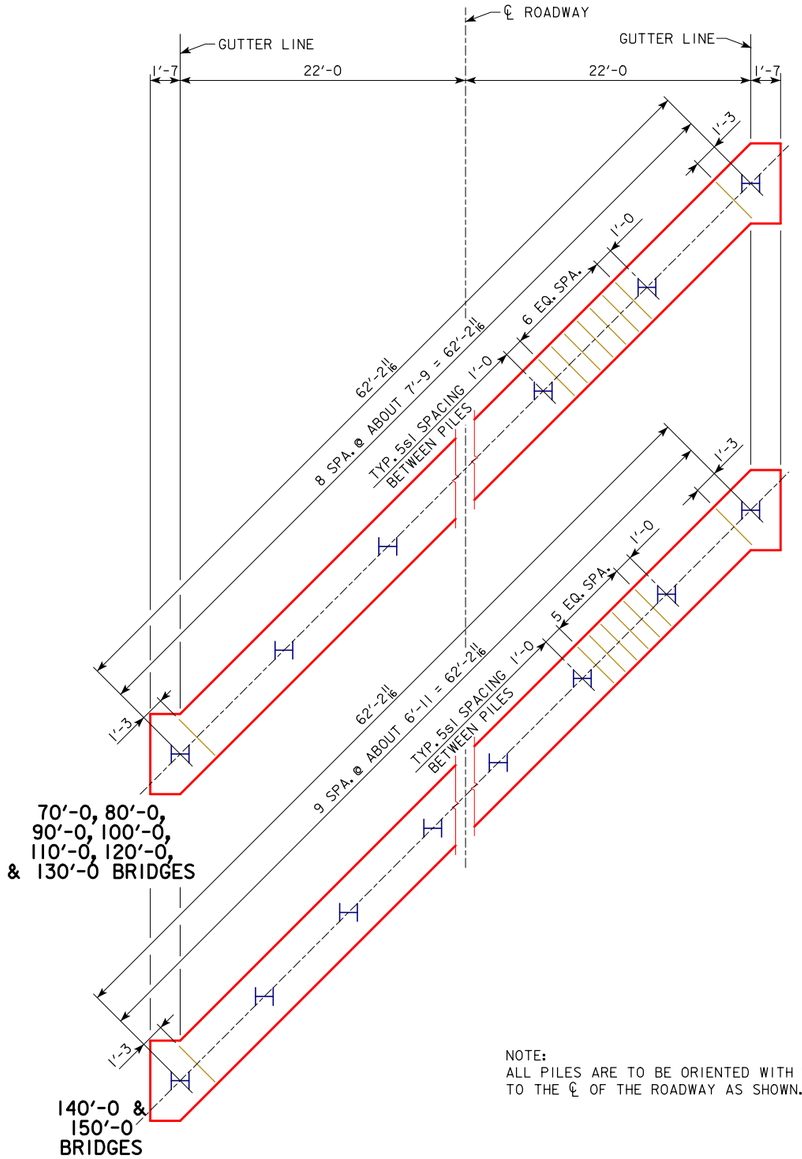
CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

ABUTMENT DETAILS 45° SKEW - STEEL PILING

J44-42-06

REVISED 06-13: REVISION FOR LRFD PILE DESIGN.
REVISED 10-2016: ADDED 4⅜" DIMENSION THAT WAS MISSING IN "SECTION NORMAL TO ABUTMENT AT CENTERLINE".
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.



NOTE:
ALL PILES ARE TO BE ORIENTED WITH WEBS PERPENDICULAR TO THE ℄ OF THE ROADWAY AS SHOWN.

PILE PLAN - 45° SKEW STEEL PILING

NUMBER OF PILES AND ABUTMENT DESIGN LOADS

BRIDGE LENGTH	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
PILING - NUMBER	9	9	9	9	9	9	9	10	10
PU, STRENGTH I DESIGN LOAD - KIPS	565	599	632	674	715	762	807	Δ 933	Δ 986

Δ INCLUDES DYNAMIC LOAD ALLOWANCE
NOTE: PU, STRENGTH I DESIGN LOAD (KIPS) IS NOT THE VALUE USED IN THE FIELD FOR DRIVING PILES.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES
CONTINUOUS CONCRETE SLAB BRIDGES
NOVEMBER, 2006

ABUTMENT DETAILS
45° SKEW - STEEL PILING

J44-43-06

REVISED 06-13: REVISION FOR LRFD PILE DESIGN.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

BILL OF REINFORCING STEEL - ONE ABUTMENT - 0° SKEW

MARK	LOCATION	SHAPE	LENGTH	70'-0 NO.	70'-0 WEIGHT	80'-0 NO.	80'-0 WEIGHT	90'-0 NO.	90'-0 WEIGHT	100'-0 NO.	100'-0 WEIGHT	110'-0 NO.	110'-0 WEIGHT	120'-0 NO.	120'-0 WEIGHT	130'-0 NO.	130'-0 WEIGHT	140'-0 NO.	140'-0 WEIGHT	150'-0 NO.	150'-0 WEIGHT
8r1	ABUTMENT FOOTING LONGITUDINAL		28'-4	7	530	7	530	7	530	7	530	7	530	7	530	7	530	7	530	7	530
8r2	ABUTMENT FOOTING LONGITUDINAL		23'-4	7	436	7	436	7	436	7	436	7	436	7	436	7	436	7	436	7	436
5s1	ABUTMENT FOOTING HOOPS		11'-0	46	528	46	528	46	528	46	528	46	528	46	528	46	528	44	505	44	505
6t1	FOOTING TO SLAB DOWELS		5'-0	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376
6t2	FOOTING TO SLAB DOWELS		5'-7	50	419	50	419	50	419	50	419	50	419	50	419	50	419	50	419	50	419
#2	PILE SPIRAL		38'-6	7	45	7	45	7	45	7	45	7	45	7	45	8	51	9	58	9	58
	SPIRAL SPACERS, $L\frac{7}{8}\times\frac{7}{8}\times\frac{1}{8}\times$ 0.70		1'-10	21	27	21	27	21	27	21	27	21	27	21	27	24	31	37	35	27	35
REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)					2361		2361		2361		2361		2361		2361		2371		2359		2359

BILL OF REINFORCING STEEL - ONE ABUTMENT - 15° SKEW

MARK	LOCATION	SHAPE	LENGTH	70'-0 NO.	70'-0 WEIGHT	80'-0 NO.	80'-0 WEIGHT	90'-0 NO.	90'-0 WEIGHT	100'-0 NO.	100'-0 WEIGHT	110'-0 NO.	110'-0 WEIGHT	120'-0 NO.	120'-0 WEIGHT	130'-0 NO.	130'-0 WEIGHT	140'-0 NO.	140'-0 WEIGHT	150'-0 NO.	150'-0 WEIGHT
8r1	ABUTMENT FOOTING LONGITUDINAL		29'-2	7	545	7	545	7	545	7	545	7	545	7	545	7	545	7	545	7	545
8r2	ABUTMENT FOOTING LONGITUDINAL		24'-1	7	450	7	450	7	450	7	450	7	450	7	450	7	450	7	450	7	450
5s1	ABUTMENT FOOTING HOOPS		11'-0	42	482	42	482	42	482	42	482	42	482	42	482	42	482	40	459	40	459
5s2	ABUTMENT FOOTING HOOPS		11'-3	4	47	4	47	4	47	4	47	4	47	4	47	4	47	4	47	4	47
6t1	FOOTING TO SLAB DOWELS		5'-0	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376
6t2	FOOTING TO SLAB DOWELS		5'-7	50	419	50	419	50	419	50	419	50	419	50	419	50	419	50	419	50	419
#2	PILE SPIRAL		38'-6	7	45	7	45	7	45	7	45	7	45	8	51	8	51	9	58	9	58
	SPIRAL SPACERS, $L\frac{7}{8}\times\frac{7}{8}\times\frac{1}{8}\times$ 0.70		1'-10	21	27	21	27	21	27	21	27	21	27	24	31	24	31	27	35	27	35
REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)					2391		2391		2391		2391		2391		2401		2401		2389		2389

BILL OF REINFORCING STEEL - ONE ABUTMENT - 30° SKEW

MARK	LOCATION	SHAPE	LENGTH	70'-0 NO.	70'-0 WEIGHT	80'-0 NO.	80'-0 WEIGHT	90'-0 NO.	90'-0 WEIGHT	100'-0 NO.	100'-0 WEIGHT	110'-0 NO.	110'-0 WEIGHT	120'-0 NO.	120'-0 WEIGHT	130'-0 NO.	130'-0 WEIGHT	140'-0 NO.	140'-0 WEIGHT	150'-0 NO.	150'-0 WEIGHT
8r1	ABUTMENT FOOTING LONGITUDINAL		31'-9	7	593	7	593	7	593	7	593	7	593	7	593	7	593	7	593	7	593
8r2	ABUTMENT FOOTING LONGITUDINAL		26'-9	7	500	7	500	7	500	7	500	7	500	7	500	7	500	7	500	7	500
5s1	ABUTMENT FOOTING HOOPS		11'-0	49	562	49	562	49	562	49	562	49	562	49	562	49	562	48	551	45	516
5s2	ABUTMENT FOOTING HOOPS		11'-11	4	50	4	50	4	50	4	50	4	50	4	50	4	50	4	50	4	50
6t1	FOOTING TO SLAB DOWELS		5'-0	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376
6t2	FOOTING TO SLAB DOWELS		5'-7	50	419	50	419	50	419	50	419	50	419	50	419	50	419	50	419	50	419
#2	PILE SPIRAL		38'-6	8	51	8	51	8	51	8	51	8	51	8	51	8	51	9	58	10	64
	SPIRAL SPACERS, $L\frac{7}{8}\times\frac{7}{8}\times\frac{1}{8}\times$ 0.70		1'-10	24	31	24	31	24	31	24	31	24	31	24	31	24	31	27	35	30	39
REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)					2582		2582		2582		2582		2582		2582		2582		2582		2557

