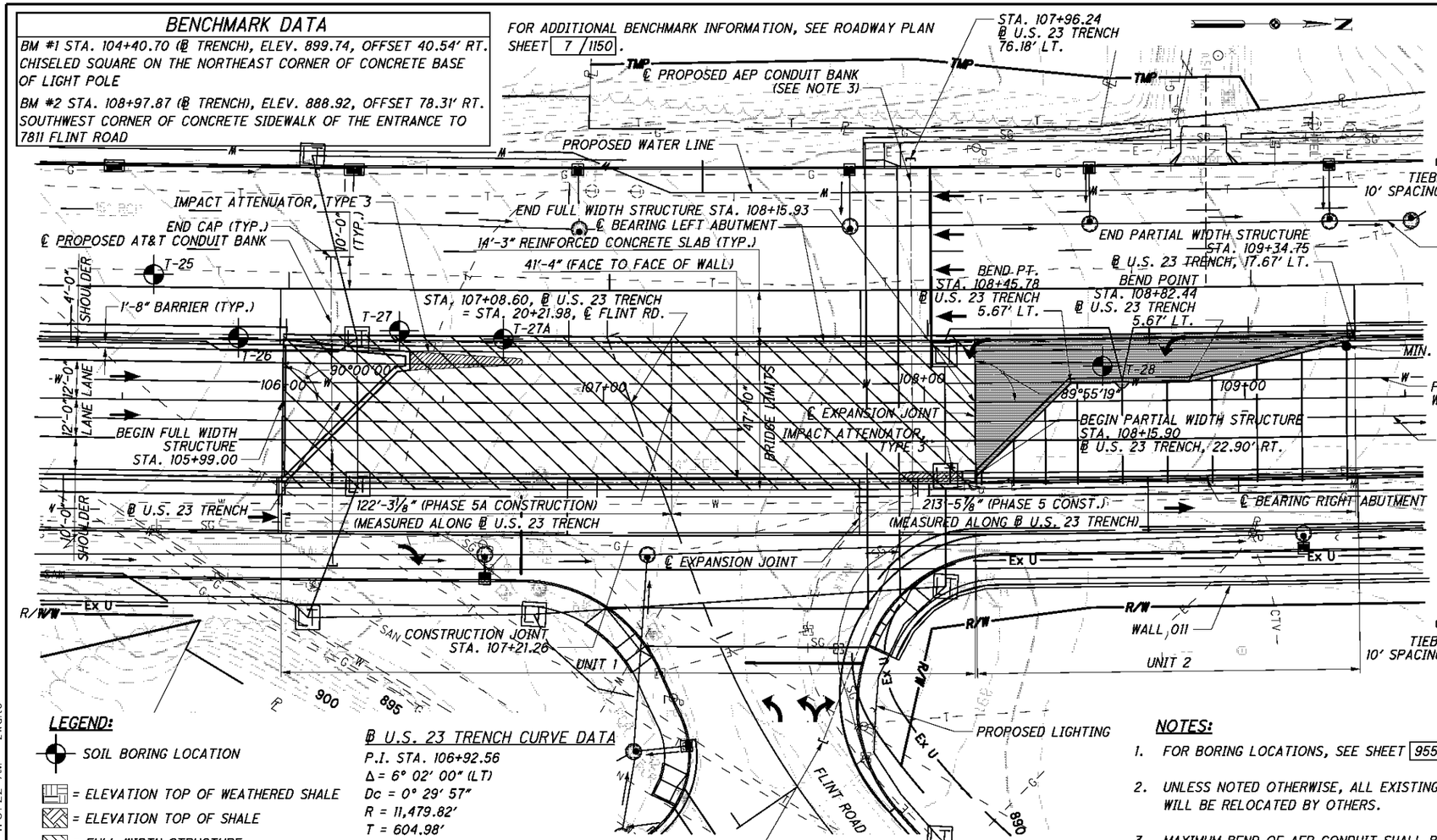
BENCHMARK DATA

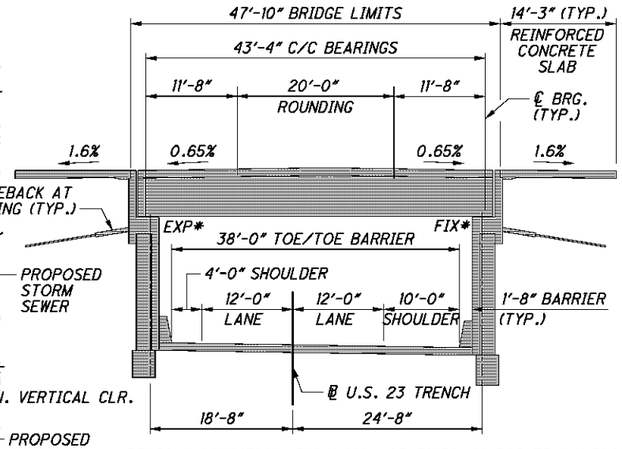
BM #1 STA. 104+40.70 (℄ TRENCH), ELEV. 899.74, OFFSET 40.54' RT. CHISELED SQUARE ON THE NORTHEAST CORNER OF CONCRETE BASE OF LIGHT POLE

BM #2 STA. 108+97.87 (℄ TRENCH), ELEV. 888.92, OFFSET 78.31' RT. SOUTHWEST CORNER OF CONCRETE SIDEWALK OF THE ENTRANCE TO 7811 FLINT ROAD

FOR ADDITIONAL BENCHMARK INFORMATION, SEE ROADWAY PLAN SHEET 7 /1150.



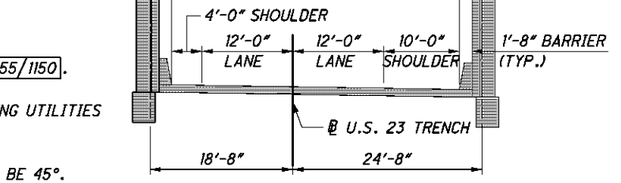
PLAN



* BEARING CONDITION (EXPANSION OR FIXED) IS FOR TRANSVERSE MOVEMENT ONLY, LONGITUDINAL BEARING CONDITION VARIES

UNIT 1 TYPICAL SECTION

(LOOKING UPSTATION)



UNIT 2 TYPICAL SECTION

(LOOKING UPSTATION)

LEGEND:

- SOIL BORING LOCATION
- = ELEVATION TOP OF WEATHERED SHALE
- = ELEVATION TOP OF SHALE
- = FULL WIDTH STRUCTURE
- = PARTIAL WIDTH STRUCTURE

XXX.XX = PROPOSED TRENCH PROFILE GRADE

℄ U.S. 23 TRENCH CURVE DATA

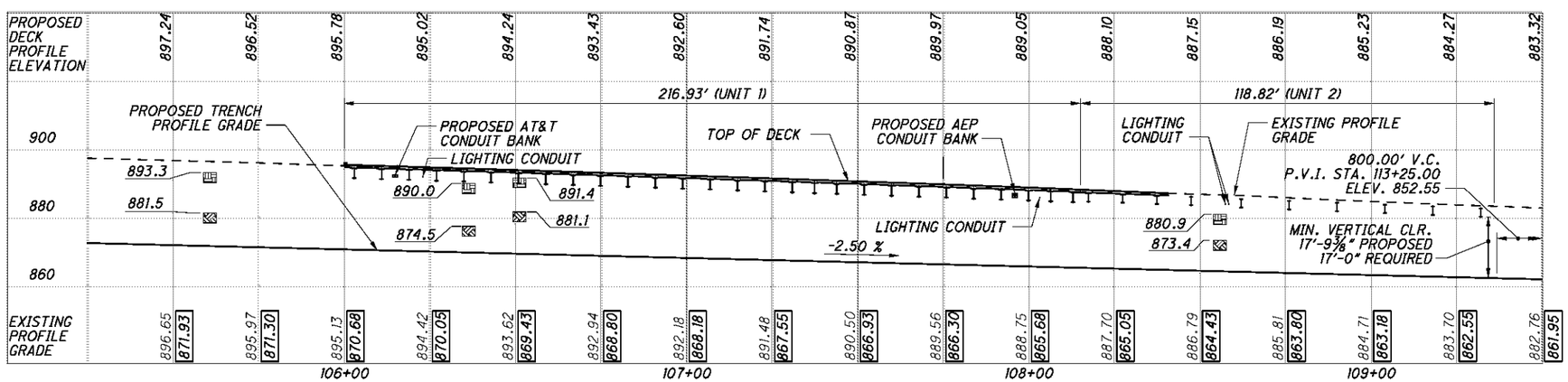
P.I. STA. 106+92.56
Δ = 6° 02' 00" (LT)
Dc = 0° 29' 57"
R = 11,479.82'
T = 604.98'
L = 1,208.84'
E = 15.93'
emax = NC

NOTES:

1. FOR BORING LOCATIONS, SEE SHEET 955/1150.
2. UNLESS NOTED OTHERWISE, ALL EXISTING UTILITIES WILL BE RELOCATED BY OTHERS.
3. MAXIMUM BEND OF AEP CONDUIT SHALL BE 45°.

DESIGN TRAFFIC:

2008 ADT = 7,890 2008 ADTT = 395
2028 ADT = 7,510 2028 ADTT = 377



ELEVATION ALONG ℄ U.S. 23 TRENCH

PROPOSED STRUCTURE

TYPE: SINGLE-SPAN STRUCTURE WITH ROLLED STEEL BEAMS AND COMPOSITE REINFORCED CONCRETE DECK ON REINFORCED CONCRETE ABUTMENTS WITH DRILLED SHAFT SOLDIER PILES AND TIE BACKS.

SPAN: 43'-4" C/C BEARINGS

ROADWAY: UNIT 1 - 216'-11⅛" BEGINNING OF ABUTMENT TO ℄ OF EXPANSION JOINT
UNIT 2 - 118'-9⅞" ℄ EXPANSION JOINT TO END OF ABUTMENT

LOADING: HS25 CASE II, ALTERNATE MILITARY & 60 PSF FWS

SKEW: 0°0'0"

APPROACH SLABS: 14'-3" LONG, AS PER PLAN

ALIGNMENT: HORIZONTAL CURVE

CROWN: 0.0160 FT./FT.

COORDINATES: LATITUDE N40°07'20"
LONGITUDE W83°00'57"

WEARING SURFACE: 1" MONOLITHIC CONCRETE

DESIGN AGENCY
HNTB
100 Superior Avenue, Suite 1300
Cleveland, OH 44114-2521

DESIGNED	CHECKED
JOL	BTA/JOL

DRAWN	REVIEWED	DATE
JFM	RSB	11/2/12

REVISED

STRUCTURE FILE NUMBER
2500779

FRANKLIN COUNTY
STA. 106+00.00
STA. 109+34.75

SITE PLAN
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

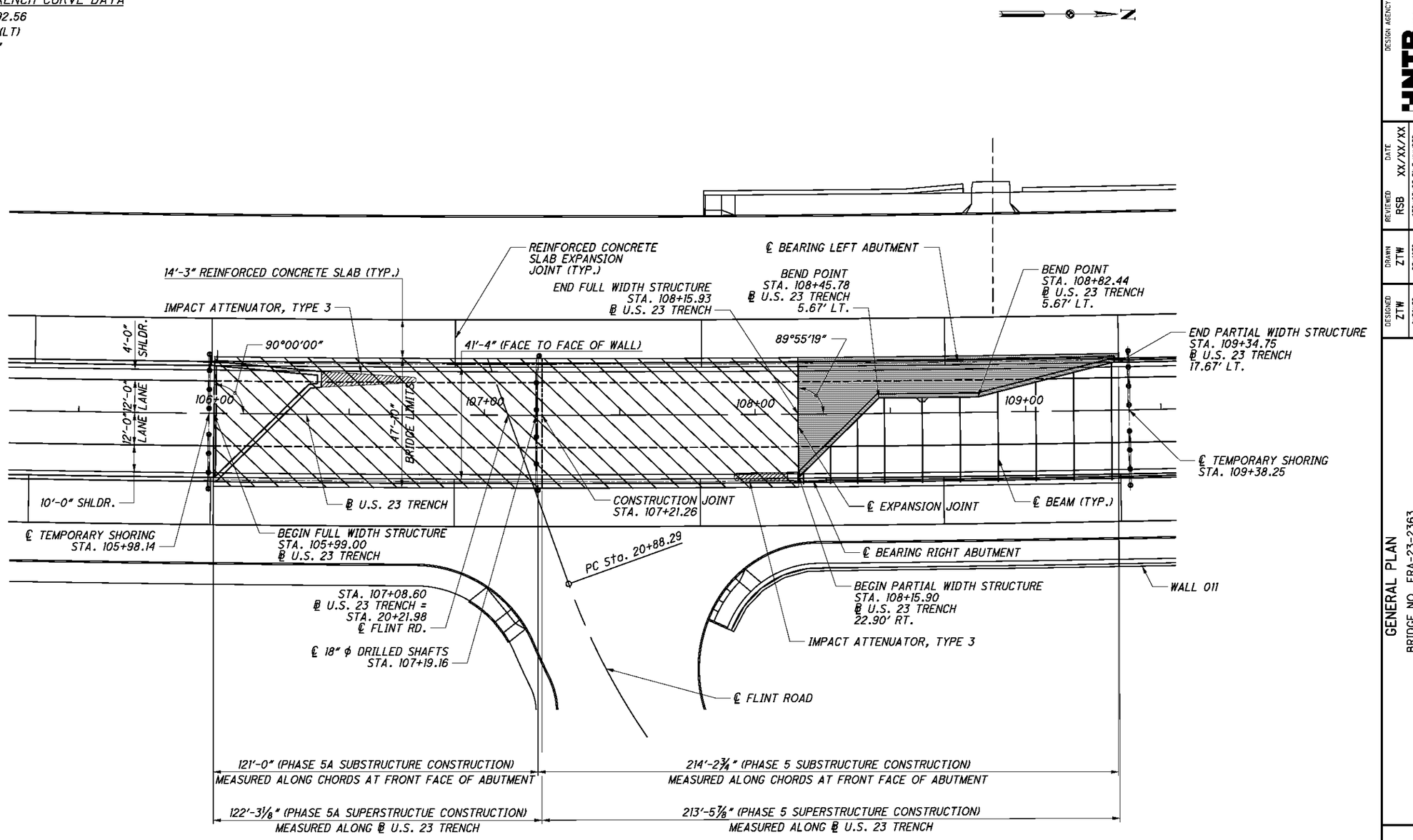
FRA-23-22.23
PID No. 81746

1 /53

1092
1150

℄ U.S. 23 TRENCH CURVE DATA

P.I. STA. 106+92.56
Δ = 6° 02′ 00″ (LT)
Dc = 0° 29′ 57″
R = 11,479.82′
T = 604.98′
L = 1,208.84′
E = 15.93′
emax = NC



PLAN

LEGEND:

▨ = FULL WIDTH STRUCTURE
▤ = PARTIAL WIDTH STRUCTURE

NOTES:

1. FOR ADDITIONAL DETAILS, SEE SITE PLAN SHEET 1/53.
2. FOR ADDITIONAL CONSTRUCTION PHASING DETAILS, SEE ROADWAY MOT PLAN SHEETS AND SHEET 8/53.

DESIGN AGENCY
HNTB
700 Superior Avenue, Suite 1300
Cleveland, OH 44114-2231

DESIGNED	DRAWN	REVIEWED	DATE
ZTW	ZTW	RSB	XX/XX/XX
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTW		2500779	

GENERAL PLAN
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

2/53

1093/1150

MADE BY: ZTW DATE: 10/15/12
CHECKED BY: RSB DATE: 10/22/12

ESTIMATED QUANTITIES

ITEM	EXT.	UTILITY	05/NHS/ BR/NEW	TOTAL	UNIT	DESCRIPTION	ABUTMENTS	SOLDIER PILE WALLS	SUPERSTRUCTURE	GENERAL	AS PER PLAN REFERENCE SHEET NUMBER
503	11101	0	LUMP	LUMP		COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN					936/1150
503	21300	0	LUMP	LUMP		UNCLASSIFIED EXCAVATION					
503	31101	0	770	770	CU YD	ROCK EXCAVATION, AS PER PLAN	280	490			940/1150
509	10000	0	299036	299036	POUND	EPOXY COATED REINFORCING STEEL	88288	45550	165198		
512	10050	0	2325	2325	SQ YD	SEALING OF CONCRETE SURFACES (NON-EPOXY)	2103		222		
512	33001	0	221	221	SQ YD	TYPE 2 WATERPROOFING, AS PER PLAN	221				19, 23 & 28 / 53
SPECIAL	51267400	0	8110	8110	SQ FT	WATERPROOFING, MISC.: ASPHALT COATING		8110			936/1150
513	10261	1115	299600	300715	POUND	STRUCTURAL STEEL MEMBERS, LEVEL 3, AS PER PLAN **			300715		937-939/1150
513	20000	0	4046	4046	EACH	WELDED STUD SHEAR CONNECTORS		4046			
513	20001	0	5558	5558	EACH	WELDED STUD SHEAR CONNECTORS, AS PER PLAN	5558				940/1150
516	11211	0	600	600	FT	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL, AS PER PLAN			600		47 / 53
516	13600	0	2624	2624	SQ FT	1" PREFORMED EXPANSION JOINT FILLER	195	2424	5		
516	13900	0	95	95	SQ FT	2" PREFORMED EXPANSION JOINT FILLER	95				
516	44100	0	1	1	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE)			1		
						(10" X 11" X 2.922" W/ 11" X 23" X 1.5" LOAD PLATE)					
516	44101	0	6	6	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN			6		34 / 53
						(12" DIAMETER X 2.648" W/ 13" X 13" X 1.5" LOAD PLATE & 13" X 22" X 1.5" MASONRY PLATE)					
516	44101	0	1	1	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN			1		34 / 53
						(12" DIAMETER X 2.648" W/ 13" X 20" X 1.5" LOAD PLATE)					
516	44101	0	6	6	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN			6		35 / 53
						(8" X 9" X 2.648" W/ 9" X 23" X 1.5" LOAD PLATE & 17" X 21" X 1.5" MASONRY PLATE)					
516	44101	0	1	1	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN			1		35 / 53
						(8" X 9" X 2.648" W/ 9" X 19" X 1.5" LOAD PLATE)					
516	44101	0	2	2	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN			2		35 / 53
						(9" X 11" X 2.922" W/ 10" X 24" X 1.5" LOAD PLATE & 17" X 22" X 1.5" MASONRY PLATE)					
516	44200	0	1	1	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE)			1		
						(13" DIAMETER X 3.035" W/ 14" X 14" X 1.5" LOAD PLATE)					
516	44201	0	27	27	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN			27		34 / 53
						(15" DIAMETER X 3.035" W/ 16" X 16" X 1.5" LOAD PLATE & 16" X 24" X 1.5" MASONRY PLATE)					
516	44201	0	1	1	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN			1		34 / 53
						(15" DIAMETER X 3.035" W/ 16" X 22" X 1.5" LOAD PLATE)					
516	44201	0	2	2	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN			2		34 / 53
						(14" DIAMETER X 3.422" W/ 15" X 15" X 1.5" LOAD PLATE & 15" X 23" X 1.5" MASONRY PLATE)					
516	44201	0	27	27	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN			27		35 / 53
						(13" X 14" X 3.422" W/ 14" X 25" X 1.5" LOAD PLATE & 14" X 23" X 1.5" MASONRY PLATE)					
516	44201	0	1	1	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN			1		35 / 53
						(13" X 14" X 3.422" W/ 14" X 20" X 1.5" LOAD PLATE)					
524	94603	0	2	2	FT	DRILLED SHAFTS, 30" DIAMETER, ABOVE BEDROCK, AS PER PLAN		2			936/1150
524	94605	0	1471	1471	FT	DRILLED SHAFTS, 30" DIAMETER, INTO BEDROCK, AS PER PLAN		1471			936/1150
SPECIAL	53000400	0	68	68	EACH	STRUCTURE, MISC.: TIEBACK		68			25 / 53
SPECIAL	61050000	0	132	132	EACH	RETAINING WALL, MISC.: ROCK BOLTS		132			949/1150
SPECIAL	61060000	0	LUMP	LUMP		RETAINING WALL, MISC.: SOLDIER PILE WALL					936/1150
SPECIAL	61060000	0	LUMP	LUMP		RETAINING WALL, MISC.: EXCAVATION MONITORING					949/1150
625	25920	190	0	190	FT	CONDUIT, MISC.: (4) - 5" NOMINAL SIZE FIBERGLASS (AEP) **				190	949/1150
625	25920	97	0	97	FT	CONDUIT, MISC.: (2) - 4" NOMINAL SIZE FIBERGLASS (AT&T) *				97	949/1150
898	10210	0	325	325	CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK)			325		
898	10689	0	1065	1065	SQ YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), (T=12"), AS PER PLAN				1065	50 / 53
898	11001	0	56	56	CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET), AS PER PLAN			56		937/1150
898	20151	0	646	646	CU YD	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (ABUTMENT), AS PER PLAN	646				937,1101,1103,1105&1107/1150
898	98000	0	285	285	CU YD	QC/QA CONCRETE, MISC.: CLASS QSC1, SOLDIER PILE CONCRETE FACING, AS PER PLAN		285			937/1150

* - 08/NHS/OT/AT&T (AT&T IS RESPONSIBLE FOR PAYMENT OF CONDUIT)

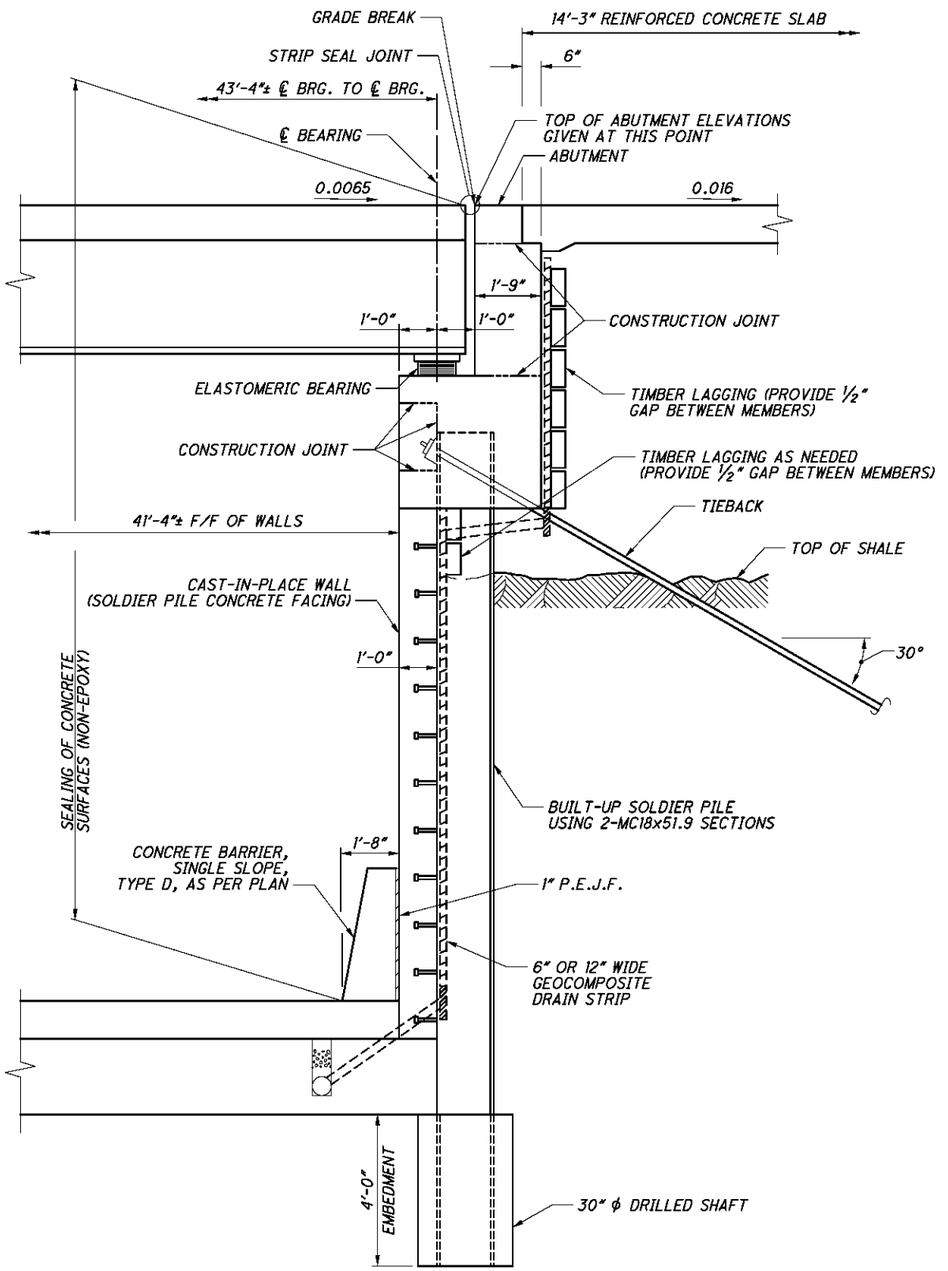
** - 07/NHS/OT/AEP (AEP IS RESPONSIBLE FOR PAYMENT OF 1115 LBS OF STRUCTURAL STEEL AND CONDUIT)

DESIGN AGENCY
HNTB
1100 Superior Avenue, Suite 1300
Cleveland, OH 44114-2531

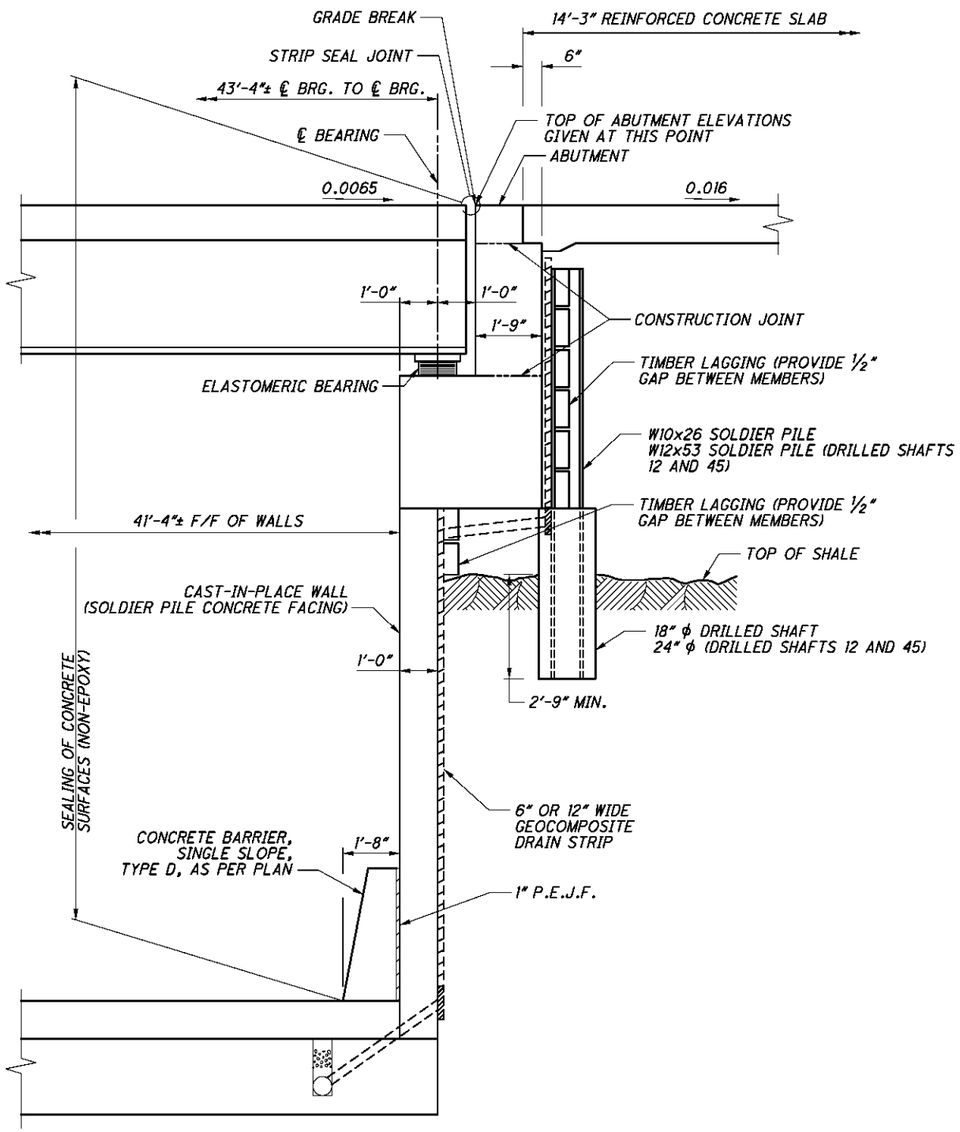
DATE 11/2/12
REVIEWED JOL
STRUCTURE FILE NUMBER 2500779
DRAWN ZTW
REVISED
DESIGNED ZTW
CHECKED RSB

ESTIMATED QUANTITIES
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746



TYPICAL SECTION AT TIEBACK



TYPICAL SECTION BETWEEN TIEBACKS

NOTES:

1. FOR TYPICAL SECTIONS WITH NO OVERHEAD SLAB, SEE SHEET 5/53.

DESIGN AGENCY
HNTB
100 Superior Avenue, Suite 1330
Cleveland, OH 44114-2531

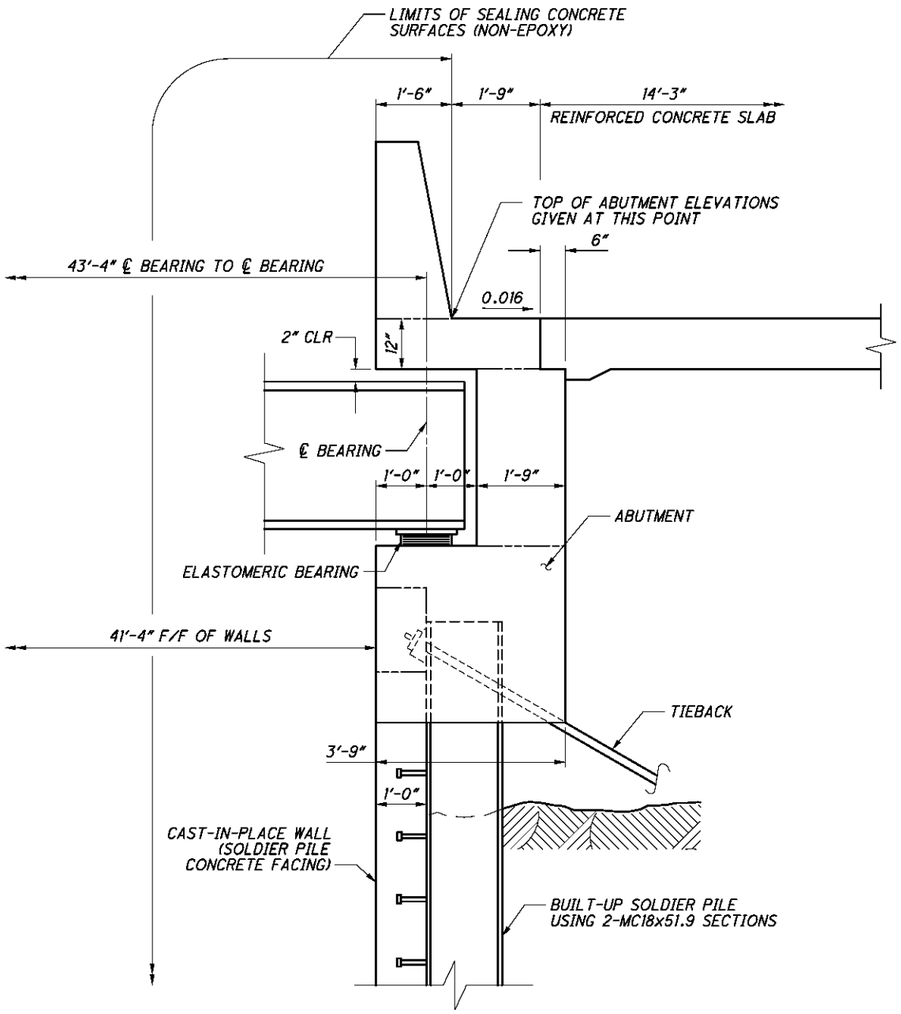
DESIGNED	DRAWN	REVIEWED	DATE
JOL	JFM/PPA	RSB	11/2/12
CHECKED	REVISED	STRUCTURE FILE NUMBER	
TJE/JOL		2500779	

TYPICAL SECTIONS AT OVERHEAD SLABS
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

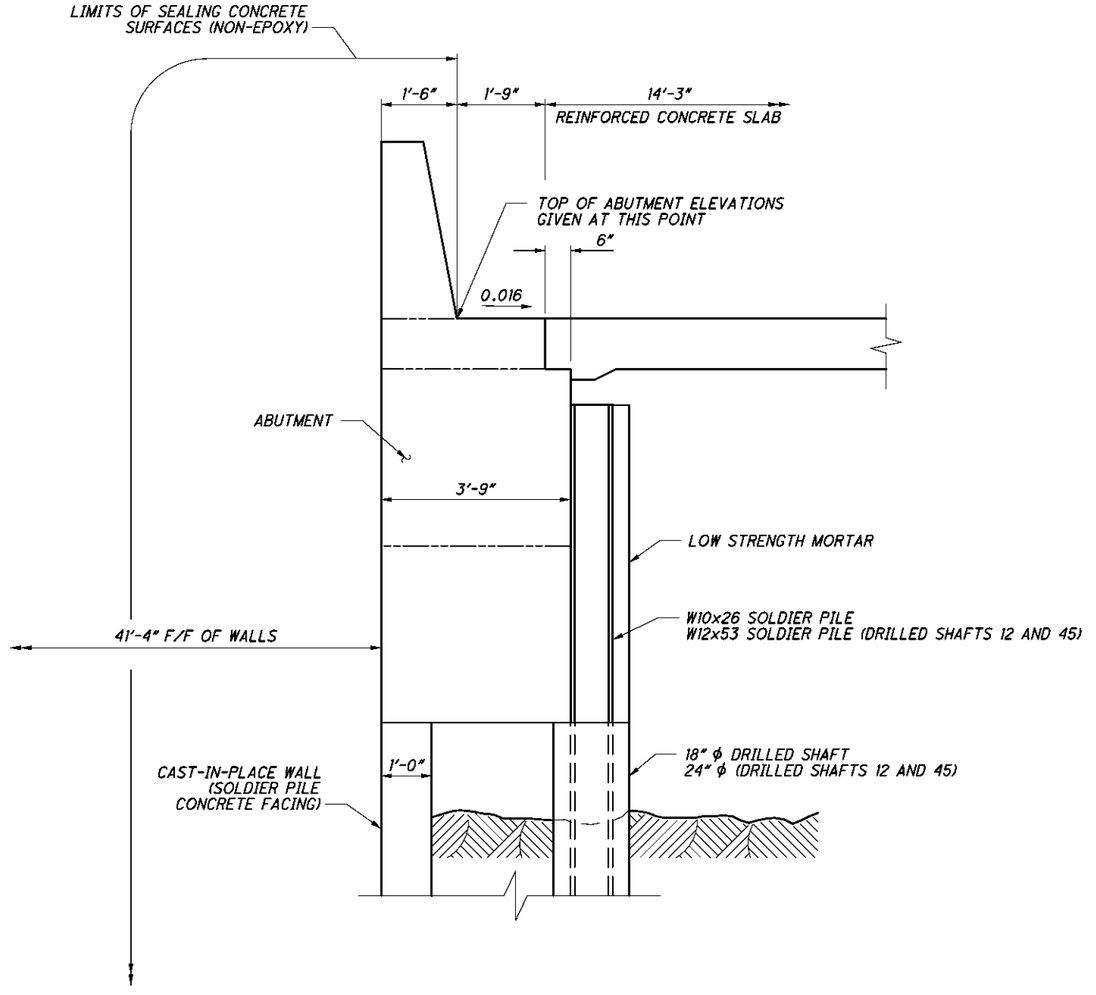
4/53

1095
1150



TYPICAL SECTION AT BEAM OPENINGS AND AT TIEBACKS

(TIMBER LAGGING AND GEOCOMPOSITE DRAIN STRIP NOT SHOWN FOR CLARITY)
(SEE NOTE 2)



TYPICAL SECTION BETWEEN BEAMS AND TIEBACKS

(TIMBER LAGGING AND GEOCOMPOSITE DRAIN STRIP NOT SHOWN FOR CLARITY)
(SEE NOTE 3)

NOTES:

1. FOR TYPICAL SECTIONS AT OVERHEAD SLABS, SEE SHEET 4/53.
2. FOR ADDITIONAL DETAILS, SEE TYPICAL SECTION AT TIEBACK ON SHEET 4/53.
3. FOR ADDITIONAL DETAILS, SEE TYPICAL SECTION BETWEEN TIEBACKS ON SHEET 4/53.

DESIGN AGENCY
HNTB
100 Superior Avenue, Suite 1330
Cleveland, OH 44114-2531

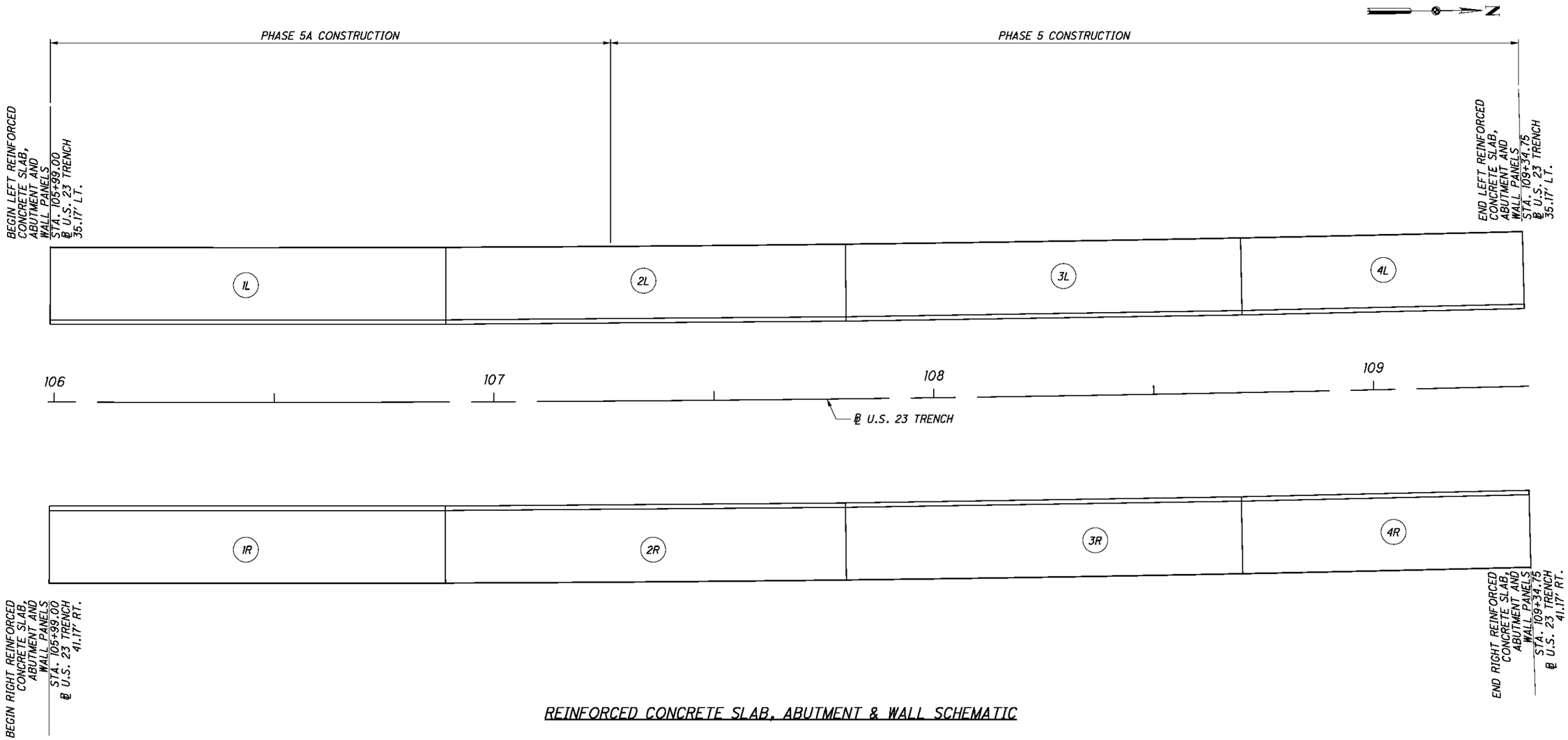
DESIGNED	DRAWN	REVIEWED	DATE
JOL	JFM/PPA	RSB	11/2/12
CHECKED	REVISED	STRUCTURE FILE NUMBER	
TJE/JOL		2500779	

TYPICAL SECTIONS WITH NO OVERHEAD SLAB
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

5 / 53

1096
1150



REINFORCED CONCRETE SLAB, ABUTMENT & WALL SCHEMATIC

LEGEND:

◯ - DENOTES REINFORCED CONCRETE SLAB, ABUTMENT & WALL PANEL NUMBER

NOTES:

1. FOR REINFORCED CONCRETE SLAB DETAILS, SEE SHEET 50/53.
2. FOR CAST-IN-PLACE WALL DETAILS, SEE SHEETS 27/53 AND 28/53.
3. FOR ABUTMENT PLAN, ELEVATION AND DETAILS, SEE SHEETS 10/53 THROUGH 20/53.

DESIGN AGENCY
HNTB
1100 Superior Avenue, Suite 1300
Cleveland, OH 44114-2531

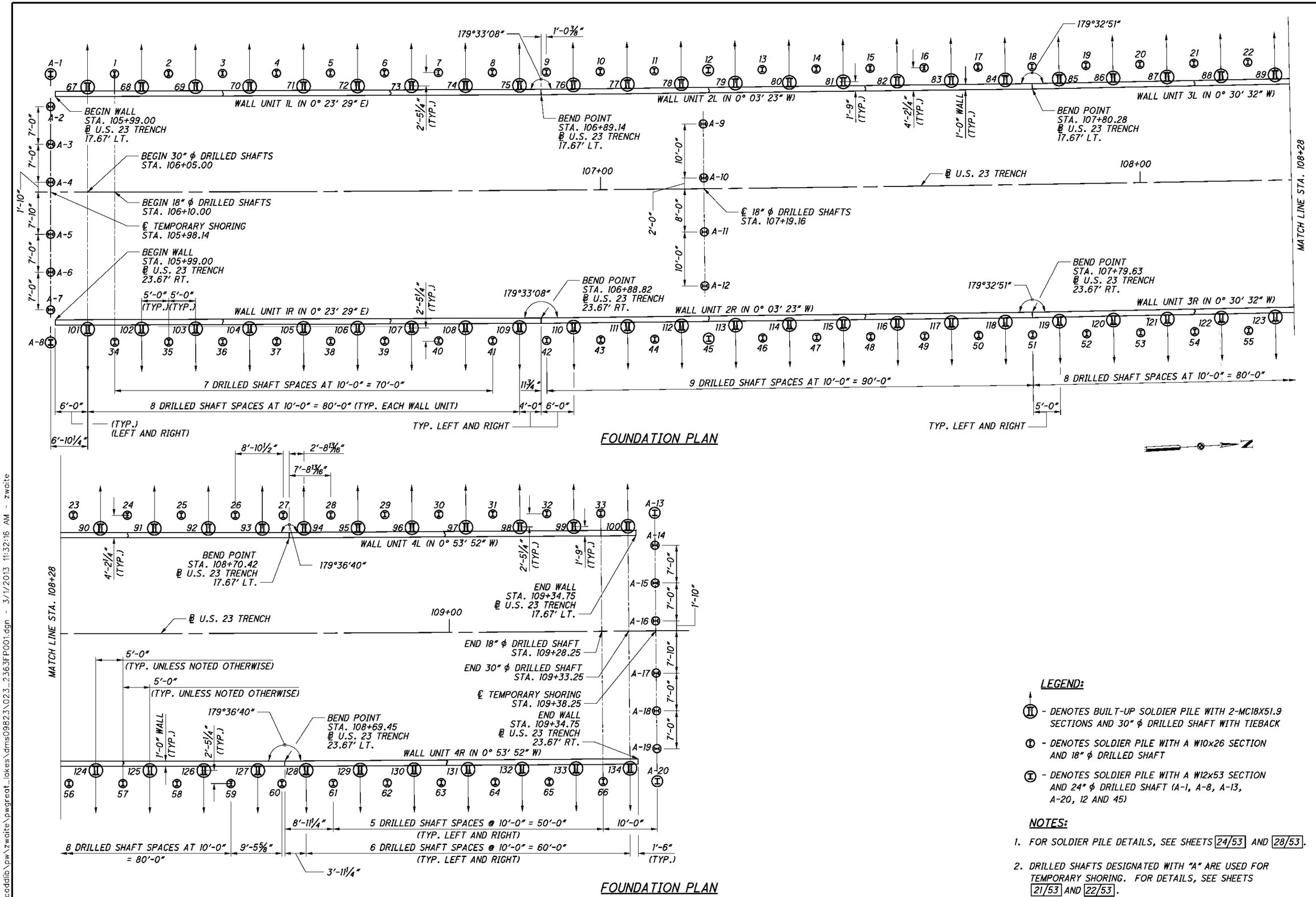
DESIGNED	DRAWN	REVIEWED	DATE
JOL	PPA	RSB	11/2/12
CHECKED	REVISED	STRUCTURE FILE NUMBER	
T.JE/JOL		2500779	

REINFORCED CONCRETE SLAB, ABUTMENT & WALL SCHEMATIC
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

6 / 53

1097
1150



LEGEND:

- (II) - DENOTES BUILT-UP SOLDIER PILE WITH 2-MC18X51.9 SECTIONS AND 30" ϕ DRILLED SHAFT WITH TIEBACK
- (I) - DENOTES SOLDIER PILE WITH A W10x26 SECTION AND 18" ϕ DRILLED SHAFT
- (I) - DENOTES SOLDIER PILE WITH A W12x53 SECTION AND 24" ϕ DRILLED SHAFT (A-1, A-8, A-13, A-20, 12 AND 45)

NOTES:

1. FOR SOLDIER PILE DETAILS, SEE SHEETS 24/53 AND 28/53.
2. DRILLED SHAFTS DESIGNATED WITH "A" ARE USED FOR TEMPORARY SHORING. FOR DETAILS, SEE SHEETS 21/53 AND 22/53.

DESIGN AGENCY
HNTB
100 Superior Avenue, Suite 1330
Cleveland, OH 44114-2531

DESIGNED	DRAWN	REVIEWED	DATE
JOL	PPA	RSB	11/2/12
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JJB/JOL		2500779	

SOLDIER PILE WALL FOUNDATION PLAN
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

SUGGESTED CONSTRUCTION SEQUENCE FOR PHASED CONSTRUCTION

PHASE 5 BRIDGE CONSTRUCTION

1. SHIFT CROSSING TRAFFIC AND INSTALL PORTABLE CONCRETE BARRIER AS SHOWN IN THE MOT PLANS.
2. AUGER HOLES FOR 18" DIAMETER DRILLED SHAFTS NUMBERED A-9 - A-12, 13-33, 46-66 AND 24" DIAMETER DRILLED SHAFTS 12, 45, A-13 AND A-20. (SEE NOTE 3)
3. INSERT W-SECTIONS INTO AUGERED HOLES.
4. FILL AUGERED HOLES WITH STRUCTURAL CONCRETE TO THE ELEVATION OF THE BOTTOM OF THE ABUTMENT; FILL THE REMAINDER OF HOLE WITH LOW STRENGTH MORTAR.
5. EXCAVATE TO THE ELEVATION OF THE BOTTOM OF THE ABUTMENTS, INSTALLING LAGGING AS WORK PROCEEDS.
6. AUGER HOLES FOR 30" DIAMETER DRILLED SHAFTS 79-100 AND 113-134 BELOW ABUTMENT.
7. INSERT BUILT-UP SOLDIER PILE INTO AUGERED HOLES.
8. FILL AUGERED HOLES WITH STRUCTURAL CONCRETE TO THE ELEVATION OF THE BOTTOM OF THE TRENCH PAVEMENT UNDERCUT AND FILL THE REMAINDER OF THE HOLE WITH LOW STRENGTH MORTAR.
9. INSTALL GEOCOMPOSITE DRAIN STRIPS ON THE FACE OF THE LAGGING BEHIND THE ABUTMENT.
10. INSTALL TIEBACK.
11. FORM, POUR, AND CURE ABUTMENT.
12. STRESS TIEBACK.
13. ERECT SUPERSTRUCTURE.

