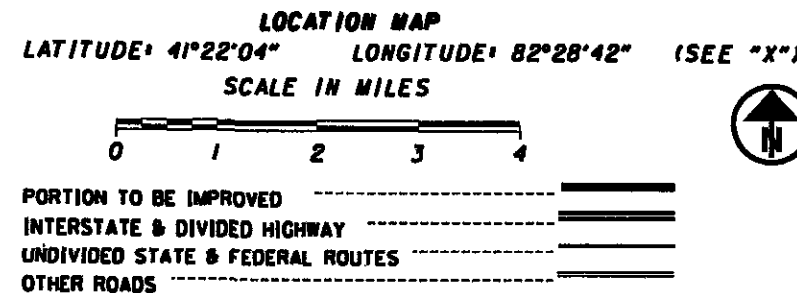
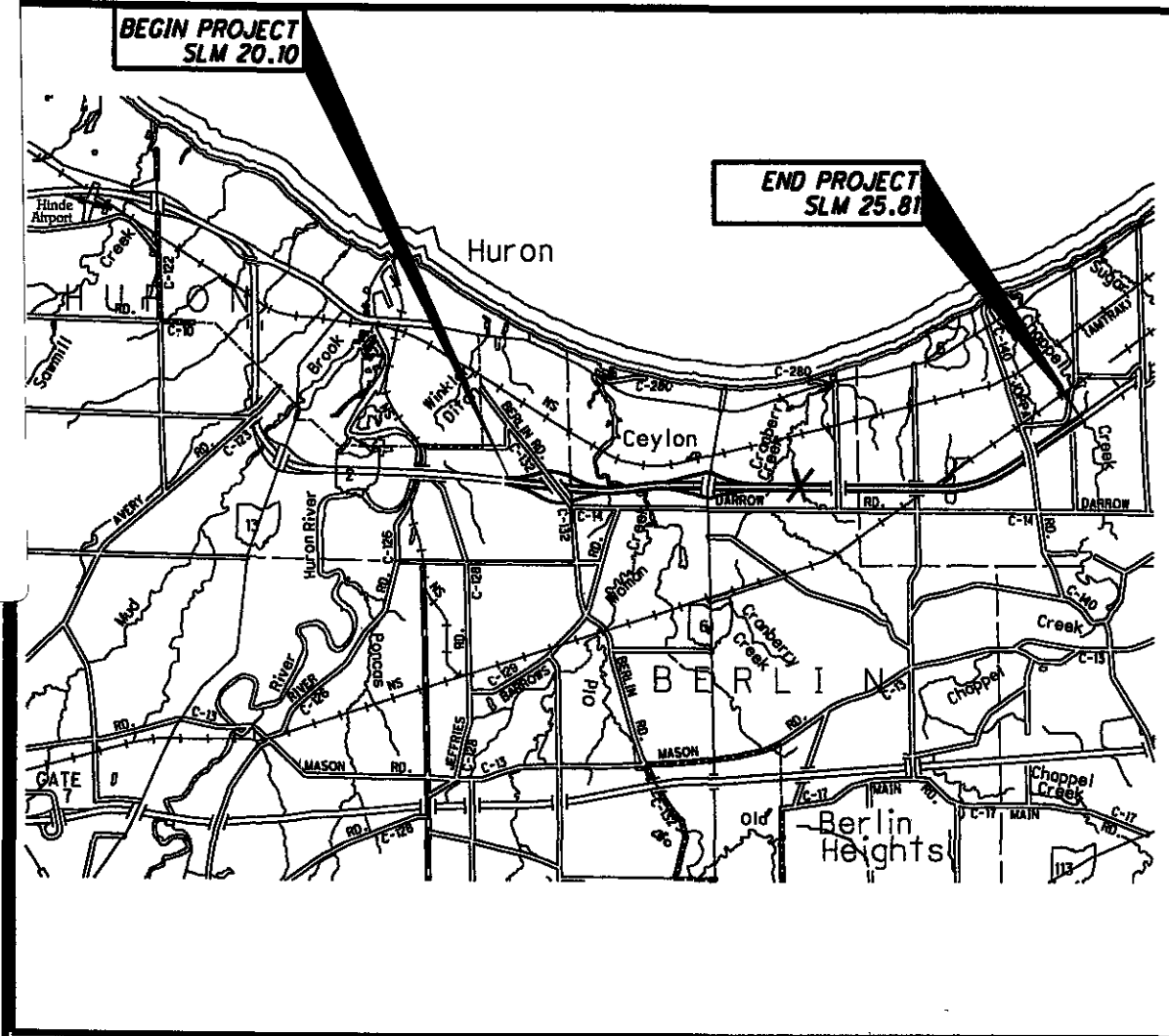


ERI-2-20.10
078009 Pid 78483
Dist 03 6/1/2007



STATE OF OHIO DEPARTMENT OF TRANSPORTATION

ERI-2-20.10

TOWNSHIPS OF HURON, BERLIN, VERMILION

INDEX OF SHEETS:	
TITLE SHEET	1
PROJECT PLAN VIEW	2
TYPICAL SECTION	3-4
MAINTENANCE OF TRAFFIC	5-8
GENERAL NOTES	9-12
DROP-OFFS IN WORK ZONES	14
GENERAL SUMMARY	15-16
PAVEMENT & SHOULDER DATA	17
GUARDRAIL SUB-SUMMARY	18-19
GUARDRAIL GENERAL NOTES	20
PAVEMENT MARKING SUB-SUMMARY	21-22
STRUCTURE GENERAL NOTES	23-25
STRUCTURE SUMMARY	26-28
BRIDGE TREATMENT	29
BRIDGE DETAILS	30-43
NOT USED	13

PROJECT DESCRIPTION
THIS PROJECT WILL INCLUDE PAVEMENT REPAIR,
RESURFACING 5.71 MILES WITH ASPHALT CONCRETE,
ADJUSTMENT OF CASTINGS WHERE NECESSARY,
DRAINAGE REPLACEMENT, GUARDRAIL, PAVEMENT
MARKINGS, AND MINOR STRUCTURE REHABILITATION.

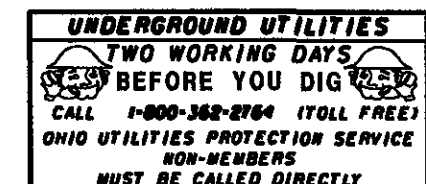
PROJECT EARTH DISTURBED AREA: N/A - MAINTENANCE ACTIVITIES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: N/A - MAINTENANCE ACTIVITIES
NOTICE OF INTENT EARTH DISTURBED AREA: N/A - MAINTENANCE ACTIVITIES

2005 SPECIFICATIONS
THE STANDARD SPECIFICATIONS OF THE STATE OF
OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING
CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED
IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

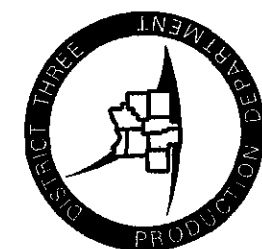
I HEREBY APPROVE THESE PLANS AND DECLARE THAT
THE MAKING OF THESE IMPROVEMENTS WILL NOT
REQUIRE THE CLOSING OF THE HIGHWAY AND
PROVISIONS FOR THE MAINTENANCE AND SAFETY OF
TRAFFIC WILL BE AS INDICATED IN THE PLAN AND
PROPOSAL.

APPROVED: *Kenneth Wright*
DATED: 2/3/07 DISTRICT DEPUTY DIRECTOR

APPROVED: *James J. Brashers*
DATE: 4-30-07 DIRECTOR, DEPARTMENT OF
TRANSPORTATION



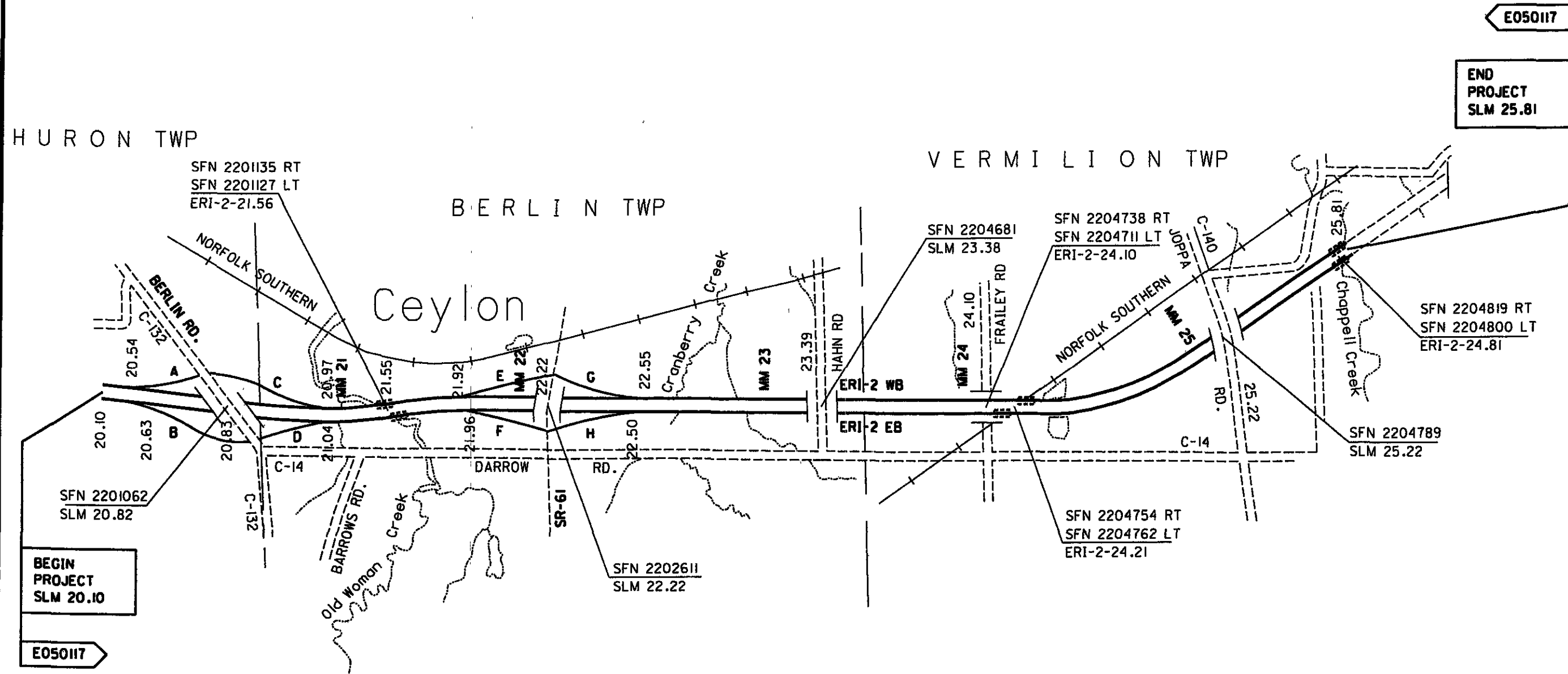
PLAN PREPARED BY:



ROADWAY ENGINEERS SEAL	STRUCTURE/CULVERT ENGINEERS SEAL	STANDARD CONSTRUCTION DRAWINGS								SUPPLEMENTAL SPECIFICATIONS	
		BP-2.1	7-16-04	GR-1.1	7-16-04	MT-35.10	4-20-01	TC-41.20	1-19-01	800	4-20-07
		BP-2.2	7-16-04	GR-2.1	1-16-04	MT-95.30	9-5-06	TC-41.40	7-16-04	832	4-25-06
		BP-2.5	7-28-00	GR-3.1	1-19-07	MT-97.10	9-05-06	TC-42.20	7-16-04		
		BP-2.6	7-15-05	GR-3.2	1-19-07	MT-97.12	9-05-06	TC-72.20	1-21-05		
		BP-3.1	7-16-04	GR-3.4	1-20-06	MT-98.12	4-19-02	TC-65.10	1-21-05		
		BP-4.1	7-16-04	GR-4.2	1-19-07	MT-98.13	4-19-02	TC-65.11	1-21-05		
		BP-6.1	7-28-00	GR-5.1	4-18-03	MT-98.14	4-19-02	TC-71.10	1-19-07		
		BP-9.1	4-15-05	GR-5.2	1-16-04	MT-98.15	7-16-04	TC-73.10	1-19-01		
				GR-5.3	1-16-04	MT-98.16	4-19-02	TC-82.10	4-19-02		
		CB-1.1	7-15-05	GR-6.1	4-18-03	MT-98.17	10-18-02				
				GR-6.2	4-18-03	MT-98.18	10-18-02				
		DM-1.1	4-21-06			MT-99.20m	1-30-95				
		DM-1.4	4-21-06	RM-1.1	4-21-06	MT-105.10	10-18-02				
		DM-4.3	7-19-02	RM-4.4	1-19-07	MT-105.11	10-18-02				
		DM-4.4	7-19-02	RM-4.5	1-19-07						
					</						

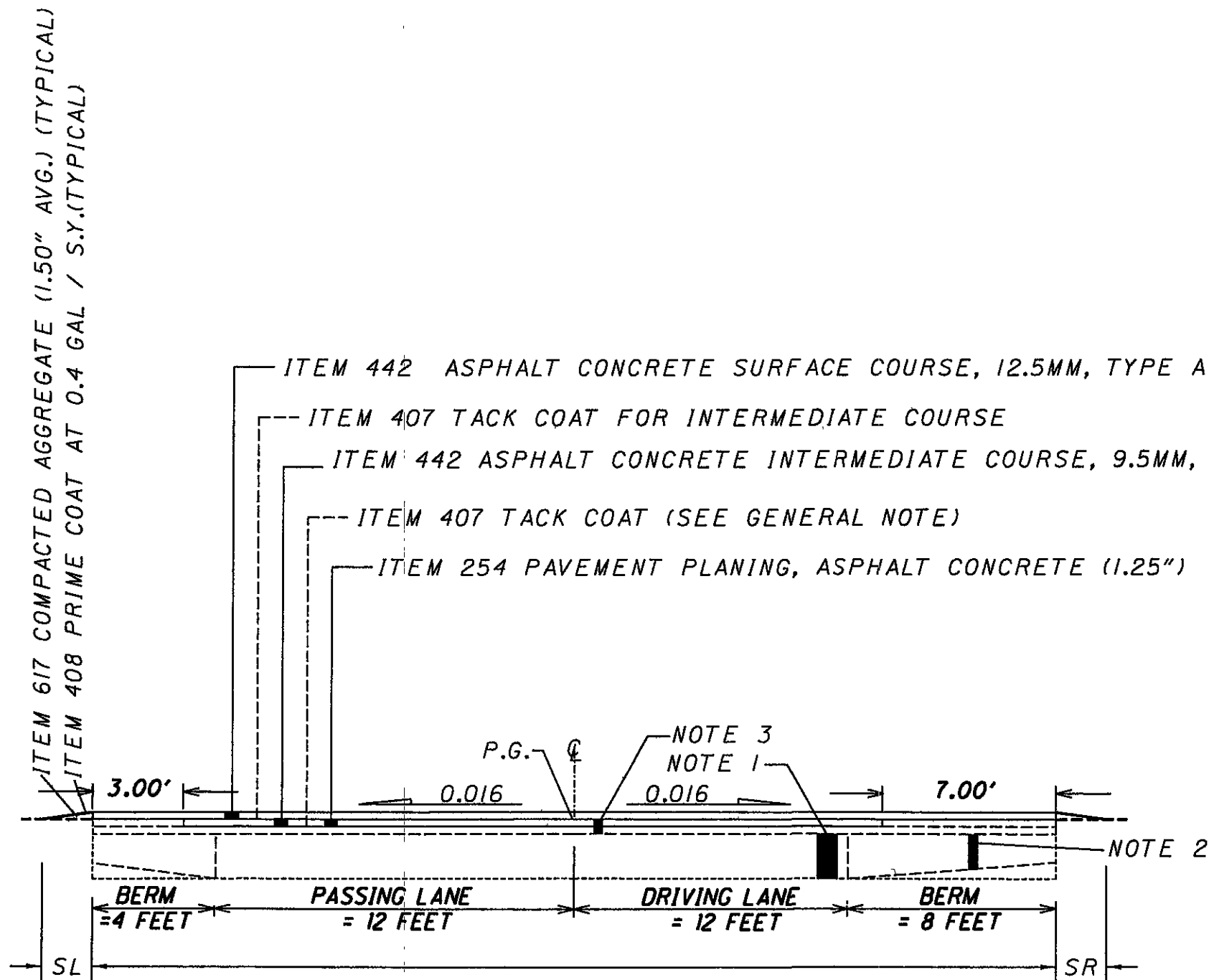
DESIGN FILE: projects\78483\78483.dgn
WORKSTATION: sjuzwik
DATE: 2/28/2007

FEDERAL PROJECT NO. E050 (117)
PID NO. 78483
CONSTRUCTION PROJECT NO. NONE
RAILROAD INVOLVEMENT NONE
ERI-2-20.10
43



DESIGN DESIGNATION	20.10-22.22	22.22-25.81
CURRENT ADT (2007)	27890	26270
DESIGN YEAR ADT (2019)	38410	35990
DESIGN HOURLY VOLUME (2019)	3840	3420
DIRECTIONAL DISTRIBUTION	53%	51%
TRUCKS (24 HOUR B&C)	25%	22%

DESIGN SPEED/LEGAL SPEED	
EB SPEED LIMIT IN MPH	65
WB SPEED LIMIT IN MPH	65
DESIGN FUNCTIONAL CLASSIFICATION:	
RURAL PRINCIPAL ARTERIAL	
NHS PROJECT	YES



NOTE:
 1. 8" CONCRETE
 2. 6"-8" CONCRETE, TYP.
 3. 3.25" ASPHALT CONCRETE

DESIGN FILE: \\projects\78483\Struct\strnotes.dgn
WORKSTATION: sjuzwik DATE: 2/28/2007

REFERENCES SHALL BE MADE TO STANDARD DRAWINGS:

BP-3.1	DATED	7/16/04	MT-98.15	DATED	7/16/04
BR-1	DATED	7/19/02	MT-98.16	DATED	4/19/02
EXJ-4-87	DATED	7/19/02	MT-105.10	DATED	10/18/02
MT-35.10	DATED	4/20/01	MT-105.11	DATED	10/18/02
MT-95.30	DATED	9/5/06	VFP-1-90	DATED	7/19/02
MT-97.10	DATED	9/5/06			

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2002, INCLUDING THE 2003, 2004, AND 2005 SPECIFICATIONS AND THE ODOT BRIDGE DESIGN MANUAL.

EXISTING STRUCTURE VERIFICATION:

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURES HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURES AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURES AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05 AND 105.02.

BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PRE BID EXAMINATION OF THE EXISTING STRUCTURES. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED IN THE FIELD.

EXISTING PLANS:

THE ORIGINAL CONSTRUCTION PLANS OF THE EXISTING BRIDGES ARE AVAILABLE UPON REQUEST AT THE DISTRICT 3 OFFICE OF THE OHIO DEPARTMENT OF TRANSPORTATION, ASHLAND, OH.

