

12d

Project Number: BRS-SWAP-6012(601)--FF-97

SECTION 404 PERMIT AND CONDITIONS

CONSTRUCT THIS PROJECT ACCORDING TO THE REQUIREMENTS OF THE U.S. ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT NO 14 CEAV6-00-F-2019-1377. A COPY OF THIS PERMIT IS AVAILABLE FROM THE IOWA DOT WEBSITE (http://enrpermits.iowadot.gov/). THE US ARMY CORPS OF ENGINEERS RESERVES THE RIGHT TO VISIT THE SITE WITHOUT PRIOR NOTICE.

IOWA DEPARTMENT OF TRANSPORTATION

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

FARM TO MARKET SYSTEM WOODBURY COUNTY

BRIDGE AND APPROACHES - C.C.S.

PROJECT NO: BRS-SWAP-6012(601)--FF-97

UTILITY CONTACTS

MIDAMERICAN ELECTRIC - BILL GRAY - 712-277-7476
FRONTIER COMMUNICATIONS - TRENT FLOCKART - 515-573-1268
CITY OF PIERSON - CLAYTON POWELL - 712-375-5015
WOODBURY COUNTY REC - NATE BAUER - 712-870-1031

TRAFFIC CONTROL PLAN

THIS ROAD WILL BE CLOSED TO THROUGH TRAFFIC DURING CONSTRUCTION. LOCAL TRAFFIC TO ADJACENT PROPERTIES WILL BE MAINTAINED AS PROVIDED FOR IN ARTICLE 1107.08 OF THE CURRENT STANDARD SPECIFICATIONS, TRAFFIC CONTROL DEVICES, PROCEDURES, LAYOUTS, AND SIGNING INSTALLED WITHIN THE LIMITS OF THIS PROJECT SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AS ADOPTED BY THE DEPARTMENT PER 781 OF THE IOWA ADMINISTRATIVE CODE (IAC) CHAPTER 130.

A DETOUR ROUTE WILL BE MARKED AND MAINTAINED BY WOODBURY COUNTY.

ALL SAFETY CLOSURES SHALL BE FURNISHED, ERECTED, MAINTAINED AND REMOVED BY THE CONTRACTOR.

MAINTENANCE OF SIGNS, BARRICADES AND SAFETY CLOSURES AS STATED IN ARTICLE 1107.09 SHALL APPLY ON THIS PROJECT.

ROAD CLOSURES ON THIS PROJECT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE IN ACCORDANCE WITH ROAD STANDARD TC-252. GUARDRAIL INSTALLATION MUST BE COMPLETE BEFORE THE ROAD IS OPENED TO TRAFFIC.

ON D12, OVER CREEK, FROM HAINES AVE EAST 0.15 MILES TO MINNESOTA AVE, ON NLINE S12 T89N R43W

REFER TO THE PROPOSAL FORM FOR LIST OF APPLICABLE SPECIFICATIONS

REFER TO SHEET 2 FOR LOCATION MAP

INDEX OF SHEETS

Table with 2 columns: No. and Description. Lists sheet numbers 1 through 12-15 and their corresponding descriptions like TITLE SHEET, LOCATION PLAN, ESTIMATE OF QUANTITIES, etc.

ROAD STANDARD PLANS

Table with 6 columns: Identification, Date, Identification, Date, Identification, Date. Lists various road standard plan numbers and their effective dates.

BRIDGE STANDARDS

Table with 6 columns: Identification, Date, Identification, Date, Identification, Date. Lists various bridge standard numbers and their effective dates.

PROJECT NO: BRS-SWAP-6012(601)--FF-97 BRIDGE AND APPROACHES - CCS

WOODBURY COUNTY

Letting Date JUNE 16, 2020

Approval signature lines with handwritten signatures and the text 'Approved Board of Supervisors'.

Professional Engineer seal for Mark J. Nahra, 11452, and a certification statement: 'I hereby certify that this engineering document was prepared by me or under my direct personal supervision...' with a signature and date 3/17/2020.

2015 AADT 420 V.P.D.



ESTIMATED QUANTITIES

No.	ITEM CODE	ITEM	UNIT	TOTAL
1.	2101-0850001	CLEARING AND GRUBBING	ACRE	0.50
2.	2102-2625000	EMBANKMENT-IN-PLACE	C.Y.	1,140
3.	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	C.Y.	1,645
4.	2121-7425020	GRANULAR SHOULDERS, TYPE B	TON	75
5.	2301-0690210	BRIDGE APPROACH, TWO LANE	S.Y.	337.64
6.	2401-6745625	REMOVAL OF EXISTING BRIDGE	LUMP SUM	1
7.	2402-2720000	EXCAVATION, CLASS 20	C.Y.	260.50
8.	2403-0100010	STRUCTURAL CONCRETE (BRIDGE)	C.Y.	172.6
9.	2404-7775000	REINFORCING STEEL	LB.	102.0
10.	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB.	46,502
11.	2414-6424124	CONCRETE OPEN RAILING, TL-4	LIN. FT.	182.0
12.	2417-0330024	APRONS, SAFETY SLOPE, 24 IN. DIA	EACH	2
13.	2417-1060024	CULVERT, CORRUGATED METAL ROADWAY PIPE, 24 IN. DIA	LIN. FT.	180
14.	2501-0201042	PILES, STEEL, HP 10x42	LIN. FT.	1,720
15.	2501-5478042	CONCRETE ENCASEMENT OF STEEL H PILES, HP10x42 (P10L TYPE 3)	LIN. FT.	182
16.	2503-3775024	GATE, OUTLET CONTROL, FLAP, 24 IN.	EACH	2
17.	2505-4008420	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA-221	EACH	4
18.	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH	4
19.	2505-4021722	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-225	EACH	4
20.	2507-3250005	ENGINEERING FABRIC	S.Y.	450
21.	2507-6800061	REVTMENT, CLASS E	TON	485
22.	2510-8745850	REMOVAL OF PAVEMENT	S.Y.	395.72
23.	2518-6910000	SAFETY CLOSURE	EACH	2
24.	2519-3280000	FENCE, FIELD	LIN. FT.	350
25.	2519-3300400	FIELD FENCE BRACE PANELS	EACH	4
26.	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	STA.	4.50
27.	2528-8445110	TRAFFIC CONTROL	LUMP SUM	1
28.	2533-4980005	MOBILIZATION	LUMP SUM	1
29.	2601-2634100	MULCHING	ACRE	0.50
30.	2601-2638043	SEEDING AND FERTILIZING (RURAL)	ACRE	0.50
31.	2602-0000020	SILT FENCE	LIN. FT.	700
32.	2602-0000030	SILT FENCE FOR DITCH CHECKS	LIN. FT.	48

SUMMARY OF BRIDGE QUANTITIES

ITEM	UNITS	SUPER STRUCTURE	ABUT. NO. 1 FOOTING	PIER NO. 1	PIER NO. 2	ABUT. NO. 2 FOOTING	TOTALS
EXCAVATION CLASS 20	C.Y.		126.70			133.80	260.50
STRUCTURAL CONCRETE (BRIDGE)	C.Y.	*150.4	11.1			11.1	172.6
REINFORCING STEEL	LBS		51.0			51.0	102.0
REINFORCING STEEL, EPOXY COATED	LBS	43,488	1,507.0			1,507.0	46,502
CONCRETE OPEN RAILING, TL-4	LF	182.0					182.0
HP10x42 STEEL FRICTION PILING	LF		5 AT 60 = 300	7 AT 80 = 560	7 AT 80 = 560	5 AT 60 = 300	1720
CONCRETE ENCASEMENT OF STEEL "H" PILES, HP 10x42 (P10A TYPE 3)	LF			7 AT 13 = 91	7 AT 13 = 91		182

* NOTE - INCLUDES ABUTMENT WINGS

WOODBURY COUNTY
ENGINEERS OFFICE

CDR	DATE
DRAWN BY	REVISION
CDR CHECKED BY	
MAIN APPROVED BY	

PROJECT DESCRIPTION: BRIDGE REPLACEMENT
SEC. 12-189N-R43W RUTLAND TWP.

