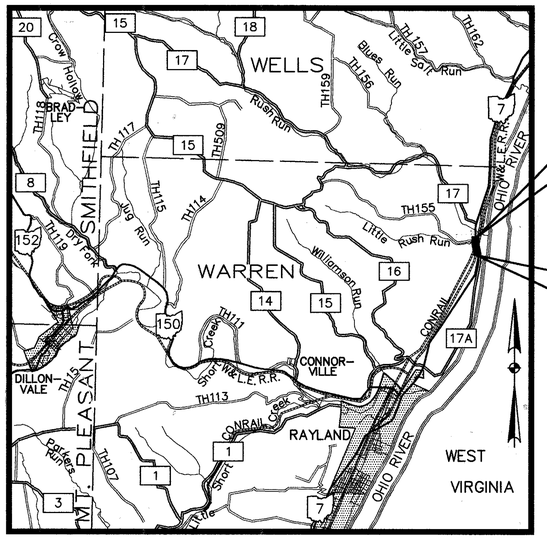


LOCATION MAP

LATITUDE: N 40°12'50" LONGITUDE: W 80°40'00"

0 1 2 3 4
SCALE IN MILES

PORTION TO BE IMPROVED
STATE & FEDERAL ROUTES
OTHER ROADS

END PROJECT STA. 272+50.00

BEGIN PROJECT STA. 243+50.00

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

JEF-7-4.63

RECONSTRUCTION OF EXISTING SEPARATED CROSSING WITH THE WHEELING AND LAKE ERIE, AND CONRAIL RAILROADS

WARREN TOWNSHIP
JEFFERSON COUNTY

INDEX OF SHEETS

PROJECT DESCRIPTION

REHABILITATION OF THE EXISTING STRUCTURE OVER THE WHEELING AND LAKE ERIE, AND CONRAIL RAILROADS BY REPLACEMENT OF THE BRIDGE DECKS AND APPROACH SLABS, REPAINTING ALL STEEL SURFACES TOGETHER WITH OTHER INCIDENTAL BRIDGE REPAIRS AND ROADWAY APPROACH WORK. THE PROJECT IS 0.17 MI. IN LENGTH.

LIMITED ACCESS

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

1997 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 THE 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.

APPROVED John T. Gran
DATE 5.20.97 DISTRICT DEPUTY DIRECTOR

APPROVED
DATE 6.18.97 DIRECTOR, DEPARTMENT OF TRANSPORTATION

DESIGN DESIGNATION

CURRENT ADT (1997)	10,000
DESIGN YEAR ADT (2017)	13,800
DESIGN HOURLY VOLUME (2017)	1,380
DIRECTIONAL DISTRIBUTION	55%
TRUCKS (24 HOUR B & C)	11%
DESIGN SPEED	55 M.P.H.
LEGAL SPEED	55 M.P.H.

DESIGN FUNCTIONAL CLASSIFICATION– RURAL EXPRESSWAY

DESIGN EXCEPTIONS:

DESIGN FEATURE	APPROVAL DATE
BRIDGE WIDTH	1/3/97
GRADED SHOULDER WIDTH	1/3/97

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

PREPARED AND RECOMMENDED BY
ms consultants, inc.
CONSULTING ENGINEERS, ARCHITECTS & PLANNERS
333 E. FEDERAL STREET
YOUNGSTOWN, OHIO 44503

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS

BP-1.1	2/21/92	GR-3.1	5/6/91	MT-95.30	10/10/88	GSD-1-96	2/12/97
BP-1.2	2/21/92	GR-3.2	5/6/91	MT-95.70	2/23/90	AS-1-81	9/15/94
BP-2.1 M	4/8/97	GR-8.1	1/31/94	MT-101.60	7/1/92	CS-1-93	6/30/95
BP-2.2M	4/8/97					EXJ-2-81	2/14/97
BP-2.3 M	10/28/94	RM-1.1 M	4/8/97	TC-41.20	6/21/94	EXJ-4-87	2/14/97
BP-2.4	2/21/92	DM-1.1 M	6/30/95	TC-52.10	4/3/79	BR-1	12/15/94
BP-3.1	2/21/92	MC-7	10/15/76	TC-52.20	4/3/79	RB-1-55	2/2/59
BP-5.1	10/28/94	MC-9.2	5/6/91				
BP-8.1 M	4/8/97	MC-9.3	10/30/92				
GR-1.1 M	11/30/94	DM-4.3 M	6/30/95				
GR-1.2 M	1/3/96						
GR-1.3	2/21/92						
GR-2.1	5/6/91						

SUPPLEMENTAL SPECIFICATIONS

849	6/14/95
910	4/21/97
949	6/14/95
815	5/30/96

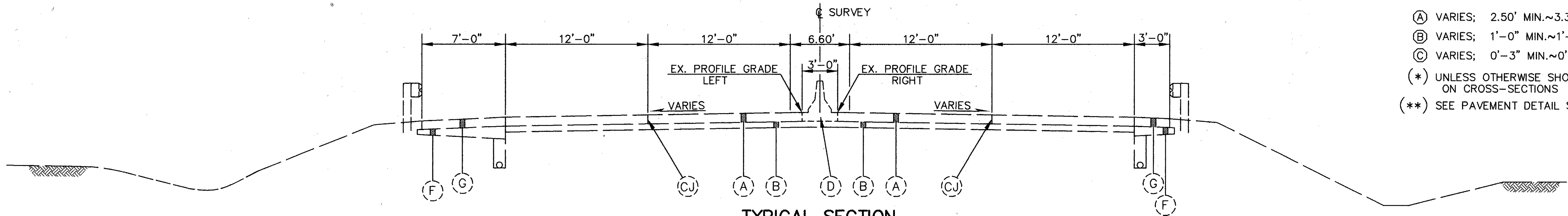
FEDERAL PROJECT NO. NH 1 (212)
PID NO. 9369
CONSTRUCTION PROJECT NO.
RAILROAD INVOLVEMENT WHEELING & LAKE ERIE AND CONRAIL RAILROADS
JEF-7-4.63
1 / 73

JEF-7-4.63
970661
73PGS
09-24-97
DIST. 11

ms sts CIVIL_16 FN: C:\08077306\MISC\L\08077GTA SC: 1=1 1429 10/02/96

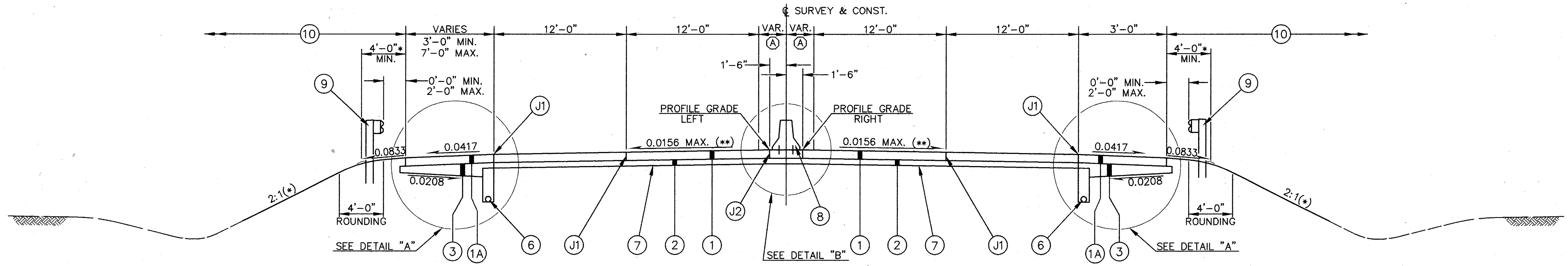
NOTES

- (A) VARIES; 2.50' MIN.~3.30' MAX.
- (B) VARIES; 1'-0" MIN.~1'-3" MAX.
- (C) VARIES; 0'-3" MIN.~0'-6" MAX.
- (*) UNLESS OTHERWISE SHOWN ON CROSS-SECTIONS
- (**) SEE PAVEMENT DETAIL SHEET No. 27



TYPICAL SECTION
ADJOINING PAVEMENT

STA. 243+50.00 TO SOUTH



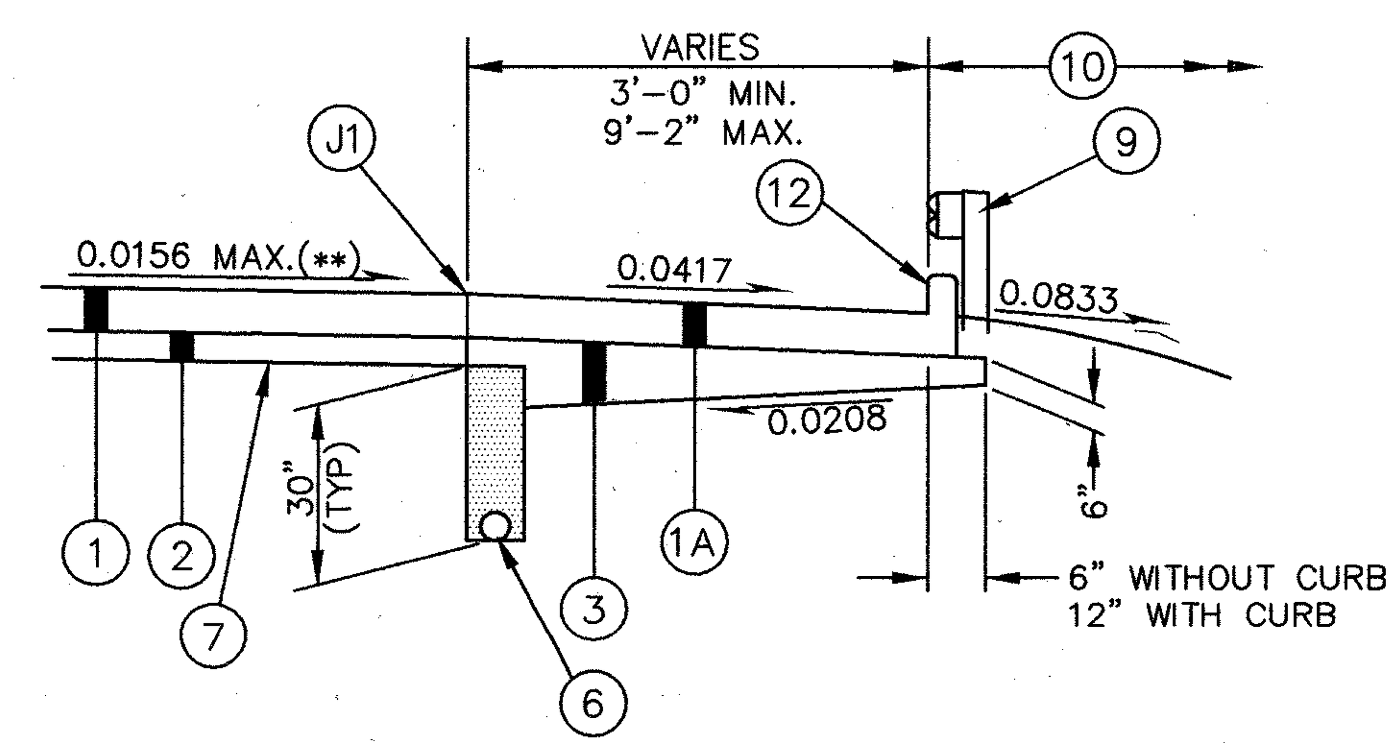
NORMAL SECTION

STA. 243+50.00 TO STA. 244+38.46 = 88.46 L.F.
(EQUATION STA. 244+38.46 Bk. = STA. 264+31.25 Ah.)
STA. 264+31.25 TO STA. 264+41.03 = 9.78 L.F.
TOTAL = 98.24 L.F.

LEGEND

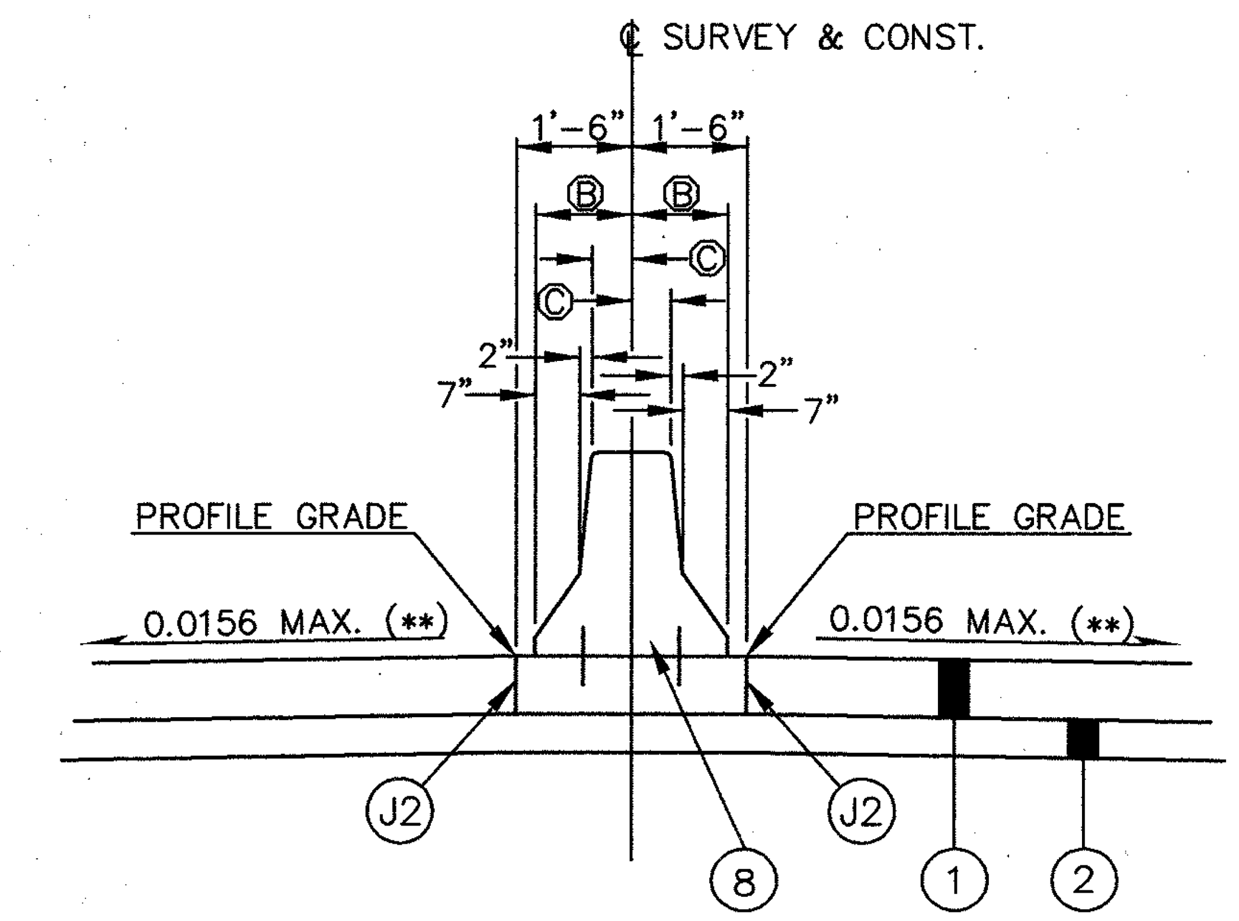
(1)	ITEM 451	10" REINFORCED CONCRETE PAVEMENT
(1A)	ITEM 452	10" PLAIN CONCRETE PAVEMENT
(2)	ITEM 304	6" AGGREGATE BASE
(3)	ITEM 304	AGGREGATE BASE
(4)	ITEM 301	6" BITUMINOUS AGGREGATE BASE, PG 64-22
(5)	ITEM 408	BITUMINOUS PRIME COAT, APPLIED AT RATE 0.40 Gal./Sq.Yd.
(6)	ITEM 605	6" SHALLOW PIPE UNDERDRAINS
(7)	ITEM 203	SUBGRADE COMPACTION
(8)	ITEM 622	CONCRETE BARRIER, TYPE B
(9)	ITEM 606	GUARDRAIL, TYPE 5
(10)	ITEM 659	SEEDING AND MULCHING
(11)	ITEM 611	REINFORCED CONCRETE APPROACH SLAB (T=13"), AS PER PLAN
(12)	ITEM 609	CURB, TYPE 4A
(J1)		STANDARD LONGINTUDINAL JOINT
(J2)		STANDARD LONGINTUDINAL JOINT, WITHOUT TIE BARS

(A)	9" REINFORCED CONCRETE
(B)	6" BITUMINOUS BASE
(CJ)	LONGITUDINAL JOINT
(D)	CONCRETE BARRIER
(E)	3" BITUMINOUS BASE
(F)	6" AGGREGATE BASE
(G)	CONCRETE BERM
(H)	3"± ASPHALT



CONCRETE SHOULDER DETAIL
DETAIL "A"

STA. 244+22.24 TO STA. 264+41.03 = 26.00 L.F.
STA. 270+91.50 TO STA. 272+50.00 = 158.50 L.F.(OPPOSITE HAND)
TOTAL = 184.50 L.F.



CONCRETE BARRIER TRANSITION
DETAIL "B"

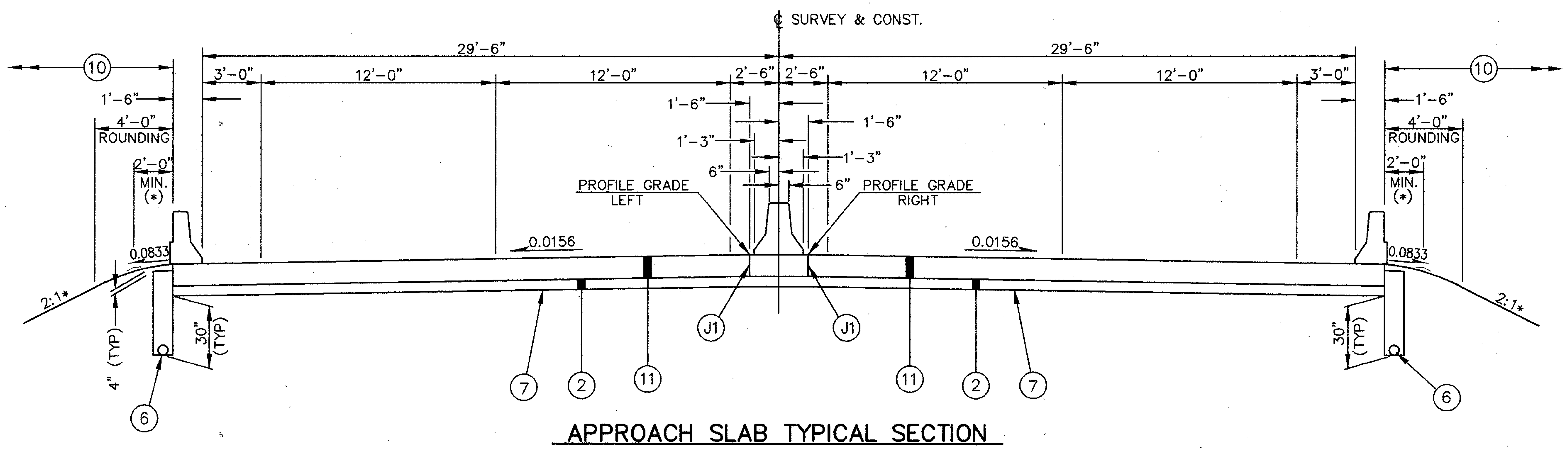
STA. 243+50.00 TO STA. 243+75.00 = 25.00 L.F.
STA. 272+25.00 TO STA. 272+50.00 = 25.00 L.F.
TOTAL = 50.00 L.F.

CALC. BY: M.F.R. DATE: 10/96
CHKD. BY: R.B.S. DATE: 10/96

TYPICAL SECTIONS

JEF-7-4.63

FOR LEGEND AND NOTES SEE SHEET NO. 2

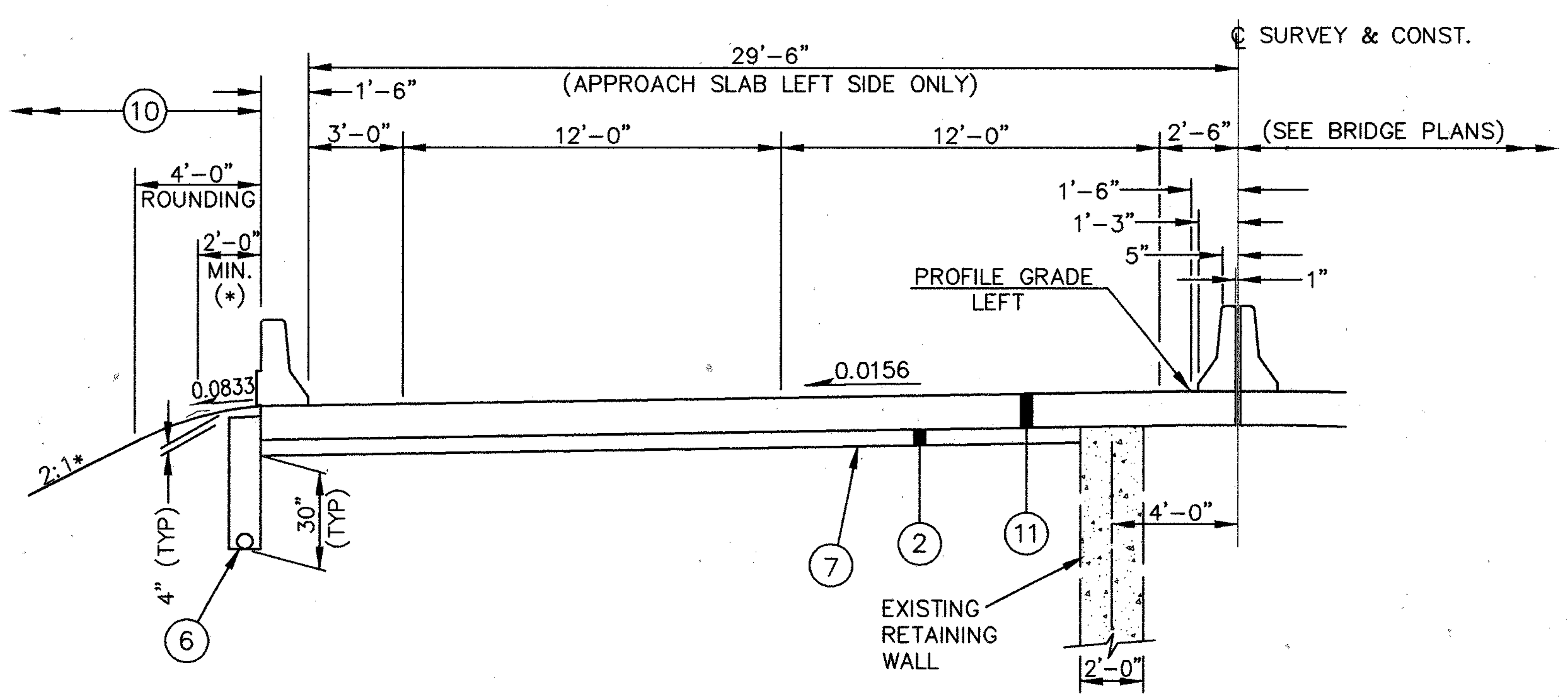


APPROACH SLAB TYPICAL SECTION

STA. 264+41.03 TO STA. 264+56.03 = 15.00 L.F.

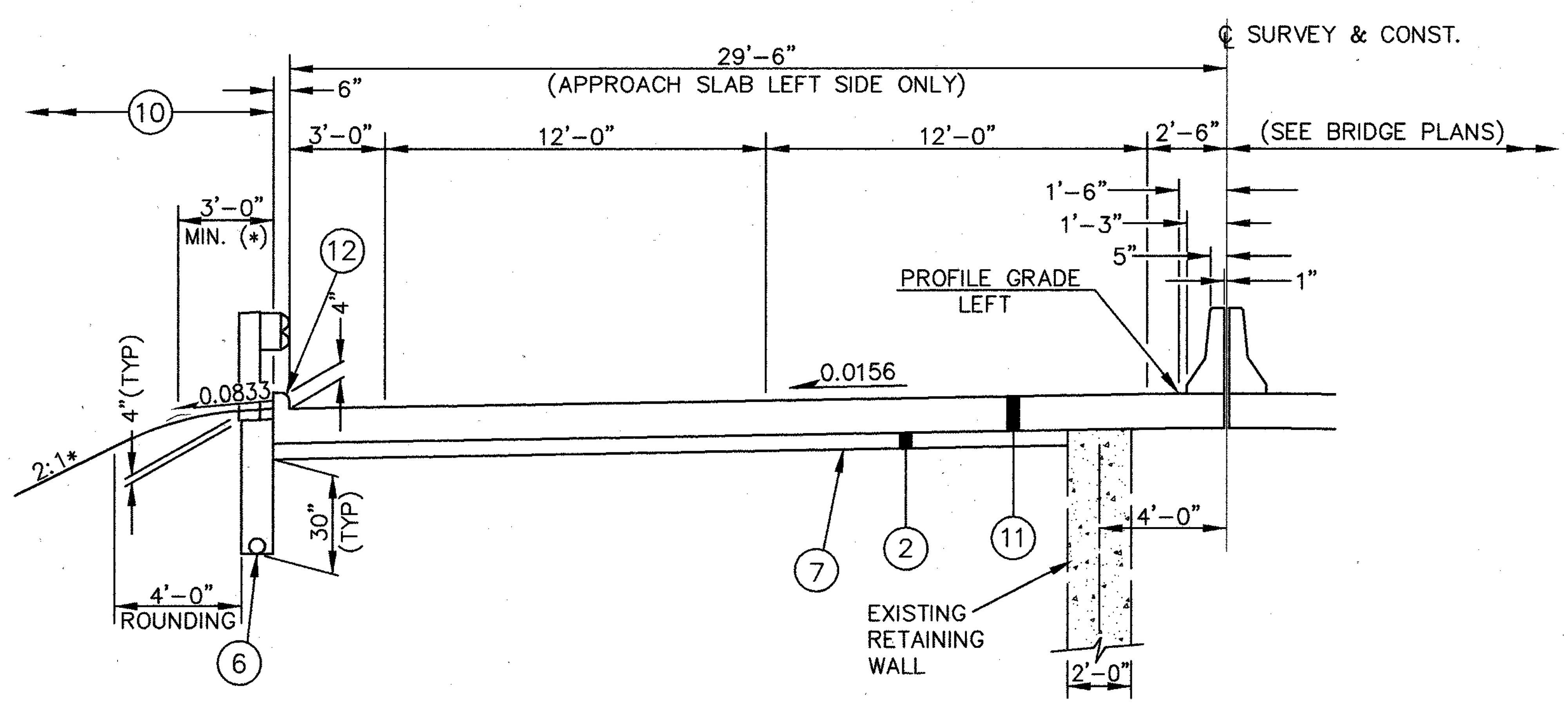
BRIDGE LIMITS

LEFT SIDE~STA. 264+56.03 TO STA. 270+12.61 = 556.58 L.F.
RIGHT SIDE~STA. 264+56.03 TO STA. 270+91.63 = 635.60 L.F.



APPROACH SLAB TYPICAL SECTION

STA. 270+12.61 TO STA. 270+37.61 = 25.00 L.F.



APPROACH SLAB TYPICAL SECTION

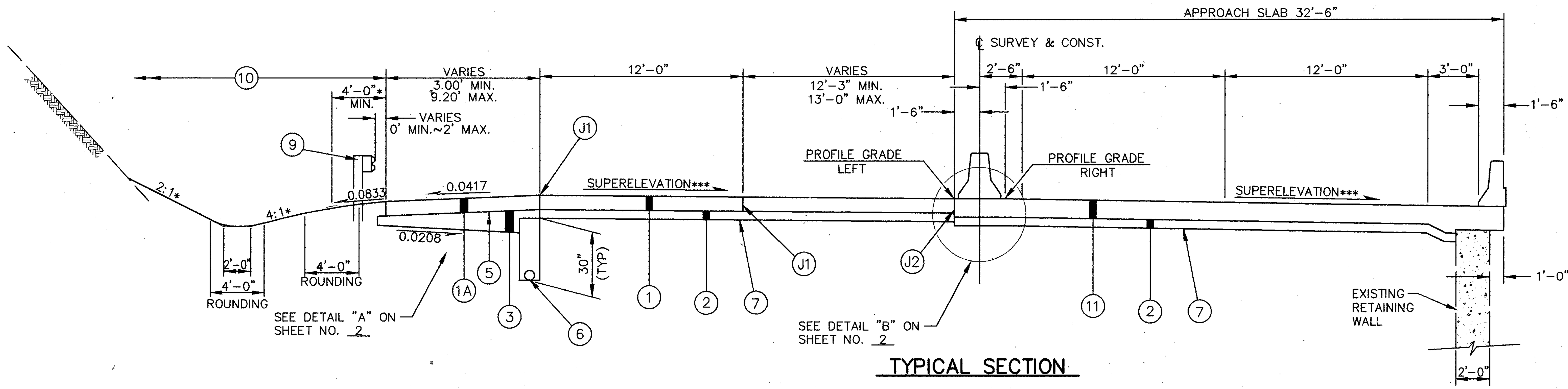
STA. 270+37.61 TO STA. 270+91.63 = 54.02 L.F.

CALC. BY: M.F.R. DATE: 10/96
CHKD. BY: R.B.S. DATE: 10/96

TYPICAL SECTIONS

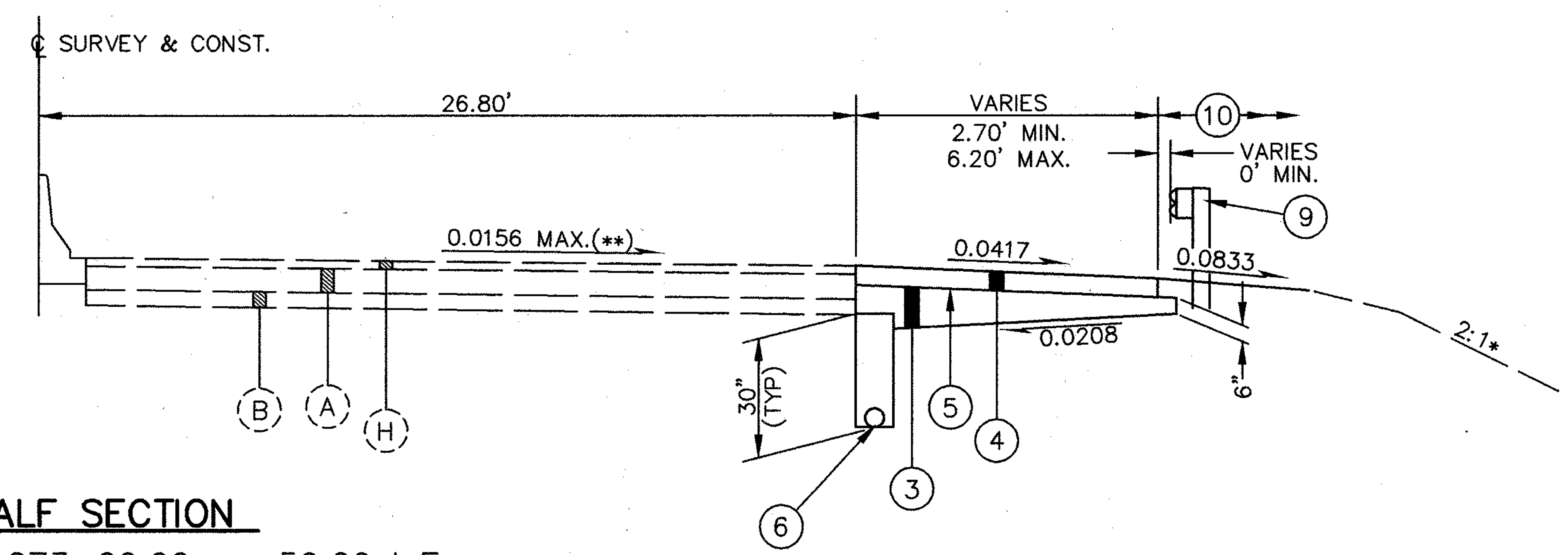
JEF-7-4.63

FOR LEGEND AND NOTES SEE SHEET NO. 2



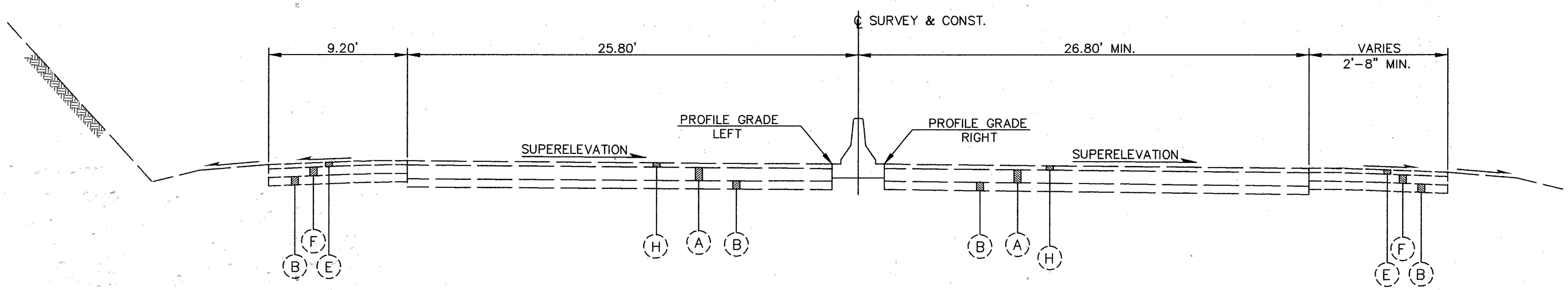
TYPICAL SECTION

STA. 270+91.63 TO STA. 272+50.00 = 158.37 L.F.



TYPICAL HALF SECTION

STA. 272+50.00 TO STA. 273+00.00 = 50.00 L.F.



TYPICAL SECTION
ADJOINING PAVEMENT

STA. 272+50.00 TO NORTH

CALC. BY: M.F.R. DATE: 10/96
CHKD. BY: R.B.S. DATE: 10/96

TYPICAL SECTIONS

JEF-7-4.63

ROUNDING

THE ROUNDING AT SLOPE BREAKPOINTS SHOWN ON THE TYPICAL SECTIONS APPLY TO ALL CROSS-SECTIONS EVEN THOUGH OTHERWISE SHOWN.

ELEVATION DATUM

ALL ELEVATIONS ARE BASED ON U.S.G.S. DATUM.

MONUMENTS

MONUMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH DETAILS AS SHOWN ON THE STANDARD CONSTRUCTION DRAWINGS AND AT THE LOCATIONS SHOWN ON SHEET Nos. 17 & 19 .

UTILITIES

LISTED BELOW ARE ALL UTILITIES LOCATED WITHIN THE PROJECT CONSTRUCTION LIMITS TOGETHER WITH THEIR RESPECTIVE OWNERS:

THERE ARE NO KNOWN UNDERGROUND UTILITIES ON THIS PROJECT.

THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS AS REQUIRED BY SECTION 153.64 O.R.C.

CONTINGENCY QUANTITIES

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK FOR ITEMS DESIGNATED BY PLAN NOTE TO BE USED "AS DIRECTED BY THE ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER. THE ACTUAL WORK LOCATIONS AND QUANTITIES USED FOR SUCH ITEMS SHALL BE INCORPORATED INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT.

WORK LIMITS

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. THE INSTALLATION AND OPERATION OF ALL TEMPORARY TRAFFIC CONTROL AND TEMPORARY TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS SHALL BE PROVIDED BY THE CONTRACTOR WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

REMOVAL OF TREES OR STUMPS

ALL TREES AND STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE CONSTRUCTION LIMITS SHALL BE REMOVED UNDER THE LUMP SUM BID FOR ITEM 201, CLEARING AND GRUBBING. THE FOLLOWING IS AN APPROXIMATE ESTIMATE OF THE NUMBER OF TREES AND STUMPS TO BE REMOVED.

SIZE	NO. TREES	NO. STUMPS	TOTAL
	NONE		

CONVERSION OF METRIC STANDARD DRAWINGS

THE METRIC STANDARD DRAWINGS REFERENCED IN THIS PLAN SHALL BE CONVERTED TO ENGLISH UNITS USING THE SI (METRIC) TO ENGLISH CONVERSION FACTORS PROVIDED IN SECTION 109.011 OF THE 1997 CONSTRUCTION AND MATERIALS SPECIFICATIONS. THE APPENDIX OF ASTM E 380 SHALL BE UTILIZED FOR ANY ADDITIONAL CONVERSION FACTORS REQUIRED. CONVERSIONS SHALL BE APPROPRIATELY PRECISE, AND SHALL REFLECT STANDARD INDUSTRY ENGLISH VALUES WHERE SUITABLE.

STANDARD CONSTRUCTION DRAWINGS REFERRED TO IN THIS PLAN AS BP-2.1, BP-2.2, BP-2.3, BP-8.1, GR-1.1, GR-1.2, MC-1, MC-4 AND MC-11 SHALL BE CONSIDERED TO READ AS STANDARD CONSTRUCTION DRAWINGS BP-2.1 M, BP-2.2 M, BP-2.3 M, BP-8.1 M, GR-1.1 M, GR-1.2M, RM-1.1 M, DM-1.1 M, AND DM-4.3 M, RESPECTIVELY.

ITEM 606, ANCHOR ASSEMBLY, TYPE E

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING AN ET-2000, OPTION "B" GUARDRAIL END TERMINAL AS MANUFACTURED BY SYRO STEEL COMPANY, 1170 N. STATE STREET, GIRARD, OHIO 44420 (TELEPHONE: 330-545-4373).

THE LENGTH OF THE ET-2000 SYSTEM IS CONSIDERED TO BE 50', INCLUSIVE OF TWO 25' LONG RAIL ELEMENTS. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND AT THE LOCATIONS SHOWN IN THE PLANS.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT BID PRICE FOR ITEM 606, EACH, ANCHOR ASSEMBLY, TYPE E AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL ANCHOR ASSEMBLY SYSTEM, INCLUDING ALL RELATED HARDWARE, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

CONTRACTION JOINTS IN CONCRETE PAVEMENT OR BASE WIDENING

WHERE NEW CONCRETE IS PLACED ADJACENT TO EXISTING CONCRETE, CONTRACTION JOINTS SHALL BE PROVIDED IN THE NEW CONCRETE SO AS TO FORM CONTINUOUS JOINTS WITH THOSE IN THE EXISTING CONCRETE.

THE MAXIMUM DISTANCE BETWEEN THE JOINTS IN THE NEW CONCRETE SHALL BE IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING BP-2.2. IF NECESSARY, ADDITIONAL JOINTS SHALL BE PROVIDED IN THE NEW CONCRETE AT APPROXIMATELY EQUAL INTERVALS BETWEEN EXISTING JOINTS THAT EXCEED THE MAXIMUM SPACING.

CONTRACTION AND/OR EXPANSION JOINTS

ALTHOUGH SPECIFIC LOCATIONS OF CERTAIN CONTRACTION AND EXPANSION JOINTS HAVE BEEN DETAILED ON THIS PLAN, NO WAIVER OF THE SPECIFICATIONS IS INTENDED. PROVISION OF EXPANSION JOINTS AT ALL MAJOR STRUCTURES AND THE MAXIMUM SPACING BETWEEN CONTRACTION JOINTS SHALL, IN ALL CASES, BE IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING BP-2.2 AND THE SPECIFICATIONS.

CONNECTION BETWEEN EXISTING AND PROPOSED GUARDRAIL

WHEN IT IS NECESSARY TO SPLICE PROPOSED GUARDRAIL TO EXISTING GUARDRAIL, ONLY THE EXISTING GUARDRAIL SHALL BE CUT, DRILLED, OR PUNCHED. THE CONNECTION SHALL BE MADE USING A "W-BEAM RAIL SPLICE" AS SHOWN ON STANDARD CONSTRUCTION DRAWING GR-1.1. PAYMENT SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE RESPECTIVE GUARDRAIL ITEMS.

MEDIAN AND/OR CURBING ON APPROACH SLABS

THE SHAPE OF THE MEDIAN AND/OR CURBING ON APPROACH SLABS SHALL BE TRANSITIONED, FROM THE STANDARD SECTION ON THE APPROACHES TO THE SECTION USED ON THE BRIDGE, WITHIN THE LIMITS OF THE APPROACH SLAB.

ITEM 611 REINFORCED CONCRETE APPROACH SLAB, AS PER PLAN

THE PROPOSED APPROACH SLABS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ITEM 611 OF O.D.O.T. CONSTRUCTION AND MATERIAL SPECIFICATIONS, STANDARD BRIDGE DRAWINGS NO. AS-1-81, AND DETAILS AS SHOWN IN THESE PLANS.
THE PROPOSED CAST IN PLACE CONCRETE DEFECTOR PARAPETS MOUNTED ONTO THE PROPOSED APPROACH SLABS SHALL BE CONTRUCTED AS SHOWN ON SHEET NUMBERS 39 & 43-46 .
FULL COMPENSATION, UNLESS OTHERWISE INDICATED IN THESE PLANS, FOR ALL LABOR AND MATERIALS TO CONSTRUCT THE APPROACH SLABS WITH DEFLECTOR PARAPETS, COMPLETE IN PLACE SHALL BE INCLUDED IN THE PER UNIT PRICE BID FOR ITEM 611 REINFORCED CONCRETE APPROACH SLABS, AS PER PLAN.

ITEM 659, SEEDING AND MULCHING

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES, AND WITHIN THE CONSTRUCTION LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT. QUANTITY CALCULATIONS FOR ITEM 659, SEEDING AND MULCHING, ARE BASED ON THESE LIMITS.

WATERING OF PERMANENT SEEDED AREAS

THE FOLLOWING ESTIMATED QUANTITY IS TO BE USED AS DIRECTED BY THE ENGINEER TO PROMOTE GROWTH AND TO CARE FOR PERMANENT SEEDED AREAS PER 659.09:

ITEM 659, WATER 1 M. GAL.

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL

THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES:

ITEM 207, STRAW OR HAY BALES 50 EACH

ITEM 207, FILTER FABRIC FENCE 200 LIN. FT.

EROSION CONTROL PADS AND ANIMAL GUARDS

FOR COMPLETE DESCRIPTION AND DETAILS SEE SHEET NO. 28 .

COOPERATION WITH RAILROADS

THE CONTRACTOR SHALL COOPERATE AT ALL TIMES WITH LOCAL OFFICIALS OF THE RAILROAD COMPANIES. HE SHALL USE ALL RESONABLE CARE AND DILIGENCE IN THE WORK IN ORDER TO AVOID ACCIDENTS, DAMAGE, OR INTERFERENCE WITH THE TRAINS OR OTHER PROPERTY OF THE RAILROAD. THE CONTRACTOR SHALL NOTIFY THE LOCAL OFFICIALS OF THE RAILROADS PRIOR TO STARTING WORK THAT MAY AFFECT THE RAILROAD PROPERY AND FACILITIES AND SHALL PAY THE RAILROAD COMPANY THE COST FLAGMEN FURNISHED BY THE RAILROADS MADE NECESSARY BECAUSE OF ANY OF THE CONTRACTOR'S OPERATIONS OVER OR ADJACENT TO THE TRACKS.

NO SCAFFOLD, PLANKS OR OTHER EQUIPMENT SHALL BE SUSPENDED OR ERECTED ABOVE OR WITHIN 10 FEET HORIZONTALLY OF A RAIL OVER WHICH TRAINS ARE OPERATING WITHOUT PRIOR WRITTEN APPROVAL OF THE CHIEF ENGINEER, OR AN AUTHORIZED REPRESENTATIVE OF EACH RAILROAD COMPANY.

FAILURE TO NOTIFY THE RAILROAD COMPANIES, AS NOTED, SHALL BE A CAUSE FOR STOPPING WORK UNTIL ALL PROVISIONS FOR PROTECTING RAILROAD PROPERTY HAVE BE FOLLOWED.

THE FOLLOWING RAILROADS ARE LOCATED WITHIN THE WORK LIMITS OF THIS PROJECT:

WHEELING & LAKE ERIE RAILWAY CO.	CONSOLIDATED RAIL CORP.
100 EAST FIRST STREET	3501 ISLAND AVENUE
BREWSTER, OHIO 44613	PHILADELPHIA, PA. 19153-3286
PHONE: (330)767-3401	PHONE: (215)937-7547

FULL COMPENSATION OF THE ABOVE WORK UNLESS OTHERWISE INDICATED IN THESE PLANS SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614 MAINTAINING TRAFFIC.

CALC. BY: M.F.R. DATE: 10/96
CHKD. BY: R.B.S. DATE: 10/96

GENERAL NOTES

JEF-7-4.63

614 MAINTAINING TRAFFIC

THE CONTRACTOR SHALL MAINTAIN TRAFFIC AT ALL TIMES ON THE PROJECT IN ACCORDANCE WITH ITEM 614 MAINTAINING TRAFFIC, AS SHOWN ON SHEETS 8 THROUGH 13 AND AS DESCRIBED BELOW.

A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES BY USE OF THE EXISTING PAVEMENT AND SHOULDER.

LENGTH AND DURATION OF LANE CLOSURES AND RESTRICTIONS SHALL BE AT THE APPROVAL OF THE ENGINEER. IT IS THE INTENT TO MINIMIZE THE IMPACT TO THE TRAVELING PUBLIC. LANE CLOSURES OR RESTRICTIONS OVER SEGMENTS OF THE PROJECT IN WHICH NO WORK IS ANTICIPATED WITHIN A REASONABLE TIME FRAME, AS DETERMINED BY THE ENGINEER, SHALL NOT BE PERMITTED. THE LEVEL OF UTILIZATION OF MAINTENANCE OF TRAFFIC DEVICES SHALL BE COMMENSURATE WITH THE WORK IN PROGRESS.

THE CONTRACTOR SHALL DESIGNATE AN INDIVIDUAL, OTHER THAN THE SUPERINTENDENT AND SUBJECT TO THE APPROVAL OF THE ENGINEER, TO INSPECT ALL TRAFFIC CONTROL DEVICES WHENEVER CONSTRUCTION WORK IS BEING PERFORMED WITHIN THE WORK LIMITS OF THE PROJECT. THE CONTRACTOR SHALL DESIGNATE THIS INDIVIDUAL'S NAME AND NUMBER AT THE PRECONSTRUCTION MEETING. THE DESIGNATED INDIVIDUAL SHALL INSPECT ALL TRAFFIC CONTROL DEVICES AT THE BEGINNING AND END OF EACH WORK DAY. THE DESIGNATED INDIVIDUAL OR REPRESENTATIVE SHALL ALSO BE AVAILABLE ON AN AROUND-THE-CLOCK BASIS TO REPAIR AND/OR REPLACE DAMAGED OR MISSING TRAFFIC CONTROL DEVICES. PAYMENT FOR THE SERVICES OF THE TRAFFIC CONTROL INSPECTOR SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614 MAINTAINING TRAFFIC.

THE MAJOR STEPS AND SEQUENCE REQUIRED FOR THE MAINTENANCE OF TRAFFIC DURING THIS PROJECT ARE AS FOLLOWS:

PHASE 1 (REMOVE PERMANENT BARRIER)

CLOSE BOTH LEFT LANES AS SHOWN ON MT-95.30, REMOVE 850 L.F. OF PERMANENT BARRIER BETWEEN STATION 305+00 & 313+50 AND 850 L.F. BETWEEN STATION 220+50 & 229+00.

PHASE 2 (N/B STRUCTURE REPLACEMENT)

THE CONTRACTOR SHALL MAINTAIN TWO-WAY, TWO-LANE TRAFFIC IN THE SOUTHBOUND LANES AS SHOWN ON SHEETS 8, 9 AND 10 IN ORDER TO REPLACE THE NORTHBOUND STRUCTURE.

PHASE 3 (S/B STRUCTURE REPLACEMENT)

DURING THIS PHASE, SOUTHBOUND TRAFFIC SHALL BE CROSSED OVER TO THE NORTHBOUND LANES AND TWO-WAY, TWO-LANE TRAFFIC SHALL BE MAINTAINED AS SHOWN ON SHEETS 11, 12 AND 13 IN ORDER TO REPLACE THE SOUTHBOUND STRUCTURE.

PHASE 4 (REPLACE PERMANENT BARRIER)

CLOSE BOTH LEFT LANES AS SHOWN ON MT-95.30, REPLACE THE 1700 L.F. OF PERMANENT BARRIER REMOVED IN PHASE 1.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR 614, MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

ITEM 202	CONCRETE BARRIER REMOVED	1700 L.F.
ITEM 614	BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC	10 C.Y.
ITEM 614	BARRIER REFLECTOR, TYPE B	558 EACH
ITEM 614	OBJECT MARKER	558 EACH
ITEM 615	TEMPORARY PAVEMENT, CLASS A	570 S.Y.
ITEM 622	CONCRETE BARRIER, TYPE A	1700 L.F.

COVERING OF SIGNS

WHERE THE PLANS CALL FOR A PERMANENT SIGN TO BE COVERED, THE CONTRACTOR SHALL DO SO IN SUCH A MANNER AS TO AVOID DAMAGING THE PERMANENT SIGN WHEN THE COVER IS REMOVED. THE COVER SHALL BE TOTALLY OPAQUE. THE USE OF ADHESIVE TAPE APPLIED DIRECTLY TO A SIGN FACE IS STRICTLY PROHIBITED.

ITEM 614 BARRIER REFLECTOR AND OBJECT MARKER

ITEM 614 BARRIER REFLECTORS, TYPE B SHALL CONFORM TO SUPPLEMENTAL SPECIFICATION 802 EXCEPT THAT THE SPACING SHALL BE AS SHOWN:

PHASE	STATION	SIDE OF PCB	SPACING	TYPE B
2	220+50–273+50	LT.	50' C/C	107
2	288+50–310+00	LT.	50' C/C	44
2	228+00–273+50	RT.	50' C/C	92
2	288+50–306+00	RT.	50' C/C	36
3	224+00–273+50	RT.	50' C/C	100
3	288+50–313+50	RT.	50' C/C	51
3	228+00–273+50	LT.	50' C/C	92
3	288+50–306+00	LT.	50' C/C	36
			TOTAL	558

SECTIONS OF PCB NOT SHOWN ABOVE SHALL NOT HAVE BARRIER REFLECTORS. OBJECT MARKERS SHALL BE SPACED MIDWAY BETWEEN THE BARRIER REFLECTORS.

ITEM 614 – LAW ENFORCEMENT OFFICER WITH PATROL CAR

IN ADDITION TO THE REQUIREMENTS OF 614 AND THE LATEST EDITION OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD), A UNIFORMED LAW ENFORCEMENT OFFICER AND OFFICIAL PATROL CAR WITH WORKING TOP MOUNTED EMERGENCY FLASHING LIGHTS SHALL BE PROVIDED FOR CONTROLLING TRAFFIC FOR THE FOLLOWING TASKS:

1) FOR LANE CLOSURES: DURING INITIAL SET-UP PERIODS, TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT OR WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED.

2) DURING THE ENTIRE ADVANCE PREPARATION AND CLOSURE SEQUENCE WHERE COMPLETE BLOCKAGE OF TRAFFIC IS REQUIRED.

LAW ENFORCEMENT OFFICERS (L.E.O.'S) SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED. THE LEO'S ARE CONSIDERED TO BE EMPLOYED BY THE CONTRACTOR AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR ACTIONS. ALTHOUGH THEY ARE EMPLOYED BY THE CONTRACTOR, THE PROJECT ENGINEER SHALL HAVE CONTROL OVER THEIR PLACEMENT. THE OFFICIAL PATROL CAR SHALL BE A PUBLIC SAFETY VEHICLE AS REQUIRED BY THE OHIO REVISED CODE.

THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR THESE SERVICES WITH: OHIO HIGHWAY PATROL, 901 CADIZ ROAD, WINTERSVILLE, OHIO 43252, TELEPHONE: (614) 264-1641.

LAW ENFORCEMENT OFFICERS WITH PATROL CAR REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON AN HOURLY BASIS UNDER ITEM 614 – LAW ENFORCEMENT OFFICER WITH PATROL CAR. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR 48 HOURS

THE HOURS PAID SHALL INCLUDE MINIMUM SHOW-UP TIME REQUIRED BY THE LAW ENFORCEMENT AGENCY INVOLVED.

IF THE CONTRACTOR WISHES TO UTILIZE LEO'S FOR FLAGGING AND TRAFFIC CONTROL OTHER THAN FOR THAT REQUIRED IN THESE PLANS, HE MAY DO SO AT HIS OWN EXPENSE. PAYMENT FOR THE EXCESS ABOVE THE CONTRACT REQUIREMENTS WILL BE INCLUDED UNDER ITEM 614 MAINTAINING TRAFFIC.

ITEM SPECIAL TEMPORARY IMPACT ATTENUATOR (G.R.E.A.T. TYPE)

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING AN IMPACT ATTENUATOR AS REQUIRED IN THE PLANS, AND SHALL ALSO INCLUDE ALL RELATED HARDWARE, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER TO CONSTRUCT A COMPLETE AND FUNCTIONAL G.R.E.A.T. IMPACT ATTENUATOR SYSTEM.

THE ATTENUATOR SHALL BE PLACED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS, AND AT THE LOCATION SHOWN ON THE PLANS AND IN THE TABLE ON SHEET 7. THE ATTENUATOR SHALL BE MANUFACTURED BY ENERGY ABSORPTION SYSTEMS, INC., AND IS DISTRIBUTED BY BALDWIN & SOURS, 5263 TRABUE ROAD, COLUMBUS, OHIO 43228 (TELEPHONE 614: 851-8800).

THE NOSE COVER OF THE ATTENUATOR SHALL MEET THE REQUIREMENTS OF STANDARD CONSTRUCTION DRAWING MT-95.81.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING, REPAIRING, AND OTHERWISE RESTORING THE ATTENUATOR ACCORDING TO THE MANUFACTURER'S MAINTENANCE INSTRUCTIONS WHILE THE ATTENUATOR IS IN USE DURING CONSTRUCTION OF THE PROJECT. IF THE ATTENUATOR GETS DAMAGED BEYOND REPAIR DUE TO VEHICULAR IMPACT BEFORE ACCEPTANCE BY THE STATE, IT SHALL BE REPLACED AS SPECIFIED IN THE PROPOSAL WITHIN 24 HOURS OF THE INCIDENT WHICH CAUSED DAMAGE TO THE ATTENUATOR. BESIDES ANY EXTRA UNITS SUPPLIED FOR THIS PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING ALL NECESSARY MATERIALS, LABOR, AND EQUIPMENT REQUIRED TO PERFORM THE ABOVE DESCRIBED RESTORATION OF THE ATTENUATOR.

THE ESTIMATED QUANTITY BELOW SHALL BE USED AS DIRECTED BY THE ENGINEER FOR USE IN THE ABOVE-MENTIONED RESTORATION ONLY WHEN THE ENGINEER DECIDES THAT MINOR OR MAJOR REPAIRS CANNOT BE PERFORMED WITHIN THE 24-HOUR TIME LIMITATION:

ITEM SPECIAL TEMPORARY IMPACT ATTENUATOR, G.R.E.A.T. TYPE, (REPLACEMENT) 1 EACH

TEMPORARILY INSTALLED IMPACT ATTENUATORS SHALL BE BID AS ITEM SPECIAL, EACH, TEMPORARY IMPACT ATTENUATOR, (G.R.E.A.T. TYPE).

THE MODEL NUMBER OF THE TEMPORARY UNIT SHALL BE 200200NF6CZ, BI-DIRECTIONAL OR UNI-DIRECTIONAL AS SPECIFIED IN THE PLANS. THE MODEL NUMBER OF THE REPLACEMENT UNIT SHALL BE 200200NF6CZ, UNI-DIRECTIONAL.

PAYMENT FOR THE ABOVE WORK, INCLUDING FURNISHING, INSTALLING, MAINTAINING, AND RESTORING THE ATTENUATOR AFTER EACH VEHICULAR IMPACT, WILL BE MADE AT THE RESPECTIVE CONTRACT PRICE FOR ITEM SPECIAL, EACH, TEMPORARY IMPACT ATTENUATOR, G.R.E.A.T. TYPE, (REPLACEMENT), AND ITEM SPECIAL, EACH, TEMPORARY IMPACT ATTENUATOR, (G.R.E.A.T. TYPE), AND SHALL INCLUDE THE COST OF ALL LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.

ITEM 614 – REMOVE AND REPLACE IMPACT ATTENUATOR

THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT, LABOR, AND MATERIALS TO REMOVE AND REPLACE A TEMPORARY IMPACT ATTENUATOR FROM ONE PHASE OF CONSTRUCTION TO THE NEXT OR OTHER PHASE OF CONSTRUCTION. THIS BID ITEM INCLUDES DISMANTLING THE TEMPORARY IMPACT ATTENUATOR, TRANSPOSING TO NEW LOCATION AND REASSEMBLY FOR A COMPLETE FUNCTIONAL IMPACT ATTENUATOR SYSTEM. THE FINAL REMOVAL COSTS OF THE IMPACT ATTENUATORS FROM A PROJECT IS INCLUDED IN THE ORIGINAL COST OF THE TEMPORARY IMPACT ATTENUATOR.

ITEM SPECIAL – ASPHALT CURB DIVIDER WITH DELINEATION

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE AN ASPHALT CURB DIVIDER USED TO SEPARATE OPPOSING LANES OF TRAFFIC AT THE LOCATION SHOWN ON THE PLANS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.

THIS ITEM SHALL BE PLACED IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING MT-95.81 AND SHALL BE CONSTRUCTED OF COMPACTED 404 ASPHALT CONCRETE. COMPACTION SHALL BE SUFFICIENT TO PRODUCE A SMOOTH TOP AND SIDES AND TO PRODUCE A DENSITY SATISFACTORY TO THE ENGINEER.

WHERE THE CURB DIVIDER IS TO BE CONSTRUCTED ON TOP OF A CONCRETE PAVEMENT WHICH WILL BE THE FINAL SURFACE, OR WHERE THE ENGINEER DETERMINES THE RESIDUAL STAINS FROM THE REMOVAL OF THE DIVIDER MAY CONFUSE TRAFFIC, THE CONTRACTOR SHALL PROVIDE A BOND BREAKER AND SURFACE PROTECTOR. THE PROTECTOR MAY BE TWO COATS OF SPRAYED CONCRETE CURING COMPOUND OR OTHER MATERIAL APPROVED BY THE ENGINEER WHICH WILL MINIMIZE STAINING.

WHERE THE CURB WILL INTERFERE WITH PAVEMENT DRAINAGE (E.G., SUPERELEVATED OR TRANSITION SECTIONS), PROVISIONS SHALL BE MADE TO PREVENT PONDING OF WATER ON THE PAVEMENT SURFACE. THIS MAY BE ACCOMPLISHED WITH TRANSVERSE DRAINAGE SLOTS OR ALTERNATE MEASURES APPROVED BY THE ENGINEER.

TUBULAR MARKERS OR PYLONS PROVIDED FOR TRAFFIC CONTROL SHALL BE EMBEDDED TO THE FULL DEPTH OF ASPHALT AND SECURED TO AVOID BEING WORKED LOOSE BY THE DRAFT FROM PASSING TRAFFIC. A 4-INCH LENGTH OF PIPE ATTACHED TO A BASE PLATE MAY BE USED TO SECURE THE TUBULAR MARKER OR PYLON. ALTERNATE METHODS MAY BE USED BUT MUST BE APPROVED IN ADVANCE BY THE ENGINEER.

THE ENTIRE SURFACE OF THE CURB DIVIDER (TOP AND SIDES) SHALL BE PAINTED YELLOW AND REFLECTORIZED AS DESCRIBED ON MT-95.81.

TUBULAR MARKERS OR PYLONS SHALL BE SPACED AT 50-FOOT INTERVALS ALONG THE CENTERLINE OF THE CURB DIVIDER. THE TUBULAR MARKERS OR PYLONS SHALL BE AT LEAST 36 INCHES IN LENGTH AND SHALL HAVE A MINIMUM WIDTH OR DIAMETER OF 2-1/2 INCHES AT THE TOP. THE MARKERS OR PYLONS SHALL BE REFLECTORIZED BY A MINIMUM OF TWO 3-INCH WHITE BANDS PLACED NOT MORE THAN 2 INCHES FROM THE TOP, WITH A 3 TO 6-INCH SPACE BETWEEN THE BANDS.

YELLOW DOUBLE-FACED REFLECTORS SHALL BE MOUNTED VERTICALLY ON THE TOP OF THE CURB. THESE REFLECTORS SHALL HAVE AN APPROXIMATELY SQUARE SHAPE AND SHALL HAVE A MINIMUM OF 9 SQUARE INCHES OF REFLECTIVE SHEETING ON EACH SIDE, FACING TRAFFIC.

PAYMENT FOR ACCEPTED QUANTITIES COMPLETE IN PLACE WILL BE MADE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL BE MADE PER LINEAL FOOT OF ACCEPTED ITEM SPECIAL ASPHALT CURB DIVIDER WITH DELINEATION, WHICH SHALL INCLUDE MATERIALS, EQUIPMENT AND LABOR TO PLACE, MAINTAIN AND SUBSEQUENTLY REMOVE THE DIVIDER. MAINTENANCE INCLUDES REPLACEMENT OF DAMAGED OR INEFFECTIVE PYLONS OR REFLECTORS.

ITEM SPECIAL – REPLACEMENT SIGN

FLAT SHEET SIGNS FURNISHED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS, SPECIFICATIONS AND PROPOSAL WHICH BECOME DAMAGED BY TRAFFIC FOR REASONS BEYOND THE CONTROL OF THE CONTRACTOR SHALL BE REPLACED IN KIND WHEN ORDERED BY THE ENGINEER. REPLACEMENT SIGNS SHALL BE NEW. OTHER MATERIALS MAY BE IN USED BUT GOOD CONDITION SUBJECT TO APPROVAL BY THE ENGINEER.

PAYMENT FOR THE NEW SIGNS SHALL BE MADE AT THE BID PRICE PER SQUARE FOOT FOR "ITEM SPECIAL – REPLACEMENT SIGN" AND SHALL INCLUDE THE SUPPORTS; AND PROVIDING THE NECESSARY REPLACEMENT HARDWARE, SUPPORTS, ETC.

AN ESTIMATED QUANTITY OF 150 SQUARE FEET HAS BEEN PROVIDED IN THE GENERAL SUMMARY.

ITEM SPECIAL – REPLACEMENT DRUM

DRUMS FURNISHED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS, SPECIFICATIONS AND PROPOSAL WHICH BECOME DAMAGED BY TRAFFIC FOR REASONS BEYOND THE CONTROL OF THE CONTRACTOR SHALL BE REPLACED IN KIND WHEN ORDERED BY THE ENGINEER. REPLACEMENT DRUMS SHALL BE NEW.

PAYMENT FOR THE NEW DRUMS SHALL BE MADE AT THE BID PRICE PER EACH FOR "ITEM SPECIAL – REPLACEMENT DRUM" AND SHALL INCLUDE THE COST OF REMOVING AND DISPOSING OF THE DAMAGED DRUM; AND PROVIDING AND MAINTAINING THE REPLACEMENT DRUM IN ACCORDANCE WITH THE CONTRACT REQUIREMENTS FOR THE ORIGINAL DRUM.

AN ESTIMATED QUANTITY OF 25 EACH HAS BEEN PROVIDED IN THE GENERAL SUMMARY.

ITEM 622 PORTABLE CONCRETE BARRIER

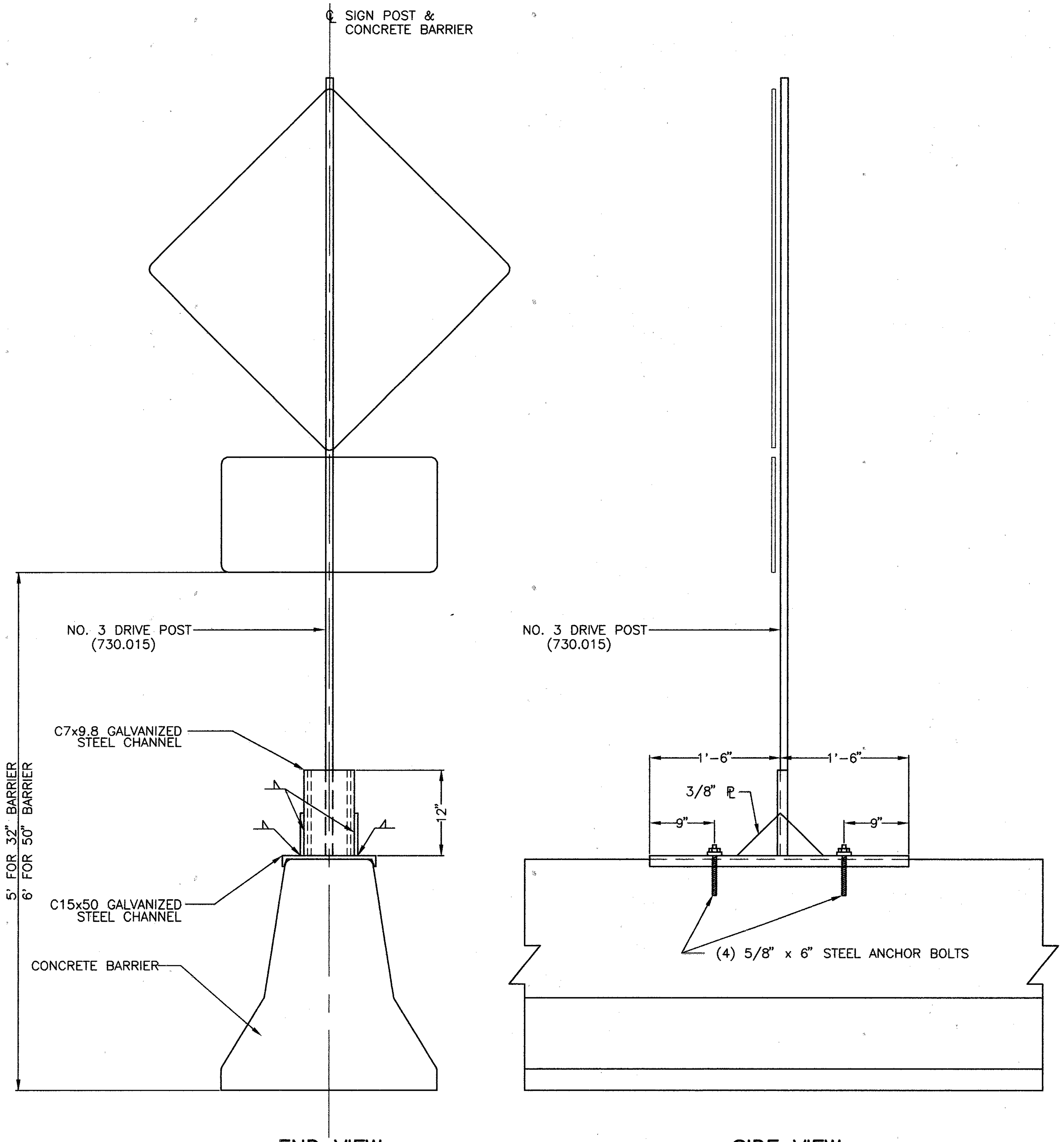
IT IS ANTICIPATED THAT THE SAME BARRIER WILL BE USED IN VARIOUS PHASES OF CONSTRUCTION. MOVEMENT OF THE CONCRETE BARRIER BETWEEN PHASES SHALL BE ACCOMPLISHED IN ONE WORKING DAY. LAW ENFORCEMENT OFFICERS SHALL BE UTILIZED FOR THE PROTECTION OF VEHICULAR TRAFFIC UNTIL MOVEMENT OF THE BARRIER IS COMPLETE.

CALC. BY: F.A.M DATE: 7/96
CHKD. BY: D.R.B DATE: 7/96

MAINTENANCE OF TRAFFIC PLAN
MAINTENANCE OF TRAFFIC NOTES

JEF-007-4.63

PLOT SCALE... COL #23 C:\DRAWING\08077310\MT\8077MTN1.DWG SEPTEMBER-13-1996



END VIEW SIDE VIEW

CONCRETE BARRIER MOUNTED SIGN DETAIL

NOTES:

1.) FOR FASTENERS, SEE STD. DWG. TC-52.10 OR TC-52.20.