DESIGN DATA:

CONCRETE CLASS FS - COMPRESSIVE STRENGTH 4,500 PSI
CONCRETE CLASS S - COMPRESSIVE STRENGTH 4,500 PSI

REMOVAL OF ODNR SCIENTIFIC RESEARCH EQUIPMENT ON STRUCTURE ERI-2-2156:

THE CONTRACTOR SHALL CONTACT THE OHIO DEPARTMENT OF NATURAL RESOURCES, DR. DAVID KLARER, TELEPHONE NO. (419) 433-4601, 30 DAYS PRIOR TO ANY WORK ON STRUCTURE ERI-2-2156R TO COORDINATE REMOVAL AND SUBSEQUENT RE-ATTACHMENT OF THEIR RESEARCH EQUIPMENT CURRENTLY ATTACHED TO THE RIGHT PARAPET.

THE RESEARCH EQUIPMENT REMOVAL AND RE-ATTACHMENT WILL BE COMPLETED BY ODNR.

PLACING ASPHALT CONCRETE FEATHERING ON APPROACHES TO BRIDGES:

SPECIAL CARE SHALL BE TAKEN, WHEN PLACING THE ASPHALT CONCRETE FEATHERING TO EFFECT A SMOOTH TRANSITION FROM THE EXISTING APPROACH PAVEMENT TO THE BRIDGE DECK OR APPROACH SLAB. THE CONTRACTOR'S ATTENTION IS CALLED TO STANDARD DRAWING BP-3.1 FOR REQUIRED TOLERANCES. SPECIFICALLY, THE CONTRACTOR SHALL PROVIDE A 600:1 TAPER RATE FOR PLANING OPERATIONS.

CUT LINE CONSTRUCTION JOINT PREPARATION:

SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1 INCH DEEP. REMOVE CONCRETE TO A ROUGH SURFACE. LEAVE THE EXISTING REINFORCING STEEL IN PLACE. PRIOR TO CONCRETE PLACEMENT ABRASIVELY CLEAN JOINT SURFACES AND EXISTING EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THOROUGHLY CLEAN THE JOINT SURFACE AND EXPOSED REINFORCEMENT OF ALL DIRT, DUST, RUST OR OTHER FOREIGN MATERIAL BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHODS THAT PRODUCE SATISFACTORY RESULTS. EXISTING REINFORCING STEEL DOES NOT HAVE TO HAVE A BRIGHT STEEL FINISH, BUT REMOVE ALL PACK AND LOOSE RUST. THOROUGHLY DRENCH EXISTING CONCRETE SURFACES WITH CLEAN WATER AND ALLOW TO DRY TO A DAMP CONDITION BEFORE PLACING CONCRETE.

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN:

THIS ITEM SHALL BE USED AT LOCATIONS IN THE PLAN.

THIS ITEM SHALL INCLUDE THE REMOVAL OF A PORTION OF THE PARAPET AS INDICATED IN THE PLANS.

THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE-RAMS WILL NOT BE PERMITTED. THE METHOD OF REMOVAL AND THE WEIGHT OF THE HAMMER SHALL BE APPROVED BY THE ENGINEER.

THE EXISTING REINFORCING STEEL SHALL BE PRESERVED AS INDICATED IN THE PLANS. EXISTING PARAPET CONCRETE SHALL BE REMOVED IN A MANNER THAT WILL NOT CUT, ELONGATE, OR DAMAGE THE EXISTING REINFORCING STEEL TO BE PRESERVED. CHIPPING HAMMERS NO HEAVIER THAN 90 POUND CLASS.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER CUBIC YARD FOR ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN WHICH WILL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

STRUCTURE GENERAL NOTES

ERI-2-20.10

DISTRICT 3
OFFICE OF PRODUCTION

DATE
01/07
RDN
GTS
GTS
DIV

23
43

**ITEM 511 - CLASS S CONCRETE SUPERSTRUCTURE,
AS PER PLAN (PARAPET RECONSTRUCTION):**

THIS ITEM SHALL BE USED AT LOCATIONS INDICATED IN THE PLAN.

THE COARSE AGGREGATE SHALL BE LIMESTONE.

ALL EXISTING SURFACES TO WHICH THE CONCRETE IS TO BOND SHALL BE CLEANED BY ABRASIVE BLASTING. THESE SURFACES SHALL BE MADE FREE OF SPALLS, LAITANCE, AND OTHER CONTAMINANTS DETRIMENTAL TO ACHIEVING AN ADEQUATE BOND.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER CUBIC YARD FOR ITEM 511- CLASS S CONCRETE, SUPERSTRUCTURE, AS PER PLAN WHICH WILL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

**ITEM 512 - TREATING CONCRETE BRIDGE DECK WITH
GRAVITY FED RESIN:**

THIS WORK SHALL CONSIST OF PREPARING AND TREATING THE CONCRETE BRIDGE DECK CRACKS AND SEALING EDGES OF CONCRETE PATCHES WITH A GRAVITY FED CRACK WELDING SYSTEM IN ACCORDANCE WITH THESE SPECIFICATIONS IN REASONABLY CLOSE CONFORMITY WITH THE PLANS AND THE MANUFACTURER'S RECOMMENDATIONS AND AS DIRECTED BY THE ENGINEER.

SEAL THE DECK CRACKS AND CONSTRUCTION JOINTS AROUND THE CONCRETE PATCHES 4" WIDE, 2" ON EACH SIDE OF CRACK. THE QUANTITY SHALL BE THE AREA IN SQUARE YARDS OF THE EXPOSED SURFACE, IRRESPECTIVE OF THE DEPTH OF THE JOINT, COMPLETE, IN PLACE AND ACCEPTED.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER SQUARE YARD FOR ITEM 512- TREATING CONCRETE BRIDGE DECK WITH GRAVITY FED RESIN, WHICH WILL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM SPECIAL - PATCHING CONCRETE BRIDGE DECK:

THIS ITEM SHALL CONSIST OF FURNISHING THE NECESSARY LABOR, MATERIALS AND EQUIPMENT TO REPAIR THE EXISTING CONCRETE BRIDGE DECKS INCLUDING THE REMOVAL OF LOOSE AND UNSOUND CONCRETE, BITUMINOUS PATCHES, SURFACE PREPARATION, SAW CUTTING, AND THE STRENGTH TESTING OF ALL THE PATCHES AS DIRECTED BY THE ENGINEER.

A. REMOVAL OF UNSOUND CONCRETE

THE ENGINEER SHALL VISUALLY INSPECT THE EXISTING CONCRETE DECK AND OUTLINE THE AREAS TO BE REMOVED.

THE PERIMETER OF THE REMOVAL AREAS SHALL BE SAWEED TO A DEPTH OF 3/4 INCH TO PRODUCE A VERTICAL OR SLIGHTLY UNDERCUT FACE. AT EACH CORNER OF THE PATCH THE SAW CUTS SHALL COME TOGETHER WITHOUT ANY OVERCUTTING WITH THE SAW. THE CORNERS SHALL BE CHIPPED DOWN TO THE SAW MARKS. ADDITIONAL SAW CUTS MAY BE REQUIRED TO FACILITATE REMOVAL WITHOUT ANY OVERCUTTING. COOLING WATER FROM WET SAWING AND DUST FROM SAWING SHALL BE IMMEDIATELY REMOVED FROM THE EXPOSED PATCH HOLES BEFORE ANY DRYING CAN OCCUR.

UN SOUND CONCRETE INCLUDING ALL PATCHES OTHER THAN SOUND PORTLAND CEMENT CONCRETE, AND ALL OBVIOUSLY LOOSE AND DISINTEGRATED CONCRETE SHALL BE REMOVED. THE UNSOUND CONCRETE MAY BE REMOVED BY CHIPPING OR HAND DRESSING. CHIPPING HAMMERS SHALL NOT BE HEAVIER THAN THE NORMAL 35 POUND CLASS AND SHALL BE OPERATED AT AN ANGLE LESS THAN 45 DEGREES MEASURED FROM THE SURFACE OF THE DECK. CONCRETE SHALL BE REMOVED IN A MANNER THAT PREVENTS CUTTING, ELONGATING OR DAMAGING REINFORCING STEEL. WHERE THE BOND BETWEEN THE CONCRETE AND A REINFORCING BAR HAS BEEN DESTROYED, OR WHERE MORE THAN ONE HALF OF THE PERIPHERY OF SUCH A BAR HAS BEEN EXPOSED, THE ADJACENT CONCRETE SHALL BE REMOVED TO A DEPTH THAT WILL PROVIDE A MINIMUM 3/4 INCH CLEARANCE AROUND THE BAR EXCEPT WHERE OTHER REINFORCING BARS MAKE THIS IMPRACTICABLE. REINFORCEMENT WHICH HAS BECOME LOOSE SHALL BE ADEQUATELY SUPPORTED AND TIED BACK INTO PLACE. ALL REMOVED ASPHALT AND CONCRETE SHALL BE DISPOSED OF PROPERLY OUTSIDE THE RIGHT OF WAY.

(CONTINUED):

**ITEM SPECIAL - PATCHING CONCRETE BRIDGE DECK:
(CONTINUED):**

C. SURFACE PREPARATION

CLEANING SHALL CLOSELY PRECEDE APPLICATION OF THE PATCHING MATERIAL. THE EXPOSED REINFORCING STEEL SHALL BE THOROUGHLY CLEANED BY ABRASIVE BLASTING (SILICA SAND SHALL NOT BE USED) FOLLOWED BY AN AIR BLAST. IT MAY BE NECESSARY TO USE HAND TOOLS TO REMOVE SCALE FROM THE REINFORCING STEEL.

CONTAMINATION OF THE AREA TO BE PATCHED BY CONSTRUCTION EQUIPMENT OR FROM ANY OTHER SOURCE SHALL BE PREVENTED BY PLACEMENT OF A CLEAN 4 MIL POLYETHYLENE SHEET (OR ANY OTHER COVERING AS APPROVED BY THE ENGINEER) ON THE SURFACE OF THE DECK FOLLOWING THE AIR BLAST CLEANING.

