TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.transportation.ky.gov/

Steven L. Beshear
Governor

Michael W. Hancock, P.E.
Secretary

November 26, 2013

CALL NO. 200
CONTRACT ID NO. 131212
ADDENDUM # 1

Subject: Marshall-Trigg Counties, 121GR13D012-NHPP 0801 (098)
Letting December 20, 2013

(1) Revised - Plan Sheets - Structure Plans Drawing #24686 -
S2,S7,S10,S37,S40,S67,S137,S145,S156-S161,S181,
S183,S184,S262-S264,S268,S270-S275
(2) Revised - Special Roadway Plan Notes - Pages 23 & 25 of 403
(3) Revised - Special Notes for Kentucky Lake Bridge Project - Pages 62-63,
96-98, 106-107, 113, 155, 162-163, & 182
(4) Added - Wage Rates - Pages 376(a)-376(j) of 403
(5) Revised - Bid Items - Pages 397-403 of 403

Proposal revisions are available at http://transportation.ky.gov/Construction-Procurement/.

Plan revisions are available at http://www.lynnimaging.com/kytransportation/.

If you have any questions, please contact us at 502-564-3500.

Sincerely,

Ryan Griffith

Ryan Griffith
Acting Director
Division of Construction Procurement

RG:ks
Enclosures

ESTIMATE OF QUANTITIES

BID ITEM CODE		02231	02599	02998	08001	08033	08033	08033	08033	23233EC	23233EC	23233EC	23233EC	24550EC	24618EC	24618EC	24619EC	24627EC	24618EC	24618EC	24619EC	24627EC	24628EC	08100	08101	08104	08534	08150	08151	24112EC	08160	08160	08170	08500	08752	08820	20154ND	24608EC	23538EC	24629EC	24538ED	24606ED	24607ED	23859EC	24610EC	24611EC	24611EC	24612EC	24613EC	24614EC	23868EC	24615EC	24616EC	08267	24617EC
BID ITEM		STRUCTURE GRANULAR BACKFILL	FABRIC GEOTEXTILE TYPE IV	MASONRY COATING	STRUCTURE EXCAVATION - COMPLETE	TEST PILES - FURNISH - 30 IN PIPE - 1 IN	TEST PILES - INSTALL - 30 IN PIPE - 1 IN	TEST PILES - FURNISH - 72 IN PIPE - 2 IN	TEST PILES INSTALL - 72 IN PIPE - 2 IN	DYNAMIC PILE TESTING - ON WATER - INITIAL	DYNAMIC PILE TESTING - ON WATER - RESTRIKE	DYNAMIC PILE TESTING - ON LAND - INITIAL	DYNAMIC PILE TESTING - ON LAND - RESTRIKE	VIBRATION MONITORING	PIPE PILES - FURNISH - 30 IN - 1 IN	PIPE PILES - INSTALL - 30 IN - 1 IN	SPLICE PILES - 30 IN PIPE	OPEN END INSIDE FIT CUTTING SHOE - 30 IN - 1 IN	PIPE PILES - FURNISH - 72 IN - 2 IN	PIPE PILES - INSTALL - 72 IN - 2 IN	SPLICE PILES - 72 IN PIPE - 2 IN	OPEN END INSIDE FIT CUTTING SHOE - 72 IN - 2 IN	PILE CONSTRICTOR PLATE - 72 IN - 2 IN	(1) CONCRETE - CLASS A	CONCRETE - CLASS A MOD - (PIPE PILE INFILL)	CONCRETE - CLASS AA	CONCRETE OVERLAY - LATEX	STEEL REINFORCEMENT	STEEL REINFORCEMENT - EPOXY COATED	STEEL REINFORCEMENT - STAINLESS STEEL	(2) STRUCTURAL STEEL - ARCH SPAN	(3) STRUCTURAL STEEL - APPROACH SPANS	(4) SHEAR CONNECTORS	APPROACH SLAB	PAINT CLEARANCE GAUGES	DRAIN PIPE - 6 IN (FIBERGLASS)	DRAIN ASSEMBLY	(5) BRIDGE STRAND HANGER - FABRICATE & INSTALL	PEDESTRIAN RAILING	DECORATIVE FENCE PANEL	RAIL SYSTEM TYPE 11	HSS BARRIER RAIL - S RAIL	HSS BARRIER RAIL - T RAIL	FINGER EXPANSION JOINT	MODULAR EXPANSION JOINT	SEISMIC DAMPERS - END BENTS	SEISMIC DAMPERS - PIERS 4 & 5	SEISMIC ISOLATION BEARING - TYPE A	SEISMIC ISOLATION BEARING - TYPE B	DISK EXPANSION BEARING	STRUCTURE LIGHTNING PROTECTION	ARCH FEATURE LIGHTING	PATH DELINEATION LIGHTING	NAVIGATION LIGHTING	INSTALL - AT&T DUCTBANK
UNIT		CY	SY	SY	CY	LF	LF	LF	LF	EA	EA	EA	EA	LS	LF	LF	EA	EA	LF	LF	EA	EA	EA	CY	CY	CY	CY	LB	LB	LB	LS	LS	LS	SY	LS	LF	EA	LS	LF	EA	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	LS	LS	LS	LS	LF
WEST APPROACH BRIDGE																																																								
	END BENT 1	1115	328	290	2483	468	459					5	10		3393	3585	13	28						464		210		75341	55172																	6				6					
	PIER 1			541				172	149	3	5								303	278	1	3	3	521	87			119260																												
SUBSTR.	PIER 2			651				172	148	3	5								303	276	1	3	3	524	88			156050																												
	PIER 3			741				172	151	3	5								303	282	1	3	3	569	83			166360																												
	PIER 4																																														6				6					
SUPERSTRUCTURE				3355										1.0												3733			1196000			1.0	1.0	204		200	16		1452	17	2880	1429	1451	74							1.0		1.0	1.0	1407
WEST APPR. SUBTOT.		1115	328	5578	2483	468	459	516	448	9	15	5	10	1.0	3393	3585	13	28	909	836	3	9	9	2078	258	3943		517011	1251172			1.0	1.0	204		200	16		1452	17	2880	1429	1451	74		6	6			12	1.0		1.0	1.0	1407
MAIN SPAN BRIDGE																																																							
	PIER 4			1979				380	241	4	8								2040	1326	6	14	14	3587	981			731902	142355																												
SUBSTR.	PIER 5			1979				380	227	4	8								2040	1242	6	14	14	3587	1085			731902	142355																												
SUPERSTRUCTURE				1411										1.0												1119	180		173857	283098	1.0		1.0		1.0	36	10	1.0	550	7	1108	550	550		148			4	2		1.0	1.0	1.0	1.0	556
MAIN SPAN SUBTOT.				5369				760	468	8	16			1.0					4080	2568	12	28	28	7174	2066	1119	180	1463804	458567	283098	1.0		1.0		1.0	36	10	1.0	550	7	1108	550	550		148			4	2		1.0	1.0	1.0	1.0	556
EAST APPROACH BRIDGE																																																							
	PIER 5																																														6				6					
	PIER 6			856				398	270	4	8								536	385	2	5	5	845	337			277060																												
SUBSTR.	PIER 7			665				172	150	3	5								303	280	1	3	3	531	84			157850																												
	PIER 8			572				172	142	3	5								303	264	1	3	3	549	106			116020																												
	PIER 9			434				172	144	3	5								303	268	1	3	3	422	100			103680																												
	END BENT 2	1115	328	307	2371	441	435					5	10		3185	3385	13	28						464		210		75341	55512																	6				6					
SUPERSTRUCTURE				3926										1.0												4355			1413000			1.0	1.0	204		270	22		1696	20	3378	1678	1700	74							1.0		1.0	1.0	1651
EAST APPR. SUBTOT.		1115	328	6760	2371	441	435	914	706	13	23	5	10	1.0	3185	3385	13	28	1445	1197	5	14	14	2811	627	4565		729951	1468512			1.0	1.0	204		270	22		1696	20	3378	1678	1700	74		6	6			12	1.0		1.0	1.0	1651

KY LAKE BRIDGE																																																									
UNIT	CY	SY	SY	CY	LF	LF	LF	LF	EA	EA	EA	EA	LS	LF	LF	EA	EA	LF	LF	EA	EA	EA	CY	CY	CY	CY	LB	LB	LB	LS	LS	LS	SY	LS	LF	EA	LS	LF	EA	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	LS	LS	LS	LS	LF
BRIDGE TOTALS	2230	656	17707	4854	909	894	2190	1622	30	54	10	20	3.0	6578	6970	26	56	6434	4601	20	51	51	12063	2951	9627	180	2710766	3178251	283098	1.0	2.0	3.0	408	1.0	506	48	1.0	4068 (7)	44	7366	4023 (7)	5455 (6)(7)	148	148	12	12	4	2	24	3.0	1.0	3.0	3.0	3614

THE ESTIMATED QUANTITIES FOR DYNAMIC PILE TESTING ITEMS IN THE TABLE ABOVE INCLUDE THE CONTINGENCY QUANTITIES BELOW DUE TO THE POTENTIAL FOR ADDITIONAL TESTING BEYONG THE SPECIFIED MINIMUM. REFER TO THE "SPECIAL NOTE FOR DYNAMIC PILE TESTING" FOR ADDITIONAL INFORMATION REGARDING DYNAMIC TESTING REQUIREMENTS.

DYNAMIC PILE TESTING - ON WATER - INITIAL	6 EACH
DYNAMIC PILE TESTING - ON WATER - RESTRIKE	18 EACH
DYNAMIC PILE TESTING - ON LAND - INITIAL	4 EACH
DYNAMIC PILE TESTING - ON LAND - RESTRIKE	8 EACH

THE SPLICE QUANTITIES ARE DUE TO THE POTENTIAL FOR PILES BEING DRIVEN BELOW THE LOWEST ANTICIPATED PILE TIP ELEVATION. SEE "SPECIAL NOTE FOR PIPE PILES - INSTALL" FOR ADDITIONAL INFORMATION.

THE ESTIMATED QUANTITIES FOR PIPE PILE INSTALL ITEMS IN THE TABLE ABOVE INCLUDE THE CONTINGENCY QUANTITIES BELOW DUE TO THE POTENTIAL FOR PILE TIPS BELOW THE LOWEST ANTICIPATED PILE TIP ELEVATION. SEE "SPECIAL NOTE FOR PIPE PILES - INSTALL" FOR ADDITIONAL INFORMATION.

PIPE PILES INSTALL - 72 IN PIPE - 2 IN	400 LF
PIPE PILES INSTALL - 36 IN PIPE - 1 IN	520 LF

(1) CUBIC YARDS CONSIDERED "MASS CONCRETE" - WEST APPROACH BRIDGE = 1614 CY
CUBIC YARDS CONSIDERED "MASS CONCRETE" - MAIN SPAN BRIDGE = 7174 CY
CUBIC YARDS CONSIDERED "MASS CONCRETE" - EAST APPROACH BRIDGE = 2347 CY
CUBIC YARDS CONSIDERED "MASS CONCRETE" - KY LAKE BRIDGE - COMBINED APPROACHES = 11135 CY

(2) ESTIMATED WEIGHT OF STRUCTURAL STEEL - MAIN SPAN ARCH BRIDGE = 4741044 LBS

(3) ESTIMATED WEIGHT OF STRUCTURAL STEEL - WEST APPROACH BRIDGE = 9276108 LBS
ESTIMATED WEIGHT OF STRUCTURAL STEEL - EAST APPROACH BRIDGE = 10339811 LBS
ESTIMATED WEIGHT OF STRUCTURAL STEEL - KY LAKE BRIDGE - COMBINED APPROACHES = 19615919 LBS

(4) ESTIMATED WEIGHT OF SHEAR CONNECTORS - WEST APPROACH BRIDGE = 22604 LBS
ESTIMATED WEIGHT OF SHEAR CONNECTORS - MAIN ARCH SPAN BRIDGE = 32503 LBS
ESTIMATED WEIGHT OF SHEAR CONNECTORS - EAST APPROACH BRIDGE = 33489 LBS
ESTIMATED WEIGHT OF SHEAR CONNECTORS - KY LAKE BRIDGE - COMBINED APPROACHES = 88596 LBS

(5) ESTIMATED LENGTH OF BRIDGE HANGER STRAND = 5440 LF
(6) ADDITIONAL METAL RAIL FOR LAGOON BRIDGE = 1258 LF
(7) RAILING TOTALS INCLUDE 10% ADDITIONAL MATERIALS FOR FUTURE MAINTENANCE USE.

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ITEM NUMBER
01-180.70

⚠ QUANTITIES REVISED	11/25/13
REVISION	DATE
DATE: NOVEMBER 15, 2013	CHECKED BY
DESIGNED BY: GDS	CDW
DETAILED BY: JNA	ACK

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
MARSHALL / TRIGG

ROUTE **US68** | CROSSING **KENTUCKY LAKE**

ESTIMATE OF QUANTITIES

PREPARED BY
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

SHEET NO. S002
DRAWING NO. 24686

FILE NAME: C:\PW\81-LOCAL\BAKER_PROJECTS\CWETHINGTON\D0141582\S24686 GTY.DGN
USER: CWethington
DATE PLOTTED: November 21, 2013
E-SHEET NAME: S24686 002
MicroStation v8.11.9.459

ESTIMATE OF QUANTITIES

BID ITEM CODE		02231	02599	02998	08001	08033	08033	08033	08033	23233EC	23233EC	23233EC	23233EC	24550EC	24618EC	24618EC	24619EC	24627EC	24618EC	24618EC	24619EC	24627EC	24628EC	08100	08101	08104	08534	08150	08151	24112EC	08160	08160	08170	08500	08752	08820	20154ND	24608EC	23538EC	24629EC	24538ED	24606ED	24607ED	23859EC	24610EC	24611EC	24611EC	24612EC	24613EC	24614EC	23868EC	24615EC	24616EC	24616EC	08267	24617EC
BID ITEM		STRUCTURE GRANULAR BACKFILL	FABRIC GEOTEXTILE TYPE IV	MASONRY COATING	STRUCTURE EXCAVATION - COMPLETE	TEST PILES - FURNISH - 30 IN PIPE - 1 IN	TEST PILES - INSTALL - 30 IN PIPE - 1 IN	TEST PILES - FURNISH - 72 IN PIPE - 2 IN	TEST PILES INSTALL - 72 IN PIPE - 2 IN	DYNAMIC PILE TESTING - ON WATER - INITIAL	DYNAMIC PILE TESTING - ON WATER - RESTRIKE	DYNAMIC PILE TESTING - ON LAND - INITIAL	DYNAMIC PILE TESTING - ON LAND - RESTRIKE	VIBRATION MONITORING	PIPE PILES - FURNISH - 30 IN - 1 IN	PIPE PILES - INSTALL - 30 IN - 1 IN	SPLICE PILES - 30 IN PIPE	OPEN END INSIDE FIT CUTTING SHOE - 30 IN - 1 IN	PIPE PILES - FURNISH - 72 IN - 2 IN	PIPE PILES - INSTALL - 72 IN - 2 IN	SPLICE PILES - 72 IN PIPE - 2 IN	OPEN END INSIDE FIT CUTTING SHOE - 72 IN - 2 IN	PILE CONSTRICTOR PLATE - 72 IN - 2 IN	(1) CONCRETE - CLASS A	CONCRETE - CLASS A MOD - (PIPE PILE INFILL)	CONCRETE - CLASS AA	CONCRETE OVERLAY - LATEX	STEEL REINFORCEMENT	STEEL REINFORCEMENT - EPOXY COATED	STEEL REINFORCEMENT - STAINLESS STEEL	(2) STRUCTURAL STEEL - ARCH SPAN	(3) STRUCTURAL STEEL - APPROACH SPANS	(4) SHEAR CONNECTORS	APPROACH SLAB	PAINT CLEARANCE GAUGES	DRAIN PIPE - 6 IN (FIBERGLASS)	DRAIN ASSEMBLY	(5) BRIDGE STRAND HANGER - FABRICATE & INSTALL	PEDESTRIAN RAILING	DECORATIVE FENCE PANEL	RAIL SYSTEM TYPE 11	HSS BARRIER RAIL - S RAIL	HSS BARRIER RAIL - T RAIL	FINGER EXPANSION JOINT	MODULAR EXPANSION JOINT	SEISMIC DAMPERS - END BENTS	SEISMIC DAMPERS - PIERS 4 & 5	SEISMIC ISOLATION BEARING - TYPE A	SEISMIC ISOLATION BEARING - TYPE B	DISK EXPANSION BEARING	STRUCTURE LIGHTNING PROTECTION	ARCH FEATURE LIGHTING	PATH DELINEATION LIGHTING	NAVIGATION LIGHTING	INSTALL - AT&T DUCTBANK
UNIT		CY	SY	SY	CY	LF	LF	LF	LF	EA	EA	EA	EA	LS	LF	LF	EA	EA	LF	LF	EA	EA	EA	CY	CY	CY	CY	LB	LB	LB	LS	LS	LS	SY	LS	LF	EA	LS	LF	EA	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	LS	LS	LS	LS	LF
WEST APPROACH BRIDGE																																																									
SUBSTR.	END BENT 1	1115	328	290	2483	468	459					5	10		3393	3585	13	28						464	87	210		75341	55172										6									6							
	PIER 1			541				172	149	3	5								303	278	1	3	3	521	88			119260																												
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SUPERSTRUCTURE				3355										1.0												3733		1196000			1.0	1.0	204		200	16		1452	17	2880	1429	1451	74				6			6							
WEST APPR. SUBTOT.		1115	328	5578	2483	468	459	516	448	9	15	5	10	1.0	3393	3585	13	28	909	836	3	9	9	2078	258	3943		517011	1251172			1.0	1.0	204		200	16		1452	17	2880	1429	1451	74		6	6			12	1.0		1.0	1.0	1407
MAIN SPAN BRIDGE																																																							
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SUPERSTRUCTURE				1411										1.0												1119	180		173857	283098	1.0		1.0		1.0	36	10	1.0	550	7	1108	550	550		148			4	2		1.0	1.0	1.0	1.0	556
MAIN SPAN SUBTOT.				5369				760	468	8	16			1.0					4080	2568	12	28	28	7174	2066	1119	180	1463804	458567	283098	1.0		1.0		1.0	36	10	1.0	550	7	1108	550	550		148			4	2		1.0	1.0	1.0	1.0	556
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KY LAKE BRIDGE																																																						
UNIT		CY	SY	SY	CY	LF	LF	LF	LF	EA	EA	EA	EA	LS	LF	LF	EA	EA	LF	LF	EA	EA	EA	CY	CY	CY	CY	LB	LB	LB	LS	LS	LS	SY	LS	LF	EA	LS	LF	EA	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	LS	LS	LS	LS	LF
BRIDGE TOTALS		2230	656	17707	4854	909	894	2190	1622	30	54	10	20	3.0	6578	6970	26	56	6434	4601	20	51	51	12063	2951	9627	180	2710766	317825	283098	1.0	2.0	3.0	408	1.0	506	48	1.0	4068	44	7366	4023	5455	148	148	12	12	4	2	24	3.0	1.0	3.0	3.0	3614

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DYNAMIC PILE TESTING - ON WATER - RESTRIKE	18 EACH
DYNAMIC PILE TESTING - ON LAND - INITIAL	4 EACH
DYNAMIC PILE TESTING - ON LAND - RESTRIKE	8 EACH

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THE ESTIMATED QUANTITIES FOR PIPE PILE INSTALL ITEMS IN THE TABLE ABOVE INCLUDE THE CONTINGENCY QUANTITIES BELOW DUE TO THE POTENTIAL FOR PILE TIPS BELOW THE LOWEST ANTICIPATED PILE TIP ELEVATION. SEE "SPECIAL NOTE FOR PIPE PILES - INSTALL" FOR ADDITIONAL INFORMATION.

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PIPE PILES INSTALL - 36 IN PIPE - 1 IN	520 LF

(1) CUBIC YARDS CONSIDERED "MASS CONCRETE" - WEST APPROACH BRIDGE = 1614 CY
CUBIC YARDS CONSIDERED "MASS CONCRETE" - MAIN SPAN BRIDGE = 7174 CY
CUBIC YARDS CONSIDERED "MASS CONCRETE" - EAST APPROACH BRIDGE = 2347 CY
CUBIC YARDS CONSIDERED "MASS CONCRETE" - KY LAKE BRIDGE - COMBINED APPROACHES = 11135 CY

(2) ESTIMATED WEIGHT OF STRUCTURAL STEEL - MAIN SPAN ARCH BRIDGE = 4741044 LBS

(3) ESTIMATED WEIGHT OF STRUCTURAL STEEL - WEST APPROACH BRIDGE = 9276108 LBS
ESTIMATED WEIGHT OF STRUCTURAL STEEL - EAST APPROACH BRIDGE = 10339811 LBS
ESTIMATED WEIGHT OF STRUCTURAL STEEL - KY LAKE BRIDGE - COMBINED APPROACHES = 19615919 LBS

(4) ESTIMATED WEIGHT OF SHEAR CONNECTORS - WEST APPROACH BRIDGE = 22604 LBS
ESTIMATED WEIGHT OF SHEAR CONNECTORS - MAIN ARCH SPAN BRIDGE = 32503 LBS
ESTIMATED WEIGHT OF SHEAR CONNECTORS - EAST APPROACH BRIDGE = 33489 LBS
ESTIMATED WEIGHT OF SHEAR CONNECTORS - KY LAKE BRIDGE - COMBINED APPROACHES = 88596 LBS

(5) ESTIMATED LENGTH OF BRIDGE HANGER STRAND = 5440 LF
(6) ADDITIONAL METAL RAIL FOR LAGOON BRIDGE = 1258 LF
(7) RAILING TOTALS INCLUDE 10% ADDITIONAL MATERIALS FOR FUTURE MAINTENANCE USE.

REVISION	DATE
⚠1 QUANTITIES REVISED	11/25/13

DATE: NOVEMBER 15, 2013 | CHECKED BY
DESIGNED BY: GDS | CDW
DETAILED BY: JNA | ACK

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
MARSHALL / TRIGG

ROUTE **US68** | CROSSING **KENTUCKY LAKE**

ESTIMATE OF QUANTITIES

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

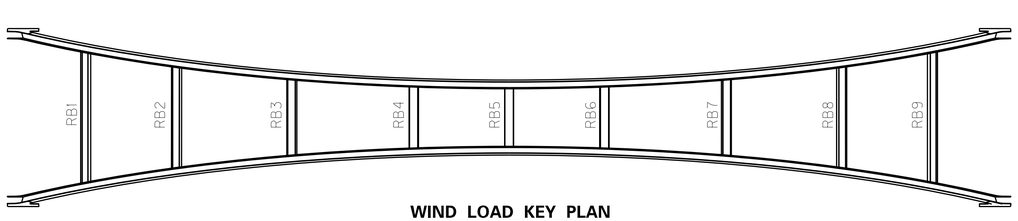
ITEM NUMBER
01-180.70

PREPARED BY
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

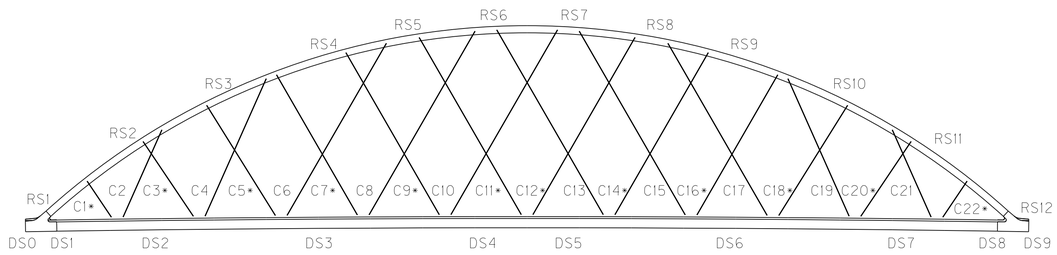
SHEET NO. S002
DRAWING NO. 24686

EQUIVALENT STATIC WIND LOAD CASES

		WINDWARD ARCH (SOUTH)												LEEWARD ARCH (NORTH)											
	COMPONENT	RS1	RS2	RS3	RS4	RS5	RS6	RS7	RS8	RS9	RS10	RS11	RS12	RS1	RS2	RS3	RS4	RS5	RS6	RS7	RS8	RS9	RS10	RS11	RS12
CASE 1	Fx (KIP/FT)	-0.0038	-0.0127	-0.0077	-0.0003	0.0002	-0.0007	-0.0018	-0.0028	-0.0025	0.0030	0.0077	0.0050	-0.0063	-0.0162	-0.0094	-0.0002	0.0002	-0.0010	-0.0026	-0.0042	-0.0042	0.0019	0.0081	0.0052
	Fy (KIP/FT)	0.1275	0.1454	0.1587	0.1672	0.1716	0.1733	0.1734	0.1719	0.1679	0.1607	0.1495	0.1334	0.1277	0.1454	0.1580	0.1674	0.1710	0.1733	0.1735	0.1715	0.1680	0.1603	0.1496	0.1335
	Fz (KIP/FT)	-0.0623	-0.0609	-0.0787	-0.1065	-0.1143	-0.1164	-0.1176	-0.1165	-0.1088	-0.0868	-0.0699	-0.0631	0.0685	0.0870	0.0762	0.0497	0.0430	0.0415	0.0397	0.0385	0.0437	0.0626	0.0730	0.0647
	Mx (KIP-FT/FT)																								
CASE 2	Fx (KIP/FT)	0.0013	0.0019	0.0031	0.0019	0.0006	0.0006	0.0010	0.0017	0.0022	-0.0017	-0.0069	-0.0036	0.0003	-0.0016	-0.0001	0.0003	-0.0003	-0.0002	0.0002	0.0009	0.0018	-0.0010	-0.0050	-0.0024
	Fy (KIP/FT)	0.1409	0.1639	0.1828	0.1983	0.2073	0.2112	0.2123	0.2105	0.2029	0.1868	0.1655	0.1395	0.1409	0.1638	0.1828	0.1983	0.2073	0.2112	0.2123	0.2107	0.2028	0.1871	0.1656	0.1394
	Fz (KIP/FT)	-0.0724	-0.0823	-0.0911	-0.0917	-0.0877	-0.0858	-0.0848	-0.0815	-0.0782	-0.0847	-0.0875	-0.0737	0.0741	0.0870	0.0924	0.0984	0.1054	0.1090	0.1098	0.1111	0.1108	0.0963	0.0799	0.0718
	Mx (KIP-FT/FT)																								
CASE 3	Fx (KIP/FT)	0.0342	0.0497	0.0558	0.0550	0.0542	0.0532	0.0526	0.0525	0.0530	0.0575	0.0551	0.0373	0.0350	0.0518	0.0570	0.0551	0.0544	0.0537	0.0535	0.0541	0.0552	0.0601	0.0569	0.0374
	Fy (KIP/FT)	0.1248	0.1388	0.1481	0.1550	0.1591	0.1609	0.1615	0.1609	0.1578	0.1507	0.1392	0.1230	0.1247	0.1389	0.1483	0.1549	0.1594	0.1611	0.1614	0.1604	0.1580	0.1502	0.1391	0.1232
	Fz (KIP/FT)	-0.0765	-0.1024	-0.1168	-0.1170	-0.1158	-0.1106	-0.1035	-0.0964	-0.0879	-0.0666	-0.0598	-0.0695	0.0689	0.0584	0.0571	0.0686	0.0749	0.0830	0.0914	0.0984	0.1042	0.1175	0.1095	0.0791
	Mx (KIP-FT/FT)																								
CASE 4	Fx (KIP/FT)	0.0322	0.0337	0.0369	0.0377	0.0371	0.0368	0.0363	0.0354	0.0338	0.0268	0.0230	0.0312	0.0309	0.0271	0.0280	0.0306	0.0318	0.0330	0.0335	0.0330	0.0316	0.0223	0.0177	0.0292
	Fy (KIP/FT)	0.1251	0.1467	0.1650	0.1798	0.1881	0.1923	0.1946	0.1947	0.1884	0.1749	0.1564	0.1330	0.1251	0.1467	0.1649	0.1799	0.1881	0.1923	0.1948	0.1952	0.1882	0.1754	0.1565	0.1328
	Fz (KIP/FT)	-0.0740	-0.0824	-0.0928	-0.0985	-0.0982	-0.0995	-0.1020	-0.1024	-0.1014	-0.1094	-0.1034	-0.0763	0.0767	0.0975	0.1090	0.1135	0.1162	0.1140	0.1089	0.1042	0.0976	0.0702	0.0578	0.0672
	Mx (KIP-FT/FT)																								
CASE 5	Fx (KIP/FT)	0.0331	0.0467	0.0484	0.0452	0.0451	0.0453	0.0457	0.0459	0.0455	0.0430	0.0376	0.0300	0.0348	0.0538	0.0565	0.0509	0.0499	0.0495	0.0499	0.0509	0.0518	0.0529	0.0469	0.0326
	Fy (KIP/FT)	0.1289	0.1450	0.1556	0.1624	0.1652	0.1644	0.1616	0.1571	0.1519	0.1426	0.1317	0.1177	0.1288	0.1451	0.1560	0.1622	0.1657	0.1645	0.1614	0.1570	0.1520	0.1426	0.1316	0.1177
	Fz (KIP/FT)	-0.0744	-0.0961	-0.1000	-0.0901	-0.0871	-0.0844	-0.0804	-0.0768	-0.0752	-0.0750	-0.0761	-0.0742	0.0667	0.0548	0.0598	0.0827	0.0924	0.1005	0.1081	0.1141	0.1162	0.1165	0.1022	0.0781
	Mx (KIP-FT/FT)																								
CASE 6	Fx (KIP/FT)	0.0017	0.0137	0.0066	-0.0046	-0.0056	-0.0050	-0.0045	-0.0048	-0.0074	-0.0198	-0.0235	-0.0068	0.0023	0.0154	0.0083	-0.0036	-0.0047	-0.0043	-0.0037	-0.0037	-0.0058	-0.0166	-0.0201	-0.0054
	Fy (KIP/FT)	0.1252	0.1376	0.1458	0.1534	0.1584	0.1618	0.1632	0.1629	0.1614	0.1527	0.1398	0.1218	0.1250	0.1377	0.1465	0.1530	0.1592	0.1621	0.1635	0.1637	0.1611	0.1534	0.1399	0.1215
	Fz (KIP/FT)	-0.0765	-0.0994	-0.0900	-0.0616	-0.0581	-0.0610	-0.0638	-0.0680	-0.0787	-0.1095	-0.1105	-0.0793	0.0678	0.0590	0.0782	0.1156	0.1239	0.1247	0.1238	0.1202	0.1081	0.0730	0.0591	0.0687
	Mx (KIP-FT/FT)																								
CASE 7	Fx (KIP/FT)	0.0298	0.0331	0.0380	0.0411	0.0415	0.0409	0.0401	0.0392	0.0384	0.0400	0.0404	0.0346	0.0305	0.0326	0.0374	0.0413	0.0418	0.0415	0.0409	0.0399	0.0391	0.0390	0.0389	0.0351
	Fy (KIP/FT)	0.1445	0.1675	0.1827	0.1879	0.1844	0.1792	0.1733	0.1658	0.1570	0.1507	0.1456	0.1367	0.1445	0.1676	0.1825	0.1880	0.1842	0.1792	0.1733	0.1657	0.1571	0.1505	0.1457	0.1368
	Fz (KIP/FT)	-0.0730	-0.0848	-0.0988	-0.1097	-0.1125	-0.1117	-0.1100	-0.1073	-0.1016	-0.0876	-0.0770	-0.0721	0.0738	0.0845	0.0849	0.0792	0.0771	0.0760	0.0747	0.0727	0.0724	0.0756	0.0777	0.0725
	Mx (KIP-FT/FT)																								
CASE 8	Fx (KIP/FT)	0.0432	0.0557	0.0595	0.0584	0.0581	0.0576	0.0573	0.0571	0.0569	0.0593	0.0569	0.0434	0.0416	0.0514	0.0557	0.0567	0.0572	0.0572	0.0573	0.0573	0.0576	0.0601	0.0578	0.0439
	Fy (KIP/FT)	0.1270	0.1537	0.1757	0.1910	0.1962	0.1961	0.1938	0.1888	0.1780	0.1637	0.1473	0.1279	0.1269	0.1537	0.1759	0.1909	0.1963	0.1962	0.1937	0.1885	0.1781	0.1633	0.1472	0.1280
	Fz (KIP/FT)	-0.0759	-0.0995	-0.1115	-0.1116	-0.1111	-0.1075	-0.1021	-0.0964	-0.0900	-0.0732	-0.0656	-0.0688	0.0712	0.0743	0.0795	0.0868	0.0895	0.0928	0.0964	0.0982	0.0992	0.1047	0.0981	0.0756
	Mx (KIP-FT/FT)																								



WIND LOAD KEY PLAN



WIND LOAD KEY ELEVATION

NOTES

1. ALL WIND LOAD CASES DO NOT CONTAIN ANY SAFETY OR LOAD FACTORS AND ARE TO BE APPLIED IN THE SAME MANNER AS WOULD WIND LOADS CALCULATED BY CODE ANALYTICAL METHODS.
2. WIND LOADS CORRESPOND TO A MEAN HOURLY WINDSPEED OF 69.6 MPH AT DECK LEVEL.
3. Fx POSITIVE FROM WEST TO EAST
   Fy POSITIVE FROM SOUTH TO NORTH
   Fz POSITIVE UP
   Mx POSITIVE COUNTERCLOCKWISE ABOUT X-AXIS LOOKING EAST
4. DECK AND GIRDER LOADS ARE APPLIED AT CENTER OF GRAVITY OF DECK, LOCATED AT THE CENTERLINE OF BRIDGE.
5. THE GIVEN WIND LOADS ARE FOR THE COMPLETE BRIDGE STRUCTURE ONLY. THE CONTRACTOR SHOULD RETAIN AND UTILIZE A WIND SPECIALIST TO EVALUATE WIND BUFFETING LOADS DURING CONSTRUCTION.

LEGEND

C(n) INDICATES SINGLE HANGER

C(n)* INDICATES DOUBLE HANGER

DS(n) INDICATES CENTER OF GRAVITY OF DECK

RB(n) INDICATES ARCH RIB BRACING MEMBER

RS(n) INDICATES ARCH RIB FIELD SPLICE

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

REVISION	DATE
⚠ REPLACED NOTE 5	11/25/13
DATE: NOVEMBER 15, 2013	CHECKED BY
DESIGNED BY: CYY	JCS
DETAILED BY: MJD	CYY

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL / TRIGG

ROUTE: US68

CROSSING: KENTUCKY LAKE

WIND LOAD CASES – 1

ITEM NUMBER: 01–180.70

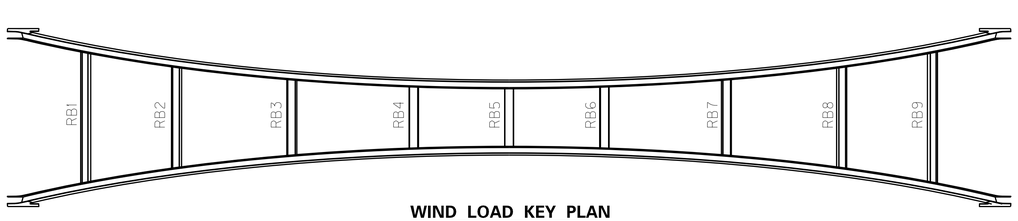
PREPARED BY
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

SHEET NO. S007

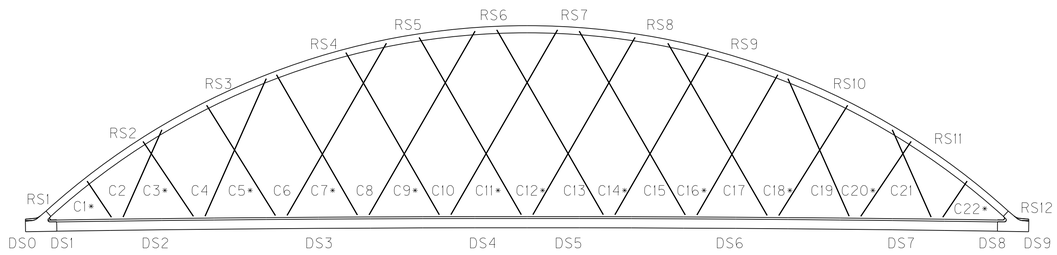
DRAWING NO. 24686

EQUIVALENT STATIC WIND LOAD CASES

		WINDWARD ARCH (SOUTH)												LEEWARD ARCH (NORTH)											
	COMPONENT	RS1	RS2	RS3	RS4	RS5	RS6	RS7	RS8	RS9	RS10	RS11	RS12	RS1	RS2	RS3	RS4	RS5	RS6	RS7	RS8	RS9	RS10	RS11	RS12
CASE 1	Fx (KIP/FT)	-0.0038	-0.0127	-0.0077	-0.0003	0.0002	-0.0007	-0.0018	-0.0028	-0.0025	0.0030	0.0077	0.0050	-0.0063	-0.0162	-0.0094	-0.0002	0.0002	-0.0010	-0.0026	-0.0042	-0.0042	0.0019	0.0081	0.0052
	Fy (KIP/FT)	0.1275	0.1454	0.1587	0.1672	0.1716	0.1733	0.1734	0.1719	0.1679	0.1607	0.1495	0.1334	0.1277	0.1454	0.1580	0.1674	0.1710	0.1733	0.1735	0.1715	0.1680	0.1603	0.1496	0.1335
	Fz (KIP/FT)	-0.0623	-0.0609	-0.0787	-0.1065	-0.1143	-0.1164	-0.1176	-0.1165	-0.1088	-0.0868	-0.0699	-0.0631	0.0685	0.0870	0.0762	0.0497	0.0430	0.0415	0.0397	0.0385	0.0437	0.0626	0.0730	0.0647
	Mx (KIP-FT/FT)																								
CASE 2	Fx (KIP/FT)	0.0013	0.0019	0.0031	0.0019	0.0006	0.0006	0.0010	0.0017	0.0022	-0.0017	-0.0069	-0.0036	0.0003	-0.0016	-0.0001	0.0003	-0.0003	-0.0002	0.0002	0.0009	0.0018	-0.0010	-0.0050	-0.0024
	Fy (KIP/FT)	0.1409	0.1639	0.1828	0.1983	0.2073	0.2112	0.2123	0.2105	0.2029	0.1868	0.1655	0.1395	0.1409	0.1638	0.1828	0.1983	0.2073	0.2112	0.2123	0.2107	0.2028	0.1871	0.1656	0.1394
	Fz (KIP/FT)	-0.0724	-0.0823	-0.0911	-0.0917	-0.0877	-0.0858	-0.0848	-0.0815	-0.0782	-0.0847	-0.0875	-0.0737	0.0741	0.0870	0.0924	0.0984	0.1054	0.1090	0.1098	0.1111	0.1108	0.0963	0.0799	0.0718
	Mx (KIP-FT/FT)																								
CASE 3	Fx (KIP/FT)	0.0342	0.0497	0.0558	0.0550	0.0542	0.0532	0.0526	0.0525	0.0530	0.0575	0.0551	0.0373	0.0350	0.0518	0.0570	0.0551	0.0544	0.0537	0.0535	0.0541	0.0552	0.0601	0.0569	0.0374
	Fy (KIP/FT)	0.1248	0.1388	0.1481	0.1550	0.1591	0.1609	0.1615	0.1609	0.1578	0.1507	0.1392	0.1230	0.1247	0.1389	0.1483	0.1549	0.1594	0.1611	0.1614	0.1604	0.1580	0.1502	0.1391	0.1232
	Fz (KIP/FT)	-0.0765	-0.1024	-0.1168	-0.1170	-0.1158	-0.1106	-0.1035	-0.0964	-0.0879	-0.0666	-0.0598	-0.0695	0.0689	0.0584	0.0571	0.0686	0.0749	0.0830	0.0914	0.0984	0.1042	0.1175	0.1095	0.0791
	Mx (KIP-FT/FT)																								
CASE 4	Fx (KIP/FT)	0.0322	0.0337	0.0369	0.0377	0.0371	0.0368	0.0363	0.0354	0.0338	0.0268	0.0230	0.0312	0.0309	0.0271	0.0280	0.0306	0.0318	0.0330	0.0335	0.0330	0.0316	0.0223	0.0177	0.0292
	Fy (KIP/FT)	0.1251	0.1467	0.1650	0.1798	0.1881	0.1923	0.1946	0.1947	0.1884	0.1749	0.1564	0.1330	0.1251	0.1467	0.1649	0.1799	0.1881	0.1923	0.1948	0.1952	0.1882	0.1754	0.1565	0.1328
	Fz (KIP/FT)	-0.0740	-0.0824	-0.0928	-0.0985	-0.0982	-0.0995	-0.1020	-0.1024	-0.1014	-0.1094	-0.1034	-0.0763	0.0767	0.0975	0.1090	0.1135	0.1162	0.1140	0.1089	0.1042	0.0976	0.0702	0.0578	0.0672
	Mx (KIP-FT/FT)																								
CASE 5	Fx (KIP/FT)	0.0331	0.0467	0.0484	0.0452	0.0451	0.0453	0.0457	0.0459	0.0455	0.0430	0.0376	0.0300	0.0348	0.0538	0.0565	0.0509	0.0499	0.0495	0.0499	0.0509	0.0518	0.0529	0.0469	0.0326
	Fy (KIP/FT)	0.1289	0.1450	0.1556	0.1624	0.1652	0.1644	0.1616	0.1571	0.1519	0.1426	0.1317	0.1177	0.1288	0.1451	0.1560	0.1622	0.1657	0.1645	0.1614	0.1570	0.1520	0.1426	0.1316	0.1177
	Fz (KIP/FT)	-0.0744	-0.0961	-0.1000	-0.0901	-0.0871	-0.0844	-0.0804	-0.0768	-0.0752	-0.0750	-0.0761	-0.0742	0.0667	0.0548	0.0598	0.0827	0.0924	0.1005	0.1081	0.1141	0.1162	0.1165	0.1022	0.0781
	Mx (KIP-FT/FT)																								
CASE 6	Fx (KIP/FT)	0.0017	0.0137	0.0066	-0.0046	-0.0056	-0.0050	-0.0045	-0.0048	-0.0074	-0.0198	-0.0235	-0.0068	0.0023	0.0154	0.0083	-0.0036	-0.0047	-0.0043	-0.0037	-0.0037	-0.0058	-0.0166	-0.0201	-0.0054
	Fy (KIP/FT)	0.1252	0.1376	0.1458	0.1534	0.1584	0.1618	0.1632	0.1629	0.1614	0.1527	0.1398	0.1218	0.1250	0.1377	0.1465	0.1530	0.1592	0.1621	0.1635	0.1637	0.1611	0.1534	0.1399	0.1215
	Fz (KIP/FT)	-0.0765	-0.0994	-0.0900	-0.0616	-0.0581	-0.0610	-0.0638	-0.0680	-0.0787	-0.1095	-0.1105	-0.0793	0.0678	0.0590	0.0782	0.1156	0.1239	0.1247	0.1238	0.1202	0.1081	0.0730	0.0591	0.0687
	Mx (KIP-FT/FT)																								
CASE 7	Fx (KIP/FT)	0.0298	0.0331	0.0380	0.0411	0.0415	0.0409	0.0401	0.0392	0.0384	0.0400	0.0404	0.0346	0.0305	0.0326	0.0374	0.0413	0.0418	0.0415	0.0409	0.0399	0.0391	0.0390	0.0389	0.0351
	Fy (KIP/FT)	0.1445	0.1675	0.1827	0.1879	0.1844	0.1792	0.1733	0.1658	0.1570	0.1507	0.1456	0.1367	0.1445	0.1676	0.1825	0.1880	0.1842	0.1792	0.1733	0.1657	0.1571	0.1505	0.1457	0.1368
	Fz (KIP/FT)	-0.0730	-0.0848	-0.0988	-0.1097	-0.1125	-0.1117	-0.1100	-0.1073	-0.1016	-0.0876	-0.0770	-0.0721	0.0738	0.0845	0.0849	0.0792	0.0771	0.0760	0.0747	0.0727	0.0724	0.0756	0.0777	0.0725
	Mx (KIP-FT/FT)																								
CASE 8	Fx (KIP/FT)	0.0432	0.0557	0.0595	0.0584	0.0581	0.0576	0.0573	0.0571	0.0569	0.0593	0.0569	0.0434	0.0416	0.0514	0.0557	0.0567	0.0572	0.0572	0.0573	0.0573	0.0576	0.0601	0.0578	0.0439
	Fy (KIP/FT)	0.1270	0.1537	0.1757	0.1910	0.1962	0.1961	0.1938	0.1888	0.1780	0.1637	0.1473	0.1279	0.1269	0.1537	0.1759	0.1909	0.1963	0.1962	0.1937	0.1885	0.1781	0.1633	0.1472	0.1280
	Fz (KIP/FT)	-0.0759	-0.0995	-0.1115	-0.1116	-0.1111	-0.1075	-0.1021	-0.0964	-0.0900	-0.0732	-0.0656	-0.0688	0.0712	0.0743	0.0795	0.0868	0.0895	0.0928	0.0964	0.0982	0.0992	0.1047	0.0981	0.0756
	Mx (KIP-FT/FT)																								



WIND LOAD KEY PLAN



WIND LOAD KEY ELEVATION

NOTES

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2. WIND LOADS CORRESPOND TO A MEAN HOURLY WINDSPEED OF 69.6 MPH AT DECK LEVEL.
3. Fx POSITIVE FROM WEST TO EAST
   Fy POSITIVE FROM SOUTH TO NORTH
   Fz POSITIVE UP
   Mx POSITIVE COUNTERCLOCKWISE ABOUT X-AXIS LOOKING EAST
4. DECK AND GIRDER LOADS ARE APPLIED AT CENTER OF GRAVITY OF DECK, LOCATED AT THE CENTERLINE OF BRIDGE.
5. THE GIVEN WIND LOADS ARE FOR THE COMPLETE BRIDGE STRUCTURE ONLY. THE CONTRACTOR SHOULD RETAIN AND UTILIZE A WIND SPECIALIST TO EVALUATE WIND BUFFETING LOADS DURING CONSTRUCTION.

