

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

ERI/LOR-2-22.24/0.23

BERLIN & VERMILION TOWNSHIPS ERIE COUNTY

CITY OF VERMILION BROWNHELM TOWNSHIP LORAIN COUNTY

MICROFILMED
JUN 23 1997

PROJECT DESCRIPTION

UPGRADING 9.01 MILES OF STATE ROUTE 2 BY RESURFACING, INCLUDING NEW GUARDRAIL, SIGNING, PAVEMENT MARKINGS AND DRAINAGE, AND REHABILITATION OF BRIDGES OVER FRAILEY ROAD, N&W RAILROAD, CHAPPEL CREEK, SUGAR CREEK AND S.R. 60.

LIMITED ACCESS

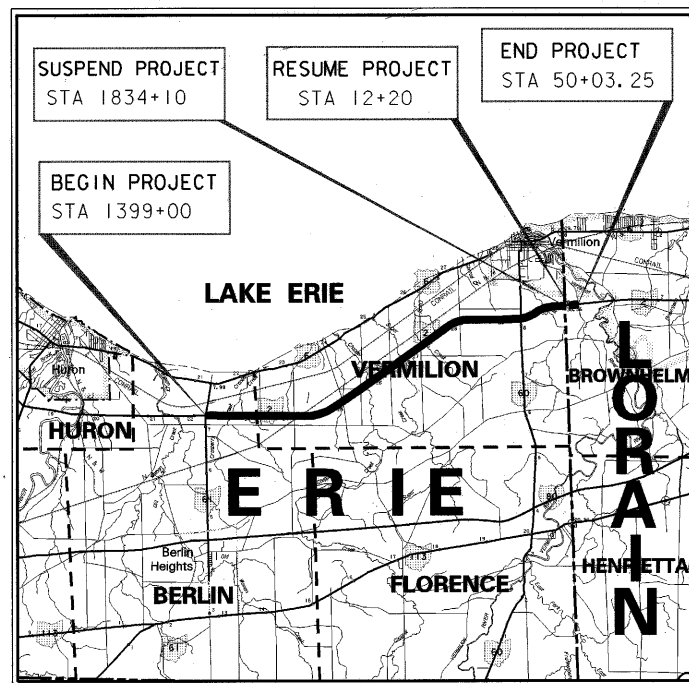
THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE REVISED CODE OF OHIO.

1995 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.

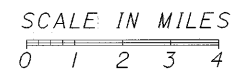
I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR MAINTENANCE AND SAFETY OF TRAFFIC WILL BE SET FORTH ON THE PLANS AND ESTIMATES.

UNDER AUTHORITY OF SECTION 4511.21, DIVISION (1) OF THE REVISED CODE OF OHIO, THE REVISED PRIMA FACIE SPEED LIMITS AS INDICATED HEREIN ARE DETERMINED TO BE REASONABLE AND SAFE, AND ARE HEREBY ESTABLISHED FOR THE DURATION OF THIS PROJECT. THE PRIMA FACIE SPEED LIMIT OR LIMITS HEREBY ESTABLISHED SHALL BECOME EFFECTIVE WHEN APPROPRIATE SIGNS GIVING NOTICE THEREOF ARE ERECTED.



LOCATION MAP

LATITUDE: 41°23'50" N LONGITUDE: 82°23'10" W



PORTION TO BE IMPROVED _____
STATE & FEDERAL ROUTES _____
OTHER ROADS _____

DESIGN DESIGNATION

CURRENT ADT (1995)	16,900
DESIGN YEAR ADT (2015)	27,040
D.H.V.	3,240
D	60%
T	13%
DESIGN SPEED	70 MPH
LEGAL SPEED	65 MPH

FUNCTIONAL CLASSIFICATION - FREEWAY (RURAL)

DESIGN EXCEPTION:

DESIGN FEATURE	APPROVAL DATES
SHOULDER WIDTH	8-23-93
HORIZONTAL CLEARANCE	8-23-93

INDEX OF SHEETS:

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NOTE: ALL REFERENCES OF ERI/LOR-2-22.24/0.00 SHALL BE CONSIDERED TO READ ERI/LOR-2-22.24/0.23

STANDARD CONSTRUCTION DRAWINGS

STANDARD CONSTRUCTION DRAWINGS										SUPPLEMENTAL SPECIFICATIONS			
BP-1.1	2-21-92	GR-3.1	5-6-91	MT-95.31	10-10-88	MT-99.10	11-14-86	TC-41.20	6-21-94	AS-1-81	9-15-94	802	3-23-95
BP-2.1	10-28-94	GR-3.2	5-6-91	MT-95.32	8-25-89	MT-99.20	4-29-88	TC-41.50	6-21-94			815	7-17-95
BP-2.2	10-28-94	GR-4.2	5-6-91	MT-98.12	6-24-93	MT-105.10	7-1-92	TC-42.10	8-19-77	EXJ-4-87	1-20-94	820	6-14-95
BP-2.4	2-21-92	GR-7.1	10-30-92	MT-95.30	10-10-88	MT-105.11	7-1-92	TC-42.20	3-26-79			903	7-17-95
BP-2.5	2-21-92	GR-8.1	1-31-94	MT-95.40	10-1-92			TC-51.11	9-30-94	RB-1-55	2-2-59	910	7-17-95
BP-3.1	2-21-92	GR-5.3	10-30-92	MT-97.10	4-29-88			TC-51.12	1-3-94			921	6-14-95
BP-5.1	10-28-94	HW-4A	4-1-80							SD-1-69	6-12-69	924	6-14-95
BP-6.1	2-21-92	MH-1	12-18-84	MT-98.13	6-24-93	PCB-91	4-24-92	TC-52.10	4-3-79				
CB-3A	5-1-79	MC-4	7-26-76	MT-98.14	6-24-93			TC-52.20	4-3-79			931	7-17-95
CB-4	11-10-83	MC-9.4	10-30-92	MT-98.15	6-24-93			TC-61.10	4-5-82	HL-10.13	5-1-87	933	7-17-95
GR-1.1	5-6-91	MC-9.2	5-6-91	MT-98.16	6-24-93	TC-18.24	4-25-79	TC-65.10	2-1-90	HL-20.14	5-1-87	942	6-14-95
GR-1.2	10-30-92	MC-9.3	10-30-92	MT-98.17	4-25-94	TC-31.21	9-1-92	TC-65.11	2-1-90	HL-30.31	5-1-87	944	3-23-95
GR-1.3	2-21-92	MC-10	5-1-76	MT-98.18	4-25-94	TC-35.10	8-29-84	TC-65.12	2-1-90	HL-50.21	5-1-87		
GR-2.1	5-6-91	MH-3	12-18-84			TC-41.10	8-29-84					902	6-14-95
GR-4.1	5-6-91	MH-2	6-12-75					TC-72.20	2-26-82			923	6-14-95

UNDERGROUND UTILITIES
TWO WORKING DAYS
BEFORE YOU DIG
CALL 1-800-362-2764 (TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

PLAN PREPARED BY:
DISTRICT THREE
LOCATION & DESIGN

APPROVED James D. Maudson
DATE 8-18-95 DISTRICT DEPUTY DIRECTOR,
DEPARTMENT OF TRANSPORTATION

APPROVED Richard L. Engel
DATE 9-26-95 ENGINEER, BUREAU OF BRIDGES
AND STRUCTURAL DESIGN

APPROVED Paradise Howard
DATE 10-23-95 DEPUTY DIRECTOR, PROJECT MGMT.

APPROVED Doug Young
DATE 10-23-95 DIRECTOR, DEPARTMENT OF
TRANSPORTATION

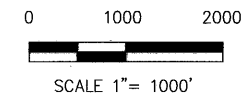
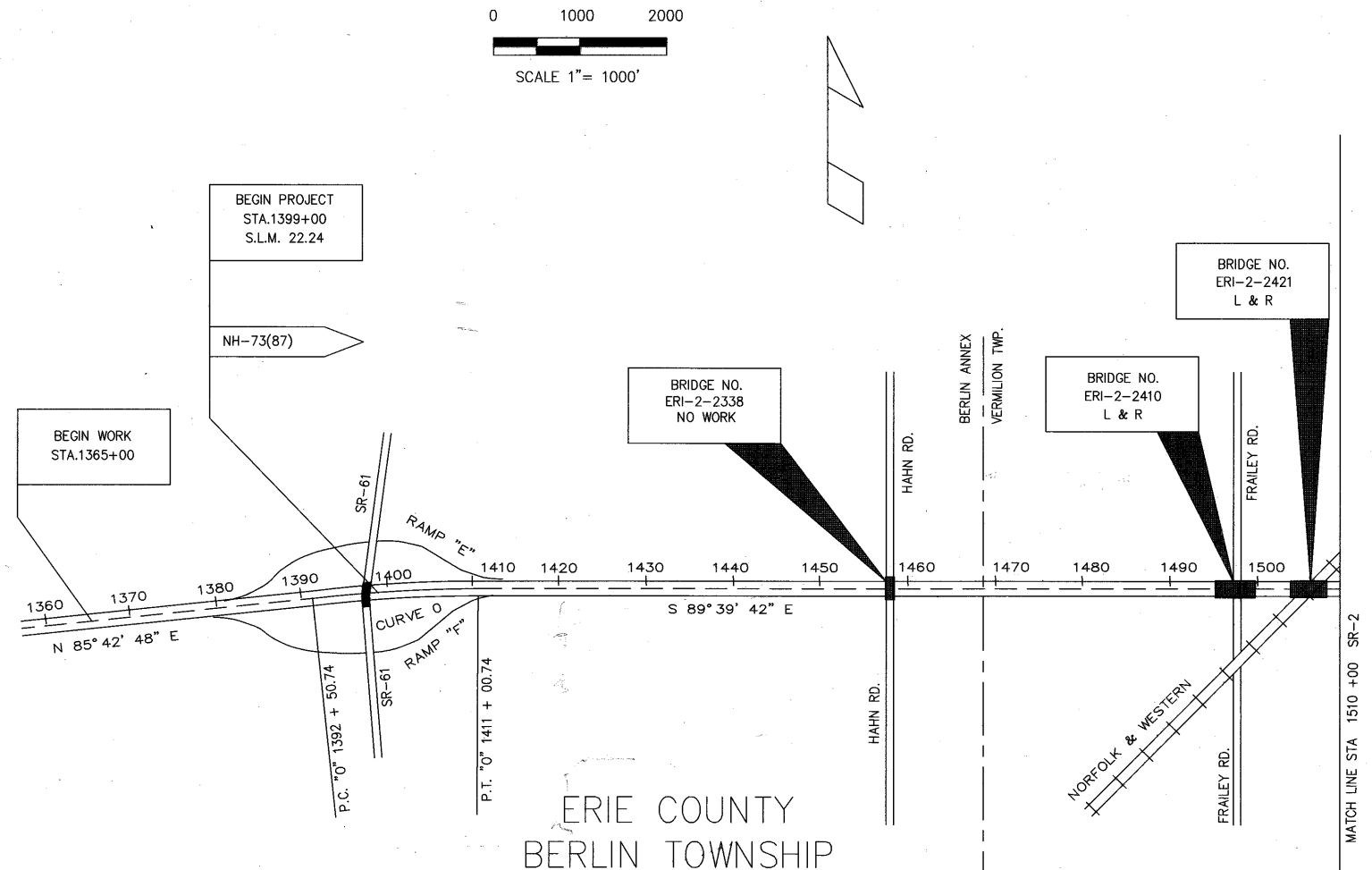
96090 ERI-2-22.22
187PGS
02-28-96