2.) FOR SPACING, SEE STD. DWG. TC-41.20

3.) FOR SIGN ATTACHMENT DETAIL, SEE STD. DWG. TC-41.20

4.) FOR DETAILS AND SPECIFICATIONS NOT SHOWN, SEE STD. DWG. TC-41.20

5.) THE C7x9.8 GALVANIZED STEEL CHANNEL SHALL BE WELDED TO THE C15x50 GALVANIZED STEEL CHANNEL

6.) THE NO. 3 DRIVE POST SHALL BE ATTACHED TO THE C7x9.8 GALVANIZED STEEL CHANNEL WITH FOUR 5/16" DIA. STEEL HEX HEAD BOLTS. THE HOLES IN THE C7x9.8 STEEL CHANNEL SHALL BE DRILLED BEFORE GALVANIZING. THE HOLES SHALL BE 2" CENTER TO CENTER

ESTIMATED QUANTITIES OF TEMPORARY IMPACT ATTENUATORS

STATION	SPECIAL	614				
	TEMPORARY IMPACT ATTENUATOR	REMOVE AND REPLACE ATTENUATOR				
	EA.	EA.				
PHASE 2						
229+00	1					
273+50	1					
288+50	1					
PHASE 3						
273+50		1				
288+50		1				
305+00		1				
TOTAL	3	3				

ESTIMATED QUANTITIES OF PORTABLE CONCRETE BARRIER

STATION	622	622				
	PORTABLE CONCRETE BARRIER 32"	PORTABLE CONCRETE BARRIER 50"				
	L.F.	L.F.				
PHASE 2						
220+50 TO 229+00		850				
229+00 TO 273+50	4450					
288+50 TO 305+00	1650					
305+00 TO 313+50		850				
PHASE 3						
220+50 TO 229+00		850				
229+00 TO 273+50	4450					
288+50 TO 305+00	1650					
305+00 TO 313+50		850				
TOTAL (FT)	12,200	3400				

ESTIMATED QUANTITIES OF TEMPORARY PAVEMENT MARKINGS

STATION	614	614	614			
	TEMP. EDGE LINE WHITE, CLASS 1, 740.05	TEMP. EDGE LINE YELLOW, CLASS 1, 740.05	TEMP. STOP LINE WHITE, CLASS 1, 740.05			
	L.F.	L.F.				
PHASE 2						
199+00 TO 273+50		7450				
216+65 TO 313+50	9685					
217+80 TO 312+00	9420					
220+50 TO 273+50		5300				
288+50 TO 313+50		2500				
288+50 TO 335+00		4650				
RUSH RUN RD. 9+55			15			
PHASE 3						
216+60 TO 273+50		5690				
220+50 TO 273+50		5300				
220+50 TO 317+35	9685					
222+00 TO 316+20	9420					
288+50 TO 313+50		2500				
288+50 TO 318+00		2950				
RUSH RUN RD. 9+55			15			
TOTAL (FT)	38,210	36,340	30			
TOTAL (FT)	74,550		30			
TOTAL (MILES)	14.12					

ESTIMATED QUANTITIES OF TEMPORARY ASPHALT CURB

STATION	614					
	TEMPORARY ASPHALT CURB W/DELINEATION					
	L.F.					
PHASE 2						
274+00 TO 280+50	650					
281+50 TO 288+00	650					
PHASE 3						
274+00 TO 280+50	650					
281+50 TO 288+00	650					
TOTAL (FT)	2600					

NOT TO SCALE

CALC. BY: F.A.M DATE: 7/96 CHKD. BY: DRB DATE: 7/96

MAINTENANCE OF TRAFFIC PLAN
ESTIMATED QUANTITIES & BARRIER MOUNTED SIGN DETAIL

JEF-007-4.63

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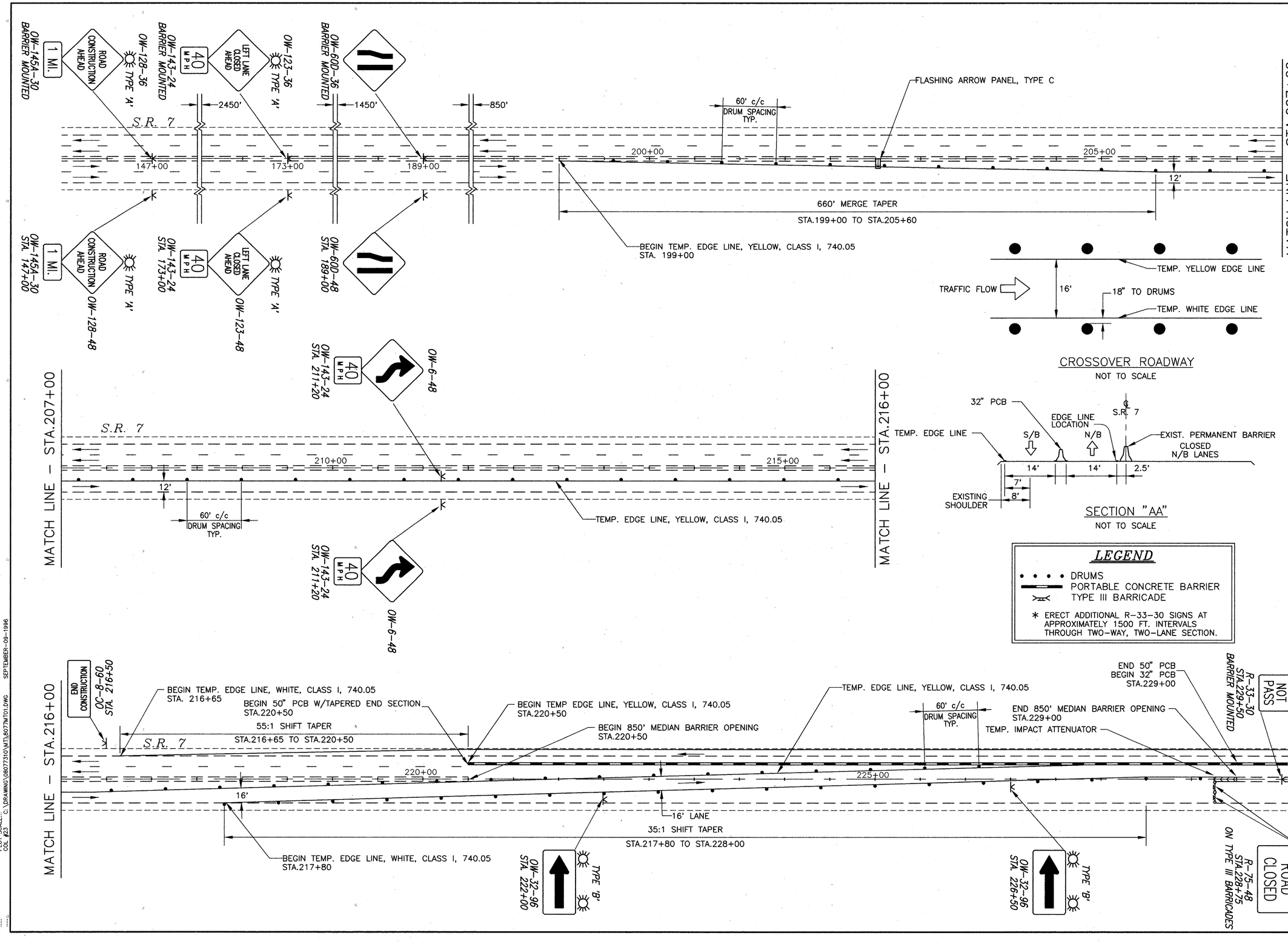
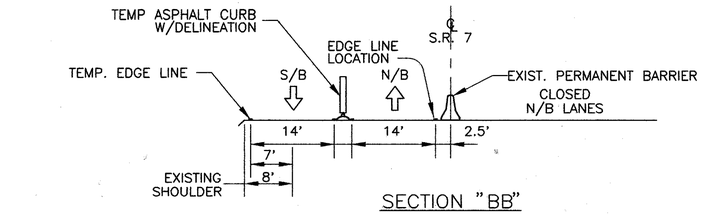


MAINTENANCE OF TRAFFIC PLAN
PHASE 2 NORTHBOUND ENTERING CROSSOVER

JEF-007-4.63

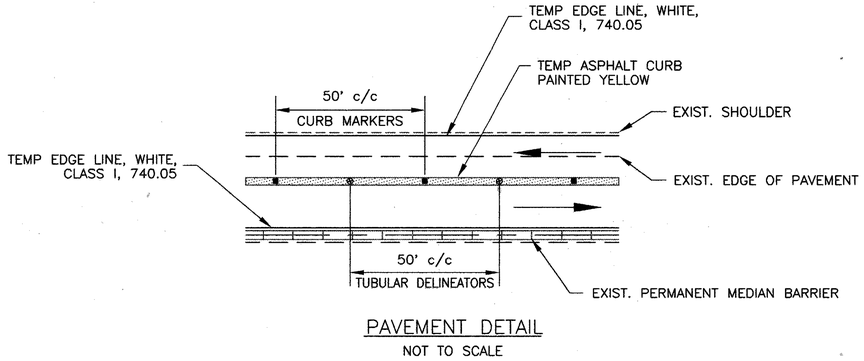
8
73

PLOT SCALE..
COL #23 C:\DRAWING\08077310\MT\8077MT01.DWG SEPTEMBER-09-1996



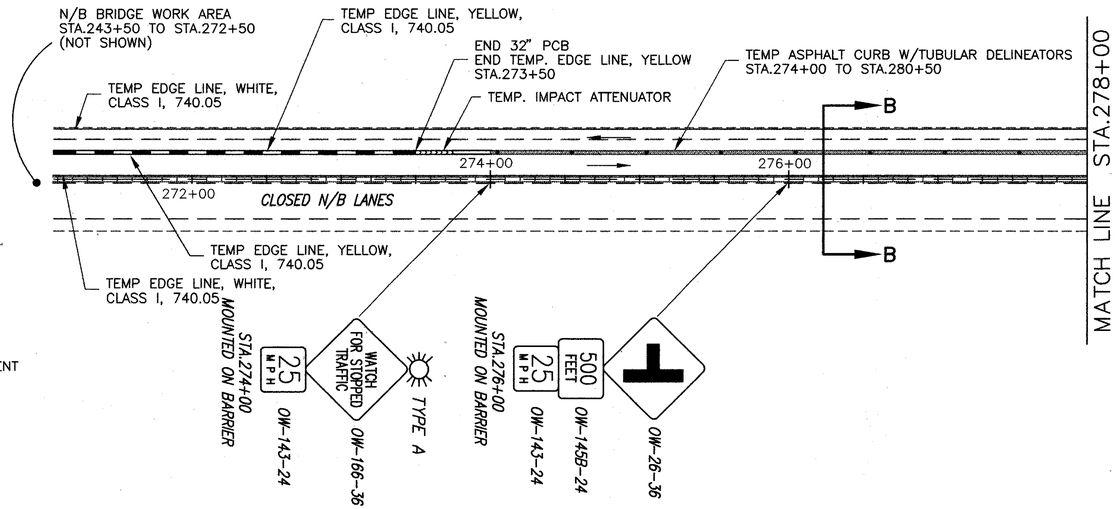
SECTION "BB"

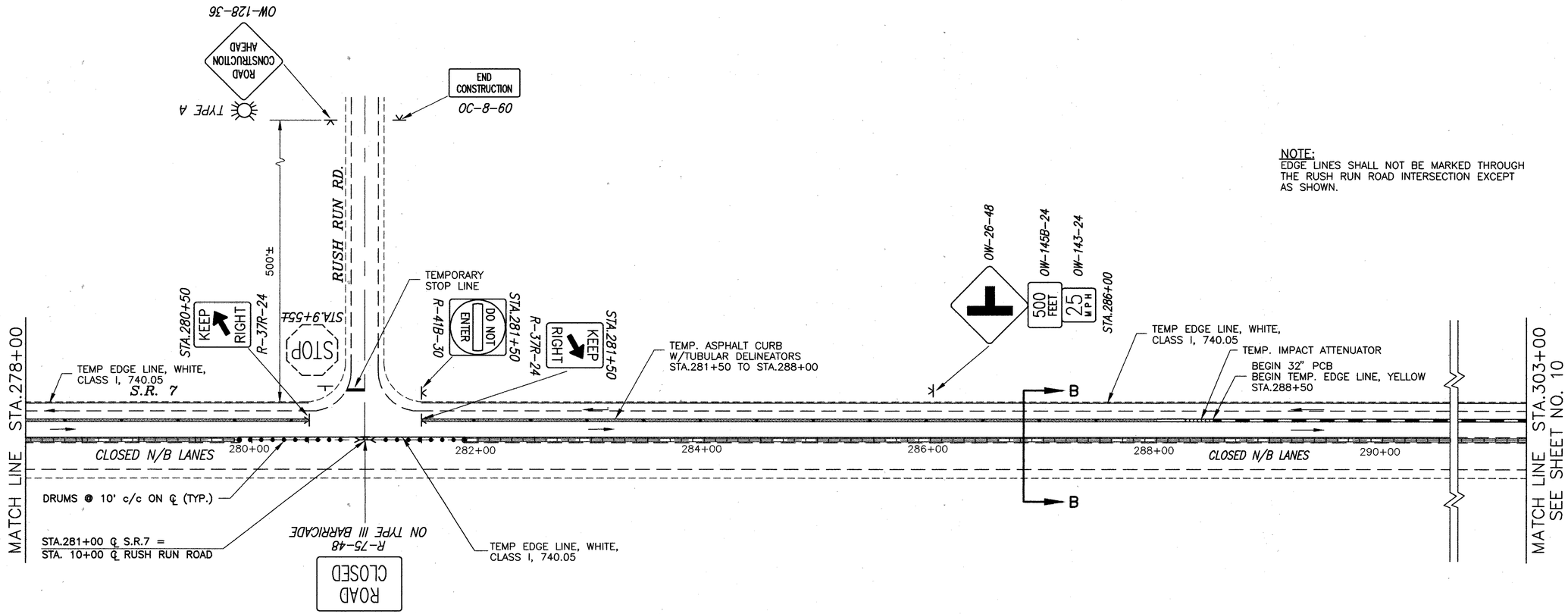
NOT TO SCALE



PAVEMENT DETAIL

NOT TO SCALE





NOTE:
EDGE LINES SHALL NOT BE MARKED THROUGH THE RUSH RUN ROAD INTERSECTION EXCEPT AS SHOWN.

NOT TO SCALE

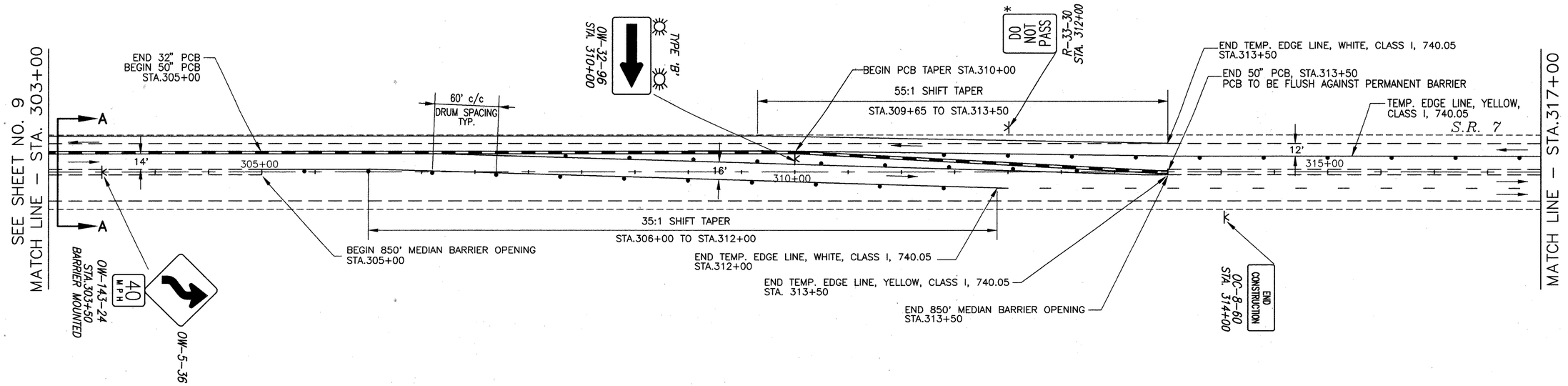
CALC. BY:
DATE:
CHKD.:
DATE:

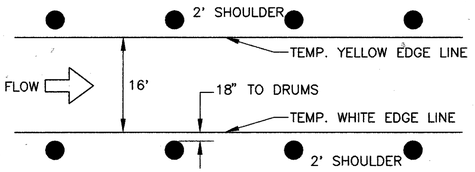
MAINTENANCE OF TRAFFIC PLAN
PHASE 2, AT RUSH RUN ROAD

JEF-007-4.63

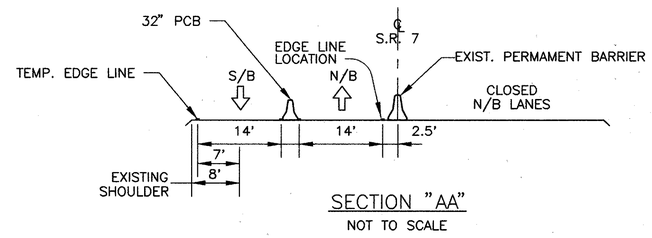
19
73

PLOT SCALE...
COL #23
C:\DRAWING\08077310\MT\8077MT07.DWG SEPTEMBER-13-1996





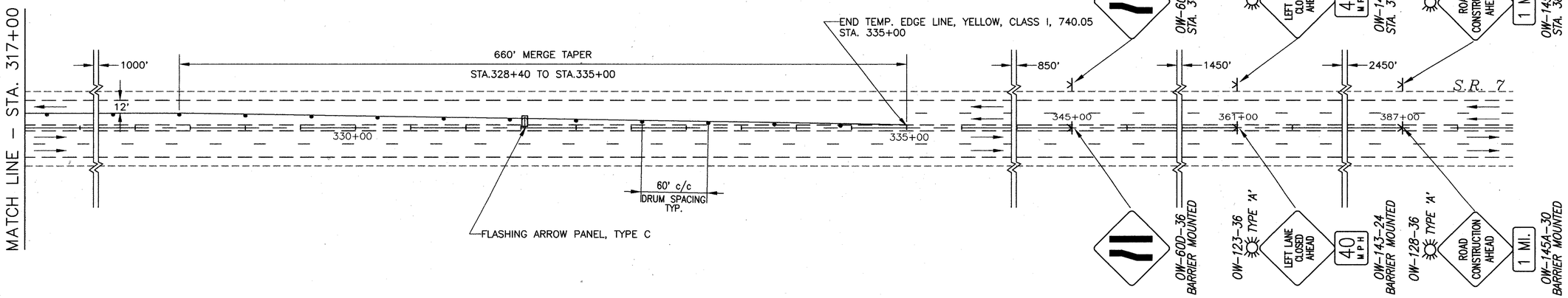
CROSSOVER ROADWAY
NOT TO SCALE



SECTION "AA"
NOT TO SCALE

LEGEND

- DRUMS
- PORTABLE CONCRETE BARRIER
- TYPE III BARRICADE
- * ERECT ADDITIONAL R-33-30 SIGNS AT APPROXIMATELY 1500 FT. INTERVALS THROUGH TWO-WAY, TWO-LANE SECTION.



N

0 25 50 100
HORIZONTAL
SCALE IN FEET

CALC. BY:
DATE:
CHK. BY:
DATE:

MAINTENANCE OF TRAFFIC PLAN
PHASE 2 NORTHBOUND EXITING CROSSOVER

JEF-007-4.63

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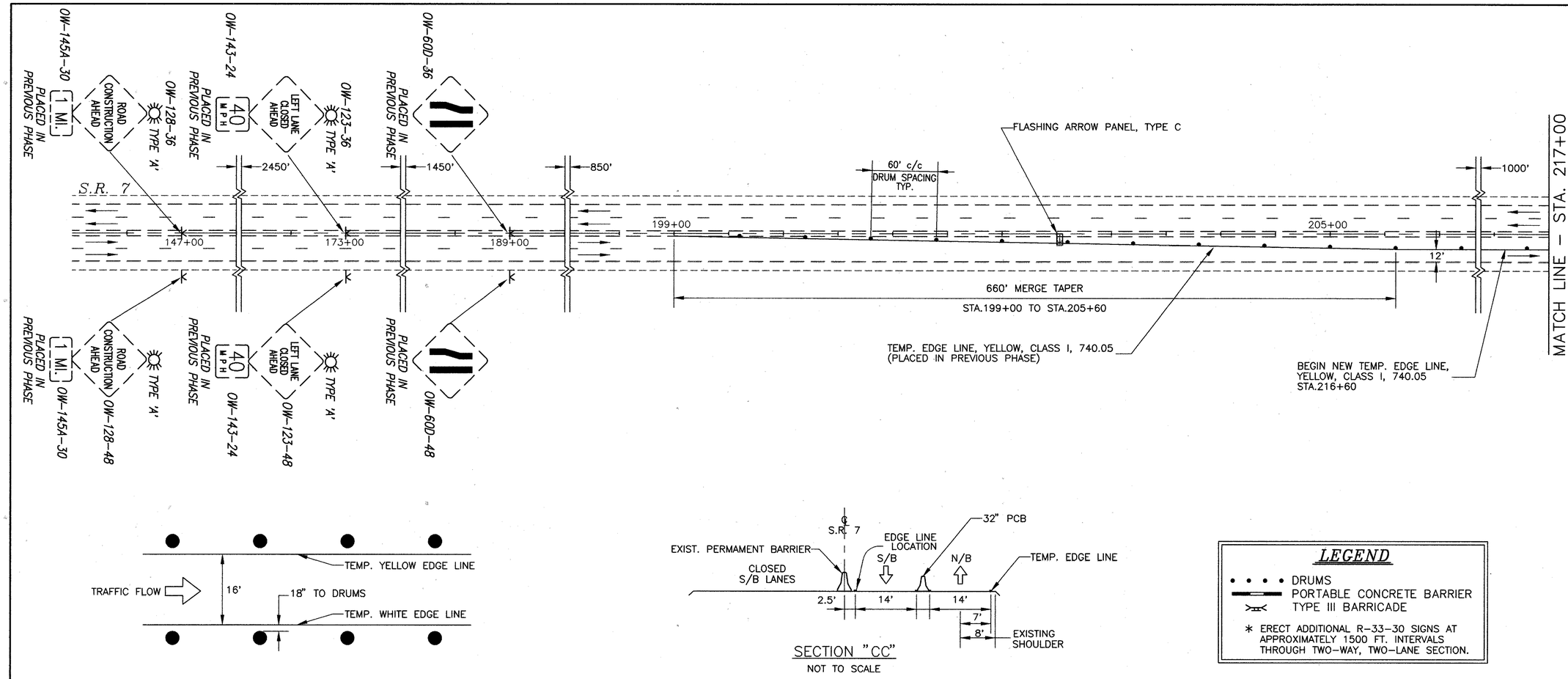
PLOT SCALE:
COL #23
C:\DRAWINGS\08077310\MT\8077MT02.DWG
SEPTEMBER-09-1996



MAINTENANCE OF TRAFFIC PLAN
PHASE 3 SOUTHBOUND EXITING CROSSOVER

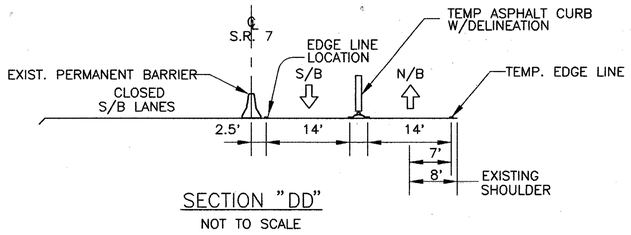
JEF-007-4.63

11
73

CALC. BY:
DATE:
CHKD. BY:
DATE:

0 50 100
HORIZONTAL SCALE IN FEET

PLOT SCALE... COL #23 C:\DRAWING\08077310\MT\8077MT03.DWG SEPTEMBER-09-1998



SECTION "DD"
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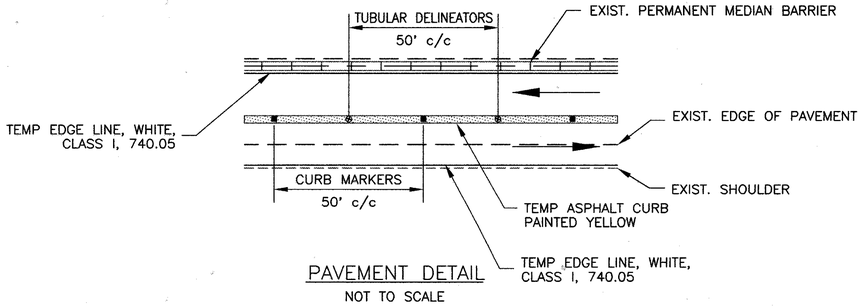
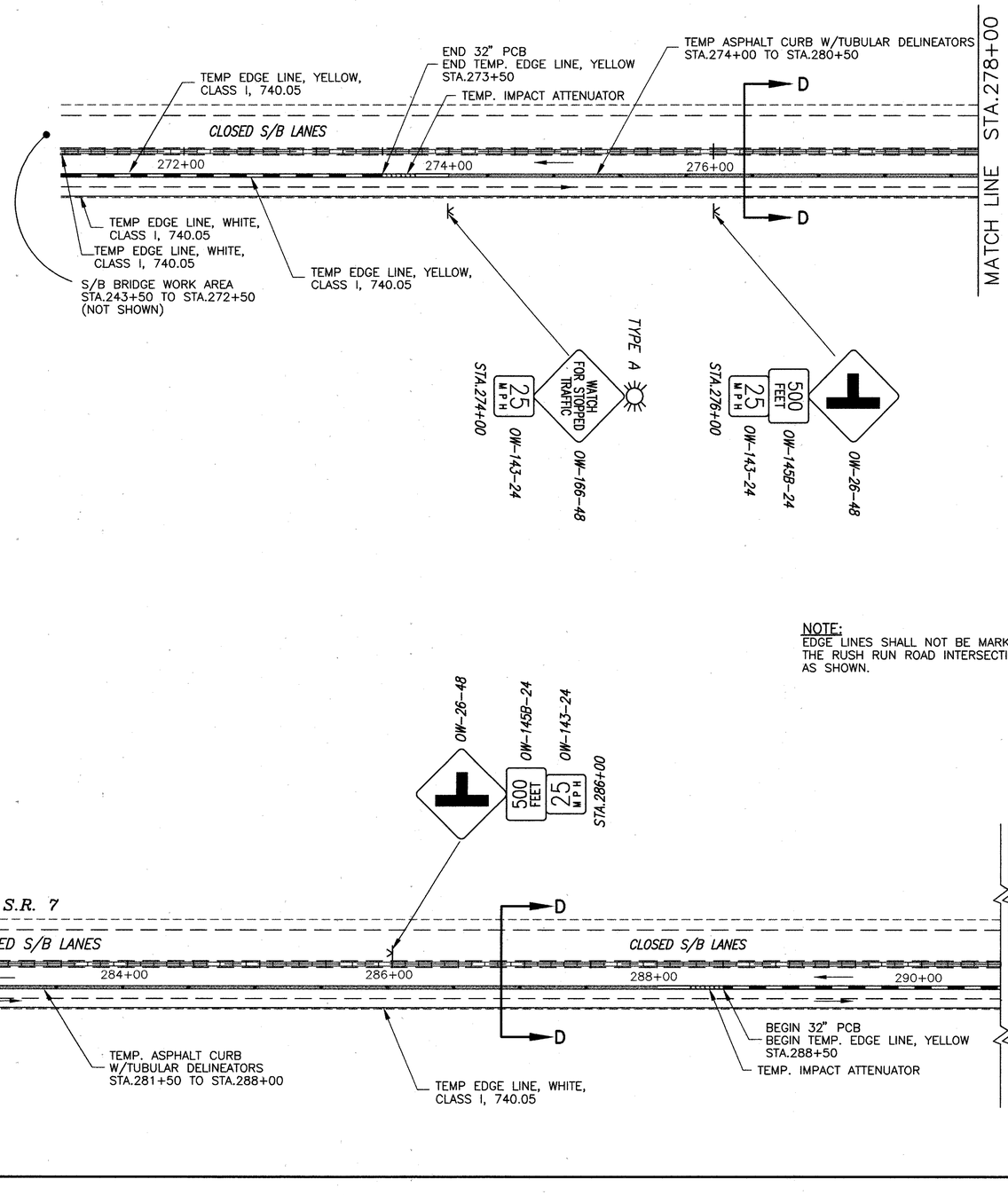


PAVEMENT DETAIL
NOT TO SCALE



NOTE:
EDGE LINES SHALL NOT BE MARKED THROUGH THE RUSH RUN ROAD INTERSECTION EXCEPT AS SHOWN.

NOT TO SCALE

CALC. BY: DATE:
CHKD. BY: DATE:

MAINTENANCE OF TRAFFIC PLAN
PHASE 3, AT RUSH RUN ROAD

JEF-007-4.63

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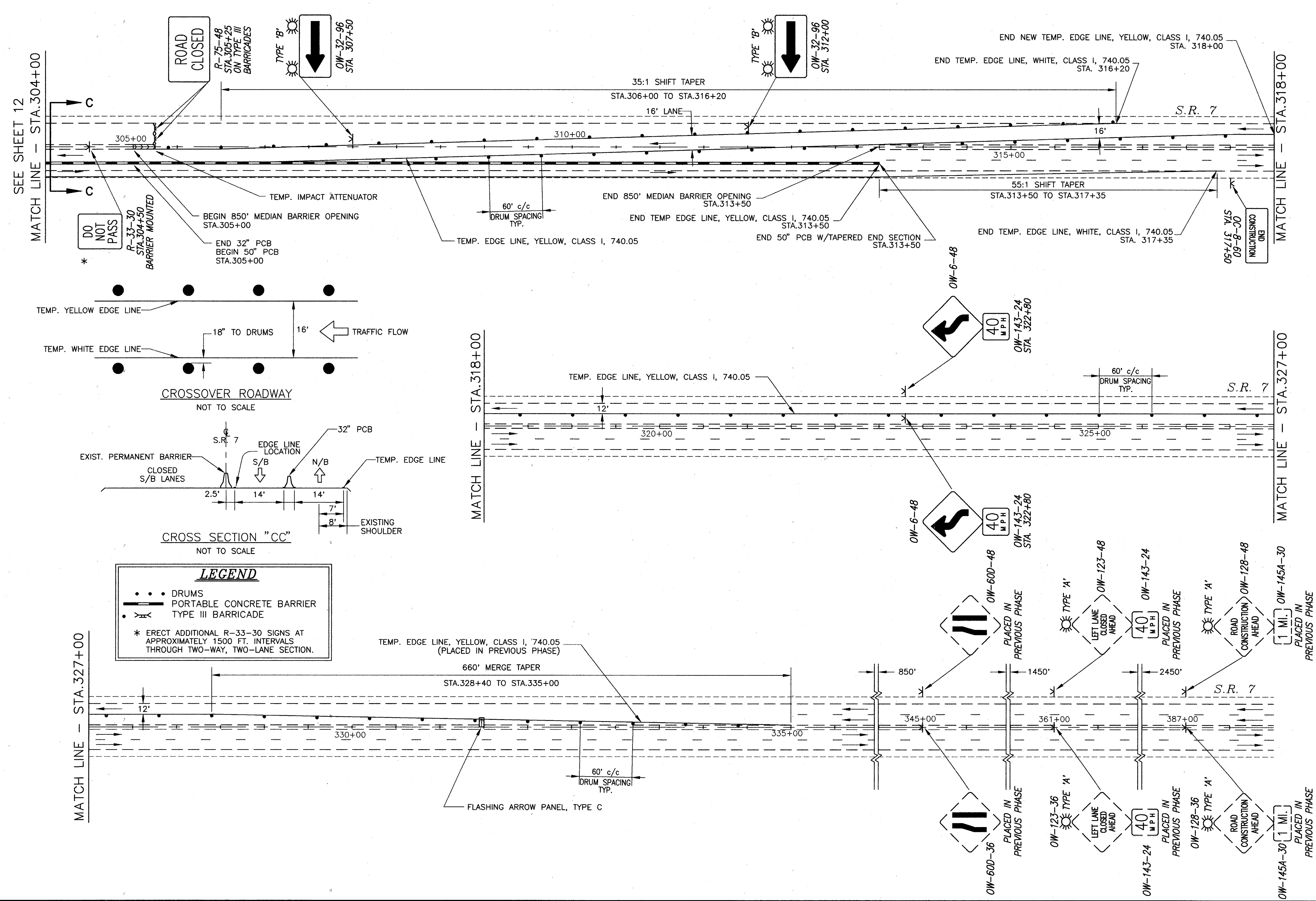
PLOT SCALE: .....
COL #23 C:\DRAWINGS\08077310\MT\8077MT08.DWG SEPTEMBER-13-1996



PLOT SCALE C:\DRAWING\08077310\MT\8077MT04.DWG SEPTEMBER-09-1996
COL #23

0 25 50 100
HORIZONTAL SCALE IN FEET

CALC. BY: DATE: CHKD. BY: DATE:

MAINTENANCE OF TRAFFIC PLAN
PHASE 3 SOUTHBOUND ENTERING CROSSOVER

JEF-007-4.63

ITEM	5	6	7	16	17	19	29	PARTICIPATION	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION
													ROADWAY
201	LUMP								201	11000	LUMP		CLEARING AND GRUBBING
202					118	273			202	22900	391	SQ. YD.	APPROACH SLAB REMOVED
202				1549					202	23000	1549	SQ. YD.	PAVEMENT REMOVED
202				351					202	30700	351	LIN. FT.	CONCRETE BARRIER REMOVED
202					250	212.5			202	38000	462.5	LIN. FT.	GUARDAIL REMOVED
202					55				202	98200	55	LIN. FT.	REMOVAL MISC:. PRESSURE RELIEF JOINT REMOVED
203				554					203	12000	554	CU. YD.	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION
203				48					203	20000	48	CU. YD.	EMBANKMENT
203				2026					203	50000	2026	SQ. YD.	SUBGRADE COMPACTION
604					1	1			604	40500	2	EACH	REFERENCE MONUMENT
606					218.75	256.25			606	13000	475	LIN. FT.	GUARDAIL, TYPE 5
606						1			606	26100	1	EACH	ANCHOR ASSEMBLY, TYPE E
606					1	1			606	35000	2	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE 1
606					1	1			606	35100	2	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE 2
622		1700							622	23300	1700	LIN. FT.	CONCRETE BARRIER, TYPE A
622				272					622	23400	272	LIN. FT.	CONCRETE BARRIER, TYPE B
													EROSION CONTROL
207	200								207	30000	200	LIN. FT.	FILTER FABRIC FENCE (SEE PROPOSAL NOTE)
207	50								207	70000	50	EACH	STRAW OR HAY BALES
659				693					659	10000	693	SQ. YD.	SEEDING AND MULCHING
659				0.06					659	20000	0.06	TON	COMMERCIAL FERTILIZER
659				0.31					659	30000	0.31	TON	AGRICULTURAL LIMING
659	1								659	35000	1	M GAL.	WATER
660					46	28			660	20000	74	SQ. YD.	SODDING REINFORCED
													DRAINAGE
603						55			603	00900	55	LIN. FT.	6" CONDUIT, TYPE B
603					20	10			603	01500	30	LIN. FT.	6" CONDUIT, TYPE F
604					2	1			604	36600	3	EACH	PRECAST REINFORCED CONCRETE OUTLET (SEE SHEET No. 28)
605					304	296			605	11101	600	LIN. FT.	6" SHALLOW PIPE UNDERDRAIN, AS PER PLAN
605						12			605	31100	12	LIN. FT.	AGGREGATE DRAIN
													PAVEMENT
301				4					301	46000	4	CU. YD.	BITUMINOUS AGGREGATE BASE, PG 64-22
304				337					304	20000	337	CU. YD.	AGGREGATE BASE (SEE PROPOSAL NOTE)
408				10					408	10000	10	GALLON	BITUMINOUS PRIME COAT
451				970					451	15000	970	SQ. YD.	10" REINFORCED CONCRETE PAVEMENT
SPECIAL					58				SPECIAL	45130000	58	LIN. FT.	PRESSURE RELIEF JOINT, TYPE A
SPECIAL						53			SPECIAL	45132000	53	LIN. FT.	PRESSURE RELIEF JOINT, TYPE C
452				186					452	14000	186	SQ. YD.	10" PLAIN CONCRETE PAVEMENT
609					52	3			609	24000	55	LIN. FT.	CURB, TYPE 4-A
609						26			609	26000	26	LIN. FT.	CURB, TYPE 6
611				941					611	15001	941	SQ. YD.	REINFORCED CONCRETE APPROACH SLAB (T=13"), AS PER PLAN (SEE SHT. NO. 5)

CALC. BY: M.F.R. DATE: 10/96 CHKD. BY: R.B.S. DATE: 10/96

GENERAL SUMMARY

JEF-7-4.63

TOTAL FROM SHEET NO. ITEM	5	6	7	16	17	19	29	PARTICIPATION	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION
													MAINTENANCE OF TRAFFIC
202		1700							202	30700	1700	LIN. FT.	CONCRETE BARRIER REMOVED
614		48							614	11100	48	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR
SPECIAL			2600						SPECIAL	61412100	2600	LIN. FT.	ASPHALT CURB DIVIDER WITH DELINEATION (SEE SHEET No. 6)
614			3						614	12350	3	EACH	TEMPORARY IMPACT ATTENUATOR, G.R.E.A.T. SYSTEM
614		1							614	12360	1	EACH	TEMPORARY IMPACT ATTENUATOR (REPLACEMENT) G.R.E.A.T. SYSTEM
614			3						614	12370	3	EACH	REMOVE AND REPLACE IMPACT ATTENUATOR (SEE SHEET N° 6)
SPECIAL		150							SPECIAL	61412500	150	SQ. FT.	REPLACEMENT SIGN (SEE SHEET No. 6)
SPECIAL		25							SPECIAL	61412600	25	EACH	REPLACEMENT DRUM (SEE SHEET No. 6)
614		10							614	13000	10	CU. YD.	BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC
614		558							614	13300	558	EACH	BARRIER REFLECTOR, TYPE B
614		558							614	13350	558	EACH	OBJECT MARKER
614			14.12						614	22000	14.12	MILE	TEMPORARY EDGE LINE, CLASS I, 740.05
614			30						614	26000	30	LIN. FT.	TEMPORARY STOP LINE, CLASS I, 740.05
615		570							615	20000	570	SQ. YD.	TEMPORARY PAVEMENT, CLASS A
622			12200						622	40020	12,200	LIN. FT.	PORTABLE CONCRETE BARRIER, 32"
622			3400						622	40030	3400	LIN. FT.	PORTABLE CONCRETE BARRIER, 50"
													TRAFFIC CONTROL
626				8					626	00100	8	EACH	BARRIER REFLECTOR, TYPE A
626				69					626	00200	69	EACH	BARRIER REFLECTOR, TYPE B
642						8.01			642	00102	8.01	MILE	EDGE LINE, TYPE 2
642						4.34			642	00202	4.34	MILE	LANE LINE, TYPE 2
													FOR STRUCTURES 20' AND OVER GENERAL SUMMARY SEE SHEET NO. 33
													MISCELLANEOUS
614		LUMP							614	11000	LUMP		MAINTAINING TRAFFIC
619									619	15010	LUMP		FIELD OFFICE, TYPE B
SPECIAL									SPECIAL	61925010	LUMP		COMPUTER EQUIPMENT FOR TYPE B OR C OFFICE (SEE PROPOSAL NOTE)
623									623	10000	LUMP		CONSTRUCTION LAYOUT STAKES
624									624	10000	LUMP		MOBILIZATION

CALC. BY: M.F.R. DATE: 10/96
CHK. BY: R.B.S. DATE: 10/96

GENERAL SUMMARY

JEF-7-4.63

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ITEM 202 CONCRETE BARRIER REMOVED

STA. 243+50.00 TO STA. 264+56.03 = 113.24 L.F.
STA. 270+12.61 TO STA. 272+50.00 = 237.39 L.F.
TOTAL = 350.63 L.F.
USE 351 L.F.

ITEM 202 PAVEMENT REMOVED

STA. 243+50.00 TO STA. 244+38.24
$(88.24)\left(\frac{54.60+53.00}{2}\right) \div 9$ = 527.48 S.Y.

STA. 244+38.24 TO STA. 264+41.03 (RT. SIDE)
$(10.00)\ (26.50) \div 9$ = 29.44 S.Y.

STA. 243+50.00 TO STA. 244+25.00 (RT. SIDE)
$(75.00)\left(\frac{3.00+2.00}{2}\right) \div 9$ = 20.83 S.Y.

STA. 243+50.00 TO STA. 243+98.60 (LT. SIDE)
$(48.60)\ (8.00) \div 9$ = 43.20 S.Y.

STA. 243+98.60 TO STA. 264+37.70 (LT. SIDE)
$(39.10)\left(\frac{8.00+2.00}{2}\right) \div 9$ = 21.72 S.Y.

STA. 270+91.63 TO STA. 272+50.00 (LT. SIDE)
$(158.37)\ (25.90\ \text{AVG.}) \div 9$ = 455.75 S.Y.

STA. 271+06.63 TO STA. 272+50.00 (RT. SIDE)
$(143.37)\ (28.25\ \text{AVG.}) \div 9$ = 450.02 S.Y.

TOTAL = 1,548.44 S.Y.
USE 1,549 S.Y.

ITEM 203 SUBGRADE COMPACTION

STA. 243+50.00 TO STA. 264+33.34
$\left(\frac{64.60+59.00}{2}\right)\ (90.55) \div 9$ = 621.78 S.Y.

UNDER CURBS RT. & LT.
$(0.50)(2)(18.31) \div 9$ = 2.03 S.Y.

STA. 264+33.34 TO STA. 264+41.03
$(60.00)(7.69) \div 9$ = 51.27 S.Y.

STA. 264+41.03 TO STA. 264+56.03
$(62.00)(15.00) \div 9$ = 103.33 S.Y.

STA. 270+12.61 TO STA. 270+37.61 (LT. SIDE)
$(26.00)(15.00) \div 9$ = 43.33 S.Y.

STA. 270+37.61 TO STA. 270+91.63 (LT. SIDE)
$(25.00)(54.02) \div 9$ = 150.06 S.Y.

STA. 270+91.63 TO STA. 270+96.63 (LT. SIDE)
$(30.00)(5.00) \div 9$ = 16.67 S.Y.

STA. 270+96.63 TO STA. 271+12.50 (LT. SIDE)
$(29.50)(15.87) \div 9$ = 52.02 S.Y.

STA. 271+12.50 TO STA. 272+50.00 (LT. SIDE)
$\left(\frac{29.50+35.00}{2}\right)\ (137.50) \div 9$ = 492.71 S.Y.

STA. 270+91.63 TO STA. 272+50.00 (RT, SIDE)
$(28.00)(158.37) \div 9$ = 492.71 S.Y.

TOTAL = 2,025.91 S.Y.
USE 2,026 S.Y.

ITEM 301 BITUMINOUS AGGREGATE BASE, PG64-22

STA. 272+50.00 TO STA. 273+00.00
$(50.00)\left(\frac{2.70+6.20}{2}\right)(0.50) \div 27$ = 4.12 C.Y.

TOTAL = 4.12 C.Y.
USE 4 C.Y.

ITEM 304 AGGREGATE BASE

STA. 243+50.00 TO STA. 264+33.34
$(90.55)\left(\frac{56.60+55.00}{2}\right)(0.50) \div 27$ = 93.57 C.Y.

SHOULDER (LT. SIDE)
$(90.55)\left(\frac{6.50+2.50}{2}\right)\left(\frac{0.703+0.575}{2}\right) \div 27$ = 9.64 C.Y.

SHOULDER (RT. SIDE)
$(90.55)(2.50)(0.578\ \text{AVG.}) \div 27$ = 4.85 C.Y.

UNDER CURBS (RT. & LT.)
$(18.31)(0.50)(2) \div 27$ = 0.68 C.Y.

STA. 264+33.34 TO STA. 264+41.03
$(7.69)(53+2)(0.50) \div 27$ = 7.83 C.Y.

UNDER SHOULDER & CURB
$(7.69)(3)(2)(0.594\ \text{AVG.}) \div 27$ = 1.02 C.Y.

STA. 264+41.03 TO STA. 264+56.03
$(62.00)(15.00)(0.50) \div 27$ = 17.22 C.Y.

STA. 270+12.61 TO STA. 270+37.61
$(26.00)(15.00)(0.50) \div 27$ = 7.22 C.Y.

STA. 270+37.61 TO STA. 270+91.63
$(25.00)(54.02)(0.50) \div 27$ = 25.01 C.Y.

STA. 270+91.63 TO STA. 270+96.63
$(5.00)(55.50)(0.50) \div 27$ = 5.14 C.Y.
$(5.00)(3.00)(0.594\ \text{AVG.}) \div 27$ = 0.33 C.Y.

STA. 270+96.63 TO STA. 271+12.50
$(15.87)(55.50)(0.50) \div 27$ = 16.31 C.Y.
$(15.87)(2.50)(0.578\ \text{AVG.}) \div 27$ = 0.85 C.Y.

STA. 271+12.50 TO STA. 272+50.00
$(137.50)\left(\frac{55.50+54.80}{2}\right)(0.50) \div 27$ = 140.43 C.Y.

$(137.50)(5.60\ \text{AVG.})\left(\frac{0.578+0.772}{2}\right)(0.50) \div 27$ = 9.63 C.Y.

STA. 272+50.00 TO STA. 273+00.00 (RT. SIDE)
$(50.00)(1.00)(0.50) \div 27$ = 0.93 C.Y.
$(50.00)\left(\frac{1.70+5.20}{2}\right)\left(\frac{0.553+0.663}{2}\right) \div 27$ = 3.88 C.Y.

UNDER CURB (RT. SIDE)
STA. 272+76.00 TO STA. 273+00.00
$(24)(0.50) \div 27$ = 0.44 C.Y.

DEDUCT FOR PRESSURE RELIEF JOINT
$(8.00)(60.00)(0.50) \div 27$ = −8.89 C.Y.

TOTAL = 336.09 C.Y.
USE 337 C.Y.

ITEM 451 10" REINFORCED CONCRETE PAVEMENT

STA. 243+50.00 TO STA. 264+33.34
$(90.55)\left(\frac{51.60+50.00}{2}\right) \div 9$ = 511.10 S.Y.

STA. 264+33.34 TO STA. 264+41.03
$(7.69)(50.00) \div 9$ = 42.72 S.Y.

STA. 270+91.63 TO STA. 272+00.00 (LT. SIDE)
$(108.37)(25) \div 9$ = 301.03 S.Y.

STA. 272+00.00 TO STA. 272+50.00 (LT. SIDE)
$(50.00)\left(\frac{25.00+24.30}{2}\right) \div 9$ = 136.94 S.Y.

DEDUCT FOR PRESSURE RELIEF JOINT
$(50.00)(4.00) \div 9$ = −22.22 S.Y.

TOTAL = 969.57 S.Y.
USE 970 S.Y.

ITEM 452 10" PLAIN CONCRETE PAVEMENT

STA. 243+50.00 TO STA. 264+41.03 (RT. SIDE)
$(98.24)(3) \div 9$ = 32.75 S.Y.

STA. 244+22.24 TO STA. 264+41.03
UNDER CURB RT. & LT. SIDE
$(2)(26.00)(0.50) \div 9$ = 2.89 S.Y.

STA. 243+50.00 TO STA. 264+33.34 (LT. SIDE)
$(90.55)\left(\frac{7+3}{2}\right) \div 9$ = 50.31 S.Y.

STA. 264+33.34 TO STA. 264+41.03 (LT. SIDE)
$(7.69)(3) \div 9$ = 2.56 S.Y.

STA. 270+91.63 TO STA. 270+96.63 (LT. SIDE)
$(5.00)(3.50) \div 9$ = 1.94 S.Y.

STA. 270+96.63 TO STA. 271+12.50 (LT. SIDE)
$(15.87)(3.00) \div 9$ = 5.29 S.Y.

STA. 271+12.50 TO STA. 272+50.00 (LT. SIDE)
$(137.50)\left(\frac{3+9.20}{2}\right) \div 9$ = 93.19 S.Y.

DEDUCT FOR PRESSURE RELIEF JOINT
$(7.00)(4.00) \div 9$ = −3.11 S.Y.

TOTAL = 185.82 S.Y.
USE 186 S.Y.

ITEM 408 BITUMINOUS PRIME COAT

STA. 272+50.00 TO STA. 273+00.00
$\left[(50.00)\left(\frac{2.70+6.20}{2}\right) \div 9\right]\ (0.40)$ = 9.89 GAL.

USE 10 GALLONS

ITEM 611 REINFORCED CONCRETE APPROACH SLAB (T=13"), AS PER PLAN

STA. 264+41.03 TO STA. 264+56.03
$(62.00)(15.00) \div 9$ = 103.33 S.Y.

STA. 270+12.61 TO STA. 270+37.61 (LT. SIDE)
$(25.00)(30.92) \div 9$ = 85.89 S.Y.

STA. 270+37.61 TO STA. 270+91.63 (LT. SIDE)
$(54.02)(29.92) \div 9$ = 179.59 S.Y.

STA. 270+91.63 TO STA. 272+50.00 (RT. SIDE)
$(158.37)(32.50) \div 9$ = 571.89 S.Y.

TOTAL = 940.70 S.Y.
USE 941 S.Y.

ITEM 622 CONCRETE BARRIER

STA. 243+50.00 TO STA. 264+56.03 = 113.24 L.F.
STA. 270+91.63 TO STA. 272+50.00 = 158.37 L.F.
TOTAL = 271.61 L.F.
USE 272 L.F.

ITEM 659 COMMERCIAL FERTILIZER

$\left[(693.00)(9)(20) \div 1000\right] \div 2000$ = 0.06 TON

ITEM 659 AGRICULTURAL LIMING

$\left[(693.00)(9)(100) \div 1000\right] \div 2000$ = 0.31 TON

ITEM 626 BARRIER REFLECTOR

STATION	SIDE	TYPE A	TYPE B
STA. 220+51	R/L	0	2
STA. 221+50	R/L	0	2
STA. 222+50	R/L	0	2
STA. 223+50	R/L	0	2
STA. 224+50	R/L	0	2
STA. 225+50	R/L	0	2
STA. 226+50	R/L	0	2
STA. 227+50	R/L	0	2
STA. 228+50	R/L	0	2
STA. 243+51	R/L	2	2
STA. 264+40	R/L	2	2
STA. 265+40	R/L	0	4
STA. 266+40	R/L	0	4
STA. 267+40	R/L	0	4
STA. 268+40	R/L	0	4
STA. 269+40	R/L	0	4
STA. 270+40	R/L	1	3
STA. 271+40	R/L	1	3
STA. 272+40	R/L	1	3
STA. 273+10	R	1	0
STA. 305+01	R/L	0	2
STA. 306+00	R/L	0	2
STA. 307+00	R/L	0	2
STA. 308+00	R/L	0	2
STA. 309+00	R/L	0	2
STA. 310+00	R/L	0	2
STA. 311+00	R/L	0	2
STA. 312+00	R/L	0	2
STA. 313+00	R/L	0	2
		TOTAL TYPE A 8	TOTAL TYPE B 69

ESTIMATED EARTHWORK QUANTITIES
(FROM SHEET NO. 26)

ITEM 203	ITEM 203	ITEM 659
EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	EMBANKMENT	SEEDING AND MULCHING
C.Y.	C.Y.	S.Y.
554	48	693

CALC. BY: M.F.R. DATE: 10/96
CHKD. BY: R.B.S. DATE: 10/96

CALCULATIONS

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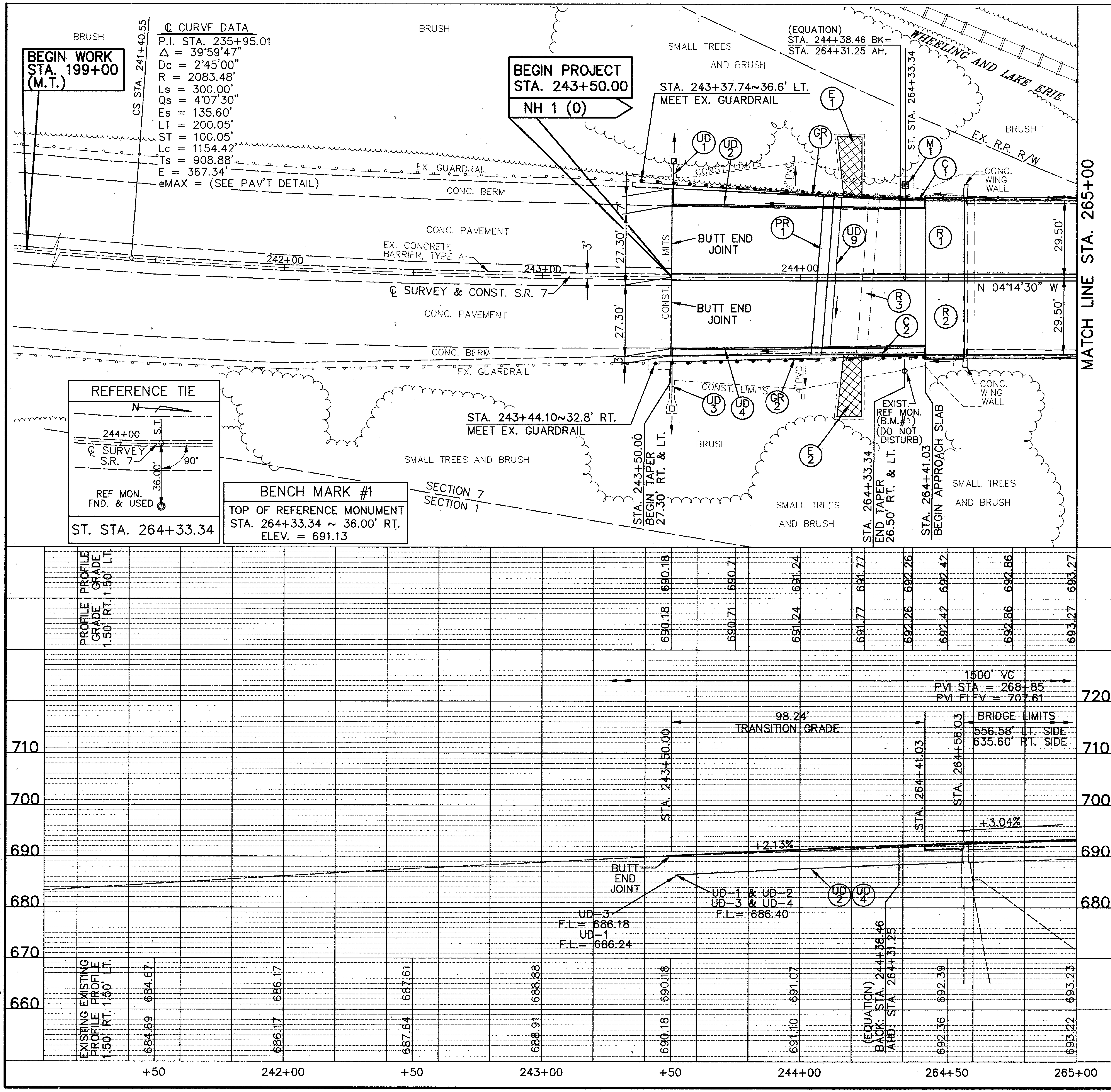
BEGIN WORK STA. 199+00 (M.T.)
CS STA. 241+40.55
℄ CURVE DATA
P.I. STA. 235+95.01
Δ = 39°59'47"
Dc = 2°45'00"
R = 2083.48'
Ls = 300.00'
Qs = 4°07'30"
Es = 135.60'
LT = 200.05'
ST = 100.05'
Lc = 1154.42'
Ts = 908.88'
E = 367.34'
eMAX = (SEE PAV'T DETAIL)
BRUSH
BEGIN PROJECT STA. 243+50.00
NH 1 (0)
SMALL TREES AND BRUSH
(EQUATION) STA. 244+38.46 BK= STA. 264+31.25 AH.
WHEELING AND LAKE ERIE
STA. 243+37.74~36.6' LT. MEET EX. GUARDRAIL
ST. STA. 264+33.34
EX. R.R. R/W
EX. GUARDRAIL
CONC. BERM
CONC. PAVEMENT
EX. CONCRETE BARRIER, TYPE A
242+00
243+00
244+00
℄ SURVEY & CONST. S.R. 7
BUTT END JOINT
CONST. LIMITS
CONC. WING WALL
N 04°14'30" W
29.50'
27.30'
3'
MATCH LINE STA. 265+00
REFERENCE TIE
N
244+00
℄ SURVEY S.R. 7
S.T.
36.00'
90°
REF MON. FND. & USED
ST. STA. 264+33.34
BENCH MARK #1
TOP OF REFERENCE MONUMENT
STA. 264+33.34 ~ 36.00' RT.
ELEV. = 691.13
STA. 243+44.10~32.8' RT. MEET EX. GUARDRAIL
SECTION 7
SECTION 1
EXIST. REF MON. (B.M.#1) (DO NOT DISTURB)
STA. 243+50.00 BEGIN TAPER 27.30' RT. & LT.
STA. 264+33.34 END TAPER 26.50' RT. & LT.
STA. 264+41.03 BEGIN APPROACH SLAB
SMALL TREES AND BRUSH
PROFILE GRADE 1.50' RT. 1.50' LT.
690.18
690.71
691.24
691.77
692.26
692.42
692.86
693.27
1500' VC
PVI STA = 268+85
PVI ELEV = 707.61
98.24' TRANSITION GRADE
BRIDGE LIMITS
556.58' LT. SIDE
635.60' RT. SIDE
STA. 243+50.00
STA. 264+41.03
STA. 264+56.03
+3.04%
+2.13%
BUTT END JOINT
UD-1 & UD-2
UD-3 & UD-4
F.L.= 686.40
UD-3 F.L.= 686.18
UD-1 F.L.= 686.24
720
710
700
690
680
670
660
EXISTING PROFILE 1.50' RT. 1.50' LT.
684.67
686.17
687.61
688.88
690.18
691.07
692.39
693.23
684.69
686.17
687.64
688.91
690.18
691.10
692.36
693.22
(EQUATION) BACK: STA. 244+38.46 AHD: STA. 264+31.25
+50
242+00
+50
243+00
+50
244+00
264+50
265+00

REFERENCE No.	STATION TO STATION	SIDE	202 PRESSURE RELIEF JOINT REMOVED (L.F.)	202 APPROACH SLAB REMOVED (S.Y.)	202 GUARDRAIL REMOVED (L.F.)	604 REFERENCE MONUMENT (EA.)	606 GUARDRAIL, TYPE 5 (L.F.)	606 BRIDGE TERMINAL ASSEMBLY, TYPE 1 (EA.)	606 BRIDGE TERMINAL ASSEMBLY, TYPE 2 (EA.)	609 CURB, TYPE 4-A (L.F.)	660 SODDING REINFORCED (S.Y.)
C1	244+22.24~264+41.03	LT.								26	
C2	244+22.24~264+41.03	RT.								26	
E1	244+20.20	LT.									23
E2	244+20.20	RT.									23
GR1	243+37.74~264+43.03	LT.			125		112.50		1		
GR2	243+44.10~264+41.13	RT.			125		106.25	1			
M1	264+33.34(36.00' LT.)	LT.				1					
R1	244+38.24~264+56.03	LT.		77							
R2	264+41.03~264+56.03	RT.		41							
R3	244+26	L/R	55								
SHEET TOTALS			55	118	250	1	218.75	1	1	52	46

REFERENCE No.	STATION TO STATION	SIDE	603 6" CONDUIT, TYPE F (L.F.)	605 6" SHALLOW PIPE UNDERDRAIN AS PER PLAN (L.F.)	604 PRECAST REINFORCED CONCRETE OUTLET (EA.)	6" x 90° BEND (EA.)	6" x 6" "TEE" (EA.)	SPEC PRESSURE RELIEF JOINT, TYPE A (L.F.)
PR1	244+08.49	L/R						58
UD1	243+51.00	LT.	10	6	1	1		
UD2	243+51.00~264+55.00	LT.		114		2		
UD3	243+51.00	RT.	10	12	1	1		
UD4	243+51.00~264+55.00	RT.		114		2		
UD9	244+13.50	L/R		58			1	
SHEET TOTALS			20	304	2			58

N

0 10 20 40 HORIZONTAL SCALE IN FEET

CALC. BY: M.F.R. DATE: 10/96
CHKD. BY: R.B.S. DATE: 10/96

PLAN AND PROFILE STA. 241+00 TO STA. 265+00

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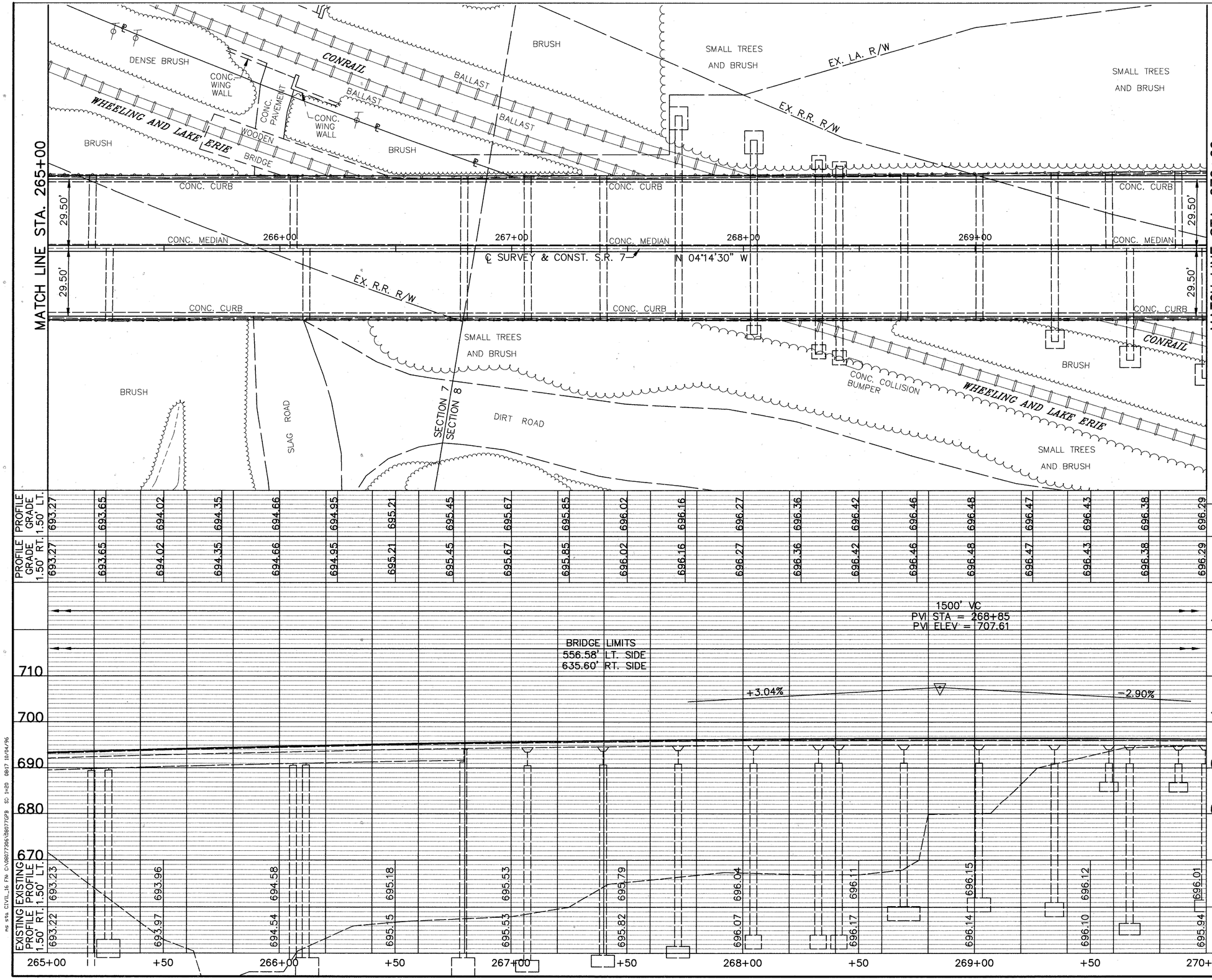


EXISTING STRUCTURE

TYPE: CONTINUOUS STEEL BEAMS WITH REINFORCED CONCRETE DECK & CONTINUOUS CONCRETE SLAB AND SUBSTRUCTURE

SPANS: (LEFT) STEEL BEAMS: 60.36', 87.01', 73.62' C/C BRGS. CONTINUOUS CONCRETE SLABS 11 SPANS = 332.09' O/O SLAB
(RIGHT) STEEL BEAMS: 68.10', 84.87', 68.02' C/C BRGS. CONCRETE SLABS 13 SPANS = 411.11' O/O SLAB

ROADWAY: (LEFT) 26'-6" FACE OF MEDIAN TO FACE OF CURB
(RIGHT) 26'-6" FACE OF MEDIAN TO FACE OF CURB & 3'-0" MEDIAN

DESIGN LOADING: CF 400 (57)

SKEW: NONE

WEARING SURFACE: (LEFT) MONOLITIC CONCRETE
(RIGHT) BITUMINOUS CONCRETE

ALIGNMENT: TANGENT

APPROACH SLABS:
(LEFT) REAR 25'-0", FWD. 79'-9"
(RIGHT) REAR 15'-0", FWD. 15'-0" (AS-3-47)

CONDITION: GOOD

DISPOSITION: TO BE WIDENED AND RE-DECKED

STRUCTURE FILE NUMBER: 4200258

PROPOSED STRUCTURE

TYPE: CONTINUOUS STEEL BEAM WITH NEW COMPOSITE REINFORCED CONCRETE DECK AND CONTINUOUS CONCRETE SLABS ON EXISTING SUBSTRUCTURES.

SPANS: (LEFT) STEEL BEAMS: 60.36', 87.01', 73.62' C/C BRGS. CONCRETE SLABS 11 SPANS = 332.09' O/O SLAB
(RIGHT) STEEL BEAMS: 68.10', 84.87', 68.02' C/C BRGS. CONCRETE SLABS 13 SPANS = 411.11' O/O SLAB

ROADWAY: (LEFT) 28'-3" TOE-TO-TOE OF BARRIER
(RIGHT) 28'-3" TOE-TO-TOE OF BARRIER

SKEW: NONE

DESIGN LOADING: HS20-44 AND ALTERNATE MILITARY LOADING

APPROACH SLABS:
(LEFT) REAR AS-1-81 15'-0", FWD. 79.02'
(RIGHT) REAR AS-1-81 15'-0", FWD. 158.37'

ALIGNMENT: TANGENT

SUPERELEVATION: NONE(CROWN 0.0156 FT./FT.)

