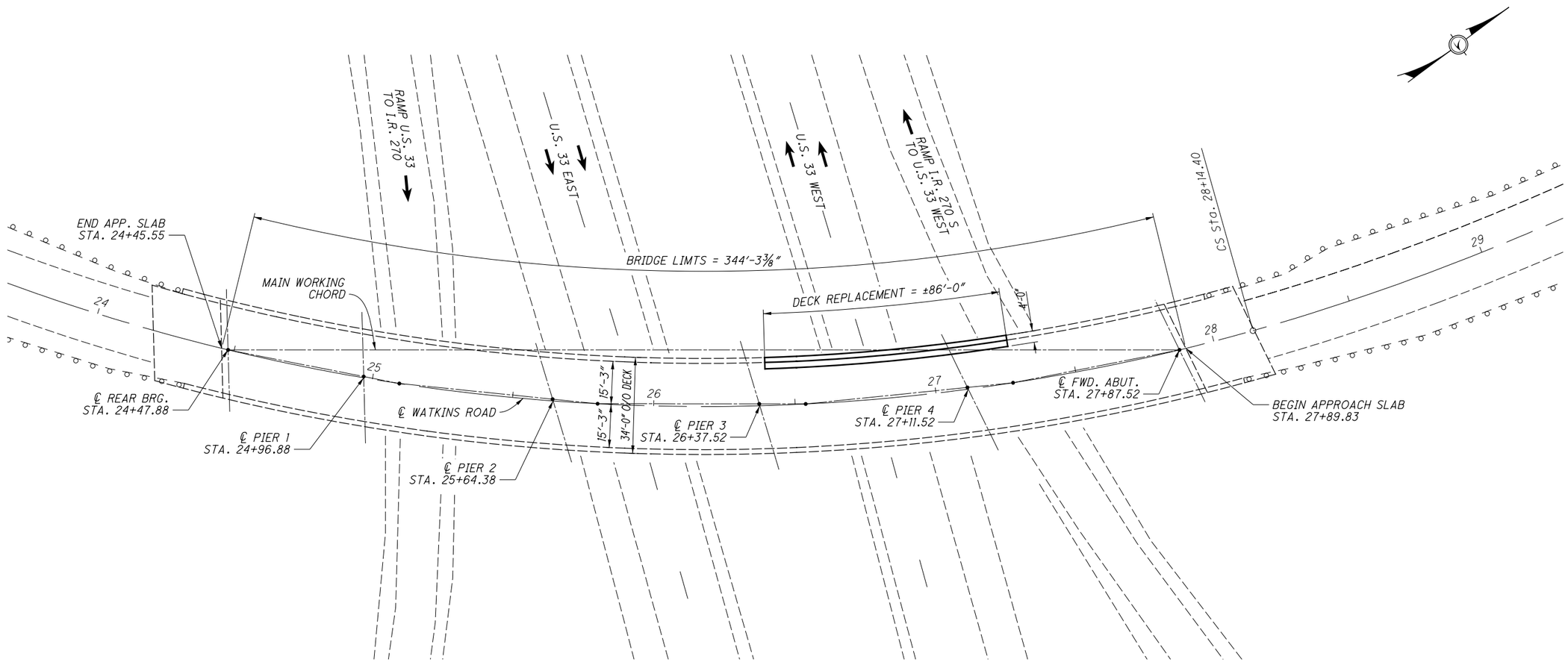


STATE OF OHIO
JEFFREY P. HIPP JR.
E-79642
REGISTERED PROFESSIONAL ENGINEER

4-30-19

EXISTING STRUCTURE

TYPE: 5 SPAN CONTINUOUS STEEL BEAM WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE

SPANS: 49'-0"; 67'-6"; 73'-1¾"; 74'-0"; 76'-0"

ROADWAY: 30'-6" F/F TO PARAPET

LOADING: H15

SKEW: VARIES

WEARING SURFACE: 1" MONOLITHIC WEARING SURFACE

APPROACH SLABS: 25'-0" LONG

ALIGNMENT: 8° CURVE

CROWN: 0.083 '/'

STRUCTURAL FILE NUMBER: 2501899

DATE BUILT: 8/29/1916 (ORIGINAL); RE-DECK CONSTRUCTION 1996

REHAB: REPLACE DAMAGED BEAM, RECONSTRUCT DECK EDGE, PARAPET, AND VANDAL FENCING

DESIGN AGENCY
OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 6

DESIGNED	DRAWN	REVIEWED	DATE
JPH	JPH		04/30/19

CHECKED | REVISED | STRUCTURE FILE NUMBER 2501899

GENERAL PLAN

BRIDGE NO. FRA-33-2456
UNDER WATKINS ROAD

FRA-33-24.56
PID No. N/A

1
8

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DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 17TH EDITION 2002, AND THE ODOT BRIDGE DESIGN MANUAL, 2004.