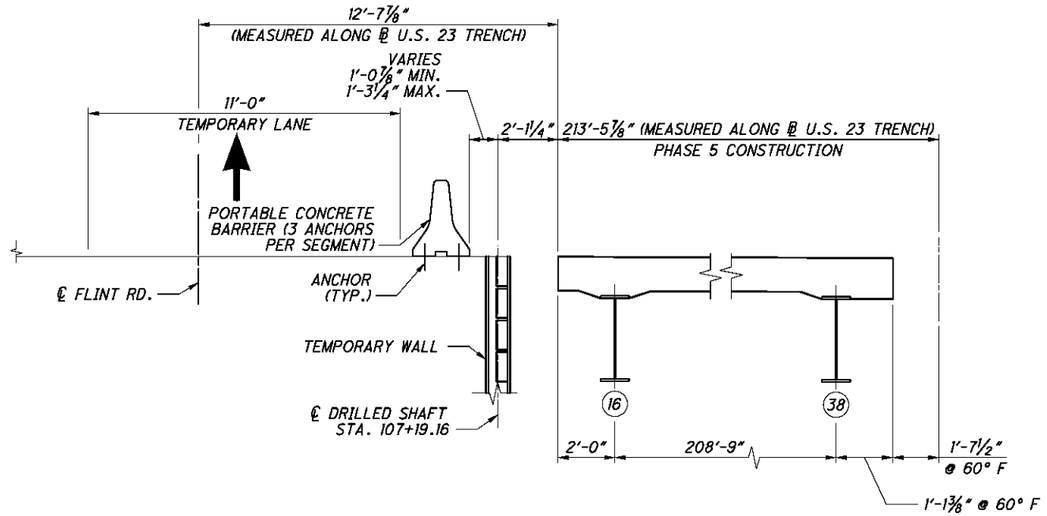
PHASE 5A BRIDGE CONSTRUCTION

1. INSTALL PORTABLE CONCRETE BARRIER ON NEWLY CONSTRUCTED DECK AND SHIFT TRAFFIC AS SHOWN IN THE MOT PLANS.
2. AUGER HOLES FOR THE REMAINING 18" AND 24" DIAMETER DRILLED SHAFTS.
3. REPEAT STEPS 3-12 FROM PHASE 5 CONSTRUCTION. SHAFTS A-9 - A-12 MAY BE REMOVED AFTER STEP 5.

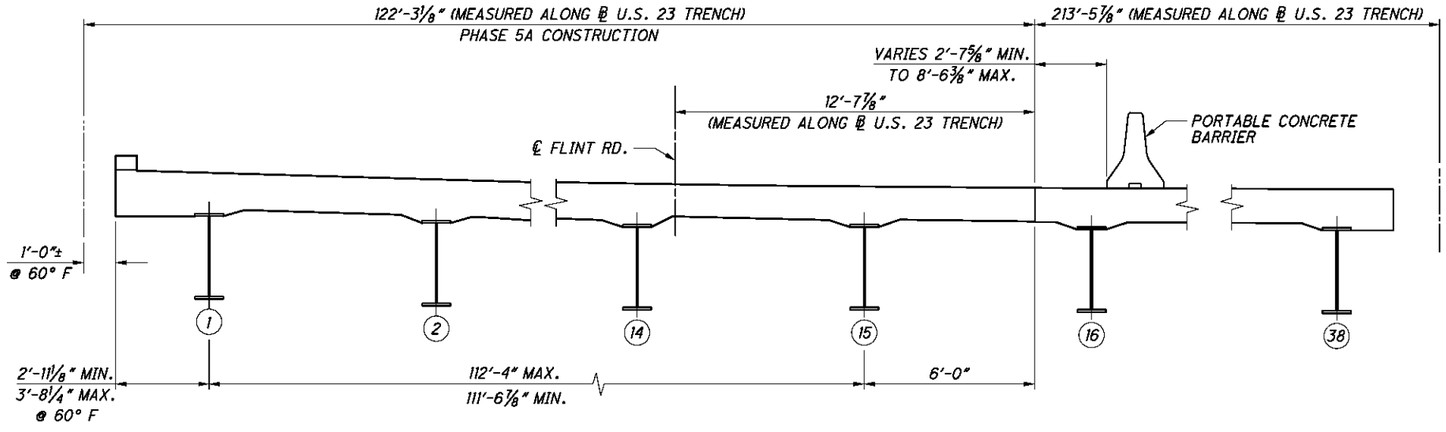
SUGGESTED WALL CONSTRUCTION SEQUENCE

(CONTRACTOR TO CONSTRUCT WALL ANYTIME AFTER THE ABUTMENT BUILT-UP SOLDIER PILE TIEBACK IS STRESSED)

1. EXCAVATE TO THE TOP OF THE SHALE, INSTALLING LAGGING AS WORK PROCEEDS.
2. INSTALL GEOCOMPOSITE DRAIN STRIPS ON THE FACE OF THE LAGGING.
3. EXCAVATE TO THE BOTTOM ELEVATION OF THE TRENCH IN STAGES, INSTALLING GEOCOMPOSITE DRAIN STRIPS ON THE FACE OF THE SHALE AND PLACING ASPHALT COATING AT EACH STAGE.
4. CONSTRUCT SOLDIER PILE CONCRETE FACING.
5. ERECT SUPERSTRUCTURE.



TYPICAL SECTION - PHASE 5 MAINTENANCE OF TRAFFIC



TYPICAL SECTION - PHASE 5A CONSTRUCTION

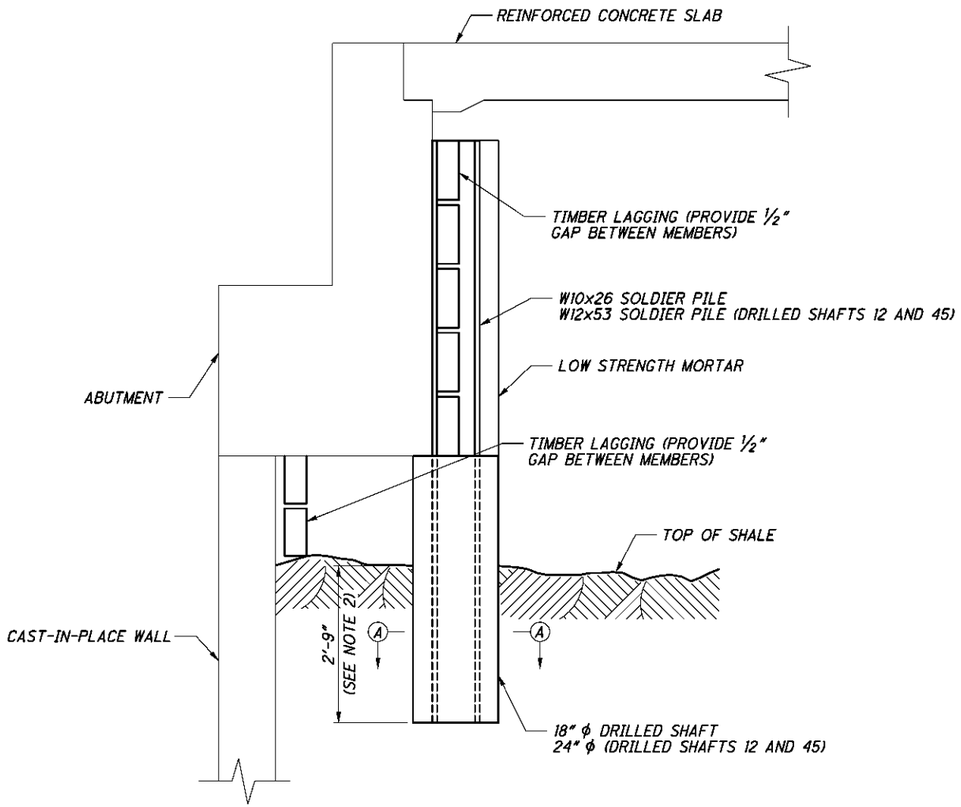
NOTES:

1. FOR ADDITIONAL DETAILS ON PORTABLE CONCRETE BARRIER, SEE ODOT STANDARD DRAWING PCB-91.
2. FOR TEMPORARY WALL DETAILS, SEE SHEET 9/53.
3. FOR CONSTRUCTION SEQUENCE OF 18" OR 24" ϕ DRILLED SHAFTS ADJACENT TO THE ABUTMENTS, SEE SHEETS 21/53 AND 22/53.

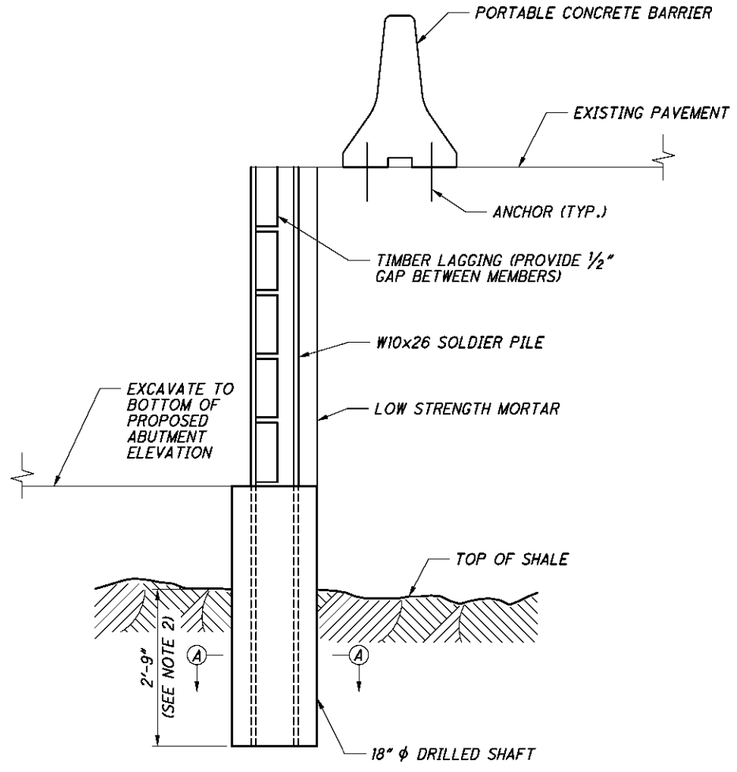
DESIGN AGENCY: HNTB, 700 Superior Avenue, Suite 1300, Cleveland, OH 44114-2531
DESIGNED: JOL | DRAWN: PPA | REVIEWED: RSB | DATE: 11/2/12
CHECKED: JUB/JOL | REVISED: | STRUCTURE FILE NUMBER: 2500779

SUGGESTED CONSTRUCTION SEQUENCE
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

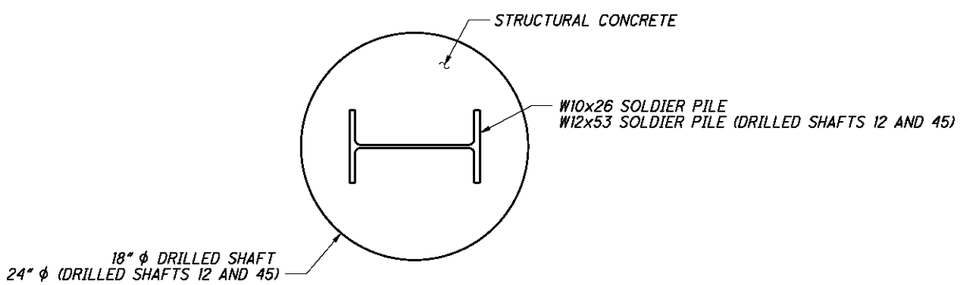
FRA-23-22.23
PID No. 81746



TYPICAL SECTION - TEMPORARY SOLDIER PILE WALL BEHIND ABUTMENTS



TYPICAL SECTION - TEMPORARY SOLDIER PILE WALL AT PHASED CONSTRUCTION JOINT



SECTION A-A

NOTES:

1. PROVIDE 6" OR 12" WIDE GEOCOMPOSITE DRAIN STRIP AS SHOWN ON SHEETS 10/53 THROUGH 17/53. REFER TO SHEET 28/53 FOR ADDITIONAL DRAINAGE DETAILS.
2. DRILLED SHAFTS SHALL EXTEND A MINIMUM OF 2'-9" INTO SHALE OR 2'-9" BELOW THE ABUTMENT, WHICHEVER IS LOWER.
3. TEMPORARY SOLDIER PILE WALLS SHALL BE PAID FOR UNDER ITEM 503 - COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN.
4. FOR SUGGESTED CONSTRUCTION SEQUENCE, SEE SHEET 8/53.

DESIGN AGENCY
HNTB
700 Superior Avenue, Suite 1300
Cleveland, OH 44114-2531

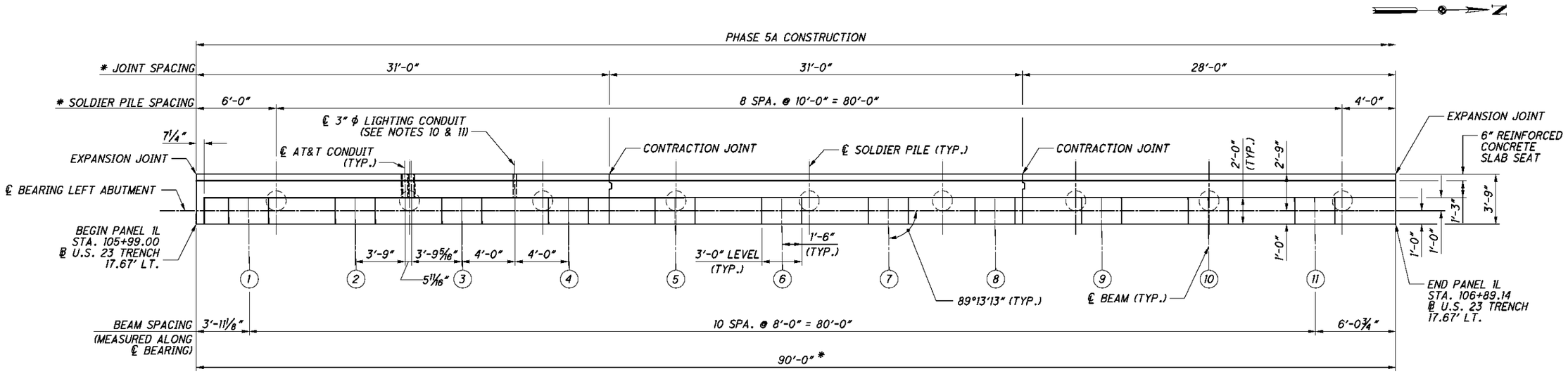
DESIGNED	DRAWN	REVIEWED	DATE
JOL	PPA	RSB	11/2/12
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JJB/JOL		2500779	

TEMPORARY WALL DETAILS
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

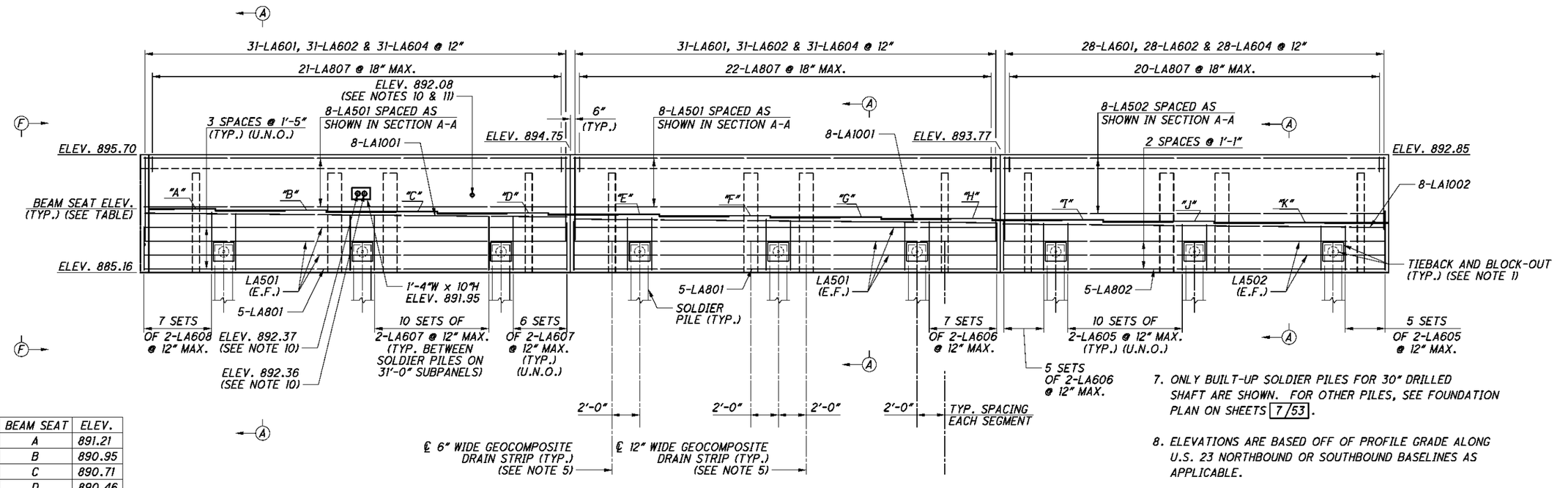
FRA-23-22.23
PID No. 81746

9 / 53

1100
1150



PLAN - PANEL 1L



BEAM NUMBER	BEAM SEAT	ELEV.
1	A	891.21
2	B	890.95
3	C	890.71
4	D	890.46
5	E	890.21
6	F	889.96
7	G	889.70
8	H	889.45
9	I	889.19
10	J	888.93
11	K	888.66

BAR	MINIMUM LAP LENGTH
#6	1'-9" (BACKWALL) 2'-9" (STEM)

* - MEASURED ALONG CHORD AT FRONT FACE OF ABUTMENT

ELEVATION - PANEL 1L

LEGEND:

U.N.O. - UNLESS NOTED OTHERWISE

E.F. - EACH FACE

N.F. - NEAR FACE

F.F. - FAR FACE

NOTES:

1. FOR SECTIONS, VIEWS AND ADDITIONAL ABUTMENT DETAILS, SEE SHEETS 18/53 AND 19/53.
2. ALL VERTICAL REINFORCEMENT SHALL BE SPACED AT 12" MAXIMUM.
3. FOR BEARING DEVICES, SEE SHEETS 34/53 AND 35/53.
4. CAST-IN-PLACE WALL NOT SHOWN FOR CLARITY.
5. SPACE 6" AND 12" WIDE GEOCOMPOSITE DRAIN STRIPS 2'-0" FROM THE SOLDIER PILE AS SHOWN IN ELEVATION VIEW ON THIS SHEET.
6. PARAPET ON TOP OF ABUTMENT NOT SHOWN IN ELEVATION VIEW.
7. ONLY BUILT-UP SOLDIER PILES FOR 30" DRILLED SHAFT ARE SHOWN. FOR OTHER PILES, SEE FOUNDATION PLAN ON SHEETS 7/53.
8. ELEVATIONS ARE BASED OFF OF PROFILE GRADE ALONG U.S. 23 NORTHBOUND OR SOUTHBOUND BASELINES AS APPLICABLE.
9. FOR REINFORCING SCHEDULE, SEE SHEETS 51/53 THROUGH 53/53.
10. FIELD CUT LONGITUDINAL REINFORCING AS NEEDED AND ADJUST VERTICAL REINFORCING AS NEEDED TO AVOID CONDUITS. FOLLOWING INSTALLATION OF AT&T UTILITIES, FILL REMAINDER OF OPENINGS WITH QUICK SETTING CONCRETE MORTAR, TYPE 2, PER 705.21. PAYMENT FOR FORMING OPENINGS AND SUPPLYING, MIXING AND PLACING MORTAR SHALL BE INCLUDED WITH ITEM 898 - QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (ABUTMENT), AS PER PLAN.
11. CAST 3" ϕ LIGHTING CONDUIT DIRECTLY IN BACKWALL. FOR 3" ϕ LIGHTING CONDUIT DETAILS AND PAYMENT, SEE LIGHTING PLANS.

DESIGN AGENCY
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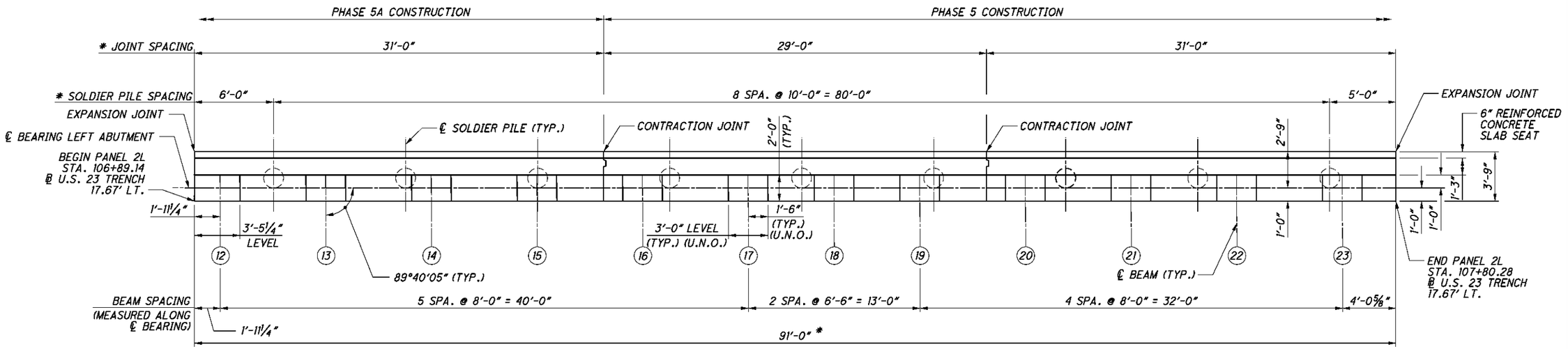
DESIGNED JOL | DRAWN PPA | REVIEWED RSB | DATE 11/2/12 | CHECKED NJ | REVISED | STRUCTURE FILE NUMBER 2500779

LEFT ABUTMENT PLAN AND ELEVATION - 1
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

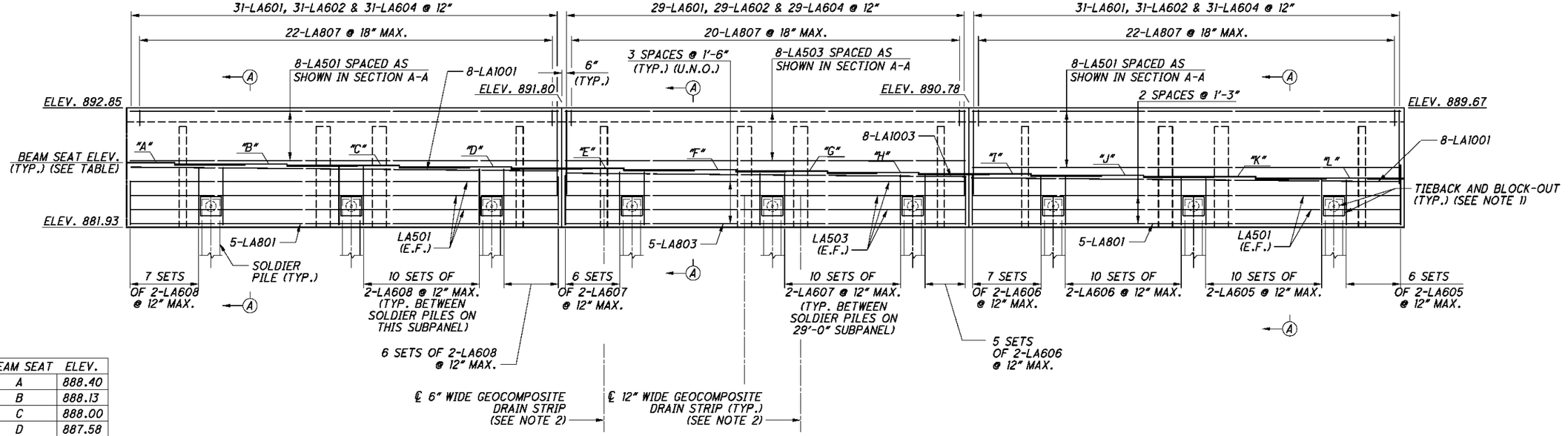
FRA-23-22.23
PID No. 81746

10 / 53

1101 / 1150



PLAN - PANEL 2L



ELEVATION - PANEL 2L

BEAM NUMBER	BEAM SEAT	ELEV.
12	A	888.40
13	B	888.13
14	C	888.00
15	D	887.58
16	E	887.31
17	F	887.03
18	G	886.80
19	H	886.57
20	I	886.29
21	J	886.00
22	K	885.71
23	L	885.43

BAR	MINIMUM LAP LENGTH
#6	1'-9" (BACKWALL) 2'-9" (STEM)

* - MEASURED ALONG CHORD AT FRONT FACE OF ABUTMENT

NOTES:

1. FOR SECTIONS, VIEWS AND ADDITIONAL ABUTMENT DETAILS, SEE SHEETS 18/53 AND 19/53.
2. SPACE 6" AND 12" WIDE GEOCOMPOSITE DRAIN STRIPS 2'-0" FROM THE SOLDIER PILE, AS SHOWN ON SHEET 10/53.
3. FOR ADDITIONAL NOTES AND LEGEND, SEE SHEET 10/53.

DESIGN AGENCY
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DESIGNED JOL | DRAWN PPA | REVIEWED RSB | DATE 11/2/12
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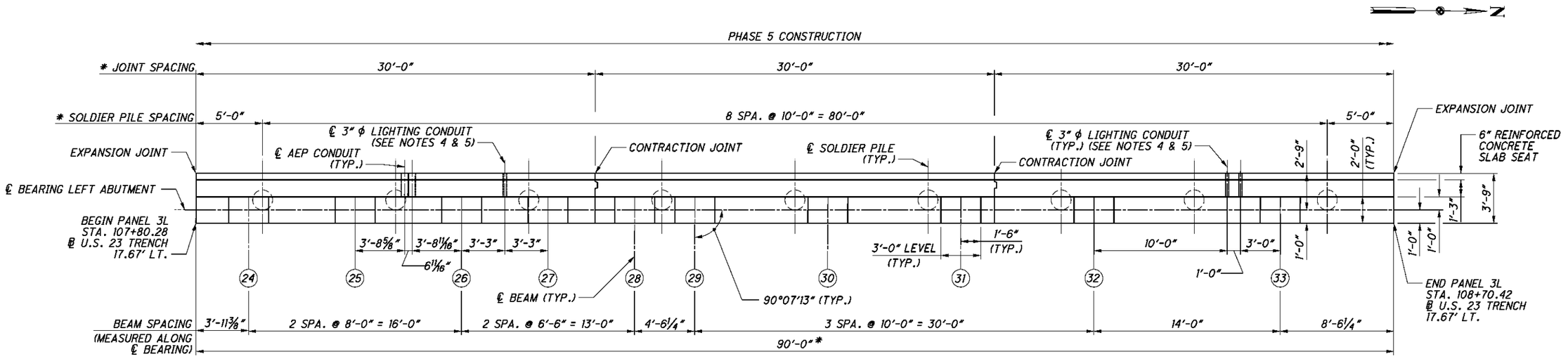
LEFT ABUTMENT PLAN AND ELEVATION - 2
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

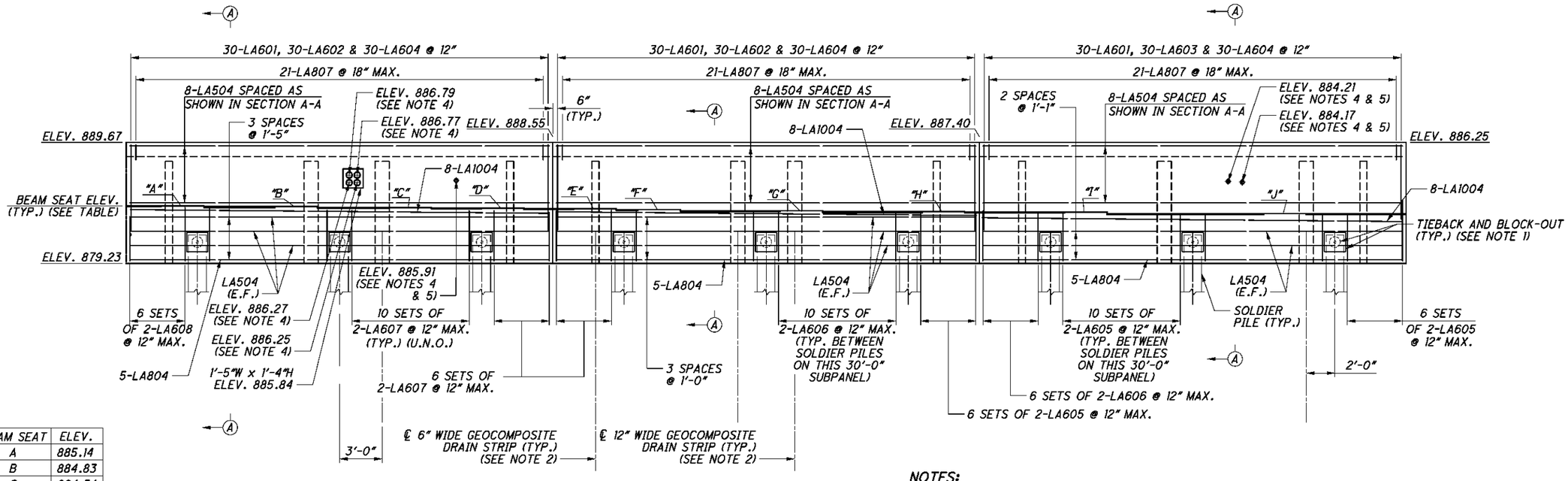
FRA-23-22.23
PID No. 81746

11 / 53

1102
1150



PLAN - PANEL 3L



ELEVATION - PANEL 3L

BEAM NUMBER	BEAM SEAT	ELEV.
24	A	885.14
25	B	884.83
26	C	884.54
27	D	884.30
28	E	884.05
29	F	883.90
30	G	883.35
31	H	882.96
32	I	883.14
33	J	882.73

BAR	MINIMUM LAP LENGTH
#6	1'-9" (BACKWALL) 2'-9" (STEM)

* - MEASURED ALONG CHORD AT FRONT FACE OF ABUTMENT

NOTES:

1. FOR SECTIONS, VIEWS AND ADDITIONAL ABUTMENT DETAILS, SEE SHEETS 18/53 AND 19/53.
2. SPACE 6" AND 12" WIDE GEOCOMPOSITE DRAIN STRIPS 2'-0" FROM THE SOLDIER PILE, AS SHOWN ON SHEET 10/53, EXCEPT AS SHOWN ON THIS SHEET.
3. FOR ADDITIONAL NOTES AND LEGEND, SEE SHEET 10/53.
4. FIELD CUT LONGITUDINAL REINFORCING AS NEEDED AND ADJUST VERTICAL REINFORCING AS NEEDED TO AVOID CONDUIT. FOLLOWING INSTALLATION OF AEP UTILITIES, FILL REMAINDER OF OPENINGS WITH QUICK SETTING CONCRETE MORTAR, TYPE 2, PER 705.21. PAYMENT FOR FORMING OPENINGS AND SUPPLYING, MIXING AND PLACING MORTAR SHALL BE INCLUDED WITH ITEM 898 - QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (ABUTMENT), AS PER PLAN.
5. CAST 3" ϕ LIGHTING CONDUIT DIRECTLY IN BACKWALL. FOR 3" ϕ LIGHTING CONDUIT DETAILS AND PAYMENT, SEE LIGHTING PLANS.

DESIGN AGENCY
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700 Superior Avenue, Suite 1300
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DESIGNED	DRAWN	REVIEWED	DATE
JOL	PPA	RSB	11/2/12
CHECKED	REVISED	STRUCTURE FILE NUMBER	
NJ		2500779	

LEFT ABUTMENT PLAN AND ELEVATION - 3
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

12 / 53

1103
1150

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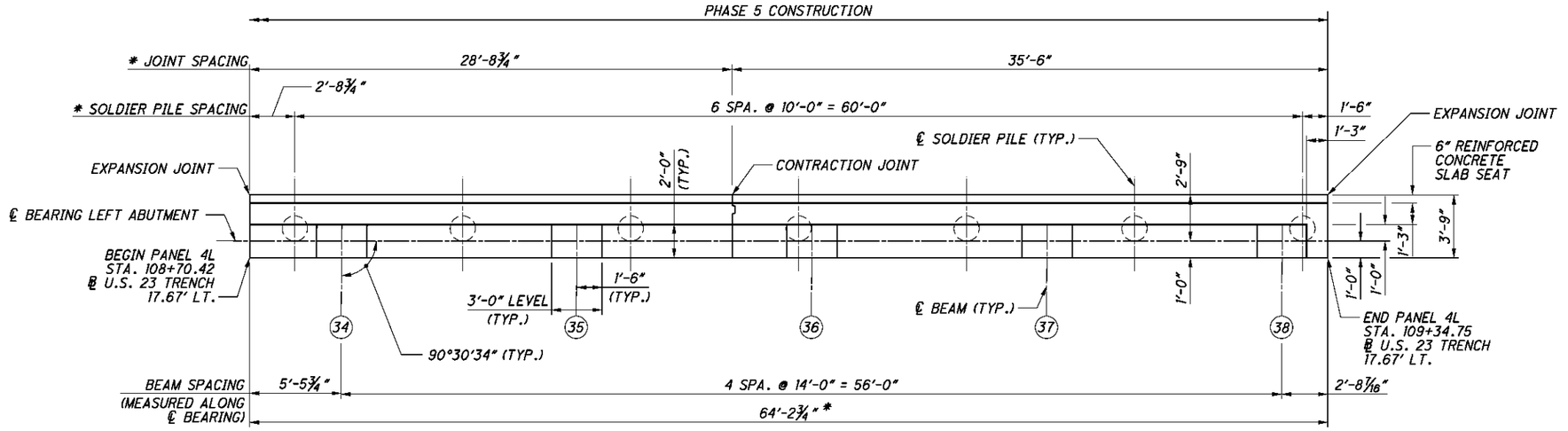
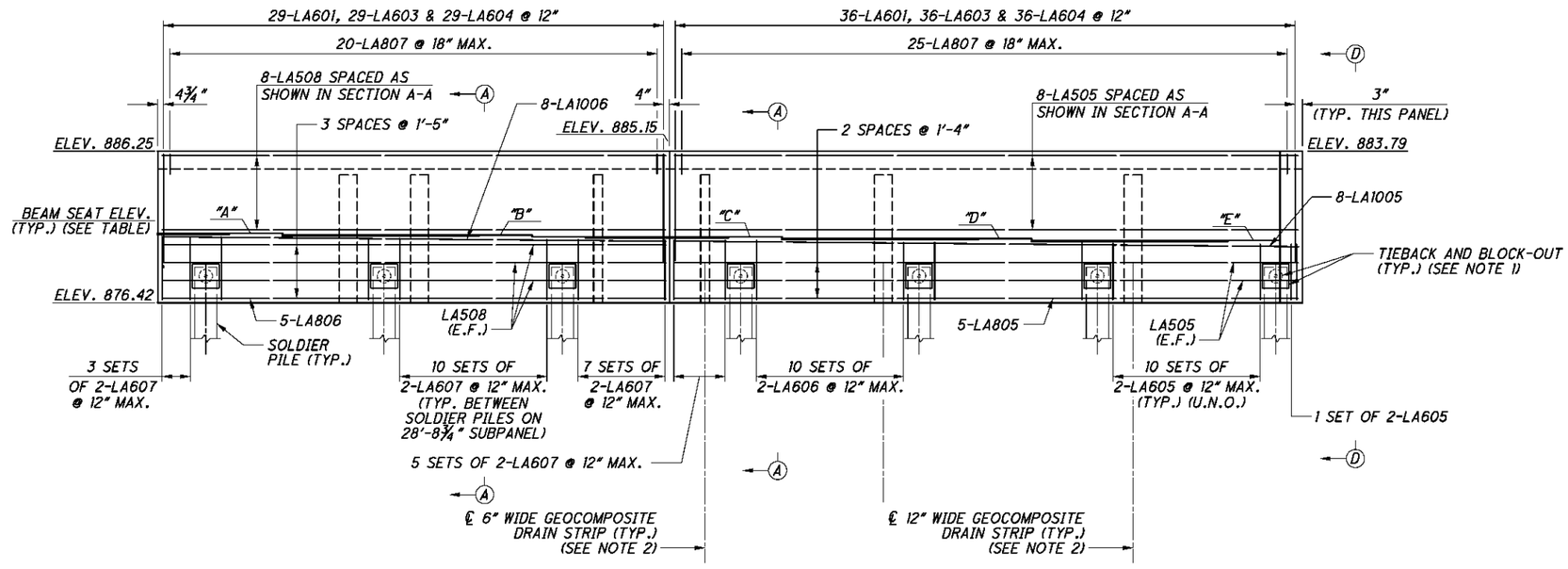


PLAN - PANEL 4L



ELEVATION - PANEL 4L

BEAM NUMBER	BEAM SEAT	ELEV.
34	A	882.06
35	B	881.53
36	C	880.99
37	D	880.45
38	E	879.92

BAR	MINIMUM LAP LENGTH
#6	1'-9" (BACKWALL) 2'-9" (STEM)

* - MEASURED ALONG CHORD AT FRONT FACE OF ABUTMENT

NOTES:

1. FOR SECTIONS, VIEWS AND ADDITIONAL ABUTMENT DETAILS, SEE SHEETS 18/53 AND 19/53.
2. SPACE 6" AND 12" WIDE GEOCOMPOSITE DRAIN STRIPS 2'-0" FROM THE SOLDIER PILE, AS SHOWN ON SHEET 10/53.
3. FOR ADDITIONAL NOTES AND LEGEND, SEE SHEET 10/53.

DESIGN AGENCY
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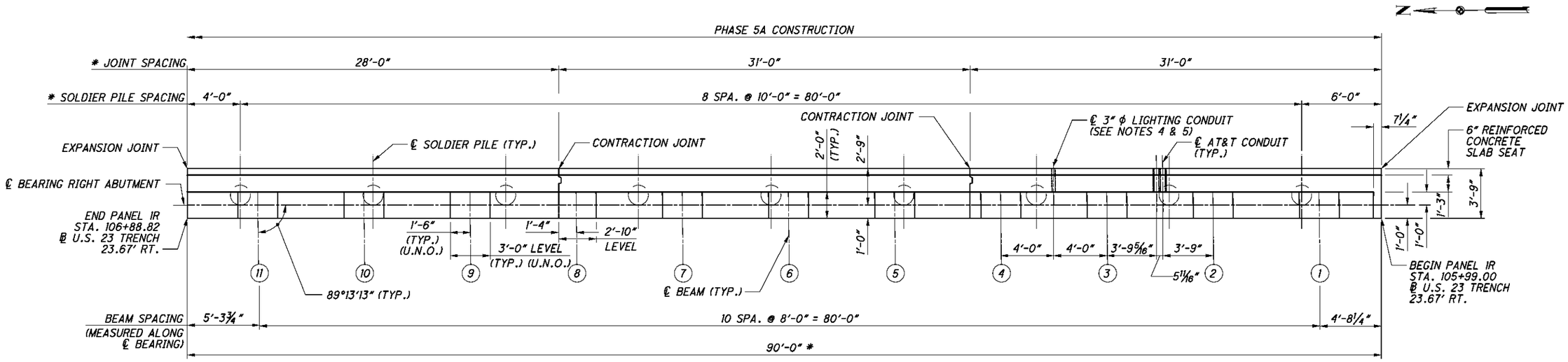
LEFT ABUTMENT PLAN AND ELEVATION - PANEL 4
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

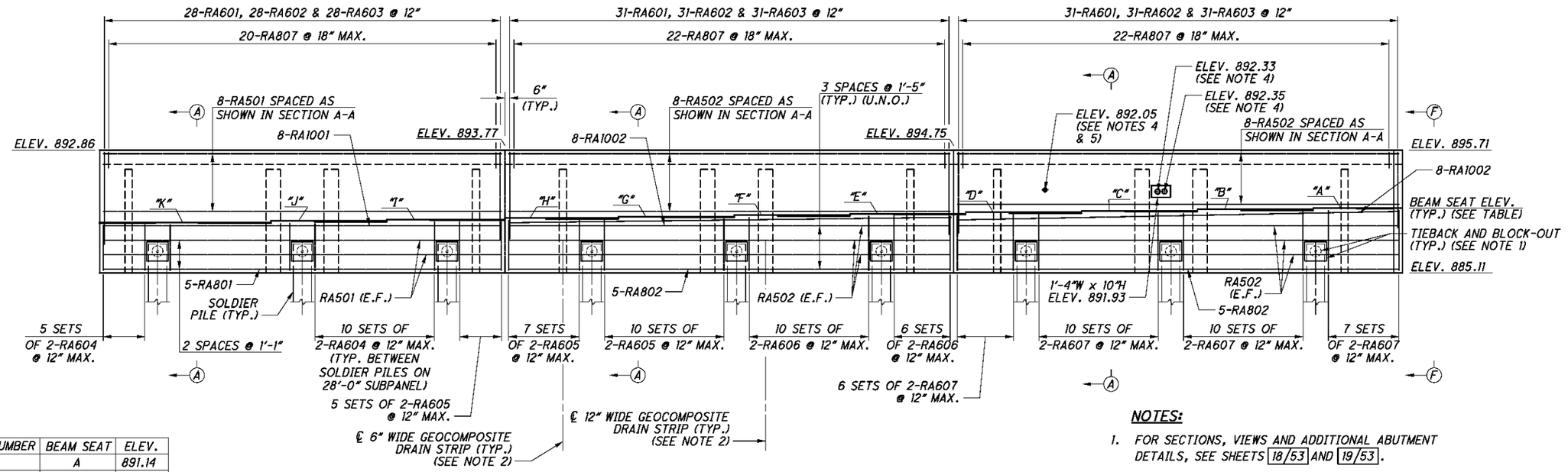
FRA-23-22.23
PID No. 81746

13 / 53

1104
1150



PLAN - PANEL 1R



ELEVATION - PANEL 1R

BEAM NUMBER	BEAM SEAT	ELEV.
1	A	891.14
2	B	890.90
3	C	890.65
4	D	890.40
5	E	890.15
6	F	889.91
7	G	889.65
8	H	889.39
9	I	889.13
10	J	888.87
11	K	888.61

BAR	MINIMUM LAP LENGTH
#6	1'-9" (BACKWALL) 2'-9" (STEM)

* - MEASURED ALONG CHORD AT FRONT FACE OF ABUTMENT

NOTES:

1. FOR SECTIONS, VIEWS AND ADDITIONAL ABUTMENT DETAILS, SEE SHEETS 18/53 AND 19/53.
2. SPACE 6" AND 12" WIDE GEOCOMPOSITE DRAIN STRIPS 2'-0" FROM THE SOLDIER PILE, AS SHOWN ON SHEET 10/53.
3. FOR ADDITIONAL NOTES AND LEGEND, SEE SHEET 10/53.
4. FIELD CUT LONGITUDINAL REINFORCING AS NEEDED AND ADJUST VERTICAL REINFORCING AS NEEDED TO AVOID CONDUITS. FOLLOWING INSTALLATION OF AT&T UTILITIES, FILL REMAINDER OF OPENINGS WITH QUICK SETTING CONCRETE MORTAR, TYPE 2, PER 705.21. PAYMENT FOR FORMING OPENINGS AND SUPPLYING, MIXING AND PLACING MORTAR SHALL BE INCLUDED WITH ITEM 898 - QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (ABUTMENT), AS PER PLAN.
5. CAST 3" ϕ LIGHTING CONDUIT DIRECTLY IN BACKWALL. FOR 3" ϕ LIGHTING CONDUIT DETAILS AND PAYMENT, SEE LIGHTING PLANS.

DESIGN AGENCY
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700 Superior Avenue, Suite 1300
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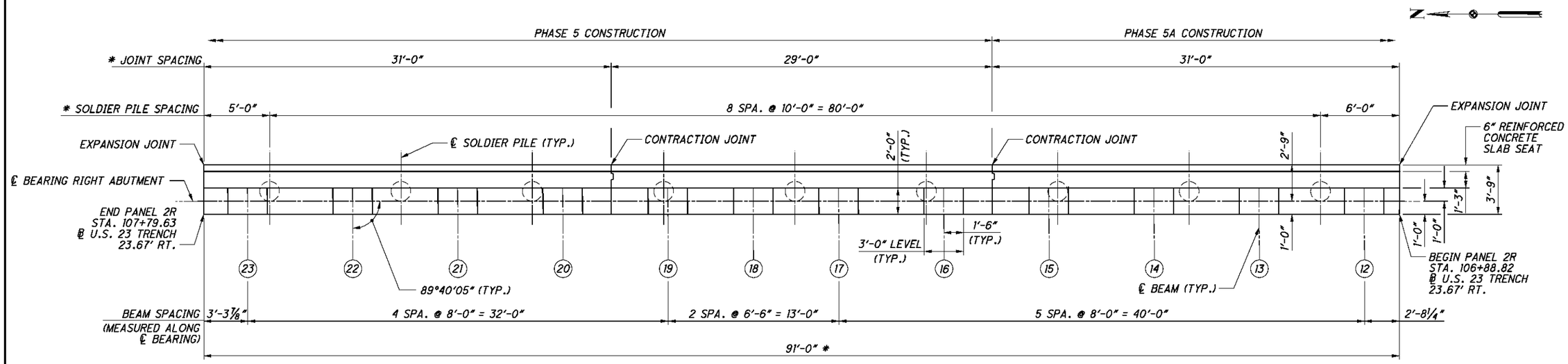
RIGHT ABUTMENT PLAN AND ELEVATION - 1

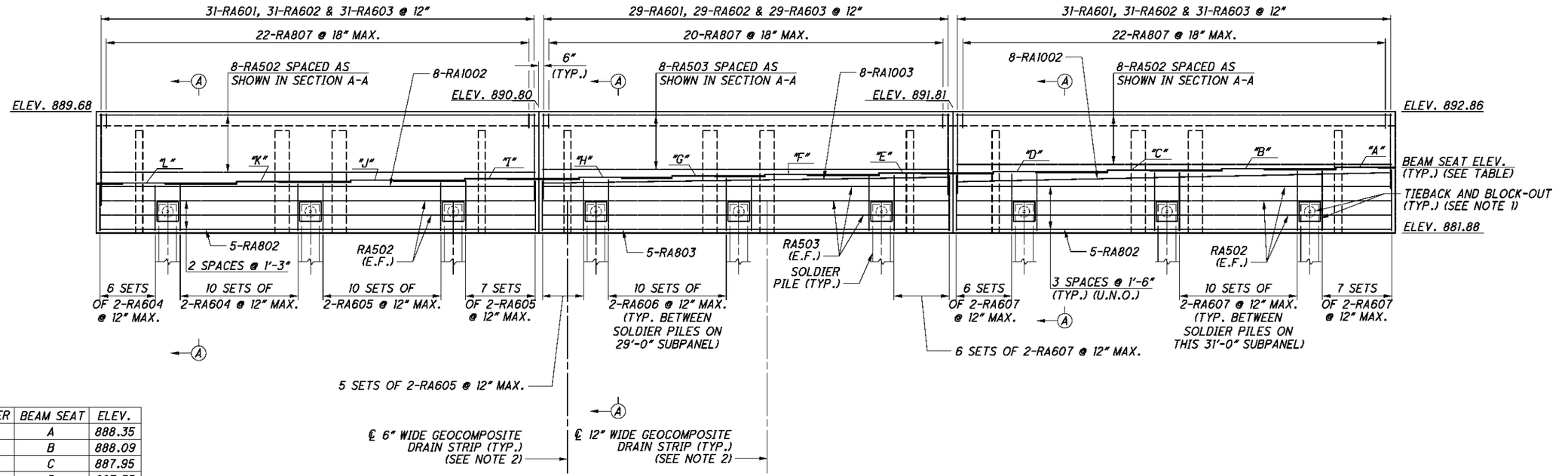
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

1105
1150



PLAN - PANEL 2R



ELEVATION - PANEL 2R

BEAM NUMBER	BEAM SEAT	ELEV.
12	A	888.35
13	B	888.09
14	C	887.95
15	D	887.53
16	E	887.26
17	F	886.98
18	G	886.76
19	H	886.53
20	I	886.25
21	J	885.96
22	K	885.67
23	L	885.38

BAR	MINIMUM LAP LENGTH
#6	1'-9" (BACKWALL) 2'-9" (STEM)

* - MEASURED ALONG CHORD AT FRONT FACE OF ABUTMENT

NOTES:

1. FOR SECTIONS, VIEWS AND ADDITIONAL ABUTMENT DETAILS, SEE SHEETS 18/53 AND 19/53.
2. SPACE 6" AND 12" WIDE GEOCOMPOSITE DRAIN STRIPS 2'-0" FROM THE SOLDIER PILE, AS SHOWN ON SHEET 10/53.
3. FOR ADDITIONAL NOTES AND LEGEND, SEE SHEET 10/53.