LEGEND

C(n) INDICATES SINGLE HANGER

C(n)* INDICATES DOUBLE HANGER

DS(n) INDICATES CENTER OF GRAVITY OF DECK

RB(n) INDICATES ARCH RIB BRACING MEMBER

RS(n) INDICATES ARCH RIB FIELD SPLICE

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

REVISION	DATE
⚠1 REPLACED NOTE 5	11/25/13

DATE: NOVEMBER 15, 2013 — CHECKED BY
DESIGNED BY: CYY — JCS
DETAILED BY: MJD — CYY

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL / TRIGG

ROUTE: US68 — CROSSING: KENTUCKY LAKE

WIND LOAD CASES – 1

ITEM NUMBER: 01–180.70

PREPARED BY
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

SHEET NO. S007
DRAWING NO. 24686

THE FOLLOWING ABBREVIATIONS MAY HAVE BEEN USED IN THE PREPARATION OF THESE PLANS:

AKA	ALSO KNOWN AS
ALT.	ALTERNATE
APPROX.	APPROXIMATE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
B.F.	BACK FACE
B.O.F.	BOTTOM OF FOOTING
BOR	BEGINNING OF RESTRIKE
BOT / BOTT.	BOTTOM
BR	BRAKING
BRG.	BEARING
BTW. / BTWN.	BETWEEN
C.F.S.	CUBIC FEET PER SECOND
C.L.	CENTERLINE
C.Y.	CUBIC YARDS
CDL	COMPOSITE DEAD LOAD
CJP	COMPLETE JOINT PENETRATION
CLR.	CLEAR
CO.	COUNTY
COMB.	COMBINATION
CONC.	CONCRETE
CONN.	CONNECTION
CONST.	CONSTRUCTION
CONT.	CONTINUOUS
CTR.	CENTER
CVN	CHARPY - V - NOTCH
D_B	BAR DIAMETER
DC	DEAD LOAD OF STRUCTURAL
DEFL.	DEFLECTION
DEG.	DEGREE
DIA.	DIAMETER
DIAPH.	DIAPHRAGM
DIM.	DIMENSION
DP.	DEEP
DTLS	DETAILS
DW	DEAD LOAD OF WEARING SURFACES AND UTILITIES
DWG.	DRAWING
E / EXP.	EXPANSION
E.	EAST
E.F.	EACH FACE
EA.	EACH
EB	EAST BOUND
EB. / E.B.	END BENT
EE	EXTREME EVENT
EFB	END FLOORBEAM
ELEV. / EL	ELEVATION
EMBED.	EMBEDMENT
EOD	END OF DRIVING
EQ.	EQUAL OR EARTHQUAKE
EST.	ESTIMATED
EXIST./EX.	EXISTING
EXT.	EXTERIOR
F	FIXED
F.F.	FRONT FACE
F.S.	FRONT SIDE
FA.	FACE
FB	FLOORBEAM
FCM	FRACTURE CRTICAL MATERIAL
FF	FRONT FACE
FIX.	FIXED
FLG	FLANGE
FT	FEET
FTG	FOOTING
FWS	FUTURE WEARING SURFACE
GALV.	GALVANIZED
GDR.	GIRDER
GR / GR.	GRADE
H.	HEAVY
H.S.	HIGH STRENGTH
HORIZ.	HORIZONTAL
HPS	HIGH PERFORMANCE STEEL
HSB	HIGH STRENGTH BOLT
HVY	HEAVY
I	IMPACT
I.D.	INNER DIAMETER
INT.	INTEGRAL
INT.	INTERIOR
ISO.	ISOLATION
JACK.	JACKING
JT.	JOINT
KIPS	KILOPOUNDS
KSI	KIPS PER SQUARE INCH
L	ANGLE
L.F.	LINEAR FEET
L.S.	LUMP SUM
LBS.	POUNDS
LG.	LONG
LL	LIVE LOAD
LLB	LOWER LATERAL BRACING
LMC	LATEX MODIFIED CONCRETE
LONG / LONGIT.	LONGITUDINAL
LT.	LEFT
MAX.	MAXIMUM
MEAS.	MEASURED
MECH.	MECHANICAL NOMINAL PIPE SIZE
MID.	MIDDLE
MIN.	MINIMUM
MPH	MILES PER HOUR
MTG	MOUNTING
N	NORTH
N.S.	NEAR SIDE
N.T.S.	NOT TO SCALE
NAV.	NAVIGATIONAL
NE	NORTHEAST
NEG.	NEGATIVE
NF	NORTH FACE
NO.	NUMBER
NPS	NOMINAL PIPE SIZE
NW	NORTHWEST
O.D.	OUTER DIAMETER
OPP.	OPPOSITE
P.C.	POINT OF CURVATURE
P.G.	PROFILE GRADE
P.I.	POINT OF INTERSECTION
P.T.	POINT OF TANGENT
PC	PIECES
PERM.	PERMISSIBLE
PERP.	PERPENDICULAR
PG	PAGE
PGL	PROFILE GRADE LINE
PJP	PARTIAL JOINT PENETRATION
PL	PLATE
PLCS.	PLACES
PMCJ	PERMISSIBLE CONSTRUCTION JOINT
PP	PIPE PILE
PRE - FAB	PRE FABRICATION
PVC	POLYVINYL CHLORIDE
R / F	REAR FACE
R.	RADIUS
R.C.J	ROUGHENED CONSTRUCTION JOINT
REIN.	REINFORCEMENT
REQ'D	REQUIRED
ROT.	ROTATION
RT.	RIGHT
S.A.S.	SPACED AS SHOWN
S.Y.	SQUARE YARDS
S/W	SPACE WITH
SE	SOUTHEAST
SER.	SERIES
SERV.	SERVICE
SH	SHRINKAGE
SHLDR.	SHOULDER
SHT.	SHEET
SPA.	SPACES
SPECS.	SPECIFICATIONS
SQ.	SQUARE
SS / S.S.	STAINLESS STEEL
STA.	STATION
STD.	STANDARD
STIFF.	STIFFENER
STR.	STRENGTH
STR.	STRAIGHT
SW	SOUTHWEST
T&B	TOP AND BOTTOM
T.O.F.	TOP OF FOOTING
TRANS.	TRANSVERSE
TU	TEMPERATURE
TYP.	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
UHMW	ULTRA HIGH MOLECTULAR WEIGHT POLYETHYLENE
V.C.	VERTICAL CURVE
V.P.I.	VERTICAL POINT OF INTERSECTION
VERT.	VERTICAL
W.	WEST
W.	WEST
W.S.P.	WELDED STEEL PLATE
W/	WITH
WB	WEST BOUND
WP / W.P.	WORK POINT
WS	WIND ON STRUCTURE
YD.	YARDS

ESTIMATE OF STRUCTURAL STEEL

FOR INFORMATION ONLY

ITEM	UNIT	FCM-50W	FCM-70W HPS	NON-FCM-50W	NON-FCM-70W HPS
APPROACH GIRDERS	LB			19,615,919	
KNUCKLE	LB		148,680	43,404	12,180
ARCH RIB AND CONNECTIONS	LB				1,139,527
ARCH RIB BRACING AND CONNECTIONS	LB			327,352	
TIE GIRDER AND CONNECTIONS	LB		1,287,903	59,621	61,557
HANGER ANCHORAGE	LB	20,451	77,402	5,771	
FLOORBEAMS AND CONNECTIONS	LB	16,989	672,269	5,615	
STRINGERS AND CONNECTIONS	LB			689,227	
LOWER LATERAL BRACING AND CONNECTIONS	LB			145,079	
UTILITY HANGERS AND CONNECTIONS	LB			9,113	
INSPECTION AND NAVIGATIONAL LIGHTING ACCESS	LB			18,904	

ESTIMATE OF MECHANICAL REINFORCEMENT COUPLERS

FOR INFORMATION ONLY

ITEM	PIER 1	PIER 2	PIER 3	PIER 4	PIER 5	PIER 6	PIER 7	PIER 8	PIER 9
MECHANICAL REINFORCEMENT COUPLERS #7				26	26				
MECHANICAL REINFORCEMENT COUPLERS #11			96	324	324	192			
MECHANICAL REINFORCEMENT COUPLERS #14				272	272				
MECHANICAL REINFORCEMENT COUPLERS #18	32	32	32	184	184	100	32	32	32

MECHANICAL COUPLERS WILL NOT BE PAID SEPARATELY AND ARE INCIDENTAL TO THE PRICE OF THE STEEL REINFORCEMENT

⚠ QUANTITIES REVISED	11/25/13
REVISION	DATE

DATE: NOVEMBER 15, 2013 — CHECKED BY
DESIGNED BY: ACK — RMS
DETAILED BY: CEW — ACK

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: **MARSHALL / TRIGG**

ROUTE: **US68** — CROSSING: **KENTUCKY LAKE**

ABBREVIATIONS

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ITEM NUMBER
01-180.70

PREPARED BY
Baker
MICHAEL BAKER JR, INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

SHEET NO. S010
DRAWING NO. 24686

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AKA	ALSO KNOWN AS
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APPROX.	APPROXIMATE
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B.F.	BACK FACE
B.O.F.	BOTTOM OF FOOTING
BOR	BEGINNING OF RESTRIKE
BOT / BOTT.	BOTTOM
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ESTIMATE OF MECHANICAL REINFORCEMENT COUPLERS

FOR INFORMATION ONLY

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REVISION	DATE
⚠1 QUANTITIES REVISED	11/25/13

DATE: NOVEMBER 15, 2013 | CHECKED BY
DESIGNED BY: ACK | RMS
DETAILED BY: CEW | ACK

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: **MARSHALL / TRIGG**

ROUTE: **US68** | CROSSING: **KENTUCKY LAKE**

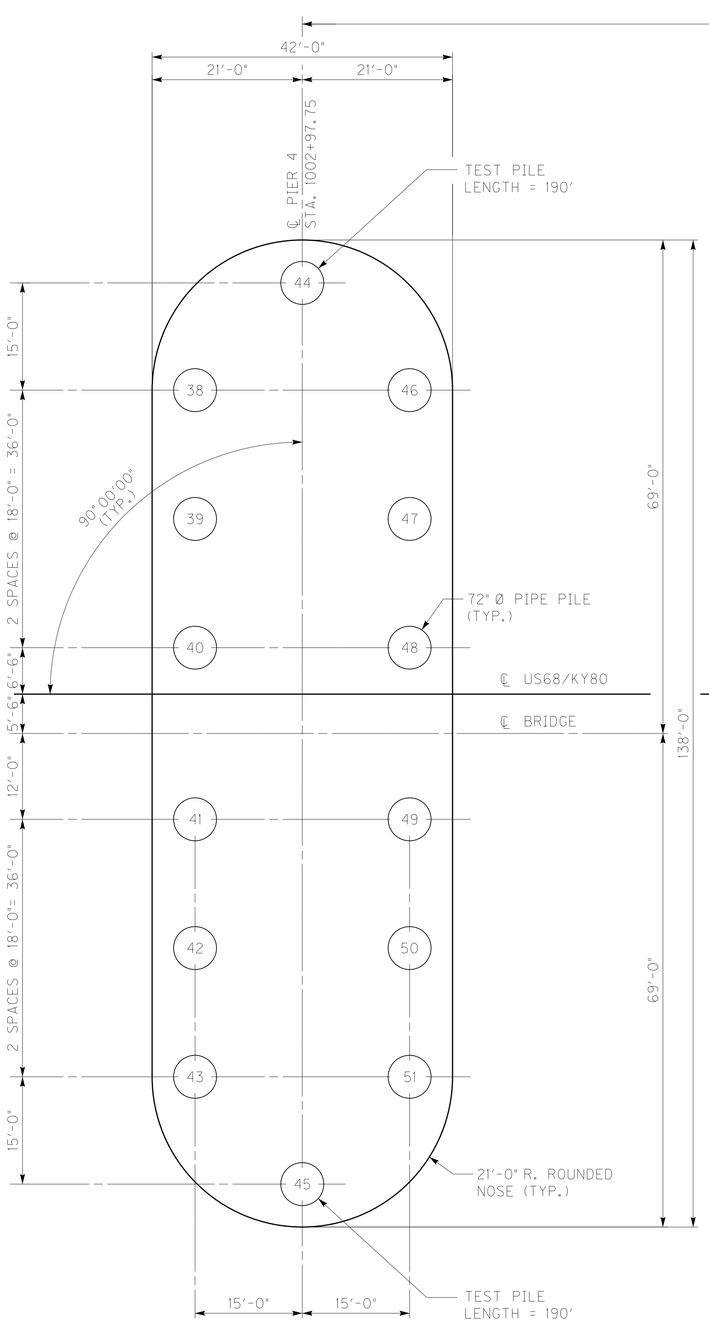
ABBREVIATIONS

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

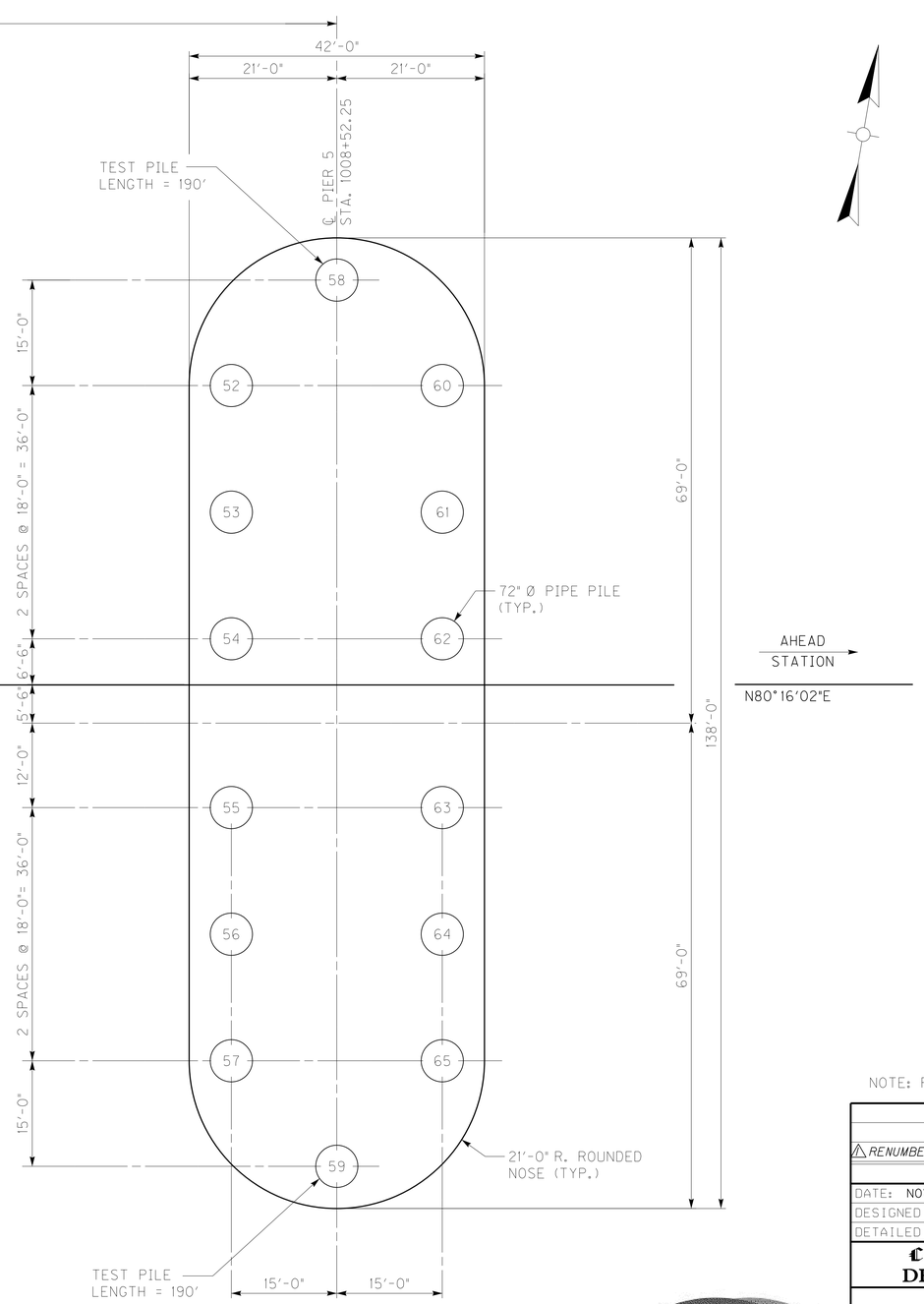
ITEM NUMBER
01-180.70

PREPARED BY
Baker
MICHAEL BAKER JR, INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

SHEET NO. S010
DRAWING NO. 24686



PIER 4



PIER 5

AHEAD
STATION
N80°16'02"E

NOTE: FOR PILE RECORD SEE SHEET S040.

⚠ RENUMBERED PILES	11/25/13
REVISION	DATE

DATE: NOVEMBER 15, 2013	CHECKED BY
DESIGNED BY: NRW	GDS
DETAILED BY: MWB	DKY

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
MARSHALL / TRIGG

ROUTE	CROSSING
US68	KENTUCKY LAKE

FOUNDATION LAYOUT

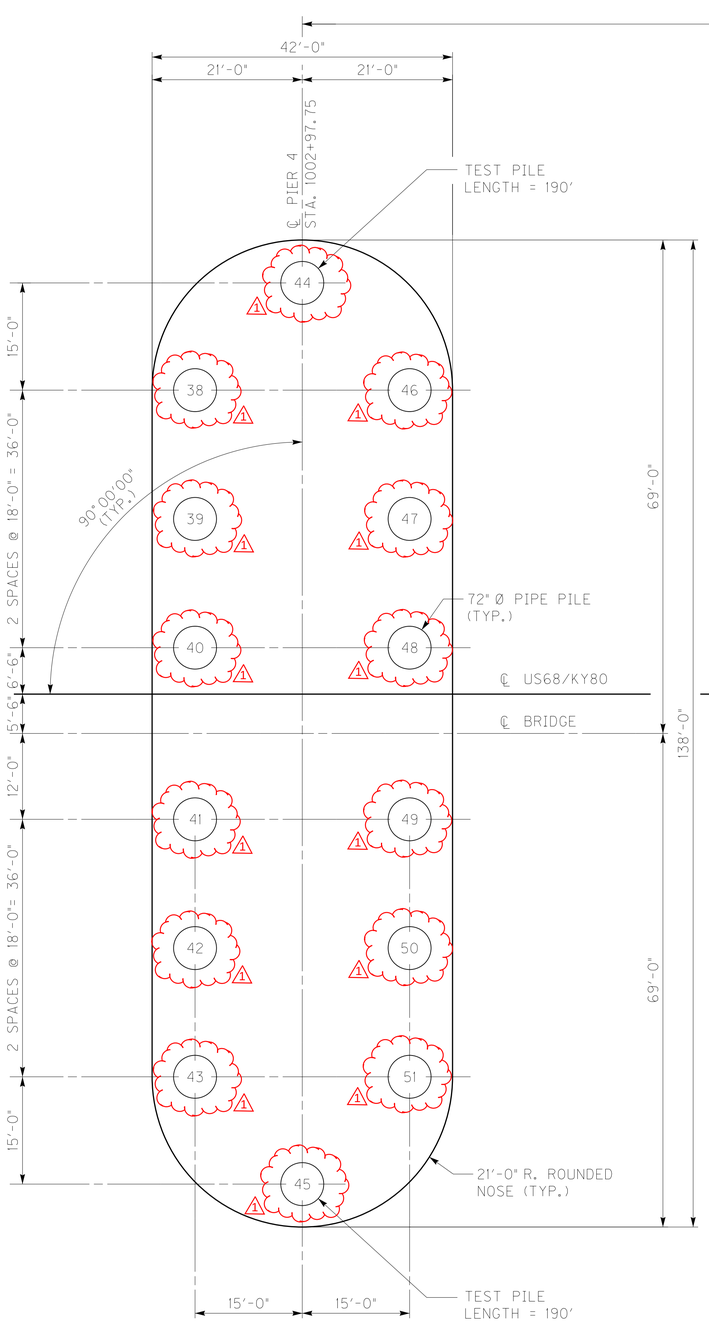
LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ITEM NUMBER
01–180.70

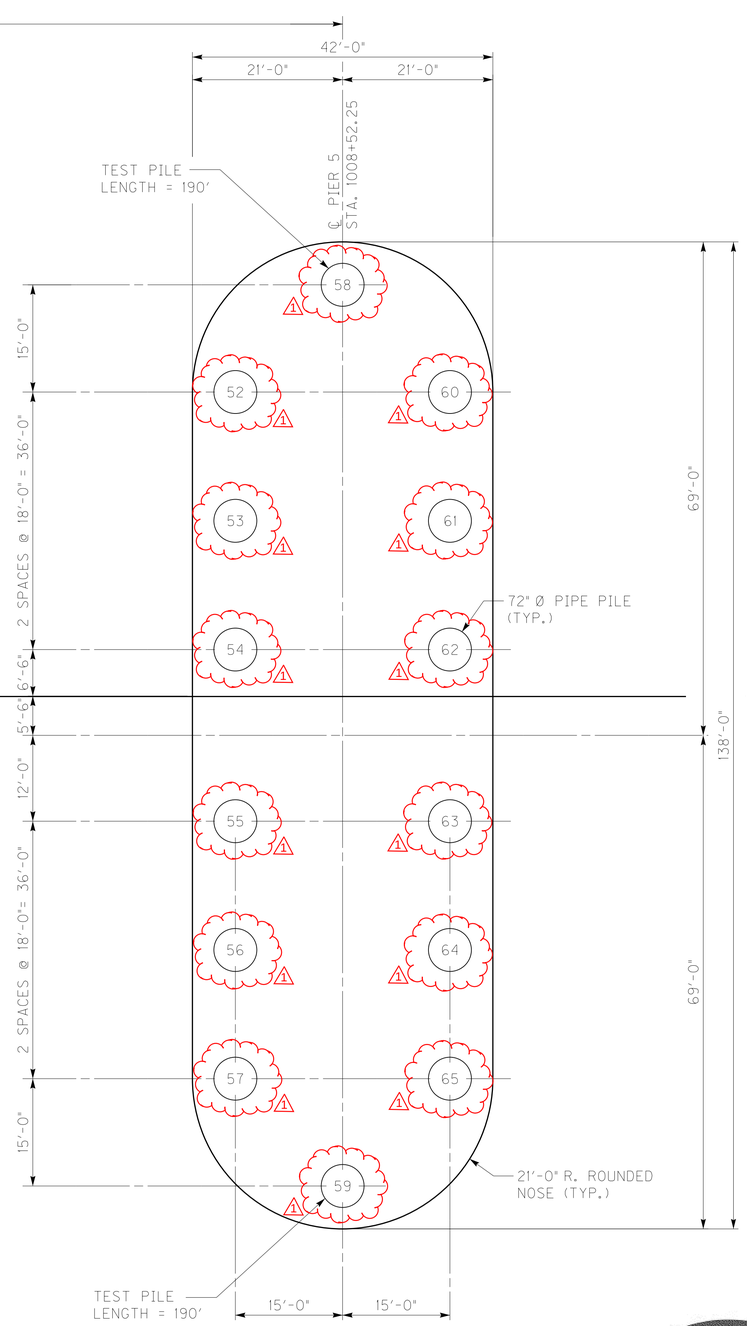
PREPARED BY
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

SHEET NO. S037
DRAWING NO. 24686

MicroStation v8.11.9.459 | E-SHEET NAME: S24686 037 | USER: CWethington DATE PLOTTED: November 21, 2013 | FILE NAME: C:\PW\81-LOCAL\BAKER.PROJECTS\CWETHINGTON\D0141582\S24686 FL02.DGN



PIER 4



PIER 5

AHEAD
STATION
N80°16'02"E

NOTE: FOR PILE RECORD SEE SHEET S040.

⚠ RENUMBERED PILES	11/25/13
REVISION	DATE

DATE: NOVEMBER 15, 2013	CHECKED BY
DESIGNED BY: NRW	GDS
DETAILED BY: MWB	DKY

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
MARSHALL / TRIGG

ROUTE	CROSSING
US68	KENTUCKY LAKE

FOUNDATION LAYOUT

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ITEM NUMBER
01-180.70

PREPARED BY
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

SHEET NO.
S037

DRAWING NO.
24686

PILE RECORD FOR FRICTION PILES WITH DYNAMIC TESTING

PILE NO.	PILE TYPE AND GRADE	PROJECT HAMMER NUMBER	PILE CUT-OFF ELEVATION	PILE LENGTH IN PLACE	PILE TIP ELEVATION AS DRIVEN	MEASURED MUDLINE ELEVATION	ESTIMATED PILE TIP ELEVATION	HIGHEST ALLOWABLE PILE TIP ELEVATION	LOWEST ANTICIPATED PILE TIP ELEVATION	REQUIRED NOMINAL AXIAL RESISTANCE		DATA OBTAINED FROM DYNAMIC PILE TESTING**									ACTUAL AT EOD		ACTUAL AT BOR (FINAL)		TIME AFTER EOD
												NOMINAL TEST PILE RESISTANCE (BASED ON DYNAMIC TESTING) R_n		ESTIMATED PILE TIP ELEVATION (BASED ON DYNAMIC TESTING)	REQUIRED AT END OF DRIVING (EOD)				REQUIRED AT BEGINNING OF RESTRIKE (BOR)								
															BLOW COUNT N		HAMMER ENERGY E		BLOW COUNT N		HAMMER ENERGY E					
															BLOWS PER INCH		KIP-FEET		BLOWS PER INCH		KIP-FEET					
			FEET	FEET	FEET	FEET	FEET	FEET	FEET	KIPS	TONS	KIPS	TONS	FEET	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	BLOWS PER INCH	KIP-FEET	BLOWS PER INCH	KIP-FEET	HOURS
PIER 4																										
38	PP 72x2.0 ASTM 572 GRADE 50 (Fy = 50 KSI)		362.0				204.0	210.0	192.0	5500	2750															
39			362.0				204.0	210.0	192.0	5500	2750															
40			362.0				204.0	210.0	192.0	5500	2750															
41			362.0				204.0	210.0	192.0	5500	2750															
42			362.0				204.0	210.0	192.0	5500	2750															
43			362.0				204.0	210.0	192.0	5500	2750															
44			362.0				204.0	210.0	192.0	5500	2750															
45			362.0				204.0	210.0	192.0	5500	2750															
46			362.0				204.0	210.0	192.0	5500	2750															
47			362.0				204.0	210.0	192.0	5500	2750															
48			362.0				204.0	210.0	192.0	5500	2750															
49			362.0				204.0	210.0	192.0	5500	2750															
50			362.0				204.0	210.0	192.0	5500	2750															
51			362.0				204.0	210.0	192.0	5500	2750															
PIER 5																										
52	PP 72x2.0 ASTM 572 GRADE 50 (Fy = 50 KSI)		362.0				204.0	210.0	192.0	5500	2750															
53			362.0				204.0	210.0	192.0	5500	2750															
54			362.0				204.0	210.0	192.0	5500	2750															
55			362.0				204.0	210.0	192.0	5500	2750															
56			362.0				204.0	210.0	192.0	5500	2750															
57			362.0				204.0	210.0	192.0	5500	2750															
58			362.0				204.0	210.0	192.0	5500	2750															
59			362.0				204.0	210.0	192.0	5500	2750															
60			362.0				204.0	210.0	192.0	5500	2750															
61			362.0				204.0	210.0	192.0	5500	2750															
62			362.0				204.0	210.0	192.0	5500	2750															
63			362.0				204.0	210.0	192.0	5500	2750															
64			362.0				204.0	210.0	192.0	5500	2750															
65			362.0				204.0	210.0	192.0	5500	2750															

NOTES:
1. FOR ADDITIONAL INFORMATION REGARDING PILE ELEVATIONS AND DRIVING CRITERIA, SEE "SPECIAL NOTE FOR STEEL PIPE PILES - INSTALL."

** AFTER EVALUATING THE RESULTS OF DYNAMIC PILE TESTING, THE GEOTECHNICAL BRANCH WILL PROVIDE THE DATA TO FILL IN THESE COLUMNS.

⚠ RENUMBERED PILES	11/25/13
REVISION	DATE
DATE: NOVEMBER 15, 2013	CHECKED BY
DESIGNED BY: NRW	SDZ
DETAILED BY: MWB	GDS

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL / TRIGG

ROUTE: US68

CROSSING: KENTUCKY LAKE

PIER 4 & 5 PILE RECORD

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ITEM NUMBER
01-180.70

PREPARED BY
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DRAWING NO. 24686

PILE RECORD FOR FRICTION PILES WITH DYNAMIC TESTING

PILE NO.	PILE TYPE AND GRADE	PROJECT HAMMER NUMBER	PILE CUT-OFF ELEVATION	PILE LENGTH IN PLACE	PILE TIP ELEVATION AS DRIVEN	MEASURED MUDLINE ELEVATION	ESTIMATED PILE TIP ELEVATION	HIGHEST ALLOWABLE PILE TIP ELEVATION	LOWEST ANTICIPATED PILE TIP ELEVATION	REQUIRED NOMINAL AXIAL RESISTANCE		DATA OBTAINED FROM DYNAMIC PILE TESTING**									ACTUAL AT EOD		ACTUAL AT BOR (FINAL)		TIME AFTER EOD
												NOMINAL TEST PILE RESISTANCE (BASED ON DYNAMIC TESTING) R_n		ESTIMATED PILE TIP ELEVATION (BASED ON DYNAMIC TESTING)	REQUIRED AT END OF DRIVING (EOD)				REQUIRED AT BEGINNING OF RESTRIKE (BOR)								
															BLOW COUNT N		HAMMER ENERGY E		BLOW COUNT N		HAMMER ENERGY E		BLOW COUNT N	HAMMER ENERGY E	BLOW COUNT N	HAMMER ENERGY E	
															BLOWS PER INCH		KIP-FEET		BLOWS PER INCH		KIP-FEET		BLOWS PER INCH	KIP-FEET	BLOWS PER INCH	KIP-FEET	
			FEET	FEET	FEET	FEET	FEET	FEET	FEET	KIPS	TONS	KIPS	TONS	FEET	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	BLOWS PER INCH	KIP-FEET	BLOWS PER INCH	KIP-FEET	HOURS
														PIER 4														
38	PP 72x2.0 ASTM 572 GRADE 50 (Fy = 50 KSI)		362.0				204.0	210.0	192.0	5500	2750																
39			362.0				204.0	210.0	192.0	5500	2750																
40			362.0				204.0	210.0	192.0	5500	2750																
41			362.0				204.0	210.0	192.0	5500	2750																
42			362.0				204.0	210.0	192.0	5500	2750																
43			362.0				204.0	210.0	192.0	5500	2750																
44			362.0				204.0	210.0	192.0	5500	2750																
45			362.0				204.0	210.0	192.0	5500	2750																
46			362.0				204.0	210.0	192.0	5500	2750																
47			362.0				204.0	210.0	192.0	5500	2750																
48			362.0				204.0	210.0	192.0	5500	2750																
49			362.0				204.0	210.0	192.0	5500	2750																
50			362.0				204.0	210.0	192.0	5500	2750																
51			362.0				204.0	210.0	192.0	5500	2750																
														PIER 5														
52	PP 72x2.0 ASTM 572 GRADE 50 (Fy = 50 KSI)		362.0				204.0	210.0	192.0	5500	2750																
53			362.0				204.0	210.0	192.0	5500	2750																
54			362.0				204.0	210.0	192.0	5500	2750																
55			362.0				204.0	210.0	192.0	5500	2750																
56			362.0				204.0	210.0	192.0	5500	2750																
57			362.0				204.0	210.0	192.0	5500	2750																
58			362.0				204.0	210.0	192.0	5500	2750																
59			362.0				204.0	210.0	192.0	5500	2750																
60			362.0				204.0	210.0	192.0	5500	2750																
61			362.0				204.0	210.0	192.0	5500	2750																
62			362.0				204.0	210.0	192.0	5500	2750																
63			362.0				204.0	210.0	192.0	5500	2750																
64			362.0				204.0	210.0	192.0	5500	2750																
65			362.0				204.0	210.0	192.0	5500	2750																

NOTES:
1. FOR ADDITIONAL INFORMATION REGARDING PILE ELEVATIONS AND DRIVING CRITERIA, SEE "SPECIAL NOTE FOR STEEL PIPE PILES - INSTALL."

** AFTER EVALUATING THE RESULTS OF DYNAMIC PILE TESTING, THE GEOTECHNICAL BRANCH WILL PROVIDE THE DATA TO FILL IN THESE COLUMNS.

REVISION	DATE
1 RENUMBERED PILES	11/25/13

DATE: NOVEMBER 15, 2013 | CHECKED BY
DESIGNED BY: NRW | SDZ
DETAILED BY: MWB | GDS

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: **MARSHALL / TRIGG**

ROUTE: **US68** | CROSSING: **KENTUCKY LAKE**

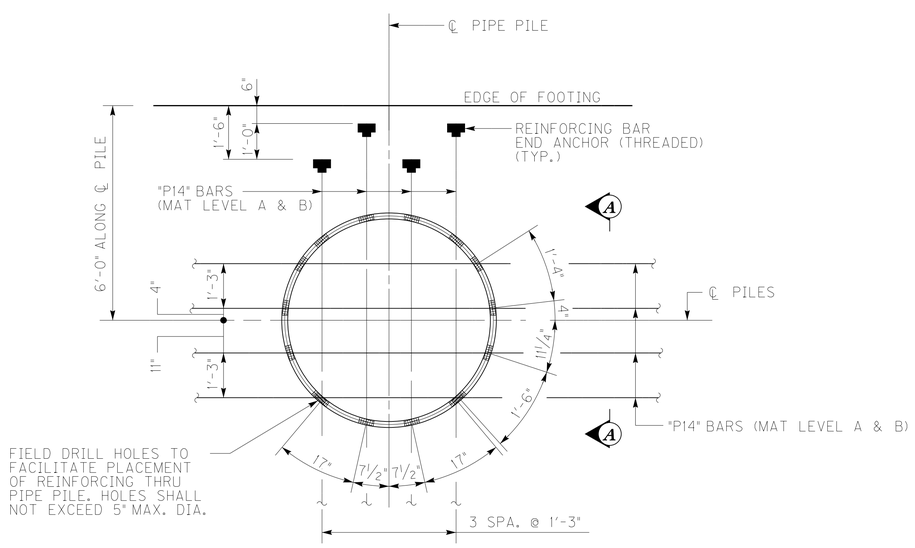
PIER 4 & 5 PILE RECORD

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

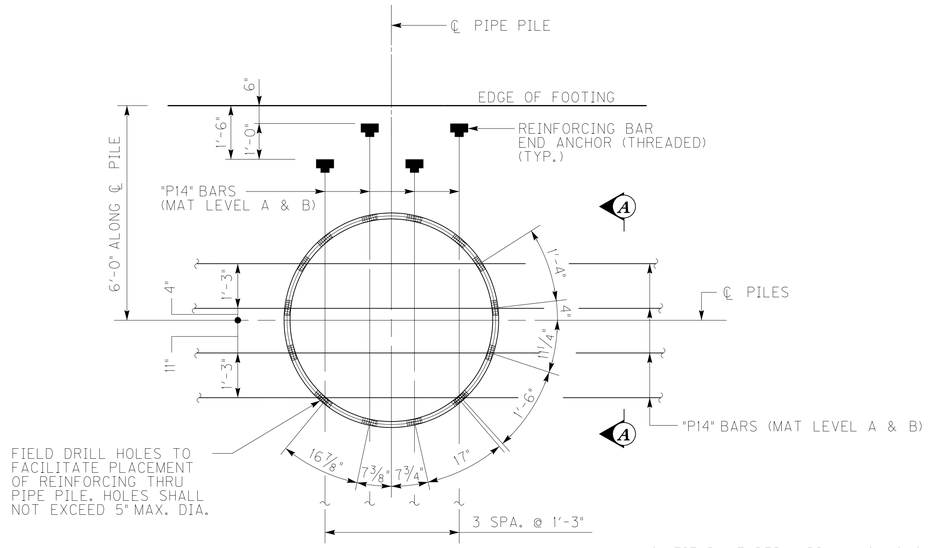
ITEM NUMBER
01-180.70

PREPARED BY
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

SHEET NO. S040
DRAWING NO. 24686



PLAN



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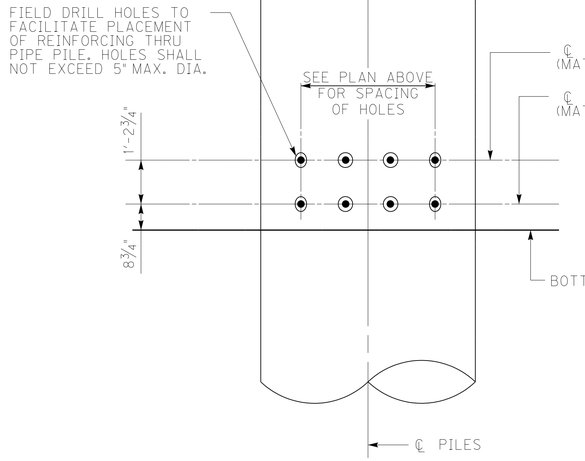
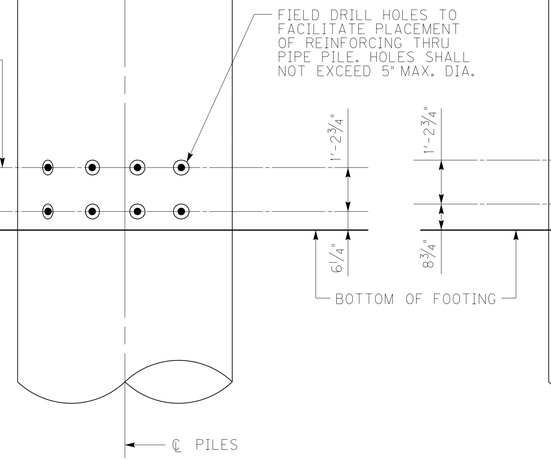
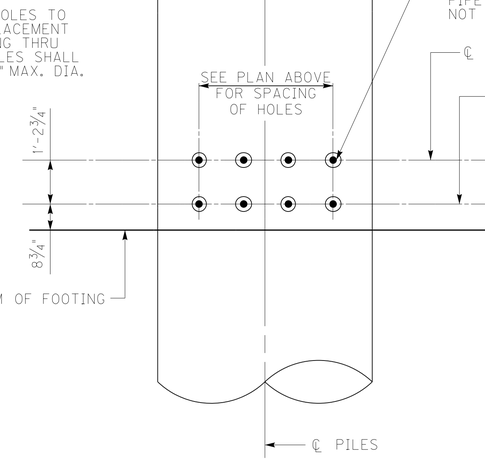


ELEVATION



SECTION A–A



ELEVATION

NOTES

1. PILES 36, 37, 50 AND 51 SIMILAR WITH NO HOLES IN THE SECTION A-A ORIENTATION.
2. PIPE PILE SHEAR CONNECTORS SHALL BE INCLUDED WITH THE PAY ITEM SHEAR CONNECTORS.

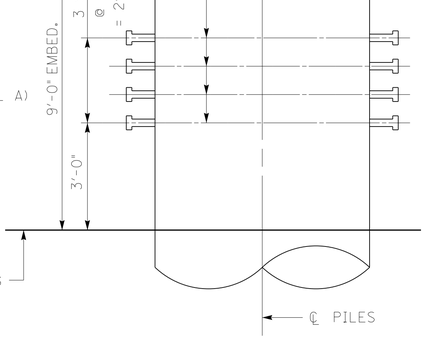
PILE DETAIL A

(PILES 31-34 AND 39-42 AT PIER 4,
PILES 45-48 AND 53-56 AT PIER 5)

PILE DETAIL B

(PILES 30, 35, 38 AND 43 AT PIER 4,
PILES 44, 49, 52 AND 57 AT PIER 5)

℄ FIELD WELDED 1" DIA. X 6" LONG SHEAR CONNECTORS (24 PER ROW EQUALLY SPACED AROUND CIRCUMFERENCE OF PILE)



PILE CONNECTION DETAILS

⚠ ADDED NOTE 2	11/25/13
REVISION	DATE

DATE: NOVEMBER 15, 2013	CHECKED BY
DESIGNED BY: DKY	NRW
DETAILED BY: MWB/BFS	DKY

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
MARSHALL / TRIGG

ROUTE	CROSSING
US68	KENTUCKY LAKE

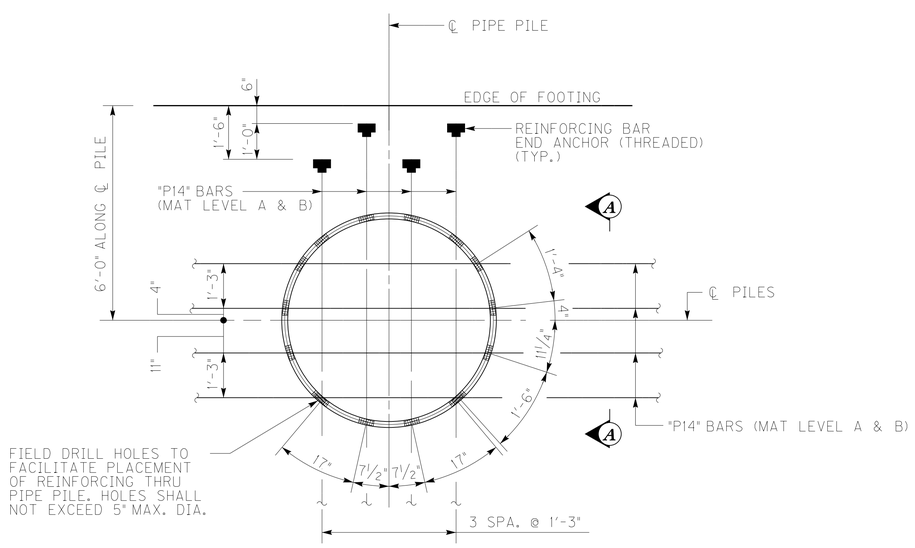
PIER 4/5 FTG. REINF. DTLS. 6

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

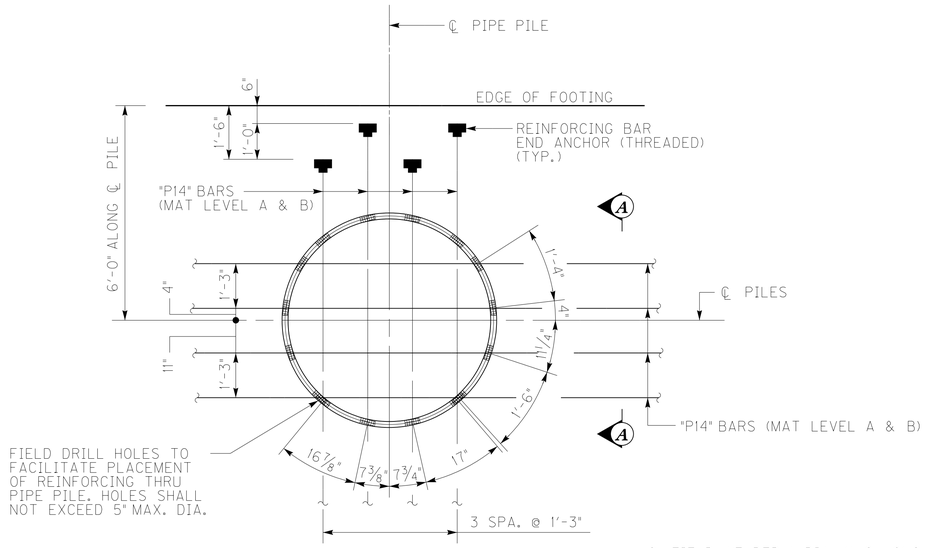
ITEM NUMBER
01-180.70

PREPARED BY
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

SHEET NO. S067
DRAWING NO. 24686



PLAN



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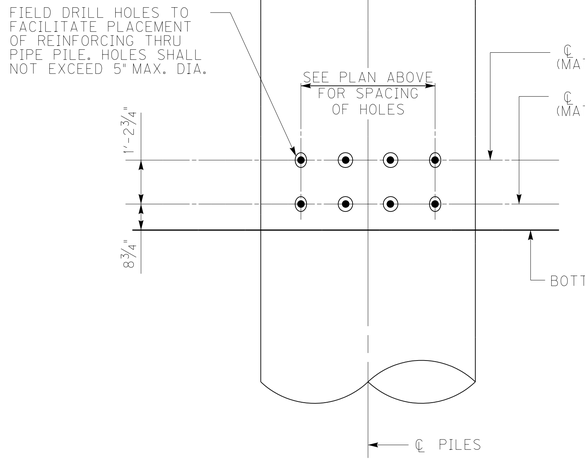
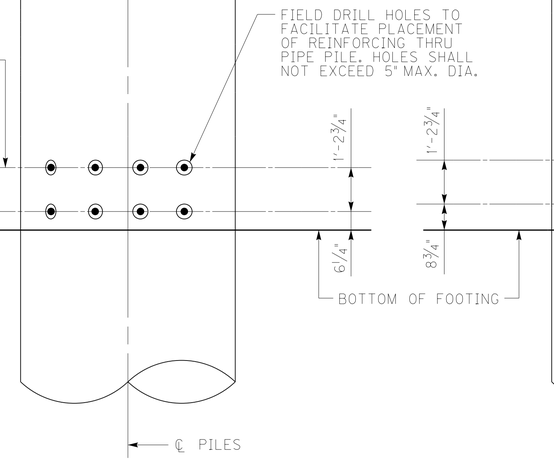
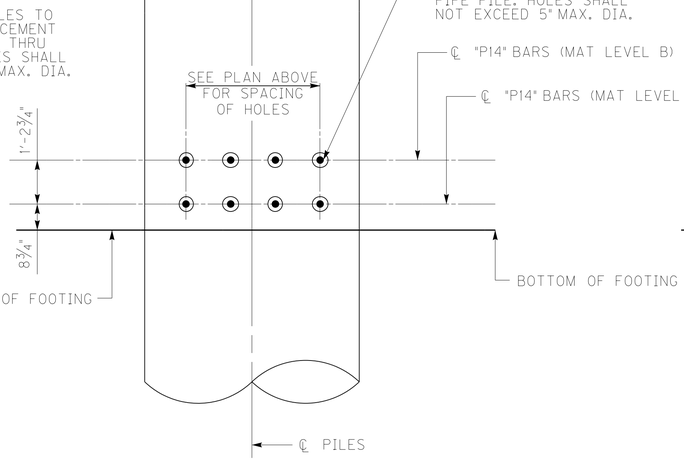


ELEVATION



SECTION A–A



ELEVATION

NOTES

1. PILES 36, 37, 50 AND 51 SIMILAR WITH NO HOLES IN THE SECTION A-A ORIENTATION.
1 2. PIPE PILE SHEAR CONNECTORS SHALL BE INCLUDED WITH THE PAY ITEM SHEAR CONNECTORS.

PILE DETAIL A

(PILES 31-34 AND 39-42 AT PIER 4,
PILES 45-48 AND 53-56 AT PIER 5)

PILE DETAIL B

(PILES 30, 35, 38 AND 43 AT PIER 4,
PILES 44, 49, 52 AND 57 AT PIER 5)

PILE CONNECTION DETAILS

⚠ ADDED NOTE 2	11/25/13
REVISION	DATE

DATE: NOVEMBER 15, 2013	CHECKED BY
DESIGNED BY: DKY	NRW
DETAILED BY: MWB/BFS	DKY

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL / TRIGG

ROUTE: US68 | CROSSING: KENTUCKY LAKE

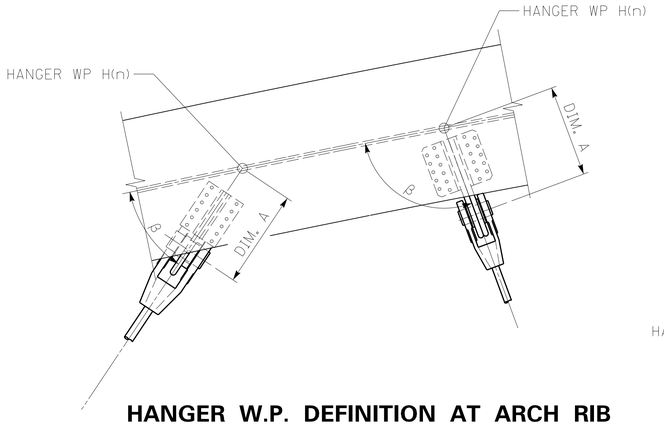
PIER 4/5 FTG. REINF. DTLS. 6

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

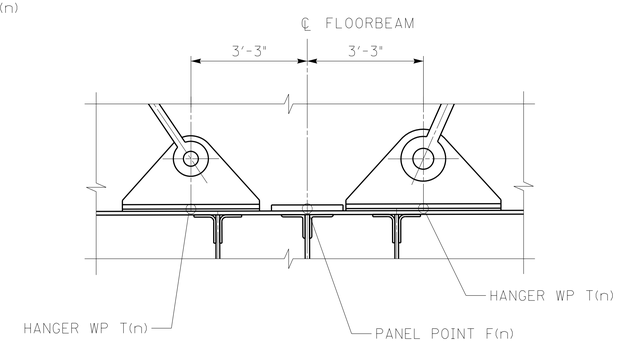
ITEM NUMBER
01–180.70

PREPARED BY
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

SHEET NO. S067
DRAWING NO. 24686

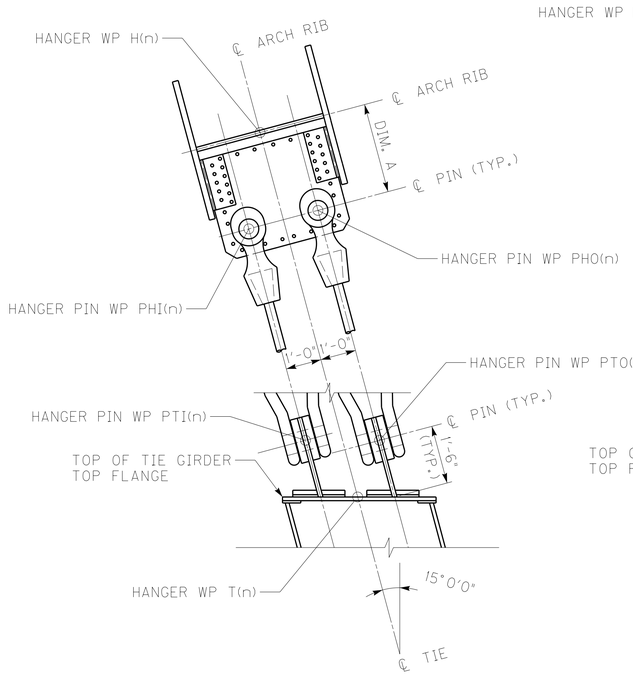


HANGER W.P. DEFINITION AT ARCH RIB



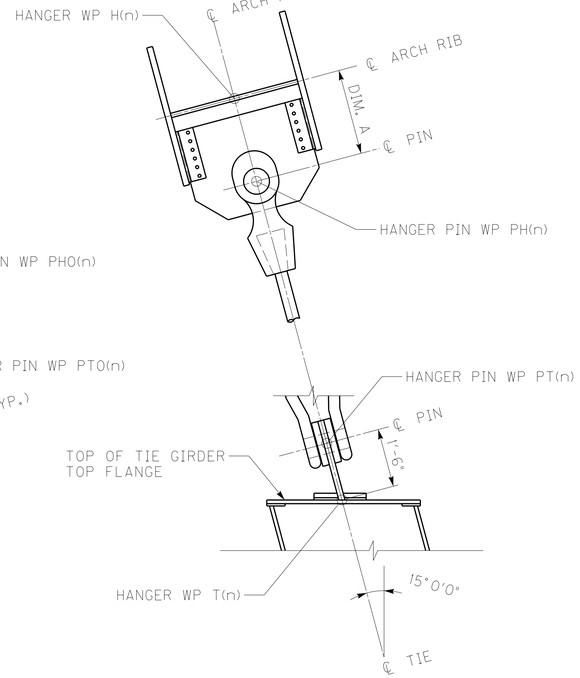
HANGER W.P. DEFINITION AT TIE

BOLTS NOT SHOWN FOR CLARITY



HANGER W.P. AT DOUBLE HANGER

BOLTS NOT SHOWN FOR CLARITY



HANGER W.P. AT SINGLE HANGER

BOLTS NOT SHOWN FOR CLARITY

HANGER PIN WORK POINT COORDINATES

HANGER	UPPER WORK POINT	X (FT.)	Y (FT.)	Z (FT.) (SEE NOTE 5)	LOWER WORK POINT	X (FT.)	Y (FT.)	Z (FT.) (SEE NOTE 5)	DISTANCE BETWEEN WORK POINTS
C1	PH01	-244.709	22.401	± 42.049	PT01	-232.417	4.563	± 46.969	22.215
C1	PHI1	-244.684	21.900	± 40.112	PTI1	-232.417	4.563	± 44.894	21.769
C2	PH3	-205.304	49.370	± 33.781	PT2	-225.917	4.650	± 45.937	50.720
C3	PH02	-213.450	43.835	± 36.305	PT03	-186.583	5.112	± 46.969	48.321
C3	PHI2	-213.438	43.325	± 34.371	PTI3	-186.583	5.112	± 44.895	47.876
C4	PH5	-146.902	77.170	± 26.333	PT4	-180.083	5.181	± 45.936	81.656
C5	PH04	-177.967	63.324	± 31.082	PT05	-140.750	5.541	± 46.970	70.544
C5	PHI4	-177.959	62.811	± 29.149	PTI5	-140.750	5.541	± 44.895	70.088
C6	PH8	-79.940	96.457	± 21.165	PT6	-134.250	5.593	± 45.936	108.717
C7	PH06	-138.962	79.793	± 26.669	PT07	-94.917	5.850	± 46.970	88.430
C7	PHI6	-138.956	79.279	± 24.736	PTI7	-94.917	5.850	± 44.896	87.965
C8	PH10	-30.297	103.123	± 19.379	PT8	-88.417	5.884	± 45.935	116.355
C9	PH07	-100.130	91.695	± 23.479	PT09	-49.083	6.038	± 46.970	102.443
C9	PHI7	-100.124	91.180	± 21.547	PTI9	-49.083	6.038	± 44.896	101.978
C10	PH12	15.865	103.844	± 19.187	PT10	-42.583	6.056	± 45.934	117.022
C11	PH09	-59.143	99.873	± 21.287	PT011	-3.250	6.107	± 46.971	112.142
C11	PHI9	-59.138	99.359	± 19.355	PTI11	-3.250	6.107	± 44.897	111.677
C12	PH014	59.143	99.873	± 21.287	PT012	3.250	6.107	± 46.971	112.142
C12	PHI14	59.138	99.359	± 19.355	PTI12	3.250	6.107	± 44.897	111.677
C13	PH11	-15.865	103.844	± 19.187	PT13	42.583	6.056	± 45.934	117.022
C14	PH016	100.130	91.695	± 23.479	PT014	49.083	6.038	± 46.970	102.443
C14	PHI16	100.124	91.180	± 21.547	PTI14	49.083	6.038	± 44.896	101.978
C15	PH13	30.297	103.123	± 19.379	PT15	88.417	5.884	± 45.935	116.355
C16	PH017	138.962	79.793	± 26.669	PT016	94.917	5.850	± 46.970	88.430
C16	PHI17	138.956	79.279	± 24.736	PTI16	94.917	5.850	± 44.896	87.965
C17	PH15	79.940	96.457	± 21.165	PT17	134.250	5.593	± 45.936	108.717
C18	PH019	177.967	63.324	± 31.082	PT018	140.750	5.541	± 46.970	70.544
C18	PHI19	177.959	62.811	± 29.149	PTI18	140.750	5.541	± 44.895	70.088
C19	PH18	146.902	77.170	± 26.333	PT19	180.083	5.181	± 45.936	81.656
C20	PH021	213.450	43.835	± 36.305	PT020	186.583	5.112	± 46.969	48.321
C20	PHI21	213.438	43.325	± 34.371	PTI20	186.583	5.112	± 44.895	47.876
C21	PH20	205.304	49.370	± 33.781	PT21	225.917	4.650	± 45.937	50.720
C22	PH022	244.709	22.401	± 42.049	PT022	232.417	4.563	± 46.969	22.215
C22	PHI22	244.684	21.900	± 40.112	PTI22	232.417	4.563	± 44.894	21.769

HANGER @ RIB GEOMETRY

LOCATION	UPPER WORK POINT	DIM. A (FT.)	β ANGLES
C1*	H1	2.500	85°53'28"
C2	H3	2.948	35°12'43"
C3*	H2	2.490	91°24'01"
C4	H5	2.740	44°33'17"
C5*	H4	2.510	95°16'47"
C6	H8	2.677	48°37'52"
C7*	H6	2.531	99°24'41"
C8	H10	2.521	55°49'26"
C9*	H7	2.573	105°15'59"
C10	H12	2.458	-117°32'35"
C11*	H9	2.615	111°16'51"
C12*	H14	2.615	-111°16'51"
C13	H11	2.458	117°32'35"
C14*	H16	2.573	-105°15'59"
C15	H13	2.521	-55°49'26"
C16*	H17	2.531	-99°24'41"
C17	H15	2.677	-48°37'52"
C18*	H19	2.510	-95°16'47"
C19	H18	2.740	-44°33'17"
C20*	H21	2.490	-91°24'01"
C21	H20	2.948	-35°12'43"
C22*	H22	2.500	-85°53'28"

NOTES

1. FOR ARCH - KEY ELEVATION AND LEGEND, SEE SHEET NO S133.
2. FOR ARCH RIB, TIE GIRDER AND FLOORBEAM GEOMETRY, SEE SHEET NO. S134-S135.
3. FOR HANGER WORK POINTS, SEE SHEET NO. S135.
4. FOR HANGERS, CONNECTIONS AND DETAILS, SEE SHEETS NO. S179-S184A.
5. POSITIVE Z VALUES REPRESENT THE SOUTH ARCH, NEGATIVE Z VALUES REPRESENT THE NORTH ARCH.