SHEET DESCRIPTION: ESTIMATE OF QUANTITIES

PROJECT NO.
BRB-SWAP-50120011-FF-07

SHEET
3

ESTIMATE REFERENCE INFORMATION

ITEM NO.	DESCRIPTION	DESCRIPTION
1	2101-0850001	CLEARING AND GRUBBING CLEAR AND GRUBB SHALL CONSIST OF REMOVAL OF ALL VEGETATION IN THE CONSTRUCTION LIMITS. ALL STUMPS AND DOWNED TREES SHALL BE DISPOSED OF OFF OF THE PROJECTS LIMITS. ALL TREES HAVE BEEN CUT DOWN WITHIN THE CONSTRUCTION AREA. NO BURNING WITHIN THE PROJECT LIMITS ALLOWED. IF THE CONTRACTOR WANTS TO BURN ON PRIVATE PROPERTY ADJACENT TO THE PROJECT THEY WILL SUPPLY THE PROJECT ENGINEER WITH A LETTER SIGNED BY THE LAND OWNER ALLOWING THE BURNING.
2	2102-2625000	EMBANKMENT-IN-PLACE NO PAYMENT FOR OVERHAUL WILL BE ALLOWED. QUANTITY INCLUDES AN ALLOWANCE OF 40% FOR SHRINKAGE. TYPE "A" COMPACTION IS REQUIRED. PAYMENT SHALL BE PLAN QUANTITY. MATERIAL FROM ITEMS 3 AND 7 MAY BE USED IF INSPECTED BY WOODBURY COUNTY AND CONSENT IS GIVEN BY THE COUNTY ENGINEER. NO CLASS 10 ROADWAY EXCAVATION WAS INCLUDED DUE TO THERE BEING NO ROADWAY CUT. AFTER ALL SUITABLE MATERIAL ON SITE HAS BEEN DEPLETED THE CONTRACTOR SHALL FURNISH ALL REMAINING MATERIAL REQUIRED. THE CONTRACTOR SHALL FAMILIARIZE THEMSELVE WITH PROVISIONS OF IOWA LAW AS IT APPLIES TO REMOVAL AND REPLACEMENT OF TOPSOIL ON BORROW AREAS. ALL MATERIAL SHALL BE COMPACTED WITH A METHOD APPROVED BY THE ENGINEER. THE APPROACH BERMS SHALL BE BUILT TO THE CONSTRUCTION LIMITS PRIOR TO THE ABUTMENT PILE BEING PLACED. QUANTITY OF MATERIAL REQUIRED FROM AN OFF SITE BORROW IS 1,140 C.Y. 1,140 C.Y. (FILL+40%)- 0 C.Y. CUT = 1,140 CONTRACTORS BORROW
3	2104-2710020	EXCAVATION CLASS 10 CHANNEL QUANTITY OF EXCAVATION IS 1,645 C.Y. (CUT) AND 0 C.Y. (FILL + 40%). EXCESS MATERIAL MAY BE USED AS ROADWAY BORROW IF DEEMED SUITABLE BY THE ENGINEER. UNUSED MATERIAL SHALL BE DISPOSED OF OFF THE PROJECT SITE ACCORDING TO APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.
5	2301-0690210	BRIDGE APPROACH, TWO LANE SEE TAB 112-6 ON SHEET 6. BRIDGE APPROACH SHALL BE ACCORDING TO STANDARD ROAD PLAN BR-102. LONGITUDINAL JOINTS SHALL BE "KT-2" OR "L-2" TYPE. TRANSVERSE JOINTS SHALL BE "CD" TYPE. A "DW" JOINT SHALL BE USED AT THE END OF THE APPROACH SECTION. THE CONTRACTOR SHALL PROVIDE CERTIFIED PLANT INSPECTION FOR THE CONCRETE USED IN THE BRIDGE APPROACH SECTIONS. THE COST OF THIS INSPECTION SHALL BE INCIDENTAL TO THIS ITEM.
6	2401-6745625	REMOVAL OF EXISTING BRIDGE BID ITEM SHALL INCLUDE THE REMOVAL AND DISPOSAL OF THE EXISTING BRIDGE AT STA. 3+36 (FHWA STR. NO. 354785). THE BRIDGE IS A SINGLE SPAN 38' LONG AND 24' WIDE CONTINUOUS I-BEAM BRIDGE WITH TIMBER PILE, BACKING PLANK, AND PILE CAPS. THE SUBSTRUCTURE SHALL BE REMOVED TO A DEPTH OF 3 FEET BELOW STREAM BED. REMOVED BRIDGE ITEMS SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OFF THE PROJECT SITE ACCORDING TO APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS. AN ASBESTOS INSPECTION WAS CONDUCTED ON THIS STRUCTURE AND THE RESULTS WERE NEGATIVE.
7	2402-2720000	EXCAVATION, CLASS 20 BID ITEM IS FOR EXCAVATION REQUIRED FOR CONSTRUCTION OF THE ABUTMENT FOOTINGS. SEE "SUMMARY OF BRIDGE QUANTITIES" TABLE ON SHEET 3 FOR EXCAVATION QUANTITY AT EACH ABUTMENT.
8	2403-0100010	STRUCTURAL CONCRETE (BRIDGE) INCLUDES COST OF FURNISHING AND PLACING SUBDRAIN (INCLUDING EXCAVATION), GRANULAR BACKFILL AND POROUS BACKFILL AT ABUTMENTS. THE CONTRACTOR SHALL PROVIDE CERTIFIED PLANT INSPECTION FOR THE CONCRETE USED IN THE BRIDGE CONSTRUCTION. THE COST OF THIS INSPECTION SHALL BE INCIDENTAL TO THIS ITEM.

ESTIMATE REFERENCE INFORMATION

ITEM NO.	DESCRIPTION	DESCRIPTION
13	2417-1060024	CULVERT, CORRUGATED METAL ROADWAY PIPE, 24 IN. DIA. SEE SHEET 8 FOR PLACEMENT DETAILS. PIPE SHALL BE 24"x3" CORRUGATIONS AND SHALL BE 14 GAUGE. SUBGRADE SHALL BE COMPACTED AND INSPECTED PRIOR TO PLACEMENT OF PIPE.
14	2417-1060024	PILES, STEEL, HP 10x42 PILE POINTS TO BE ADDED TO PILES DUE TO SOIL CONDITIONS AT AN ELEVATION OF 1,245.0± AND ALL COSTS FOR FURNISHING AND ATTACHING PILE POINTS TO 10 ABUTMENT PILES TO BE INCIDENTAL TO THIS BID ITEM.
15	2501-5478402	CONCRETE ENCASEMENT OF STEEL H PILES, HP 10X42 (P10L TYPE 3) THE CONTRACTOR SHALL PROVIDE CERTIFIED PLANT INSPECTION FOR THE CONCRETE USED IN THE ENCASEMENT. THE COST OF THIS INSPECTION SHALL BE INCIDENTAL TO THIS ITEM
16	2503-3775024	GATE, OUTLET CONTROL, FLAP, 24 IN. PAYMENT SHALL BE PLAN QUANTITY PER GATE OUTLET FLAP INSTALLED.
20	2507-3250005	ENGINEERING FABRIC ENGINEERING FABRIC SHALL BE PLACED UNDERNEATH AND AT THE LIMITS OF THE CLASS "E" REVETMENT. SEE SHEET 9 FOR DETAILS.
21	2507-6800061	REVETMENT, CLASS E REVETMENT SHALL BE PLACED AT A THICKNESS OF APPROXIMATELY 2'. SEE THE SITUATION PLAN ON SHEET 9 FOR PLACEMENT LIMITS.
22	2510-6745850	REMOVAL OF PAVEMENT EXISTING PAVEMENT CONSISTS OF HMA ABOVE AN ASPHALT TREATED BASE. SEE SHEET 7 FOR TYPICALS. IN ORDER TO AVOID ANY UNNECESSARY SURFACE BREAKS OR PREMATURE SPALLING, THE CONTRACTOR IS CAUTIONED TO EXERCISE EXTREME CARE WHEN PERFORMING ANY OF THE NECESSARY SAW CUTTING OPERATIONS FOR THE PROPOSED PAVEMENT REMOVAL. SAW CUTS ARE TO BE MADE AT THE STATION INDICATED OR AT THE NEAREST TRANSVERSE PAVEMENT JOINT, AS DIRECTED BY THE ENGINEER.
23	2518-6910000	SAFETY CLOSURE THIS ITEM SHALL INCLUDE PROVIDING, INSTALLING, MAINTAINING AND REMOVING SAFETY CLOSURES ACCORDING TO IDOT STANDARD SPECIFICATIONS AT THE LOCATIONS INDICATED IN THE TABLE ON SHEET 6.
24	2519-3280000	FENCE, FIELD FENCING SHALL BE 4 STRAND BARB. LOCATION OF FENCING IS STATION 1+40 TO 3+15 LEFT OF CENTERLINE AND 3+75 TO 5+50 LEFT OF CENTERLINE.
25	2519-3300400	FIELD FENCE BRACE PANELS BRACE PANELS ARE REQUIRED AT THE BEGINNING AND ENDING OF THE FENCING INSTALLATION.
26	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED SEE TABULATION ON SHEET 6. THE CONTRACTOR SHALL USE A 2 GUN PAINTING SYSTEM
27	2528-8445110	TRAFFIC CONTROL THIS ITEM SHALL INCLUDE FURNISHING, INSTALLING, MAINTAINING AND REMOVING SIGNING AS PER THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AS ADOPTED BY THE DEPARTMENT PER 761 OF THE IOWA ADMINISTRATIVE CODE (IAC) CHAPTER 130 AND STANDARD ROAD PLAN TC-252.
30	2601-2636043	SEEDING AND FERTILIZING (RURAL) SEEDING SHALL MEET THE REQUIREMENTS SET FORTH IN IDOT 2015 STANDARD SPECIFICATIONS AND ANY APPLICABLE SUPPLEMENTAL SPECIFICATIONS. THE CONTRACTOR SHALL VERIFY WITH THE ENGINEER ALL AREAS TO BE SEEDDED PRIOR TO COMMENCING ANY WORK ON THIS ITEM.
31	2602-0000020	SILT FENCE SEE TABULATION ON SHEET 6 FOR LOCATIONS.

WOODBURY COUNTY
ENGINEERS OFFICE

CDR _____ DATE _____
 DRAWN BY: _____
 CDR _____
 DESIGNED BY: _____
 MAIN _____
 APPROVED BY: _____
 DATE _____ REVISION _____

PROJECT DESCRIPTION: BRIDGE REPLACEMENT
 SEC. 12-T89N-R43W RUTLAND TWP.
 SHEET DESCRIPTION: ESTIMATE REFERENCE INFORMATION

PROJECT NO.
 IRS-SWAP-4012601-EF-07

SHEET
4

GENERAL NOTES:

CONTRACTOR SHALL CONFINE WORK TO THE COUNTY R.O.W. AND TEMPORARY EASEMENT UNLESS PERMISSION FROM RESPECTIVE LANDOWNERS IS PROVIDED TO THE COUNTY IN WRITING.