WEARING SURFACE: MONOLITHIC CONCRETE

AVERAGE DAILY TRAFFIC: 13,800 (2017)

AVERAGE DAILY TRUCK TRAFFIC: 1,518 (2017)

N

0 20 40
HORIZONTAL SCALE IN FEET
10

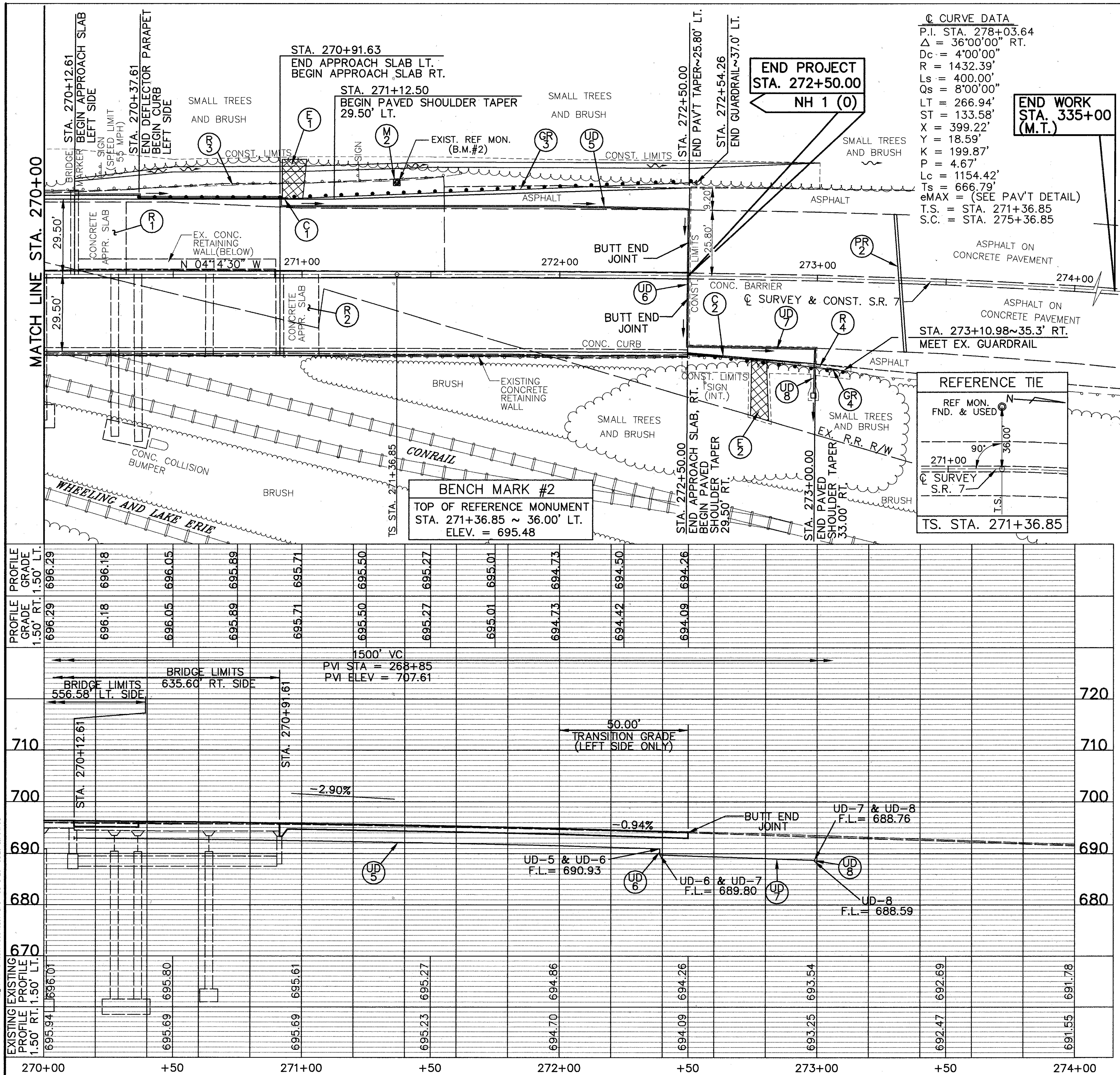
CALC. M.F.R. DATE: 10/96
CHKD. BY: R.B.S. DATE: 10/96

PLAN AND PROFILE
STA. 265+00 TO STA. 270+00

JEF-7-4.63

18
73

ms sta CIVIL_16 FN: C:\88977396\88977GPB SC: 1=20 08:17 10/04/96



MATCH LINE STA. 270+00
STA. 270+12.61 BEGIN APPROACH SLAB LEFT SIDE
BRIDGE MARKER
SIGN (SPEED LIMIT 55 MPH)
STA. 270+37.61 END DEFLECTOR PARAPET BEGIN CURB LEFT SIDE
SMALL TREES AND BRUSH
STA. 270+91.63
END APPROACH SLAB LT.
BEGIN APPROACH SLAB RT.
STA. 271+12.50
BEGIN PAVED SHOULDER TAPER 29.50' LT.
EXIST. REF MON. (B.M.#2)
CONST. LIMITS
ASPHALT
STA. 272+50.00
STA. 272+50.00 PAV'T TAPER~25.80' LT.
STA. 272+54.26 END GUARDRAIL~37.0' LT.
END PROJECT
STA. 272+50.00
NH 1 (0)
END WORK
STA. 335+00
(M.T.)
℄ CURVE DATA
P.I. STA. 278+03.64
Δ = 36°00'00" RT.
Dc = 4°00'00"
R = 1432.39'
Ls = 400.00'
Qs = 8°00'00"
LT = 266.94'
ST = 133.58'
X = 399.22'
Y = 18.59'
K = 199.87'
P = 4.67'
Lc = 1154.42'
Ts = 666.79'
eMAX = (SEE PAV'T DETAIL)
T.S. = STA. 271+36.85
S.C. = STA. 275+36.85
CONCRETE APPR. SLAB
EX. CONC. RETAINING WALL(BELOW)
N 04°14'30" W
29.50'
271+00
272+00
273+00
274+00
BUTT END JOINT
ASPHALT ON CONCRETE PAVEMENT
CONC. BARRIER
℄ SURVEY & CONST. S.R. 7
STA. 273+10.98~35.3' RT.
MEET EX. GUARDRAIL
CONC. CURB
BRUSH
EXISTING CONCRETE RETAINING WALL
CONC. COLLISION BUMPER
CONRAIL
WHEELING AND LAKE ERIE
EX. R.R. R/W
SIGN (INT.)
STA. 272+50.00 RT. END APPROACH SLAB, BEGIN PAVED SHOULDER TAPER 29.50' RT.
STA. 273+00.00 END PAVED SHOULDER TAPER 33.00' RT.
TS STA. 271+36.85
BENCH MARK #2
TOP OF REFERENCE MONUMENT
STA. 271+36.85 ~ 36.00' LT.
ELEV. = 695.48
REFERENCE TIE
REF MON. FND. & USED
90°
36.00'
271+00
℄ SURVEY S.R. 7
TS. STA. 271+36.85
PROFILE GRADE 1.50' LT.
PROFILE GRADE 1.50' RT.
696.29 696.18 696.05 695.89 695.71 695.50 695.27 695.01 694.73 694.50 694.26
696.29 696.18 696.05 695.89 695.71 695.50 695.27 695.01 694.73 694.42 694.09
1500' VC
PVI STA = 268+85
PVI ELEV = 707.61
BRIDGE LIMITS 556.58' LT. SIDE
BRIDGE LIMITS 635.60' RT. SIDE
STA. 270+12.61
STA. 270+91.61
50.00' TRANSITION GRADE (LEFT SIDE ONLY)
-2.90%
-0.94%
BUTT END JOINT
UD-7 & UD-8 F.L.= 688.76
UD-5 & UD-6 F.L.= 690.93
UD-6 & UD-7 F.L.= 689.80
UD-8 F.L.= 688.59
720 710 700 690 680 670
EXISTING PROFILE 1.50' LT.
EXISTING PROFILE 1.50' RT.
696.01 695.80 695.61 695.27 694.86 694.26 693.54 692.69 691.78
695.94 695.69 695.69 695.23 694.70 694.09 693.25 692.47 691.55
270+00 +50 271+00 +50 272+00 +50 273+00 +50 274+00

REFERENCE No.	STATION TO STATION	SIDE	202 APPROACH SLAB REMOVED S.Y.	202 GUARDRAIL REMOVED L.F.	604 REFERENCE MONUMENT EA.	606 GUARDRAIL, TYPE 5 L.F.	606 BRIDGE TERMINAL ASSEMBLY, TYPE 1 EA.	606 BRIDGE TERMINAL ASSEMBLY, TYPE 2 EA.	606 ANCHOR ASSEMBLY, TYPE E EA.	609 CURB, TYPE 4-A L.F.	609 CURB, TYPE 6 L.F.	660 SODDING REINFORCED S.Y.
C1	270+91.63~270+94.63	LT.								3		
C2	272+50.00~272+76.00	RT.									26	
E1	270+96.60	LT.										11
E2	272+78.00	RT.										17
GR3	270+35.51~272+54.26	LT.				193.75	1		1			
GR4	272+48.00~273+10.98	RT.				62.50		1				
R1	270+12.61~270+91.63	LT.	230									
R2	270+91.63~271+06.63	RT.	43									
R3	270+12.61~271+62.60	LT.		150								
R4	272+48~273+11	RT.		62.5								
M2	271+36.85(36.00' LT.)*	LT.			1							
SHEET TOTALS			273	212.5	1	256.25	1	1	1	3	26	28

* (M2) REMOVE AND SET A NEW REFERENCE MONUMENT AT GRADE AT STA. 271+36.85, 36.00' LEFT

REFERENCE No.	STATION TO STATION	SIDE	603 6" CONDUIT, TYPE B L.F.	603 6" CONDUIT, TYPE F L.F.	605 6" SHALLOW PIPE UNDERDRAIN AS PER PLAN L.F.	605 AGGREGATE DRAIN L.F.	604 PRECAST REINFORCED CONCRETE OUTLET EA.	6" x 90° BEND EA.	SPEC PRESSURE RELIEF JOINT, TYPE C L.F.			
PR2	273+32.15	L/R				12			53			
UD5	270+13.00~272+49.00	LT.			239			4				
UD6	272+49.00	L/R	55									
UD7	272+49.00~272+99.00	RT.			50			2				
UD8	272+99.00	RT.		10	7		1	1				
SHEET TOTALS			55	10	296	12	1		53			

PLAN AND PROFILE
STA. 270+00 TO STA. 274+00

HORIZONTAL SCALE IN FEET: 0 10 20 40

CALC. BY: M.F.R. DATE: 10/96
CHKD. BY: R.B.S. DATE: 10/96

JEF-7-4.63

SEEDING	
END WIDTH	SQ. YDS.
14	

110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

690 680 670 660 650

UD 1 UD 2 UD 3 UD 4

690.18

STA. 243+50
BEGIN SEEDING

243+50
690.18

STA. 243+50
BEGIN EARTHWORK

243+00
688.88

242+50
687.61

END AREA		VOLUME	
CUT	FILL	CUT	FILL
36	0		

CALC: M.F.R. DATE: 10/96
CHKD: R.B.S. DATE: 10/96

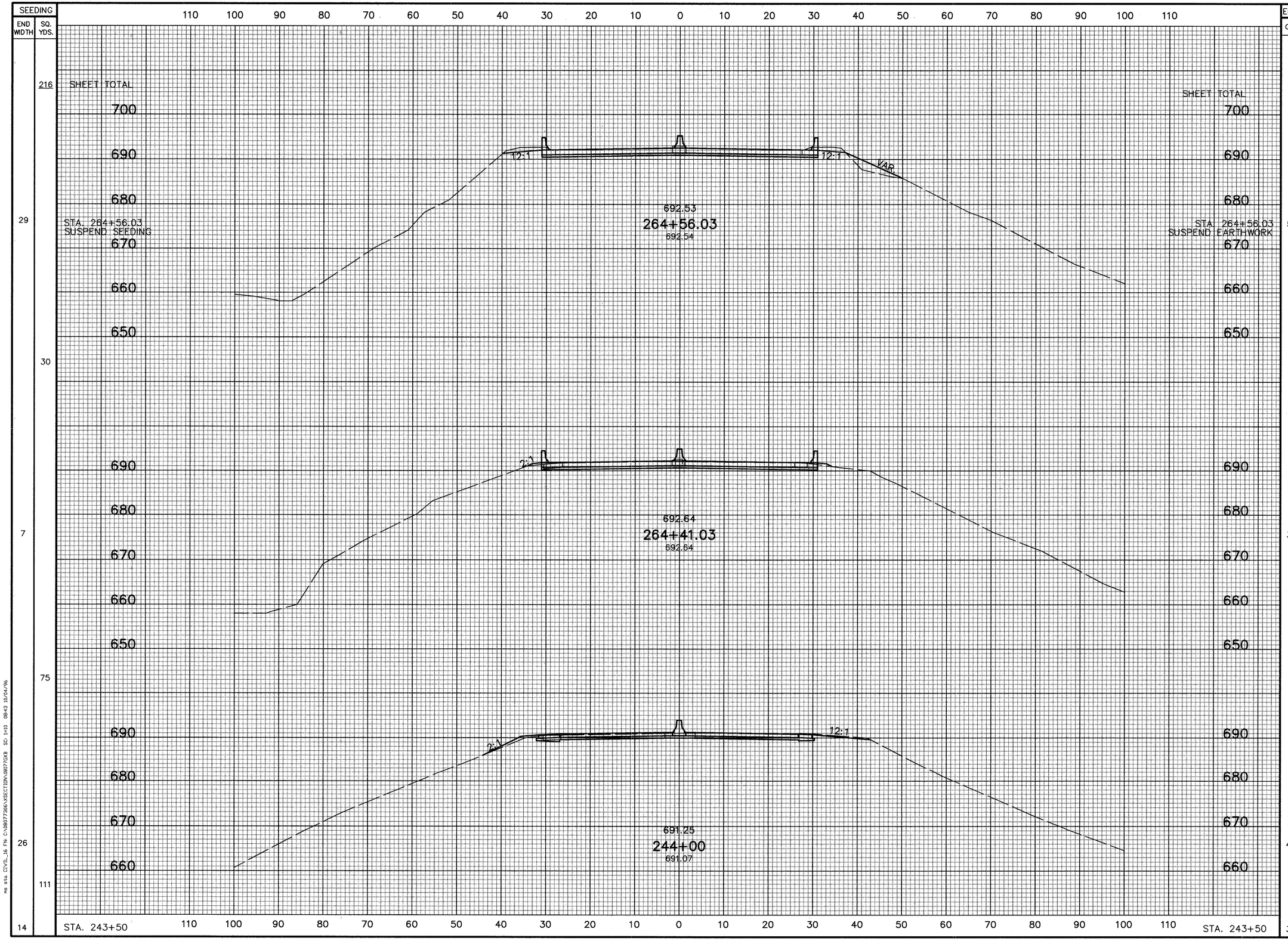
CROSS SECTIONS
STA. 242+50 TO STA. 243+50

JEF-7-4.63

20/73

ms sta CIVIL_16 FN: C:\080773696\XSECTION\080773GXA SC: 1=10 08:33 10/04/96

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	216			152	15
29		52	15		
	30			24	5
7	75	36	2	58	5
26	111	40	5	70	5
14		36	0		



CALC: M.F.R. DATE: 10/96
CHKD BY: R.B.S. DATE: 10/96

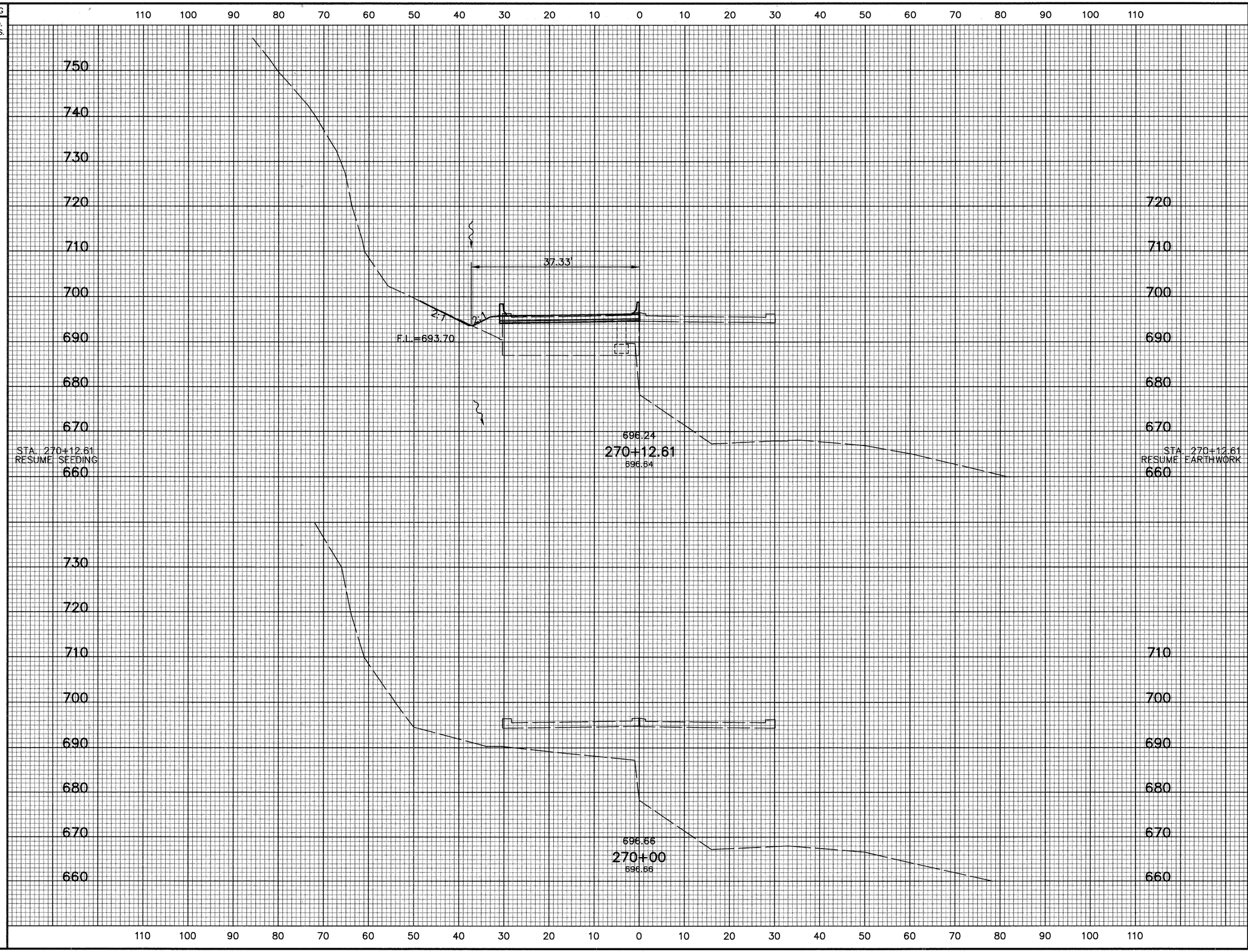
CROSS SECTIONS
STA. 244+00 TO STA. 264+56.03

JEF-7-4.63

21/73

ms sta CIVIL_16 FN: C:\0807736\XSECTION\0807736 SC: 1=10 08:43 10/04/96

SEEDING	
END WIDTH	SQ. YDS.
19	



END AREA		VOLUME	
CUT	FILL	CUT	FILL
16	19		

CALC. BY: M.F.R. DATE: 10/96
CHK'D BY: R.B.S. DATE: 10/96

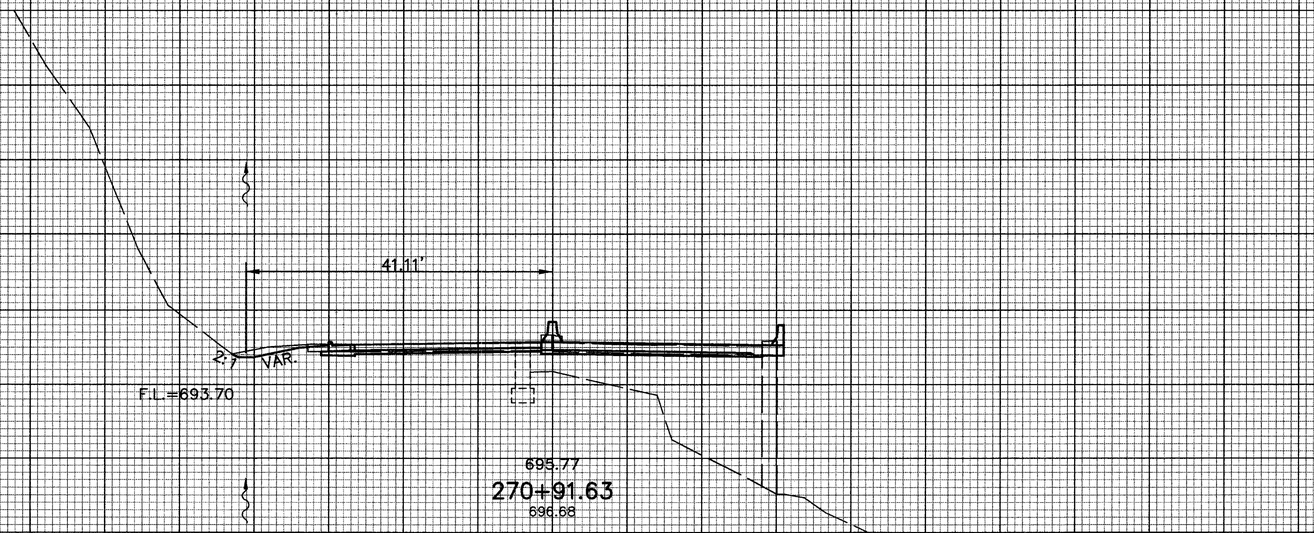
CROSS SECTIONS
STA. 270+00 TO STA. 270+12.61

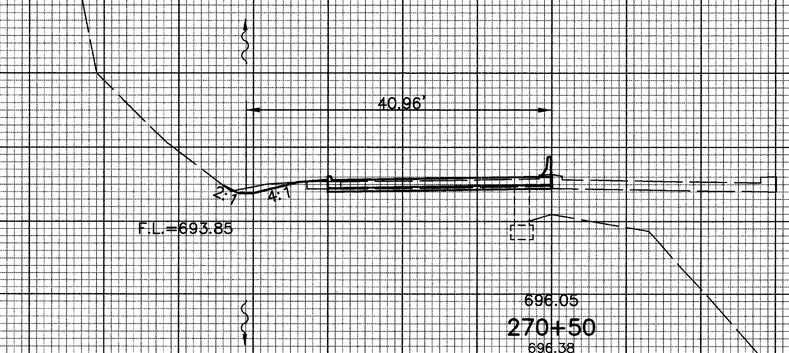
JEF-7-4.63

22/73

ns sta CIVIL_16 FN G:\98077396\XSECTION\98077GXC SC 1=10 08:45 10/04/96

SEEDING		END AREA		VOLUME		
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL	
	131			69	21	SHEET TOTAL
13		34	2			110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110
	62					730 720 710 700 690 680 670 660
14		22	4			730 720 710 700 690 680 670 660
19	69	16	19	26	16	STA. 270+12.61 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 STA. 270+12.61





CALC. BY: M.F.R. DATE: 10/96
CHKD. BY: R.B.S. DATE: 10/96

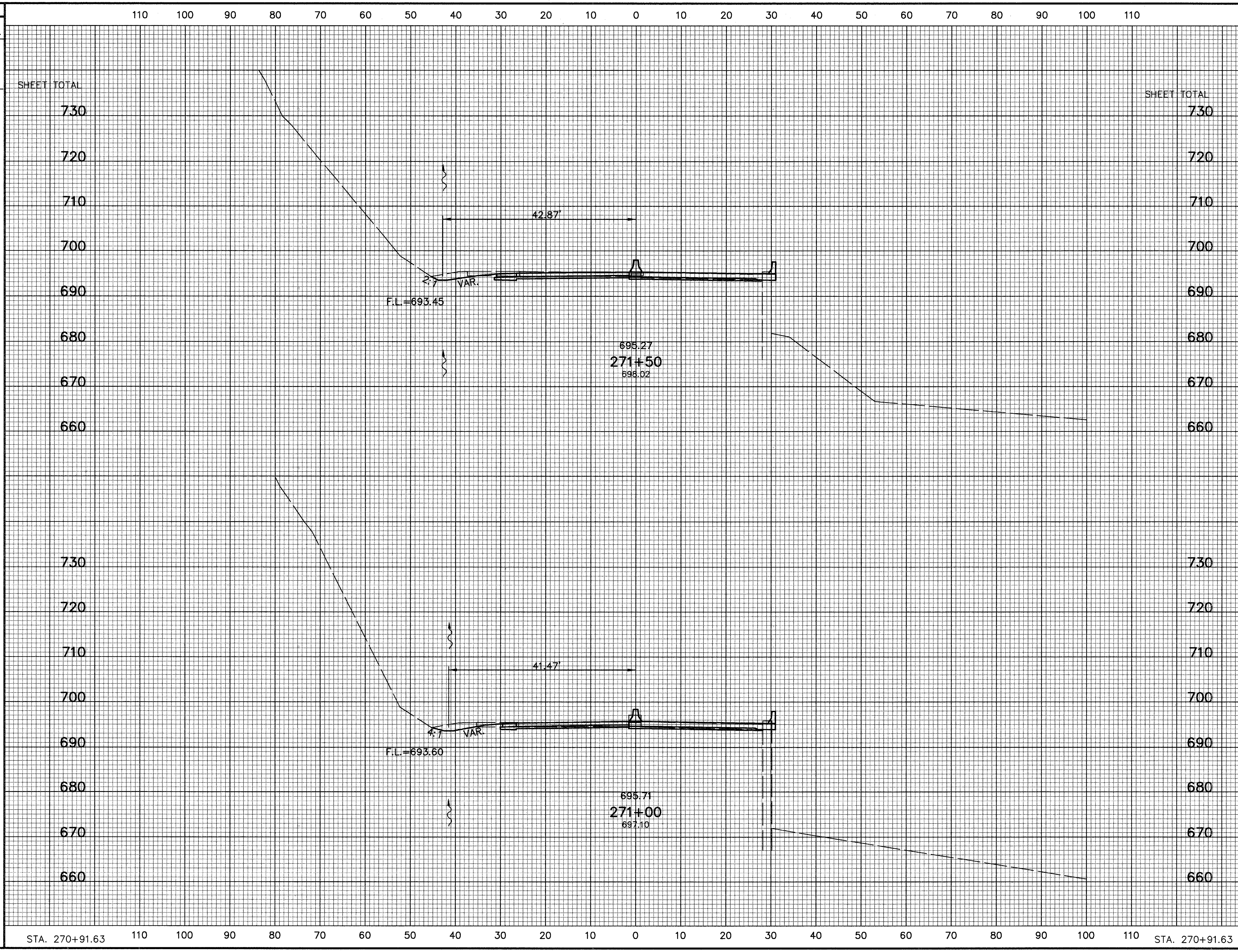
CROSS SECTIONS
STA. 270+50 TO STA. 270+91.63

JEF-7-4.63

23
73

ms sta CIVIL_16 FN: C:\RB07306\XSECT\DGN\RB07706XD SC: 1=10 08:47 10/24/96

SEEDING		
END WIDTH	SQ. YDS.	
	99	SHEET TOTAL
15		
	86	
16		
	13	
13		STA. 270+91.63



END AREA		VOLUME	
CUT	FILL	CUT	FILL
		102	5
51	1		
		90	4
46	3		
		12	1
34	2		

CALC. BY: M.F.R. DATE: 10/96
CHKD. BY: R.B.S. DATE: 10/96

CROSS SECTIONS
STA. 271+00 TO STA. 271+50

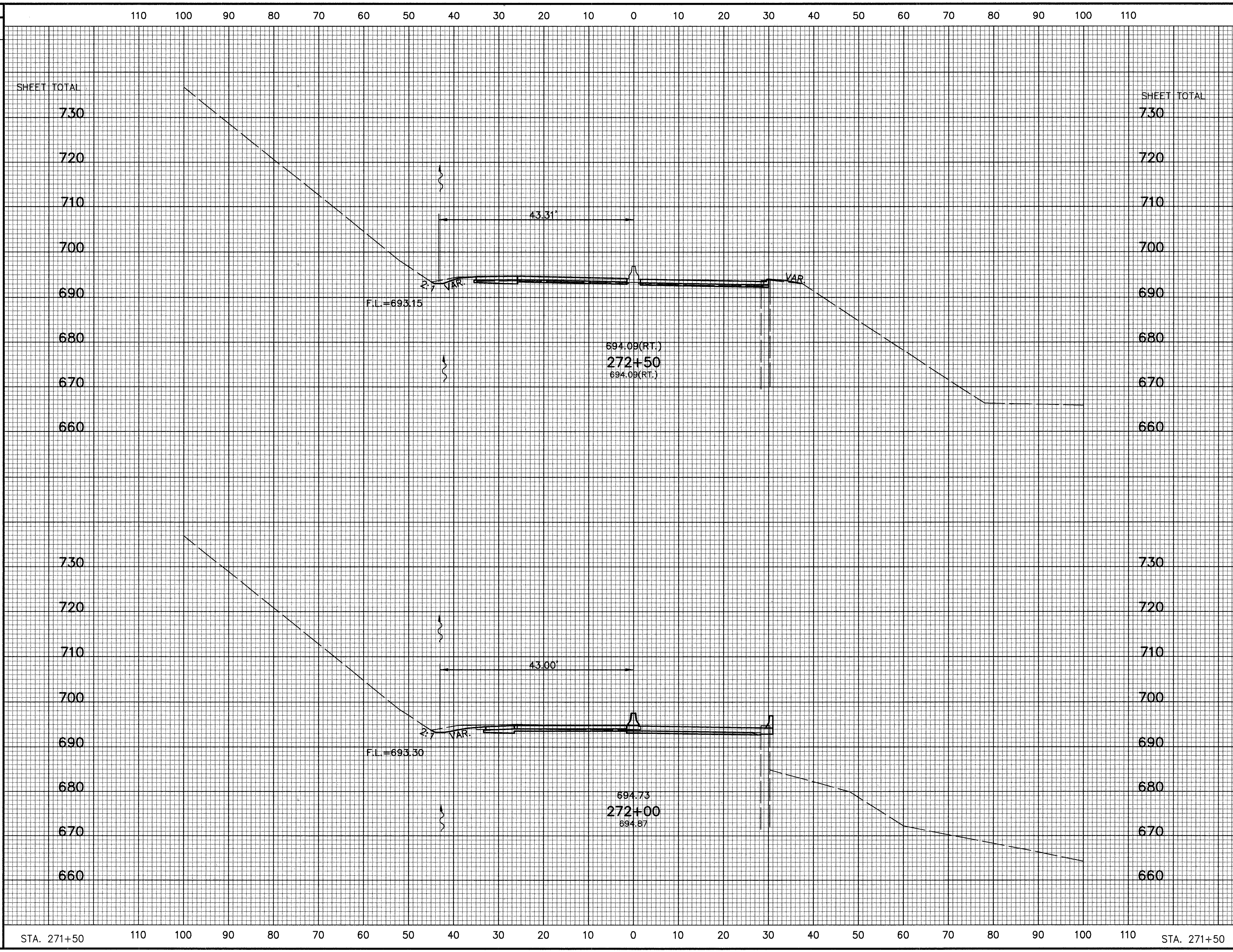
JEF-7-4.63

CROSS SECTIONS
STA. 272+00 TO STA. 272+50

JEF-7-4.63

CALC. BY: M.F.R. DATE: 10/96
CHKD. BY: R.B.S. DATE: 10/96

SEEDING END WIDTH	SEEDING SQ. YDS.	Station	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	158	SHEET TOTAL			183	5
18		272+50	43	2		
	83				88	3
12		272+00	52	1		
	75				95	2
15		STA. 271+50	51	1		



ms sta CIVIL_16 F#: C:\08077306\XSECTION\08077GXF SC 1:10 0852 10/04/96

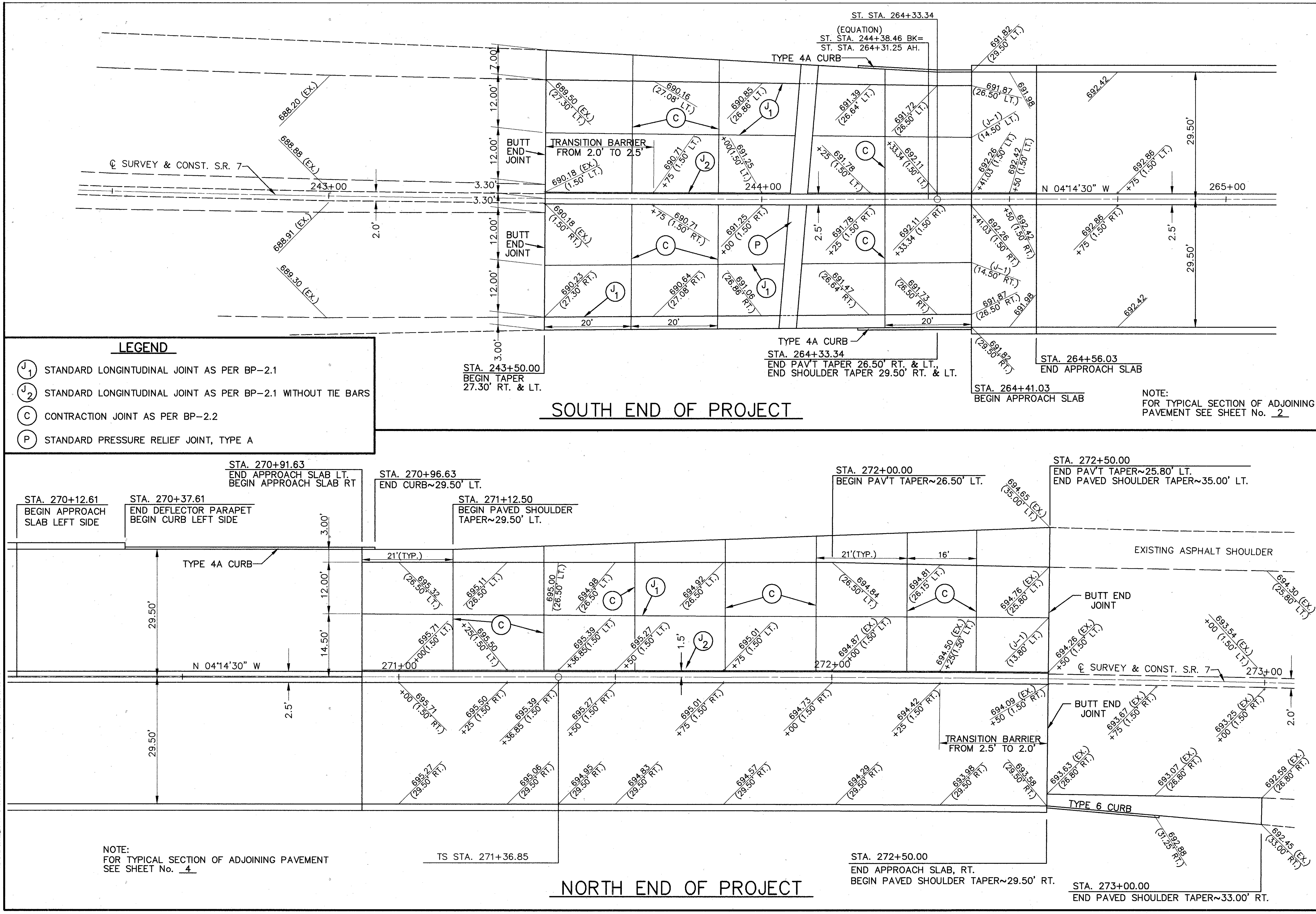
	SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
ROADWAY GRAND TOTAL		693			554	48
SHEET TOTAL		89			48	2
STA. 273+00 END SEEDING / END EARTHWORK	14		9	0		
		89			48	2
STA. 272+50	18		43	2		

CALC. BY: M.F.R. DATE: 10/96
CHKD. BY: R.B.S. DATE: 10/96

CROSS SECTIONS
STA. 273+00 TO STA. 273+50

JEF-7-4.63

ms sta CIVIL_16 FN: C:\08077306\XSECTION\08077GXG SC: 1=10 08:54 10/04/96



ST. STA. 264+33.34
(EQUATION)
ST. STA. 244+38.46 BK=
ST. STA. 264+31.25 AH.
TYPE 4A CURB
℄ SURVEY & CONST. S.R. 7
243+00
244+00
265+00
N 04°14'30" W
BUTT END JOINT
TRANSITION BARRIER FROM 2.0' TO 2.5'
STA. 243+50.00
BEGIN TAPER
27.30' RT. & LT.
STA. 264+33.34
END PAV'T TAPER 26.50' RT. & LT.
END SHOULDER TAPER 29.50' RT. & LT.
STA. 264+41.03
BEGIN APPROACH SLAB
STA. 264+56.03
END APPROACH SLAB
NOTE:
FOR TYPICAL SECTION OF ADJOINING PAVEMENT SEE SHEET No. 2
SOUTH END OF PROJECT
LEGEND
(J1) STANDARD LONGINTUDINAL JOINT AS PER BP-2.1
(J2) STANDARD LONGINTUDINAL JOINT AS PER BP-2.1 WITHOUT TIE BARS
(C) CONTRACTION JOINT AS PER BP-2.2
(P) STANDARD PRESSURE RELIEF JOINT, TYPE A
STA. 270+12.61
BEGIN APPROACH SLAB LEFT SIDE
STA. 270+37.61
END DEFLECTOR PARAPET
BEGIN CURB LEFT SIDE
STA. 270+91.63
END APPROACH SLAB LT.
BEGIN APPROACH SLAB RT
STA. 270+96.63
END CURB~29.50' LT.
STA. 271+12.50
BEGIN PAVED SHOULDER TAPER~29.50' LT.
STA. 272+00.00
BEGIN PAV'T TAPER~26.50' LT.
STA. 272+50.00
END PAV'T TAPER~25.80' LT.
END PAVED SHOULDER TAPER~35.00' LT.
EXISTING ASPHALT SHOULDER
TYPE 4A CURB
BUTT END JOINT
℄ SURVEY & CONST. S.R. 7
271+00
272+00
273+00
N 04°14'30" W
TRANSITION BARRIER FROM 2.5' TO 2.0'
TYPE 6 CURB
NOTE:
FOR TYPICAL SECTION OF ADJOINING PAVEMENT SEE SHEET No. 4
TS STA. 271+36.85
STA. 272+50.00
END APPROACH SLAB, RT.
BEGIN PAVED SHOULDER TAPER~29.50' RT.
STA. 273+00.00
END PAVED SHOULDER TAPER~33.00' RT.
NORTH END OF PROJECT
HORIZONTAL SCALE IN FEET

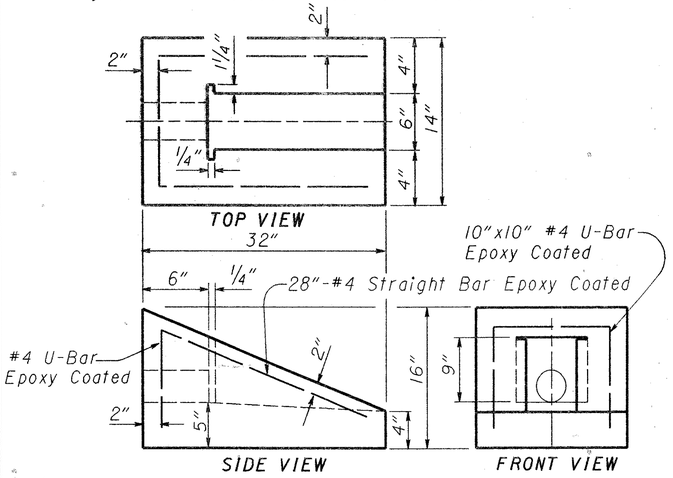
CALC. BY: M.F.R. DATE: 10/96
CHKD. BY: R.B.S. DATE: 10/96

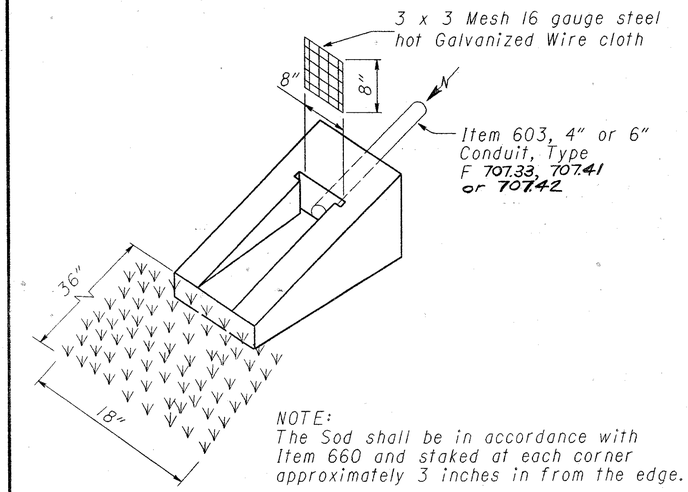
PAVEMENT DETAILS

JEF-7-4.63

ITEM 604 PRECAST REINFORCED CONCRETE OUTLET

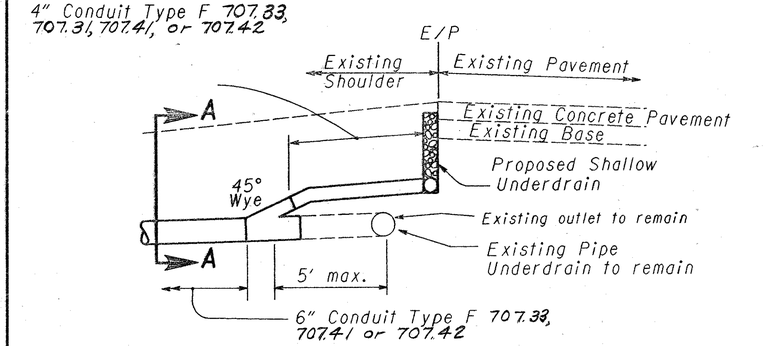
The Concrete outlet shall meet the requirements of CMS 604. Payment shall be made on an Each basis. Payment shall include the cost of the Sod & Wire Cloth.

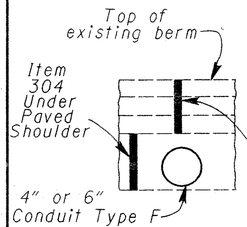




NOTE:
The Sod shall be in accordance with Item 660 and staked at each corner approximately 3 inches in from the edge.

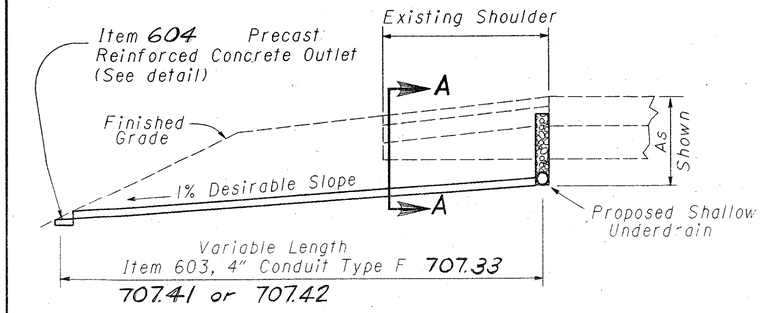
OUTLET DETAILS





SECTION A-A

NOTE:
The cost of the 4" conduit Type F and necessary pipe bends and branches needed to connect the existing and proposed underdrains shall be included with the cost of the 6" conduit Type F beyond the existing underdrain.



NOTE: For underdrain outlets into catch basins the above Type F Conduit shall be used entirely between the underdrain & catch basin.

DESCRIPTION: This item shall consist of furnishing and installing either a pipe underdrain system or a prefabricated edge drain system in accordance with the specifications and with the details, as shown on the plans, and as directed by the Engineer.

MATERIALS: The underdrain shall either be a pipe underdrain system per Item 605 or a prefabricated edge drain system meeting the following requirements. The prefabricated edge drain shall consist of a polymeric core with a minimum thickness of one inch wrapped in fabric meeting CMS 712.09 Type A. The drain shall be flexible, rectangular in shape and of hollow construction. The core material shall be resistant to petroleum based chemicals, naturally occuring soil chemicals, and road de-icing agents.

The core material shall have sufficient flexiblity to withstand installation bending and handling without damage. The core shall provide a minimum of 100 square inches unobstructed (one side only) drainage area per foot of width. Side walls of the core shall provide at least 5% open area to permit unobstructed flow through the filter and wall to the core.

The prefabricated edge drain shall have a minimum compressive strength of 6000 pounds per square foot with a maximum 20% compression in a parallel plate compression test (ASTM D 695). The minimum (single side) core flow capacity shall be 10 gallons per minute per foor of width for a 0.1 gradient at 10 pounds per square inch bladder load per ASTM D 4716.

The prefabricated edge drain manufacturer's certified test results shall be furnished in accordance with CMS 101.061.

CONSTRUCTION: The prefabricated edge drain shall be installed against the outside wall of the trench as shown and backfilled adjacent to the pavement with No. 8 natural aggregate. The No. 8 aggregate shall be placed in one (1) or more lifts with a vibratory compactor run over the final lift to consolidate the aggregate prior to placing the asphalt plug. The first layer of the backfill material shall be placed simultaneously with the trenching operation to hold the edge drain flush against the trench wall.

The prefabricated edge drain shall be spliced as required prior to placement in the trench, using material furnished by the manufacturer and in accordance with the manufacturer's directions. All material required for the splices will be supplied by the manufacturer, but any equipment required shall be furnished by the Contractor. Splices shall prevent separation of adjoining sections of the prefabricated edge drain panels.

The underdrain outlets shall be placed in accordance with Item 603 using outlet fittings. The manufacturer shall supply outlet fittings which will make the transition between the prefabricated edge drain and the outlet pipe.

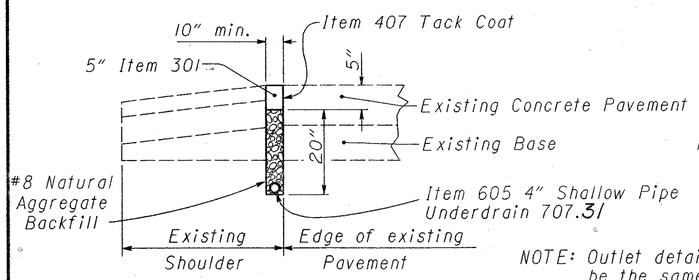
The outlets for both underdrain systems shall be constructed as soon as possible after placement of the underdrain. The underdrain and outlets on crack & seat projects shall be in place and functional prior to cracking and seating the existing pavement.

METHOD OF MEASUREMENT: Completed and accepted underdrains will be measured by the linear foot in place.

BASIS OF PAYMENT FOR PIPE UNDERDRAIN SYSTEM: Work completed, accepted and measured under this item shall be paid for at the contract unit price bid for **Item 605 - 4" Shallow Pipe Underdrain LF, As Per Plan.** The price shall be full compensation for excavation and backfill; for furnishing materials, including materials for outlet fittings; and for all labor, tools, equipment and incidentals necessary to complete the work.

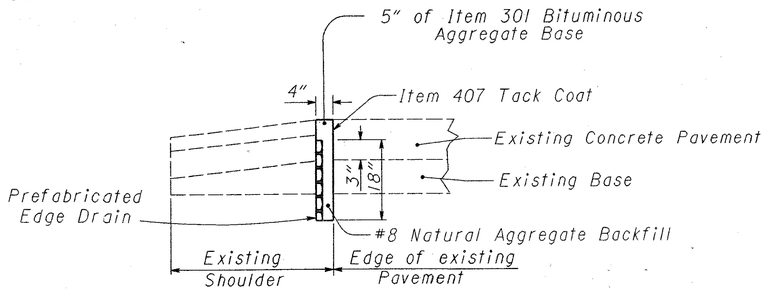
BASIS OF PAYMENT FOR PREFABRICATED EDGE DRAIN SYSTEM: Work completed, accepted and measured under this item shall be paid for at the contract unit price bid for **Item 605 - Shallow Underdrain, As Per Plan.** The price shall be full compensation for excavation and backfill; for removing and disposing of all surplus excavation in accordance with CMS 203; for furnishing materials, including materials for splices, outlet fittings, and Item 301; and for all labor, tools, equipment and incidentals necessary to complete the work. The price shall also include all costs associated with pipe underdrains, as specified above, which are installed as alternates to the prefabricated edge drain system.

PIPE UNDERDRAIN SYSTEM
(Alternate to Prefabricated Edge Drain System)



NOTE: Outlet details to be the same as shown above.

PREFABRICATED EDGE DRAIN SYSTEM

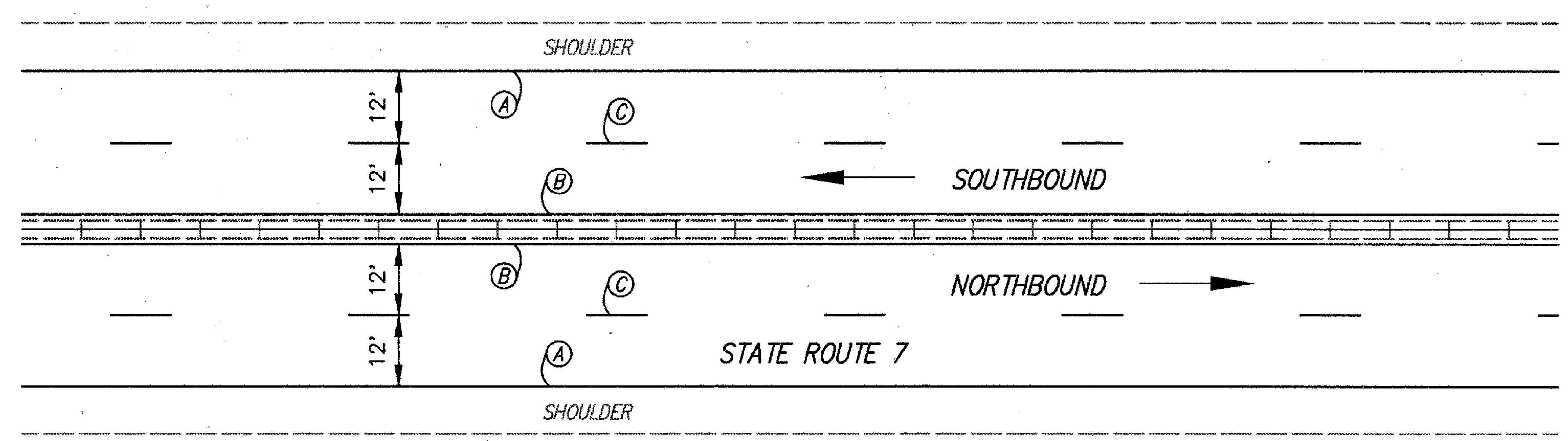


CALCULATED
CHECKED
5-8-95

ITEM 605, SHALLOW UNDERDRAIN, AS PER PLAN

JEF-7-4.63

642 PAVEMENT MARKING	O.D.O.T. LINE SPECIFICATIONS
(A)	EDGE LINE, WHITE
(B)	EDGE LINE, YELLOW
(C)	LANE LINE, 4"



TYPICAL PAVEMENT MARKING LAYOUT

PAVEMENT MARKING SUB-SUMMARY

STATION	642 (A) EDGE LINE, WHITE, TYPE 2	642 (B) EDGE LINE, YELLOW, TYPE 2	642 (C) LANE LINE, TYPE 2			
	L.F.	L.F.	L.F.			
NORTHBOUND						
199+00 TO 313+50		11,450				
199+00 TO 313+50			11,450			
220+50 TO 317+35	9685					
SOUTHBOUND						
216+65 TO 313+50	9685					
220+50 TO 335+00		11,450				
220+50 TO 335+00			11,450			
TOTAL (FT)	19,370	22,900	22,900			
	42,270					
TOTAL (MILES)	8.01		4.34			

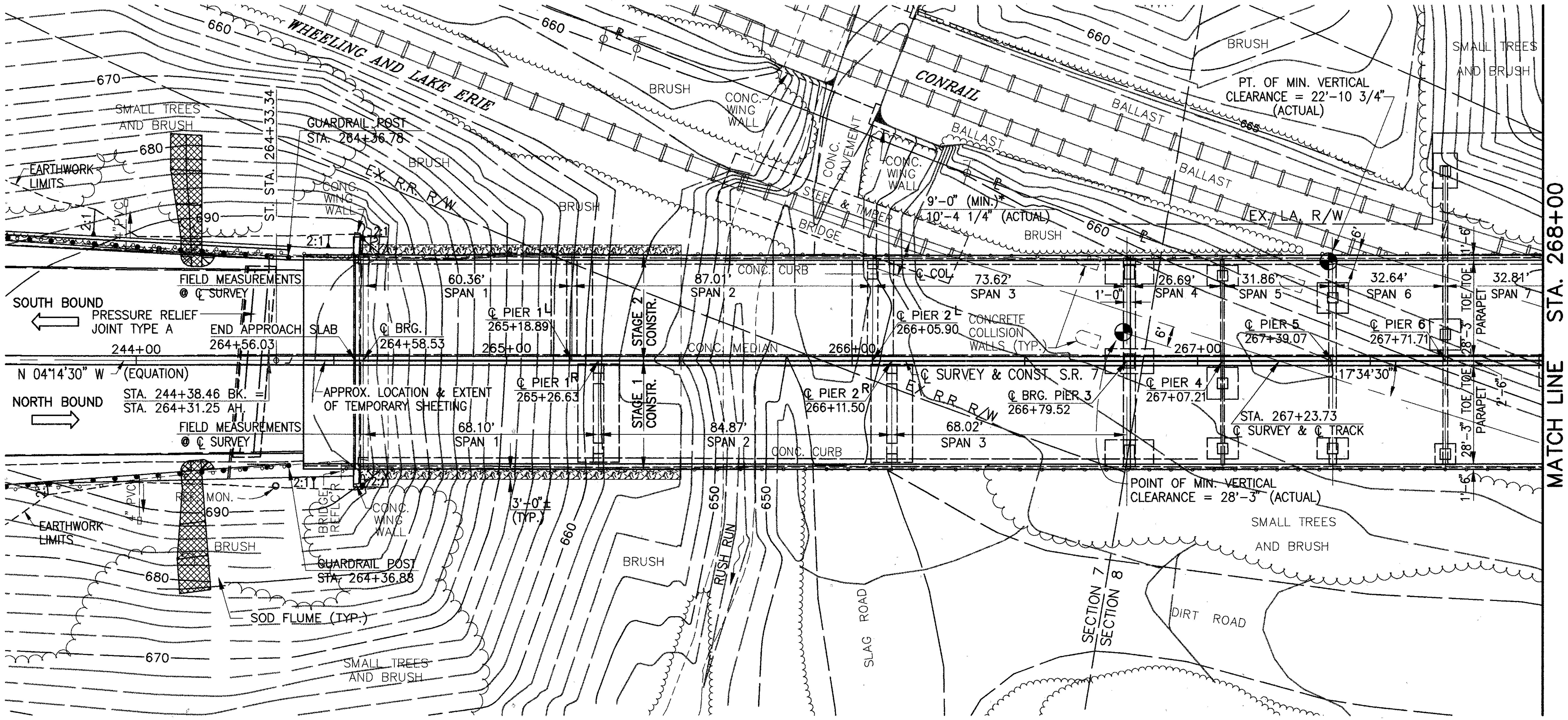
PLOT SCALE...
COL #23 C:\DRAWING\08077310\TC\8077SP01.DWG SEPTEMBER-09-1996

NOT TO SCALE

CALC. BY: FAM DATE: 12/95
CHKD. BY: DRB DATE: 12/95

PAVEMENT MARKING PLAN
PAVEMENT MARKING SCHEMATIC AND SUB-SUMMARY

JEF-007-4.63



PLAN

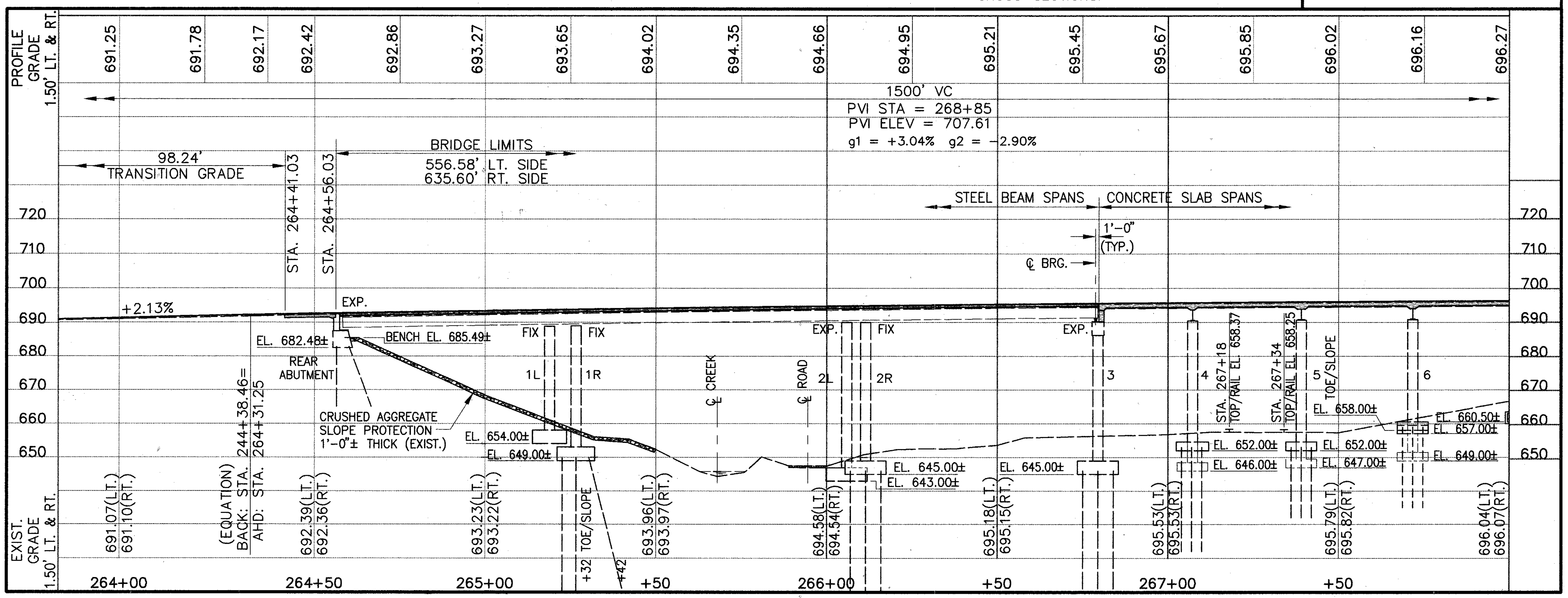
REVIEWED BY BURGESS & NIPLE, LIMITED
J.C.S. 11/06/96

* CRITICAL HORIZONTAL CLEARANCE IS TO FACE OF COLUMN.

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS-SECTIONS.

BENCH MARK

TOP OF REFERENCE MONUMENT
STA. 264+33.34 ~ 36.00' RT.
ELEV. = 691.13



℄ PROFILE

EXISTING STRUCTURE

TYPE: CONTINUOUS STEEL BEAMS WITH REINFORCED CONCRETE DECK & CONTINUOUS CONCRETE SLAB AND SUBSTRUCTURE
SPANS: (LEFT) STEEL BEAMS: 60.36', 87.01' & 73.62' C/C BRGS.
CONC. SLABS: 11 SPANS = 332.09' O/O SLAB
(RIGHT) STEEL BEAMS: 68.10', 84.87' & 68.02' C/C BRGS.
CONC. SLABS: 13 SPANS = 411.11' O/O SLAB
ROADWAY: (LEFT) 26'-6" FACE OF MEDIAN TO FACE OF CURB
(RIGHT) 26'-6" FACE OF MEDIAN TO FACE OF CURB
& 3'-0" WIDE MEDIAN
DESIGN LOADING: CF 400 (57)
SKEW: NONE
WEARING SURFACE: (LEFT) MONOLITHIC CONCRETE
(RIGHT) BITUMINOUS CONCRETE
ALIGNMENT: TANGENT
APPROACH SLABS: (LEFT) REAR 25'-0", FWD. 79'-9"
(RIGHT) REAR 15'-0", FWD. 15'-0" (AS-3-47)
DATE BUILT: 1956 (RIGHT SIDE)
1972 (LEFT SIDE)
CONDITION: GOOD
DISPOSITION: TO BE WIDENED AND RE-DECKED
STRUCTURE FILE NUMBER: 4200258

PROPOSED STRUCTURE

TYPE: CONTINUOUS STEEL BEAM WITH NEW COMPOSITE REINFORCED CONCRETE DECK & CONTINUOUS CONCRETE SLABS ON EXISTING SUBSTRUCTURES
SPANS: (LEFT) STEEL BEAMS: 60.36', 87.01' & 73.62' C/C BRGS.
CONC. SLABS 11 SPANS = 332.09' O/O SLAB
(RIGHT) STEEL BEAMS: 68.10', 84.87' & 68.02' C/C BRGS.
CONC. SLABS: 13 SPANS = 411.11' O/O SLAB
ROADWAY: (LEFT) 28'-3" TOE-TO-TOE OF BARRIER
(RIGHT) 28'-3" TOE-TO-TOE OF BARRIER
& 2'-6" MEDIAN BARRIER
SKEW: NONE
DESIGN LOADING: HS20-44 AND ALTERNATE MILITARY LOADING
APPROACH SLABS: (LEFT) REAR AS-1-81 15.00', FWD. 79.02'
(RIGHT) REAR AS-1-81 15.00', FWD. 158.37'
ALIGNMENT: TANGENT
CROWN: .0156 FT/FT
WEARING SURFACE: MONOLITHIC CONCRETE
AVERAGE DAILY TRAFFIC: 13,800 (2017)
AVERAGE DAILY TRUCK TRAFFIC: 1,518 (2017)
COORDINATES: LAT. N 40°12'50", LONG. W 80°40'00"

PREPARED BY ms consultants, inc. CONSULTING ENGINEERS & PLANNERS

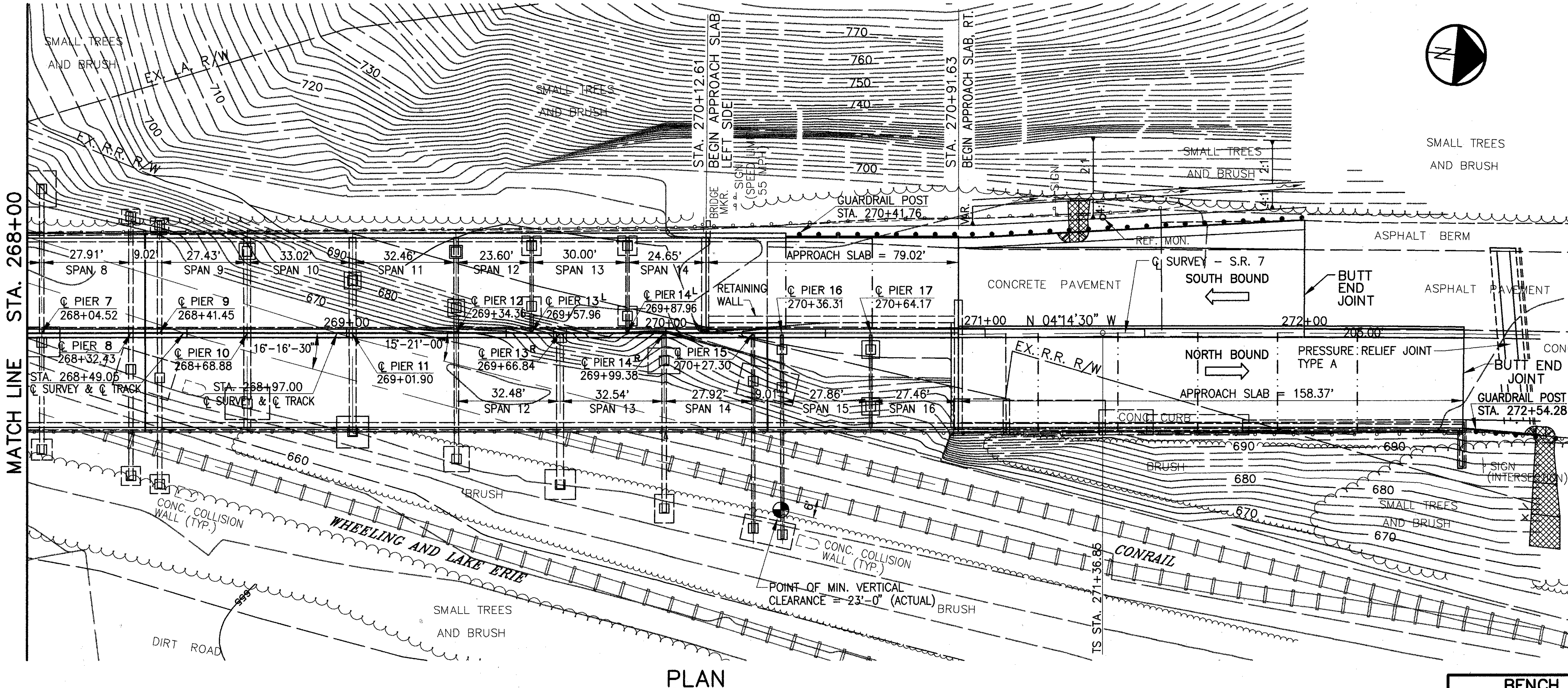
DESIGNED	DRAWN	REVIEWED	DATE
A.C.	M.F.R.	D.A.S.	7-95
CHECKED	REVISED	STRUCTURE FILE NUMBER	
W.H.		4200258	

JEFFERSON COUNTY
STA. 264+56.03
STA. 270+91.63

SITE PLAN
BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF-7-4.63

STR #2 ERK C:\DRAWING\0877\SB\0877SPA 1=20 15:34 04/29/96



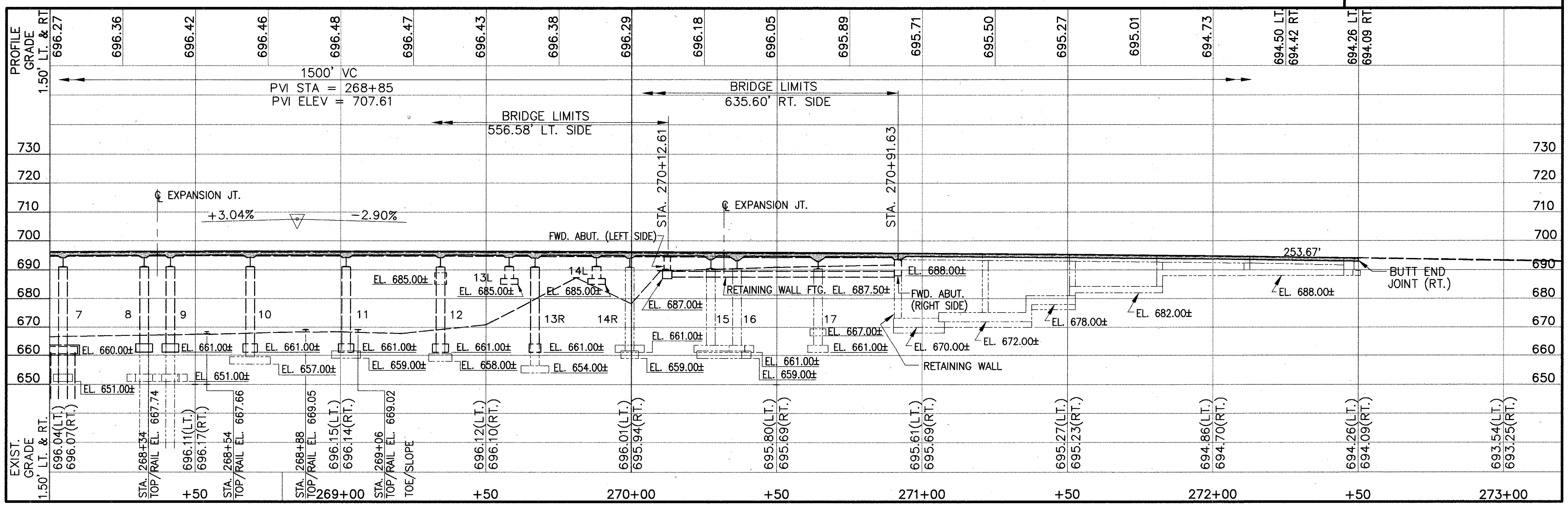
PLAN

℄ CURVE DATA

P.I. STA. 278+03.64
Δ = 36°00'00" RT.
Dc = 4°00'00"
R = 1432.39'
Ls = 400.00'
Qs = 8°00'00"
LT = 266.94'
ST = 133.58'
X = 399.22'
Y = 18.59'
K = 199.87'
P = 4.67'
Lc = 1154.42'
Ts = 666.79'
eMAX = (SEE PAV'T DETAIL)
T.S. = STA. 271+36.85
S.C. = STA. 275+36.85

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS-SECTIONS.