REVISION	DATE
⚠ REVISED RIB HANGER CONNECTION DETAILS	11/25/13

DATE: NOVEMBER 15, 2013 — CHECKED BY
DESIGNED BY: CYY — DGM
DETAILED BY: MJD — CYY

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL / TRIGG

ROUTE: US68 — CROSSING: KENTUCKY LAKE

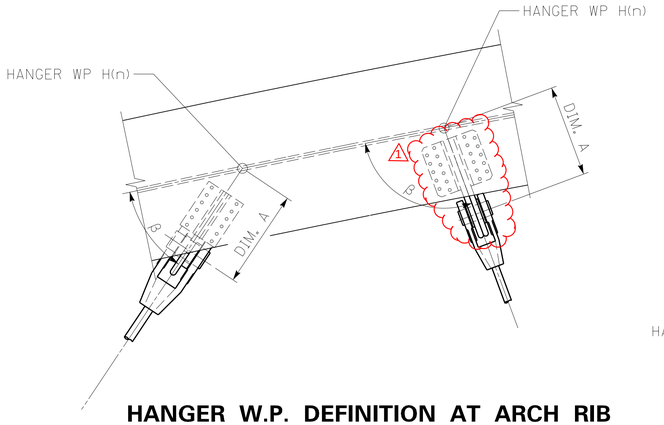
LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

MAIN SPAN ARCH GEOMETRY - 4

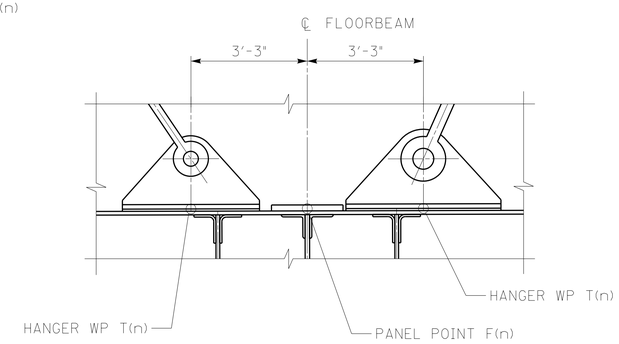
ITEM NUMBER
01-180.70

PREPARED BY
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

SHEET NO. S137
DRAWING NO. 24686

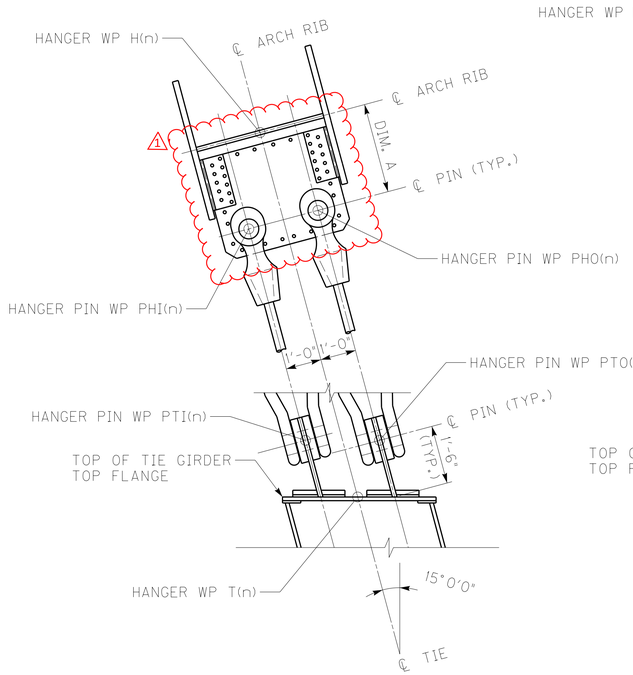


HANGER W.P. DEFINITION AT ARCH RIB



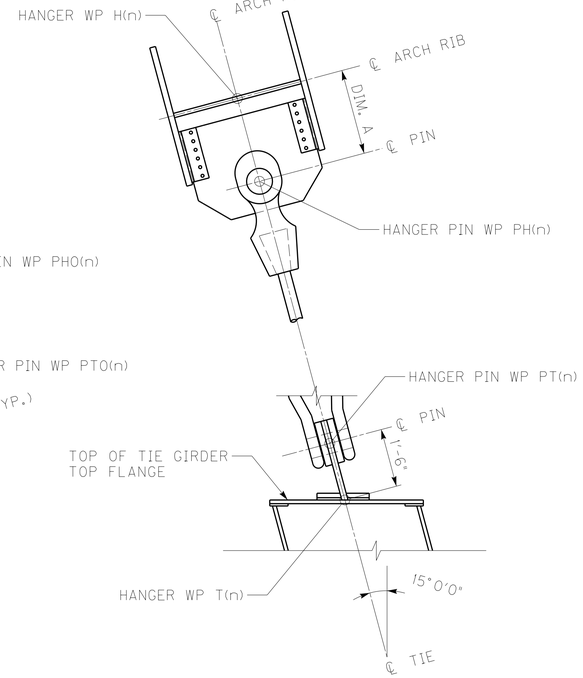
HANGER W.P. DEFINITION AT TIE

BOLTS NOT SHOWN FOR CLARITY



HANGER W.P. AT DOUBLE HANGER

BOLTS NOT SHOWN FOR CLARITY



HANGER W.P. AT SINGLE HANGER

BOLTS NOT SHOWN FOR CLARITY

HANGER PIN WORK POINT COORDINATES

HANGER	UPPER WORK POINT	X (FT.)	Y (FT.)	Z (FT.) (SEE NOTE 5)	LOWER WORK POINT	X (FT.)	Y (FT.)	Z (FT.) (SEE NOTE 5)	DISTANCE BETWEEN WORK POINTS
C1	PH01	-244.709	22.401	± 42.049	PT01	-232.417	4.563	± 46.969	22.215
C1	PHI1	-244.684	21.900	± 40.112	PTI1	-232.417	4.563	± 44.894	21.769
C2	PH3	-205.304	49.370	± 33.781	PT2	-225.917	4.650	± 45.937	50.720
C3	PH02	-213.450	43.835	± 36.305	PT03	-186.583	5.112	± 46.969	48.321
C3	PHI2	-213.438	43.325	± 34.371	PTI3	-186.583	5.112	± 44.895	47.876
C4	PH5	-146.902	77.170	± 26.333	PT4	-180.083	5.181	± 45.936	81.656
C5	PH04	-177.967	63.324	± 31.082	PT05	-140.750	5.541	± 46.970	70.544
C5	PHI4	-177.959	62.811	± 29.149	PTI5	-140.750	5.541	± 44.895	70.088
C6	PH8	-79.940	96.457	± 21.165	PT6	-134.250	5.593	± 45.936	108.717
C7	PH06	-138.962	79.793	± 26.669	PT07	-94.917	5.850	± 46.970	88.430
C7	PHI6	-138.956	79.279	± 24.736	PTI7	-94.917	5.850	± 44.896	87.965
C8	PH10	-30.297	103.123	± 19.379	PT8	-88.417	5.884	± 45.935	116.355
C9	PH07	-100.130	91.695	± 23.479	PT09	-49.083	6.038	± 46.970	102.443
C9	PHI7	-100.124	91.180	± 21.547	PTI9	-49.083	6.038	± 44.896	101.978
C10	PH12	15.865	103.844	± 19.187	PT10	-42.583	6.056	± 45.934	117.022
C11	PH09	-59.143	99.873	± 21.287	PT011	-3.250	6.107	± 46.971	112.142
C11	PHI9	-59.138	99.359	± 19.355	PTI11	-3.250	6.107	± 44.897	111.677
C12	PH014	59.143	99.873	± 21.287	PT012	3.250	6.107	± 46.971	112.142
C12	PHI14	59.138	99.359	± 19.355	PTI12	3.250	6.107	± 44.897	111.677
C13	PH11	-15.865	103.844	± 19.187	PT13	42.583	6.056	± 45.934	117.022
C14	PH016	100.130	91.695	± 23.479	PT014	49.083	6.038	± 46.970	102.443
C14	PHI16	100.124	91.180	± 21.547	PTI14	49.083	6.038	± 44.896	101.978
C15	PH13	30.297	103.123	± 19.379	PT15	88.417	5.884	± 45.935	116.355
C16	PH017	138.962	79.793	± 26.669	PT016	94.917	5.850	± 46.970	88.430
C16	PHI17	138.956	79.279	± 24.736	PTI16	94.917	5.850	± 44.896	87.965
C17	PH15	79.940	96.457	± 21.165	PT17	134.250	5.593	± 45.936	108.717
C18	PH019	177.967	63.324	± 31.082	PT018	140.750	5.541	± 46.970	70.544
C18	PHI19	177.959	62.811	± 29.149	PTI18	140.750	5.541	± 44.895	70.088
C19	PH18	146.902	77.170	± 26.333	PT19	180.083	5.181	± 45.936	81.656
C20	PH021	213.450	43.835	± 36.305	PT020	186.583	5.112	± 46.969	48.321
C20	PHI21	213.438	43.325	± 34.371	PTI20	186.583	5.112	± 44.895	47.876
C21	PH20	205.304	49.370	± 33.781	PT21	225.917	4.650	± 45.937	50.720
C22	PH022	244.709	22.401	± 42.049	PT022	232.417	4.563	± 46.969	22.215
C22	PHI22	244.684	21.900	± 40.112	PTI22	232.417	4.563	± 44.894	21.769

HANGER @ RIB GEOMETRY

LOCATION	UPPER WORK POINT	DIM. A (FT.)	β ANGLES
C1*	H1	2.500	85°53'28"
C2	H3	2.948	35°12'43"
C3*	H2	2.490	91°24'01"
C4	H5	2.740	44°33'17"
C5*	H4	2.510	95°16'47"
C6	H8	2.677	48°37'52"
C7*	H6	2.531	99°24'41"
C8	H10	2.521	55°49'26"
C9*	H7	2.573	105°15'59"
C10	H12	2.458	-117°32'35"
C11*	H9	2.615	111°16'51"
C12*	H14	2.615	-111°16'51"
C13	H11	2.458	117°32'35"
C14*	H16	2.573	-105°15'59"
C15	H13	2.521	-55°49'26"
C16*	H17	2.531	-99°24'41"
C17	H15	2.677	-48°37'52"
C18*	H19	2.510	-95°16'47"
C19	H18	2.740	-44°33'17"
C20*	H21	2.490	-91°24'01"
C21	H20	2.948	-35°12'43"
C22*	H22	2.500	-85°53'28"

NOTES

1. FOR ARCH - KEY ELEVATION AND LEGEND, SEE SHEET NO S133.
2. FOR ARCH RIB, TIE GIRDER AND FLOORBEAM GEOMETRY, SEE SHEET NO. S134-S135.
3. FOR HANGER WORK POINTS, SEE SHEET NO. S135.
4. FOR HANGERS, CONNECTIONS AND DETAILS, SEE SHEETS NO. S179-S184A.
5. POSITIVE Z VALUES REPRESENT THE SOUTH ARCH, NEGATIVE Z VALUES REPRESENT THE NORTH ARCH.

REVISION	DATE
⚠ REVISED RIB HANGER CONNECTION DETAILS	11/25/13

DATE: NOVEMBER 15, 2013 — CHECKED BY
DESIGNED BY: CYY — DGM
DETAILED BY: MJD — CYY

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL / TRIGG

ROUTE: US68 — CROSSING: KENTUCKY LAKE

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

MAIN SPAN ARCH GEOMETRY - 4

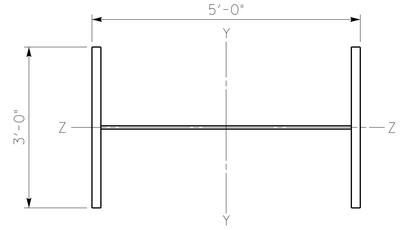
ITEM NUMBER
01-180.70

PREPARED BY
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

SHEET NO. S137
DRAWING NO. 24686

RIB BRACING SECTION PROPERTIES								
SEGMENT	PLATES	FCM	STEEL GRADE	AREA (IN^2)	Iy (IN^4)	Iz (IN^4)	Sy (IN^3)	Sz (IN^3)
RB1 - RB9	2 FLGS. 2" X 36" WEB 3/4" X 56"	NO	50W	186	132,128	15,554	4,404	864

RIB BRACING DEMAND										RESISTANCE (KSI)			DEMAND / RESISTANCE	
SEGMENT	LOADS (KIPS)					CONTROLLING LOAD COMBINATIONS (KSI)					STR	EXT-I	STR	EXT-I
		DC	DW	LL+I+BR	WS		STR-III	EXT-I						
RB1 RB9	P	-74	-1	-9	-2	fa	0.5	EQ 5	0.5	Far	20.5	22.8	0.25	0.24
	My	200	8	104	2598	fby	11.0		0.4	Fbyr	50.0	50.0		
	Mz	20	3	19	34	fbz	1.1		10.9	Fbzr	50.0	50.0		
RB2 RB8	P	-13	-1	-7	-2	fa	0.1	EQ 5	0.2	Far	26.6	29.5	0.28	0.23
	My	2	2	128	3225	fby	12.9		1.1	Fbyr	50.0	50.0		
	Mz	32	3	18	25	fbz	1.2		10.1	Fbzr	50.0	50.0		
RB3 RB7	P	-30	-1	-7	2	fa	0.3	EQ 1	0.3	Far	31.5	35.0	0.26	0.17
	My	62	15	173	2758	fby	11.4		7.1	Fbyr	50.0	50.0		
	Mz	25	2	14	52	fbz	1.6		1.1	Fbzr	50.0	50.0		
RB4 RB6	P	-15	2	-5	-2	fa	0.2	EQ 1	0.1	Far	34.0	37.8	0.15	0.11
	My	55	14	157	1325	fby	5.6		4.3	Fbyr	50.0	50.0		
	Mz	43	2	11	60	fbz	1.8		1.3	Fbzr	50.0	50.0		
RB5	P	-21	-1	-8	-1	fa	0.2	EQ 5	0.3	Far	34.6	38.4	0.04	0.07
	My	1	1	108	91	fby	0.3		0.4	Fbyr	50.0	50.0		
	Mz	65	1	6	28	fbz	1.6		3.1	Fbzr	50.0	50.0		



RIB BRACING BASIC SECTION

RIB BRACING NOTES

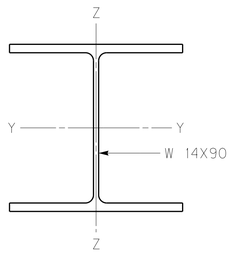
1. DESIGN IS CONTROLLED BY THE FOLLOWING EQUATIONS:
   IF fa/Far < 0.2, fa/2Far + fby/Fbyr + fbz/Fbzr <= 1.0
   OTHERWISE, fa/Far + 8/9(fby/Fbyr + fbz/Fbzr) <= 1.0
   WHERE: fa IS FACTORED AXIAL STRESSES OF THE RIB BRACING
   fby IS FACTORED Y-Y AXIS BENDING STRESSES OF THE RIB BRACING
   fbz IS FACTORED Z-Z AXIS BENDING STRESSES OF THE RIB BRACING
   Far IS GOVERNING AXIAL RESISTANCE OF THE RIB BRACING (IN STRESSES)
   Fbyr IS GOVERNING Y-Y AXIS BENDING RESISTANCE OF THE RIB BRACING (IN STRESSES)
   Fbzr IS GOVERNING Z-Z AXIS BENDING RESISTANCE OF THE RIB BRACING (IN STRESSES)

LOWER LATERAL BRACING SECTION PROPERTIES							
SECTION	FCM	STEEL GRADE	AREA (IN^2)	Iy (IN^4)	Iz (IN^4)	Sy (IN^3)	Sz (IN^3)
W14X90	NO	50W	26	362	999	50	143

LOWER LATERAL BRACING DEMANDS														RESISTANCE			DEMAND / RESISTANCE	
	LOADS								CONTROLLING LOAD COMBINATIONS									
		DC	DW	LL+I+BR	SH	TU	WS	EQ		STR- I	EXT-I				STR	EXT-I	STR	EXT-I
P	128	38	86	120	14	51	81	Pu	442	EQ 3	323	Pr	1090	1363	0.58	0.36		
My	12	-	-	-	-	-	-	Mu	17		12	Mr	89	89				

LOWER LATERAL BRACING NOTES

1. LOADS AND RESISTANCES ARE GIVEN IN KIPS FOR AXIAL FORCES AND IN KIP-FT FOR MOMENT.
2. DESIGN IS CONTROLLED BY THE INTERACTION EQUATION:
   IF Pu/Pr < 0.2, Pu/2Pr + Mu/Mr <= 1.0
   OTHERWISE, Pu/Pr + 8.0/9.0 (Mu/Mr) <= 1.0
   WHERE: Pu IS FACTORED AXIAL FORCE
   Pr IS TENSILE RESISTANCE
   Mu IS FACTORED BENDING MOMENT DUE TO SELF WEIGHT
   Mr IS BENDING RESISTANCE



LOWER LATERAL BRACING BASIC SECTION

NOTES

1. FOR GENERAL LOAD TABLE NOTES, BRACING PLAN, FRAMING PLAN AND LEGEND, SEE SHEET NO. S141.
2. FOR RIB BRACING, CONNECTIONS AND DETAILS, SEE SHEET NOS. S164-S170.
3. FOR LOWER LATERAL BRACING, CONNECTIONS AND DETAILS, SEE SHEET NO. S152, S190, S191 & S195.

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ITEM NUMBER
01–180.70

REVISION	DATE
⚠ REVISED PLATE SIZES	11/25/13

DATE: NOVEMBER 15, 2013 | CHECKED BY
DESIGNED BY: CYY/JAW | RMS
DETAILED BY: MJD | CYY

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL / TRIGG
ROUTE: US68 | CROSSING: KENTUCKY LAKE

BRACING MEMBER FORCES

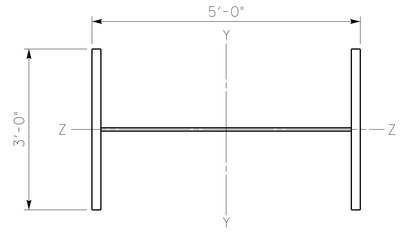
PREPARED BY
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

SHEET NO. S145
DRAWING NO. 24686

1

RIB BRACING SECTION PROPERTIES								
SEGMENT	PLATES	FCM	STEEL GRADE	AREA (IN^2)	Iy (IN^4)	Iz (IN^4)	Sy (IN^3)	Sz (IN^3)
RB1 - RB9	2 FLGS. 2" X 36" WEB 3/4" X 56"	NO	50W	186	132,128	15,554	4,404	864

RIB BRACING DEMAND										RESISTANCE (KSI)			DEMAND / RESISTANCE	
SEGMENT	LOADS (KIPS)					CONTROLLING LOAD COMBINATIONS (KSI)								
		DC	DW	LL+I+BR	WS		STR-III	EXT-I			STR	EXT-I	STR	EXT-I
RB1 RB9	P	-74	-1	-9	-2	fa	0.5	EQ 5	0.5	Far	20.5	22.8	0.25	0.24
	My	200	8	104	2598	fby	11.0		0.4	Fbyr	50.0	50.0		
	Mz	20	3	19	34	fbz	1.1		10.9	Fbzr	50.0	50.0		
RB2 RB8	P	-13	-1	-7	-2	fa	0.1	EQ 5	0.2	Far	26.6	29.5	0.28	0.23
	My	2	2	128	3225	fby	12.9		1.1	Fbyr	50.0	50.0		
	Mz	32	3	18	25	fbz	1.2		10.1	Fbzr	50.0	50.0		
RB3 RB7	P	-30	-1	-7	2	fa	0.3	EQ 1	0.3	Far	31.5	35.0	0.26	0.17
	My	62	15	173	2758	fby	11.4		7.1	Fbyr	50.0	50.0		
	Mz	25	2	14	52	fbz	1.6		1.1	Fbzr	50.0	50.0		
RB4 RB6	P	-15	2	-5	-2	fa	0.2	EQ 1	0.1	Far	34.0	37.8	0.15	0.11
	My	55	14	157	1325	fby	5.6		4.3	Fbyr	50.0	50.0		
	Mz	43	2	11	60	fbz	1.8		1.3	Fbzr	50.0	50.0		
RB5	P	-21	-1	-8	-1	fa	0.2	EQ 5	0.3	Far	34.6	38.4	0.04	0.07
	My	1	1	108	91	fby	0.3		0.4	Fbyr	50.0	50.0		
	Mz	65	1	6	28	fbz	1.6		3.1	Fbzr	50.0	50.0		



RIB BRACING BASIC SECTION

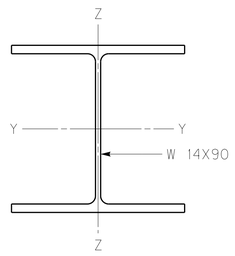
RIB BRACING NOTES

1. DESIGN IS CONTROLLED BY THE FOLLOWING EQUATIONS:
   IF fa/Far < 0.2, fa/2Far + fby/Fbyr + fbz/Fbzr <= 1.0
   OTHERWISE, fa/Far + 8/9(fby/Fbyr + fbz/Fbzr) <= 1.0
   WHERE: fa IS FACTORED AXIAL STRESSES OF THE RIB BRACING
   fby IS FACTORED Y-Y AXIS BENDING STRESSES OF THE RIB BRACING
   fbz IS FACTORED Z-Z AXIS BENDING STRESSES OF THE RIB BRACING
   Far IS GOVERNING AXIAL RESISTANCE OF THE RIB BRACING (IN STRESSES)
   Fbyr IS GOVERNING Y-Y AXIS BENDING RESISTANCE OF THE RIB BRACING (IN STRESSES)
   Fbzr IS GOVERNING Z-Z AXIS BENDING RESISTANCE OF THE RIB BRACING (IN STRESSES)

LOWER LATERAL BRACING SECTION PROPERTIES								LOWER LATERAL BRACING DEMANDS										RESISTANCE			DEMAND / RESISTANCE	
SECTION	FCM	STEEL GRADE	AREA (IN^2)	Iy (IN^4)	Iz (IN^4)	Sy (IN^3)	Sz (IN^3)	LOADS								CONTROLLING LOAD COMBINATIONS								
									DC	DW	LL+I+BR	SH	TU	WS	EQ		STR- I	EXT-I			STR	EXT-I	STR	EXT-I
W14X90	NO	50W	26	362	999	50	143	P	128	38	86	120	14	51	81	Pu	442	EQ 3	323	Pr	1090	1363	0.58	0.36
								My	12	-	-	-	-	-	-	Mu	17		12	Mr	89	89		

LOWER LATERAL BRACING NOTES

1. LOADS AND RESISTANCES ARE GIVEN IN KIPS FOR AXIAL FORCES AND IN KIP-FT FOR MOMENT.
2. DESIGN IS CONTROLLED BY THE INTERACTION EQUATION:
   IF Pu/Pr < 0.2, Pu/2Pr + Mu/Mr <= 1.0
   OTHERWISE, Pu/Pr + 8.0/9.0 (Mu/Mr) <= 1.0
   WHERE: Pu IS FACTORED AXIAL FORCE
   Pr IS TENSILE RESISTANCE
   Mu IS FACTORED BENDING MOMENT DUE TO SELF WEIGHT
   Mr IS BENDING RESISTANCE



LOWER LATERAL BRACING BASIC SECTION

NOTES

1. FOR GENERAL LOAD TABLE NOTES, BRACING PLAN, FRAMING PLAN AND LEGEND, SEE SHEET NO. S141.
2. FOR RIB BRACING, CONNECTIONS AND DETAILS, SEE SHEET NOS. S164-S170.
3. FOR LOWER LATERAL BRACING, CONNECTIONS AND DETAILS, SEE SHEET NO. S152, S190, S191 & S195.

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ITEM NUMBER
01–180.70

⚠ REVISED PLATE SIZES	11/25/13
REVISION	DATE
DATE: NOVEMBER 15, 2013	CHECKED BY
DESIGNED BY: CYY/JAW	RMS
DETAILED BY: MJD	CYY

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL / TRIGG

ROUTE: US68

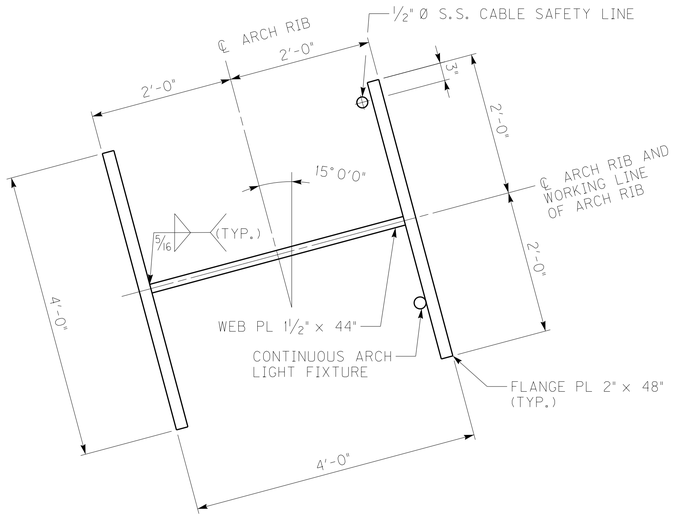
CROSSING: KENTUCKY LAKE

BRACING MEMBER FORCES

PREPARED BY
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

SHEET NO. S145

DRAWING NO. 24686



SECTION A–A

RIB ELEVATION

IN PLANE OF THE ARCH

KEY ELEVATION

NOTES

1. FOR GENERAL NOTES, SEE SHEET NOS. S004 - S006A.
2. ALL BOLTS SHALL BE 1" DIAMETER A325-X HIGH STRENGTH BOLTS.
3. ALL STRUCTURAL STEEL FOR ARCH RIB FLANGE PLATES, WEB PLATES AND STIFFENERS SHALL CONFORM TO AASHTO M270 GRADE HPS 70W UNLESS NOTED OTHERWISE AND SHALL BE CVN TESTED.
4. FOR ARCH RIB GEOMETRY, SEE SHEET NO. S134.
5. FOR ARCH RIB SPLICE DETAILS SEE SHEET NOS. S162-S163.
6. FOR HANGER WORK POINTS AND BETA ANGLE SEE SHEET NOS. S135 & S137.
7. FOR HANGER CONNECTION DETAILS SEE SHEET NOS. S179-S182.
8. FOR RIB BRACING WORK POINTS, SEE SHEET NO. S138.
9. FOR RIB BRACING, CONNECTION AND DETAILS, SEE SHEET NOS. S164-S169.
10. FOR INSPECTION ACCESS DETAILS, SEE SHEET NO S161.
11. FOR ARCH LIGHT FIXTURE, SEE SHEET NOS. S263, S269, S270 & S275.
12. FOR ARCH RIB CAMBER, SEE SHEET NO. S140.

⚠ REVISED HANGER CONNECTION DETAILS	11/25/13
REVISION	DATE

DATE: NOVEMBER 15, 2013	CHECKED BY
DESIGNED BY: CYY	RMS
DETAILED BY: MJD	CYY

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
MARSHALL / TRIGG

ROUTE	CROSSING
US68	KENTUCKY LAKE

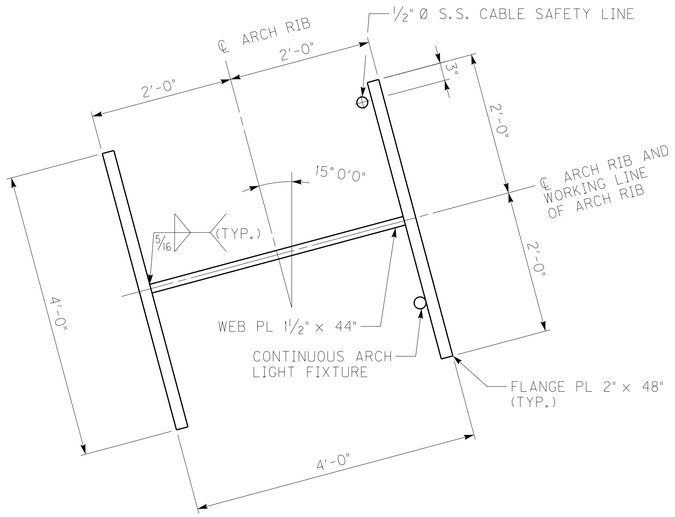
ARCH RIB RS1–RS2 (RS11–RS12)

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ITEM NUMBER
01–180.70

PREPARED BY
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

SHEET NO. S156
DRAWING NO. 24686



SECTION A–A

RIB ELEVATION

IN PLANE OF THE ARCH

KEY ELEVATION

NOTES

1. FOR GENERAL NOTES, SEE SHEET NOS. S004 - S006A.
2. ALL BOLTS SHALL BE 1" DIAMETER A325-X HIGH STRENGTH BOLTS.
3. ALL STRUCTURAL STEEL FOR ARCH RIB FLANGE PLATES, WEB PLATES AND STIFFENERS SHALL CONFORM TO AASHTO M270 GRADE HPS 70W UNLESS NOTED OTHERWISE AND SHALL BE CVN TESTED.
4. FOR ARCH RIB GEOMETRY, SEE SHEET NO. S134.
5. FOR ARCH RIB SPLICE DETAILS SEE SHEET NOS. S162-S163.
6. FOR HANGER WORK POINTS AND BETA ANGLE SEE SHEET NOS. S135 & S137.
7. FOR HANGER CONNECTION DETAILS SEE SHEET NOS. S179-S182.
8. FOR RIB BRACING WORK POINTS, SEE SHEET NO. S138.
9. FOR RIB BRACING, CONNECTION AND DETAILS, SEE SHEET NOS. S164-S169.
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11. FOR ARCH LIGHT FIXTURE, SEE SHEET NOS. S263, S269, S270 & S275.
12. FOR ARCH RIB CAMBER, SEE SHEET NO. S140.

⚠ REVISED HANGER CONNECTION DETAILS	11/25/13
REVISION	DATE

DATE: NOVEMBER 15, 2013	CHECKED BY
DESIGNED BY: CYY	RMS
DETAILED BY: MJD	CYY

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: **MARSHALL / TRIGG**

ROUTE: **US68** | CROSSING: **KENTUCKY LAKE**

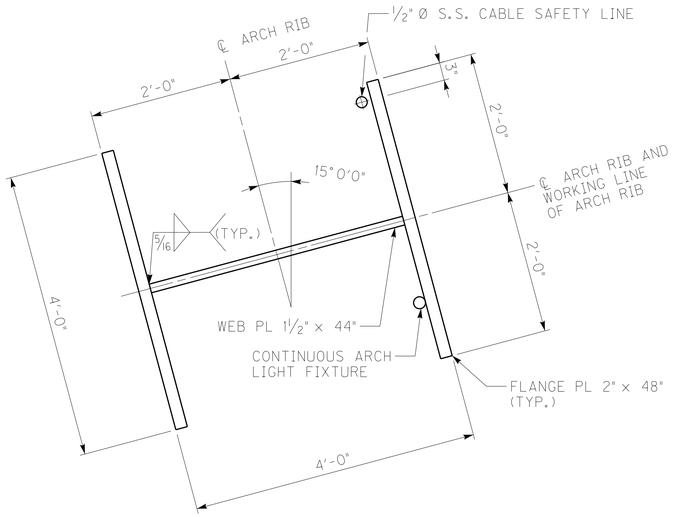
ARCH RIB RS1–RS2 (RS11–RS12)

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ITEM NUMBER: **01–180.70**

PREPARED BY
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

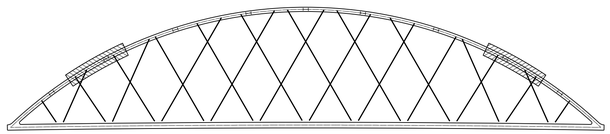
SHEET NO. S156
DRAWING NO. 24686



SECTION A–A

RIB ELEVATION

IN PLANE OF THE ARCH



KEY ELEVATION

NOTES

1. FOR ARCH RIB NOTES, SEE SHEET NO. S156.

⚠ REVISED HANGER CONNECTION DETAILS	11/25/13
REVISION	DATE

DATE: NOVEMBER 15, 2013	CHECKED BY
DESIGNED BY: CYY	RMS
DETAILED BY: MJD	CYY

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
MARSHALL / TRIGG

ROUTE	CROSSING
US68	KENTUCKY LAKE

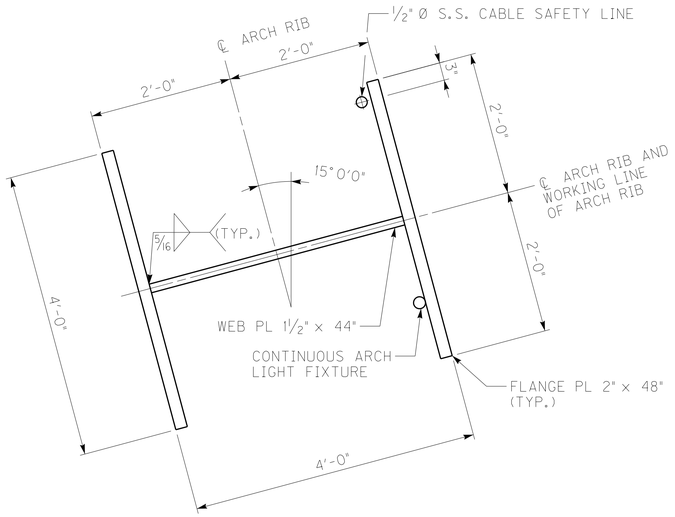
ARCH RIB RS2–RS3 (RS10–RS11)

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ITEM NUMBER
01–180.70

PREPARED BY
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

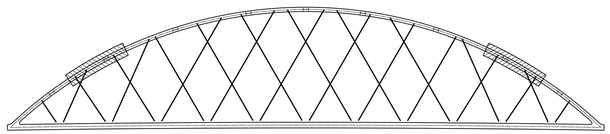
SHEET NO. S157
DRAWING NO. 24686



SECTION A–A

RIB ELEVATION

IN PLANE OF THE ARCH



KEY ELEVATION

NOTES

1. FOR ARCH RIB NOTES, SEE SHEET NO. S156.

⚠1 REVISED HANGER CONNECTION DETAILS	11/25/13
REVISION	DATE

DATE: NOVEMBER 15, 2013	CHECKED BY
DESIGNED BY: CYY	RMS
DETAILED BY: MJD	CYY

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL / TRIGG

ROUTE: US68

CROSSING: KENTUCKY LAKE

ARCH RIB RS2–RS3 (RS10–RS11)

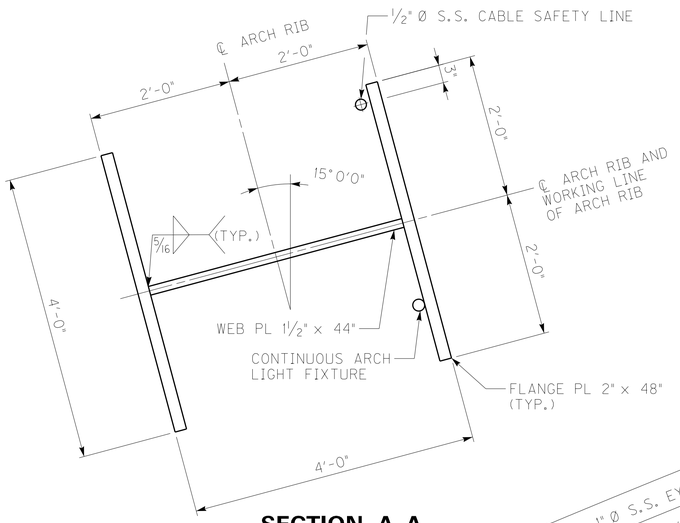
LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ITEM NUMBER: 01–180.70

PREPARED BY
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

SHEET NO. S157

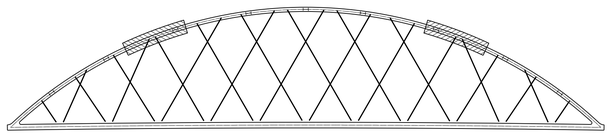
DRAWING NO. 24686



SECTION A–A

RIB ELEVATION

IN PLANE OF THE ARCH



KEY ELEVATION

NOTES

1. FOR ARCH RIB NOTES, SEE SHEET NO. S156.

⚠ REVISED HANGER CONNECTION DETAILS	11/25/13
REVISION	DATE

DATE: NOVEMBER 15, 2013	CHECKED BY
DESIGNED BY: CYY	RMS
DETAILED BY: MJD	CYY

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL / TRIGG

ROUTE: US68 | CROSSING: KENTUCKY LAKE

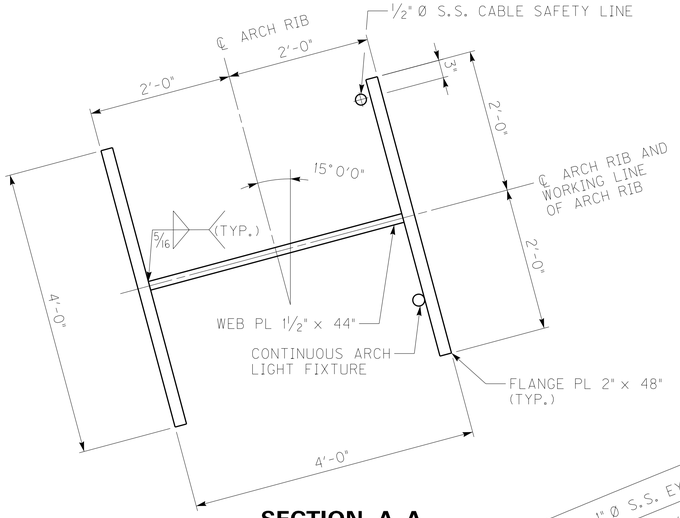
ARCH RIB RS3–RS4 (RS9–RS10)

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ITEM NUMBER: 01–180.70

PREPARED BY:
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

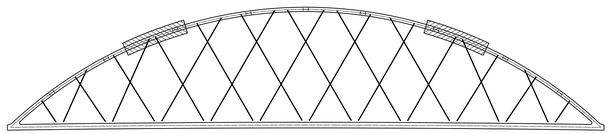
SHEET NO. S158
DRAWING NO. 24686



SECTION A–A

RIB ELEVATION

IN PLANE OF THE ARCH



KEY ELEVATION

NOTES

1. FOR ARCH RIB NOTES, SEE SHEET NO. S156.

⚠ REVISED HANGER CONNECTION DETAILS	11/25/13
REVISION	DATE

DATE: NOVEMBER 15, 2013	CHECKED BY
DESIGNED BY: CYY	RMS
DETAILED BY: MJD	CYY

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL / TRIGG

ROUTE: US68 | CROSSING: KENTUCKY LAKE

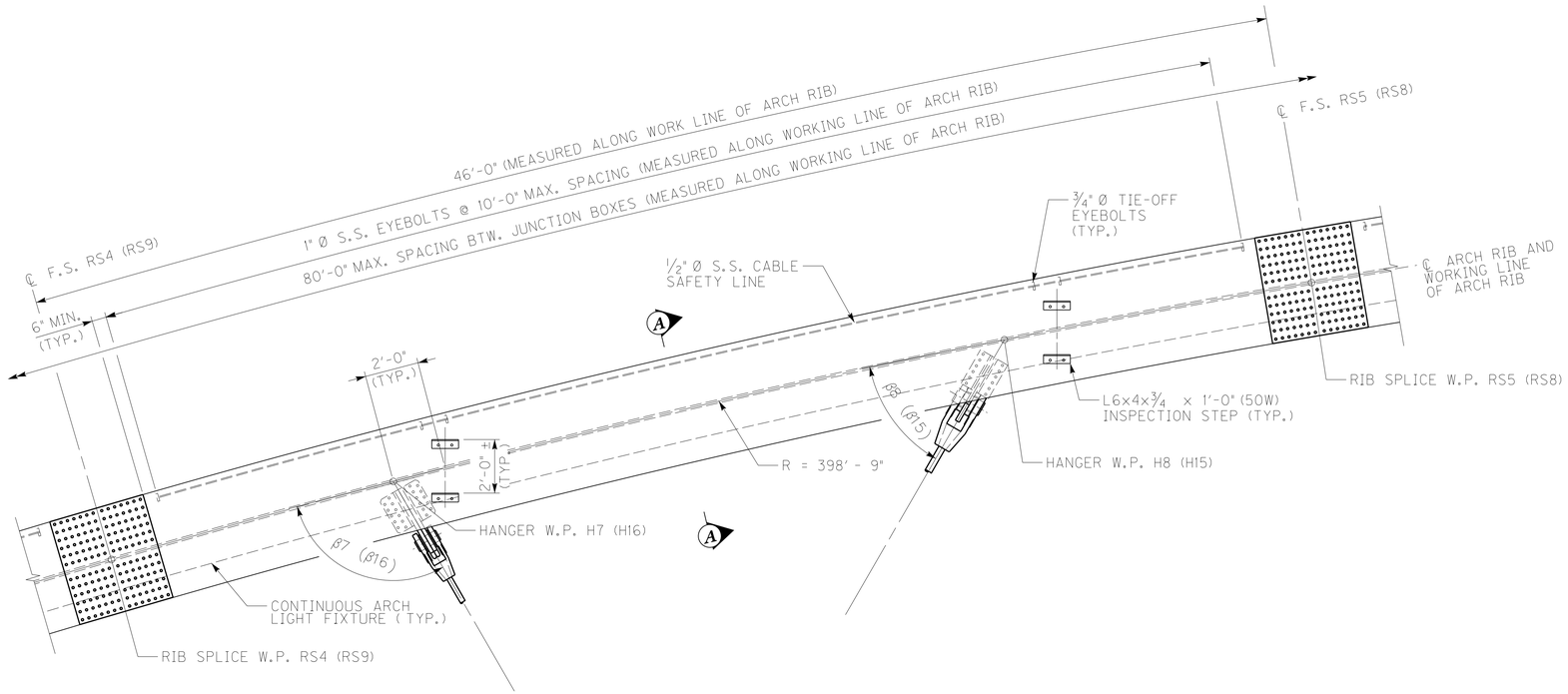
ARCH RIB RS3–RS4 (RS9–RS10)

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ITEM NUMBER: 01–180.70

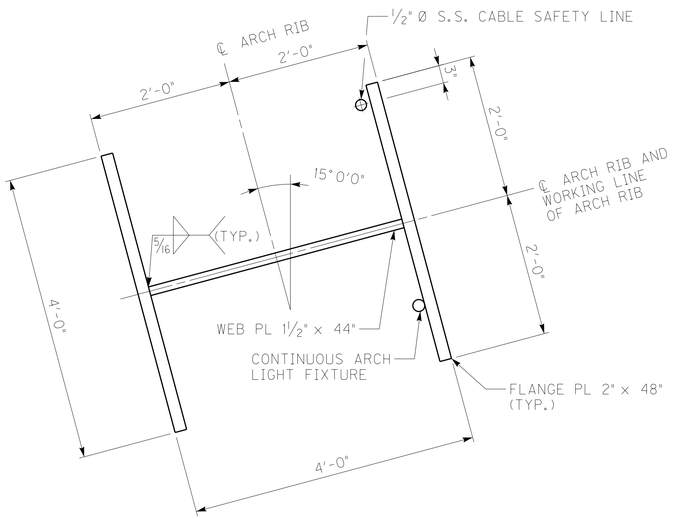
PREPARED BY:
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

SHEET NO. S158
DRAWING NO. 24686

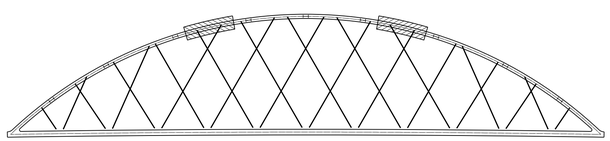


RIB ELEVATION

IN PLANE OF THE ARCH



SECTION A–A



KEY ELEVATION

NOTES

1. FOR ARCH RIB NOTES, SEE SHEET NO. S156.

⚠ REVISED HANGER CONNECTION DETAILS	11/25/13
REVISION	DATE
DATE: NOVEMBER 15, 2013	CHECKED BY
DESIGNED BY: CYY	RMS
DETAILED BY: MJD	CYY

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL / TRIGG

ROUTE: US68

CROSSING: KENTUCKY LAKE

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

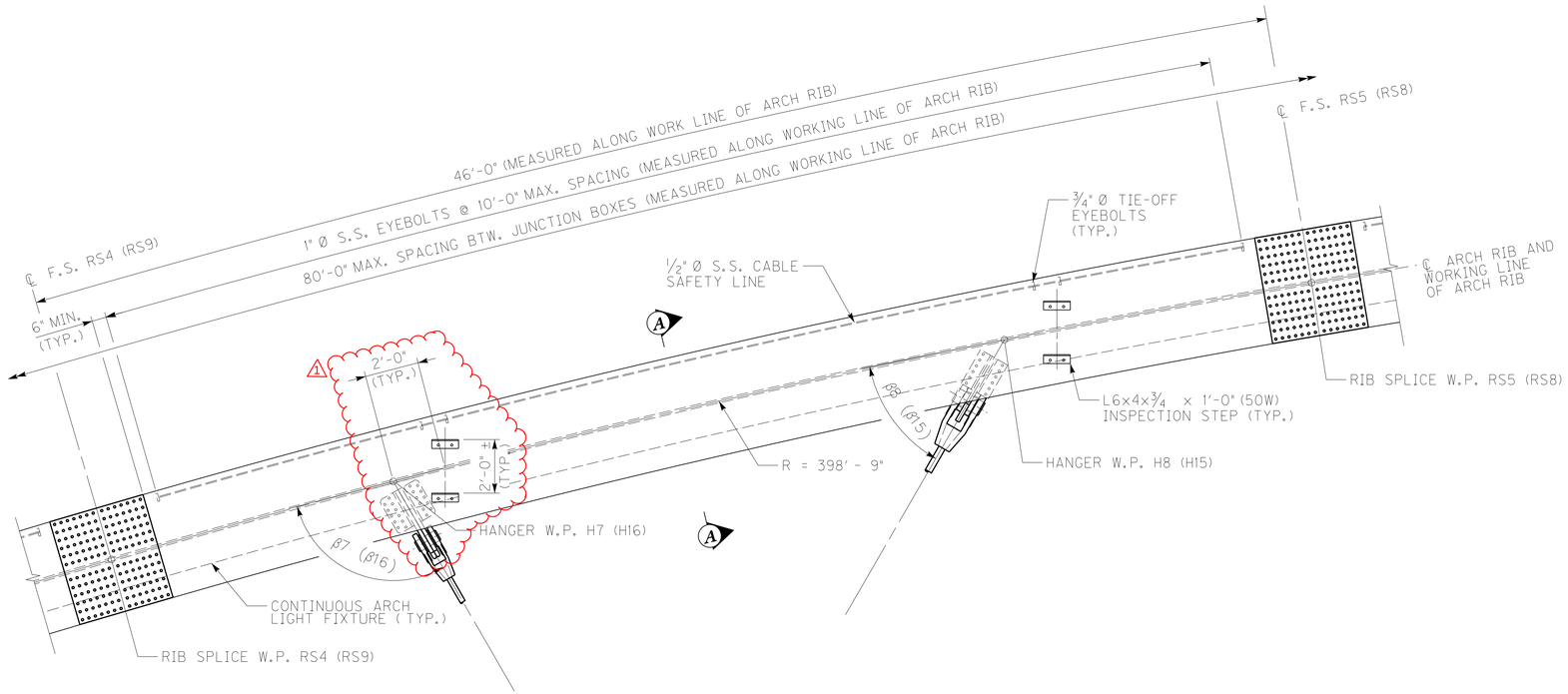
ARCH RIB RS4–RS5 (RS8–RS9)

ITEM NUMBER: 01–180.70

PREPARED BY:
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

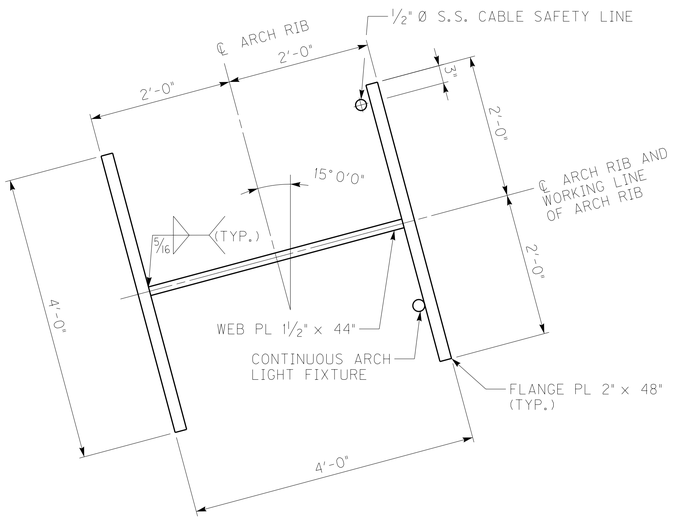
SHEET NO. S159

DRAWING NO. 24686

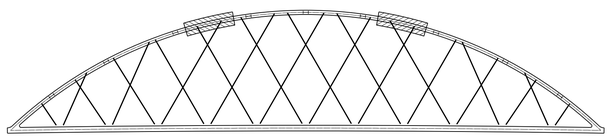


RIB ELEVATION

IN PLANE OF THE ARCH



SECTION A–A



KEY ELEVATION

NOTES

1. FOR ARCH RIB NOTES, SEE SHEET NO. S156.

⚠1 REVISED HANGER CONNECTION DETAILS	11/25/13
REVISION	DATE

DATE: NOVEMBER 15, 2013	CHECKED BY
DESIGNED BY: CYY	RMS
DETAILED BY: MJD	CYY

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL / TRIGG

ROUTE: US68

CROSSING: KENTUCKY LAKE

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

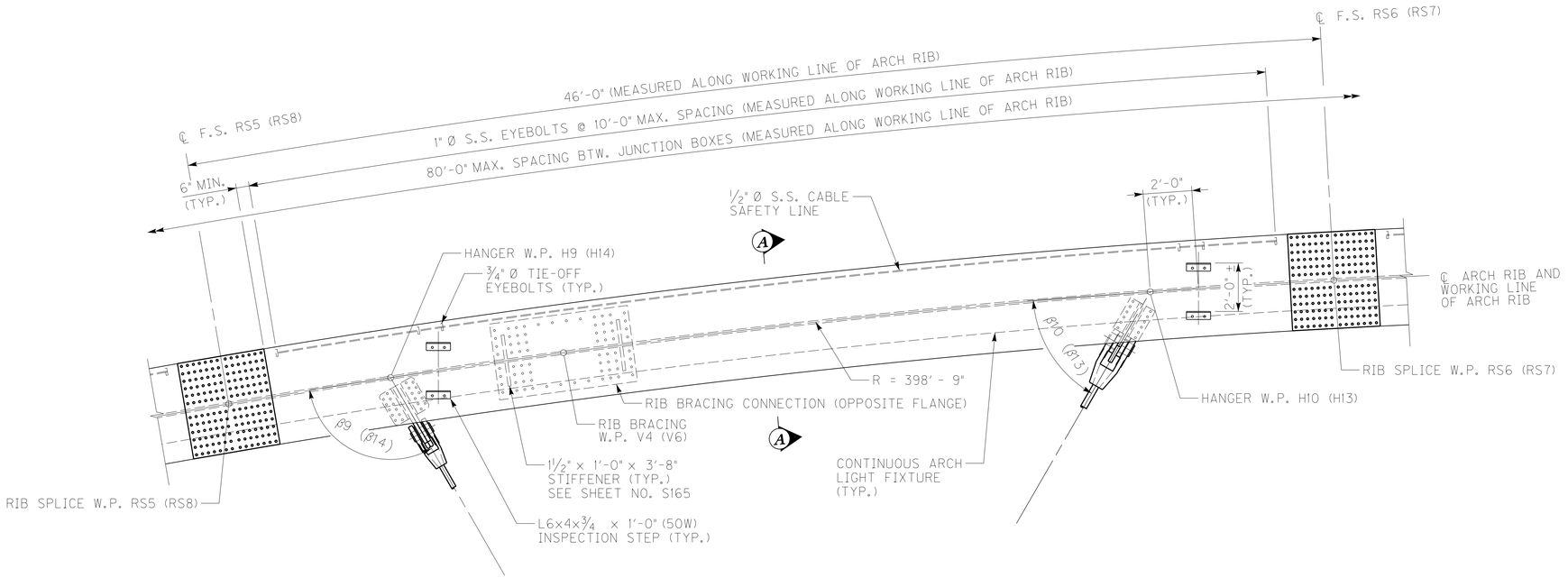
ARCH RIB RS4–RS5 (RS8–RS9)