IF THE CONTRACTOR DISTURBS AREAS OUTSIDE THE TEMPORARY EASEMENT STAKED OFF BY THE COUNTY, THEY SHALL BE HELD FINANCIALLY RESPONSIBLE FOR THE RESTORATION (DECOMPACTION, SEEDING, FERTILIZING AND MULCHING) OF SAID PROPERTY TO ITS PREVIOUS STATE. THE COUNTY WILL NOT PAY EXTRA FOR THE ADDITIONAL UNPLANNED WORK CAUSED BY THE CONTRACTOR LEAVING THE COUNTY R.O.W. AND TEMPORARY EASEMENT WITHOUT WRITTEN PERMISSION FROM THE LANDOWNER.

ALL RUBBLE FROM THE REMOVAL OF EXISTING STRUCTURE SHALL BE DISPOSED OF BY THE CONTRACTOR IN COMPLIANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS. RUBBLE SHALL BE REMOVED FROM THE PROJECT SITE.

SOUNDING AND TEST BORING DATA SHOWN ON THE PLANS WERE ACCUMULATED FOR DESIGNING AND ESTIMATING PURPOSES. THEIR APPEARANCE ON THE PLANS DOES NOT CONSTITUTE A GUARANTEE THAT CONDITIONS OTHER THAN THOSE INDICATED WILL NOT BE ENCOUNTERED.

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

CONTRACTOR SHALL PROVIDE THE COUNTY AND 911 OPERATOR WITH THE NAME AND PHONE NUMBER OF THEIR REPRESENTATIVE TO BE CONTACTED DURING WORKING AND NON-WORKING HOURS AS NECESSARY.

271-9
09-27-94

A SCRAPE SAMPLE WAS TAKEN FROM ONE AREA OF THIS BRIDGE TO GET AN INDICATION OF THE EXISTENCE OF THE LEVEL OF TOTAL CHROMIUM AND TOTAL LEAD. ANALYSIS OF TOTAL LEAD ON THIS SAMPLE WAS 120,000 PARTS PER MILLION (PPM). ANALYSIS OF TOTAL CHROMIUM ON THIS SAMPLE WAS 490 PPM. THESE ANALYSES SHOW THE EXISTENCE OF THESE TWO TOXIC CONSTITUENTS. LEVELS INDICATED BY THESE TESTS COULD CREATE CONDITIONS ABOVE REGULATORY LIMITS FOR HEALTH AND SAFETY REQUIREMENTS. NO OTHER CONSTITUENTS WERE ANALYZED. THE BIDDER SHOULD NOT RELY ON THE DEPARTMENT'S TESTING AND ANALYSIS FOR ANY PURPOSE OTHER THAN AS AN INDICATION OF THE EXISTENCE OF THESE TWO TOXIC CONSTITUENTS. AN ASBESTOS INSPECTION WAS CONDUCTED AND THE RESULTS WERE NEGATIVE.

PILE NOTES:

WEST ABUTMENT

THE CONTRACT LENGTH OF 60 FEET FOR THE WEST ABUTMENT PILES IS BASED ON A COHESIVE SOIL CLASSIFICATION, A TOTAL FACTORED AXIAL LOAD PER PILE (PU) OF 80.4 KIPS, AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.65. THE NOMINAL AXIAL BEARING RESISTANCE FOR CONSTRUCTION CONTROL WAS DETERMINED FROM A COHESIVE SOIL CLASSIFICATION AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.76. PILES ARE ASSUMED TO BE DRIVEN FROM A START ELEVATION AT THE BOTTOM OF FOOTING. THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE FOR WEST ABUTMENT PILES IS 53 TONS AT END OF DRIVE. IF RETAPS ARE NECESSARY, THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE IS 62 TONS AT ONE-DAY OR LATER RETAPS. THE PILE CONTRACT LENGTH SHALL BE DRIVEN AS PER PLAN UNLESS PILES REACH REFUSAL. CONSTRUCTION CONTROL REQUIRES A WEAP ANALYSIS WITH BEARING GRAPH.

WEST PIER

THE CONTRACT LENGTH OF 80 FEET FOR THE WEST PIER PILES IS BASED ON A COHESIVE SOIL CLASSIFICATION, A TOTAL FACTORED AXIAL LOAD PER PILE (PU) OF 99.9 KIPS, AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.65. THE NOMINAL AXIAL BEARING RESISTANCE FOR CONSTRUCTION CONTROL WAS DETERMINED FROM A COHESIVE SOIL CLASSIFICATION AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.76. PILES ARE ASSUMED TO BE DRIVEN FROM A START ELEVATION AT THE BOTTOM OF ENCASEMENT. THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE FOR WEST PIER PILES IS 65 TONS AT END OF DRIVE. IF RETAPS ARE NECESSARY, THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE IS 77 TONS AT ONE-DAY OR LATER RETAPS. THE PILE CONTRACT LENGTH SHALL BE DRIVEN AS PER PLAN UNLESS PILES REACH REFUSAL. CONSTRUCTION CONTROL REQUIRES A WEAP ANALYSIS WITH BEARING GRAPH.

EAST PIER

THE CONTRACT LENGTH OF 80 FEET FOR THE EAST PIER PILES IS BASED ON A MIXED SOIL CLASSIFICATION, A TOTAL FACTORED AXIAL LOAD PER PILE (PU) OF 99.9 KIPS, AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.65. THE NOMINAL AXIAL BEARING RESISTANCE FOR CONSTRUCTION CONTROL WAS DETERMINED FROM A COHESIVE SOIL CLASSIFICATION AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.76. PILES ARE ASSUMED TO BE DRIVEN FROM A START ELEVATION AT THE BOTTOM OF ENCASEMENT. THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE FOR EAST PIER PILES IS 65 TONS AT END OF DRIVE. IF RETAPS ARE NECESSARY, THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE IS 77 TONS AT ONE-DAY OR LATER RETAPS. THE PILE CONTRACT LENGTH SHALL BE DRIVEN AS PER PLAN UNLESS PILES REACH REFUSAL. CONSTRUCTION CONTROL REQUIRES A WEAP ANALYSIS WITH BEARING GRAPH.

EAST ABUTMENT

THE CONTRACT LENGTH OF 60 FEET FOR THE EAST ABUTMENT PILES IS BASED ON A MIXED SOIL CLASSIFICATION, A TOTAL FACTORED AXIAL LOAD PER PILE (PU) OF 80.4 KIPS, AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.65. THE NOMINAL AXIAL BEARING RESISTANCE FOR CONSTRUCTION CONTROL WAS DETERMINED FROM A COHESIVE SOIL CLASSIFICATION AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.76. PILES ARE ASSUMED TO BE DRIVEN FROM A START ELEVATION AT THE BOTTOM OF FOOTING. THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE FOR EAST ABUTMENT PILES IS 53 TONS AT END OF DRIVE. IF RETAPS ARE NECESSARY, THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE IS 62 TONS AT ONE-DAY OR LATER RETAPS. THE PILE CONTRACT LENGTH SHALL BE DRIVEN AS PER PLAN UNLESS PILES REACH REFUSAL. CONSTRUCTION CONTROL REQUIRES A WEAP ANALYSIS WITH BEARING GRAPH.

WOODBURY COUNTY
ENGINEERS OFFICE

CDR	DATE
DRAWN BY	REVISION
CDR	
DESIGNED BY	
ALJN	
APPROVED BY	

PROJECT DESCRIPTION: BRIDGE REPLACEMENT
SEC. 12-T89N-R43W RUTLAND TOWNSHIP

SHEET DESCRIPTION: GENERAL NOTES

PROJECT NO.
BRS-SWAP-00121001-PP-07

SHEET
5

STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION
 Possible Standards: BA-200, BA-201, BA-202, BA-205, BA-206, BA-211, BA-225, BA-250, BA-260, LS-625, LS-626, LS-630, LS-635, SI-172, SI-173 and SI-211.

108-BA
10-16-16

- ① Lane(s) to which the obstacle is adjacent.
- ② Not a bid item. Incidental to guardrail installation.

No.	Direction of Traffic O = Outside Median M = Median	Station	Offset Ft.	Layout Lengths				Long-Span System	Delineators and Object Markers ②				Bid Items										Remarks				
				BA-250, BA-280, LS-630, OR LS-635					SI-211	Delineator SI-172	Object Marker SI-173			Bolted End Anchor	Post Adaptor	Steel Beam Guardrail	BA-250 or LS-630				BA-260 or LS-635						
				VT1	VF	VT2	ET				Type	Type 3					End Terminal				Barrier Transition Section	Barrier Transition Section		End Terminal			
												White	OM2-2				OM-3L	OM-3R	BA-202	BA-210					BA-200	BA-201	Tangent
1	W	O	3+08	15.62' LT.	21.88	-	-	38.29	-	-	2	-	3	1	-	A	1	-	-	-	-	-	-	-	-	1	1
2	E	O	3+08	15.62' RT.	21.88	-	-	38.29	-	-	2	-	3	-	1	A	1	-	-	-	-	-	-	-	-	1	1
3	W	O	3+96	15.62' LT.	21.88	-	-	38.29	-	-	2	-	3	1	-	A	1	-	-	-	-	-	-	-	-	1	1
4	E	O	3+96	15.62' RT.	21.88	-	-	38.29	-	-	2	-	3	-	1	A	1	-	-	-	-	-	-	-	-	1	1

BRIDGE APPROACH SECTION
Refer to the BR Series.