DESIGN AGENCY
HNTB
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Cleveland, OH 44114-2531

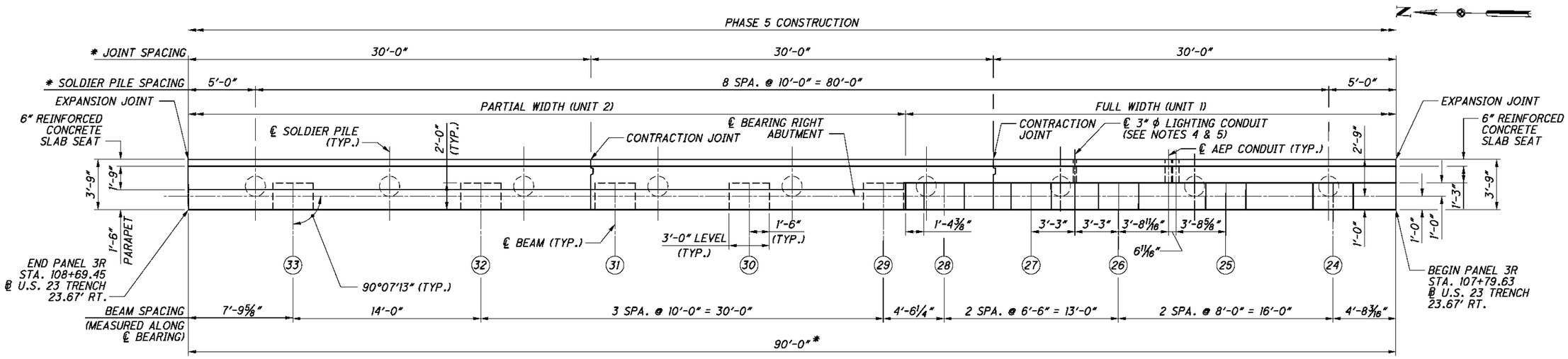
DATE 11/2/12
REVIEWED RSB
STRUCTURE FILE NUMBER 2500779
DRAWN PPA
REVISED
DESIGNED JOL
CHECKED NJ

RIGHT ABUTMENT PLAN AND ELEVATION - 2
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

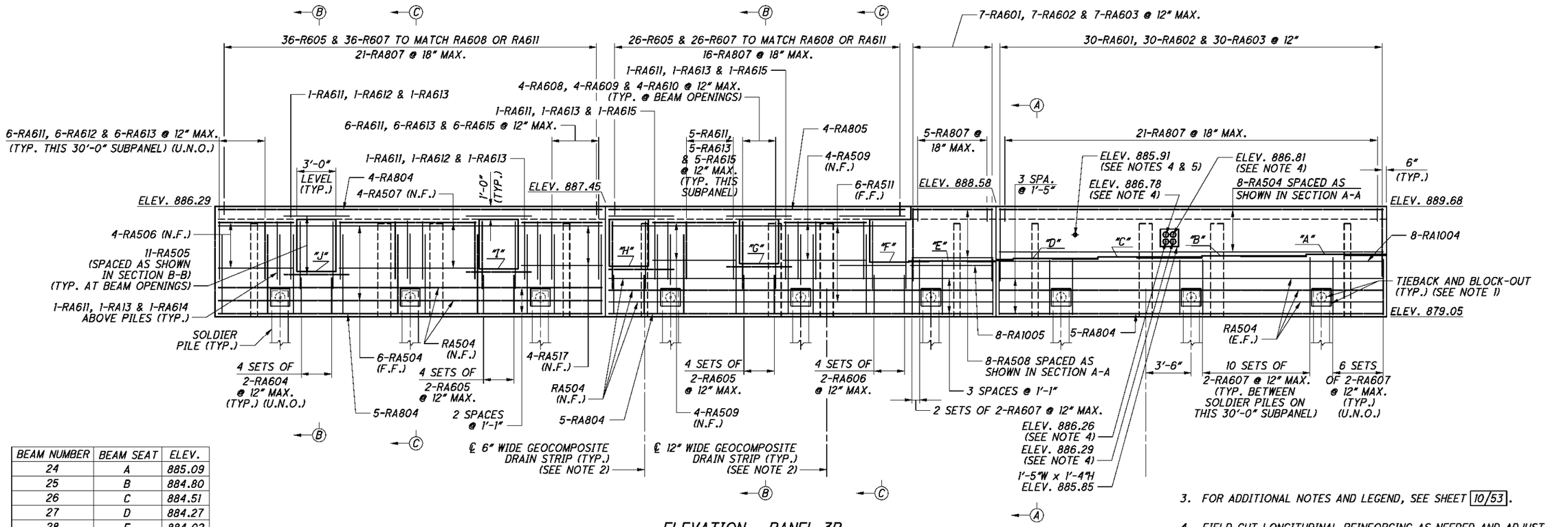
FRA-23-22.23
PID No. 81746

15 / 53

1106
1150



PLAN - PANEL 3R



ELEVATION - PANEL 3R

BEAM NUMBER	BEAM SEAT	ELEV.
24	A	885.09
25	B	884.80
26	C	884.51
27	D	884.27
28	E	884.02
29	F	883.71
30	G	883.21
31	H	882.82
32	I	882.96
33	J	882.55

BAR	MINIMUM LAP LENGTH
#6	1'-9" (BACKWALL) 2'-9" (STEM)

* - MEASURED ALONG CHORD AT FRONT FACE OF ABUTMENT

NOTES:

1. FOR SECTIONS, VIEWS AND ADDITIONAL ABUTMENT DETAILS, SEE SHEETS 18/53 AND 19/53.
2. SPACE 6" AND 12" WIDE GEOCOMPOSITE DRAIN STRIPS 2'-0" FROM THE SOLDIER PILE, AS SHOWN ON SHEET 10/53, EXCEPT AS SHOWN ON THIS SHEET.
3. FOR ADDITIONAL NOTES AND LEGEND, SEE SHEET 10/53.
4. FIELD CUT LONGITUDINAL REINFORCING AS NEEDED AND ADJUST VERTICAL REINFORCING AS NEEDED TO AVOID CONDUIT. FOLLOWING INSTALLATION OF AEP UTILITIES, FILL REMAINDER OF OPENINGS WITH QUICK SETTING CONCRETE MORTAR, TYPE 2, PER 705.21. PAYMENT FOR FORMING OPENINGS AND SUPPLYING, MIXING AND PLACING MORTAR SHALL BE INCLUDED WITH ITEM 898 - QC/OA CONCRETE, CLASS QSC1, SUBSTRUCTURE (ABUTMENT), AS PER PLAN.
5. CAST 3" ϕ LIGHTING CONDUIT DIRECTLY IN BACKWALL. FOR 3" ϕ LIGHTING CONDUIT DETAILS AND PAYMENT, SEE LIGHTING PLANS.

DESIGN AGENCY
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RIGHT ABUTMENT PLAN AND ELEVATION - 3
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

16 / 53

1107
1150

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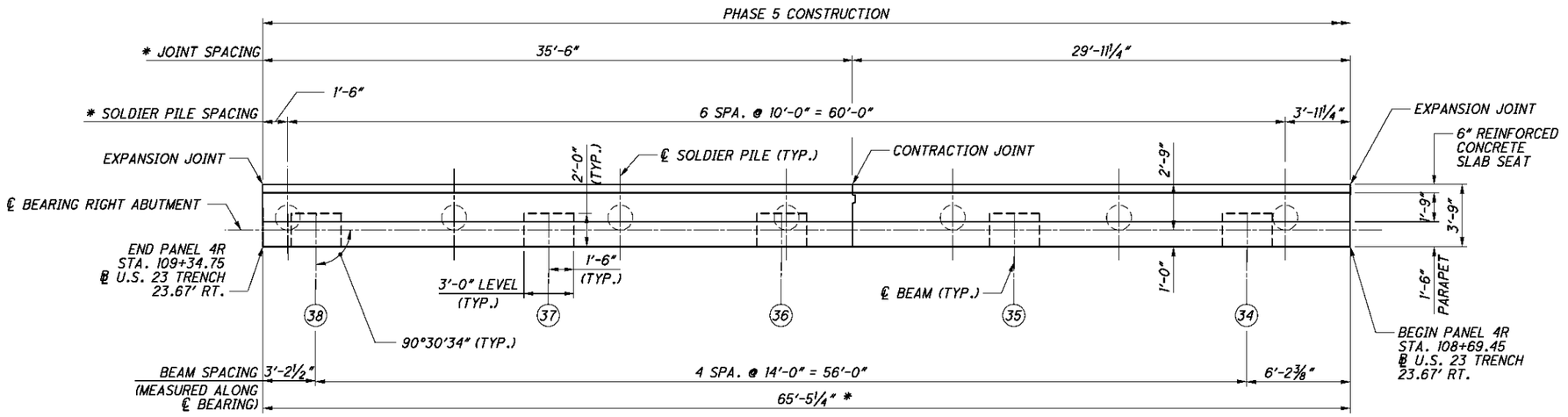
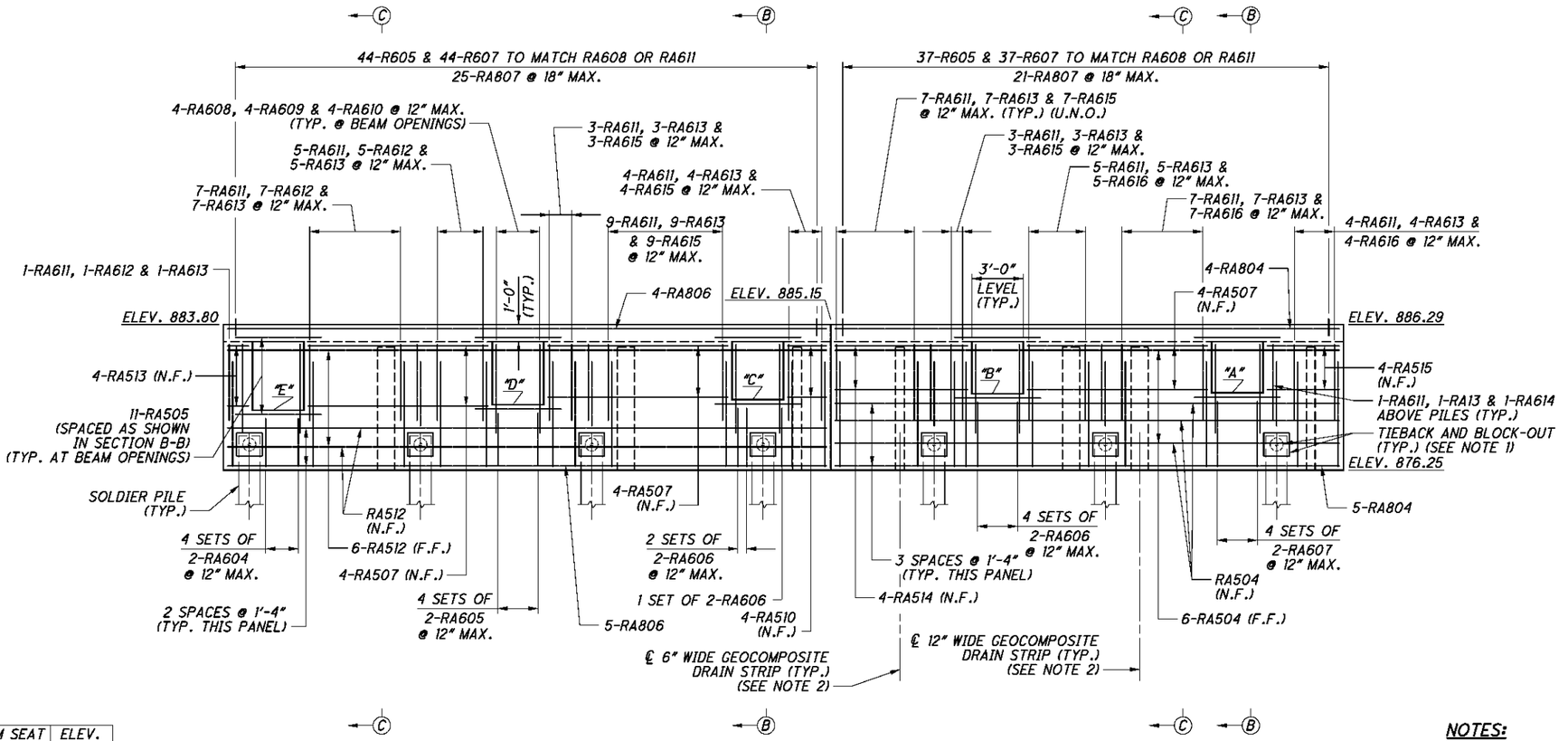


PLAN - PANEL 4R



BEAM NUMBER	BEAM SEAT	ELEV.
34	A	881.89
35	B	881.35
36	C	880.82
37	D	880.28
38	E	879.75

BAR	MINIMUM LAP LENGTH
#6	1'-9" (BACKWALL) 2'-9" (STEM)

ELEVATION - PANEL 4R

* - MEASURED ALONG CHORD AT FRONT FACE OF ABUTMENT

NOTES:

1. FOR SECTIONS, VIEWS AND ADDITIONAL ABUTMENT DETAILS, SEE SHEETS 18/53 AND 19/53.
2. SPACE 6" AND 12" WIDE GEOCOMPOSITE DRAIN STRIPS 2'-0" FROM THE SOLDIER PILE, AS SHOWN ON SHEET 10/53.
3. FOR ADDITIONAL NOTES AND LEGEND, SEE SHEET 10/53.

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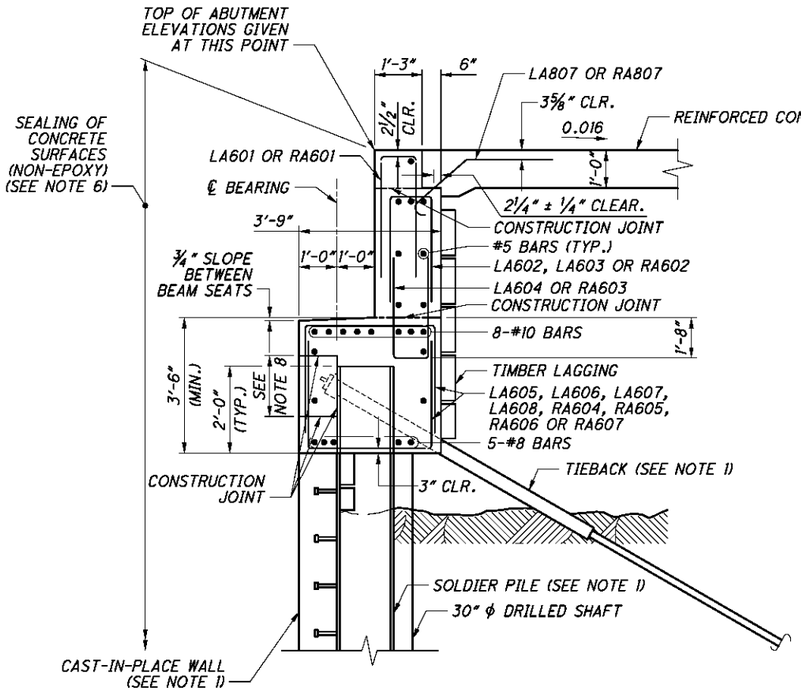
CHECKED NJ | REVISED | STRUCTURE FILE NUMBER 2500779

RIGHT ABUTMENT PLAN AND ELEVATION - 4
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

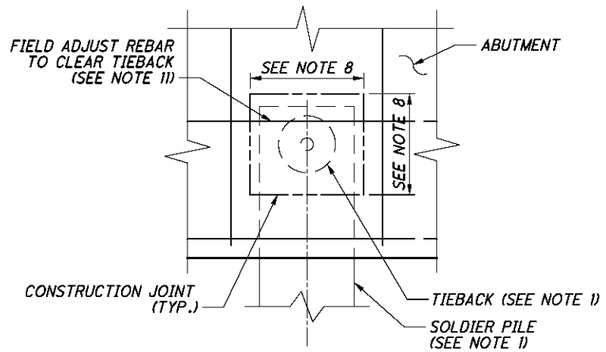
17 / 53

1108
1150

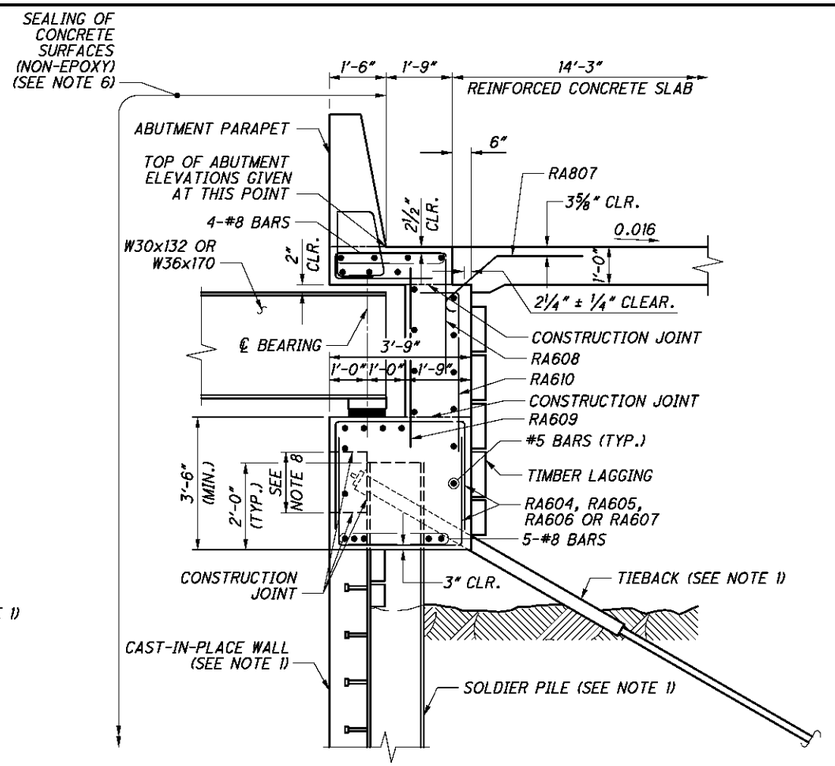


SECTION A-A

(18" OR 24" ϕ DRILLED SHAFT AND DRAINAGE DETAILS NOT SHOWN FOR CLARITY)

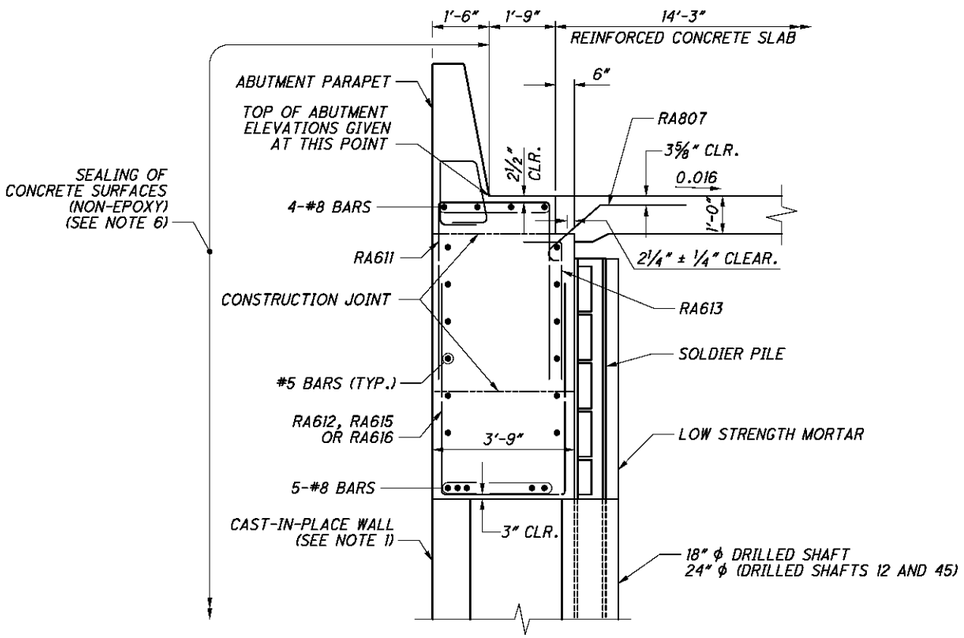


BLOCK-OUT DETAIL

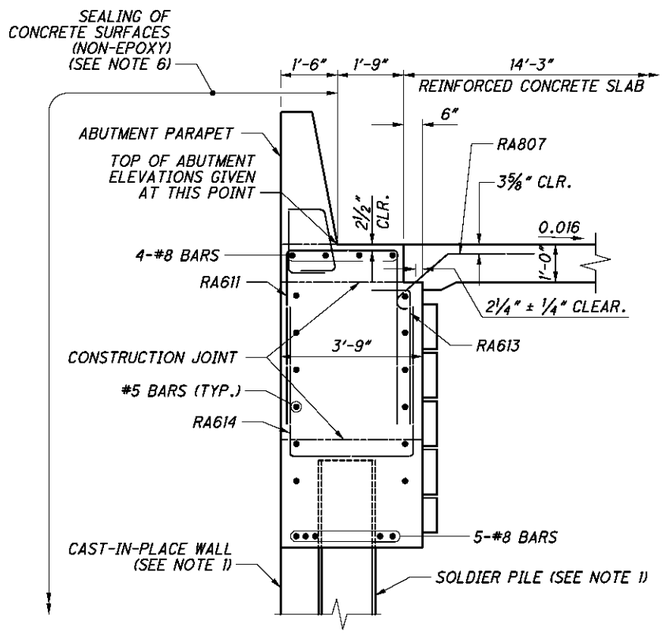


SECTION B-B

(18" OR 24" ϕ DRILLED SHAFT AND DRAINAGE DETAILS NOT SHOWN FOR CLARITY)



SECTION C-C



SECTION C-C

(AT PILES)

NOTES:

1. FOR SOLDIER PILE WALL, TIEBACK AND CAST-IN-PLACE WALL DETAILS, SEE SHEETS 24/53 THROUGH 28/53.
2. FOR ABUTMENT PLAN AND ELEVATION, SEE SHEETS 10/53 THROUGH 17/53.
3. FOR LOCATIONS OF SECTION A-A, SEE SHEETS 10/53 THROUGH 16/53.
4. FOR LOCATIONS OF SECTIONS B-B AND C-C, SEE SHEETS 16/53 AND 17/53.
5. FOR REINFORCED CONCRETE SLAB DETAILS, SEE SHEET 50/53.
6. FOR LIMITS OF SEALING OF CONCRETE SURFACES, SEE SHEET 28/53.
7. FOR ABUTMENT PARAPET DETAILS, SEE SHEET 20/53.
8. PROVIDE BLOCK-OUT FOR STRESSING BLOCK. THE CONTRACTOR SHALL DETERMINE THE SIZE OF THE BLOCK-OUT.
9. FOR DRAINAGE DETAILS, SEE SHEET 10/53.
10. FOR REINFORCING SCHEDULE, SEE SHEETS 51/53 THROUGH 53/53.
11. THE MAXIMUM SPACING OF THE HORIZONTAL REINFORCING SHALL NOT EXCEED 18".

DESIGN AGENCY
HNTB
100 Superior Avenue, Suite 1330
Cleveland, OH 44114-2531

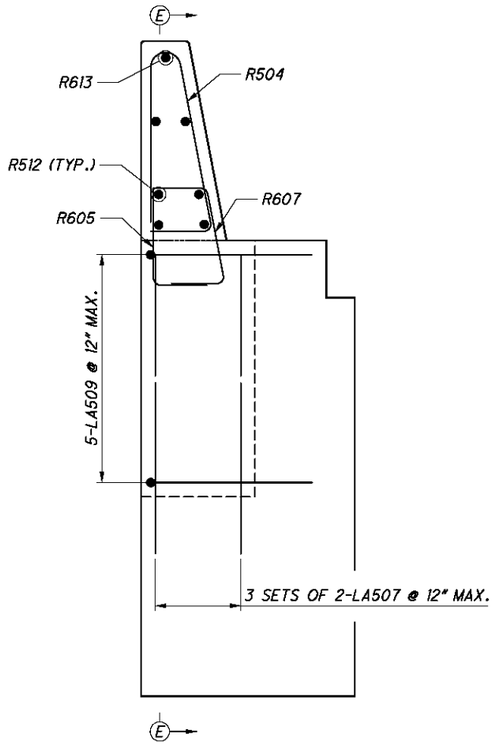
DESIGNED JOL | DRAWN PPA | REVIEWED RSB | DATE 11/2/12
CHECKED NJ | REVISED | STRUCTURE FILE NUMBER 2500779

ABUTMENT DETAILS - 1
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

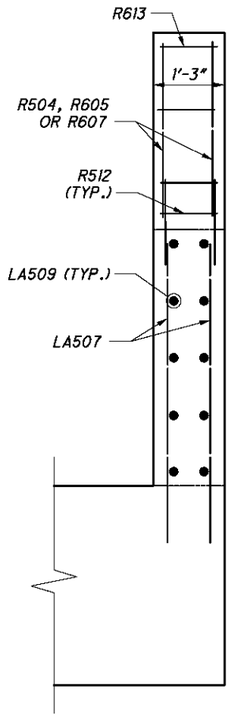
FRA-23-22.23
PID No. 81746

18 / 53

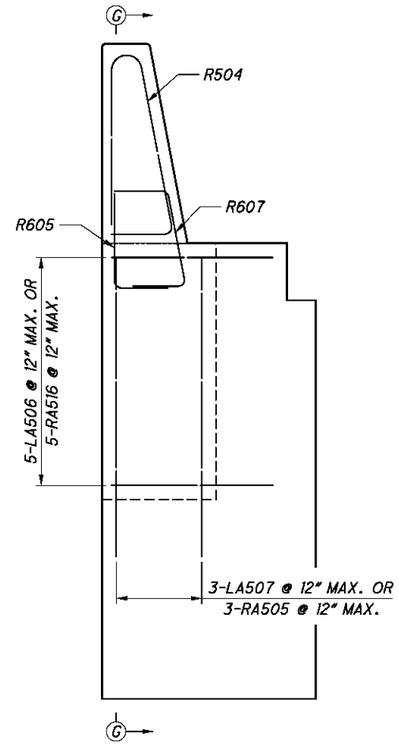
1109
1150



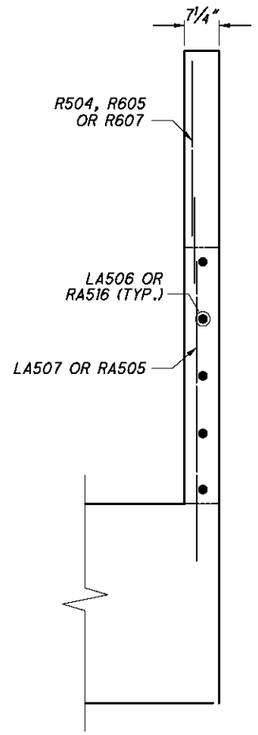
VIEW D-D



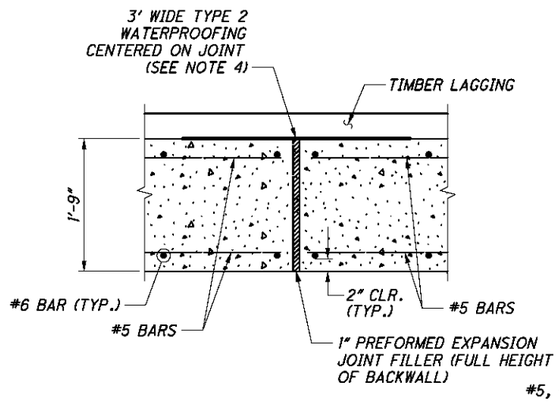
SECTION E-E



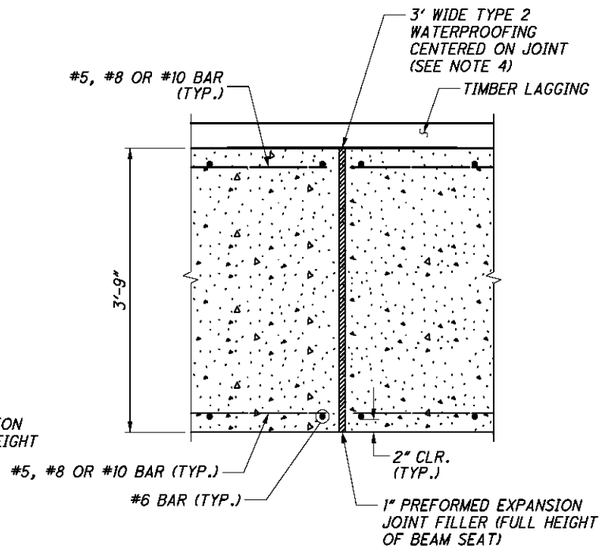
VIEW F-F



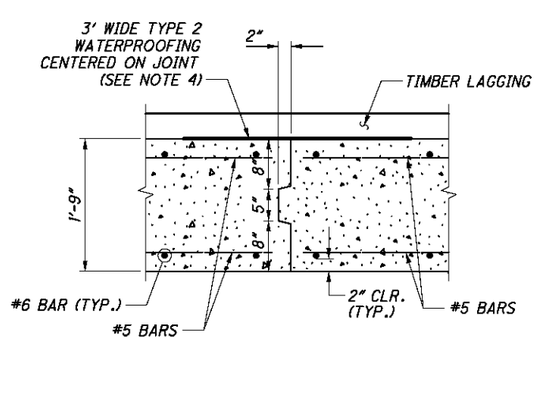
SECTION G-G



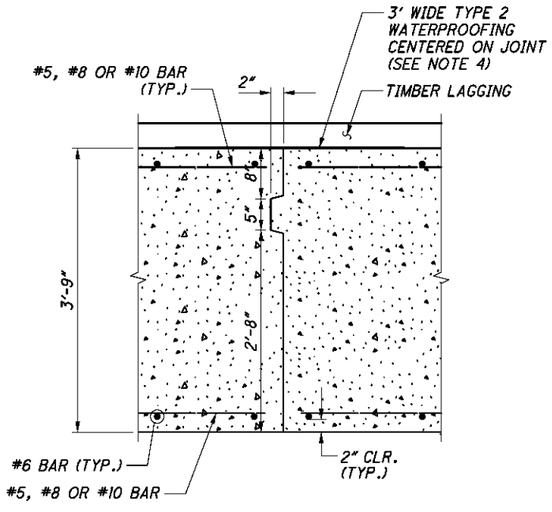
EXPANSION JOINT DETAIL AT BACKWALL



EXPANSION JOINT DETAIL AT BEAM SEAT



CONTRACTION JOINT DETAIL AT BACKWALL



CONTRACTION JOINT DETAIL AT BEAM SEAT

NOTES:

1. FOR LOCATION OF VIEW D-D, SEE SHEET 13/53.
2. FOR LOCATIONS OF VIEW F-F, SEE SHEET 10/53 AND 14/53.
3. FOR ADDITIONAL NOTES, SEE SHEET 18/53.
4. SECURELY ATTACH THE WATERPROOFING MEMBRANE TO THE WOOD LAGGING OR ASPHALT COATED SHALE WITH SCREWS OR MASONRY ANCHORS AND 1" DIAMETER FENDER WASHERS. PLACE THE MEMBRANE SO THAT THE ADHESIVE SIDE FACES THE CAST-IN-PLACE CONCRETE. THE SURFACE PREPARATION OUTLINED IN CMS 512.08 IS NOT REQUIRED. ALL LABOR AND MATERIALS FOR THIS WORK IS INCLUDED WITH ITEM 512 - TYPE 2 WATERPROOFING, AS PER PLAN.

DESIGN AGENCY
HNTB
100 Superior Avenue, Suite 1330
Cleveland, OH 44114-2531

DESIGNED	DRAWN	REVIEWED	DATE
JOL	PPA	RSB	11/2/12
CHECKED	REVISED	STRUCTURE FILE NUMBER	
NJ		2500779	

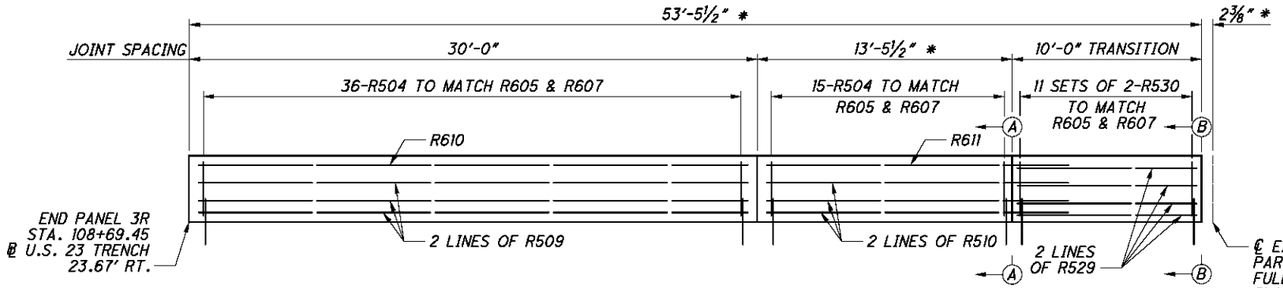
ABUTMENT DETAILS - 2
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

19 / 53

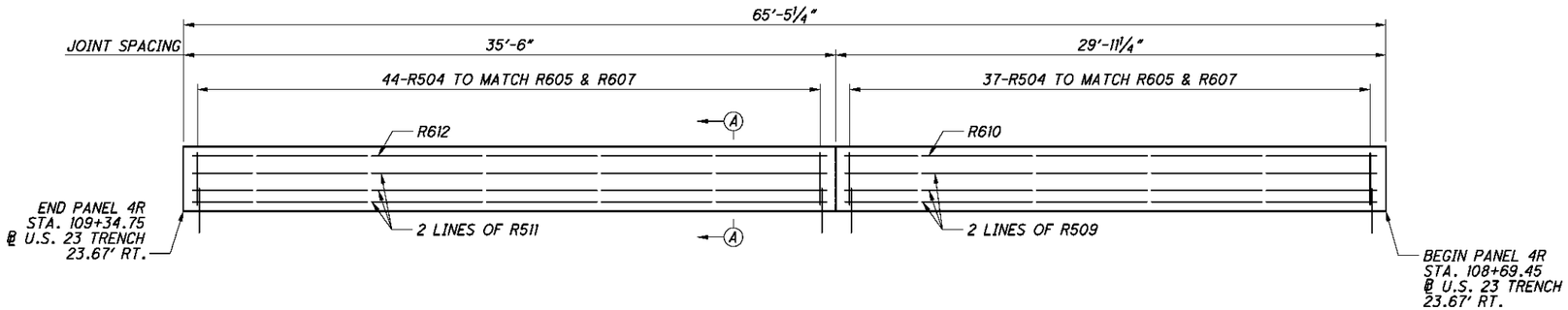
1110
1150

c:\cadlib\pw\zwaite\pwgreat_lakes\dms09823\023_2363AR004.dgn - 3/1/2013 11:33:48 AM - zwaite

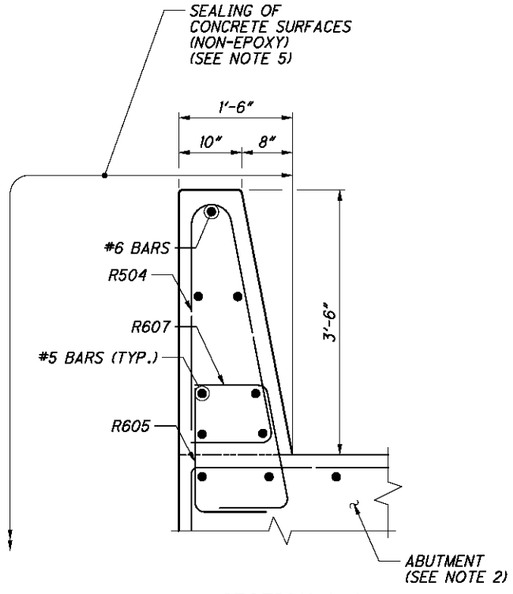


* DIMENSION WAS CALCULATED ASSUMING A JOINT OPENING AT 60° F AND A 1½" STEEL RETAINER FOR THE EXPANSION JOINT. IF A SMALLER RETAINER IS USED, THIS DIMENSION SHALL BE ADJUSTED.

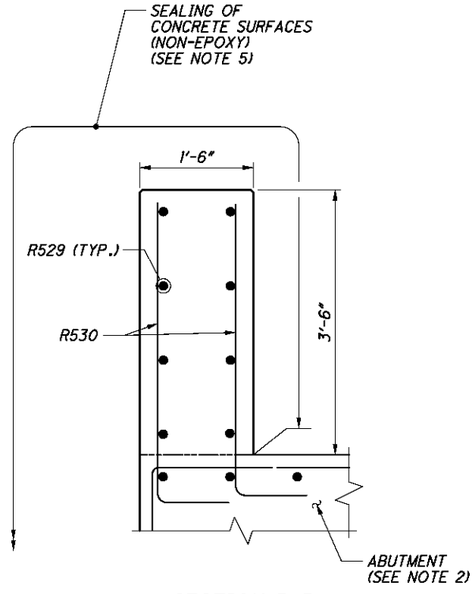
ELEVATION - PANEL 3R



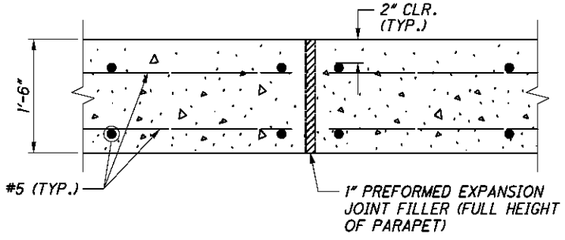
ELEVATION - PANEL 4R



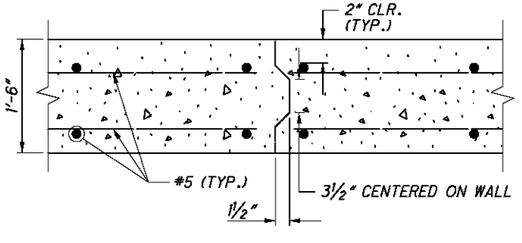
SECTION A-A
(ABUTMENT REINFORCING NOT DETAILED HERE, SEE NOTE 2)



SECTION B-B
(ABUTMENT REINFORCING NOT DETAILED HERE, SEE NOTE 2)



EXPANSION JOINT DETAIL



CONTRACTION JOINT DETAIL

NOTES:

1. FOR ABUTMENT PLANS, SEE SHEETS 10/53 THROUGH 17/53.
2. FOR ABUTMENT DETAILS, SEE SHEETS 18/53 AND 19/53.
3. VERTICAL BARS IN THE PARAPET SHALL MATCH THE VERTICAL BARS IN THE ABUTMENT.
4. FOR REINFORCING SCHEDULE, SEE SHEETS 51/53 THROUGH 53/53.
5. FOR LIMITS OF SEALING OF CONCRETE SURFACES, SEE SHEET 28/53 .

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NJ		2500779	

ABUTMENT PARAPET ELEVATION
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

20/53

1111
1150

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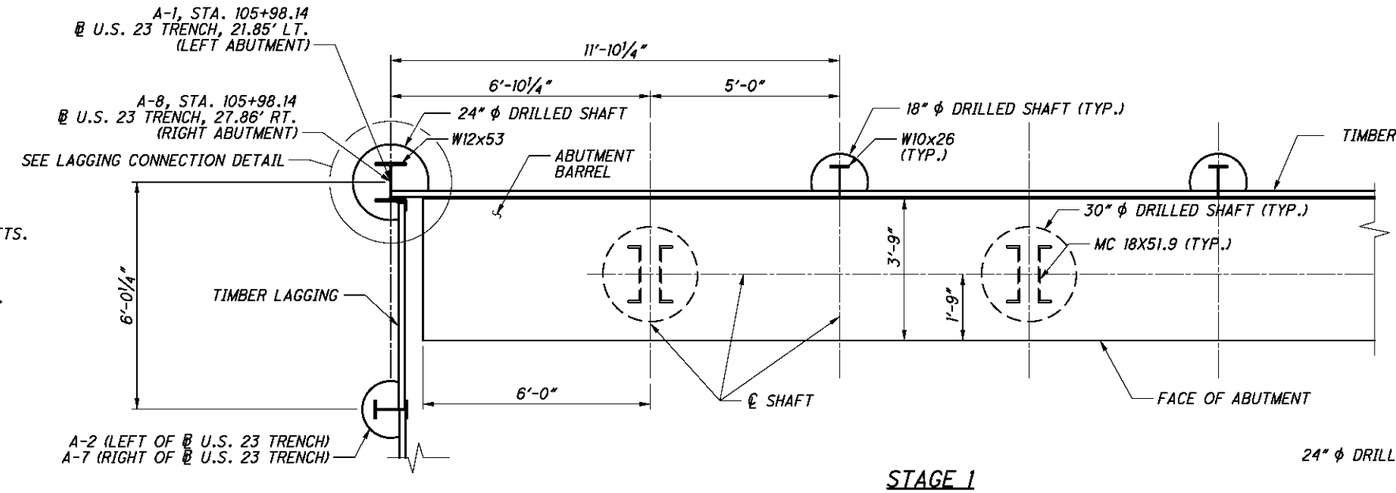
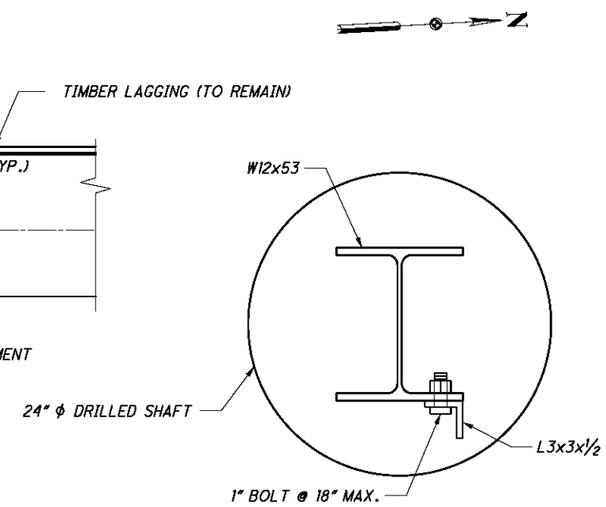
STAGE 1

1. INSTALL 18" AND 24" ϕ DRILLED SHAFTS.
2. EXCAVATE TO THE ELEVATION AT BOTTOM OF ABUTMENT AND INSTALL TIMBER LAGGING AS WORK PROCEEDS.
3. INSTALL 30" ϕ DRILLED SHAFTS.
4. CONSTRUCT ABUTMENT.



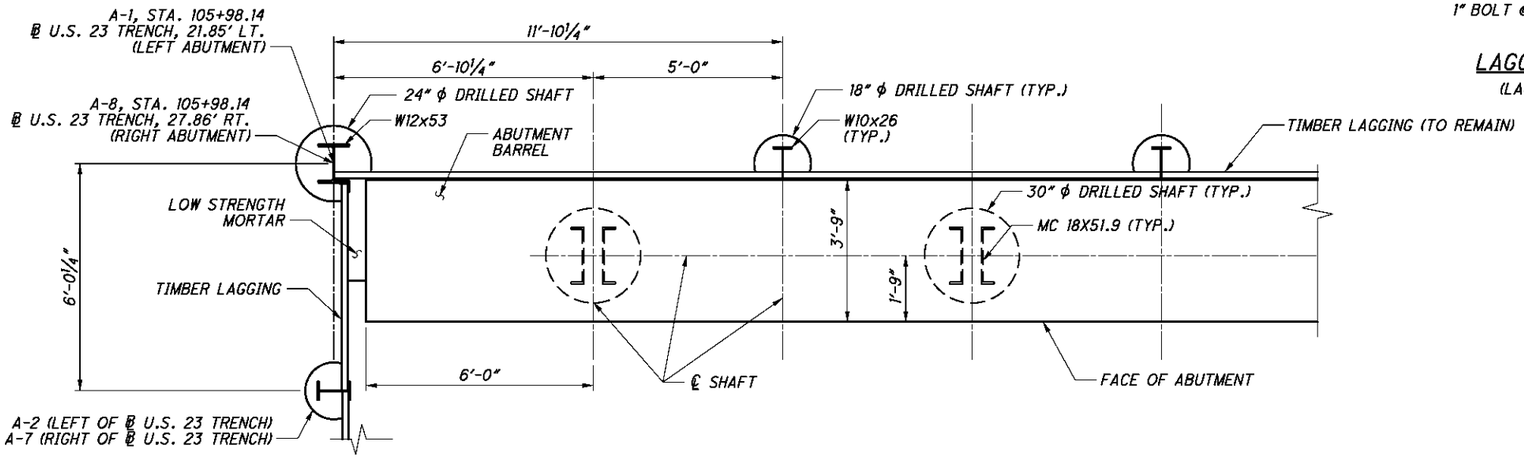
STAGE 1
(LEFT ABUTMENT SHOWN, RIGHT ABUTMENT OPPOSITE HAND)



LAGGING CONNECTION DETAIL
(LAGGING NOT SHOWN FOR CLARITY)

STAGE 2

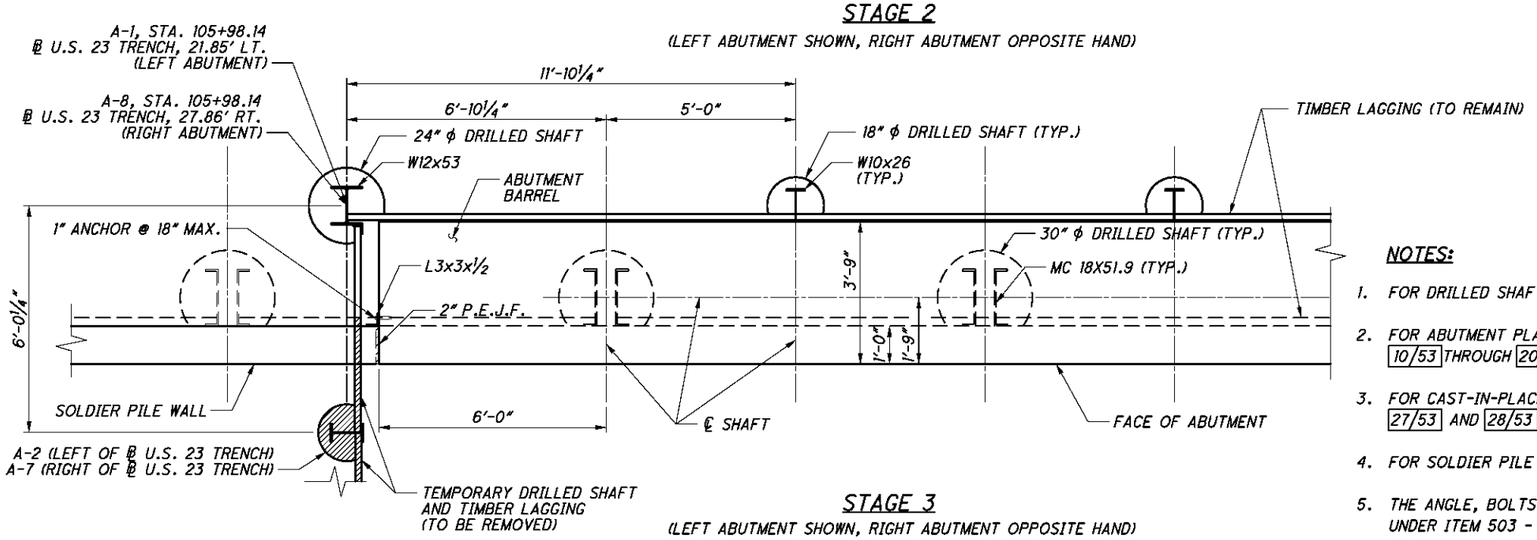
1. PLACE LOW STRENGTH MORTAR TO LIMITS SHOWN IN STAGE 2 FROM BOTTOM OF ABUTMENT TO BOTTOM OF REINFORCED CONCRETE SLAB.