DESIGN FILE: c:\dwg\02\11\el1.dgn
WORKSTATION: sjuzwk
DATE: 16-AUG-1995

FEDERAL PROJECT NO. NH-73(87)
PID NO. 8442
CONSTRUCTION PROJECT NO.
RAILROAD INVOLVEMENT
NORFOLK & WESTERN
ERI/LOR-2-22.24/0.23
187

DATA FOR SR-2 VERTICAL CURVES MAINLINE

LOCATION: P.C. STA. TO P.T. STA.	P.V.I. STA.	L.V.C.	SSD/ DESIGN SPEED	PROPOSED P.V.I. EL.	SLOPE
1406+00 TO 1416+00	1411+00	1000'	70 MPH	618.31'	+0.52% -0.47%
1425+50 TO 1431+50	1428+50	600'	70 MPH	609.87'	-0.47% +0.24%
1479+50 TO 1484+50	1482+00	500'	70 MPH	622.96'	+0.24% +2.00%
1495+50 TO 1514+50	1505+00	1900'	70 MPH	668.96'	+2.00% -1.78%
1519+50 TO 1524+50	1522+00	500'	70 MPH	638.70'	-1.78% -0.24%
1571+00 TO 1575+00	1573+00	400'	70 MPH	626.46'	-0.24% -0.64%
1582+50 TO 1587+50	1585+00	500'	70 MPH	618.78'	-0.64% +0.28%
1601+00 TO 1605+00	1603+00	400'	70 MPH	623.82'	+0.28% -0.24%
1624+50 TO 1627+50	1626+00	300'	>70 MPH	618.30'	-0.24% -0.44%
1636+00 TO 1641+00	1638+50	500'	70 MPH	612.80'	-0.44% +0.32%
1653+50 TO 1658+50	1656+00	500'	70 MPH	618.40'	+0.32% -0.28%
1669+00 TO 1673+00	1671+00	400'	70 MPH	614.20'	-0.28% +0.24%
1708+00 TO 1712+00	1710+00	400'	70 MPH	623.56'	+0.24% -0.24%
1721+00 TO 1725+00	1723+00	400'	70 MPH	620.44'	-0.24% +0.24%
1749+50 TO 1754+50	1752+00	500'	70 MPH	627.40'	+0.24% +1.00%
1772+50 TO 1777+50	1775+00	500'	70 MPH	650.40'	-1.00% +2.00%
1778+00 TO 1795+00	1786+50	1700'	70 MPH	673.40'	+2.00% -1.72%
1795+00 TO 1799+00	1797+00	400'	70 MPH	655.34'	-1.72% +0.24%
1810+00 TO 1814+00	1812+00	400'	70 MPH	651.74'	-0.24% +0.24%



FILE NAME = E2\SCH1.DWG

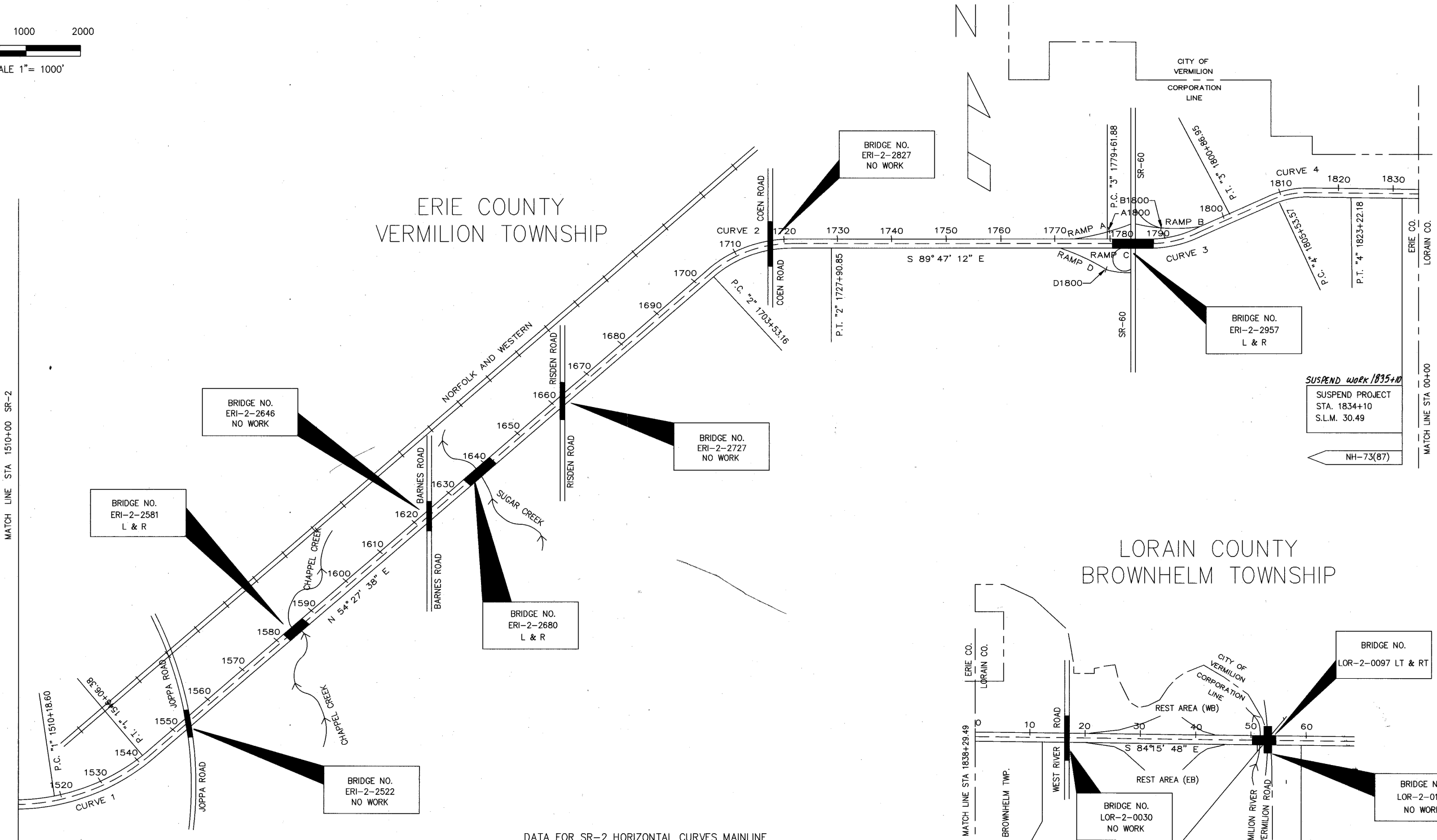
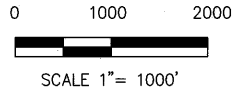
CALCULATED
CHECKED

PLAN NO.

SCHMATIC PLAN

ERI/LOR-2-22.24/0.00

3
187



SR-2 CURVE 0	SR-2 CURVE 1	SR-2 CURVE 2	SR-2 CURVE 3	SR-2 CURVE 4
P.I. = 1401+76.24	P.I. = 1528+73.50	P.I. = 1716+13.16	P.I. = 1792+05.69	P.I. = 1814+54.72
$\Delta = 4^{\circ}37'30''$ RT.	$\Delta = 35^{\circ}52'40''$ LT.	$\Delta = 35^{\circ}45'10''$ RT.	$\Delta = 35^{\circ}19'20''$ LT.	$\Delta = 29^{\circ}22'20''$ RT.
D = 0°15'	D = 1°00'	D = 1°28'	D = 1°28'	D = 2°00'
R = 22,918.31'	R = 5729.58'	R = 3906.53'	R = 3906.53'	R = 2864.79'
L = 1850.00'	L = 3587.78'	L = 2437.69'	L = 2408.33'	L = 1168.61'
T = 925.52'	T = 1854.90'	T = 1260.00'	T = 1243.81'	T = 901.16'
E = 18.68'	E = 292.77'	E = 198.17'	E = 193.23'	E = 98.10'
S = NORMAL CROWN	S = 0.0322 f/f	S = 0.0472 f/f	S = 0.0492 f/f	S = 0.0644 f/f
DSGN. SPD. = 70 MPH	DSGN. SPD. = 70 MPH	DSGN. SPD. = 70 MPH	DSGN. SPD. = 70 MPH	DSGN. SPD. = 70 MPH

FOR BRIDGE DETAIL WORK, SEE SHEETS 139-187

FILE NAME = E2\SCH2.DWG

SCHMATIC PLAN

STRUCTURE GENERAL NOTES

REFERENCE SHALL BE MADE TO STD. DWGS:

AS-1-81 9/15/94 (REV) EXJ-4-87 1/20/94 HL-30.31 5/01/87
SD-1-69 6/12/69 RB-1-55 2/2/59 (REV.) HL-50.21 5/01/87
HL-10.13 5/01/87 HL-20.14 5/01/87

AND TO SUPPLEMENTAL SPECIFICATION:

910 DATED 7-17-95 815 DATED 7-17-95

UTILITY LINES

ALL EXPENSES INVOLVED IN RELOCATING THE AFFECTED UTILITY LINES SHALL BE BORNE BY THE UTILITIES. THE CONTRACTOR AND UTILITIES ARE TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

DESIGN SPECIFICATIONS:

THESE STRUCTURES CONFORM TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1992, INCLUDING THE 1993 AND 1994 INTERIM SPECIFICATIONS AND THE ODOT BRIDGE DESIGN MANUAL.

DESIGN LOADING:

HS20-44 AND ALTERNATE MILITARY LOADING

DESIGN DATA:

CONCRETE CLASS S- COMPRESSIVE STRENGTH 4500 P.S.I. (SUPERSTRUCTURE)

CONCRETE CLASS C- COMPRESSIVE STRENGTH 4000 P.S.I. (SUBSTRUCTURE)

REINFORCING STEEL- ASTM A615, A616 OR A617
GRADE 60 MINIMUM YIELD STRENGTH 60,000 P.S.I.

STRUCTURAL STEEL- ASTM A36- YIELD STRENGTH 36,000 P.S.I.

DECK PROTECTION METHOD:

MICRO-SILICA MODIFIED CONCRETE OVERLAY

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, 105.02, AND 513.02. CONTRACT BID PRICES SHALL BE BASED UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURES BY THE CONTRACTOR. HOWEVER, ALL PROJECT WORK SHALL BE BASED UPON ACTUAL DETAILS AND DIMENSIONS WHICH HAVE BEEN VERIFIED BY THE CONTRACTOR IN THE FIELD.

ITEM 815 - FIELD PAINTING OF EXISTING STEEL

THIS ITEM OF WORK SHALL APPLY TO ALL EXISTING STRUCTURAL STEEL TO REMAIN AS PART OF THE PROPOSED STRUCTURES. EXISTING STEEL SHALL BE CLEANED AND PAINTED IN ACCORDANCE WITH THE PAINT NOTES IN SS 815.

NEW STRUCTURAL STEEL FOR END CROSS FRAMES AND ROCKER ASSEMBLIES SHALL BE SUPPLIED BARE FOR PREPARATION AND PAINTING IN THE FIELD. FOR PURPOSES OF FIELD PAINTING, NEW STRUCTURAL STEEL SHALL BE CONSIDERED EXISTING STEEL AND PREPARED AND PAINTED IN CONFORMANCE WITH THE PAINT NOTES IN SUPPLEMENTAL SPECIFICATION 815.

THE PLAN QUANTITY IS BASED ON THE MEASUREMENTS OF THE STEEL BEAMS, PLUS A 21.8% INCREASE FOR INCIDENTALS, SUCH AS CROSSFRAMES, BEARINGS, CONNECTIONS, AND OTHER MISCELLANEOUS STEEL.