DESIGN LOADING

DESIGN LOADING: HS-20

FUTURE WEARING SURFACE (FWS) OF 0.00 KIPS/SF

THE EXTERIOR BEAM HAS BEEN ANALYZED USING MERLIN DASH LINE GIRDER ANALYSIS BASED ON ACTUAL SPAN DISTANCES FOR THE EXTERIOR BEAM AND HS-20 LOADING. COPY OF THE DESIGN FILE IS STORED IN PID 98111.

DESIGN DATA

CONCRETE CLASS, QC 2 - COMPRESSIVE STRENGTH 4.5 KSI

REINFORCING STEEL - MINIMUM YIELD STRENGTH 60 KSI

STRUCTURAL STEEL - ASTM A709 GRADE 50

DECK PROTECTION METHOD

EPOXY COATED REINFORCING STEEL

2.5" CONCRETE COVER

DECK PROTECTION METHOD

EXISTING STRUCTURE VERIFICATION DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK, BUT THEY WILL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05, 105.02 AND 513.04, BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS WHICH HAVE BEEN VERIFIED IN THE FIELD.

ITEM 202, PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

THIS WORK CONSISTS OF THE REMOVAL OF CONCRETE DECKS, PARAPETS, AND STEEL MEMBERS FROM THE EXISTING STRUCTURE. THE PROVISIONS OF ITEM 202 APPLY EXCEPT AS SPECIFIED BY THE FOLLOWING NOTES. PERFORM WORK CAREFULLY DURING DECK REMOVALS TO PROTECT PORTIONS OF SUCH SYSTEMS THAT ARE TO BE SALVAGED AND INCORPORATED INTO THE PROPOSED STRUCTURE. THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE RAM TYPE OF EQUIPMENT IS PROHIBITED. SUBMIT CONSTRUCTION PLANS TO INCLUDE PROTECTION OF TRAFFIC ACCORDING TO CMS 501.05.

REMOVAL OF CONCRETE OR STEEL MEMBERS IS NOT PERMITTED WITH LIVE TRAFFIC OF U.S. 33 UNDERNEATH OF WATKINS ROAD BRIDGE.

ALL CONCRETE REMOVED AS DETAILED IN THE PLANS MUST BE REMOVED BY MEANS OF CUTTING AND OF APPROVED PNEUMATIC HAMMERS EMPLOYING POINTED AND BLUNT CHISEL TOOLS. THE WEIGHT OF THE HAMMER MUST NOT BE MORE THAN 35 POUNDS FOR REMOVAL AROUND REBAR TO BE PRESERVED IN THE DECK. DO NOT PLACE PNEUMATIC HAMMERS IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE.

ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN

THIS WORK CONSISTS OF TEMPORARILY SUPPORTING THE SUPERSTRUCTURE DURING REMOVAL AND RE-ERECTION OF SUPERSTRUCTURE.

SUBMIT CONSTRUCTION PLANS IN ACCORDANCE WITH CMS 501.05.

THE DEPARTMENT WILL MEASURE THIS WORK ON A LUMP SUM BASIS.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, JACKING AND TEMPORARY SUPPORT OF THE SUPERSTRUCTURE, AS PER PLAN.

ITEM 513 STRUCTURAL STEEL MEMBERS, LEVEL 3, AS PER PLAN

THIS WORK INCLUDES FIELD DRILLING OF FLANGE AND WEB SPLICE HOLES OF THE REPLACED MAIN MEMBER TO ENSURE FIT UP TO EXISTING FASCIA BEAM. THE CONTRACTOR MUST VERIFY LENGTH OF NEW BEAM PRIOR TO ORDERING.

ITEM 516 REFURBISH BEARING DEVICE, AS PER PLAN

REMOVE AND SALVAGE THE EXITING ROCKER LOAD PLATE FROM THE EXISTING DAMAGED MAIN MEMBER OVER PIER 4 AND WELD NEW PLATE TO PROPOSED W36x160 BEAM ACCORDING TO DETAILS PROVIDED ON TRANSVERSE SECTION SHEET. IF DAMAGE IS PRESENT TO END COVER PLATES AFTER INSPECTION REMOVE AND WELD NEW PLATES TO ENSURE THE ROCKER IS FIXED HORIZONTALLY TO THE TOP ROCKER PLATE.

RESET THE BEARING AND ENSURE BEARING IS BEING ACHIEVED PRIOR TO POURING THE PROPOSED DECK EDGE.