BENCH MARK
TOP OF REFERENCE MONUMENT STA. 271+36.85 ~ 36.00' LT. ELEV. = 695.48



℄ PROFILE

PREPARED BY ms consultants, inc. CONSULTING ENGINEERS & PLANNERS

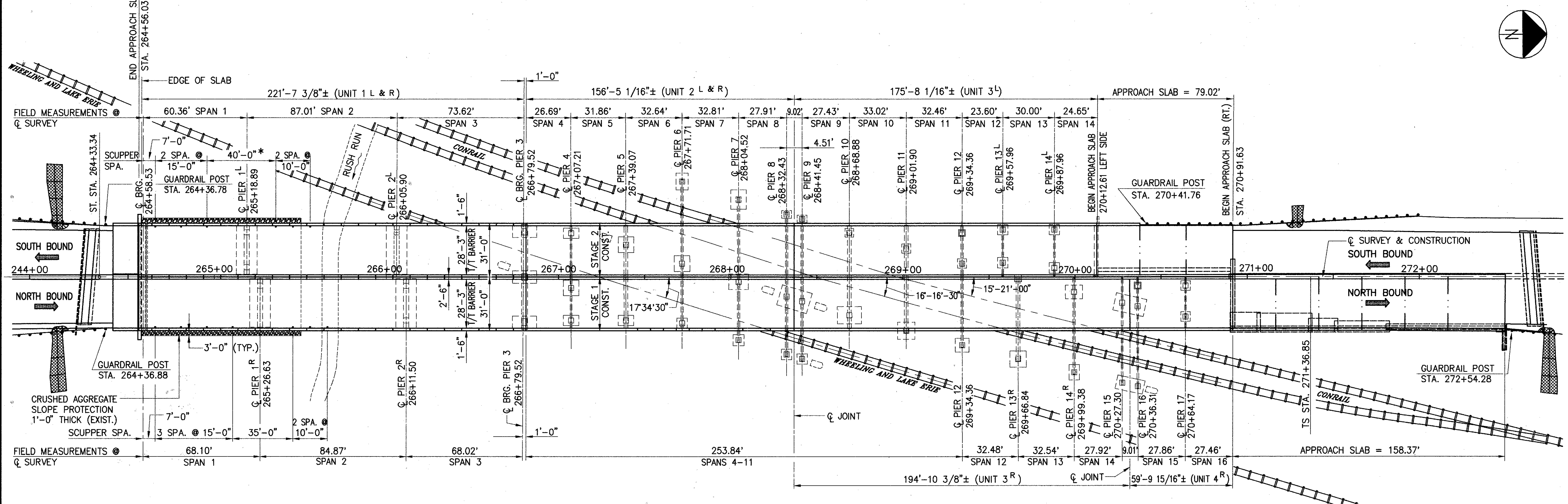
DESIGNED A.C.	DRAWN M.F.R.	REVIEWED D.A.S.	DATE 7-95
CHECKED W.H.	REVISED	STRUCTURE FILE NUMBER 4200258	

JEFFERSON COUNTY
STA. 264+56.03
STA. 270+91.63

SITE PLAN

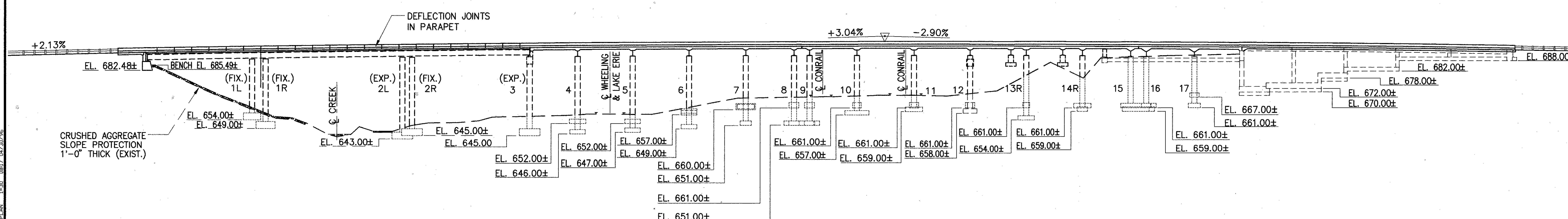
BRIDGE NO. JEF-7-0463 OVER WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF-7-4.63



PLAN

* AVOID DRAINAGE AGAINST PIER CAP & COLUMNS



ELEVATION

PREPARED BY ms consultants, inc. CONSULTING ENGINEERS & PLANNERS

DESIGNED	DRAWN	REVIEWED	DATE
A.C.	E.R.K.	D.A.S.	1-95
CHECKED	REVISED	STRUCTURE FILE NUMBER	
W.H.		4200258	

GENERAL PLAN

BRIDGE NO. JEF-7-0463 OVER WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF-7-4.63

ESTIMATED QUANTITIES

CALC. BY: A.C./G.K. DATE: 4-96
CHKD. BY: A.C. DATE: 11-96

ITEM	ITEM EXT.	LEFT TOTAL	RIGHT TOTAL	UNIT	DESCRIPTION	SUPER	ABUTS.	PIERS	GEN.
202	11203	LUMP	LUMP		PORTIONS OF STRUCTURES REMOVED, OVER 20 FOOT SPAN, AS PER PLAN				LUMP SUM
503	11100	LUMP	LUMP		COFFERDAMS, CRIBS AND SHEETING				LUMP SUM
503	21301	LUMP	LUMP		UNCLASSIFIED EXCAVATION, AS PER PLAN.				LUMP SUM
SPECIAL	51148000	757	906	CU YD	HIGH PERFORMANCE CONCRETE, SUPERSTRUCTURE (DECK) (SEE PROPOSAL NOTE)	1,663			
SPECIAL	51148020	96	110	CU YD	HIGH PERFORMANCE CONCRETE, SUPERSTRUCTURE (PARAPET) (SEE PROPOSAL NOTE)	206			
SPECIAL	51148040	16	21	CU YD	HIGH PERFORMANCE CONCRETE, SUBSTRUCTURE (SEE PROPOSAL NOTE)		29	8	
SPECIAL	51149000	LUMP	LUMP		HIGH PERFORMANCE CONCRETE, TRIAL MIX (SEE PROPOSAL NOTE)				LUMP SUM
SPECIAL	51149010	LUMP	LUMP		HIGH PERFORMANCE CONCRETE, TESTING (SEE PROPOSAL NOTE)				LUMP SUM
SPECIAL	51267510	1,244	1,623	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE) (SEE PROPOSAL NOTE)	2,712	111	44	
513	16001	1,344	1,380	POUND	STRUCTURAL STEEL FOR REHABILITATION, AS PER PLAN	2,724			
513	16800		2	EACH	STRUCTURAL STEEL MISC.: RETROFIT COVER PLATE END			2	
513	20000	1,932	1,708	EACH	WELDED STUD SHEAR CONNECTOR	3,640			
513	21000	4	7	EACH	TRIMMING OF BEAM END	11			
815	00050	15,625	17,714	SQ FT	SURFACE PREPARATION OF EXISTING STEEL, SYSTEM OZEU	21,439		11,900	
815	00056	15,625	17,714	SQ FT	FIELD PAINTING OF EXISTING STEEL, PRIME COAT, SYSTEM OZEU	21,439		11,900	
815	00060	15,625	17,714	SQ FT	FIELD PAINTING OF EXISTING STEEL, INTERMEDIATE COAT, SYSTEM OZEU	21,439		11,900	
815	00066	15,625	17,714	SQ FT	FIELD PAINTING OF EXISTING STEEL, FINISH COAT, SYSTEM OZEU	21,439		11,900	
815	00500	692		LIN FT	CAULKING	692			
815	00504	38	63	MAN HOUR	GRINDING FINS, TEARS, SLIVERS	101			
516	10500	31	62	LIN FT	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC COMPRESSION SEAL (SEE PROPOSAL NOTE)	93			
516	11210	60	60	LIN FT	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL (SEE PROPOSAL NOTE)	120			
516	13600	1	1	SQ FT	1" PREFORMED EXPANSION JOINT FILLER		2		
516	13900	5	5	SQ FT	2" PREFORMED EXPANSION JOINT FILLER		10		
516	41200	31	31	SQ FT	1/8" PREFORMED BEARING PAD, 711.21		62		
516	45305	8	8	EACH	REFURBISH BEARING DEVICE, AS PER PLAN	16			
516	46700	4		EACH	RESET BEARING	4			
516	47001	LUMP	LUMP		JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN				LUMP SUM
518	12201	6	7	EACH	SCUPPER, INCLUDING SUPPORTS, AS PER PLAN (SEE PROPOSAL NOTE)	13			
518	21200	28	28	CU YD	POROUS BACKFILL WITH FILTER FABRIC		56		
518	40001	37	37	LIN FT	6" **PERFORATED** CORRUGATED PLASTIC PIPE, AS PER PLAN		74		
518	40011	9	9	LIN FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN		18		
519	11100	53	161	SQ FT	PATCHING CONCRETE STRUCTURE		44	170	
SPECIAL	51912600	10	40	LIN FT	CONCRETE REPAIR BY EPOXY INJECTION (SEE PROPOSAL NOTE)			50	
601	20001	43	43	SQ YD	CRUSHED AGGREGATE SLOPE PROTECTION, AS PER PLAN				86

* CAULKING SHALL BE APPLIED AT BOLTED BEAM SPLICES TO FILL VOIDS ON ALL BEAMS.
REFER TO OZEU PROPOSAL NOTE FOR CAULKING REQUIREMENTS.
THIS ITEM CAN BE NONPERFORMED AT THE DISCRETION OF THE PROJECT ENGINEER.

~~* THE SUPERSTRUCTURE~~ TOTAL FOR THIS ITEM CONSISTS OF 10,725 ~~SQUARE FEET~~ FOR UNIT 1 LEFT ~~AND 10,714 SQUARE FEET FOR UNIT 1~~ RIGHT. THE BALANCE OF THIS ITEM 11,900 ~~SQUARE FEET IS IN THE PIER TOTAL FOR~~ THE LEFT AND RIGHT PIER ~~CAPS ON~~ UNITS 2,3 AND 4.

STR #2 ERK C:\DRAWING\06077308\EST 1=1 08:19 05/06/96

ms consultants, inc.
CONSULTING ENGINEERS & PLANNERS

DESIGNED A.C.	DRAWN E.R.K.	REVIEWED D.A.S.	DATE 7-95
CHECKED	REVISED	STRUCTURE FILE NUMBER 4200258	

ESTIMATED QUANTITIES
BRIDGE NO. JEF-7-0463
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF-7-4.63

GENERAL NOTES

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

PCB-91	DATED	4-24-92
GSD-1-96	DATED	2-12-97
AS-1-81	REVISED	9-15-94
EXJ-4-87	REVISED	2-14-97
CS-1-93	REVISED	6-30-95
EXJ 2 81	REVISED	2-14-97
MC-9.3	REVISED	10-30-92
RB-1-55	REVISED	2-2-59
RB-1-47	REVISED	7-27-49

AND TO SUPPLEMENTAL SPECIFICATIONS:

815	DATED	5-30-96
849	DATED	6-14-95
910	DATED	4-21-97
949	DATED	6-14-95

DESIGN SPECIFICATION

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1992, INCLUDING THE 1993 INTERIM SPECIFICATIONS, AND THE ODOT BRIDGE DESIGN MANUAL.

DESIGN LOADING (NEW CONSTRUCTION)

HS20-44 CASE 1 AND THE ALTERNATE MILITARY LOADING.

DESIGN STRESSES

HIGH PERFORMANCE CONCRETE - ASSUMED COMPRESSIVE STRENGTH 4500 PSI (SUPERSTRUCTURE)

HIGH PERFORMANCE CONCRETE - ASSUMED COMPRESSIVE STRENGTH 4000 PSI (SUBSTRUCTURE)

REINFORCING STEEL - ASTM A615, A616, OR A617
GRADE 60 - YIELD STRENGTH 60,000 PSI

STRUCTURAL STEEL ASTM A36-YIELD STRENGTH 36,000 PSI (NEW)

CONSTRUCTION AND MATERIAL SPECIFICATIONS

STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, DATED JANUARY 1, 1997.

DECK PROTECTION METHOD

EPOXY COATED REINFORCING STEEL, TOP AND BOTTOM MAT, 2 1/2" TOP CONCRETE COVER, AND SEALING OF CONCRETE SURFACES.

MONOLITHIC WEARING SURFACE

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1" THICK.

ITEM 202 - PORTIONS OF STRUCTURE REMOVED OVER 20 FOOT SPAN, AS PER PLAN

DESCRIPTION: THIS WORK SHALL CONSIST OF REMOVAL OF CONCRETE DECKS INCLUDING SIDEWALKS, PARAPETS, RAILINGS, DECK JOINTS AND OTHER APPURTENANCES FROM STEEL SUPPORTING SYSTEMS (BEAMS, GIRDERS, CROSS FRAMES, ETC.). CARE SHALL BE TAKEN DURING DECK REMOVALS TO PROTECT PORTIONS OF SUCH SYSTEMS THAT ARE TO BE SALVAGED AND INCORPORATED INTO THE PROPOSED STRUCTURE. IN THIS RESPECT, THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE RAM TYPE OF EQUIPMENT IS PROHIBITED.

PROTECTION OF TRAFFIC: PRIOR TO DEMOLITION OF ANY PORTIONS OF THE EXISTING SUPERSTRUCTURE, THE CONTRACTOR SHALL SUBMIT PLANS FOR THE PROTECTION OF TRAFFIC (RAILROAD, VEHICULAR, PEDESTRIAN, BOAT, ETC.) ADJACENT TO AND/OR UNDER THE STRUCTURE TO THE DIRECTOR FOR APPROVAL. THESE PLANS SHALL INCLUDE PROVISIONS FOR ANY DEVICES AND STRUCTURES THAT MAY BE NECESSARY TO ENSURE SUCH PROTECTION. TEMPORARY VERTICAL CLEARANCES SPECIFIED ON THE PLANS OR IN THE PROPOSAL SHALL BE MAINTAINED AT ALL TIMES EXCEPT AS OTHERWISE APPROVED BY THE DIRECTOR.

PROTECTION OF STEEL SUPPORT SYSTEMS: BEFORE DECK SLAB CUTTING IS PERMITTED, THE OUTLINE OF PRIMARY STEEL MEMBERS IN CONTACT WITH THE BOTTOM OF THE DECK SHALL BE DRAWN ON THE SURFACE OF THE DECK. SMALL DIAMETER PILOT HOLES SHALL BE DRILLED 2 INCHES OUTSIDE THESE LINES TO CONFIRM THE LOCATION OF FLANGE EDGES. DECK CUTS OVER OR WITHIN 2 INCHES OF FLANGE EDGES SHALL NOT EXTEND LOWER THAN THE BOTTOM LAYER OF DECK SLAB REINFORCING STEEL. CUTS MADE OUTSIDE 2 INCHES OF FLANGE EDGES MAY EXTEND THE FULL DEPTH OF THE DECK. DURING CUTTING OF THE DECK SLAB, CARE SHALL BE TAKEN NOT TO DAMAGE STEEL MEMBERS THAT ARE TO BE INCORPORATED INTO THE PROPOSED STRUCTURE.

DECK REMOVALS: CONCRETE MAY BE REMOVED BY CUTTING AND BY MEANS OF HAND OPERATED PNEUMATIC HAMMERS EMPLOYING POINTED OR BLUNTED CHISEL TYPE TOOLS. FOR REMOVAL ABOVE STEEL MEMBERS, LIGHT HAMMERS APPROVED BY THE ENGINEER SHALL BE USED TO ENSURE ADEQUATE DEPTH CONTROL AND TO PREVENT NICKING OR GOUGING PRIMARY STEEL MEMBERS. DUE TO THE POSSIBLE PRESENCE OF WELDED ATTACHMENTS TO EXISTING STRUCTURAL STEEL (FINISHING MACHINE, SCUPPER AND FORM SUPPORTS, ETC), CARE SHALL BE TAKEN DURING DECK REMOVAL TO AVOID DAMAGING MEMBERS WHICH ARE TO REMAIN. MEMBERS DAMAGED BY THE CONTRACTOR'S REMOVAL OPERATIONS SHALL, AT NO COST TO THE PROJECT, BE REPLACED OR REPAIRED. PROPOSED REPAIRS, DEVELOPED BY A REGISTERED PROFESSIONAL ENGINEER, SHALL BE SUBMITTED IN WRITING FOR REVIEW AND APPROVAL BY THE DIRECTOR.

EXTRANEOUS MEMBERS: EXISTING EXTRANEOUS MEMBERS (I.E., FINISHING MACHINE AND FORM SUPPORTS, ETC., AND THE SUPPORT OR SCUPPERS AND BULB ANGLES WHICH ARE TO BE REMOVED) ATTACHED BY WELDED CONNECTIONS TO PORTIONS OF THE TOP FLANGES SHALL BE CAREFULLY REMOVED AND THE FLANGE SURFACES GROUND SMOOTH. GRINDING SHALL BE CAREFULLY DONE AND PARALLEL TO THE FLANGES.

DOWN SPOUT REMOVALS: THIS WORK SHALL CONSIST OF THE REMOVAL OF 6" STANDARD WEIGHT GALVANIZED STEEL DOWNSPOUTS INCLUDING COUPLINGS, FASTENERS AND SPECIALS LOCATED AT PIERS NO. 6 THRU NO. 17. CARE SHALL BE TAKEN DURING DOWNSPOUT REMOVALS TO PROTECT PORTIONS OF THE STRUCTURE THAT ARE TO BE SALVAGED AND INCORPORATED INTO THE PROPOSED STRUCTURE.

EXISTING DOWNSPOUT SUPPORTS (I.E. CATCH BASINS, PIPE FASTENERS AND CLAMPS WHICH ARE TO BE REMOVED) ATTACHED BY WELDED CONNECTIONS TO THE PIER CAP CROSS BEAMS SHALL BE REMOVED AND THE SURFACES GROUND SMOOTH. PIPE STRAPS WHICH ARE FASTENED TO THE CONCRETE COLUMNS BY BOLTS IN EXPANSION SHEILDS SHALL BE REMOVED AND THE HOLES FILLED WITH GROUT AND THE SURFACES GROUND SMOOTH. STEEL OR CONCRETE DAMAGED BY THE CONTRACTOR'S REMOVAL OPERATIONS SHALL, AT NO EXTRA COST TO THE PROJECT, BE REPAIRED OR REPLACED.

LOADING LIMITATIONS: NO PART OF THE STRUCTURE SHALL BE SUBJECTED TO UNIT STRESSES THAT EXCEED BY MORE THAN ONE-THIRD THE ALLOWABLE UNIT STRESSES GIVEN IN THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES DUE EITHER TO DEMOLITION, ERECTION OR CONSTRUCTION METHODS, OR TO THE USE OR MOVEMENT OF DEMOLITION OR ERECTION EQUIPMENT ON OR ACROSS THE STRUCTURE. STRUCTURAL ANALYSIS COMPUTATIONS, BY AN ENGINEER REGISTERED BY THE STATE OF OHIO, SHOWING THE ALLOWABLE STRESSES AND THE MAXIMUM STRESSES PRODUCED BY THE CONTRACTOR'S METHODS OR EQUIPMENT SHALL BE SUBMITTED TO THE DIRECTOR FOR REVIEW AND APPROVAL AT LEAST TWO WEEKS PRIOR TO THE START OF THE WORK.

PAYMENT: THIS WORK SHALL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE BID, WHICH PRICE AND PAYMENT SHALL BE FULL COMPENSATION FOR ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK IN CONFORMANCE WITH THESE REQUIREMENTS, WITH PERTINENT PROVISIONS OF 202, AND TO THE SATISFACTION OF THE ENGINEER.

REMOVALS OVER RAILROAD TRACKS: REASONABLE CARE SHALL BE USED BY THE CONTRACTOR TO PREVENT REMOVED MATERIAL FROM FALLING TO AND/OR DAMAGING THE RAILROAD TRACKS AND ROAD BED. ANY DROPPED MATERIAL SHALL BE IMMEDIATELY RECOVERED AND DISPOSED OF AWAY FROM THE SITE. REFER TO 104.06 OF THE ODOT CMS FOR ADDITIONAL REQUIREMENTS.

CONSTRUCTION CLEARANCE - RAILROAD TRACKS

THE EXISTING MINIMUM HORIZONTAL CLEARANCES TO PIERS SHALL BE MAINTAINED WHENEVER POSSIBLE. IF DURING THE COURSE OF THE CONTRACTOR'S SHORING OR ERECTION PROCEDURES ENCROACHMENT ON THIS CLEARANCE BECOMES NECESSARY, THE CONTRACTOR SHALL COOPERATE WITH THE INVOLVED RAILROAD IN ACCOMPLISHING THE WORK. ANY COSTS INCURRED BY THE RAILROAD TO PERFORM THIS WORK SHALL BE BORNE BY THE CONTRACTOR.

THE MINIMUM VERTICAL CLEARANCE THAT MUST BE MAINTAINED SHALL BE THE DISTANCE TO THE UNDERSIDE OF THE EXISTING STEEL BEAMS. VERTICAL CLEARANCE IS DEFINED AS THE MINIMUM MEASUREMENT FROM THE TOP OF THE HIGHER RAIL OF A SET OF TRACKS TO THE LOW POINT OF THE OVERHEAD STRUCTURE OCCURRING WITHIN THE LATERAL LIMITS 6'-0" LEFT OR RIGHT OF THE CENTERLINE OF THE TRACKS.

MODIFICATIONS TO EXISTING CONCRETE SUBSTRUCTURE MEMBERS

CUT LINE CONSTRUCTION JOINT PREPARATION: SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1" DEEP. REMOVE CONCRETE TO ROUGH SURFACE. PROTRUDING REINFORCING STEEL SHALL BE LEFT IN PLACE. PRIOR TO CONCRETE PLACEMENT, ABRASIVELY CLEAN JOINT SURFACE AND EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THE JOINT SURFACE AND EXPOSED REINFORCEMENT SHALL BE THOROUGHLY CLEANED OF ALL DIRT, DUST, OR OTHER FOREIGN MATERIAL BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHODS THAT PRODUCE SATISFACTORY RESULTS. CONCRETE BONDING SURFACES SHALL BE WET WITHOUT FREE WATER AS CONCRETE IS PLACED.

SUBSTRUCTURE CONCRETE REMOVAL SHALL BE BY MEANS OF APPROVED PNEUMATIC HAMMERS EMPLOYING POINTED AND BLUNT CHISEL TOOLS. HYDRAULIC HOE-RAM TYPE HAMMERS WILL NOT BE PERMITTED. THE WEIGHT OF THE HAMMER SHALL NOT BE MORE THAN 35 POUNDS FOR REMOVAL WITHIN 18 INCHES OF PORTIONS TO BE PRESERVED. OUTSIDE THE 18 INCH LIMIT, A HAMMER HEAVIER THAN 35 POUNDS, BUT NOT TO EXCEED 85 POUNDS, MAY BE USED AT THE APPROVAL OF THE ENGINEER. PNEUMATIC HAMMERS SHALL NOT BE PLACED IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE.

THE CONTRACTOR HAS THE OPTION TO REMOVE THE EXISTING REINFORCING STEEL COMPLETELY (INSTEAD OF SALVAGING THE EXISTING BARS), PROVIDED DOWELS ARE PLACED (PER CMS ITEM 510) WITHIN THE EXISTING SUBSTRUCTURE. THE SPACING SIZE AND NUMBER OF DOWELS SHOULD MATCH THE SPACING AND SIZE OF THE EXISTING BARS.

EXISTING STRUCTURE VERIFICATION

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO EXISTING STRUCTURES HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURES AND/OR FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF 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 STRUCTURE 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 503, UNCLASSIFIED EXCAVATION, * * *, AS PER PLAN: UNCLASSIFIED EXCAVATION SHALL BE IN ACCORDANCE WITH 503 EXCEPT THAT THE BACKFILL MATERIAL BEHIND THE ABUTMENTS SHALL BE 203 GRANULAR MATERIAL PLACED IN 6 INCH LIFTS AND COMPACTED IN ACCORDANCE WITH 304.04

ITEM 513 - STRUCTURAL STEEL FOR REHABILITATION, AS PER PLAN

STEEL MEMBERS TO BE FABRICATED UNDER THIS ITEM WILL NOT REQUIRE SHOP DRAWINGS PRIOR TO FABRICATION. THE CONTRACTOR SHALL MAKE NECESSARY MEASUREMENTS AND PREPARE SKETCHES, DRAWINGS, TABLES, ETC. THE ENGINEERS SHALL HAVE AUTHORITY AND RESPONSIBILITY FOR ENSURING THAT THE FABRICATED STEEL IS ACCEPTABLE. TECHNICAL ASSISTANCE WILL BE PROVIDED ON REQUEST BY THE BUREAU OF BRIDGES. MILL TEST REPORTS AND SHIPPING DOCUMENTS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INCORPORATING STEEL ITEMS INTO THE WORK, AS REQUIRED BY 501.07. AFTER FABRICATION, THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW AND APPROVAL TO ENSURE THAT THE DRAWINGS DEPICT THE STEEL AS ACTUALLY INCORPORATED INTO THE WORK. THE ENGINEER WILL THEN SEND ONE APPROVED SET TO THE BUREAU OF BRIDGES FOR INFORMATION. PAY WEIGHTS SHALL BE COMPUTED IN COMPLIANCE WITH 513 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS AND SUBMITTED TO THE ENGINEER FOR HIS REVIEW AND APPROVAL. THE FABRICATOR SHALL FURNISH A 35 MILLIMETER MICROFILM COPY OF EACH SHOP DRAWING, WHICH SHALL BE MOUNTED ON AN APERTURE CARD AS SPECIFIED IN 501.05.

STEEL MEMBERS INCLUDED IN THIS ITEM INCLUDE END CROSSFRAMES, AND SHALL BE ASTM A36 (AISC CATEGORY I).

NEW STRUCTURAL STEEL

NEW STEEL SHALL BE CLEANED AND IT SHALL BE PRIME PAINTED IN THE FIELD. AT THE CONTRACTOR'S OPTION, NEW STEEL MAY BE GIVEN A PRELIMINARY CLEANING IN THE SHOP. THE COST OF CLEANING AND PRIME PAINTING SHALL BE INCLUDED IN THE SEVERAL OZEU ITEMS.

PAINTING OF STRUCTURAL STEEL

NEW STEEL SHALL BE PROVIDED BARE FOR PREPARATION AND PAINTING IN THE FIELD. FOR PURPOSES OF FIELD PAINTING, NEWLY ERECTED STEEL SHALL BE CONSIDERED EXISTING STEEL AND SHALL BE PREPARED AND PAINTED WITH A PRIME, INTERMEDIATE, AND FINISH COAT OF PAINT IN CONFORMANCE WITH SUPPLEMENTARY SPECIFICATION 815 "FIELD PAINTING OF EXISTING STEEL, SYSTEM OZEU." COST OF CLEANING AND PAINTING OF NEW AND EXISTING STEEL WITH THE OZEU PAINT SYSTEM SHALL BE INCLUDED IN THE SEVERAL OZEU ITEMS. THE SURFACE AREA PAY QUANTITIES ARE BASED ON THE SURFACE AREA OF MAIN MEMBERS INCREASED BY 25 PERCENT TO ACCOUNT FOR THE AREA OF CROSSFRAMES, BEARINGS, AND OTHER STEEL INCIDENTALS BEING CLEANED AND PAINTED.

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.

PREPARED BY
ms consultants, inc.
CONSULTING ENGINEERS & PLANNERS
400 EAST FEDERAL STREET, YOUNGSTOWN, OHIO

DESIGNED A.C. | DRAWN R.A.M. | CHECKED W.H. | REVISED | REVIEWED D.A.S. | DATE 7-95 | STRUCTURE FILE NUMBER 4200258

GENERAL NOTES
BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF-7-4.63

STR #2 ERK C:\DRAWINGS\980739\GENNOTES 1=1 08:14 04/30/96

GENERAL NOTES

STRUCTURE EXCAVATION

STRUCTURE EXCAVATION IN ADDITION TO THAT NECESSARY TO REMOVE PORTIONS OF THE EXISTING STRUCTURE, AND ALL NECESSARY BACKFILL, IS INCLUDED IN THE LUMP SUM BID ITEM, "UNCLASSIFIED EXCAVATION", FOR PAYMENT.

ITEM 516 – REFURBISHING BEARING DEVICES, AS PER PLAN

THE EXISTING ROCKER BEARINGS AT THE REAR ABUTMENT AND PIER NO. 3 SHALL BE REFURBISHED AND RESET AFTER THE EXISTING DECK AND END DAM HAVE BEEN REMOVED AND PRIOR TO PLACEMENT OF THE NEW DECK.

THIS ITEM SHALL INCLUDE ALL WORK NECESSARY TO PROPERLY ALIGN BRIDGE BEARINGS AS WELL AS THEIR CLEANING AND PAINTING. INCLUDED SHALL BE THE DISASSEMBLY OF THE BEARINGS, HAND TOOL CLEANING (GRINDING IF NECESSARY), PAINTING AS REQUIRED BY SYSTEM OZEU, REPLACEMENT OF ANY DAMAGED SHEET LEAD (711.19), INSTALLATION OF ANY NECESSARY STEEL SHIMS OF THE SAME SIZE AS THE BEARINGS TO PROVIDE A SNUG FIT, REALIGNMENT OF THE UPPER BEARING PLATE BY REMOVING EXISTING WELDS AND REWELDING SO THAT THE BEARINGS ARE VERTICALLY ALIGNED AT 60 DEGREES F, LUBRICATING SLIDING SURFACES, AND REASSEMBLY OF THE BEARINGS. THE CONTRACTOR SHALL BE SURE THAT ALL BEARINGS ARE SHIMMED ADEQUATELY AND THAT NO BEAMS AND/OR BEARING DEVICES ARE "FLOATING". AT THE OPTION OF THE CONTRACTOR AND AT NO ADDITIONAL COST TO THE STATE, NEW BEARINGS OF THE SAME TYPE AS THE EXISTING MAY BE INSTALLED IN PLACE OF REFURBISHING THE BEARINGS. ALL WORK SHALL BE TO THE SATISFACTION OF THE ENGINEER. PAYMENT FOR ALL THE ABOVE DESCRIBED LABOR AND MATERIALS WILL BE MADE AT THE CONTRACT PRICE BID FOR ITEM 516 – REFURBISH BEARING DEVICES, AS PER PLAN.

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

THIS ITEM SHALL CONSIST OF FURNISHING ALL NECESSARY LABOR, MATERIALS, AND EQUIPMENT TO RAISE OR REPOSITION ANY EXISTING STRUCTURES TO THE DIMENSIONS AND REQUIREMENTS DEFINED IN THE PROJECT PLANS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, INSTALLATION AND OPERATION OF AN ADEQUATE JACKING SYSTEM, INCLUDING ANY TEMPORARY OR PERMANENT SUPPORTS NECESSARY TO PERFORM THE WORK DESCRIBED IN THE PROJECT PLANS. THREE (3) SETS OF JACKING PLANS, WHICH INCLUDE THE INFORMATION DESCRIBED IN THIS NOTE, SHALL BE SUBMITTED TO THE DIRECTOR FOR APPROVAL AT LEAST THIRTY (30) DAYS BEFORE ACTUAL WORK IS TO BEGIN. THE PLANS SHALL BE PREPARED AND STAMPED BY A REGISTERED PROFESSIONAL ENGINEER.

PAYMENT SHALL BE MADE AT THE LUMP SUM PRICE BID FOR ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN AND SHALL INCLUDE ALL NECESSARY TOOLS, LABOR, EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THIS ITEM OF WORK.

INSPECTION OF STRUCTURAL STEEL

THE ENGINEER SHALL VISUALLY INSPECT ALL EXISTING BUTT-WELDED SPLICES AND/OR TOP FLANGE COVER PLATE FILLET WELDS TO ENSURE THAT THEY ARE FREE OF DEFECTS. THE DECK SLAB HAUNCH FORMS IMMEDIATELY ADJACENT TO SUCH WELDS SHALL NOT BE ERECTED UNTIL AFTER THE ENGINEER HAS COMPLETED THIS INSPECTION. THIS INSPECTION SHALL NOT TAKE PLACE UNTIL AFTER THE TOP FLANGES ARE CLEANED AS SPECIFIED IN 511.08, BUT IT SHALL BE DONE BEFORE THE DECK SLAB REINFORCEMENT IS INSTALLED. THE COST ASSOCIATED WITH THIS INSPECTION SHALL BE INCLUDED WITH ITEM SPECIAL – HIGH PERFORMANCE CONCRETE, SUPERSTRUCTURE FOR PAYMENT.

ITEM 518, 6" PERFORATED CORRUGATED PLASTIC PIPE, AS PER PLAN

CORRUGATED PIPE USED IN ABUTMENT DRAINAGE SHALL BE 6 INCH DIAMETER, PLASTIC CORRUGATED, *AS PER CMS 707.33, TYPE SP.*

ITEM 518, 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN

CORRUGATED PIPE USED IN ABUTMENT DRAINAGE SHALL BE 6" DIAMETER, PLASTIC CORRUGA*TED, AS PER CMS 707.33, TYPE SP.* THIS ITEM SHALL INCLUDE ALL ELBOWS, TEES AND END CAPS REQUIRED TO COMPLETE THE ABUTMENT DRAINAGE SYSTEM. THE 1'-0" THICK CRUSHED AGGREGATE SLOPE PROTECTION MATERIAL AT EACH OUTLET SHALL BE INCLUDED WITH THIS ITEM FOR PAYMENT.

PREVIOUS CONSTRUCTION PLANS

The following previous construction plans are available for inspection at the ODOT District 11 office:

JEF-7-(4.67-6.06) Original Construction Plan, 1954
JEF-7-(4.63-8.99) Original Construction Plan, 1968

CONCRETE PARAPETS

AS SOON AS A CONCRETE SAW CAN BE OPERATED WITHOUT DAMAGING THE FRESHLY PLACED CONCRETE, 1 INCH DEEP CONTROL JOINTS SHALL BE SAWED INTO THE PERIMETER OF THE CONCRETE PARAPET. THE SAW CUT SHALL BE MADE IN THE COMPLETE CIRCUMFERENCE OF THE PARAPET, STARTING AND ENDING AT THE ELEVATION OF THE CONCRETE DECK. THE SAWCUTS SHALL BE PLACED AT A MINIMUM OF 6'-0" AND A MAXIMUM OF 10'-0" CENTERS. THE USE OF AN EDGE GUIDE, FENCE OR JIG IS REQUIRED TO INSURE THAT THE CUT JOINT IS STRAIGHT, TRUE AND ALIGNED ON ALL FACES OF THE PARAPET. THE JOINT WIDTH SHALL BE THE WIDTH OF THE SAW BLADE, A NOMINAL WIDTH OF 1/4 INCH. THE PERIMETER OF THE DEFLECTION CONTROL JOINT SHALL BE SEALED TO A MINIMUM DEPTH OF 1 INCH WITH A CAULKING MATERIAL CONFORMING TO FEDERAL SPECIFICATION, TT-S-00227E.

MECHANICAL CONNECTORS

AN APPROVED TYPE OF MECHANICAL CONNECTOR FOR REINFORCING BARS SHALL BE PROVIDED. INSTALLATION OF CONNECTORS SHALL CONFORM WITH MANUFACTURER'S RECOMMENDED PROCEDURES. IF A DOWEL BAR SPLICE TYPE OF CONNECTOR IS FURNISHED, THE MINIMUM DOWEL BAR LENGTH TO BE INCLUDED WITH THE CONNECTOR SHALL BE AS GIVEN BY THE DIMENSION "L" SHOWN ON THE PLANS.

CONNECTORS AND DOWEL BARS USED WITH EPOXY COATED BARS SHALL BE EPOXY COATED. COATINGS FOR BOTH CONNECTORS AND BARS SHALL CONFORM TO THE SAME SPECIFICATIONS. COATINGS WHICH HAVE BEEN DAMAGED OR WHICH OTHERWISE DO NOT MEET SPECIFICATIONS WITH RESPECT TO COLOR, CONTINUITY AND UNIFORMITY MAY BE REPAIRED AS DIRECTED BY THE ENGINEER OR THEY SHALL BE REPLACED WITH MATERIAL WHICH MEETS THE SPECIFICATIONS.

ELASTOMERIC COMPRESSION SEAL FOR STRUCTURAL STEEL JOINTS

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING ELASTOMERIC COMPRESSION SEALS CONFORMING TO CMS 516 AND SUPPLEMENTAL SPECIFICATIONS 849 (ELASTOMERIC COMPRESSION SEALS FOR STRUCTURAL STEEL JOINTS) AND 949 (PREFORMED POLYCHLOROPRENE ELASTOMERIC JOINT SEALS FOR STRUCTURAL STEEL JOINTS). THE SEAL SHALL BE FURNISHED AND INSTALLED IN ONE CONTINUOUS PIECE.

INSTALLATION OF SEAL: DURING INSTALLATION OF THE SUPPORT/ARMOR FOR THE SUPERSTRUCTURE SIDE OF THE EXPANSION JOINT SEAL, THE SEATING OF BEAMS ON BEARINGS SHALL BE CAREFULLY OBSERVED TO ASSURE THAT POSITIVE BEARING IS MAINTAINED. PROPER VERTICAL FIT OF THE SUPPORT/ARMOR OF THE BEAMS SHALL BE ACHIEVED BY POSITIONING OF BOLTS IN SLOTTED HOLES RATHER THAN BY CLAMPING FORCE.

DECK JOINT COATING: THE FINISHED STEEL ASSEMBLY SHALL BE METALIZED. THE THICKNESS OF THE COATING SHALL BE 6 TO 8 MILS. THE WIRE USED FOR THE METALIZING SHALL CONSIST OF 85 PERCENT ZINC AND 15 PERCENT ALUMINUM. SURFACE PREPARATION AND APPLICATION SHALL CONFORM TO SSPC COATING SYSTEM GUIDE NO. 23.00, "GUIDE FOR THERMAL SPRAY METALLIC COATING SYSTEMS." A SEALER AS PER SSPC PAINT SPECIFICATION NO. 27 SHALL BE APPLIED TO METALIZED SURFACES THAT WILL BE IN CONTACT WITH CONCRETE.

ALL EXPOSED METALIZED SURFACES OF THE JOINT ARMOR DAMAGED DUE TO SHIPPING, FIELD WELDING, INSTALLATION OR REMOVAL OF TEMPORARY SUPPORTS SHALL BE REPAIRED. THE REPAIRS SHALL BE MADE USING THE METHOD OF ASTM A780, EXCEPT THAT SURFACE PREPARATION SHALL MEET THE REQUIREMENTS OF SSPC-SP3, "POWER OF CLEANING."

THE JOINT ARMOR SHALL NOT BE PAINTED, EXCEPT FOR THE METALIZED SURFACES DAMAGED DURING CROSS FRAME INSTALLATION. THESE AREAS SHALL BE CLEANED AND PAINTED IN CONFORMANCE WITH THE STRUCTURE'S PAINT SYSTEM REQUIREMENTS. OVER SPRAY FROM PAINTING NEED NOT BE REMOVED.

BACKWALL CONCRETE

IN ADDITION TO THE PROVISIONS OF 511.08, BACKWALL CONCRETE ABOVE THE OPTIONAL CONSTRUCTION JOINT AT THE APPROACH SLAB SEAT SHALL NOT BE PLACED UNTIL AFTER THE DECK CONCRETE IN THE SPAN ADJACENT TO THE ABUTMENT HAS BEEN PLACED.

CRUSHED AGGREGATE SLOPE PROTECTION, AS PER PLAN

AFTER COMPLETION OF MAJOR MODIFICATION ITEMS, EXISTING EMBANKMENT SURFACES SHALL BE RESTORED TO A UNIFORM PLANE SURFACE WITH CRUSHED AGGREGATE SLOPE PROTECTION. NEW EMBANKMENT SURFACES SHALL BE PROTECTED AS SPECIFIED IN 601.05. PROTECTION SHALL EXTEND LONGITUDINALLY FROM FACE OF ABUTMENTS TO TOE OF SLOPE AND LATERALLY TO AT LEAST 3'-0" BEYOND DECK FASCIAS. THE MINIMUM TOTAL THICKNESS OF PROPOSED PROTECTION (RESTORED AND/OR NEW) SHALL BE 1'-0".

ITEM SPECIAL – SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)

ANY DETAIL THAT REQUIRES THE SEALING OF CONCRETE SURFACES WILL BE ACCOMPLISHED USING EPOXY-URETHANE.

PROPOSED WORK

MAJOR WORK ITEMS INCLUDE (BUT NOT LIMITED TO):

STAGE 1 CONSTRUCTION

1. INSTALLATION OF PORTABLE CONCRETE BARRIERS ON THE PRESENT LEFT BRIDGE AND TRANSFER TRAFFIC TO THE LEFT BRIDGE.
2. MAINTAINING TEMPORARY TWO-WAY, TWO-LANE TRAFFIC ON THE LEFT BRIDGE.
3. CLOSING RIGHT BRIDGE TO ALL TRAFFIC.
4. INSTALLATION OF TEMPORARY SHEETING.
5. REMOVAL OF EXISTING CONCRETE DECK, WEARING SURFACE, CURB, GUARDRAIL, SCUPPERS AND DOWNSPOUTS. EXISTING STRINGERS, CROSS BRACING AND STEEL PIER CAPS TO REMAIN.
6. REMOVAL OF END CROSSFRAMES AND EXPANSION JOINTS AT THE REAR ABUTMENT AND PIER NO. 3.
7. REMOVAL OF EXISTING APPROACH SLABS, PARAPET, AND BACKWALLS.
8. JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE TO REFURBISH AND RESET ROCKER BEARINGS.
9. REMOVAL OF PORTIONS OF EXISTING RETAINING WALL ON THE RIGHT BRIDGE.
10. INSTALLATION OF END CROSSFRAMES, EXPANSION JOINTS AND COMPRESSION JOINTS.
11. INSTALLATION OF SHEAR CONNECTORS, NEW REINFORCED CONCRETE DECK/SLAB, APPROACH SLABS, PARAPETS, SCUPPERS AND DOWNSPOUTS.
12. INSTALLATION OF NEW ABUTMENT BACKWALLS, WINGWALLS, AND CORRUGATED PLASTIC DRAIN PIPE.
13. RETROFIT COVER PLATE END ON EXISTING CROSSBEAM NO. 15 RIGHT.
14. PATCHING CONCRETE AS SHOWN ON THE PLANS.
15. REPAIRING CONCRETE CRACKS BY EPOXY INJECTION.
16. SEALING OF CONCRETE SURFACES.

STAGE 2 CONSTRUCTION

1. TRANSFERRING TRAFFIC TO THE NEW RIGHT BRIDGE.
2. MAINTAINING TEMPORARY TWO-WAY, TWO-LANE TRAFFIC ON THE RIGHT BRIDGE.
3. CLOSING LEFT BRIDGE TO ALL TRAFFIC.
4. REMOVAL OF PORTABLE CONCRETE BARRIERS ON LEFT BRIDGE.
5. REMOVAL OF EXISTING CONCRETE DECK, CURB, GUARDRAIL, SCUPPERS AND DOWNSPOUTS. EXISTING STRINGERS, CROSS BRACING AND STEEL PIER CAPS TO REMAIN.
6. REMOVAL OF END CROSSFRAMES AND EXPANSION JOINTS AT THE REAR ABUTMENT AND PIER NO. 3.
7. REMOVAL OF EXISTING APPROACH SLABS, PARAPETS, AND BACKWALLS.
8. JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE TO REFURBISH AND RESET ROCKER BEARINGS.
9. INSTALLATION OF END CROSSFRAMES, EXPANSION JOINTS AND COMPRESSION JOINTS.
10. INSTALLATION OF SHEAR CONNECTORS, NEW REINFORCED CONCRETE DECK/SLAB, APPROACH SLABS, PARAPETS, SCUPPERS AND DOWNSPOUTS.
11. INSTALLATION OF NEW ABUTMENT BACKWALLS, WINGWALLS, AND CORRUGATED PLASTIC DRAIN PIPE.
12. PATCHING CONCRETE AS SHOWN ON THE PLANS.
13. REPAIRING CONCRETE CRACKS BY EPOXY INJECTION.
14. SEALING OF CONCRETE SURFACES.
15. INSTALLATION OF CRUSHED AGGREGATE SLOPE PROJECTION TO RESTORE EXISTING EMBANKMENT.
16. SURFACE PREPARATION AND PAINTING OF ALL NEW AND EXISTING STRUCTURAL STEEL AS REQUIRED BY SYSTEM OZEU.
17. ESTABLISH NORMAL TRAFFIC PATTERN.

PREPARED BY ms consultants, inc. CONSULTING ENGINEERS & PLANNERS 333 EAST FEDERAL STREET, YOUNGSTOWN, OHIO

DESIGNED A.C.	DRAWN R.A.M.	REVIEWED D.A.S.	DATE 7-95
CHECKED W.H.	REVISED	STRUCTURE FILE NUMBER 4200258	

GENERAL NOTES
BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF-7-4.63

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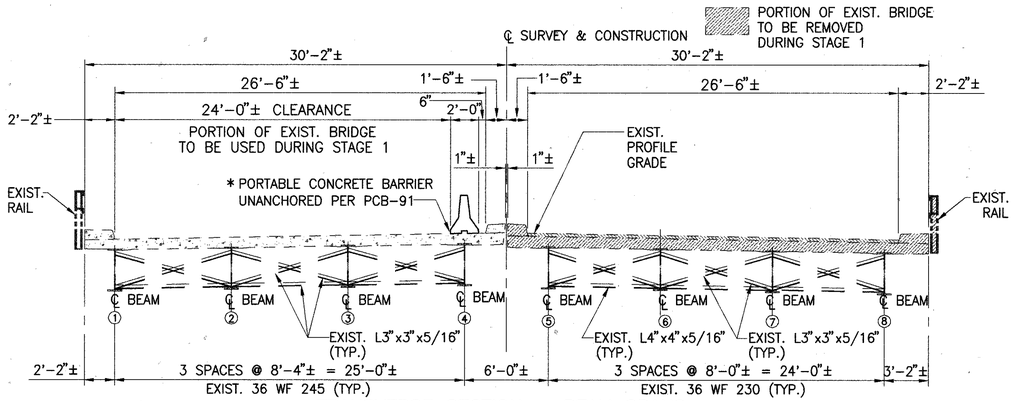
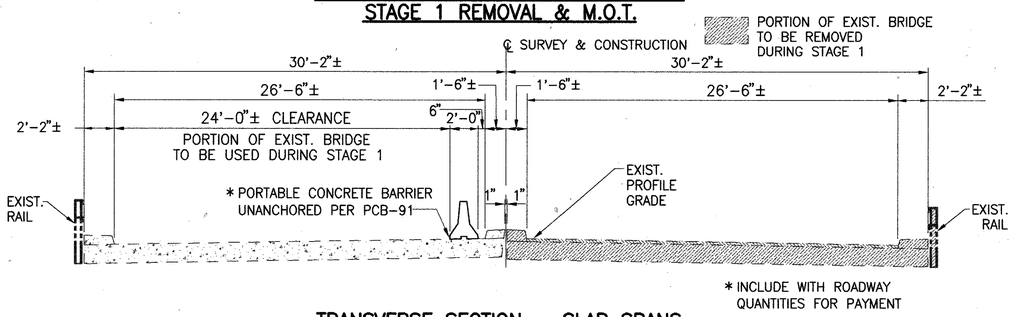


TRANSVERSE SECTION – BEAM SPANS STAGE 1 REMOVAL & M.O.T.



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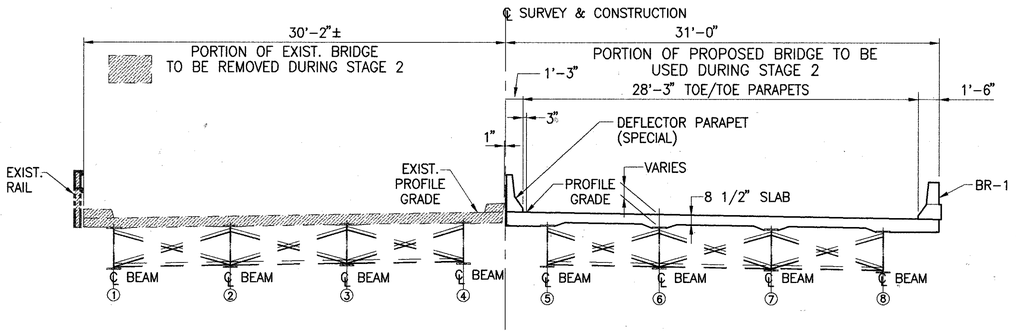

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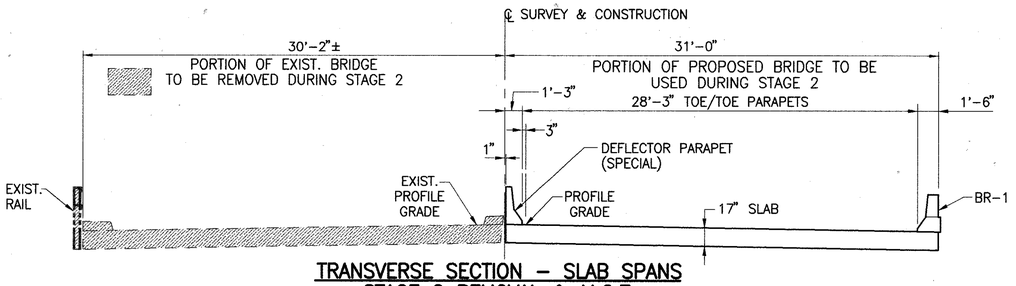

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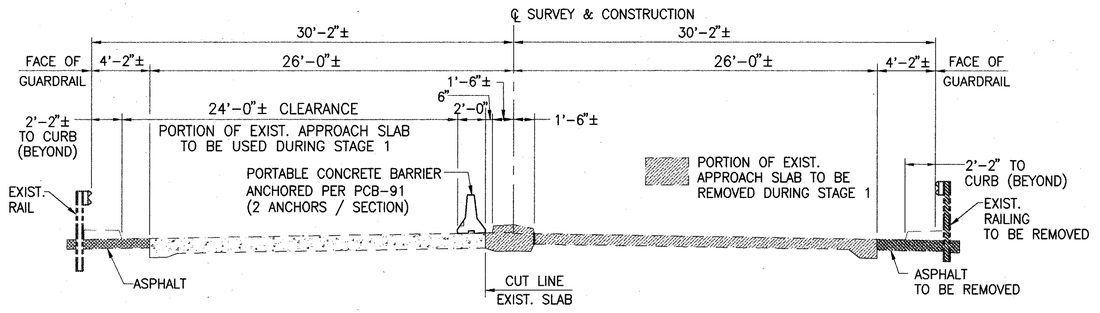

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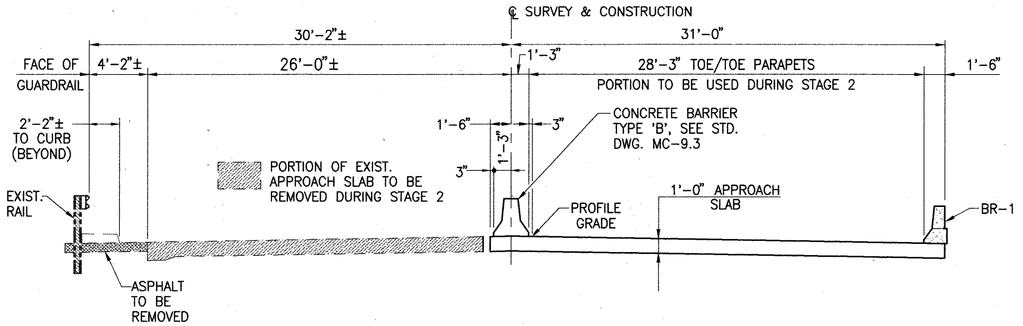

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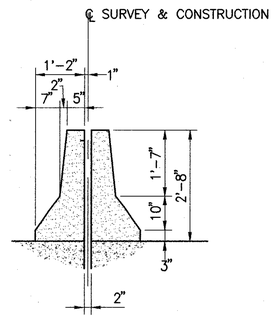

DEFLECTOR PARAPET DETAIL

PROPOSED WORK

STAGE 1

1) INSTALL PORTABLE CONCRETE BARRIER ON THE PRESENT LEFT BRIDGE AND TRANSFER TRAFFIC TO THE LEFT BRIDGE AS SHOWN TO MAINTAIN TWO-WAY, TWO-LANE TRAFFIC.
2) CLOSE RIGHT BRIDGE TO ALL TRAFFIC.
3) REMOVE EXISTING DECK SLAB AND APPROACH SLABS ON THE RIGHT BRIDGE.
4) CONSTRUCT PROPOSED RIGHT BRIDGE.

STAGE 2

1) TRANSFER TRAFFIC TO THE NEW RIGHT BRIDGE AS SHOWN TO MAINTAIN TWO-WAY, TWO-LANE TRAFFIC.
2) CLOSE LEFT BRIDGE TO ALL TRAFFIC.
3) REMOVE PORTABLE CONCRETE BARRIER ON LEFT BRIDGE.
4) REMOVE EXISTING DECK SLAB AND APPROACH SLABS ON THE LEFT BRIDGE.
5) CONSTRUCT PROPOSED LEFT BRIDGE.
6) ESTABLISH NORMAL TRAFFIC PATTERN.

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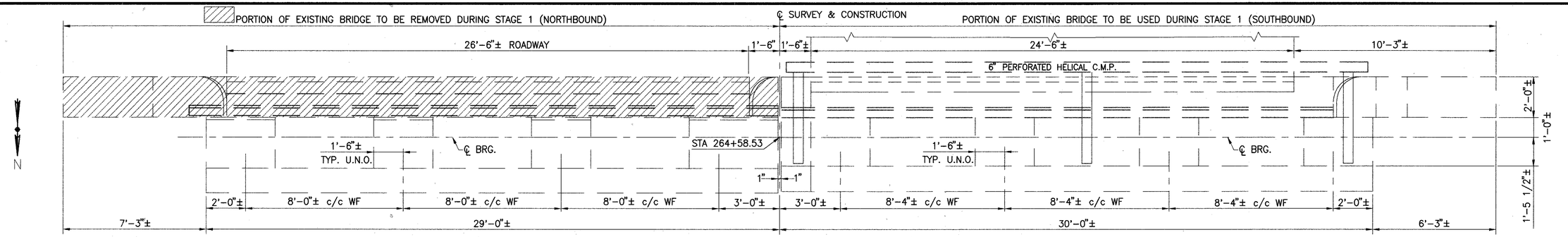
DESIGNED A.C. | CHECKED W.H. | DRAWN W.R.H. | REVISED | REVIEWED D.A.S. | DATE 3-94 | STRUCTURE FILE NUMBER 4200258

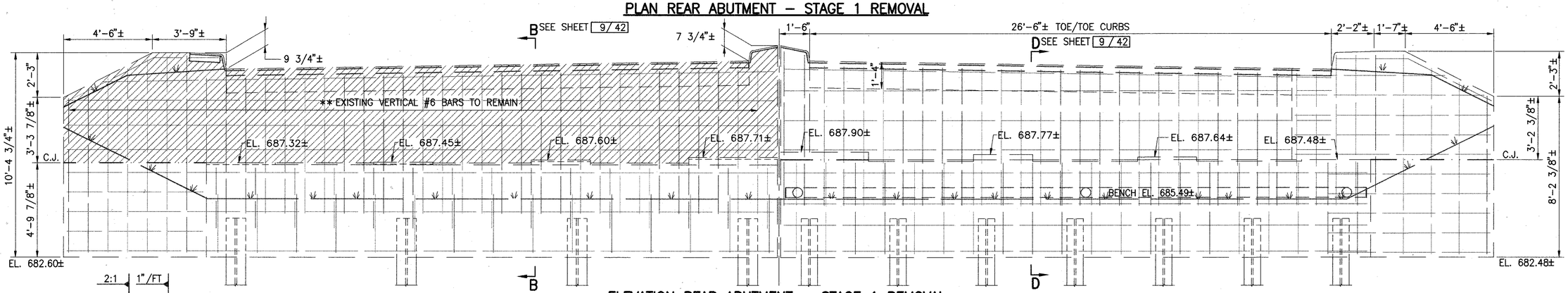
STAGED CONSTRUCTION DETAILS

BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

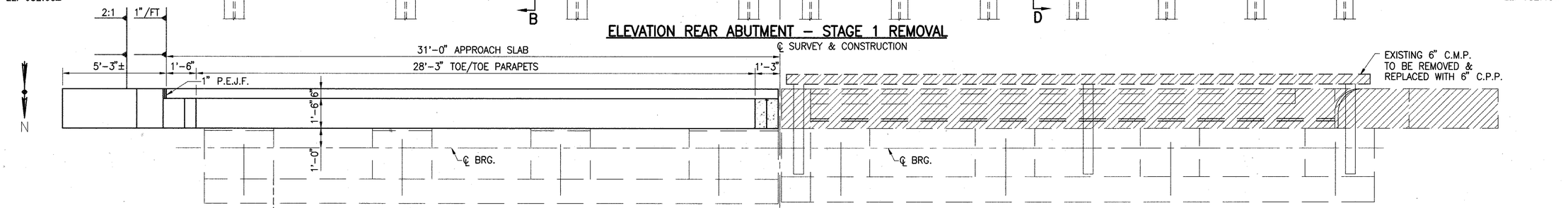
JEF-7-4.63



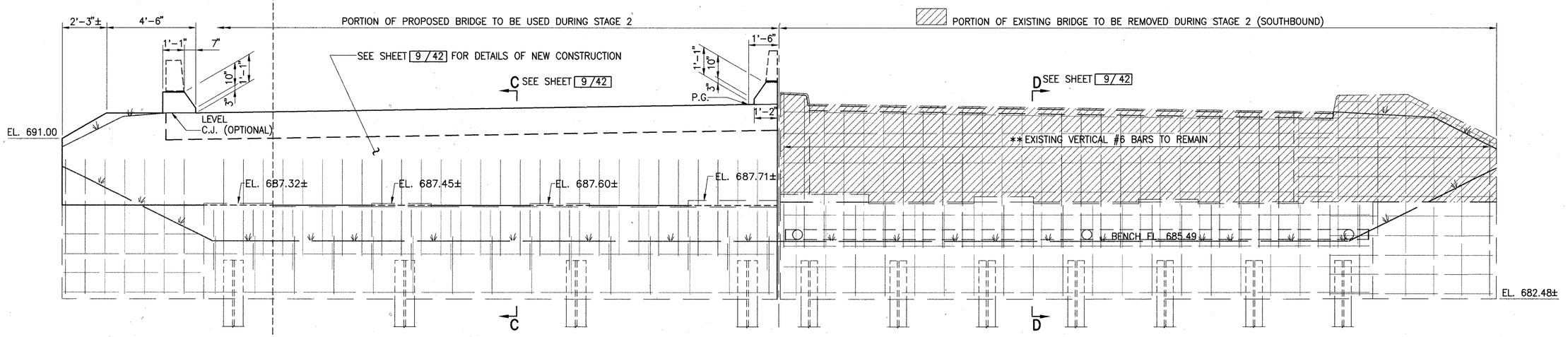
PLAN REAR ABUTMENT – STAGE 1 REMOVAL



ELEVATION REAR ABUTMENT – STAGE 1 REMOVAL



PLAN REAR ABUTMENT – STAGE 1 CONSTRUCTION & STAGE 2 REMOVAL



ELEVATION REAR ABUTMENT – STAGE 1 CONSTRUCTION & STAGE 2 REMOVAL

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DESIGNED A.C.	CHECKED W.H.	

REAR ABUTMENT REMOVALS

BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF-7-4.63

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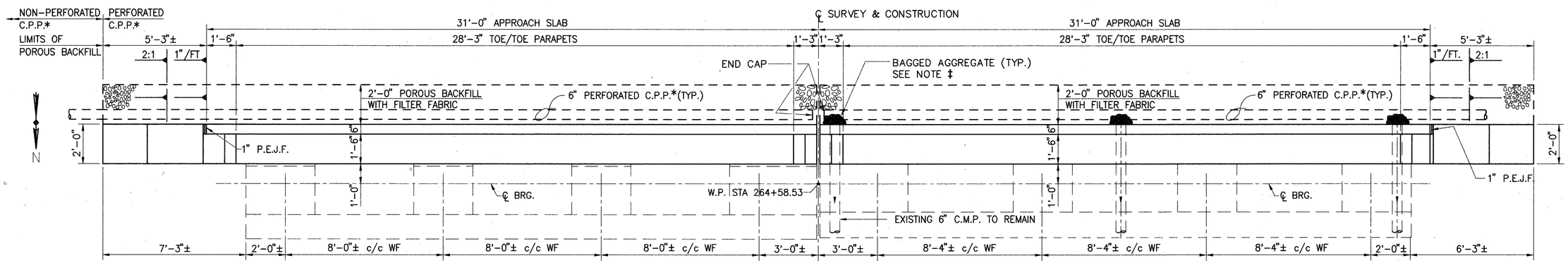
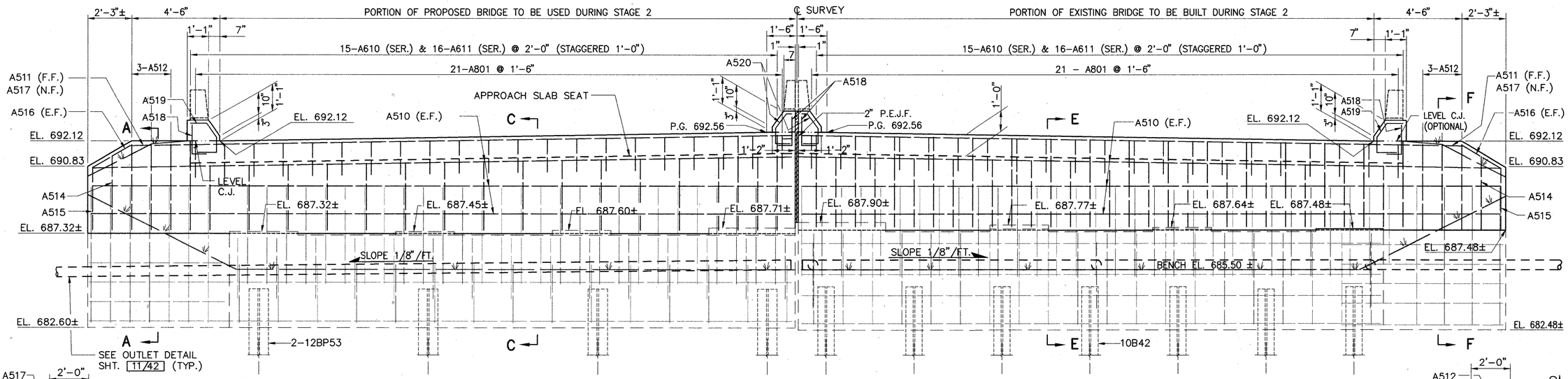
37/73



PLAN REAR ABUTMENT – STAGE 2 CONSTRUCTION



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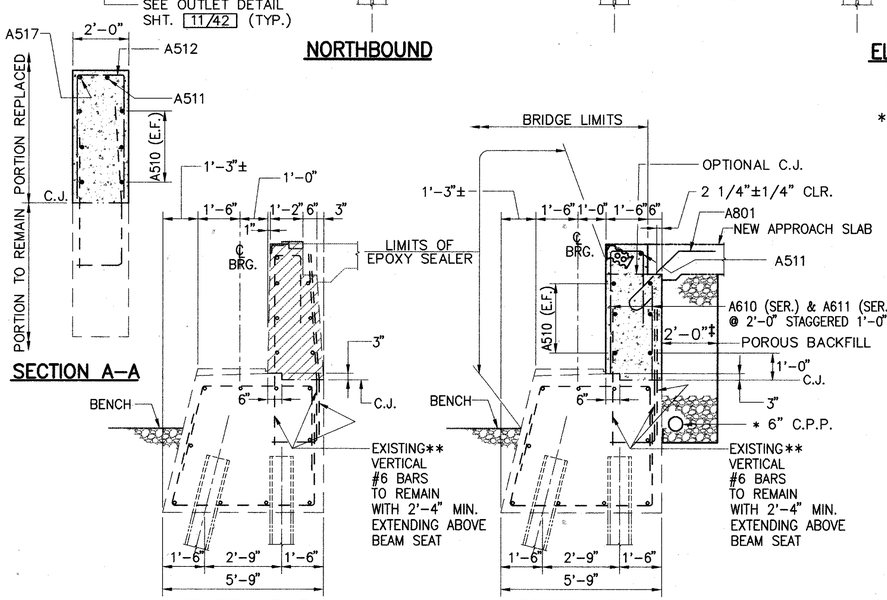


ELEVATION REAR ABUTMENT – STAGE 2 CONSTRUCTION

* 6" C.P.P = 6" CORRUGATED PLASTIC PIPE

** THE CONTRACTOR HAS THE OPTION TO REMOVE THE EXISTING REINFORCING STEEL COMPLETELY, (INSTEAD OF SALVAGING THE EXISTING BARS), PROVIDED DOWELS ARE PLACED (PER CMS ITEM 510) WITHIN THE EXISTING SUBSTRUCTURE. THE SPACING, SIZE AND NUMBER OF DOWELS SHALL MATCH THE SIZE AND SPACING OF THE EXISTING BARS. THIS WORK SHALL BE DONE AT NO ADDITIONAL COST TO THE STATE.

‡ POROUS BACKFILL WITH FILTER FABRIC, 2 FEET THICK SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE, TO ONE FOOT BELOW THE EMBANKMENT SURFACE, AND LATERALLY TO THE ENDS OF THE WINGWALLS. TWO CUBIC FEET OF BAGGED NO. 3 AGGREGATE SHALL BE PLACED AT EACH WEEP HOLE OR EXISTING 6" C.M.P. OUTLET WHICH IS CUT OFF. BAGGED AGGREGATE AND GEOTEXTILE FABRIC ARE INCLUDED WITH POROUS BACKFILL FOR PAYMENT. TURN FABRIC FILTER 6" UP WALL AT BOTTOM OF POROUS BACKFILL.

KEY

DENOTES EXISTING STRUCTURE TO BE REMOVED

DENOTES NEW CONSTRUCTION

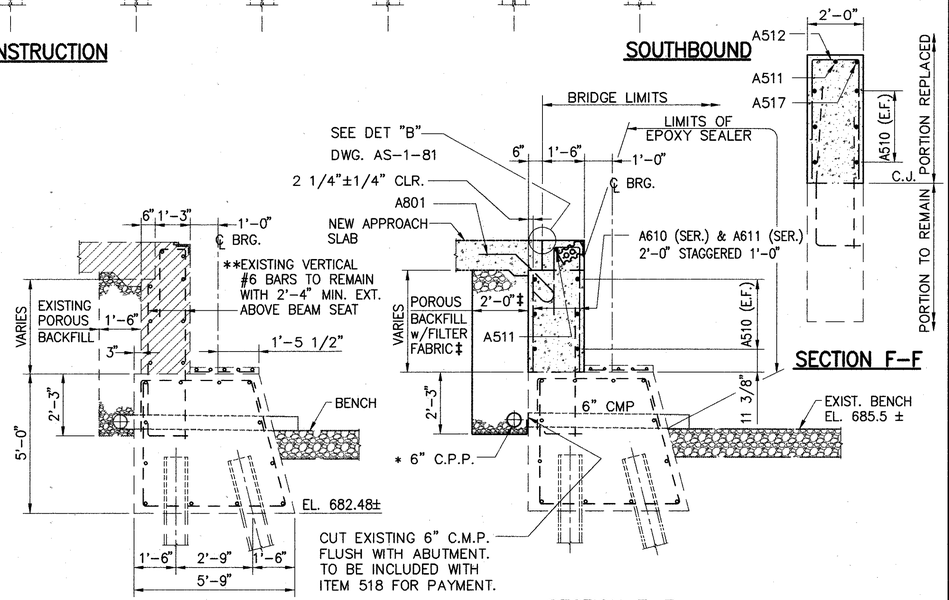
F.F. = FAR FACE

N.F. = NEAR FACE

E.F. = EACH FACE

ELEVATIONS ARE GIVEN AT FACE OF ABUTMENT.

SOUTHBOUND



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DRAWN	REVISED
W.R.H.	
DESIGNED	CHECKED
A.C.	W.H.

REAR ABUTMENT
BRIDGE NO. JEF-7-0463 OVER
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JEF-7-4.63

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38/73

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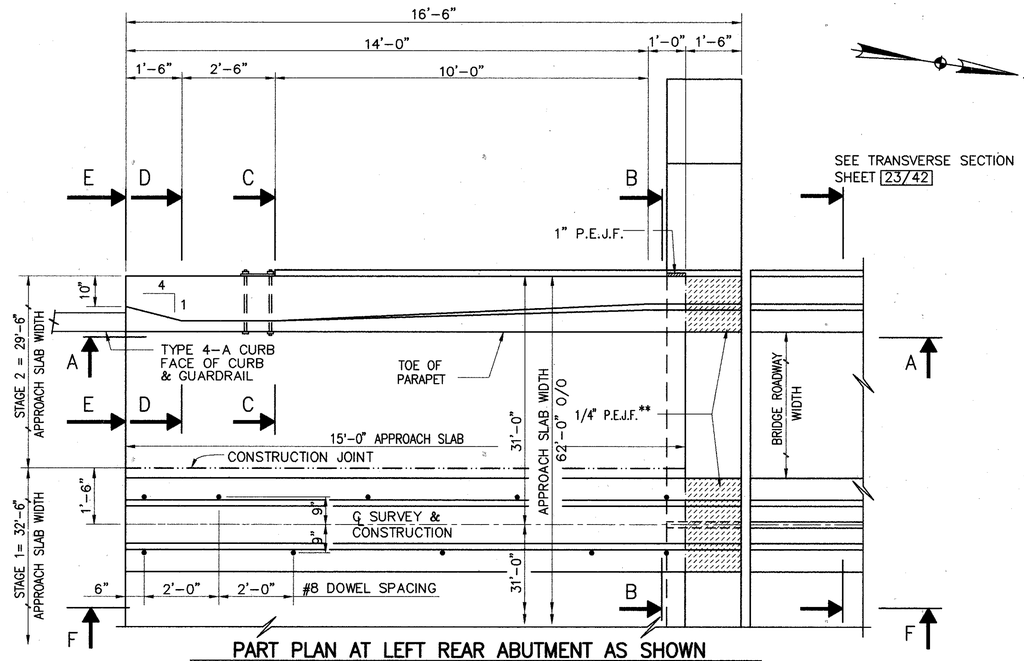
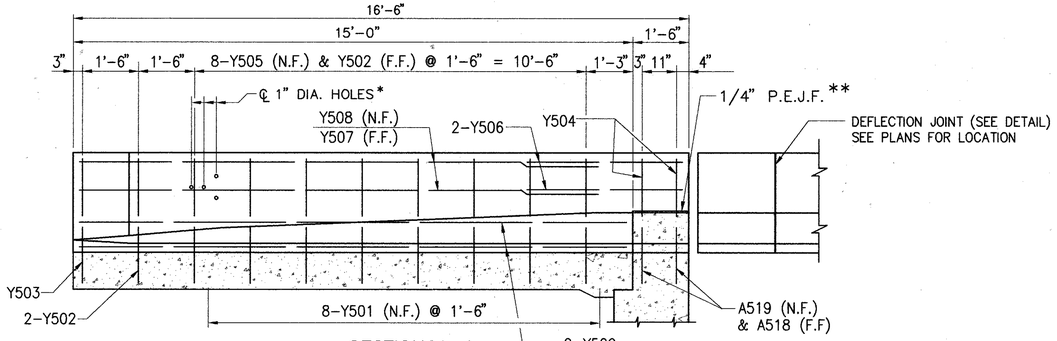


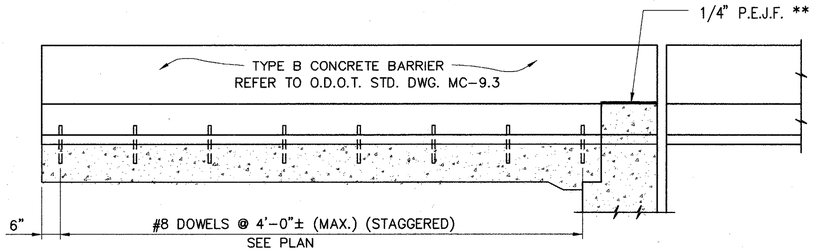
PART PLAN AT LEFT REAR ABUTMENT AS SHOWN
RIGHT REAR ABUTMENT OPPOSITE HAND EXCEPT FOR GUARDRAIL

(REFER TO STD. DWGS. GR-1.1, GR-3.1 & GR-3.2 FOR ADDITIONAL DETAILS)

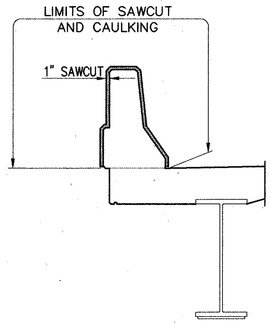


SECTION A-A

* REFER TO O.D.O.T. STD. DWG. GR-3.1 (RIGHT REAR ABUT.)
* REFER TO O.D.O.T. STD. DWG. GR-3.2 (LEFT REAR ABUT.) FOR LOCATION OF HOLES



SECTION F-F



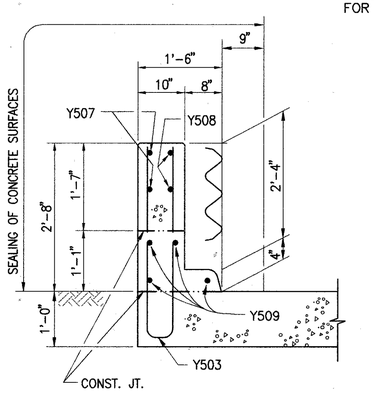
SECTION THROUGH DEFLECTION JOINT

SEE GENERAL NOTE SHEET 6/42 FOR CONCRETE PARAPETS

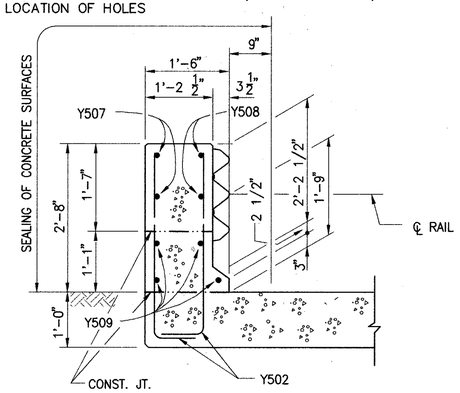
LEGEND

E.F. = EACH FACE
F.F. = FAR FACE
N.F. = NEAR FACE
B = BOTTOM
T = TOP

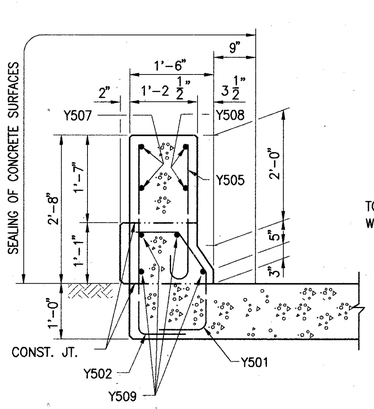
** INCLUDED WITH ROADWAY ITEM 611, "REINFORCED CONCRETE APPROACH SLABS, AS PER PLAN" FOR PAYMENT. CONCRETE ABOVE APPROACH SLABS SHALL BE HIGH PERFORMANCE, fc' = 4500 PSI. (ASSUMED).