112-6
04-18-17

Bridge Station	End	Skew Ahead		T Thickness Inches	Pay Length FT	Approach Pavement			Standard Road Plans BR Series			Subdrains				Modified Subbase TON	Polymer Grid SY	Remarks		
		Degrees	LEFT			RIGHT	Non-Reinf. Pavement Area SY	Single- Reinf. Pavement Area SY	Double- Reinf. Pavement Area SY	Approach	Fixed or Movable Abutment	Abutting Pavement	Perforated Subdrain 4"	Subdrain Outlet					Porous Backfill CY	Class "A" Crushed stone Backfill CY
														LF	STA					
3+12.30	W	0	0	10	60	97.78	71.04		BR-105	F	HMA	31	3+11.88	LT	2			229		
3+82.30	E	0	0	10	60	97.78	71.04		BR-105	F	HMA	31	3+82.72	LT	2			229		
TOTAL						185.56	142.08													

TABULATION OF PAVEMENT MARKINGS

LOCATION	SIDE	LENGTH IN STATIONS				TOTAL
		SOLID WHITE EDGE LINE	YELLOW CENTER LINE BROKEN	YELLOW CENTER LINE SOLID	STOP BAR SOLID WHITE LINE	
STA. 2+52.30 TO 4+52.30	X	2.00				
STA. 2+52.30 TO 4+52.30	X	2.00				
STA. 2+52.30 TO 4+52.30	X		0.50			
TOTALS		4.00	0.50			4.50

REMOVAL OF PAVEMENT

110-1
04-16-13

Begin Station	End Station	Side	Pavement Type	Area SY	Saw Cut* LF	Remarks
2+52.30	3+33.71	RT	HMA	99.50	11	See Cross Section Sheet 7
3+71.82	4+52.30	LT	HMA	98.38	11	See Cross Section Sheet 7
3+71.82	4+52.30	RT	HMA	98.38	11	See Cross Section Sheet 7

TABULATION OF SAFETY CLOSURES

108-13A
09-01-08

Station	Closure Type		Remarks
	Road Quantity	Hazard Quantity	
0+00	1.0		
7+00	1.0		
Totals	2.0		

TABULATION OF SILT FENCES

Refer to EC-201

Location		Side	Length (Lin. Ft.)	Remarks
Station to Station	Side			
1+25	3+25	LT	200.0	
1+50	3+25	RT	175.0	
3+50	5+25	LT	175.0	
3+75	5+25	RT	150.0	
TOTAL			700.0	

SILT FENCES FOR DITCH CHECKS

Refer to EC-201

100-18
10-16-18

Basin No.	Type	Location		BID ITEMS		
		Station	Side	Installation Lin. Ft.	Maintenance Lin. Ft.	Removal Lin. Ft.
		2+75	LT.	12		
		3+00	LT.	12		
		3+95	LT.	12		
		4+20	LT.	12		

WOODBURY COUNTY
ENGINEERS OFFICE

CDR: _____ DATE: _____
 DRAWN BY: _____
 CHECKED BY: _____
 DESIGNED BY: _____
 APPROVED BY: _____
 REVISION: _____

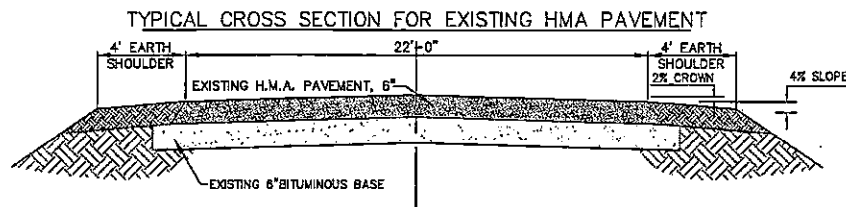
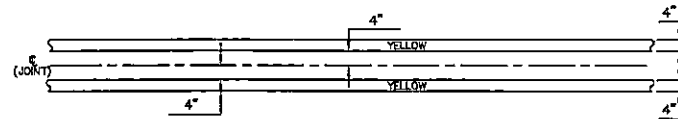
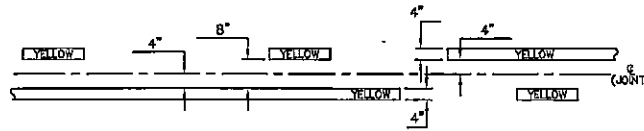
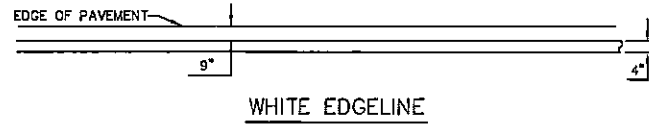
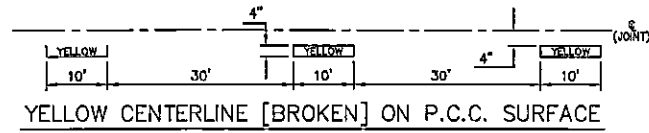
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SEC. 12-T89-R43W RUTLAND TWP.
SHEET DESCRIPTION: TABULATIONS

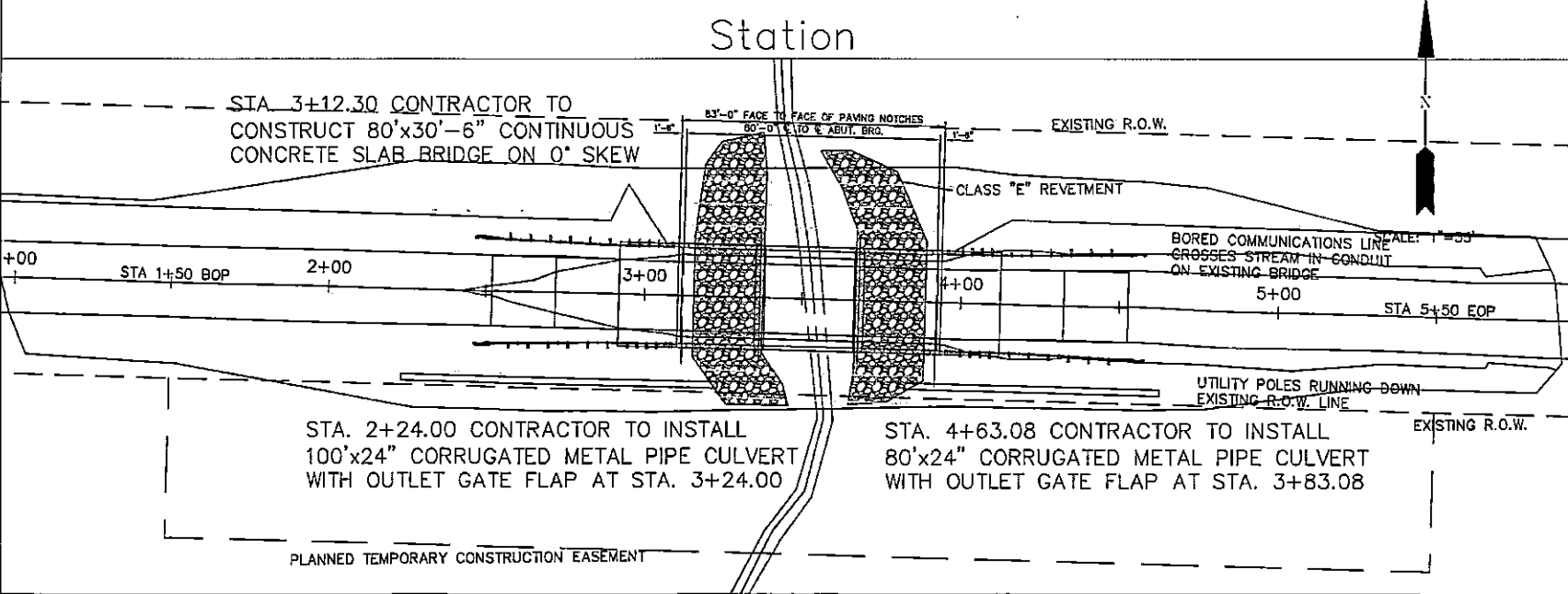
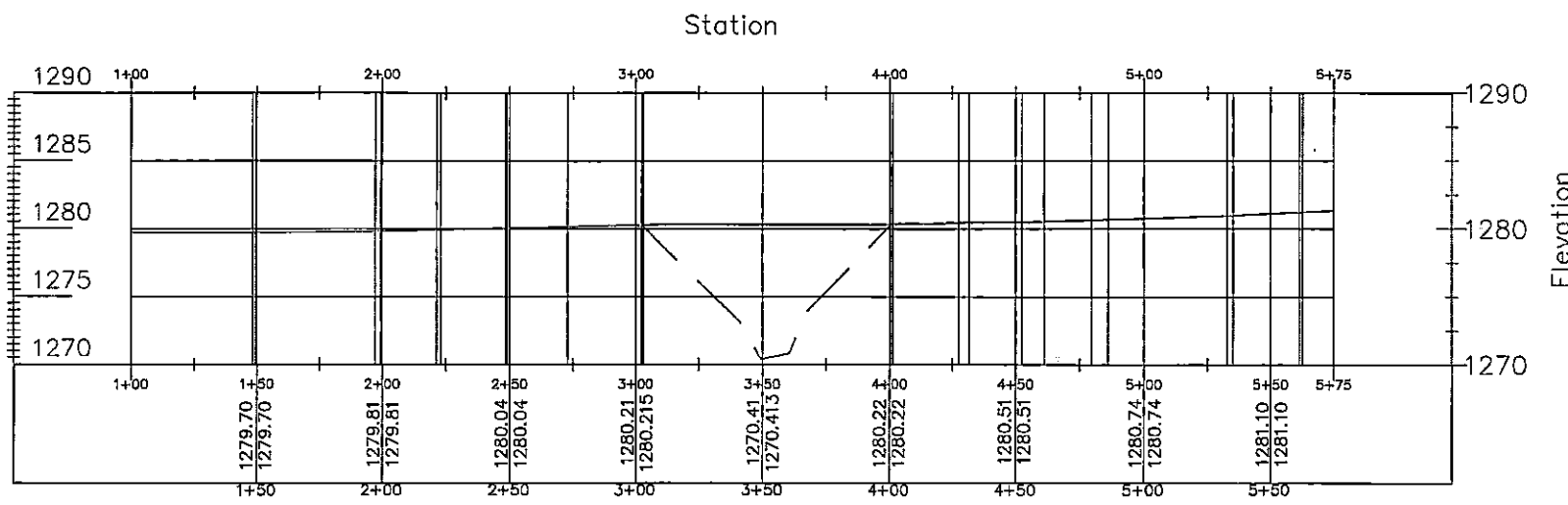
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DRAWN BY:	REVISION
CDR	DATE
DESIGNED BY:	REVISION
IN	DATE
APPROVED BY:	REVISION
	DATE