ITEM NUMBER: 01–180.70

PREPARED BY:
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

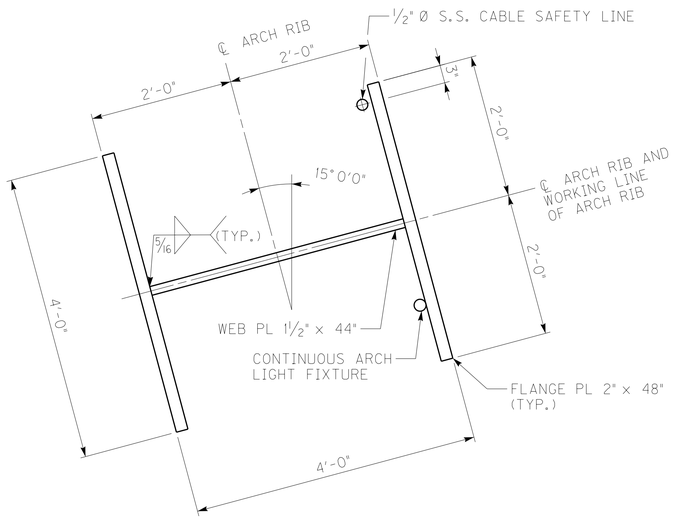
SHEET NO. S159

DRAWING NO. 24686

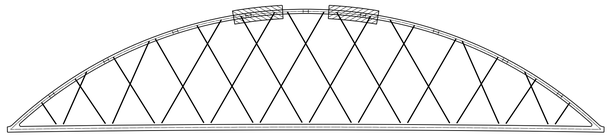


RIB ELEVATION

IN PLANE OF THE ARCH



SECTION A–A



KEY ELEVATION

NOTES

1. FOR ARCH RIB NOTES, SEE SHEET NO. S156.

⚠ REVISED HANGER CONNECTION DETAILS	11/25/13
REVISION	DATE

DATE: NOVEMBER 15, 2013	CHECKED BY
DESIGNED BY: CYY	RMS
DETAILED BY: MJD	CYY

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL / TRIGG

ROUTE: US68 | CROSSING: KENTUCKY LAKE

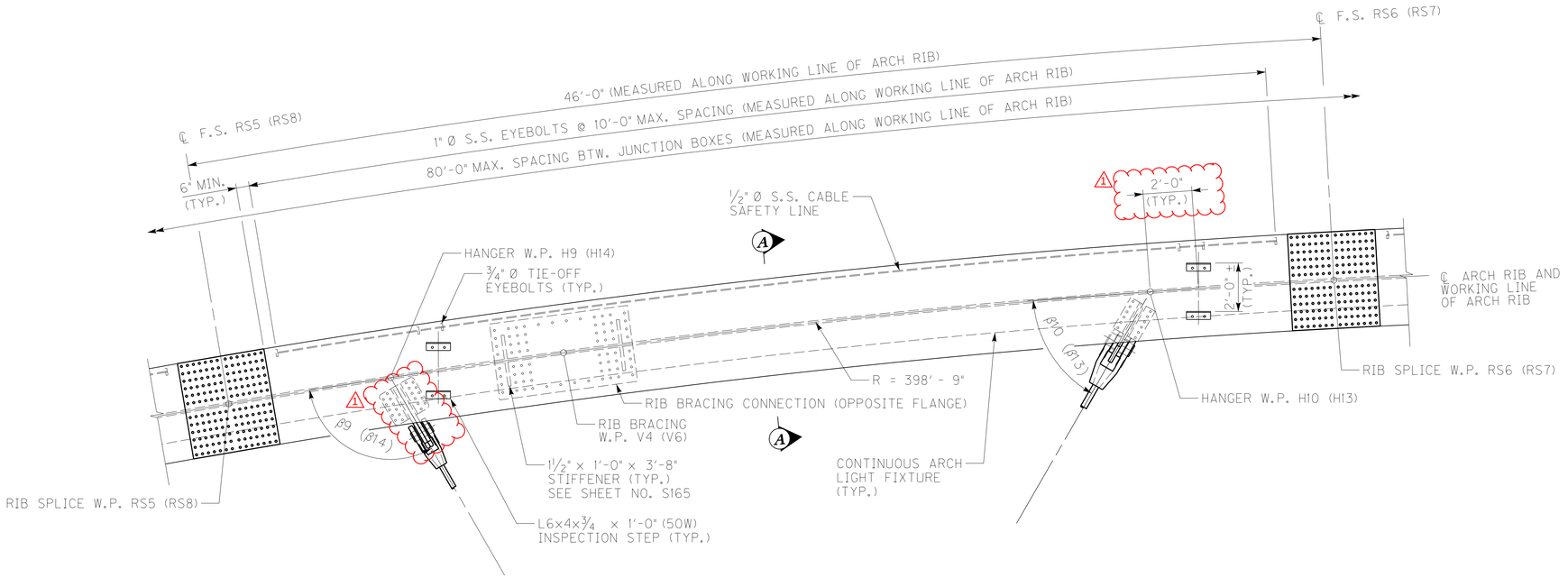
LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ARCH RIB RS5–RS6 (RS7–RS8)

ITEM NUMBER: 01–180.70

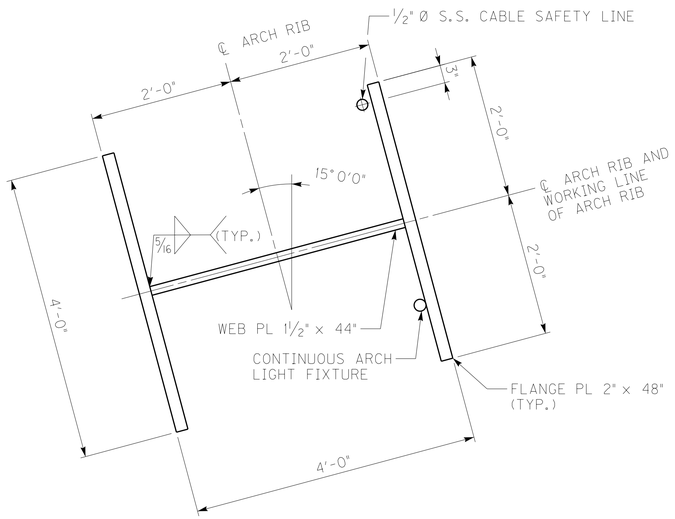
PREPARED BY:
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

SHEET NO. S160
DRAWING NO. 24686

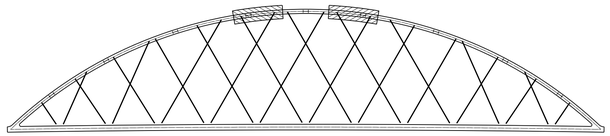


RIB ELEVATION

IN PLANE OF THE ARCH



SECTION A–A



KEY ELEVATION

NOTES

1. FOR ARCH RIB NOTES, SEE SHEET NO. S156.

⚠1 REVISED HANGER CONNECTION DETAILS	11/25/13
REVISION	DATE

DATE: NOVEMBER 15, 2013	CHECKED BY
DESIGNED BY: CYY	RMS
DETAILED BY: MJD	CYY

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL / TRIGG

ROUTE: US68

CROSSING: KENTUCKY LAKE

ARCH RIB RS5–RS6 (RS7–RS8)

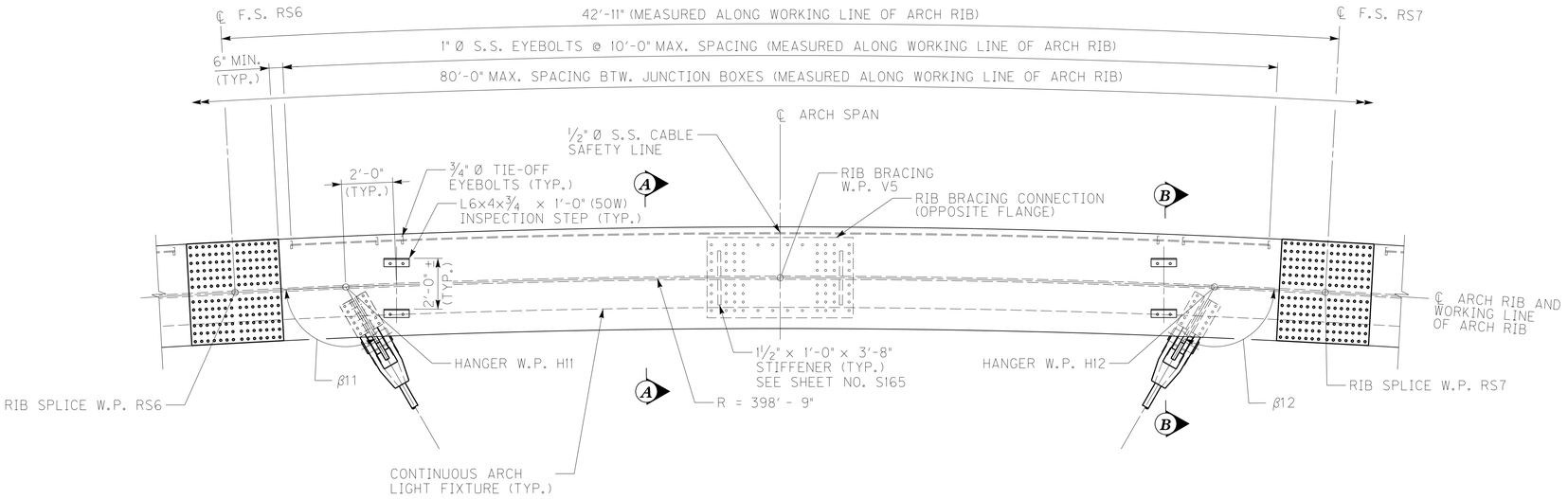
LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ITEM NUMBER: 01–180.70

PREPARED BY:
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

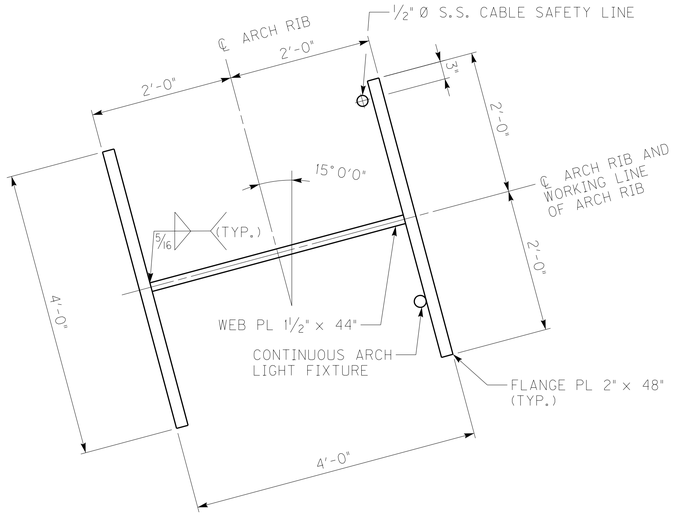
SHEET NO. S160

DRAWING NO. 24686

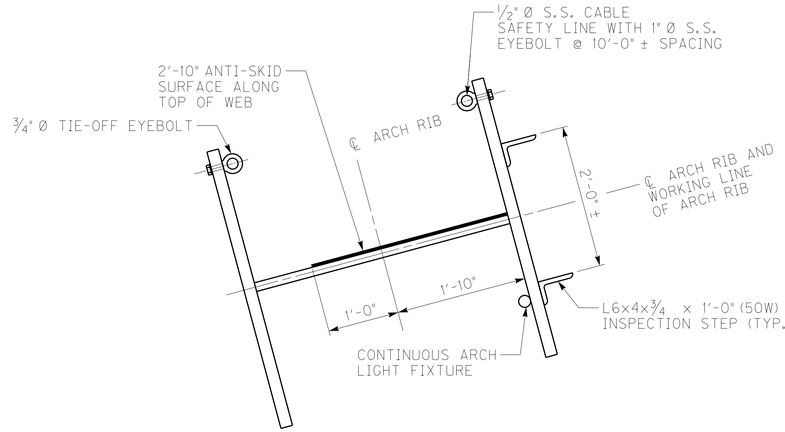


RIB ELEVATION

IN PLANE OF THE ARCH

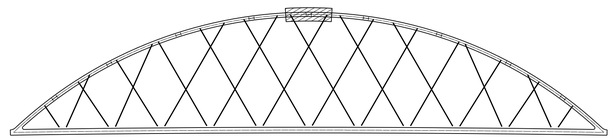


SECTION A–A



SECTION B–B
INSPECTION ACCESS DETAIL

HANGERS AND CONNECTION DETAILS NOT SHOWN FOR CLARITY



KEY ELEVATION

NOTES

1. FOR ARCH RIB NOTES, SEE SHEET NO. S156.
2. ANTI-SKID SURFACE, TOOLS, LABOR AND INCIDENTAL MATERIALS SHALL BE INCLUDED IN THE UNIT BID PRICE FOR STRUCTURAL STEEL.

REVISION	DATE
⚠ REVISED STEP LOCATION	11/21/13

DATE: NOVEMBER 15, 2013	CHECKED BY
DESIGNED BY: CYY	RMS
DETAILED BY: MJD	CYY

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL / TRIGG

ROUTE: US68 | CROSSING: KENTUCKY LAKE

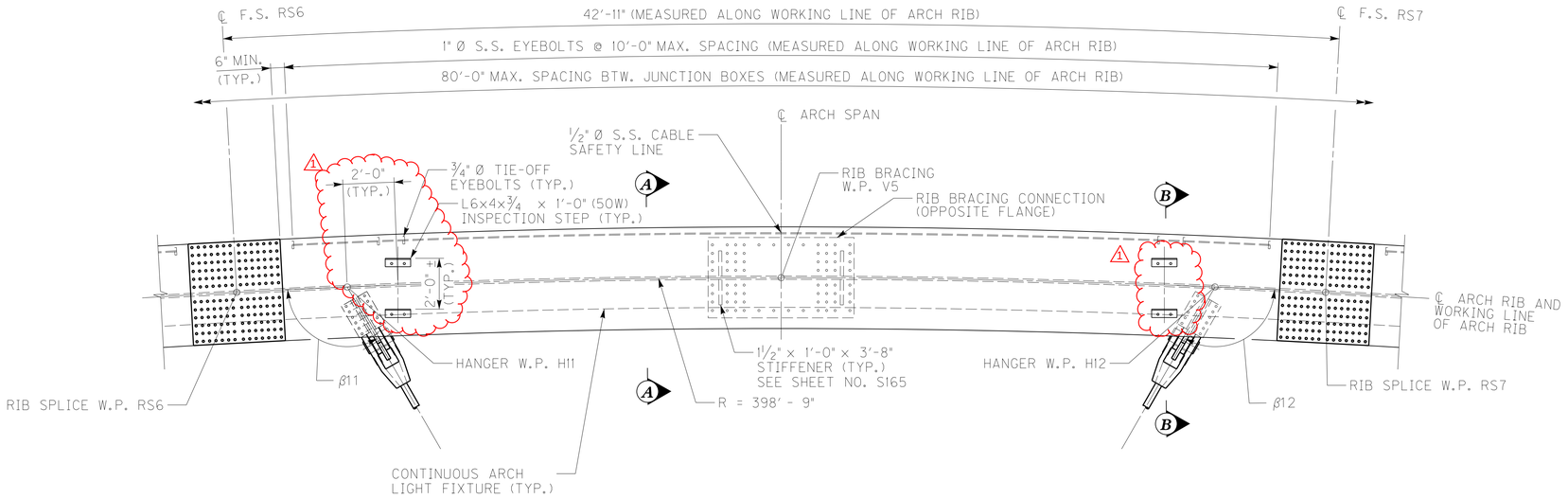
LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ARCH RIB RS6–RS7

ITEM NUMBER: 01–180.70

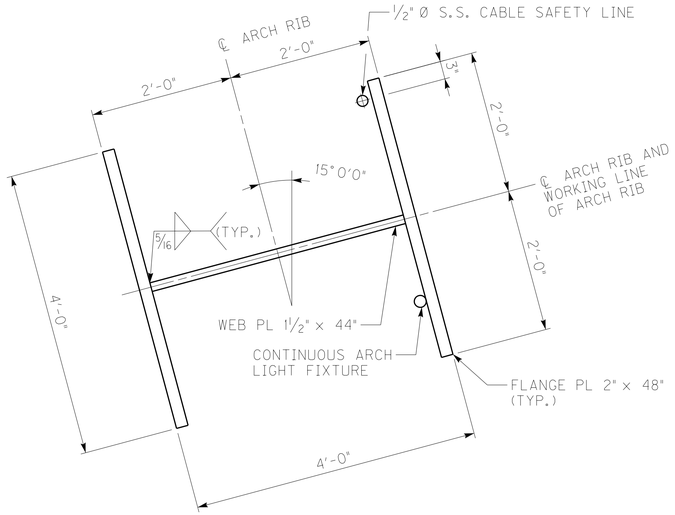
PREPARED BY
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

SHEET NO. S161
DRAWING NO. 24686

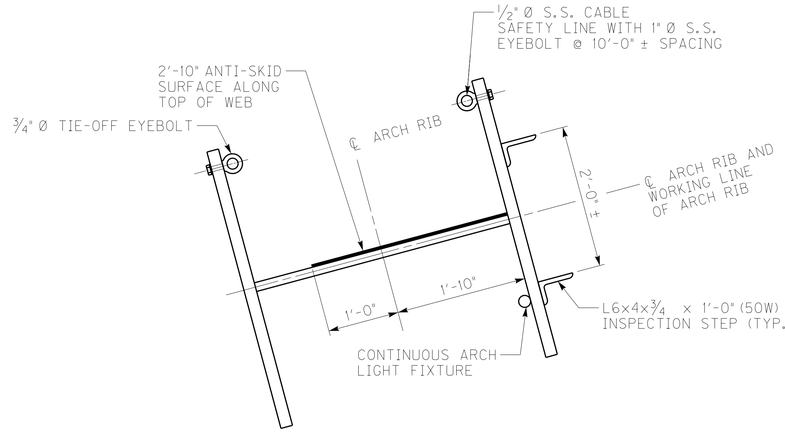


RIB ELEVATION

IN PLANE OF THE ARCH

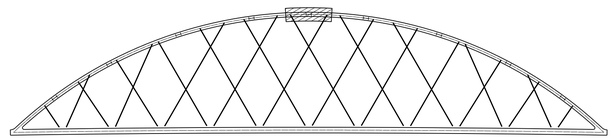


SECTION A–A



SECTION B–B
INSPECTION ACCESS DETAIL

HANGERS AND CONNECTION DETAILS NOT SHOWN FOR CLARITY



KEY ELEVATION

NOTES

1. FOR ARCH RIB NOTES, SEE SHEET NO. S156.
2. ANTI-SKID SURFACE, TOOLS, LABOR AND INCIDENTAL MATERIALS SHALL BE INCLUDED IN THE UNIT BID PRICE FOR STRUCTURAL STEEL.

REVISION	DATE
⚠ REVISED STEP LOCATION	11/21/13

DATE: NOVEMBER 15, 2013	CHECKED BY
DESIGNED BY: CYY	RMS
DETAILED BY: MJD	CYY

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL / TRIGG

ROUTE: US68 | CROSSING: KENTUCKY LAKE

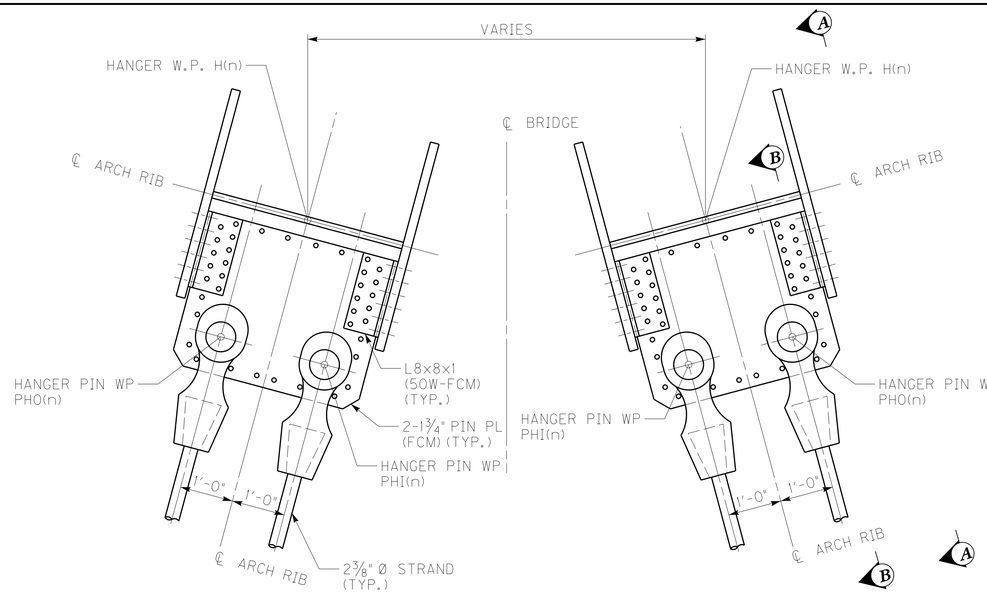
LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ARCH RIB RS6–RS7

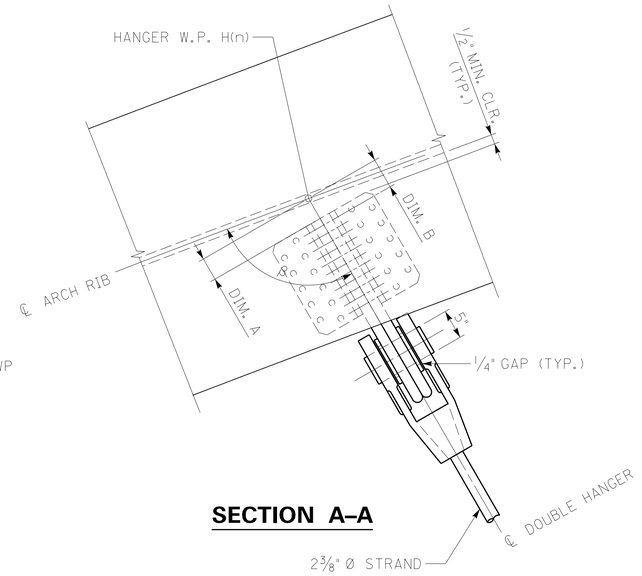
ITEM NUMBER: 01–180.70

PREPARED BY
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

SHEET NO. S161
DRAWING NO. 24686



ARCH RIB SECTION
DOUBLE HANGER



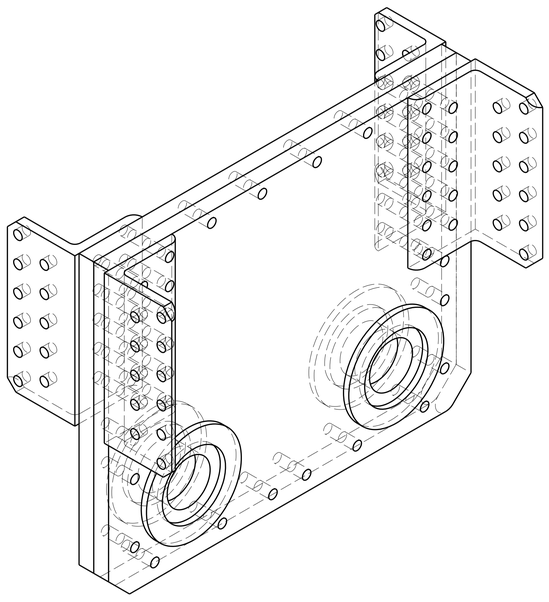
SECTION A–A

NOTES

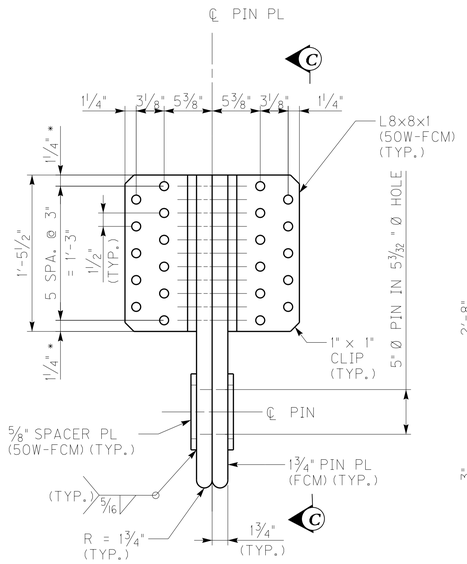
1. FOR GENERAL NOTES SEE SHEETS NO. S004-S006A.
2. ALL BOLTS SHALL BE 1" DIAMETER A325-X HIGH STRENGTH BOLTS.
3. ALL STRUCTURAL STEEL FOR HANGER PIN PLATES SHALL CONFORM TO AASHTO M270 GRADE HPS 70W UNLESS NOTED OTHERWISE AND SHALL BE FCM TESTED.
4. ALL STRUCTURAL STEEL FOR CONNECTION ANGLES AND SPACER PLATES SHALL CONFORM TO AASHTO M270 GRADE 50W AND SHALL BE FCM TESTED.
5. FOR HANGER WORK POINTS, SEE SHEET NO. S135.
6. FOR HANGER PIN WORK POINTS AND BETA ANGLE SEE SHEET NO. S137.
7. FOR HANGER, FITTINGS MATERIAL AND DETAILS, SEE SHEET NO. S179.
8. FOR HANGER NOTES, SEE SHEET NO. S144.

HANGER LAYOUT DIMENSIONS

LOCATION	DIM. A (IN.)	DIM. B (IN.)
H1	3 ½	4 ¾
H2	3 ⅜	4 ⅝
H3	12 ⅜	13 ⅝
H4	3 ⅝	4 ⅞
H5	9 ⅞	11 ⅛
H6	3 ⅞	5 ⅛
H7	4 ⅜	5 ⅝
H8	9 ⅛	10 ⅜
H9	4 ⅛	6 ⅛
H10	7 ¼	8 ½
H11	6 ½	7 ¾
H12	6 ½	7 ¾
H13	7 ¼	8 ½
H14	4 ⅞	6 ⅛
H15	9 ⅛	10 ⅜
H16	4 ⅜	5 ⅝
H17	3 ⅞	5 ⅛
H18	9 ⅛	11 ⅛
H19	3 ⅝	4 ⅞
H20	12 ⅜	13 ⅝
H21	3 ⅜	4 ⅝
H22	3 ½	4 ¾

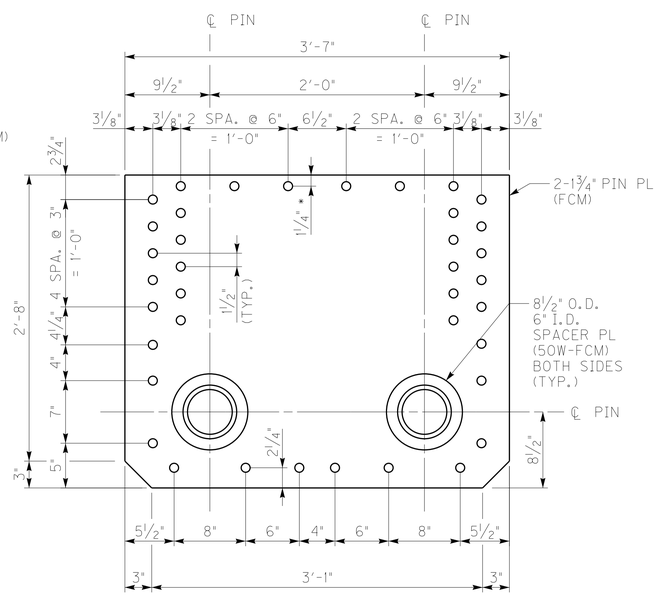


ISOMETRIC VIEW
DOUBLE HANGER



SECTION B–B

SEAL BOLTS NOT SHOWN FOR CLARITY



VIEW C–C

LEGEND

* GAS CUT EDGE

⚠ REVISED CONNECTION DETAIL	11/25/13
REVISION	DATE
DATE: NOVEMBER 15, 2013	CHECKED BY
DESIGNED BY: CYY	RMS
DETAILED BY: MJD	CYY

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL / TRIGG

ROUTE: US68 — CROSSING: KENTUCKY LAKE

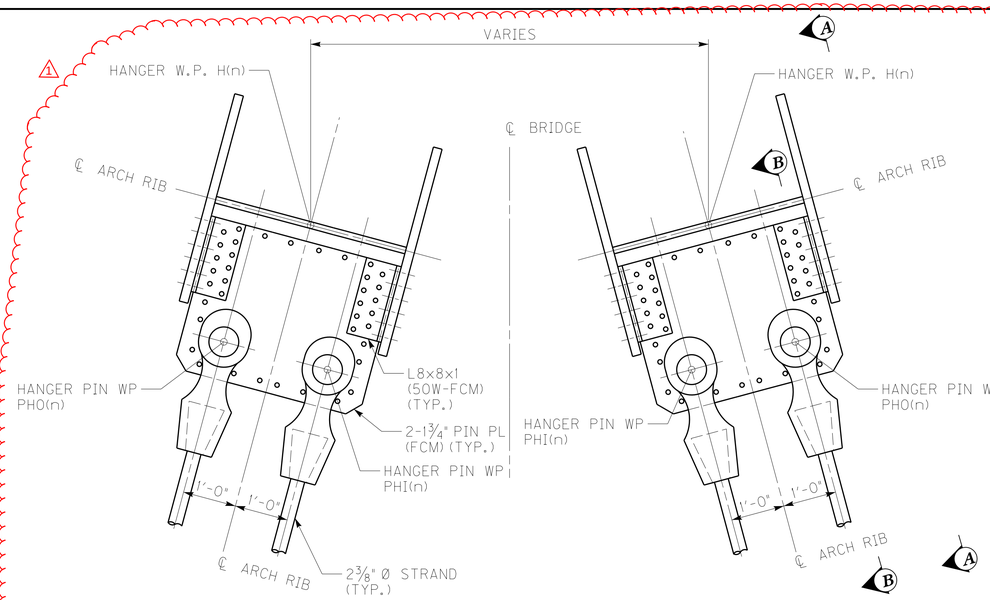
RIB HANGER DETAILS – 1

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

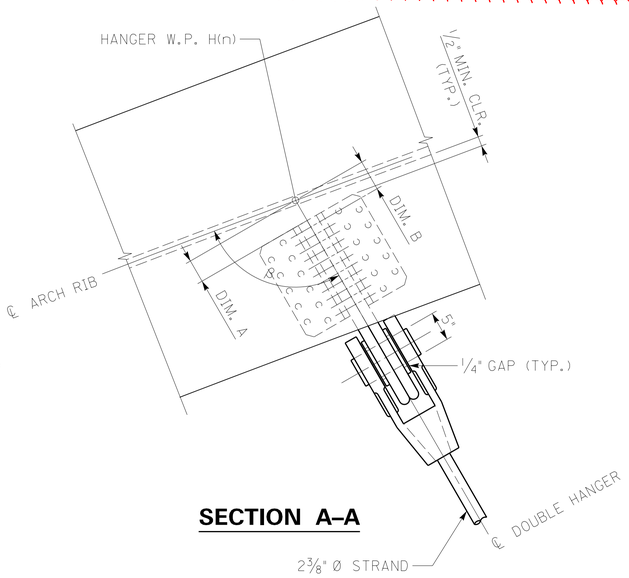
ITEM NUMBER
01–180.70

PREPARED BY
Baker
MICHAEL BAKER JR. INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

SHEET NO. S181
DRAWING NO. 24686



ARCH RIB SECTION DOUBLE HANGER



SECTION A–A

NOTES

1. FOR GENERAL NOTES SEE SHEETS NO. S004-S006A.
2. ALL BOLTS SHALL BE 1" DIAMETER A325-X HIGH STRENGTH BOLTS.
3. ALL STRUCTURAL STEEL FOR HANGER PIN PLATES SHALL CONFORM TO AASHTO M270 GRADE HPS 70W UNLESS NOTED OTHERWISE AND SHALL BE FCM TESTED.
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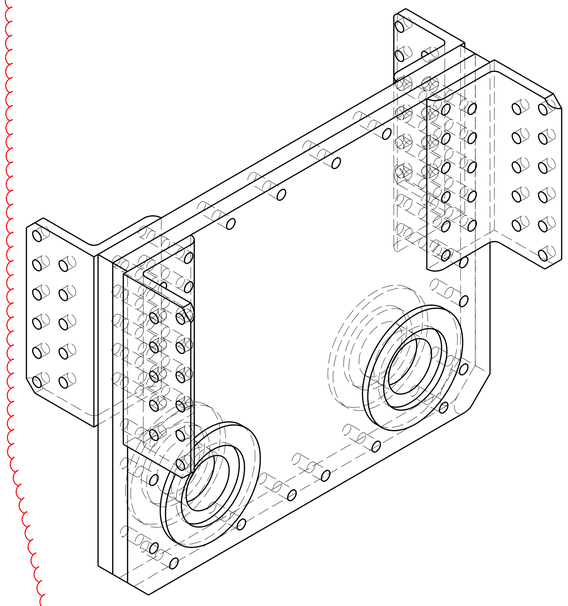
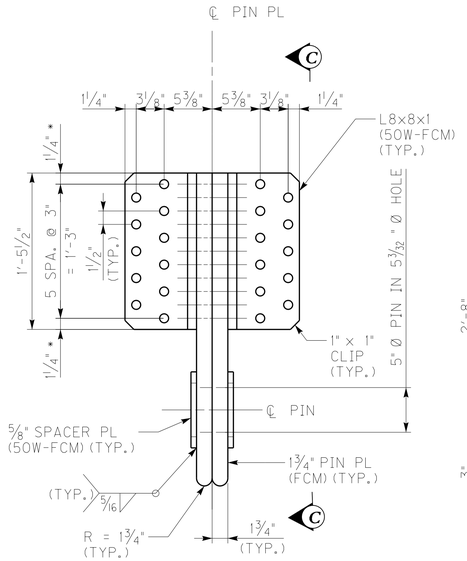
5. FOR HANGER WORK POINTS, SEE SHEET NO. S135.
6. FOR HANGER PIN WORK POINTS AND BETA ANGLE SEE SHEET NO. S137.
7. FOR HANGER, FITTINGS MATERIAL AND DETAILS, SEE SHEET NO. S179.
8. FOR HANGER NOTES, SEE SHEET NO. S144.

HANGER LAYOUT DIMENSIONS

LOCATION	DIM. A (IN.)	DIM. B (IN.)
H1	3 ½	4 ¾
H2	3 ⅜	4 ⅝
H3	12 ⅜	13 ⅝
H4	3 ⅝	4 ⅞
H5	9 ⅞	11 ⅛
H6	3 ⅞	5 ⅛
H7	4 ⅜	5 ⅝
H8	9 ⅛	10 ⅜
H9	4 ⅛	6 ⅛
H10	7 ¼	8 ½
H11	6 ½	7 ¾
H12	6 ½	7 ¾
H13	7 ¼	8 ½
H14	4 ⅞	6 ⅛
H15	9 ⅛	10 ⅜
H16	4 ⅜	5 ⅝
H17	3 ⅞	5 ⅛
H18	9 ⅛	11 ⅛
H19	3 ⅝	4 ⅞
H20	12 ⅜	13 ⅝
H21	3 ⅜	4 ⅝
H22	3 ½	4 ¾

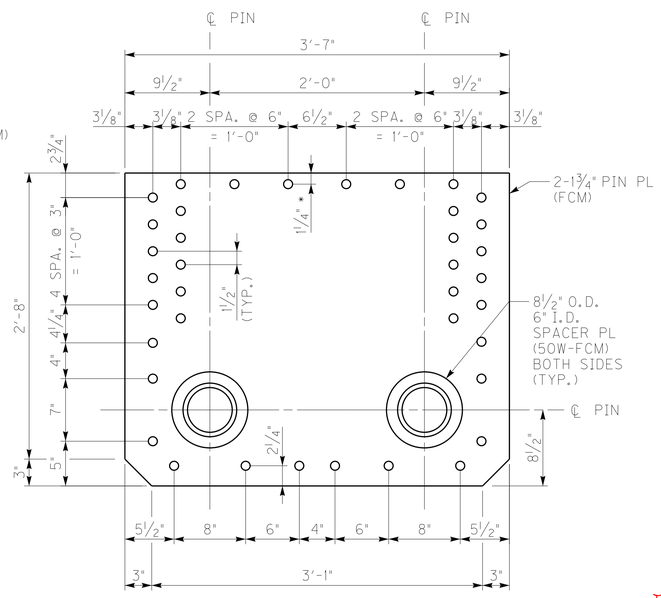


ISOMETRIC VIEW DOUBLE HANGER



SECTION B–B

SEAL BOLTS NOT SHOWN FOR CLARITY



VIEW C–C

LEGEND

* GAS CUT EDGE

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ITEM NUMBER
01–180.70

⚠ REVISED CONNECTION DETAIL	11/25/13
REVISION	DATE

DATE: NOVEMBER 15, 2013	CHECKED BY
DESIGNED BY: CYY	RMS
DETAILED BY: MJD	CYY

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

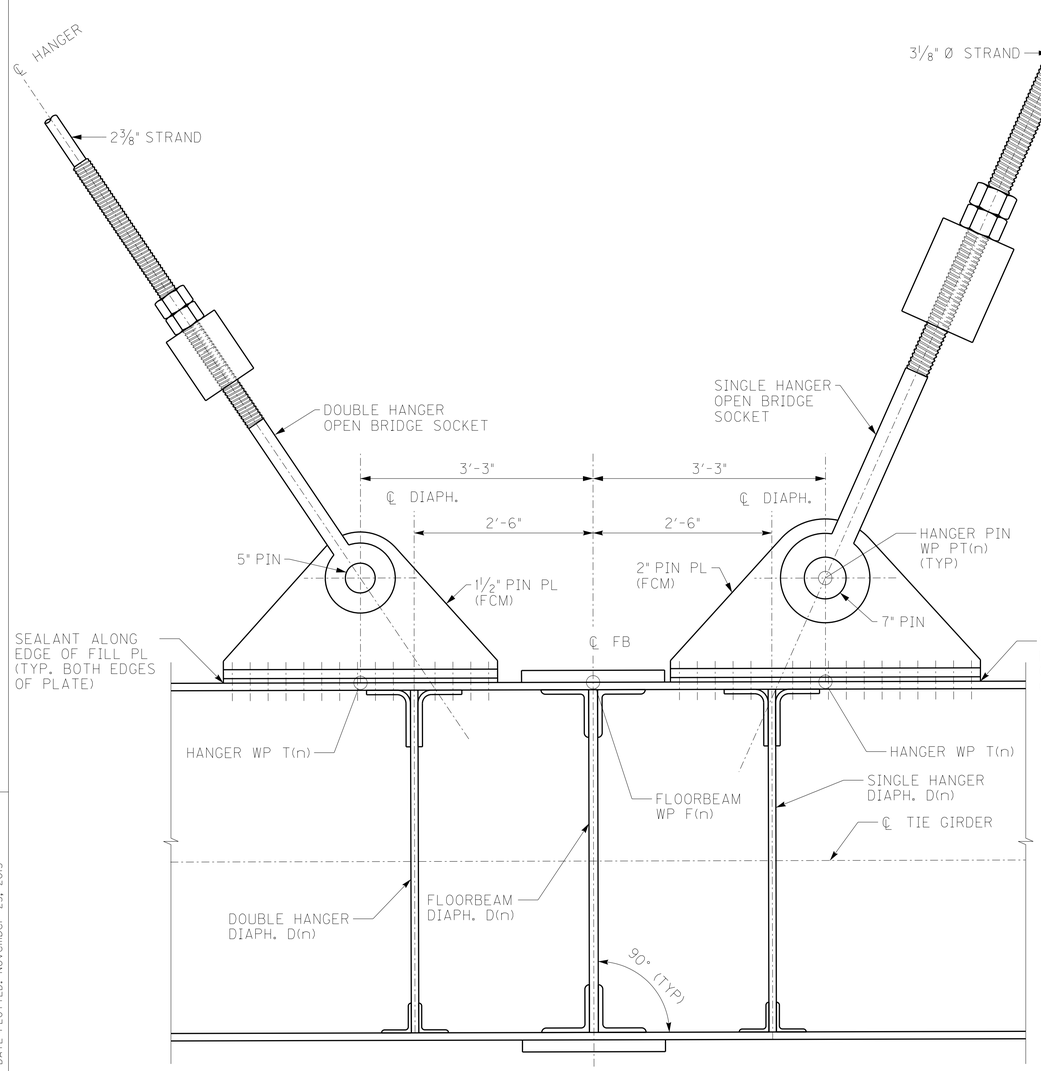
COUNTY: MARSHALL / TRIGG

ROUTE: US68 | CROSSING: KENTUCKY LAKE

RIB HANGER DETAILS – 1

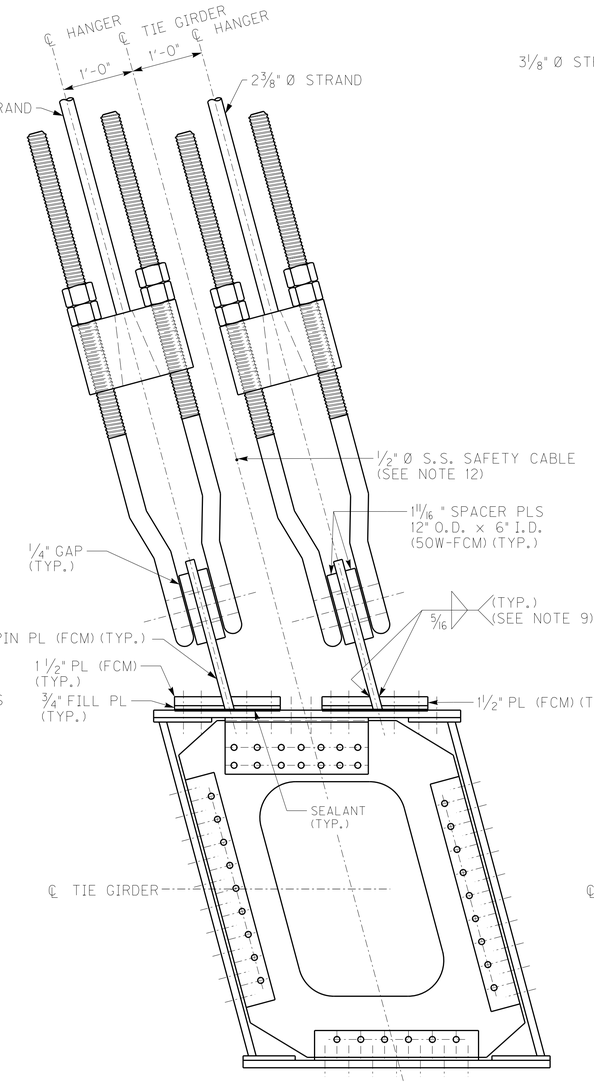
PREPARED BY
Baker
MICHAEL BAKER JR. INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

SHEET NO. S181
DRAWING NO. 24686

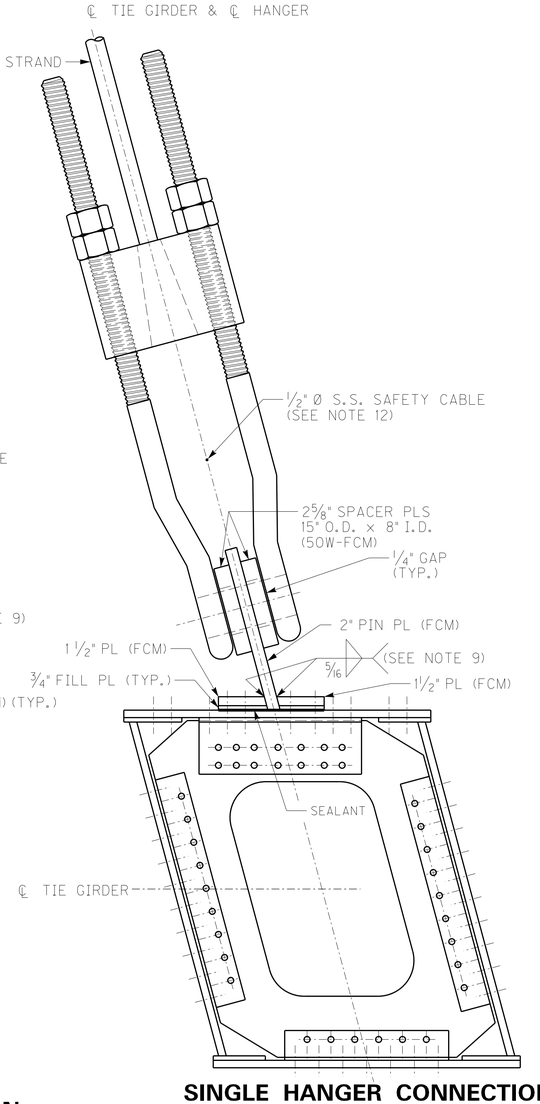


HANGER CONNECTION AT TIE

FB2-FB5 SHOWN; FB7-FB10 OPP. HAND
FB1 (FB11) SIMILAR
FOR HANGER LAYOUT SEE SHEET NO. S135



DOUBLE HANGER CONNECTION



SINGLE HANGER CONNECTION

TIE HANGER CONNECTION NOTES

1. HANGER CONNECTION PIN PLATES AND CONN. PLATES SHALL CONFORM TO AASHTO M270 GRADE 70W AND SHALL BE FCM TESTED.
2. BOLTS SHALL BE 1" DIAMETER A325-X HIGH STRENGTH BOLTS.
3. FOR HANGER AND HANGER PIN WORK POINT COORDINATES SEE SHEET NOS. S135 & S137.
4. FOR HANGER NOTES SEE SHEET NO. S144.
5. FOR FLOORBEAM DIAPHRAGMS SEE SHEET NOS. S190-S191A.
6. FOR DOUBLE HANGER AND SINGLE HANGER PIN PLATES SEE SHEET NO. S184.
7. FOR FB6 TIE HANGER CONNECTION SEE SHEET NO. S184A.
8. FOR DOUBLE HANGER AND SINGLE HANGER DIAPHRAGMS SEE SHEET NO. S185.
9. FILLET WELD TERMINATION SHALL BE MINIMUM 6" BEYOND EDGE OF PLATE.
10. PROVIDE WATERTIGHT SEALANT COMPATIBLE WITH STEEL COMPONENTS AS APPROVED BY THE ENGINEER. APPLY SEALANT PER MANUFACTURER'S RECOMMENDATIONS TO ALL EDGES OF FILL PLATES AS NOTED.
11. SEALANT, TOOLS, LABOR AND INCIDENTAL MATERIALS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR STRUCTURAL STEEL.
12. CONTRACTOR SHALL ENSURE THAT 1/2" Ø S.S. SAFETY CABLE IS A MINIMUM OF 1" CLEAR OF OPEN BRIDGE SOCKET AT FINAL CONDITION.