VANDAL PROTECTION FENCE, 6' STRAIGHT, COATED FABRIC, AS PER PLAN

CAREFULLY REMOVE AND SALVAGE POSTS AND FENCING MESH OVER FOR THE LIMITS OF THE DECK REMOVAL LIMITS. REPLACE THE VANDAL PROTECTION FENCING WITH THE SALVAGED PARTS AND NEW BOLTS ACCORDING TO VPF-1-90.

ESTIMATED QUANTITIES

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	SUPER.
202	11201		LS	PORTIONS OF STRUCTURE REMOVED, AS PER PLAN	
509	10000	4,995	LB	EPOXY COATED REINFORCING STEEL	4,995
511	34410	14	CY	CLASS QC2 CONCRETE, SUPERSTRUCTURE	14
511	34448	11	CY	CLASS QC2 CONCRETE, BRIDGE DECK (PARAPET)	11
512	10301	11	SY	SEALING CONCRETE BRIDGE DECKS WITH HMWM RESIN	11
512	10050	79	SY	SEALING OF CONCRETE SURFACES (NON-EPOXY)	79
513	10200	1,206	LB	STRUCTURAL STEEL MEMBERS, LEVEL UF	1,206
513	10260	11,384	LB	STRUCTURAL STEEL MEMBERS, LEVEL 3	11,384
514	00056	1,134	SF	FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT	1,134
514	00060	1,134	SF	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT	1,134
514	00066	1,134	SF	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT	1,134
516	13200	1	SF	1/2" PREFORMED EXPANSION JOINT FILLER	1
516	45305	1	EACH	REFURBISH BEARING DEVICE, AS PER PLAN	1
516	47001		LS	JACKING TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN	
607	39901	79	FT	VANDAL PROTECTION FENCE, 6' STRAIGHT, COATED FABRIC, AS PER PLAN	79