PROJECT DESCRIPTION: BRIDGE REPLACEMENT
SEC. 12-T89N-R43W RUTLAND TWP.
SHEET DESCRIPTION: TYPICAL SECTION AND DETAILS

PROJECT NO.
BRS-SWAF-00101601-PP-07





Station

Elevation

Station

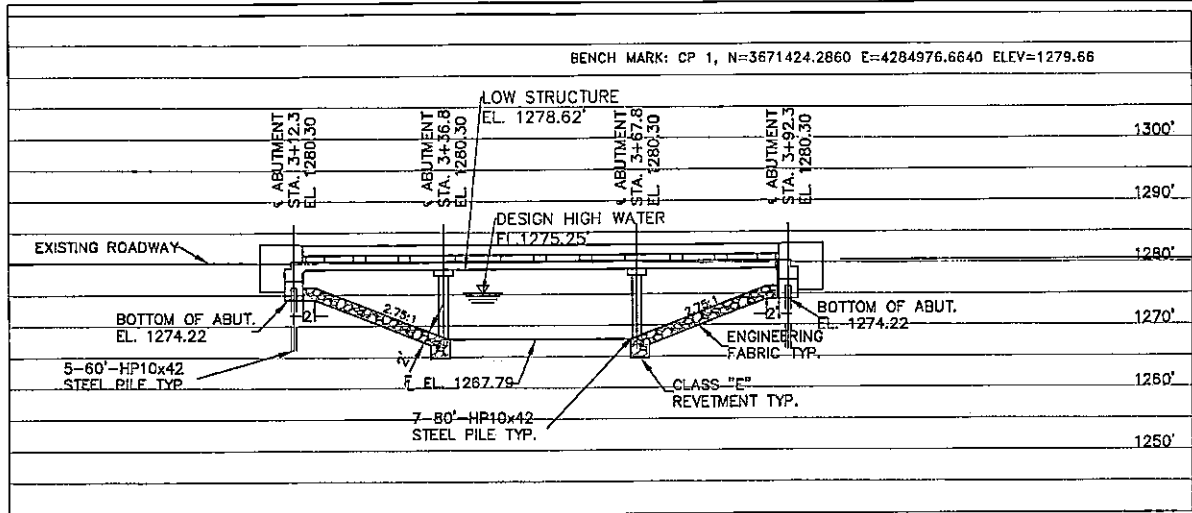
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 CHECKED BY: _____
 MAN. APPROVED BY: _____
 DATE: _____ REVISION: _____ DATE: _____

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 SEC. 12-186N-R43W RUTLAND TWP.
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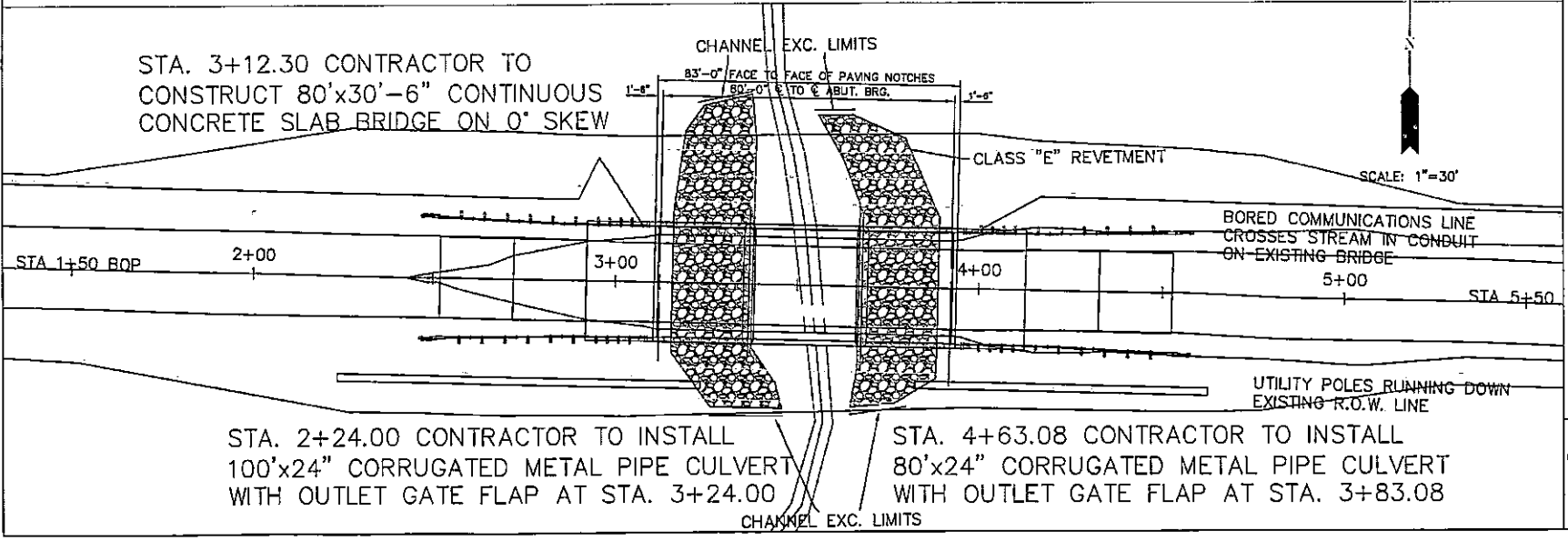
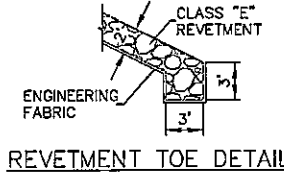
PROJECT NO.
 BR5-SYAP-012(01)-FF-07
 SHEET
 8

WOODBURY COUNTY
 ENGINEERS OFFICE



LOCATION
WOODBURY COUNTY
T89N, R43W, SECTION 12
RUTLAND TOWNSHIP

HYDRAULIC DATA
DRAINAGE AREA = 4.27 SQ. MI.
STREAM SLOPE = 34.9 FT./MI.
Q10 = 1,230 CFS STAGE = 1273.69'
Q25 = 1,860 CFS STAGE = 1275.02'
Q50 = 2,370 CFS STAGE = 1275.25'
Q100 = 2,910 CFS STAGE = 1275.48'