WHERE REINFORCING STEEL IS EXPOSED, THE CONTRACTOR SHALL PROVIDE ADEQUATE SUPPORTS FOR THE CONCRETE MIXER SO THAT REINFORCING STEEL AND ITS BOND WITH THE CONCRETE WILL NOT BE DAMAGED BY THE WEIGHT AND MOVEMENT OF THE MIXER, OR SHALL PROVIDE MEANS TO CONVEY CONCRETE FROM THE MIXER TO THE PATCH LOCATIONS.

D. MATERIALS, PLACING, AND CURING

THE CONCRETE BRIDGE DECK SHALL BE PATCHED WITH CLASS FS CONCRETE WHICH SHALL MEET THE REQUIREMENTS OF CMS EXCEPT THAT LIMESTONE FOR COARSE AGGREGATE SHALL BE USED.

E. PLACING

WHEN NIGHT WORK IS USED THE CONTRACTOR SHALL SUBMIT A PLAN WHICH PROVIDES ADEQUATE LIGHTING FOR THE WORK AREA. THE PLAN SHALL BE SUBMITTED AT LEAST 15 CALENDAR DAYS IN ADVANCE AND BE APPROVED BY THE ENGINEER BEFORE CONCRETE IS PLACED. THE LIGHTS SHALL BE SO DIRECTED THAT THEY DO NOT AFFECT OR DISTRACT APPROACHING TRAFFIC.

THE PATCHING MATERIAL SHALL BE PLACED, CONSOLIDATED AND FINISHED TO THE EXISTING GRADE AND ELEVATION. PATCHES GREATER THAN 50 SQUARE FEET IN AREA SHALL HAVE TEMPORARY BULKHEADS INSTALLED TO FACILITATE PLACEMENT AND FINISHING. THE TEMPORARY BULKHEADS SHALL GO AS DEEP AS THE PATCH AND BE PULLED PRIOR TO THE CONCRETE SETTING. PATCHES EXCEEDING 50 SQUARE FEET SHALL BE STRUCK OFF WITH A SCREED. SMALLER PATCHES THAT ARE UNDER 10 FEET IN LENGTH SHALL BE SCREED LONGITUDINALLY. FOR PATCHES OVER 10 FEET IN LENGTH, THE SCREED SHALL BE PLACED PERPENDICULAR TO THE ROADWAY CENTERLINE.

THE CONTRACTOR SHALL TEST THE SURFACE OF THE PLASTIC CONCRETE FOR TRUENESS AND FOR BEING FLUSH WITH THE EDGES OF THE ADJACENT SURFACES BY USE OF A 10 FOOT STRAIGHTEDGE. FOR PATCHES 10 FEET OR LESS IN LENGTH, THE STRAIGHTEDGE SHALL BE DONE BY PLACING THE STRAIGHTEDGE PARALLEL TO THE BRIDGE CENTERLINE WITH ENDS RESTING ON THE EXISTING WEARING SURFACE AND DRAWING THE STRAIGHTEDGE ACROSS THE PATCH. ANY HIGH OR LOW AREAS EXCEEDING 1/8 INCH IN 10 FEET SHALL BE CORRECTED. IF ANY CORRECTIONS ARE MADE, THE SURFACE SHALL BE RECHECKED.

F. FINISHING

AFTER THE PATCHES HAVE BEEN CONSOLIDATED AND FINISHED, THEY SHALL BE TEXTURED IN ACCORDANCE TO SECTION 451.09 OF THE CMS.

G. INSPECTION, SOUNDING, AND REPAIR OF CONCRETE PATCHES

AFTER CURING AND BEFORE FINAL ACCEPTANCE, ALL PATCHED AREAS SHALL BE INSPECTED AND SOUNDED. ALL DELAMINATED AREAS SHALL BE REMOVED AND REPATCHED ACCORDING TO THIS NOTE.

ALL CRACKS IN BONDED PATCHES SHALL BE SEALED WITH AN APPROVED HIGH MOLECULAR WEIGHT METHACRYLATE SEALER ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS AND SECTION 512.04 OF CMS.

ALL REPLACEMENT OF REJECTED AREAS AND SEALING OF CRACKS IN NEW BONDED PATCHES WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND INCLUDED IN THE UNIT BID PRICE FOR THIS ITEM.

H. METHOD OF MEASUREMENT

THE QUANTITY SHALL BE THE ACTUAL AREA IN SQUARE YARDS OF THE EXPOSED SURFACE OF ALL PATCHES, IRRESPECTIVE OF THE DEPTH OF THE PATCH, COMPLETE, IN PLACE AND ACCEPTED.

I. BASIS OF PAYMENT

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID FOR:

ITEM	UNIT	DESCRIPTION
SPECIAL	SQUARE YARD	PATCHING CONCRETE BRIDGE DECK

STRUCTURE GENERAL NOTES

ERI-2-2010

DISTRICT 3
OFFICE OF PRODUCTION

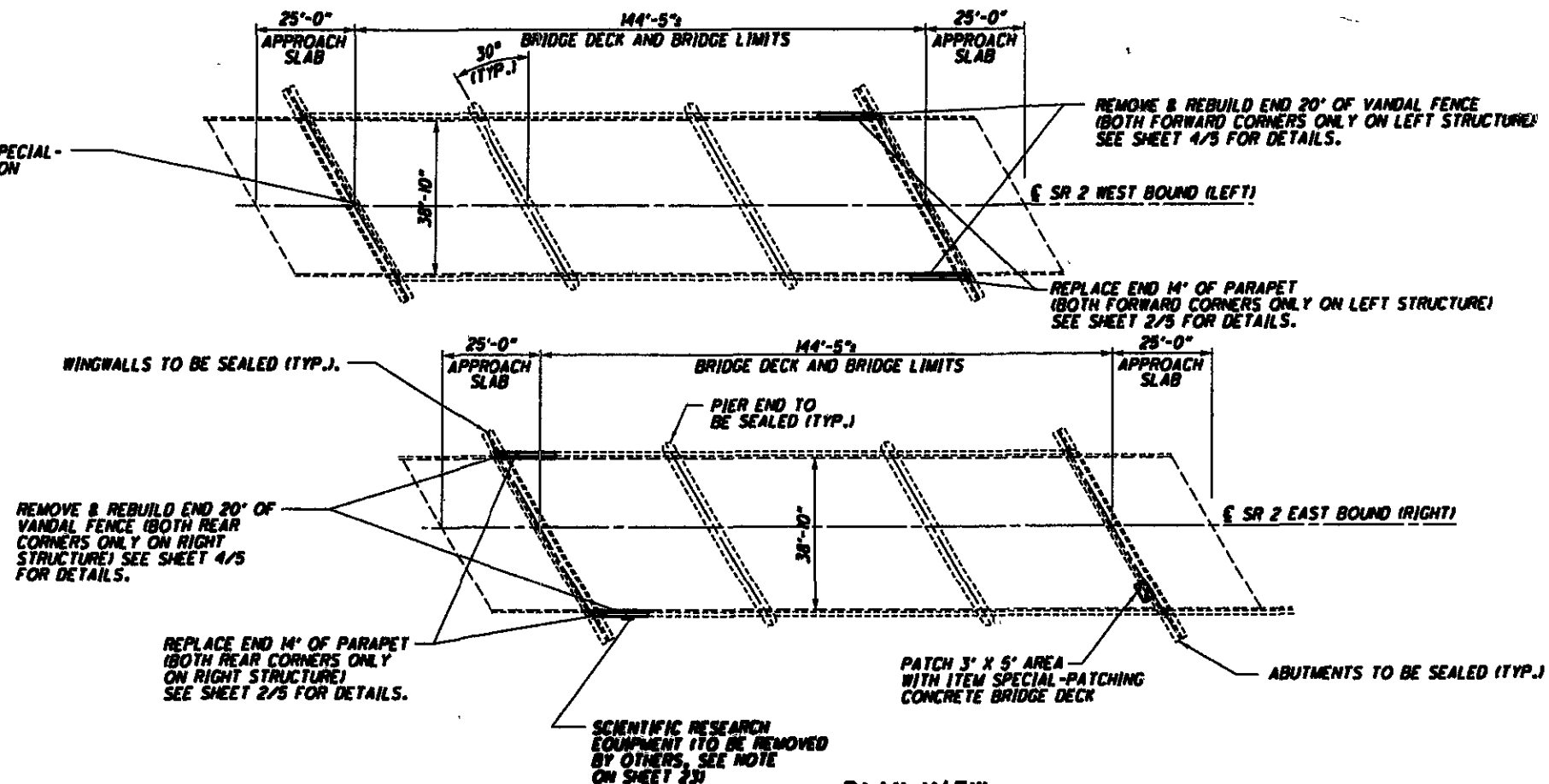
DATE
01/07
RDH
GTS
GTS
DJV

STRUCTURE FILE NO.	BRIDGE NO.	STRUCTURE TYPE	LOCATION	SKEW	DECK LENGTH	DECK WIDTH	PROPOSED WORK
2201062	ER1-2-2082	CONTINUOUS STEEL BEAM	UNDER BERLIN ROAD	44°52'38" LF	318'-1"	42'-10"	SEAL DECK, PARAPET, WINGWALL, ABUTMENT AND PIERS
2201127	ER1-2-2156 L	PRESTRESSED BOX BEAM	OVER OLD WOMAN CREEK	30° RF	144'-5"	38'-10"	SEAL PARAPET, WINGWALL, ABUTMENT, PIERS AND REBUILD SOME PARAPET ENDS
2201135	ER1-2-2156 R	PRESTRESSED BOX BEAM	OVER OLD WOMAN CREEK	30° RF	144'-5"	38'-10"	SEAL PARAPET, WINGWALL, ABUTMENT, PIERS AND REBUILD SOME PARAPET ENDS
2202611	ER1-2-2222	CONTINUOUS STEEL BEAM	UNDER S.R. 61	7°52'14" RF	237'-0"	58'-10"	SEAL DECK, PARAPET, RAISED MEDIAN, WINGWALL, ABUTMENT AND PIERS
2204681	ER1-2-2338	CONTINUOUS STEEL BEAM	UNDER HAHN ROAD	0°	233'-4"	34'-6"	SEAL PARAPET, WINGWALL, ABUTMENT AND PIERS
2204711	ER1-2-2410 L	CONTINUOUS STEEL BEAM	OVER FRAILEY ROAD	1°35'12" RF	112'-0"	38'-6"	SEAL DECK, PARAPET, WINGWALL, ABUTMENT AND PIERS
2204738	ER1-2-2410 R	CONTINUOUS STEEL BEAM	OVER FRAILEY ROAD	1°35'12" RF	112'-0"	38'-6"	SEAL DECK, PARAPET, WINGWALL, ABUTMENT AND PIERS
2204754	ER1-2-2421 R	CONTINUOUS STEEL BEAM	OVER NORFOLK RAILROAD	54°04'13" LF	258'-9"	38'-6"	SEAL DECK, PARTIAL AREA OF PARAPET, ABUTMENT BACKWALLS AND SEATS
2204762	ER1-2-2421 L	CONTINUOUS STEEL BEAM	OVER NORFOLK RAILROAD	54°04'13" LF	258'-9"	38'-6"	REPAIR PARAPET, SEAL DECK, PARTIAL AREA OF PARAPET, ABUTMENT BACKWALLS AND SEATS
2204789	ER1-2-2522	CONTINUOUS STEEL BEAM	UNDER JOPPA ROAD	21°46'51" RF	249'-8"	34'-6"	SEAL PARAPET, WINGWALL, ABUTMENT AND PIERS

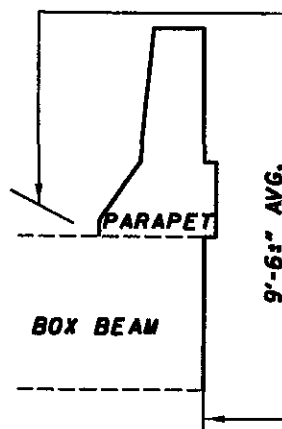
DESIGN FILE: I:\projects\78483\Struct\DETAILS\002-2156s.dgn
WORKSTATION: sjuzwik DATE: 2/28/2007



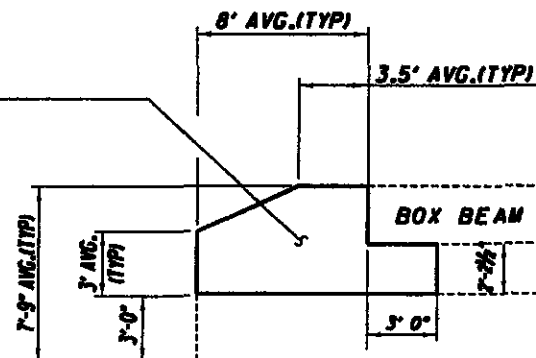
SEAL EXPANSION JOINTS WITH ITEM SPECIAL -
POLYMER MODIFIED ASPHALT EXPANSION
JOINT SYSTEM (TYPICAL ALL ENDS).
(SEE SHEET 5/5 FOR DETAILS)



PLAN VIEW

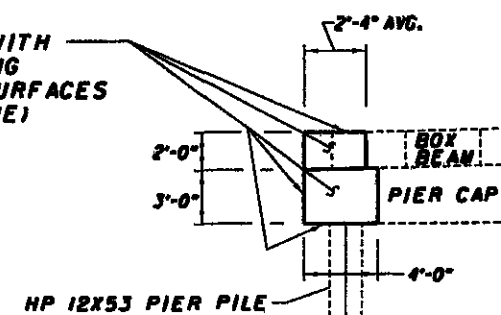


AREA TO SEAL WITH
ITEM 512-SEALING
OF CONCRETE SURFACES
(EPOXY-URETHANE)



TYPICAL ABUTMENT SEALING
(1'-3 1/2" ± THICK)

AREA TO SEAL WITH
ITEM 512-SEALING
OF CONCRETE SURFACES
(EPOXY-URETHANE)



TYPICAL PIER CAP SEALING
WIDTH - 3'-0"

TYPICAL PARAPET SEALING
(LEFT STRUCTURE PARAPET LENGTH - 143'-8" AVG.)
(RIGHT STRUCTURE PARAPET LENGTH - 143'-5" AVG.)

ITEM	QUANTITY		UNIT	DESCRIPTION
	ERI-2-2156L	ERI-2-2156R		
202	3	3	CU YD	PORTIONS OF STRUCTURE REMOVED, AS PER PLAN
509	519	519	POUND	EPOXY COATED REINFORCING STEEL
511	3.8	3.8	CU YD	CLASS 5 CONCRETE, SUPERSTRUCTURE, AS PER PLAN (PARAPET RECONSTRUCTION)
512		1	SO YD	TREATING CONCRETE BRIDGE DECKS WITH GRAVITY FED RESIN
512	357	357	SO YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)
516	1	1	SO FT	1" PREFORMED EXPANSION JOINT FILLER
SPECIAL	90	90	FT	POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM
SPECIAL		2	SO YD	PATCHING CONCRETE BRIDGE DECK
SPECIAL	40	40	FT	VANDAL PROTECTION FENCE REMOVED AND REBUILT

QUANTITIES CARRIED TO STRUCTURE SUMMARY SHEET

NOTES:

- 1) EXISTING GUARDRAIL NOT SHOWN.
- 2) EXISTING APPROACH PARAPET NOT SHOWN.
- 3) EXISTING VANDAL PROTECTION FENCE NOT SHOWN.
- 4) REMOVE A PORTION OF THE EXISTING VANDAL PROTECTION FENCE PRIOR TO RECONSTRUCTING PARAPET ENDS USING ITEM SPECIAL - VANDAL PROTECTION FENCE REMOVED AND REBUILT. SEE SHEET 4/5 FOR DETAILS.
- 5) REPLACE END 14' OF PARAPET AT LOCATIONS SHOWN. SEE SHEET 2/5 FOR DETAILS.
- 6) SEAL PARAPETS, WINGWALLS, END 4' OF PIER CAPS AND ABUTMENTS 3' UNDER DECK. SEE DETAILS ABOVE.
- 7) PATCH 3' X 5' AREA ON RIGHT STRUCTURE WITH ITEM SPECIAL-PATCHING CONCRETE BRIDGE DECK.
- 8) SEAL PATCH EDGES WITH ITEM 512-TREATING CONCRETE BRIDGE DECKS WITH GRAVITY FED RESIN
- 9) SEAL EXPANSION JOINTS WITH ITEM SPECIAL - POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM (SEE SHEET 5/5 FOR DETAILS)