STAGE 2
(LEFT ABUTMENT SHOWN, RIGHT ABUTMENT OPPOSITE HAND)

STAGE 3

1. CONSTRUCT SOLDIER PILE WALL.
2. INSTALL L3x3x½ AS SHOWN AND REMOVE LOW STRENGTH MORTAR AND TIMBER LAGGING AS REQUIRED.
3. REMOVE TEMPORARY PILES A-2 THROUGH A-7.



STAGE 3
(LEFT ABUTMENT SHOWN, RIGHT ABUTMENT OPPOSITE HAND)

NOTES:

1. FOR DRILLED SHAFT LAYOUT, SEE SHEET 7/53.
2. FOR ABUTMENT PLANS AND DETAILS, SEE SHEETS 10/53 THROUGH 20/53.
3. FOR CAST-IN-PLACE WALL DETAILS, SEE SHEETS 27/53 AND 28/53.
4. FOR SOLDIER PILE WALL DETAILS, SEE SHEET 24/53.
5. THE ANGLE, BOLTS AND ANCHORS SHALL BE PAID FOR UNDER ITEM 503 - COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN.

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100 Superior Avenue, Suite 1330
Cleveland, OH 44114-2531

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JOL	PPA/JOL	RSB	11/2/12
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JWS		2500779	

SOLDIER PILE WALL / ABUTMENT JUNCTURE
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

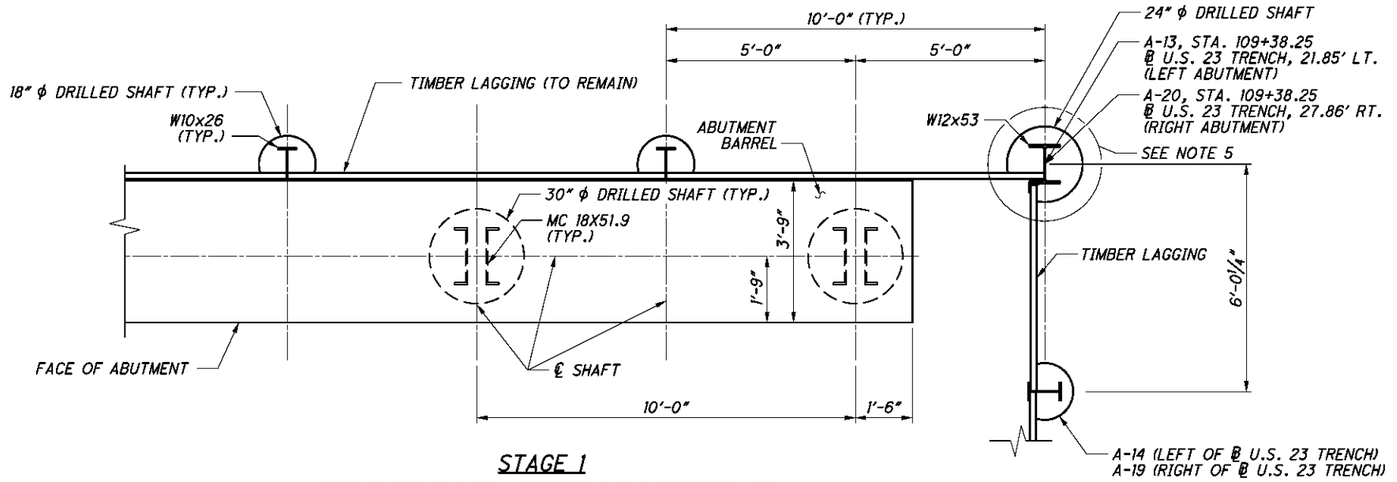
FRA-23-22.23
PID No. 81746

21/53

1112
1150

STAGE 1

1. INSTALL 18" AND 24" ϕ DRILLED SHAFTS.
2. EXCAVATE TO THE ELEVATION AT BOTTOM OF ABUTMENT AND INSTALL TIMBER LAGGING AS WORK PROCEEDS.
3. INSTALL 30" ϕ DRILLED SHAFTS.
4. CONSTRUCT ABUTMENT.

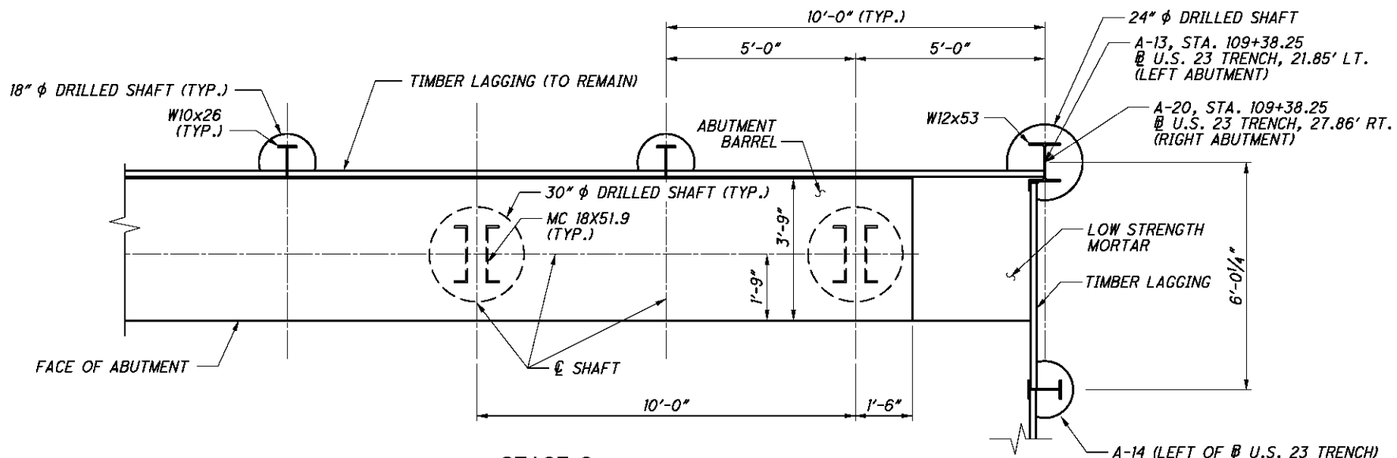


STAGE 1

(LEFT ABUTMENT SHOWN, RIGHT ABUTMENT OPPOSITE HAND)

STAGE 2

1. PLACE LOW STRENGTH MORTAR TO LIMITS SHOWN IN STAGE 2 FROM BOTTOM OF ABUTMENT TO BOTTOM OF REINFORCED CONCRETE SLAB.

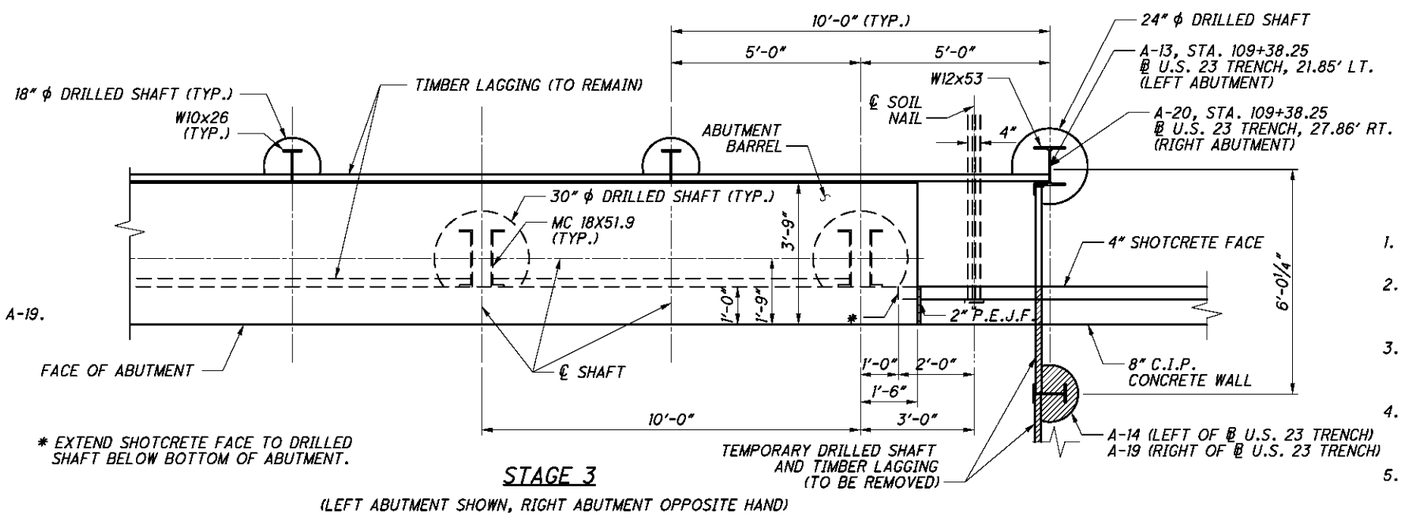


STAGE 2

(LEFT ABUTMENT SHOWN, RIGHT ABUTMENT OPPOSITE HAND)

STAGE 3

1. CONSTRUCT SOIL NAIL WALL.
2. REMOVE LOW STRENGTH MORTAR AND TIMBER LAGGING AS REQUIRED.
3. REMOVE TEMPORARY PILES A-14 THROUGH A-19.



* EXTEND SHOTCRETE FACE TO DRILLED SHAFT BELOW BOTTOM OF ABUTMENT.

STAGE 3

(LEFT ABUTMENT SHOWN, RIGHT ABUTMENT OPPOSITE HAND)

NOTES:

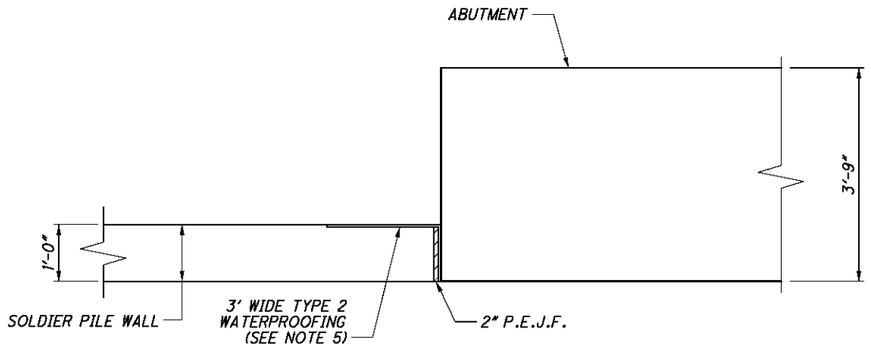
1. FOR DRILLED SHAFT LAYOUT, SEE SHEET 7/53.
2. FOR ABUTMENT PLANS AND DETAILS, SEE SHEETS 10/53 THROUGH 20/53.
3. FOR CAST-IN-PLACE WALL DETAILS, SEE SHEETS 27/53 AND 28/53.
4. FOR SOIL NAIL WALL PLANS, SEE SHEETS 969/1150 THROUGH 978/1150.
5. FOR LAGGING CONNECTION DETAIL, SEE SHEET 21/53.

DESIGN AGENCY
HNTB
100 Superior Avenue, Suite 1330
Cleveland, OH 44114-2531

DESIGNED	DRAWN	REVIEWED	DATE
JOL	PPA/JOL	RSB	11/2/12
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JMS		2500779	

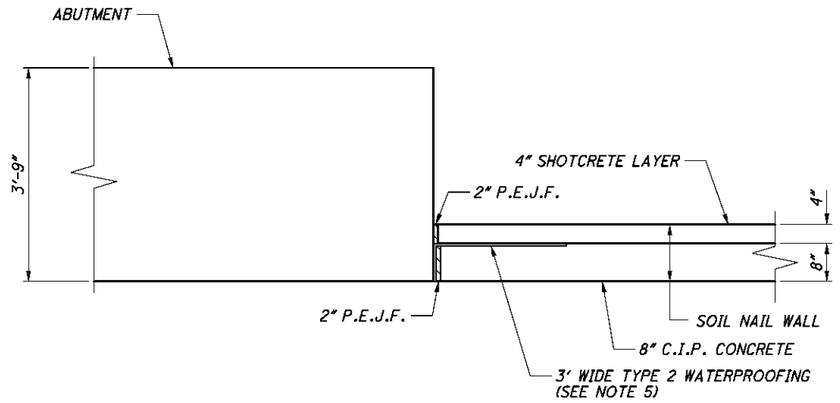
ABUTMENT / SOIL NAIL WALL JUNCTURE
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746



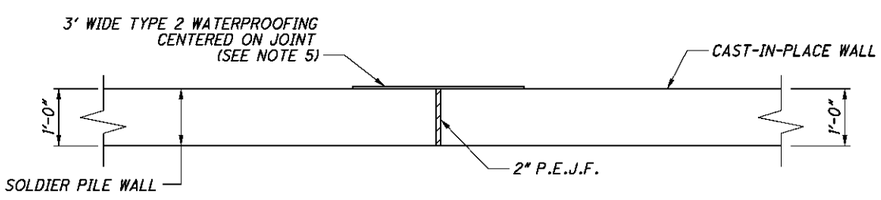
INTERFACE BETWEEN SOLDIER PILE WALL AND ABUTMENT

(LEFT WALL AND ABUTMENT SHOWN, RIGHT WALL AND ABUTMENT OPPOSITE HAND)



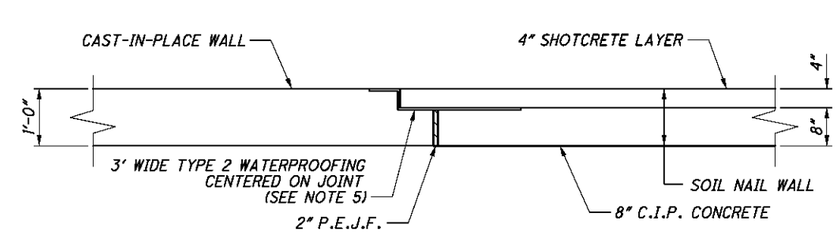
INTERFACE BETWEEN ABUTMENT AND SOIL NAIL RETAINING WALL

(LEFT ABUTMENT AND WALL SHOWN, RIGHT ABUTMENT AND WALL OPPOSITE HAND)



INTERFACE BETWEEN SOLDIER PILE WALL AND CAST-IN-PLACE WALL BELOW ABUTMENT

(LEFT WALLS SHOWN, RIGHT WALLS OPPOSITE HAND)



INTERFACE BETWEEN CAST-IN-PLACE WALL BELOW ABUTMENT AND SOIL NAIL RETAINING WALL

(LEFT WALLS SHOWN, RIGHT WALLS OPPOSITE HAND)

NOTES:

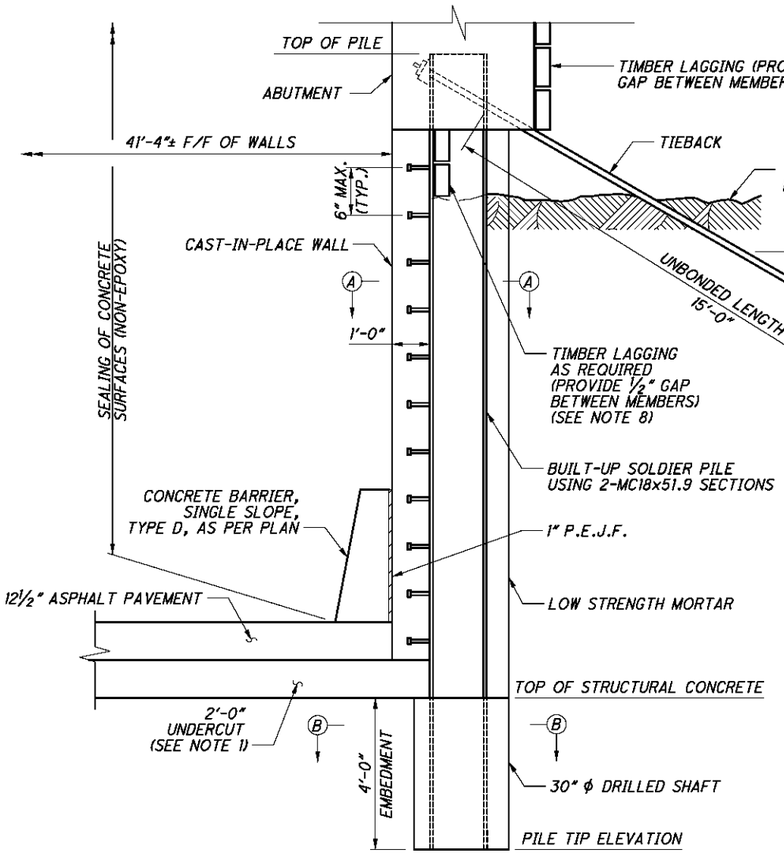
1. FOR SOIL NAIL WALL PLANS, SEE SHEETS 969/1150 THROUGH 978/1150.
2. FOR ABUTMENT PLANS AND DETAILS, SEE SHEETS 10/53 THROUGH 20/53.
3. FOR CAST-IN-PLACE WALL DETAILS, SEE SHEETS 27/53 AND 28/53.
4. FOR SOLDIER PILE WALL DETAILS, SEE SHEET 24/53.
5. SECURELY ATTACH THE WATERPROOFING MEMBRANE TO THE WOOD LAGGING, ASPHALT COATED SHALE OR SHOTCRETE WITH SCREWS OR MASONRY ANCHORS AND 1" DIAMETER FENDER WASHERS. PLACE THE MEMBRANE SO THAT THE ADHESIVE SIDE FACES THE CAST-IN-PLACE CONCRETE. THE SURFACE PREPARATION OUTLINED IN CMS 512.08 IS NOT REQUIRED. ALL LABOR AND MATERIALS FOR THIS WORK IS INCLUDED WITH ITEM 512 - TYPE 2 WATERPROOFING, AS PER PLAN.

DESIGN AGENCY
HNTB
100 Superior Avenue, Suite 1330
Cleveland, OH 44114-2531

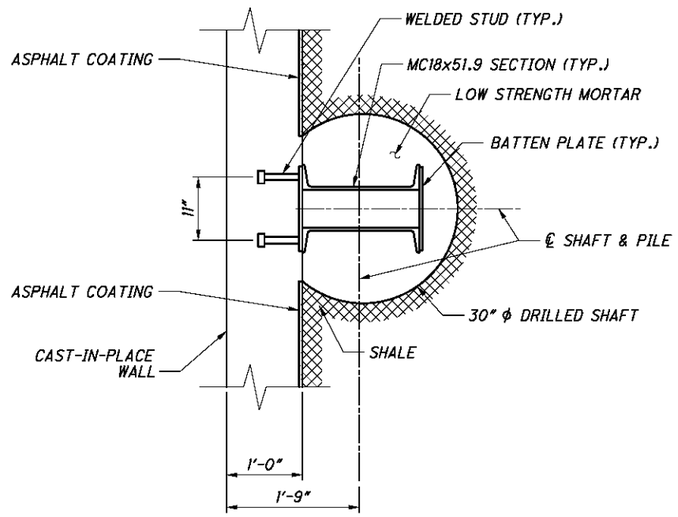
DESIGNED	DRAWN	REVIEWED	DATE
JOL	PPA/JOL	RSB	11/2/12
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JRS		2500779	

INTERFACE DETAILS
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

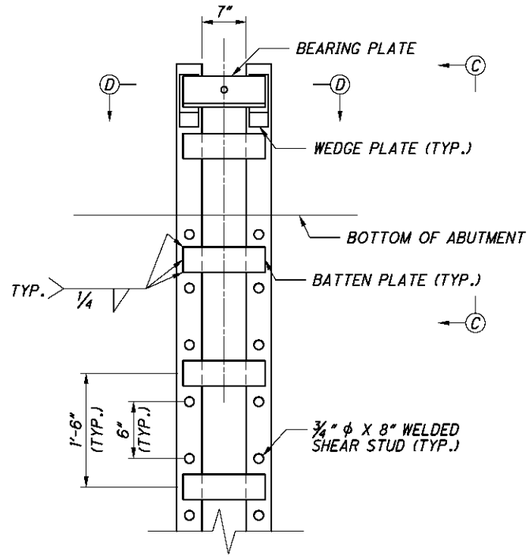
FRA-23-22.23
PID No. 81746



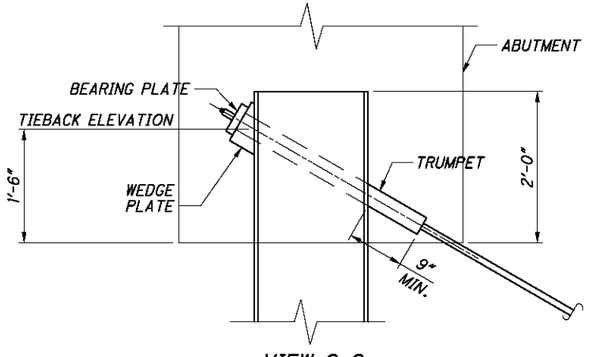
TYPICAL SECTION - SOLDIER PILE WALL



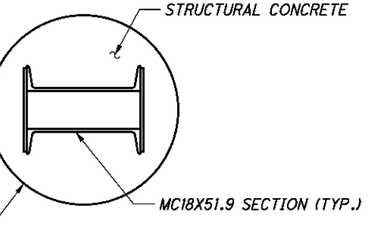
SECTION A-A



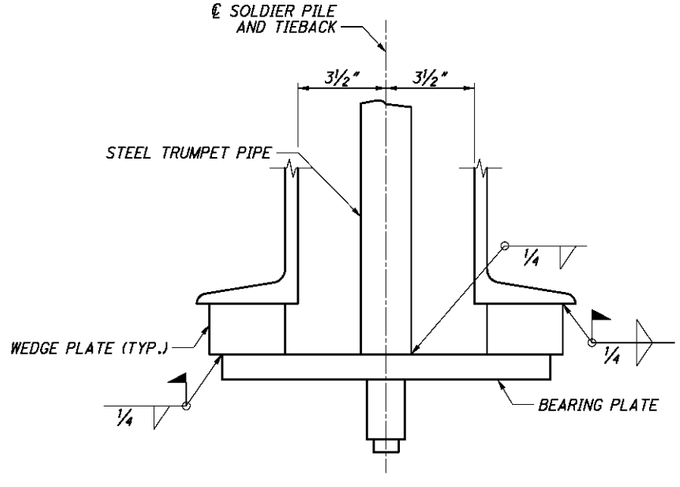
PART FRONT VIEW AT ANCHORAGE



VIEW C-C



SECTION B-B



SECTION D-D

NOTES:

1. THE UNDERCUT RUNS BELOW THE ASPHALT PAVEMENT FROM STA. 85+00.00 TO STA. 113+00.00.
2. SHEAR STUDS SHALL BE FIELD WELDED TO THE CHANNEL SECTIONS.
3. THE BEARING PLATE SHALL BE COUNTER BORED TO RECEIVE THE ANCHOR HEAD AND SHALL BE FURNISHED BY THE ANCHOR HEAD MANUFACTURER.
4. THE CONTRACTOR SHALL DETERMINE THE NECESSARY ANCHOR BOND LENGTH TO DEVELOP ADEQUATE LOAD CAPACITY. THE BOND LENGTH SHALL NOT BE LESS THAN 10 FEET.
5. FOR PILE AND TIEBACK ELEVATIONS, SEE SHEET 26/53.
6. FOR PILE LAYOUT, SEE SHEET 7/53.
7. FOR CAST-IN-PLACE WALL DETAILS, SEE SHEETS 27/53 AND 28/53.
8. WHERE TOP OF SHALE IS ABOVE THE BOTTOM OF THE ABUTMENT, NO LAGGING IS REQUIRED BELOW THE ABUTMENT.

DESIGN AGENCY
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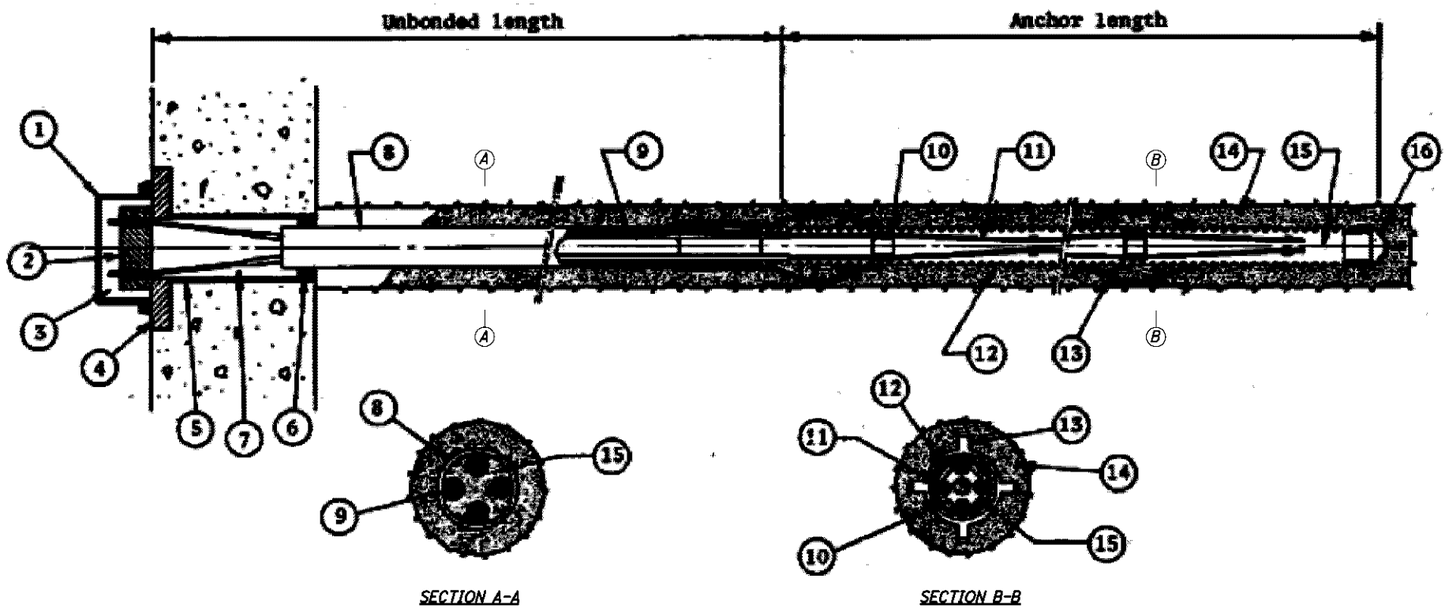
JJB/JOL		2500779	

SOLDIER PILE WALL DETAILS
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

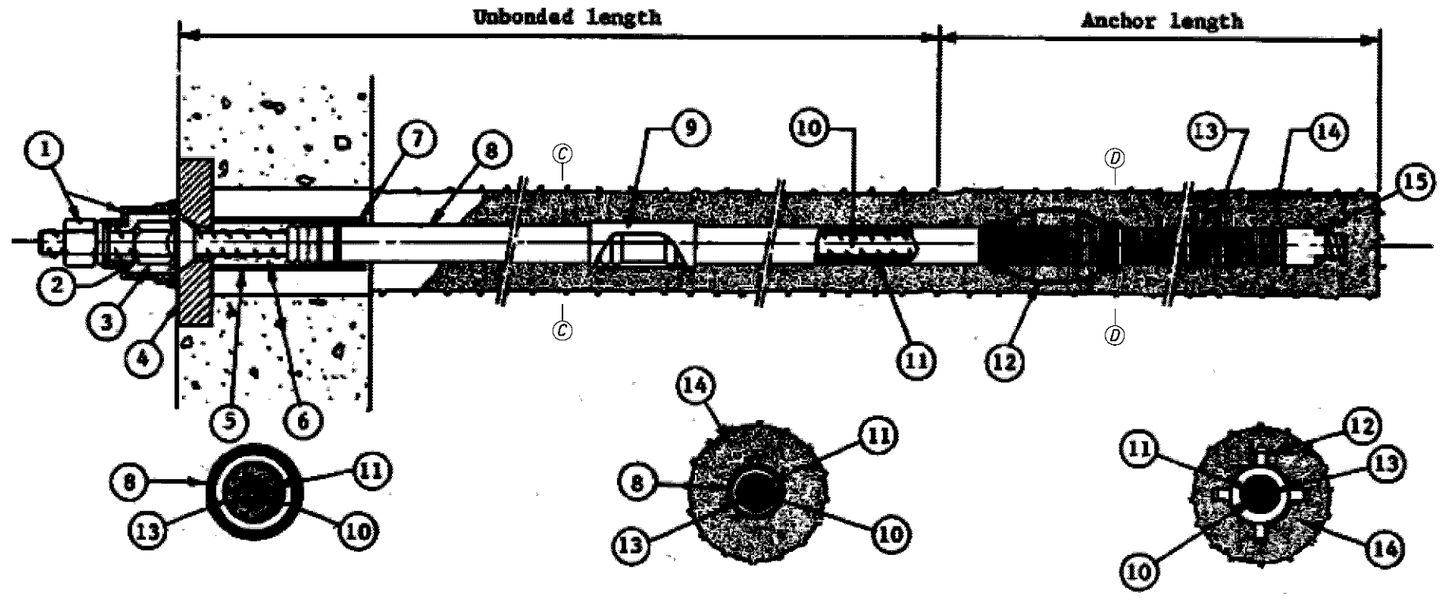
FRA-23-22.23
PID No. 81746



LEGEND

1. *ANCHORAGE COVER*
2. *ANCHOR HEAD AND WEDGES*
3. *ANTICORROSION GREASE OR GROUT*
4. *BEARING PLATE*
5. *TRUMPET*
6. *SEAL*
7. *ANTICORROSION GREASE OR GROUT*
8. *PVC OR POLYETHYLENE TUBE*
9. *INDIVIDUALLY GREASED AND SHEATED STRANDS*
10. *SPACER*
11. *STRAND TENDON*
12. *CORRUGATED POLYETHYLENE OR PVC*
13. *CENTRALIZER*
14. *ANCHOR GROUT*
15. *GROUT OR POLYESTER RESIN*
16. *END CAP*

STRAND TYPE TIEBACK DETAIL



LEGEND

1. *ANCHORAGE COVER*
2. *NUT*
3. *ANTICORROSION GREASE*
4. *BEARING PLATE*
5. *TRUMPET*
6. *ANTICORROSION GREASE OR GROUT*
7. *SEAL*
8. *PVC BOND BREAKER*
9. *PROTECTED BAR COUPLER*
10. *BAR TENDON*
11. *ENCAPSULATION GROUT*
12. *CENTRALIZERS*
13. *CORRUGATED PVC*
14. *ANCHOR GROUT*
15. *END CAP*

NOTES:

1. *SEE SOLDIER PILE AND TIEBACK SCHEDULE FOR DESIGN LOADS.*
2. *THE CONTRACTOR MAY CHOOSE EITHER A STRAND TYPE OR A BAR TYPE TIEBACK FOR THE WALL.*
3. *THE TIEBACKS SHALL BE AS FOLLOWS:*

   STRAND TYPE - USE 0.6" DIAMETER, 7 WIRE STRESS RELIEVED, 270 KSI STEEL STRANDS.

   BAR TYPE - BAR MAY BE 150 OR 160 KSI STEEL (ULTIMATE STRENGTH) CONFORMING TO ASTM A722-07.

   BAR STRESS SHALL BE NOT GREATER THAN 60 PERCENT OF THE ULTIMATE CAPACITY AT THE DESIGN LOAD "P."
4. *SEE TIEBACK SPECIAL PROVISIONS FOR MATERIAL, INSTALLATION, TESTING, MEASUREMENT, PAYMENT AND OTHER RELATED INFORMATION.*

BAR TYPE TIEBACK DETAIL

DESIGN AGENCY
HNTB
100 Superior Avenue, Suite 1330
Cleveland, OH 44114-2531

DESIGNED	DRAWN	REVIEWED	DATE
JOL	PPA	RSB	11/2/12
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JJB/JOL		2500779	

TIEBACK DETAILS
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

25/53

1116
1150

SOLDIER PILE DATA					
PANEL NUMBER	PILE NUMBER	APPROX. PILE TIP ELEVATION	TOP OF STRUCTURAL CONCRETE	TOP OF PILE ELEVATION	APPROX. TOP OF WEATHERED SHALE
1L	67	863.8	867.8	887.16	891.3
	68	863.5	867.5	887.16	890.9
	69	863.3	867.3	887.16	890.5
	70	863.0	867.0	887.16	890.0
	71	862.7	866.7	887.16	890.8
	72	862.5	866.5	887.16	891.2
	73	862.2	866.2	887.16	890.7
	74	862.0	866.0	887.16	890.2
	75	861.7	865.7	887.16	889.6
2L	76	861.5	865.5	883.93	889.1
	77	861.2	865.2	883.93	888.6
	78	861.0	865.0	883.93	888.1
	79	860.7	864.7	883.93	887.6
	80	860.5	864.5	883.93	887.1
	81	860.3	864.3	883.93	886.6
	82	860.0	864.0	883.93	886.1
	83	859.8	863.8	883.93	885.5
	84	859.5	863.5	883.93	885.0
3L	85	859.3	863.3	881.23	884.5
	86	859.0	863.0	881.23	884.0
	87	858.8	862.8	881.23	883.5
	88	858.5	862.5	881.23	883.0
	89	858.3	862.3	881.23	882.5
	90	858.0	862.0	881.23	881.9
	91	857.8	861.8	881.23	881.4
	92	857.5	861.5	881.23	880.9
	93	857.2	861.2	881.23	880.2
4L	94	857.0	861.0	878.42	879.7
	95	856.8	860.8	878.42	879.0
	96	856.5	860.5	878.42	878.3
	97	856.3	860.3	878.42	877.6
	98	856.1	860.1	878.42	876.9
	99	855.8	859.8	878.42	876.2
	100	855.6	859.6	878.42	875.5

TIEBACK DATA		
TIEBACK NUMBER	DESIGN LOAD "P" (KIPS)	TIEBACK ELEVATION
67	30	886.66
68	30	886.66
69	30	886.66
70	30	886.66
71	30	886.66
72	30	886.66
73	30	886.66
74	30	886.66
75	30	886.66
76	30	883.43
77	30	883.43
78	30	883.43
79	30	883.43
80	30	883.43
81	30	883.43
82	30	883.43
83	30	883.43
84	30	883.43
85	30	880.73
86	30	880.73
87	30	880.73
88	30	880.73
89	30	880.73
90	30	880.73
91	30	880.73
92	30	880.73
93	30	880.73
94	30	877.92
95	30	877.92
96	30	877.92
97	30	877.92
98	30	877.92
99	30	877.92
100	30	877.92

SOLDIER PILE DATA					
PANEL NUMBER	PILE NUMBER	APPROX. PILE TIP ELEVATION	TOP OF STRUCTURAL CONCRETE	TOP OF PILE ELEVATION	APPROX. TOP OF WEATHERED SHALE
1R	101	862.9	866.9	887.11	891.3
	102	862.7	866.7	887.11	890.9
	103	862.4	866.4	887.11	890.5
	104	862.2	866.2	887.11	890.1
	105	861.9	865.9	887.11	890.8
	106	861.7	865.7	887.11	891.2
	107	861.4	865.4	887.11	890.7
	108	861.2	865.2	887.11	890.2
	109	861.0	865.0	887.11	889.7
2R	110	860.7	864.7	883.88	889.2
	111	860.5	864.5	883.88	888.6
	112	860.2	864.2	883.88	888.1
	113	860.0	864.0	883.88	887.6
	114	859.7	863.7	883.88	887.1
	115	859.4	863.4	883.88	886.6
	116	859.2	863.2	883.88	886.1
	117	858.9	862.9	883.88	885.6
	118	858.7	862.7	883.88	885.1
3R	119	858.4	862.4	881.05	884.5
	120	858.2	862.2	881.05	884.0
	121	857.9	861.9	881.05	883.5
	122	857.7	861.7	881.05	883.0
	123	857.4	861.4	881.05	882.5
	124	857.2	861.2	881.05	882.0
	125	856.9	860.9	881.05	881.5
	126	856.6	860.6	881.05	881.0
	127	856.4	860.4	881.05	880.3
4R	128	856.2	860.2	878.25	879.7
	129	855.9	859.9	878.25	879.0
	130	855.7	859.7	878.25	878.3
	131	855.4	859.4	878.25	877.6
	132	855.2	859.2	878.25	876.9
	133	854.9	858.9	878.25	876.2
	134	854.7	858.7	878.25	875.5

TIEBACK DATA		
TIEBACK NUMBER	DESIGN LOAD "P" (KIPS)	TIEBACK ELEVATION
101	30	886.61
102	30	886.61
103	30	886.61
104	30	886.61
105	30	886.61
106	30	886.61
107	30	886.61
108	30	886.61
109	30	886.61
110	30	883.38
111	30	883.38
112	30	883.38
113	30	883.38
114	30	883.38
115	30	883.38
116	30	883.38
117	30	883.38
118	30	883.38
119	30	880.55
120	30	880.55
121	30	880.55
122	30	880.55
123	30	880.55
124	30	880.55
125	30	880.55
126	30	880.55
127	30	880.55
128	30	877.75
129	30	877.75
130	30	877.75
131	30	877.75
132	30	877.75
133	30	877.75
134	30	877.75

SOLDIER PILE & TIEBACK SCHEDULE

NOTES:

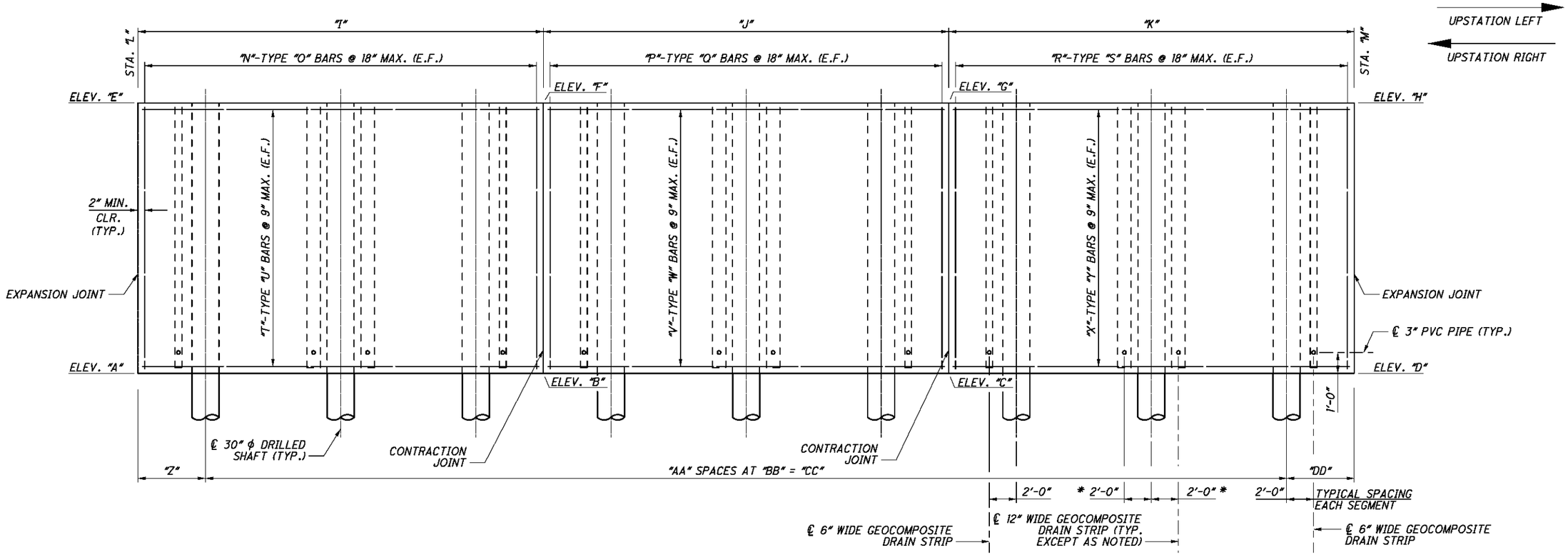
1. THE TIEBACK LOCKOFF LOAD SHALL BE 0.90 TO 1.00 TIMES THE DESIGN LOAD 'P' FOR ALL TIEBACKS.
2. FOR SOLDIER PILE TYPICAL SECTION, ANCHORAGE DETAILS AND ADDITIONAL NOTES, SEE SHEET 24/53.
3. FOR TIEBACK DETAILS AND ADDITIONAL NOTES, SEE SHEET 25/53.

DESIGN AGENCY
HNTB
100 Superior Avenue, Suite 1330
Cleveland, OH 44114-2531

DESIGNED JOL
DRAWN PPA
REVIEWED RSB
DATE 11/2/12
CHECKED JJB/JOL
REVISED
STRUCTURE FILE NUMBER 2500779

SOLDIER PILE AND TIEBACK SCHEDULE
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746



* - SEE NOTE 5

	ELEVATIONS								PANEL SPACING			STATION		VERTICAL REINFORCEMENT						HORIZONTAL REINFORCEMENT						SHAFT SPACING				
PANEL	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD
1R	866.9	867.6	868.3	869.1	885.11	885.11	885.11	885.11	28'-0"	31'-0"	31'-0"	106+88.82	105+99.00	20	W517	22	W503	22	W502	25	W511	24	W510	23	W510	4'-0"	8	10	80'-0"	6'-0"
2R	864.6	865.4	866.1	866.9	881.88	881.88	881.88	881.88	31'-0"	29'-0"	31'-0"	107+79.63	106+88.82	22	W505	21	W502	22	W516	24	W510	23	W512	22	W510	5'-0"	8	10	80'-0"	6'-0"
3R	862.3	863.1	863.8	864.6	879.05	879.05	879.05	879.05	30'-0"	30'-0"	30'-0"	108+69.45	107+79.63	21	W502	21	W516	21	W504	23	W513	22	W513	21	W513	5'-0"	8	10	80'-0"	5'-0"
4R	860.7	861.6	-	862.3	876.25	876.25	-	876.25	35'-6"	-	29'-11 1/4"	109+34.75	108+69.45	25	W507	-	-	21	W506	22	W515	-	-	21	W513	1'-6"	6	10	60'-0"	3'-11 1/4"
1L	869.9	869.2	868.3	867.6	885.16	885.16	885.16	885.16	31'-0"	31'-0"	28'-0"	105+99.00	106+89.14	22	W516	22	W502	20	W503	22	W510	24	W510	24	W511	6'-0"	8	10	80'-0"	4'-0"
2L	867.6	866.9	866.1	865.4	881.93	881.93	881.93	881.93	31'-0"	29'-0"	31'-0"	106+89.14	107+80.28	22	W504	21	W516	22	W502	21	W510	22	W512	23	W510	6'-0"	8	10	80'-0"	5'-0"
3L	865.4	864.6	863.9	863.1	879.23	879.23	879.23	879.23	30'-0"	30'-0"	30'-0"	107+80.28	108+70.42	21	W506	21	W507	21	W508	21	W513	21	W513	23	W513	5'-0"	8	10	80'-0"	5'-0"
4L	863.1	862.4	-	861.5	876.42	876.42	-	876.42	28'-8 3/4"	-	35'-6"	108+70.42	109+34.75	20	W509	-	-	25	W501	20	W514	-	-	21	W515	2'-8 3/4"	6	10	60'-0"	1'-6"

ELEVATION - CAST-IN-PLACE WALL PANEL

NOTES:

1. FOR DRILLED SHAFT PLAN AND BEND POINTS, SEE SHEET 7/53.
2. WALL PANELS 1R-4R AND 1L-4L SHALL BE CONSTRUCTED ALONG A CHORD LINE BETWEEN BEND POINTS.
3. FOR TYPICAL SECTION, JOINT DETAILS AND ADDITIONAL DETAILS, SEE SHEET 28/53.
4. FOR REINFORCING BAR SCHEDULE, SEE SHEETS 51/53 THROUGH 53/53.
5. FOR ADDITIONAL DETAILS ON SPACING OF 12" GEOCOMPOSITE DRAIN STRIPS ON PANELS 3L AND 3R, SEE SHEETS 12/53 AND 16/53.