BILL OF REINFORCING STEEL - ONE ABUTMENT - 45° SKEW

MARK	LOCATION	SHAPE	LENGTH	70'-0 NO.	70'-0 WEIGHT	80'-0 NO.	80'-0 WEIGHT	90'-0 NO.	90'-0 WEIGHT	100'-0 NO.	100'-0 WEIGHT	110'-0 NO.	110'-0 WEIGHT	120'-0 NO.	120'-0 WEIGHT	130'-0 NO.	130'-0 WEIGHT	140'-0 NO.	140'-0 WEIGHT	150'-0 NO.	150'-0 WEIGHT
8r1	ABUTMENT FOOTING LONGITUDINAL		37'-6	7	701	7	701	7	701	7	701	7	701	7	701	7	701	7	701	7	701
8r2	ABUTMENT FOOTING LONGITUDINAL		32'-5	7	606	7	606	7	606	7	606	7	606	7	606	7	606	7	606	7	606
5s1	ABUTMENT FOOTING HOOPS		11'-0	56	642	56	642	56	642	56	642	56	642	56	642	56	642	54	620	54	620
5s2	ABUTMENT FOOTING HOOPS		13'-6	4	56	4	56	4	56	4	56	4	56	4	56	4	56	4	56	4	56
6t1	FOOTING TO SLAB DOWELS		5'-0	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376
6t2	FOOTING TO SLAB DOWELS		5'-7	50	419	50	419	50	419	50	419	50	419	50	419	50	419	50	419	50	419
#2	PILE SPIRAL		38'-6	9	58	9	58	9	58	9	58	9	58	9	58	9	58	10	64	10	64
	SPIRAL SPACERS, $L\frac{7}{8}\times\frac{7}{8}\times\frac{1}{8}\times$ 0.70		1'-10	27	35	27	35	27	35	27	35	27	35	27	35	27	35	30	39	30	39
REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)					2893		2893		2893		2893		2893		2893		2881		2881		2881

NOTE: THE PILE SPIRALS AND SPIRAL SPACERS ARE TO BE NON-COATED REINFORCING BUT MAY BE EPOXY COATED AT THE CONTRACTORS OPTION AND EXPENSE.

ESTIMATED QUANTITIES - ONE ABUT. - 0° SKEW

LOCATION	UNIT	QUANTITY								
BRIDGE LENGTH		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
STRUCTURAL CONCRETE (BRIDGE)	C.Y.	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7
REINFORCING STEEL EPOXY COATED	LBS.	2361	2361	2361	2361	2361	2361	2371	2359	2359
STEEL PILING HP 10x42	NO.	7	7	7	7	7	7	8	9	9
PREBORE HOLES	FT.	-	-	-	-	-	-	-	90	90

ESTIMATED QUANTITIES - ONE ABUT. - 15° SKEW

LOCATION	UNIT	QUANTITY								
BRIDGE LENGTH		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
STRUCTURAL CONCRETE (BRIDGE)	C.Y.	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3
REINFORCING STEEL EPOXY COATED	LBS.	2391	2391	2391	2391	2391	2401	2401	2389	2389
STEEL PILING HP 10x42	NO.	7	7	7	7	7	8	8	9	9
PREBORE HOLES	FT.	-	-	-	-	-	-	-	90	90

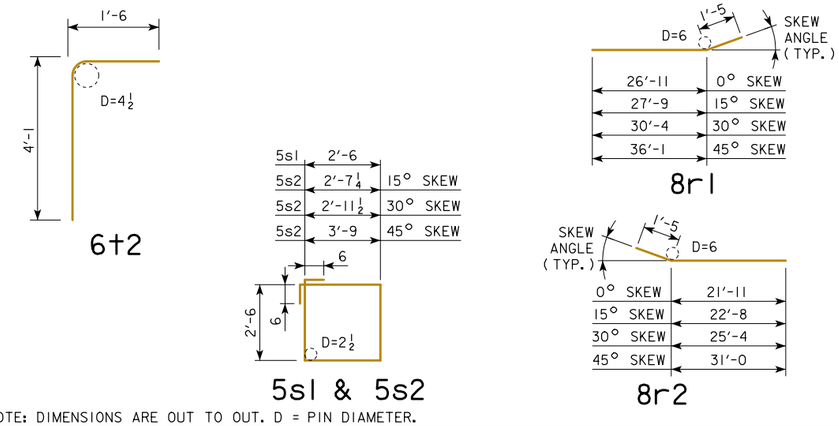
ESTIMATED QUANTITIES - ONE ABUT. - 30° SKEW

LOCATION	UNIT	QUANTITY								
BRIDGE LENGTH		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
STRUCTURAL CONCRETE (BRIDGE)	C.Y.	18.2	18.2	18.2	18.2	18.2	18.2	18.2	18.2	18.2
REINFORCING STEEL EPOXY COATED	LBS.	2582	2582	2582	2582	2582	2582	2582	2582	2557
STEEL PILING HP 10x42	NO.	8	8	8	8	8	8	8	9	10
PREBORE HOLES	FT.	-	-	-	-	-	-	-	90	100

ESTIMATED QUANTITIES - ONE ABUT. - 45° SKEW

LOCATION	UNIT	QUANTITY								
BRIDGE LENGTH		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
STRUCTURAL CONCRETE (BRIDGE)	C.Y.	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.3
REINFORCING STEEL EPOXY COATED	LBS.	2893	2893	2893	2893	2893	2893	2893	2881	2881
STEEL PILING HP 10x42	NO.	9	9	9	9	9	9	9	10	10
PREBORE HOLES	FT.	-	-	-	-	-	-	-	100	100

BENT BAR DETAILS



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

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

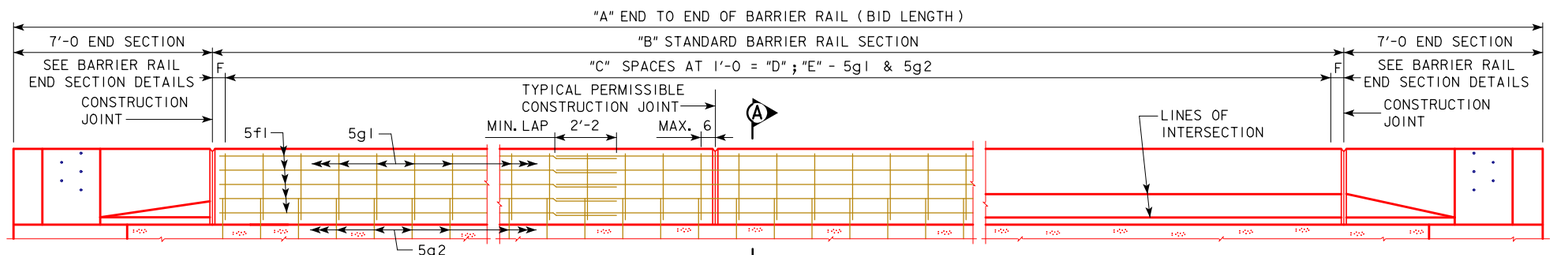
ABUTMENT DETAILS
STEEL PILING

J44-44-06

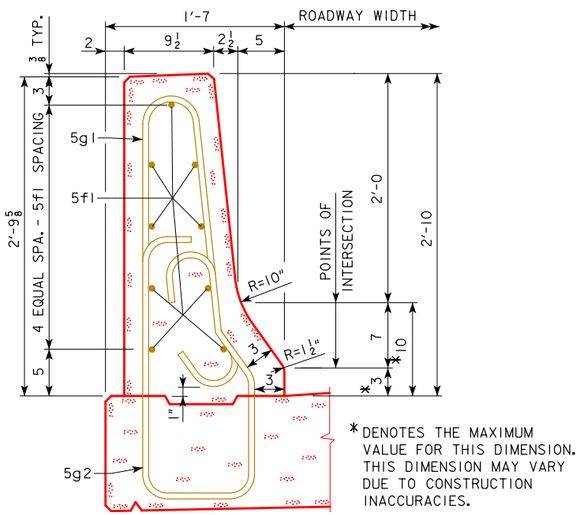
REVISED 07-09: CONCRETE QUANTITIES CHANGED.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

TABLE OF BARRIER RAIL DIMENSIONS AND NUMBERS

BRIDGE LENGTH		70′-0				80′-0				90′-0				100′-0				110′-0				120′-0				130′-0				140′-0				150′-0			
SKEW		0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°
DIMENSION OR NUMBER	A (FT.-IN.)	81′-0	81′-1 1/4	81′-5 1/2	82′-3	91′-0	91′-1 1/4	91′-5 1/2	92′-3	101′-0	101′-1 1/4	101′-5 1/2	102′-3	111′-0	111′-1 1/4	111′-5 1/2	112′-3	121′-0	121′-1 1/4	121′-5 1/2	122′-3	131′-0	131′-1 1/4	131′-5 1/2	132′-3	141′-0	141′-1 1/4	141′-5 1/2	142′-3	151′-0	151′-1 1/4	151′-5 1/2	152′-3	161′-0	161′-1 1/4	161′-5 1/2	162′-3
	B (FT.-IN.)	67′-0	67′-1 1/4	67′-5 1/2	68′-3	77′-0	77′-1 1/4	77′-5 1/2	78′-3	87′-0	87′-1 1/4	87′-5 1/2	88′-3	97′-0	97′-1 1/4	97′-5 1/2	98′-3	107′-0	107′-1 1/4	107′-5 1/2	108′-3	117′-0	117′-1 1/4	117′-5 1/2	118′-3	127′-0	127′-1 1/4	127′-5 1/2	128′-3	137′-0	137′-1 1/4	137′-5 1/2	138′-3	147′-0	147′-1 1/4	147′-5 1/2	148′-3
	C	66	66	66	67	76	76	76	77	86	86	86	87	96	96	96	97	106	106	106	107	116	116	116	117	126	126	126	127	136	136	136	137	146	146	146	147
	D (FT.-IN.)	66′-0	66′-0	66′-0	67′-0	76′-0	76′-0	76′-0	77′-0	86′-0	86′-0	86′-0	87′-0	96′-0	96′-0	96′-0	97′-0	106′-0	106′-0	106′-0	107′-0	116′-0	116′-0	116′-0	117′-0	126′-0	126′-0	126′-0	127′-0	136′-0	136′-0	136′-0	137′-0	146′-0	146′-0	146′-0	147′-0
	E	67	67	67	68	77	77	77	78	87	87	87	88	97	97	97	98	107	107	107	108	117	117	117	118	127	127	127	128	137	137	137	138	147	147	147	148
	F (IN.)	6	6 5/8	8 3/4	7 1/2	6	6 5/8	8 3/4	7 1/2	6	6 5/8	8 3/4	7 1/2	6	6 5/8	8 3/4	7 1/2	6	6 5/8	8 3/4	7 1/2	6	6 5/8	8 3/4	7 1/2	6	6 5/8	8 3/4	7 1/2	6	6 5/8	8 3/4	7 1/2	6	6 5/8	8 3/4	7 1/2

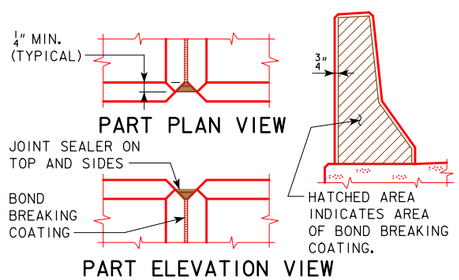


ELEVATION OF BARRIER RAIL



* DENOTES THE MAXIMUM VALUE FOR THIS DIMENSION. THIS DIMENSION MAY VARY DUE TO CONSTRUCTION INACCURACIES.