SITE PLAN
ERI-2-2156 L&R
OVER OLD WOMAN CREEK

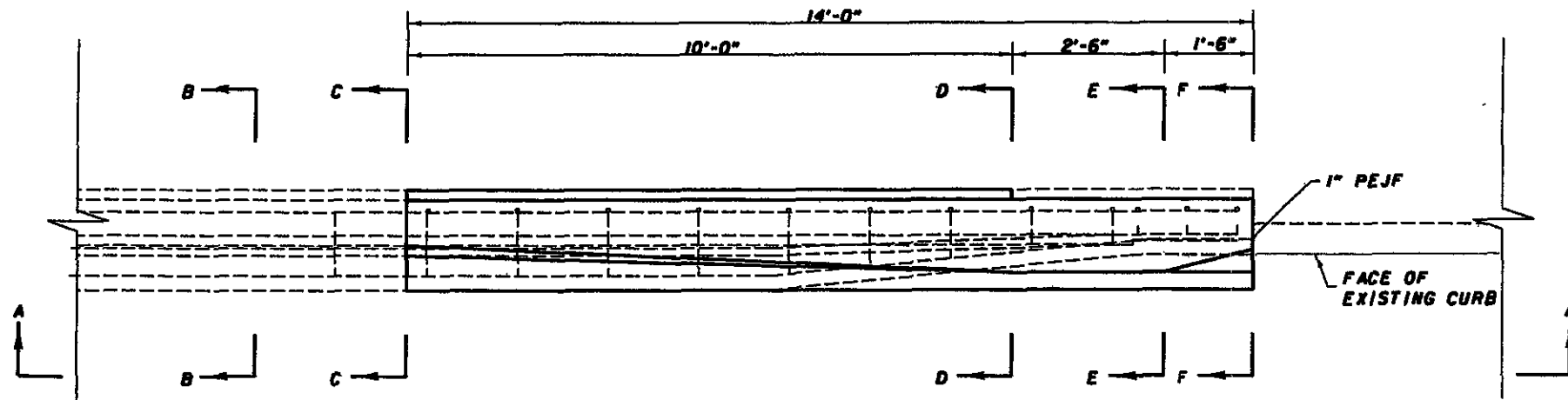
ERI-2-20.10

1/5

32
43

DISTRICT THREE
OFFICE OF PRODUCTION

DATE 01/07
REVISED ROW
OWNER DCM
DESIGNED DCM
CHECKED DJV

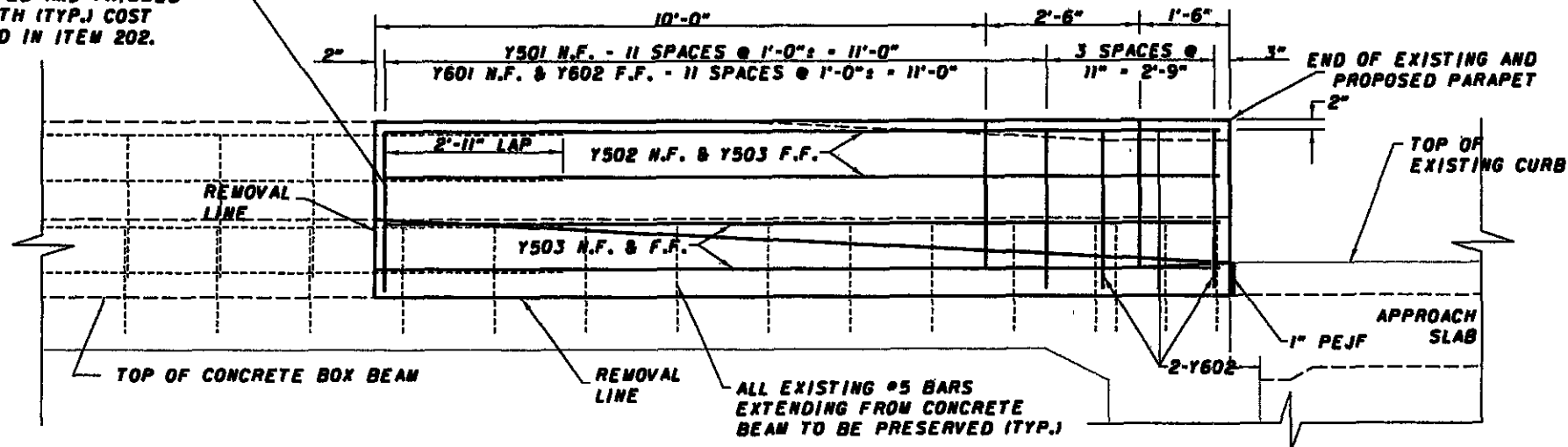


TYPICAL PARAPET REPLACEMENT PLAN VIEW

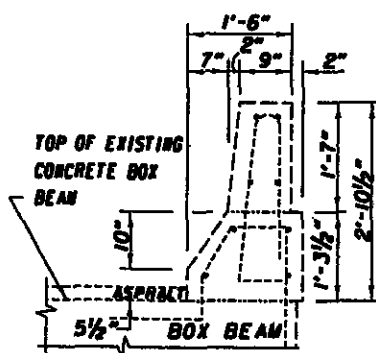
NOTES:

- 1) ALL EXISTING REINFORCING BARS EXTENDING FROM CONCRETE BEAM TO BE PRESERVED.
- 2) FOR ADDITIONAL DETAILS AND NOTES, REFER TO THE STANDARD BRIDGE DRAWING BR-1.
- 3) FOR QUANTITIES, BENDING DIAGRAMS AND REINFORCING STEEL TABLE, SEE SHEET 3/5.
- 4) NO DRILLING INTO THE EXISTING CONCRETE BOX BEAM IS ALLOWED.

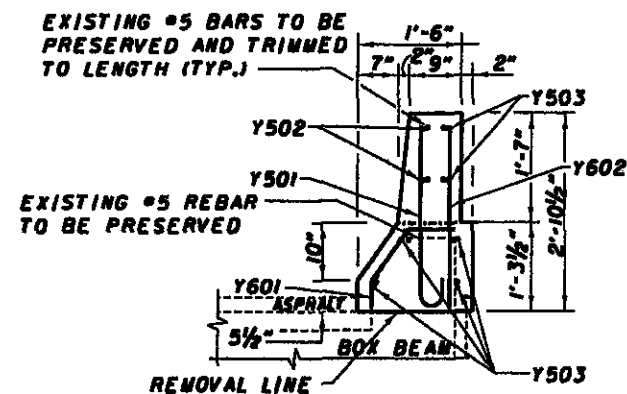
EXISTING #5 BARS TO BE PRESERVED AND TRIMMED TO LENGTH (TYP.) COST INCLUDED IN ITEM 202.



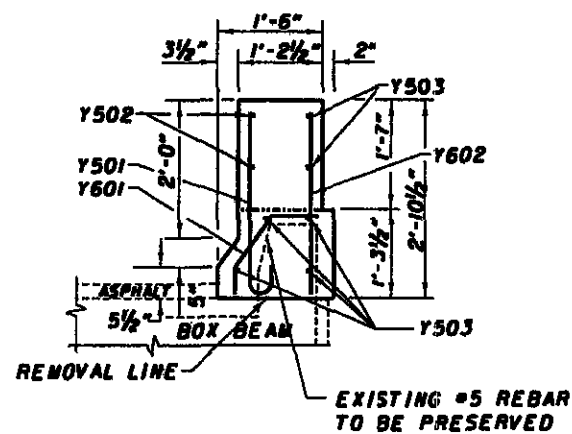
SECTION A-A (ELEVATION VIEW)



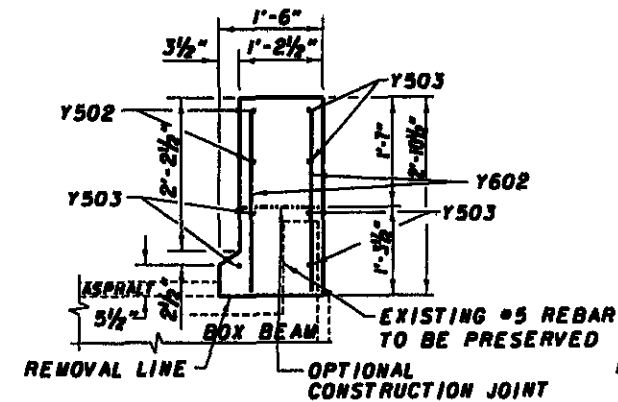
SECTION B-B



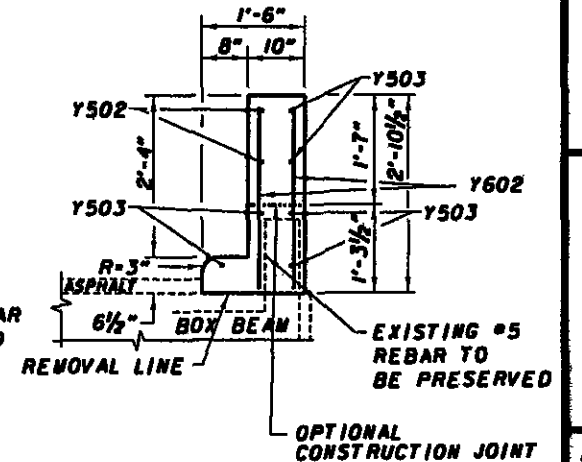
SECTION C-C



SECTION D-D

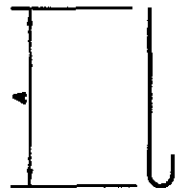


SECTION E-E

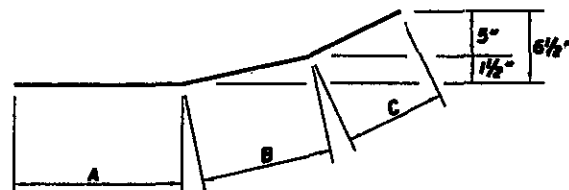


SECTION F-F

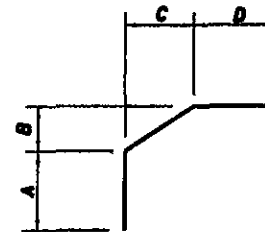
BENDING DIAGRAMS



TYPE A



TYPE 2



TYPE J

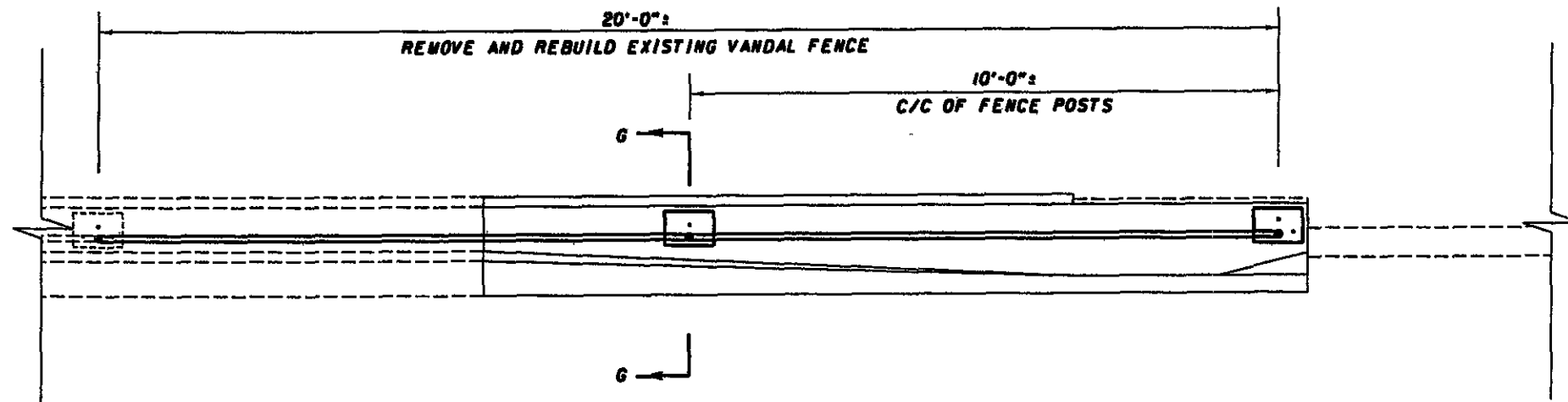
EPOXY COATED REINFORCING STEEL LIST

MARK	NUMBER		LENGTH	SHAPE	TYPE	A	B	C	D	WEIGHT	
	LEFT	RIGHT								LEFT	RIGHT
Y501	24	24	3'-3"	BENT	1	2'-8"				81	81
Y502	4	4	13'-8"	BENT	2	9'-10"	2'-5"	1'-5"		57	57
Y503	12	12	13'-8"	STR						171	171
Y601	24	24	1'-10"	BENT	3	4"	8½"	6"	8"	66	66
Y602	36	36	2'-8"	STR						144	144
TOTAL										519	519