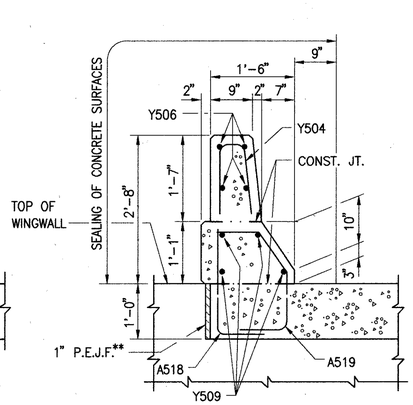
SECTION E-E



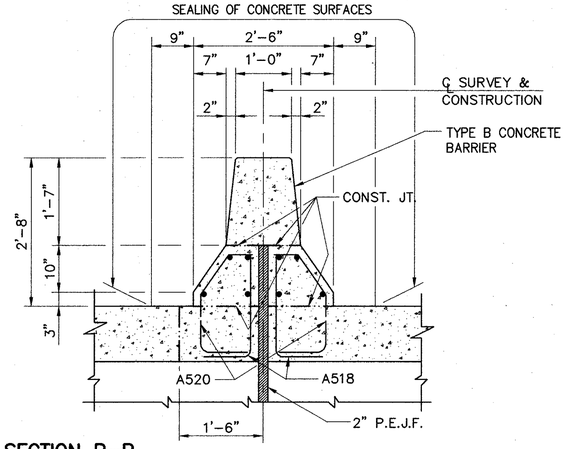
SECTION D-D



SECTION C-C



SECTION B-B



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ms consultants, inc.
CONSULTING ENGINEERS & PLANNERS
250 EAST FEDERAL STREET, YOUNGSTOWN, OHIO

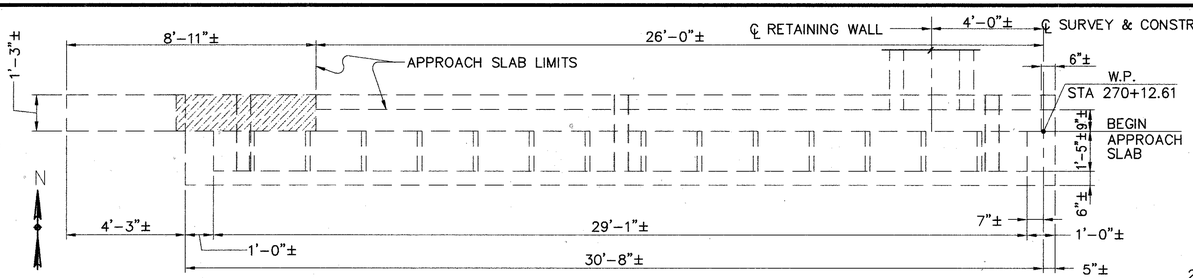
DESIGNED	DRAWN	REVIEWED	DATE
A.C.	E.R.K.	D.A.S.	4-95
CHECKED	REVISED	STRUCTURE FILE NUMBER	
W.H.		4200258	

REAR ABUT. BRIDGE RAILING - DEFLECTOR PARAPET
BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

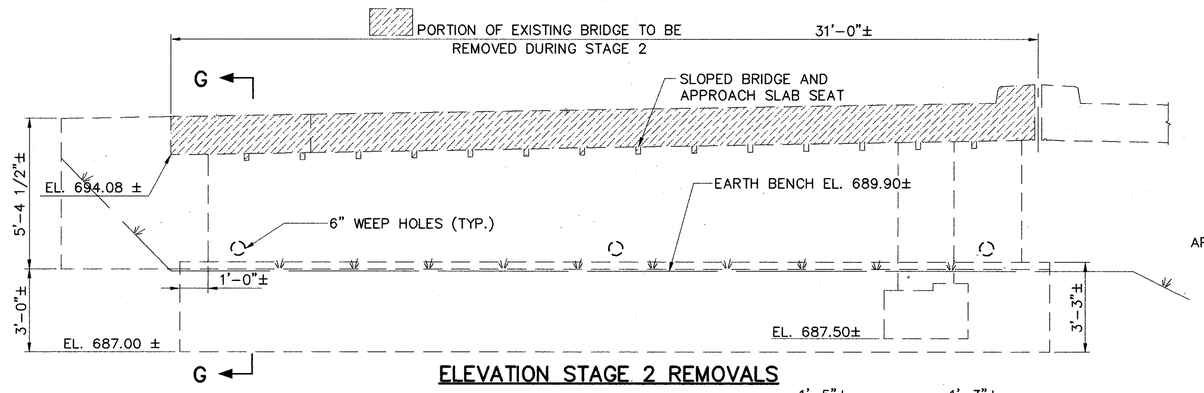
JEF-7-4.63

10/42

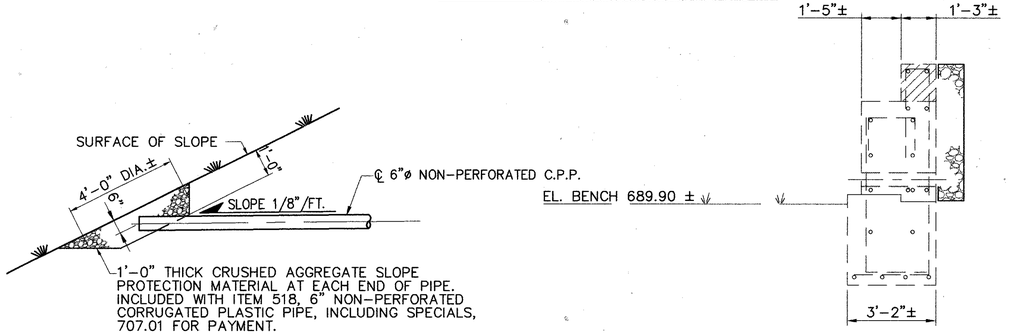
39/73



FORWARD ABUTMENT PLAN – LEFT

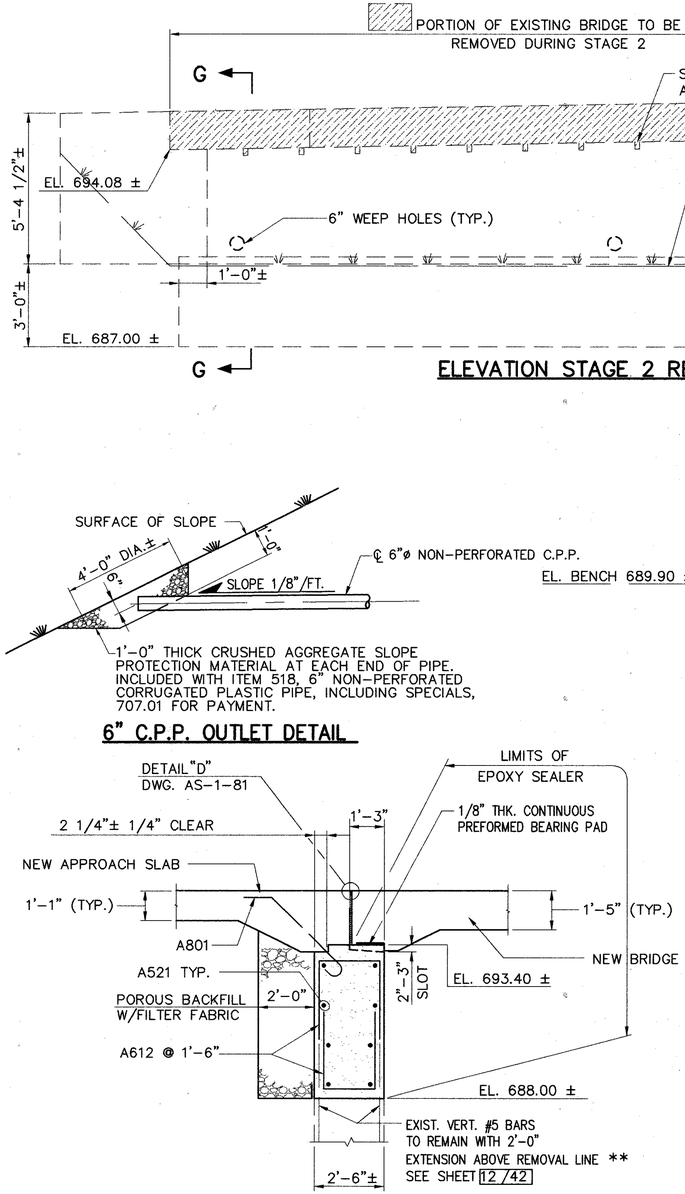


ELEVATION STAGE 2 REMOVALS

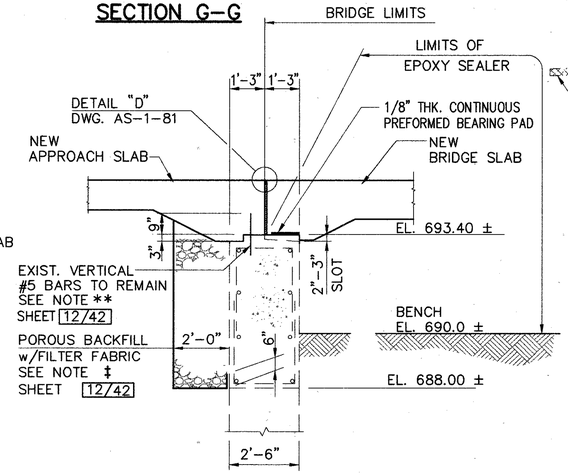


6" C.P.P. OUTLET DETAIL

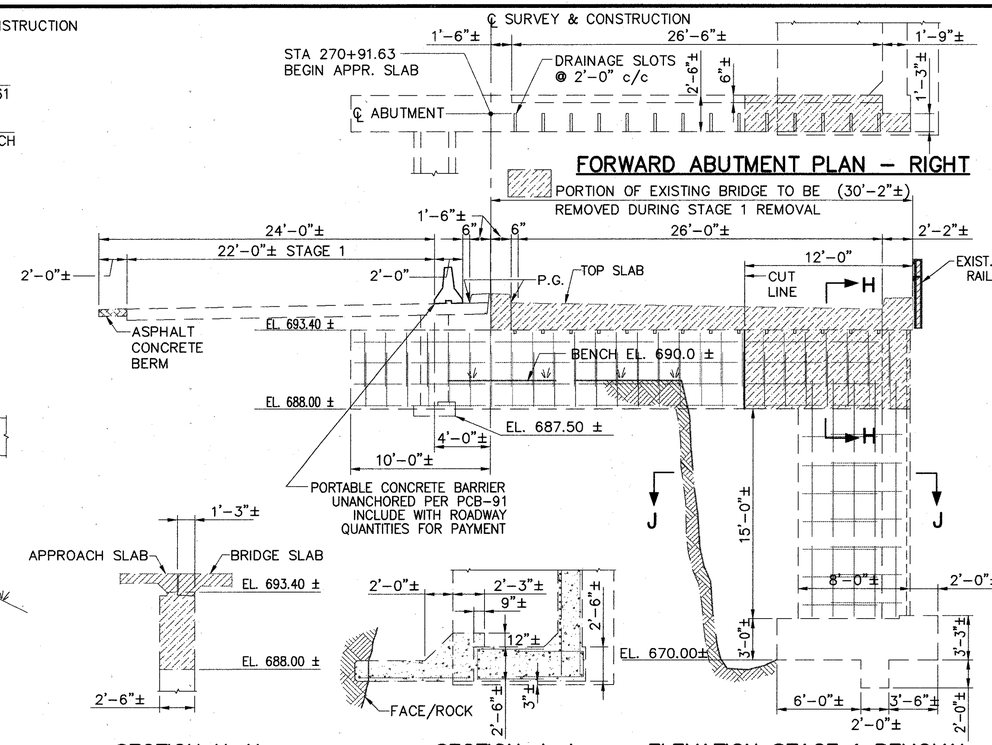
SECTION G–G



SECTION K–K



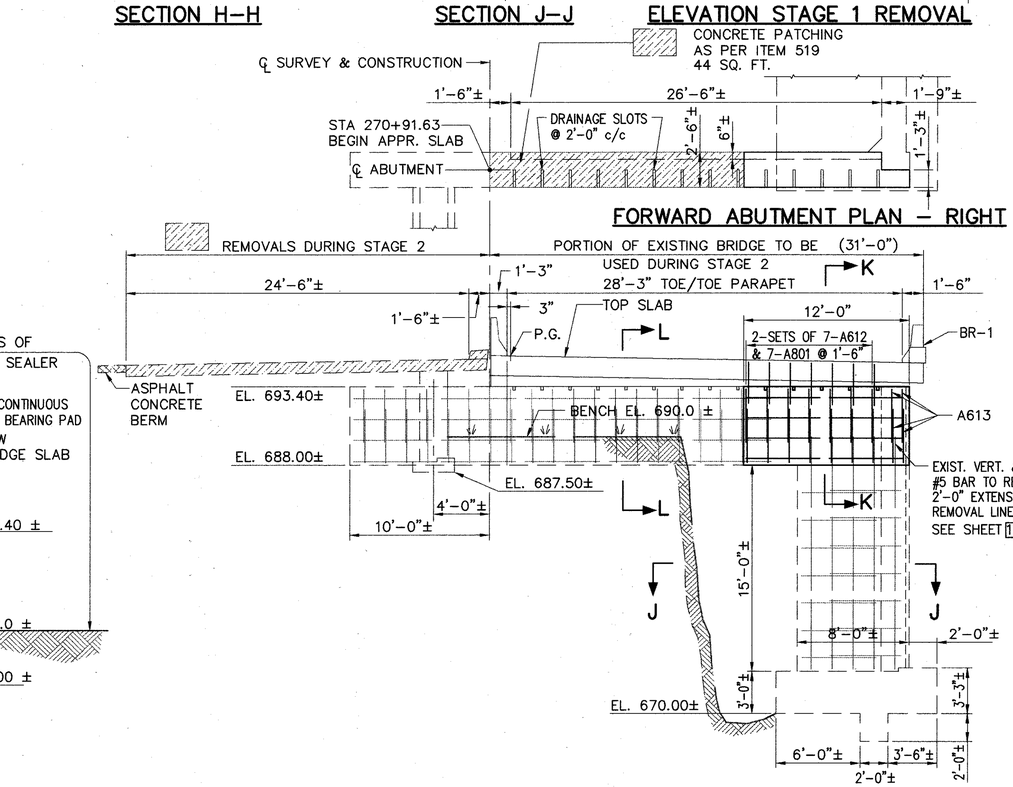
SECTION L–L



SECTION H–H

SECTION J–J

ELEVATION STAGE 1 REMOVAL



FORWARD ABUTMENT PLAN – RIGHT

ELEVATION STAGE 1 CONSTRUCTION

STR #2 ERK C:\DRAWING\08077308\08077FAB 1=32 15:41 05/06/96

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YOUNGSTOWN, OHIO

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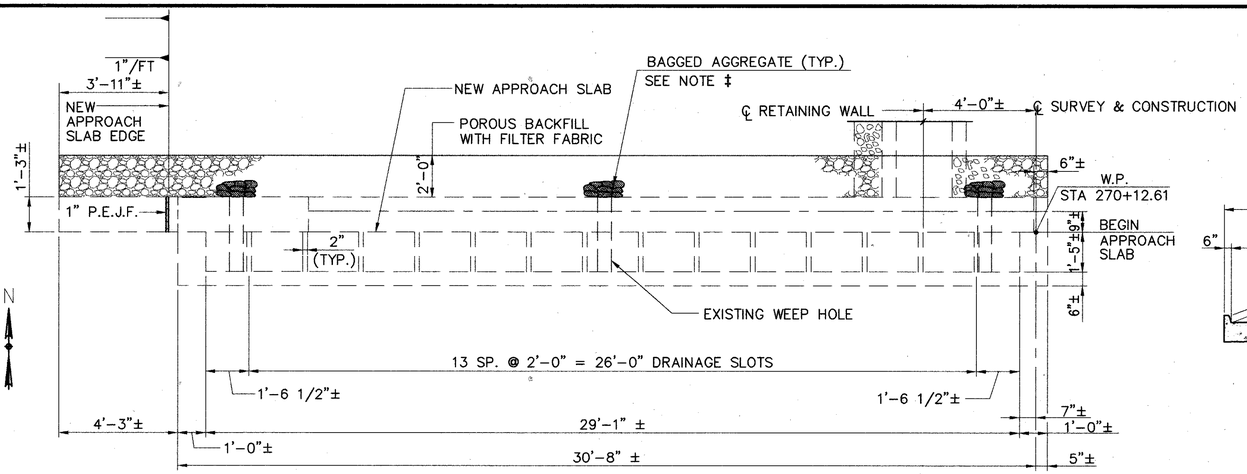
A.C.	W.R.H.	D.A.S.	3–94
CHECKED	REVISED	STRUCTURE FILE NUMBER	
W.H.		4200258	

FORWARD ABUTMENT DETAILS
BRIDGE NO. JEF–7–0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

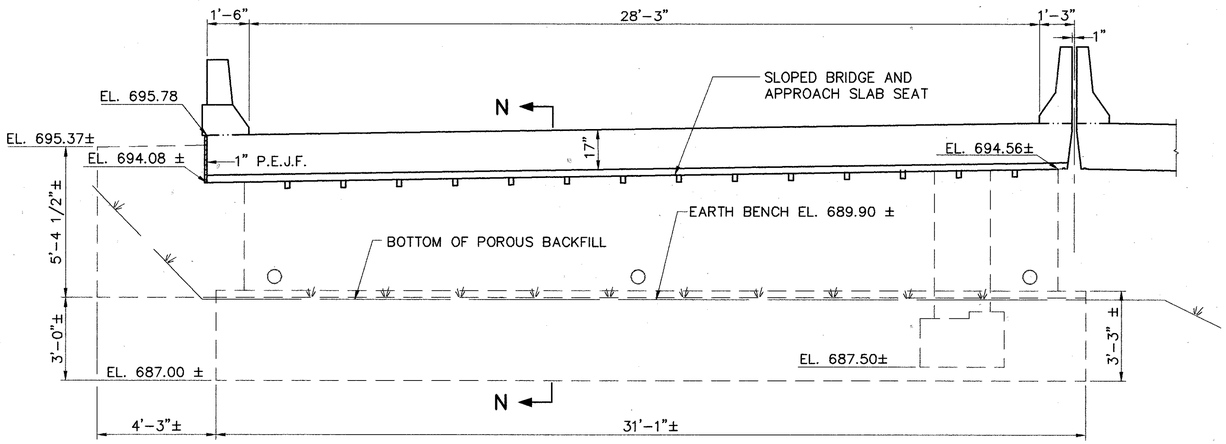
JEF–7–4.63

11/42

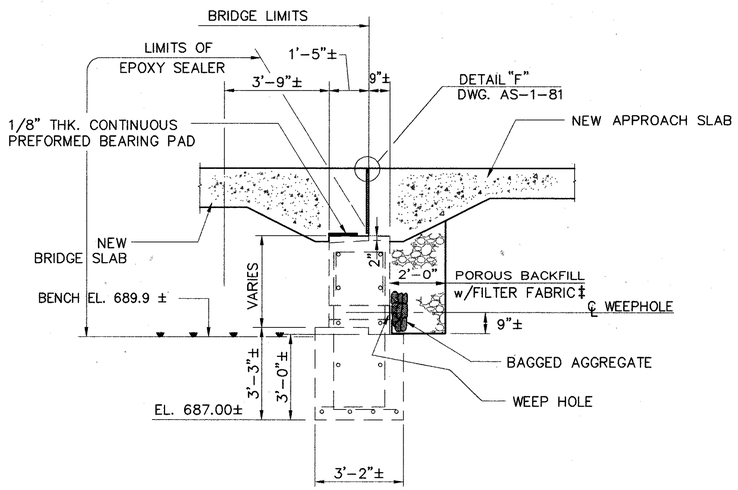
40/73



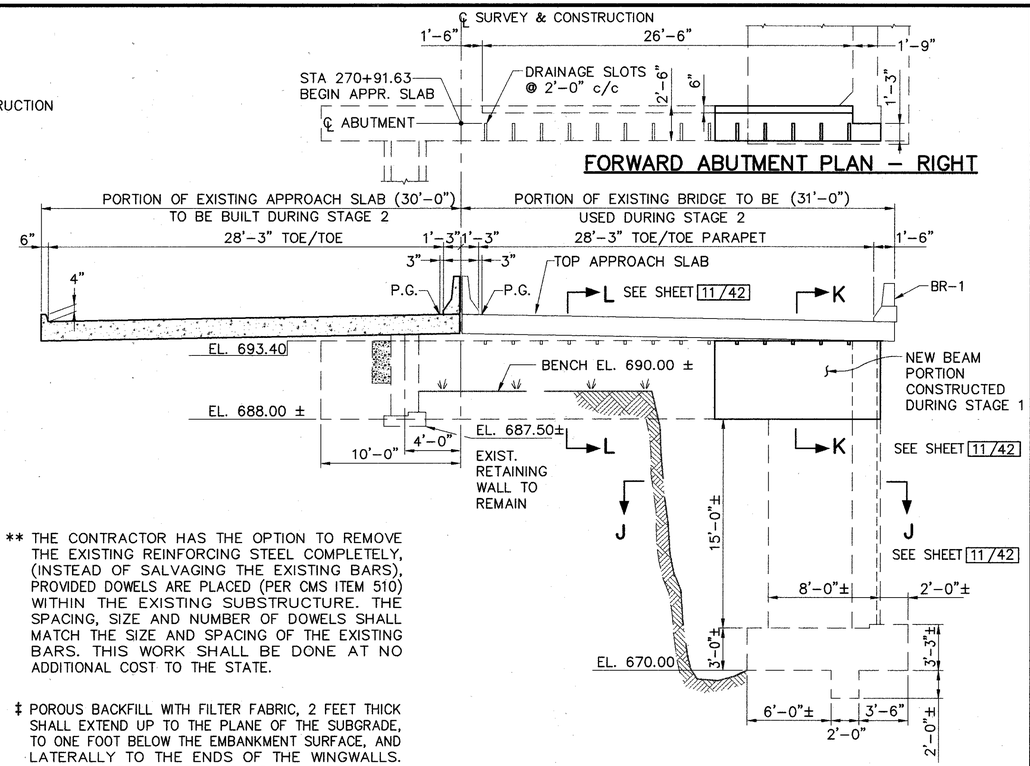
LEFT FORWARD ABUTMENT PLAN



ELEVATION STAGE 2 CONSTRUCTION



SECTION N–N



ELEVATION STAGE 2 CONSTRUCTION

** THE CONTRACTOR HAS THE OPTION TO REMOVE THE EXISTING REINFORCING STEEL COMPLETELY, (INSTEAD OF SALVAGING THE EXISTING BARS), PROVIDED DOWELS ARE PLACED (PER CMS ITEM 510) WITHIN THE EXISTING SUBSTRUCTURE. THE SPACING, SIZE AND NUMBER OF DOWELS SHALL MATCH THE SIZE AND SPACING OF THE EXISTING BARS. THIS WORK SHALL BE DONE AT NO ADDITIONAL COST TO THE STATE.

‡ POROUS BACKFILL WITH FILTER FABRIC, 2 FEET THICK SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE, TO ONE FOOT BELOW THE EMBANKMENT SURFACE, AND LATERALLY TO THE ENDS OF THE WINGWALLS. TWO CUBIC FEET OF BAGGED NO. 3 AGGREGATE SHALL BE PLACED AT EACH WEEP HOLE. BAGGED AGGREGATE AND GEOTEXTILE FABRIC ARE INCLUDED WITH POROUS BACKFILL FOR PAYMENT.

TURN FABRIC FILTER 6" UP WALL AT BOTTOM OF POROUS BACKFILL.

KEY

DENOTES EXISTING STRUCTURE TO BE REMOVED

DENOTES NEW CONSTRUCTION

F.F. = FAR FACE
N.F. = NEAR FACE
E.F. = EACH FACE

ms consultants, inc.
CONSULTING ENGINEERS & PLANNERS
555 METRO PLACE NORTH, DUBLIN, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
A.C.	W.R.H.	D.A.S.	3-94
CHECKED	REVISED	STRUCTURE FILE NUMBER	
W.H.		4200258	

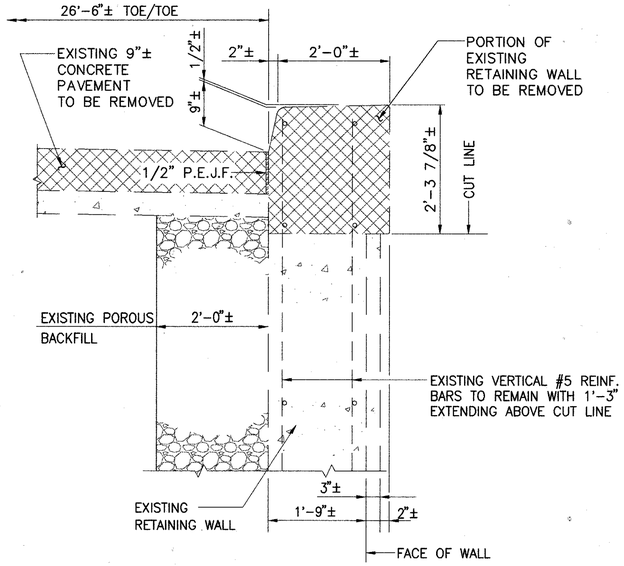
FORWARD ABUTMENT DETAILS

BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

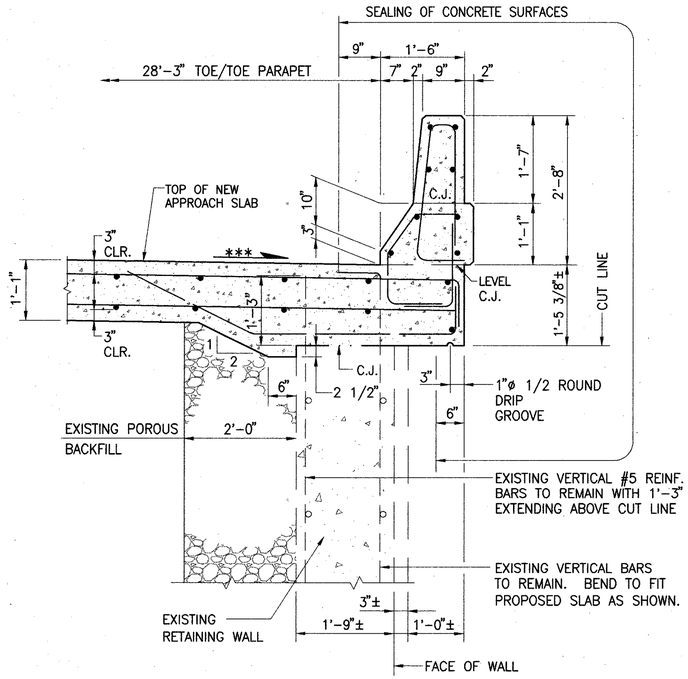
JEF-7-4.63

12/42

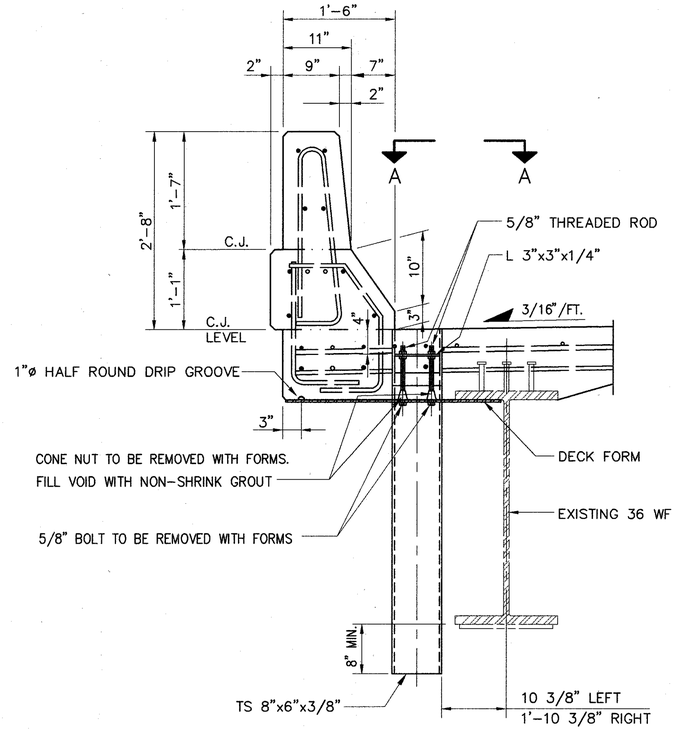
(41/73)



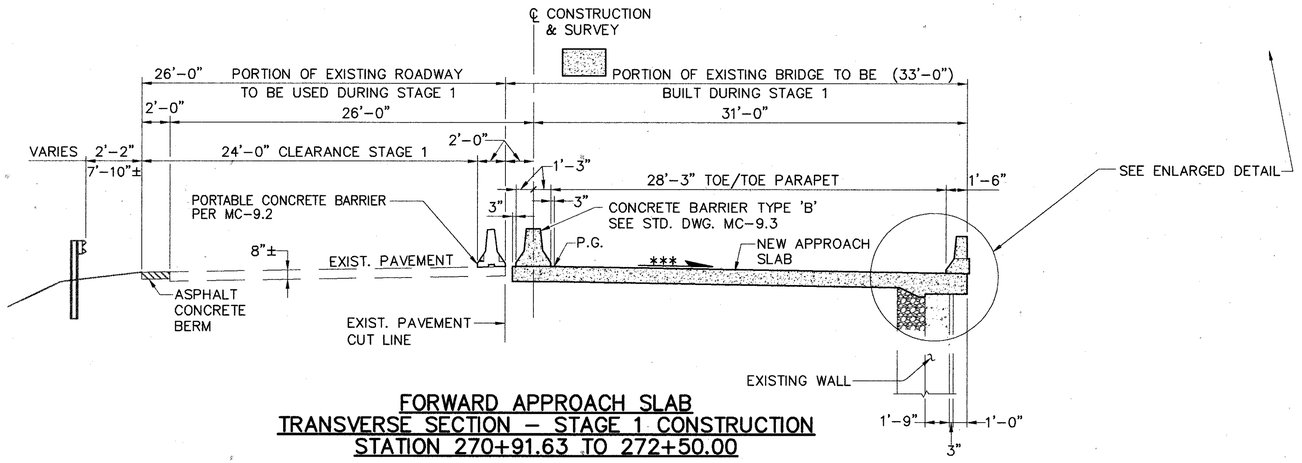
SECTION THRU RETAINING WALL SHOWING REMOVALS



PROPOSED SECTION THRU RETAINING WALL STATION 270+91.63 TO 272+50.00

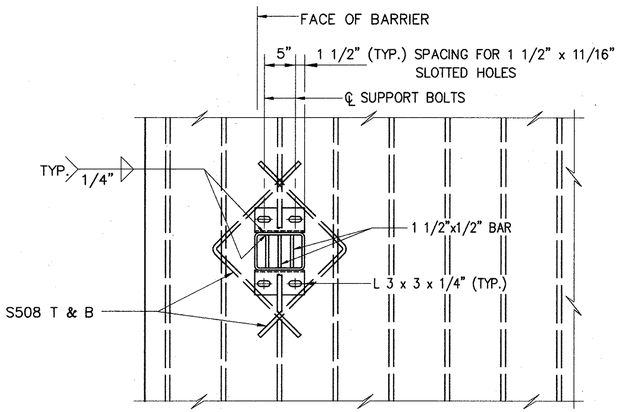


SCUPPER DETAIL



FORWARD APPROACH SLAB TRANSVERSE SECTION – STAGE 1 CONSTRUCTION STATION 270+91.63 TO 272+50.00

*** NOTE: REFER TO SUPERELEVATION SHEET (8) FOR ACTUAL CROSS-SLOPES; ROADWAY PLANS



VIEW A–A

NOTES

1. SUPPORT BOLTS AND SUPPORT ANGLES TO BE INCLUDED WITH SCUPPER FOR PAYMENT.
2. SCUPPER, SUPPORT ANGLES, AND ALL ASSOCIATED HARDWARE SHALL BE GALVANIZED PER 711.02 OF THE ODOT CMS.
3. ALL SCUPPERS SHALL BE ASTM A36.
4. CONCRETE BENEATH SCUPPER ANGLES SHALL BE HAND PACKED.
5. SEE SHEETS 3/42 AND 24/42 FOR SCUPPER LOCATIONS.

PREPARED BY ms consultants, inc. CONSULTING ENGINEERS & PLANNERS 2221 EDWARD HOLLAND DRIVE, RICHMOND, VIRGINIA 23230

DESIGNED A.C. | DRAWN W.R.H. | CHECKED W.H. | REVISED | REVIEWED D.A.S. | DATE 3-94 | STRUCTURE FILE NUMBER 4200258

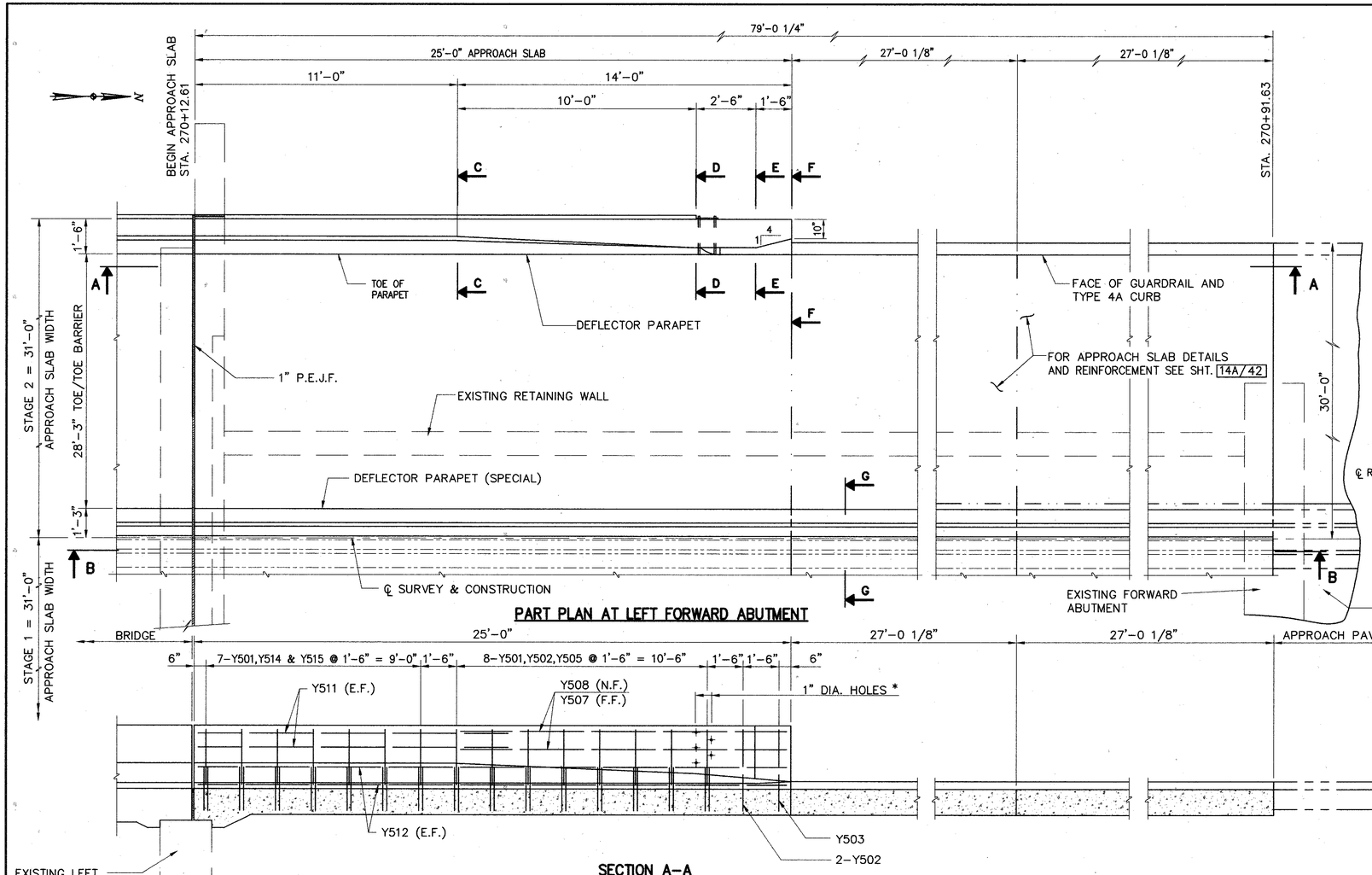
FORWARD ABUT. APPROACH SLAB & SCUPPER DETAIL
BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF-7-4.63

13 / 42

(42/64)

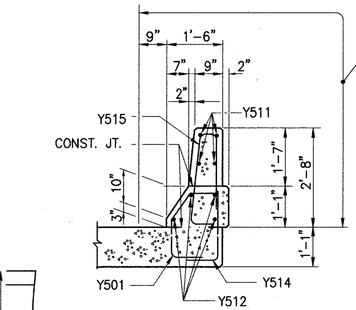
STR #2 ERK C:\DRAWING\08077308\08077FAP 1=64 15:03 04/29/96



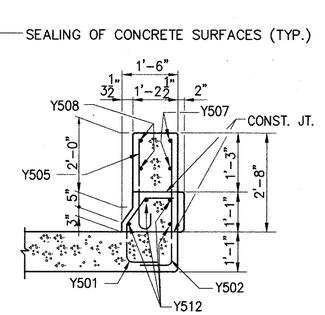
PART PLAN AT LEFT FORWARD ABUTMENT

SECTION A-A

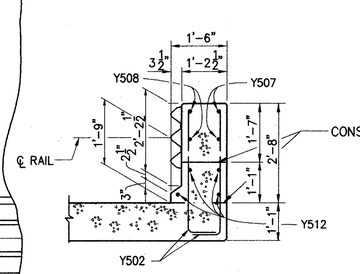
* REFER TO O.D.O.T. STD. DRAWING GR-3.1 FOR ADDITIONAL DETAILS



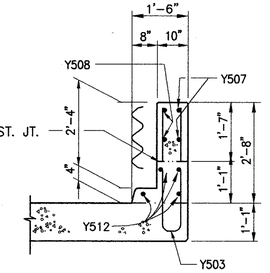
SECTION C-C



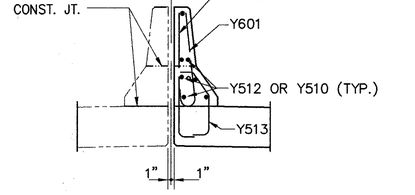
SECTION D-D



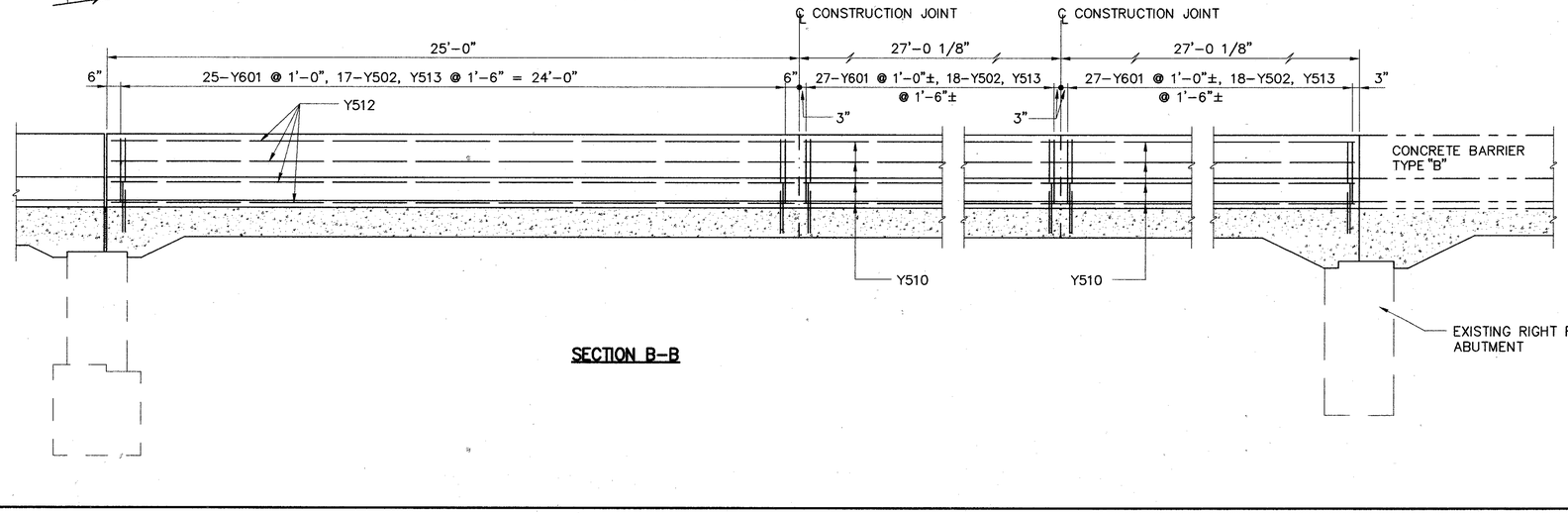
SECTION E-E



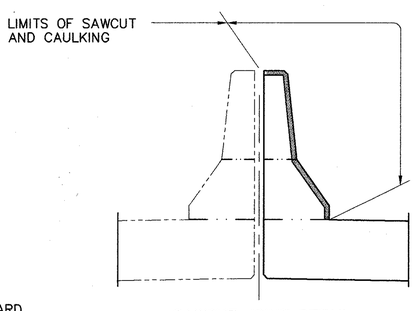
SECTION F-F



SECTION G-G



SECTION B-B



SAWCUT JOINT DETAIL

ms consultants, inc.
CONSULTING ENGINEERS & PLANNERS
400 EAST FEDERAL STREET, YOUNGSTOWN, OHIO

REVIEWED D.A.S. DATE 5-95
STRUCTURE FILE NUMBER 4200258
DRAWN E.R.K.
REVISED
DESIGNED A.C.
CHECKED W.H.

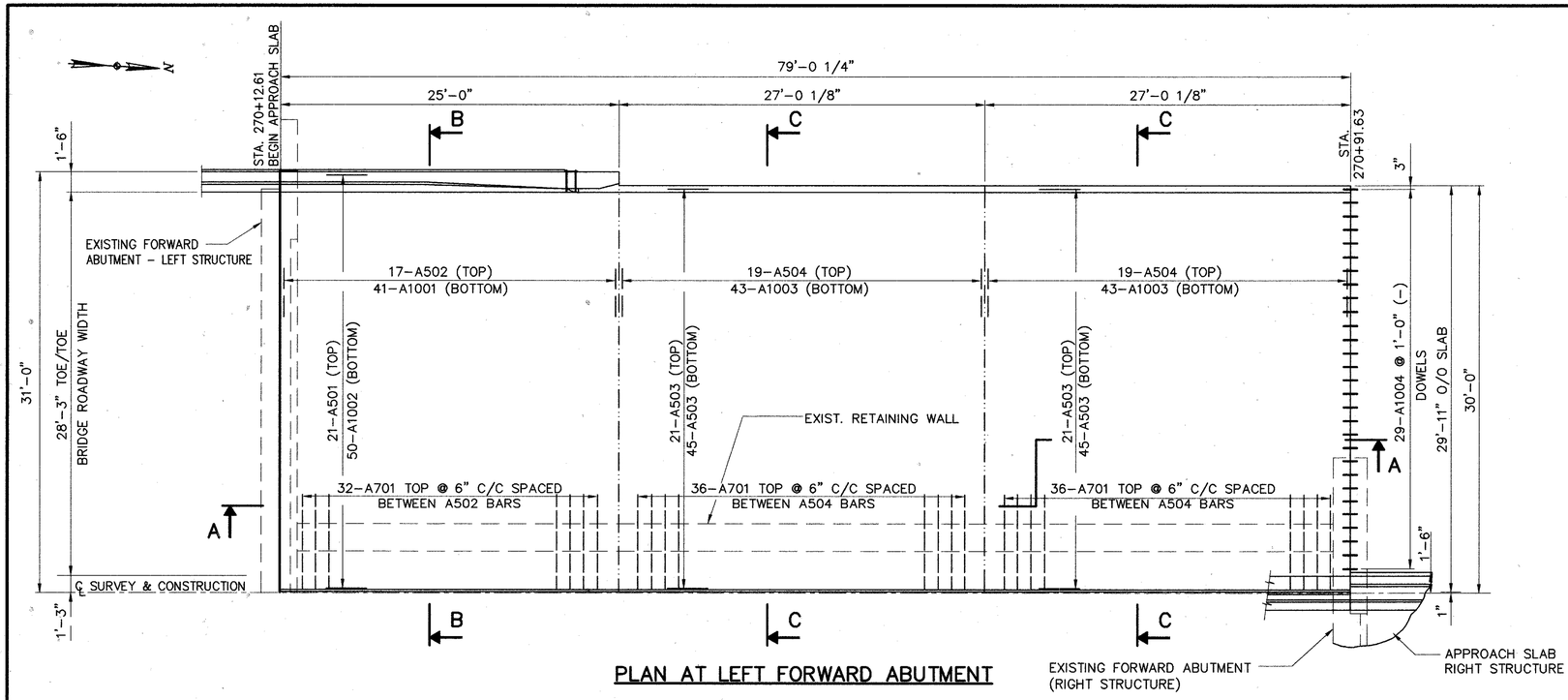
BRIDGE RAILING -- LEFT FORWARD ABUTMENT

BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

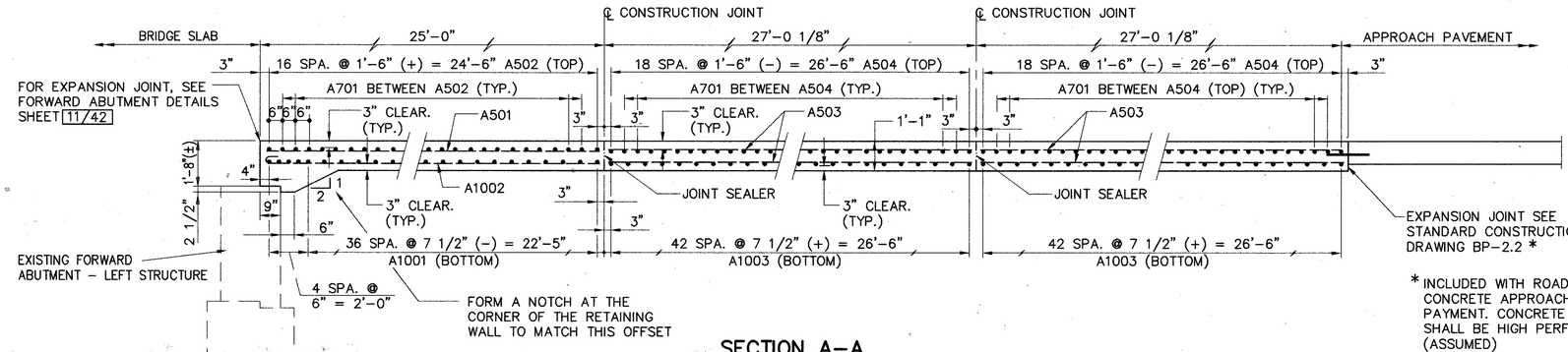
JEF-7-4.63

14 / 42

43 / 73

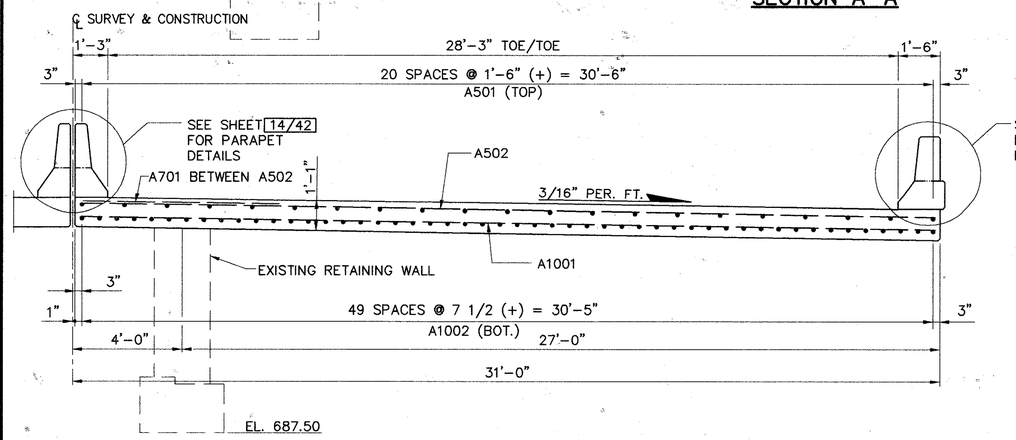


PLAN AT LEFT FORWARD ABUTMENT

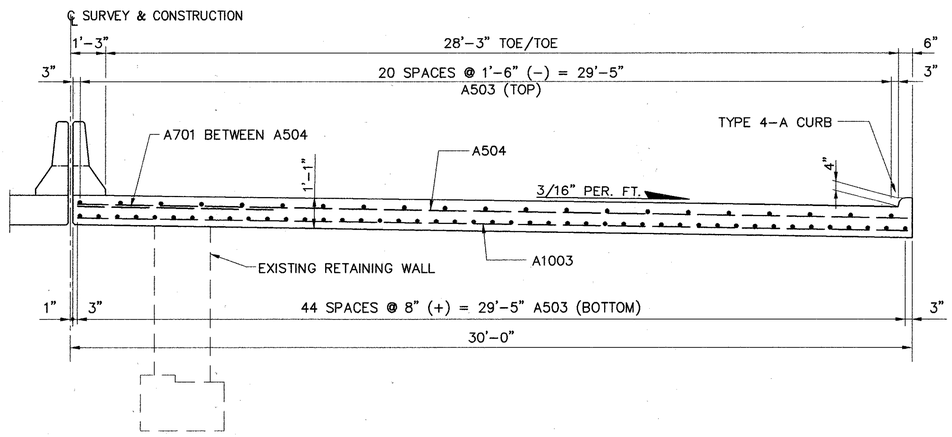


* INCLUDED WITH ROADWAY ITEM 611, "REINFORCED CONCRETE APPROACH SLABS, AS PER PLAN" FOR PAYMENT. CONCRETE ABOVE APPROACH SLABS SHALL BE HIGH PERFORMANCE FC'=4500 P.S.I. (ASSUMED)

SECTION A-A



SECTION B-B



SECTION C-C

STR #2 ERK C:\DRAWING\08077308\LFABR 1=64 08:24 04/30/96

PREPARED BY
ms consultants, inc.
CONSULTING ENGINEERS & PLANNERS
985 EAST FEDERAL STREET, YOUNGSTOWN, OHIO

DESIGNED A.C. | DRAWN E.R.K. | REVIEWED D.A.S. | DATE 5-95
CHECKED W.H. | REVISED | STRUCTURE FILE NUMBER 4200258

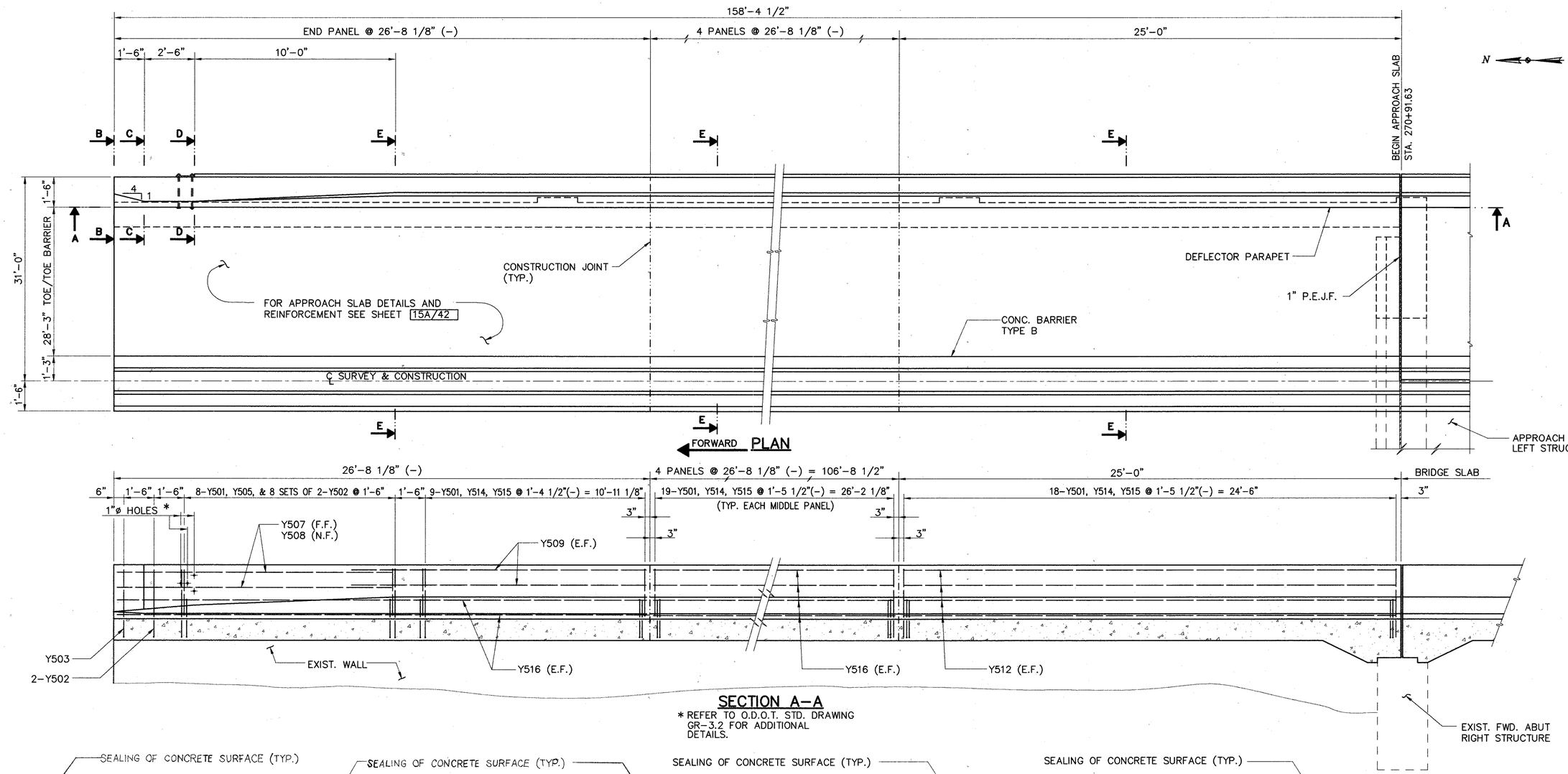
LEFT FWD. ABUT.-BRIDGE RAIL & APPR. SLAB

BRIDGE NO. JEF-7-0463
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF-7-4.63

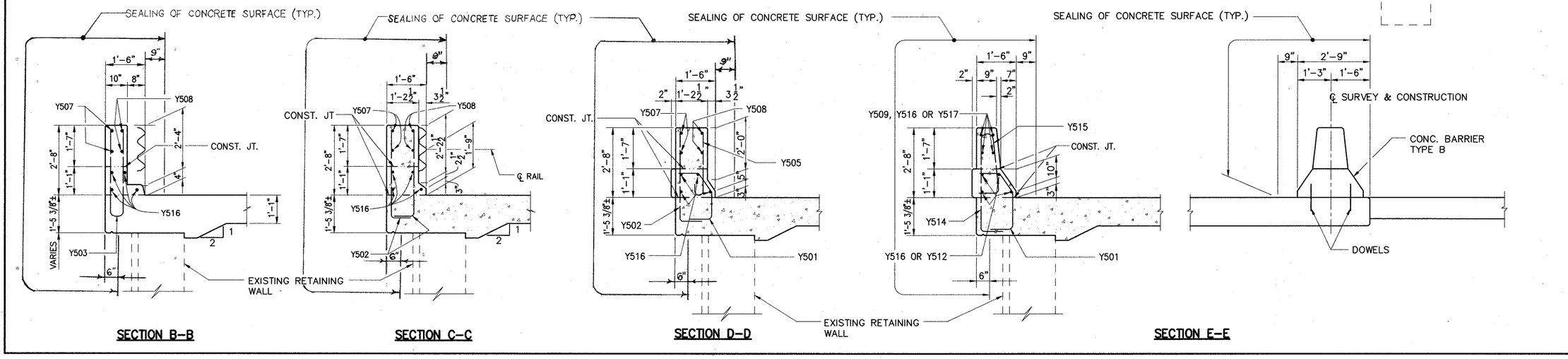
14A/42

44/73



SECTION A–A

* REFER TO O.D.O.T. STD. DRAWING GR-3.2 FOR ADDITIONAL DETAILS.



SECTION B–B

SECTION C–C

SECTION D–D

SECTION E–E

STR #2 ERK C:\DRAWING\08077308\BRREA 1=32 08:07 04/30/96

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CONSULTING ENGINEERS & PLANNERS
2221 EDMUND ROAD, YOUNGSTOWN, OHIO

REVIEWED	DATE
D.A.S.	7-95
STRUCTURE FILE NUMBER	
4200258	
DRAWN	
E.R.K.	
REVISED	
DESIGNED	
A.C.	
CHECKED	
W.H.	

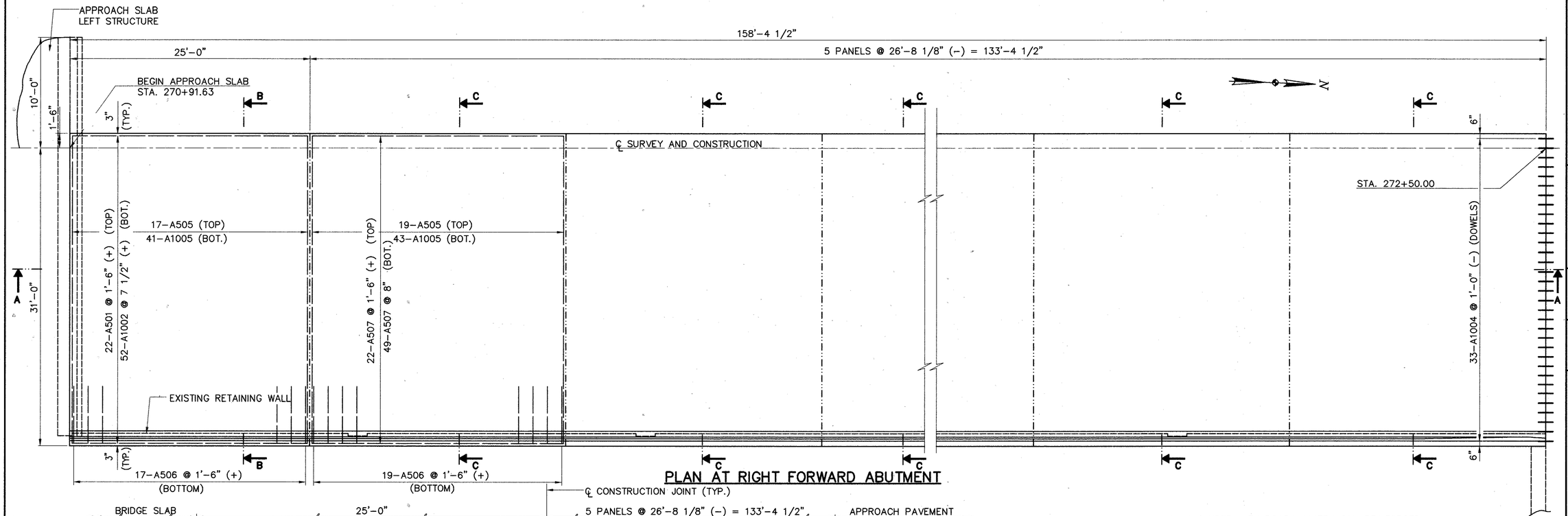
BRIDGE RAILING – RIGHT FORWARD ABUTMENT

BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE, AND CONRAIL RAILROADS

JEF-7-4.63

15 / 42

45/73



PLAN AT RIGHT FORWARD ABUTMENT

* INCLUDED WITH ROADWAY ITEM 611, REINFORCED CONCRETE APPROACH SLABS, AS PER PLAN FOR PAYMENT. CONCRETE ABOVE APPROACH SLABS SHALL BE HIGH PERFORMANCE FC= 4500 PSI. (ASSUMED)

** REFER TO SUPERELEVATION SHEET (8) FOR ACTUAL CROSS SLOPES: ROADWAY PLANS.

SECTION A-A

JOINT SEALER DETAIL

SECTION B-B

SECTION C-C
FOR DETAILS NOT SHOWN
SEE SECTION B-B

PREPARED BY
ms consultants, inc.
CONSULTING ENGINEERS & PLANNERS
555 MAIN STREET, YOUNGSTOWN, OHIO

DESIGNED	DRAWN	CHECKED	REVISED	REVIEWED	DATE
A.C.	E.R.K.	W.H.		D.A.S.	7-95

STRUCTURE FILE NUMBER
4200258

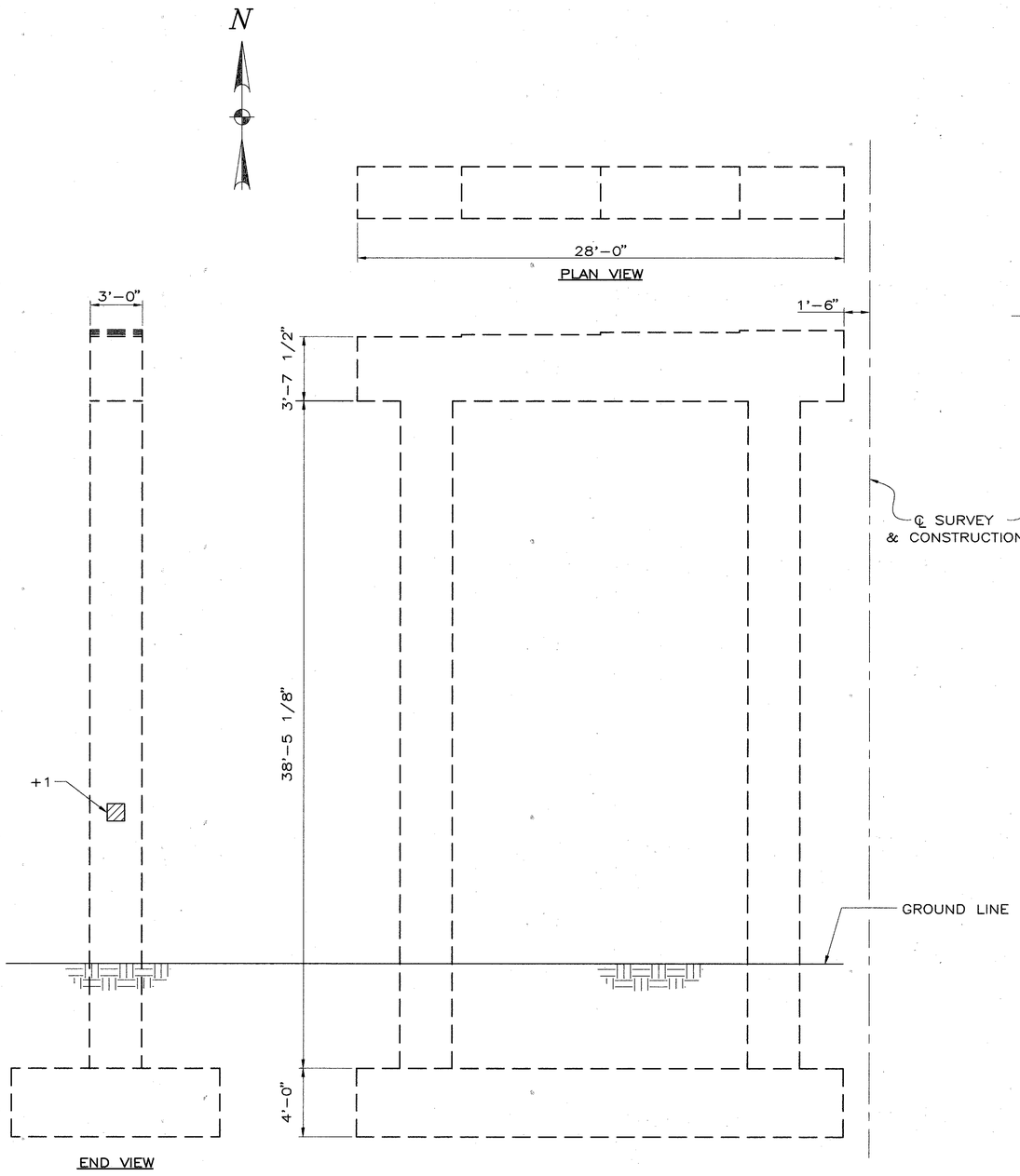
APPROACH SLABS - RIGHT FORWARD ABUTMENT
BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF-7-4.63

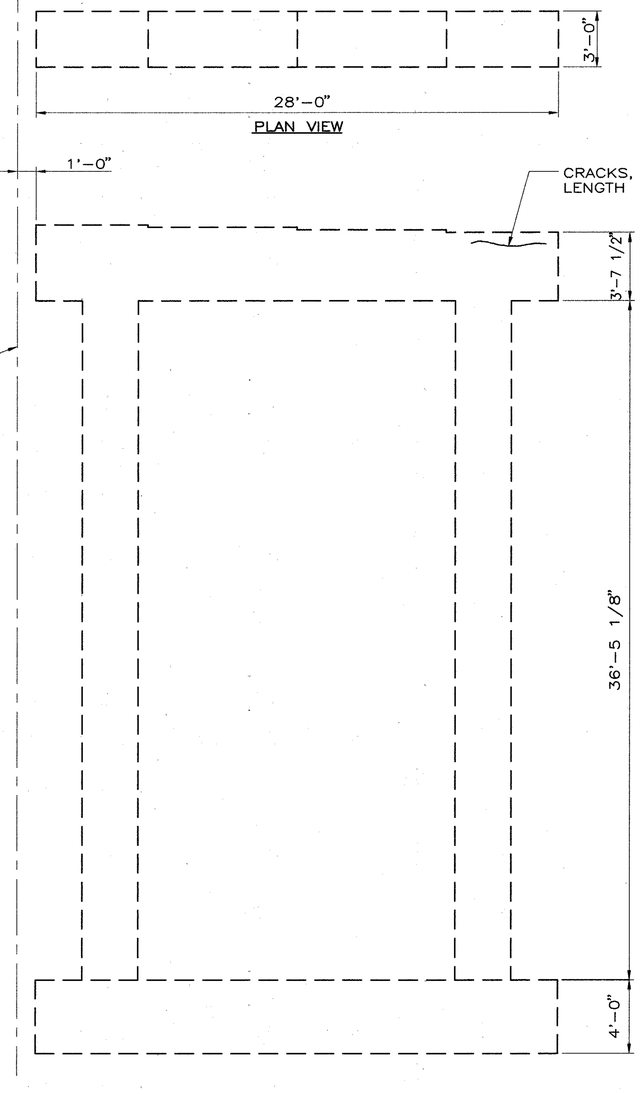
15A / 42

46 / 73

STR #2 ERK C:\DRAWING\08077308\RFAABR 1-32 08:36 04/30/96



PIER NO. 2L — ELEVATION
(LOOKING FORWARD)



PIER NO. 2R — ELEVATION
(LOOKING FORWARD)

KEY

- PORTIONS OF STRUCTURE TO BE REMOVED
- SPALLED AREA, NEARSIDE (+)
- SPALLED AREA, FAR SIDE (−)

EXAMPLE
+15 = APPROX. PATCHING AREA, S.F., NEAR SIDE
−4 = APPROX. PATCHING AREA, S.F., FAR SIDE

* CONCRETE PATCH DEPTHS SHALL BE IN ACCORDANCE WITH ITEM 519.03.