WOODBURY COUNTY
ENGINEERS OFFICE

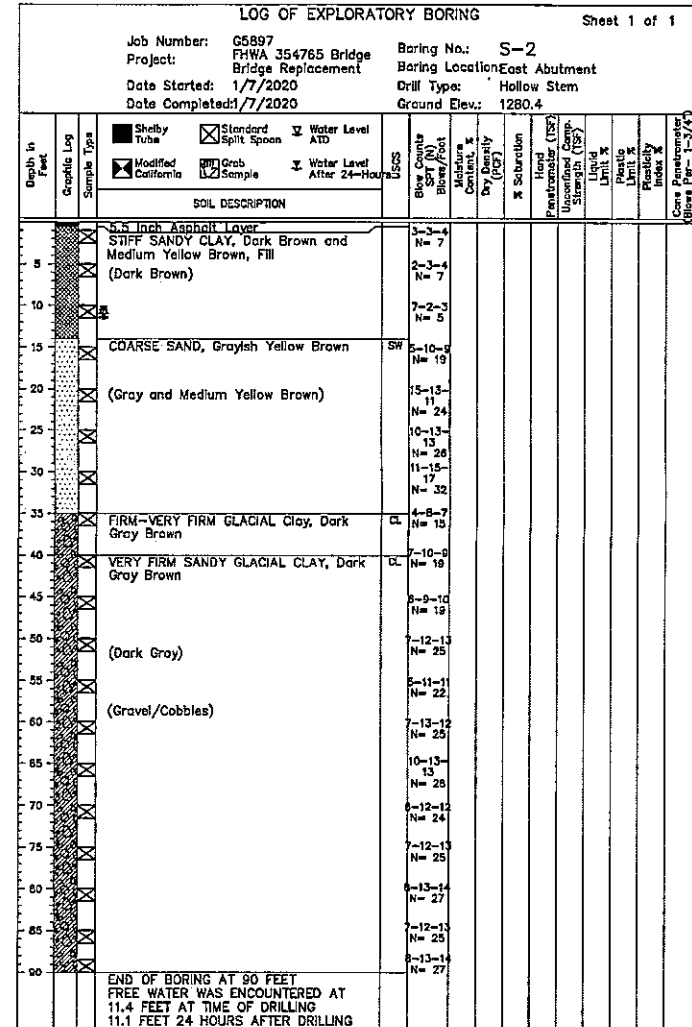
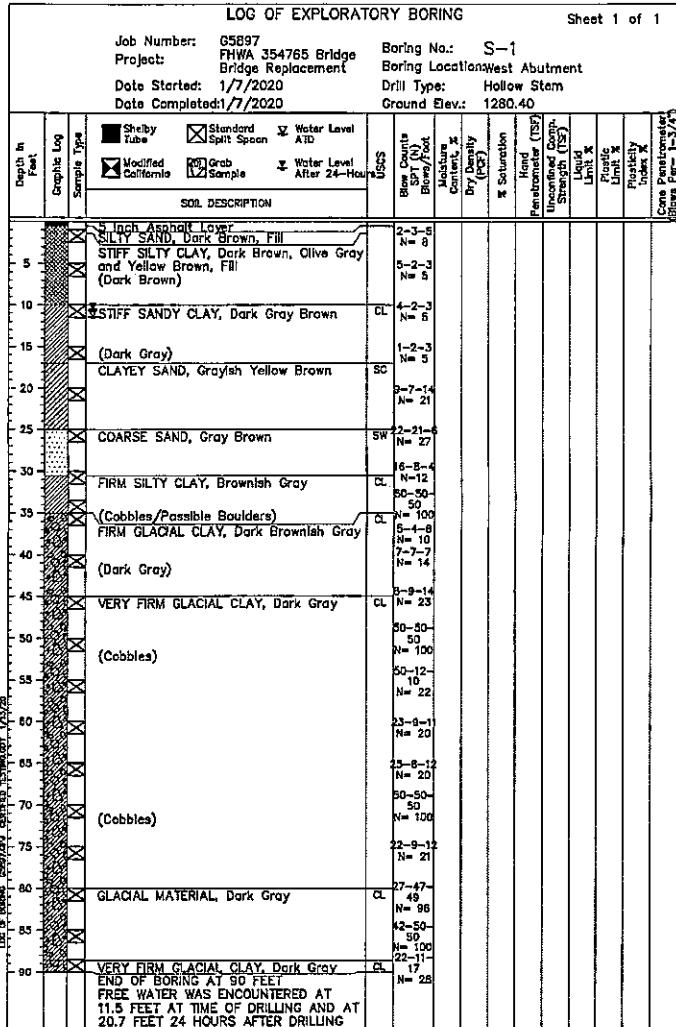
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DESIGNED BY _____
MUN _____
APPROVED BY _____
DATE _____ REVISION _____

PROJECT DESCRIPTION: BRIDGE REPLACEMENT
SEC. 12-T89N-R43W RUTLAND TWP.

SHEET DESCRIPTION: SITUATION PLAN

PROJECT NO.
BRS-SWAP-00126011-F7-07

SHEET
9



WOODBURY COUNTY
ENGINEERS OFFICE

CDR: _____ DATE: _____
 DRAWN BY: _____
 CDR: _____
 M.A.N. APPROVED BY: _____
 DATE: _____

PROJECT DESCRIPTION: BRIDGE REPLACEMENT
SEC. 12-189N-R4-3W RUTLAND TWP.

SHEET DESCRIPTION: SOIL BORING LOGS

PROJECT NO.
BRS-SWAP-0012010-FY-07

SHEET
10

DATE	REVISION

PROJECT DESCRIPTION: BRIDGE REPLACEMENT
SEC. 12-T89N-R43W RUTLAND TWP.

SHEET DESCRIPTION: TOP OF SLAB ELEVATIONS

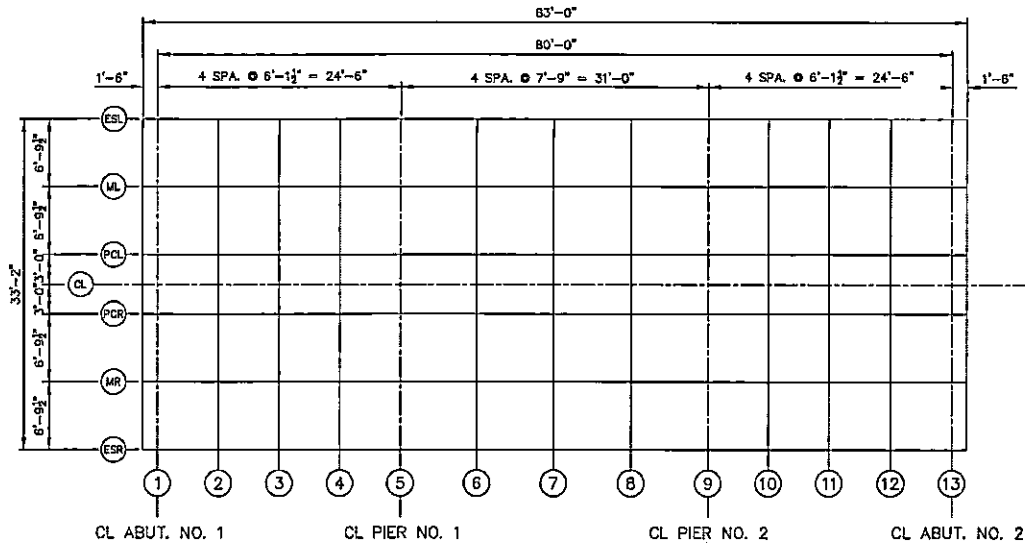
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SHEET