PART SECTION A-A



BARRIER RAIL JOINT DETAILS

BARRIER RAIL NOTES:

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

THE PERMISSIBLE CONSTRUCTION JOINTS ARE TO BE PLACED BETWEEN VERTICAL BARS AT A MINIMUM SPACING OF 20 FEET. CONSTRUCTION JOINT CONTACT SURFACES ARE TO BE COATED WITH AN APPROVED BOND BREAKER.

COST OF THE JOINT SEALER AND BOND BREAKER SHALL BE CONSIDERED INCIDENTAL TO OTHER CONSTRUCTION.

THE CONCRETE BARRIER RAIL IS TO BE BID ON A LINEAL FOOT BASIS. THE NUMBER OF LINEAL FEET OF BARRIER RAIL INSTALLED WILL BE PAID FOR AT THE CONTRACT PRICE PER LINEAL FOOT BASED ON PLAN QUANTITIES. PRICE BID FOR "CONCRETE BARRIER RAILING" 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.

IF CONDUIT IS REQUIRED IN THIS PLAN THE RIGID STEEL CONDUIT, JUNCTION BOXES AND FITTINGS INCLUDING LABOR AND ANY ADDITIONAL WORK TO DO THE INSTALLATION IS CONSIDERED INCIDENTAL TO THE COST OF THE RAILING.

THE JOINT SEALER SHALL BE LIGHT GRAY NONSAG LATEX CAULKING SEALER MARKETED FOR OUTDOOR USE. NO TESTING OR CERTIFICATION IS REQUIRED.

TOP OF THE BARRIER RAIL IS TO BE PARALLEL TO THE THEORETICAL ℄ GRADE.

CROSS SECTIONAL AREA OF THE STANDARD SECTION OF THE BARRIER RAIL = 2.84 SQUARE FEET.

ALL BARRIER RAIL REINFORCING SHALL BE EPOXY COATED.

CONCRETE BARRIER RAILS PLACED USING THE SLIPFORM METHOD WILL REQUIRE THE USE OF A CLASS BR CONCRETE IN ACCORDANCE WITH ARTICLE 2513.03, A, 2, OF THE STANDARD SPECIFICATION. CAST-IN-PLACE BARRIER RAILS SHALL USE CLASS C MIX. CLASS D CONCRETE IS NOT PERMITTED FOR CONCRETE BARRIER RAILS (CAST-IN-PLACE OR SLIPFORMED METHOD).

REVISED 07-09: BR CONCRETE ARTICLE NUMBER CHANGED.
REVISED 07-2016: REMOVED BARRIER RAIL NOTE STATING "ALL BARRIER RAIL REINFORCING STEEL IS TO BE INCLUDED WITH THE SUPERSTRUCTURE REINFORCING STEEL."
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

STANDARD DESIGN - 44′ ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

BARRIER RAIL DETAILS

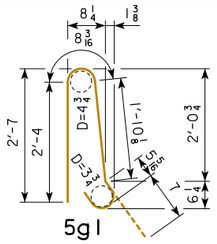
J44-45-06

EPOXY REINFORCING STEEL-TWO BARRIER RAILS

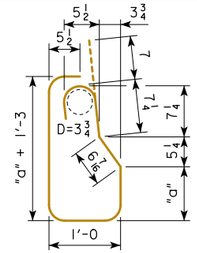
BRIDGE LENGTH				70′-0			80′-0			90′-0			100′-0			110′-0			120′-0			130′-0			140′-0			150′-0		
SECTION	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT
STANDARD SECTION	5g1	VERTICAL		136	5′-11	839	156	5′-11	963	176	5′-11	1086	196	5′-11	1210	216	5′-11	1333	236	5′-11	1456	256	5′-11	1580	276	5′-11	1703	296	5′-11	1827
	5g2	VERTICAL		136	6′-10	969	156	6′-11	1125	176	7′-1	1300	196	7′-4	1499	216	7′-6	1690	236	7′-9	1908	256	7′-11	2114	276	8′-2	2351	296	8′-5	2598
	5f1	LONGITUDINAL		36	35′-1	1317	54	27′-5	1544	54	30′-9	1732	54	34′-1	1920	54	37′-5	2107	72	31′-2	2340	72	33′-8	2528	72	36′-2	2716	72	38′-8	2904
		4 END SECTIONS @ 458 LBS.				1832			1832			1832			1832			1832			1832			1832			1832			1832
(INCLUDE WITH SUPERSTRUCTURE REINFORCING)				TOTAL (LBS.)		4957	TOTAL (LBS.)		5464	TOTAL (LBS.)		5950	TOTAL (LBS.)		6461	TOTAL (LBS.)		6962	TOTAL (LBS.)		7536	TOTAL (LBS.)		8054	TOTAL (LBS.)		8602	TOTAL (LBS.)		9161

REINFORCING QUANTITIES SHOWN ARE BASED ON 45° SKEW BID LENGTHS.

BENT BAR DETAILS



5g1



5g2

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

5g2 BARS		
BRIDGE	"a"	LENGTH
70′	1′-2	6′-10
80′	1′-2 3/4	6′-11
90′	1′-3 3/4	7′-1
100′	1′-5	7′-4
110′	1′-6	7′-6
120′	1′-7 1/2	7′-9
130′	1′-8 3/4	7′-11
140′	1′-10	8′-2
150′	1′-11 1/2	8′-5

CONCRETE PLACEMENT SUMMARY

BRIDGE LENGTH		70′-0	80′-0	90′-0	100′-0	110′-0	120′-0	130′-0	140′-0	150′-0
STANDARD SECTION *	2 X B @ 0.1052 CU. YDS. PER FT.	14.4	16.5	18.6	20.7	22.8	24.9	27.0	29.1	31.2
END SECTION	4 @ 0.65 CU. YDS.	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
	TOTAL (CU. YDS.)	17.0	19.1	21.2	23.3	25.4	27.5	29.6	31.7	33.8

* SEE J44-45-06 FOR DIMENSION "B".
CONCRETE QUANTITIES SHOWN ARE BASED ON 45° SKEW BID LENGTHS.

CONCRETE BARRIER RAIL QUANTITIES

BRIDGE LENGTH		UNIT	70′-0	80′-0	90′-0	100′-0	110′-0	120′-0	130′-0	140′-0	150′-0
CONCRETE BARRIER RAILING	0° SKEW	L.F.	162.0	182.0	202.0	222.0	242.0	262.0	282.0	302.0	322.0
CONCRETE BARRIER RAILING	15° SKEW	L.F.	162.2	182.2	202.2	222.2	242.2	262.2	282.2	302.2	322.2
CONCRETE BARRIER RAILING	30° SKEW	L.F.	162.9	182.9	202.9	222.9	242.9	262.9	282.9	302.9	322.9
CONCRETE BARRIER RAILING	45° SKEW	L.F.	164.5	184.5	204.5	224.5	244.5	264.5	284.5	304.5	324.5

REVISED 07-09: WEIGHT OF END SECTIONS CHANGED AND IS REFLECTED IN TOTAL WEIGHT.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

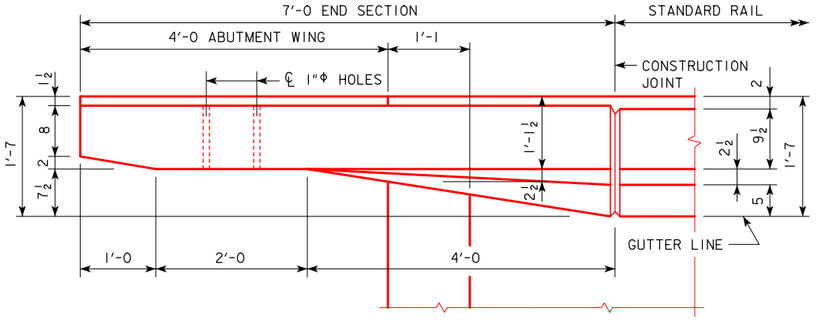
STANDARD DESIGN - 44′ ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