ALL DIMENSIONS ARE ±

STR #2 ERK C:\DRAWING\B07736\B07SH16 1=48 15:45 04/29/96

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ms consultants, inc.
CONSULTING ENGINEERS & PLANNERS
YOUNGSTOWN, OHIO

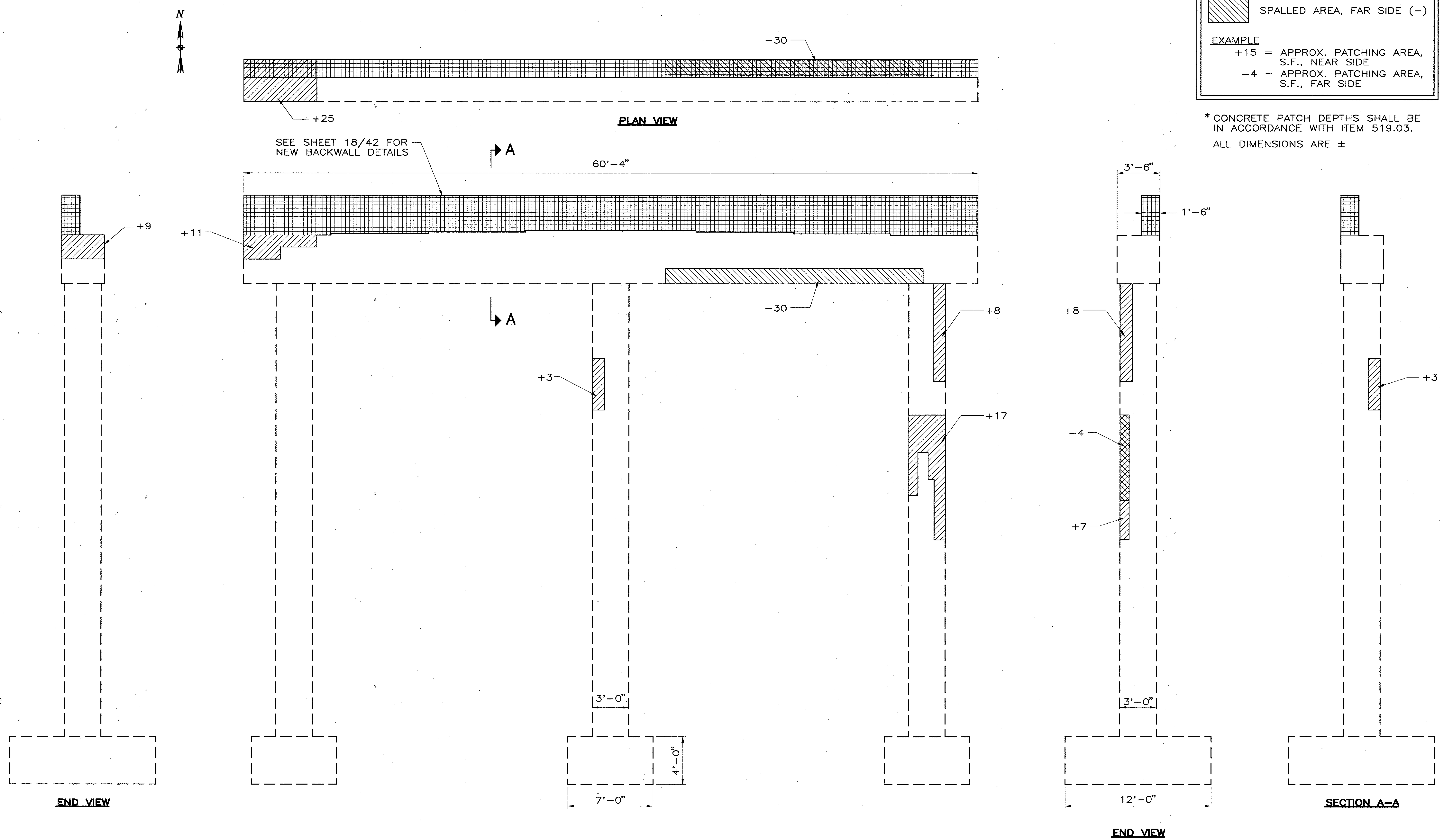
DESIGNED	DRAWN	REVIEWED	DATE
A.C.	W.R.H.	D.A.S.	6-95
CHECKED	REVISED	STRUCTURE FILE NUMBER	
W.H.		4200258	

BENT NO. 2L & 2R PATCHING DETAILS
BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF-7-4.63

16/42

47/73



PIER NO. 3 – ELEVATION
(LOOKING FORWARD)

KEY

- PORTIONS OF STRUCTURE TO BE REMOVED
- SPALLED AREA, NEARSIDE (+)
- SPALLED AREA, FAR SIDE (–)

EXAMPLE
+15 = APPROX. PATCHING AREA, S.F., NEAR SIDE
–4 = APPROX. PATCHING AREA, S.F., FAR SIDE

* CONCRETE PATCH DEPTHS SHALL BE IN ACCORDANCE WITH ITEM 519.03.

ALL DIMENSIONS ARE ±

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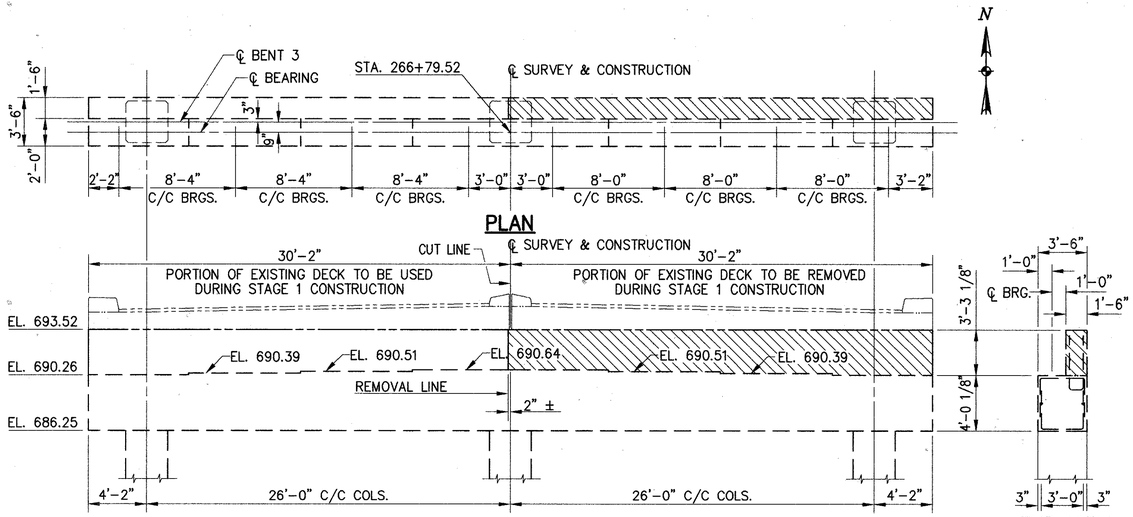
REVIEWED D.A.S.	DATE 6-95
STRUCTURE FILE NUMBER 4200258	
DRAWN W.R.H.	REVISED
DESIGNED A.C.	CHECKED W.H.

BENT NO. 3 PATCHING DETAILS
BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF-7-4.63

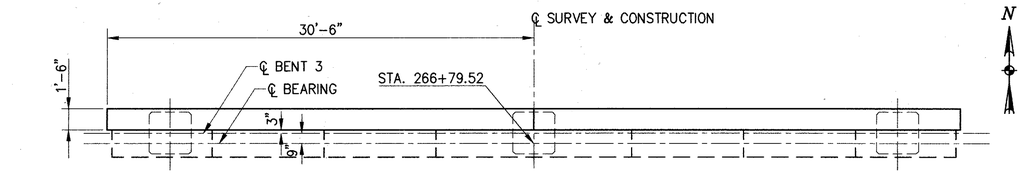
STR #2 ERK C:\DRAWING\08077308\0807SH17 1=48 15:47 04/29/96



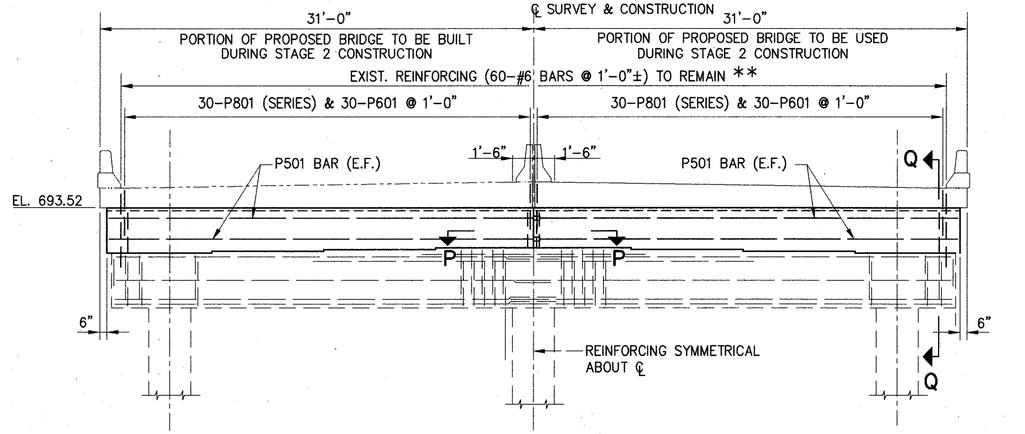
PLAN

ELEVATION – STAGE 1 REMOVAL *

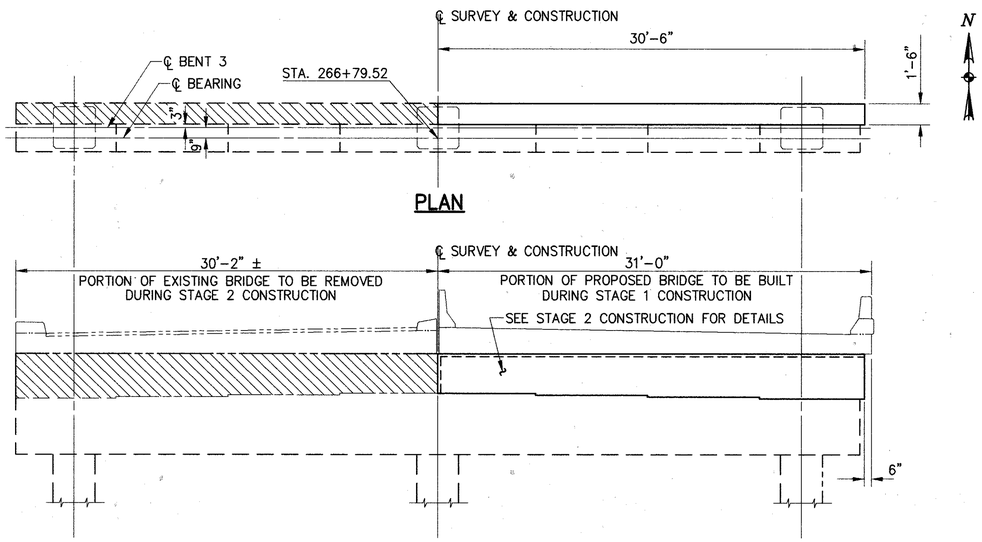
END VIEW



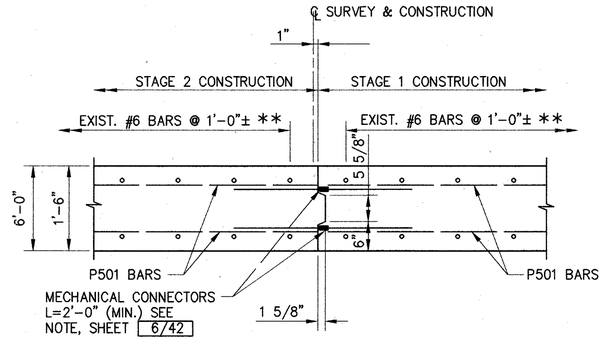
PLAN



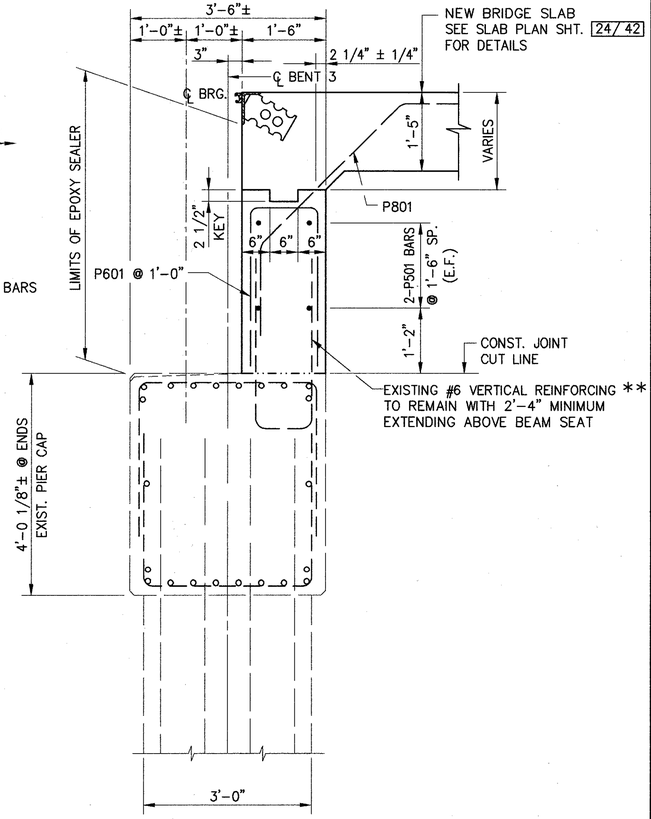
ELEVATION – STAGE 2 CONSTRUCTION



ELEVATION – STAGE 1 CONSTRUCTION



SECTION P–P



SECTION Q–Q

KEY

▨ = REMOVALS

LEGEND:

F.F. = FAR FACE
N.F. = NEAR FACE
E.F. = EACH FACE
T = TOP
B = BOTTOM

* ALL EXISTING DIMENSIONS ARE ±

** THE CONTRACTOR HAS THE OPTION TO REMOVE THE EXISTING REINFORCING STEEL COMPLETELY (INSTEAD OF SALVAGING THE EXISTING BARS), PROVIDED DOWELS ARE PLACED (PER CMS ITEM 510) WITHIN THE EXISTING SUBSTRUCTURE. THE SPACING SIZE AND NUMBER OF DOWELS SHOULD MATCH THE SPACING AND SIZE OF THE EXISTING BARS. THIS WORK SHALL BE DONE AT NO ADDITIONAL COST TO THE STATE.

PREPARED BY
ms consultants, inc.
CONSULTING ENGINEERS & PLANNERS
2221 EDWARD HOLLAND DRIVE, SUITE 600, RICHMOND, VIRGINIA 23230

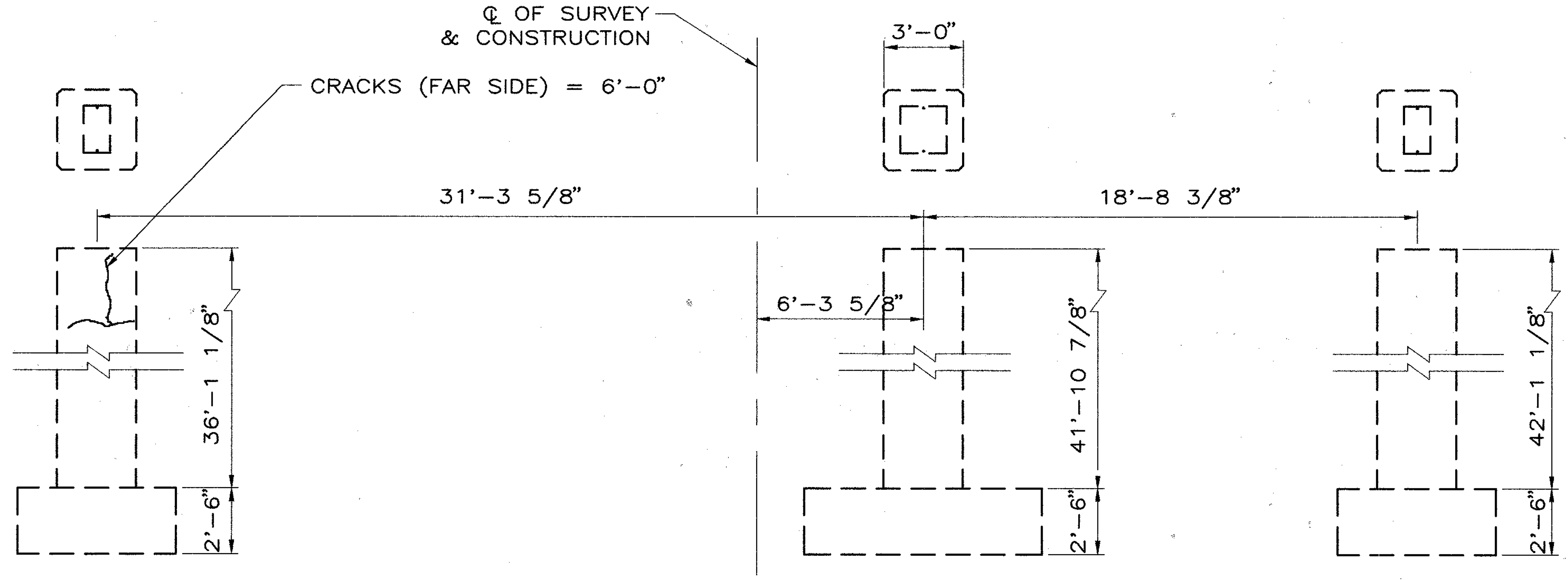
REVIEWED	DATE
D.A.S.	3-94
STRUCTURE FILE NUMBER	
4200258	
DRAWN	REVISED
R.M.	
DESIGNED	CHECKED
A.C.	W.H.

BENT 3 DETAILS

BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF-7-4.63

STR #2 ERK C:\DRAWING\0807308\BENT3 1=64 16:03 04/29/96



BENT NO. 4 – ELEVATION

(LOOKING FORWARD)

KEY

PORTIONS OF STRUCTURE TO BE REMOVED

SPALLED AREA, NEARSIDE (+)

SPALLED AREA, FAR SIDE (–)

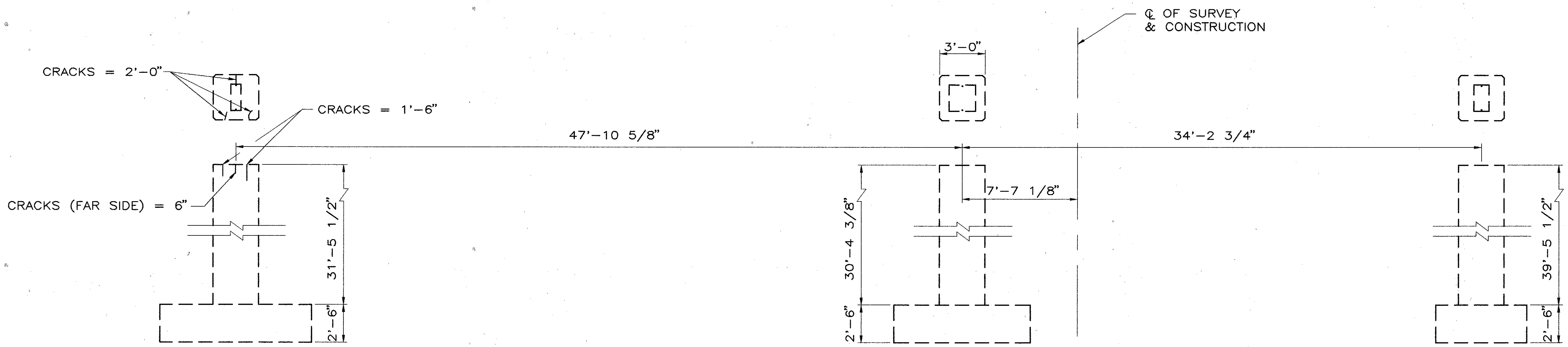
EXAMPLE

+15 = APPROX. PATCHING AREA, S.F., NEAR SIDE

–4 = APPROX. PATCHING AREA, S.F., FAR SIDE

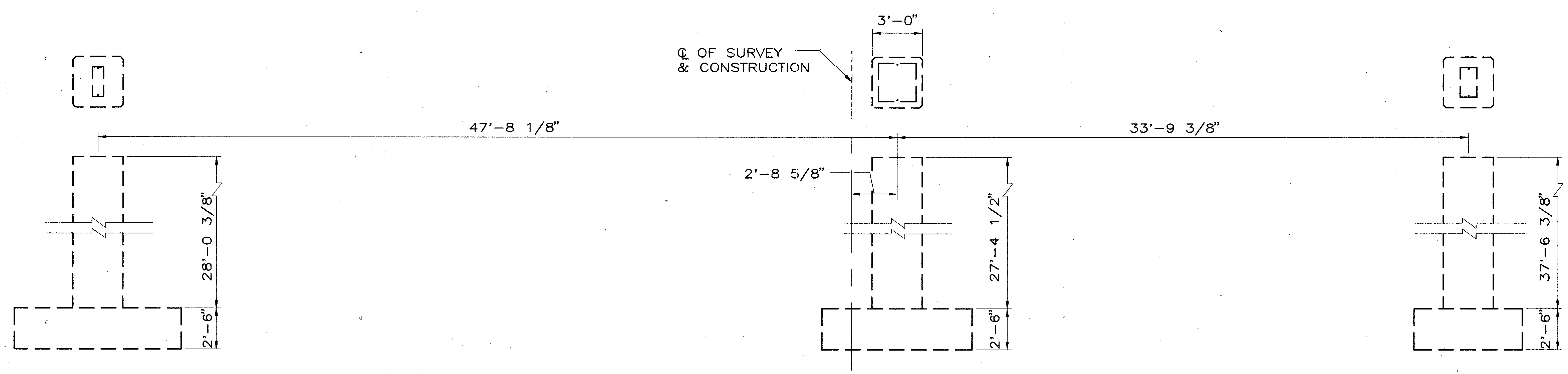
* CONCRETE PATCH DEPTHS SHALL BE IN ACCORDANCE WITH ITEM 519.03.

ALL DIMENSIONS ARE ±



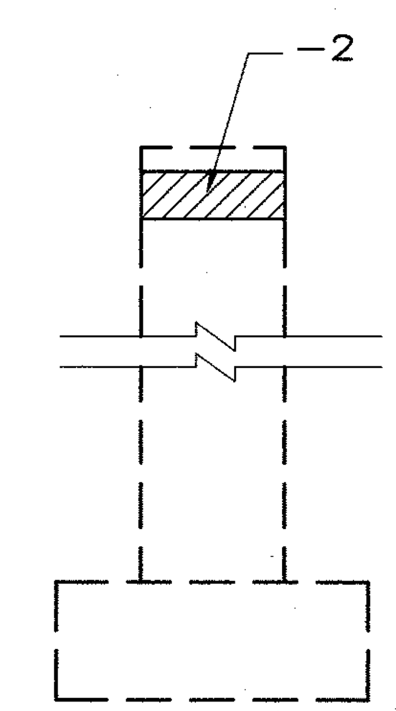
BENT NO. 6 – ELEVATION

(LOOKING FORWARD)



BENT NO. 7 – ELEVATION

(LOOKING FORWARD)



END VIEW

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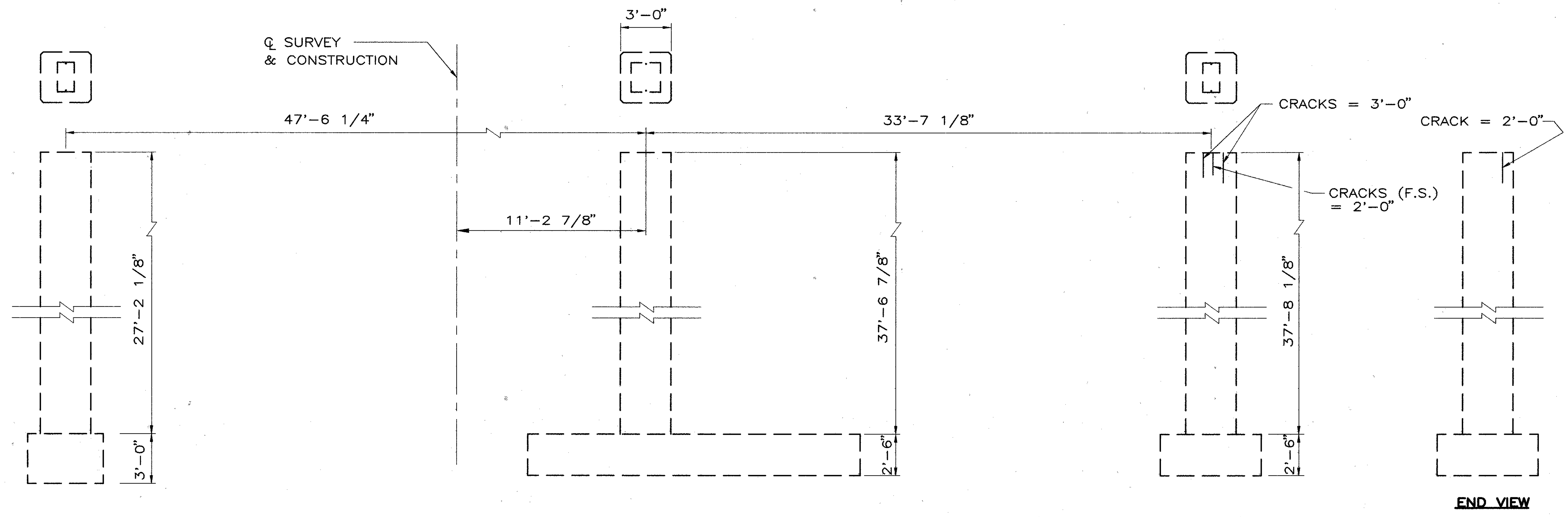
REVIEWED D.A.S. DATE 6-95
STRUCTURE FILE NUMBER 4200258
DRAWN W.R.H. REVISED
DESIGNED A.C. CHECKED W.H.

BENT NO. 4,6 & 7 PATCHING DETAILS
BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF-7-4.63

STR #2 ERK C:\DRAWING\0807308\0807SH19 1=48 1550 04/29/96



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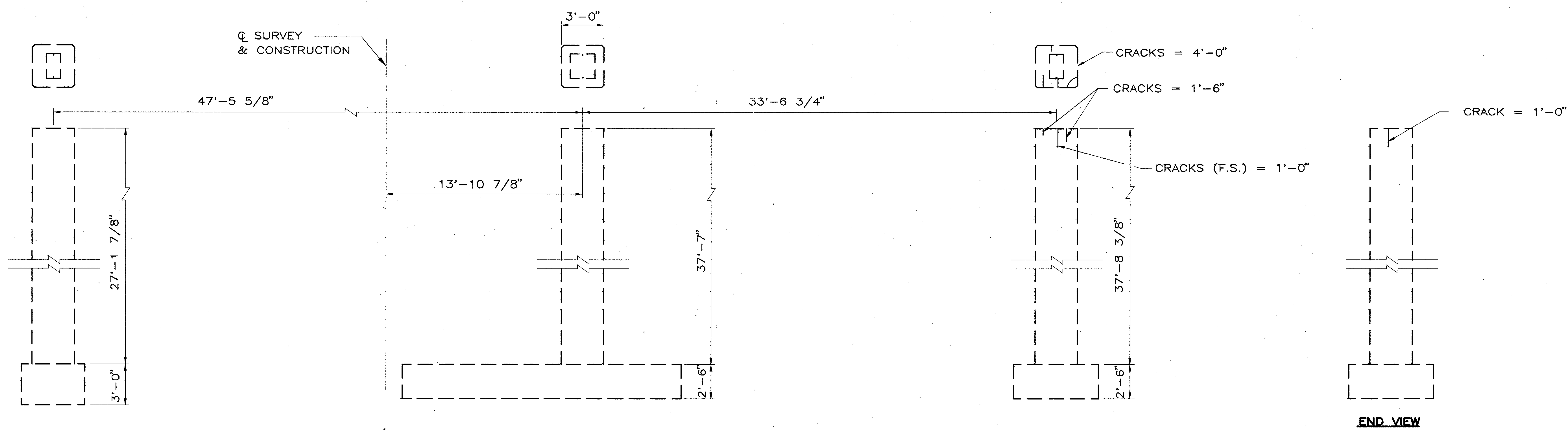
(LOOKING FORWARD)



BENT NO. 9 — ELEVATION
(LOOKING FORWARD)

KEY

PORTIONS OF STRUCTURE TO BE REMOVED

SPALLED AREA, NEARSIDE (+)

SPALLED AREA, FAR SIDE (−)

EXAMPLE
+15 = APPROX. PATCHING AREA, S.F., NEAR SIDE
−4 = APPROX. PATCHING AREA, S.F., FAR SIDE

* CONCRETE PATCH DEPTHS SHALL BE IN ACCORDANCE WITH ITEM 519.03.

ALL DIMENSIONS ARE ±

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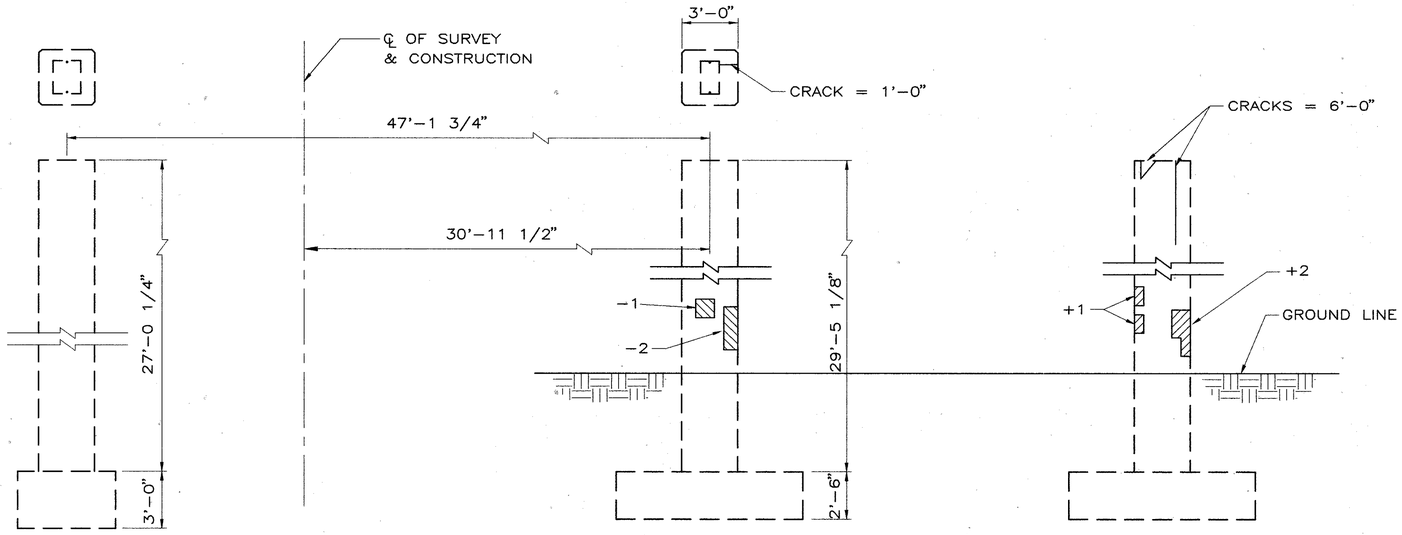
CONSULTING ENGINEERS & PLANNERS

REVIEWED D.A.S. DATE 5-95
STRUCTURE FILE NUMBER 4200258
DRAWN W.R.H. REVISED
DESIGNED A.C. CHECKED W.H.

BENT NO. 8 & 9 PATCHING DETAILS
BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF-7-4.63



BENT NO. 11 – ELEVATION
(LOOKING FORWARD)

END VIEW

KEY

PORTIONS OF STRUCTURE TO BE REMOVED

SPALLED AREA, NEARSIDE (+)

SPALLED AREA, FAR SIDE (–)

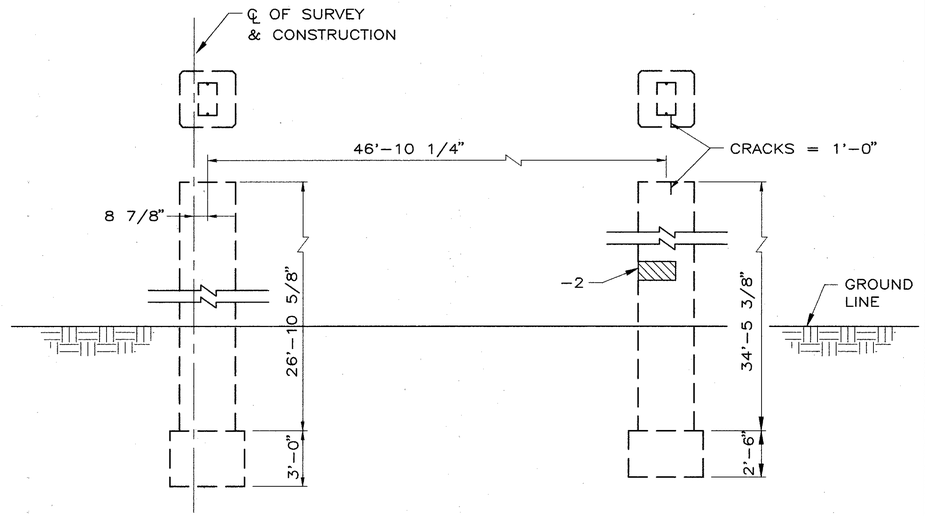
EXAMPLE

+15 = APPROX. PATCHING AREA, S.F., NEAR SIDE

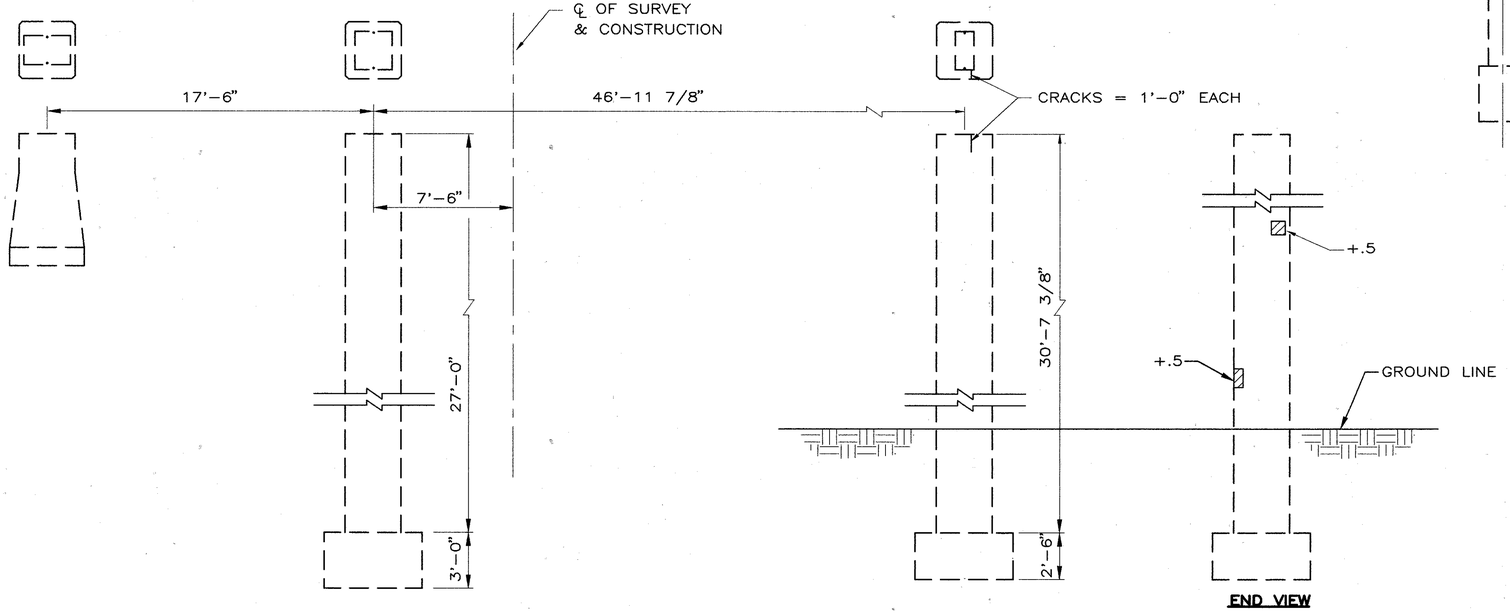
–4 = APPROX. PATCHING AREA, S.F., FAR SIDE

* CONCRETE PATCH DEPTHS SHALL BE IN ACCORDANCE WITH ITEM 519.03.

ALL DIMENSIONS ARE ±



BENT NO. 13 – ELEVATION
(LOOKING FORWARD)



BENT NO. 12 – ELEVATION
(LOOKING FORWARD)

END VIEW

STR #2 ERK C:\DRAWINGS\0807738\0807STR21 1=48 15:54 04/29/96

prepared by
ms consultants, inc.
CONSULTING ENGINEERS & PLANNERS
555 EAST FEDERAL STREET, YOUNGSTOWN, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
A.C.	W.R.H.	D.A.D	5–95
CHECKED	REVISED	STRUCTURE FILE NUMBER	
W.H.		4200258	

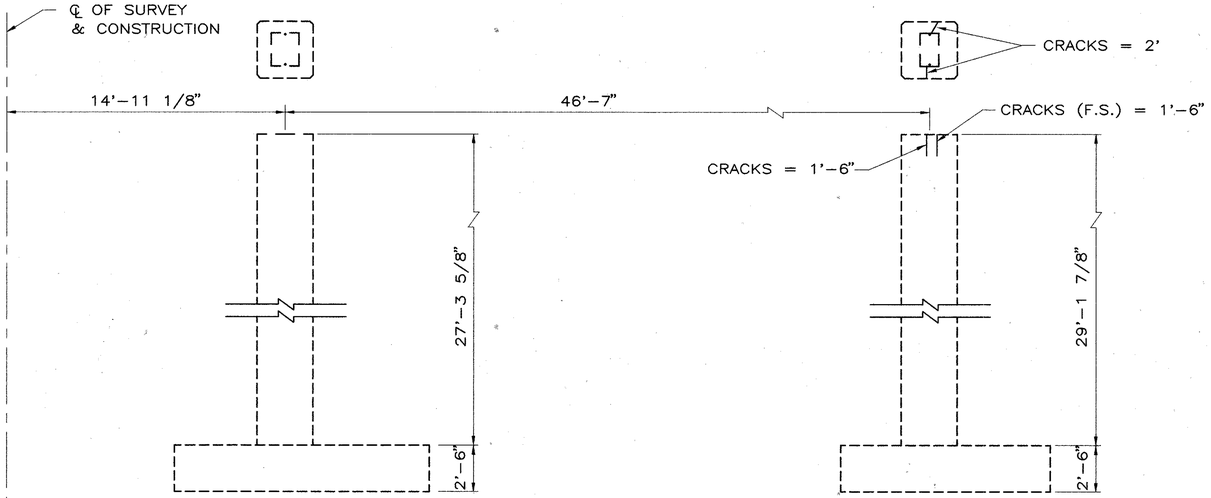
BENT NO. 11, 12 & 13 PATCHING DETAILS

BRIDGE NO. JEF–7–0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF–7–4.63

21 / 42

52 / 73



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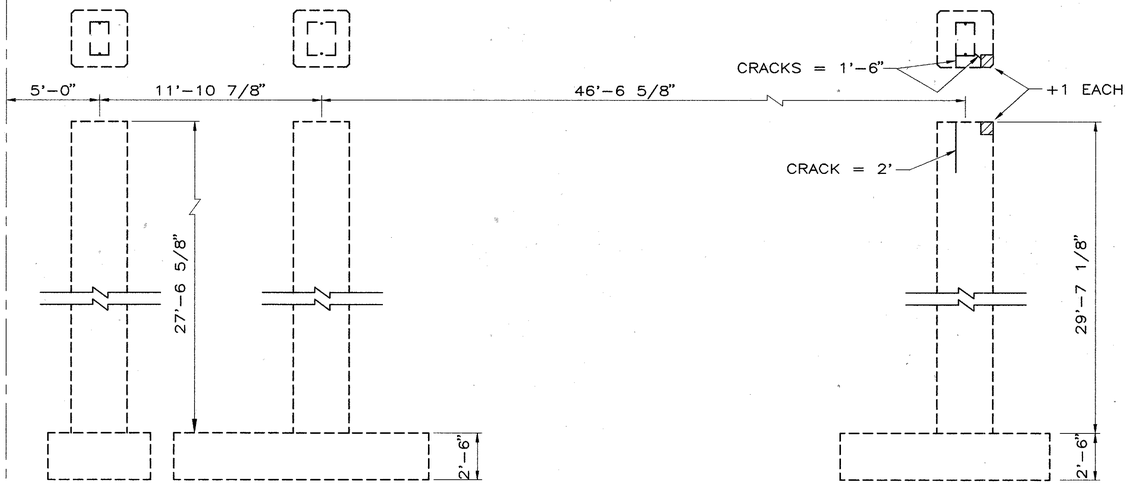
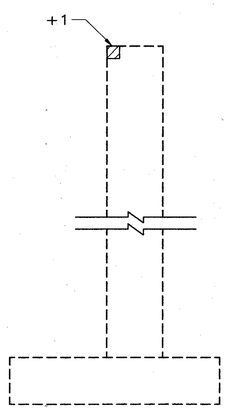
(LOOKING FORWARD)



BENT NO. 16 – ELEVATION
(LOOKING FORWARD)



END VIEW

KEY

PORTIONS OF STRUCTURE TO BE REMOVED

SPALLED AREA, NEARSIDE (+)

SPALLED AREA, FAR SIDE (–)

EXAMPLE

+15 = APPROX. PATCHING AREA, S.F., NEAR SIDE

–4 = APPROX. PATCHING AREA, S.F., FAR SIDE

* CONCRETE PATCH DEPTHS SHALL BE IN ACCORDANCE WITH ITEM 519.03.

ALL DIMENSIONS ARE ±

SUMMARY OF REPAIRS **

STRUCTURE UNIT	S.F. OF CONCRETE PATCHING (ESTIMATED)	L.F. OF EPOXY INJECTION (ESTIMATED)
PIER NO. 2L	1	0
PIER NO. 2R	0	4
PIER NO. 3	155	0
PIER NO. 4	0	6
PIER NO. 6	0	4
PIER NO. 7	2	0
PIER NO. 8	0	10
PIER NO. 9	0	7.5
PIER NO. 11	6	7
PIER NO. 12	1	2
PIER NO. 13	2	1
PIER NO. 15	0	5
PIER NO. 16	3	3.5
R. FORWARD ABUTMENT	44	0
TOTALS	214 S.F.	50 L.F.

** BASED ON INSPECTION OF NOVEMBER 1993.

PREPARED BY ms consultants, inc. CONSULTING ENGINEERS & PLANNERS 400 EAST FEDERAL STREET, YOUNGSTOWN, OHIO

REVIEWED D.A.S. 6–96 | STRUCTURE FILE NUMBER 4200258

DESIGNED A.C. | DRAWN W.R.H. | CHECKED W.H. | REVISED

BENT NO. 15 & 16 PATCHING DETAILS

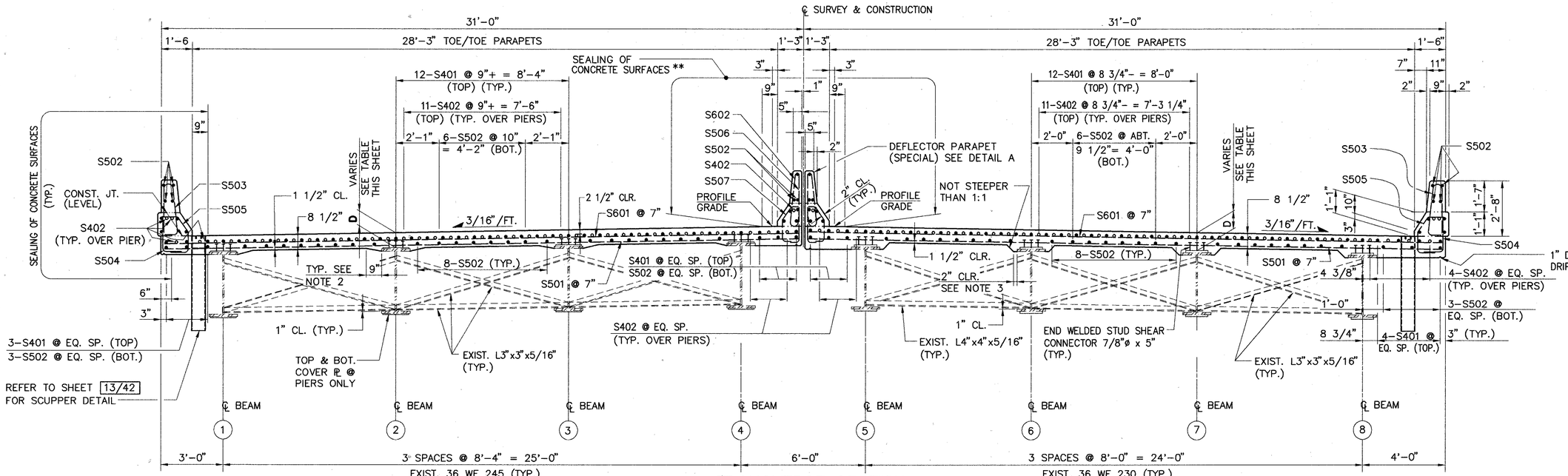
BRIDGE NO. JEF–7–0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF–7–4.63

22 / 42

53 / 73

STR #2 ERK C:\DRAWING\08077308\08075H22 1=48 15:56 04/29/96



TRANSVERSE SECTION (UNIT 1 LEFT & RIGHT)

** INCLUDES FASCIAS AND 6" DECK RETURN

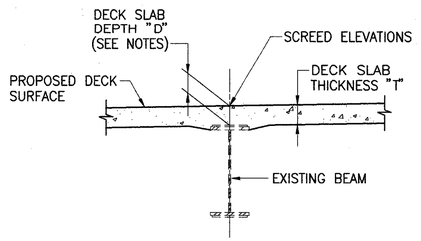
TABLE OF SCREED ELEVATIONS – LEFT BRIDGE ≠

	LOCATION	LEFT GUTTER	BEAM 1	BEAM 2	BEAM 3	BEAM 4	RIGHT GUTTER
SPAN 1	℄ REAR ABUT.	692.14	692.16	692.29	692.42	692.55	692.57
	1/4 PT.	692.41	692.43	692.56	692.69	692.82	692.84
	1/2 PT.	692.66	692.68	692.81	692.94	693.07	693.10
	3/4 PT.	692.89	692.92	693.04	693.18	693.31	693.33
	℄ BRG. PIER 1^L	693.13	693.15	693.28	693.41	693.54	693.56
SPAN 2	SPLICE 1 PT.	693.40	693.42	693.55	693.68	693.81	693.84
	1/4 PT.	693.48	693.50	693.63	693.76	693.89	693.91
	1/2 PT.	693.79	693.81	693.94	694.07	694.20	694.23
	3/4 PT.	694.05	694.08	694.21	694.34	694.47	694.49
	℄ BRG. PIER 2^L	694.30	694.32	694.45	694.58	694.71	694.74
SPAN 3	SPLICE 2 PT.	694.48	694.50	694.63	694.76	694.89	694.92
	1/4 PT.	694.53	694.55	694.68	694.81	694.94	694.96
	1/2 PT.	694.74	694.77	694.90	695.03	695.16	695.18
	3/4 PT.	694.93	694.95	695.08	695.21	695.34	695.36
	℄ BRG. PIER 3	695.06	695.08	695.21	695.34	695.47	695.49

TABLE OF SCREED ELEVATIONS – RIGHT BRIDGE ≠

	LOCATION	LEFT GUTTER	BEAM 5	BEAM 6	BEAM 7	BEAM 8	RIGHT GUTTER
SPAN 1	℄ REAR ABUT.	692.57	692.55	692.42	692.30	692.18	692.14
	1/4 PT.	692.90	692.87	692.75	692.62	692.50	692.46
	1/2 PT.	693.18	693.15	693.03	692.91	692.79	692.75
	3/4 PT.	693.43	693.41	693.30	693.18	693.04	693.00
	℄ BRG. PIER 1^R	693.68	693.65	693.53	693.41	693.28	693.24
SPAN 2	1/4 PT.	694.01	693.98	693.86	693.73	693.63	693.59
	1/2 PT.	694.32	694.29	694.17	694.04	693.93	693.89
	3/4 PT.	694.57	694.54	694.42	694.29	694.18	694.14
	℄ BRG. PIER 2^R	694.80	694.78	694.65	694.53	694.40	694.36
SPAN 3	1/4 PT.	695.01	694.99	694.85	694.73	694.61	694.57
	1/2 PT.	695.20	695.17	695.05	694.93	694.80	694.76
	3/4 PT.	695.36	695.34	695.22	695.09	694.97	694.93
	℄ BRG. PIER 3	695.49	695.47	695.34	695.22	695.09	695.05

≠ SCREED ELEVATIONS SHOWN ARE LOCATED AT ℄ BEARINGS, QUARTER POINTS, AND MIDSPAN. THESE ELEVATIONS ARE BEFORE THE CONCRETE IS PLACED AND INCLUDE AN ALLOWANCE FOR DEFLECTION CAUSED BY THE WEIGHT OF THE CONCRETE.



DECK SLAB DEPTH OVER BEAMS

NOTES:

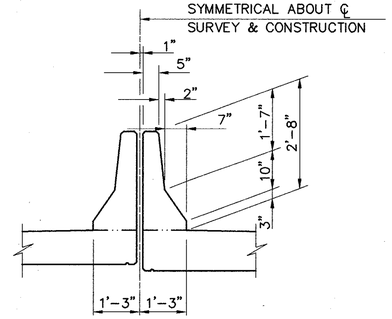
1. **DECK SLAB DEPTH:** THE ANTICIPATED DECK SLAB DEPTHS, D, OVER THE BEAMS ARE GIVEN IN THE TABLE OF DECK SLAB DEPTHS. THE ACTUAL SLAB DEPTHS MAY BE MORE. THEY SHOULD NOT BE LESS THAN THE DECK SLAB THICKNESS, T.

   AFTER COMPLETE REMOVAL OF THE EXISTING DECK SLAB, THE CONTRACTOR SHALL DETERMINE, AT VARIOUS LOCATIONS ALONG THE SPANS, ACTUAL TOP OF BEAM ELEVATIONS. THESE SHOULD BE DEDUCTED FROM THE SCREED ELEVATIONS FOR THE SAME LOCATIONS TO OBTAIN ACTUAL DEPTHS. FOR DEPTHS LESS THAN T, THE DIRECTOR SHALL BE NOTIFIED TO ESTABLISH THE SUITABILITY OF THE PROPOSED WORK PRIOR TO DECK FORMING AND CONCRETE PLACEMENT.

   THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED ON THE AVERAGE DECK SLAB DEPTHS OVER THE BEAMS INVOLVED.

2. A HAUNCH WIDTH OF 9" SHALL BE USED FOR COMPUTING QUANTITY OF CONCRETE. THE HAUNCH WIDTH MAY BE GREATER THAN 9" AT THE CONTRACTOR'S OPTION.

3. A HAUNCH WIDTH BASED ON A SLOPE OF 1:1 SHALL BE USED FOR COMPUTING QUANTITY OF CONCRETE. THE SLOPE OF THE HAUNCH MAY BE LESS AT THE CONTRACTOR'S OPTION.



DETAIL A

DECK SLAB DEPTH "D" (FEET)

BEAM NO.	SPAN 1		SPAN 2		SPAN 3		
	℄ BRG. R. ABUT. (L)	1/2 SPAN (L)	℄ BRG. PIER 1 (L)	1/2 SPAN (L)	℄ BRG. PIER 2 (L)	1/2 SPAN (L)	℄ BRG. PIER 3 (L)
1	0.78	0.75	0.67	0.73	0.69	0.80	0.84
2	0.75	0.77	0.72	0.79	0.74	0.90	1.00
3	0.75	0.77	0.72	0.79	0.74	0.91	1.01
4	0.75	0.80	0.78	0.86	0.82	1.02	1.16
	℄ BRG. R. ABUT. (R)	1/2 SPAN (R)	℄ BRG. PIER 1 (R)	1/2 SPAN (R)	℄ BRG. PIER 2 (R)	1/2 SPAN (R)	℄ BRG. PIER 3 (R)
5	0.93	1.00	1.02	1.06	1.02	1.11	1.15
6	0.91	0.89	0.83	0.88	0.85	1.01	1.13
7	0.94	0.91	0.84	0.89	0.86	1.02	1.13
8	0.94	0.98	0.97	1.02	0.99	1.05	1.06

(R) DENOTES RIGHT SPANS
(L) DENOTES LEFT SPANS

PREPARED BY
ms consultants, inc.
CONSULTING ENGINEERS & PLANNERS
AKRON, OHIO

REVIEWED D.A.S. DATE 8-94
STRUCTURE FILE NUMBER 4200258
DRAWN E.R.K. REVISED
DESIGNED A.C. CHECKED W.H.

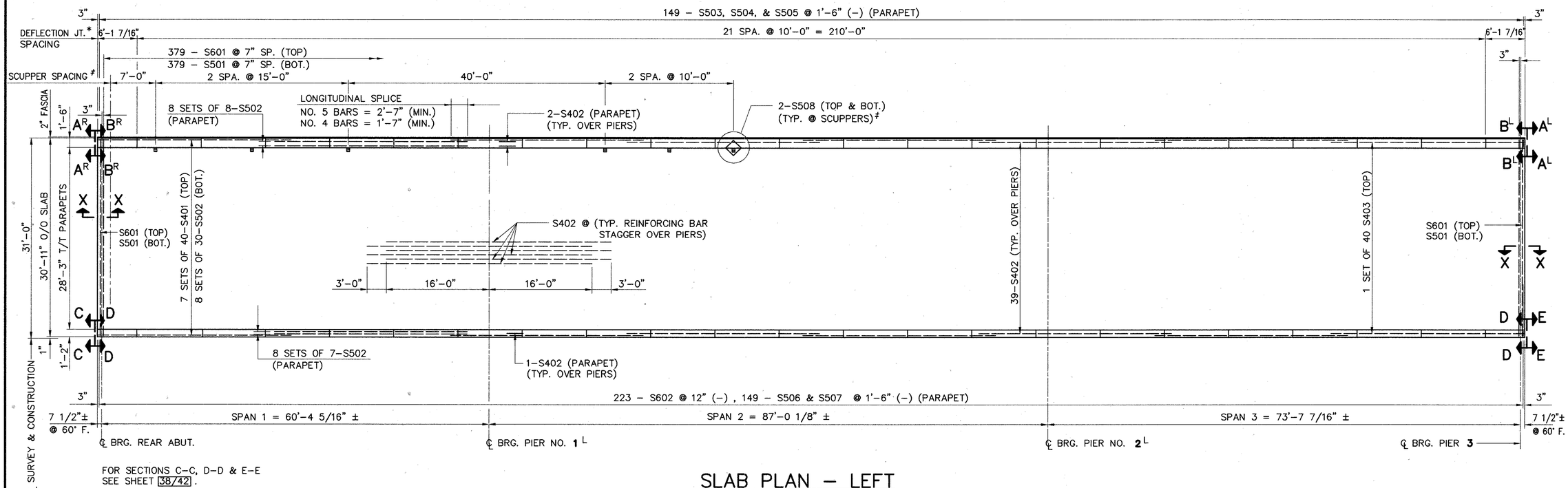
TRANSVERSE SECTION – UNIT 1 (LEFT & RIGHT)
BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF-7-4.63

23 / 42

54 / 73

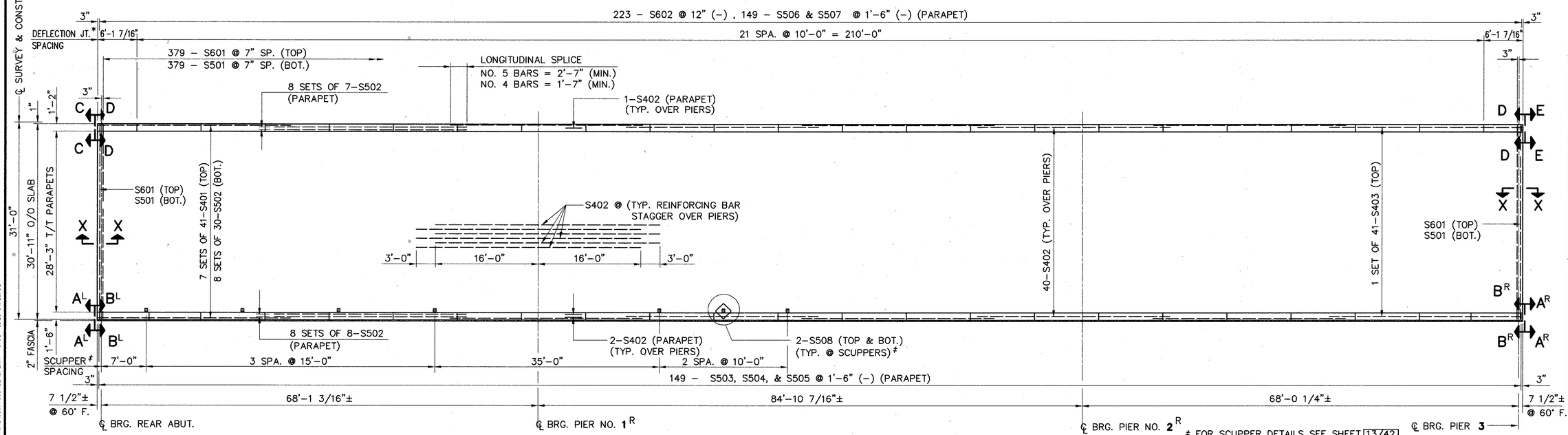
STR #2 ERK D:\DRAWING\98077398\TRASECDM 1=32 10:53 04/30/96



FOR SECTIONS C–C, D–D & E–E SEE SHEET 38/42.

SLAB PLAN – LEFT

SEE SHEET 23/42 FOR SCREED ELEVATIONS.



SLAB PLAN – RIGHT

SEE SHEET 23/42 FOR SCREED ELEVATIONS.

≠ FOR SCUPPER DETAILS SEE SHEET 13/42

* SEE DEFLECTION JOINT DETAILS ON SHEETS 10 & 14/42.

FOR SECTIONS A–A, B–B AND X–X, ADDITIONAL NOTES AND DETAILS, SEE STD. DWG. EXJ–4–87. FOR SECTION X–X JOINT OPENING A, SEE TABLE SHEET 38/42.

FOR SECTIONS C–C, D–D, & E–E SEE SHEET 38/42.

PREPARED BY
ms consultants, inc.
CONSULTING ENGINEERS & PLANNERS
YOUNGSTOWN, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
A.C.	E.R.K.	D.A.S.	8–94
CHECKED	REVISED	STRUCTURE FILE NUMBER	
W.H.		4200258	

SLAB PLAN – UNIT 1 (LEFT & RIGHT)

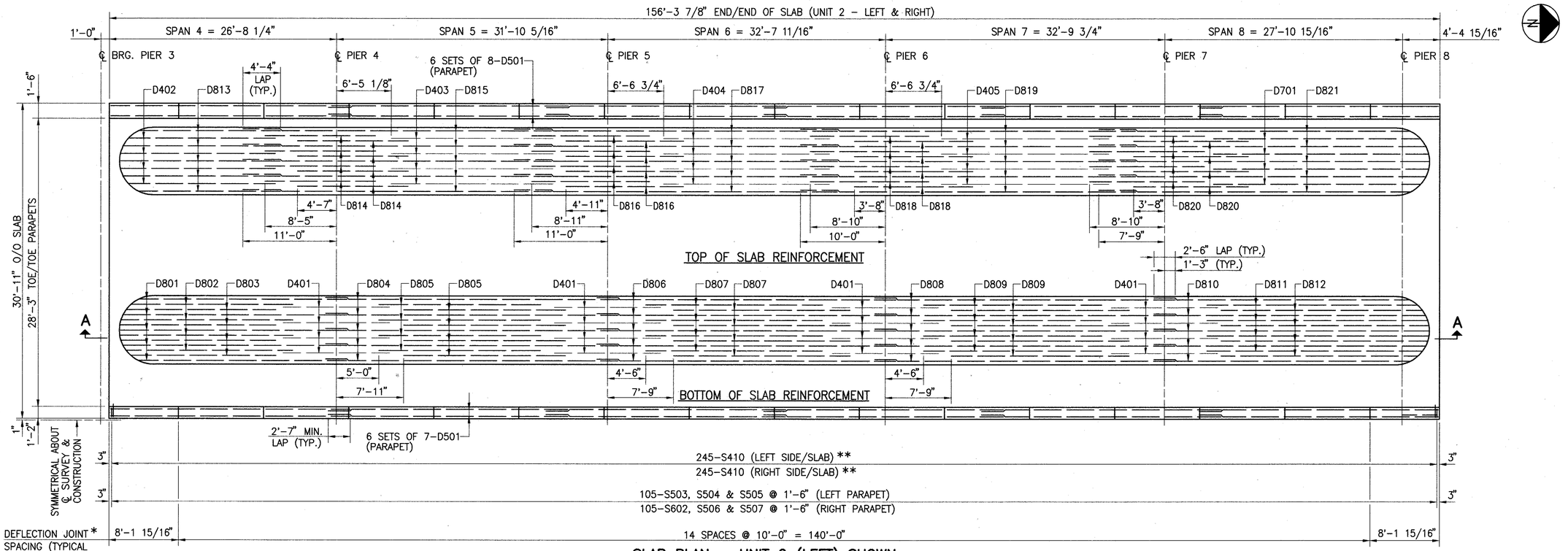
BRIDGE NO. JEF–7–0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF–7–4.63

24 / 42

55/73

STR #2 ERK C:\DRAWING\08077398\SLABPLAN 1=96 10:39 04/30/96

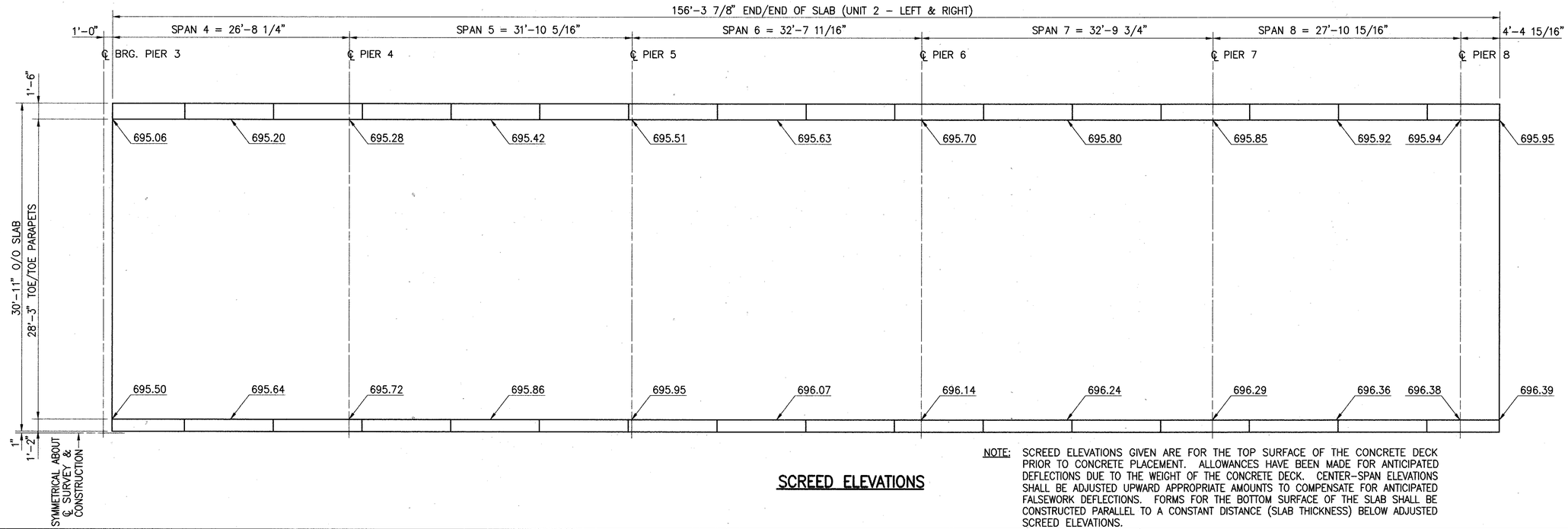


SLAB PLAN – UNIT 2 (LEFT) SHOWN
SLAB PLAN – UNIT 2 (RIGHT) (OPPOSITE HAND)

* FOR DEFLECTION JOINT DETAILS SEE SHEETS 10/42 & 14/42.

** SEE SECTION A–A, SHEET 27/42 FOR SPACING.

NOTE: FOR SECTION A–A SEE SHEET 27/42.
FOR TRANSVERSE SECTIONS SEE SHEET 26/42.



SCREED ELEVATIONS

NOTE: SCREED ELEVATIONS GIVEN ARE FOR THE TOP SURFACE OF THE CONCRETE DECK PRIOR TO CONCRETE PLACEMENT. ALLOWANCES HAVE BEEN MADE FOR ANTICIPATED DEFLECTIONS DUE TO THE WEIGHT OF THE CONCRETE DECK. CENTER-SPAN ELEVATIONS SHALL BE ADJUSTED UPWARD APPROPRIATE AMOUNTS TO COMPENSATE FOR ANTICIPATED FALSEWORK DEFLECTIONS. FORMS FOR THE BOTTOM SURFACE OF THE SLAB SHALL BE CONSTRUCTED PARALLEL TO A CONSTANT DISTANCE (SLAB THICKNESS) BELOW ADJUSTED SCREED ELEVATIONS.