11

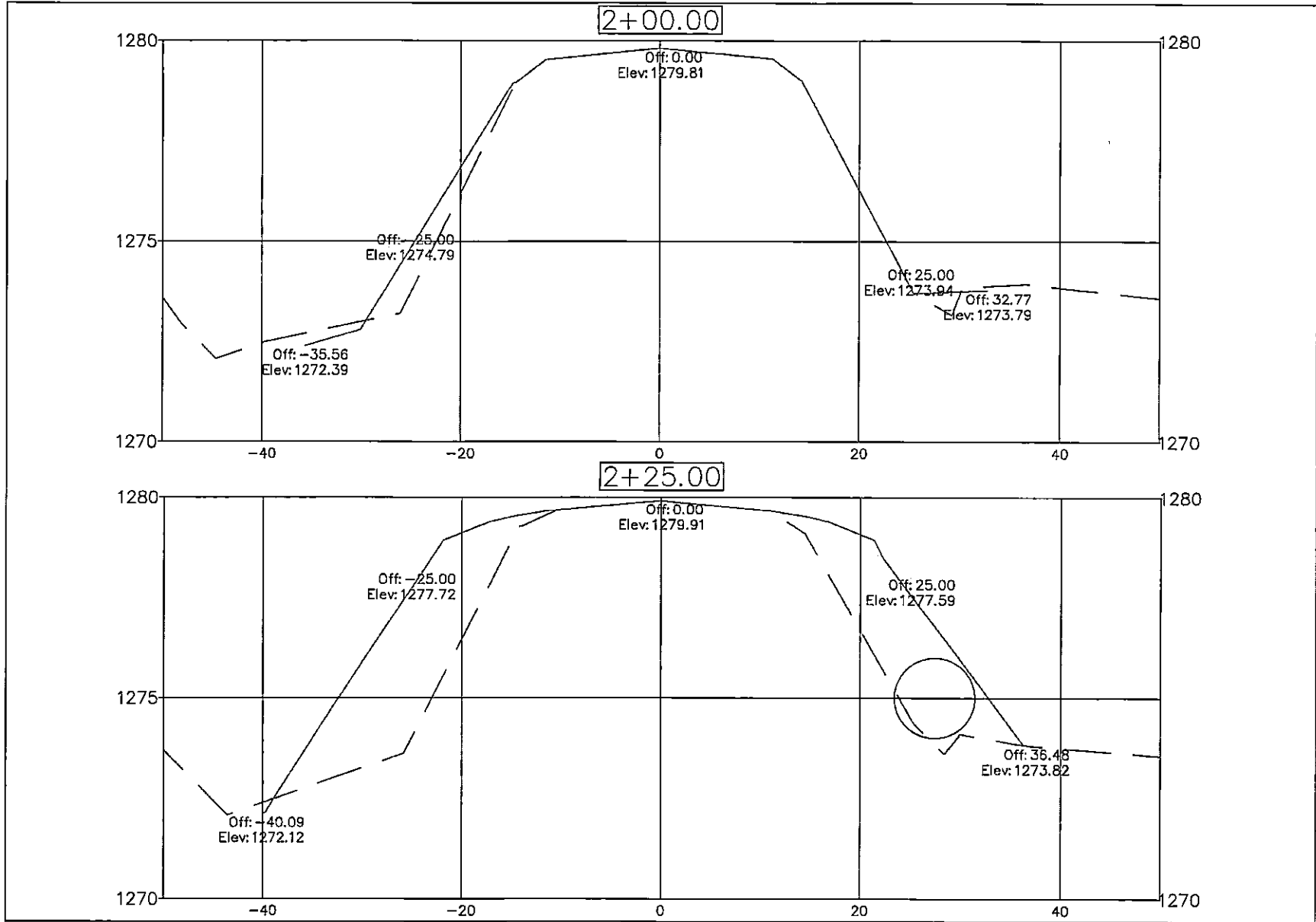
TOP OF SLAB ELEVATIONS

LOCATION	☉ WEST ABUTMENT BEARING					☉ PIER 1					☉ PIER 2					☉ EAST ABUTMENT BEARING
	LINE 1	LINE 2	LINE 3	LINE 4	LINE 5	LINE 6	LINE 7	LINE 8	LINE 9	LINE 10	LINE 11	LINE 12	LINE 13			
ESR (EDGE OF SLAB RIGHT)	1280.00	1280.00	1280.00	1280.00	1280.00	1280.00	1280.00	1280.00	1280.00	1280.00	1280.00	1280.00	1280.00	1280.00		
MR (MIDPOINT RIGHT)	1280.13	1280.13	1280.13	1280.13	1280.13	1280.13	1280.13	1280.13	1280.13	1280.13	1280.13	1280.13	1280.13	1280.13		
PCR (PARABOLIC CROWN RIGHT)	1280.27	1280.27	1280.27	1280.27	1280.27	1280.27	1280.27	1280.27	1280.27	1280.27	1280.27	1280.27	1280.27	1280.27		
☉ (☉ BRIDGE & ROADWAY)	1280.30	1280.30	1280.30	1280.30	1280.30	1280.30	1280.30	1280.30	1280.30	1280.30	1280.30	1280.30	1280.30	1280.30		
PCL (PARABOLIC CROWN LEFT)	1280.27	1280.27	1280.27	1280.27	1280.27	1280.27	1280.27	1280.27	1280.27	1280.27	1280.27	1280.27	1280.27	1280.27		
ML (MIDPOINT LEFT)	1280.13	1280.13	1280.13	1280.13	1280.13	1280.13	1280.13	1280.13	1280.13	1280.13	1280.13	1280.13	1280.13	1280.13		
ESL (EDGE OF SLAB LEFT)	1280.00	1280.00	1280.00	1280.00	1280.00	1280.00	1280.00	1280.00	1280.00	1280.00	1280.00	1280.00	1280.00	1280.00		



LOCATIONS FOR TOP OF SLAB ELEVATIONS
NO SCALE

NOTE:
Slab elevations do not include form
camber required for slab replacement.
See IDOT Bridge Standard J30-05E-06
for details



WOODBURY COUNTY ENGINEERS OFFICE

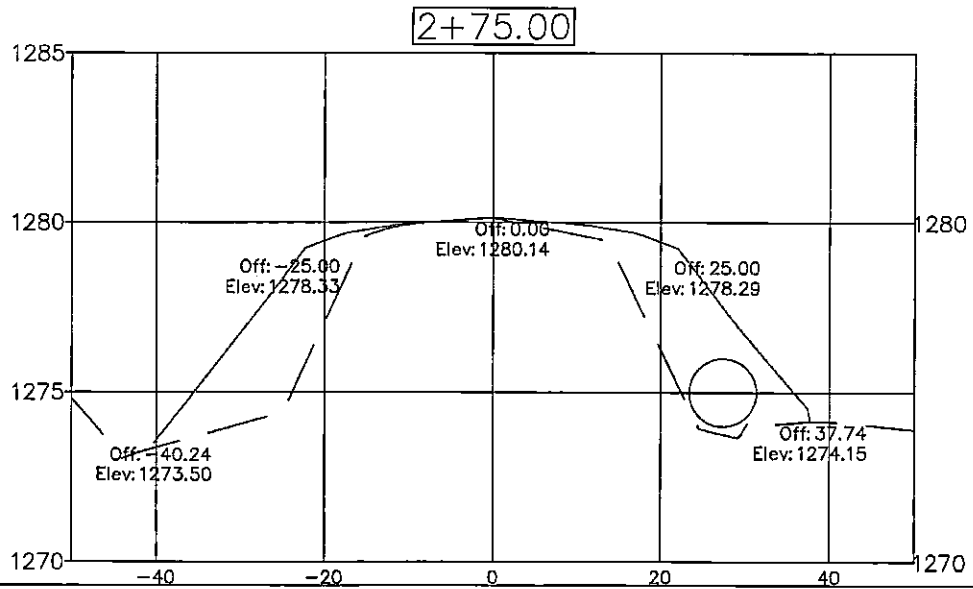
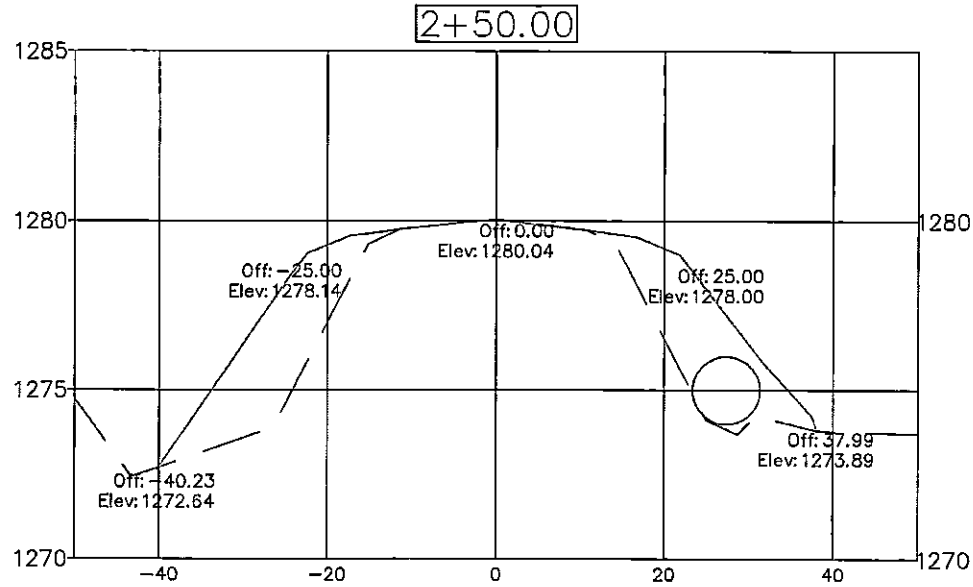
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DRAWN BY:	REVISION
CDR	DATE
DESIGNED BY:	REVISION
MJN	DATE
APPROVED BY:	REVISION
	DATE

PROJECT DESCRIPTION: BRIDGE REPLACEMENT SEC. 12-189N-R43W RUTLAND TWP.

SHEET DESCRIPTION: ROADWAY CROSS-SECTIONS

PROJECT NO.
BRS-SWAP-RD12(601)-FF-07

SHEET
12



**WOODBURY COUNTY
ENGINEERS OFFICE**

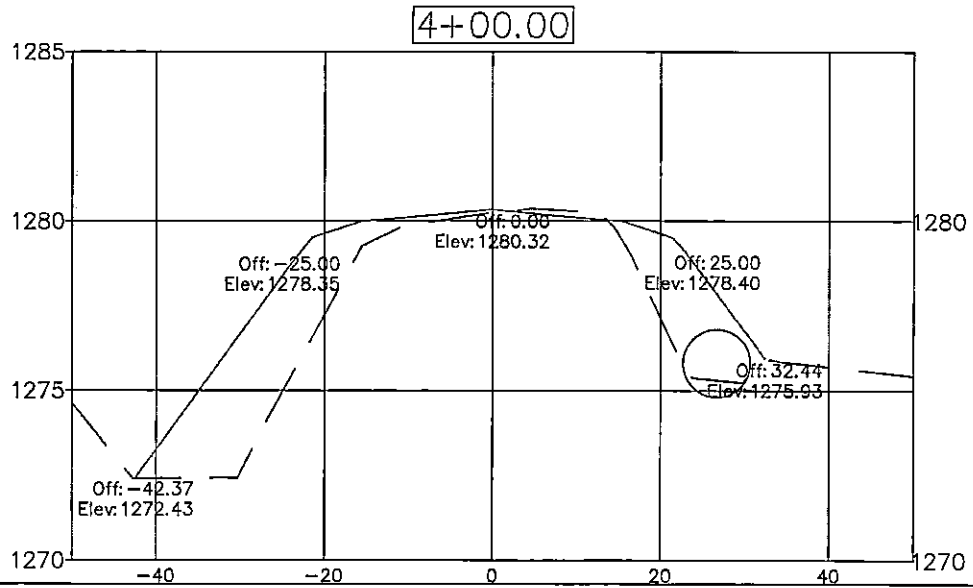
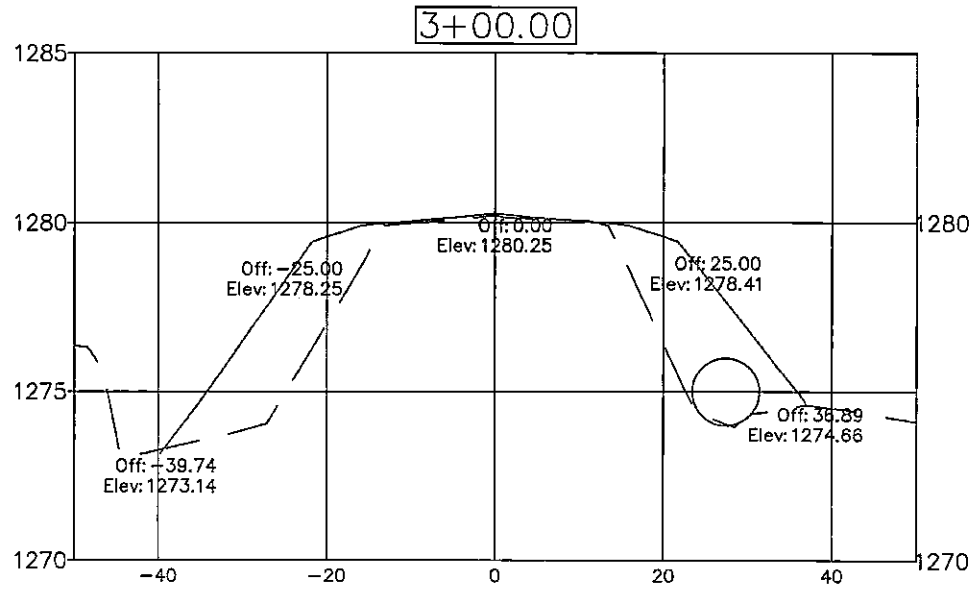
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CDR					

PROJECT DESCRIPTION: BRIDGE REPLACEMENT
SEC. 12-T89N-R43W RUTLAND TWP.