ITEM SPECIAL - SEALING OF CONCRETE SURFACES

(NON-EPOXY)

EXPOSED CONCRETE SURFACES SHALL BE SEALED USING A NON-EPOXY SEALER. SEE DETAILS FOR EACH STRUCTURE FOR AREAS TO BE SEALED. SEE PROPOSAL NOTE FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS, AND APPLICATION PROCEDURES.

ITEM 202- WEARING COURSE REMOVED, AS PER PLAN

INCLUDED IN THIS ITEM SHALL BE THE COST OF REMOVING ANY WATER-PROOFING MATERIAL FROM BETWEEN THE CONCRETE DECK AND ASPHALT WEARING COURSE. ASPHALT REMOVAL SHALL BE A SEPARATE OPERATION FROM REMOVING ANY WATERPROOFING MATERIAL, AND SEPARATE FROM THE SCARIFICATION OF THE DECK.

THE COST OF ALL LABOR, EQUIPMENT, INCIDENTALS AND MATERIALS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE ITEM 202- SO.YD. WEARING COURSE REMOVED, AS PER PLAN.

ITEM 511-CONCRETE, AS PER PLAN

THIS ITEM SHALL CONSIST OF FURNISHING AND PLACING PORTLAND CEMENT CONCRETE IN ACCORDANCE WITH 511 WITH THE FOLLOWING ADDITIONS:

ALL COARSE AGGREGATE SHALL BE #8 LIMESTONE.

ITEM 202 PORTIONS OF STRUCTURES REMOVED, AS PER PLAN (ABUTMENTS)

THIS ITEM OF WORK SHALL BE USED TO REMOVE PORTIONS OF THE ABUTMENTS, AS PER DETAILS FOR EACH STRUCTURE. THE CONCRETE ABUTMENT PORTIONS SHALL BE REMOVED BY A HYDRAULIC SPLITTING METHOD. A LINE OF HOLES SHALL BE DRILLED ALONG THE REMOVAL LINE AND A HYDRAULIC SPLITTER USED AS PER THE MANUFACTURERS'S RECOMMENDATIONS. THIRTY-FIVE (35) AND FIFTEEN (15) POUND JACK HAMMERS SHALL BE USED FOR ANY REQUIRED FINISH WORK. HOE RAMS, CONCRETE CRUSHERS OR OTHER SIMILAR TYPE IMPACT DEVICES WILL NOT BE PERMITTED TO DO ANY OF THE REMOVAL WORK. CONCRETE SHALL BE REMOVED IN A MANNER THAT PREVENTS CUTTING, ELONGATING OR DAMAGING OF THE EXISTING REINFORCING STEEL DESIGNATED FOR SALVAGE. IF EXISTING REINFORCING STEEL DESIGNATED FOR SALVAGE IS DAMAGED DURING REMOVAL OPERATIONS, DOWELLED REINFORCING STEEL MUST BE ADDED AT THE CONTRACTOR'S EXPENSE. CARE SHOULD ALSO BE TAKEN NOT TO DAMAGE OTHER PORTIONS OF THE ABUTMENTS TO REMAIN. ANY DAMAGE TO PORTIONS TO REMAIN SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

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

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN (SUPERSTRUCTURE)

THIS ITEM OF WORK SHALL BE USED TO REMOVE THE EXISTING CONCRETE DECK AT EACH END OF THE BRIDGE FOR STRUCTURES ERI-2-2421 L & R AND ERI-2-2957 L & R. JOINT MATERIAL TO BE REMOVED, AS DETAILED FOR EACH STRUCTURE, SHALL BE INCIDENTAL TO THIS ITEM. CARE SHALL BE TAKEN NOT TO DAMAGE THE STEEL BEAMS DURING THE DECK REMOVAL. THE USE OF EXPLOSIVES, CONCRETE CRUSHERS HEADACHE BALLS, HOE RAMS, AND OTHER SIMILAR TYPE IMPACTIVE DEVICES IS NOT PERMITTED.

THE CONCRETE DECK MAY BE REMOVED BY SAWING WITH THE FOLLOWING RESTRICTIONS.

1. BEFORE ANY SAWING IS PERMITTED; THE OUTLINES OF THE TOP FLANGES OF ALL STRINGERS ARE TO BE DRAWN ON THE BRIDGE DECK AND ONE (1) INCH +/- DIAMETER PILOT HOLES SHALL BE DRILLED OUTSIDE THESE LINES TO CONFIRM THE WIDTH OF THE FLANGES. PILOT HOLES SHALL NOT BE DRILLED OVER THE BEAM FLANGES.
2. ALL SAWING SHALL BE CONFINED TO THE AREAS BETWEEN THE FLANGE EDGES MINUS FOUR (4) INCHES. (2 INCHES +/- EACH SIDE)
3. THE DRILLING OF PILOT HOLES AND THE GENERAL SAWING PATTERN SHALL BE APPROVED BY THE ENGINEER.
4. HAND SAWS MAY BE USED IN THE FLANGE AREAS IF THE OPERATION IS OBSERVED AND APPROVED BY THE ENGINEER; AND THEN ONLY TO A DEPTH NOT PENETRATING THE LOWER REINFORCING STEEL MAT. THE ENGINEER MAY TERMINATE THE HAND SAWING OPERATION OVER THE FLANGES IF HE FEELS THE BRIDGE INTEGRITY IS IN JEOPARDY.
5. AS AN ALTERNATIVE TO USING HAND SAWS; THE LARGE CUTTING SAWS MAY BE USED FOR THE TRANSVERSE CUTS ACROSS THE FLANGES WITH THE CUT RESTRICTED TO A MAXIMUM DEPTH OF FOUR (4) INCHES OVER THE FLANGES. THIS SHALL BE ACCOMPLISHED BY MAKING AN INITIAL TRANSVERSE PRECUT TO A MAXIMUM DEPTH OF FOUR (4) INCHES CONTINUOUSLY ACROSS THE ENTIRE DECK. THE SECOND CUT SHALL BE RESTRICTED TO THE AREAS BETWEEN THE BEAMS IN ACCORDANCE WITH NUMBER 2 ABOVE.

CONCRETE MAY BE REMOVED BY MEANS OF APPROVED PNEUMATIC HAMMERS EMPLOYING POINTED AND BLUNT CHISEL EDGED TOOLS. THE WEIGHT OF THE HAMMERS SHALL NOT EXCEED 35 POUNDS WITHIN EIGHTEEN (18) INCHES OF THE STEEL BEAMS. OUTSIDE THE EIGHTEEN (18) INCH LIMIT THE WEIGHT OF THE HAMMERS SHALL NOT EXCEED NINETY (90) POUNDS. CARE SHALL BE TAKEN NOT TO NICK OR GOUGE THE STEEL BEAMS WITH THE PNEUMATIC HAMMERS. ALL IMPERFECTIONS AND EXISTING TACK WELDS ON THE BEAMS DISCOVERED AFTER THE DECK HAS BEEN REMOVED SHALL BE GROUND SMOOTH. ANY BOLTS OR PROJECTIONS WELDED TO THE STRUCTURAL STEEL SHALL BE CUT 1-1/2" ABOVE THE EXISTING WELDS.

ANY DAMAGE TO THE STEEL BEAMS, DONE BY THE CONTRACTOR, SHALL BE REPAIRED BY THE CONTRACTOR AT HIS EXPENSE. THE CONTRACTOR'S PROPOSED METHOD OF REPAIR SHALL BE SUBMITTED IN WRITING FOR APPROVAL BY THE DIRECTOR. THE CONTRACTOR SHALL RECEIVE APPROVAL FROM THE DIRECTOR BEFORE COMMENCEMENT OF SAID REPAIRS.

NO PART OF THE STRUCTURE SHALL BE SUBJECT TO UNIT STRESSES THAT EXCEED BY MORE THAN ONE-THIRD THE ALLOWABLE UNIT STRESSES AS GIVEN IN AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" DUE TO ERECTION, REMOVAL AND CONSTRUCTION METHODS, OR TO THE USE OR MOVEMENT OF CONSTRUCTION EQUIPMENT ONTO OR ACROSS THE STRUCTURE. WHEN EQUIPMENT PLACED ON THE STRUCTURE IN EXCESS OF 40,000 POUNDS IS TO BE PLACED ON THE STRUCTURE AND USED FOR REMOVAL AND CONSTRUCTION PURPOSES, STRUCTURAL ANALYSIS CALCULATIONS BY A REGISTERED STRUCTURAL ENGINEER SHOWING THE STRESSES PRODUCED BY THE EQUIPMENT AND ASSOCIATED LOADS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE LUMP SUM PRICE BID FOR ITEM 202 PORTIONS OF STRUCTURE REMOVED, AS PER PLAN (SUPERSTRUCTURE) WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM 202- PORTIONS OF STRUCTURE REMOVED, AS PER PLAN (PARAPETS)

THIS ITEM OF WORK SHALL BE USED TO REMOVE THE EXISTING PARAPETS, AS PER DETAILS FOR EACH STRUCTURE. THE CONCRETE SHALL BE REMOVED BY SAW CUTTING. THE WATER FROM THE SAWING OPERATION SHALL BE IMMEDIATELY WASHED FROM THE STRUCTURE.

THE FINAL REMOVAL SHALL BE PERFORMED USING THIRTY-FIVE (35) AND FIFTEEN (15) POUND JACK HAMMERS. A HOE RAM, CONCRETE CRUSHER OR OTHER SIMILAR TYPE IMPACTIVE DEVICE WILL NOT BE PERMITTED FOR ANY OF THE REMOVAL WORK. EXISTING SMOOTH CONSTRUCTION JOINTS OR SAW CUTS SHALL BE MECHANICALLY SCARIFIED 1/4" DEEP TO INSURE BONDING OF THE NEW CONCRETE.

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 (PARAPETS) WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM 202- PORTIONS OF STRUCTURE REMOVED, AS PER PLAN (DECK EDGES)

THIS ITEM OF WORK SHALL BE USED TO REMOVE THE EXISTING CONCRETE DECK EDGES ON STRUCTURES ERI-2-2581 L & R AND ERI-2-2680 L & R. ONE OF THE FOLLOWING METHODS SHALL BE USED TO REMOVE THE DECK EDGES:

METHOD A: (PLAN DETAILED)

THE CONCRETE SHALL BE REMOVED BY A HYDRAULIC SPLITTING METHOD. A LINE OF HOLES SHALL BE DRILLED ALONG THE REMOVAL LINE AND A HYDRAULIC SPLITTER USED AS PER MANUFACTURER'S RECOMMENDATIONS.

CONCRETE SHALL BE REMOVED IN A MANNER THAT PREVENTS CUTTING, ELONGATION OR DAMAGING OF EXISTING REINFORCING STEEL TO BE PRESERVED. IF EXISTING REINFORCING STEEL DESIGNATED FOR PRESERVATION IS DAMAGED DURING THE REMOVAL OPERATION, DOWELLED REINFORCING STEEL SHALL BE ADDED AT THE CONTRACTOR'S EXPENSE. THE LENGTH INTO THE DECK SHALL BE .18 INCHES. ALL DOWEL HOLES SHALL BE GROUTED WITH A NON-SHRINK, NON-METALLIC, EPOXY MORTAR ACCORDING TO ITEM 510 CMS.

METHOD B: (OPTIONAL)

THE CONCRETE SHALL BE REMOVED BY SAW CUTTING. THE WATER FROM THE SAWING OPERATION SHALL BE IMMEDIATELY WASHED FROM THE STRUCTURE.