DESIGN AGENCY
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100 Superior Avenue, Suite 1330
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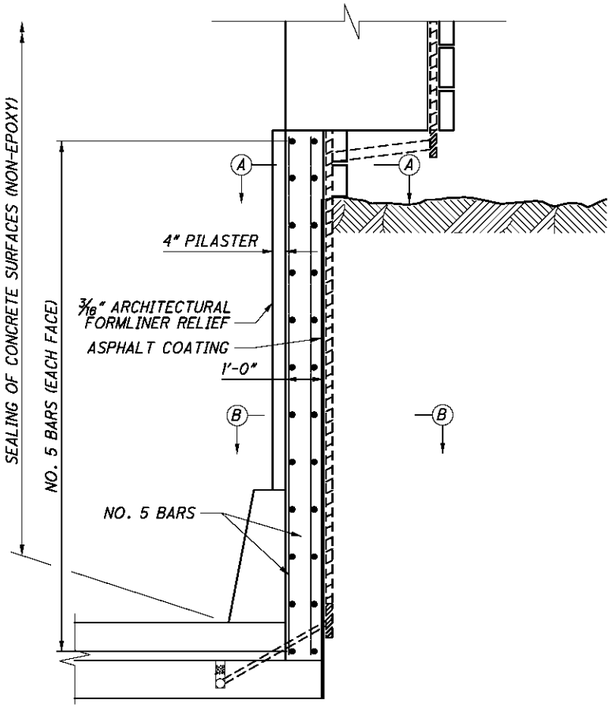
DESIGNED JOL | DRAWN PPA | CHECKED JJB/JOL | REVIEWED RSB | DATE 11/2/12 | REVISED | STRUCTURE FILE NUMBER 2500779

CAST-IN-PLACE WALL DETAILS
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

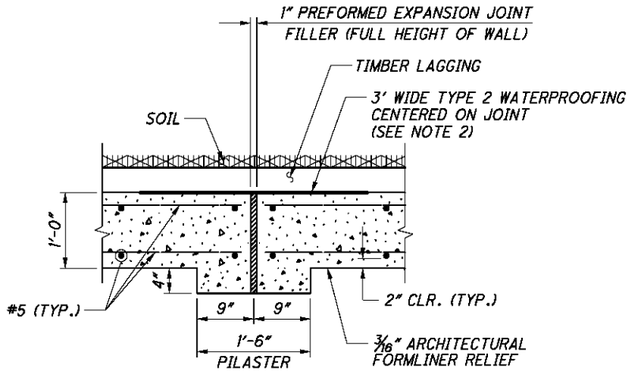
FRA-23-22.23
PID No. 81746

27/53

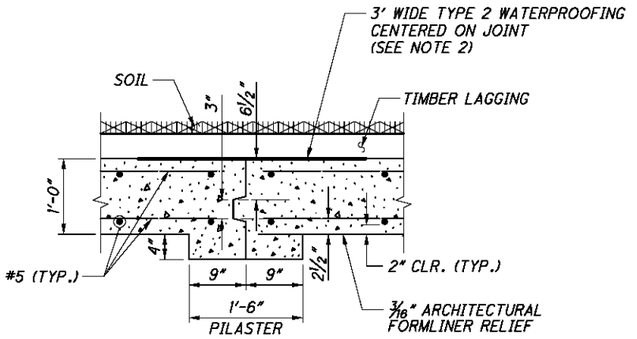
1118
1150



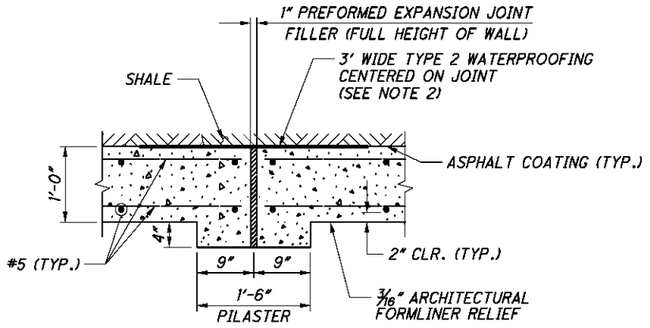
TYPICAL SECTION - CONCRETE FACING



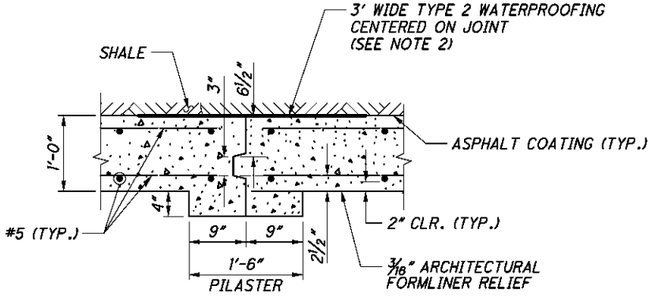
SECTION A-A



SECTION A-A



SECTION B-B

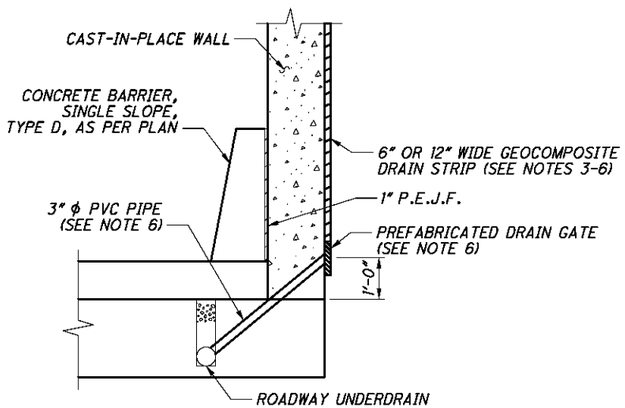


SECTION B-B

EXPANSION JOINT DETAIL

SECTION B-B

CONTRACTION JOINT DETAIL



TYPICAL DRAINAGE DETAIL

NOTES:

1. FOR CONCRETE FACING ELEVATION, SEE SHEET 27/53.
2. SECURELY ATTACH THE WATERPROOFING MEMBRANE TO THE WOOD LAGGING OR ASPHALT COATED SHALE WITH SCREWS OR MASONRY ANCHORS AND 1" DIAMETER FENDER WASHERS. PLACE THE MEMBRANE SO THAT THE ADHESIVE SIDE FACES THE CAST-IN-PLACE CONCRETE. THE SURFACE PREPARATION OUTLINED IN CMS 512.08 IS NOT REQUIRED. ALL LABOR AND MATERIALS FOR THIS WORK IS INCLUDED WITH ITEM 512 - TYPE 2 WATERPROOFING, AS PER PLAN.
3. PLACE GEOCOMPOSITE DRAIN FILTER FABRIC TOWARD TIMBER LAGGING OR SHALE.
4. WRAP FILTER FABRIC AROUND ALL EDGES A MINIMUM DISTANCE OF 3".
5. THE GEOCOMPOSITE DRAIN STRIP SHALL EXTEND FROM THE TOP OF THE TIMBER LAGGING TO 6" BELOW THE 3" ϕ PVC PIPE.
6. THE PVC PIPE, FITTINGS TO CONNECT TO ROADWAY UNDERDRAIN, GEOCOMPOSITE DRAIN STRIPS AND PREFABRICATED DRAIN GATES SHALL BE PAID FOR UNDER ITEM 610 - RETAINING WALL, MISC.: SOLDIER PILE WALL.
7. FOR SOLDIER PILE DETAILS, SEE SHEET 24/53.
8. FOR AESTHETIC DETAILS, SEE SHEET 950/1150.
9. THE PLAN CONCRETE WALL THICKNESS IS 12 INCHES. THIS IS THE MINIMUM REQUIRED DIMENSION. HOWEVER, DUE TO MISALIGNMENT OF THE SOLDIER PILES, THE CONTRACTOR AT HIS OPTION MAY PROVIDE ADDITIONAL THICKNESS BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DESIGN AGENCY
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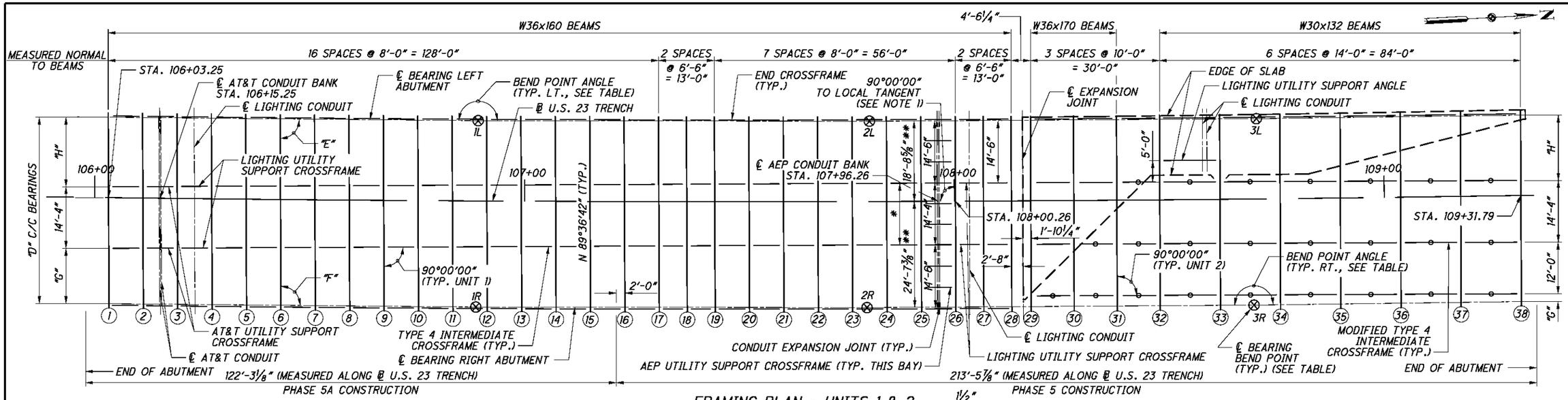
DESIGNED	DRAWN	REVIEWED	DATE
JOL	PPA	RSB	11/2/12
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JJB/JOL		2500779	

CAST-IN-PLACE WALL DETAILS
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

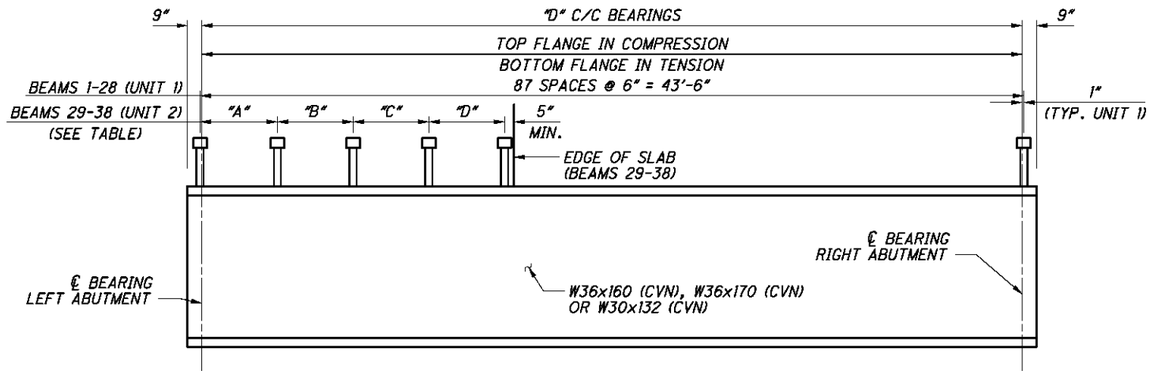
FRA-23-22.23
PID No. 81746

28 / 53

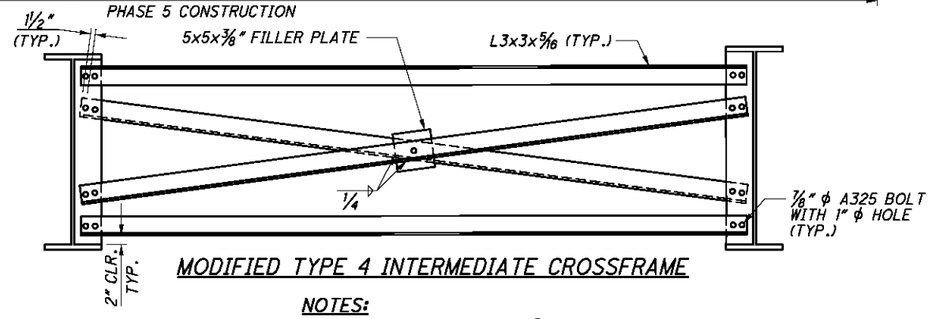
1119
1150



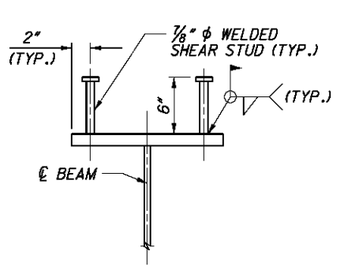
FRAMING PLAN - UNITS 1 & 2



TYPICAL BEAM ELEVATION



MODIFIED TYPE 4 INTERMEDIATE CROSSFRAME



SHEAR STUD DETAIL

* - 3 EQUAL SPACES. (TYP. BETWEEN BEAMS 25 AND 26)

** - DISTANCE IS MEASURED FROM ℄ U.S. 23 TRENCH TO ℄ BEARING ALONG BEAM 26.

TABLE OF SHEAR STUD SPACINGS (SEE NOTE 8)

BEAM	"A"	"B"	"C"	"D"
29	32 SPACES @ 5" = 13'-4"	16 SPACES @ 10" = 13'-4"	18 SPACES @ 6" = 9'-0"	7 SPACES @ 7" = 4'-1"
30	32 SPACES @ 5" = 13'-4"	16 SPACES @ 10" = 13'-4"	1 SPACE @ 6"	5 SPACES @ 7" = 2'-11"
31	32 SPACES @ 5" = 13'-4"	5 SPACES @ 10" = 4'-2"	3 SPACES @ 8" = 2'-0"	2 SPACES @ 4½" = 9"
32-34	15 SPACES @ 4" = 5'-0"	8 SPACES @ 6" = 4'-0"	3 SPACES @ 14" = 3'-6"	-
35	15 SPACES @ 4" = 5'-0"	8 SPACES @ 6" = 4'-0"	1 SPACE @ 20½" = 1'-8½"	-
36	15 SPACES @ 4" = 5'-0"	5 SPACES @ ABOUT 5½" = 2'-4"	-	-
37	12 SPACES @ 4" = 4'-0"	-	-	-
38	2 SPACES @ 4" = 0'-8"	-	-	-

TABLE OF DIMENSIONS

BEAM	"D"	"E"	"F"	"G"	"H"	"G" AND "H" MEASURED ALONG
1-11	43'-4⅛"	89°13'13"	90°46'47"	12'-10¼"	16'-1⅞"	BEAM 1
12-23	43'-4⅛"	89°40'05"	90°19'55"	14'-0⅜"	14'-11¾"	BEAM 12
24-28	43'-4"	90°07'13"	89°52'47"	14'-6⅜"	14'-5⅝"	BEAM 24
29-33	43'-4"	90°07'13"	89°52'47"	2'-5⅝"	14'-6⅝"	BEAM 29
34-38	43'-3⅝"	90°30'34"	89°29'26"	2'-3⅛"	14'-8⅜"	BEAM 34

℄ BEARING BEND POINT TABLE

POINT	STATION	OFFSET	ANGLE
1R	106+88.82	24.67' RT.	179°33'08"
1L	106+89.14	18.67' LT.	180°26'52"
2R	107+79.63	24.67' RT.	179°32'51"
2L	107+80.28	18.67' LT.	180°27'09"
3R	108+69.45	24.67' RT.	179°36'40"
3L	108+70.42	18.67' LT.	180°23'20"

NOTES:

1. BEAM 26 IS SET RADIAL TO ℄ U.S. 23 TRENCH. ALL OTHER BEAMS ARE SET PARALLEL TO BEAM 26.
2. FOR ADDITIONAL INTERMEDIATE AND END CROSSFRAME DETAILS, REFER TO ODOT STANDARD DRAWING GSD-1-96. INCREASE HOLE SIZES SHOWN ON THE STANDARD DRAWING BY 1/16".
3. ALL STRUCTURAL STEEL SHALL BE GALVANIZED AS SPECIFIED IN 711.02.
4. WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.
5. WELD ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE TO AREAS OF THE STRINGER FLANGES DESIGNATED COMPRESSION. DO NOT WELD ATTACHMENTS TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE AT LEAST 1" FROM THE EDGE OF THE FLANGE, BE AT LEAST 2" LONG, AND BE AT LEAST ¼" FOR THICKNESS UP TO ¾" OR 5/16" FOR GREATER THAN ¾".
6. FOR CAMBER AND DEFLECTIONS, SEE SHEET 33/53.
7. FOR BEARING DETAILS, SEE SHEETS 34/53 AND 35/53.
8. SHEAR STUDS IN THE VICINITY OF THE EDGE OF SLAB SHALL BE PLACED PARALLEL TO THE EDGE OF SLAB TO FACILITATE REBAR PLACEMENT. SPACING MAY BE ADJUSTED TO FACILITATE REBAR, HOWEVER, THE TOTAL NUMBER OF SHEAR STUDS SHALL REMAIN THE SAME.
9. DO NOT INSTALL CROSSFRAMES BETWEEN BEAMS 15 AND 16 UNTIL BOTH DECK PHASES ARE COMPLETED.
10. FOR END CROSSFRAME DETAILS, SEE SHEET 32/53.
11. WELDED SHEAR CONNECTORS: FOR ADDITIONAL SHEAR STUD REQUIREMENTS, SEE GENERAL NOTES, SHEET 940/1150.
12. FOR UTILITY SUPPORT CROSSFRAME AND ANGLE DETAILS, SEE SHEETS 30/53 AND 31/53.

DESIGN AGENCY
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Cleveland, OH 44114-2531

DESIGNED	DRAWN	REVIEWED	DATE
JOL	JFM/PPA	RSB	11/2/12
CHECKED	REVISED	STRUCTURE FILE NUMBER	
BTA/JOL		25007.79	

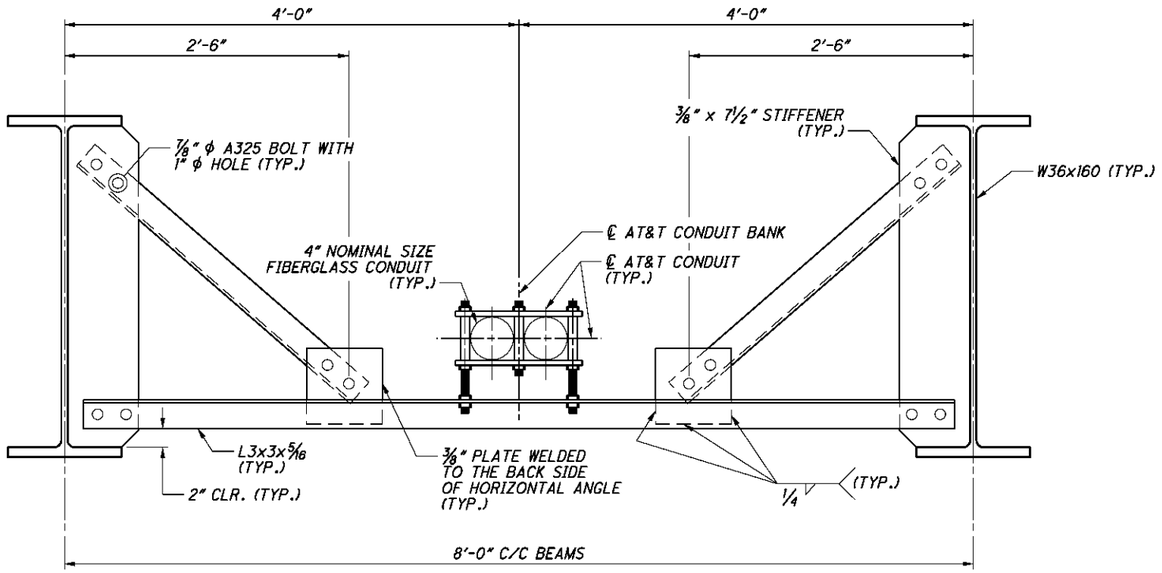
FRAMING PLAN AND BEAM ELEVATION - UNIT 1 & 2
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

29 / 53

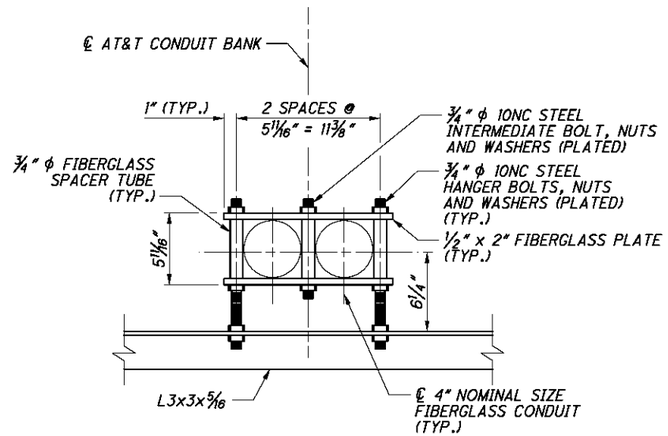
1120
1150

c:\coddlib\pw\zwaite\pwgreat_lakes\dms09823\023_23635D001.dgn - 3/1/2013 11:35:04 AM - zwaite



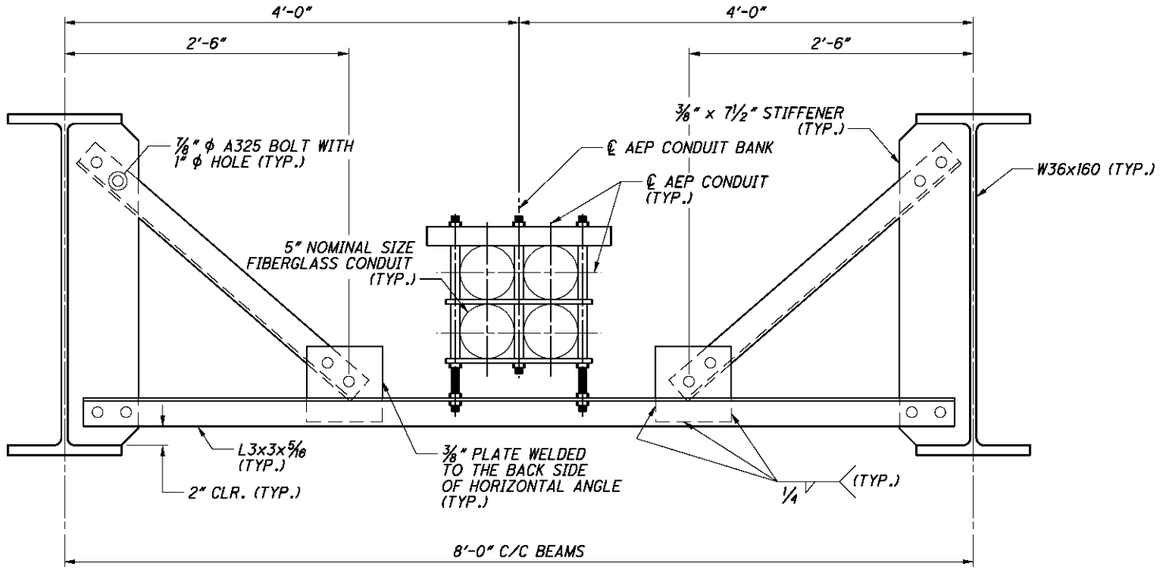
AT&T UTILITY SUPPORT CROSSFRAME

(SEE NOTE 3)



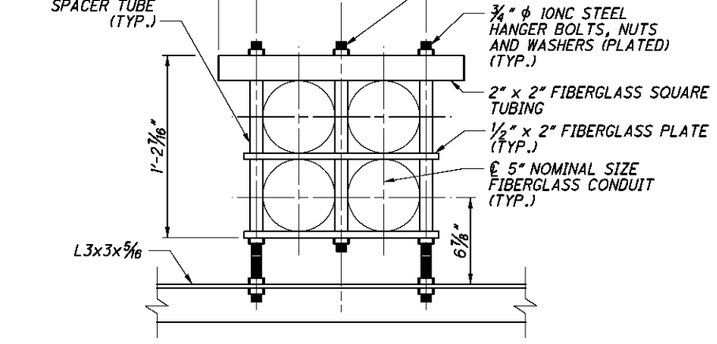
AT&T CONDUIT SUPPORT DETAIL

(SEE NOTE 2)



AEP UTILITY SUPPORT CROSSFRAME

(SEE NOTE 4)



AEP CONDUIT SUPPORT DETAIL

(SEE NOTE 2)

NOTES:

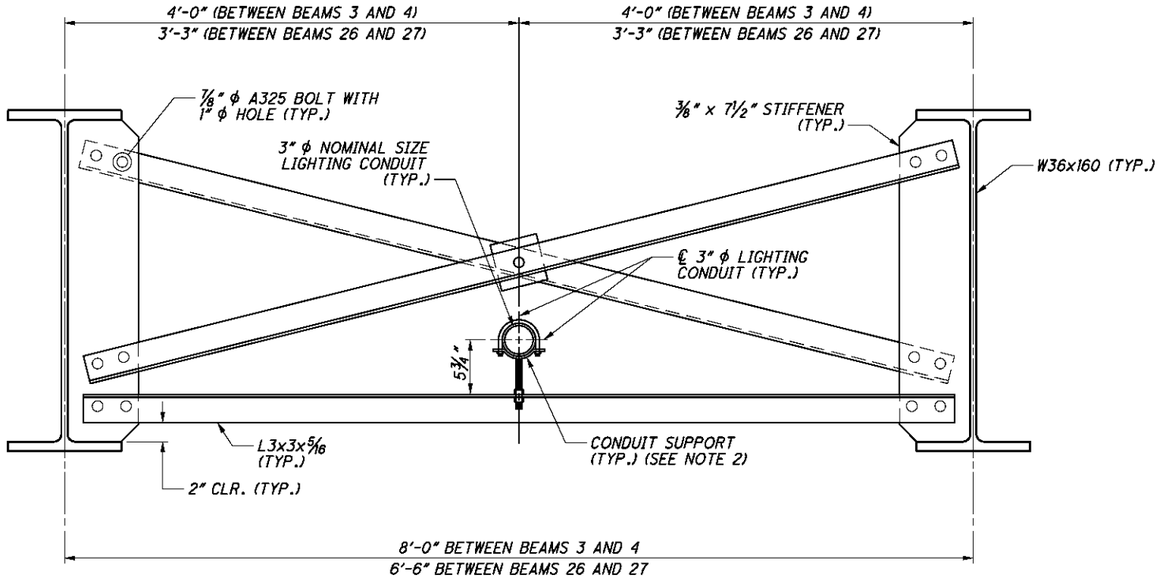
1. FOR LOCATION OF UTILITY SUPPORT CROSSFRAMES, SEE SHEET 29/53.
2. VERIFY THESE DIMENSIONS WITH CONDUIT SUPPORT MANUFACTURER/SUPPLIER BEFORE DRILLING HOLES IN UTILITY SUPPORT ANGLES. ADDITIONALLY, VERIFY THAT CHOSEN UTILITY SUPPORT SYSTEMS PROVIDE ADEQUATE CLEARANCES/SPACING BETWEEN UTILITIES AND INTERMEDIATE/END CROSSFRAMES.
3. ALL CONDUIT, CONDUIT SUPPORT ASSEMBLIES, BRACING, EXPANSION JOINTS AND MOUNTING HARDWARE SHALL BE INCLUDED WITH ITEM 625 - CONDUIT, MISC.: (2) - 4" NOMINAL SIZE FIBERGLASS (AT&T).
4. ALL CONDUIT, CONDUIT SUPPORT ASSEMBLIES, BRACING, EXPANSION JOINTS AND MOUNTING HARDWARE SHALL BE INCLUDED WITH ITEM 625 - CONDUIT, MISC.: (4) - 5" NOMINAL SIZE FIBERGLASS (AEP).
5. FOR ADDITIONAL DETAILS, SEE ODOT STANDARD DRAWING GSD-1-96.

DESIGN AGENCY
HNTB
100 Superior Avenue, Suite 1330
Cleveland, OH 44114-2531

DESIGNED	DRAWN	REVIEWED	DATE
ZTW	ZTW	RSB	11/2/12
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JOL		2500779	

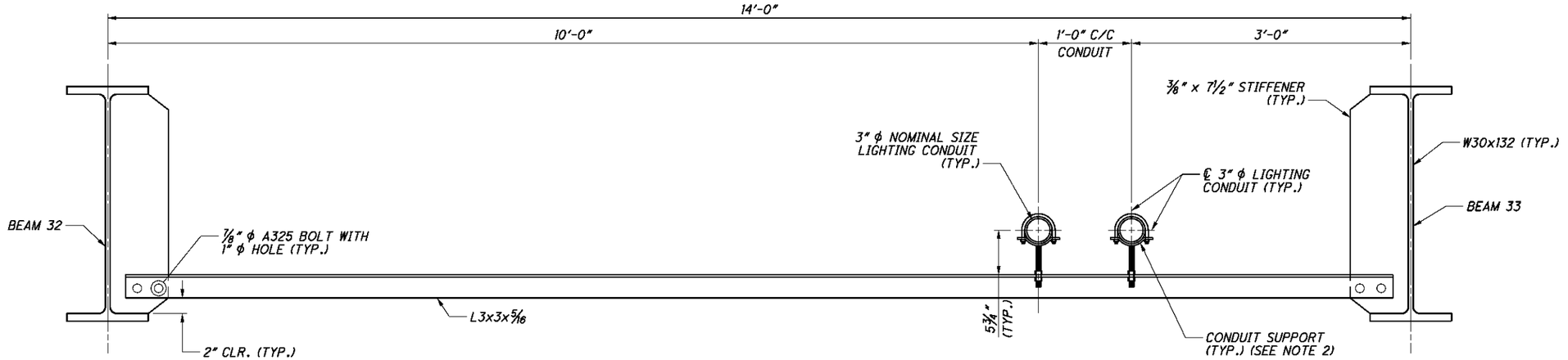
UTILITY DETAILS - 1
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746



LIGHTING UTILITY SUPPORT CROSSFRAME

(SEE NOTE 3)



LIGHTING UTILITY SUPPORT ANGLE

(SEE NOTE 3)

NOTES:

1. FOR LOCATION OF UTILITY SUPPORT CROSSFRAME AND ANGLE, SEE SHEET 29/53.
2. CONDUIT SUPPORT SHALL BE ANVIL ADJUSTABLE PIPE STANCHION SADDLE WITH U-BOLT, FIGURE 191, OR APPROVED EQUAL. CONDUIT SUPPORT SHALL BE INCIDENTAL TO THE COST OF THE LIGHTING CONDUIT. FOR 3" ϕ LIGHTING CONDUIT DETAILS AND PAYMENT, SEE LIGHTING PLANS.
3. VERIFY THESE DIMENSIONS WITH CONDUIT SUPPORT MANUFACTURER/SUPPLIER BEFORE DRILLING HOLES IN UTILITY SUPPORT ANGLES. ADDITIONALLY, VERIFY THAT CHOSEN UTILITY SUPPORT SYSTEMS PROVIDE ADEQUATE CLEARANCES/SPACING BETWEEN UTILITIES AND INTERMEDIATE/END CROSSFRAMES.
4. FOR ADDITIONAL CROSSFRAME DETAILS, SEE ODOT STANDARD DRAWING GSD-1-96.

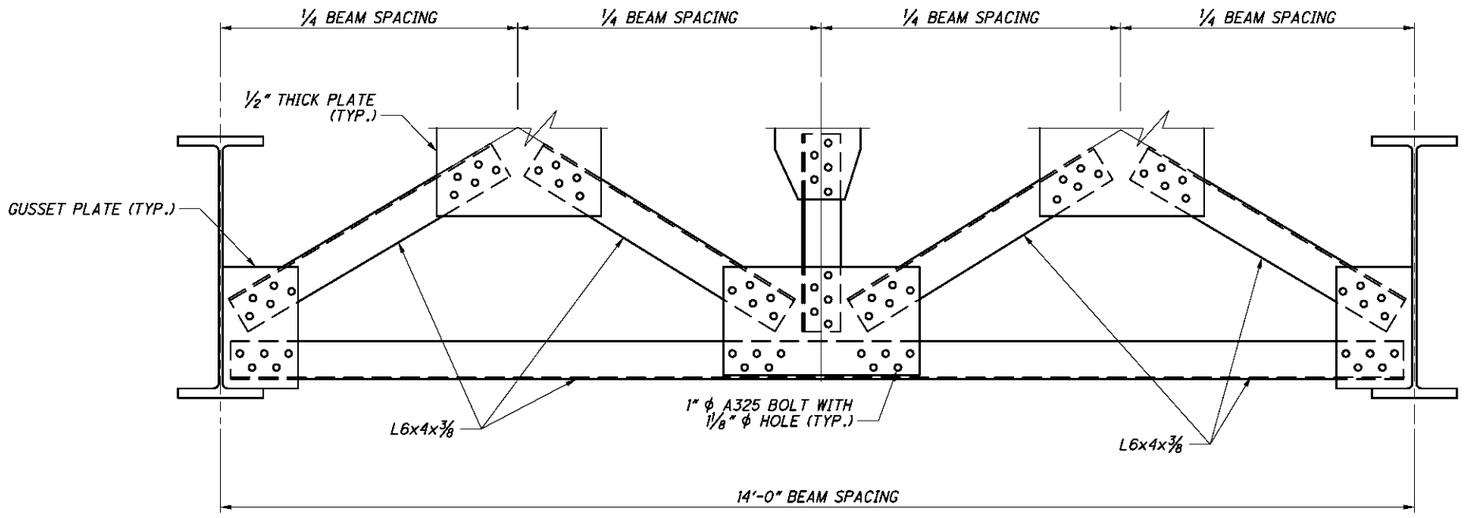
DESIGN AGENCY
HNTB
100 Superior Avenue, Suite 1330
Cleveland, OH 44114-2531

DESIGNED	DRAWN	REVIEWED	DATE
ZTW	ZTW	RSB	11/2/12
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JOL		2500779	

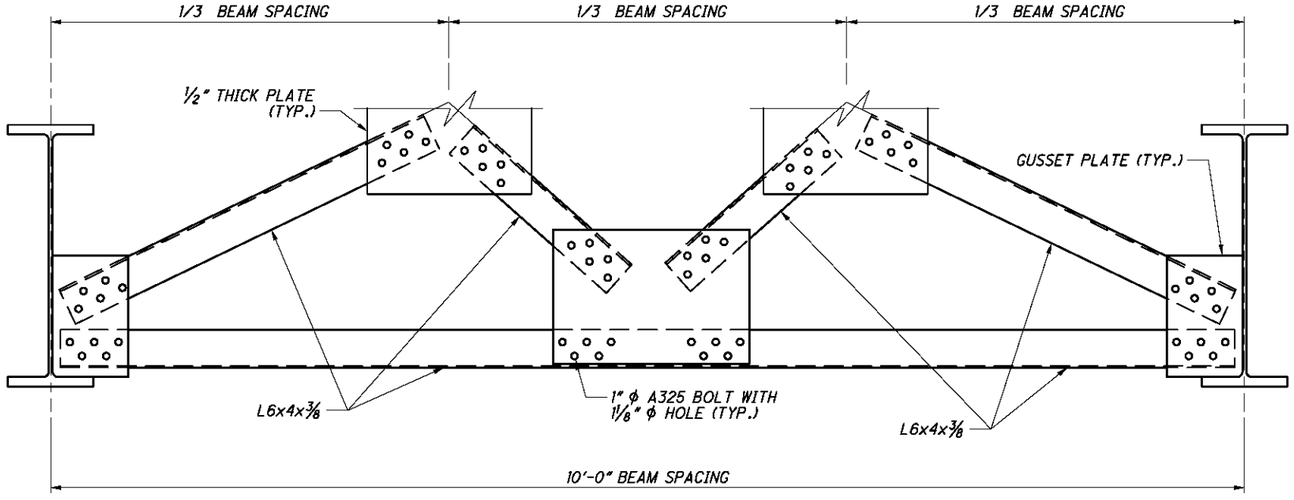
UTILITY DETAILS - 2
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

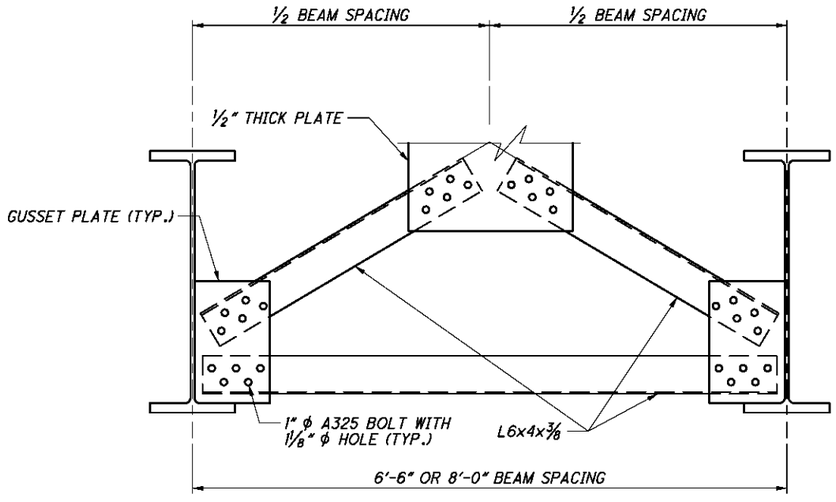
1122
1150



CROSSFRAME FOR 12'-0" OR GREATER BEAM SPACING



CROSSFRAME FOR GREATER THAN 8'-0" TO 12'-0" BEAM SPACING



CROSSFRAME FOR 8'-0" OR LESS BEAM SPACING

NOTES:

1. FOR FRAMING PLAN UNITS 1 AND 2, SEE SHEET 29/53.
2. FOR ADDITIONAL DETAILS, SEE ODOT STANDARD DRAWING GSD-1-96.
3. SOME BOLTED CONNECTIONS MAY BE REPLACED WITH SHOP WELDS. HOWEVER, NO FIELD WELDS WILL BE PERMITTED.

DESIGN AGENCY
HNTB
100 Superior Avenue, Suite 1330
Cleveland, OH 44114-2531

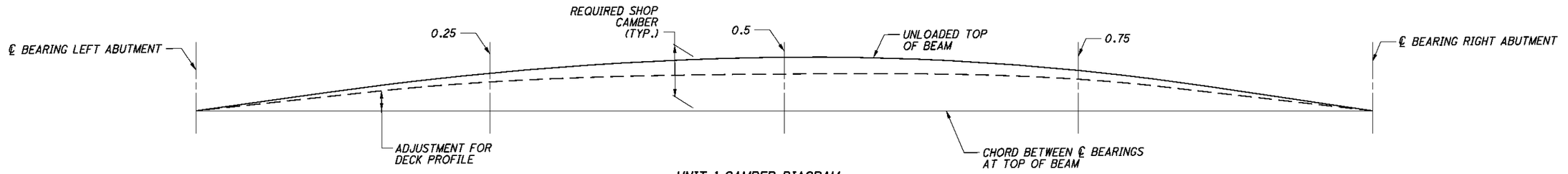
DESIGNED	DRAWN	REVIEWED	DATE
JOL	PPA/ZTW	RSB	11/2/12
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JRS		2500779	

END CROSSFRAME DETAILS
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

32/53

1123
1150



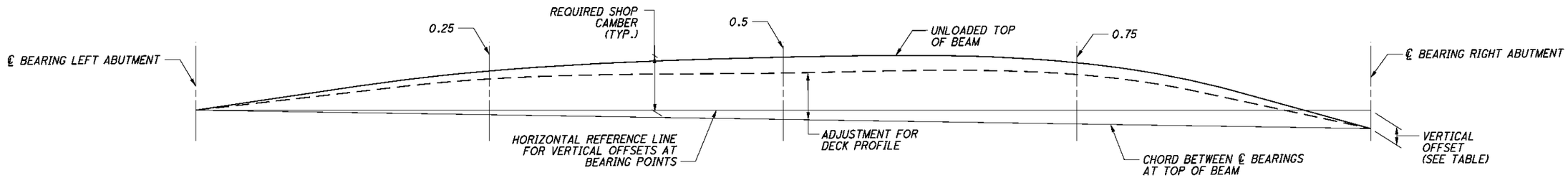
UNIT 1 CAMBER DIAGRAM

(BEAM 1 SHOWN, BEAMS 2-28 SIMILAR)

	BEAM 1			BEAM 2			BEAM 3			BEAM 4			BEAM 5			BEAM 6			BEAM 7			BEAM 8			BEAM 9		
	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75
DEFLECTION DUE TO WEIGHT OF STEEL	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"
DEFLECTION DUE TO REMAINING DEAD LOAD	3/16"	1/4"	3/16"	3/16"	1/4"	3/16"	3/16"	1/4"	3/16"	3/16"	1/4"	3/16"	3/16"	1/4"	3/16"	3/16"	1/4"	3/16"	3/16"	1/4"	3/16"	3/16"	1/4"	3/16"	3/16"	1/4"	3/16"
ADJUSTMENT REQUIRED FOR DECK PROFILE	7/8"	15/16"	7/8"	7/8"	15/16"	7/8"	7/8"	15/16"	7/8"	13/16"	15/16"	7/8"	13/16"	15/16"	13/16"	7/8"	15/16"	13/16"	7/8"	15/16"	7/8"	7/8"	15/16"	7/8"	13/16"	15/16"	13/16"
REQUIRED SHOP CAMBER	1 1/8"	1 5/8"	1 1/8"	1 1/8"	1 5/8"	1 1/8"	1 1/8"	1 5/8"	1 1/8"	1 1/16"	1 5/8"	1 1/8"	1 1/16"	1 5/8"	1 1/16"	1 1/8"	1 5/8"	1 1/16"	1 1/8"	1 5/8"	1 1/8"	1 1/8"	1 5/8"	1 1/8"	1 1/16"	1 5/8"	1 1/16"

	BEAM 10			BEAM 11			BEAM 12			BEAM 13			BEAM 14			BEAM 15			BEAM 16			BEAM 17			BEAM 18		
	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75
DEFLECTION DUE TO WEIGHT OF STEEL	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"
DEFLECTION DUE TO REMAINING DEAD LOAD	3/16"	1/4"	3/16"	3/16"	1/4"	3/16"	3/16"	1/4"	3/16"	3/16"	1/4"	3/16"	3/16"	1/4"	3/16"	3/16"	1/4"	3/16"	3/16"	1/4"	3/16"	3/16"	1/4"	3/16"	1/8"	3/16"	1/8"
ADJUSTMENT REQUIRED FOR DECK PROFILE	7/8"	15/16"	7/8"	7/8"	15/16"	7/8"	7/8"	15/16"	7/8"	7/8"	15/16"	7/8"	7/8"	1 3/16"	13/16"	7/8"	15/16"	7/8"	7/8"	15/16"	7/8"	13/16"	15/16"	13/16"	7/8"	15/16"	7/8"
REQUIRED SHOP CAMBER	1 1/8"	1 5/8"	1 1/8"	1 1/8"	1 5/8"	1 1/8"	1 1/8"	1 5/8"	1 1/8"	1 1/8"	1 5/8"	1 1/8"	1 1/8"	1 11/16"	1 1/16"	1 1/8"	1 5/8"	1 1/8"	1 1/8"	1 5/8"	1 1/8"	1 1/16"	1 5/8"	1 1/16"	1 1/16"	1 5/8"	1 1/16"

	BEAM 19			BEAM 20			BEAM 21			BEAM 22			BEAM 23			BEAM 24			BEAM 25			BEAM 26			BEAM 27			BEAM 28		
	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75
DEFLECTION DUE TO WEIGHT OF STEEL	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"
DEFLECTION DUE TO REMAINING DEAD LOAD	3/16"	1/4"	3/16"	3/16"	1/4"	3/16"	3/16"	1/4"	3/16"	3/16"	1/4"	3/16"	3/16"	1/4"	3/16"	3/16"	1/4"	3/16"	3/16"	1/4"	3/16"	3/16"	1/4"	3/16"	1/8"	3/16"	1/8"	1/8"	3/16"	1/8"
ADJUSTMENT REQUIRED FOR DECK PROFILE	7/8"	15/16"	7/8"	13/16"	15/16"	13/16"	7/8"	15/16"	7/8"	7/8"	15/16"	7/8"	7/8"	15/16"	7/8"	7/8"	15/16"	7/8"	7/8"	15/16"	13/16"	7/8"	15/16"	7/8"	13/16"	15/16"	13/16"	7/8"	15/16"	13/16"
REQUIRED SHOP CAMBER	1 1/8"	1 5/8"	1 1/8"	1 1/16"	1 5/8"	1 1/16"	1 1/8"	1 5/8"	1 1/8"	1 1/8"	1 5/8"	1 1/8"	1 1/8"	1 5/8"	1 1/8"	1 1/8"	1 5/8"	1 1/8"	1 1/8"	1 5/8"	1 1/16"	1 1/8"	1 5/8"	1 1/8"	1"	1 3/16"	1 1/16"	1 1/16"	1 3/16"	1"



UNIT 2 CAMBER DIAGRAM

(BEAM 29 SHOWN, BEAMS 30-38 SIMILAR)

	BEAM 29			BEAM 30			BEAM 31			BEAM 32			BEAM 33			BEAM 34			BEAM 35		
	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75
DEFLECTION DUE TO WEIGHT OF STEEL	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"
DEFLECTION DUE TO REMAINING DEAD LOAD	3/16"	1/4"	3/16"	3/16"	5/16"	3/16"	1/8"	3/16"	1/8"	1/8"	3/16"	1/8"	3/16"	3/16"	1/8"	3/16"	3/16"	1/8"	1/8"	1/8"	1/8"
ADJUSTMENT REQUIRED FOR DECK PROFILE	1 3/16"	2 1/4"	1 1/2"	1 3/8"	2 1/8"	1 3/8"	1 3/8"	2 1/8"	1 3/8"	1 3/8"	2 1/8"	1 5/16"	1 3/8"	2 1/8"	1 3/8"	1 3/8"	2 1/16"	1 5/16"	1 3/8"	2 1/8"	1 5/16"
REQUIRED SHOP CAMBER	1 11/16"	2 3/16"	1 3/4"	1 5/8"	2 1/2"	1 5/8"	1 9/16"	2 3/8"	1 9/16"	1 9/16"	2 3/8"	1 1/2"	1 5/8"	2 3/8"	1 9/16"	1 5/8"	2 5/16"	1 1/2"	1 3/8"	2 1/8"	1 5/16"

	BEAM 36			BEAM 37			BEAM 38		
	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75
DEFLECTION DUE TO WEIGHT OF STEEL	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"
DEFLECTION DUE TO REMAINING DEAD LOAD	1/16"	1/16"	1/16"	0"	1/16"	0"	0"	0"	0"
ADJUSTMENT REQUIRED FOR DECK PROFILE	1 3/8"	2 1/16"	1 1/4"	1 3/8"	2 1/16"	1 5/16"	1 3/8"	2 1/16"	1 1/4"
REQUIRED SHOP CAMBER	1 1/2"	2 3/16"	1 3/8"	1 7/16"	2 3/16"	1 3/8"	1 1/16"	2 1/8"	1 5/16"

VERTICAL OFFSETS AT BEARING POINTS	
BEARING POINT	UNIT 2 (BEAMS 29-38)
LEFT ABUTMENT	0"
RIGHT ABUTMENT	2 1/4"

NOTES:

1. DEFLECTIONS, CAMBER AND ADJUSTMENT FOR VERTICAL CURVES ARE GIVEN TO THE NEAREST 1/16th INCH.

DESIGN AGENCY
HNTB
700 Superior Avenue, Suite 1300
Cleveland, OH 44114-2531

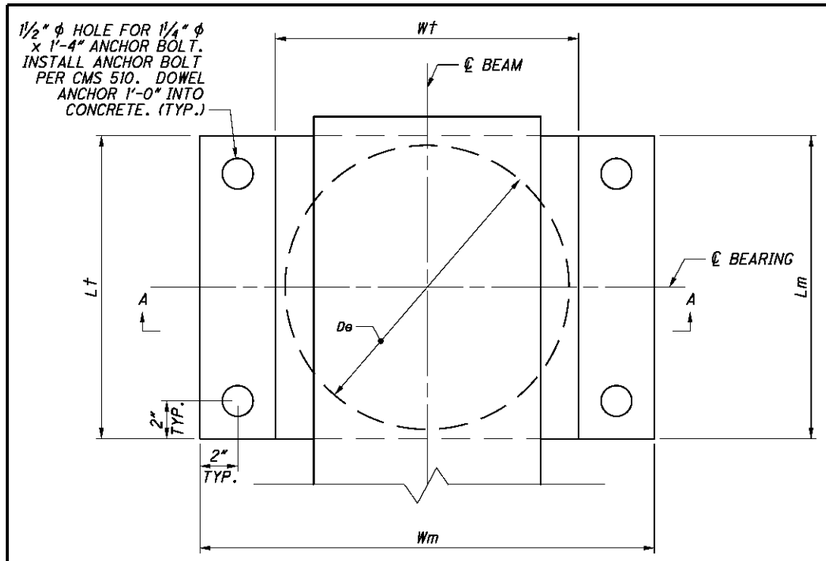
DESIGNED	DRAWN	REVIEWED	DATE
JOL	PPA	RSB	11/2/12
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JRS		2500779	

DEFLECTION AND CAMBER - UNITS 1 & 2
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

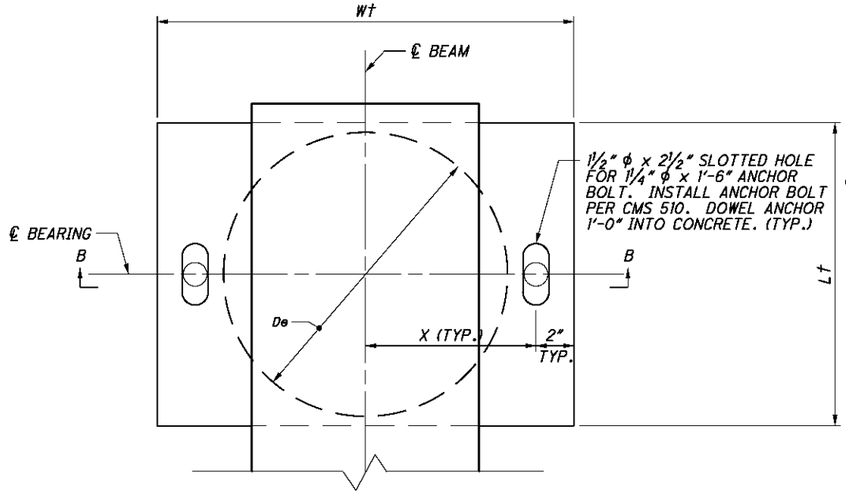
33 / 53

1124
1150



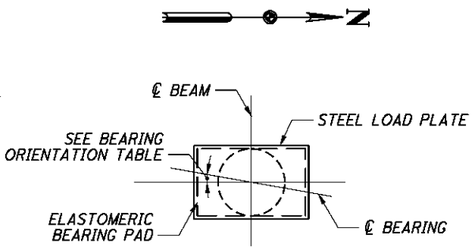
EXPANSION BEARING - TYPE 1

(EXP-EXP)

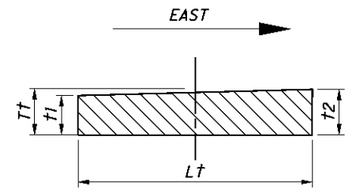


EXPANSION BEARING - TYPE 2

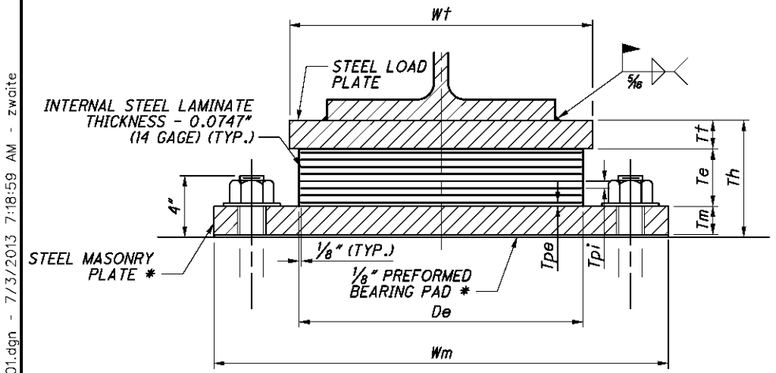
(EXP-FIX)



BEARING ORIENTATION PLAN

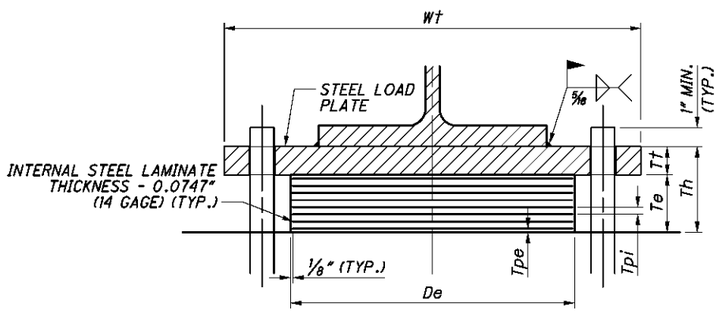


LOAD PLATE DETAIL



SECTION A-A

* - OMIT STEEL MASONRY PLATE AND ⅛" PREFORMED BEARING PAD AT BEAM 29



SECTION B-B

BEARING ORIENTATION			
BEAMS	℄ BEARING LEFT ABUT.	BEAMS	℄ BEARING LEFT ABUT.
1-11	00°46'47"	24-33	-00°07'13"
12-23	00°19'55"	34-38	-00°30'34"

BEARING DATA

BEARING TYPE	LOCATION	BEAMS	FIXITY	NO. REQ'D.	DL (KIP)	LL(KIP) W/O IMPACT	TOTAL LOAD (DL+LL)	D_e (in)	T_{pi} (in)	T_{pe} (in)	NO. OF T_{pi}'s	NO. OF T_{pe}'s	NO. INTERNAL LAMINATES	T_e (in)	STEEL LOAD PLATE L_t (in)	W_t (in)	t_1 (in)	t_2 (in)	T_t (in)	X (in)	STEEL MASONRY PLATE L_m (in)	W_m (in)	T_m (in)	T_h (in)
1	L. ABUT.	1 THRU 13 15 THRU 28	E-E	27	46	123	169	15	0.3125	0.125	7	2	8	3.035	16	16	1 7/16	1 9/16	1.5	-	16	24	1.5	6.16
1	L. ABUT.	29	E-E	1	32	95	127	13	0.3125	0.125	7	2	8	3.035	14	14	1 7/16	1 9/16	1.5	-	-	-	-	4.535
1	L. ABUT.	30 AND 31	E-E	2	43	95	138	14	0.3125	0.125	8	2	9	3.422	15	15	1 7/16	1 9/16	1.5	-	15	23	1.5	6.547
1	L. ABUT.	32 34 THRU 38	E-E	6	38	53	91	12	0.3125	0.125	6	2	7	2.648	13	13	1 7/16	1 9/16	1.5	-	13	22	1.5	5.773
2	L. ABUT.	14	E-F	1	46	123	169	15	0.3125	0.125	7	2	8	3.035	16	22	1 7/16	1 9/16	1.5	9	-	-	-	4.535
2	L. ABUT.	33	E-F	1	38	53	91	12	0.3125	0.125	6	2	7	2.648	13	20	1 7/16	1 9/16	1.5	8	-	-	-	4.148

NOTES:

1. THE ELASTOMER SHALL HAVE A HARDNESS OF 50 DUROMETER. THE BEARINGS WERE DESIGNED UNDER DIVISION I, SECTION 14.6.6 (METHOD A) OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.
2. THE STEEL LOAD PLATE AND MASONRY PLATE SHALL BE ASTM A709 GRADE 50 STEEL. THE STEEL LOAD PLATE AND MASONRY PLATE SHALL BE GALVANIZED PER ITEM 711.02. ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED PER ITEM 711.02.
3. ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING. THE MARKS SHALL INCLUDE THE BEARING LOCATION ON THE BRIDGE AND A DIRECTION ARROW THAT POINTS UP-STATION. ALL MARKS SHALL BE PERMANENT AND BE VISIBLE AFTER THE BEARING IS INSTALLED.
4. TOTAL DESIGN LOAD FOR BEARINGS EQUALS THE SUM OF THE DEAD LOADS AND LIVE LOADS TABULATED IN THE BEARING TABLE.
5. BASIS OF PAYMENT: THE UNIT BID PRICE SHALL INCLUDE ALL MATERIALS (INCLUDING MASONRY PLATES AND ANCHOR BOLTS), LABOR, TESTING AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL LAMINATED ELASTOMERIC BEARINGS. PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR ITEM 516 - EACH, ELASTOMERIC BEARINGS WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN.
6. THE FIRST LETTER IN THE FIXITY DESIGNATION REFERS TO FIXITY PARALLEL TO THE BEAM AND THE SECOND LETTER REFERS TO FIXITY PERPENDICULAR TO THE BEAM.
7. ANCHOR BOLTS FOR TYPE 2 BEARINGS SHALL BE ASTM F1554 GRADE 105 PER CMS 730.02. ANCHOR BOLTS SHALL BE INCLUDED WITH 516 FOR PAYMENT.