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ms consultants, inc.
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YOUNGSTOWN, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
A.C.	R.A.M.	D.A.S.	7-95
CHECKED	REVISED	STRUCTURE FILE NUMBER	
W.H.		4200258	

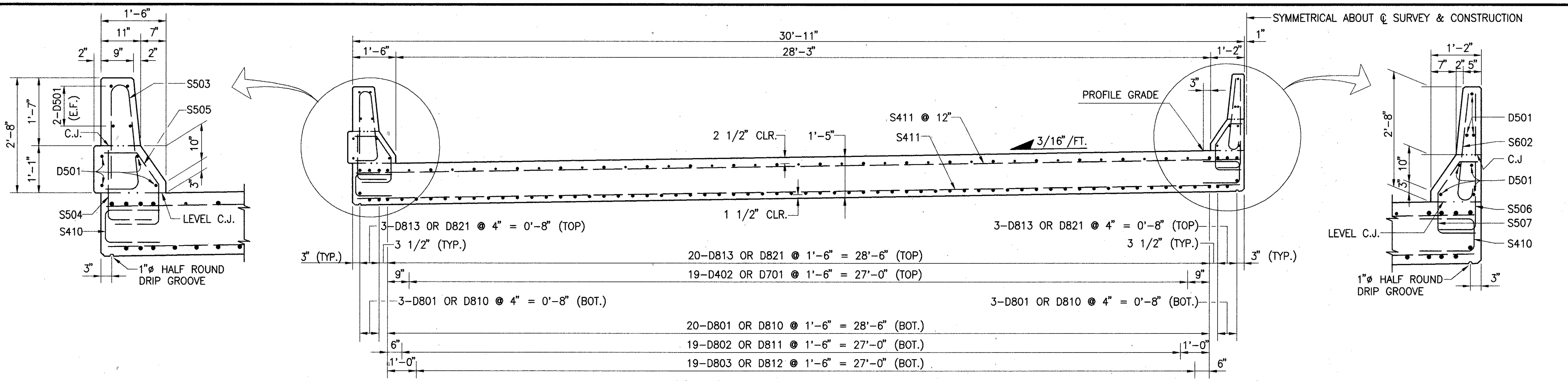
SLAB PLAN – UNIT 2 (LEFT & RIGHT)
BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF-7-4.63

25 / 42

56 / 73

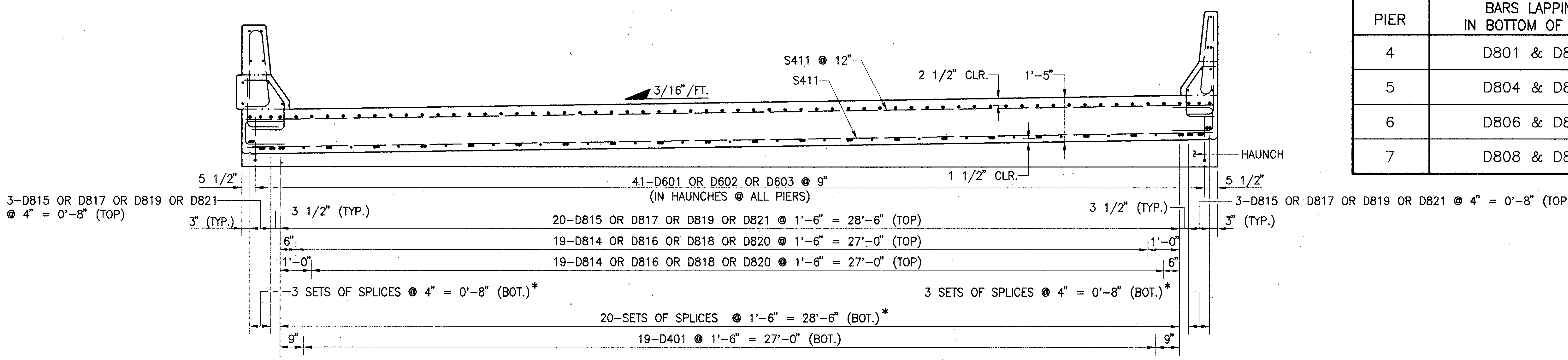
STR #2 ERK C:\DRAWINGS\98077309\SP-UNIT2 1=64 10:46 04/30/96



TYPICAL SECTION @ END SPANS 4 & 8

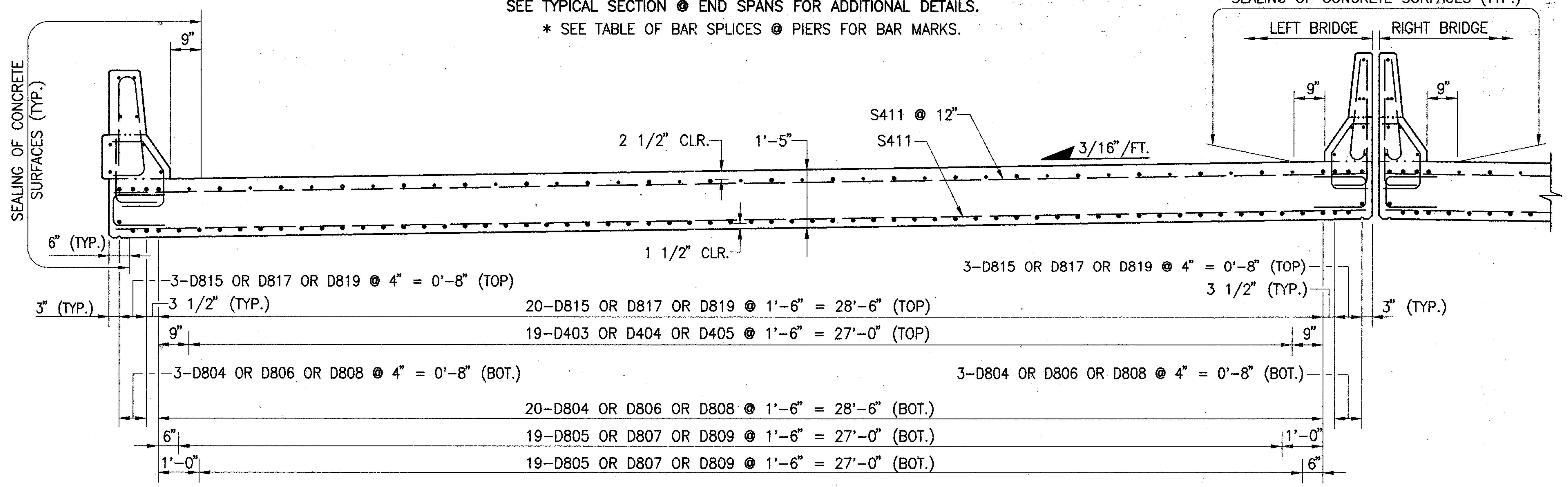
NOTE: C.J. = CONSTRUCTION JOINT

TABLE OF BAR SPLICES @ PIERS	
PIER	BARS LAPPING IN BOTTOM OF SLAB
4	D801 & D804
5	D804 & D806
6	D806 & D808
7	D808 & D810



TYPICAL SECTION @ PIERS 4 THRU 7

SEE TYPICAL SECTION @ END SPANS FOR ADDITIONAL DETAILS.
* SEE TABLE OF BAR SPLICES @ PIERS FOR BAR MARKS.



TYPICAL SECTION @ INTERIOR SPANS 5 THRU 7

SEE TYPICAL SECTION @ END SPANS FOR ADDITIONAL DETAILS.
** INCLUDES FASCIAS AND 6" DECK RETURN.

NOTE

SEE SECTION A-A, SHEET 27/42 FOR SPACING OF S411 BOTTOM BARS.

LEFT BRIDGE SHOWN.
RIGHT BRIDGE OPPOSITE HAND.

TRANSVERSE SECTIONS – UNIT 2 (LEFT & RIGHT)

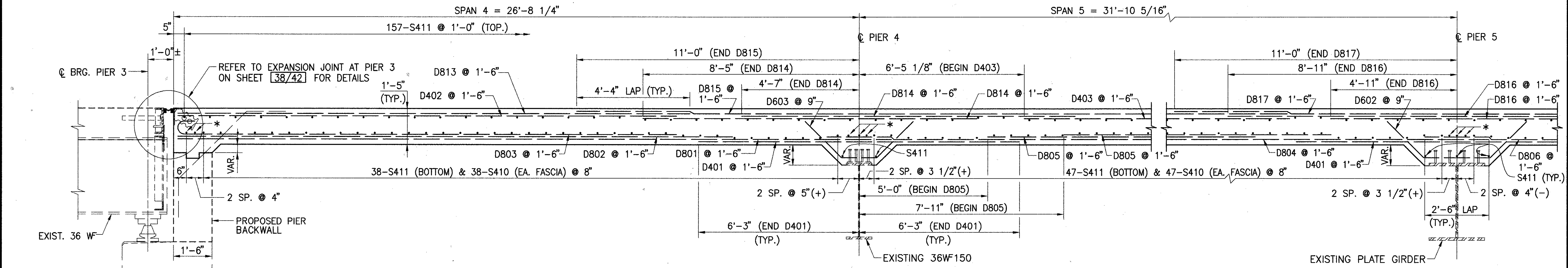
BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

PREPARED BY ms consultants, inc.
CONSULTING ENGINEERS & PLANNERS

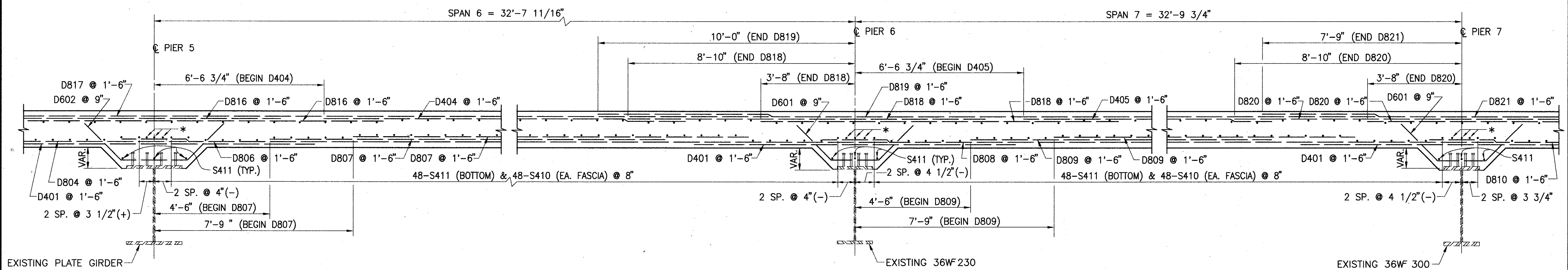
DESIGNED A.C. | CHECKED W.H. | DRAWN R.A.M. | REVISED | REVIEWED D.A.S. | DATE 7-95 | STRUCTURE FILE NUMBER 4200258

JEF-7-4.63

STR #2 ERK D:\DRAWING\08077308\UN2-TRAN 1=24 11:01 04/30/96

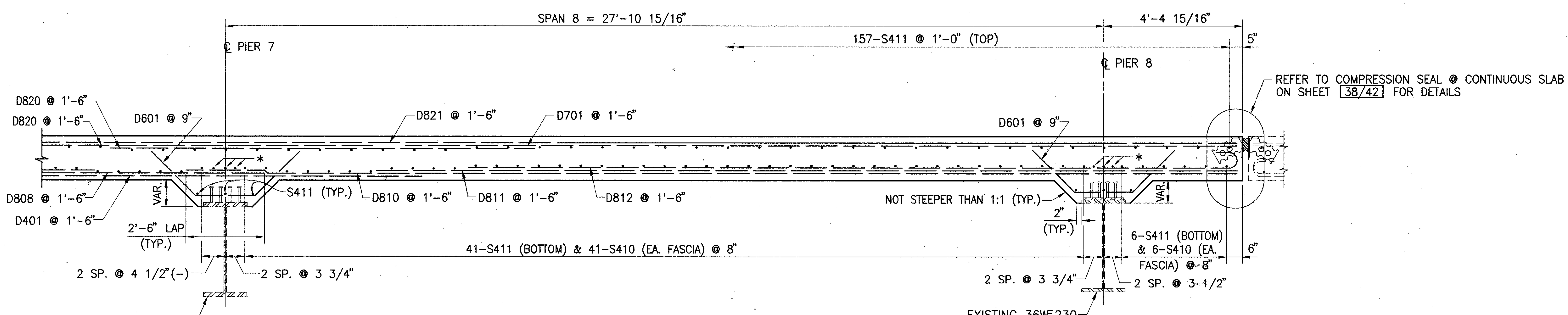


SECTION A–A



SECTION A–A

SHEAR CONNECTORS:
DETAILS WHICH SHOW SHEAR STUD CONNECTORS ACROSS THE BENT CROSS BEAMS FOR THE RIGHT STRUCTURE ARE INCORRECT. C8-11.5 CHANNELS WERE USED ON THE CROSS BEAMS FOR THE RIGHT STRUCTURE. REFER TO THE PIER 15R CROSS BEAM RETROFIT DETAILS ON SHEET NO. 35/42 OR TO THE ORIGINAL CONSTRUCTION PLANS, LOCATED AT THE DISTRICT 11 OFFICE FOR CORRECT DETAILS.



SECTION A–A

∗ S411 & S410 (EA. FASCIA)

STR #2 ERK D:\DRAWING\0607730B\UN2-SEC 1=24 10:58 04/30/96

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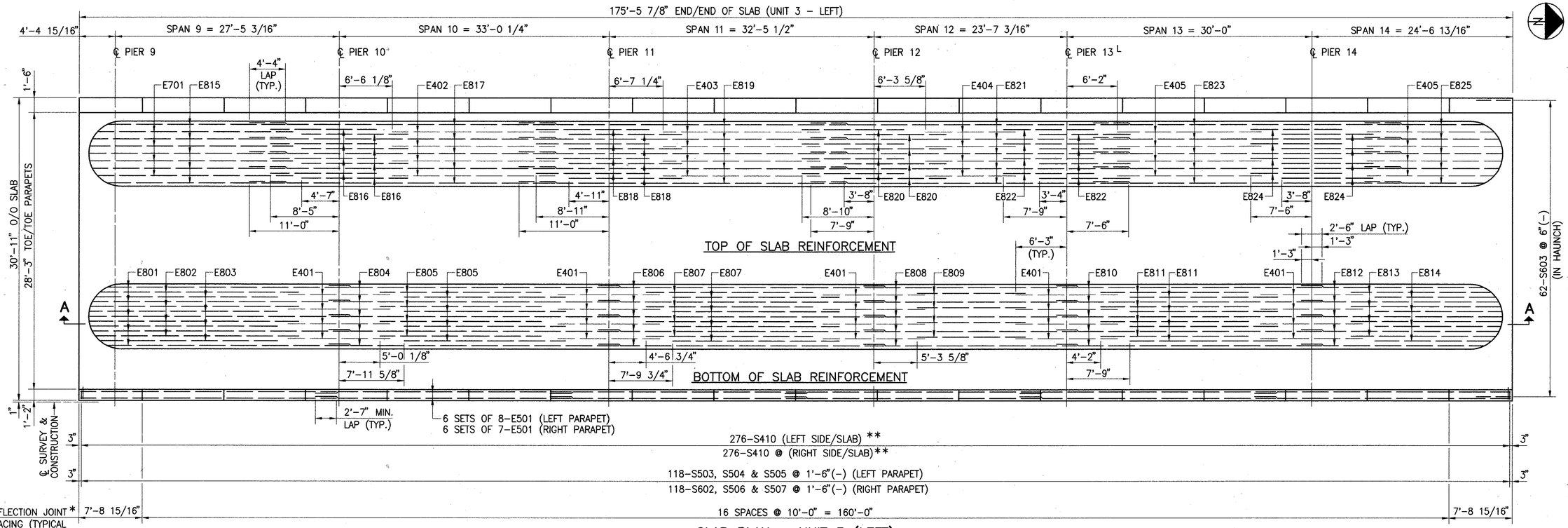
REVIEWED D.A.S.	DATE 7-95	
STRUCTURE FILE NUMBER 4200258		
DRAWN R.A.M.	REVISED	
DESIGNED A.C.	CHECKED W.H.	

LONGITUDINAL SECTION – UNIT 2 (LEFT & RIGHT)

BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF-7-4.63

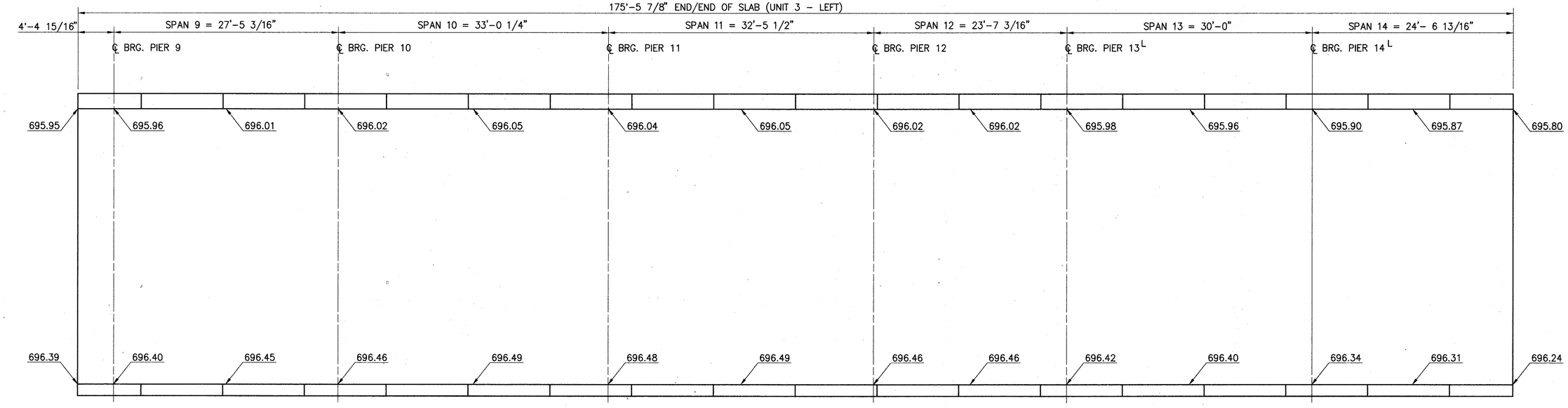


SLAB PLAN - UNIT 3 (LEFT)

* FOR DEFLECTION JOINT DETAILS SEE SHEETS [10/42] & [14/42].

** SEE SECTION A-A, SHEET [30/42] FOR SPACING.

NOTE: FOR SECTION A-A SEE SHEET [30/42].
FOR TRANSVERSE SECTIONS SEE SHEET [29/42].



SCREED ELEVATIONS

NOTE: SCREED ELEVATIONS GIVEN ARE FOR THE TOP SURFACE OF THE CONCRETE DECK PRIOR TO CONCRETE PLACEMENT. ALLOWANCES HAVE BEEN MADE FOR ANTICIPATED DEFLECTIONS DUE TO THE WEIGHT OF THE CONCRETE DECK. CENTER-SPAN ELEVATIONS SHALL BE ADJUSTED UPWARD APPROPRIATE AMOUNTS TO COMPENSATE FOR ANTICIPATED FALSEWORK DEFLECTIONS. FORMS FOR THE BOTTOM SURFACE OF THE SLAB SHALL BE CONSTRUCTED PARALLEL TO A CONSTANT DISTANCE (SLAB THICKNESS) BELOW ADJUSTED SCREED ELEVATIONS.

PREPARED BY
ms consultants, inc.
CONSULTING ENGINEERS & PLANNERS
555 EAST FEDERAL STREET, YOUNGSTOWN, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
G.K.	R.A.M.	D.A.S.	6-95
CHECKED	REVISED	STRUCTURE FILE NUMBER	
W.H.		4200258	

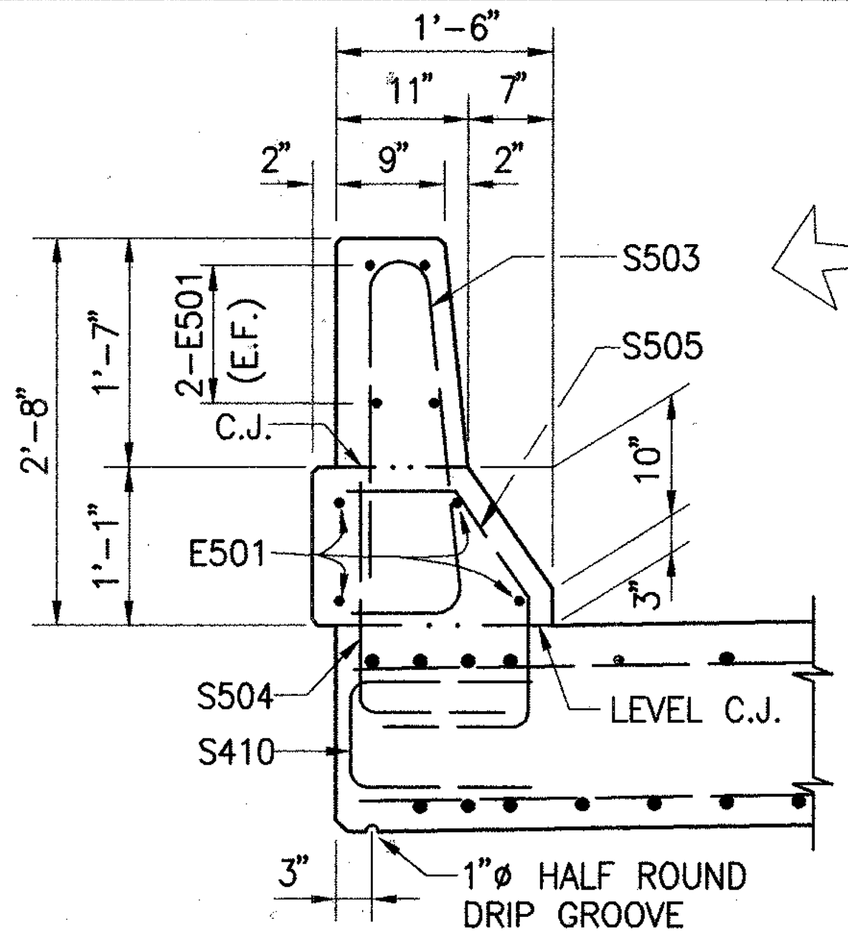
SLAB PLAN - UNIT 3 (LEFT)
BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

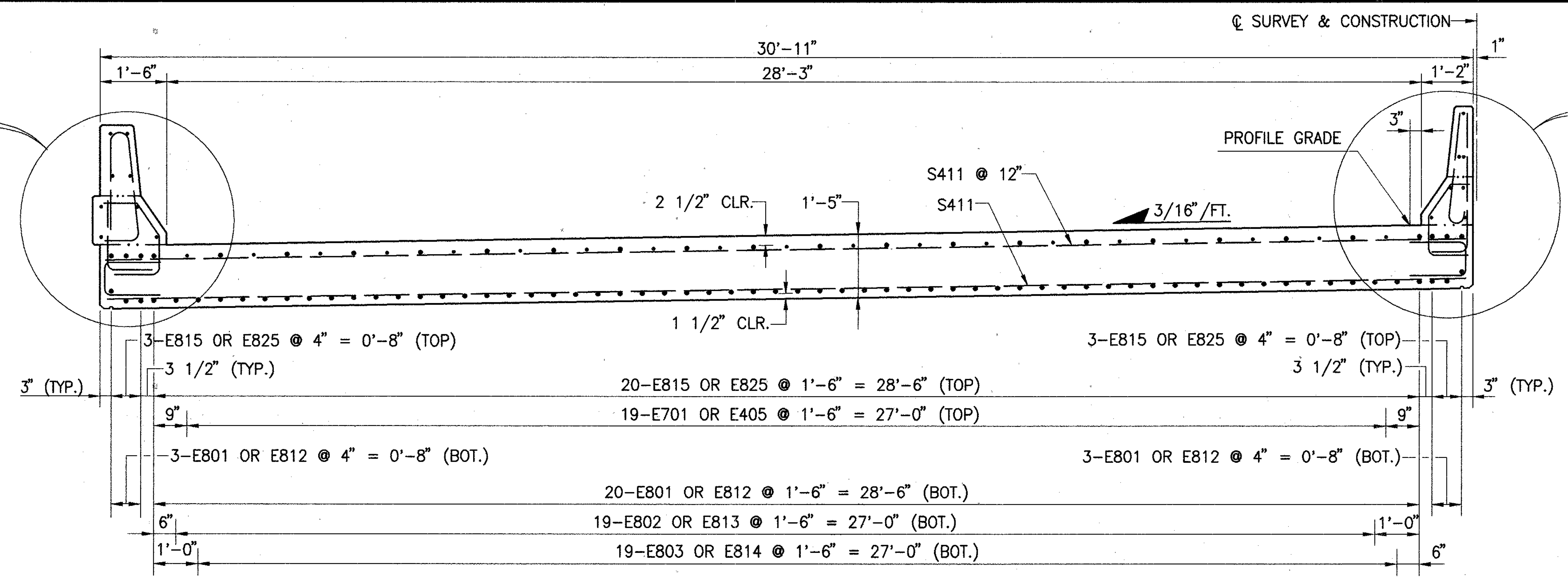
JEF-7-4.63

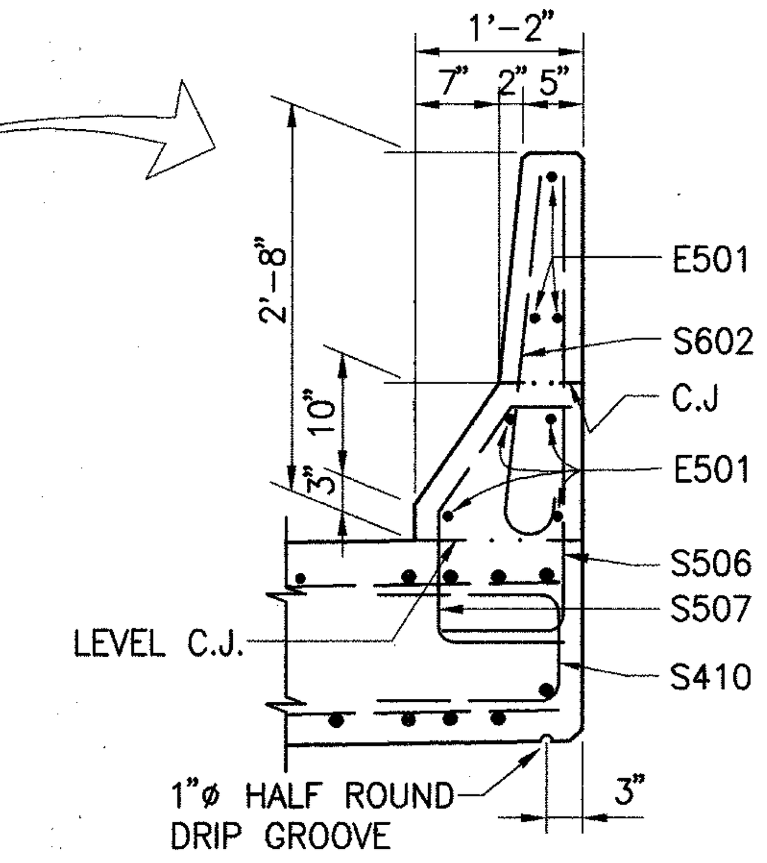
28 / 42

59 / 73

STR #2 ERK C:\DRAWINGS\DB77305\SP-UN3L 1=64 10:37 04/30/96



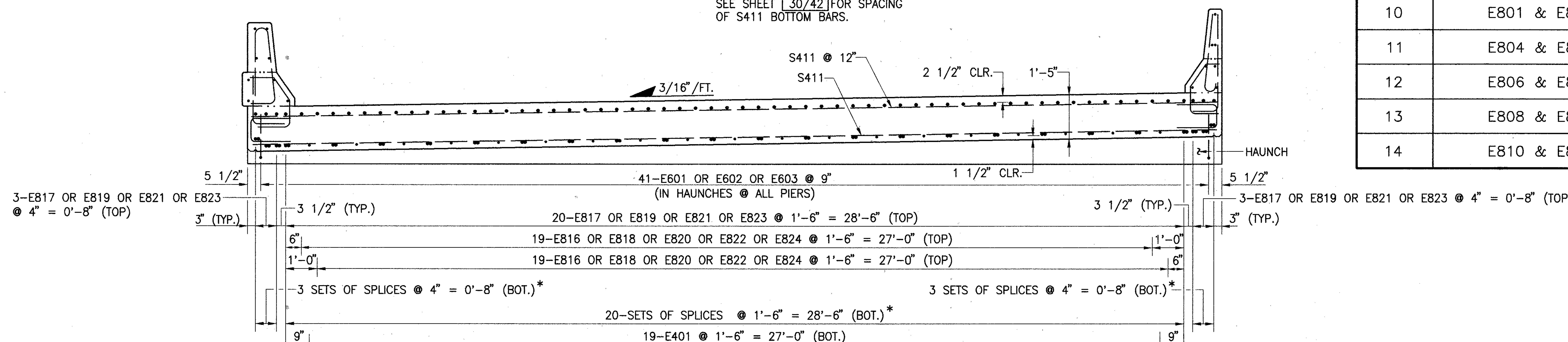




TYPICAL SECTION @ END SPANS 9 & 14

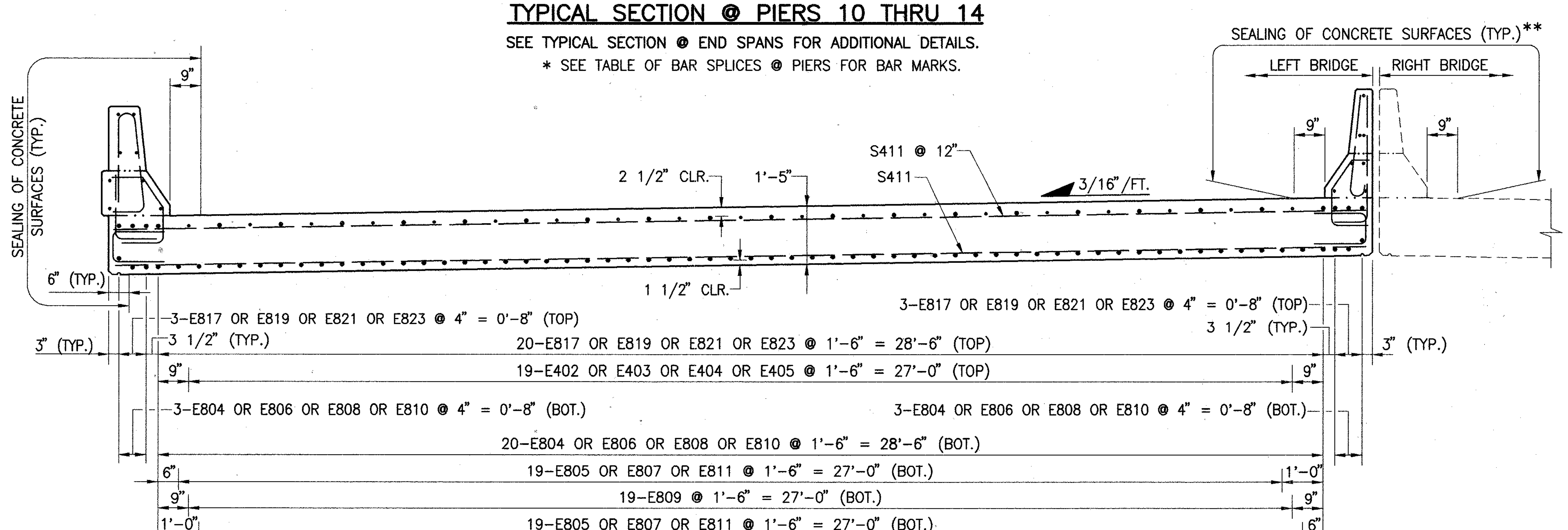
NOTE: C.J. = CONSTRUCTION JOINT
SEE SHEET 30/42 FOR SPACING OF S411 BOTTOM BARS.

TABLE OF BAR SPLICES @ PIERS	
PIER	BARS LAPPING IN BOTTOM OF SLAB
10	E801 & E804
11	E804 & E806
12	E806 & E808
13	E808 & E810
14	E810 & E812



TYPICAL SECTION @ PIERS 10 THRU 14

SEE TYPICAL SECTION @ END SPANS FOR ADDITIONAL DETAILS.
* SEE TABLE OF BAR SPLICES @ PIERS FOR BAR MARKS.



TYPICAL SECTION @ INTERIOR SPANS 10 THRU 13

SEE TYPICAL SECTION @ END SPANS FOR ADDITIONAL DETAILS.
** INCLUDES FASCIAS AND 6" DECK RETURN.

STR #2 ERK C:\DRAWING\08077308\TRANUN3L 1=24 10:48 04/30/96

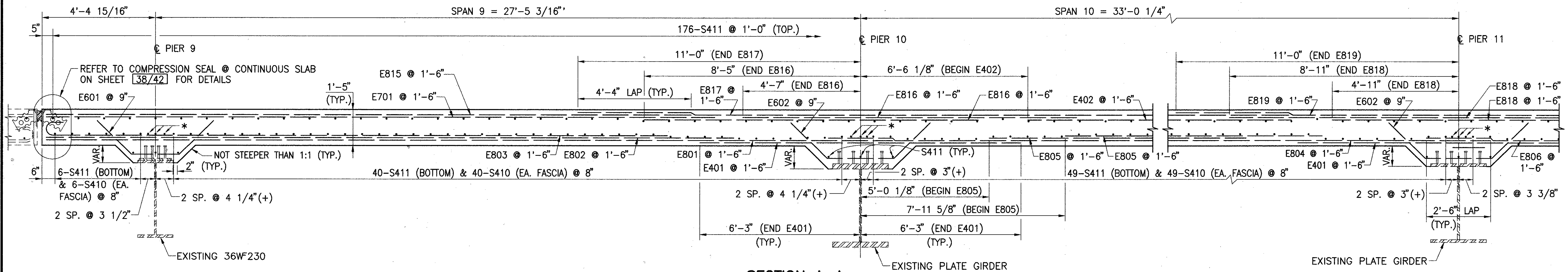
PREPARED BY ms consultants, inc. CONSULTING ENGINEERS & PLANNERS

DESIGNED G.K.	DRAWN R.A.M.	REVIEWED D.A.S.
CHECKED W.H.	REVISED	DATE 6-95
		STRUCTURE FILE NUMBER 4200258

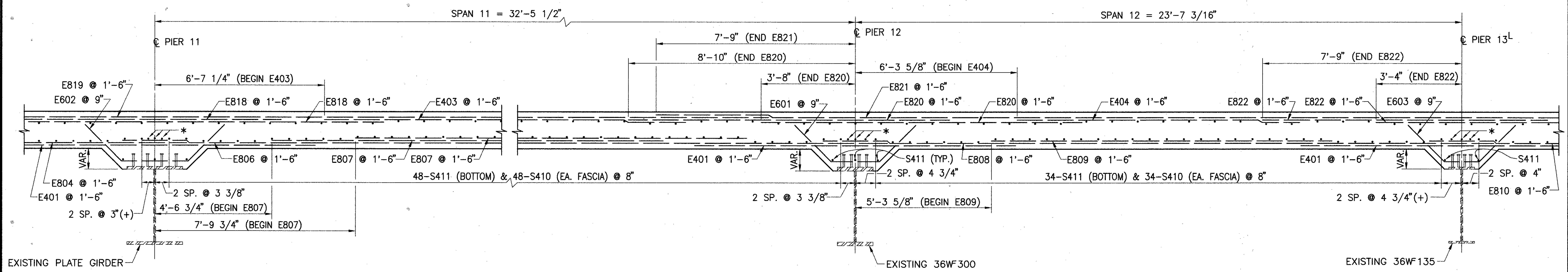
TRANSVERSE SECTIONS – UNIT 3 (LEFT)

BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

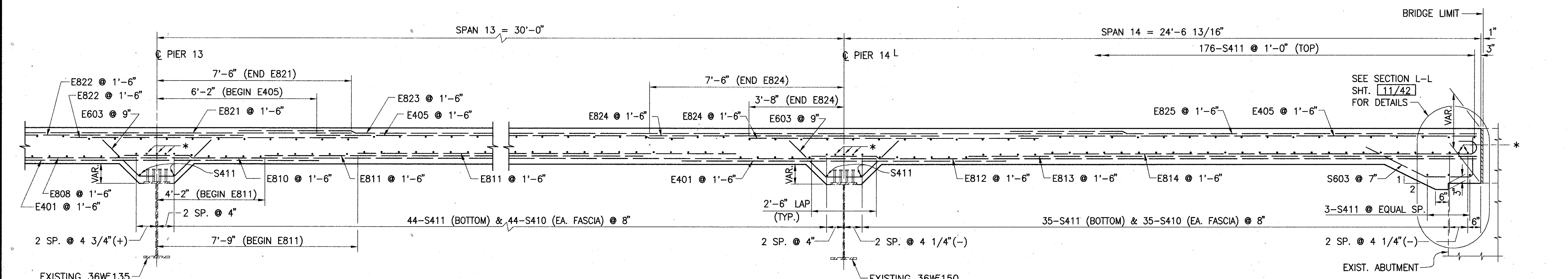
JEF-7-4.63



SECTION A–A



SECTION A–A



SECTION A–A

* S411 & S410 (EA. FASCIA)

ms consultants, inc.
CONSULTING ENGINEERS & PLANNERS

DATE 6-95	REVIEWED D.A.S.	STRUCTURE FILE NUMBER 4200258
DRAWN R.A.M.	REVISED	
DESIGNED G.K.	CHECKED W.H.	

LONGITUDINAL SECTION – UNIT 3 (LEFT)

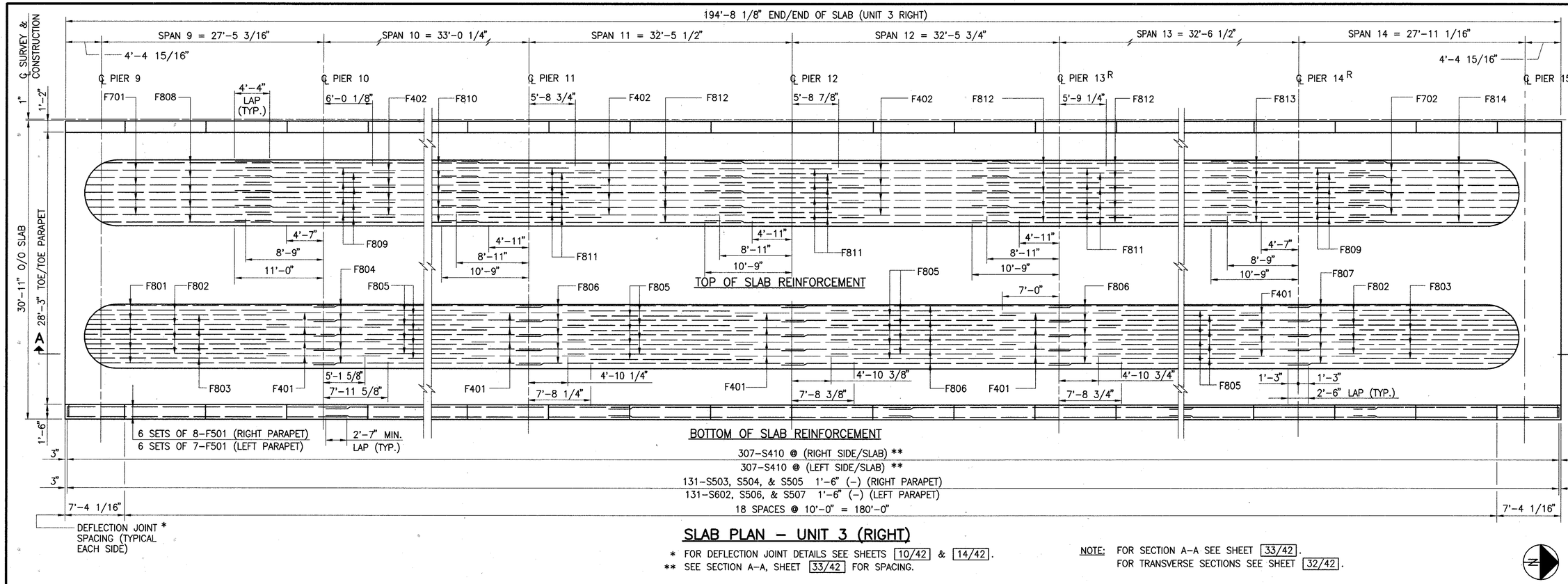
BRIDGE NO. JEF-7-0463 OVER WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF-7-4.63

30/42

61/73

STR #2 ERK C:\DRAWING\0877308\UN3L-SEC 1=24 11:18 04/20/96

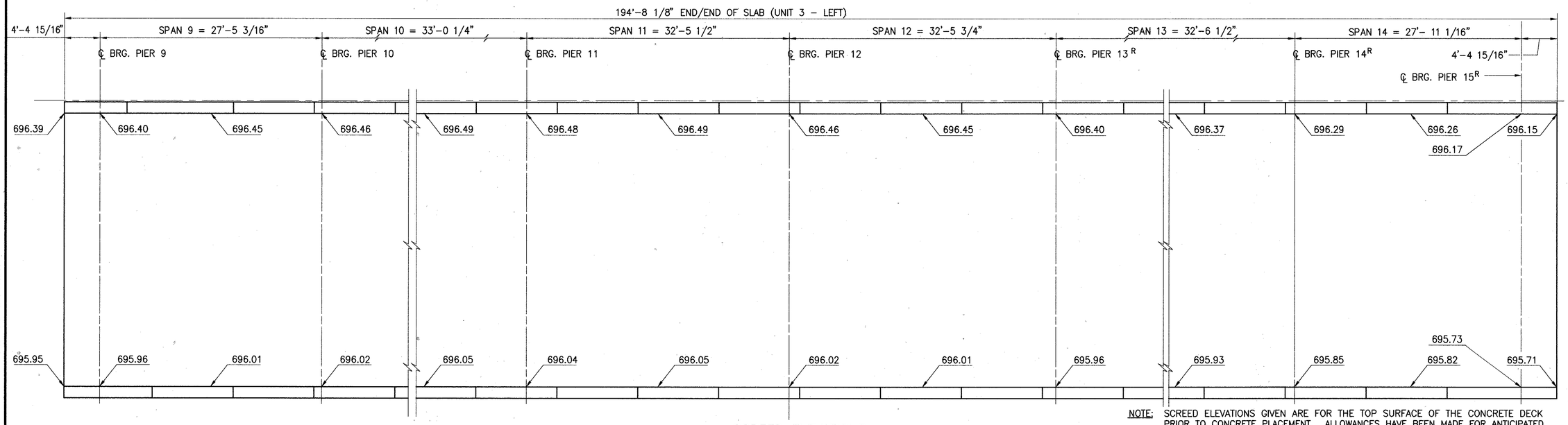


SLAB PLAN – UNIT 3 (RIGHT)

* FOR DEFLECTION JOINT DETAILS SEE SHEETS 10/42 & 14/42.

** SEE SECTION A-A, SHEET 33/42 FOR SPACING.

NOTE: FOR SECTION A-A SEE SHEET 33/42.
FOR TRANSVERSE SECTIONS SEE SHEET 32/42.



SCREED ELEVATIONS

NOTE: SCREED ELEVATIONS GIVEN ARE FOR THE TOP SURFACE OF THE CONCRETE DECK PRIOR TO CONCRETE PLACEMENT. ALLOWANCES HAVE BEEN MADE FOR ANTICIPATED DEFLECTIONS DUE TO THE WEIGHT OF THE CONCRETE DECK. CENTER-SPAN ELEVATIONS SHALL BE ADJUSTED UPWARD APPROPRIATE AMOUNTS TO COMPENSATE FOR ANTICIPATED FALSEWORK DEFLECTIONS. FORMS FOR THE BOTTOM SURFACE OF THE SLAB SHALL BE CONSTRUCTED PARALLEL TO A CONSTANT DISTANCE (SLAB THICKNESS) BELOW ADJUSTED SCREED ELEVATIONS.

PREPARED BY ms consultants, inc. CONSULTING ENGINEERS & PLANNERS AN EMPLOYEE OWNED CORPORATION YOUNGSTOWN, OHIO

REVIEWED	DATE
D.A.S.	7-95
STRUCTURE FILE NUMBER	4200258
DRAWN	REVISED
E.R.K.	
DESIGNED	CHECKED
G.K.	W.H.

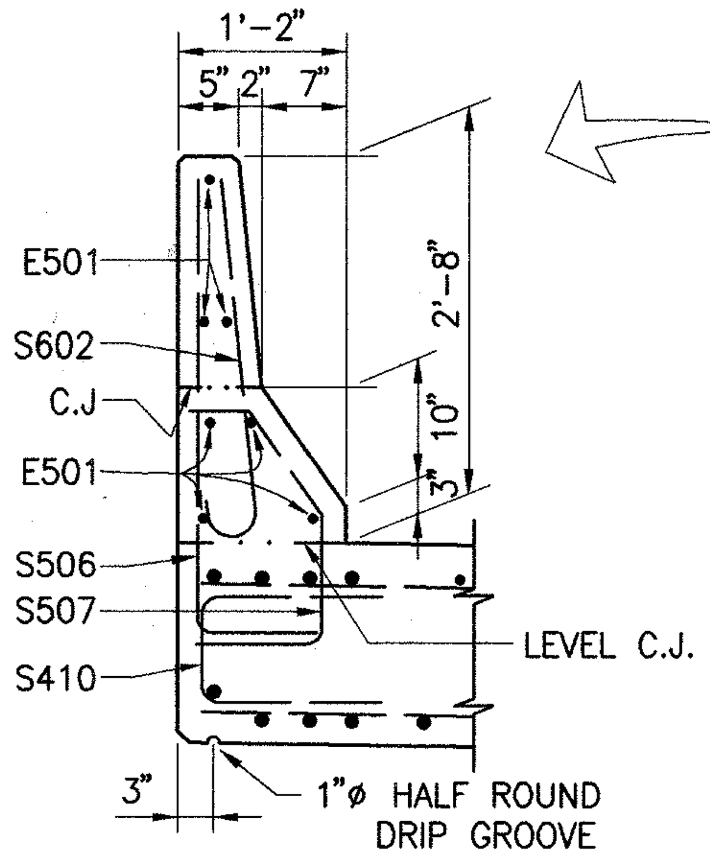
SLAB PLAN – UNIT 3 (RIGHT)
BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

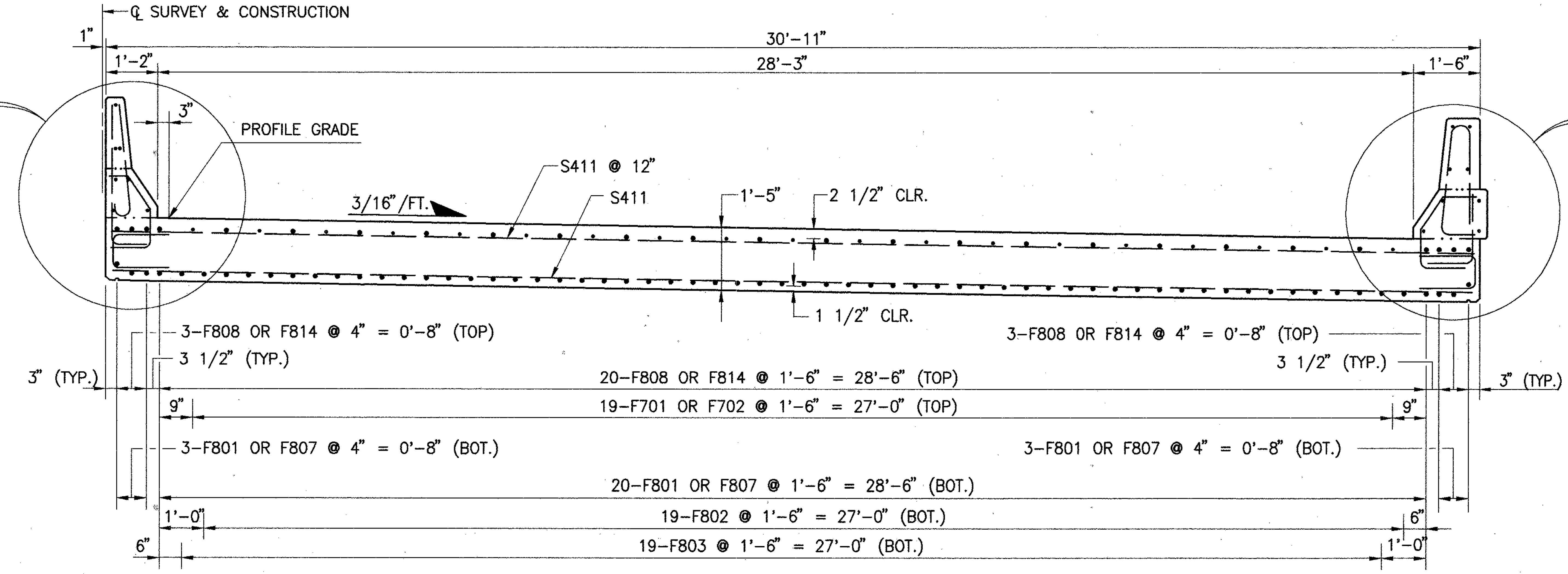
JEF-7-4.63

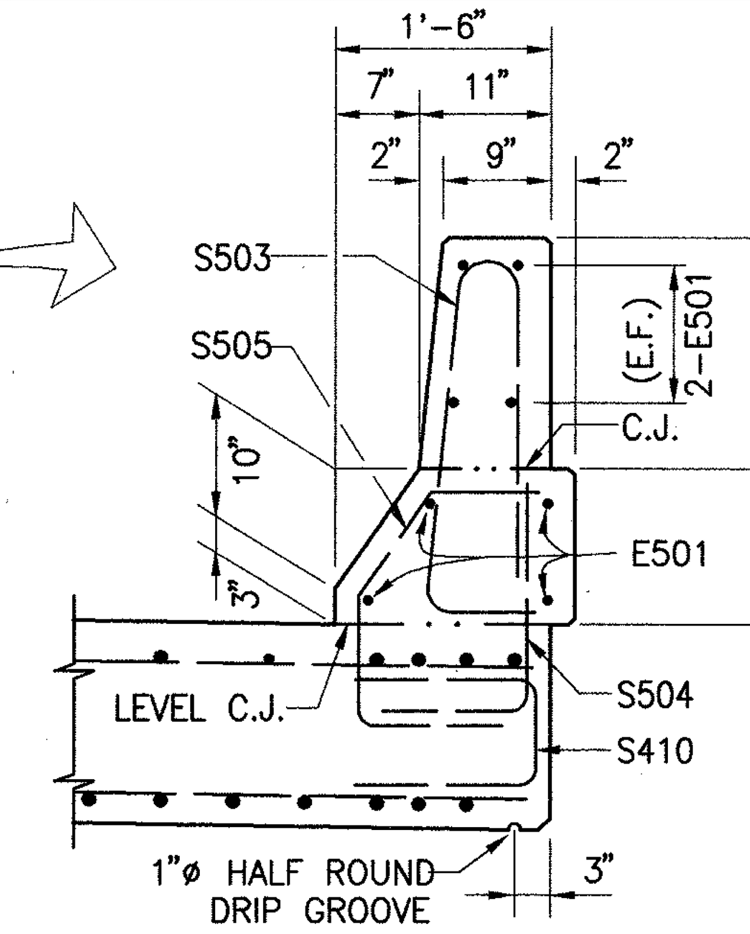
31 / 42

62 / 73

STR #2 ERK C:\DRAWING\08077308\SP-UNIR 1=64 10:43 04/30/96



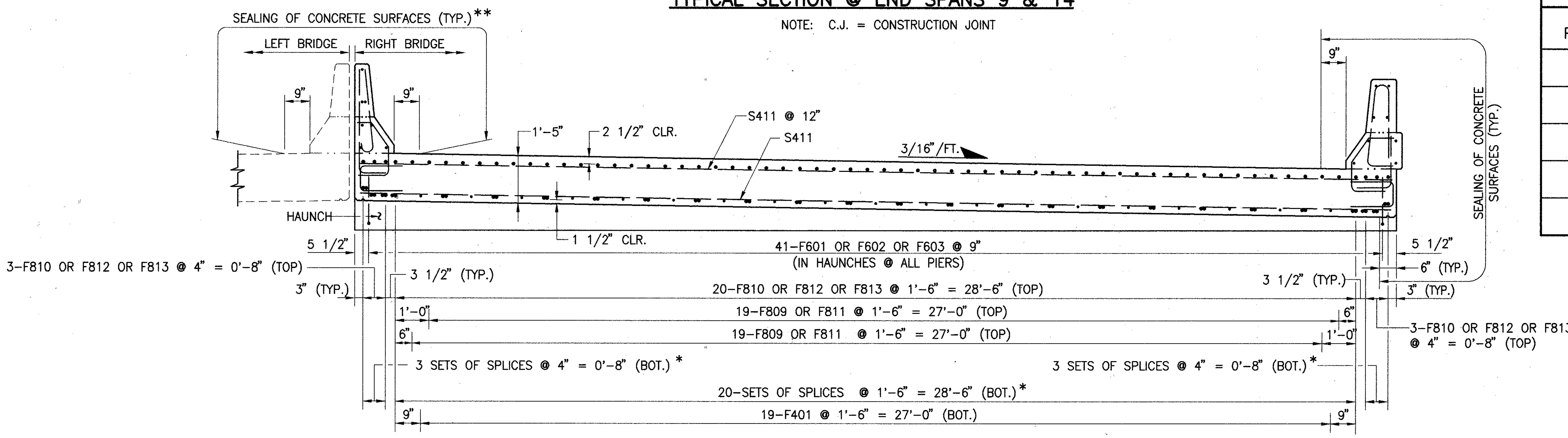




TYPICAL SECTION @ END SPANS 9 & 14

NOTE: C.J. = CONSTRUCTION JOINT

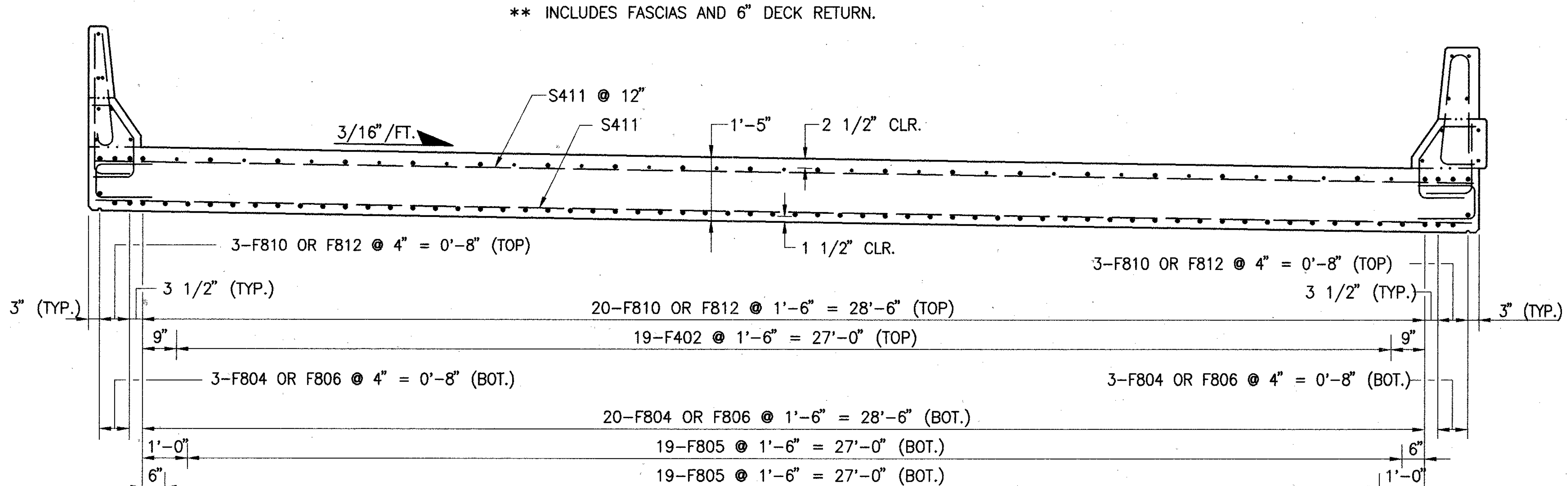
TABLE OF BAR SPLICES @ PIERS	
PIER	BARS LAPPING IN BOTTOM OF SLAB
10	F801 & F804
11	F804 & F806
12	F806 & F806
13	F806 & F806
14	F806 & F807



TYPICAL SECTION @ PIERS 10 THRU 14

SEE TYPICAL SECTION @ END SPANS FOR ADDITIONAL DETAILS.
* SEE TABLE OF BAR SPLICES @ PIERS FOR BAR MARKS.
** INCLUDES FASCIAS AND 6" DECK RETURN.

NOTE : SEE SECTION A-A, SHEET 33/42 FOR SPACING OF S411 BOTTOM BARS.



TYPICAL SECTION @ INTERIOR SPANS 10 THRU 13

SEE TYPICAL SECTION @ END SPANS FOR ADDITIONAL DETAILS.

PREPARED BY ms consultants, inc. CONSULTING ENGINEERS & PLANNERS

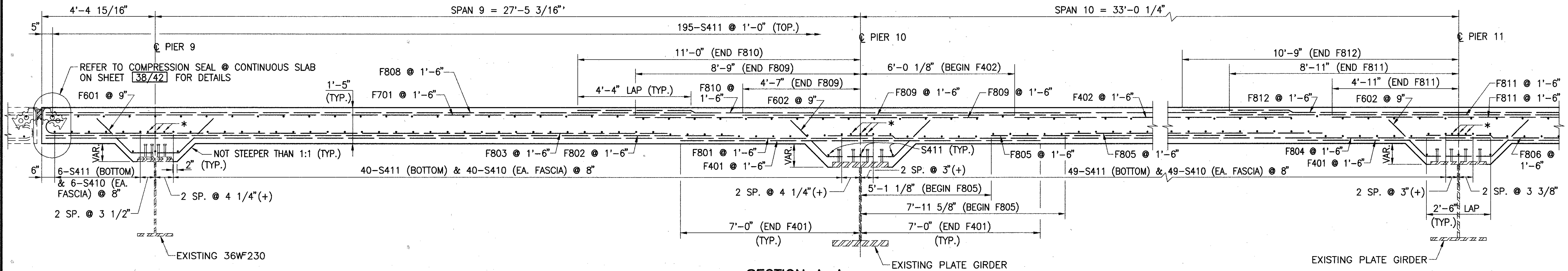
DESIGNED G.K. | CHECKED W.H. | DRAWN R.A.M. | REVISED | REVIEWED D.A.S. | DATE 7-95 | STRUCTURE FILE NUMBER 4200258

TRANSVERSE SECTIONS – UNIT 3 (RIGHT)

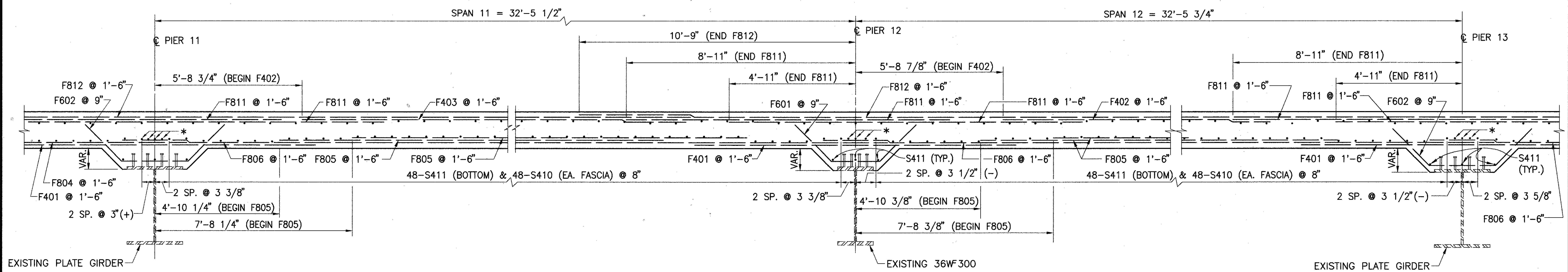
BRIDGE NO. JEF-7-0463 OVER WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF-7-4.63

STR #1 RAM C:\DB07730B\TRANUN3R 1=24 13:06 07/21/95

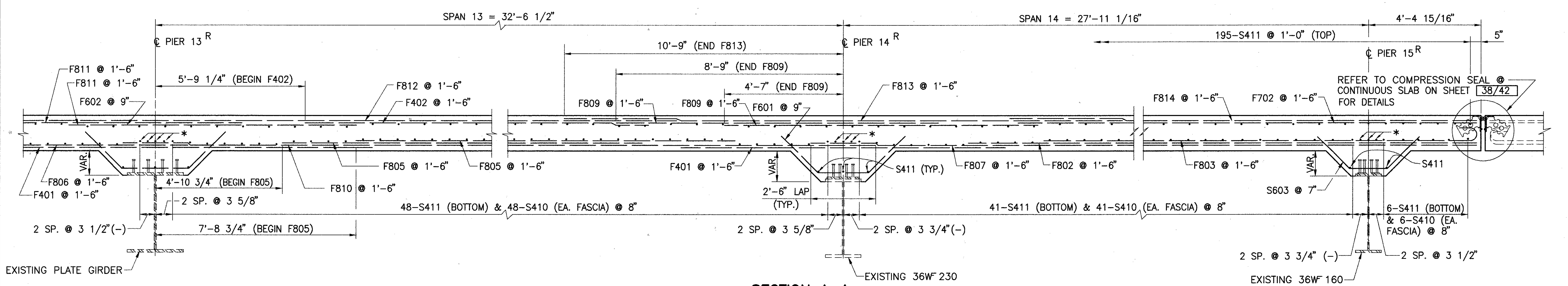


SECTION A–A



SECTION A–A

SEE SHEAR CONNECTOR NOTE ON SHEET 58.



SECTION A–A

* S411 & S410 (EA. FASCIA)

STR #2 ERK C:\DRAWING\0877308\UN3R-SEC 1=24 1:38 04/30/96

PREPARED BY ms consultants, inc.
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DESIGNED	DRAWN	REVIEWED	DATE
G.K.	R.A.M.	D.A.S.	7-95
CHECKED	REVISED	STRUCTURE FILE NUMBER	
W.H.		4200258	

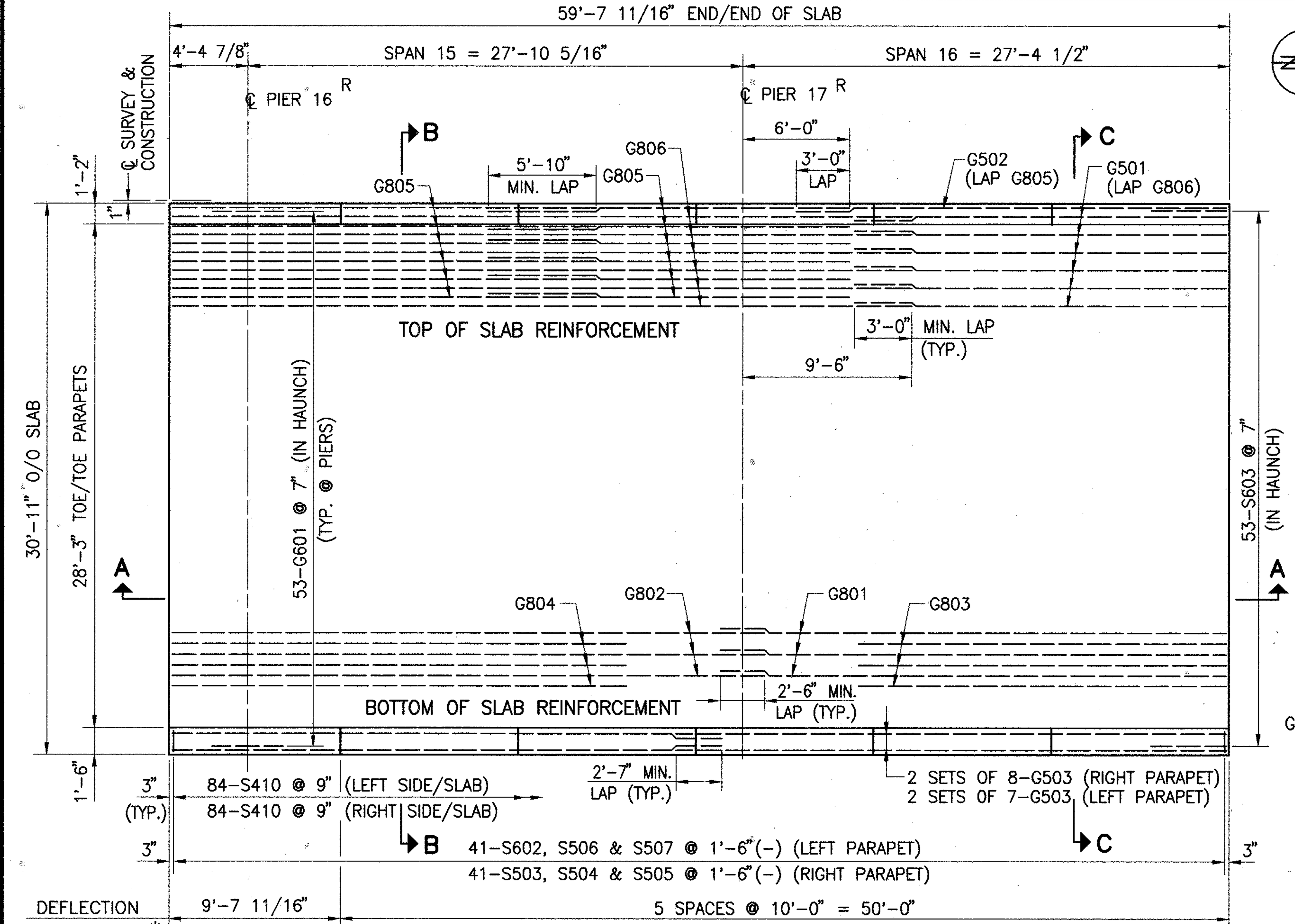
LONGITUDINAL SECTION – UNIT 3 (RIGHT)

BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF-7-4.63

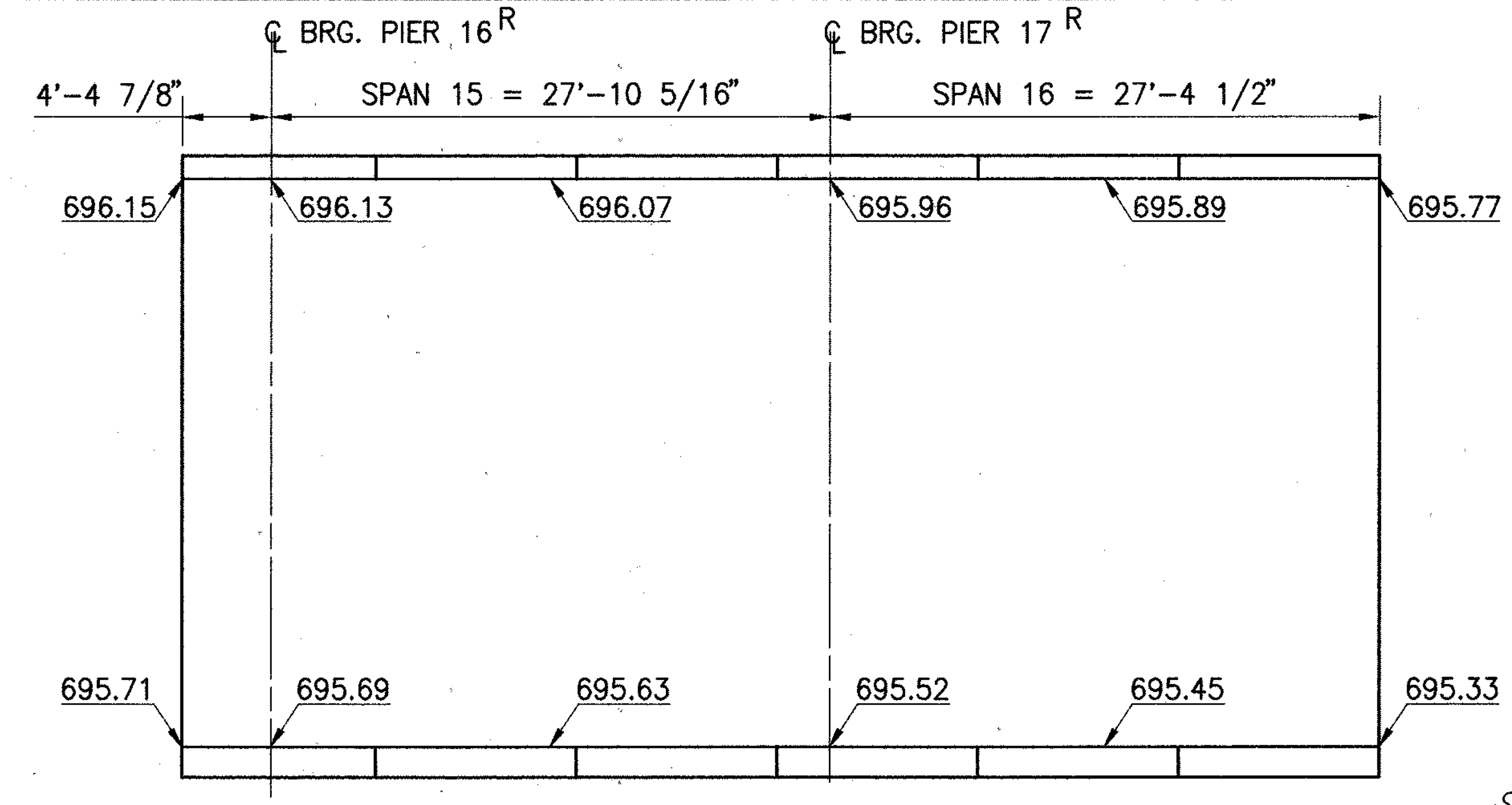
33/42

64/73



SLAB PLAN – UNIT 4 (RIGHT)

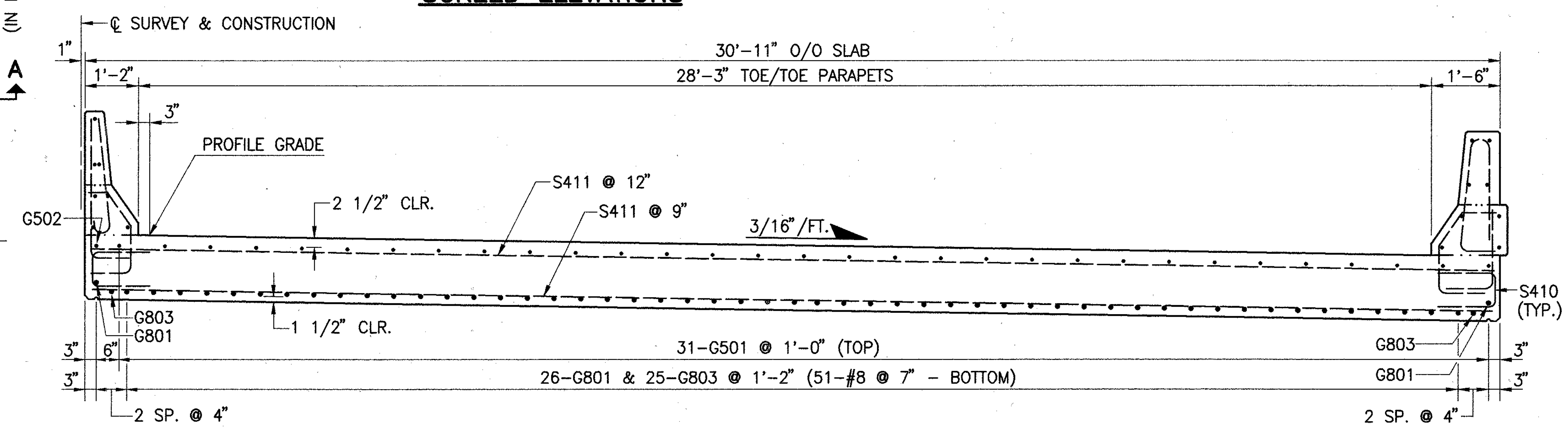
* FOR DEFLECTION JOINT DETAILS SEE SHEETS 10/42 & 14/42.