FOR THE REINFORCING STEEL MARKED FOR PRESERVATION THAT IS CUT OFF, THE CONTRACTOR SHALL PROVIDE LONGER TRANSVERSE BARS, WHICH SHALL BE GROUTED WITH A NONSHRINK, NONMETALLIC, EPOXY MORTAR ACCORDING TO ITEM 510 CMS.

THE COST OF THE ADDITIONAL LENGTH BARS, DOWEL HOLES AND GROUTING SHALL BE BORNE BY THE CONTRACTOR.

BOTH METHODS:

THE FINAL REMOVAL SHALL BE PERFORMED USING THIRTY-FIVE (35) AND FIFTEEN (15) POUND JACK HAMMERS. A HOE RAM, CONCRETE CRUSHER OR OTHER SIMILAR TYPE IMPACT DEVICE WILL NOT BE PERMITTED FOR ANY OF THE REMOVAL WORK.

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 (DECK EDGES) WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM 510- DOWEL HOLE WITH NONSHRINK, NONMETALLIC GROUT

ALL DOWEL HOLES SHALL BE GROUTED WITH AN EPOXY MORTAR.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER EACH FOR ITEM 510- DOWEL HOLE WITH NONSHRINK, NONMETALLIC GROUT, WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM SPECIAL- KEYWAY DRAIN

HOLES SHALL BE DRILLED IN THE ABUTMENT FOR KEYWAY DRAINS AS SHOWN IN THE PLAN DETAILS. THE HOLES SHALL BE SPACED AT APPROXIMATELY (5) FOOT CENTERS AS DIRECTED BY THE ENGINEER.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER EACH FOR ITEM SPECIAL- KEYWAY DRAIN, WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

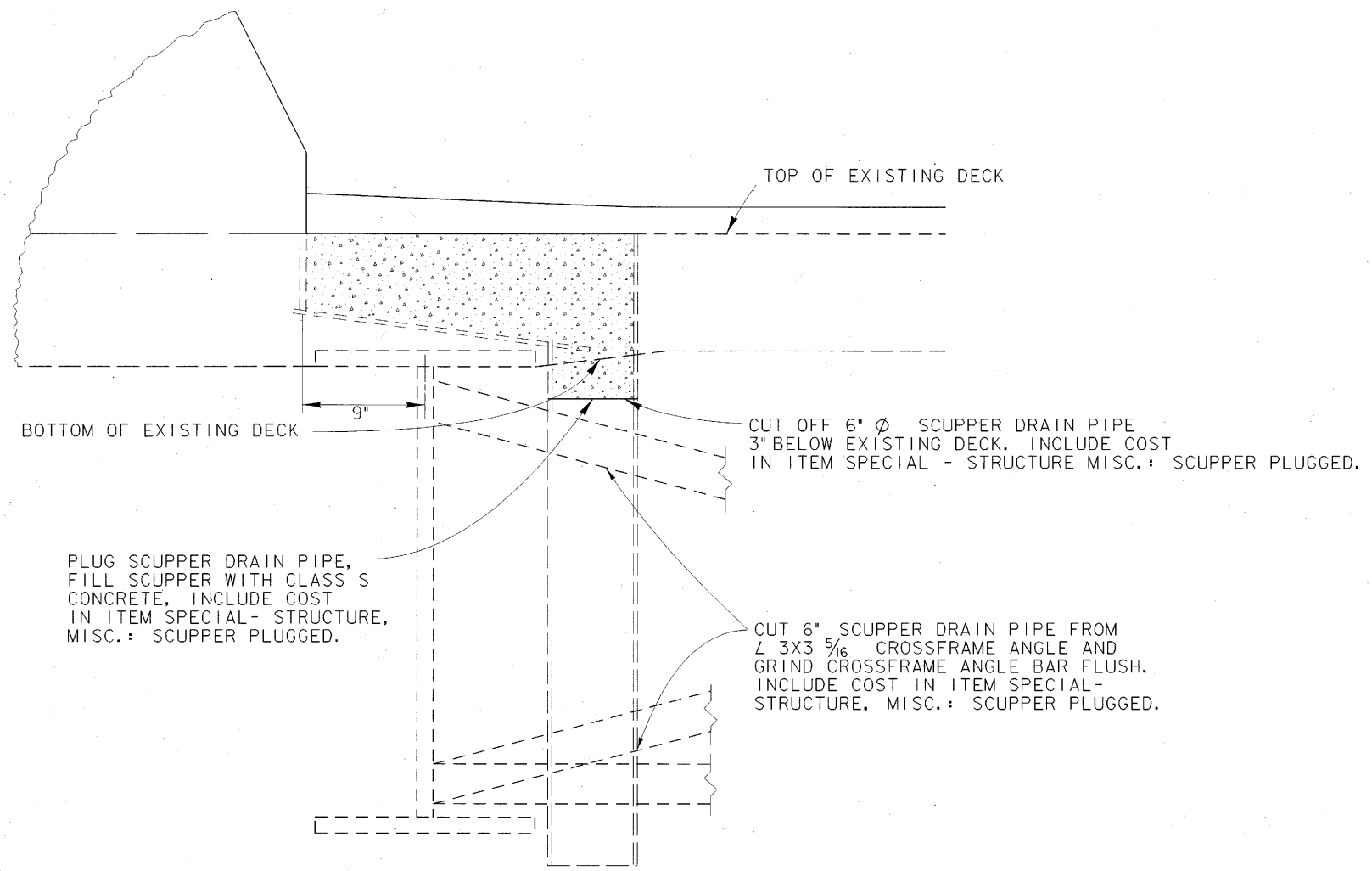
CONCRETE PARAPETS

WITHIN 48 HOURS AFTER PLACEMENT OF PARAPET CONCRETE SAWCUT 1 INCH DEEP JOINTS INTO THE CONCRETE PARAPETS AT LOCATIONS DETAILED IN THE PLANS. THE SAW CUT SHALL BE MADE IN THE COMPLETE CIRCUMFERENCE OF THE PARAPET, STARTING AND ENDING AT THE ELEVATION OF THE CONCRETE DECK, AND THE COMPLETED SAWCUT SHALL BE FILLED WITH A CAULKING MATERIAL CONFORMING TO FEDERAL SPECIFICATION TT-S-00227E. THE BOTTOM HALF INCH OF THE ONE INCH DEEP SAWED JOINT IN BOTH THE INSIDE AND OUTSIDE FACES OF THE PARAPET SHOULD BE LEFT UNSEALED TO ALLOW ANY WATER WHICH MAY ENTER THE JOINT TO ESCAPE.

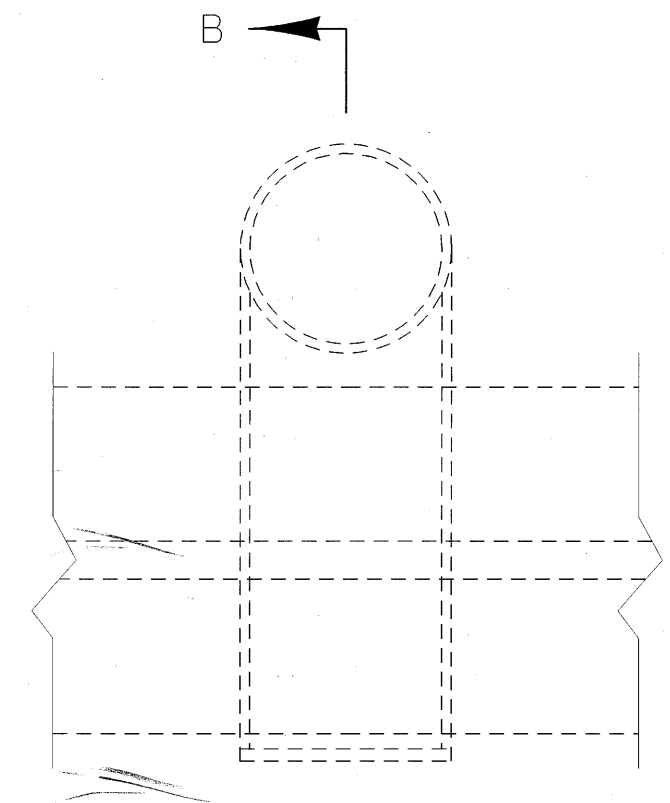
REINFORCING STEEL

NEW REINFORCING STEEL MAY REQUIRE FIELD CUTTING OR BENDING TO BE PROPERLY FITTED. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 509.