DESIGN AGENCY
HNTB
700 Superior Avenue, Suite 1300
Cleveland, OH 44114-2531

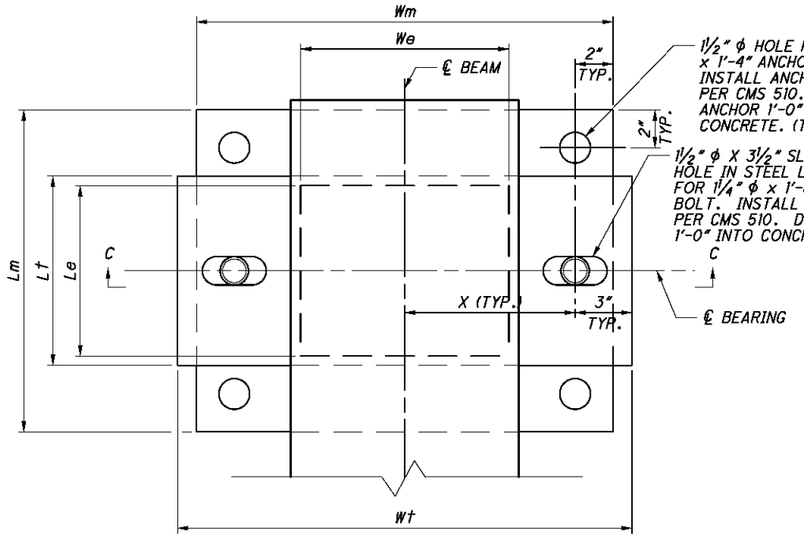
DESIGNED TJE | DRAWN TJE/PPA | REVIEWED RSB | DATE 11/2/12
CHECKED JOL | REVISED | STRUCTURE FILE NUMBER 2500779

BEARING DETAILS
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

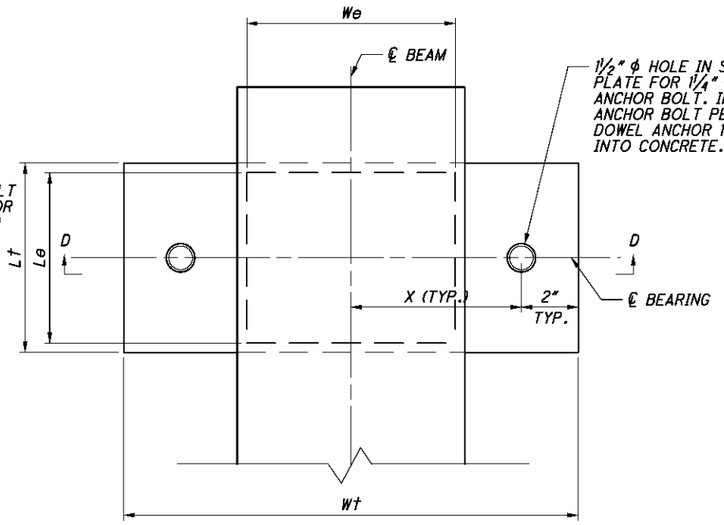
34/53

1125
1150



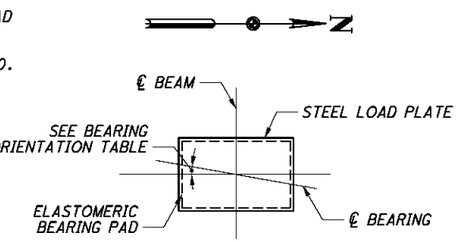
FIXED BEARING - TYPE 3

(FIX-EXP)

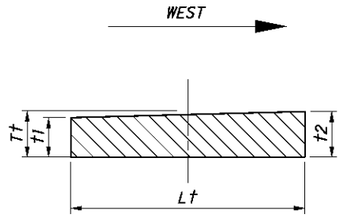


FIXED BEARING - TYPE 4

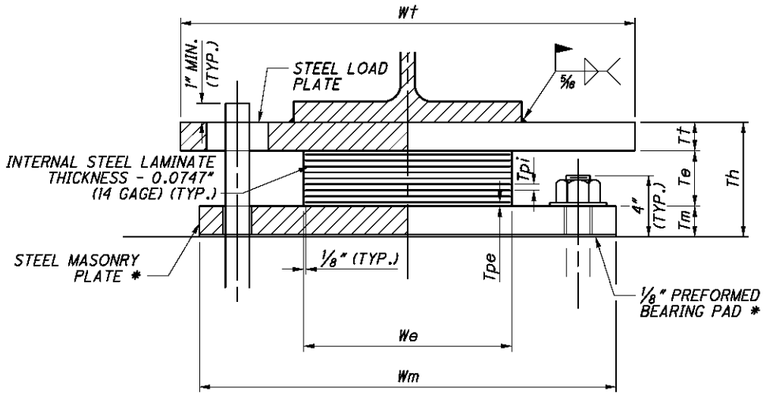
(FIX-FIX)



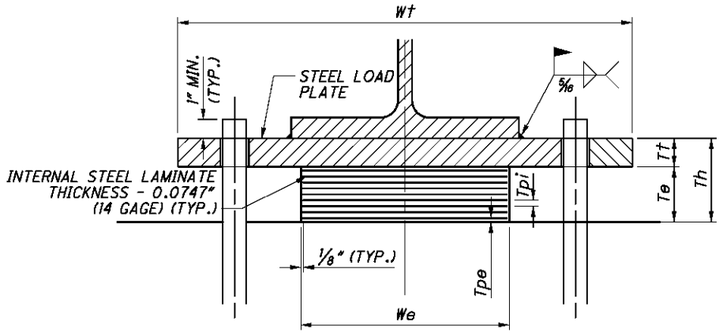
BEARING ORIENTATION PLAN



LOAD PLATE DETAIL



SECTION C-C



SECTION D-D

BEARING ORIENTATION	
BEAMS	℄ BEARING RIGHT ABUT.
1-11	00°46'47"
12-23	00°19'55"
24-33	-00°07'13"
34-38	-00°30'34"

* - OMIT STEEL MASONRY PLATE AND 1/8" PREFORMED BEARING PAD AT BEAM 29

BEARING DATA

BEARING TYPE	LOCATION	BEAMS	FIXITY	NO. REQ'D.	DL (KIP)	LL(KIP) W/O IMPACT	TOTAL LOAD (DL+LL)	L_e (in)	W_e (in)	T_{pi} (in)	T_{pe} (in)	NO. OF T_{pi}'s	NO. OF T_{pe}'s	NO. INTERNAL LAMINATES	T_e (in)	STEEL LOAD PLATE						STEEL MASONRY PLATE			
																L_t (in)	W_t (in)	t_1 (in)	t_2 (in)	T_t (in)	X (in)	L_m (in)	W_m (in)	T_m (in)	T_h (in)
3	R. ABUT.	1 THRU 13 15 THRU 28	F-E	27	46	123	169	13	14	0.3125	0.125	8	2	9	3.422	14	25	1 7/16	1 9/16	1.5	9.5	14	23	1.5	6.547
3	R. ABUT.	29	F-E	1	33	73	106	10	11	0.25	0.125	8	2	9	2.922	11	23	1 7/16	1 9/16	1.5	8.5	-	-	-	4.422
3	R. ABUT.	30 AND 31	F-E	2	35	53	88	9	11	0.25	0.125	8	2	9	2.922	10	24	1 7/16	1 9/16	1.5	9	17	22	1.5	6.047
3	R. ABUT.	32 34 THRU 38	F-E	6	10	9	19	8	9	0.3125	0.125	6	2	7	2.648	9	23	1 7/16	1 9/16	1.5	8.5	17	21	1.5	5.773
4	R. ABUT.	14	F-F	1	46	123	169	13	14	0.3125	0.125	8	2	9	3.422	14	20	1 7/16	1 9/16	1.5	8	-	-	-	4.922
4	R. ABUT.	33	F-F	1	10	9	19	8	9	0.3125	0.125	6	2	7	2.648	9	19	1 7/16	1 9/16	1.5	7.5	-	-	-	4.148

NOTES:

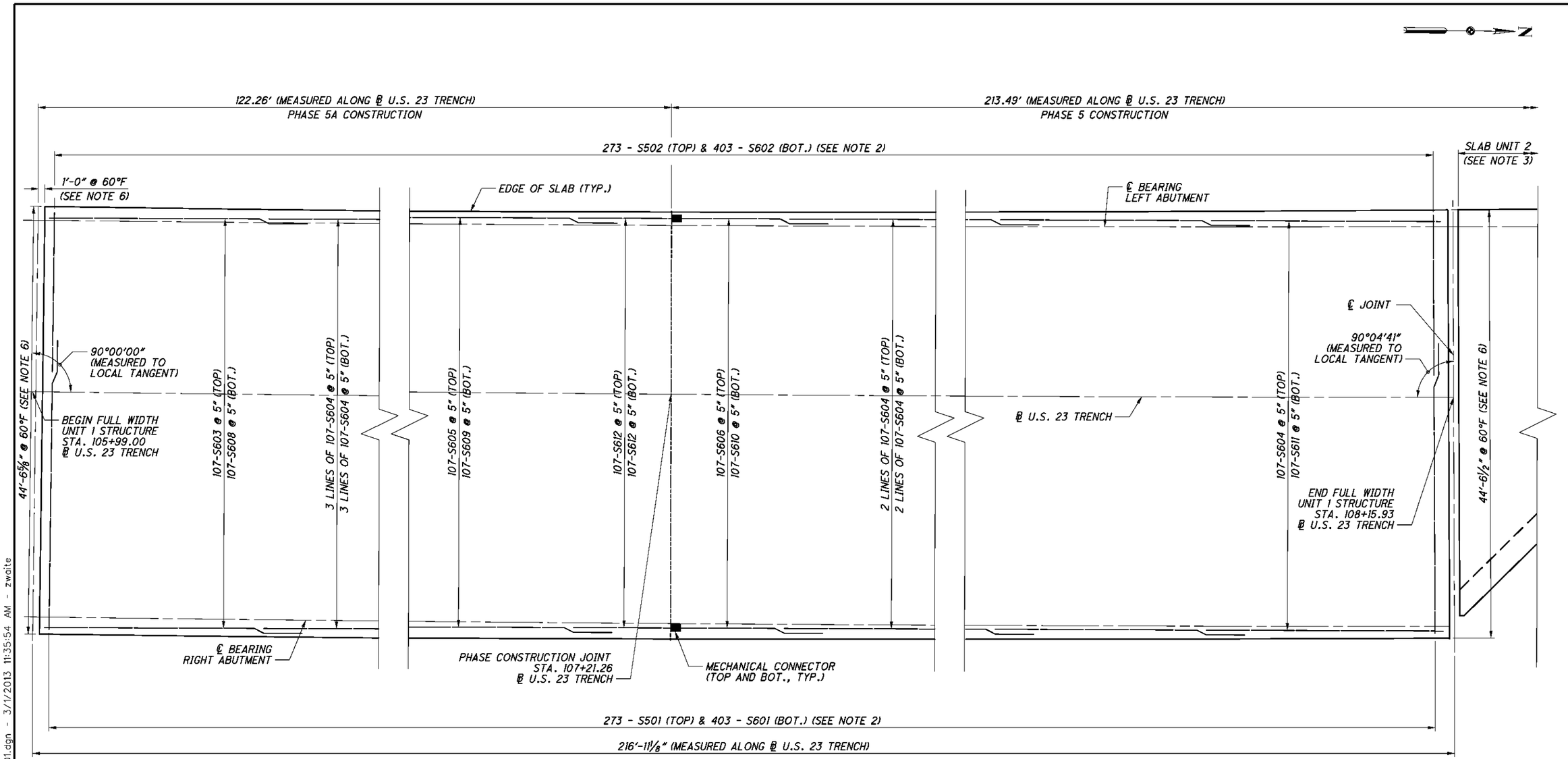
1. THE ELASTOMER SHALL HAVE A HARDNESS OF 50 DUROMETER. THE BEARINGS WERE DESIGNED UNDER DIVISION I, SECTION 14.6.6 (METHOD A) OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.
2. THE STEEL LOAD PLATE AND MASONRY PLATE SHALL BE ASTM A709 GRADE 50 STEEL. THE STEEL LOAD PLATE AND MASONRY PLATE SHALL BE GALVANIZED PER ITEM 711.02. ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED PER ITEM 711.02.
3. ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING. THE MARKS SHALL INCLUDE THE BEARING LOCATION ON THE BRIDGE AND A DIRECTION ARROW THAT POINTS UP-STATION. ALL MARKS SHALL BE PERMANENT AND BE VISIBLE AFTER THE BEARING IS INSTALLED.
4. TOTAL DESIGN LOAD FOR BEARINGS EQUALS THE SUM OF THE DEAD LOADS AND LIVE LOADS TABULATED IN THE BEARING TABLE.
5. BASIS OF PAYMENT: THE UNIT BID PRICE SHALL INCLUDE ALL MATERIALS (INCLUDING MASONRY PLATES AND ANCHOR BOLTS), LABOR, TESTING AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL LAMINATED ELASTOMERIC BEARINGS. PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR ITEM 516 - EACH, ELASTOMERIC BEARINGS WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN.
6. THE FIRST LETTER IN THE FIXITY DESIGNATION REFERS TO FIXITY PARALLEL TO THE BEAM AND THE SECOND LETTER REFERS TO FIXITY PERPENDICULAR TO THE BEAM.
7. ANCHOR BOLTS FOR TYPE 4 BEARINGS SHALL BE ASTM F1554 GRADE 105 PER CMS 730.02. ANCHOR BOLTS SHALL BE INCLUDED WITH 516 FOR PAYMENT.

DESIGN AGENCY
HNTB
700 Superior Avenue, Suite 1300
Cleveland, OH 44114-2531

DESIGNED TJE | DRAWN TJE/PPA | REVIEWED RSB | DATE 11/2/12
CHECKED JOL | REVISED | STRUCTURE FILE NUMBER 2500779

BEARING DETAILS
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746



SLAB PLAN - UNIT 1

BAR	MINIMUM LAP LENGTH
#5	2'-5"
#6	3'-11"

NOTES:

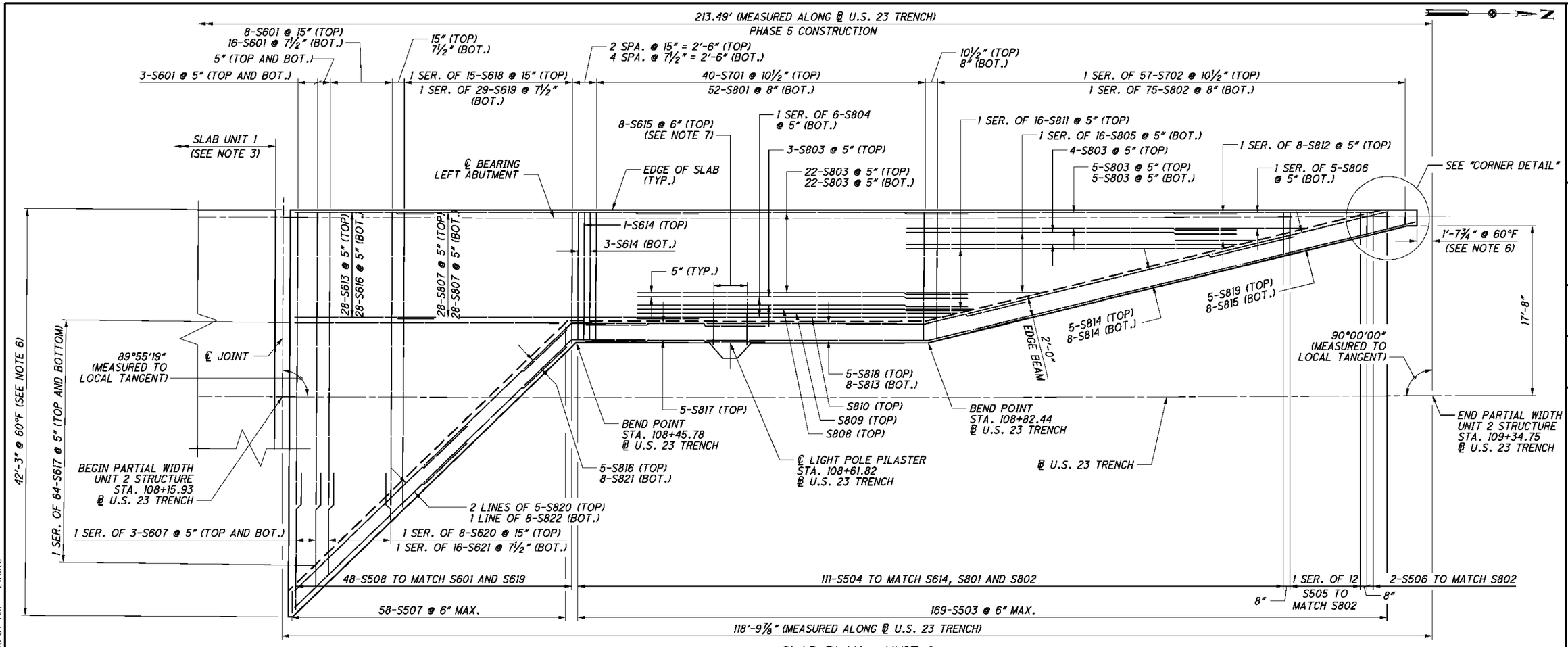
1. FOR TRANSVERSE SECTION, SEE SHEET 38/53.
2. FOR LONGITUDINAL BAR SPACINGS, SEE SLAB DETAILS ON SHEET 39/53.
3. FOR UNIT 2 SLAB PLAN, SEE SHEET 37/53.
4. FOR REINFORCING SCHEDULE, SEE SHEETS 51/53 THROUGH 53/53.
5. FOR PARAPET REINFORCEMENT AND SECTION, SEE SHEET 41/53.
6. DIMENSION WAS CALCULATED ASSUMING A 1½" STEEL RETAINER FOR THE EXPANSION JOINTS. IF A SMALLER SIZE RETAINER IS USED, THIS DIMENSION SHALL BE ADJUSTED.

DESIGN AGENCY
HNTB
100 Superior Avenue, Suite 1330
Cleveland, OH 44114-2531

DESIGNED	DRAWN	REVIEWED	DATE
JOL	PPA	RSB	11/2/12
CHECKED	REVISED	STRUCTURE FILE NUMBER	
BTA		2500779	

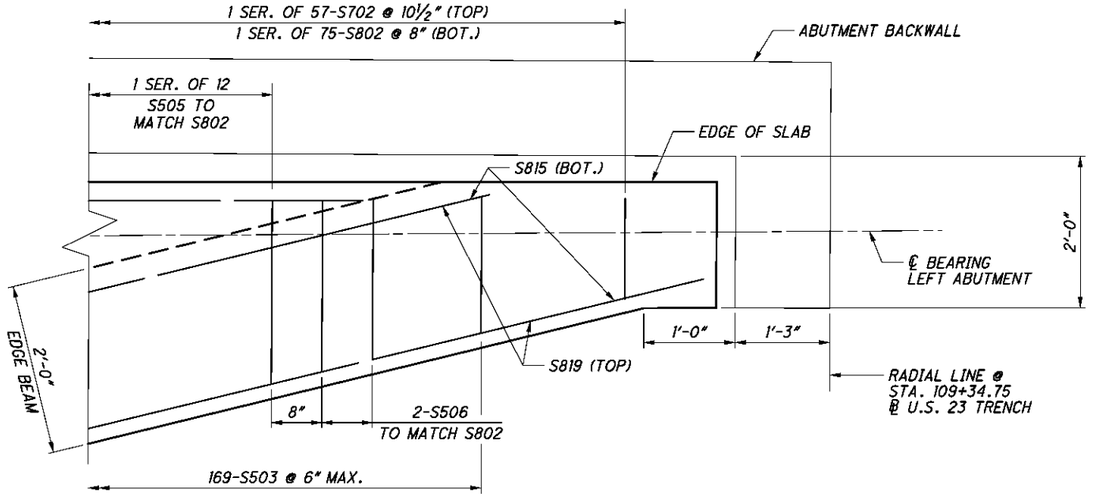
SLAB PLAN - UNIT 1
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746



SLAB PLAN - UNIT 2

(ABUTMENT BACKWALL NOT SHOWN FOR CLARITY)



CORNER DETAIL

BAR	MINIMUM LAP LENGTH
#5	2'-5"
#6	3'-11"
#8	6'-4"

NOTES:

1. FOR TRANSVERSE SECTION, SEE SHEET 38/53.
2. FOR LONGITUDINAL BAR SPACINGS, SEE SLAB DETAILS ON SHEET 39/53.
3. FOR UNIT 1 SLAB PLAN, SEE SHEET 36/53.
4. FOR REINFORCING SCHEDULE, SEE SHEETS 51/53 THROUGH 53/53.
5. FOR PARAPET REINFORCEMENT AND SECTION, SEE SHEET 41/53.
6. DIMENSION WAS CALCULATED ASSUMING A 1½" STEEL RETAINER FOR THE EXPANSION JOINTS. IF A SMALLER SIZE RETAINER IS USED, THIS DIMENSION SHALL BE ADJUSTED.
7. FOR ADDITIONAL LIGHT POLE PILASTER DETAILS, SEE SHEET 41/53.

DESIGN AGENCY
HNTB
100 Superior Avenue, Suite 1330
Cleveland, OH 44114-2591

DESIGNED JOL | DRAWN PPA | CHECKED BTA | REVIEWED RSB | DATE 11/2/12 | REVISED | STRUCTURE FILE NUMBER 2500779

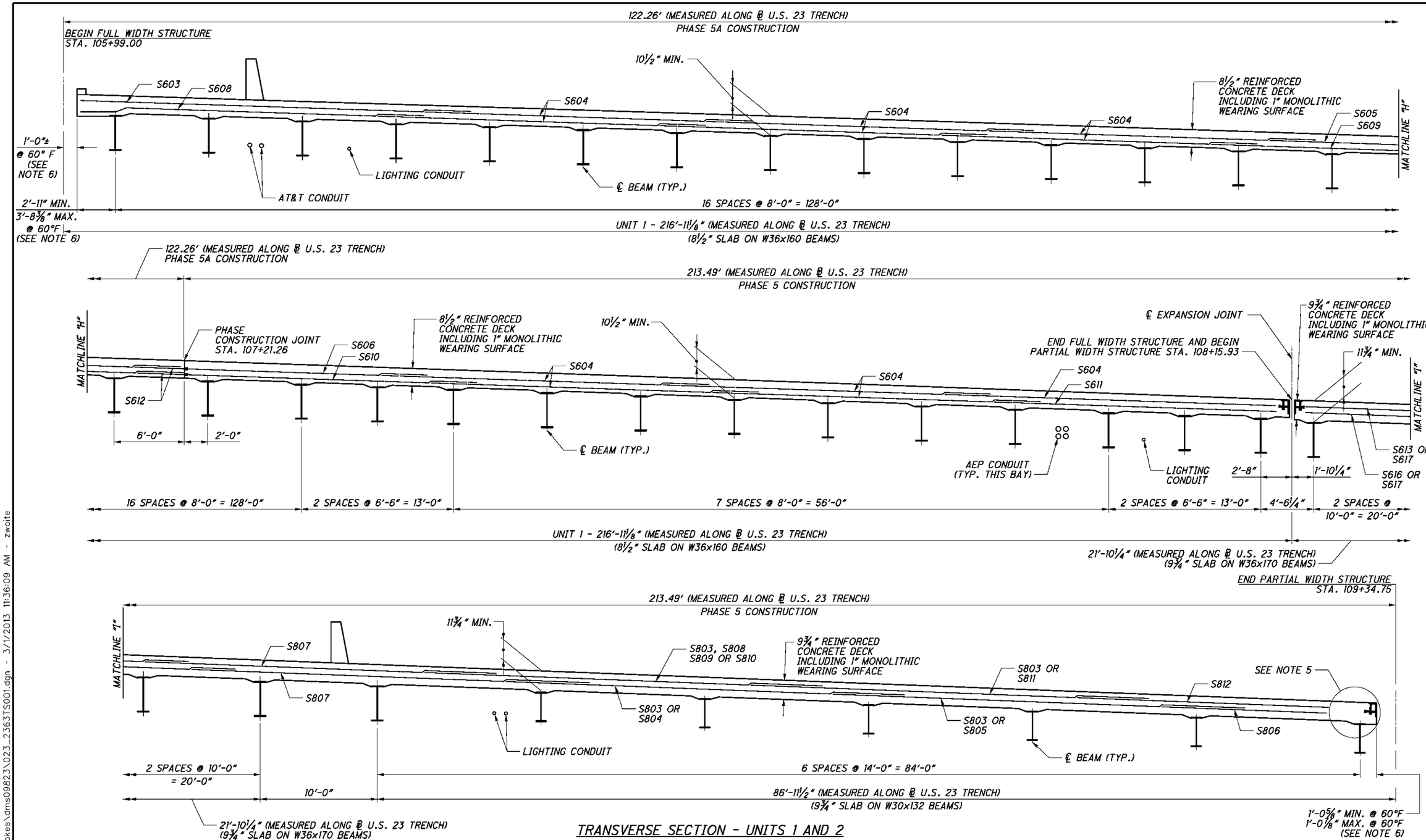
SLAB PLAN - UNIT 2
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

37/53

1128
1150

c:\caddlib\pw\zwaite\pwgreat_lakes\dms09823\023_2363DP002.dgn - 3/1/2013 11:36:01 AM - zwaite



TRANSVERSE SECTION - UNITS 1 AND 2

(SHEAR STUDS, LONGITUDINAL REINFORCEMENT AND EDGE BEAM DETAIL REINFORCEMENT NOT SHOWN FOR CLARITY)

NOTES:

1. FOR SLAB PLAN, SEE SHEETS 36/53 AND 37/53.
2. FOR REINFORCING SCHEDULE, SEE SHEETS 51/53 THROUGH 53/53.
3. FOR SCREED, TOP OF HAUNCH & FINAL DECK ELEVATIONS, SEE SHEETS 43/53 AND 46/53.
4. FOR LONGITUDINAL REINFORCEMENT AND EDGE BEAM DETAILS, SEE SLAB DETAILS SHEET 39/53.
5. TRANSVERSE REINFORCING BARS STOP SHORT OF THE SLAB END DUE TO SLAB EDGE BEAM. FOR REINFORCEMENT PLACEMENT AND EDGE BEAM DETAILS, SEE SHEETS 37/53 AND 39/53.
6. DIMENSION WAS CALCULATED ASSUMING A 1½" STEEL RETAINER FOR THE EXPANSION JOINTS. IF A SMALLER SIZE RETAINER IS USED, THIS DIMENSION SHALL BE ADJUSTED.
7. DECK SLAB CONCRETE QUANTITY: THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK SLAB THICKNESS OF 8½" ON UNIT 1 AND 9¾" ON UNIT 2, PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH BEAM HAUNCH. THE ESTIMATE ASSUMES A CONSTANT HAUNCH THICKNESS OF 2 INCHES AND A CONSTANT HAUNCH WIDTH OUTSIDE THE EDGE OF BEAM FLANGE OF 9 INCHES. DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE FINISHED GRADE. THE ALLOWABLE TOLERANCE FOR THE HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE IS ±3 INCHES.
8. THE HAUNCH THICKNESS WAS MEASURED AT THE CENTERLINE OF THE BEAM, FROM THE SURFACE OF THE DECK TO THE BOTTOM OF THE TOP FLANGE MINUS THE DECK SLAB THICKNESS. THE AREA OF ALL EMBEDDED STEEL PLATES HAS BEEN DEDUCTED FROM THE HAUNCH QUANTITY IN ACCORDANCE WITH 511.24.

DESIGN AGENCY
HNTB
100 Superior Avenue, Suite 1330
Cleveland, OH 44114-2531

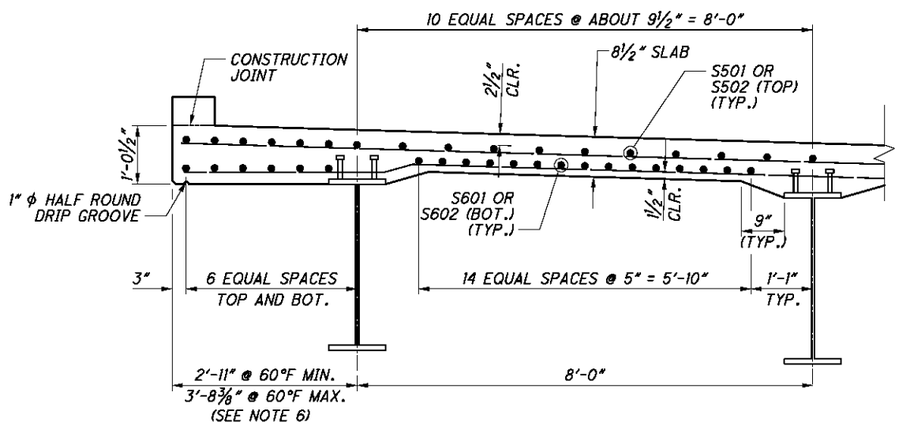
REVIEWED	DATE
RSB	11/2/12
STRUCTURE FILE NUMBER	
2500779	
DRAWN	REVISED
JFM/PPA	
DESIGNED	CHECKED
JOL	BTA

TRANSVERSE SECTION - UNITS 1 & 2
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

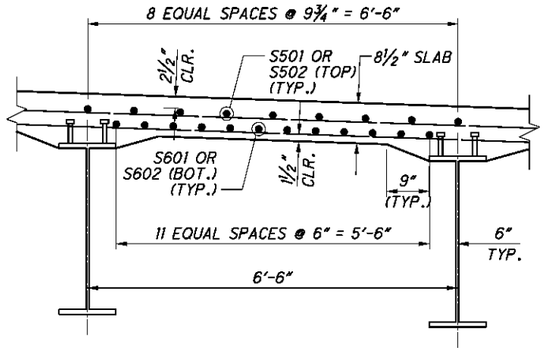
38/53

1129
1150



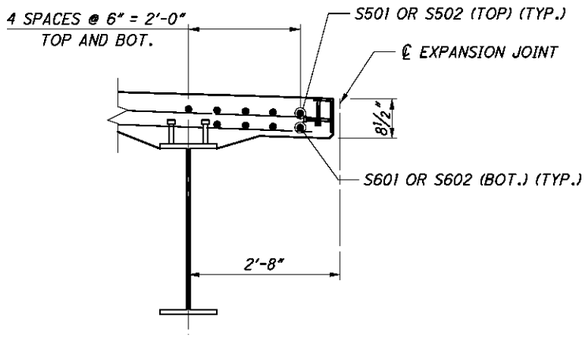
TRANSVERSE SECTION - UNIT 1

(DECK OVERHANG AND TYPICAL 8'-0" BEAM SPACING)
(CURB REINFORCEMENT NOT SHOWN FOR CLARITY)



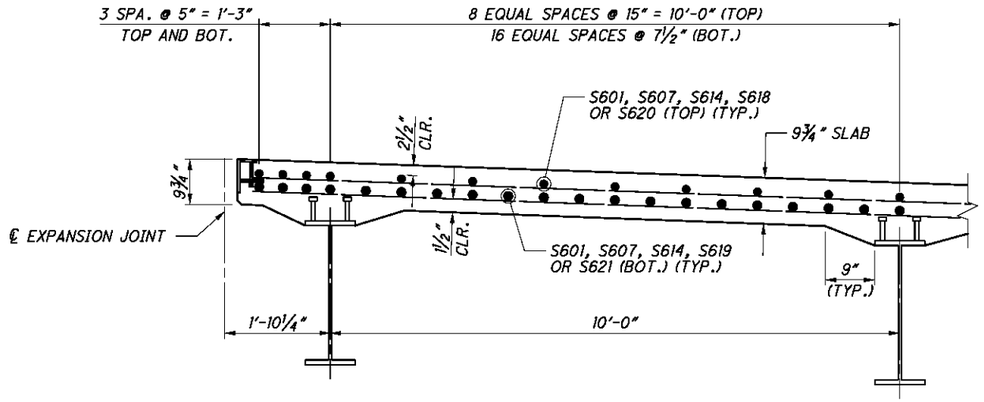
TRANSVERSE SECTION - UNIT 1

(TYPICAL 6'-6" BEAM SPACING)



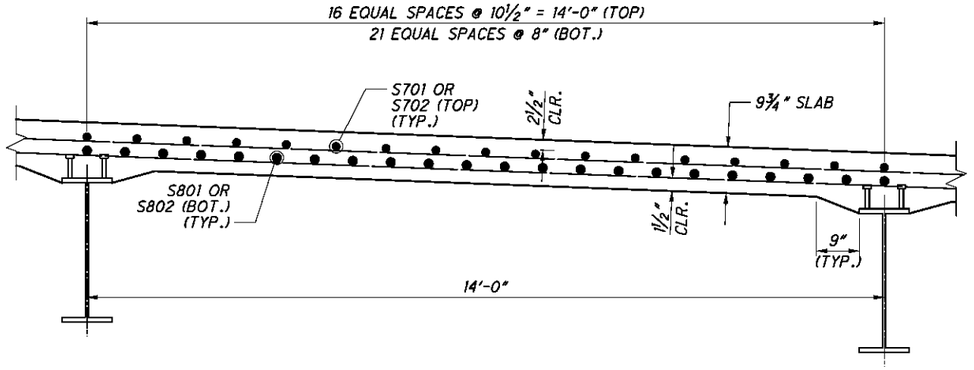
TRANSVERSE SECTION - UNIT 1

(DECK OVERHANG)



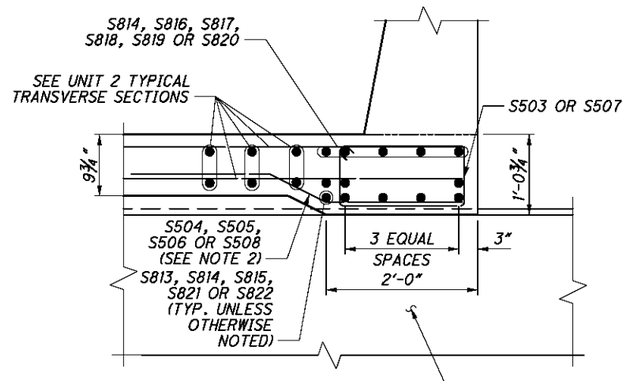
TRANSVERSE SECTION - UNIT 2

(DECK OVERHANG AND TYPICAL 10'-0" BEAM SPACING)



TRANSVERSE SECTION - UNIT 2

(TYPICAL 14'-0" BEAM SPACING)



EDGE BEAM DETAIL

NOTES:

1. FOR TRANSVERSE SECTION, SEE SHEET 38/53.
2. MATCH #5 STIRRUP BARS WITH BOTTOM SLAB BAR DISTRIBUTION STEEL.
3. FOR SLAB PLANS, SEE SHEETS 36/53 AND 37/53.
4. FOR REINFORCING SCHEDULE, SEE SHEETS 51/53 THROUGH 53/53.
5. FOR PARAPET REINFORCEMENT AND SECTION, SEE SHEET 41/53.
6. DIMENSION WAS CALCULATED ASSUMING A 1½" STEEL RETAINER FOR THE EXPANSION JOINTS. IF A SMALLER SIZE RETAINER IS USED, THIS DIMENSION SHALL BE ADJUSTED.

DESIGN AGENCY
HNTB
100 Superior Avenue, Suite 1330
Cleveland, OH 44114-2531

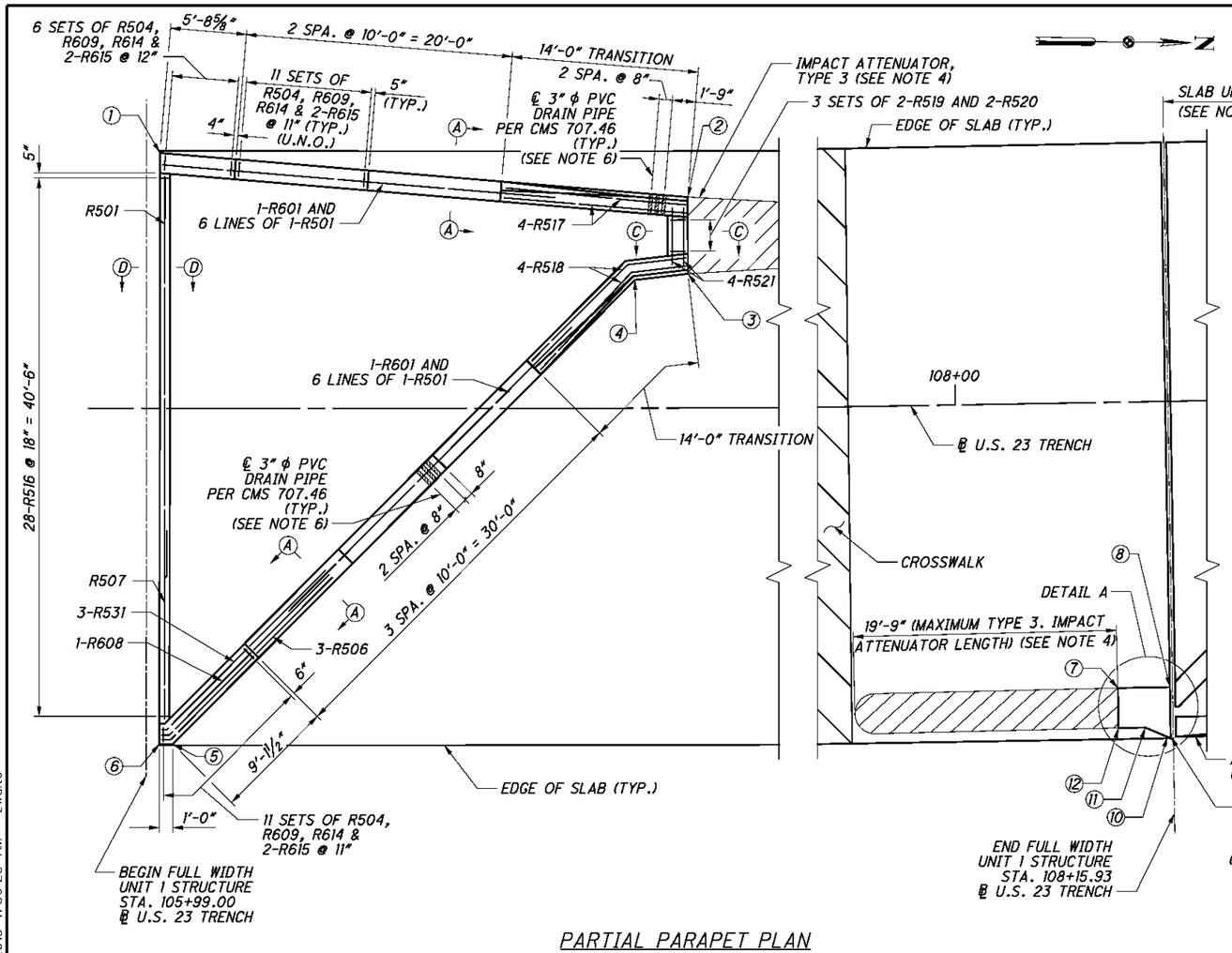
DESIGNED JOL | DRAWN PPA | REVIEWED RSB | DATE 11/2/12
CHECKED BTA | REVISED | STRUCTURE FILE NUMBER 2500779

SLAB DETAILS
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

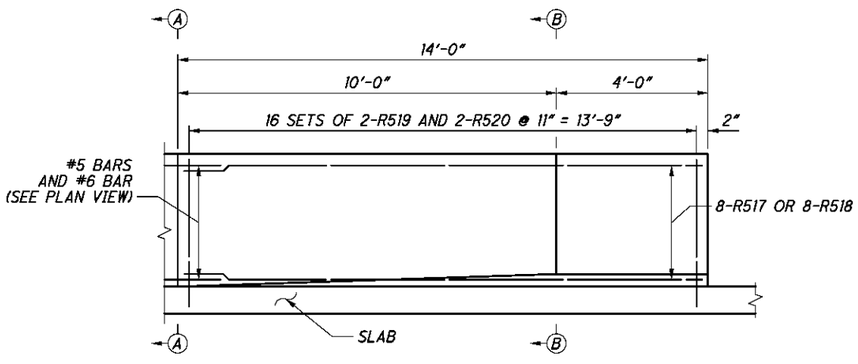
FRA-23-22.23
PID No. 81746

39/53

1130
1150



PARTIAL PARAPET PLAN



TYPICAL PARAPET TRANSITION ELEVATION

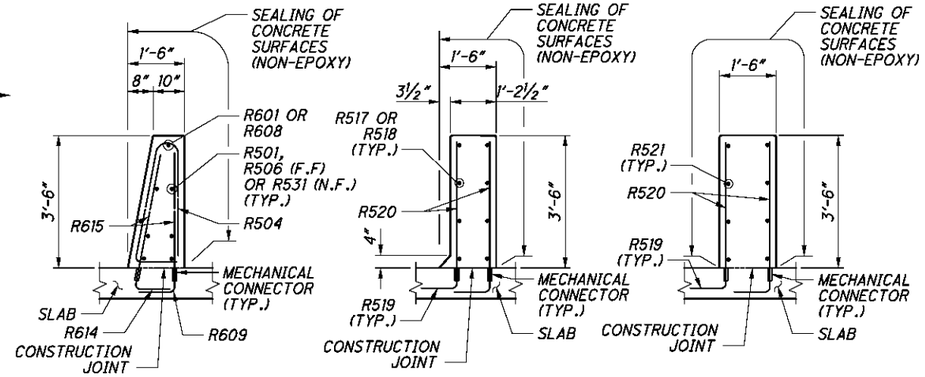
(IMPACT ATTENUATOR NOT SHOWN)

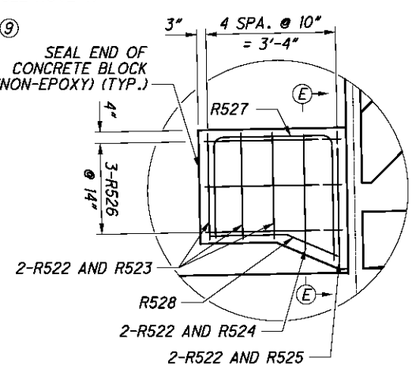
GEOMETRY TABLE

POINT	STATION	OFFSET
1*	106+00.00	19.17' LT.
2	106+39.63	15.83' LT.
3	106+39.63	10.08 LT.
4	106+35.66	9.62' LT.
5	106+01.00	25.17' RT.
6*	106+00.00	25.17' RT.
7	108+11.81	21.44' RT.
8*	108+15.70	21.44' RT.
9*	108+15.70	25.17' RT.
10	108+15.45	25.17' RT.
11	108+15.81	24.44' RT.
12	108+11.81	24.44' RT.

* VALUES ARE BASED ON A DECK JOINT OPENING AT 60°F AND 1½" STEEL RETAINERS FOR THE EXPANSION JOINTS

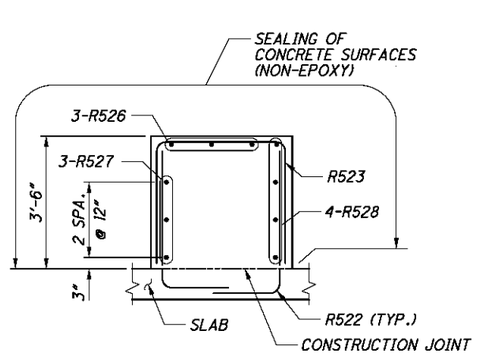
BAR	MINIMUM LAP LENGTH
#5	3'-5"
#6	4'-1"





DETAIL A

(IMPACT ATTENUATOR NOT SHOWN)



SECTION E-E

NOTES:

1. FOR SLAB PLAN, SEE SHEETS 36/53 AND 37/53.
2. FOR REINFORCING SCHEDULE, SEE SHEETS 51/53 THRU 53/53.
3. FOR JOINT ARMOR DETAILS, SEE SHEETS 47/53 THRU 49/53.
4. THE IMPACT ATTENUATOR SHALL BE INSTALLED AND ANCHORED TO THE DECK PER THE MANUFACTURER'S SPECIFICATIONS. IF DRILLING DOWEL HOLES IS REQUIRED, LOCATE ALL REINFORCING STEEL BARS IN THE AREA OF THE HOLE WITH THE AID OF A REINFORCING STEEL BAR LOCATOR (PACHOMETER). IF A REINFORCING STEEL BAR IS ENCOUNTERED AT THE SAME LOCATION AS A PROPOSED DOWEL HOLE, MOVE THE DOWEL HOLE TO EITHER SIDE OF THE EXISTING BAR.
5. CONTROL JOINTS IN BARRIER SHALL BE AS PER ODOT STANDARD DRAWING BR-2-98.
6. PVC DRAIN PIPE SHALL BE INCIDENTAL TO ITEM 898 - OC/OA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET), AS PER PLAN.
7. FOR ADDITIONAL ABUTMENT PARAPET DETAILS, SEE SHEET 20/53.