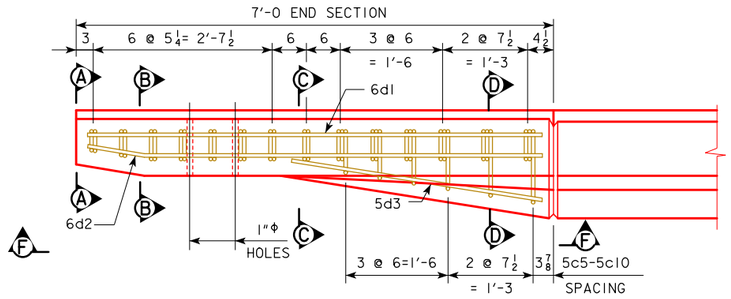
NOVEMBER, 2006

BARRIER RAIL DETAILS

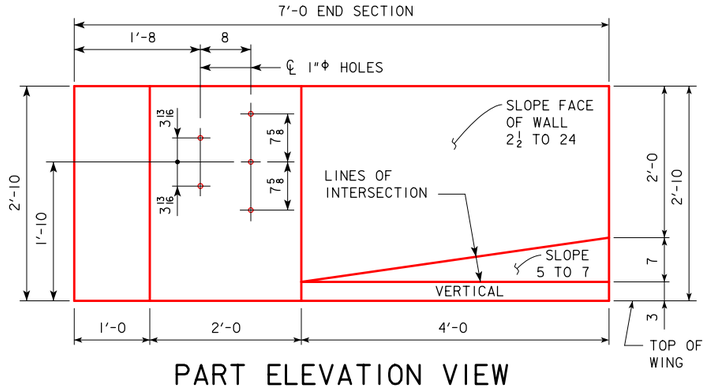
J44-46-06



PART PLAN VIEW

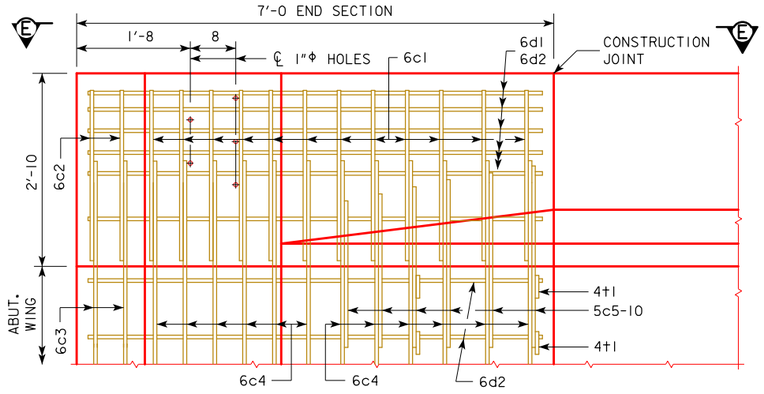


PART VIEW E-E

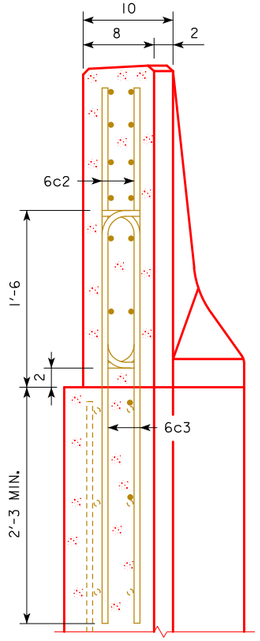


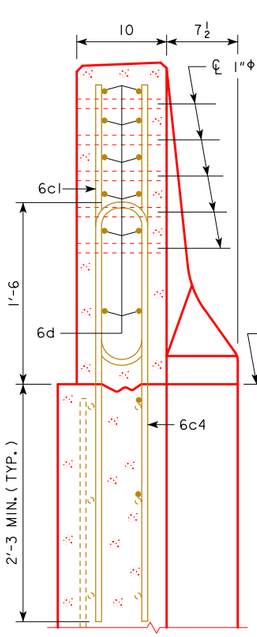
PART ELEVATION VIEW

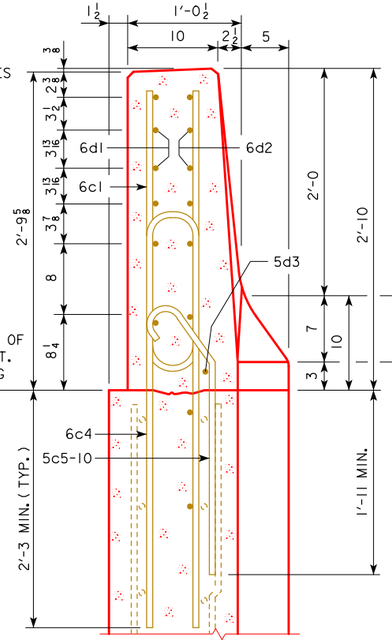
PROVIDE 5 HOLES FORMED WITH 1"Φ PLASTIC CONDUIT. COST TO BE INCLUDED IN PRICE BID FOR CONCRETE BARRIER RAILING.

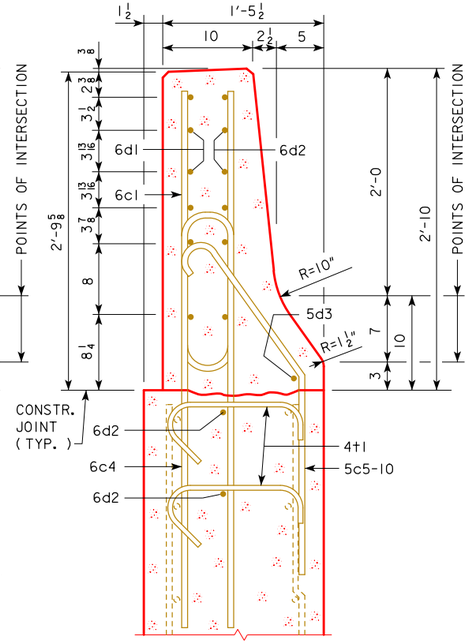


PART VIEW F-F









NOTE:
4t1 PLACEMENT- 2 BARS EACH LEVEL OF 6d2 IN WING FOOTING.

NOTE:
CONSTRUCTION JOINT BETWEEN TOP OF WING AND BARRIER RAIL IS ROUGHENED CONCRETE.

NOTE:
THE 10" RADIUS AND 1½" RADIUS ARE TYPICAL AND SHALL BE USED WHEN CONSTRUCTING THE CORNERS FOR VIEW A-A, SECTION B-B, SECTION C-C AND SECTION D-D.

NOTE:
THE 6c4, 6c3, 5c5-10, 2 - 6d2 AND 4t1 BARS ARE TO BE PLACED WITH THE ABUTMENT WING. THE DETAILS FOR PLACEMENT ARE SHOWN ON THE WING ABUTMENT SHEET.

NOTE:
DASHED LINES BELOW THE TOP OF WING ARE THE ABUTMENT WING REINFORCING STEEL. SEE WING ABUTMENT SHEET FOR PLACEMENT.

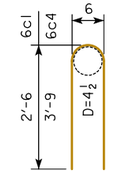
EPOXY REINFORCING STEEL - ONE END SECTION

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	VERTICAL		12	5'-6	99
6c2	VERTICAL		4	2'-10	17
6c3	VERTICAL		4	4'-1	25
6c4	VERTICAL		12	8'-0	144
5c5-10	VERTICAL		6	VARIES	23
6d1	HORIZONTAL		6	6'-8	60
6d2	HORIZONTAL		8	6'-9	81
5d3	HORIZONTAL		1	3'-9	4
4t1	ABUTMENT WING TIE BARS		4	VARIES	5
(INCLUDE WITH BARRIER RAIL REINFORCING)		TOTAL WEIGHT (LBS.)			458

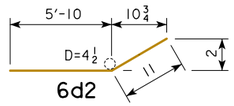
CONCRETE PLACEMENT SUMMARY

SECTION	TOTAL
BARRIER RAIL ONE END SECTION	0.65 CU. YD.

BENT BAR DETAILS

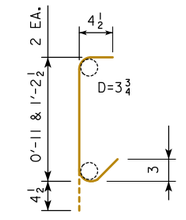


6c1 & 6c4

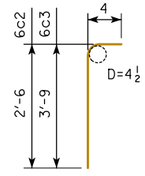


6d2

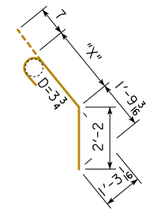
BAR	"X"
5c5	0'-6½
5c6	0'-8½
5c7	0'-10¼
5c8	1'-0¼
5c9	1'-2
5c10	1'-4



4t1



6c2 & 6c3



5c5-5c10

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

REVISED 07-09: CHANGED SHAPE OF 5c5-5c10 BARS/
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE. CHANGED SECTION A-A (WAS VIEW A-A).

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWA DOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

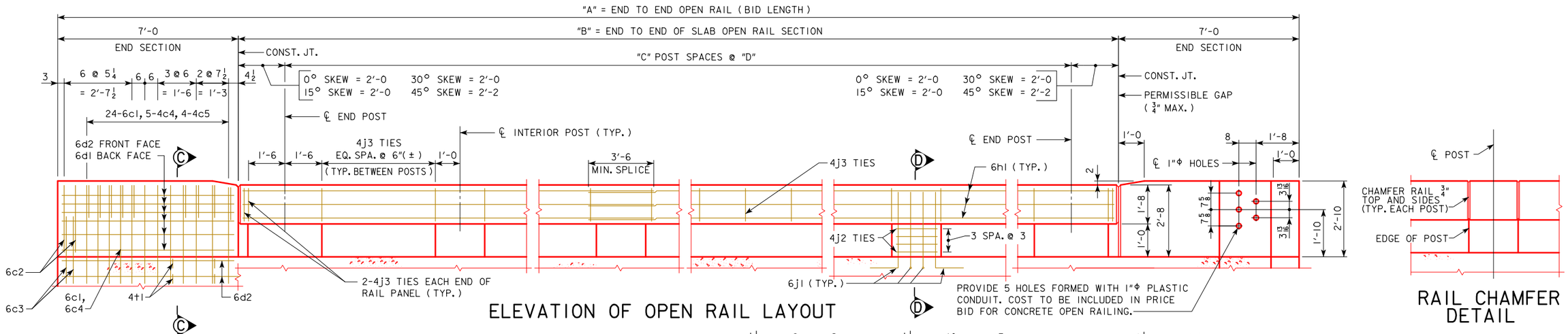
CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