REVISION	DATE
⚠ ADD FCM TO PIN PL,CONN.PL & SPACER	11/25/13

DATE: NOVEMBER 15, 2013	CHECKED BY
DESIGNED BY: DMB	RTH
DETAILED BY: MJD	DMB

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
MARSHALL / TRIGG

ROUTE	CROSSING
US68	KENTUCKY LAKE

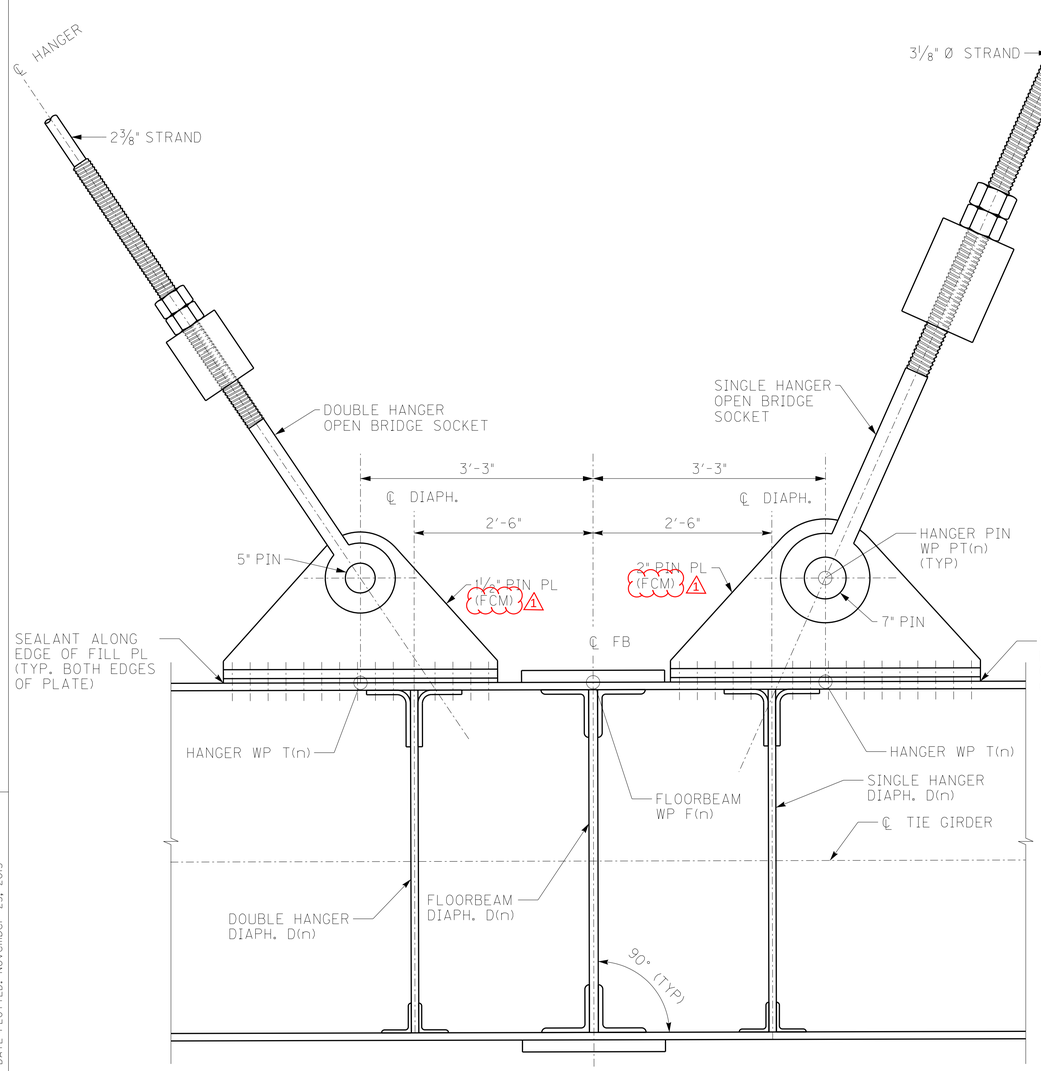
TIE HANGER CONN. – 1

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ITEM NUMBER
01-180.70

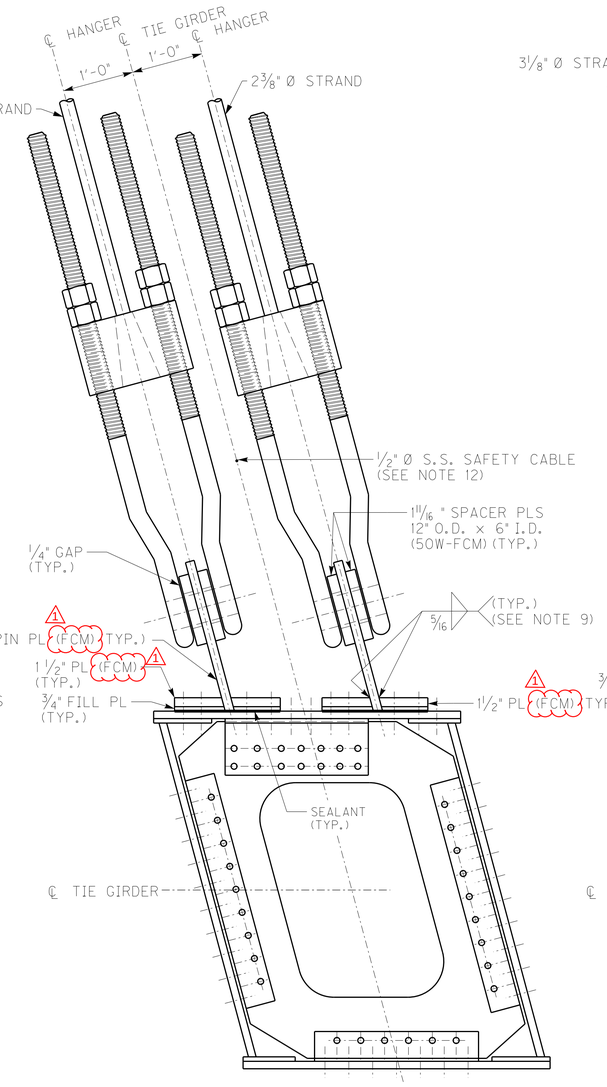
PREPARED BY
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

SHEET NO. S183
DRAWING NO. 24686

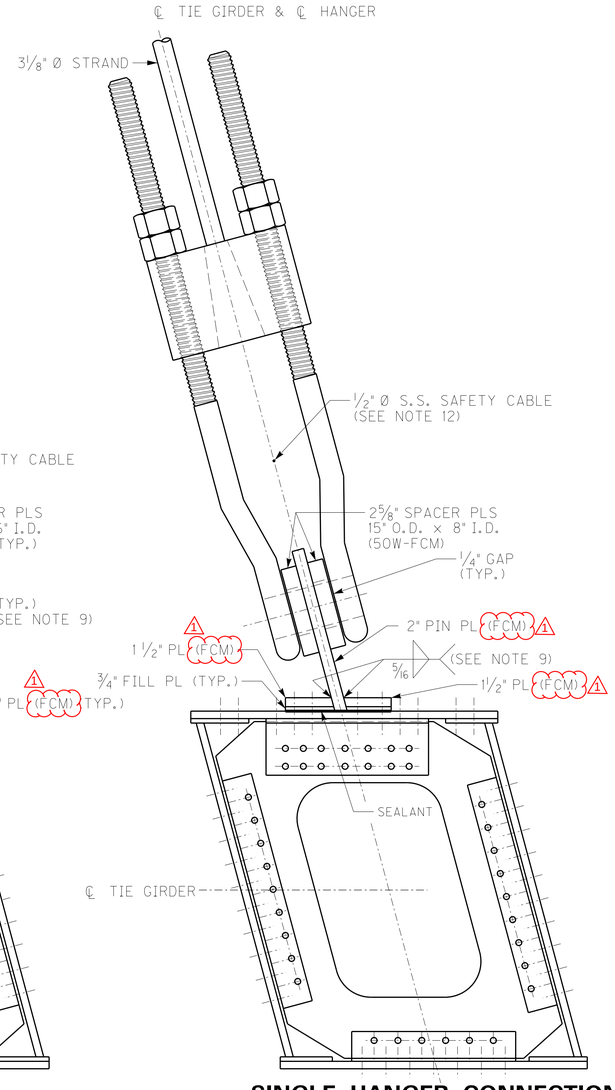


HANGER CONNECTION AT TIE

FB2-FB5 SHOWN; FB7-FB10 OPP. HAND
FB1 (FB11) SIMILAR
FOR HANGER LAYOUT SEE SHEET NO. S135



DOUBLE HANGER CONNECTION



SINGLE HANGER CONNECTION

TIE HANGER CONNECTION NOTES

1. HANGER CONNECTION PIN PLATES AND CONN. PLATES SHALL CONFORM TO AASHTO M270 GRADE 70W AND SHALL BE FCM TESTED.
2. BOLTS SHALL BE 1" DIAMETER A325-X HIGH STRENGTH BOLTS.
3. FOR HANGER AND HANGER PIN WORK POINT COORDINATES SEE SHEET NOS. S135 & S137.
4. FOR HANGER NOTES SEE SHEET NO. S144.
5. FOR FLOORBEAM DIAPHRAGMS SEE SHEET NOS. S190-S191A.
6. FOR DOUBLE HANGER AND SINGLE HANGER PIN PLATES SEE SHEET NO. S184.
7. FOR FB6 TIE HANGER CONNECTION SEE SHEET NO. S184A.
8. FOR DOUBLE HANGER AND SINGLE HANGER DIAPHRAGMS SEE SHEET NO. S185.
9. FILLET WELD TERMINATION SHALL BE MINIMUM 6" BEYOND EDGE OF PLATE.
10. PROVIDE WATERTIGHT SEALANT COMPATIBLE WITH STEEL COMPONENTS AS APPROVED BY THE ENGINEER. APPLY SEALANT PER MANUFACTURER'S RECOMMENDATIONS TO ALL EDGES OF FILL PLATES AS NOTED.
11. SEALANT, TOOLS, LABOR AND INCIDENTAL MATERIALS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR STRUCTURAL STEEL.
12. CONTRACTOR SHALL ENSURE THAT 1/2" Ø S.S. SAFETY CABLE IS A MINIMUM OF 1" CLEAR OF OPEN BRIDGE SOCKET AT FINAL CONDITION.

REVISION	DATE
⚠1 ADD FCM TO PIN PL,CONN.PL & SPACER	11/25/13

DATE: NOVEMBER 15, 2013 | CHECKED BY
DESIGNED BY: DMB | RTH
DETAILED BY: MJD | DMB

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL / TRIGG

ROUTE: US68 | CROSSING: KENTUCKY LAKE

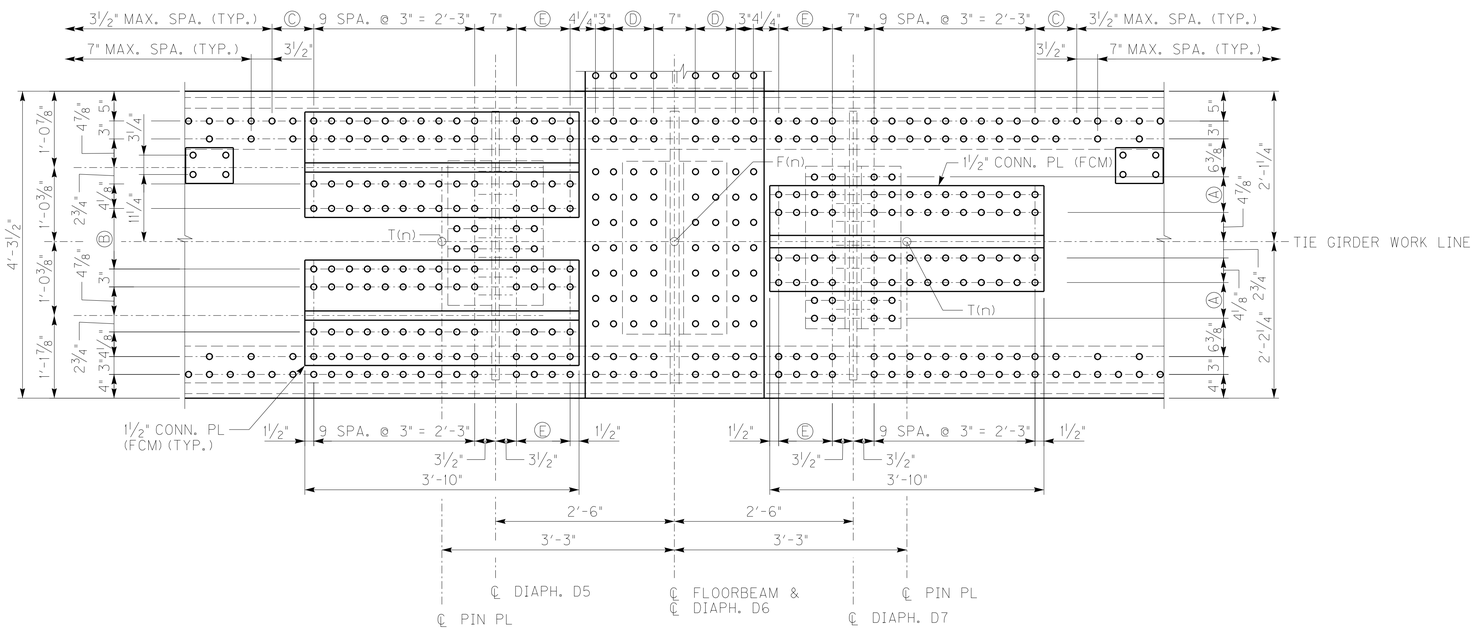
LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

TIE HANGER CONN. - 1

ITEM NUMBER
01-180.70

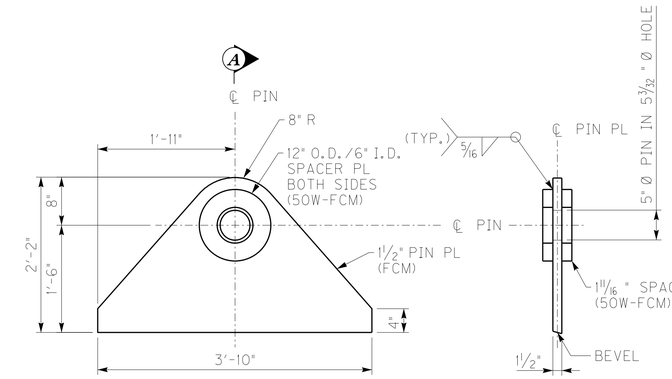
PREPARED BY
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

SHEET NO. S183
DRAWING NO. 24686



PLAN – HANGER PIN PL CONNECTION TO TIE

FB1 SHOWN; FB11 OPPOSITE HAND

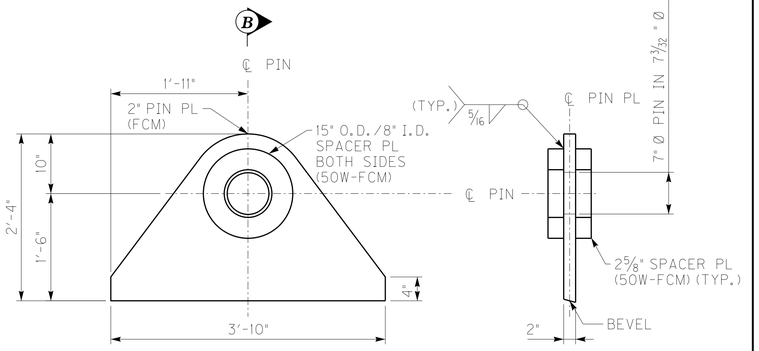


Ⓐ

DOUBLE HANGER PIN PL

DIMENSIONS GIVEN AT ℄ PL

SECTION A–A



Ⓑ

FB1 (FB11) SINGLE HANGER PIN PL

DIMENSIONS GIVEN AT ℄ PL

SECTION B–B

LEGEND

Ⓐ 2 SPA. @ 3" = 6"

Ⓑ 3 EQ. SPA. = 10"

Ⓒ 2 SPA. @ 3½" = 7"

Ⓓ 2 SPA. @ 3⅜" = 6¾"

Ⓔ 3 SPA. @ 3" = 9"

NOTES

1. FOR TIE HANGER CONNECTION NOTES SEE SHEET NO. S183.
2. FOR FB1 (FB11) CONNECTION PL AND BOLTING PATTERN, SEE SHEET NO. S190.

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ITEM NUMBER
01–180.70

⚠ REV. SINGLE HANGER PIN PL. ADD FCMS	11/25/13
REVISION	DATE
DATE: NOVEMBER 15, 2013	CHECKED BY
DESIGNED BY: DMB	RTH
DETAILED BY: MJD	DMB/JCS

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL / TRIGG

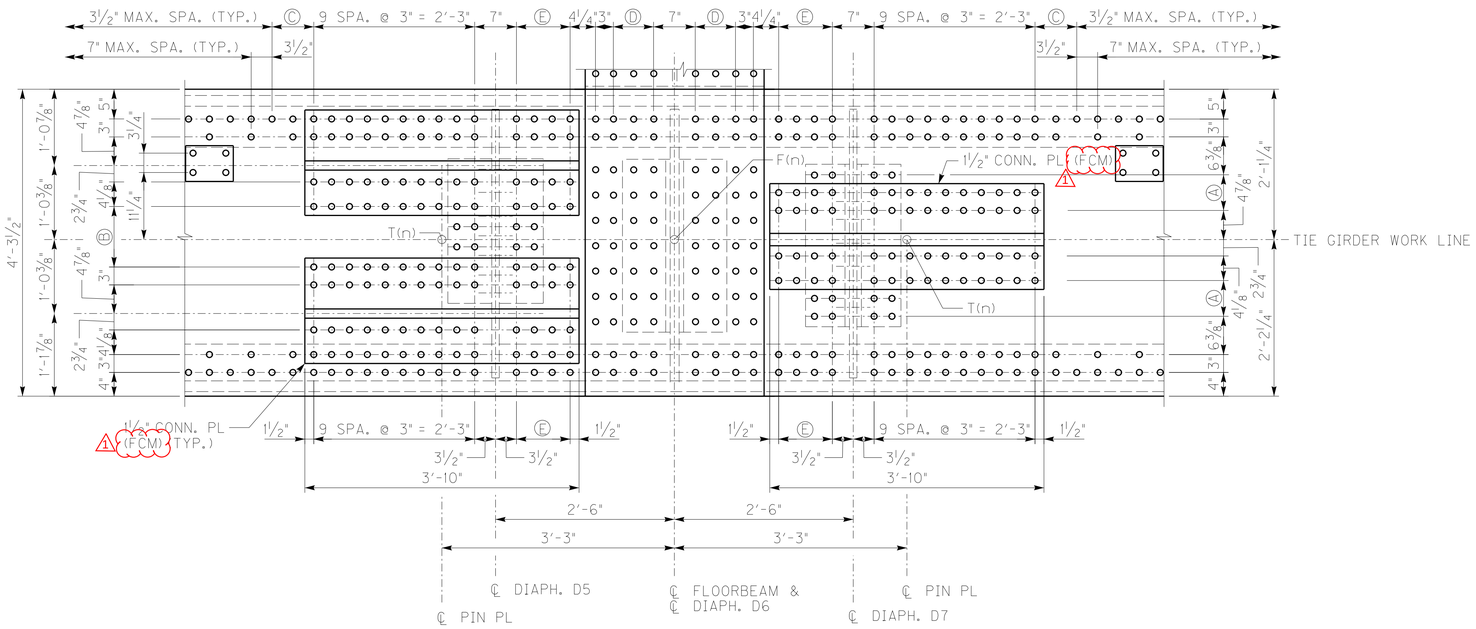
ROUTE: US68 | CROSSING: KENTUCKY LAKE

TIE HANGER CONN. – 2

PREPARED BY
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

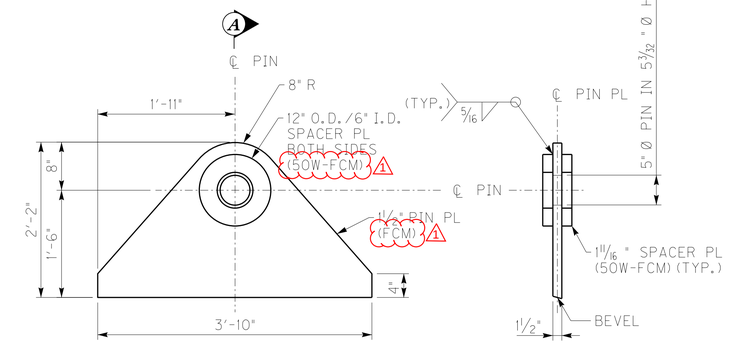
SHEET NO. S184
DRAWING NO. 24686

MicroStation v8.11.7.469 | E-SHEET NAME: 524686 184 | USER: MaryJo.Dwyer DATE PLOTTED: November 25, 2013 | FILE NAME: C:\PW\81-LOCAL\BAKER_PROJECTS\CWETHINGTON\D0141582\S24686 TIE11.DGN



PLAN – HANGER PIN PL CONNECTION TO TIE

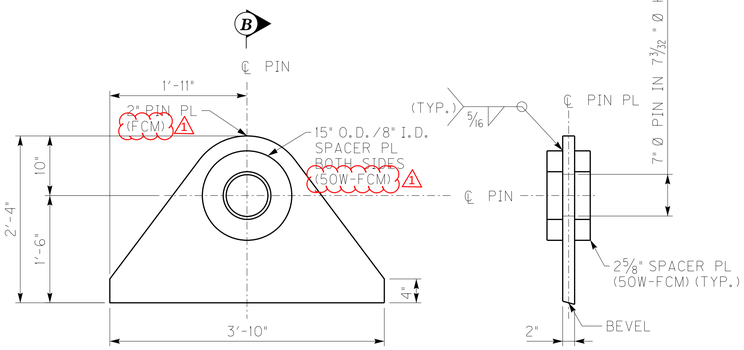
FB1 SHOWN; FB11 OPPOSITE HAND



DOUBLE HANGER PIN PL

DIMENSIONS GIVEN AT ℄ PL

SECTION A–A



FB1 (FB11) SINGLE HANGER PIN PL

DIMENSIONS GIVEN AT ℄ PL

SECTION B–B

LEGEND

Ⓐ 2 SPA. @ 3" = 6"

Ⓑ 3 EQ. SPA. = 10"

Ⓒ 2 SPA. @ 3½" = 7"

Ⓓ 2 SPA. @ 3⅜" = 6¾"

Ⓔ 3 SPA. @ 3" = 9"

NOTES

1. FOR TIE HANGER CONNECTION NOTES SEE SHEET NO. S183.
2. FOR FB1 (FB11) CONNECTION PL AND BOLTING PATTERN, SEE SHEET NO. S190.

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ITEM NUMBER
01–180.70

⚠1 REV. SINGLE HANGER PIN PL. ADD FCMS	11/25/13
REVISION	DATE
DATE: NOVEMBER 15, 2013	CHECKED BY
DESIGNED BY: DMB	RTH
DETAILED BY: MJD	DMB/JCS

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL / TRIGG

ROUTE: US68 | CROSSING: KENTUCKY LAKE

TIE HANGER CONN. – 2

PREPARED BY
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

SHEET NO. S184
DRAWING NO. 24686

REVISED 11/25/13

ITEM CODE	ITEM	UNIT					TOTAL
2650	MAINTAIN & CONTROL TRAFFIC	LP SUM					1
3666	UTILITY LINE HANGER FOR BRIDGE	EACH					15
4761	LIGHTING CONTROL EQUIPMENT	EACH					4
	NAVIGATION LIGHTING						
4775	NAVIGATION LIGHT 360 DEG GREEN - LED	EACH					2
4776	NAVIGATION LIGHT 180 DEG RED - LED	EACH					18
4780	FUSED CONNECTOR KIT	EACH					44
4795	CONDUIT - 2 INCH	LIN FT					6,601
4810	ELECTRICAL JUNCTION BOX	EACH					25
4820	TRENCHING AND BACKFILLING	LIN FT					700
4834	WIRE - NO. 6	LIN FT					37,460
4835	WIRE NO. 4	LIN FT					9,600
21565NN	WIRELESS LIGHTING MONITORING SYSTEM	LP SUM					1
21565NN	PULL BOX	EACH					5
	SOLAR POWERED BATTERY BACK-UP	LP SUM					1
	PATH DELINEATION LIGHTING						
4780	FUSED CONNECTOR KIT	EACH					180
4795	CONDUIT - 2 INCH	LIN FT					3,515
4810	ELECTRICAL JUNCTION BOX	EACH					45
4834	WIRE - NO. 6	LIN FT					20,680
4835	WIRE - NO. 4	LIN FT					5,900
24616EC	PATH DELINEATION LIGHTING	LP SUM					1
	ARCH LIGHTING						
4780	FUSED CONNECTOR KIT	EACH					72
4795	CONDUIT - 2 INCH	LIN FT					1,390
4810	ELECTRICAL JUNCTION BOX	EACH					18
4834	WIRE - NO. 6	LIN FT					6,956
4835	WIRE - NO. 4	LIN FT					4,900
24615	ARCH FEATURE LIGHTING	LP SUM					1

⚠ ADDENDUM 1 - ENTIRE SHEET	11/25/13
REVISION	DATE

DATE: NOVEMBER, 2013	CHECKED BY
DESIGNED BY: LAT	
DETAILED BY: LAT	

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
MARSHALL / TRIGG

ROUTE	CROSSING
US68	KENTUCKY LAKE

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

LIGHTING GENERAL SUMMARY

ITEM NUMBER	PREPARED BY	SHEET NO.
01-180.70	BARR & PREVOST ENGINEERING | TESTING | SURVEYING	S262
		DRAWING NO. 24686

REVISED 11/25/13

ITEM CODE	ITEM	UNIT					TOTAL
2650	MAINTAIN & CONTROL TRAFFIC	LP SUM					1
3666	UTILITY LINE HANGER FOR BRIDGE	EACH					15
4761	LIGHTING CONTROL EQUIPMENT	EACH					4
	NAVIGATION LIGHTING						
4775	NAVIGATION LIGHT 360 DEG GREEN - LED	EACH					2
4776	NAVIGATION LIGHT 180 DEG RED - LED	EACH					18
4780	FUSED CONNECTOR KIT	EACH					44
4795	CONDUIT - 2 INCH	LIN FT					6,601
4810	ELECTRICAL JUNCTION BOX	EACH					25
4820	TRENCHING AND BACKFILLING	LIN FT					700
4834	WIRE - NO. 6	LIN FT					37,460
4835	WIRE NO. 4	LIN FT					9,600
21565NN	WIRELESS LIGHTING MONITORING SYSTEM	LP SUM					1
21565NN	PULL BOX	EACH					5
	SOLAR POWERED BATTERY BACK-UP	LP SUM					1
	PATH DELINEATION LIGHTING						
4780	FUSED CONNECTOR KIT	EACH					180
4795	CONDUIT - 2 INCH	LIN FT					3,515
4810	ELECTRICAL JUNCTION BOX	EACH					45
4834	WIRE - NO. 6	LIN FT					20,680
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24616EC	PATH DELINEATION LIGHTING	LP SUM					1
	ARCH LIGHTING						
4780	FUSED CONNECTOR KIT	EACH					72
4795	CONDUIT - 2 INCH	LIN FT					1,390
4810	ELECTRICAL JUNCTION BOX	EACH					18
4834	WIRE - NO. 6	LIN FT					6,956
4835	WIRE - NO. 4	LIN FT					4,900
24615	ARCH FEATURE LIGHTING	LP SUM					1

REVISION	DATE
⚠ ADDENDUM 1 - ENTIRE SHEET	11/25/13

DATE: NOVEMBER, 2013 | CHECKED BY
DESIGNED BY: LAT
DETAILED BY: LAT

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
MARSHALL / TRIGG

ROUTE **US68** | CROSSING **KENTUCKY LAKE**

LIGHTING GENERAL SUMMARY

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ITEM NUMBER
01-180.70

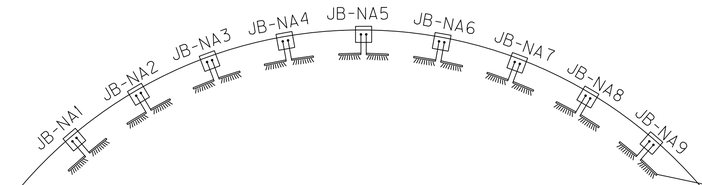
PREPARED BY
BARR & PREVOST
ENGINEERING | TESTING | SURVEYING

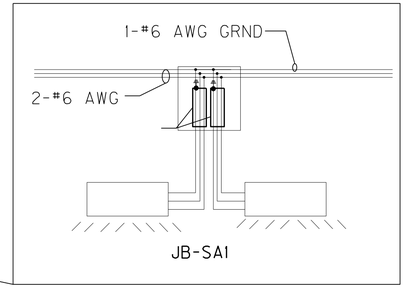
SHEET NO. S262
DRAWING NO. 24686

REVISED 11/25/13

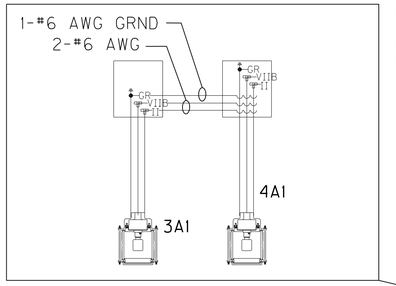
LEGEND

- LIA/D, COOL WHITE, LED ILLUMINATION ASSEMBLIES, 40 FT IN LENGTH.
- NAVIGATION LIGHT
- CABLE SPLICE
- GROUND
- FUSE





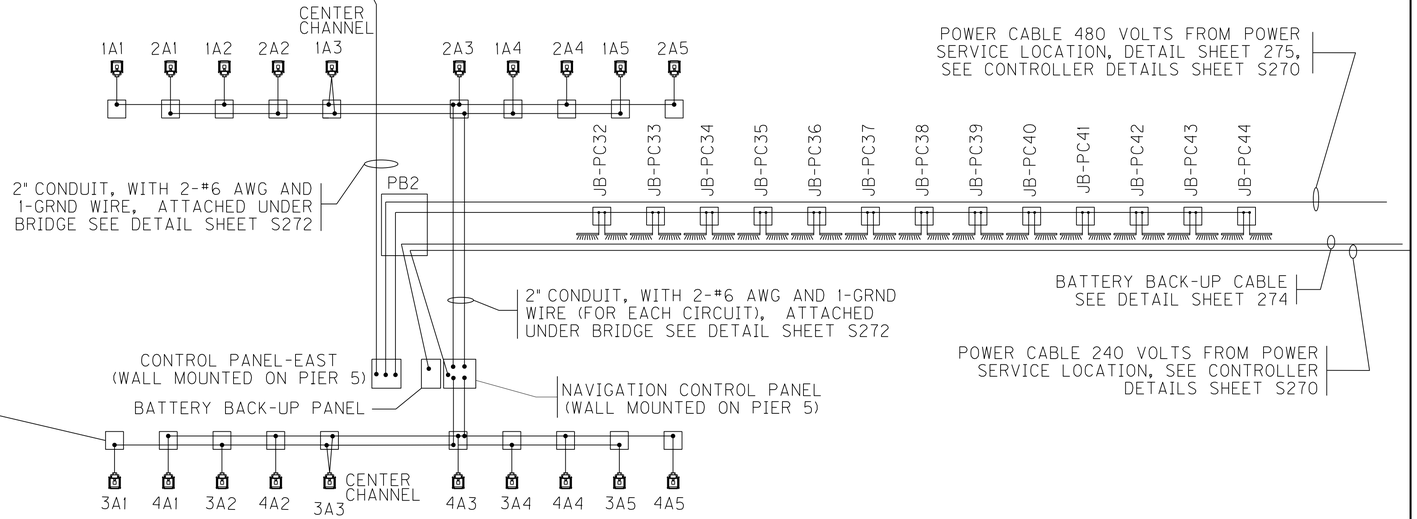
ARCH WIRING (TYPICAL)

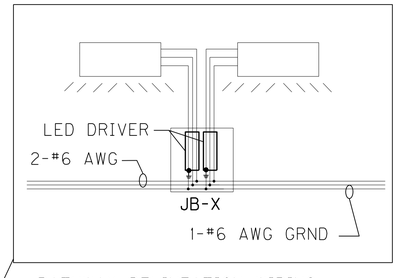


NAVIGATION WIRING (TYPICAL)

NOTE:

NO SPLICES IN JUNCTION BOXES TO NAVIGATION LIGHTS





PATHWAY DELINEATION WIRING (TYPICAL)

CONTROL PANEL-WEST (WALL MOUNTED ON PIER 4)

⚠ ADDENDUM 1 - ENTIRE SHEET	11/25/13
REVISION	DATE

DATE: NOVEMBER, 2013	CHECKED BY
DESIGNED BY: LAT	
DETAILED BY: LAT	

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

COUNTY: **MARSHALL / TRIGG**

ROUTE: **US68**

CROSSING: **KENTUCKY LAKE**

WIRING DIAGRAM

ITEM NUMBER: **01–180.70**

PREPARED BY: BARR & PREVOST ENGINEERING | TESTING | SURVEYING

SHEET NO.: S263

DRAWING NO.: 24686

MicroStation v8.11.9.357 | E-SHEET NAME: | USER: lltito | DATE PLOTTED: November 25, 2013 | FILE NAME: C:\USERS\LTITO\DESKTOP\LAND BETWEEN THE LAKES\LIGHTING\SHEETS\S263 WIRING.DGN

REVISED 11/25/13

LEGEND

- LIA/D, COOL WHITE, LED ILLUMINATION ASSEMBLIES, 40 FT IN LENGTH.
- NAVIGATION LIGHT
- CABLE SPLICE
- GROUND
- FUSE

JB-NA1 JB-NA2 JB-NA3 JB-NA4 JB-NA5 JB-NA6 JB-NA7 JB-NA8 JB-NA9

1-#6 AWG GRND
2-#6 AWG
JB-SA1

ARCH WIRING (TYPICAL)

1-#6 AWG GRND
2-#6 AWG
GR VIIB HI
3A1
4A1

NAVIGATION WIRING (TYPICAL)

NOTE:
NO SPLICES IN JUNCTION BOXES TO NAVIGATION LIGHTS

CENTER CHANNEL

1A1 2A1 1A2 2A2 1A3 2A3 1A4 2A4 1A5 2A5

JB-PC32 JB-PC33 JB-PC34 JB-PC35 JB-PC36 JB-PC37 JB-PC38 JB-PC39 JB-PC40 JB-PC41 JB-PC42 JB-PC43 JB-PC44

2" CONDUIT, WITH 2-#6 AWG AND 1-GRND WIRE, ATTACHED UNDER BRIDGE SEE DETAIL SHEET S272

PB2

POWER CABLE 480 VOLTS FROM POWER SERVICE LOCATION, DETAIL SHEET 275, SEE CONTROLLER DETAILS SHEET S270

BATTERY BACK-UP CABLE SEE DETAIL SHEET 274

POWER CABLE 240 VOLTS FROM POWER SERVICE LOCATION, SEE CONTROLLER DETAILS SHEET S270

2" CONDUIT, WITH 2-#6 AWG AND 1-GRND WIRE (FOR EACH CIRCUIT), ATTACHED UNDER BRIDGE SEE DETAIL SHEET S272

CONTROL PANEL-EAST (WALL MOUNTED ON PIER 5)
BATTERY BACK-UP PANEL

NAVIGATION CONTROL PANEL (WALL MOUNTED ON PIER 5)

3A1 4A1 3A2 4A2 3A3 CENTER CHANNEL 4A3 3A4 4A4 3A5 4A5

LED DRIVER
2-#6 AWG
JB-X
1-#6 AWG GRND

PATHWAY DELINEATION WIRING (TYPICAL)

JB-SA1 JB-SA2 JB-SA3 JB-SA4 JB-SA5 JB-SA6 JB-SA7 JB-SA8 JB-SA9

POWER CABLE 480 VOLTS FROM POWER SERVICE LOCATION, DETAIL SHEET S275 SEE CONTROLLER DETAIL SHEET S270

JB-PA1 JB-PA2 JB-PA3 JB-PA4 JB-PA5 JB-PA6 JB-PA7 JB-PA8 JB-PA9 JB-PA10 JB-PA11 JB-PA12 JB-PA13 JB-PA14 JB-PA15 JB-PA16 JB-PA17 JB-PA17A

PB1

JB-PB18 JB-PB19 JB-PB20 JB-PB21 JB-PC22 JB-PB23 JB-PB24 JB-PB25 JB-PB26 JB-PB27 JB-PB28 JB-PB29 JB-PB28 JB-PB31

CONTROL PANEL-WEST (WALL MOUNTED ON PIER 4)

ADDENDUM 1 - ENTIRE SHEET	11/25/13
REVISION	DATE

DATE: NOVEMBER, 2013 | CHECKED BY
DESIGNED BY: LAT
DETAILED BY: LAT

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

COUNTY: MARSHALL / TRIGG
ROUTE: US68
CROSSING: KENTUCKY LAKE

WIRING DIAGRAM

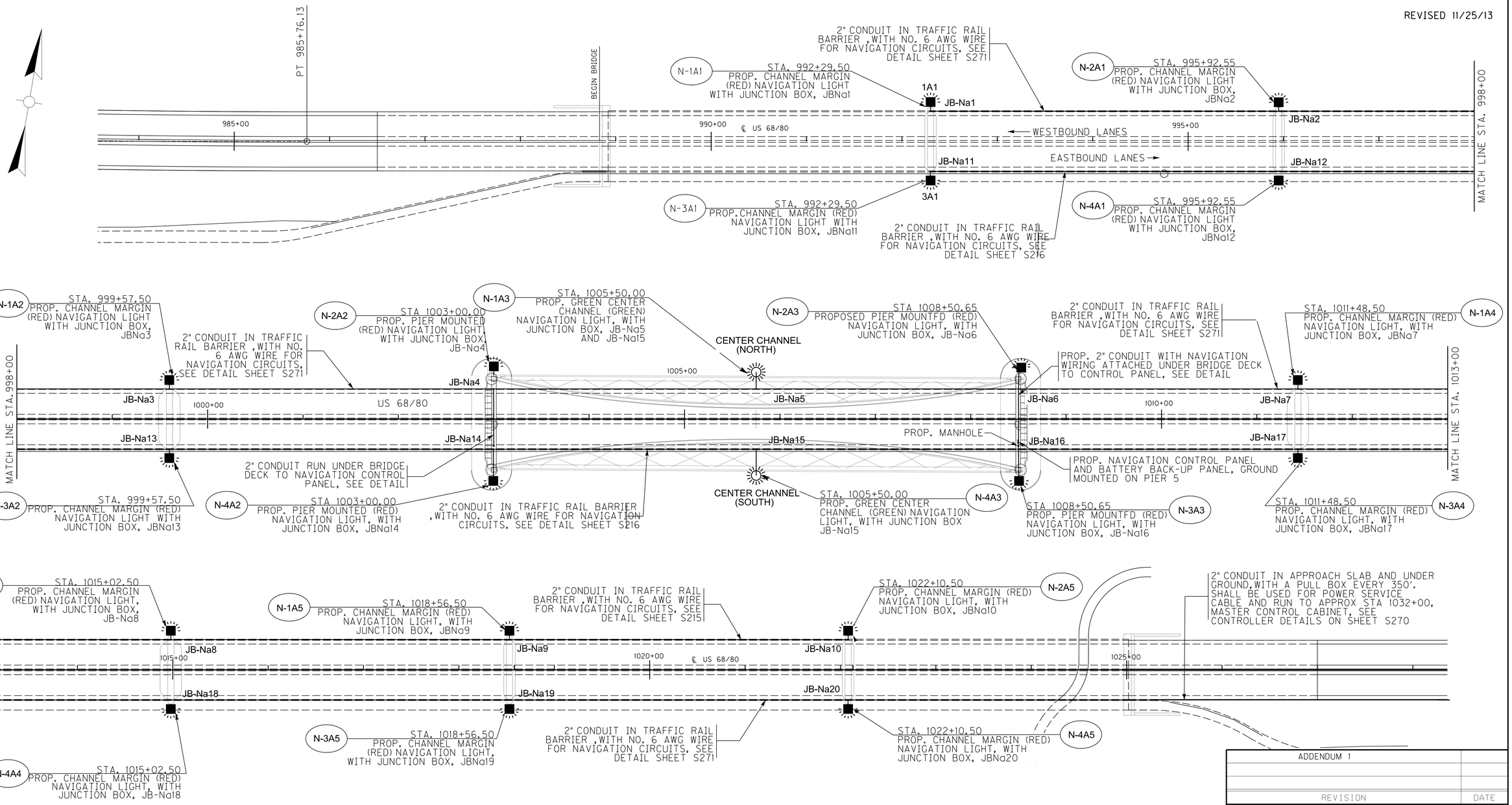
ITEM NUMBER
01–180.70

PREPARED BY
BARR & PREVOST
ENGINEERING | TESTING | SURVEYING

SHEET NO. S263
DRAWING NO. 24686

FILE NAME: C:\USERS\LTITO\DESKTOP\LAND BETWEEN THE LAKES\LIGHTING\SHEETS\S263 WIRING.DGN
USER: ltito
DATE PLOTTED: November 25, 2013
E-SHEET NAME:
MicroStation v8.11.9.357

REVISED 11/25/13



1. CENTER CHANNEL (NORTH AND SOUTH) LIGHTS SEE DETAILS ON SHEET S262
2. PROPOSED CHANNEL MARGIN LIGHTS, 1A1, 1A2, 1A4, 1A5 2A1, 2A4, 2A5, SEE DETAILS ON SHEETS S262, ANDS266
3. PROPOSED PIER MOUNTED (RED) LIGHTS, 2A2, 2A3 4A2, 4A3 SHEET DETAILS ON SHEETS S262, S265, AND S267

SHEET NOTE REFERENCE

N-1A1

NAVIGATION LIGHTING CIRCUIT BRANCH NUMBER

REFERENCE LEGEND

REVISION	DATE
ADDENDUM 1	

DATE: NOVEMBER 2013 CHECKED BY: CFD
DESIGNED BY: LAT
DETAILED BY: LAT

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

COUNTY: MARSHALL / TRIGG
ROUTE: US68
CROSSING: KENTUCKY LAKE

NAVIGATION LIGHTING LAYOUT

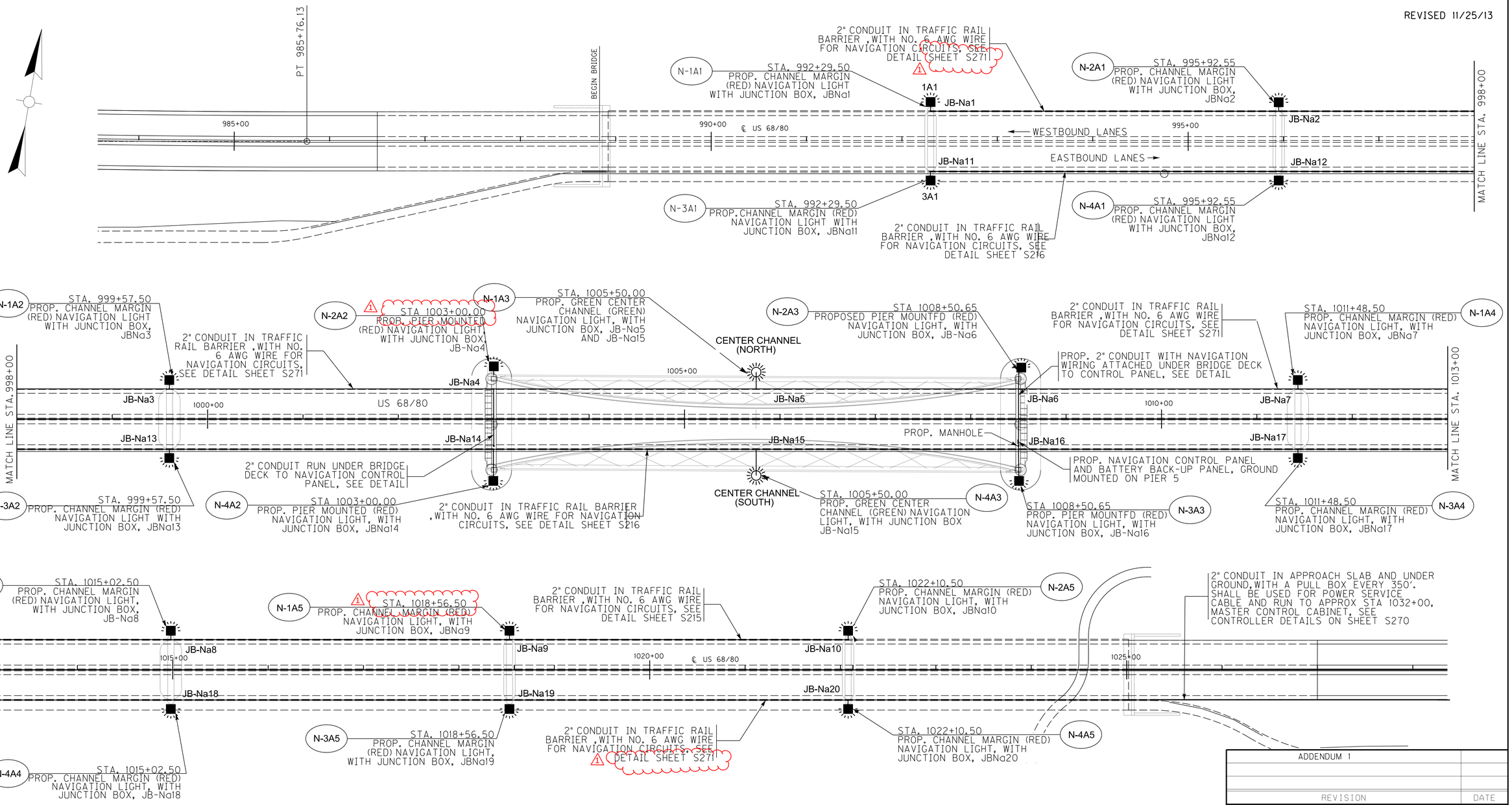
ITEM NUMBER
01–180.70

PREPARED BY
BARR & PREVOST
ENGINEERING | TESTING | SURVEYING

SHEET NO. S264
DRAWING NO. 24686

FILE NAME: F:\KYTC\LAND BETWEEN THE LAKES\LIGHTING\SHEETS\S264 NAVIGATION PLAN SHEET.DGN
USER: ttito
DATE PLOTTED: November 25, 2013
E-SHEET NAME:
MicroStation v8.11.9.357

REVISED 11/25/13



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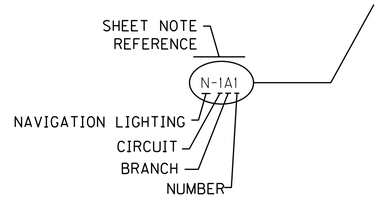


REVISION	DATE
ADDENDUM 1	

DATE: NOVEMBER 2013 CHECKED BY: CFD
DESIGNED BY: LAT
DETAILED BY: LAT

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL / TRIGG

ROUTE: US68 CROSSING: KENTUCKY LAKE

NAVIGATION LIGHTING LAYOUT

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

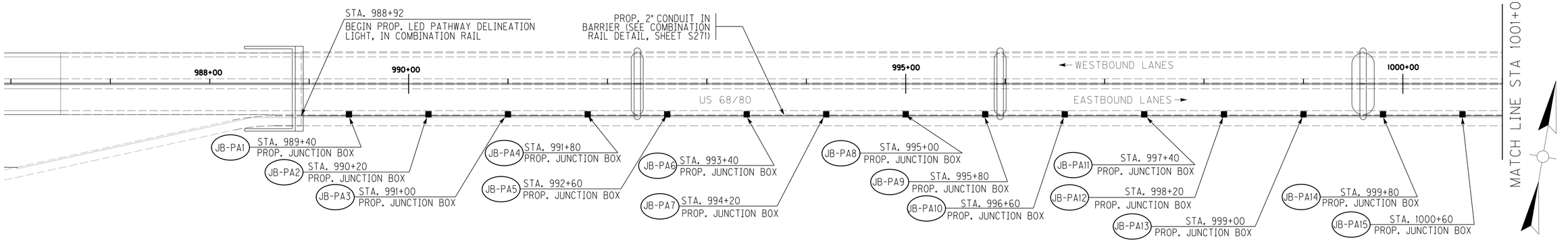
ITEM NUMBER
01–180.70

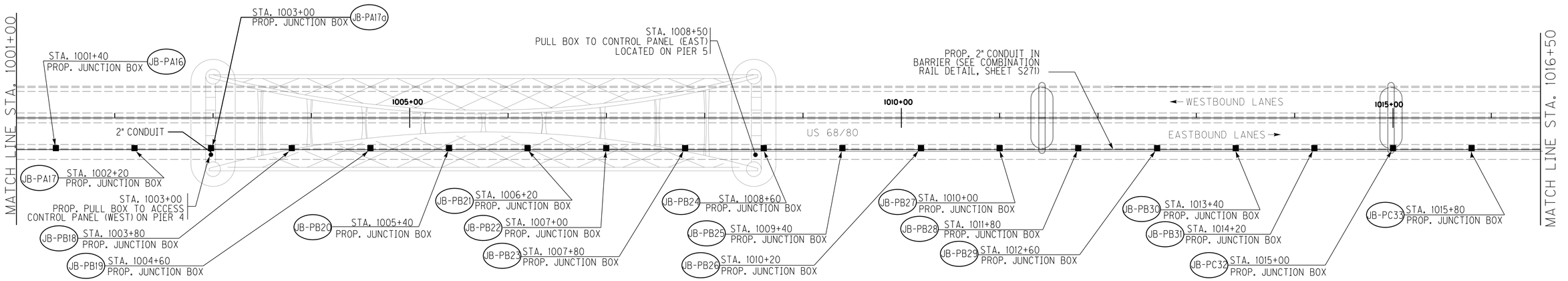
PREPARED BY
BARR & PREVOST
ENGINEERING | TESTING | SURVEYING

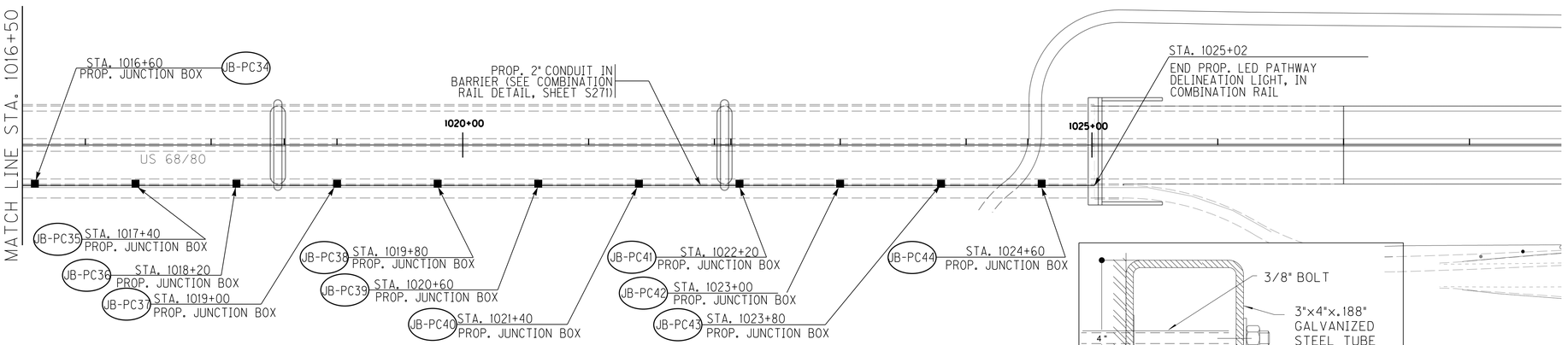
SHEET NO. S264
DRAWING NO. 24686

FILE NAME: F:\KYTC\LAND BETWEEN THE LAKES\LIGHTING\SHEETS\S264 NAVIGATION PLAN SHEET.DGN
USER: ltito
DATE PLOTTED: November 25, 2013
E-SHEET NAME:
MicroStation v8.11.9.357

REVISED 11/25/13

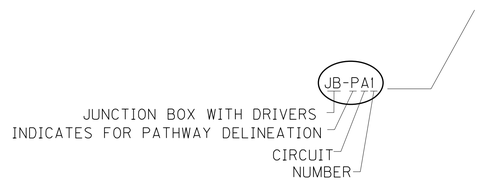






NOTES

1. PATHWAY DELINEATION LIGHTS ARE LIA/D, COOL WHITE, LED ILLUMINATION ASSEMBLIES, 40 FT IN LENGTH.
2. JUNCTION BOXES SHALL BE NEMA 4X RATED ENCLOSURES, WITH 2 DRIVERS THAT SERVICE THE 40 FT SECTION TO THE EAST AND WEST OF EACH JUNCTION BOX.
3. ALL JUNCTION BOXES ARE 12"x12"x8" AND CONTAIN 2 DRIVERS TYPE, PSX24-100.
4. JUNCTION BOXES ARE LOCATED IN THE COMBINATION CONCRETE BARRIER, SEPARATING THE ROADWAY FROM THE BRIDGE PATHWAY. SEE DETAIL SHEET S271.