DESIGN AGENCY: HNTB, 100 Superior Avenue, Suite 1330, Cleveland, OH 44114-4231

DESIGNED	DRAWN	REVIEWED	DATE
JOL	JTW	RSB	11/2/12
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JRE		2500779	

PARAPET PLAN AND DETAILS - UNIT 1
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

40/53

1131
1150

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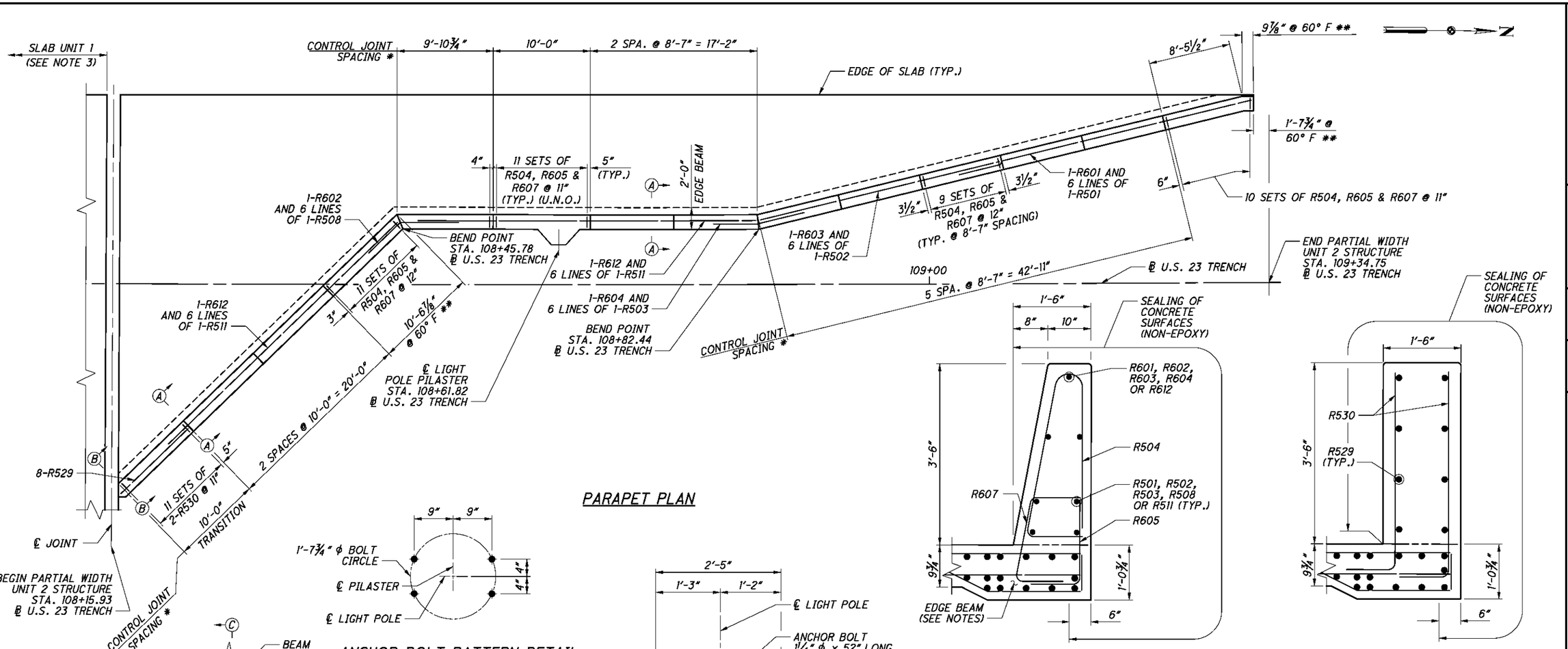
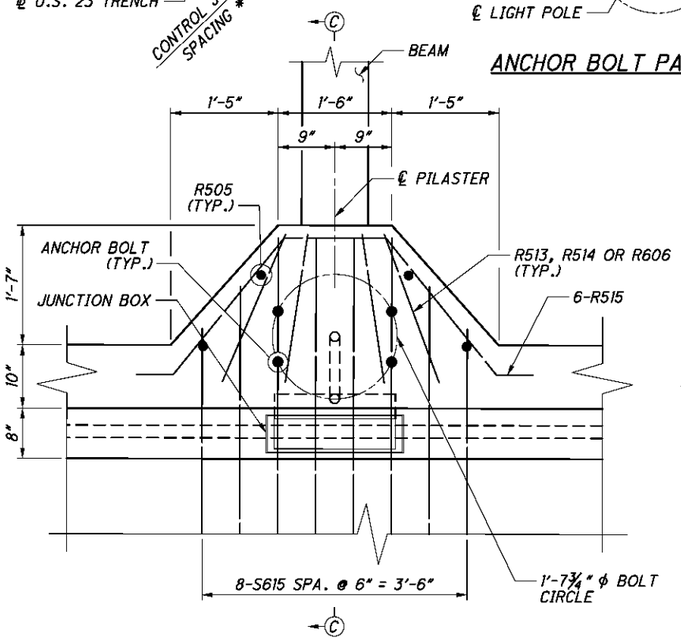


PARAPET PLAN

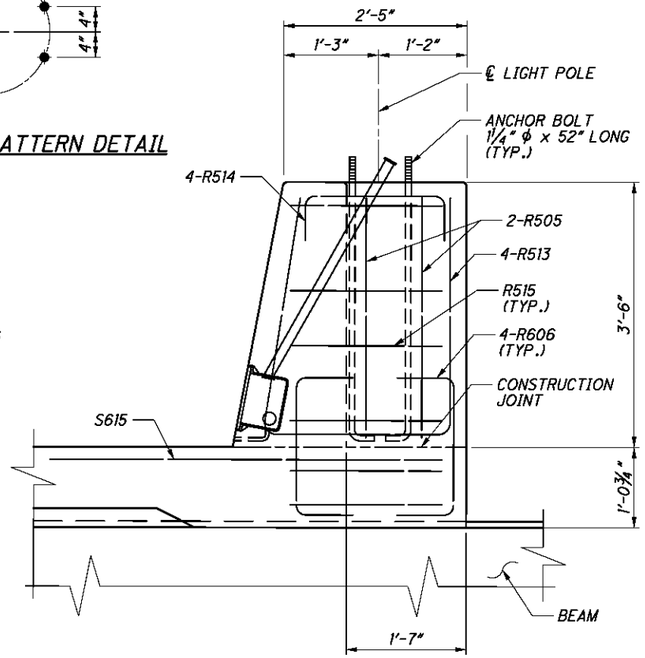
ANCHOR BOLT PATTERN DETAIL

SECTION A-A

SECTION B-B



LIGHT POLE PILASTER PLAN



SECTION C-C

(MAIN SLAB REINFORCING NOT SHOWN FOR CLARITY)

BAR	MINIMUM LAP LENGTH
#5	3'-5"
#6	4'-1"

LEGEND:

* - MEASURED ALONG INSIDE FACE OF PARAPET

** - DIMENSION WAS CALCULATED ASSUMING A 1½" STEEL RETAINER FOR THE EXPANSION JOINTS. IF A SMALLER SIZE RETAINER IS USED, THIS DIMENSION SHALL BE ADJUSTED.

U.N.O. - UNLESS NOTED OTHERWISE

NOTES:

1. CONTROL JOINTS IN PARAPET SHALL BE AS PER ODOT STANDARD DRAWING SBR-1-99.
2. FOR REINFORCING SCHEDULE, SEE SHEETS 51/53 THROUGH 53/53.
3. FOR UNIT 1 SLAB PLAN, SEE SHEET 36/53.
4. FOR UNIT 2 SLAB PLAN, SEE SHEET 37/53.
5. FOR EDGE BEAM REINFORCEMENT, SEE SLAB DETAILS, SHEET 39/53.
6. FOR ADDITIONAL LIGHT POLE PILASTER DETAILS, SEE ODOT STANDARD DRAWING HL-20.14 AND LIGHTING PLANS.
7. FOR POLE BASE PLATE DETAILS, SEE ODOT STANDARD DRAWING HL-20.13.
8. FOR PAYMENT OF MATERIAL AND LABOR ASSOCIATED WITH LIGHT POLE AND LUMINAIRE, SEE LIGHTING PLANS.

DESIGN AGENCY
HNTB
100 Superior Avenue, Suite 1330
Cleveland, OH 44114-2531

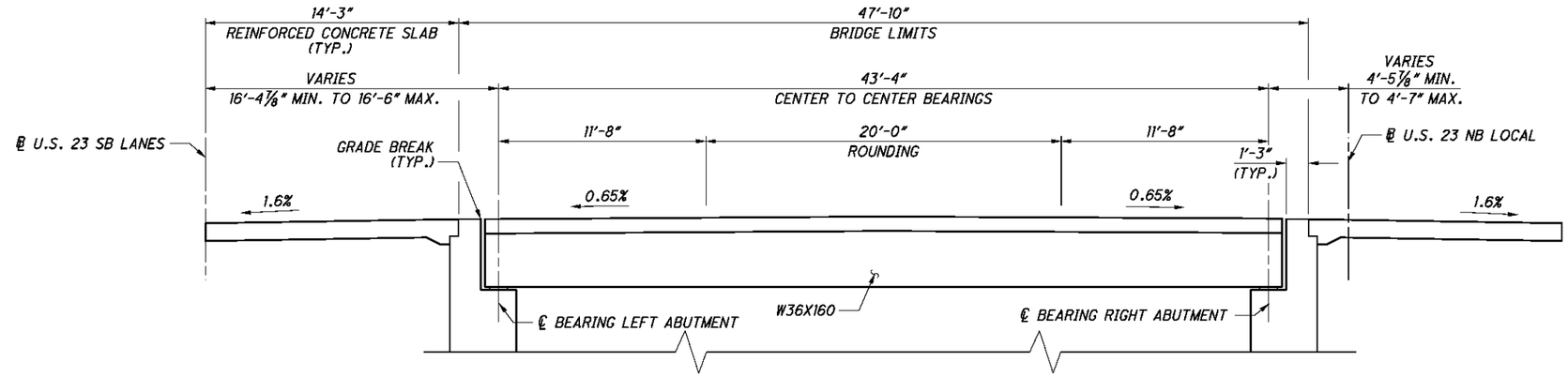
DESIGNED	DRAWN	REVIEWED	DATE
JOL	PPA	RSB	11/2/12
CHECKED	REVISED	STRUCTURE FILE NUMBER	
BTA/JOL		2500779	

PARAPET PLAN AND SECTION - UNIT 2
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

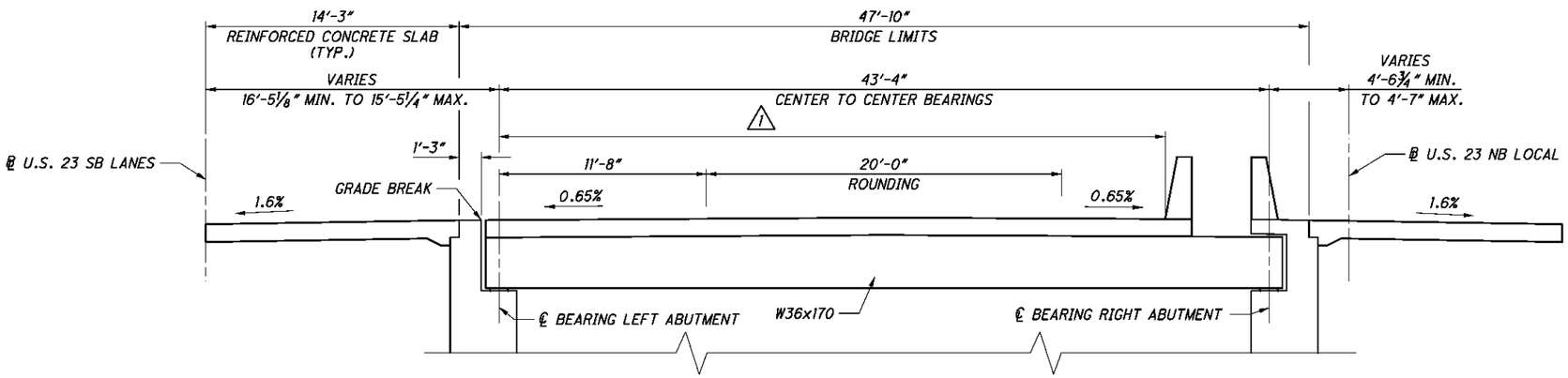
41/53

1132
1150



TYPICAL SECTION - UNIT 1

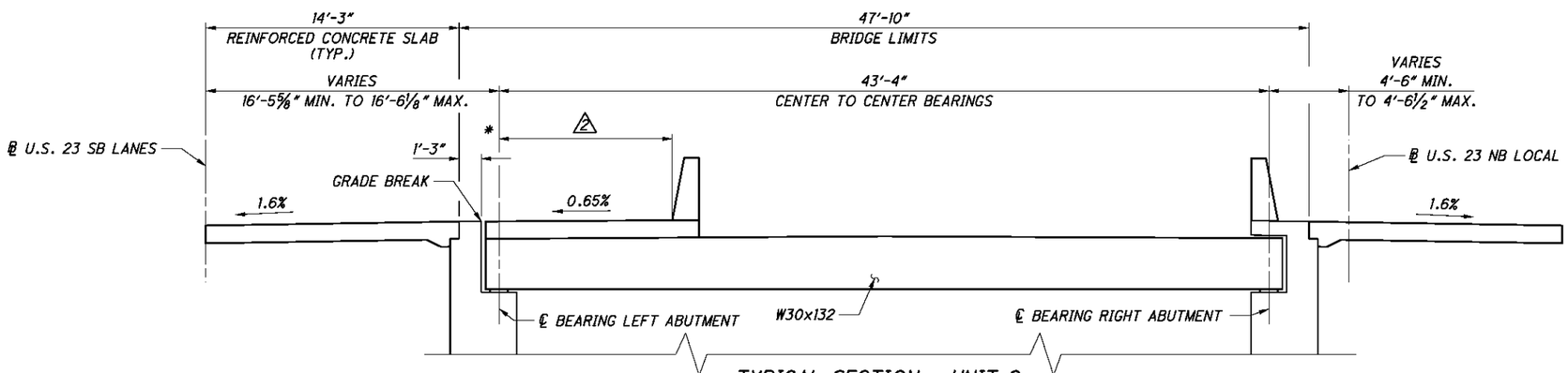
STA. 105+99.00 TO STA. 108+15.93



TYPICAL SECTION - UNIT 2

STA. 108+15.93 TO STA. 108+45.17

1 VARIES 39'-11⅞" TO 11'-6" FROM STA 108+15.93 TO STA. 108+45.17



TYPICAL SECTION - UNIT 2

STA. 108+45.17 TO STA. 109+34.75

2 11'-6" FROM STA. 108+45.17 TO STA. 108+82.26
VARIES 11'-6" TO 0' FROM STA. 108+82.26 TO STA 109+30.17

* GUTTERLINE OF BARRIER VARIES FROM 0" TO 6" TO THE LEFT OF ℄ BEARING LEFT ABUTMENT FROM STA. 109+30.17 TO STA. 109+32.28

GUTTERLINE OF BARRIER IS 6" TO THE LEFT OF ℄ BEARING LEFT ABUTMENT FROM STA. 109+32.28 TO STA. 109+34.75

NOTES:

1. FOR FINAL DECK ELEVATIONS, SEE SHEET 46/53.
2. ALL STATIONS REFER TO ℄ U.S. 23 TRENCH.

DESIGN AGENCY
HNTB
100 Superior Avenue, Suite 1330
Cleveland, OH 44114-2531

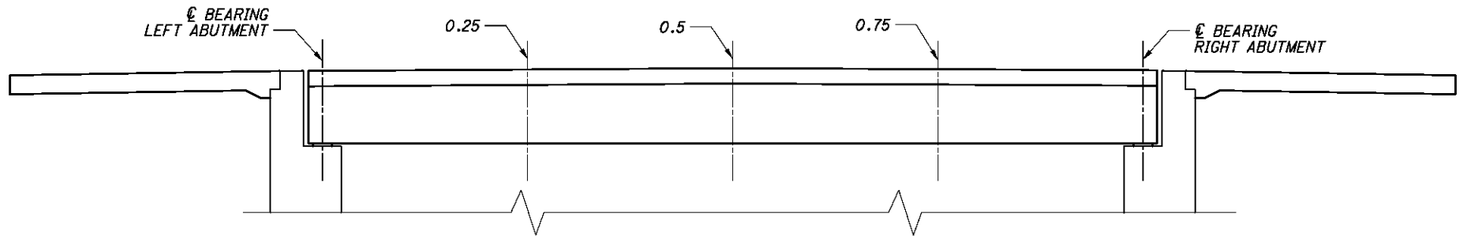
DESIGNED	DRAWN	REVIEWED	DATE
JOL	PPA	RSB	11/2/12
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JRS		2500779	

TYPICAL SECTIONS OF DECK UNITS
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

42/53

1133
1150



TYPICAL SECTION - UNIT 1

SCREED ELEVATIONS - UNIT 1						
LOCATION		℄ BEARING LEFT ABUTMENT	0.25	0.5	0.75	℄ BEARING RIGHT ABUTMENT
EDGE OF SLAB	STATION	106+00.00	106+00.00	106+00.00	106+00.00	106+00.00
	SCREED ELEVATION	895.67	895.76	895.80	895.76	895.67
BEAM 1	STATION	106+02.93	106+03.12	106+03.30	106+03.49	106+03.68
	SCREED ELEVATION	895.59	895.67	895.72	895.66	895.56
BEAM 2	STATION	106+10.95	106+11.12	106+11.30	106+11.48	106+11.66
	SCREED ELEVATION	895.34	895.43	895.48	895.42	895.32
BEAM 3	STATION	106+18.96	106+19.13	106+19.30	106+19.47	106+19.64
	SCREED ELEVATION	895.10	895.18	895.24	895.17	895.08
BEAM 4	STATION	106+26.97	106+27.14	106+27.30	106+27.46	106+27.63
	SCREED ELEVATION	894.85	894.93	894.99	894.92	894.83
BEAM 5	STATION	106+34.99	106+35.14	106+35.30	106+35.45	106+35.61
	SCREED ELEVATION	894.60	894.69	894.74	894.68	894.58
BEAM 6	STATION	106+43.00	106+43.15	106+43.30	106+43.45	106+43.59
	SCREED ELEVATION	894.35	894.43	894.49	894.42	894.33
BEAM 7	STATION	106+51.01	106+51.16	106+51.30	106+51.44	106+51.58
	SCREED ELEVATION	894.09	894.18	894.23	894.17	894.08
BEAM 8	STATION	106+59.03	106+59.16	106+59.30	106+59.43	106+59.56
	SCREED ELEVATION	893.84	893.92	893.97	893.91	893.82
BEAM 9	STATION	106+67.04	106+67.17	106+67.29	106+67.42	106+67.54
	SCREED ELEVATION	893.58	893.66	893.72	893.65	893.56
BEAM 10	STATION	106+75.06	106+75.17	106+75.29	106+75.41	106+75.53
	SCREED ELEVATION	893.32	893.40	893.46	893.39	893.30
BEAM 11	STATION	106+83.07	106+83.18	106+83.29	106+83.40	106+83.51
	SCREED ELEVATION	893.05	893.14	893.18	893.13	893.04
BEAM 12	STATION	106+91.08	106+91.19	106+91.29	106+91.39	106+91.49
	SCREED ELEVATION	892.78	892.87	892.91	892.86	892.77
BEAM 13	STATION	106+99.10	106+99.19	106+99.29	106+99.38	106+99.48
	SCREED ELEVATION	892.52	892.60	892.65	892.60	892.50
BEAM 14	STATION	107+07.11	107+07.20	107+07.29	107+07.37	107+07.46
	SCREED ELEVATION	892.25	892.33	892.38	892.33	892.23

SCREED ELEVATIONS - UNIT 1						
LOCATION		℄ BEARING LEFT ABUTMENT	0.25	0.5	0.75	℄ BEARING RIGHT ABUTMENT
BEAM 15	STATION	107+15.12	107+15.20	107+15.28	107+15.36	107+15.44
	SCREED ELEVATION	891.97	892.06	892.10	892.05	891.96
PHASE CONST. JOINT	STATION	107+21.26	107+21.26	107+21.26	107+21.26	107+21.26
	SCREED ELEVATION	891.76	891.85	891.89	891.85	891.76
BEAM 16	STATION	107+23.14	107+23.21	107+23.28	107+23.35	107+23.43
	SCREED ELEVATION	891.70	891.78	891.83	891.78	891.69
BEAM 17	STATION	107+31.15	107+31.21	107+31.28	107+31.34	107+31.41
	SCREED ELEVATION	891.42	891.51	891.55	891.50	891.41
BEAM 18	STATION	107+37.66	107+37.72	107+37.78	107+37.84	107+37.90
	SCREED ELEVATION	891.19	891.28	891.32	891.28	891.18
BEAM 19	STATION	107+44.17	107+44.22	107+44.28	107+44.33	107+44.38
	SCREED ELEVATION	890.96	891.05	891.09	891.05	890.96
BEAM 20	STATION	107+52.18	107+52.23	107+52.27	107+52.32	107+52.37
	SCREED ELEVATION	890.68	890.77	890.81	890.76	890.67
BEAM 21	STATION	107+60.20	107+60.24	107+60.27	107+60.31	107+60.35
	SCREED ELEVATION	890.39	890.48	890.52	890.48	890.39
BEAM 22	STATION	107+68.21	107+68.24	107+68.27	107+68.30	107+68.33
	SCREED ELEVATION	890.10	890.19	890.23	890.19	890.10
BEAM 23	STATION	107+76.22	107+76.25	107+76.27	107+76.29	107+76.31
	SCREED ELEVATION	889.81	889.90	889.94	889.90	889.81
BEAM 24	STATION	107+84.24	107+84.25	107+84.27	107+84.28	107+84.30
	SCREED ELEVATION	889.52	889.61	889.66	889.61	889.52
BEAM 25	STATION	107+92.25	107+92.26	107+92.26	107+92.27	107+92.28
	SCREED ELEVATION	889.22	889.31	889.36	889.31	889.22
BEAM 26	STATION	108+00.26	108+00.26	108+00.26	108+00.26	108+00.26
	SCREED ELEVATION	888.93	889.02	889.06	889.02	888.93
BEAM 27	STATION	108+06.77	108+06.77	108+06.76	108+06.76	108+06.75
	SCREED ELEVATION	888.69	888.77	888.82	888.77	888.69
BEAM 28	STATION	108+13.28	108+13.27	108+13.26	108+13.25	108+13.24
	SCREED ELEVATION	888.44	888.52	888.57	888.53	888.44
℄ JOINT	STATION	108+15.96	108+15.94	108+15.93	108+15.91	108+15.90
	SCREED ELEVATION	888.34	888.42	888.47	888.43	888.34

NOTES:

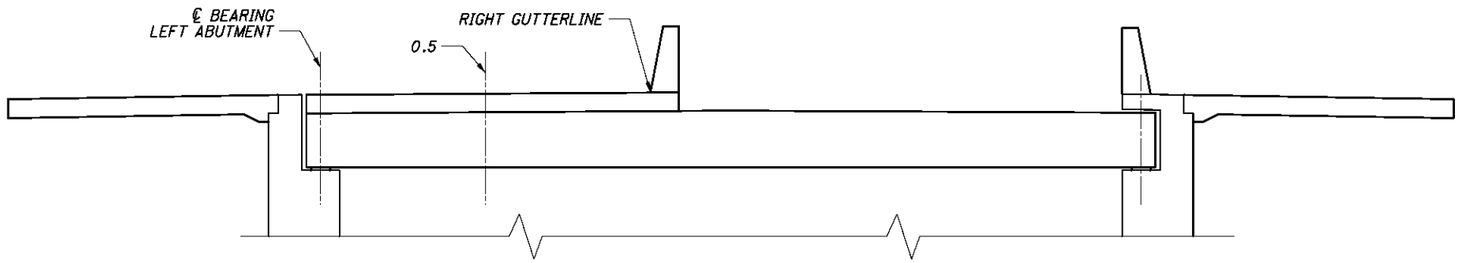
1. SCREED ELEVATIONS SHOWN REPRESENT THE THEORETICAL DECK SURFACE LOCATION PRIOR TO DEFLECTION CAUSED BY DECK PLACEMENT AND OTHER ANTICIPATED DEAD LOADS.
2. 0.25 POINT REFERS TO THE DISTANCE ONE QUARTER OF THE WAY FROM ℄ BEARING RIGHT ABUTMENT TO ℄ BEARING LEFT ABUTMENT FOR EACH BEAM.
3. 0.5 POINT REFERS TO THE DISTANCE ONE HALF OF THE WAY FROM ℄ BEARING RIGHT ABUTMENT TO ℄ BEARING LEFT ABUTMENT FOR EACH BEAM.
4. 0.75 POINT REFERS TO THE DISTANCE THREE QUARTERS OF THE WAY FROM ℄ BEARING RIGHT ABUTMENT TO ℄ BEARING LEFT ABUTMENT FOR EACH BEAM.
5. FOR TYPICAL SECTIONS OF DECK UNITS, SEE SHEET 42/53.
6. ELEVATIONS ARE BASED OFF OF PROFILE GRADE ALONG U.S. 23 NORTHBOUND OR SOUTHBOUND BASELINES AS APPLICABLE.
7. SEE ROADWAY SHEETS FOR PROFILE ALONG U.S. 23 NORTHBOUND LOCAL AND SOUTHBOUND LANES.
8. SEE ROADWAY PLANS FOR RELATIONSHIP BETWEEN ℄ U.S. TRENCH AND U.S. 23 NORTHBOUND AND SOUTHBOUND BASELINES.
9. ALL STATIONS ARE GIVEN ALONG THE ℄ U.S. 23 TRENCH.

DESIGN AGENCY
HNTB
100 Superior Avenue, Suite 1330
Cleveland, OH 44114-2531

DESIGNED JOL | DRAWN PPA | REVIEWED RSB | DATE 11/2/12
CHECKED NJ | REVISED | STRUCTURE FILE NUMBER 2500779

SCREED ELEVATIONS - UNIT 1
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746



TYPICAL SECTION - UNIT 2

SCREED ELEVATIONS - UNIT 2				
LOCATION		℄ BEARING LEFT ABUTMENT	0.5	RIGHT GUTTERLINE
℄ JOINT	STATION	108+15.96	108+15.93	108+15.90
	SCREED ELEVATION	888.34	888.47	888.37
BEAM 29	STATION	108+17.81	108+17.78	108+17.75
	SCREED ELEVATION	888.27	888.40	888.31
BEAM 30	STATION	108+27.83	108+27.79	108+27.76
	SCREED ELEVATION	887.89	888.00	888.00
BEAM 31	STATION	108+37.85	108+37.81	108+37.78
	SCREED ELEVATION	887.50	887.58	887.62
BEAM 32	STATION	108+47.87	108+47.84	108+47.82
	SCREED ELEVATION	887.12	887.17	887.21
BEAM 33	STATION	108+61.89	108+61.86	108+61.83
	SCREED ELEVATION	886.58	886.63	886.68
BEAM 34	STATION	108+75.91	108+75.87	108+75.84
	SCREED ELEVATION	886.04	886.10	886.14
BEAM 35	STATION	108+89.93	-	108+89.86
	SCREED ELEVATION	885.51	-	885.59
BEAM 36	STATION	109+03.96	-	109+03.90
	SCREED ELEVATION	884.97	-	885.02
BEAM 37	STATION	109+17.98	-	109+17.95
	SCREED ELEVATION	884.43	-	884.45
BEAM 38	STATION	109+32.00	-	-
	SCREED ELEVATION	883.90	-	-
℄ JOINT	STATION	109+33.31	-	-
	SCREED ELEVATION	883.84	-	-

NOTES:

1. SCREED ELEVATIONS SHOWN REPRESENT THE THEORETICAL DECK SURFACE LOCATION PRIOR TO DEFLECTION CAUSED BY DECK PLACEMENT AND OTHER ANTICIPATED DEAD LOADS.
2. 0.5 POINT REFERS TO THE DISTANCE ONE HALF OF THE WAY FROM RIGHT GUTTERLINE TO ℄ BEARING LEFT ABUTMENT FOR EACH BEAM.
3. FOR ADDITIONAL NOTES, SEE SHEET 43/53.

DESIGN AGENCY
HNTB
100 Superior Avenue, Suite 1330
Cleveland, OH 44114-2531

DESIGNED	DRAWN	REVIEWED	DATE
JOL	PPA	RSB	11/2/12
CHECKED	REVISED	STRUCTURE FILE NUMBER	
NJ		2500779	

SCREED ELEVATIONS - UNIT 2
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

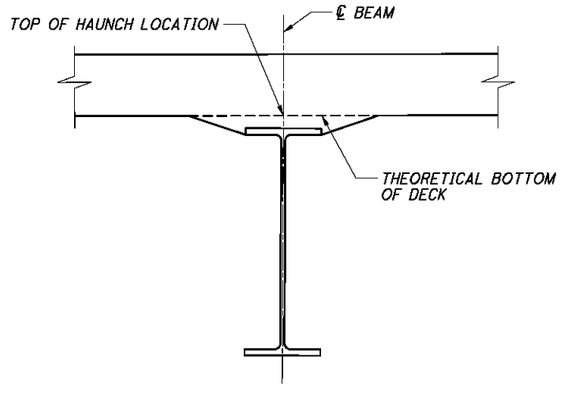
1135
1150

TOP OF HAUNCH ELEVATIONS - UNIT 1

LOCATION		℄ BEARING LEFT ABUTMENT	0.25	0.5	0.75	℄ BEARING RIGHT ABUTMENT
BEAM 1	STATION	106+02.93	106+03.12	106+03.30	106+03.49	106+03.68
	ELEVATION	894.89	894.96	895.02	894.95	894.86
BEAM 2	STATION	106+10.95	106+11.12	106+11.30	106+11.48	106+11.66
	ELEVATION	894.64	894.72	894.77	894.71	894.62
BEAM 3	STATION	106+18.96	106+19.13	106+19.30	106+19.47	106+19.64
	ELEVATION	894.40	894.47	894.53	894.46	894.38
BEAM 4	STATION	106+26.97	106+27.14	106+27.30	106+27.46	106+27.63
	ELEVATION	894.14	894.22	894.28	894.21	894.12
BEAM 5	STATION	106+34.99	106+35.14	106+35.30	106+35.45	106+35.61
	ELEVATION	893.89	893.98	894.03	893.97	893.87
BEAM 6	STATION	106+43.00	106+43.15	106+43.30	106+43.45	106+43.59
	ELEVATION	893.64	893.72	893.78	893.71	893.62
BEAM 7	STATION	106+51.01	106+51.16	106+51.30	106+51.44	106+51.58
	ELEVATION	893.38	893.47	893.52	893.46	893.37
BEAM 8	STATION	106+59.03	106+59.16	106+59.30	106+59.43	106+59.56
	ELEVATION	893.13	893.21	893.26	893.20	893.11
BEAM 9	STATION	106+67.04	106+67.17	106+67.29	106+67.42	106+67.54
	ELEVATION	892.88	892.95	893.01	892.94	892.86
BEAM 10	STATION	106+75.06	106+75.17	106+75.29	106+75.41	106+75.53
	ELEVATION	892.62	892.69	892.75	892.68	892.60
BEAM 11	STATION	106+83.07	106+83.18	106+83.29	106+83.40	106+83.51
	ELEVATION	892.35	892.43	892.47	892.42	892.34
BEAM 12	STATION	106+91.08	106+91.19	106+91.29	106+91.39	106+91.49
	ELEVATION	892.08	892.16	892.20	892.15	892.07
BEAM 13	STATION	106+99.10	106+99.19	106+99.29	106+99.38	106+99.48
	ELEVATION	891.82	891.89	891.94	891.89	891.80
BEAM 14	STATION	107+07.11	107+07.20	107+07.29	107+07.37	107+07.46
	ELEVATION	891.55	891.62	891.67	891.62	891.53
BEAM 15	STATION	107+15.12	107+15.20	107+15.28	107+15.36	107+15.44
	ELEVATION	891.27	891.35	891.39	891.34	891.26
BEAM 16	STATION	107+23.14	107+23.21	107+23.28	107+23.35	107+23.43
	ELEVATION	890.99	891.07	891.12	891.07	890.98
BEAM 17	STATION	107+31.15	107+31.21	107+31.28	107+31.34	107+31.41
	ELEVATION	890.71	890.80	890.84	890.79	890.70
BEAM 18	STATION	107+37.66	107+37.72	107+37.78	107+37.84	107+37.90
	ELEVATION	890.48	890.57	890.61	890.57	890.47
BEAM 19	STATION	107+44.17	107+44.22	107+44.28	107+44.33	107+44.38
	ELEVATION	890.25	890.34	890.38	890.34	890.25
BEAM 20	STATION	107+52.18	107+52.23	107+52.27	107+52.32	107+52.37
	ELEVATION	889.98	890.06	890.10	890.05	889.97
BEAM 21	STATION	107+60.20	107+60.24	107+60.27	107+60.31	107+60.35
	ELEVATION	889.69	889.77	889.81	889.77	889.69
BEAM 22	STATION	107+68.21	107+68.24	107+68.27	107+68.30	107+68.33
	ELEVATION	889.40	889.48	889.52	889.48	889.40
BEAM 23	STATION	107+76.22	107+76.25	107+76.27	107+76.29	107+76.31
	ELEVATION	889.11	889.19	889.24	889.19	889.11
BEAM 24	STATION	107+84.24	107+84.25	107+84.27	107+84.28	107+84.30
	ELEVATION	888.82	888.90	888.95	888.90	888.82
BEAM 25	STATION	107+92.25	107+92.26	107+92.26	107+92.27	107+92.28
	ELEVATION	888.52	888.60	888.65	888.60	888.52
BEAM 26	STATION	108+00.26	108+00.26	108+00.26	108+00.26	108+00.26
	ELEVATION	888.23	888.31	888.35	888.31	888.23
BEAM 27	STATION	108+06.77	108+06.77	108+06.76	108+06.76	108+06.75
	ELEVATION	887.98	888.06	888.11	888.06	887.98
BEAM 28	STATION	108+13.28	108+13.27	108+13.26	108+13.25	108+13.24
	ELEVATION	887.73	887.82	887.86	887.82	887.74

TOP OF HAUNCH ELEVATIONS - UNIT 2

LOCATION		℄ BEARING LEFT ABUTMENT	0.5	RIGHT GUTTERLINE
BEAM 29	STATION	108+17.81	108+17.78	108+17.75
	ELEVATION	887.46	887.59	887.50
BEAM 30	STATION	108+27.83	108+27.79	108+27.76
	ELEVATION	887.08	887.19	887.19
BEAM 31	STATION	108+37.85	108+37.81	108+37.78
	ELEVATION	886.69	886.76	886.81
BEAM 32	STATION	108+47.87	108+47.84	108+47.82
	ELEVATION	886.31	886.36	886.40
BEAM 33	STATION	108+61.89	108+61.86	108+61.83
	ELEVATION	885.77	885.82	885.86
BEAM 34	STATION	108+75.91	108+75.87	108+75.84
	ELEVATION	885.23	885.29	885.33
BEAM 35	STATION	108+89.93	-	108+89.86
	ELEVATION	884.70	-	884.77
BEAM 36	STATION	109+03.96	-	109+03.90
	ELEVATION	884.16	-	884.20
BEAM 37	STATION	109+17.98	-	109+17.95
	ELEVATION	883.62	-	883.64
BEAM 38	STATION	109+32.00	-	-
	ELEVATION	883.09	-	-



TOP OF HAUNCH DETAIL

NOTES:

1. TOP OF HAUNCH ELEVATIONS SHOWN REPRESENT THE THEORETICAL LOCATION OF THE BOTTOM OF THE DECK ABOVE THE GIRDER HAUNCH PRIOR TO DEFLECTIONS CAUSED BY DECK PLACEMENT AND OTHER ANTICIPATED DEAD LOAD.
2. FOR TYPICAL TRANSVERSE SECTION OF UNIT 1, SEE SHEET 43/53.
3. FOR TYPICAL TRANSVERSE SECTION OF UNIT 2, SEE SHEET 44/53.
4. FOR ADDITIONAL NOTES, SEE SCREED ELEVATIONS - UNIT 1 ON SHEET 43/53.

DESIGN AGENCY
HNTB
1100 Superior Avenue, Suite 1330
Cleveland, OH 44114-2531

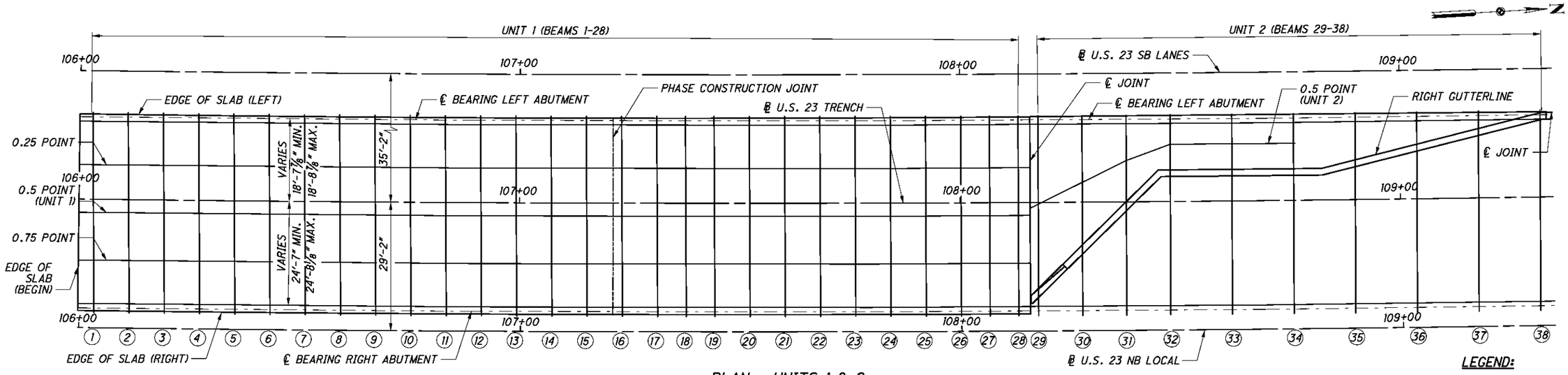
DESIGNED JOL | DRAWN PPA | CHECKED NJ | REVIEWED RSB | DATE 11/2/12 | REVISED | STRUCTURE FILE NUMBER 2500779

TOP OF HAUNCH ELEVATIONS - UNITS 1 & 2
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

45/53

1136
1150



PLAN - UNITS 1 & 2

LEGEND:

(1) - BEAM NUMBER (TYP.)

FINAL DECK ELEVATIONS - UNIT 1 (SEE NOTES 7-9)

LOCATION		℄ BEARING LEFT ABUTMENT	0.25	0.5	0.75	℄ BEARING RIGHT ABUTMENT
EDGE OF SLAB (BEGIN)	STATION	106+00.00	106+00.00	106+00.00	106+00.00	106+00.00
	FINAL DECK ELEVATION	895.67	895.74	895.78	895.74	895.67
BEAM 1	STATION	106+02.93	106+03.12	106+03.30	106+03.49	106+03.68
	FINAL DECK ELEVATION	895.59	895.65	895.70	895.64	895.56
BEAM 2	STATION	106+10.95	106+11.12	106+11.30	106+11.48	106+11.66
	FINAL DECK ELEVATION	895.34	895.41	895.45	895.40	895.32
BEAM 3	STATION	106+18.96	106+19.13	106+19.30	106+19.47	106+19.64
	FINAL DECK ELEVATION	895.10	895.16	895.21	895.15	895.08
BEAM 4	STATION	106+26.97	106+27.14	106+27.30	106+27.46	106+27.63
	FINAL DECK ELEVATION	894.85	894.91	894.96	894.90	894.83
BEAM 5	STATION	106+34.99	106+35.14	106+35.30	106+35.45	106+35.61
	FINAL DECK ELEVATION	894.60	894.67	894.71	894.66	894.58
BEAM 6	STATION	106+43.00	106+43.15	106+43.30	106+43.45	106+43.59
	FINAL DECK ELEVATION	894.35	894.41	894.46	894.40	894.33
BEAM 7	STATION	106+51.01	106+51.16	106+51.30	106+51.44	106+51.58
	FINAL DECK ELEVATION	894.09	894.16	894.20	894.15	894.08
BEAM 8	STATION	106+59.03	106+59.16	106+59.30	106+59.43	106+59.56
	FINAL DECK ELEVATION	893.84	893.90	893.94	893.89	893.82
BEAM 9	STATION	106+67.04	106+67.17	106+67.29	106+67.42	106+67.54
	FINAL DECK ELEVATION	893.58	893.64	893.69	893.63	893.56
BEAM 10	STATION	106+75.06	106+75.17	106+75.29	106+75.41	106+75.53
	FINAL DECK ELEVATION	893.32	893.38	893.43	893.37	893.30
BEAM 11	STATION	106+83.07	106+83.18	106+83.29	106+83.40	106+83.51
	FINAL DECK ELEVATION	893.05	893.12	893.16	893.11	893.04
BEAM 12	STATION	106+91.08	106+91.19	106+91.29	106+91.39	106+91.49
	FINAL DECK ELEVATION	892.78	892.85	892.89	892.84	892.77
BEAM 13	STATION	106+99.10	106+99.19	106+99.29	106+99.38	106+99.48
	FINAL DECK ELEVATION	892.52	892.58	892.63	892.58	892.50
BEAM 14	STATION	107+07.11	107+07.20	107+07.29	107+07.37	107+07.46
	FINAL DECK ELEVATION	892.25	892.31	892.36	892.31	892.23

FINAL DECK ELEVATIONS - UNIT 1 (SEE NOTES 7-9)

LOCATION		℄ BEARING LEFT ABUTMENT	0.25	0.5	0.75	℄ BEARING RIGHT ABUTMENT
BEAM 15	STATION	107+15.12	107+15.20	107+15.28	107+15.36	107+15.44
	FINAL DECK ELEVATION	891.97	892.04	892.08	892.03	891.96
PHASE CONST. JOINT	STATION	107+21.26	107+21.26	107+21.26	107+21.26	107+21.26
	FINAL DECK ELEVATION	891.76	891.83	891.87	891.83	891.76
BEAM 16	STATION	107+23.14	107+23.21	107+23.28	107+23.35	107+23.43
	FINAL DECK ELEVATION	891.70	891.76	891.81	891.76	891.69
BEAM 17	STATION	107+31.15	107+31.21	107+31.28	107+31.34	107+31.41
	FINAL DECK ELEVATION	891.42	891.49	891.53	891.48	891.41
BEAM 18	STATION	107+37.66	107+37.72	107+37.78	107+37.84	107+37.90
	FINAL DECK ELEVATION	891.19	891.26	891.30	891.26	891.18
BEAM 19	STATION	107+44.17	107+44.22	107+44.28	107+44.33	107+44.38
	FINAL DECK ELEVATION	890.96	891.03	891.07	891.03	890.96
BEAM 20	STATION	107+52.18	107+52.23	107+52.27	107+52.32	107+52.37
	FINAL DECK ELEVATION	890.68	890.75	890.79	890.74	890.67
BEAM 21	STATION	107+60.20	107+60.24	107+60.27	107+60.31	107+60.35
	FINAL DECK ELEVATION	890.39	890.46	890.50	890.46	890.39
BEAM 22	STATION	107+68.21	107+68.24	107+68.27	107+68.30	107+68.33
	FINAL DECK ELEVATION	890.10	890.17	890.21	890.17	890.10
BEAM 23	STATION	107+76.22	107+76.25	107+76.27	107+76.29	107+76.31
	FINAL DECK ELEVATION	889.81	889.88	889.92	889.88	889.81
BEAM 24	STATION	107+84.24	107+84.25	107+84.27	107+84.28	107+84.30
	FINAL DECK ELEVATION	889.52	889.59	889.63	889.59	889.52
BEAM 25	STATION	107+92.25	107+92.26	107+92.26	107+92.27	107+92.28
	FINAL DECK ELEVATION	889.22	889.29	889.33	889.29	889.22
BEAM 26	STATION	108+00.26	108+00.26	108+00.26	108+00.26	108+00.26
	FINAL DECK ELEVATION	888.93	889.00	889.04	889.00	888.93
BEAM 27	STATION	108+06.77	108+06.77	108+06.76	108+06.76	108+06.75
	FINAL DECK ELEVATION	888.69	888.76	888.80	888.76	888.69
BEAM 28	STATION	108+13.28	108+13.27	108+13.26	108+13.25	108+13.24
	FINAL DECK ELEVATION	888.44	888.51	888.55	888.51	888.44
℄ JOINT	STATION	108+15.96	108+15.94	108+15.93	108+15.91	108+15.90
	FINAL DECK ELEVATION	888.34	888.41	888.45	888.41	888.34

FINAL DECK ELEVATIONS - UNIT 2 (SEE NOTES 7-9)

LOCATION		℄ BEARING LEFT ABUTMENT	0.5	RIGHT GUTTERLINE
℄ JOINT	STATION	108+15.96	108+15.93	108+15.90
	FINAL DECK ELEVATION	888.34	888.45	888.37
BEAM 29	STATION	108+17.81	108+17.78	108+17.75
	FINAL DECK ELEVATION	888.27	888.38	888.31
BEAM 30	STATION	108+27.83	108+27.79	108+27.76
	FINAL DECK ELEVATION	887.89	887.98	887.98
BEAM 31	STATION	108+37.85	108+37.81	108+37.78
	FINAL DECK ELEVATION	887.50	887.57	887.60
BEAM 32	STATION	108+47.87	108+47.84	108+47.82
	FINAL DECK ELEVATION	887.12	887.16	887.20
BEAM 33	STATION	108+61.89	108+61.86	108+61.83
	FINAL DECK ELEVATION	886.58	886.62	886.66
BEAM 34	STATION	108+75.91	108+75.87	108+75.84
	FINAL DECK ELEVATION	886.04	886.09	886.13
BEAM 35	STATION	108+89.93	-	108+89.86
	FINAL DECK ELEVATION	885.51	-	885.58
BEAM 36	STATION	109+03.96	-	109+03.90
	FINAL DECK ELEVATION	884.97	-	885.02
BEAM 37	STATION	109+17.98	-	109+17.95
	FINAL DECK ELEVATION	884.43	-	884.45
BEAM 38	STATION	109+32.00	-	-
	FINAL DECK ELEVATION	883.90	-	-
℄ JOINT	STATION	109+33.31	-	-
	FINAL DECK ELEVATION	883.84	-	-

NOTES:

1. FINAL DECK SURFACE ELEVATIONS REPRESENT THE DECK SURFACE LOCATION AFTER ALL ANTICIPATED DEAD LOADS DEFLECTIONS HAVE OCURRED.
2. 0.25 POINT REFERS TO THE DISTANCE ONE QUARTER OF THE WAY FROM ℄ BEARING RIGHT ABUTMENT TO ℄ BEARING LEFT ABUTMENT FOR EACH BEAM.
3. 0.5 POINT (UNIT 1) REFERS TO THE DISTANCE ONE HALF OF THE WAY FROM ℄ BEARING RIGHT ABUTMENT TO ℄ BEARING LEFT ABUTMENT FOR EACH BEAM.
4. 0.75 POINT REFERS TO THE DISTANCE THREE QUARTERS OF THE WAY FROM ℄ BEARING RIGHT ABUTMENT TO ℄ BEARING LEFT ABUTMENT FOR EACH BEAM.
5. 0.5 POINT (UNIT 2) REFERS TO THE DISTANCE ONE HALF OF THE WAY FROM RIGHT GUTTERLINE TO ℄ BEARING LEFT ABUTMENT FOR EACH BEAM.
6. FOR TYPICAL SECTIONS OF DECK UNITS, SEE SHEET 42/53.
7. ELEVATIONS ARE BASED OFF OF PROFILE GRADE ALONG U.S. 23 NORTHBOUND OR SOUTHBOUND BASELINES AS APPLICABLE.
8. SEE ROADWAY SHEETS FOR PROFILE ALONG U.S. 23 NORTHBOUND LOCAL AND SOUTHBOUND LANES.
9. SEE ROADWAY PLANS FOR RELATIONSHIP BETWEEN ℄ U.S. TRENCH AND U.S. 23 NORTHBOUND AND SOUTHBOUND BASELINES.
10. ALL STATIONS ARE GIVEN ALONG THE ℄ U.S. 23 TRENCH.