DESIGN AGENCY
OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 6

REVIEWED DATE 04/30/19
STRUCTURE FILE NUMBER 2501899

DRAWN JPH
REVISED

DESIGNED JPH
CHECKED

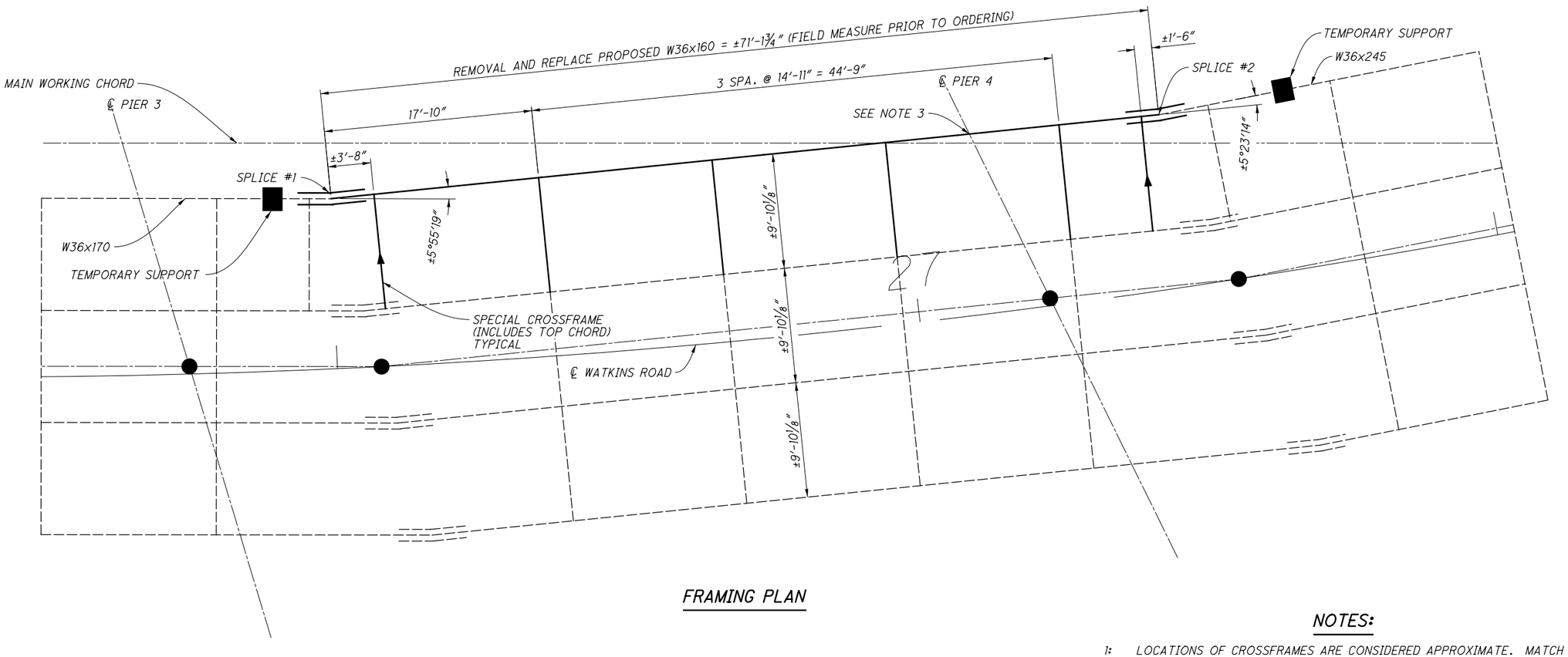
BRIDGE NOTES & ESTIMATED QUANTITIES

BRIDGE NO. FRA-33-2456
UNDER WATKINS ROAD

FRA-33-24.56
PID No. N/A

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FRAMING PLAN

NOTES:

1: LOCATIONS OF CROSSFRAMES ARE CONSIDERED APPROXIMATE. MATCH PROPOSED CROSSFRAMES TO THE EXISTING LOCATIONS DETERMINED IN THE FIELD.

2: ALL CROSSFRAME MEMBERS Ls 3x3x5/16.

3: REMOVE AND SALVAGE EXISTING ROCKER CAP FROM EXISTING BEAM OVER PIER 4. EXISTING ROCKER WILL BE REUSED FOR PROPOSED W36x160. SEE TRANSVERSE SECTION FOR DETAILS.

4: FOR SPLICE DETAILS REFER TO ORIGINAL CONSTRUCTION PLANS FRA-270-15.19S SHEET 366/442

5: EXISTING SPLICE PLATES, FILLERS, AND BOLTS ARE PERMITTED FOR REUSE UPON DETAILED INSPECTION FOLLOWING DEMOLITION.