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SECTION B - B

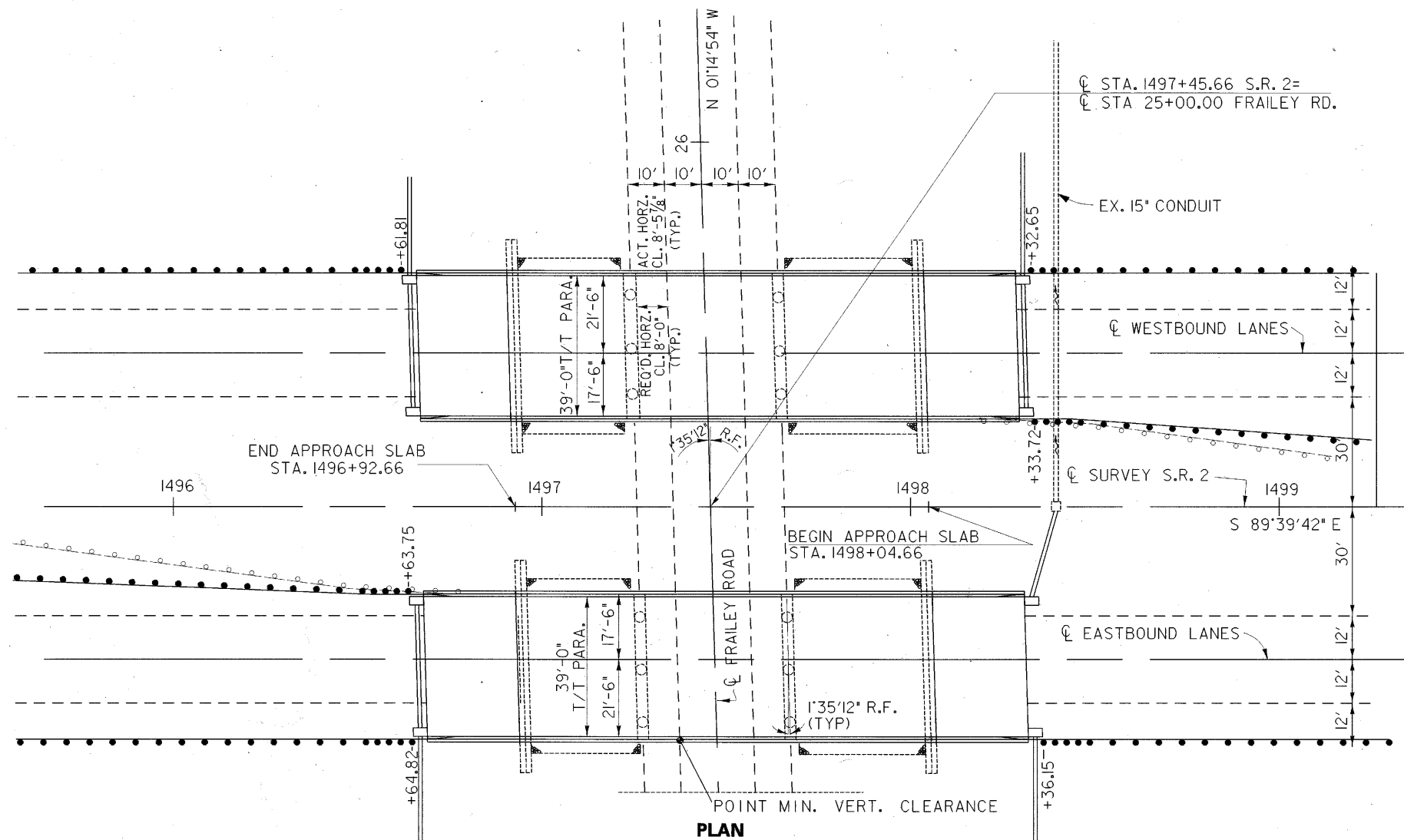


PLAN VIEW OF SCUPPER AND BULB ANGLE

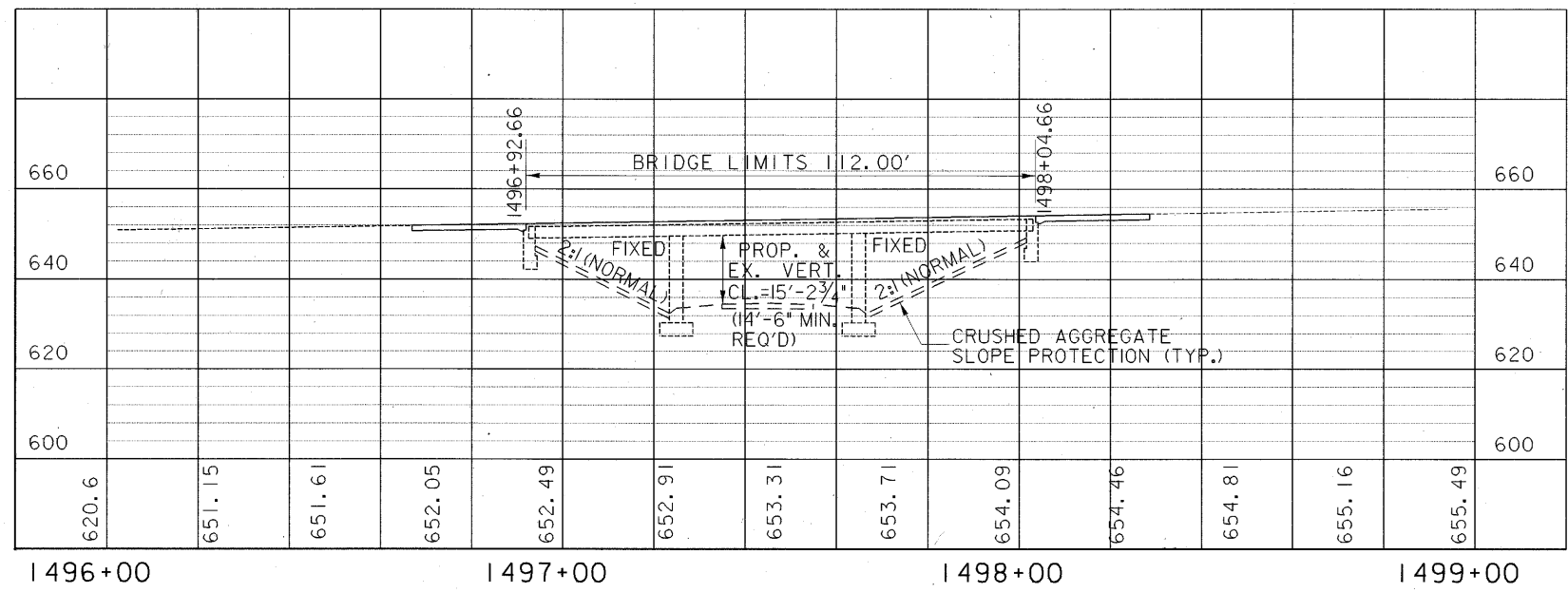
DESIGN FILE: c:\dgn\er12\scupper.dgn
 WORKSTATION: darmsfro DATE: 18-AUG-1995

DESIGNED D, RA CHECKED RDN		DRAWN D, RA REVISED		REVIEWED FEC	DATE 4/95	DESIGN AGENCY OHIO DEPT. OF TRANSPORTATION DISTRICT THREE LOCATION AND DESIGN
ERI/LOR-2-22.24/0.00						140 187
SCUPPER PLUGGED DETAIL						2/2

DESIGN FILE: c:\dgn\er12\240\240spa.dgn
 WORKSTATION: darmstro DATE: 18-AUG-1995



PROPOSED WORK ON THESE STRUCTURES SHALL INCLUDE A MICRO-SILICA CONCRETE DECK OVERLAY; REPLACE EXISTING CONCRETE PARAPET WITH SAFETY SHAPE PARAPET; REMOVAL OF PEJF BETWEEN ABUTMENTS AND SLAB; PLUG SCUPPERS; CONCRETE SEALING; PAINTING STRUCTURAL STEEL; NEW APPROACH SLABS; AND CATCH BASINS AT THE ENDS OF THE APPROACH SLABS.



PROFILE EASTBOUND LANES

EXISTING STRUCTURE
 TYPE: CONTINUOUS STEEL BEAM BRIDGE WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE
 SPANS: 32'-0"; 40'-0"; 38'-0" C/C BEARINGS
 ROADWAY: 38'-6" T/T PARAPETS
 LOADING : HS 20-44
 WEARING SURFACE: ASPHALT CONCRETE
 SKEW: 1'35'12" R.F.
 APPROACH SLAB: AS-1-67 (25'-0" Long)
 ALIGNMENT: TANGENT
 SUPERELEVATION: NONE
 YEAR BUILT: 1973
 STRUCTURE FILE NUMBER: 2204711 & 2204738

PROPOSED STRUCTURE
 PROPOSED WORK: NEW DECK OVERLAY & MINOR REPAIRS INCLUDING PAINTING.
 TYPE: CONTINUOUS STEEL BEAM BRIDGE WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE
 SPANS: 32'-0"; 40'-0"; 38'-0" C/C BEARINGS
 ROADWAY: 39'-0" T/T PARAPETS
 LOADING: HS 20-44 (CASE D) & ALTERNATE MILITARY
 WEARING SURFACE: MICRO-SILICA CONCRETE
 SKEW: 1'-35'-12" R.F.
 APPROACH SLAB: AS-1-81 (25'-0" LONG)
 ALIGNMENT: TANGENT
 SUPERELEVATION: NONE
 DESIGN AVERAGE DAILY TRAFFIC:
 ADT (2015) = 21500
 ADTT (2015) = 5375

VERTICAL CURVE DATA
 PVI STA. 1505+00.00
 LENGTH = 1900'
 G1 = +2.00%
 G2 = -1.78%
 PVI ELEV. = 668.71
 VERT. CORR. = 8.98'

DESIGN AGENCY OHIO DEPT. OF TRANSPORTATION	DATE 4/95
DISTRICT THREE	STRUCTURE FILE NUMBER 2204711 & 2204738
LOCATION AND DESIGN	
ERIE COUNTY	BRIDGE NO. ERI-2-2410 L&R
STA. 1496+92.66	OVER FRAILEY ROAD
STA. 1498+04.66	
SITE PLAN	
ERI/LOR-2-22-24/0.00	
1/6	
(141) (187)	

STRUCTURE NOTES, ESTIMATED QUANTITIES & REINFORCING STEEL

ITEM 517 - RAILING (DEFLECTOR PARAPET TYPE), AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING THE NECESSARY MATERIALS AND LABOR TO CONSTRUCT ITEM 517- RAILING (DEFLECTOR PARAPET TYPE), AS PER PLAN, AS DETAILED ON SHEET NO. 878. THIS ITEM ALSO INCLUDES ALL REINFORCEMENT, CONCRETE, EXCAVATION, BACKFILL, SUBGRADE PREPARATION AND ALL INCIDENTALS NECESSARY TO COMPLETE THE ITEM.

REINFORCING STEEL SHALL BE GRADE 60, EPOXY COATED. CONCRETE SHALL BE CLASS S CONCRETE. EXCAVATION SHALL BE PER CMS 503. RAILING FOUNDATION SHALL BE PER CMS 507.

PAYMENT FOR ALL OF THE ABOVE WORK SHALL BE INCLUDED WITH ITEM 517- RAILING (DEFLECTOR PARAPET TYPE), AS PER PLAN, WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

REPLACEMENT OF EXISTING REINFORCING STEEL

ANY EXISTING REINFORCING BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND WHICH ARE MADE UNUSABLE BY THE CONTRACTOR'S CONCRETE REMOVAL OPERATIONS SHALL BE REPLACED WITH NEW STEEL AT HIS COST. ANY EXISTING REINFORCING BARS DEEMED BY THE ENGINEER TO BE UNUSABLE BECAUSE OF CORROSION SHALL BE REPLACED WITH NEW STEEL. AN ALLOWANCE OF 200 POUNDS IS INCLUDED IN ITEM 509 FOR THIS PURPOSE.

REINFORCING STEEL SPLICE LENGTHS

MINIMUM LAP LENGTHS FOR BARS SHALL BE:
#5 - 2'-6"

MAINTENANCE OF TRAFFIC

PHASED CONSTRUCTION CONTAINING TWO PHASES WILL BE USED TO REHABILITATE THIS STRUCTURE IN THE FOLLOWING MANNER:

DURING PHASE "A", THE RIGHT PORTION OF THE STRUCTURE SHALL BE REHABILITATED WHILE TRAFFIC IS MAINTAINED IN THE LEFT (PASSING) LANE.

DURING PHASE "B", THE LEFT PORTION OF THE STRUCTURE SHALL BE REHABILITATED WHILE TRAFFIC IS MAINTAINED IN THE RIGHT (DRIVING) LANE.

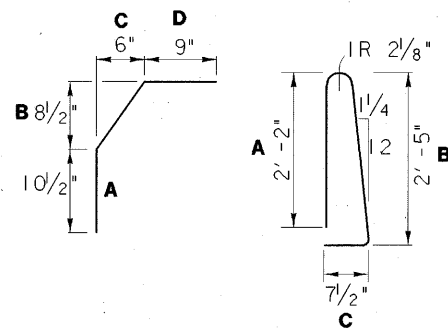
SEE SHEETS 12-34 FOR COMPLETE MAINTENANCE OF TRAFFIC NOTES AND DETAILS.