BARRIER RAIL END SECTION | J44-47-06

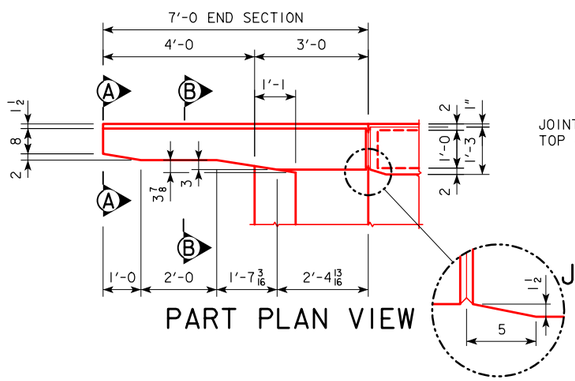
TABLE OF OPEN RAIL DIMENSIONS AND NUMBERS

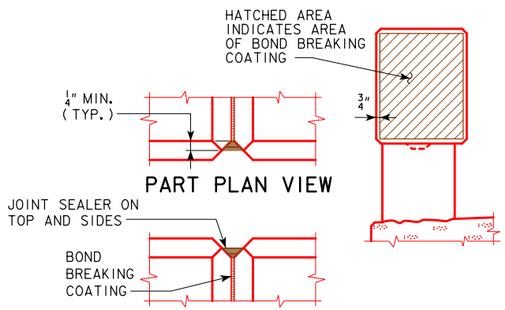
℄-℄ ABUT. BRG		70′-0				80′-0				90′-0				100′-0				110′-0				120′-0				130′-0				140′-0				150′-0			
SKEW		0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°
DIMENSION OR NUMBER	A (FT.-IN.)	81′-0	81′-1 1/4	81′-5 1/2	82′-3	91′-0	91′-1 1/4	91′-5 1/2	92′-3	101′-0	101′-1 1/4	101′-5 1/2	102′-3	111′-0	111′-1 1/4	111′-5 1/2	112′-3	121′-0	121′-1 1/4	121′-5 1/2	122′-3	131′-0	131′-1 1/4	131′-5 1/2	132′-3	141′-0	141′-1 1/4	141′-5 1/2	142′-3	151′-0	151′-1 1/4	151′-5 1/2	152′-3	161′-0	161′-1 1/4	161′-5 1/2	162′-3
	B (FT.-IN.)	67′-0	67′-1 1/4	67′-5 1/2	68′-3	77′-0	77′-1 1/4	77′-5 1/2	78′-3	87′-0	87′-1 1/4	87′-5 1/2	88′-3	97′-0	97′-1 1/4	97′-5 1/2	98′-3	107′-0	107′-1 1/4	107′-5 1/2	108′-3	117′-0	117′-1 1/4	117′-5 1/2	118′-3	127′-0	127′-1 1/4	127′-5 1/2	128′-3	137′-0	137′-1 1/4	137′-5 1/2	138′-3	147′-0	147′-1 1/4	147′-5 1/2	148′-3
	C	8	8	8	8	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	15	15	15	15	16	16	16	16	17	17	17	17	18	18	18	18
	D (FT.-IN.)	7′-10 1/2	7′-10 11/16	7′-11 3/16	7′-11 7/8	7′-3 5/8	7′-3 3/4	7′-4 3/16	7′-4 11/16	7′-6 9/16	7′-6 11/16	7′-7 1/16	7′-7 9/16	7′-9	7′-9 1/8	7′-9 7/16	7′-9 15/16	7′-11 1/16	7′-11 3/16	7′-11 1/2	7′-11 15/16	7′-6 3/8	7′-6 1/2	7′-6 3/4	7′-7 1/8	7′-8 1/4	7′-8 5/16	7′-8 5/8	7′-8 15/16	7′-9 7/8	7′-9 15/16	7′-10 3/16	7′-10 1/2	7′-11 5/16	7′-11 3/8	7′-11 5/8	7′-11 15/16



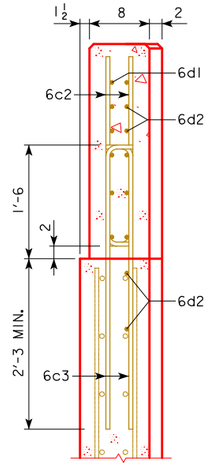
ELEVATION OF OPEN RAIL LAYOUT

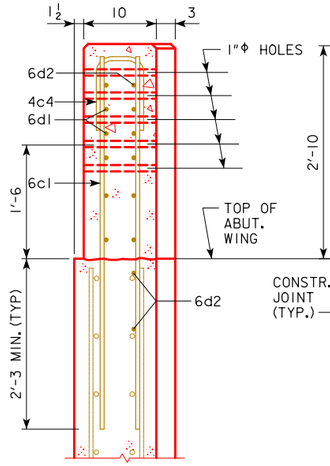
RAIL CHAMFER DETAIL

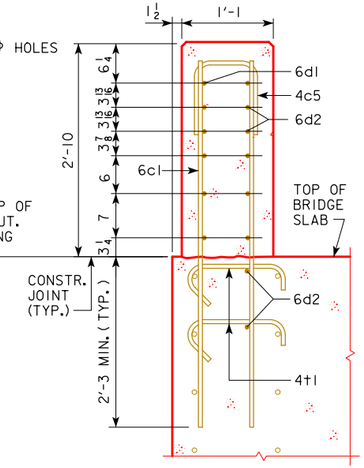


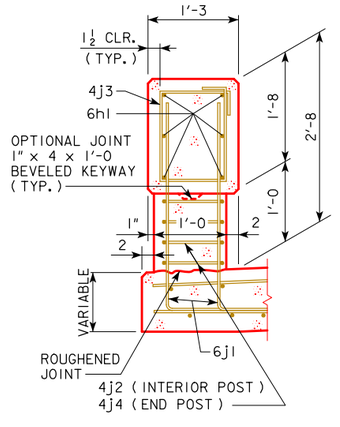


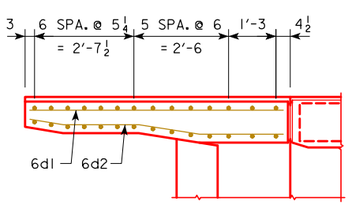
JOINT DETAILS AT END SECTION

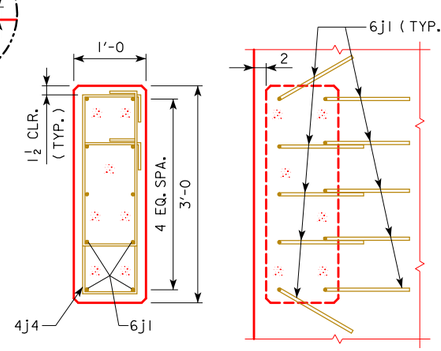


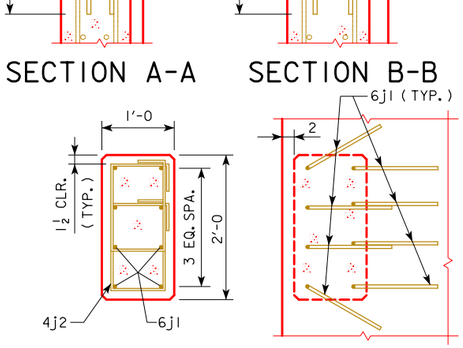












REVISED 11-08: CHANGED END SECTION SHAPE AND REINFORCEMENT. RAIL DEPTH CHANGED TO 1′-8.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE. CHANGED SECTION A-A (WAS VIEW A-A).

IOWA DOT Highway Division

STANDARD DESIGN - 44′ ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

OPEN RAIL DETAILS (TL-4)

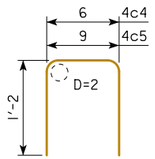
J44-48-06

EPOXY REINFORCING STEEL-TWO OPEN RAILS

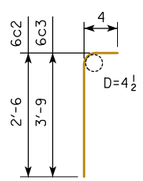
BRIDGE LENGTH			70′-0			80′-0			90′-0			100′-0			110′-0			120′-0			130′-0			140′-0			150′-0		
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT
6c1	VERTICAL		96	4′-11	709	96	4′-11	709	96	4′-11	709	96	4′-11	709	96	4′-11	709	96	4′-11	709	96	4′-11	709	96	4′-11	709	96	4′-11	709
6c2	VERTICAL		16	2′-10	68	16	2′-10	68	16	2′-10	68	16	2′-10	68	16	2′-10	68	16	2′-10	68	16	2′-10	68	16	2′-10	68	16	2′-10	68
6c3	VERTICAL		16	4′-1	98	16	4′-1	98	16	4′-1	98	16	4′-1	98	16	4′-1	98	16	4′-1	98	16	4′-1	98	16	4′-1	98	16	4′-1	98
4c4	VERTICAL HOOPS		20	2′-10	38	20	2′-10	38	20	2′-10	38	20	2′-10	38	20	2′-10	38	20	2′-10	38	20	2′-10	38	20	2′-10	38	20	2′-10	38
4c5	VERTICAL HOOPS		16	3′-1	33	16	3′-1	33	16	3′-1	33	16	3′-1	33	16	3′-1	33	16	3′-1	33	16	3′-1	33	16	3′-1	33	16	3′-1	33
6d1	HORIZONTAL		24	6′-8	240	24	6′-8	240	24	6′-8	240	24	6′-8	240	24	6′-8	240	24	6′-8	240	24	6′-8	240	24	6′-8	240	24	6′-8	240
6d2	HORIZONTAL		32	6′-9	324	32	6′-9	324	32	6′-9	324	32	6′-9	324	32	6′-9	324	32	6′-9	324	32	6′-9	324	32	6′-9	324	32	6′-9	324
6h1	LONGITUDINAL OPEN RAIL		24	35′-9	1289	36	28′-4	1532	36	31′-8	1712	36	35′-0	1893	36	38′-4	2073	48	32′-2	2319	48	34′-8	2499	48	37′-2	2680	60	32′-5	2921
6j1	VERTICAL DOWELS OPEN RAIL		152	4′-6	1027	184	4′-7	1267	200	4′-8	1402	216	4′-9	1541	232	4′-10	1684	264	4′-11	1950	280	5′-1	2138	296	5′-2	2297	312	5′-3	2460
4j2	HOOPS INTERIOR POSTS		112	4′-8	349	144	4′-8	449	160	4′-8	499	176	4′-8	549	192	4′-8	599	224	4′-8	698	240	4′-8	748	256	4′-8	798	272	4′-8	848
4j3	HOOPS OPEN RAIL		212	5′-5	767	244	5′-5	883	290	5′-5	1049	316	5′-5	1143	342	5′-5	1237	394	5′-5	1426	420	5′-5	1520	446	5′-5	1614	472	5′-5	1708
4j4	HOOPS END POSTS		32	6′-5	137	32	6′-5	137	32	6′-5	137	32	6′-5	137	32	6′-5	137	32	6′-5	137	32	6′-5	137	32	6′-5	137	32	6′-5	137
4t1	WING FOOTING TIE BARS		16	VARIES	21	16	VARIES	21	16	VARIES	21	16	VARIES	21	16	VARIES	21	16	VARIES	21	16	VARIES	21	16	VARIES	21	16	VARIES	21
(INCLUDE WITH SUPERSTRUCTURE REINFORCING)		TOTAL (LBS.)			5100			5799			6330			6794			7261			8061			8573			9057			9605

REINFORCING QUANTITIES SHOWN ARE BASED ON 45° SKEW BID LENGTHS.

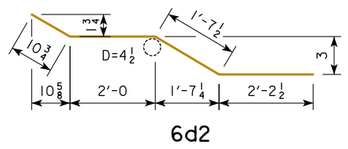
BENT BAR DETAILS



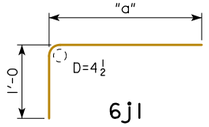
4c4 & 4c5



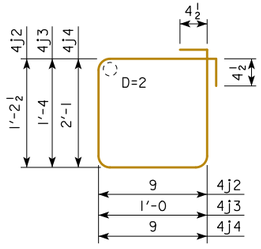
6c2 & 6c3



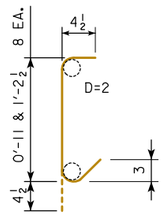
6d2



6j1



4j2, 4j3, 4j4



4t1

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

6j1 BARS		
BRIDGE	"a"	LENGTH
70′	3′-6	4′-6
80′	3′-7	4′-7
90′	3′-8	4′-8
100′	3′-9	4′-9
110′	3′-10	4′-10
120′	3′-11	4′-11
130′	4′-1	5′-1
140′	4′-2	5′-2
150′	4′-3	5′-3

CONCRETE PLACEMENT QUANTITIES

NOTE: THESE VALUES TO BE USED FOR ALL SKEWS.