DESIGN AGENCY: HNTB, 1100 Superior Avenue, Suite 1300, Cleveland, OH 44114-2531

DESIGNED	DRAWN	REVIEWED	DATE
JOL	PPA	RSB	11/2/12
CHECKED	REVISED	STRUCTURE FILE NUMBER	
NJ		2500779	

FINAL DECK ELEVATIONS
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

46/53

1137
1150

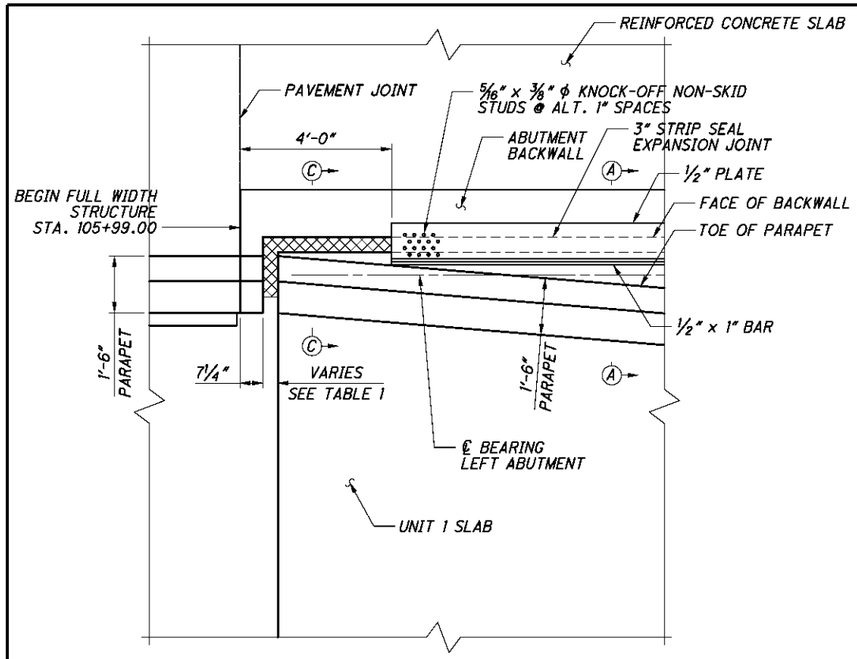
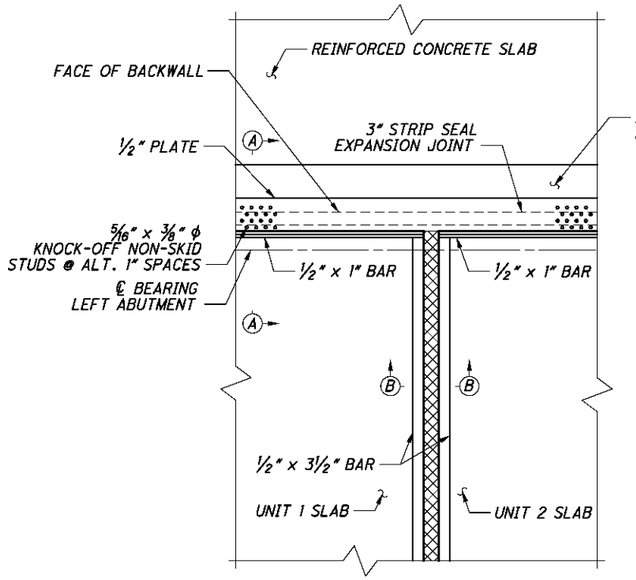


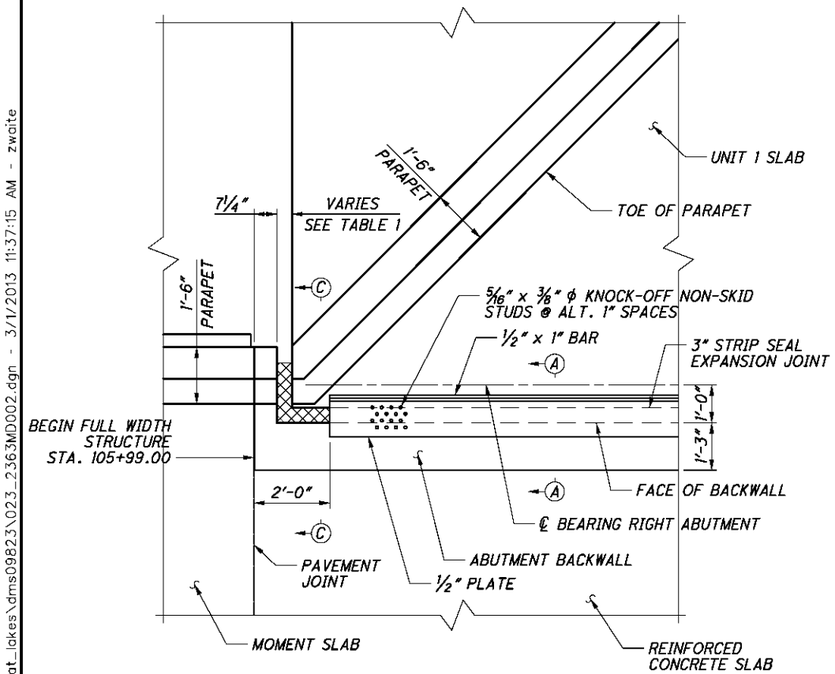
TABLE 1	
JOINT WIDTH INCLUDING STEEL RETAINER *	
AMBIENT TEMPERATURE	JOINT WIDTH 3" STRIP SEAL
90° F	4½"
80° F	4⁹⁄₁₆"
70° F	4¹¹⁄₁₆"
60° F	4¾"
50° F	4¹³⁄₁₆"
40° F	4¹⁵⁄₁₆"
30° F	6"

TABLE 5	
JOINT WIDTH INCLUDING STEEL RETAINER *	
AMBIENT TEMPERATURE	JOINT WIDTH 3" STRIP SEAL
90° F	4⅜" **
80° F	4½"
70° F	4⅝"
60° F	4¾"
50° F	4⅞"
40° F	5"
30° F	5⅛"

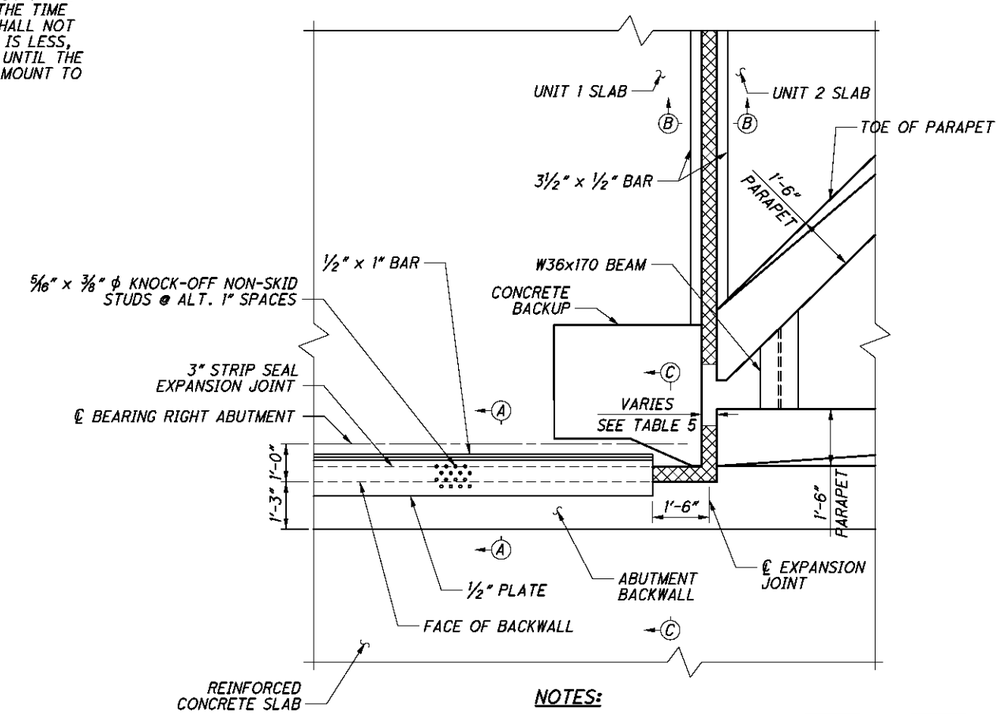
* DIMENSIONS WERE CALCULATED ASSUMING A 1½" STEEL RETAINER FOR THE EXPANSION JOINT. IF A SMALLER RETAINER IS USED, THIS DIMENSION SHALL BE ADJUSTED.

** THE MINIMUM JOINT WIDTH OPENING MINUS THE WIDTH OF THE STEEL RETAINERS AT THE TIME OF THE SEAL GLAND INSTALLATION SHALL NOT BE LESS THAN 1½". IF THE OPENING IS LESS, INSTALLATION SHALL BE POSTPONED UNTIL THE TEMPERATURE DROPS A SUFFICIENT AMOUNT TO ALLOW THE MINIMUM 1½" OPENING.





PLAN OF JOINT AT UNIT 1



NOTES:

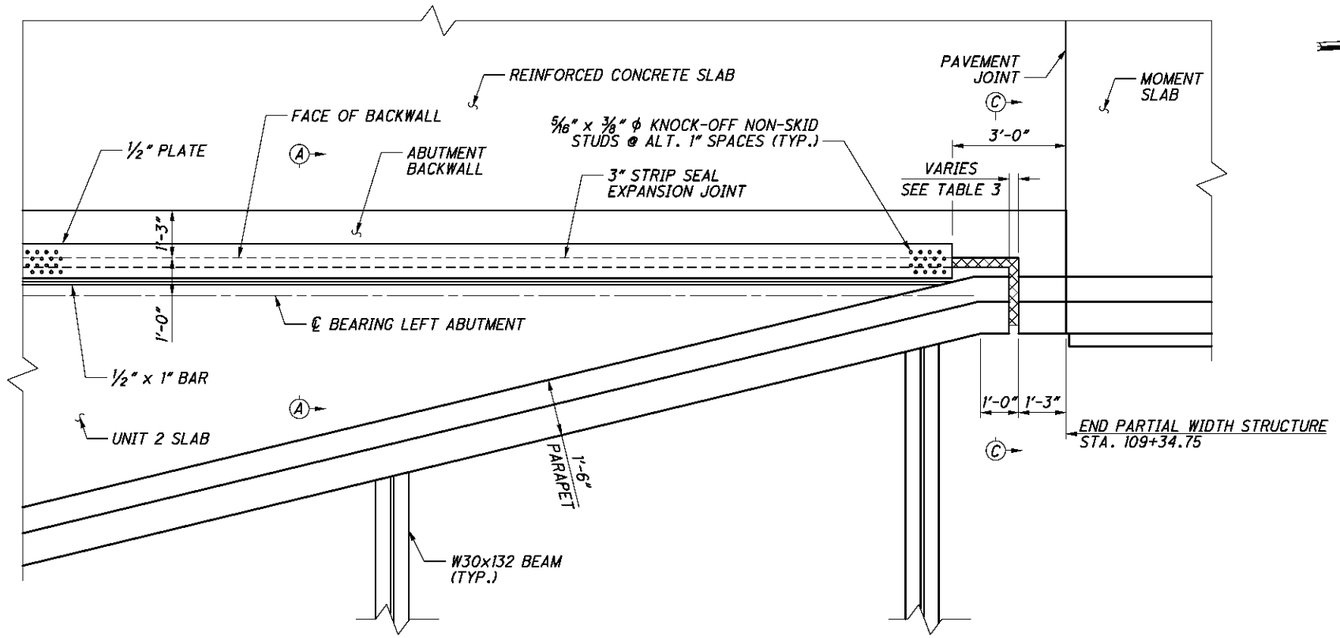
1. FOR SECTION VIEWS, SEE SHEETS 48/53 THRU 49/53.
2. ABUTMENTS ARE CONSTRUCTED ALONG CHORD LINES BETWEEN EXPANSION JOINTS. SEE FOUNDATION PLAN AND ABUTMENT PLANS FOR ADDITIONAL INFORMATION.
3. PAYMENT FOR KNOCK-OFF STUDS AND COVER PLATE SHALL BE INCLUDED WITH ITEM 516 - STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL, AS PER PLAN.

DESIGN AGENCY
HNTB
700 Superior Avenue, Suite 1300
Cleveland, OH 44114-2531

DESIGNED JOL | CHECKED TJE
DRAWN JOL/PPA | REVISED
REVIEWED RSB | DATE 11/2/12
STRUCTURE FILE NUMBER 2500779

JOINT DETAILS - 1
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

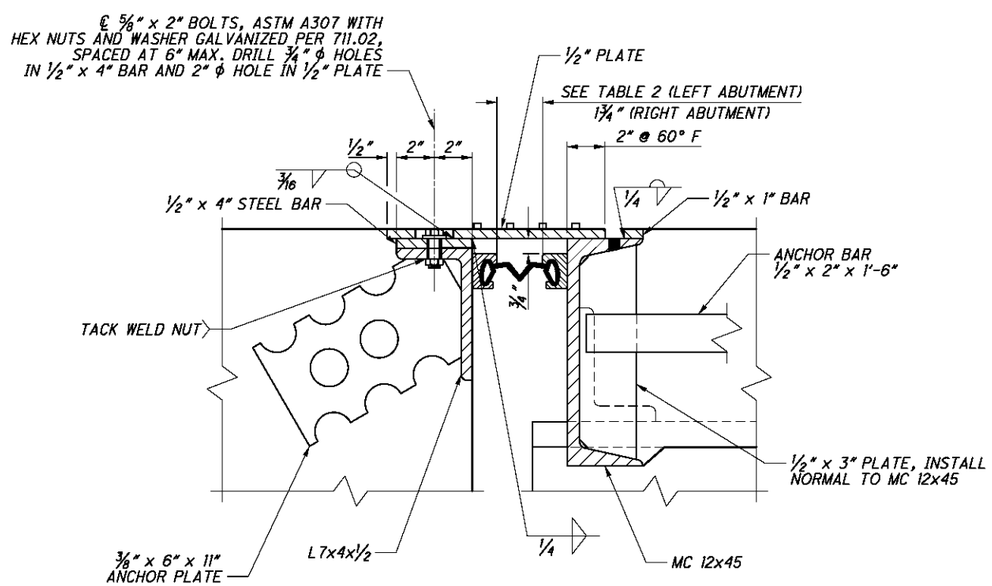


PLAN OF JOINT AT UNIT 2

TABLE 2	
STRIP SEAL JOINT WIDTH FOR LEFT ABUTMENT	
AMBIENT TEMPERATURE	JOINT WIDTH 3" STRIP SEAL
90° F	1 5/8"
80° F	1 11/16"
70° F	1 11/16"
60° F	1 3/4"
50° F	1 13/16"
40° F	1 13/16"
30° F	1 7/8"

TABLE 3	
JOINT WIDTH INCLUDING STEEL RETAINER *	
AMBIENT TEMPERATURE	JOINT WIDTH 3" STRIP SEAL
90° F	4 9/16"
80° F	4 5/8"
70° F	4 11/16"
60° F	4 3/4"
50° F	4 13/16"
40° F	4 7/8"
30° F	4 15/16"

* DIMENSIONS WERE CALCULATED ASSUMING A 1 1/2" STEEL RETAINER FOR THE EXPANSION JOINT. IF A SMALLER RETAINER IS USED, THIS DIMENSION SHALL BE ADJUSTED.



SECTION A-A

(FOR ADDITIONAL DETAILS, SEE SECTION X-X ON SHEET 2/5 OF ODOT STANDARD DRAWING EXJ-4-87)

NOTES:

1. FOR ADDITIONAL DETAILS, SEE ODOT STANDARD DRAWING EXJ-4-87.
2. FOR SECTION C-C, SEE SHEET 49/53.
3. FOR LOCATION OF SECTION A-A, SEE SHEET 47/53.

DESIGN AGENCY
HNTB
700 Superior Avenue, Suite 1300
Cleveland, OH 44114-2231

DESIGNED JOL | CHECKED TJE
DRAWN JOL/PPA | REVISED
REVIEWED RSB | DATE 11/2/12 | STRUCTURE FILE NUMBER 2500779

JOINT DETAILS - 2
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

48/53

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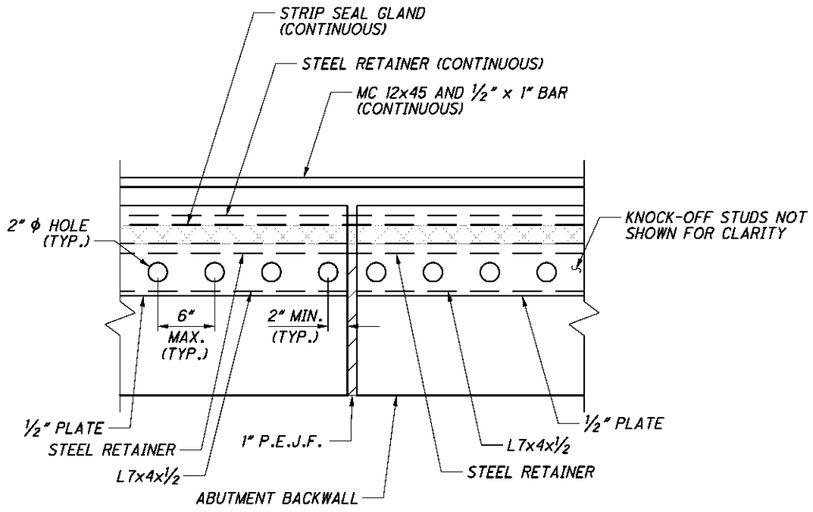
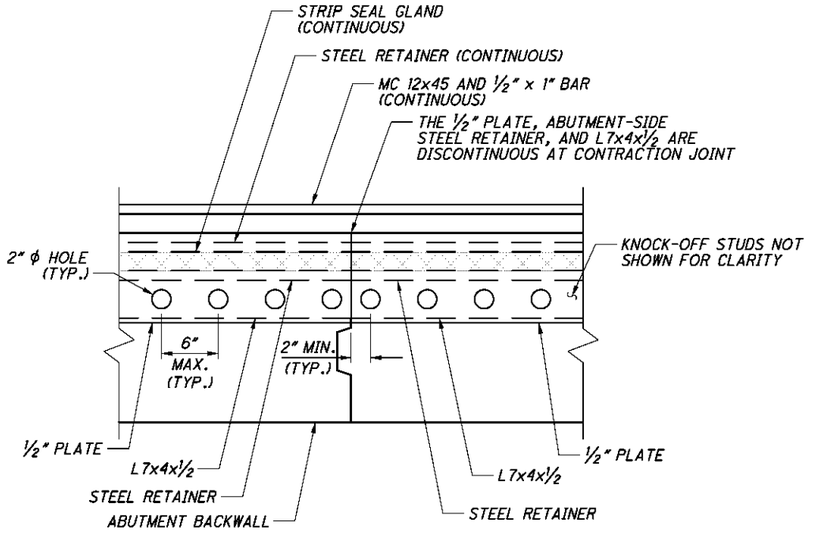
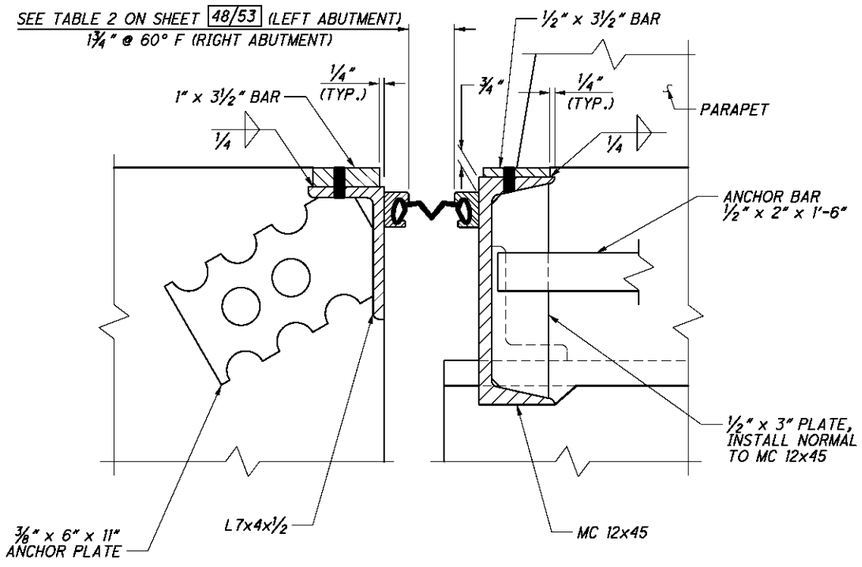


TYPICAL DETAIL AT ABUTMENT EXPANSION JOINT



TYPICAL DETAIL AT ABUTMENT CONTRACTION JOINT



SECTION C-C

(FOR ADDITIONAL DETAILS, SEE SECTION X-X ON SHEET 2/5 OF ODOT STANDARD DRAWING EXJ-4-87)

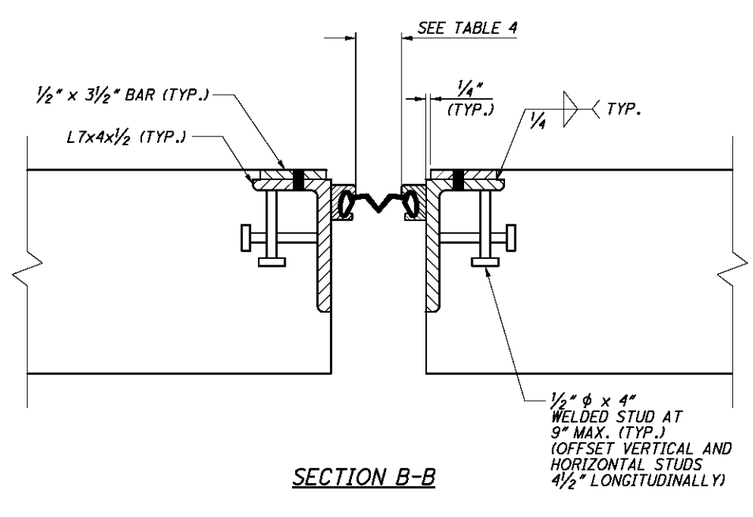
(FOR DETAILS OF JOINT TERMINATION INTO PARAPET, SEE SECTION B-B ON SHEET 1/5 OF ODOT STANDARD DRAWING EXJ-4-87)

TABLE 4

STRIP SEAL JOINT WIDTH BETWEEN UNIT 1 & UNIT 2 *

AMBIENT TEMPERATURE	JOINT WIDTH 3" STRIP SEAL
90° F	1⅜"
80° F	1½"
70° F	1⅝"
60° F	1¾"
50° F	1⅞"
40° F	2"
30° F	2⅛"

* - NOTE:
THE MINIMUM JOINT OPENING AT TIME OF SEAL GLAND INSTALLATION SHALL NOT BE LESS THAN 1½". IF THE JOINT OPENING IS LESS, INSTALLATION SHALL BE POSTPONED UNTIL THE TEMPERATURE DROPS A SUFFICIENT AMOUNT TO ALLOW THE MINIMUM 1½" OPENING.



SECTION B-B

NOTES:

1. FOR PLAN OF JOINT AT UNIT 1 AND LOCATION OF SECTION B-B, SEE SHEET 47/53.
2. FOR PLAN OF JOINT AT UNIT 2, SEE SHEET 48/53.
3. FOR LOCATIONS OF SECTION C-C, SEE SHEETS 47/53 AND 48/53.
4. FOR EXPANSION AND CONTRACTION JOINT DETAILS, SEE SHEET 19/53.

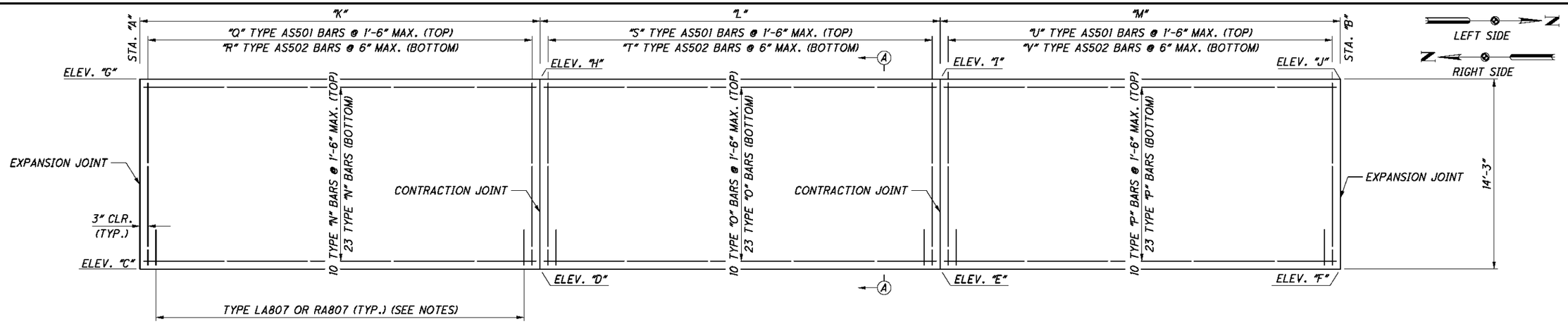
DESIGN AGENCY: HNTB, 700 Superior Avenue, Suite 1300, Cleveland, OH 44114-2531
DESIGNED: JOL | CHECKED: TJE
DRAWN: JOL/PPA | REVISED:
REVIEWED: RSB | DATE: 11/2/12
STRUCTURE FILE NUMBER: 2500779

JOINT DETAILS - 3
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

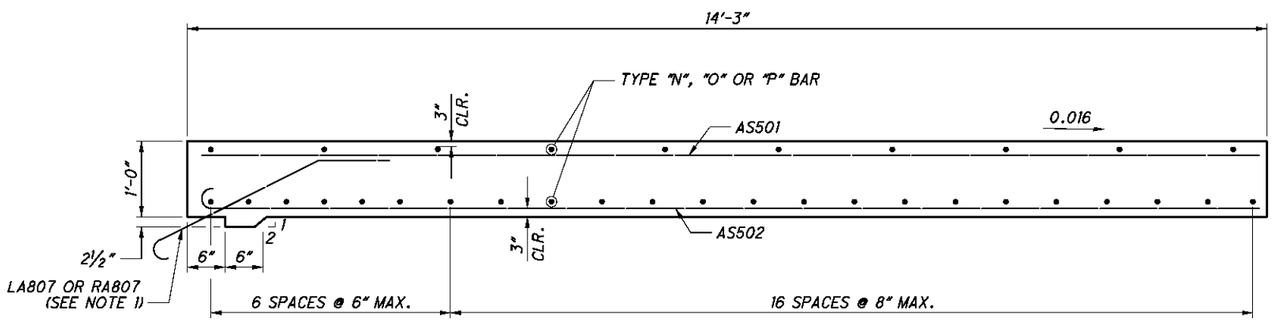
49/53

1140
1150

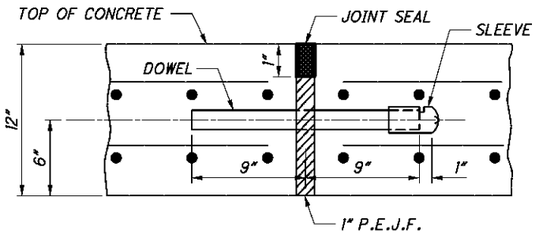


REINFORCED CONCRETE SLAB PLAN

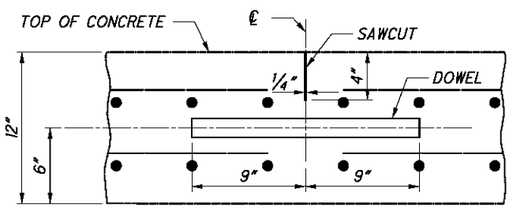
	STATION		ELEVATIONS								PANEL SPACING			TRANSVERSE REINFORCEMENT			LONGITUDINAL REINFORCEMENT					
PANEL	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
1R	106+88.82	105+99.00	892.84	893.75	894.73	895.69	892.61	893.52	894.50	895.46	28'-0"	31'-0"	31'-0"	AS503	AS507	AS507	20	57	22	63	22	63
2R	107+79.63	106+88.82	889.66	890.78	891.79	892.84	889.43	890.55	891.56	892.61	31'-0"	29'-0"	31'-0"	AS507	AS505	AS507	22	63	21	59	22	63
3R	108+69.45	107+79.63	886.27	887.42	888.55	889.66	886.04	887.19	888.32	889.43	30'-0"	30'-0"	30'-0"	AS506	AS506	AS506	21	61	21	61	21	61
4R	109+34.75	108+69.45	883.78	-	885.13	886.27	883.55	-	884.90	886.04	35'-6"	-	29'-11¼"	AS508	-	AS506	25	72	-	-	21	61
1L	105+99.00	106+89.14	895.68	894.73	893.75	892.83	895.45	894.50	893.52	892.60	31'-0"	31'-0"	28'-0"	AS507	AS507	AS503	22	63	22	63	20	57
2L	106+89.14	107+80.28	892.83	891.78	890.76	889.65	892.60	891.55	890.53	889.42	31'-0"	29'-0"	31'-0"	AS507	AS505	AS507	22	63	21	59	22	63
3L	107+80.28	108+70.42	889.65	888.53	887.38	886.23	889.42	888.30	887.15	886.00	30'-0"	30'-0"	30'-0"	AS506	AS506	AS506	21	61	21	61	21	61
4L	108+70.42	109+34.75	886.23	885.13	-	883.77	886.00	884.90	-	883.54	28'-8¾"	-	35'-6"	AS504	-	AS508	20	59	-	-	25	72



SECTION A-A



EXPANSION JOINT



CONTRACTION JOINT

NOTES:

1. FOR LA807 OR RA807 REINFORCEMENT, SEE ABUTMENT DETAILS SHEET 18/53.
2. FOR ADDITIONAL JOINT DETAILS, SEE STANDARD DRAWING BP-2.2.
3. PAYMENT FOR DOWEL AND JOINT MATERIAL SHALL BE PAID FOR UNDER ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), (T=12"), AS PER PLAN.

DESIGN AGENCY
HNTB
100 Superior Avenue, Suite 1330
Cleveland, OH 44114-2531

DESIGNED	DRAWN	REVIEWED	DATE
JJB	JFM/PPA	RSB	11/2/12
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JOL		2500779	

REINFORCED CONCRETE SLAB DETAILS
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

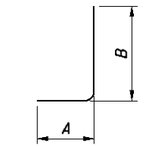
50/53

1141
1150

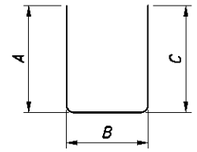
MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
LEFT ABUTMENT											
LA501	54	30'-6"	1718	STR							
LA502	12	27'-6"	344	STR							
LA503	14	28'-6"	416	STR							
LA504	40	29'-6"	1231	STR							
LA505	12	35'-0"	438	STR							
LA506	5	2'-10"	15	STR							
LA507	9	5'-6"	52	STR							
LA508	14	28'-3"	413	STR							
LA509	5	6'-2"	32	2	2'-10"	9"	2'-10"				
LA601	336	6'-1"	3070	2	2'-9"	11"	2'-9"				
LA602	241	7'-1"	2564	2	3'-0"	1'-5"	3'-0"				
LA603	95	6'-5"	916	2	2'-8"	1'-5"	2'-8"				
LA604	336	8'-9"	4416	2	3'-10"	1'-5"	3'-10"				
LA605	188	9'-3"	2612	2	3'-1"	3'-5"	3'-1"				
LA606	140	9'-11"	2085	2	3'-5"	3'-5"	3'-5"				
LA607	290	11'-3"	4900	2	4'-1"	3'-5"	4'-1"				
LA608	92	11'-11"	1647	2	4'-5"	3'-5"	4'-5"				
LA801	20	30'-6"	1629	STR							
LA802	5	27'-6"	367	STR							
LA803	5	28'-6"	380	STR							
LA804	15	29'-6"	1181	STR							
LA805	5	35'-0"	467	STR							
LA806	5	28'-3"	377	STR							
LA807	235	4'-7"	2876	18	2'-3"	1'-0"	1'-0"				
LA1001	32	30'-6"	4200	STR							
LA1002	8	27'-6"	947	STR							
LA1003	8	28'-6"	981	STR							
LA1004	24	29'-6"	3047	STR							
LA1005	8	35'-0"	1205	STR							
LA1006	8	28'-3"	972	STR							
SUB-TOTAL			45498								

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
RIGHT ABUTMENT											
RA501	12	27'-6"	344	STR							
RA502	54	30'-6"	1718	STR							
RA503	14	28'-6"	416	STR							
RA504	34	29'-6"	1046	STR							
RA505	113	6'-0"	707	STR							
RA506	4	5'-9"	24	STR							
RA507	16	10'-6"	175	STR							
RA508	8	7'-0"	58	STR							
RA509	8	6'-6"	54	STR							
RA510	4	2'-3"	9	STR							
RA511	6	23'-0"	144	STR							
RA512	8	35'-0"	292	STR							
RA513	4	1'-3"	5	STR							
RA514	4	7'-9"	32	STR							
RA515	4	4'-3"	18	STR							
RA516	5	2'-10"	15	STR							
RA517	4	6'-3"	26	STR							
RA601	218	6'-1"	1992	2	2'-9"	11"	2'-9"				
RA602	218	7'-1"	2319	2	3'-0"	1'-5"	3'-0"				
RA603	218	8'-7"	2810	2	3'-9"	1'-5"	3'-9"				
RA604	106	9'-3"	1473	2	3'-1"	3'-5"	3'-1"				
RA605	112	9'-11"	1668	2	3'-5"	3'-5"	3'-5"				
RA606	94	10'-7"	1494	2	3'-9"	3'-5"	3'-9"				
RA607	232	11'-11"	4153	2	4'-5"	3'-5"	4'-5"				
RA608	40	8'-9"	526	37	2'-8"	7"	2'-10"	3'-2"			
RA609	40	6'-2"	370	STR							
RA610	40	6'-4"	381	1	1'-0"	5'-6"					
RA611	104	10'-0"	1562	2	3'-9"	2'-10"	3'-9"				
RA612	33	14'-9"	731	2	5'-10"	3'-5"	5'-10"				
RA613	104	3'-7"	560	1	1'-0"	2'-9"					
RA614	11	11'-1"	183	2	4'-0"	3'-5"	4'-0"				
RA615	44	16'-9"	1107	2	6'-10"	3'-5"	6'-10"				
RA616	16	18'-9"	451	2	7'-10"	3'-5"	7'-10"				
RA801	5	27'-6"	367	STR							
RA802	20	30'-6"	1629	STR							
RA803	5	28'-6"	380	STR							
RA804	28	29'-6"	2205	STR							
RA805	4	23'-0"	246	STR							
RA806	9	35'-0"	841	STR							
RA807	237	4'-7"	2900	18	2'-3"	1'-0"	1'-0"				
RA1001	8	27'-6"	947	STR							
RA1002	32	30'-6"	4200	STR							
RA1003	8	28'-6"	981	STR							
RA1004	8	29'-6"	1016	STR							
RA1005	8	6'-3"	215	STR							
SUB-TOTAL			42790								

BAR BENDING DIAGRAMS



TYPE-1



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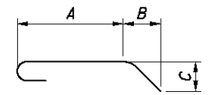

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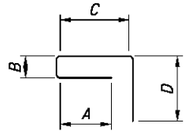


TYPE-37

NOTE:

THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR ARE USED INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, LA601:

- LA: LOCATION OF THE BARS IN THE STRUCTURE (LEFT ABUTMENT)
- 6: BAR SIZE DIMENSION NO. 6
- 01: SEQUENCE NUMBER

BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE NOTED. "STD." WRITTEN IN PLACE OF A DIMENSION INDICATES A STANDARD BAR BEND AT THE END OF THE BAR. ALL REINFORCING STEEL IS TO BE EPOXY COATED. STRAIGHT ARE INDICATED BY "STR".

DESIGN AGENCY
HNTB
1100 Superior Avenue, Suite 1300
Cleveland, OH 44114-2531

DESIGNED PPA | DRAWN ZTW | REVIEWED RSB | DATE 11/2/12
CHECKED JTW | REVISED | STRUCTURE FILE NUMBER 2500779

REINFORCING SCHEDULE
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746

51 / 53

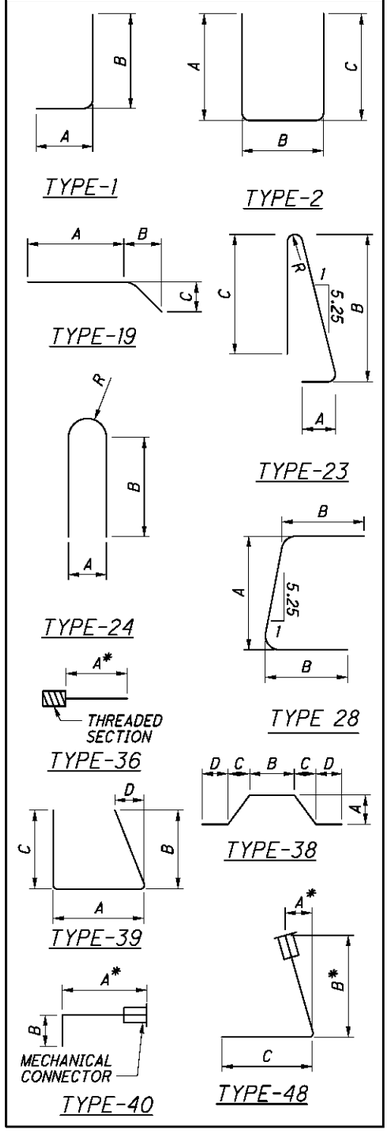
1142
1150

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
CAST-IN-PLACE WALL											
W501	50	13'-9"	717	STR							
W502	216	15'-6"	3492	STR							
W503	84	16'-6"	1446	STR							
W504	86	14'-0"	1256	STR							
W505	44	16'-0"	734	STR							
W506	84	13'-6"	1183	STR							
W507	92	14'-3"	1367	STR							
W508	42	15'-0"	657	STR							
W509	40	13'-0"	542	STR							
W510	366	30'-6"	11643	STR							
W511	98	27'-6"	2811	STR							
W512	90	28'-6"	2675	STR							
W513	304	29'-6"	9354	STR							
W514	40	28'-3"	1179	STR							
W515	86	35'-0"	3139	STR							
W516	172	14'-9"	2646	STR							
W517	40	17'-0"	709	STR							
SUB-TOTAL			45550								

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
RAILING											
R501	19	30'-0"	595	STR							
R502	6	25'-6"	160	STR							
R503	6	7'-1"	44	19	3'-6"	3'-6"	10"				
R504	336	7'-5"	2599	23	1'-1"	3'-2"	3'-0"			2¾"	
R505	4	3'-2"	13	STR							
R506	3	16'-9"	52	19	16'-0"	6"	6"				
R507	1	14'-6"	15	STR							
R508	6	9'-0"	56	19	3'-6"	3'-11"	3'-10"				
R509	12	29'-6"	369	STR							
R510	6	17'-0"	106	STR							
R511	18	35'-0"	657	STR							
R512	6	11"	6	STR							
R513	4	8'-5"	35	39	2'-4"	3'-2"	3'-2"	6½"			
R514	4	2'-10"	12	2	7"	1'-10"	7"				
R515	6	7'-3"	45	38	1'-10"	1'-4"	1'-10"	6"			
R516	28	2'-2"	63	24	5"	9"				2½"	
R517	8	13'-6"	113	STR							
R518	8	14'-5"	120	19	10'-6"	3'-1"	2'-5"				
R519	70	1'-5"	103	40	5"	1'-1"					
R520	70	3'-4"	243	36	3'-4"						
R521	8	4'-9"	40	STR							
R522	10	5'-3"	55	1	1'-6"	3'-10"					
R523	3	8'-9"	27	2	3'-2"	2'-8"	3'-2"				
R524	1	9'-1"	9	2	3'-2"	3'-0"	3'-2"				
R525	1	9'-5"	10	2	3'-2"	3'-4"	3'-2"				
R526	3	9'-7"	30	2	3'-2"	3'-6"	3'-2"				
R527	3	9'-0"	28	2	2'-7"	3'-4"	3'-4"				
R528	4	3'-8"	15	19	1'-10"	1'-8"	9"				
R529	16	9'-6"	159	STR							
R530	44	4'-11"	226	1	1'-1"	3'-11"					
R531	3	16'-3"	51	19	16'-0"	2"	2"				
R601	3	30'-0"	135	STR							
R602	1	10'-3"	15	19	4'-2"	4'-4"	4'-3"				
R603	1	26'-3"	39	STR							
R604	1	8'-8"	13	19	4'-4"	4'-3"	1'-0"				
R605	275	2'-11"	1205	1	1'-1"	2'-0"					
R606	8	3'-6"	42	2	1'-1"	1'-8"	1'-1"				
R607	275	3'-8"	1515	28	2'-0"	11"					
R608	1	17'-6"	26	19	16'-10"	6"	6"				
R609	72	1'-5"	153	40	5"	1'-1"					
R610	2	29'-6"	89	STR							
R611	1	17'-6"	26	STR							
R612	3	35'-0"	158	STR							
R613	1	11"	1	STR							
R614	72	1'-5"	153	48	1"	5"	1'-1"				
R615	144	3'-3"	703	36	3'-3"						
	SUB-TOTAL		10329								

*REINFORCING BAR UTILIZES A MECHANICAL CONNECTOR. BAR LENGTH ADJUSTMENT AND/OR END PREPARATION MAY BE NECESSARY DEPENDING UPON THE TYPE OF CONNECTOR USED.

BAR BENDING DIAGRAMS



NOTE:

THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR ARE USED INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, R601:

- R: LOCATION OF THE BARS IN THE STRUCTURE (RAILING)
- 6: BAR SIZE DIMENSION NO. 6
- 01: SEQUENCE NUMBER

BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE NOTED. "STD." WRITTEN IN PLACE OF A DIMENSION INDICATES A STANDARD BAR BEND AT THE END OF THE BAR. ALL REINFORCING STEEL IS TO BE EPOXY COATED. STRAIGHT ARE INDICATED BY "STR".

DESIGN AGENCY HNTB 1100 Superior Avenue, Suite 1330 Cleveland, OH 44114-2531

DESIGNED PPA | DRAWN ZTW | REVIEWED RSB | DATE 11/2/12 | CHECKED JTW | REVISED | STRUCTURE FILE NUMBER 2500779

REINFORCING SCHEDULE
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

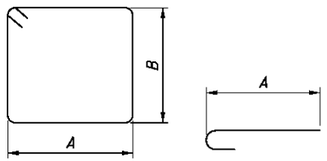
FRA-23-22.23
PID No. 81746

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
					SLAB						
S501	273	30'-0"	8542	STR							
S502	273	16'-9"	4769	STR							
S503	169	5'-3"	925	3	1'-8"	8"					
S504	111	4'-6"	521	36	1'-9"	4"	3"	2'-5"			
	1	4'-4"						2'-3"			
S505	SER OF	TO	44	36	1'-9"	4"	3"	TO			1⅞"
	12	2'-8"						6"			
S506	2	1'-11"	4	19	1'-9"	2"	1"				
S507	58	6'-7"	398	3	2'-4"	8"					
S508	48	5'-3"	263	36	2'-5"	4"	3"	2'-5"			
S601	433	30'-0"	19511	STR							
S602	403	18'-3"	11047	STR							
S603	107	33'-3"	5344	STR							
S604	1177	28'-0"	49500	STR							
S605	107	19'-0"	3054	STR							
S606	107	21'-9"	3496	34	21'-9"						
	2	14'-6"									
S607	SER OF	TO	134	STR							5"
	3	15'-4"									
S608	107	29'-3"	4701	36	3'-6"	1½"	6"	25'-3"			
S609	107	23'-0"	3696	STR							
S610	107	25'-0"	4018	34	25'-0"						
S611	107	24'-9"	3978	STR							
S612	214	4'-0"	1286	35	4'-0"						
S613	28	17'-3"	725	STR							
S614	4	13'-0"	78	STR							
S615	8	4'-9"	57	STR							
S616	28	23'-9"	999	STR							
	2	1'-1"									
S617	SER OF	TO	2796	STR							5⅛"
	64	28'-0"									
	1	13'-4"									
S618	SER OF	TO	493	STR							1'-2⅝"
	15	30'-5"									
	1	13'-4"									
S619	SER OF	TO	953	STR							7⅜"
	29	30'-5"									
	1	5'-7"									
S620	SER OF	TO	118	STR							1'-2⅝"
	8	14'-1"									
	1	5'-0"									
S621	SER OF	TO	229	STR							7¼"
	16	14'-1"									
S701	40	13'-0"	1063	STR							
	1	12'-9"									
S702	SER OF	TO	816	STR							2½"
	57	1'-3"									
S801	52	13'-0"	1805	STR							
	1	12'-9"									
S802	SER OF	TO	1402	STR							1⅞"
	75	1'-3"									
S803	61	34'-4"	5592	STR							

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
					SLAB						
	1	32'-3"									
S804	SER OF	TO	447	STR							1'-9"
	6	23'-6"									
	1	33'-6"									
S805	SER OF	TO	870	STR							1'-9"
	16	7'-3"									
	1	14'-6"									
S806	SER OF	TO	147	STR							1'-9"
	5	7'-6"									
S807	56	27'-3"	4074	STR							
S808	1	33'-6"	89	STR							
S809	1	32'-0"	85	STR							
S810	1	30'-0"	80	STR							
	1	33'-6"									
S811	SER OF	TO	870	STR							1'-9"
	16	7'-3"									
	1	21'-0"									
S812	SER OF	TO	318	STR							1'-9"
	8	8'-9"									
S813	8	34'-6"	737	19	23'-9"	10'-6"	2'-6"				
S814	13	35'-0"	1215	STR							
S815	8	18'-6"	395	STR							
S816	5	19'-3"	257	19	11'-5"	5'-8"	5'-6"				
S817	5	20'-6"	274	STR							
S818	5	35'-5"	473	19	17'-10"	17'-1"	4'-2"				
S819	5	11'-6"	154	STR							
S820	10	22'-9"	607	STR							
S821	8	29'-0"	619	19	19'-4"	6'-11"	6'-9"				
S822	8	37'-6"	801	STR							
	SUB-TOTAL		154869								

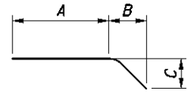
REINFORCED CONCRETE SLAB											
AS501	475	13'-9"	6812	STR							
AS502	1366	14'-4"	20421	16							
AS503	66	27'-6"	1893	STR							
AS504	33	28'-3"	972	STR							
AS505	66	28'-6"	1962	STR							
AS506	231	29'-6"	7108	STR							
AS507	264	30'-6"	8398	STR							
AS508	66	35'-0"	2409	STR							
	SUB-TOTAL		49975	(FOR INFORMATION ONLY)							

BAR BENDING DIAGRAMS



TYPE-3

TYPE-16



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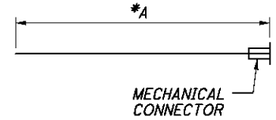
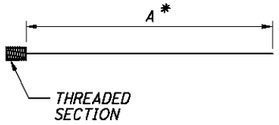
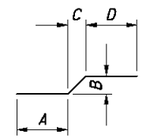


TYPE-34



TYPE-35

*REINFORCING BAR UTILIZES A MECHANICAL CONNECTOR. BAR LENGTH ADJUSTMENT AND/OR END PREPARATION MAY BE NECESSARY DEPENDING UPON THE TYPE OF CONNECTOR USED.



TYPE-36

NOTE:

THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR ARE USED INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, S601:

- S: LOCATION OF THE BARS IN THE STRUCTURE (SLAB)
- 6: BAR SIZE DIMENSION NO. 6
- 01: SEQUENCE NUMBER

BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE NOTED. "STD." WRITTEN IN PLACE OF A DIMENSION INDICATES A STANDARD BAR BEND AT THE END OF THE BAR. ALL REINFORCING STEEL IS TO BE EPOXY COATED. STRAIGHT ARE INDICATED BY "STR".

DESIGN AGENCY
HNTB
1100 Superior Avenue, Suite 1330
Cleveland, OH 44114-2531

DESIGNED PPA | DRAWN ZTW | CHECKED JTW | REVIEWED RSB | DATE 11/2/12 | REVISED | STRUCTURE FILE NUMBER 2500779

REINFORCING SCHEDULE
BRIDGE NO. FRA-23-2363
FLINT ROAD OVER U.S. 23 TRENCH

FRA-23-22.23
PID No. 81746