BRIDGE ESTIMATED QUANTITIES

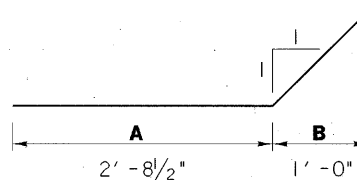
ITEM	ITEM EXTENSION	TOTAL	UNIT	DESCRIPTION
202	11301	2	CU. YD.	PORTIONS OF STRUCTURE REMOVED, AS PER PLAN (ABUTMENT) (SEE SHT. 138)
202	11301	54	CU. YD.	PORTIONS OF STRUCTURE REMOVED, AS PER PLAN (PARAPETS) (SEE SHT. 139)
202	23501	959	SQ. YD.	WEARING COURSE REMOVED, AS PER PLAN (SEE SHT. 139)
503	21300	LUMP		UNCLASSIFIED EXCAVATION
509	15820	8647	POUND	EPOXY COATED REINFORCING STEEL, GRADE 60
510	10000	708	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT (SEE SHT. 139)
511	34001	52	CU. YD.	CLASS S CONCRETE, SUPERSTRUCTURE, AS PER PLAN (PARAPET) (SEE SHT. 139)
SPEC.	51267504	567	SQ. YD.	SEALING OF CONCRETE SURFACES (NON-EPOXY) *
815	00050	10580	SQ. FT.	SURFACE PREPARATION OF EXISTING STEEL, SYSTEM OZEU
815	00056	10580	SQ. FT.	FIELD PAINTING OF EXISTING STEEL, PRIME COAT, SYSTEM OZEU
815	00060	10580	SQ. FT.	FIELD PAINTING OF EXISTING STEEL, INTERMEDIATE COAT, SYSTEM OZEU
815	00066	10580	SQ. FT.	FIELD PAINTING OF EXISTING STEEL, FINISH COAT, SYSTEM OZEU
815	000504	100	MAN HOUR	GRINDING FINES, TEARS, SLIVERS
517	73201	200.00	LIN. FT.	RAILING (DEFLECTOR PARAPET TYPE), AS PER PLAN * (SEE SHT. 142)
SPEC.	51922000	971	SQ. YD.	MICRO-SILICA MODIFIED CONCRETE OVERLAY (1.25" THICKNESS) *
SPEC.	51922100	36	CU. YD.	MICRO-SILICA MODIFIED CONCRETE OVERLAY (VARIABLE THICKNESS) *
SPEC.	51922300	LUMP		TEST SLAB *
SPEC	53000400	10	EACH	STRUCTURE, MISC.: SCUPPER PLUGGED (SEE SHT. 140)
		TOTAL		

PARAPET REINFORCING STEEL											
MARK	LT BRIDGE	RT BRIDGE	TOTAL	LENGTH	TYPE	A	B	C	D	E	WEIGHT
EX 501	150	150	300	3'-2"	STR						992
EX 502	150	150	300	2'-6"	1	10 1/2"	8 1/2"	6"	9"		782
EX 503	150	150	300	5'-3"	2	2'-2"	2'-5"	7 1/2"			1643
EX 504	48	48	96	30'-0"	STR						3004
EX 505	16	16	32	29'-0"	STR						968
ADDITIONAL - SEE THIS SHEET											200
TOTAL											7589

ABUTMENT REINFORCING STEEL											
MARK	LT BRIDGE	RT BRIDGE	TOTAL	LENGTH	TYPE	A	B	C	D	E	WEIGHT
ED 801	54	54	108	3'-8"	3	2'-8 1/2"	1'-0"				1058
TOTAL											1058



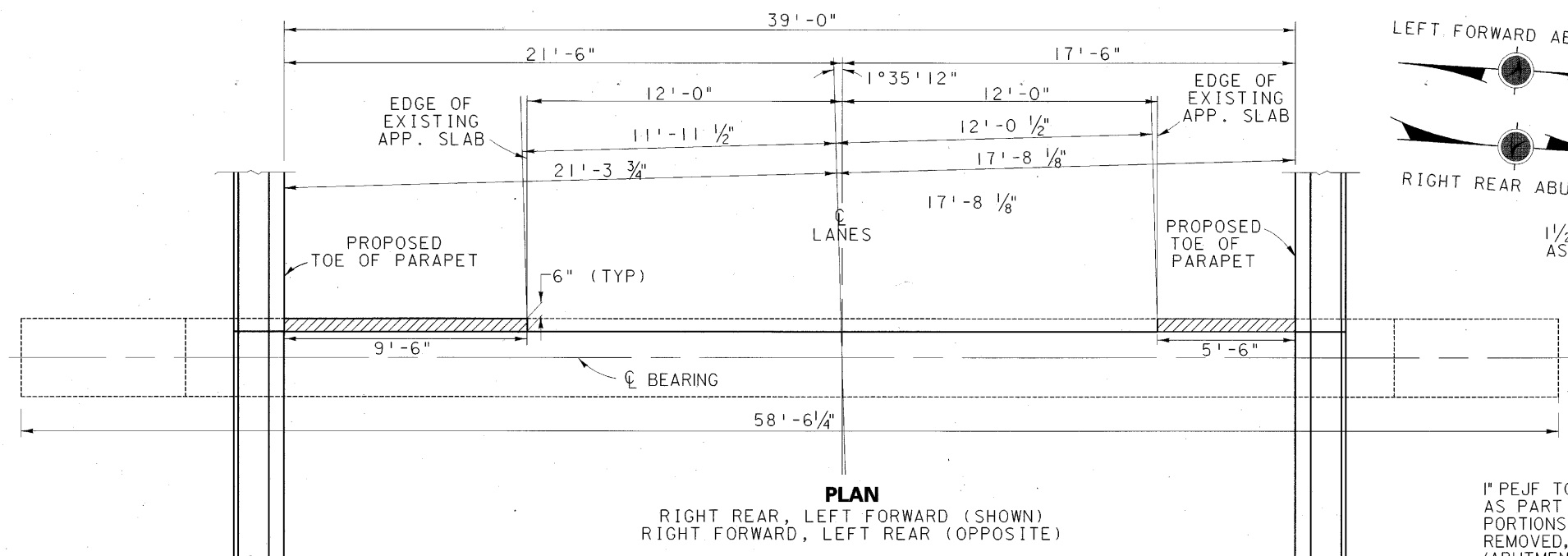
TYPE 1 TYPE 2



TYPE 3

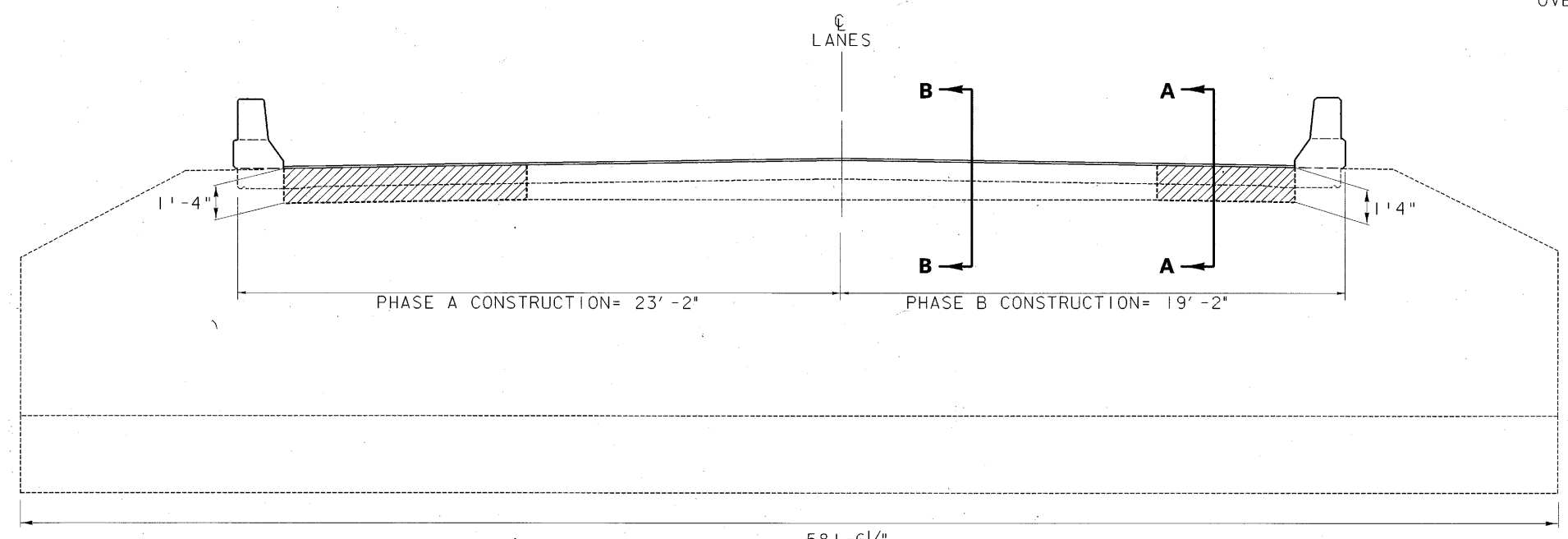
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 WORKSTATION: darmstro DATE: 18-AUG-1995

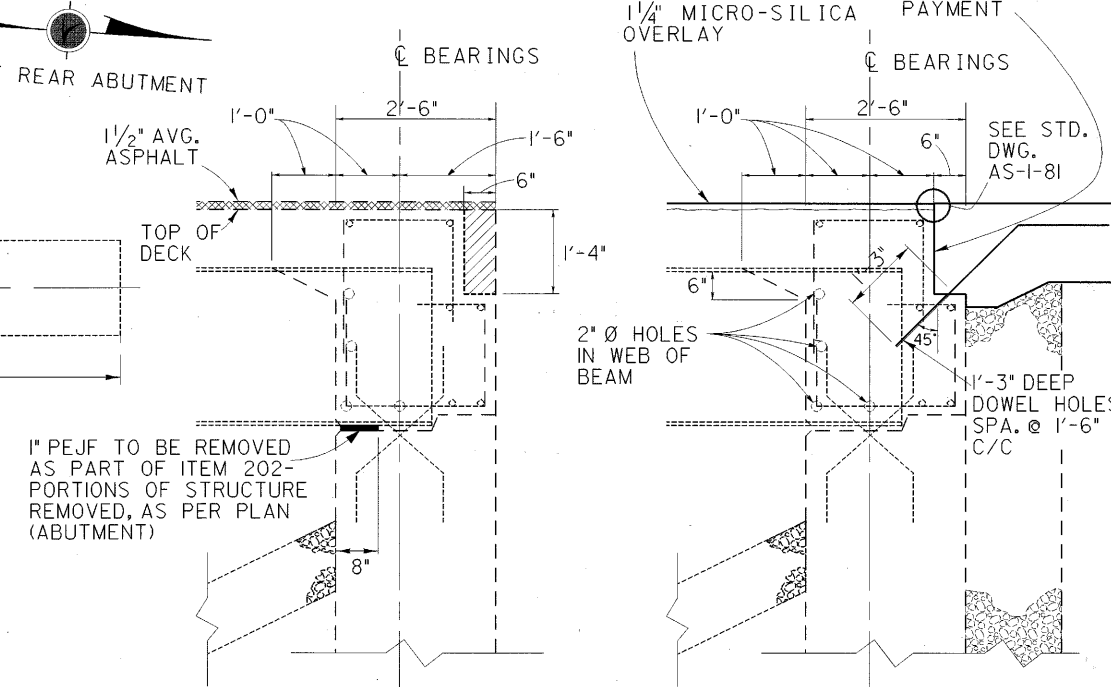
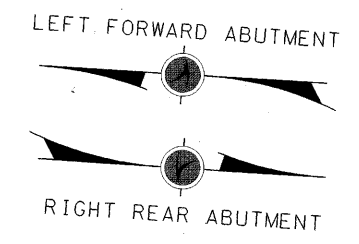


PLAN
 RIGHT REAR, LEFT FORWARD (SHOWN)
 RIGHT FORWARD, LEFT REAR (OPPOSITE)

- INDICATES AREA TO BE REMOVED AS PART OF ITEM 202- PORTIONS OF STRUCTURE REMOVED, AS PER PLAN (ABUTMENT)
- INDICATES ASPHALT CONCRETE TO BE REMOVED AS PART OF ITEM 202- WEARING COURSE REMOVED, AS PER PLAN