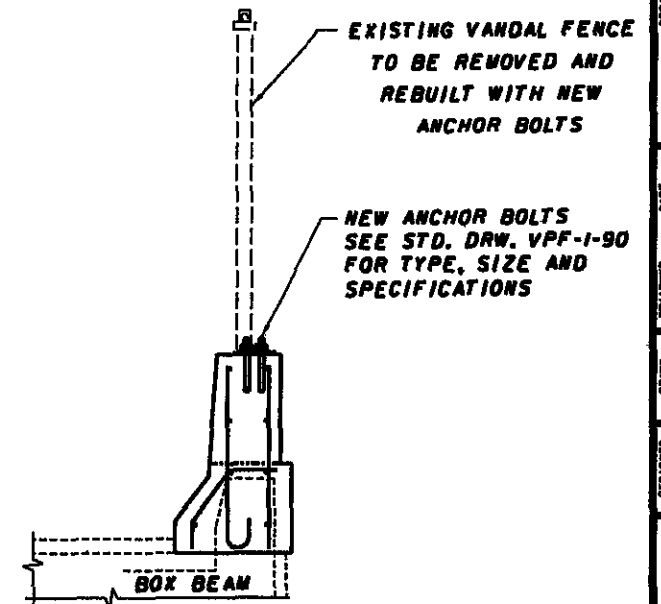
ITEM	QUANTITY		UNIT	DESCRIPTION
	LEFT	RIGHT		
202	3	3	CU YD	PORTIONS OF STRUCTURE REMOVED, AS PER PLAN
509	519	519	POUND	EPOXY COATED REINFORCING STEEL
511	3.8	3.8	CU YD	CLASS 5 CONCRETE, SUPERSTRUCTURE, AS PER PLAN (PARAPET RECONSTRUCTION)
516	1	1	SO FT	1" PREFORMED EXPANSION JOINT FILLER

QUANTITIES CARRIED TO SHEET 1/5.

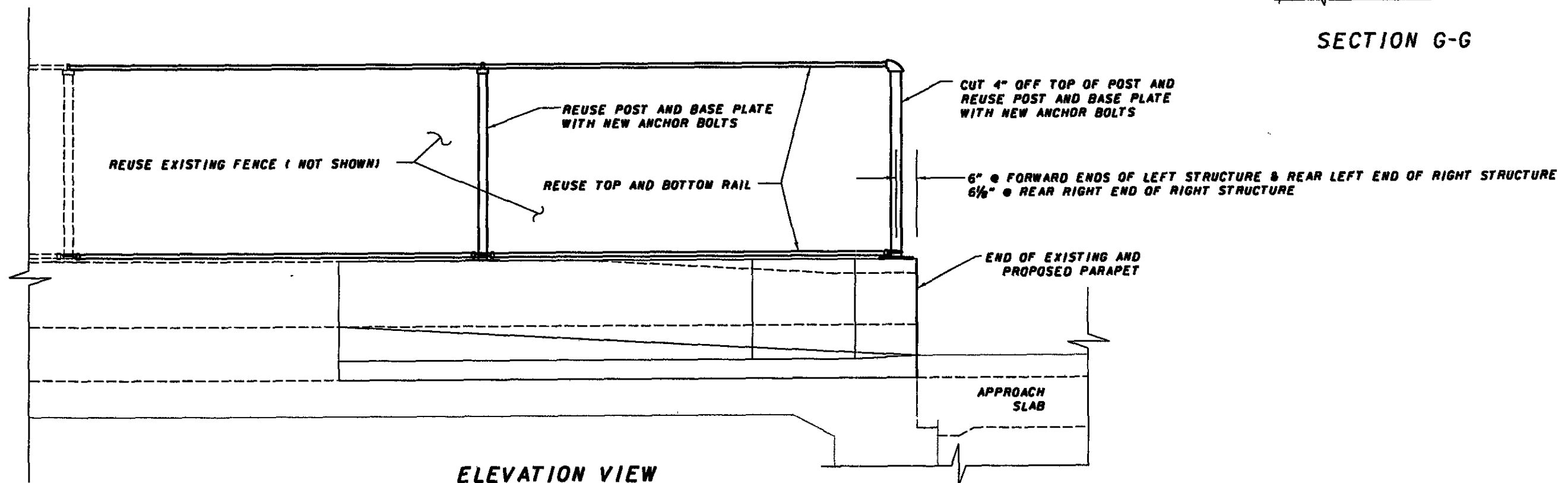
DESIGN FILE: I:\projects\78483\Structure\DETAILS\002-2156sd001.dgn
FORESTATION: sjuzwtk DATE: 2/28/2007



PLAN VIEW
PARAPET VANDAL FENCE REMOVAL AND REBUILDING
(SEE SHEET 1/5 FOR LOCATIONS)



SECTION G-G



ELEVATION VIEW
PARAPET VANDAL FENCE REMOVAL AND REBUILDING
(SEE SHEET 1/5 FOR LOCATIONS)

ITEM	QUANTITY		UNIT	DESCRIPTION
	ERI-2-2156L	ERI-2-2156R		
SPECIAL	40	40	FT	VANDAL PROTECTION FENCE REMOVED AND REBUILT

QUANTITY CARRIED TO SHEET 1/5.

DESIGN AGENT
DISTRICT THREE
OFFICE OF PRODUCTION

DATE	01/07
REVIEWED	RON
STRUCTURE FILE NUMBER	220112711 & 220112512
CHART	DCW
DESIGNED	DCW
CHECKED	DJV

VANDAL FENCE DETAILS
ERI-2-2156 L&R
OVER OLD WOMAN CREEK

ERI-2-20.10

4/5

35
43

GENERAL NOTES AND DETAILS FOR POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM

ITEM SPECIAL - POLYMER-MODIFIED ASPHALT EXPANSION JOINT SYSTEM

THIS ITEM WILL BE USED TO SEAL THE EXPANSION/CONTRACTION JOINTS AS PER THESE DETAILS AND THE MANUFACTURER'S REQUIREMENTS USING A POLYMER-MODIFIED ASPHALT SYSTEM. THE PRIME CONTRACTOR WILL OBTAIN THE SERVICES OF ONE OF THE FOLLOWING APPROVED APPLICATORS WHO WILL FURNISH AND INSTALL THE NEW BRIDGE EXPANSION JOINT SYSTEM AFTER ALL PAVING ON THE AFFECTED BRIDGE(S) HAS BEEN COMPLETED.

PRODUCT NAME	SUPPLIER	ADDRESS	PHONE NO.
THORNA-JOINT	DYNAMIC SURFACE APPLICATIONS, LTD	373 VILLAGE RD. PENNDALE, PA 17755	(717) 546-6041
MATRIX 502	CNAFCO INC.	420 N. ROOSEVELT AVE. CHANDLER, AZ 85226	(800) 528-8242
EXPANDEX JOINT SYSTEM	WATSON-BOWMAN ACME	95 PINEVIEW DR. AMHERST, NY 14228	(716) 691-7566
APJ ASPHALTIC PLUG EXPANSION JOINT	WYOMING EQUIPMENT SALES	281 SIXTH STREET P.O. BOX 207 WEST WYOMING, PA 18644	(570) 693-2810

MATERIALS:

BRIDGING PLATE:

MILD STEEL $\frac{1}{2}$ " OR $\frac{3}{4}$ " THICK PLATE, 8" WIDE OR 18 GAUGE ALUMINUM, 8" WIDE.

BINDER:

TYPE: POLYMER MODIFIED ASPHALT
SOFTENING POINT: 180 DEGREES F. MIN.
FLOW: 3 mm. MAX. AT 140 DEGREES F.
PENETRATION: 9 mm. MAX. AT 77 DEGREES F.
1 mm. MIN AT 0 DEGREES F.
ASTM D 3407
DUCTILITY: 40 cm. MIN. ASTM D 113
RESILIENCE: 60% MIN. AT 77 DEGREES F.
TENSILE ADHESION: 700X MIN.
SPECIFIC GRAVITY: 1.20 ± 0.05
POURING TEMP: 350 - 390 DEGREES F.

AGGREGATE:

TYPE: CRUSHED, DOUBLE WASHED, AND DRIED GRANITE OR BASALT
GRADATION: THE GRADATION OF THE AGGREGATE VARIES BY MANUFACTURER AND WILL BE AS PER THE MANUFACTURER'S RECOMMENDATIONS FOR THE SYSTEM BEING USED ON THIS PROJECT.

BACKER ROD:

THE BACKER SHALL BE A CLOSED CELL FOAM EXPANSION JOINT FILLER CAPABLE OF WITHSTANDING THE PLACEMENT TEMPERATURE OF THE POLYMER MODIFIED ASPHALT.

NOTE: PRIOR TO PLACEMENT OF ANY PORTION OF THE JOINT SYSTEM, THE PROJECT ENGINEER MUST HAVE CERTIFIED TEST DATA MEETING ALL THE MINIMUM REQUIREMENTS OF ALL THE MATERIALS OF THE JOINT SYSTEM.