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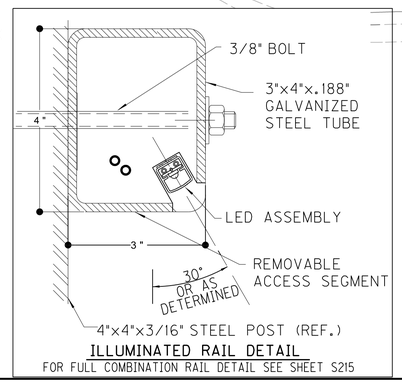


ILLUMINATED RAIL DETAIL
FOR FULL COMBINATION RAIL DETAIL SEE SHEET S215

1	ADDENDUM 1	11/25/13
	REVISION	DATE

DATE: NOVEMBER, 2013 | CHECKED BY
DESIGNED BY: LAT
DETAILED BY: LAT

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL / TRIGG

ROUTE: US68 | CROSSING: KENTUCKY LAKE

PATHWAY DELINEATION LIGHTING LAYOUT

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

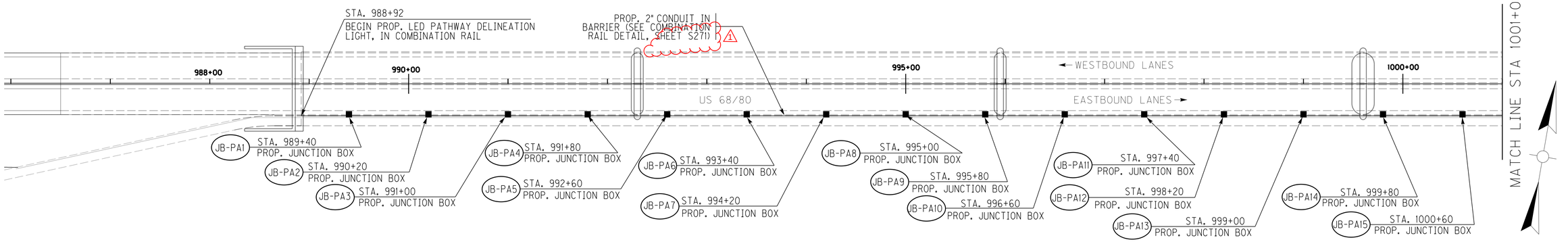
ITEM NUMBER
01-180.70

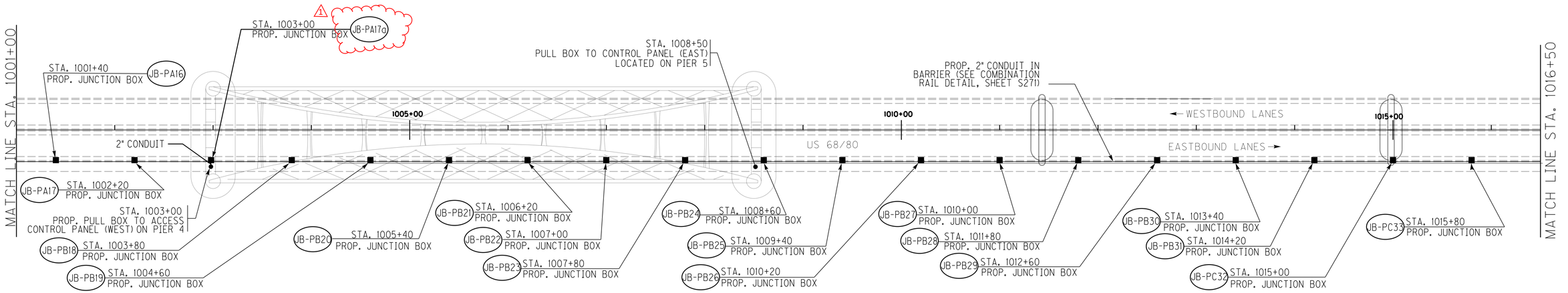
PREPARED BY
BARR & PREVOST
ENGINEERING | TESTING | SURVEYING

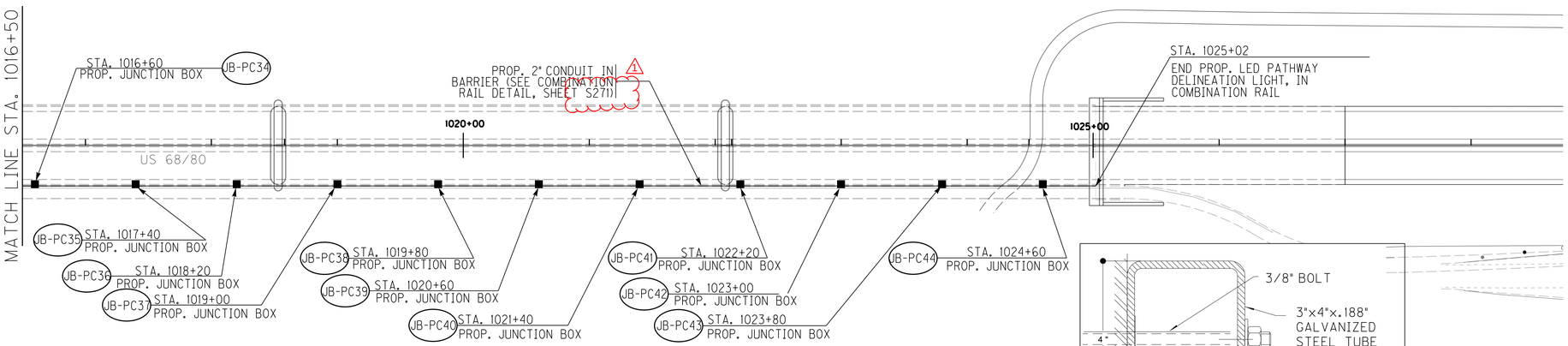
SHEET NO. S268
DRAWING NO. 24686

MicroStation v8.11.9.357
E-SHEET NAME:
USER: ltito
DATE PLOTTED: November 25, 2013
FILE NAME: F:\KYITC\LAND BETWEEN THE LAKES\LIGHTING\SHEETS\S268 PATHWAYDELINEATION LAYOUT.DGN

REVISED 11/25/13







NOTES

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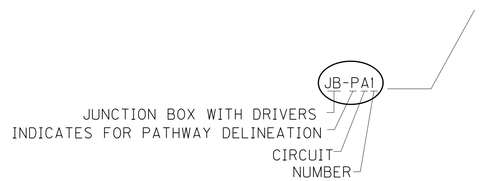
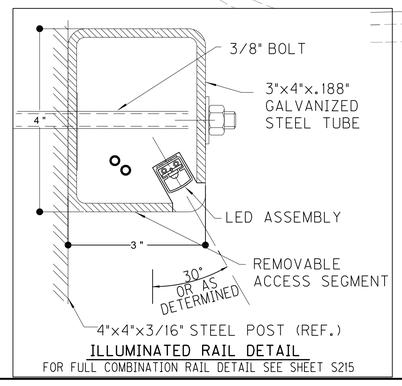


REFERENCE LEGEND



ILLUMINATED RAIL DETAIL
FOR FULL COMBINATION RAIL DETAIL SEE SHEET S215

⚠	ADDENDUM 1	11/25/13
	REVISION	DATE

DATE: NOVEMBER, 2013 | CHECKED BY
DESIGNED BY: LAT
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Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL / TRIGG

ROUTE: US68 | CROSSING: KENTUCKY LAKE

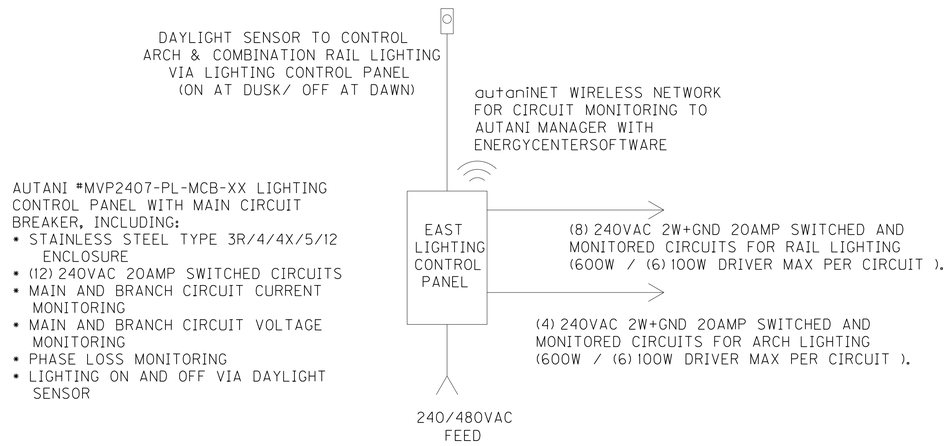
PATHWAY DELINEATION LIGHTING LAYOUT

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

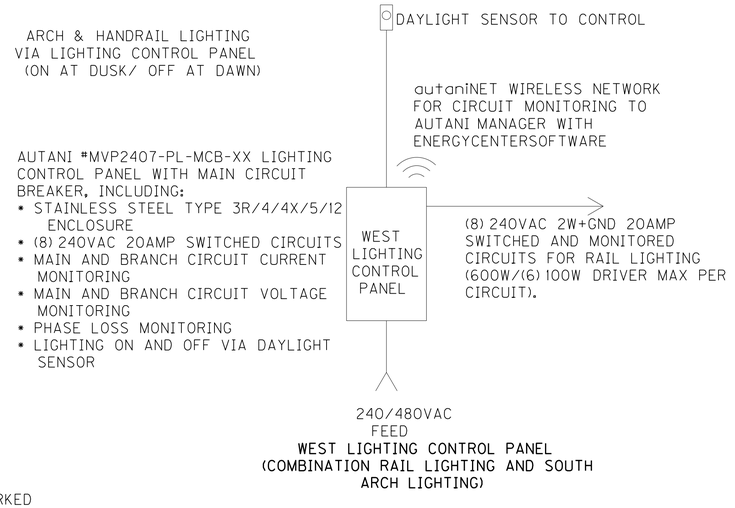
ITEM NUMBER
01-180.70

PREPARED BY
BARR & PREVOST
ENGINEERING | TESTING | SURVEYING

SHEET NO. S268
DRAWING NO. 24686



EAST LIGHTING CONTROL PANEL
(COMBINATION RAIL LIGHTING AND NORTH
ARCH LIGHTING)



WEST LIGHTING CONTROL PANEL
(COMBINATION RAIL LIGHTING AND SOUTH
ARCH LIGHTING)

THE LIGHTING MONITORING SYSTEM SHALL CONSIST OF AN AUTANI MANAGER APPLIANCE AND ENERGYCENTER SOFTWARE THE LIGHTING MONITORING SYSTEM SHALL:

1) MONITOR THE FOLLOWING PER LIGHTING PANEL AND CIRCUIT:
- MAIN AND BRANCH CIRCUIT CURRENT
- MAIN AND BRANCH CIRCUIT VOLTAGE
- PHASE LOSS
- COMMUNICATIONS LOSS

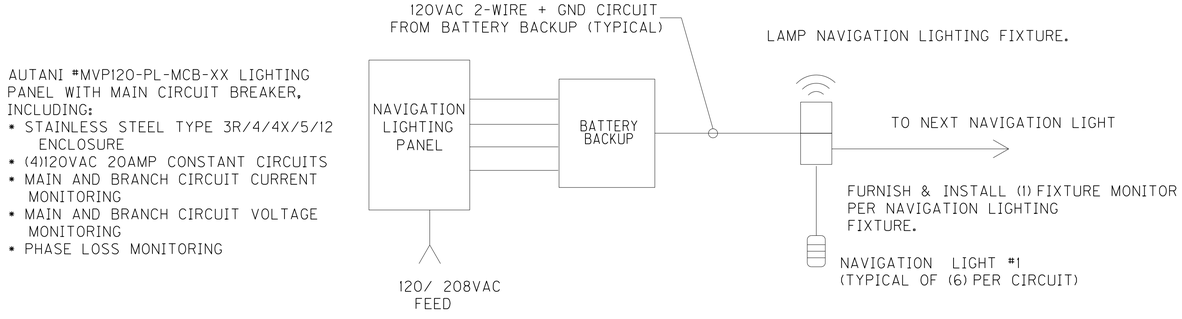
DATA SHALL BE ACCESSIBLE VIA THE INTERNET PROPERLY AUTHORIZED DEVICES WITH A WEB BROWSER. THE AUTANI MANAGER SHALL STORE UP TO (2) YEARS OF DATA FOR RETRIEVAL AND ACCESS. DATA SHALL BE AVAILABLE FOR EXPORT VIA .CSV FILES.

2) MONITOR THE FOLLOWING PER NAVIGATION LIGHTING FIXTURE:
- FIXTURE CURRENT
- FAILURE OF PRIMARY LAMP AS INDICATED BY DUAL LAMP NAVIGATION LIGHTING FIXTURE.

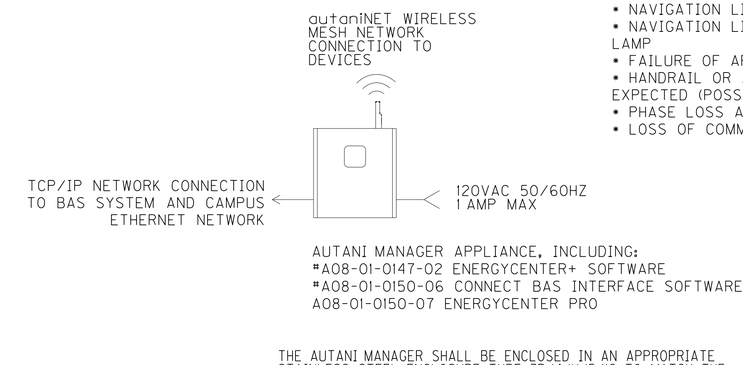
THE AFC- FIXTURE MONITOR SHALL BE A PASSIVE DEVICE. NAVIGATION LIGHTING FIXTURES SHALL NOT RELY ON THE FIXTURE MONITOR TO TURN ON OR TURN OFF.

3) THE LIGHTING MONITORING SYSTEM SHALL BE ABLE TO DISPLAY AND, VIA EMAIL, DISTRIBUTE THE FOLLOWING ALERTS:
- NAVIGATION LIGHTING FIXTURE IS NOT ON
- NAVIGATION LIGHTING FIXTURE HAS SWITCHED TO BACKUP LAMP
- FAILURE OF ARCH OR HANDRAIL LIGHTING CIRCUIT
- HANDRAIL OR ARCH LIGHTING CIRCUIT LOAD IS LESS THAN EXPECTED (POSSIBLE DRIVER OR SEGMENT FAILURE)
- PHASE LOSS AT LIGHTING OR LIGHTING CONTROL PANEL
- LOSS OF COMMUNICATIONS WITH A GIVEN DEVICE

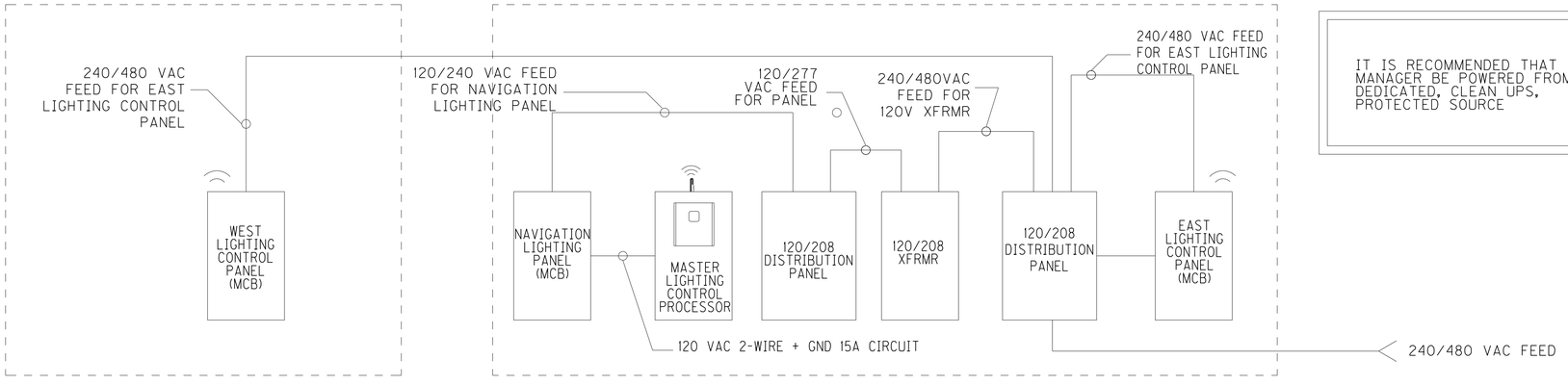
AUTANI AFC WIRELESSLY NETWORKED FIXTURE MONITOR WITH POWER SUPPLY. IN WEATHER-PROOF ENCLOSURE.
AUTANI #02-01-0009-25
MONITORED CONDITIONS SHALL INCLUDE:
- FIXTURE CURRENT
- FAILURE OF PRIMARY LAMP AS INDICATED BY DUAL LAMP NAVIGATION LIGHTING FIXTURE.



NAVIGATION LIGHTING PANEL & FIXTURE MONITORS



MASTER LIGHTING CONTROL PROCESSOR



PIER 4 EQUIPMENT

PIER 5 EQUIPMENT

IT IS RECOMMENDED THAT THE MANAGER BE POWERED FROM A DEDICATED, CLEAN UPS, PROTECTED SOURCE

REVISION	DATE
⚠ ADDENDUM 1	11/25/13
DATE: NOVEMBER, 2013	CHECKED BY
DESIGNED BY: LAT	
DETAILED BY: LAT	

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL / TRIGG

ROUTE: US 68

CROSSING: KENTUCKY LAKE

CONTROLLER DETAILS

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ITEM NUMBER
01-180.70

PREPARED BY
BARR & PREVOST
ENGINEERING | TESTING | SURVEYING

SHEET NO. S270
DRAWING NO. 24686

REVISED 11/25/13

1 DAYLIGHT SENSOR TO CONTROL ARCH & COMBINATION RAIL LIGHTING VIA LIGHTING CONTROL PANEL (ON AT DUSK/ OFF AT DAWN)

autaniNET WIRELESS NETWORK FOR CIRCUIT MONITORING TO AUTANI MANAGER WITH ENERGYCENTERSOFTWARE

AUTANI #MVP2407-PL-MCB-XX LIGHTING CONTROL PANEL WITH MAIN CIRCUIT BREAKER, INCLUDING:
- STAINLESS STEEL TYPE 3R/4/4X/5/12 ENCLOSURE
- (12) 240VAC 20AMP SWITCHED CIRCUITS
- MAIN AND BRANCH CIRCUIT CURRENT MONITORING
- MAIN AND BRANCH CIRCUIT VOLTAGE MONITORING
- PHASE LOSS MONITORING
- LIGHTING ON AND OFF VIA DAYLIGHT SENSOR

EAST LIGHTING CONTROL PANEL

(8) 240VAC 2W+GND 20AMP SWITCHED AND MONITORED CIRCUITS FOR RAIL LIGHTING (600W / (6) 100W DRIVER MAX PER CIRCUIT).

(4) 240VAC 2W+GND 20AMP SWITCHED AND MONITORED CIRCUITS FOR ARCH LIGHTING (600W / (6) 100W DRIVER MAX PER CIRCUIT).

240/480VAC FEED

1 EAST LIGHTING CONTROL PANEL (COMBINATION RAIL LIGHTING AND NORTH ARCH LIGHTING)

ARCH & HANDRAIL LIGHTING VIA LIGHTING CONTROL PANEL (ON AT DUSK/ OFF AT DAWN)

DAYLIGHT SENSOR TO CONTROL

autaniNET WIRELESS NETWORK FOR CIRCUIT MONITORING TO AUTANI MANAGER WITH ENERGYCENTERSOFTWARE

AUTANI #MVP2407-PL-MCB-XX LIGHTING CONTROL PANEL WITH MAIN CIRCUIT BREAKER, INCLUDING:
- STAINLESS STEEL TYPE 3R/4/4X/5/12 ENCLOSURE
- (8) 240VAC 20AMP SWITCHED CIRCUITS
- MAIN AND BRANCH CIRCUIT CURRENT MONITORING
- MAIN AND BRANCH CIRCUIT VOLTAGE MONITORING
- PHASE LOSS MONITORING
- LIGHTING ON AND OFF VIA DAYLIGHT SENSOR

WEST LIGHTING CONTROL PANEL

(8) 240VAC 2W+GND 20AMP SWITCHED AND MONITORED CIRCUITS FOR RAIL LIGHTING (600W/(6) 100W DRIVER MAX PER CIRCUIT).

240/480VAC FEED

1 WEST LIGHTING CONTROL PANEL (COMBINATION RAIL LIGHTING AND SOUTH ARCH LIGHTING)

THE LIGHTING MONITORING SYSTEM SHALL CONSIST OF AN AUTANI MANAGER APPLIANCE AND ENERGYCENTER SOFTWARE THE LIGHTING MONITORING SYSTEM SHALL:

1) MONITOR THE FOLLOWING PER LIGHTING PANEL AND CIRCUIT:
- MAIN AND BRANCH CIRCUIT CURRENT
- MAIN AND BRANCH CIRCUIT VOLTAGE
- PHASE LOSS
- COMMUNICATIONS LOSS

DATA SHALL BE ACCESSIBLE VIA THE INTERNET PROPERLY AUTHORIZED DEVICES WITH A WEB BROWSER. THE AUTANI MANAGER SHALL STORE UP TO (2) YEARS OF DATA FOR RETRIEVAL AND ACCESS. DATA SHALL BE AVAILABLE FOR EXPORT VIA .CSV FILES.

2) MONITOR THE FOLLOWING PER NAVIGATION LIGHTING FIXTURE:
- FIXTURE CURRENT
- FAILURE OF PRIMARY LAMP AS INDICATED BY DUAL LAMP NAVIGATION LIGHTING FIXTURE.

THE AFC- FIXTURE MONITOR SHALL BE A PASSIVE DEVICE. NAVIGATION LIGHTING FIXTURES SHALL NOT RELY ON THE FIXTURE MONITOR TO TURN ON OR TURN OFF.

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- NAVIGATION LIGHTING FIXTURE HAS SWITCHED TO BACKUP LAMP
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- HANDRAIL OR ARCH LIGHTING CIRCUIT LOAD IS LESS THAN EXPECTED (POSSIBLE DRIVER OR SEGMENT FAILURE)
- PHASE LOSS AT LIGHTING OR LIGHTING CONTROL PANEL
- LOSS OF COMMUNICATIONS WITH A GIVEN DEVICE

AUTANI AFC WIRELESSLY NETWORKED FIXTURE MONITOR WITH POWER SUPPLY. IN WEATHER-PROOF ENCLOSURE.
AUTANI #02-01-0009-25
MONITORED CONDITIONS SHALL INCLUDE:
- FIXTURE CURRENT
- FAILURE OF PRIMARY LAMP AS INDICATED BY DUAL LAMP NAVIGATION LIGHTING FIXTURE.

120VAC 2-WIRE + GND CIRCUIT FROM BATTERY BACKUP (TYPICAL)

AUTANI #MVP120-PL-MCB-XX LIGHTING PANEL WITH MAIN CIRCUIT BREAKER, INCLUDING:
- STAINLESS STEEL TYPE 3R/4/4X/5/12 ENCLOSURE
- (4)120VAC 20AMP CONSTANT CIRCUITS
- MAIN AND BRANCH CIRCUIT CURRENT MONITORING
- MAIN AND BRANCH CIRCUIT VOLTAGE MONITORING
- PHASE LOSS MONITORING

NAVIGATION LIGHTING PANEL

BATTERY BACKUP

TO NEXT NAVIGATION LIGHT

FURNISH & INSTALL (1) FIXTURE MONITOR PER NAVIGATION LIGHTING FIXTURE.

NAVIGATION LIGHT #1 (TYPICAL OF (6) PER CIRCUIT)

120/ 208VAC FEED

NAVIGATION LIGHTING PANEL & FIXTURE MONITORS

autaniNET WIRELESS MESH NETWORK CONNECTION TO DEVICES

TCP/IP NETWORK CONNECTION TO BAS SYSTEM AND CAMPUS ETHERNET NETWORK

120VAC 50/60HZ 1 AMP MAX

AUTANI MANAGER APPLIANCE, INCLUDING:
#A08-01-0147-02 ENERGYCENTER+ SOFTWARE
#A08-01-0150-06 CONNECT BAS INTERFACE SOFTWARE
A08-01-0150-07 ENERGYCENTER PRO

THE AUTANI MANAGER SHALL BE ENCLOSED IN AN APPROPRIATE STAINLESS STEEL ENCLOSURE TYPE 3R/4/X/5/12 TO MATCH THE LIGHTING CONTROL PANELS. TRANSCEIVER SHALL BE MOUNTED IN AN EXTERIOR, WEATHERPROOF ENCLOSURE.

MASTER LIGHTING CONTROL PROCESSOR

240/480 VAC FEED FOR EAST LIGHTING CONTROL PANEL

120/240 VAC FEED FOR NAVIGATION LIGHTING PANEL

120/277 VAC FEED FOR PANEL

240/480VAC FEED FOR 120V XFRMR

240/480 VAC FEED FOR EAST LIGHTING CONTROL PANEL

WEST LIGHTING CONTROL PANEL (MCB)

NAVIGATION LIGHTING PANEL (MCB)

MASTER LIGHTING CONTROL PROCESSOR

120/208 DISTRIBUTION PANEL

120/208 XFRMR

120/208 DISTRIBUTION PANEL

EAST LIGHTING CONTROL PANEL (MCB)

120 VAC 2-WIRE + GND 15A CIRCUIT

240/480 VAC FEED

PIER 4 EQUIPMENT

PIER 5 EQUIPMENT

IT IS RECOMMENDED THAT THE MANAGER BE POWERED FROM A DEDICATED, CLEAN UPS, PROTECTED SOURCE

REVISION	DATE
1 ADDENDUM 1	11/25/13

DATE: NOVEMBER, 2013 — CHECKED BY
DESIGNED BY: LAT
DETAILED BY: LAT

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL / TRIGG

ROUTE: US 68 — CROSSING: KENTUCKY LAKE

CONTROLLER DETAILS

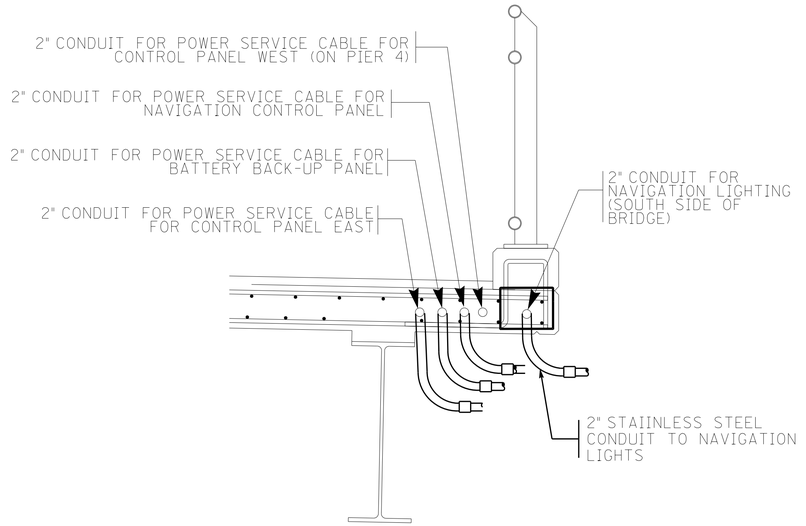
LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ITEM NUMBER
01-180.70

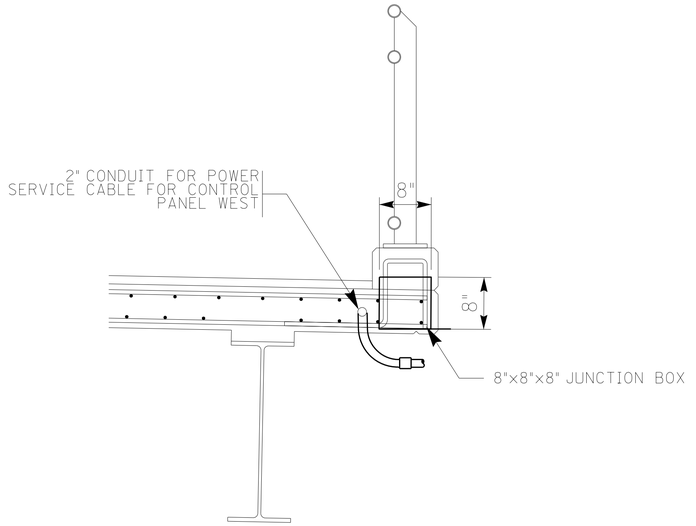
PREPARED BY
BARR & PREVOST
ENGINEERING | TESTING | SURVEYING

SHEET NO. S270
DRAWING NO. 24686

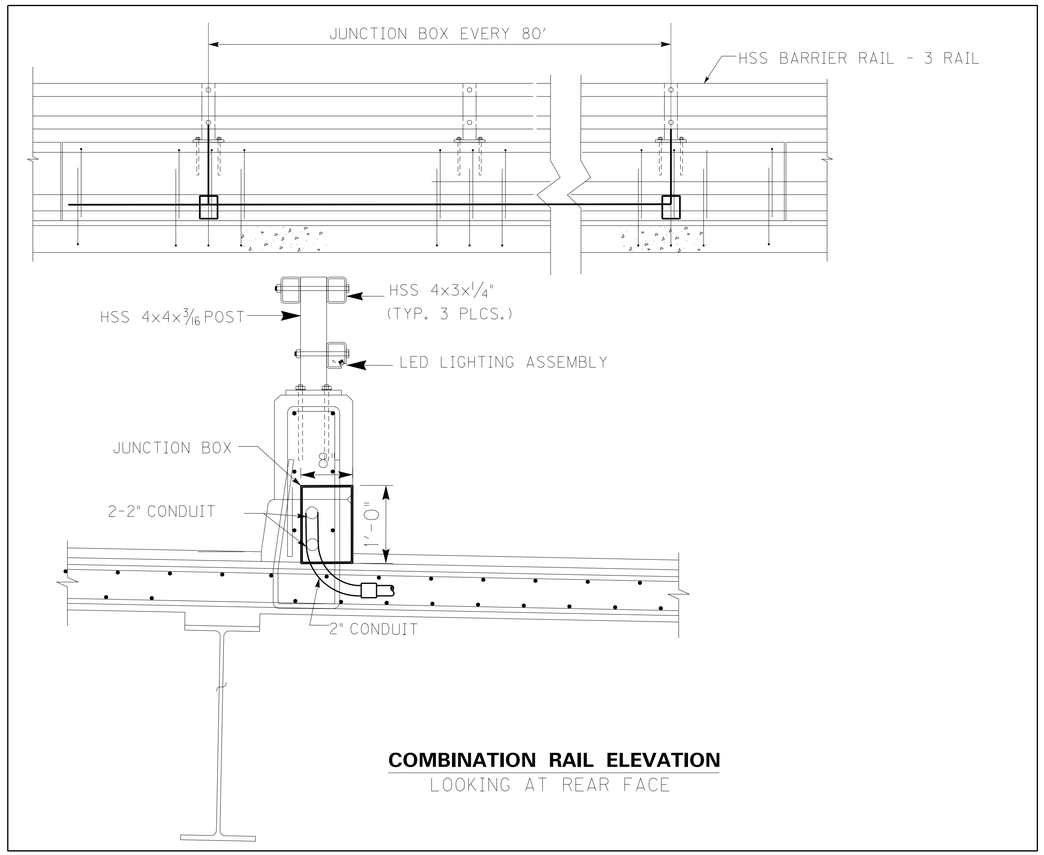
REVISED 11/25/13



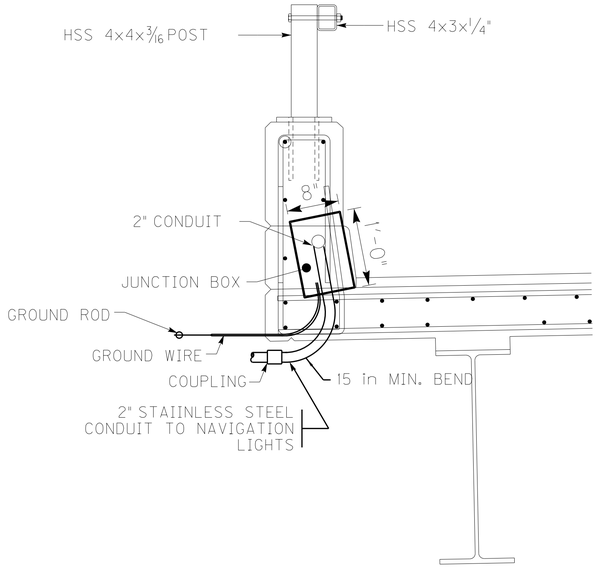
PEDESTRIAN RAILING (SOUTH SIDE OF BRIDGE)
AT PIER 5 CONNECTS UNDER BRIDGE DECK TO CONTROL PANEL



PEDESTRIAN RAILING (SOUTH SIDE OF BRIDGE)
AT PIER 4 CONNECTS UNDER BRIDGE DECK TO CONTROL PANEL



COMBINATION RAIL ELEVATION
LOOKING AT REAR FACE



TRAFFIC RAIL (NORTH SIDE OF BRIDGE)
NAVIGATION LIGHTING CONDUIT

REVISION	DATE
⚠ ADDENDUM - ENTIRE SHEET	11/25/13

DATE: NOVEMBER, 2013 — CHECKED BY
DESIGNED BY: LAT
DETAILED BY: LAT

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: **MARSHALL / TRIGG**

ROUTE: **US68** — CROSSING: **KENTUCKY LAKE**

LIGHTING DETAILS

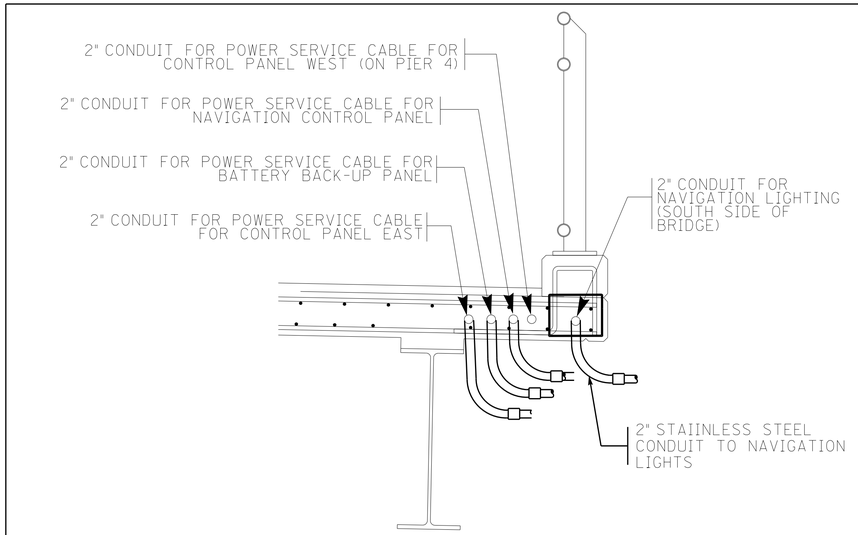
LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ITEM NUMBER: **01–180.70**

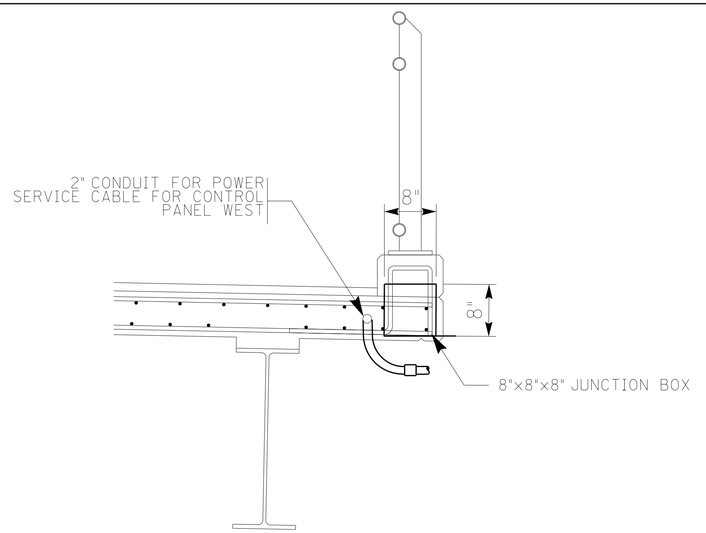
PREPARED BY: BARR & PREVOST
ENGINEERING | TESTING | SURVEYING

SHEET NO. S271
DRAWING NO. 24686

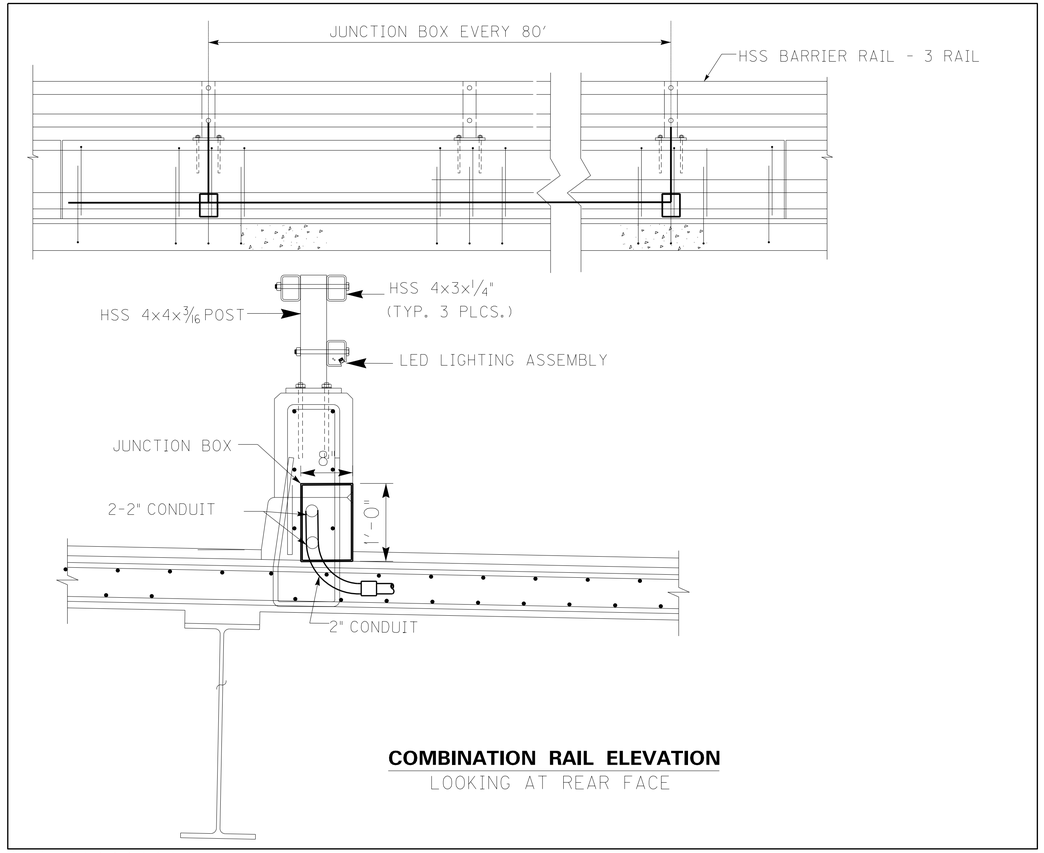
REVISED 11/25/13



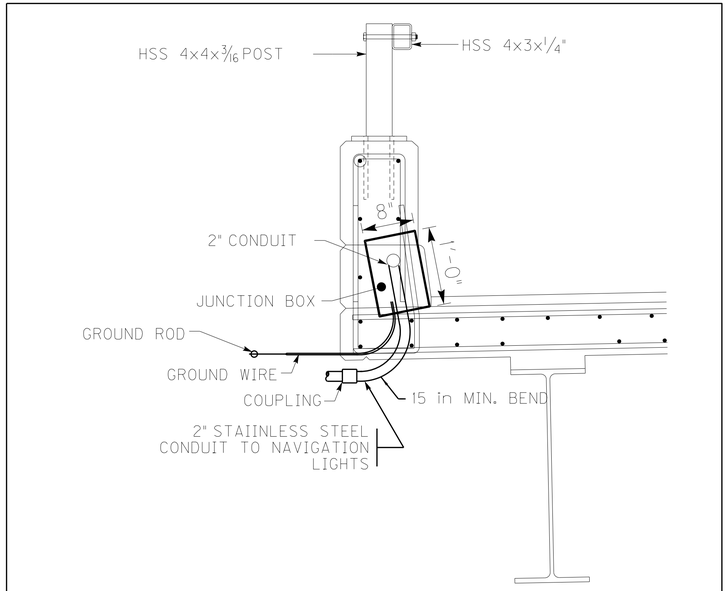
PEDESTRIAN RAILING (SOUTH SIDE OF BRIDGE)
AT PIER 5 CONNECTS UNDER BRIDGE DECK TO CONTROL PANEL



PEDESTRIAN RAILING (SOUTH SIDE OF BRIDGE)
AT PIER 4 CONNECTS UNDER BRIDGE DECK TO CONTROL PANEL



COMBINATION RAIL ELEVATION
LOOKING AT REAR FACE



TRAFFIC RAIL (NORTH SIDE OF BRIDGE)
NAVIGATION LIGHTING CONDUIT

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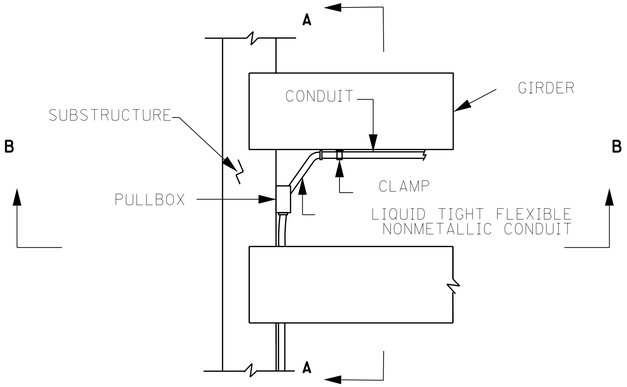
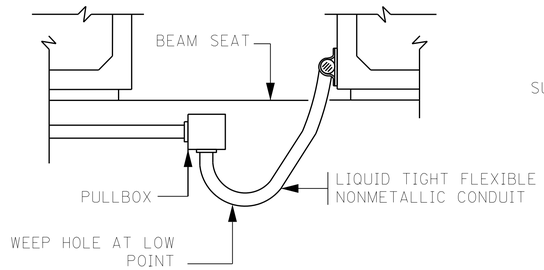
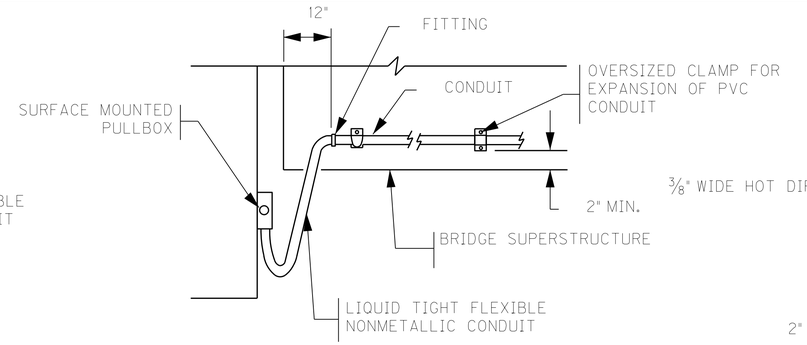


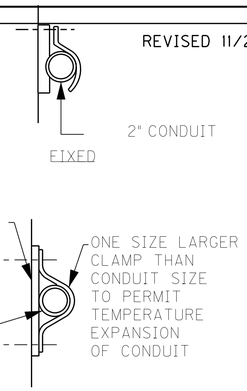
PLAN



SECTION A-A



SECTION B-B

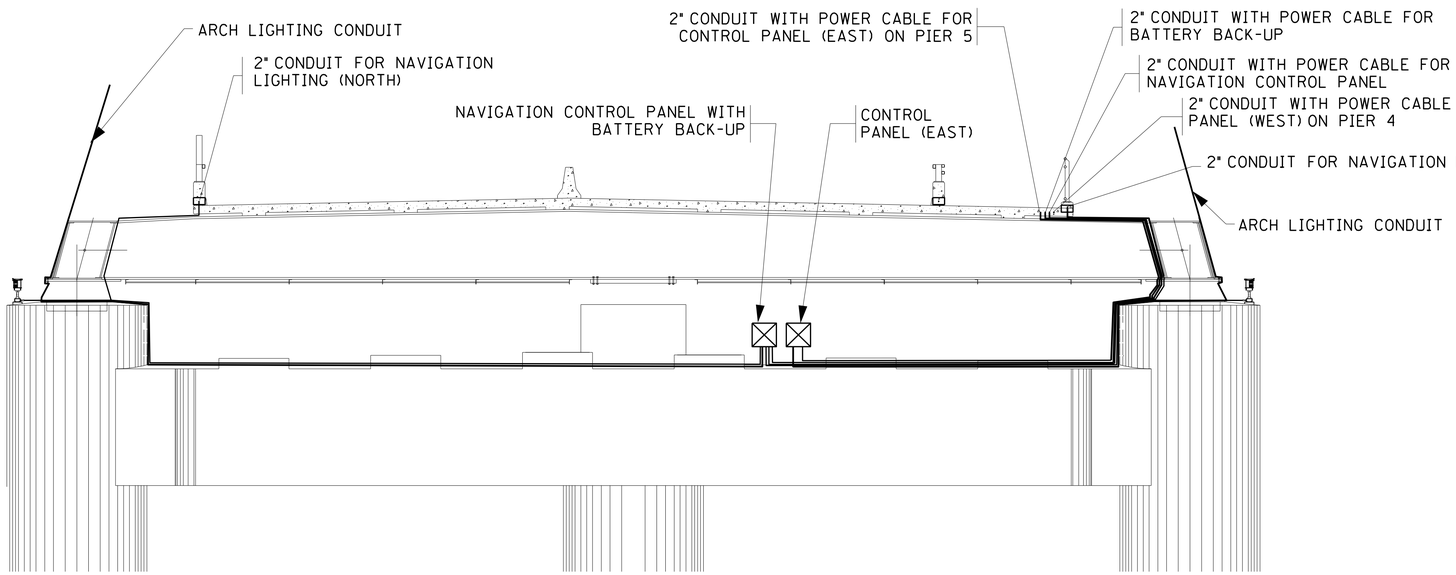


EXPANSION

CONDUIT EXPANSION SLEEVE DETAIL

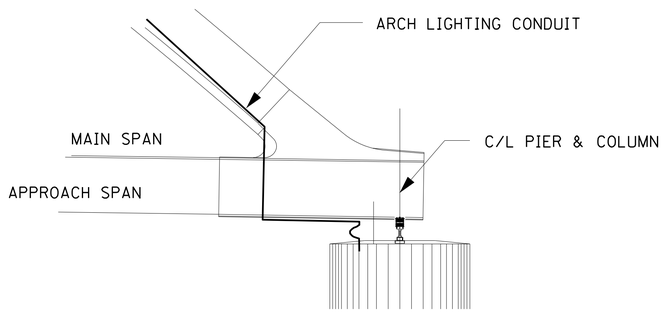
* ALL COMPONENTS SHOWN ARE INCLUDED IN THE COST OF THE CONDUIT

REVISED 11/25/13

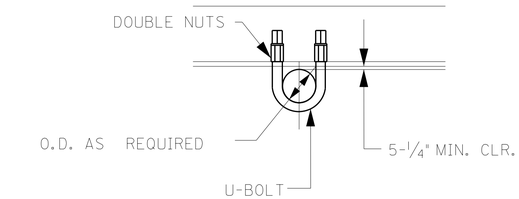


PIER 5 ELEVATION WITH CONDUIT LAYOUT

SIMILAR LAYOUT FOR PIER 4 WITH ONLY ONE CONTROL PANEL
AND ONE 2" CONDUIT



END ELEVATION



MOUNTING DETAIL FOR CONDUIT HANGER IS FOR STEEL CONDUIT ONLY. ALL HARDWARE & STEEL TO BE GALVANIZED. ALL OTHER METHODS MUST BE APPROVED BY THE ENGINEER.

CONDUIT HANGER FOR UNDER
BRIDGE DECK

REVISION	DATE
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Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

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MARSHALL / TRIGG

ROUTE **US68** — CROSSING **KENTUCKY LAKE**

LIGHTING DETAILS

ITEM NUMBER
01-180.70

PREPARED BY
BARR & PREVOST
ENGINEERING | TESTING | SURVEYING

SHEET NO. S272
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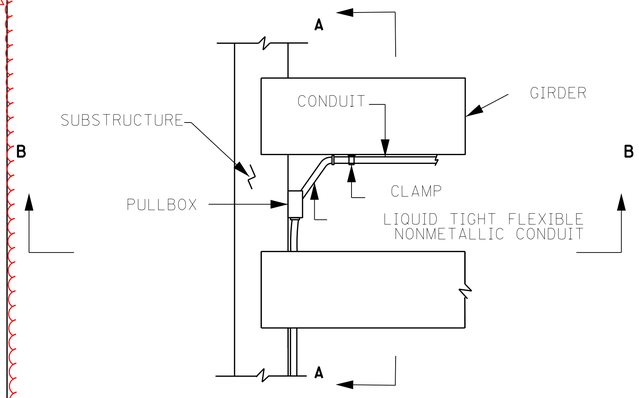
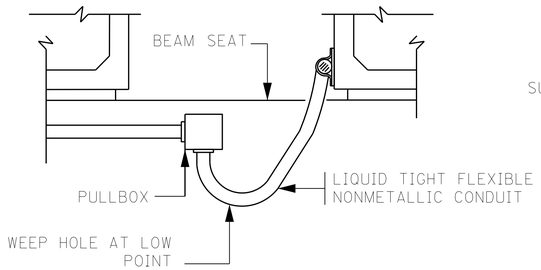
REVISED 11/25/13



PLAN



SECTION A-A

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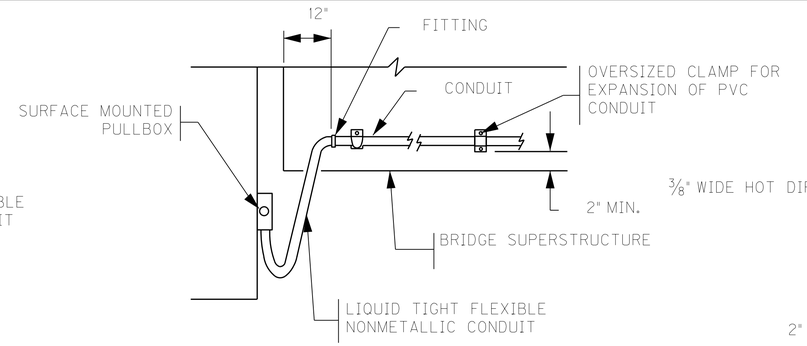
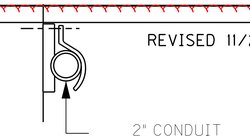
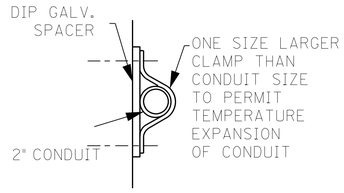


SECTION B-B





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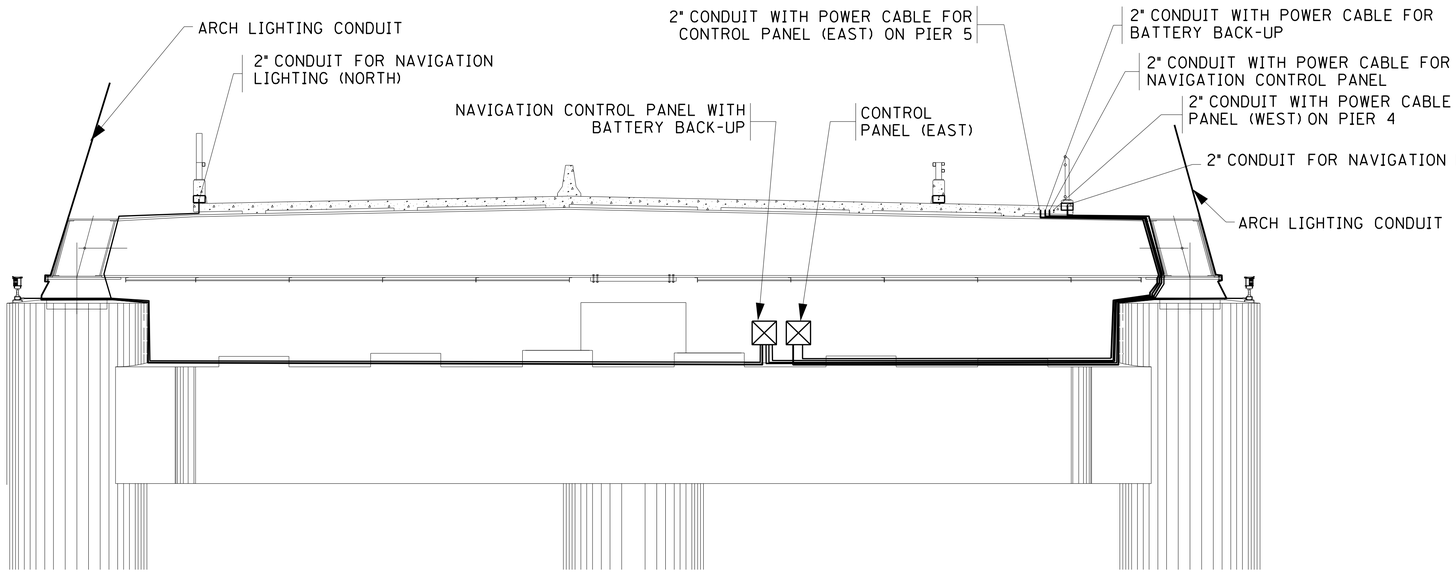

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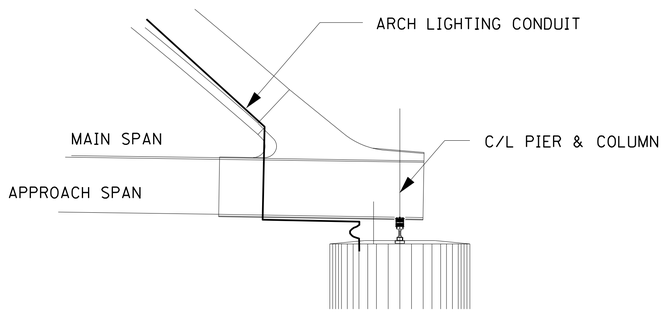
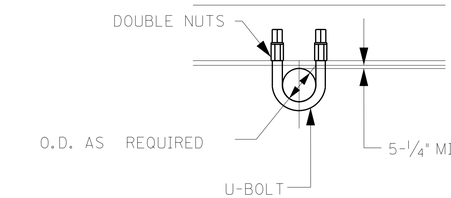


END ELEVATION



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CONDUIT HANGER FOR UNDER BRIDGE DECK

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DEPARTMENT OF HIGHWAYS

COUNTY
MARSHALL / TRIGG

ROUTE **US68** — CROSSING **KENTUCKY LAKE**

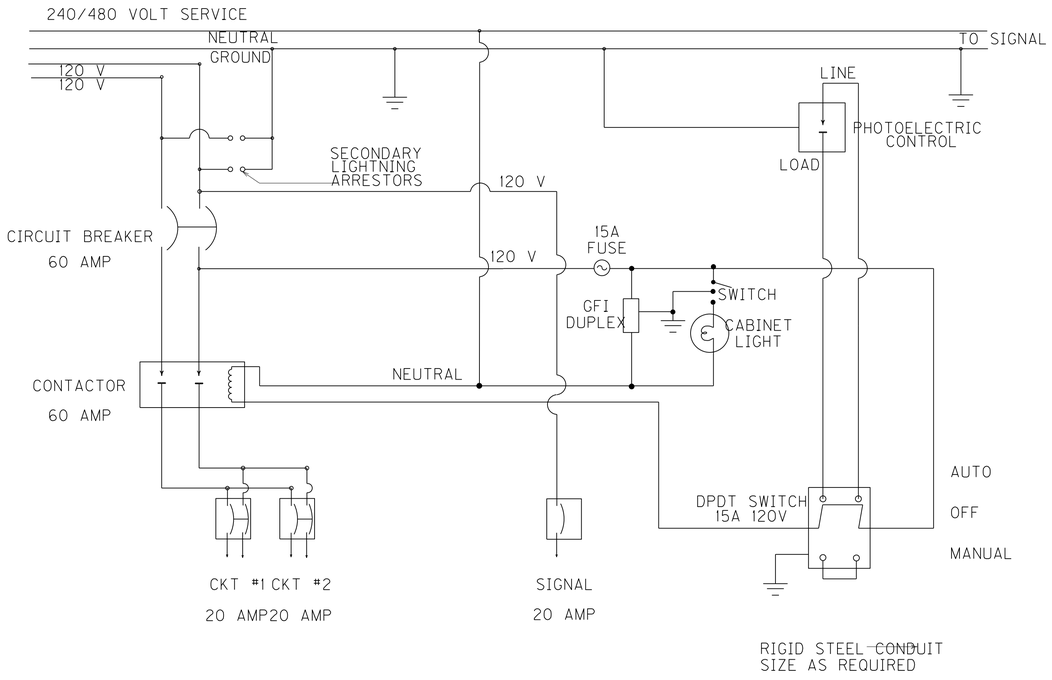
LIGHTING DETAILS

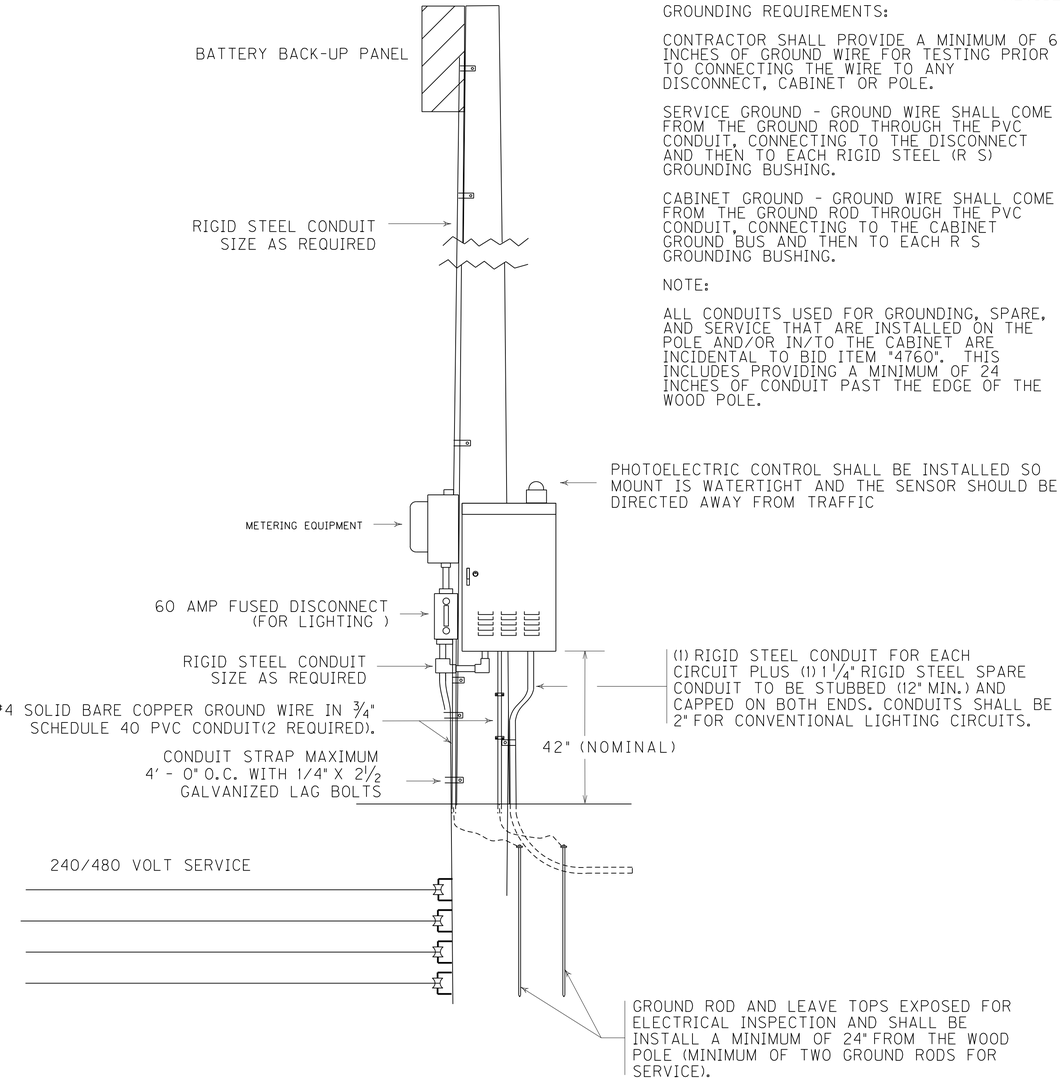
ITEM NUMBER
01-180.70

PREPARED BY
BARR & PREVOST
ENGINEERING | TESTING | SURVEYING

SHEET NO. S272
DRAWING NO. 24686

REVISED 11/25/13





GROUNDING REQUIREMENTS:

CONTRACTOR SHALL PROVIDE A MINIMUM OF 6 INCHES OF GROUND WIRE FOR TESTING PRIOR TO CONNECTING THE WIRE TO ANY DISCONNECT, CABINET OR POLE.