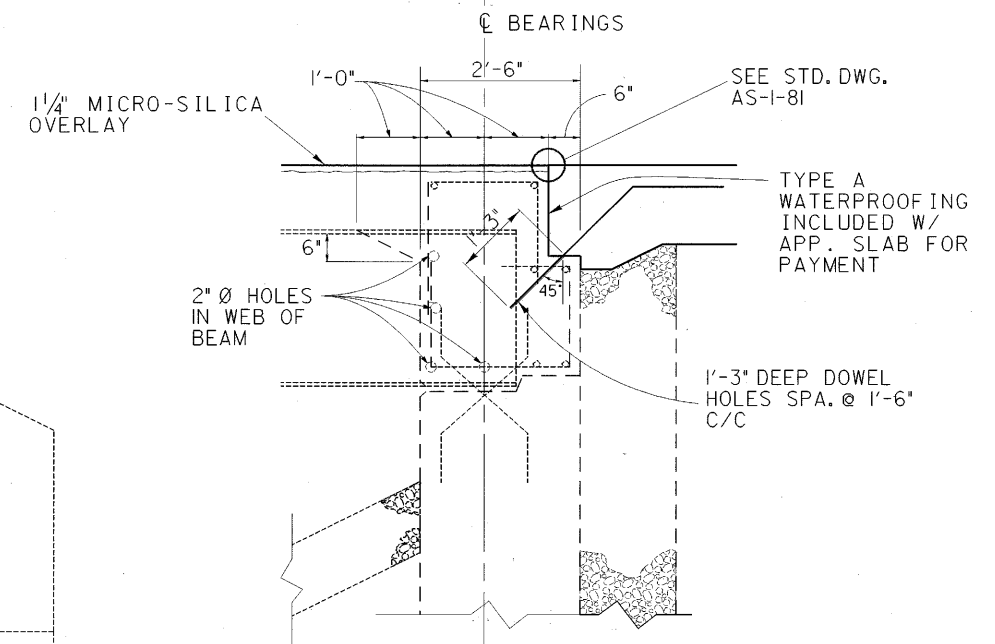


ELEVATION
 RIGHT REAR, LEFT FORWARD (SHOWN)
 RIGHT FORWARD, LEFT REAR (OPPOSITE)



SECTION A-A
 (EXISTING)

SECTION A-A
 (PROPOSED)



SECTION B-B
 (PROPOSED)

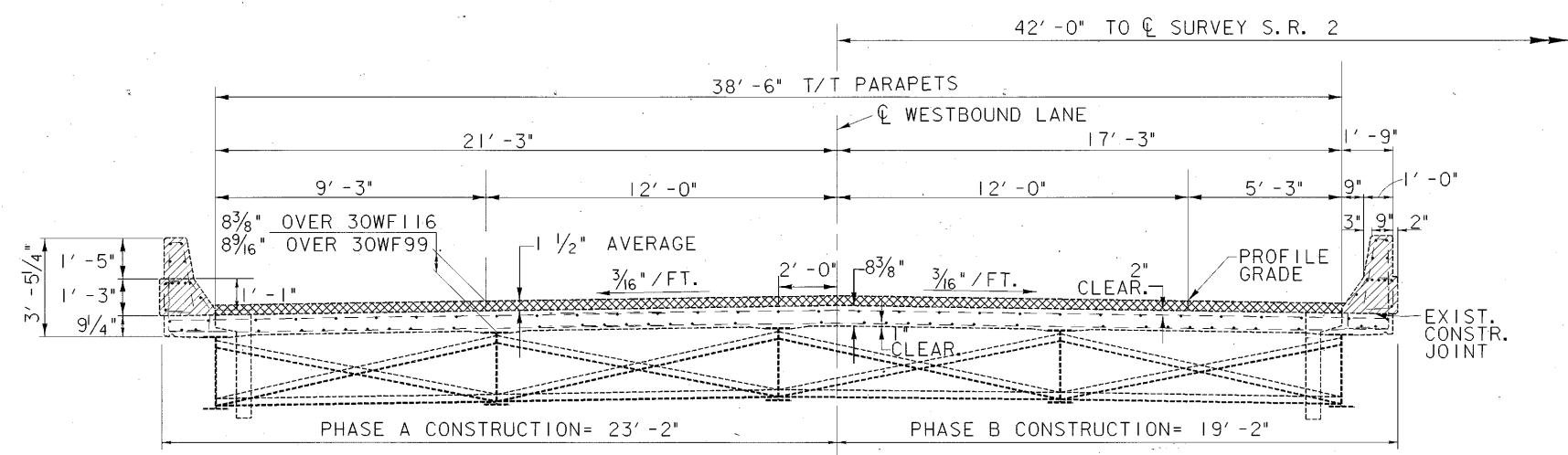
POROUS BACKFILL MATERIAL SHALL BE #57 GRAVEL.

POROUS BACKFILL
 ANY ADDITIONAL POROUS BACKFILL REQUIRED FOR THE PROPOSED ABUTMENT SHALL BE PER THE DETAILS AND ITEM 518, EXCEPT ALL POROUS BACKFILL MATERIAL SHALL BE #57 GRAVEL. COST OF THE POROUS BACKFILL SHALL BE INCLUDED WITH ITEM 611- APPROACH SLABS FOR PAYMENT.

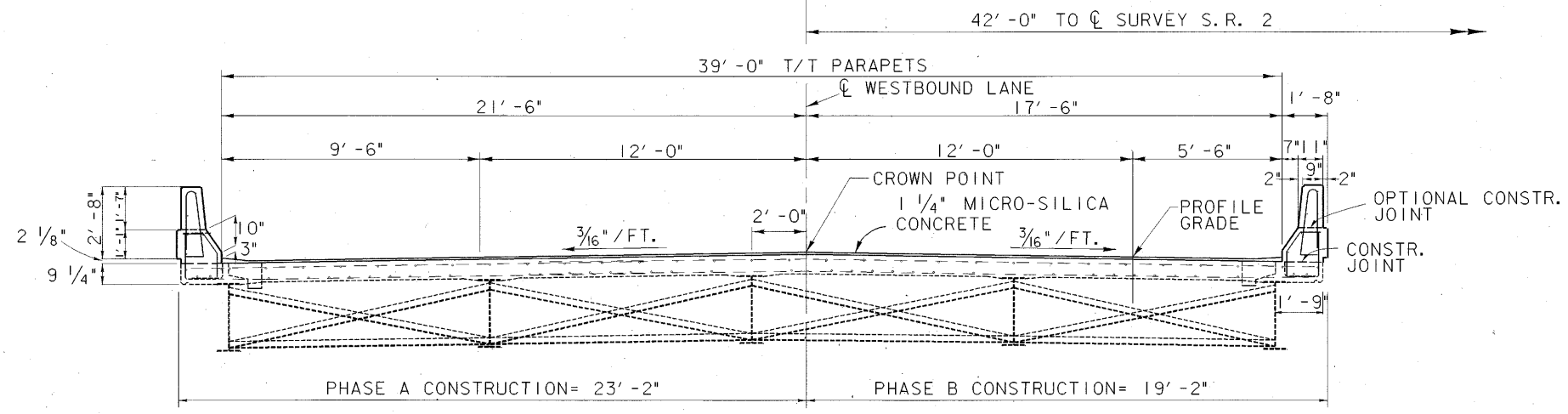
DESIGN AGENCY	OHIO DEPT. OF TRANSPORTATION
DISTRICT	DISTRICT THREE
LOCATION AND DESIGN	
DATE	4/95
REVIEWED	FEC
DESIGNED	PKA
CHECKED	RDN
STRUCTURE FILE NUMBER	2204711 & 2204738
ABUTMENT DETAILS	BRIDGE NO. ERI-2-2410 L & R OVER FRAILEY ROAD
ERI/LOR-2-22.24/0.00	
3/6	
143	187

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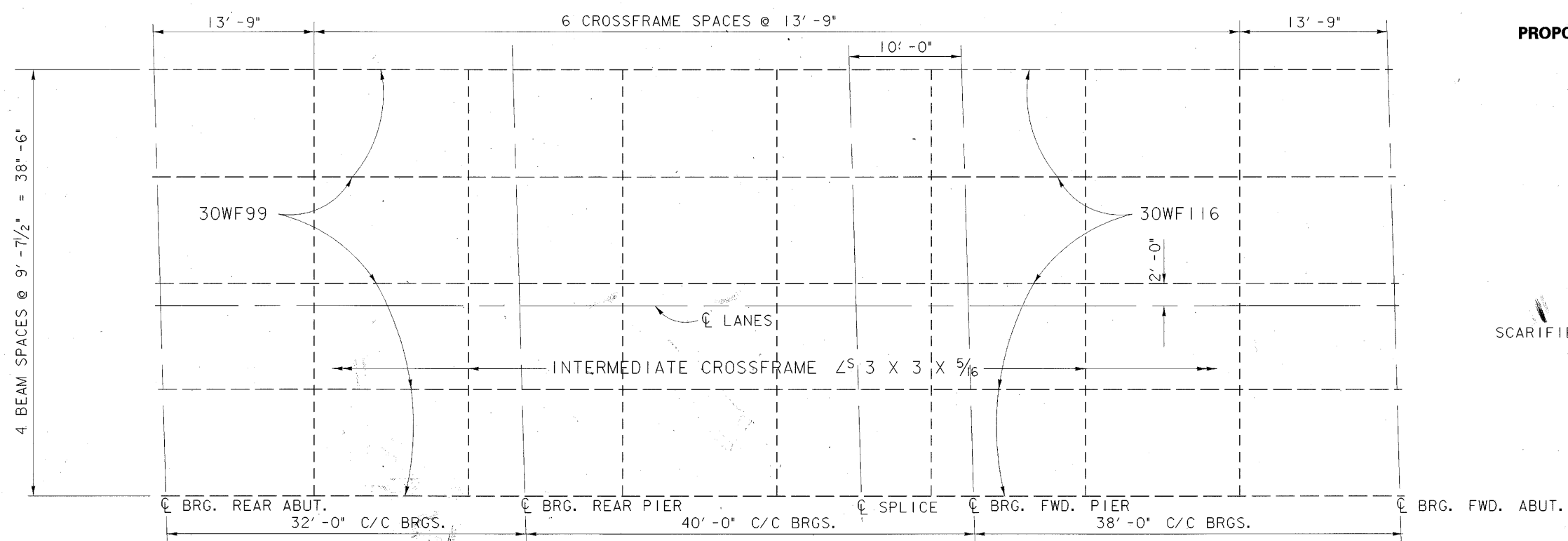
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 WORKSTATION: darmsro DATE: 18-AUG-1995



EXISTING SECTION
 LEFT BRIDGE (SHOWN), RIGHT BRIDGE (OPPOSITE)

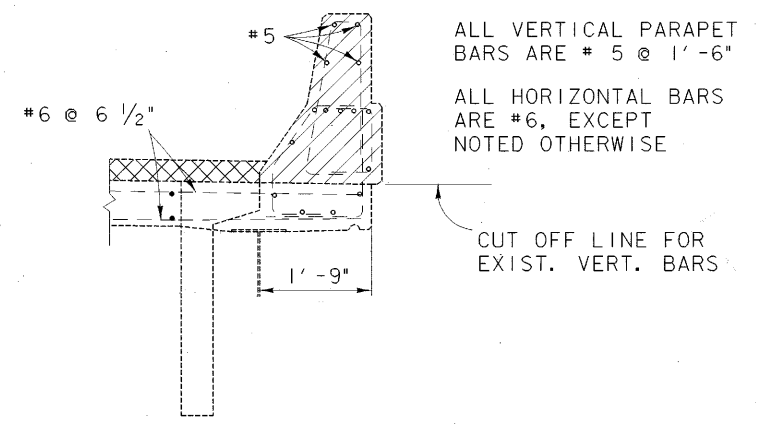


PROPOSED SECTION
 LEFT BRIDGE (SHOWN), RIGHT BRIDGE (OPPOSITE)