BRIDGE LENGTH	70′-0	80′-0	90′-0	100′-0	110′-0	120′-0	130′-0	140′-0	150′-0
*STANDARD SECTION CU. YDS.	12.2	14.0	15.7	17.4	19.1	21.0	22.7	24.4	26.0
END SECTION 4 @ 0.687 CU. YDS.	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
TOTAL CU. YDS.	15.0	16.8	18.5	12.2	21.9	23.8	25.5	27.2	28.8

* CONCRETE QUANTITIES SHOWN ARE BASED ON 45° SKEW BID LENGTHS.

CONCRETE OPEN RAIL QUANTITIES

BRIDGE LENGTH		UNIT	70′-0	80′-0	90′-0	100′-0	110′-0	120′-0	130′-0	140′-0	150′-0
CONCRETE OPEN RAILING, TL-4	0° SKEW	L.F.	162.0	182.0	202.0	222.0	242.0	262.0	282.0	302.0	322.0
CONCRETE OPEN RAILING, TL-4	15° SKEW	L.F.	162.2	182.2	202.2	222.2	242.2	262.2	282.2	302.2	322.2
CONCRETE OPEN RAILING, TL-4	30° SKEW	L.F.	162.9	182.9	202.9	222.9	242.9	262.9	282.9	302.9	322.9
CONCRETE OPEN RAILING, TL-4	45° SKEW	L.F.	164.5	184.5	204.5	224.5	244.5	264.5	284.5	304.5	324.5

OPEN RAIL NOTES:

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

COST OF THE JOINT SEALER AND BOND BREAKER SHALL BE CONSIDERED INCIDENTAL TO OTHER CONSTRUCTION.

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 RAILING, TL-4" SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, EXCLUDING REINFORCING STEEL, AND ALL OF THE EQUIPMENT AND LABOR REQUIRED TO CONSTRUCT THE RAIL IN ACCORDANCE WITH THESE PLANS AND CURRENT SPECIFICATIONS.

ALL OPEN RAIL CONCRETE IS TO BE CLASS C.

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

THE JOINT SEALER SHALL BE LIGHT GRAY NONSAG LATEX CAULKING SEALER MARKETED FOR OUTDOOR USE. NO TESTING OR CERTIFICATION IS REQUIRED.

TOP OF THE OPEN RAIL IS TO BE PARALLEL TO THEORETICAL ℄ GRADE.

IF CONDUIT IS REQUIRED IN THIS PLAN THE RIGID STEEL CONDUIT, JUNCTION BOXES AND FITTINGS INCLUDING LABOR AND ANY ADDITIONAL WORK TO DO THE INSTALLATION IS CONSIDERED INCIDENTAL TO THE COST OF THE RAILING.

REVISED 07-09: NUMBER OF 6d1 & 6d2 BARS CHANGED AND IS REFLECTED IN THE WEIGHT CHANGE.
REVISED 07-2016: REMOVED OPEN RAIL NOTE STATING "ALL OPEN RAIL REINFORCING STEEL IS TO BE INCLUDED WITH THE SUPERSTRUCTURE REINFORCING STEEL."
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

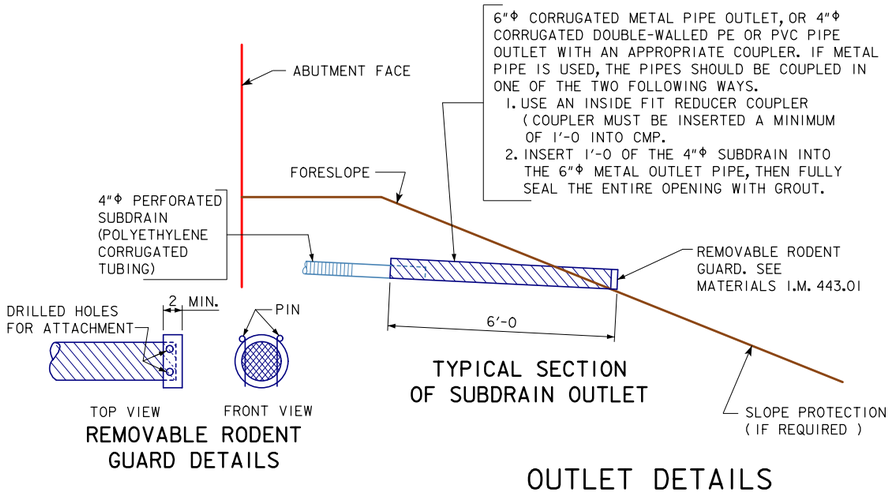
STANDARD DESIGN - 44′ ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

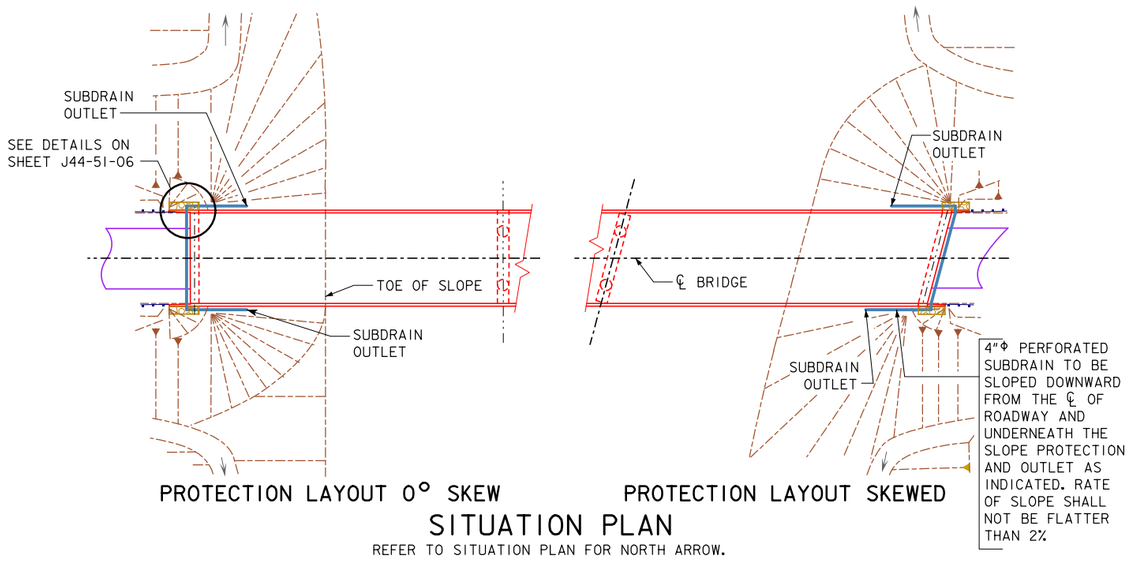
NOVEMBER, 2006

OPEN RAIL DETAILS (TL-4)

J44-49-06



OUTLET DETAILS



SITUATION PLAN

REFER TO SITUATION PLAN FOR NORTH ARROW.

REVISED 11-08: REMOVED GRANULAR BACKFILL DETAILS.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

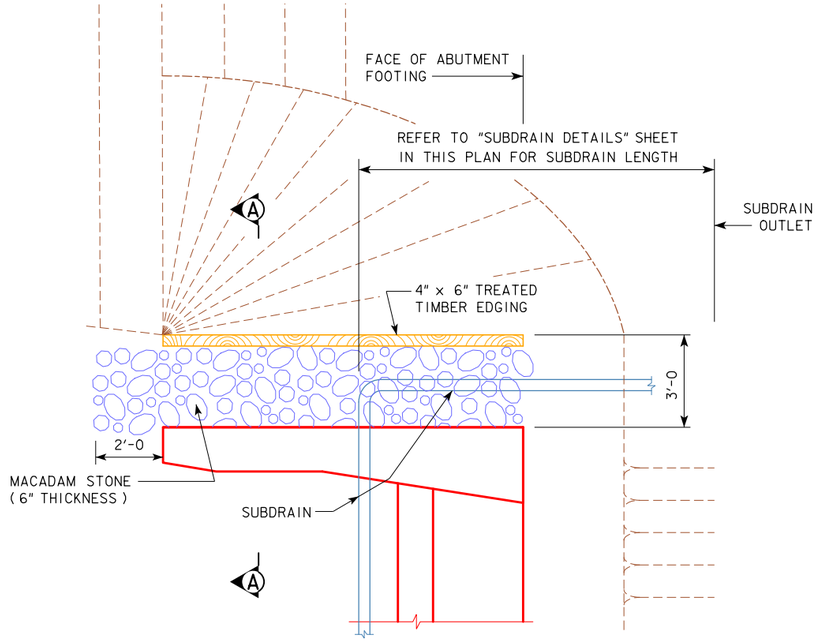
STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

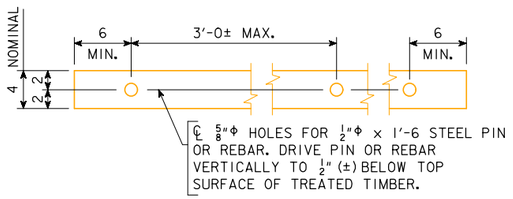
NOVEMBER, 2006

SUBDRAIN DETAILS

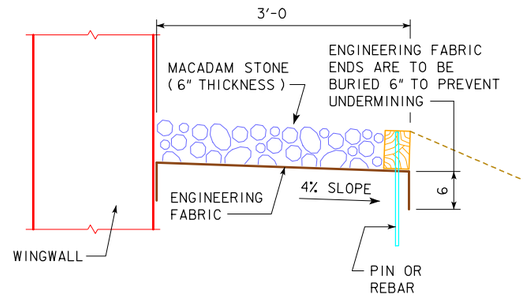
J44-50-06



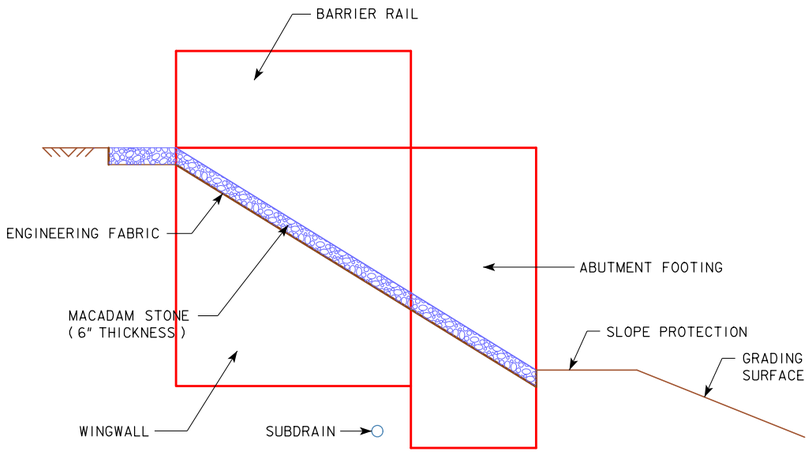
TOP VIEW OF WING ARMORING



4" x 6" TREATED TIMBER EDGING DETAILS



SECTION A-A



PROFILE VIEW OF WING ARMORING

SUBDRAIN NOTES:

SEE J40-50-06 AND "SITUATION PLAN" SHEETS FOR DETAILS OF PLACING ALL SUBDRAINS AND SUBDRAIN OUTLETS REQUIRED FOR THIS STRUCTURE.