INSTALLATION PROCEDURES:

SAWING AND SURFACE PREPARATION:

AFTER ALL PAVING OPERATIONS ARE COMPLETE, THE OVERLAY IS TO BE TRANSVERSELY SAW CUT FULL DEPTH NO LESS THAN TWO INCHES DEEP (20" CENTERED OVER JOINT OPENING, UNLESS OTHERWISE NOTED). REMOVE ALL MATERIAL, INCLUDING WATER-PROOFING MATERIAL, BETWEEN SAW CUTS. THOROUGHLY CLEAN AND DRY EXPOSED CONCRETE, STEEL, AND CUT SURFACES USING COMPRESSED AIR AND A HOT COMPRESSED AIR (HCA) LANCE. THE LANCE MUST PRODUCE A FLAME RETARDED AIR STREAM TEMPERATURE OF 3000 DEGREES F. AT A VELOCITY OF 3,000 FEET PER

SECOND WITH 15 PSIG CHAMBER PRESSURE. IF THERE IS AN INTERRUPTION DUE TO WEATHER OR OTHER CAUSES, THE OPERATION WILL BE REPEATED WITH THE HCA LANCE IMMEDIATELY BEFORE THE BINDER COAT OPERATION. ALSO, 6 INCHES OF THE ROAD SURFACE ON EITHER SIDE OF THE JOINT WILL BE DRIED SO THAT A SUITABLE SURFACE FOR BITUMEN ADHESION IS OBTAINED.

SEALING OF EXPANSION JOINT: (PRE-STRESSED BOX OR CONCRETE SLAB)

THE EXPANSION JOINT GAP IS TO BE SEALED AND A BRIDGING PLATE CENTERED ALONG IT. A VERY NARROW GAP WILL BE SEALED BY POURING HOT BINDER INTO THE GAP. GAPS OF $\frac{1}{4}$ " OR MORE WILL FIRST BE FILLED WITH AN APPROPRIATELY SIZED BACKER ROD. THE BACKER ROD WILL BE INSTALLED SO THAT IT IS BETWEEN $\frac{1}{4}$ " AND 1-1/8" BELOW THE TOP OF THE EXISTING GAP. THE GAP WILL THEN BE FILLED WITH BINDER.

BOND BREAKER:

SPREAD BINDER OVER SURFACE AREA WHERE THE METAL BRIDGING PLATE WILL BE PLACED. CENTER THE BRIDGING PLATE OVER THE EXISTING JOINT AND BED INTO THE HOT BINDER. BUTT JOINT THE BRIDGING PLATES TO ACCOMMODATE THE ENTIRE JOINT LENGTH. SPIKE HOLES WILL BE DRILLED AT 1 FOOT INTERVALS ALONG THE LONGITUDINAL CENTERLINE OF THE PLATES. SECURE BRIDGING PLATE WITH NAILS OR SPIKES. SEAL BUTT JOINTS WITH HOT BINDER AND ALLOW BINDER TO SETUP BEFORE NEXT OPERATION. WHEN ALUMINUM BRIDGING PLATES ARE USED, ONLY THE BINDER IS REQUIRED TO SECURE THE INDIVIDUAL PLATES.

BINDER COAT:

SEAL ALL PREPARED, EXPOSED SURFACES OF THE JOINT WITH BINDER. POUR THE HOT BINDER OVER THE FLOOR AREA OF THE JOINT AND SPREAD TO COAT ALL EXPOSED SURFACES. THE BINDER WILL BE A MINIMUM OF $\frac{1}{2}$ " THICK ON THE BOTTOM OF THE JOINT CAVITY, WITH POOLS OF GREATER THICKNESS WHERE SURFACE IRREGULARITIES EXIST. THE BINDER APPLICATION TEMPERATURE WILL BE BETWEEN 350 AND 390 DEGREES F. THE BINDER WILL NOT BE ALLOWED TO BE HEATED ABOVE 410 DEGREES F. NOR ALLOWED TO EXCEED 390 DEGREES F. FOR MORE THAN 1 HOUR. A DOUBLE JACKETED OIL WELTER WILL BE USED TO HEAT THE BINDER. THE WELTER WILL BE EQUIPPED WITH A CONTINUOUS AGITATION SYSTEM, TEMPERATURE CONTROLS, AND A CALIBRATED THERMOMETER. ALSO A SYSTEM FOR ACCURATELY MEASURING THE WEIGHTS OF THE BINDER AND THE AGGREGATE WILL BE REQUIRED.

BUILD-UP OF JOINT LAYERS:

AGGREGATE PREPARATION:

HEAT THE AGGREGATE TO A TEMPERATURE OF 275 TO 325 DEGREES F. WITH A SUITABLE ROTATING DRUM WITH ATTACHED HEAT SOURCE OR A HOT COMPRESSED AIR LANCE, TO REMOVE DUST AND MOISTURE.

AGGREGATE PROPORTION AND LAYER THICKNESS:

MIX THE AGGREGATE WITH THE BINDER SUCH THAT THE MINIMUM AGGREGATE CONTENT BY WEIGHT WILL BE 60%. THE HEATED AGGREGATE AND BINDER WILL BE COMBINED IN LAYERS, UNLESS PATENTED INSTALLATION REQUIRES DIFFERENTLY, NOT LESS THAN $\frac{1}{4}$ OF AN INCH NOR EXCEEDING 2-1/2 INCHES. THE THICKNESS OF EACH LAYER CAN BE VARIED WITHIN THESE LIMITS, TO ACHIEVE THE REQUIRED JOINT THICKNESS (MIN. 2 INCHES). THE OBJECTIVE IS TO COAT EACH STONE AND FILL THE VOIDS WHILE AVOIDING AN EXCESS OF BINDER. THIS WILL ACHIEVE THE MAXIMUM CONTENT OF STONE CONSISTENT WITH ALL STONES BEING COATED WITH BINDER. RAKE THE MIXTURE TO MIX AND LEVEL.

THE TOP LAYER THICKNESS WILL VARY BETWEEN $\frac{1}{2}$ INCH AND ONE (1) INCH. IN PREPARING THE TOP LAYER, THE RATIO OF AGGREGATE TO BINDER WILL BE APPROXIMATELY 6:1 BY WEIGHT. OVERFILL THE TOP LAYER AND COMPACT TO THE LEVEL OF THE ADJACENT SURFACES USING A ROLLER OR VIBRATORY PLATE COMPACTOR. IMMEDIATELY AFTER COMPLETION OF THE COMPACTION, POUR SUFFICIENT BINDER OVER THE JOINT TO FILL THE SURFACE VOIDS AND COAT THE SURFACE STONE. DUST THE FINISHED JOINT WITH A FINE, DRY AGGREGATE TO PREVENT TACKINESS.

MAINTENANCE OF TRAFFIC:

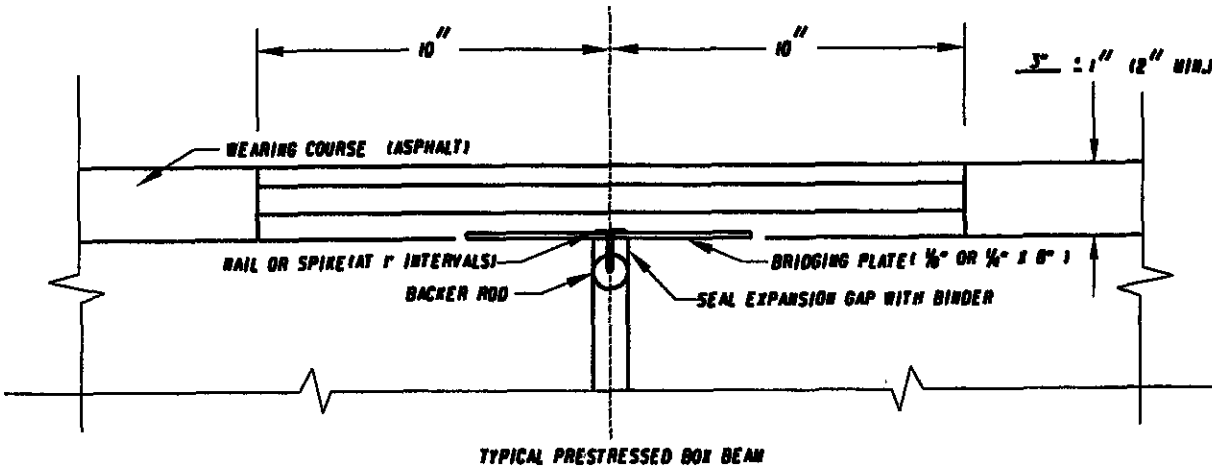
IF NECESSARY TO FACILITATE TRAFFIC MAINTENANCE, THE JOINT WILL BE INSTALLED IN TWO (2) HALF-WIDTH PHASES. DURING PHASE 1 APPROXIMATELY HALF OF THE TOTAL JOINT WILL BE INSTALLED. DURING PHASE 2, A MINIMUM OF TWO (2) INCHES OF THE PHASE 1 JOINT WILL BE REMOVED, AT OR NEAR THE CENTERLINE, WITH THE REMAINDER OF THE JOINT INSTALLED. IN ALL CASES, OPERATIONS WILL BE SCHEDULED SO THAT ALL LANES CAN BE OPEN TO TRAFFIC DURING ALL NON-WORKING HOURS.

TESTING:

CERTIFICATION WILL BE SUPPLIED FOR EACH PROJECT SHOWING BINDER COMPLIANCE WITH REQUIRED PROPERTIES. A ONE QUART SAMPLE OF BINDER WILL BE RETRIEVED FROM EACH BRIDGE FOR FURTHER TESTING BY THE O.D.O.T OFFICE OF MATERIALS MANAGEMENT.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT:

THE DEPARTMENT WILL MEASURE THE JOINT BY THE NUMBER OF FEET AND WILL PAY FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICE AS: ITEM SPECIAL, POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM.



ERI-2-2156 L & R SFN 2201127 & 2201135				
ITEM	DESCRIPTION	UNIT	QUANTITY	
			ERI-2-2156L	ERI-2-2156R
SPECIAL	POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM	FT	90	90

QUANTITY CARRIED TO SHEET NO. 1/5