SERVICE GROUND - GROUND WIRE SHALL COME FROM THE GROUND ROD THROUGH THE PVC CONDUIT, CONNECTING TO THE DISCONNECT AND THEN TO EACH RIGID STEEL (R S) GROUNDING BUSHING.

CABINET GROUND - GROUND WIRE SHALL COME FROM THE GROUND ROD THROUGH THE PVC CONDUIT, CONNECTING TO THE CABINET GROUND BUS AND THEN TO EACH R S GROUNDING BUSHING.

NOTE:

ALL CONDUITS USED FOR GROUNDING, SPARE, AND SERVICE THAT ARE INSTALLED ON THE POLE AND/OR IN/TO THE CABINET ARE INCIDENTAL TO BID ITEM "4760". THIS INCLUDES PROVIDING A MINIMUM OF 24 INCHES OF CONDUIT PAST THE EDGE OF THE WOOD POLE.

PHOTOELECTRIC CONTROL SHALL BE INSTALLED SO MOUNT IS WATERTIGHT AND THE SENSOR SHOULD BE DIRECTED AWAY FROM TRAFFIC

(1) RIGID STEEL CONDUIT FOR EACH CIRCUIT PLUS (1) 1 ¼" RIGID STEEL SPARE CONDUIT TO BE STUBBED (12" MIN.) AND CAPPED ON BOTH ENDS. CONDUITS SHALL BE 2" FOR CONVENTIONAL LIGHTING CIRCUITS.

GROUND ROD AND LEAVE TOPS EXPOSED FOR ELECTRICAL INSPECTION AND SHALL BE INSTALL A MINIMUM OF 24" FROM THE WOOD POLE (MINIMUM OF TWO GROUND RODS FOR SERVICE).

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DEPARTMENT OF HIGHWAYS

COUNTY: **MARSHALL / TRIGG**

ROUTE: **US68** | CROSSING: **KENTUCKY LAKE**

LIGHTING DETAILS

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ITEM NUMBER: **01-180.70**

PREPARED BY: BARR & PREVOST ENGINEERING | TESTING | SURVEYING

SHEET NO.: S273

DRAWING NO.: **24686**

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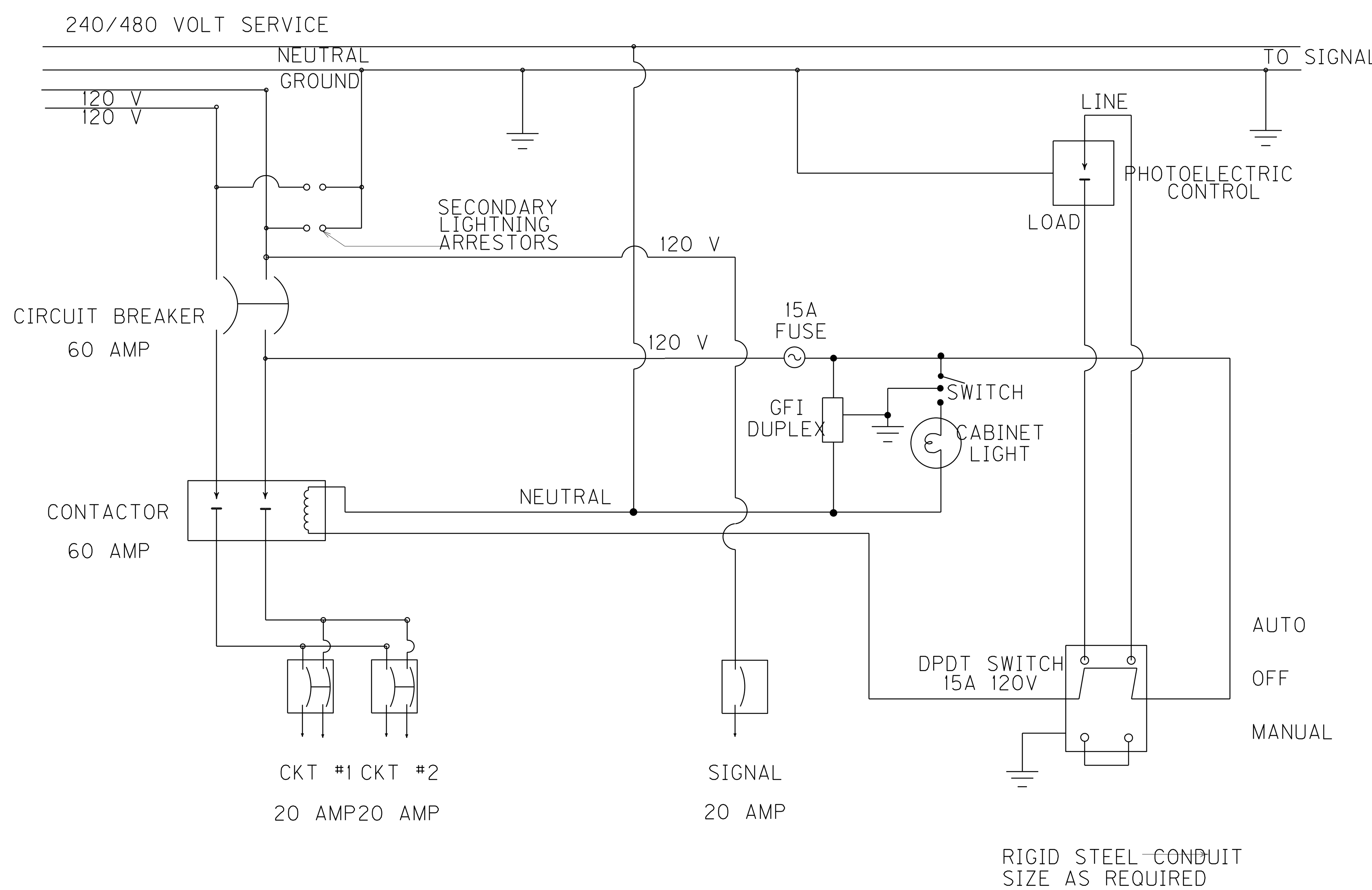

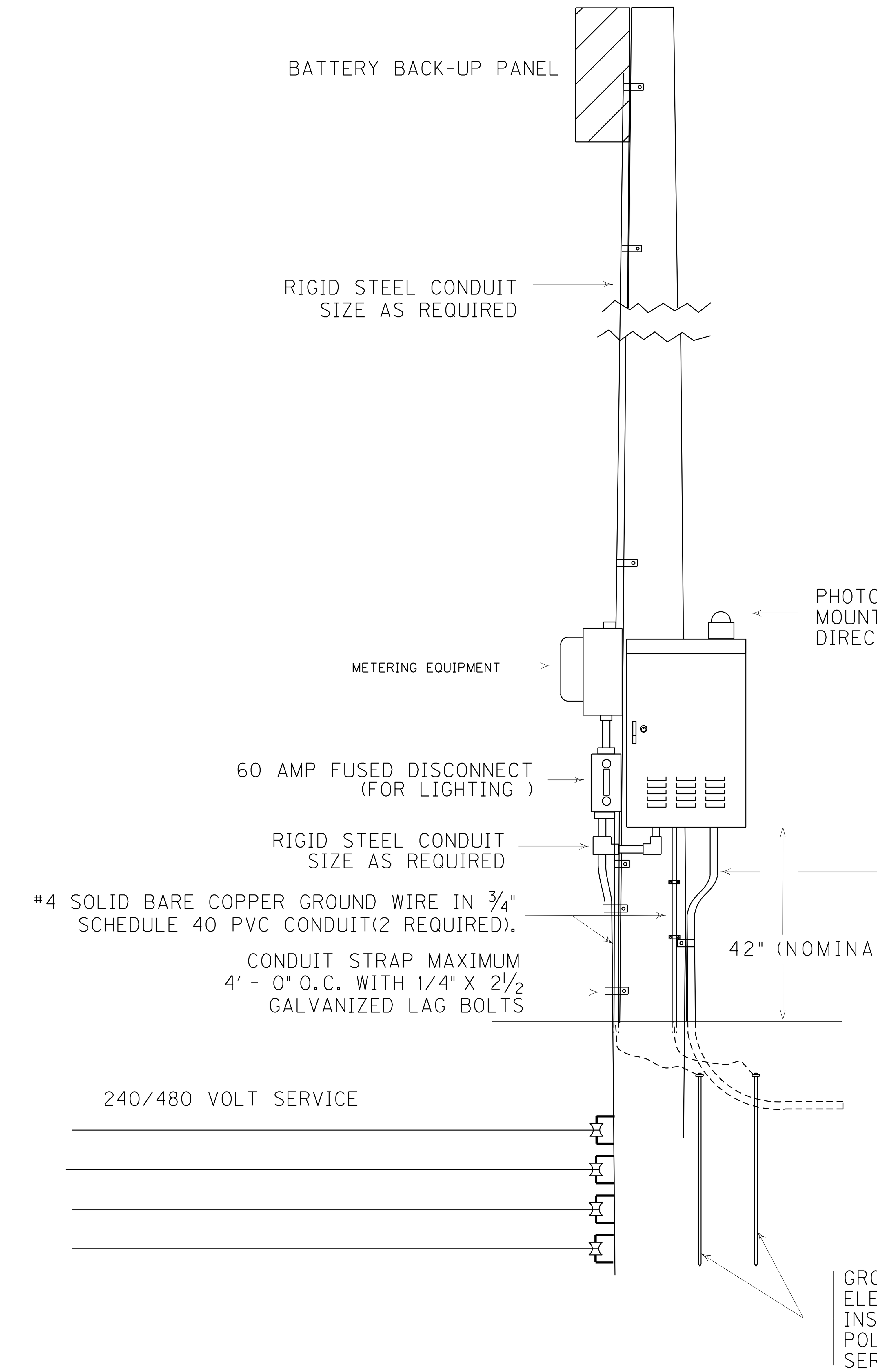

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COUNTY: **MARSHALL / TRIGG**

ROUTE: US68 | CROSSING: KENTUCKY LAKE

LIGHTING DETAILS

LAKE BRIDGES Over Kentucky Lake & Lake Barkley

ITEM NUMBER
01–180.70

PREPARED BY: BARR & PREVOST — ENGINEERING | TESTING | SURVEYING

SHEET NO. S273
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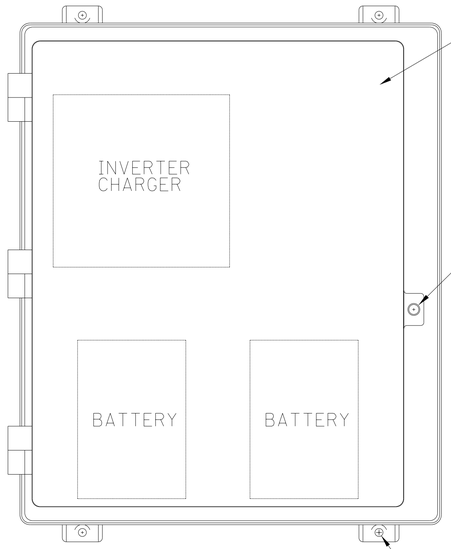
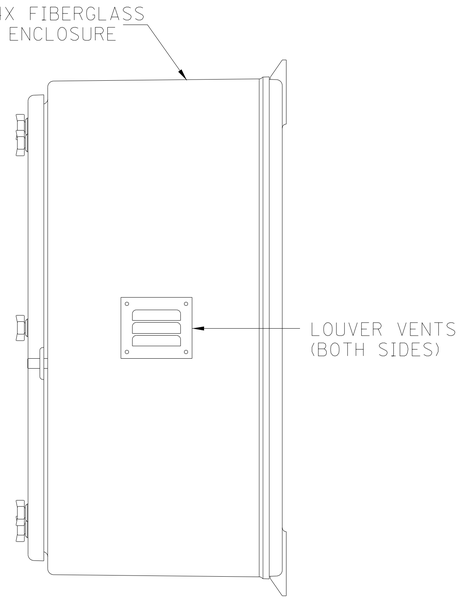
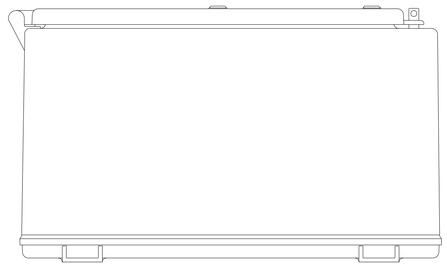
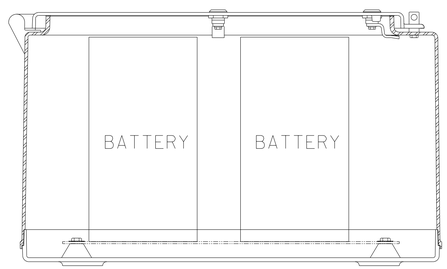
MicroStation v8.11.9.357
E-SHEET NAME:
USER:

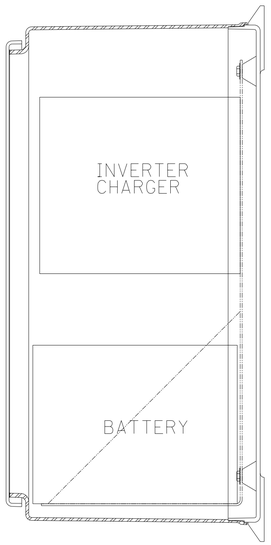
REVISED 11/25/13

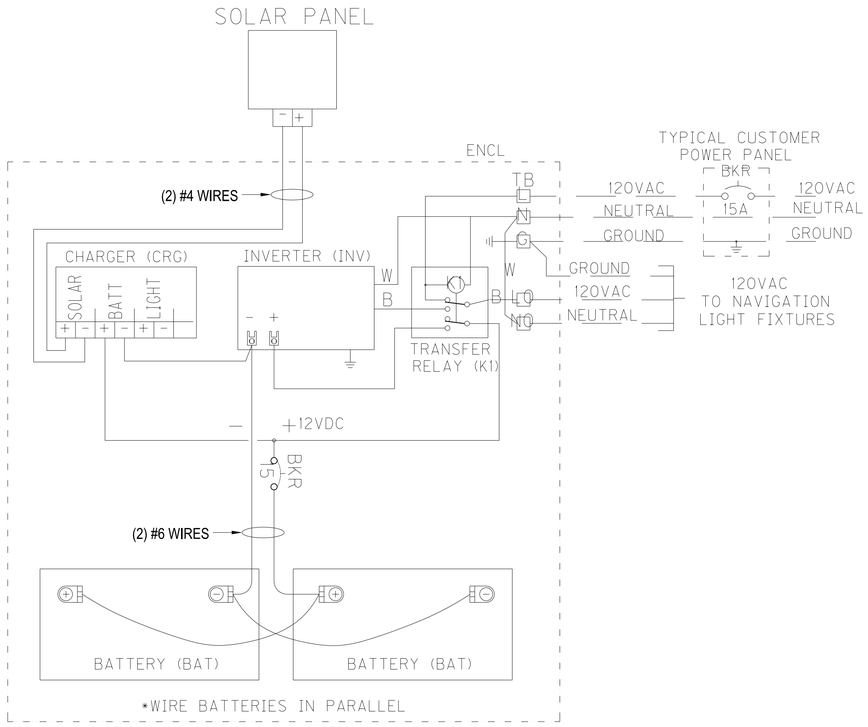












NOTES:

1. ENCLOSURE TO BE NEMA 4X FIBERGLASS.
2. ALL COMPONENTS ARRANGED FOR WALL MOUNTING.
3. CABINET DIMENSIONS SHALL BE DETERMINED BASED ON MANUFACTURER DESIGN

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MARSHALL / TRIGG

ROUTE **US68** — CROSSING **KENTUCKY LAKE**

SOLAR POWERED BATTERY BACKUP DETAILS

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ITEM NUMBER
01-180.70

PREPARED BY
BARR & PREVOST
ENGINEERING | TESTING | SURVEYING

SHEET NO. **S274**
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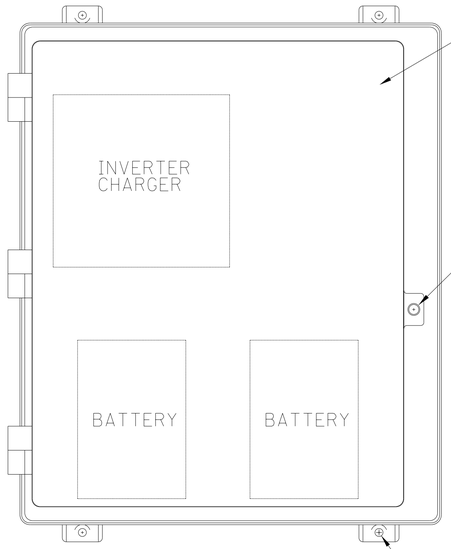

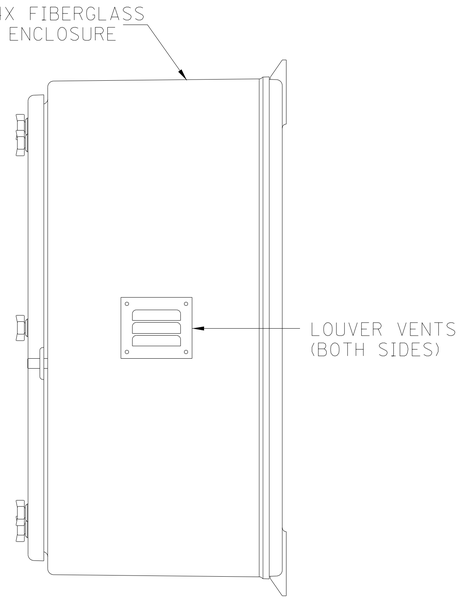

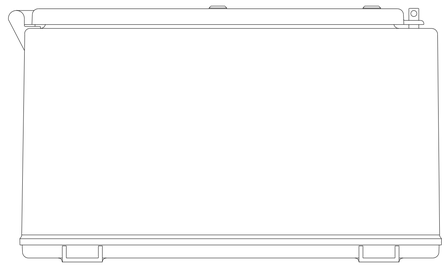

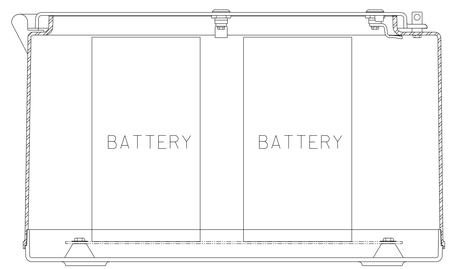

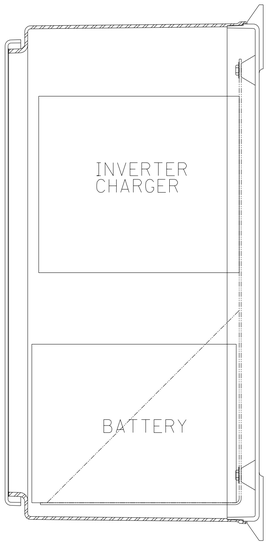

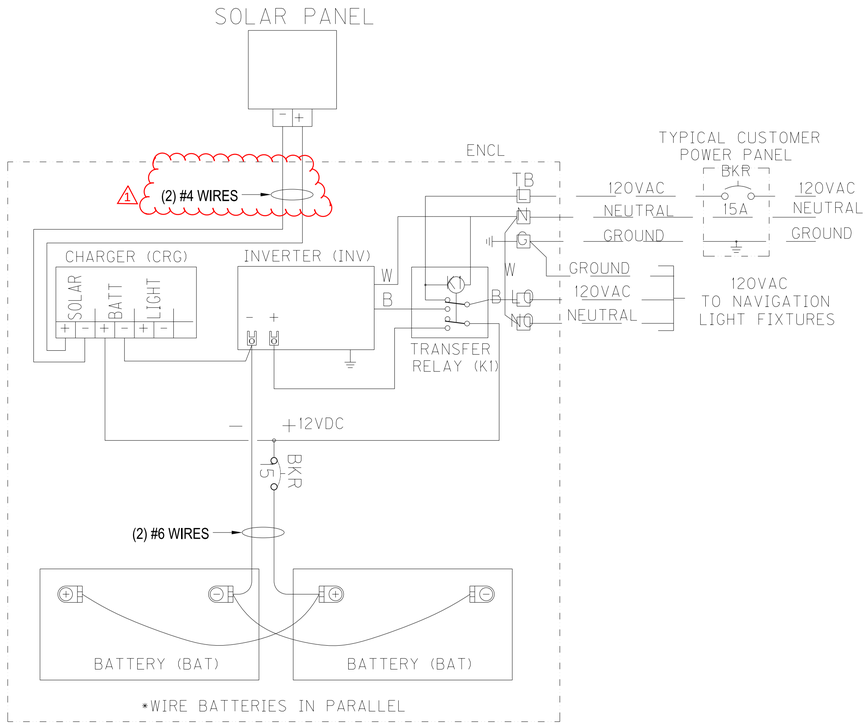

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ROUTE: **US68**

CROSSING: **KENTUCKY LAKE**

SOLAR POWERED BATTERY BACKUP DETAILS

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ITEM NUMBER
01-180.70

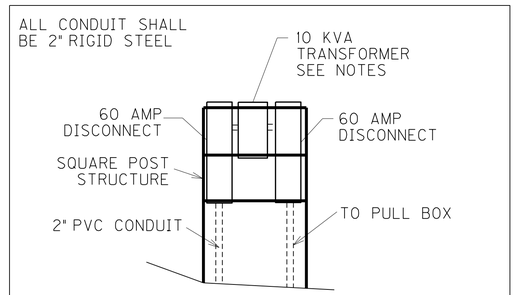
PREPARED BY
BARR & PREVOST
ENGINEERING | TESTING | SURVEYING

SHEET NO. **S274**

DRAWING NO. **24686**

REVISED 11/25/13

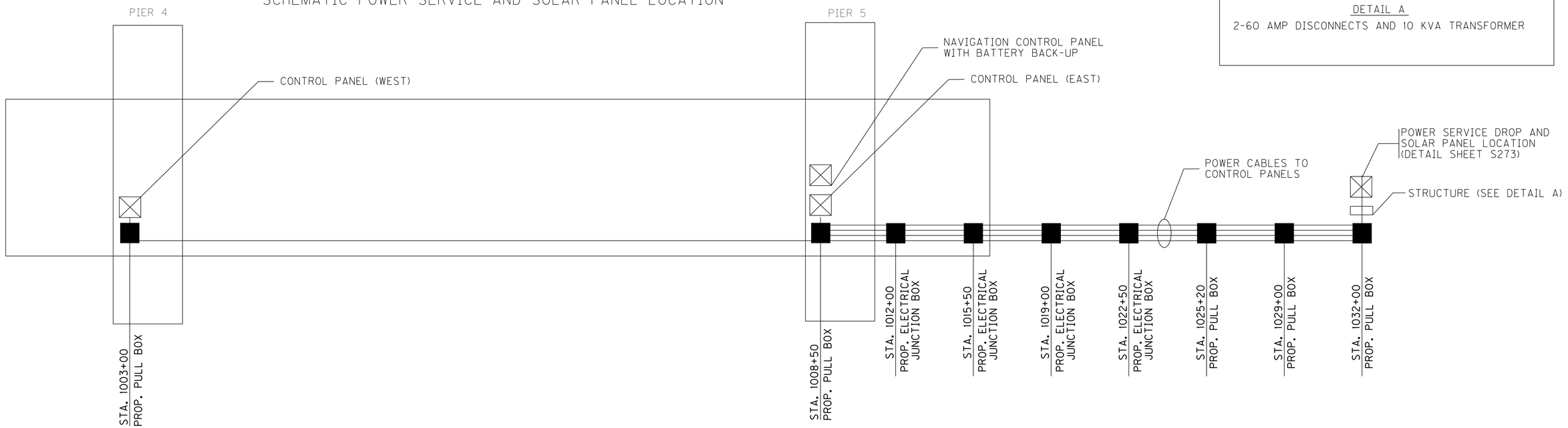
FROM	TO	CONDUIT REQUIRED	WIRE REQUIRED
SERVICE LOCATION (480 VOLT)	MAIN CABINET (THROUGH DETAIL A ITEMS AND PULL BOX)	2" FLEXIBLE CONDUIT	4-#4 AWG WIRES
MAIN CABINET	CONTROL PANELS ON PIER 5	2" FLEXIBLE CONDUIT	3-#4 AWG WIRES
MAIN CABINET	CONTROL PANEL ON PIER 4	2" FLEXIBLE CONDUIT	1-#4 AWG WIRES



DETAIL A

2-60 AMP DISCONNECTS AND 10 KVA TRANSFORMER

SCHEMATIC POWER SERVICE AND SOLAR PANEL LOCATION



SERVICE LOCATION

INSTALL 45 FOOT WOOD POLE WITH TWO ANCHORS, WITH 240/480 SINGLE PHASE VOLT SERVICE (60 AMP DISCONNECT.
THE METER SHALL BE LOCATED TO IN THE FIELD AND COORDINATED WITH PENNYRILE ELECTRIC AND THE KYTC, TRANSPOTATION DIVISION
INSTALL ADVANCED GROUNDING SYSTEM.

MAIN CABINET AND VMS #4
INSTALL 334 CABINET.
INSTALL UPS IN 334 CABINET.
INSTALL CDMA MODEM ASSEMBLY INSIDE VMS #4.
INSTALL STRUCTURE(MADE OF 2" SQUARE POSTS).
PAYMENT FOR STRUCTURE AND EXTRA DISCONNECTS SHALL BE INCIDENTAL TO THE INSTALLATION OF THE SERVICE.
INSTALL TWO 60 AMP DISCONNECTS AND 10 KVA TRANSFORMER AS SHOWN IN DETAIL A.
INSTALL 60 AMP MAIN BREAKER INSIDE THE CABINET
INSTALL TWO 40 AMP BREAKERS FOR VMS #5 INSIDE THE CABINET.
INSTALL A 5/8" X 120" GOUND ROD FOR EACH DISCONNECT INSTALLED AND CONNECT TO
ADVANCED GROUNDING SYSTEM (SHALL BE INCIDENTAL TO THE INSTALLATION OF ADVANCED GROUNDING SYSTEM).

NOTES

CONTRACTOR SHALL TRANSITION ALL PVC CONDUIT TO RIGID STEEL FOR ABOVE GROUND INSTALLATION.
ALL HARDWARE(BOLTS, NUTS, ETC.) USED TO BUILD THE STRUCTURE(DETAIL A) SHALL BE STAINLESS STEEL.

LEGEND

- 334 BASE MOUNTED CABINET
- WOOD POLE
- JUNCTION BOX TYPE A
- VMS SIGN AND POSTS
- Structure(See Detail A)
- CONDUIT AS INDICATED BY NOTES

REVISION	DATE
⚠ ADDENDUM - ENTIRE SHEET	11/25/13

DATE: NOVEMBER, 2013 — CHECKED BY
DESIGNED BY: LAT
DETAILED BY: LAT

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL / TRIGG

ROUTE: US68 — CROSSING: KENTUCKY LAKE

LIGHTING SCHEMATIC LAYOUT

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

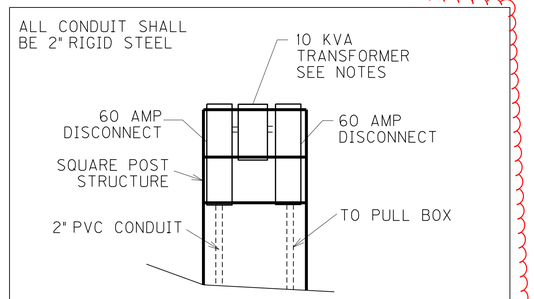
ITEM NUMBER
01-180.70

PREPARED BY
BARR & PREVOST
ENGINEERING | TESTING | SURVEYING

SHEET NO. S275
DRAWING NO. 24686

REVISED 11/25/13

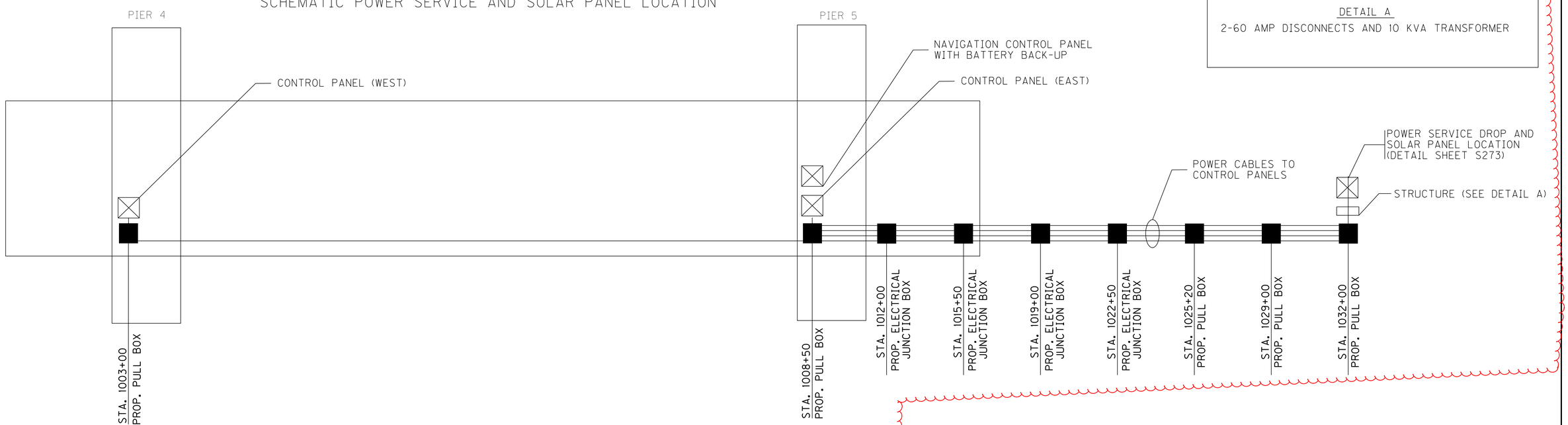
FROM	TO	CONDUIT REQUIRED	WIRE REQUIRED
SERVICE LOCATION (480 VOLT)	MAIN CABINET (THROUGH DETAIL A ITEMS AND PULL BOX)	2" FLEXIBLE CONDUIT	4-#4 AWG WIRES
MAIN CABINET	CONTROL PANELS ON PIER 5	2" FLEXIBLE CONDUIT	3-#4 AWG WIRES
MAIN CABINET	CONTROL PANEL ON PIER 4	2" FLEXIBLE CONDUIT	1-#4 AWG WIRES



DETAIL A

2-60 AMP DISCONNECTS AND 10 KVA TRANSFORMER

SCHEMATIC POWER SERVICE AND SOLAR PANEL LOCATION



SERVICE LOCATION

INSTALL 45 FOOT WOOD POLE WITH TWO ANCHORS, WITH 240/480 SINGLE PHASE VOLT SERVICE (60 AMP DISCONNECT.
THE METER SHALL BE LOCATED TO IN THE FIELD AND COORDINATED WITH PENNYRILE ELECTRIC AND THE KYTC, TRANSPOTATION DIVISION
INSTALL ADVANCED GROUNDING SYSTEM.

MAIN CABINET AND VMS #4
INSTALL 334 CABINET.
INSTALL UPS IN 334 CABINET.
INSTALL CDMA MODEM ASSEMBLY INSIDE VMS #4.
INSTALL STRUCTURE(MADE OF 2" SQUARE POSTS).
PAYMENT FOR STRUCTURE AND EXTRA DISCONNECTS SHALL BE INCIDENTAL TO THE INSTALLATION OF THE SERVICE.
INSTALL TWO 60 AMP DISCONNECTS AND 10 KVA TRANSFORMER AS SHOWN IN DETAIL A.
INSTALL 60 AMP MAIN BREAKER INSIDE THE CABINET
INSTALL TWO 40 AMP BREAKERS FOR VMS #5 INSIDE THE CABINET.
INSTALL A 5/8" X 120" GOUND ROD FOR EACH DISCONNECT INSTALLED AND CONNECT TO
ADVANCED GROUNDING SYSTEM (SHALL BE INCIDENTAL TO THE INSTALLATION OF ADVANCED GROUNDING SYSTEM).

NOTES

CONTRACTOR SHALL TRANSITION ALL PVC CONDUIT TO RIGID STEEL FOR ABOVE GROUND INSTALLATION.
ALL HARDWARE(BOLTS, NUTS, ETC.) USED TO BUILD THE STRUCTURE(DETAIL A) SHALL BE STAINLESS STEEL.

LEGEND

- 334 BASE MOUNTED CABINET
- WOOD POLE
- JUNCTION BOX TYPE A
- VMS SIGN AND POSTS
- Structure(See Detail A)
- CONDUIT AS INDICATED BY NOTES

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LIGHTING SCHEMATIC LAYOUT

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ITEM NUMBER: 01-180.70

PREPARED BY: BARR & PREVOST ENGINEERING | TESTING | SURVEYING

SHEET NO. S275

DRAWING NO. 24686

AND MINIMIZED. BEST MANAGEMENT PRACTICES FOR WATER POLLUTION CONTROL SHALL BE INCORPORATED INTO PROJECT DESIGN PLANS ACCORDING TO SECTION
213.03.01 OF THE KENTUCKY STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, CURRENT EDITION.

4) HEAVY EQUIPMENT (BULLDOZERS, CRANES, BACKHOES, DRAG LINES, ETC.), IF REQUIRED FOR THIS PROJECT, SHOULD NOT BE USED OR OPERATED WITHIN THE STREAM CHANNEL. IN THOSE INSTANCES WHERE SUCH IN-STREAM WORK IS UNAVOIDABLE, THEN IT SHALL BE PERFORMED IN SUCH A MANNER AND DURATION AS TO MINIMIZE RE-SUSPENSION OF SEDIMENTS AND DISTURBANCE TO SUBSTRATES AND BANK OR RIPARIAN VEGETATION.

5) SPOIL MATERIALS FROM THE WATERCOURSE OF ON-SHORE OPERATIONS, INCLUDING SLUDGE DEPOSITS, SHALL NOT BE DUMPED INTO WATERCOURSES AS SPECIFIED UNDER SECTION 404 GUIDELINES OF THE CLEAN WATER ACT. DURING THE DREDGING OF APPROXIMATELY 100,000 CUBIC YARDS OF MATERIAL FROM THE KENTUCKY LAKE BOTTOM, A TURBIDITY CURTAIN OR SIMILAR MEASURE WILL BE USED TO REDUCE SILTATION. AREA FOR DEPOSIT OF DREDGED MATERIALS SHALL BE PROVIDED WITH TEMPORARY DIKES OR BULKHEADS FOR SEPARATION AND RETENTION OF SETTLEABLE SOLIDS. DREDGE SPOIL WILL BE DEPOSITED IN A LOCATION THAT IS TO BE APPROVED BY THE TENNESSEE VALLEY AUTHORITY, U.S. ARMY CORPS OF ENGINEERS, AND KENTUCKY DIVISION OF WATER PRIOR TO DEPOSITION.

6) MEASURES SHALL BE TAKEN TO PREVENT OR CONTROL SPILLS OF FUELS, LUBRICANTS, OR ANY OTHER MATERIALS USED IN CONSTRUCTION FROM ENTERING THE WATERCOURSE.

7) ANY FILL OR RIP-RAP SHALL BE OF SUCH COMPOSITION THAT IT WILL NOT ADVERSELY AFFECT THE BIOLOGICAL, CHEMICAL, OR PHYSICAL PROPERTIES OF THE RECEIVING WATERS AND/OR CAUSE VIOLATION VOLUME 1 OF 1 PAGE 11 OF 119 OF WATER QUALITY STANDARDS. IF RIP-RAP IS UTILIZED, IT IS TO BE OF SUCH SIZE AND WEIGHT THAT BANK STRESS OR SLUMP CONDITIONS WILL NOT BE CREATED BECAUSE OF ITS PLACEMENT, AS SPECIFIED IN SECTION 703 OF THE KENTUCKY STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, CURRENT EDITION.

ADDITIONALLY, THE CONTRACTOR SHALL ADHERE TO THE FOLLOWING MEASURES SPECIFICALLY AIMED AT THE USE OF HABITAT BY BATS:

* SEASONAL RESTRICTIONS PLACED UPON THE DECONSTRUCTION OF THE OLD BRIDGES ONCE THE NEW BRIDGES ARE OPERATIONAL. CONTRACTOR WILL DECONSTRUCT THE EXISTING BRIDGE DURING THE PERIOD OF TIME WHEN BATS AND OSPREY ARE NOT PRESENT (NOVEMBER 1-FEBRUARY 28).
* CONSTRUCTION ACTIVITIES (EXCLUDING BRIDGE DECK POURING) WILL OCCUR ONLY DURING DAYLIGHT HOURS IN AND NEAR THE STREAM DURING THE SEASON OF POTENTIAL OCCUPATION BY BATS (APRIL 1- NOVEMBER 14). BECAUSE OF INCREASED HEAT AND HUMIDITY EXPERIENCED DURING THE SUMMER MONTHS, DECK POURING MAY NEED TO OCCUR DURING TIMES WHEN M. GRISESCENS ACTIVELY FORAGE. POURING OF CONCRETE DURING NIGHT-TIME HOURS ALLOWS FOR PROPER CURATION TO INCREASE STRUCTURAL INTEGRITY AND LONG-

THESE AREAS WILL NOT DIRECTLY ENTER THE WATER. FILTRATION OF EFFLUENT FROM EQUIPMENT CLEANING/STAGING AREAS WILL BE LOCATED SUCH THAT EFFLUENT WILL BE FILTERED THROUGH VEGETATED AREAS AND/OR PROPER SEDIMENT CONTROL STRUCTURES LOCATED BETWEEN THE STAGING AREA AND THE WATER; THEREFORE, MINIMIZING THE POTENTIAL FOR IMPACTS SUCH AS SEDIMENTATION AND POLLUTION.

* THE PROPOSED BRIDGES HAVE BEEN DESIGNED TO REDUCE IMPACTS TO THE WATER BY MINIMIZING THE NUMBER OF NEW PIERS IN THE LAKES. ALL OF THE EXISTING PIERS WILL BE REMOVED.

* DURING FOOTER/PIER CONSTRUCTION, COFFER DAMS, SEDIMENT CURTAINS, AND/OR SANDBAGS AND PUMPS MAY BE UTILIZED IN ORDER TO BE ABLE TO PLACE CONCRETE IN THE FOOTERS. IF SO, WATER REMOVED FROM INSIDE THE COFFER DAMS OR SANDBAGGED AREAS WILL BE FILTERED USING AN APPROVED SEDIMENT FILTRATION METHOD PRIOR TO RELEASE INTO THE WATER.

* USFWS AND THE KYTC BIOLOGIST SHALL BE CONTACTED BY THE KYTC DISTRICT 1 ENVIRONMENTAL COORDINATOR AT LEAST ONE WEEK PRIOR TO THE START OF CONSTRUCTION FOR THE PROPOSED PROJECT.

ARCHAELOGICAL MATERIALS

IF ARCHAELOGICAL MATERIALS ARE UNCOVERED DURING CONSTRUCTION, ALL CONSTRUCTION WORK IN THE AREA OF THE FIND(S) WOULD CEASE. STAFF ARCHAEOLOGISTS EITHER KYTC (502-564-7250) OR KHC SHPO (502-564-7005) OFFICE WOULD BE CONTACTED IMMEDIATELY SO THAT REPRESENTATIVES OF THAT OFFICE MAY HAVE THE OPPORTUNITY TO EXAMINE AND EVALUATE THE MATERIALS. IF HUMAN REMAINS ARE DISCOVERED DURING CONSTRUCTION, ALL ACTIVITY IN THE VICINITY OF THE REMAINS WOULD CEASE IMMEDIATELY, AND THE STATE MEDICAL EXAMINER AND THE APPROPRIATE LOCAL LAW ENFORCEMENT AGENCY WOULD BE CONTACTED. IF MATERIALS ARE DISCOVERED ON ANY FEDERALLY OWNED PROPERTY, THEN REPRESENTATIVES OF THE ADMINISTERING AGENCY ALSO WOULD BE CONTACTED.

MITIGATION OF IMPACTS TO THREATHENED/ENDANGERED SPECIES-OSPREY

IN ADDITION TO OTHER REQUIRED MITIGATION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL OSPREY NESTS CURRENTLY ON THE EGGNER'S FERRY BRIDGE AND THE SUBSEQUENT REMOVAL OF ANY NEW NESTS BEING BUILT WHILE THE NEW KENTUCKY LAKE BRIDGE IS UNDER CONSTRUCTION. THE CURRENTLY EXISTING NESTS MUST BE REMOVED BEFORE FEBRUARY 1, 2014, AND ANY SUBSEQUENT NESTS BEING BUILT WOULD NEED TO BE REMOVED BEFORE ANY EGGS ARE LAID. ONCE EGGS OR YOUNG BIRDS ARE IN A NEST, THEY MUST **NOT** BE DISTURBED. IT SHOULD BE NOTED THAT OSPREY COULD NEST ANYWHERE ON THE STRUCTURE, AT THE HIGHEST POINT OF THE SUPERSTRUCTURE OR ON THE ABUTMENTS ETC. THE KYTC DISTRICT ONE ENVIRONMENTAL COORDINATOR SHALL BE NOTIFIED TWENTY FOUR HOURS IN ADVANCE OF ANY REMOVAL OF A NEST SO THAT THE STATUS OF THE NEST CAN BE VERIFIED AND THE SUBSEQUENT REMOVAL DOCUMENTED. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY ON SITE, THE CONTRACTOR SHALL MEET WITH THE KYTC DISTRICT ONE COORDINATOR FOR ASSISTANCE WITH IDENTIFYING OSPREY NESTS ETC., AND TO DETERMINE IF THERE ARE ANY NESTS ON THE STRUCUCTURE THAT NEED TO BE REMOVED IMMEDIALTELY. THIS MITIGATION REQUIREMENT IS INTENDED TO MINIMIZE THE POSSIBILITY OF ANY POTENTIAL DELAYS TO THE PROJECT SCHEDULE. ALL COSTS ASSOCIATED WITH CARRYING OUT THIS MITIGATION REQUIREMENT SHALL BE BORNE BY THE CONTRACTOR AND

SPECIAL NOTE FOR STEEL PIPE PILES – FURNISH

This Special Provision shall apply to all steel pipe piling. The Pile thickness shall be as indicated in the Contract Plans. It supplements information provided in Section 604 pertaining to "cast-in-place concrete piles", "cast-in-place piles", "cast-in-place pile shells", "steel pipe piles", "steel shells" or "pile shells", except as modified herein. Where a conflict exists between this Special Note and Section 604, the provisions herein shall govern.

Section references herein are to the Department's 2012 Standard Specifications for Road and Bridge Construction except as noted otherwise.

1.0 DESCRIPTION. This work consists of fabricating and furnishing steel pipe piles and test piles to their final length, including constrictor plates and pile shoes of the sizes required for installation and as shown on the Contract Plans. This includes performing all other incidental work as described herein and as measured in Section 8 of this Special Note. Within these provisions "final length" has the meaning defined in Section 8.

2.0 MATERIALS.

02.01 Steel Pipe Piles, including Test Piles. Piles with wall thickness greater than 1 in. shall conform to ASTM A572, Grade 50. Piles with wall thicknesses not greater than 1 in. shall conform to either ASTM A572, Grade 50, or ASTM A252, Grade 3.

The carbon equivalency in all steel pipe piles, regardless of wall thickness, shall not exceed 0.45 percent, using the following formula from AWS D1.1 to calculate the percent carbon equivalent:

$$CE = C + (Mn + Si)/6 + (Cr + Mo + V)/5 + (Ni + Cu)/15$$

Sulfur content in all steel pipe piles shall be limited to 0.05%.

02.02 Pile Shoes. Conform to ASTM A 148, Grade 90/60 or ASTM A694, Grade F60.

02.03 Constrictor Plate and Stiffeners. Conform to ASTM A 572, Grade 50.

Steel in constrictor plates and stiffeners shall satisfy the same carbon equivalency and sulfur content limitations as required for steel pipes in Section 2.01 of this Special Note.

02.04 Concrete. For pipe pile concrete infill see Special Note for STEEL PIPE PILES – INSTALL.

02.05 Steel Reinforcement. For reinforcing steel in concrete infill see Special Note for STEEL PIPE PILES – INSTALL.

3.0 EQUIPMENT.

03.01 Equipment for Driving. Installation is not part of this Special Provision.

Conform to Special Note for STEEL PIPE PILES - INSTALL in the Contract Documents.

4.0 FABRICATION.

04.01 Steel Pipe Piles. Fabrication of steel pipe piles with wall thicknesses greater than 1 in. shall conform to American Petroleum Institute Specification 2B (API 2B), including dimensional tolerances. API 2B Appendix A, Supplementary Requirements SR1 through SR4, shall not apply. Spiral welded pipe (SWP) with wall thickness greater than 1 in. shall not be permitted.

Fabrication of steel pipe piles with wall thicknesses not greater than 1 in. shall conform to either: API 2B, including dimensional tolerances; or ASTM A252, including dimensional tolerances plus these additional tolerance requirements:

- Circumference: The outside circumference at any point in a length of pipe shall be within ±1% of the nominal circumference or within ±¾ in., whichever is less.
- Straightness: The straightness shall not vary more than 0.001 times the length of the pile (1/8 in. in any 10-ft length.)

04.02 Pile Shoes. Pile shoe shall consist of cast steel or machined steel open-ended, inside flange cutting shoe of the size shown on the plans. Pile shoes shall have full contact with pile cross-section at the tip of the pipe to avoid stress concentration and possible damage to the pile during installation.

04.03 Constrictor Plate and Stiffeners. Conform to Section 607 and the Contract Plans.

04.04 Welding Procedure and Operator Qualifications. Conform to API 2B.

04.05 Shop Welding. Shop welding of steel pipe piling is defined as welding performed at the pipe manufacturer's facility. Shop welding of steel pipe piles shall conform to API 2B.

04.06 Field Welding. Field welding of steel pipe piling is defined as welding performed after the material has been transported from the pipe manufacturer's facility. Field welding of pipe splices (girth welds) shall conform to the requirements of API 2B and the following:

A. Girth welds shall be complete joint penetration welds conforming to AWS D1.1.

B. Welds shall be located at least 12 in. away from a skelp end weld.

SPECIAL NOTE FOR STEEL ERECTION - ARCH SPAN

1.0 DESCRIPTION. This work shall consist of fabricating, furnishing and installing the arch span superstructure, including tied arch rib, tie girder, knuckle, hanger attachments, floor beams, stringers and bracing. (Note: This work does not cover fabrication and installation of the arch hanger system, which is covered under Special Note for Bridge Strand Hangers.)