SHEET DESCRIPTION: ROADWAY CROSS-SECTIONS

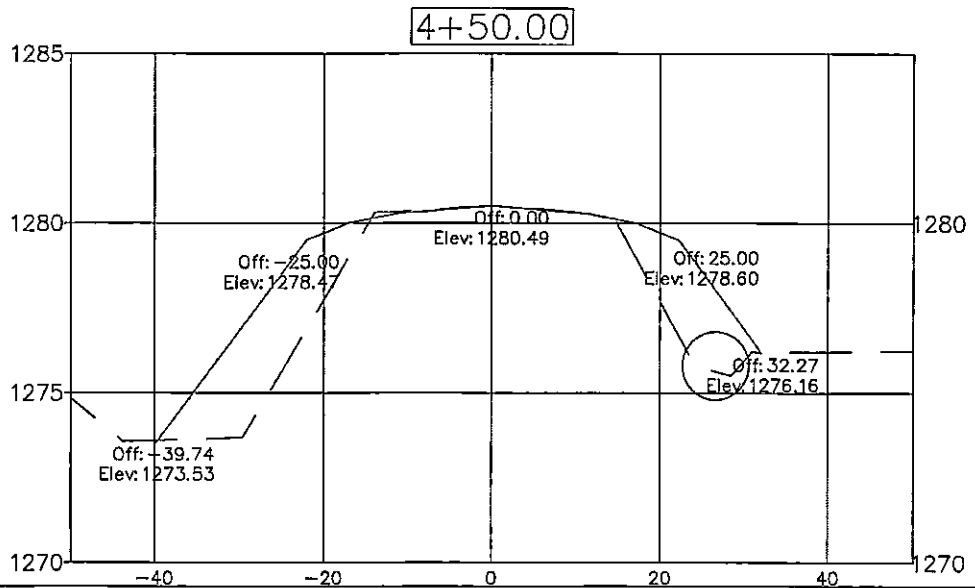
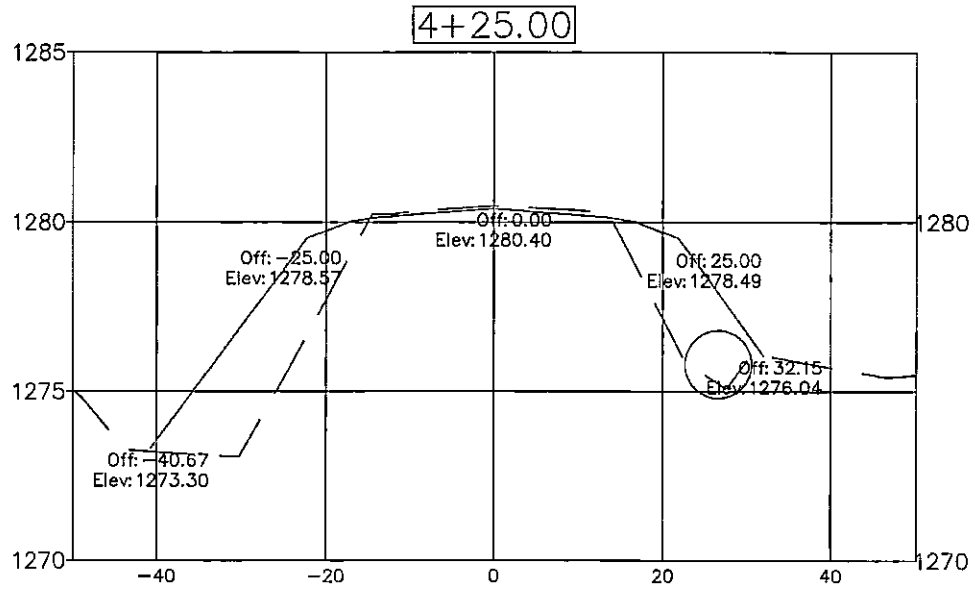
PROJECT NO.
BR3-SVAP-6912(00)-FF-07

SHEET
13



**WOODBURY COUNTY
ENGINEERS OFFICE**

CDR DRAWN BY: _____ CDR DESIGNED BY: _____ M/JN APPROVED BY: _____ DATE: _____	REVISION: _____ DATE: _____
PROJECT DESCRIPTION: BRIDGE REPLACEMENT SEC. 12-T89N-R43W RUTLAND TWP. SHEET DESCRIPTION: ROADWAY CROSS-SECTIONS	
PROJECT NO. BRS-SWAP-0012(001)-FF-07 SHEET 14	



**WOODBURY COUNTY
ENGINEERS OFFICE**

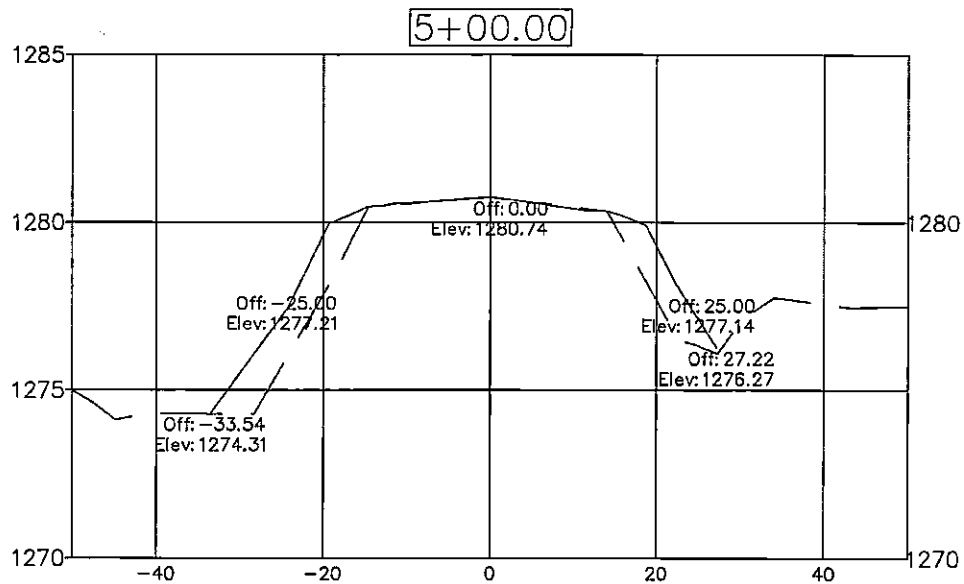
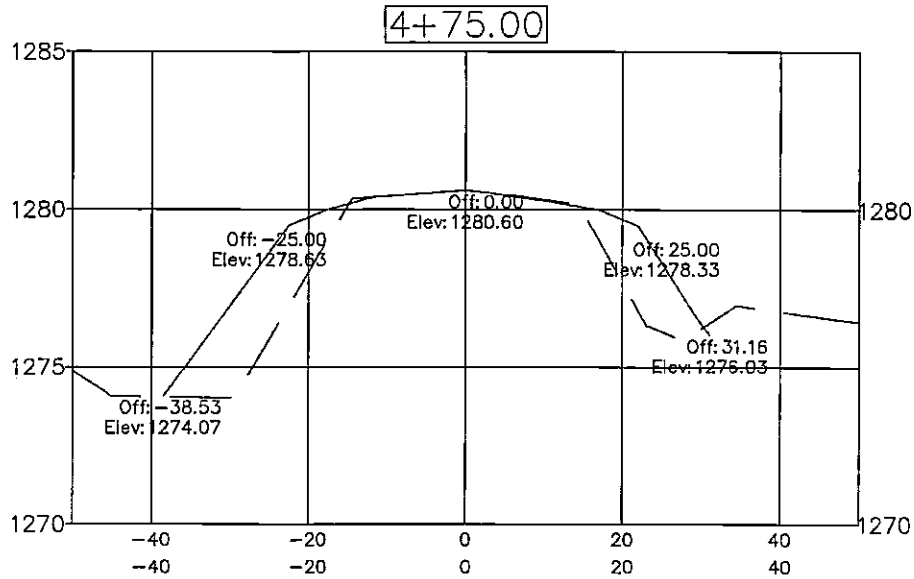
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APPROVED BY:	DATE:

**PROJECT DESCRIPTION: BRIDGE REPLACEMENT
SEC. 12-T88N-R43W RUTLAND TWP.**

SHEET DESCRIPTION: ROADWAY CROSS-SECTIONS

**PROJECT NO.
#13-0114P-012(01)-FF-07**

**SHEET
15**



**WOODBURY COUNTY
ENGINEERS OFFICE**

CDR DRAWN BY: _____ CDR DESIGNED BY: _____ M/JN APPROVED BY: _____ DATE: _____	REVISION: _____ DATE: _____
PROJECT DESCRIPTION: BRIDGE REPLACEMENT SEC. 12-T88N-R43W RUTLAND TWP. SHEET DESCRIPTION: ROADWAY CROSS-SECTIONS	
PROJECT NO. BRS-SVAP-001(00)-FF-07 SHEET 16	