THE BRIDGE CONTRACTOR IS TO INSTALL SUBDRAINS BEHIND THE ABUTMENT. THE SUBDRAINS SHALL BE 4" IN DIAMETER AND BE IN ACCORDANCE WITH ARTICLE 4143.01, B, OF THE STANDARD SPECIFICATIONS. THE SUBDRAIN OUTLET SHALL CONSIST OF A 6'-0 LENGTH OF PIPE WITH A REMOVABLE RODENT GUARD.

THE DIMENSIONS SHOWN FOR THE PROPOSED SUBDRAINS ARE BASED ON THE PROPOSED GRADING LAYOUT OF BRIDGE BERMS. THE DIMENSIONS SHOWN ARE FOR ESTIMATING ONLY. REQUIRED LENGTHS AND GENERAL LOCATIONS OF SUBDRAINS ARE SUBJECT TO CHANGE DUE TO FIELD ADJUSTMENTS OF THE GRADING LAYOUT.

THE COST OF FURNISHING AND PLACING SUBDRAIN (INCLUDING EXCAVATION), GRANULAR BACKFILL, POROUS BACKFILL, AND SUBDRAIN OUTLET IS TO BE INCLUDED IN THE PRICE BID FOR "STRUCTURAL CONCRETE (BRIDGE)". NO EXTRA PAYMENT WILL BE MADE.

MACADAM STONE WING ARMORING NOTES:

MACADAM STONE SHALL BE PLACED ALONG THE SIDE OF THE WING AND ABUTMENT FOOTING. THIS IS TYPICAL AT EACH CORNER OF THE BRIDGE UNLESS OTHERWISE NOTED IN THE PLANS. THE MACADAM STONE AT THESE LOCATIONS SHALL BE UNDERLAYED WITH ENGINEERING FABRIC AND BE IN ACCORDANCE WITH ARTICLE 4196.01, B, 3, OF THE STANDARD SPECIFICATIONS.

THE BRIDGE BERM FORESLOPE SHALL BE COMPACTED AND SHAPED AS SHOWN ON THESE PLANS, THE SITUATION PLAN AND AS DIRECTED BY THE ENGINEER. THE BERM FORESLOPE SHALL BE FIRM WHEN THE ENGINEERING FABRIC AND MACADAM STONE ARE PLACED.

THE ENGINEERING FABRIC SHALL BE IN ACCORDANCE WITH ARTICLE 4196.01, B, 3, OF THE STANDARD SPECIFICATIONS. IF THE ENGINEERING FABRIC IS LAPPED THE LAPS SHALL BE A MINIMUM OF ONE FOOT IN LENGTH, SHINGLE FASHION WITH UP SLOPE LAP PIECE ON TOP AND STAPLED FOR CONTINUITY.

THE MACADAM STONE SHALL BE IN ACCORDANCE WITH ARTICLE 4122.02, OF THE STANDARD SPECIFICATIONS FOR COARSE MATERIAL (NO CHOKE STONE IS ALLOWED).

WOOD PRESERVATIVE TREATMENT FOR THE TIMBER EDGING SHALL MEET THE REQUIREMENTS FOR GUARDRAIL POSTS, SAWED FOUR SIDES, AND BE IN ACCORDANCE WITH SECTION 4161, OF THE STANDARD SPECIFICATIONS.

THE MACADAM STONE SHALL BE DEPOSITED, SPREAD, CONSOLIDATED AND SHAPED BY MECHANICAL OR HAND METHODS THAT WILL PROVIDE UNIFORM DEPTH AND DENSITY AND PROVIDE UNIFORM SURFACE APPEARANCE.

PAYMENT FOR THE BRIDGE WING ARMORING SHALL BE INCIDENTAL TO THE BID ITEM "STRUCTURAL CONCRETE (BRIDGE)" AND SHALL INCLUDE COSTS OF ALL MATERIAL AND LABOR TO CONSTRUCT THE WING ARMORING AS SHOWN ON THESE PLANS.

REVISED 09-14: THE AREA OF MACADAM STONE WAS EXTENDED 2'-0 IN FRONT OF THE BRIDGE WING.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

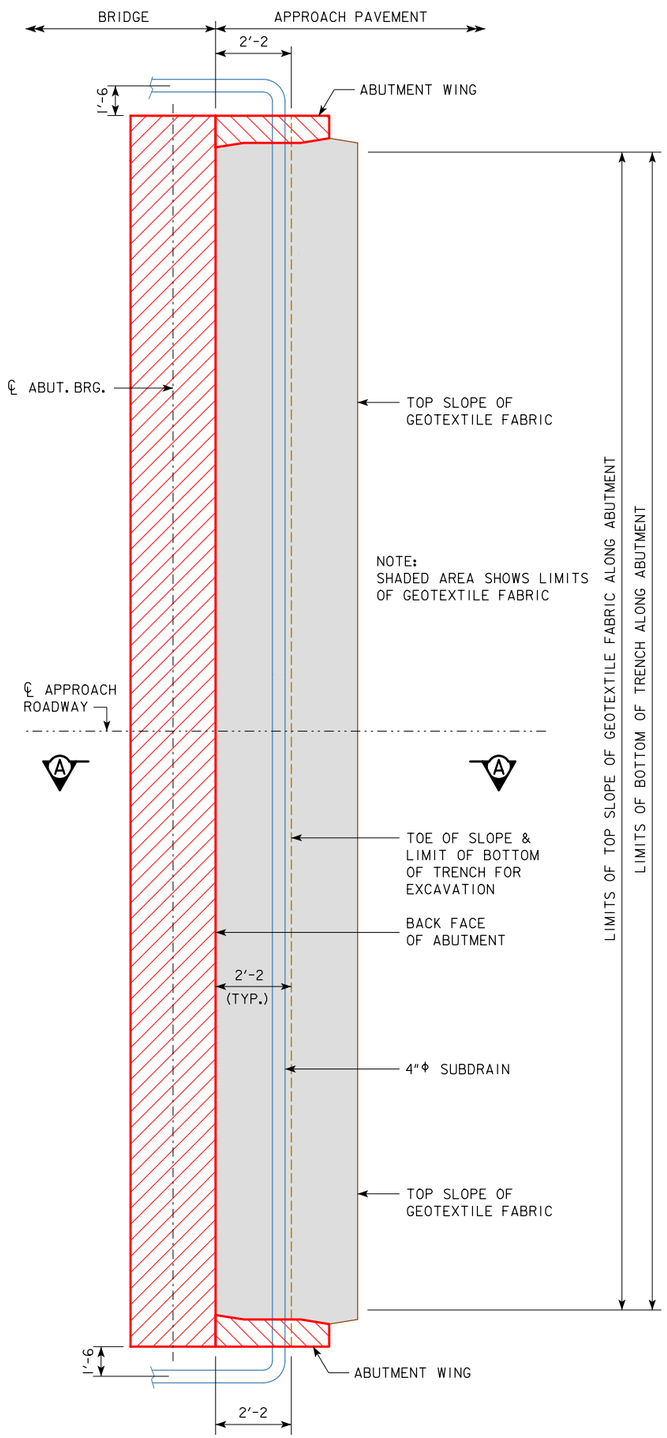
STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

WING ARMORING DETAILS

J44-51-06



ABUTMENT PLAN

ABUTMENT BACKFILL PROCESS:

THE BASE OF THE EXCAVATION SUBGRADE BEHIND THE ABUTMENT IS TO BE GRADED WITH A 4% SLOPE AWAY FROM THE ABUTMENT FOOTING AND A 2% CROSS SLOPE IN THE DIRECTION OF THE SUBDRAIN OUTLET. THIS EXCAVATION SHAPING IS TO BE DONE PRIOR TO BEGINNING INSTALLATION OF THE GEOTEXTILE AND BACKFILL MATERIAL.

AFTER THE SUBGRADE HAS BEEN SHAPED, THE GEOTEXTILE FABRIC SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAILS SHOWN. THE FABRIC IS INTENDED TO BE INSTALLED IN THE BASE OF THE EXCAVATION AND EXTENDED VERTICALLY UP THE ABUTMENT BACKWALL, ABUTMENT WING WALLS, AND EXCAVATION FACE TO A HEIGHT THAT WILL BE APPROXIMATELY 1 TO 2 FOOT HIGHER THAN THE HEIGHT OF THE POROUS BACKFILL PLACEMENT AS SHOWN IN THE "BACKFILL DETAILS" ON THIS SHEET. THE STRIPS OF THE FABRIC PLACED SHALL OVERLAP APPROXIMATELY 1 FOOT AND SHALL BE PINNED IN PLACE. THE FABRIC SHALL BE ATTACHED TO THE ABUTMENT BY USING LATH FOLDED IN THE FABRIC AND SECURED TO THE CONCRETE WITH SHALLOW CONCRETE NAILS. THE FABRIC PLACED AGAINST THE EXCAVATION FACE SHALL BE PINNED.

WHEN THE FABRIC IS IN PLACE, THE SUBDRAIN SHALL BE INSTALLED DIRECTLY ON THE FABRIC AT THE TOE OF THE REAR EXCAVATION SLOPE. A SLOT WILL NEED TO BE CUT IN THE FABRIC AT THE POINT WHERE THE SUBDRAIN EXITS THE FABRIC NEAR THE END OF THE ABUTMENT WING WALL.

POROUS BACKFILL IS THEN PLACED AND LEVELED, NO COMPACTION IS REQUIRED.