Materials and workmanship shall be in accordance with the KYTC Standard Specifications for Road and Bridge Construction, 2012 Edition (KYTC); AASHTO/ AWS D1.5M/D1.5 "Bridge Welding Code"; AWS D1.1/D1.1M "Structural Welding Code – Steel"; the Contract Drawings; and this Special Note.

Where a conflict exists between this Special Note and KYTC Section 607, the provisions herein shall govern.

2.0 MATERIALS. Materials shall conform to the Contract Drawings and KYTC Section 607.

3.0 ERECTION ANALYSIS AND STABILITY.

3.1 Steel Erection Responsibility. The stability of the structure during erection, and the final geometry of the structure, is the responsibility of the Contractor. The Contractor shall retain an erection engineer for the purpose of evaluating the stability, state of stress and geometry of the structure during and after erection. The Contractor shall erect the bridge in a safe manner without over stressing the structural components during erection and shall leave the structure in a state of stress compatible with the design.

Structural steel shall be in conformance with KYTC Section 607. Steel erection shall be in conformance with the AASHTO/NSBA "Steel Bridge Erection Guide Specification", S10.1-2007.

3.2 Conceptual Erection Sequence. The assumed erection sequence, as described in the General Note "Arch Erection and Camber" in the Contract Drawings, is that the arch rib, tie, bracing and floor system is constructed on blocking in the "no-load condition" with four bearing support points. The blocking is assumed to be removed only after the superstructure steel is completely erected. This would require floating in of the completed steel superstructure for placement on top of Piers 4 and 5. The Contractor may choose and develop any sequence that can safely erect the bridge without overstress or damage to the structural steel. The design of any necessary shoring / falsework and its foundations is the responsibility of the contractor.

3.3 Arch Erection And Camber. In addition to the full analysis of the completed structure, load capacity and stability of the main span arch structure has been verified for the completely erected steel superstructure, prior to deck placement. The General Note "Arch Erection and Camber" details the assumed erection and deck pour sequence that is consistent with the camber diagrams shown on the Contract Drawings and the load

capacity of the fully-erected structure. No provision in either the camber or structural capacity of the members has been included for erection stresses.

The load capacity and stability verification of a partially completed arch span in the various stages of erection prior to installation of all steel members is the responsibility of the Contractor. The Contractor shall evaluate the partially completed structure in accordance with the same design provisions used for the permanent structure except as indicated herein. Wind buffeting loads for design are given on the Contract Drawings and are based on a project specific wind study and wind tunnel testing performed by RWDI and corresponds to a mean hourly wind speed of 69.6 mph at deck level. During construction, wind loads are predicted to correspond to a 10-year mean hourly velocity of 60.5 mph at the deck level. Therefore, the given buffeting loads can be proportioned accordingly and used for evaluating buffeting demands during construction.

No uplift at bearings shall be allowed in any construction phase.

3.4 Changes to the Structure. Any changes to the structural steel system shown in the Contract Plans require reanalysis for load capacity and stability for both construction and permanent load conditions, including seismic. Diaphragm action of the stay-in-place forms shall be neglected in all analyses.

Dead load deflection, camber and stringer haunch thickness are based on the erection and slab pouring sequences as described in the General Note "Arch Erection and Camber" and as shown in the plans. Any deviation from this sequence will need to be evaluated by the Contractor's engineer to determine the effect on camber, dead load deflection and structural member stresses. This evaluation must be submitted to the Engineer for review and approval by the Engineer of Record.

4.0 QUALIFICATIONS AND SUBMITTALS.

4.1 Erector Qualifications. Structural steel shall be erected by a qualified, competent erection contractor. To establish qualification the erection contractor shall submit to the Department proof of their experience on previous projects of equivalent complexity which, at a minimum, include the following:

A) Any one lift using two or more cranes/derricks/poles,
B) Steel spans over water or active railroad/rapid transit tracks,
C) Erection with floating equipment,
D) Field splicing primary members while held in place by erection equipment

The Department shall determine whether the submitted evidence is satisfactory to establish qualification and competency.

4.2 Erection Procedure.

General. The Contractor shall submit a detailed erection procedure to the Engineer for each bridge structural unit, prepared and sealed by a professional engineer licensed in Kentucky. The professional engineer who prepares the erection procedure

and calculations shall have experience in steel erection of similar size, complexity, and scope. The procedure shall address all requirements for erection of the structural steel into the final designed configuration and satisfy all written comments from the Engineer of Record and the Department or its agents prior to the start of erection. The procedure, as a minimum, shall include the following information:

Drawings.

A) Plan of the work area showing permanent support structures (piers and abutments), roads, waterways (including navigational channel), overhead and underground utilities, and other information pertinent to erection.
B) Erection sequence for all members noting any temporary support conditions, such as holding crane positions, temporary supports, falsework, etc. Member reference marks, when reflected on the erection plan, should be the same as used on shop detail drawings.
C) Primary member delivery location and orientation.
D) Location of each crane for each primary member pick, showing radius and crane support (barges, mats, etc.).
E) Capacity chart for each crane configuration and boom length used in the work.
F) Center of gravity locations for primary members.
G) Detail, weight, capacity, and arrangement of all rigging for primary member picks.
H) Lifting weight of primary member picks, including all rigging and pre-attached elements.
I) Details of any temporary lifting devices to be bolted or welded to permanent members, including: method and place (shop or field) of attachment; capacity; and method, time and crew responsible for removal.
J) Bolted splice assembly requirements.
K) Lifting/handling procedure for any primary member that has a lifted length-to-width ratio (l /b) greater than 85.
L) Blocking details for bridge bearings.

Calculations.

A) Design calculations indicating the load capacity and verifying the stability of temporary supports for structure and crane(s) for each pick and release.
B) Calculations to substantiate structural adequacy and stability of all steel members for each step of bridge assembly.
C) Calculations to verify adequate capacity of contractor-fabricated rigging such as lift beams, welded lugs, spreader beams, beam clamps, etc. Submit manufacturers' certification or catalog cuts for pre-engineered devices.
D) Geometrical information that will be used to monitor the structure during erection to ensure that the final geometry of the structure is as indicated on the plans.

SPECIAL NOTE FOR STAINLESS STEEL REINFORCEMENT

1.0 DESCRIPTION. The Contractor shall use stainless steel reinforcement bars in the concrete deck slab, curb, and sidewalk, as indicated in the plans. Reinforcement bars shown in the Plans marked with the suffix "SS" shall be stainless steel as described herein.

The work shall be performed in accordance with the applicable requirements of sections 602 and 811 of the standard specifications.

2.0 MATERIALS.

Grade and Type: The Contractor shall supply test results certifying that the materials conform to Grade 60 or 75 deformed reinforcement bars per ASTM A955, including the annex, and must conform to one of the following UNS designations; S24100, S32205, S32304, S20910, S30400, S31603, S31653, S32101, S32201, or S31803.

All bars shall be of the same UNS designation.

Chemical Composition: Material shall conform to that specified in ASTM A276, Table 1, Chemical Requirements.

Heat Treatment: Bars may be furnished in one of the heat treatment conditions listed in ASTM A955, and as needed to meet the requirements of this specification.

Finish: Bars are to be supplied free of dirt, mill scale, oil, and debris by pickling. Bars shall be fabricated and bent using equipment that has been thoroughly cleaned or otherwise modified to prohibit contamination of the stainless steel from fragments of carbon steel or other contaminants.

Reinforcing bars displaying rust/oxidation, questionable blemishes, or that deviate from round shall be subject to rejection.

Bending: Bending shall be performed in accordance with Section 602 of the Standard Specifications and ASTM A955.

Manufacturers: The following manufactures are capable of producing material meeting this specification. Other suitable manufacturers may also exist. The Contractor is responsible for ensuring that all materials supplied meet the Contract requirements.

Supplier	Contact	Phone No.
Altec Steel, Inc. 5515 Meadow Crest Drive Dallas, TX 75229	Ross Paulson	425-823-1913
Dunkirk Specialty Steel 88 Howard Ave Dunkirk, NY	Gary Zaffalon	800-916-9133 716-366-1000 Ext 323

North American Stainless 6870 Highway 42 East Ghent, KY 41045	Todd Sullivan	502-347-6034
Salit Specialty Rebar 3235 Lockport Road Niagara Falls, NY 14305	Kevin Cornell	877-299-1700 716-299-1990
Talley Metals P. O. Box 2498 Hartsville, SC 29551	Melba Deese	843-335-7326 800-334-8324 Ext 712-2356

Control of Material: Samples for testing shall be supplied to the KYTC Materials Laboratory for testing, generally following applicable provisions of KM-101. One sample per heat per bar size shall be supplied. Each sample shall consist of two five-foot-long specimens.

Mill Test Reports: Reports shall be provided for the Project and shall:

1. Be from the supplying mill verifying that the stainless reinforcement provided has been sampled and tested and the test results meet the Contract requirements;

2. Include a copy of the chemical analysis of the steel provided, with the UNS designation, the heat lot identification and the source of the metal if obtained as ingots from another mill;

3. Include a copy of tensile strength, yield strength and elongation tests on each of the sizes (diameter in millimeters) of stainless steel reinforcement provided.

4. Permit positive determination that the reinforcement provided is that which the test results cover.

5. Include a statement certifying that the materials are being melted and manufactured in the United States.

3.0 CONSTRUCTION.

Methods: Construction methods shall conform to Section 602 of the Standard Specifications except as modified below:

Ship, handle, store, and place the stainless steel reinforcement bars according to the applicable provisions with the following additions and exceptions:

1. Prior to shipping ensure that all chains and steel bands will not come into direct contact with the stainless steel reinforcement bars. Place wood or other soft materials (i.e., thick

The ends of the test pieces shall be socketed with sockets of the same design as those proposed for use in the construction. The strands, in single part tests, shall develop a minimum ultimate strength equal to the value stipulated in the applicable ASTM specification for the material being used and for the size of strand or rope specified. If, after six or more tests of straight strand of each size have been made, the Engineer and KYTC find that the strength and elasticity have sufficient uniformity, one test on a straight strand of each size may be made thereafter from each manufactured length of strand of each size, instead of one from each prestressed length. The strand shall show a well-defined and uniform elastic stretch and recovery after prestressing.

C. Hanger Assemblies. The Contractor shall prepare at least 8 specimens of hanger of each strand size, at least 25 diameters long, with sockets (selected at random from those prepared for use) attached to each end, and these specimens shall be stressed to destruction. Under this test, the specimens shall develop the ultimate strength. Material and method of socketing shall be the same for both the tests and the actual hanger strand. The sockets in every instance shall be of sufficient strength to produce failure in the strand material. Sockets used for the tests may not be reused in the actual construction. If an assembly should fail in the anchorage of the strand in the socket, or if a socket should break or otherwise fail at less than the specified ultimate load during the tests, six additional assemblies shall be fabricated and the tests repeated. If one or more sockets fail during additional tests, the entire lot shall be rejected and new sockets furnished and tested.

Certified test reports covering all the tests specified shall be furnished to the Engineer and KYTC. No claims for delay will be considered for testing or failure to submit required testing documentation in a timely manner.

Shop Inspection. The Engineer reserves the right to visit the manufacturer's fabrication shop for purposes of inspecting the manufacturing, assembly and testing of the hanger assemblies.

6.0 IDENTIFICATION, STORAGE & HANDLING. Identification marks shall be used on the strand to facilitate erection and the Contractor shall use suitable means to protect the strands in transit and during the handling and erection. Strands shall be properly coiled or rolled on reels. Any kinked or damaged strand will be rejected. Straightening of bent wires will not be permitted.

7.0 INSTALLATION. Hangers shall be installed so that the strands at each panel will be equally stressed. Necessary adjustment shall be provided through the use of threaded sockets.

The hanger strand shall be erected with sockets in the same relative position to each other as when the strands were measured and the sockets installed, with the markings along the length of the strand in a straight line.

Spacers shall be located at the intersection of network hangers. Spacers shall incorporate an elastomeric element for purposes of providing a degree of damping and shall hold the individual ropes or strands of each hanger in their correct geometric relationship.

The Engineer will confirm the procedure, opening and alignment prior to concrete placement. After confirmation, remove the finger plates or sliding plates before concreting. Cast and cure the expansion joint blockout per KYTC specifications. Place concrete under the expansion dams, vibrate until the concrete is forced through air holes, and strike off excess concrete. After the concrete has cured, clean air holes and fill with an approved sealer.

Install the fabric trough and the finger or sliding plates according to the Contract Documents and shop drawings. Do not splice the drain trough, unless indicated. If splices are indicated, use splices vulcanized by the manufacturer. Do not use longitudinal splices.

7.0 SUBMITTALS. Submit shop drawings, for each location, type and model of expansion device used. Shop drawings shall include, but not be limited to, the following:

A. Complete details of all components and sections showing all materials used in the expansion joints.
B. A listing of all applicable KYTC, ASTM and AASHTO specifications.
C. Name and address of the manufacturer, and location of the fabrication plant.
D. Name and telephone number of the manufacturer's representative who will be responsible for coordination of production, inspection, sampling and testing.
E. Welding procedures used in the expansion joint assembly manufacture clearly described and detailed.
F. Table of longitudinal offsets for installation at varying temperatures. Use 60°F as the mean temperature.

Joint shop drawings and neoprene trough shop drawings shall be coordinated to ensure that joints and troughs will fit when field assembled. Fabrication shall not commence until the approved shop drawings are in the hands of the Inspector and fabricator and the Engineer has authorized fabrication.

8.0 MEASUREMENT. Quantity for Finger Expansion Joint will be measured per linear foot inside face to inside face of exterior traffic barriers. The unit price for Finger Expansion Joint will be full compensation for furnishing, fabricating, installing structural steel tooth plates, roadway joint seals, drainage troughs, catch basins, downspouts, sidewalk plate, barrier cover plates and all material, labor, equipment, tools and incidentals necessary to complete the work as specified in the Contract Documents.

9.0 PAYMENT.

Code	Pay Item	Pay Unit
23859EC	FINGER EXPANSION JOINT	LF

Any proposed corrective procedure shall be submitted to the Engineer for approval before corrective work is begun.

8.0 SUBMITTALS. The Contractor shall submit details of the MBJS to be used together with installation and waterproofing plans to the Engineer for approval prior to fabrication of the MBJS.

The shop plans shall include, but not be limited to the following:

- plan and section views of the MBJS for each movement rating and roadway width, showing dimensions and tolerances.
- all center beam/support bar joints and all shop and field splices
- complete details of all components and sections showing all material incorporated into the MBJS
- all ASTM, AASHTO or other material designations
- welding procedure specifications
- corrosion protection system
- method of installation, including, but not limited to: sequence; installation gap setting for various temperatures; support during placement of the concrete; lifting locations and lifting mechanisms; and installation at curbs
- temperature adjustment devices and opening dimensions relative to installation temperature
- any required changes to the blockout reinforcement in order to accommodate the MBJS temporary bridging plan if construction traffic is anticipated following installation
- design calculations in accordance with Section 3 of this Special Note

The Contractor shall also submit the following test reports and certificates for review and approval:

- Manufacturer's certificate of compliance with the AISC Quality Certification Program, Simple Steel Bridges.
- Certification that welding inspection personnel are qualified and certified as welding inspectors under AWS QC1, Standard for Qualification and Certification of Welding Inspectors. Documentation that any personnel performing nondestructive evaluation (NDH) are certified by ASNT.
- Manufacturer's certificate of compliance for the PTFE sheeting or fabric.
- Certification that MBJS passed the Prequalification Tests required in Section 1.3.
- Certification that the bearings, springs, and equidistant devices are the same formulation, manufacturer and configuration that were used in the Prequalification Tests required in Section 1.3. In each certification, the name and address of the Manufacturer of the springs, bearings and equidistant devices shall be provided.

The Contractor shall submit for the Engineer's approval a written maintenance and part replacement plan prepared by the joint manufacturer. This plan shall include a list of parts and

instructions for maintenance inspection, acceptable wear tolerances, methods for determining wear, and procedures for replacing worn parts.

Fabrication shall not commence until the approved shop drawings are in the hands of the Inspector and fabricator and the Engineer has authorized fabrication.

9.0 MEASUREMENT. Quantity for Modular Expansion Joint will be measured per linear foot inside face to inside face of exterior traffic barriers. The unit price will be full compensation for furnishing, fabricating and installing MBJS, including sidewalk plate and all barrier cover plates, and all material, labor, equipment, tools and incidentals necessary to complete the work as specified in the Contract Documents.

10.0 PAYMENT.

Code	Pay Item	Pay Unit
24610EC	MODULAR EXPANSION JOINT	LF

SPECIAL NOTE FOR REMOVAL OF EXISTING BRIDGE

1.0 DESCRIPTION. The Contractor shall remove the existing Eggner's Ferry Bridge structure to the limits indicated on the plans in accordance with KYTC Standard Specification Section 203 "Removal of Structures and Obstructions" and the following special note. Where a conflict exists between these special notes and Section 203, the provisions in these special notes shall govern.

2.0 CONSTRUCTION. Special conditions within the project permits relate to demolition and removal of the Eggner's Ferry Bridge. Comply with the conditions stated in all permits. Perform demolition between November 15th and February 28th.

Take ownership and dispose of all materials removed with the exception of the Span 'E' Truss.

Existing span 'E' is identified as the parallel chord truss replacement superstructure erected in 2012 after a vessel collision collapsed the original span. Salvage the steel superstructure truss of existing span 'E'. After removing the bridge deck slab from the structural steel, lower the truss Span 'E' intact onto a barge and transport to the Eddyville Port Authority for storage. The Span 'E' truss shall remain the property of the Department.

Obtain a lease for the Department with the Port for a period of six months, on a monthly basis. The lease shall be in the Department's name. If the Port is unavailable to store the steel span, or if the terms of the Lease are unacceptable to the Department, the Contractor shall coordinate with other potential storage location property owners and with the Department to secure an alternate lease.

The representation of existing bridge on plan sheets is for information only. The contractor is referred to the existing bridge plans to determine approximate quantities for removal. The contractor is responsible for location and protection of all existing utilities.

The production of the demolition plan and procedures is the responsibility of the contractor. The demolition plan must clearly demonstrate the safety and feasibility of all proposed operations. All submittal components must be sealed by a professional engineer licensed in the Commonwealth of Kentucky.

Obtain all necessary licenses, training and permits for the handling of and use of explosives, if used.

Blasting of superstructure steel truss spans with explosives will be acceptable to the Department.

The use of explosives under water may or may not be acceptable to all governing agencies. The Contractor shall obtain all necessary permits, licenses, certifications, etc. for use of explosives. The Contractor shall contact the appropriate governing agencies prior to the use of explosives and provide confirmation to the Department that the necessary permits, licenses, certifications, etc. have been obtained.

Submit the demolition plan to the Engineer six months prior to scheduled demolition.

The engineer will coordinate submission to the United States Coast Guard. Do not proceed with demolition until the engineer has received a copy of written acceptance of the demolition plan from the United States Coast Guard. Do not proceed with demolition until the demolition plan is returned by the Engineer as approved by the United States Coast Guard.

Schedule the removal of those trusses and piers obstructing the navigation channel to occur as the first activities. This is not intended to preclude the Contractor from also working at

TRANSPORTATION CABINET
DIVISION OF CONSTRUCTION PROCUREMENT

PROJECT WAGE RATES LETTING: 12-20-2013

MARSHALL-TRIGG COUNTIES, 121GR13D012-NHPP 0801 (098)
CADIZ-AURORA ROAD (US 68/KY 80)
Grade, Drain, & Surface

NOTICE:

There are three (3) sets of wage rates established for this project. The Federal wage rate decision KY130102 applies for roadway work performed in Marshall and Trigg Counties. The wage rate Decision Number KY130083 applies for bridge work performed in Marshall County. The wage rate Decision Number KY130093 applies for bridge work performed in Trigg County.

General Decision Number: KY130093 07/26/2013 KY93

Superseded General Decision Number: KY20120118

State: Kentucky

Construction Type: Heavy
Including Water and Sewer Line Construction

County: Trigg County in Kentucky.

HEAVY CONSTRUCTION PROJECTS (including sewer/water construction).

Modification Number	Publication Date
0	01/04/2013
1	01/18/2013
2	02/01/2013
3	03/29/2013
4	04/05/2013
5	04/26/2013
6	06/07/2013
7	06/14/2013
8	06/28/2013
9	07/05/2013
10	07/26/2013

CARP0357-001 04/01/2013

	Rates	Fringes
CARPENTER (Includes Form Work)	$ 26.90	14.42

ELEC0816-007 06/01/2013

	Rates	Fringes
ELECTRICIAN	$ 30.40	25.5%+5.60

ENGI0181-007 07/01/2013

	Rates	Fringes
POWER EQUIPMENT OPERATOR:		
Backhoe/Excavator/Trackhoe, Bulldozer & Loader (Front End)	$ 28.00	13.90
Bobcat/Skid Loader & Forklift	$ 25.45	13.90
Crane	$ 29.07	13.90
Oiler & Roller	$ 25.17	13.90

Operators on cranes with booms one hundred fifty feet (150) and over (including jib) shall receive one dollar ($1.00) above rate

All crane operators operating cranes where the lenth of the boom in combination with the length of the piling leads equal or exceeds one hundred fifty (150) feet, shall receive one dollar ($1.00) above the rate.

IRON0782-002 05/01/2013

	Rates	Fringes
IRONWORKER, STRUCTURAL AND REINFORCING		
Projects with a total contract cost of $20,000,000.00 or above	$ 26.46	19.91
All Other Work	$ 24.95	18.65

LABO1392-018 07/01/2013

	Rates	Fringes
LABORER		
Common or General	$ 21.96	11.00

PLAS0135-002 07/01/2012

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 22.90	13.55

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* PLUM0184-004 07/01/2013

	Rates	Fringes
PLUMBER	$ 33.11	14.83

TEAM0236-002 03/31/2013

	Rates	Fringes
TRUCK DRIVER (Dump Truck)	$ 19.56	16.85

SUKY2010-152 09/14/2010

	Rates	Fringes
LABORER: Pipelayer	$ 17.51	6.89

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular

rate is union or non-union.

Union Identifiers

An identifier enclosed in dotted lines beginning with characters other than "SU" denotes that the union classification and rate have found to be prevailing for that classification. Example: PLUM0198-005 07/01/2011. The first four letters , PLUM, indicate the international union and the four-digit number, 0198, that follows indicates the local union number or district council number where applicable , i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2011, following these characters is the effective date of the most current negotiated rate/collective bargaining agreement which would be July 1, 2011 in the above example.

Union prevailing wage rates will be updated to reflect any changes in the collective bargaining agreements governing the rates.

0000/9999: weighted union wage rates will be published annually each January.

Non-Union Identifiers

Classifications listed under an "SU" identifier were derived from survey data by computing average rates and are not union rates; however, the data used in computing these rates may include both union and non-union data. Example: SULA2004-007 5/13/2010. SU indicates the rates are not union majority rates, LA indicates the State of Louisiana; 2004 is the year of the survey; and 007 is an internal number used in producing the wage determination. A 1993 or later date, 5/13/2010, indicates the classifications and rates under that identifier were issued as a General Wage Determination on that date.

Survey wage rates will remain in effect and will not change until a new survey is conducted.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial

contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

General Decision Number: KY130083 10/04/2013 KY83

Superseded General Decision Number: KY20120107

State: Kentucky

Construction Type: Heavy
Incuding Water and Sewer Line Construction

Counties: Ballard, Caldwell, Calloway, Carlisle, Crittenden, Graves, Hickman, Hopkins, Livingston, Lyon, Marshall, Ohio, Todd and Union Counties in Kentucky.

HEAVY CONSTRUCTION PROJECTS (including sewer/water construction).

Modification Number	Publication Date
0	01/04/2013
1	04/26/2013
2	05/24/2013
3	06/14/2013
4	06/21/2013
5	07/05/2013
6	10/04/2013

CARP0357-007 04/01/2013

BALLARD, CALDWELL, CALLOWAY, CARLISLE, CRITTENDEN, GRAVES, HICKMAN, LIVINGSTON, LYON, & MARSHALL COUNTIES

	Rates	Fringes
CARPENTER (Includes Form Work)	$ 26.90	14.42

CARP0549-007 04/01/2013

HOPKINS, OHIO, TODD & UNION COUNTIES

	Rates	Fringes
CARPENTER (Includes Form Work)	$ 26.90	14.46

ENGI0181-069 07/01/2013

	Rates	Fringes
POWER EQUIPMENT OPERATOR:		
Backhoe/Excavator/Trackhoe, Bulldozer, Cherry Picker, Drill, Grader/Blade, Loader, Mechanic, & Scraper	$ 28.00	13.90
Crane	$ 29.07	13.90
Oiler	$ 25.17	13.90

Operators on cranes with booms one hundred fifty feet (150) and over (including jib) shall receive one dollar ($1.00) above rate

All crane operators operating cranes where the lenth of the boom in combination with the length of the piling leads

equal or exceeds one hundred fifty (150) feet, shall receive one dollar ($1.00) above the rate.

IRON0103-018 04/01/2013

HOPKINS, OHIO & UNION COUNTIES

	Rates	Fringes
IRONWORKER, REINFORCING	$ 27.82	16.555

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* IRON0492-015 05/01/2013

TODD COUNTY

	Rates	Fringes
IRONWORKER, REINFORCING	$ 23.84	10.96

IRON0782-013 05/01/2013

BALLARD, CALDWELL, CALLOWAY, CARLISLE, CRITTENDEN, GRAVES, HICKMAN, LIVINGSTON, LYON, & MARSHALL COUNTIES

	Rates	Fringes
IRONWORKER, REINFORCING		
Projects with a total contract cost of $20,000,000.00 or above	$ 26.46	19.91
All Other Work	$ 24.95	18.65

LABO0561-009 07/01/2013

CRITTENDEN & UNION COUNTIES

	Rates	Fringes
LABORER		
Common or General, Flagger, & Grade Checker	$ 21.11	12.25
Pipelayer	$ 21.36	12.25

LABO1214-008 07/01/2013

BALLARD, CALLOWAY, CARLISLE, GRAVES, HICKMAN, LIVINGSTON, LYON, & MARSHALL COUNTIES

	Rates	Fringes
LABORER		
Common or General, Flagger, & Grade Checker	$ 21.20	12.01
Pipelayer	$ 20.95	12.01

LABO1392-017 07/01/2012

CALDWELL, HOPKINS, OHIO & TODD COUNTIES

	Rates	Fringes

LABORER
Common or General,
Flagger, & Grade Checker....$ 21.96 11.00
Pipelayer.....$ 22.21 11.00

SUKY2010-141 09/14/2010

	Rates	Fringes
OPERATOR: Trencher.....$	19.03	5.78

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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An identifier enclosed in dotted lines beginning with characters other than "SU" denotes that the union classification and rate have found to be prevailing for that classification. Example: PLUM0198-005 07/01/2011. The first four letters , PLUM, indicate the international union and the four-digit number, 0198, that follows indicates the local union number or district council number where applicable , i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2011, following these characters is the effective date of the most current negotiated rate/collective bargaining agreement which would be July 1, 2011 in the above example.

Union prevailing wage rates will be updated to reflect any changes in the collective bargaining agreements governing the rates.

0000/9999: weighted union wage rates will be published annually each January.

Non-Union Identifiers

Classifications listed under an "SU" identifier were derived from survey data by computing average rates and are not union rates; however, the data used in computing these rates may include both union and non-union data. Example: SULA2004-007 5/13/2010. SU indicates the rates are not union majority rates, LA indicates the State of Louisiana; 2004 is the year of the survey; and 007 is an internal number used in producing the wage determination. A 1993 or later date, 5/13/2010, indicates the classifications and rates under that identifier were issued as a General Wage Determination on that date.

Survey wage rates will remain in effect and will not change until a new survey is conducted.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
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Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

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U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative

Review Board (formerly the Wage Appeals Board). Write to:

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U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

131212

PROPOSAL BID ITEMS

Report Date 1/26/13

Section: 0001 - PAVING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0010	00001		DGA BASE	21,669.00	TON		$	
0020	00003		CRUSHED STONE BASE	994.00	TON		$	
0030	00018		DRAINAGE BLANKET-TYPE II-ASPH	7,208.00	TON		$	
0040	00212		CL2 ASPH BASE 1.00D PG64-22	693.00	TON		$	
0050	00214		CL3 ASPH BASE 1.00D PG64-22	19,791.00	TON		$	
0060	00309		CL2 ASPH SURF 0.50D PG64-22	2,152.00	TON		$	
0070	00324		CL3 ASPH SURF 0.50B PG64-22	3,150.00	TON		$	

Section: 0002 - ROADWAY

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0080	00071		CRUSHED AGGREGATE SIZE NO 57	979.00	TON		$	
0090	00078		CRUSHED AGGREGATE SIZE NO 2	29.00	TON		$	
0100	00100		ASPHALT SEAL AGGREGATE	72.00	TON		$	
0110	00103		ASPHALT SEAL COAT	9.00	TON		$	
0120	01000		PERFORATED PIPE-4 IN	7,479.00	LF		$	
0130	01001		PERFORATED PIPE-6 IN	2,315.00	LF		$	
0140	01010		NON-PERFORATED PIPE-4 IN	525.00	LF		$	
0150	01011		NON-PERFORATED PIPE-6 IN	192.00	LF		$	
0160	01020		PERF PIPE HEADWALL TY 1-4 IN	4.00	EACH		$	
0170	01021		PERF PIPE HEADWALL TY 1-6 IN	1.00	EACH		$	
0180	01024		PERF PIPE HEADWALL TY 2-4 IN	15.00	EACH		$	
0190	01028		PERF PIPE HEADWALL TY 3-4 IN	4.00	EACH		$	
0200	01029		PERF PIPE HEADWALL TY 3-6 IN	1.00	EACH		$	
0210	01032		PERF PIPE HEADWALL TY 4-4 IN	4.00	EACH		$	
0220	01033		PERF PIPE HEADWALL TY 4-6 IN	1.00	EACH		$	
0230	01741		CORED HOLE DRAINAGE BOX CON-6 IN	8.00	EACH		$	
0240	01982		DELINEATOR FOR GUARDRAIL MONO DIRECTIONAL WHITE	82.00	EACH		$	
0250	01984		DELINEATOR FOR BARRIER - WHITE	86.00	EACH		$	
0260	01985		DELINEATOR FOR BARRIER - YELLOW	173.00	EACH		$	
0270	02014		BARRICADE-TYPE III	4.00	EACH		$	
0280	02091		REMOVE PAVEMENT	2,809.00	SQYD		$	
0290	02159		TEMP DITCH	5,885.00	LF		$	
0300	02160		CLEAN TEMP DITCH	17,655.00	LF		$	
0310	02200		ROADWAY EXCAVATION	51,362.00	CUYD		$	
0320	02204		SPECIAL EXCAVATION	3,974.00	CUYD		$	
0330	02241		RESHAPING AND COMPACTING	2,586.00	LF		$	
0340	02242		WATER	2.00	MGAL		$	
0350	02381		REMOVE GUARDRAIL	7,059.00	LF		$	
0360	02432		WITNESS POST	3.00	EACH		$	
0370	02436		R/W MARKER RURAL TYPE 3	7.00	EACH		$	
0380	02483		CHANNEL LINING CLASS II	98.00	TON		$	
0390	02545		CLEARING AND GRUBBING (APPROXIMATELY 1.5 ACRES IN MARSHALL COUNTY)	1.00	LS		$	

131212

PROPOSAL BID ITEMS

Report Date 1/26/13

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0400	02562		TEMPORARY SIGNS (FOR TRAFFIC MAINTENANCE)	1,167.00	SQFT		$	
0410	02570		PROJECT CPM SCHEDULE SEE DESIGN FOR SPECIAL NOTE	1.00	LS		$	
0420	02585		EDGE KEY	240.00	LF		$	
0430	02596		FABRIC-GEOTEXTILE TYPE I	12,241.00	SQYD		$	
0440	02599		FABRIC-GEOTEXTILE TYPE IV	10,052.00	SQYD		$	
0450	02600		FABRIC GEOTEXTILE TY IV FOR PIPE	1,882.00	SQYD	$2.00	$	$3,764.00
0460	02650		MAINTAIN & CONTROL TRAFFIC (TRIGG COUNTY)	1.00	LS		$	
0470	02650		MAINTAIN & CONTROL TRAFFIC (MARSHALL COUNTY)	1.00	LS		$	
0480	02673		PRECAST VEHICLE STOP	172.00	LF		$	
0490	02696		SHOULDER RUMBLE STRIPS-SAWED	6,560.00	LF		$	
0500	02701		TEMP SILT FENCE	5,885.00	LF		$	
0510	02703		SILT TRAP TYPE A	33.00	EACH		$	
0520	02704		SILT TRAP TYPE B	33.00	EACH		$	
0530	02705		SILT TRAP TYPE C	33.00	EACH		$	
0540	02706		CLEAN SILT TRAP TYPE A	99.00	EACH		$	
0550	02707		CLEAN SILT TRAP TYPE B	99.00	EACH		$	
0560	02708		CLEAN SILT TRAP TYPE C	99.00	EACH		$	
0570	02709		CLEAN TEMP SILT FENCE	17,655.00	LF		$	
0580	02726		STAKING (TRIGG COUNTY)	1.00	LS		$	
0590	02726		STAKING (MARSHALL COUNTY)	1.00	LS		$	
0600	02731		REMOVE STRUCTURE (EGGNER FERRY BRIDGE)	1.00	LS		$	
0610	02998		MASONRY COATING	2,173.00	SQYD		$	
0620	03144		CONC MEDIAN BARRIER TYPE 9C1	3,343.00	LF		$	
0630	05950		EROSION CONTROL BLANKET	2,534.00	SQYD		$	
0640	05952		TEMP MULCH	170,660.00	SQYD		$	
0650	05953		TEMP SEEDING AND PROTECTION	16,343.00	SQYD		$	
0660	05966		TOPDRESSING FERTILIZER	18.00	TON		$	
0670	05985		SEEDING AND PROTECTION	163,432.00	SQYD		$	
0680	05989		SPECIAL SEEDING CROWN VETCH	170,661.00	SQYD		$	
0690	06510		PAVE STRIPING-TEMP PAINT-4 IN	38,850.00	LF		$	
0700	06514		PAVE STRIPING-PERM PAINT-4 IN	43,862.00	LF		$	
0710	06550		PAVE STRIPING-TEMP REM TAPE-W	8,772.00	LF		$	
0720	06551		PAVE STRIPING-TEMP REM TAPE-Y	12,208.00	LF		$	
0730	06574		PAVE MARKING-THERMO CURV ARROW	6.00	EACH		$	
0740	06575		PAVE MARKING-THERMO COMB ARROW	2.00	EACH		$	
0750	06592		PAVEMENT MARKER TYPE V-B W/R	119.00	EACH		$	
0760	06593		PAVEMENT MARKER TYPE V-B Y/R	173.00	EACH		$	
0770	08019		CYCLOPEAN STONE RIP RAP	19,269.00	TON		$	
0780	10020NS		FUEL ADJUSTMENT	72,080.00	DOLL	$1.00	$	$72,080.00
0790	10030NS		ASPHALT ADJUSTMENT	100,825.00	DOLL	$1.00	$	$100,825.00
0800	20060ES719		GUARDRAIL STEEL W BEAM-S FACE CR	5,472.00	LF		$	
0810	20062ES719		GUARDRAIL TERMINAL SECT NO.1 CR	6.00	EACH		$	
0820	20206EC		PAVE MARK HANDICAP SYMBOL	2.00	EACH		$	
0830	20285ES719		GUARDRAIL END TREATMENT TY 2A-CR	1.00	EACH		$	
0840	20382ES719		G/R CONN TO BRIDGE END TY A-CR	4.00	EACH		$	
0850	21325ND		CONSTRUCTION TRAILER	1.00	LS		$	

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PROPOSAL BID ITEMS

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0860	23131ER701		PIPELINE VIDEO INSPECTION	561.00	LF		$	
0870	23143EN		DECORATIVE HANDRAIL (STEEL POWDER COATED FINISH)	1,977.00	LF		$	
0880	23162EN		GUARDRAIL CONN TO BR END TY A-1 CR	4.00	EACH		$	
0890	23274EN11F		TURF REINFORCEMENT MAT 1	1,078.00	SQYD		$	
0900	23394EC		CRASH CUSHION TY VI CLASS C TL3-1	1.00	EACH		$	
0910	23651ES719		G/R END TREATMENT TY 1-CR	1.00	EACH		$	
0920	23912EC		WEB CAMERA CONST MONITORING SYSTEM	1.00	LS		$	
0930	23979EC		CRASH CUSHION TY VI CLASS C TL3	2.00	EACH		$	
0940	24620EC		HELPER BOAT	1.00	LS		$	
0950	24626EC		PROJECT INSPECTION BOAT	1.00	LS		$	
0960	24636EC		GUARDRAIL TERMINAL SECT NO.3 CR	2.00	EACH		$	
0970	24637EC		GUARDRAIL STEEL W BEAM-D FACE CR	2,768.00	LF		$	
0980	30000		REMOVABLE BOLLARD	3.00	EACH		$	

Section: 0003 - DRAINAGE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0990	00440		ENTRANCE PIPE-15 IN	65.00	LF		$	
1000	00443		ENTRANCE PIPE-24 IN	130.00	LF		$	
1010	00521		STORM SEWER PIPE-15 IN	189.00	LF		$	
1020	00522		STORM SEWER PIPE-18 IN	289.00	LF		$	
1030	01202		PIPE CULVERT HEADWALL-15 IN	1.00	EACH		$	
1040	01204		PIPE CULVERT HEADWALL-18 IN	2.00	EACH		$	
1050	01208		PIPE CULVERT HEADWALL-24 IN	2.00	EACH		$	
1060	01432		SLOPED BOX OUTLET TYPE 1-15 IN	3.00	EACH		$	
1070	01505		DROP BOX INLET TYPE 5B	1.00	EACH		$	
1080	01538		DROP BOX INLET TYPE 7	1.00	EACH		$	
1090	01621		CONC MED BARR BOX INLET TY 9B1	2.00	EACH		$	
1100	08100		CONCRETE-CLASS A (FOR END ANCHORS)	2.82	CUYD		$	
1110	23952EC		DRAINAGE JUNCTION BOX TY B	1.00	EACH		$	

Section: 0004 - BRIDGE - WEST APPROACH

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
1120	02231		STRUCTURE GRANULAR BACKFILL	1,115.00	CUYD		$	
1130	02599		FABRIC-GEOTEXTILE TYPE IV	328.00	SQYD		$	
1140	02998		MASONRY COATING	5,578.00	SQYD		$	
1150	08001		STRUCTURE EXCAVATION-COMMON	2,483.00	CUYD		$	
1160	08033		TEST PILES (INSTALL 30 IN PIPE PILE - 1 IN)	459.00	LF		$	
1170	08033		TEST PILES (INSTALL 72 IN PIPE PILE - 2 IN)	448.00	LF		$	
1180	08033		TEST PILES (FURNISH 30 IN PIPE PILE - 1 IN)	468.00	LF		$	
1190	08033		TEST PILES (FURNISH 72 IN PIPE PILE - 2 IN)	516.00	LF		$	
1200	08100		CONCRETE-CLASS A REVISED: 11-26-13	2,078.00	CUYD		$	
1210	08101		CONCRETE-CLASS A MOD	258.00	CUYD		$	
1220	08104		CONCRETE-CLASS AA REVISED: 11-26-13	3,943.00	CUYD		$	
1230	08150		STEEL REINFORCEMENT	517,011.00	LB		$	

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PROPOSAL BID ITEMS

Report Date 1/26/13

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
1240	08151		STEEL REINFORCEMENT-EPOXY COATED	1,251,172.00	LB		$	
1250	08160		STRUCTURAL STEEL (APPROACH SPANS, APPROXIMATELY 9,276,108 LBS.)	1.00	LS		$	
1260	08170		SHEAR CONNECTORS(APPROXIMATELY 22,604 LBS) REVISED: 11-26-13	1.00	LS		$	
1270	08267		NAVIGATION LIGHTING	1.00	LS		$	
1280	08500		APPROACH SLAB	204.00	SQYD		$	
1290	08820		DRAIN PIPE-6 IN (FIBERGLASS)	200.00	LF		$	
1300	20154ND		DRAIN ASSEMBLY	16.00	EACH		$	
1310	23233EC		DYNAMIC PILE TESTING (ON WATER - RESTRIKE)	15.00	EACH		$	
1320	23233EC		DYNAMIC PILE TESTING (ON LAND - INITIAL)	5.00	EACH		$	
1330	23233EC		DYNAMIC PILE TESTING (ON LAND - RESTRIKE)	10.00	EACH		$	
1340	23233EC		DYNAMIC PILE TESTING (ON WATER - INITIAL)	9.00	EACH		$	
1350	23538EC		PEDESTRIAN RAIL	1,452.00	LF		$	
1360	23859EC		FINGER EXPANSION JOINT	74.00	LF		$	
1370	23868EC		STRUCTURE LIGHTNING PROTECTION	1.00	LS		$	
1380	24538ED		RAIL SYSTEM TYPE 11	2,880.00	LF		$	
1390	24550EC		VIBRATION MONITORING	1.00	LS		$	
1400	24606ED		HSS BARRIER RAIL - 3 RAIL	1,429.00	LF		$	
1410	24611EC		SEISMIC DAMPERS (BENT ENDS)	6.00	EACH		$	
1420	24611EC		SEISMIC DAMPERS (PIERS 4 & 5)	6.00	EACH		$	
1430	24614EC		DISK EXPANSION BEARING	12.00	EACH		$	
1440	24616EC		PATH DELINEATION LIGHTING	1.00	LS		$	
1450	24617EC		INSTALL (AT&T DUCTBANK)	1,407.00	LF		$	
1460	24618EC		PIPE PILES (INSTALL 72 IN PIPE PILE - 2 IN)	836.00	LF		$	
1470	24618EC		PIPE PILES (FURNISH 30 IN PIPE PILE - 1 IN)	3,393.00	LF		$	
1480	24618EC		PIPE PILES (INSTALL 30 IN PIPE PILE - 1 IN)	3,585.00	LF		$	
1490	24618EC		PIPE PILES (FURNISH 72 IN PIPE PILE - 2 IN)	909.00	LF		$	
1500	24619EC		SPLICE PILES (30 IN PIPE PILE - 1 IN)	13.00	EACH		$	
1510	24619EC		SPLICE PILES (72 IN PIPE PILE - 2 IN)	3.00	EACH		$	
1520	24627EC		OPEN END INSIDE FIT CUTTING SHOE (72 IN - 2 IN)	9.00	EACH		$	
1530	24627EC		OPEN END INSIDE FIT CUTTING SHOE (30 IN - 1 IN)	28.00	EACH		$	
1540	24628EC		PILE CONSTRICTOR PLATE (72 IN - 2 IN)	9.00	EACH		$	
1550	24629EC		DECORATIVE FENCE PANEL	17.00	EACH		$	

Section: 0005 - BRIDGE - EAST APPROACH

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
1560	02231		STRUCTURE GRANULAR BACKFILL	1,115.00	CUYD		$	
1570	02599		FABRIC-GEOTEXTILE TYPE IV	328.00	SQYD		$	
1580	02998		MASONRY COATING	6,760.00	SQYD		$	
1590	08001		STRUCTURE EXCAVATION-COMMON	2,371.00	CUYD		$	
1600	08033		TEST PILES (FURNISH - 30 IN PIPE - 1 IN)	441.00	LF		$	
1610	08033		TEST PILES (INSTALL - 30 IN PIPE - 1 IN)	435.00	LF		$	

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PROPOSAL BID ITEMS

Report Date 1/26/13

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
1620	08033		TEST PILES (FURNISH 17 IN PIPE PILE - 2 IN)	914.00	LF		$	
1630	08033		TEST PILES (INSTALL - 72 IN - 2 IN)	706.00	LF		$	
1640	08100		CONCRETE-CLASS A REVISED: 11-26-13	2,811.00	CUYD		$	
1650	08101		CONCRETE-CLASS A MOD (PIPE PILE INFILL)	627.00	CUYD		$	
1660	08104		CONCRETE-CLASS AA REVISED: 11-26-13	4,565.00	CUYD		$	
1670	08150		STEEL REINFORCEMENT	729,951.00	LB		$	
1680	08151		STEEL REINFORCEMENT-EPOXY COATED	1,468,512.00	LB		$	
1690	08160		STRUCTURAL STEEL (APPROACH SPAN, APPROXIMATELY 10,339,811 LBS.)	1.00	LS		$	
1700	08170		SHEAR CONNECTORS (APPROXIMATELY 33,489 LBS.) REVISED: 11-26-13	1.00	LS		$	
1710	08267		NAVIGATION LIGHTING	1.00	LS		$	
1720	08500		APPROACH SLAB	204.00	SQYD		$	
1730	08820		DRAIN PIPE-6 IN (FIBERGLASS)	270.00	LF		$	
1740	20154ND		DRAIN ASSEMBLY	22.00	EACH		$	
1750	23233EC		DYNAMIC PILE TESTING (ON WATER - INITIAL)	13.00	EACH		$	
1760	23233EC		DYNAMIC PILE TESTING (ON WATER - RESTRIKE)	23.00	EACH		$	
1770	23233EC		DYNAMIC PILE TESTING (ON LAND - RESTRIKE)	10.00	EACH		$	
1780	23233EC		DYNAMIC PILE TESTING (ON LAND - INITIAL)	5.00	EACH		$	
1790	23538EC		PEDESTRIAN RAIL	1,696.00	LF		$	
1800	23859EC		FINGER EXPANSION JOINT	74.00	LF		$	
1810	23868EC		STRUCTURE LIGHTNING PROTECTION	1.00	LS		$	
1820	24538ED		RAIL SYSTEM TYPE 11	3,378.00	LF		$	
1830	24550EC		VIBRATION MONITORING	1.00	LS		$	
1840	24606ED		HSS BARRIER RAIL - 3 RAIL	1,678.00	LF		$	
1850	24611EC		SEISMIC DAMPERS (END BENTS)	6.00	EACH		$	
1860	24611EC		SEISMIC DAMPERS (PIERS 4 & 5)	6.00	EACH		$	
1870	24614EC		DISK EXPANSION BEARING	12.00	EACH		$	
1880	24616EC		PATH DELINEATION LIGHTING	1.00	LS		$	
1890	24617EC		INSTALL (AT&T DUCTBANK)	1,651.00	LF		$	
1900	24618EC		PIPE PILES (FURNISH - 30 IN - 1 IN)	3,185.00	LF		$	
1910	24618EC		PIPE PILES (INSTALL - 30 IN - 1 IN)	3,385.00	LF		$	
1920	24618EC		PIPE PILES (FURNISH - 72 IN PIPE PILE - 2 IN)	1,445.00	LF		$	
1930	24618EC		PIPE PILES (INSTALL - 72 IN PIPE PILE - 2 IN)	1,197.00	LF		$	
1940	24619EC		SPLICE PILES (30 IN PIPE - 1 IN)	13.00	EACH		$	
1950	24619EC		SPLICE PILES (72 IN PIPE PILE - 2 IN)	5.00	EACH		$	
1960	24627EC		OPEN END INSIDE FIT CUTTING SHOE (30 IN - 1 IN)	28.00	EACH		$	
1970	24627EC		OPEN END INSIDE FIT CUTTING SHOE (72 IN - 2 IN)	14.00	EACH		$	
1980	24628EC		PILE CONSTRICTOR PLATE (72 IN - 2 IN)	14.00	EACH		$	
1990	24629EC		DECORATIVE FENCE PANEL	20.00	EACH		$	

Section: 0006 BRIDGE - MAIN SPAN

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PROPOSAL BID ITEMS

Report Date 1/26/13

Section: 0006 - BRIDGE - MAIN SPAN

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
2000	02998		MASONRY COATING REVISED: 11-26-13	5,369.00	SQYD		$	
2010	08033		TEST PILES (FURNISH 72 IN PIPE PILE - 2 IN)	760.00	LF		$	
2020	08033		TEST PILES (INSTALL 72 IN PIPE PILE - 2 IN)	468.00	LF		$	
2030	08100		CONCRETE-CLASS A	7,174.00	CUYD		$	
2040	08101		CONCRETE-CLASS A MOD (PIPE PILE INFILL)	2,066.00	CUYD		$	
2050	08104		CONCRETE-CLASS AA REVISED: 11-26-13	1,119.00	CUYD		$	
2060	08150		STEEL REINFORCEMENT	1,463,804.00	LB		$	
2070	08151		STEEL REINFORCEMENT-EPOXY COATED	458,567.00	LB		$	
2080	08160		STRUCTURAL STEEL (ARCH SPAN, APPROXIMATELY 4,741,044 LBS.) REVISED: 11-26-13	1.00	LS		$	
2090	08170		SHEAR CONNECTORS (APPROXIMATELY 32,503 LBS.) REVISED: 11-26-13	1.00	LS		$	
2100	08267		NAVIGATION LIGHTING	1.00	LS		$	
2110	08534		CONCRETE OVERLAY-LATEX	180.00	CUYD		$	
2120	08752		PAINT CLEARANCE GAUGES	1.00	LS		$	
2130	08820		DRAIN PIPE-6 IN (FIBERGLASS)	36.00	LF		$	
2140	20154ND		DRAIN ASSEMBLY	10.00	EACH		$	
2150	23233EC		DYNAMIC PILE TESTING (ON WATER - INITIAL)	8.00	EACH		$	
2160	23233EC		DYNAMIC PILE TESTING (ON WATER - RESTRIKE)	16.00	EACH		$	
2170	23538EC		PEDESTRIAN RAIL REVISED: 11-26-13	550.00	LF		$	
2180	23868EC		STRUCTURE LIGHTNING PROTECTION	1.00	LS		$	
2190	24112EC		STEEL REINFORCEMENT STAINLESS STEEL REVISED: 11-26-13	283,098.00	LB		$	
2200	24538ED		RAIL SYSTEM TYPE 11	1,108.00	LF		$	
2210	24550EC		VIBRATION MONITORING	1.00	LS		$	
2220	24606ED		HSS BARRIER RAIL - 3 RAIL	550.00	LF		$	
2230	24608EC		BRIDGE STRAND HANGER-FABRICATE & INSTALL (APPROXIMATE LENGTH - 5,440 LF)	1.00	LS		$	
2240	24610EC		MODULAR EXPANSION JOINT REVISED: 11-26-13	148.00	LF		$	
2250	24612EC		SEISMIC ISOLATION BEARING - TYPE A	4.00	EACH		$	
2260	24613EC		SEISMIC ISOLATION BEARING - TYPE B	2.00	EACH		$	
2270	24615EC		ARCH FEATURE LIGHTING	1.00	LS		$	
2280	24616EC		PATH DELINEATION LIGHTING	1.00	LS		$	
2290	24617EC		INSTALL (AT&T DUCTBANK)	556.00	LF		$	
2300	24618EC		PIPE PILES (INSTALL 72 IN PIPE PILE -2 IN)	2,568.00	LF		$	
2310	24618EC		PIPE PILES (FURNISH 72 IN PIPE PILES - 2 IN)	4,080.00	LF		$	
2320	24619EC		SPLICE PILES (72 IN PIPE - 2 IN)	12.00	EACH		$	
2330	24627EC		OPEN END INSIDE FIT CUTTING SHOE (72 IN - 2 IN)	28.00	EACH		$	
2340	24628EC		PILE CONSTRICTOR PLATE (72 IN - 2 IN)	28.00	EACH		$	
2350	24629EC		DECORATIVE FENCE PANEL	7.00	EACH		$	

Section: 0007 - MOBILIZATION & DEMOBILIZATION

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PROPOSAL BID ITEMS

Report Date 1/26/13

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
2360	**02568**		**MOBILIZATION**	**1.00**	**LS**		**$**	
2370	**02569**		**DEMOBILIZATION**	**1.00**	**LS**		**$**	