SCREED ELEVATIONS

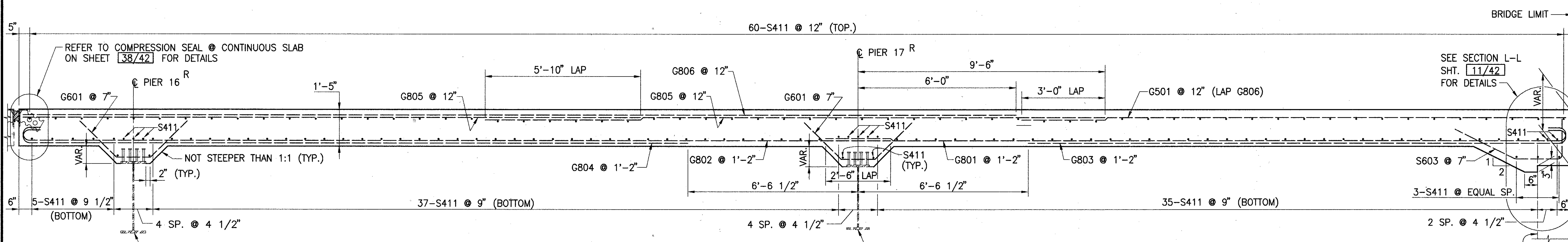
NOTE:
SCREED ELEVATIONS GIVEN ARE FOR THE TOP SURFACE OF THE CONCRETE DECK PRIOR TO CONCRETE PLACEMENT. ALLOWANCES HAVE BEEN MADE FOR ANTICIPATED DEFLECTIONS DUE TO THE WEIGHT OF THE CONCRETE DECK. CENTER SPAN ELEVATIONS SHALL BE ADJUSTED UPWARD APPROPRIATE AMOUNTS TO COMPENSATE FOR ANTICIPATED FALSEWORK DEFLECTIONS. FORMS FOR THE BOTTOM SURFACE OF THE SLAB SHALL BE CONSTRUCTED PARALLEL TO AND A CONSTANT DISTANCE (SLAB THICKNESS) BELOW ADJUSTED SCREED ELEVATIONS.

SEE SHEAR CONNECTOR NOTE ON SHEET 58.

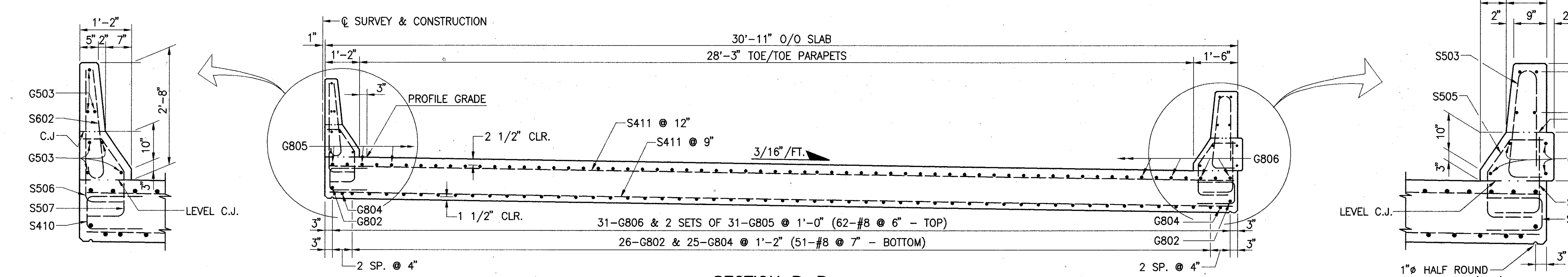


SECTION C–C

SEE SECTION B-B FOR PARAPET DETAILS



SECTION A–A



SECTION B–B

NOTE: C.J. = CONSTRUCTION JOINT

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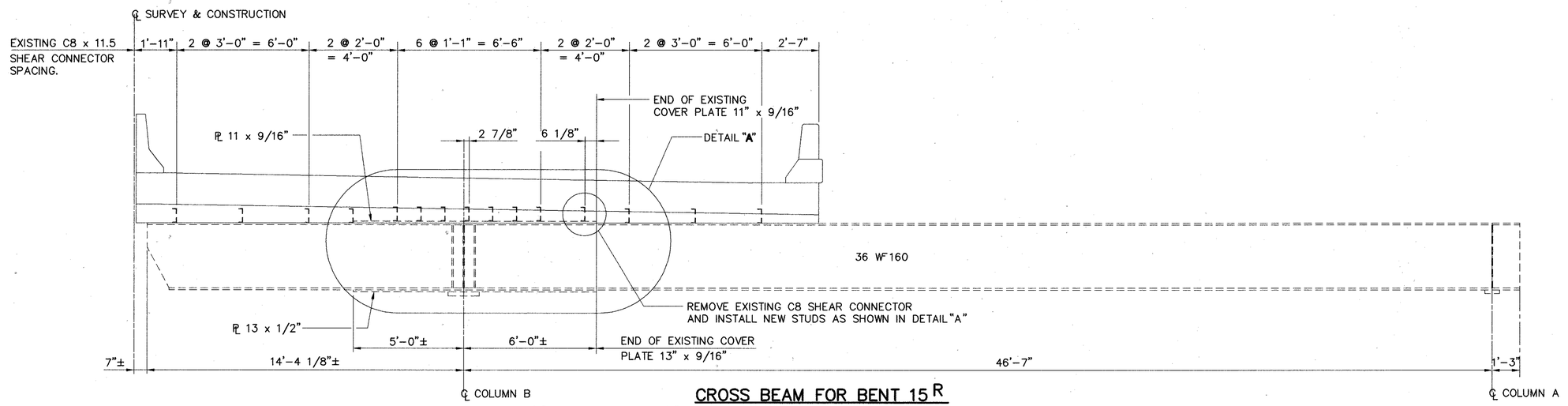
DESIGNED A.C.	CHECKED W.H.	DRAWN R.A.M.	REVISED	REVIEWED D.A.S	DATE 6-95	STRUCTURE FILE NUMBER 4200258

SLAB PLAN – UNIT 4 (RIGHT)

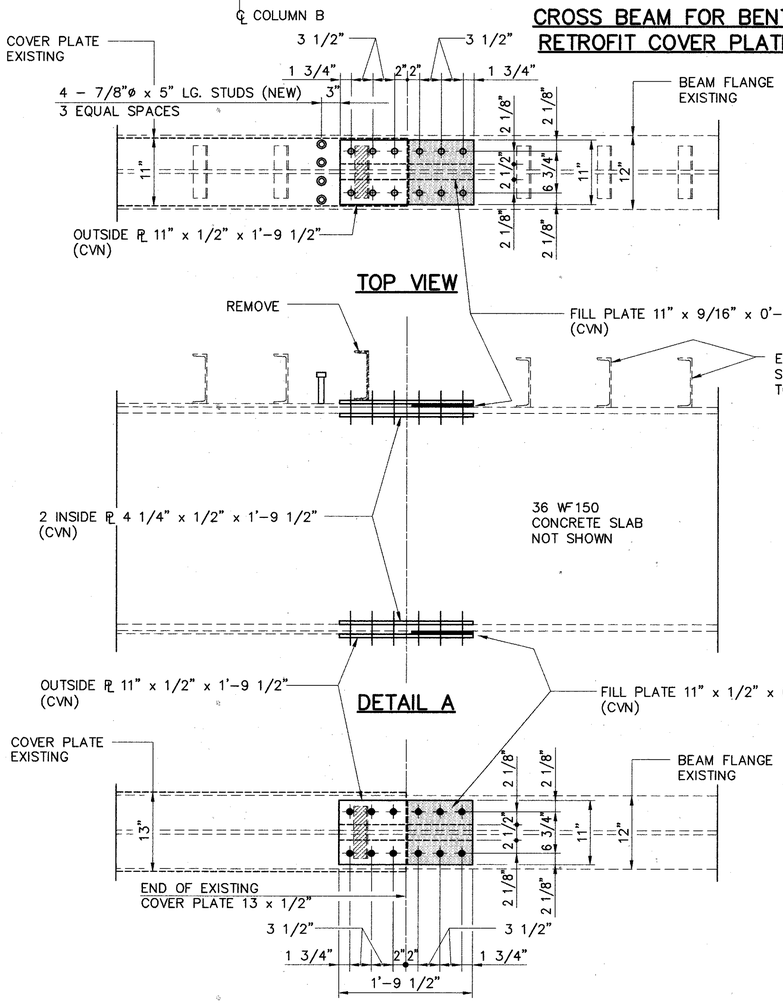
BRIDGE NO. JEF-7-0463 OVER WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF-7-4.63

STR #2 ERK C:\DRAWING\08077388\SP-UN4R 1=64 11:06 04/30/96



CROSS BEAM FOR BENT 15 R
RETROFIT COVER PLATE END



PLAN NOTES

STRUCTURAL STEEL MISC., RETROFIT COVER PLATE END:

BOLTED FLANGE SPLICE SHALL BE INSTALLED AT THE ENDS OF WELDED COVER PLATES AT THE LOCATIONS AND AS ILLUSTRATED ON THE PLANS. SPLICE AND FILL PLATES AND HIGH STRENGTH BOLTS (7/8" DIA.) SHALL BE BARE ASTM A36 AND GALVANIZED A325, RESPECTIVELY. FIELD FABRICATION SHALL CONFORM WITH 513, WITH ESTABLISHED SHOP PRACTICES, AND THE FOLLOWING:

1. PROPOSED CONTACT SURFACES OF EXISTING BEAM FLANGES AND COVER PLATES SHALL BE CLEANED BY ABRASIVE BLASTING. SURFACES SHALL BE SPOT GROUND AS NECESSARY TO REMOVE PROTRUSIONS WHICH WOULD OTHERWISE PREVENT THE ATTAINMENT OF A SOLID CONTACT FIT.

2. SPLICE AND FILL PLATE HOLES SHALL BE MADE IN THE SHOP. FLANGE HOLES SHALL BE FIELD DRILLED USING OUTSIDE SPLICE PLATES AS HOLE TEMPLATES. MULTIPLE PLIES OF MATERIAL (OUTSIDE PLATES,FILLS, AND BEAM FLANGES) SHALL BE HELD TIGHTLY TOGETHER DURING FLANGE DRILLING BY FIT–UP BOLTS IN SUBDRILLED HOLES OR BY SUITABLE CLAMPS.

3. AFTER DRILLING AND DISASSEMBLY, FINS AND BURRS SHALL BE REMOVED AND SURFACES CLEANED.

4. SPLICE PLATES AND FILLS SHALL BE ASSEMBED ON COVER PLATE ENDS AND BOLTS INSTALLED AND TIGHTENED. BOLTS FOR LOWER FLANGES SHALL BE INSTALLED WITH HEADS DOWN.

5. UNLESS OTHERWISE NOTED, EXPOSED SURFACES SHALL BE PAINTED WITH SYSTEM OZEU. PAINTING TO BE INCLUDED WITH OZEU ITEMS FOR PAYMENT.

   EXCEPT FOR PAINTING , THE COST OF ALL MATERIAL LABOR AND TOOLS NECESSARY TO ATTAIN A COMPLETE AND ACCEPTABLE COVER PLATE RETROFIT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR: ITEM 513, 16800, EACH; STRUCTURAL STEEL MISC., RETROFIT COVER PLATE END.

   WHERE A SHAPE OR PLATE IS DESIGNATED (CVN) THE MATERIAL SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.

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YOUNGSTOWN, OHIO

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A.C.	E.R.K.	D.A.S.	
CHECKED	REVISED	STRUCTURE FILE NUMBER	
W.H.		4200258	

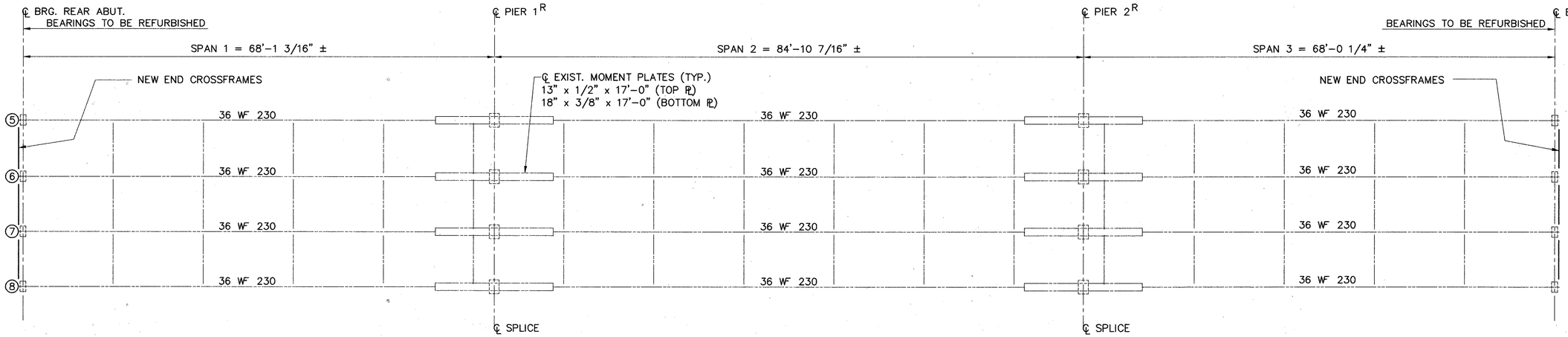
RETROFIT COVER PLATE END ON EXISTING CROSSBEAM 15 R
BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF-7-4.63

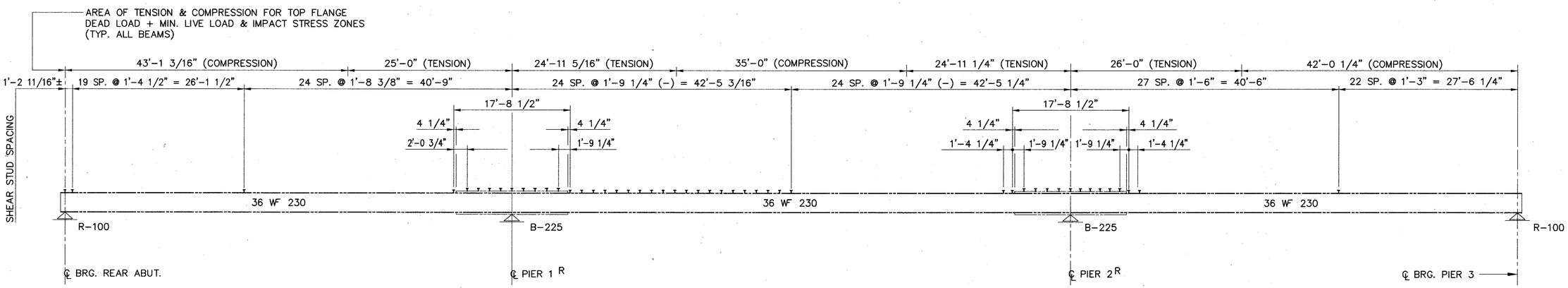
35 / 42

66 / 73

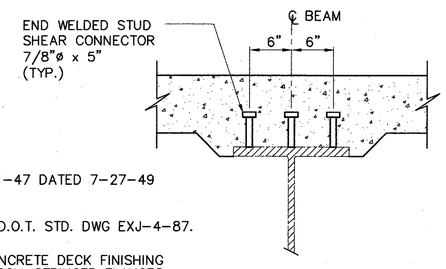
STR #2 ERK C:\DRAWING\08077308\SB15 1=32 08:40 04/30/96



FRAMING PLAN – RIGHT



TYPICAL BEAM ELEVATION



STUD DETAIL

NOTES:

① REFER TO OBSOLETE O.D.O.T. STD. DWG. RB-1-47 DATED 7-27-49 FOR EXISTING BEARING DEVICES.

② FOR END CROSSFRAME DETAILS, REFER TO O.D.O.T. STD. DWG EXJ-4-87.

③ WELDED ATTACHMENTS OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE MAY BE MADE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION".

ATTACHMENTS SHALL NOT BE MADE TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL NOT BE CLOSER THAN 1" FROM EDGE OF FLANGE, BE NOT MORE THAN 2" LONG, AND BE NOT SMALLER THAN THE MINIMUM SIZE REQUIRED BY AASHTO.

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CONSULTING ENGINEERS & PLANNERS
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DESIGNED	DRAWN	REVIEWED	DATE
A.C.	E.R.K.	D.A.S.	7-95
CHECKED	REVISED	STRUCTURE FILE NUMBER	
W.H.		4200258	

FRAMING PLAN – UNIT 1 (RIGHT)

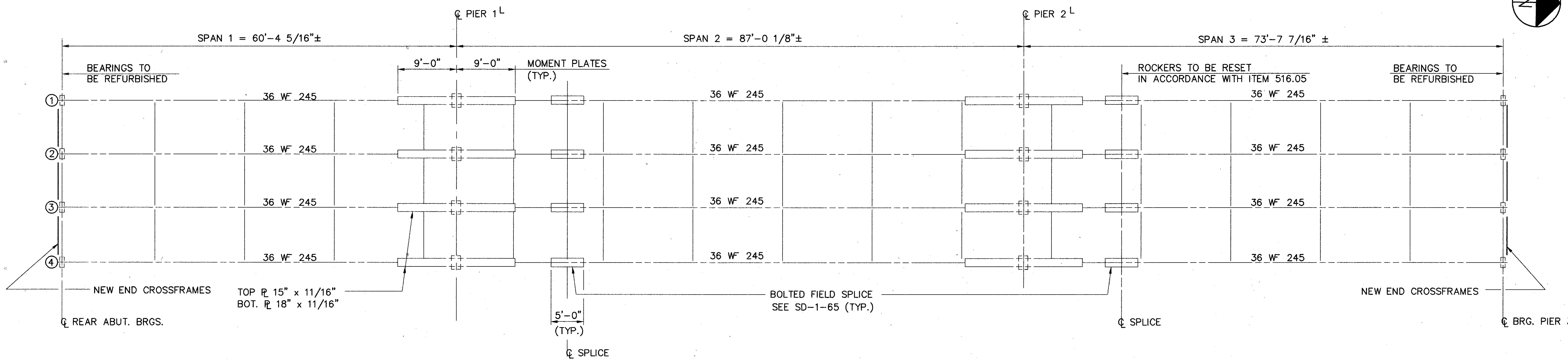
BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF-7-0463

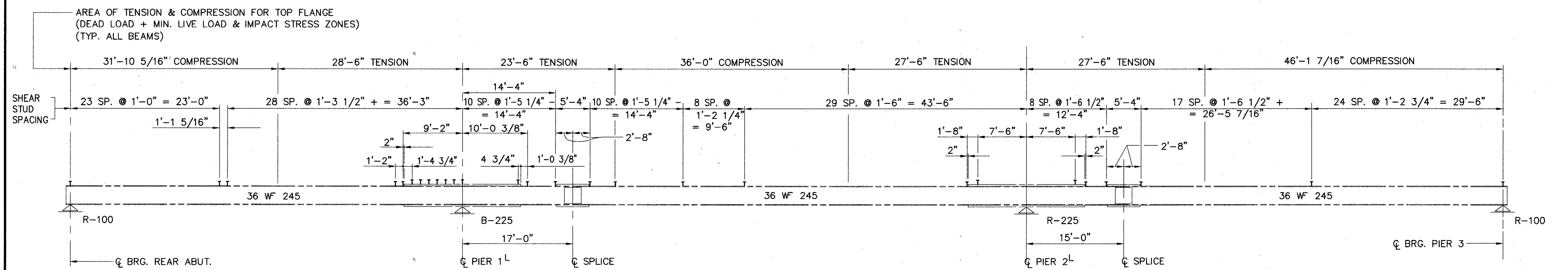
36 / 42

67 / 73

STR #2 ERK C:\DRAWING\0807308\NBEAMS 1-96 08:27 04/30/96



FRAMING PLAN – LEFT



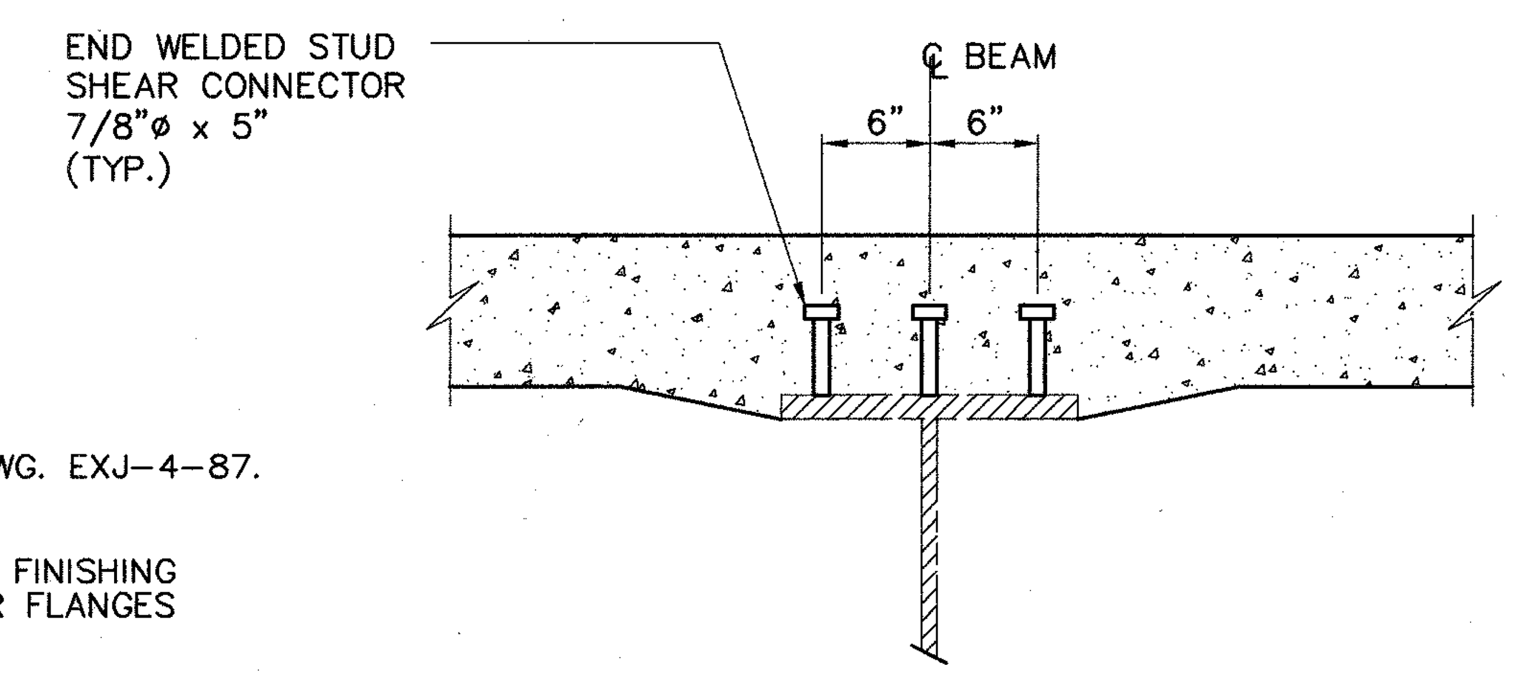
TYPICAL BEAM ELEVATION

NOTES:

① REFER TO O.D.O.T. STD. DWG. RB-1-55 DATED 2-2-59 FOR EXISTING BEARING DEVICES.

② FOR END CROSSFRAME DETAILS, REFER TO O.D.O.T. STD. DWG. EXJ-4-87.

③ WELDED ATTACHMENTS OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE MAY BE MADE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION".
ATTACHMENTS SHALL NOT BE MADE TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL NOT BE CLOSER THAN 1" FROM EDGE OF FLANGE, BE NOT MORE THAN 2" LONG, AND BE NOT SMALLER THAN THE MINIMUM SIZE REQUIRED BY AASHTO.



STUD DETAIL

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DESIGNED A.C. | CHECKED W.H. | DRAWN E.R.K. | REVISED | REVIEWED D.A.S. | DATE 7-95 | STRUCTURE FILE NUMBER 4200258

FRAMING PLAN – UNIT 1 (LEFT)
BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

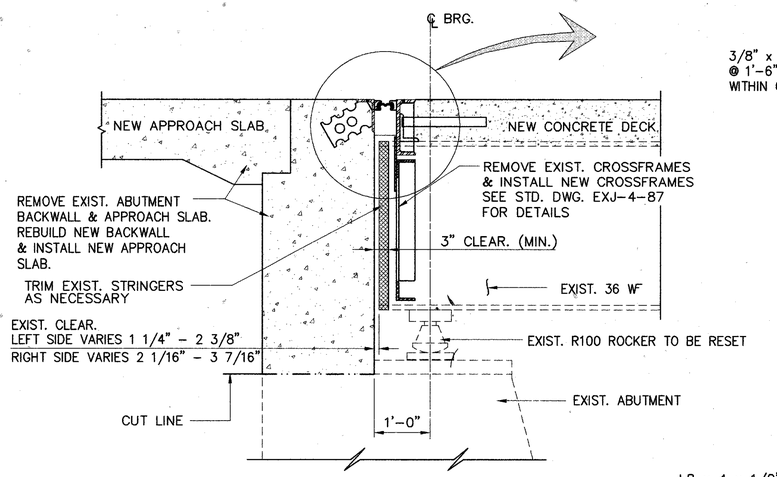
JEF-7-4.63

37/42

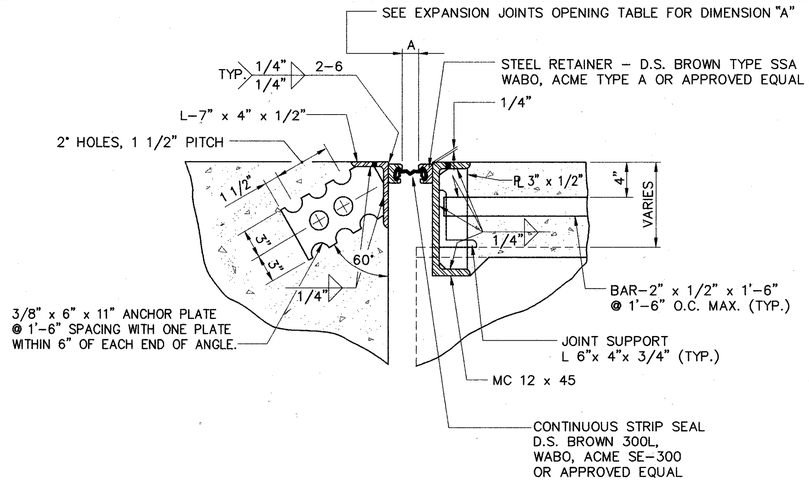
68/73

STR #2 ERK C:\DRAWING\980773OB\SBEAMS 1-96 0843 04/30/96

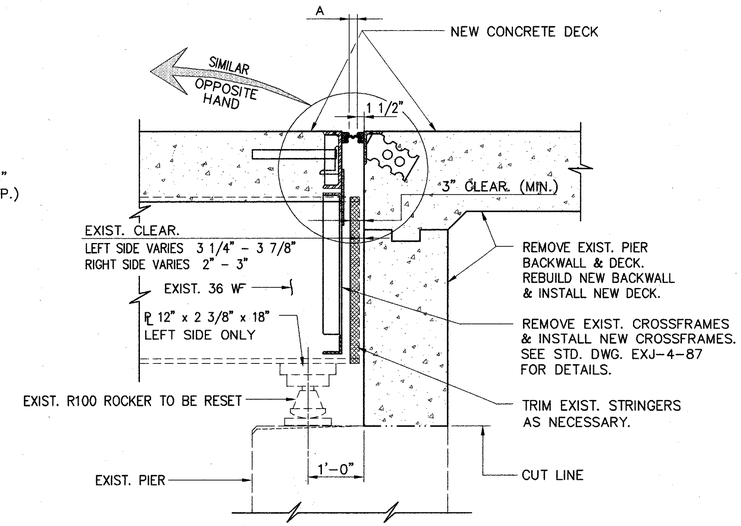
EXPANSION JOINTS OPENING TABLE		
TEMPERATURE (F°)	REAR ABUTS. DIM "A" (IN.)	PIER 3 DIM "A" (IN.)
90°	1 3/16"	1 3/16"
80°	1 5/16"	1 5/16"
70°	1 7/16"	1 7/16"
65°	1 1/2"	1 1/2"
60°	1 9/16"	1 9/16"
50°	1 11/16"	1 11/16"
40°	1 13/16"	1 13/16"
30°	1 15/16"	1 15/16"



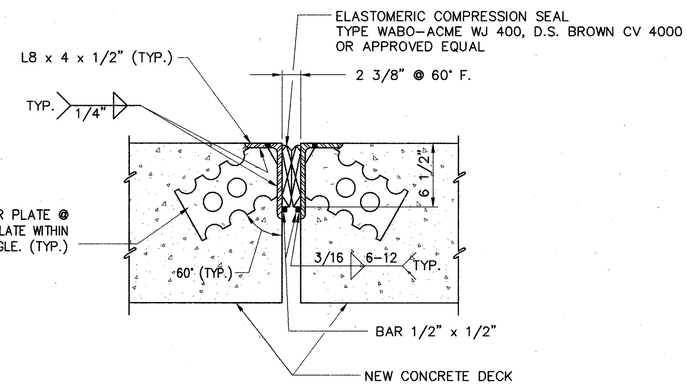
EXPANSION JOINT AT REAR ABUTMENT



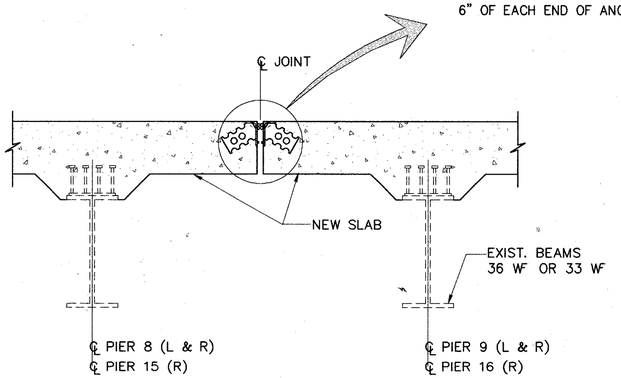
FOR ADDITIONAL DETAILS NOT SHOWN
REFER TO O.D.O.T. STD. DWG. EXJ-4-87.



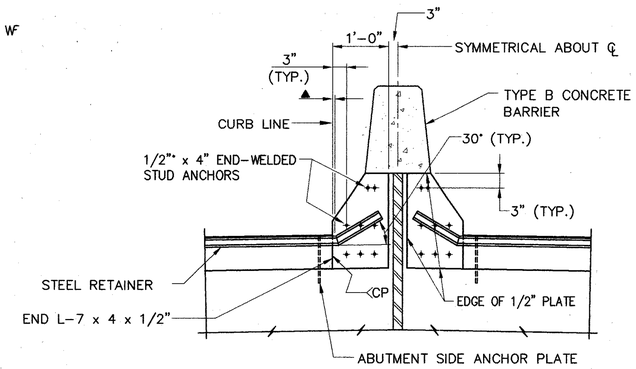
EXPANSION JOINT AT PIER 3



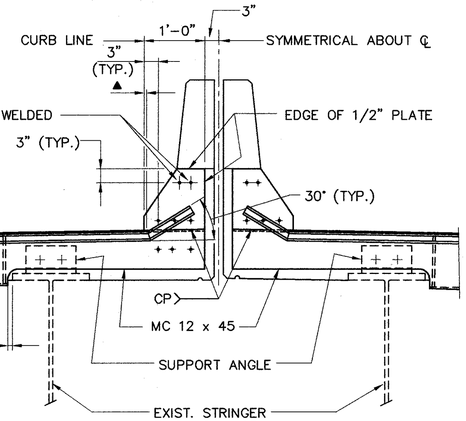
FOR ADDITIONAL DETAILS NOT SHOWN
REFER TO O.D.O.T. STD. DWG. EXJ-2-81.



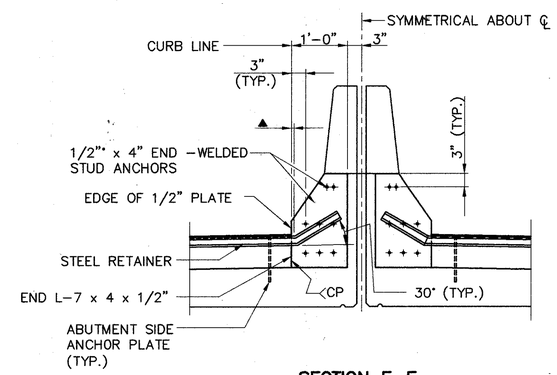
COMPRESSION SEAL @ CONTINUOUS SLAB



SECTION C-C



SECTION D-D



SECTION E-E

▲ SEE STD. DWG. EXJ. 4-87 FOR ADDITIONAL DETAILS

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DESIGNED A.C. | DRAWN E.R.K. | CHECKED W.H.
REVIEWED D.A.S. 4/14/95 | REVISED | DATE | STRUCTURE FILE NUMBER 4200258

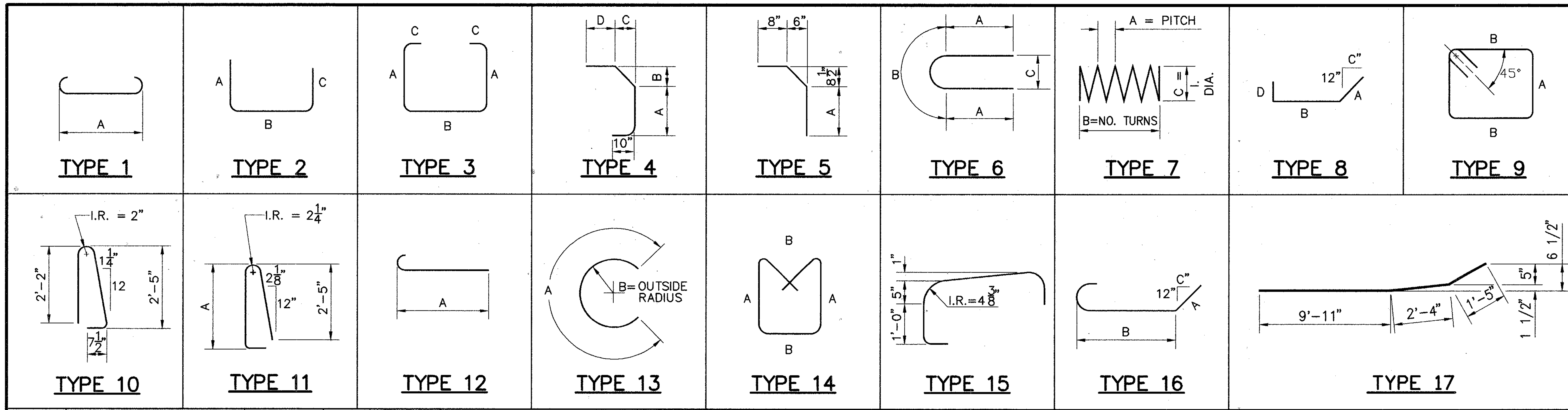
EXPANSION JOINT DETAILS
BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF-7-4.63

38 / 42

69 / 73

STR #2 ERK C:\DRAWING\9807308\EXPJNTS 1=16 1614 04/29/96

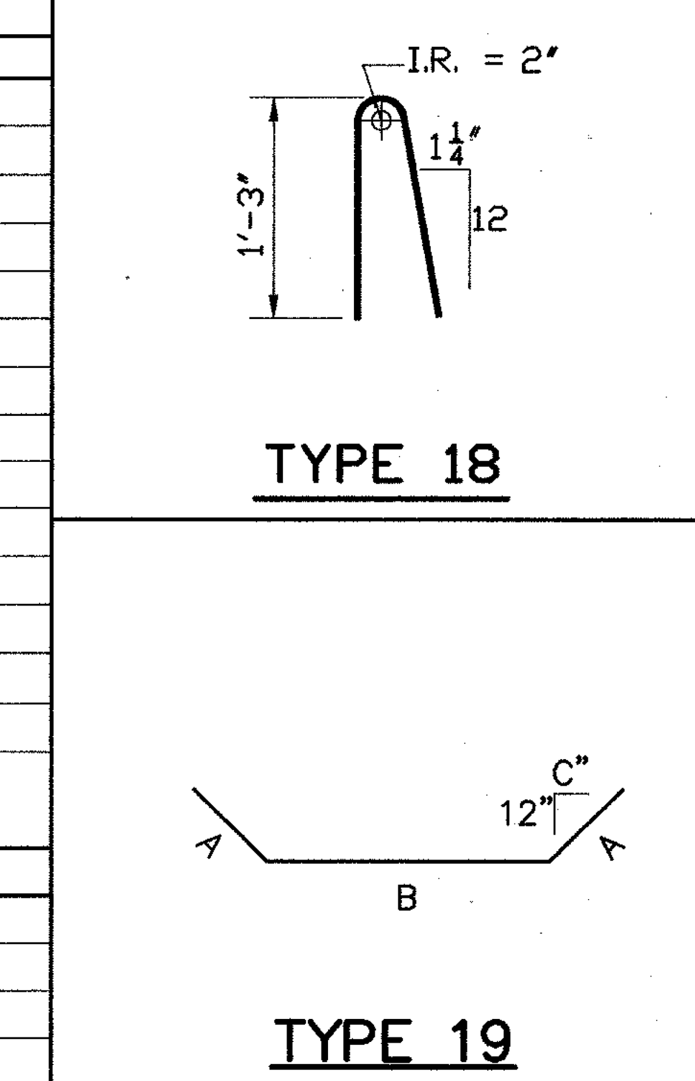


BAR SIZE; The bar size is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example: A506 is a No. 5 size bar and P1101 is a No. 11 size bar.

NOTES

* INDICATES BARS INCLUDED WITH ROADWAY ITEM 611 "REINFORCED CONCRETE APPROACH SLABS, AS PER PLAN" FOR PAYMENT.

ALL BARS TO BE EPOXY COATED



MARK	NUMBER REAR	NUMBER FWD.	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
SUPERSTRUCTURE – UNIT 1 (LEFT)													
S601			381	30'–7"	17,500	S							
S602			223	3'–2"	1,062	12	2'–6"						
S501			381	30'–7"	12,153	S							
S502			360	30'–0"	11,264	S							
S503			149	5'–3"	816	10							
S504			149	2'–4"	363	2	1'–7 1/2"	0'–10"	0				
S505			149	3'–2"	493	4	0'–11"	0'–8 1/2"	0'–6"	0'–9"			
S506			149	3'–11"	609	2	3'–2 1/2"	0'–10"	0				
S507			149	2'–8"	414	4	0'–11"	0'–8 1/2"	0'–6"	0'–3"			
S508			24	3'–3"	81	2	1'–8"	1'–8"	0				
S401			280	30'–0"	5,611	S							
S402			84	35'–0"	1,964	S							
S403			40	23'–0"	615	S							
				TOTAL	52,945								
RAILING – LEFT REAR ABUTMENT													
Y501	8		8	3'–3"	*	4	1'–0"	0'–8 1/2"	0'–6"	0'–9"			
Y502	10		10	4'–0"	*	2	3'–3"	0'–10"	0				
Y503	1		1	6'–9"	*	2	3'–3"	0'–6"	3'–3"				
Y504	2		2	2'–6"	*	18							
Y505	8		8	3'–0"	*	12	2'–5"						
Y506	4		4	4'–2"	*	S							
Y507	2		2	13'–8"	*	S							
Y508	2		2	13'–8"	*	17							
Y509	4		4	14'–8"	*	S							
RAILING AND APPROACH SLAB – LEFT FORWARD ABUTMENT													
Y601			79	3'–2"	*	12	2'–6"						
Y501			15	3'–3"	*	4	1'–0"	8 1/2"	0'–6"	0'–9"			
Y502			63	4'–0"	*	2	3'–3"	0'–10"	0				
Y503			1	6'–9"	*	2	3'–3"	0'–6"	3'–3"				
Y505			8	3'–0"	*	12	2'–5"						
Y507			2	13'–8"	*	S							
Y508			2	13'–8"	*	17							
Y510			14	26'–8"	*	S							
Y511			4	13'–0"	*	S							
Y512			4	24'–8"	*	S							
Y513			53	2'–9"	*	4	1'–0"	0'–8 1/2"	0'–6"	0'–3"			
Y514			7	2'–7"	*	2	1'–10"	0'–10"	0				
Y515			7	5'–3"	*	10							
A1001			41	30'–5"	*	S							
A1002			50	25'–11"	*	12	24'–6"						
A1003			86	29'–5"	*	S							
A1004			29	1'–6"	*	S							
A501			21	24'–6"	*	S							
A502			17	30'–5"	*	S							
A503			132	26'–6"	*	S							
A504			38	29'–5"	*	S							
A701			104	7'–0"	*	S							

MARK	NUMBER REAR	NUMBER FWD.	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
SUPERSTRUCTURE – UNIT 1 (RIGHT)													
S601			381	30'–7"	17,500	S							
S602			223	3'–2"	1,062	12	2'–6"						
S501			381	30'–7"	12,153	S							
S502			360	30'–0"	11,264	S							
S503			149	5'–3"	816	10							
S504			149	2'–4"	363	2	1'–7 1/2"	0'–10"	0'–0"				
S505			149	3'–2"	493	4	0'–11"	8 1/2"	0'–6	0'–9"			
S506			149	3'–11"	609	2	3'–2 1/2"	0'–10"	0				
S507			149	2'–8"	414	4	0'–11"	8 1/2"	0'–6"	0'–3"			
S508			28	3'–3"	95	2	1'–8"	1'–8"	0				
S401			287	30'–0"	5,751	S							
S402			86	35'–0"	2,011	S							
S403			41	23'–0"	630	S							
				TOTAL	53,161								
RAILING – RIGHT REAR ABUTMENT													
Y501	8		8	3'–3"	*	4	1'–0"	0'–8 1/2"	0'–6"	0'–9"			
Y502	10		10	4'–0"	*	2	3'–3"	0'–10"	0				
Y503	1		1	6'–9"	*	2	3'–3"	0'–6"	3'–3"				
Y504	2		2	2'–6"	*	18							
Y505	8		8	3'–0"	*	12	2'–5"						
Y506	4		4	4'–2"	*	S							
Y507	2		2	13'–8"	*	S							
Y508	2		2	13'–8"	*	17							
Y509	4		4	14'–8"	*	S							
RAILING AND APPROACH SLAB – RIGHT FWD. ABUTMENT													
Y501		111	111	3'–3"	*	4	1'–0"	8 1/2"	0'–6"	0'–9"			
Y502		18	18	4'–0"	*	2	3'–3"	0'–10"	0				
Y503		1	1	6'–9"	*	2	3'–3"	0'–6"	3'–3"				
Y505		8	8	3'–0"	*	12	2'–5"						
Y507		2	2	13'–8"	*	S							
Y508		2	2	13'–8"	*	17							
Y509		4	4	14'–8"	*	S							
Y512		8	8	24'–8"	*	S							
Y514		103	103	2'–7"	*	2	1'–10"	0'–10"	0				
Y515		103	103	5'–3"	*	10							
Y516		36	36	26'–4"	*	S							
A1002			52	25'–11"	*	12	24'–6"						
A1004			33	1'–6"	*	S							
A1005			256	32'–0"	*	S							
A801			56	1'–0"	*	S							
A501			22	24'–6"	*	S							
A505			112	32'–9"	*	2	10"	32'–0"	0				
A506			112	6'–8"	*	8	2'–6"	3'–6"	24	0'–10"			
A507			355	26'–2"	*	S							

STR #2 ERK C:\DRAWING\08077308\REBAR 1=1 08:29 04/30/96

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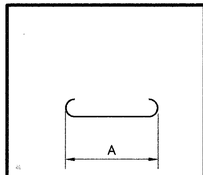
REVIEWED T.F.M. DATE 8-94
STRUCTURE FILE NUMBER 4200258
DRAWN E.R.K. REVISED
DESIGNED A.C. CHECKED W.H.

REINFORCING STEEL LIST
BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE, AND CONRAIL RAILROADS

JEF-7-4.63



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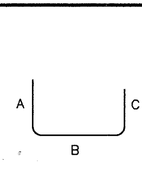

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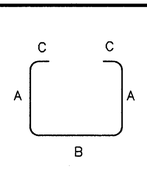

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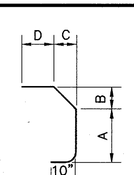

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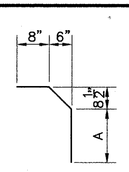

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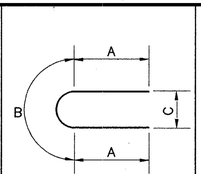

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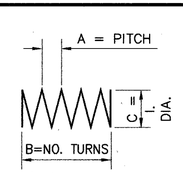

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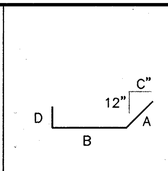

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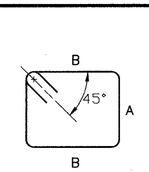
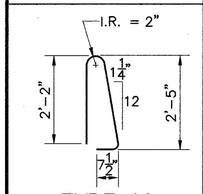
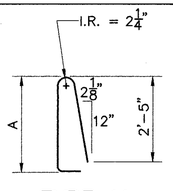


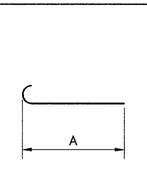
TYPE 9



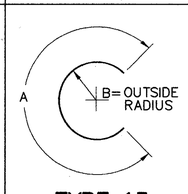
TYPE 10



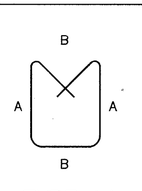
TYPE 11



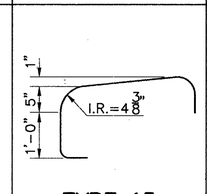
TYPE 12



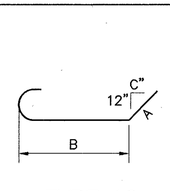
TYPE 13



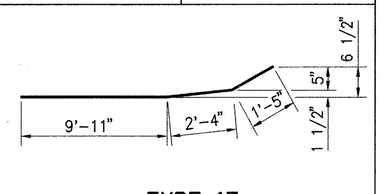
TYPE 14



TYPE 15



TYPE 16



TYPE 17

BAR SIZE; The bar size is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example: A506 is a No. 5 size bar and P1101 is a No. 11 size bar.

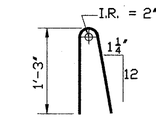
NOTES

+ DENOTES BARS REQUIRING MECHANICAL CONNECTORS. LENGTH GIVEN IS TO THE CONSTRUCTION JOINT AND MAY VARY DEPENDING UPON THE TYPE OF MECHANICAL CONNECTOR WHICH IS USED.

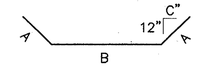
ALL BARS TO BE EPOXY COATED

MARK	NUMBER REAR	NUMBER FWD.	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
LEFT REAR ABUTMENT													
A801			21	4'-2"	234	16	1'-5"	2'-3"	12"				
A610			1 SERIES OF 15	3'-5" TO 3'-11"	83	S							0'-3/8"
A611			1 SERIES OF 16	7'-4" TO 7'-10"	182	2	4'-6" TO 4'-11 1/2"	1'-2"	2'-0"				0'-3/8"
A510			6	35'-10"	224	S							
A511			1	33'-8"	35	S							
A512			3	10'-5"	33	2	4'-6"	1'-8"	4'-6"				
A514			1	9'-3"	10	2	3'-10 1/2"	1'-8"	3'-10 1/2"				
A515			1	8'-3"	9	2	3'-4"	1'-8"	3'-4"				
A516			2	2'-4"	5	S							
A517			1	4'-7"	5	S							
A518			2	2'-5"	5	2	0'-10"	1'-8"	0				
A519			1	3'-3"	3	4	1'-0"	0'-8 1/2"	0'-6"	0'-9"			
A520			1	2'-9"	3	4	1'-0"	0'- 8 1/2"	0'-6"	0'-3"			
				TOTAL	831								

MARK	NUMBER REAR	NUMBER FWD.	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
RIGHT REAR & RIGHT FORWARD ABUTMENT													
A801	21	7	28	4'-2"	312	16	1'-5"	2'-3"	12"				
A610	1 SERIES OF 15		1 SERIES OF 15	3'-5" TO 3'-11"	83	S							0'-3/8"
A611	1 SERIES OF 16		1 SERIES OF 16	7'-4" TO 7'-10"	182	2	4'-6" TO 4'-11 1/2"	1'-2"	2'-0"				0'-3/8"
A612		14	14	9'-1"	191	2	3'-7 5/8"	2'-2"	3'-7 5/8"				
A613	4		4	7'-10"	47	2	3'-7 5/8"	0'-11"	3'-7 5/8"				
A510	6		6	35'-10"	224	S							
A511	1		1	33'-8"	35	S							
A512	3		3	10'-5"	33	2	4'-6"	1'-8"	4'-6"				
A514	1		1	9'-3"	10	2	3'-10 1/2"	1'-8"	3'-10 1/2"				
A515	1		1	8'-3"	9	2	3'-4"	1'-8"	3'-4"				
A516	2		2	2'-4"	5	S							
A517	1		1	4'-7"	5	S							
A518	2		2	2'-5"	5	2	0'-10"	1'-8"	0				
A519	1		1	3'-3"	3	4	1'-0"	0'-8 1/2"	0'-6"	0'-9"			
A520	1		1	2'-9"	3	4	1'-0"	0'- 8 1/2"	0'-6"	0'-3"			
A521		8	8	11'-8"	97	S							
				TOTAL	1,244								



TYPE 18



TYPE 19

SUPERSTRUCTURE – (RIGHT) UNIT 4													
G801			28	29'-5"	2,199	12	28'-6"						
G802			28	34'-4"	2,567	12	33'-5"						
G803			27	21'-7"	1,556	12	20'-8"						
G804			27	26'-6"	1,910	12	25'-7"						
G805			62	23'-10"	3,945	S							
G806			31	38'-2"	3,159	S							
G601			106	5'-1"	809	19	2'-0"	1'-2"	12"				
S602			41	3'-2"	195	12	2'-6"						
S603			53	5'-9"	458	8	2'-7"	1'-10"	24"	1'-6"			
G501			31	20'-11"	676	S							
G502			1	24'-3"	25	S							
G503			30	31'-0"	970	S							
S503			41	5'-3"	225	10							
S504			41	2'-4"	100	2	1'-7 1/2"	0'-10"	0'-0"				
S505			41	3'-2"	136	4	0'-11"	0'-8 1/2"	0'-6"	0'-9"			
S506			41	3'-11"	168	2	3'-2 1/2"	0'-10"	0'-0"				
S507			41	2'-8"	114	4	0'-11"	0'-8 1/2"	0'-6"	0'-3"			
S410			168	3'-3"	365	2	1'-3"	0'-11"	1'-3"				
S411			152	30'-7"	3,105	S							
				TOTAL	22,682								

PIER NO. 3 LEFT													
P801			1 SET OF 30	6'-7" TO 7'-1"	547	19	1'-6"	3'-7 1/2" TO 4'-1 1/2"	12"				1/4"
P601			30	6'-7"	296	2	2'-10 1/2"	1'-2"	2'-10 1/2"				
P501 +			4	30'-4"	127	S							
				TOTAL	970								

PIER NO. 3 RIGHT													
P801			1 SET OF 30	6'-7" TO 7'-1"	547	19	1'-6"	3'-7 1/2" TO 4'-1 1/2"	12"				1/4"
P601			30	6'-7"	296	2	2'-10 1/2"	1'-2"	2'-10 1/2"				
P501 +			4	30'-4"	127	S							
				TOTAL	970								

ms consultants, inc.
CONSULTING ENGINEERS & PLANNERS

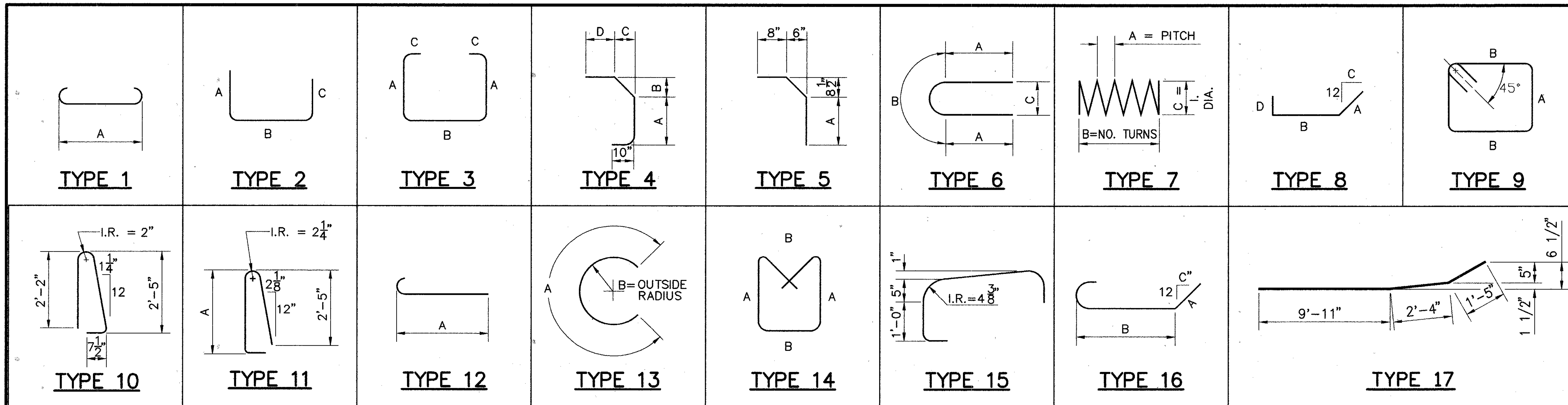
REVIEWED T.F.M. DATE 8-94
STRUCTURE FILE NUMBER 4200258
DRAWN E.R.K. REVISED
DESIGNED A.C. CHECKED W.H.

REINFORCING STEEL LIST (CON'T)

BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

JEF-7-4.63

STR #2 ERK C:\DRAWING\08077368\REBARS 1=1 08:31 04/30/96



BAR SIZE; The bar size is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example: A506 is a No. 5 size bar and P1101 is a No. 11 size bar.

NOTES

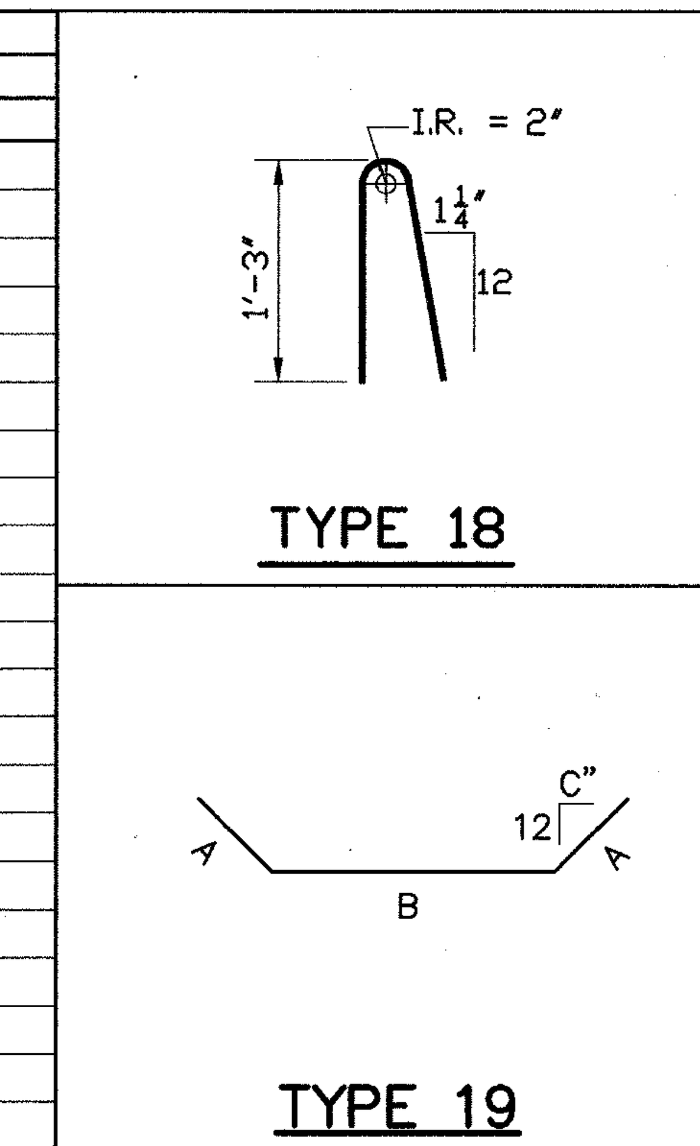
ALL BARS TO BE EPOXY COATED

SUPERSTRUCTURE UNIT 2 (LEFT)

MARK	NUMBER REAR	NUMBER FWD.	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
D801			26	28'-1"	1,950	S							
D802			19	21'-5"	1,087	S							
D803			19	20'-4"	1,032	12	19'-5"						
D804			26	34'-5"	2,389	S							
D805			38	19'-0"	1,928	S							
D806			26	35'-2"	2,442	S							
D807			38	20'-9"	2,106	S							
D808			26	35'-4"	2,453	S							
D809			38	20'-11"	2,122	S							
D810			26	33'-5"	2,320	S							
D811			19	27'-2"	1,378	S							
D812			19	26'-5"	1,340	12	25'-6"						
D813			26	20'-1"	1,394	S							
D814			38	13'-0"	1,319	S							
D815			26	36'-3"	2,517	S							
D816			38	13'-10"	1,404	S							
D817			26	38'-0"	2,638	S							
D818			38	13'-11"	1,412	S							
D819			26	39'-5"	2,737	S							
D820			38	13'-6"	1,370	S							
D821			26	39'-11"	2,771	S							
D701			19	26'-5"	1,026	S							
D601			123	5'-9"	1,062	19	2'-0"	1'-10"	12"				
D602			41	6'-6"	400	19	2'-0"	2'-7"	12"				
D603			41	5'-3"	323	19	2'-0"	1'-4"	12"				
D501			90	28'-2"	2,644	S							
D401			76	12'-6"	635	S							
D402			19	19'-4"	246	S							
D403			19	19'-0"	241	S							
D404			19	19'-6"	248	S							
D405			19	19'-8"	250	S							
S602			105	3'-2"	500	12	2'-6"						
S503			105	5'-3"	575	10							
S504			105	2'-4"	256	2	1'-7 1/2"	0'-10"	0"				
S505			105	3'-2"	347	4	0'-11"	0'-8 1/2"	0'-6"	0'-9"			
S506			105	3'-11"	429	2	3'-2 1/2"	0'-10"	0"				
S507			105	2'-8"	292	4	0'-11"	0'-8 1/2"	0'-6"	0'-3"			
S410			490	3'-3"	1,064	2	1'-3"	0'-11"	1'-3"				
S411			416	30'-7"	8,499	S							
				TOTAL	59,146								

SUPERSTRUCTURE UNIT 2 (RIGHT)

MARK	NUMBER REAR	NUMBER FWD.	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
D801			26	28'-1"	1,950	S							
D802			19	21'-5"	1,087	S							
D803			19	20'-4"	1,032	12	19'-5"						
D804			26	34'-5"	2,389	S							
D805			38	19'-0"	1,928	S							
D806			26	35'-2"	2,442	S							
D807			38	20'-9"	2,106	S							
D808			26	35'-4"	2,453	S							
D809			38	20'-11"	2,122	S							
D810			26	33'-5"	2,320	S							
D811			19	27'-2"	1,378	S							
D812			19	26'-5"	1,340	12	25'-6"						
D813			26	20'-1"	1,394	S							
D814			38	13'-0"	1,319	S							
D815			26	36'-3"	2,517	S							
D816			38	13'-10"	1,404	S							
D817			26	38'-0"	2,638	S							
D818			38	13'-11"	1,412	S							
D819			26	39'-5"	2,737	S							
D820			38	13'-6"	1,370	S							
D821			26	39'-11"	2,771	S							
D701			19	26'-5"	1,026	S							
D601			123	5'-9"	1,062	19	2'-0"	1'-10"	12"				
D602			41	6'-6"	400	19	2'-0"	2'-7"	12"				
D603			41	5'-3"	323	19	2'-0"	1'-4"	12"				
D501			90	28'-2"	2,644	S							
D401			76	12'-6"	635	S							
D402			19	19'-4"	246	S							
D403			19	19'-0"	241	S							
D404			19	19'-6"	248	S							
D405			19	19'-8"	250	S							
S602			105	3'-2"	500	12	2'-6"						
S503			105	5'-3"	575	10							
S504			105	2'-4"	256	2	1'-7 1/2"	0'-10"	0"				
S505			105	3'-2"	347	4	0'-11"	0'-8 1/2"	0'-6"	0'-9"			
S506			105	3'-11"	429	2	3'-2 1/2"	0'-10"	0"				
S507			105	2'-8"	292	4	0'-11"	0'-8 1/2"	0'-6"	0'-3"			
S410			490	3'-3"	1,064	2	1'-3"	0'-11"	1'-3"				
S411			416	30'-7"	8,499	S							
				TOTAL	59,146								



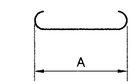
STR #2 ERK C:\DRAWING\08077308\REBUN2 1=1 08:33 04/30/96

REINFORCING STEEL LIST (CON'T)
BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE AND CONRAIL RAILROADS

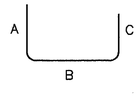
JEF-7-4.63

PREPARED BY ms consultants, inc. CONSULTING ENGINEERS & PLANNERS

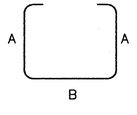
DESIGNED	CHECKED	DRAWN	REVISED	REVIEWED	DATE	STRUCTURE FILE NUMBER
A.C.	W.H.	E.R.K.		T.F.M.	8-94	4200258



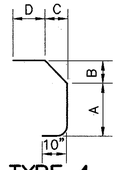
TYPE 1



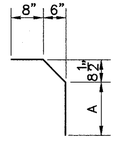
TYPE 2



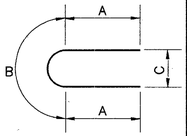
TYPE 3



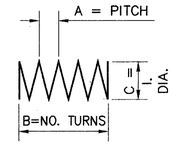
TYPE 4



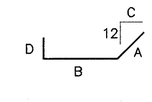
TYPE 5



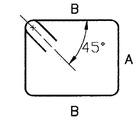
TYPE 6



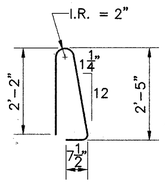
TYPE 7



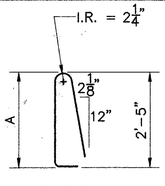
TYPE 8



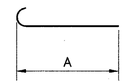
TYPE 9



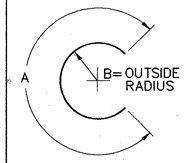
TYPE 10



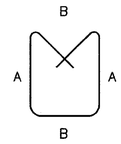
TYPE 11



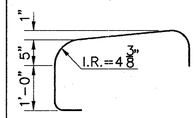
TYPE 12



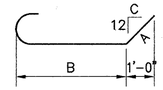
TYPE 13



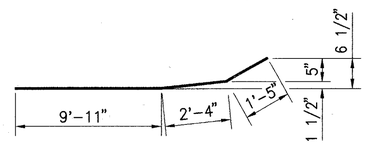
TYPE 14



TYPE 15



TYPE 16



TYPE 17

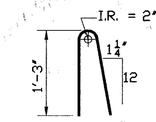
BAR SIZE; The bar size is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example: A506 is a No. 5 size bar and P1101 is a No. 11 size bar.

NOTES

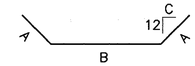
ALL BARS TO BE EPOXY COATED

MARK	NUMBER REAR	NUMBER FWD.	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
SUPERSTRUCTURE UNIT 3 (LEFT)													
E801			26	33'-0"	2,291	S							
E802			19	26'-9"	1,357	S							
E803			19	25'-1"	1,272	12	24'-2"						
E804			26	35'-7"	2,470	S							
E805			38	19'-9"	2,004	S							
E806			26	35'-0"	2,430	S							
E807			38	20'-5"	2,071	S							
E808			26	26'-2"	1,816	S							
E809			19	13'-3"	672	S							
E810			26	32'-6"	2,256	S							
E811			38	18'-1"	1,835	S							
E812			26	25'-8"	1,782	S							
E813			19	19'-7"	993	S							
E814			19	17'-7"	892	12	16'-8"						
E815			26	25'-1"	1,741	S							
E816			38	13'-0"	1,319	S							
E817			26	37'-5"	2,597	S							
E818			38	13'-10"	1,403	S							
E819			26	40'-1"	2,783	S							
E820			38	12'-6"	1,268	S							
E821			26	38'-11"	2,702	S							
E822			38	11'-1"	1,125	S							
E823			26	37'-7"	2,609	S							
E824			38	11'-2"	1,133	S							
E825			26	18'-0"	1,250	S							
E701			19	26'-0"	1,010	S							
E601			82	5'-9"	708	19	2'-0"	1'-10"	12"				
E602			82	6'-6"	801	19	2'-0"	2'-7"	12"				
E603			82	5'-3"	647	19	2'-0"	1'-4"	12"				
E501			90	31'-5"	2,949	S							
E401			95	12'-6"	793	S							
E402			19	20'-0"	254	S							
E403			19	19'-3"	244	S							
E404			19	11'-0"	140	S							
E405			19	17'-8"	224	S							
S602			118	3'-2"	561	12	2'-6"						
S603			62	5'-9"	535	8	2'-7"	1'-10"	24	1'-6"			
S503			118	5'-3"	646	10							
S504			118	2'-4"	287	2	1'-7 1/2"	0'-10"	0"				
S505			118	3'-2"	390	4	0'-11"	0'-8 1/2"	0'-6"	0'-9"			
S506			118	3'-11"	482	2	3'-2 1/2"	0'-10"	0"				
S507			118	2'-8"	328	4	0'-11"	0'-8 1/2"	0'-6"	0'-3"			
S410			590	3'-3"	1,281	2	1'-3"	0'-11"	1'-3"				
S411			471	30'-7"	9,622	S							
				TOTAL	65,973								

MARK	NUMBER REAR	NUMBER FWD.	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
SUPERSTRUCTURE UNIT 3 (RIGHT)													
F801			26	33'-0"	2,291	S							
F802			38	27'-1"	2,748	S							
F803			38	25'-6"	2,587	12	24'-7"						
F804			26	35'-7"	2,470	S							
F805			152	19'-11"	8,083	S							
F806			78	35'-0"	7,289	S							
F807			26	33'-5"	2,320	S							
F808			26	25'-1"	1,741	S							
F809			76	13'-4"	2,706	S							
F810			26	37'-8"	2,615	S							
F811			114	13'-10"	4,211	S							
F812			78	36'-11"	7,688	S							
F813			26	21'-3"	1,475	S							
F814			26	26'-0"	1,805	S							
F701			19	25'-3"	981	S							
F702			19	25'-9"	1000	S							
F601			123	5'-9"	1062	19	2'-0"	1'-10"	12"				
F602			123	6'-6"	1201	19	2'-0"	2'-7"	12"				
F603			41	5'-3"	323	19	2'-0"	1'-4"	12"				
F501			90	34'-7"	3,246	S							
F401			95	14'-0"	888	S							
F402			76	21'-0"	1,066	S							
S602			131	3'-2"	623	12	2'-6"						
S503			131	5'-3"	717	10							
S504			131	2'-4"	319	2	1'-7 1/2"	0'-10"	0"				
S505			131	3'-2"	433	4	0'-11"	0'-8 1/2"	0'-6"	0'-9"			
S506			131	3'-11"	535	2	3'-2 1/2"	0'-10"	0"				
S507			131	2'-8"	364	4	0'-11"	0'-8 1/2"	0'-6"	0'-3"			
S410			614	3'-3"	1,333	2	1'-3"	0'-11"	1'-3"				
S411			522	30'-7"	10,664	S							
				TOTAL	74,784								



TYPE 18



TYPE 19

REINFORCING STEEL LIST (CON'T)

BRIDGE NO. JEF-7-0463 OVER
WHEELING & LAKE ERIE, AND CONRAIL RAILROADS

PREPARED BY
ms consultants, inc.
CONSULTING ENGINEERS & PLANNERS
100 EAST FEDERAL STREET, YOUNGSTOWN, OHIO

REVIEWED T.F.M. DATE 8-94
STRUCTURE FILE NUMBER 4200258
DRAWN E.R.K.
REVISED
DESIGNED A.C.
CHECKED W.H.

JEF-7-4.63

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