THE REMAINING WORK INVOLVES BACKFILLING WITH FLOODABLE BACKFILL, SURFACE FLOODING, AND VIBRATORY COMPACTION. THE FLOODABLE BACKFILL MATERIAL SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. THE FLOODABLE BACKFILL SHALL BE PLACED IN INDIVIDUAL LIFTS, SURFACE FLOODED, AND COMPACTED WITH VIBRATORY COMPACTION TO ENSURE FULL CONSOLIDATION. LIMIT THE LOOSE LIFTS TO NO MORE THAN 2 FEET OF THICKNESS.

START SURFACE FLOODING FOR EACH FLOODABLE BACKFILL LIFT AT THE HIGH POINT OF THE SUBDRAIN AND PROGRESS TO THE LOW POINT WHERE THE SUBDRAIN EXITS THE FABRIC. TO ENSURE UNIFORM SURFACE FLOODING, WATER RUNNING FULL IN A 2-INCH DIAMETER HOSE SHOULD BE SPRAYED IN SUCCESSIVE 6-FOOT TO 8-FOOT INCREMENTS FOR 5 MINUTES WITHIN EACH INCREMENT.

FLOODABLE BACKFILL LIFT PLACEMENT, FLOODING, AND COMPACTION SHALL PROGRESS UNTIL THE REQUIRED FULL THICKNESS OF THE ABUTMENT BACKFILL HAS BEEN COMPLETED.

WATER REQUIRED FOR FLOODING, SUBDRAINS, POROUS BACKFILL, FLOODABLE BACKFILL, AND GEOTEXTILE FABRIC FURNISHED AT THE BRIDGE ABUTMENTS WILL NOT BE MEASURED SEPARATELY FOR PAYMENT.

THE COST OF WATER REQUIRED FOR FLOODING, SUBDRAINS, POROUS BACKFILL, FLOODABLE BACKFILL, AND GEOTEXTILE FABRIC FURNISHED AT THE BRIDGE ABUTMENTS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR STRUCTURAL CONCRETE.

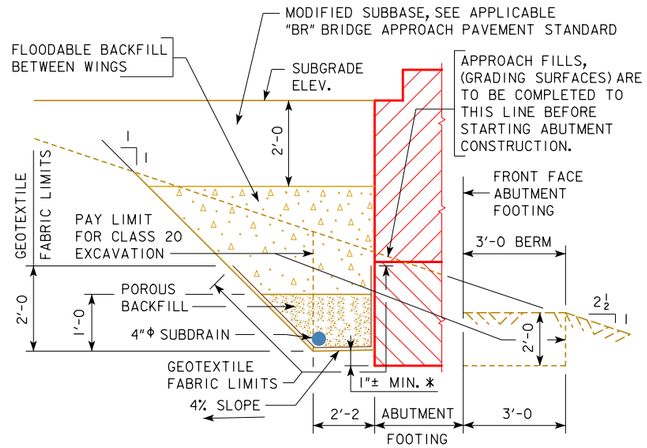
NOTE:
SEE SUBDRAIN DETAILS SHEET FOR DETAILS NOT SHOWN ON THIS SHEET WHICH ARE PERTINENT TO THIS STRUCTURE.

NOTE:

SUBDRAIN SHALL SLOPE DOWNWARD 2% FROM ℄ APPROACH ROADWAY WHEN OUTLETTING BOTH SIDES OF THE ABUTMENT.

SUBDRAIN SHALL SLOPE DOWNWARD 2% FROM HIGH END WHEN OUTLETTING AT ONE END OF THE ABUTMENT.

THE GEOTEXTILE FABRIC SHALL BE IN ACCORDANCE WITH ARTICLE 4196.01, B, 6 OF THE STANDARD SPECIFICATIONS. IF THE ENGINEERING FABRIC IS LAPPED THE LAPS SHALL BE A MINIMUM OF ONE FOOT IN LENGTH, SHINGLE FASHION WITH UP SLOPE LAP PIECE ON TOP AND STAPLED FOR CONTINUITY.



SECTION A-A

BACKFILL DETAILS

NOTE: GEOTEXTILE FABRIC WILL BE ATTACHED TO FACE OF ABUTMENT FOOTING AND WINGS.

* DIMENSION VARIES DUE TO 2% SUBDRAIN SLOPE.

IOWA DOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

DECEMBER, 2008

ABUTMENT BACKFILL DETAILS

FOR 0° SKEWS

J44-52-06

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

REVISED 09-14: THE TECHNICAL DATA INFORMATION TABLE WAS REMOVED AND A NOTE ADDED TO REFER TO THE STANDARDS SPECIFICATIONS FOR THIS INFORMATION.
REVISED 07-2016: CHANGED THE BRIDGE APPROACH PAVEMENT STANDARD TO "BR" (WAS "RK").
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

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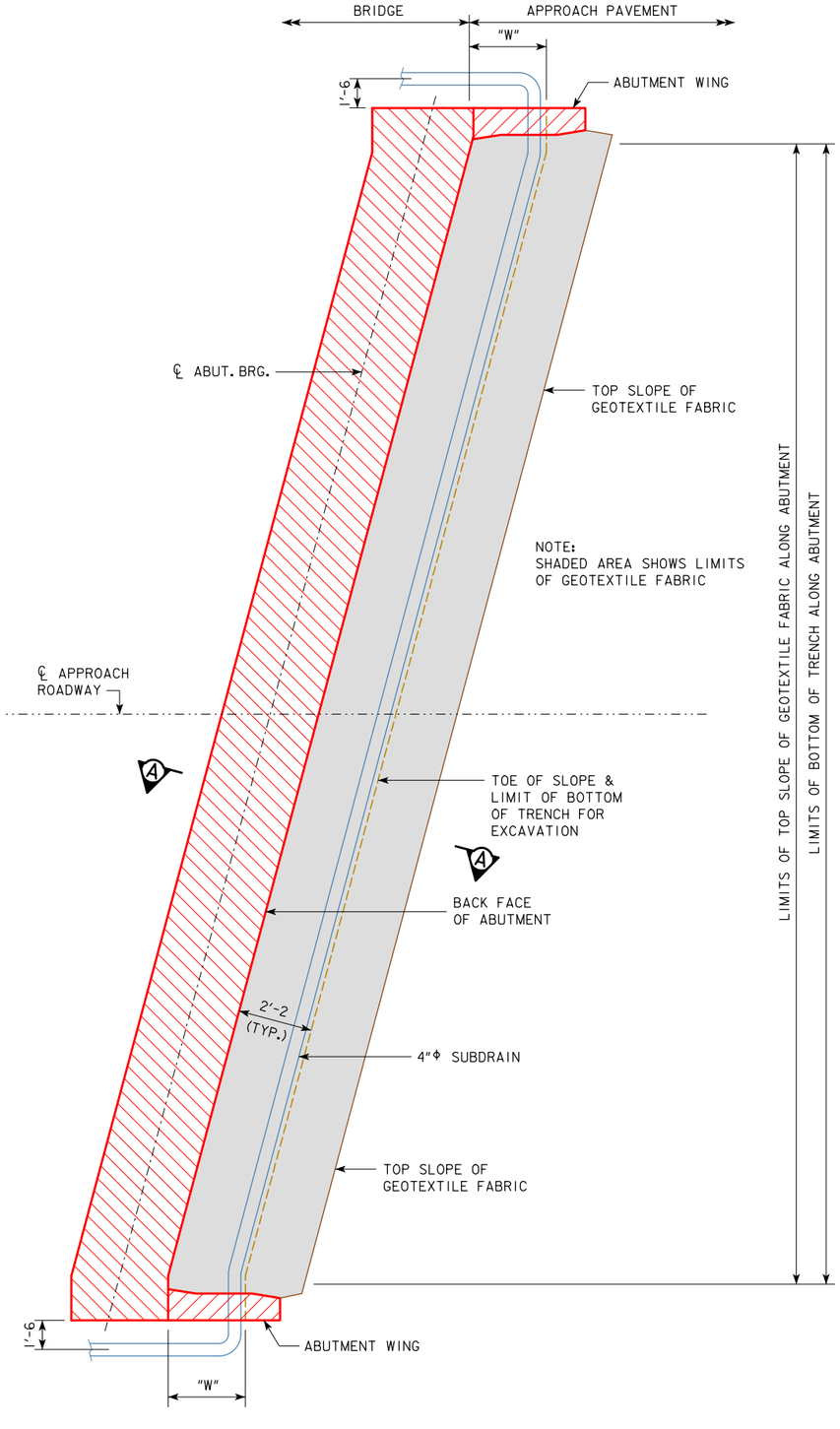

ABUTMENT PLAN WITHOUT WING EXTENSIONS

"W" DIMENSION	
SKEW	DIMENSION
15°	$2'-2\frac{7}{8}$
30°	2'-6
45°	$3'-0\frac{3}{4}$

ABUTMENT BACKFILL PROCESS:

THE BASE OF THE EXCAVATION SUBGRADE BEHIND THE ABUTMENT IS TO BE GRADED WITH A 4% SLOPE AWAY FROM THE ABUTMENT FOOTING AND A 2% CROSS SLOPE IN THE DIRECTION OF THE SUBDRAIN OUTLET. THIS EXCAVATION SHAPING IS TO BE DONE PRIOR TO BEGINNING INSTALLATION OF THE GEOTEXTILE AND BACKFILL MATERIAL.

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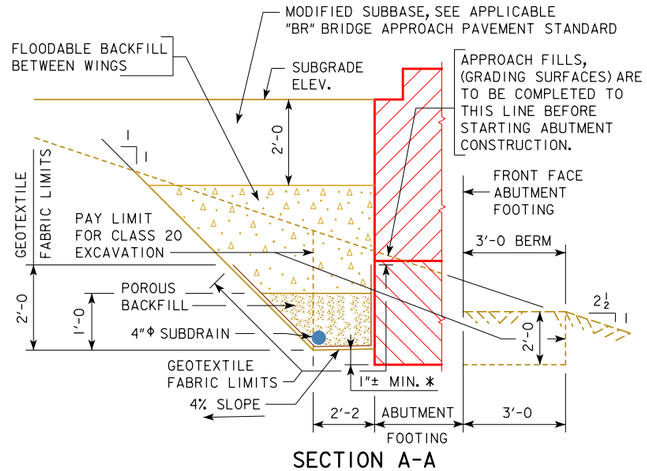

SECTION A-A

BACKFILL DETAILS

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* DIMENSION VARIES DUE TO 2% SUBDRAIN SLOPE.

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

DECEMBER, 2008

ABUTMENT BACKFILL DETAILS

FOR 15°, 30°, & 45° SKEWS

J44-53-06