DESIGN AGENCY
OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 6

DESIGNED JPH | DRAWN JPH | REVIEWED | DATE 04/30/19

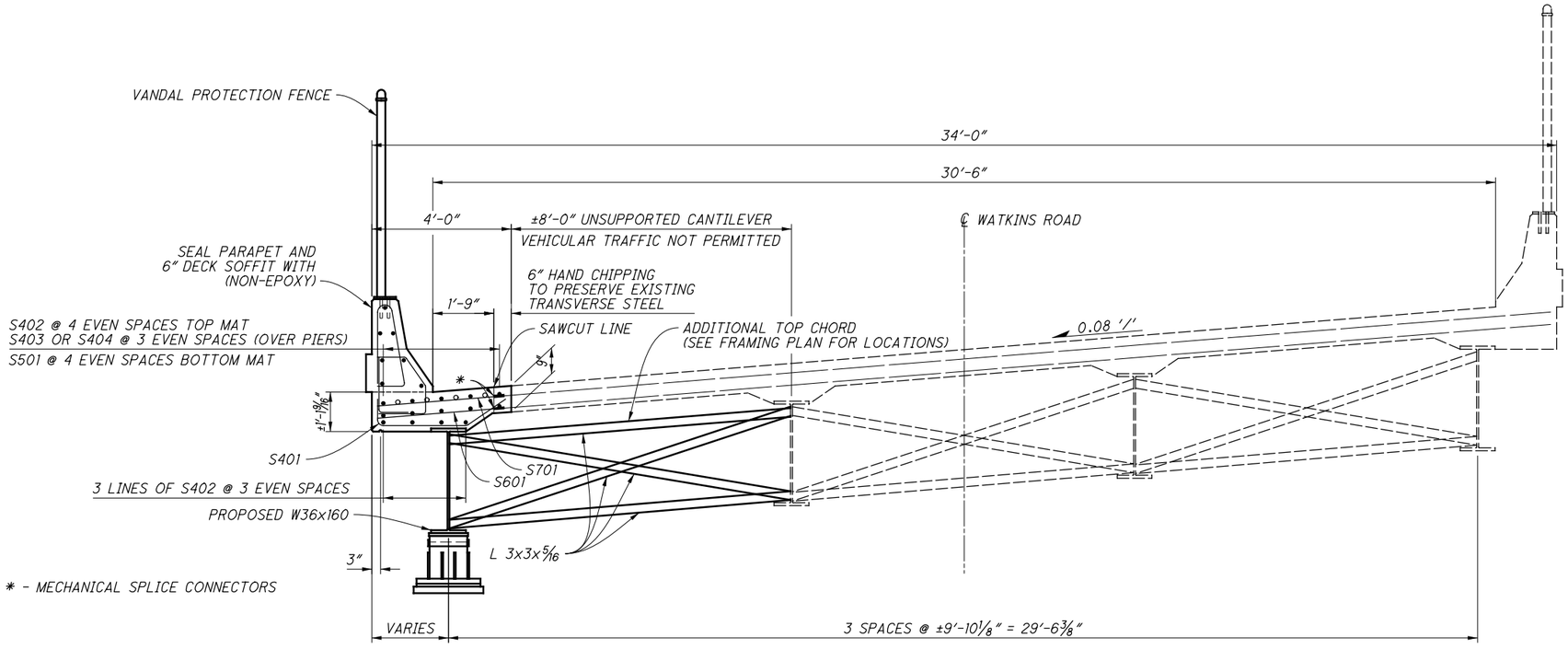
CHECKED | REVISED | STRUCTURE FILE NUMBER 2501899

FRAMING PLAN
BRIDGE NO. FRA-33-2456
UNDER WATKINS ROAD

FRA-33-24.56
PID No. N/A

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TRANSVERSE SECTION

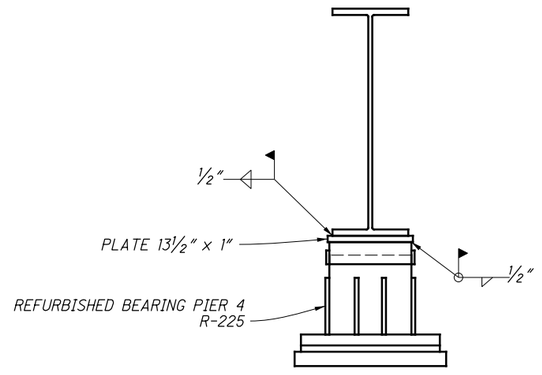
(SPAN 4)

TRANSVERSE SECTION

1: FOR PARAPET AND VANDAL PROTECTION FENCE DETAILS SEE SHEET 6/8.

2: SEAL NEW DECK CONSTRUCTION JOINT WITH HMWM RESIN 1'-0" WIDTH.

3: HAUNCH THICKNESS EQUALS 4 INCHES AS MEASURED IN THE FIELD.