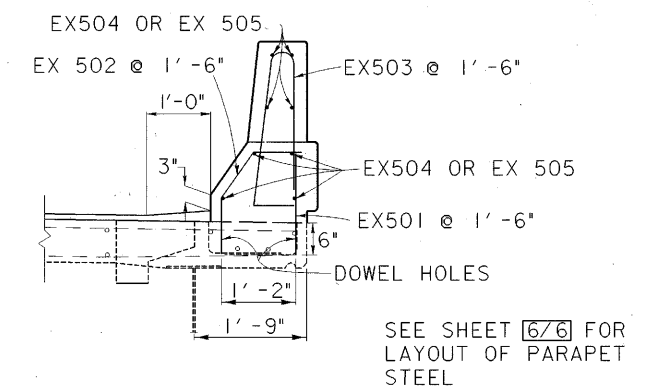


FRAMING PLAN

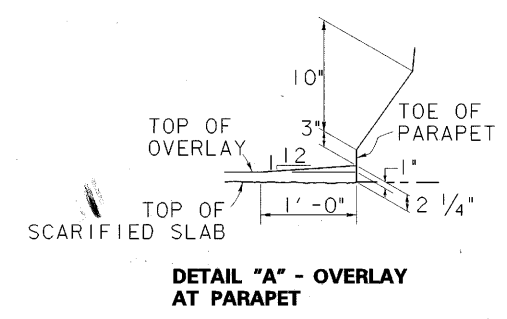
- INDICATES AREA TO BE REMOVED AS PART OF ITEM 202-PORION OF STRUCTURE REMOVED, AS PER PLAN (PARAPETS)
- INDICATES ASPHALT CONCRETE TO BE REMOVED AS PART OF ITEM 202-WEARING COURSE REMOVED, AS PER PLAN



EXISTING DECK EDGE



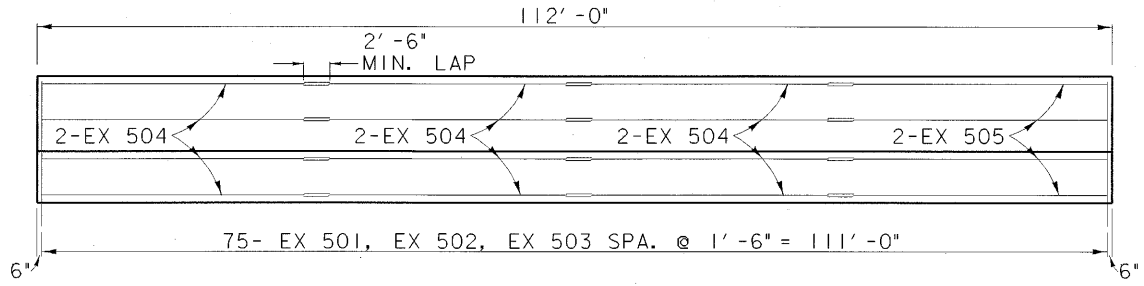
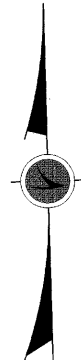
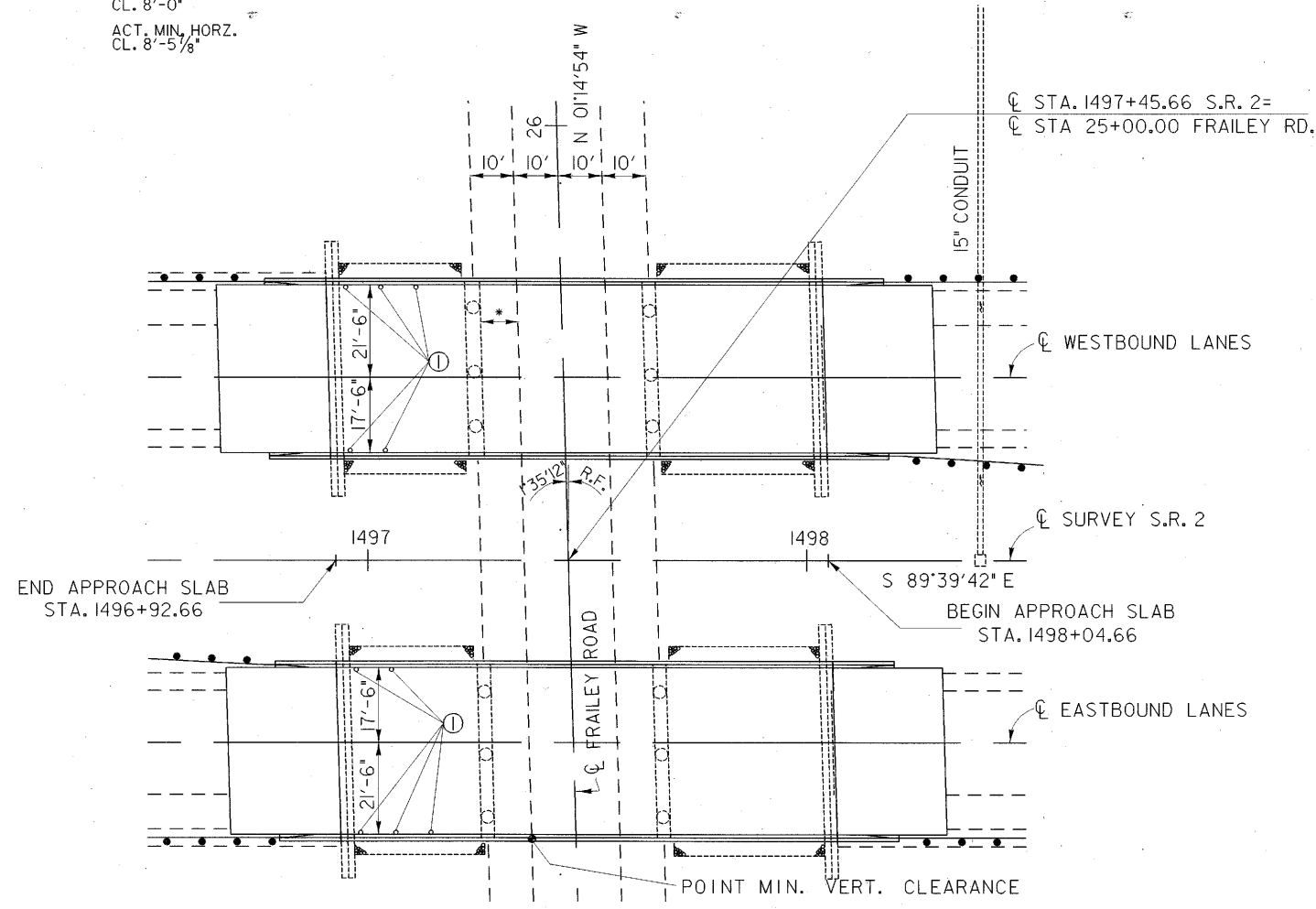
PROPOSED DECK EDGE



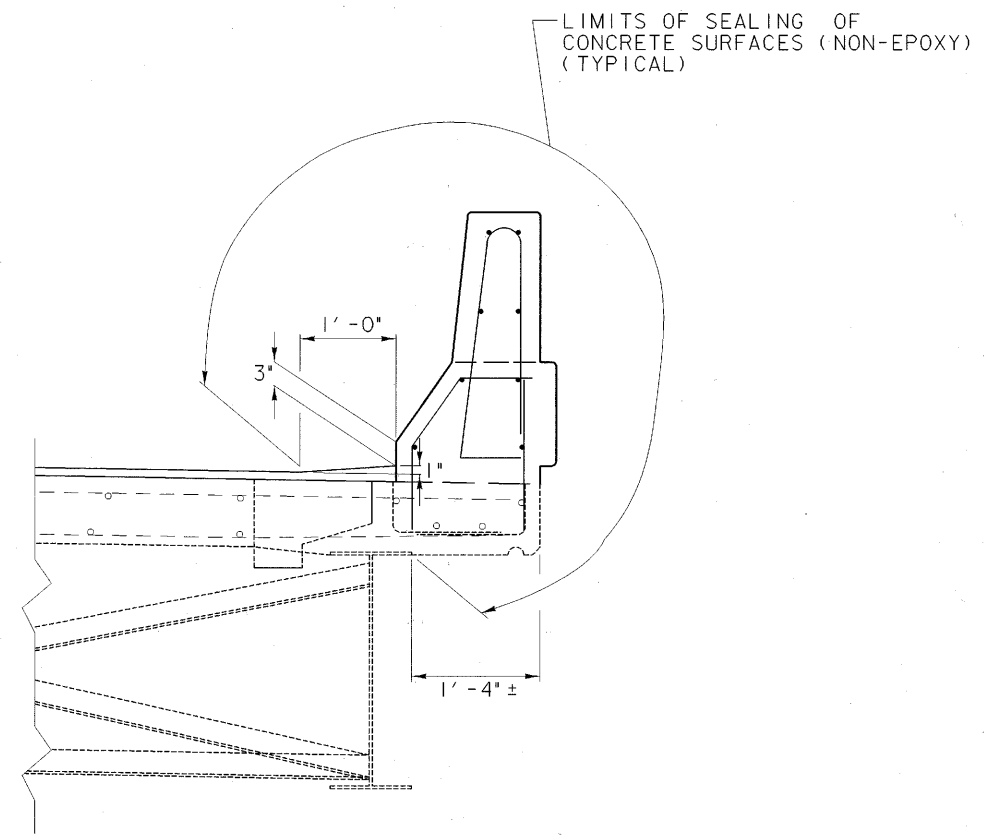
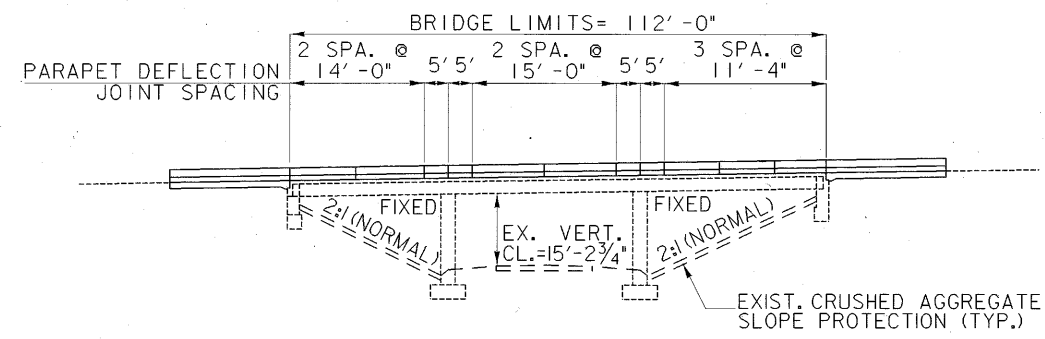
DETAIL "A" - OVERLAY AT PARAPET

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* REQ'D. HORIZ.
CL. 8'-0"
ACT. MIN. HORIZ.
CL. 8'-5 7/8"



SEE BELOW FOR PARAPET DEFLECTION JOINT SPACING
PARAPET STEEL LAYOUT DETAIL
(LEFT & RIGHT BRIDGE TYPICAL)



DETAIL OF SEALING OF CONCRETE SURFACE (SUPERSTRUCTURE)

REF NO.	ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION
1	SPEC	53000400	10	EACH	STRUCTURE MISC: SCUPPER PLUGGED

TOTALS CARRIED TO BRIDGE ESTIMATED QUANTITIES

DESIGN FILE: c:\dgn\er12\2410\2410sdb.dgn
WORKSTATION: darmsfro DATE: 18-AUG-1995

DESIGN AGENCY: OHIO DEPT. OF TRANSPORTATION DISTRICT THREE LOCATION AND DESIGN
DATE: 5/95
REVIEWED: P/KA
DESIGNED: P/KA
CHECKED: RPN
PARAPET DEFLECTION JOINT DETAILS
BRIDGE NO. ERI-2-2410 L&R
OVER FRAILEY ROAD
ERI/LOR-2-22-24/0.00
6/6
146/187