BEARING DETAIL PIER 4

DESIGN AGENCY
OHIO DEPARTMENT OF
TRANSPORTATION DISTRICT 6

REVIEWED DATE 04/30/19
STRUCTURE FILE NUMBER 2501899

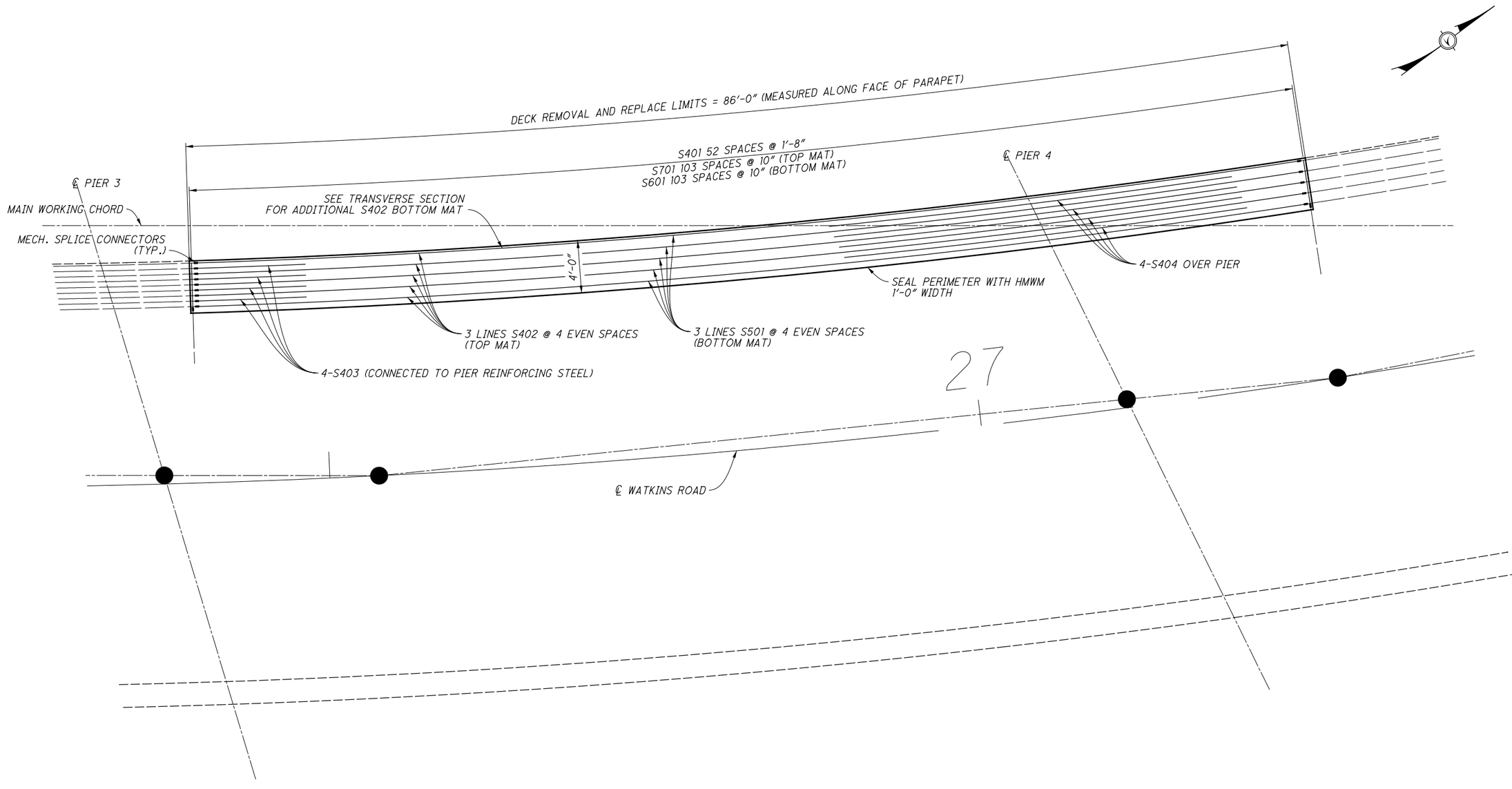
DESIGNED JPH | DRAWN JPH | CHECKED | REVISED

TRANSVERSE SECTION
BRIDGE NO. FRA-33-2456
UNDER WATKINS ROAD

FRA-33-24.56
PID No. N/A

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DECK PLAN

LAP LENGTHS

NO. 4 BAR = 1'-11"
NO. 5 BAR = 2'-4"

DESIGN AGENCY
OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 6

DESIGNED	DRAWN	REVIEWED	DATE
JPH	JPH		04/30/19

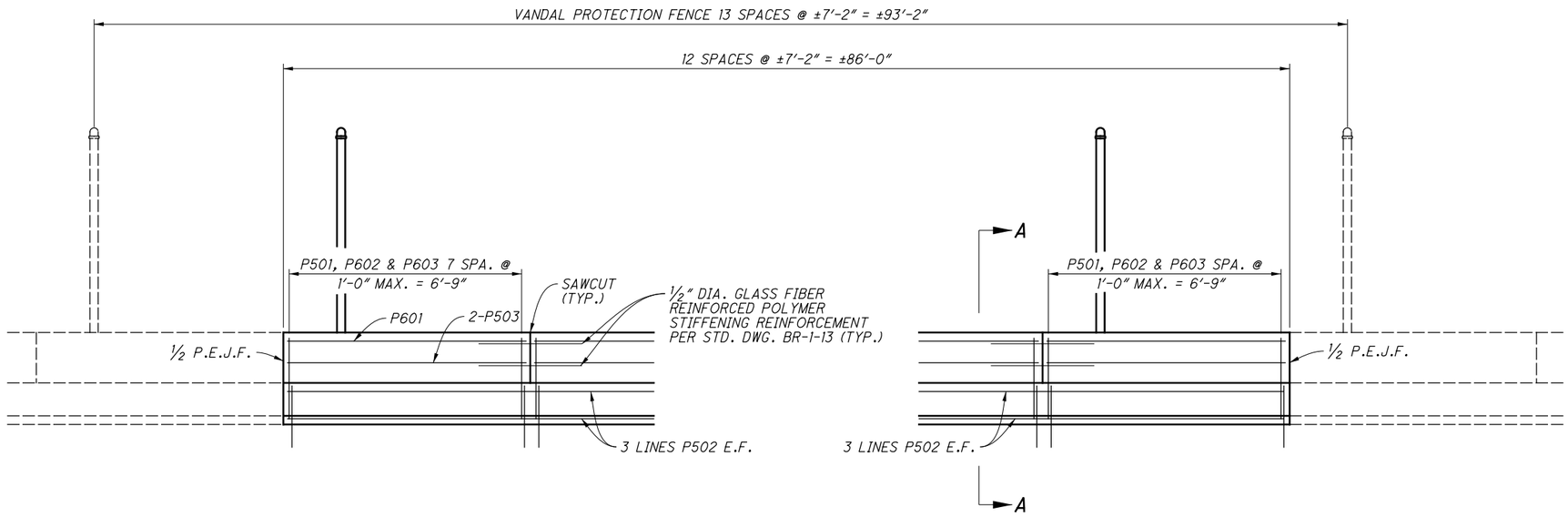
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		2501899

DECK PLAN
BRIDGE NO. FRA-33-2456
UNDER WATKINS ROAD

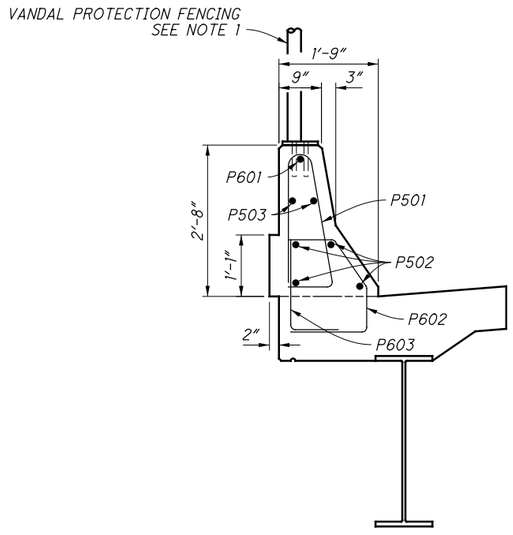
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PID No. N/A

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PARAPET DETAILS



SECTION A-A

NOTES:

1: THE CONTRACTOR MUST CAREFULLY DISMANTEL EXISTING VANDAL FENCE MESH, RAILS, AND POSTS TO BE REUSED AFTER PARAPET HAS BEEN RECONSTRUCTED. SUPPLY NEW BOLTS TO REINSTALL VANDAL FENCING IN ACCORDANCE WITH STANDARD DRAWING VPF-1-90.

2: FOR SAWCUT DETAILS, FILLING OF SAWCUTS AND PEJF LOCATIONS, AND GLASS FIBER REINFORCEMENT REFER TO STANDARD DRAWING BR-1-13.

LAP LENGTHS

NO. 5 = 2'-5"

DESIGN AGENCY
OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 6

REVIEWED DATE 04/30/19
STRUCTURE FILE NUMBER 2501899

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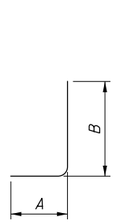
PARAPET AND VANDAL FENCING DETAILS
BRIDGE NO. FRA-33-2456
UNDER WATKINS ROAD

FRA-33-24.56
PID No. N/A

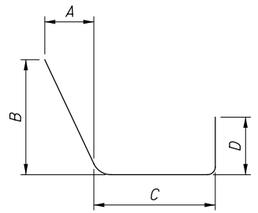
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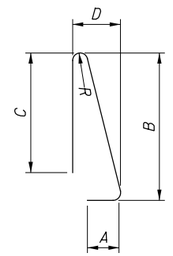
MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
DECK											
S401	53	4'-6"	159	10	1'-2"	0'-9"	2'-6"	0'-9"			
S402	27	30'-0"	541	STR							
S403	4	9'-0"	24	STR							
S404	4	31'-0"	83	STR							
S501	15	30'-2.7"	473	STR							
S601	104	3'-4"	521	STR							
S701	104	3'-4"	709	STR							
		SUBTOTAL	**2,510**								
PARAPET											
P501	96	5'-4"	534	22	0'-9"	2'-4"	2'-3"	0'-9"		0'-2.5"	
P502	12	30'-2.7"	378	STR							
P503	24	6'-8"	167	STR							
P601	12	6'-8"	120	22	0'-10"	2'-3"	2'-2"	0'-9.6"	0'-2.5"		
P602	96	5'-7"	805	1	1'-3"	0'-10"	1'-3"	1'-2"	2'-0"		
P603	96	3'-4"	481		1'-0"	2'-6"					
		SUBTOTAL	**2,485**								
		DECK SUBTOTAL	**2,510**								
		GRAND TOTAL	**4,995**								



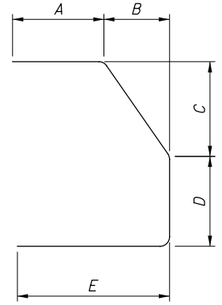
TYPE-1



TYPE-10



TYPE-22



TYPE-30

DESIGN AGENCY
OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 6

DESIGNED	DRAWN	REVIEWED	DATE
JPH	JPH		04/30/19
CHECKED	REVISED	STRUCTURE FILE NUMBER	2501899

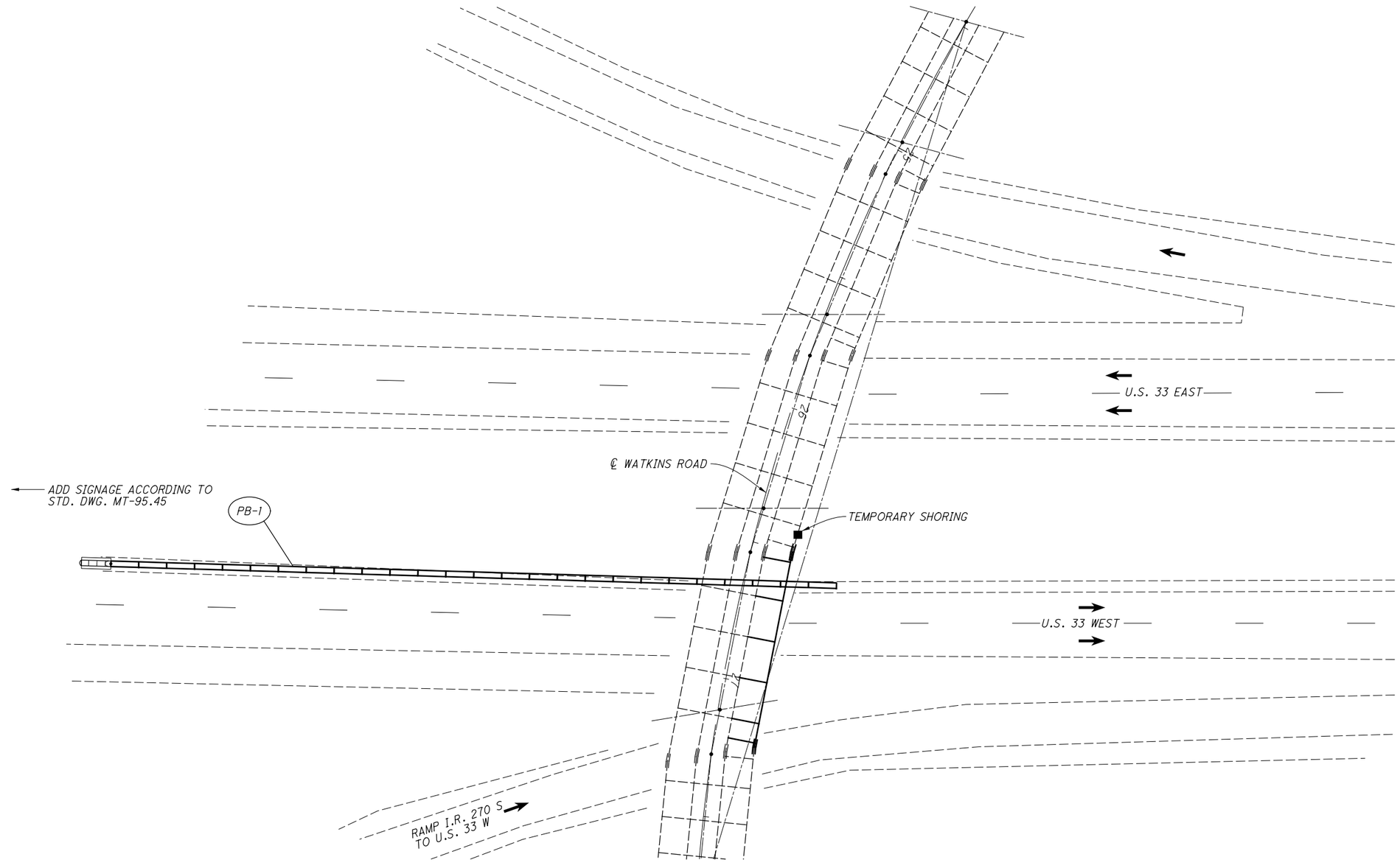
REINFORCING STEEL SCHEDULE

BRIDGE NO. FRA-33-2456
UNDER WATKINS ROAD

FRA-33-24.56
PID No. N/A

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8

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	614	614	614	622
	WORK ZONE IMPACT ATTENUATOR (UNIDIRECTIONAL)	BARRIER REFLECTOR, TYPE 1, ONE WAY	OBJECT MARKER, ONE WAY	PORTABLE BARRIER, 32"
	EACH	EACH	EACH	FEET
PB-1	1	6	6	260

PORTABLE BARRIER PLACEMENT PLAN

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED JPH
CHECKED

MAINTENANCE OF TRAFFIC
PORTABLE BARRIER PLACEMENT

FRA-33-24.56

8
8

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