STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
WAY-21-(1.39)(1.80)PART 2
CHIPPEWA TOWNSHIP
WAYNE COUNTY
RECONSTRUCTION OF EXISTING SEPARATED CROSSING WITH THE CSX TRANSPORTATION INC.

WAY-21-(1.39) (1.80) PART 2	OHIO
	FHWA REGION 5
BHF-48 (21)	FEDERAL PROJECT

1/100

FOR PART 1 SEE WAY-21-(0.87)(0.94)(1.24)

P.I.D. NO.: 16136 (Construction For Both Parts 1 & 2)
OLD P.I.D. NO.: 9453 PART 2

LIMITED ACCESS

This improvement is especially designed for through traffic and has been declared a limited access highway or freeway by action of the director in accordance with the provisions of Section 5511.02 of the revised code of Ohio.

DESIGN DESIGNATION

Current ADT	(1996)	= 6970
Design Year ADT	(2016)	= 9760
DHV (Design Hour Volume)		= 976
D (Directional Distribution)		= 55%
T (B & C Trucks)		= 11%
V (Design Speed)		= 55 MPH
Legal Speed		= 55 MPH
Functional Classification		= Rural Principal Arterial

Design Exceptions:

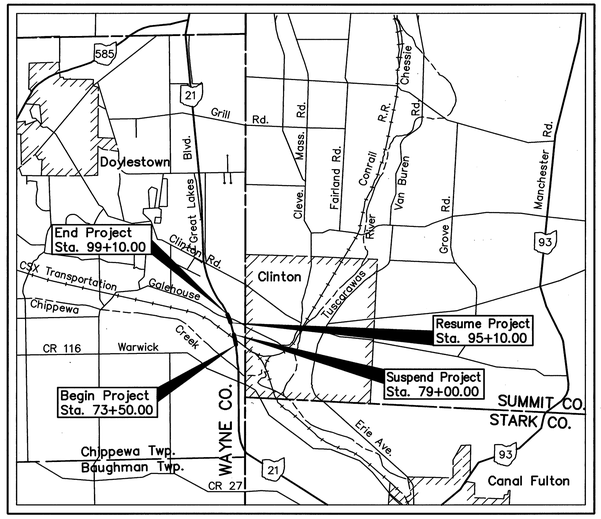
Feature	Approval Dates	Sheet No.
Superelevation	July 13, 1993	27

CONVENTIONAL SIGNS

County Line
Township Line
Section Line
Corporation Line
Fence Line(existing) —x—x— (proposed) —x—x—
Center Line 352 353
Trees ⊙, Stumps, (to be removed) ⊗
Utility Poles: Power, Telephone, Light

Limited Access (only) ——LA——
Right of Way (only) ——R/W——
Temporary Right of Way ——T——
Limited Access & Right of Way ——LA-R/W——
Existing Right of Way —— Exist. R/W
Property Line —℄— (in existing fence) —x-℄-x—
Railroad
Guardrail (existing) (proposed)

INDEX OF SHEETS



Latitude: N40°55'33" N40°55'52"

LOCATION MAP
SCALE IN MILES
0 1 2 4

Longitude: W81°38'56" W81°39'05"

Portion to be improved
State & Federal Routes
Other Routes

1995 SPECIFICATIONS

The standard specifications of the State of Ohio, Department of Transportation, including changes and supplemental specifications listed in the proposal shall govern this improvement.

I hereby approve these plans and declare that the making of this improvement will not require the closing to traffic of the highway and that provisions for the maintenance and safety of traffic will be as set forth on the plans and estimates.

B & N REVIEW

Approved _____ District Deputy Director
Date 12-4-96

Approved _____ Director, Department of Transportation
Date 1-10-97

LINE DATA

Begin Project	Sta.	73+50.00
Suspend Project	Sta.	79+00.00
Resume Project	Sta.	95+10.00
End Project	Sta.	99+10.00
Net Project Length		950.00 L.F. or 0.180 Mi.
Begin Work	Sta.	70+00.00
End Work	Sta.	130+18.50
Net Work Length		6018.50 L.F. or 1.140 Mi.

Plan Prepared By
ENGINEERING ASSOCIATES, INC.
700 Winkler Drive - Wooster, Ohio 44691
Telephone : (330) 345-6556

SCALES IN FEET

Plan 0 20 40
Profile: Horizontal 0 20 40, Vertical 0 5 10
Cross Section: Horizontal 0 5 10, Vertical 0 5 10

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

SUPPLEMENTAL PRINTS OF STANDARD DRAWINGS

SEE PART 1

SUPPLEMENTAL SPECIFICATIONS

SEE PART 1

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED: _____

DIVISION ADMINISTRATOR _____ DATE

Project: WAY-21-(1.39) (1.80) PART 2 WAYNE COUNTY
Date of Letting _____ 19___, Contract No. _____

CALC. BY DATE	WAY-21-(1.39)(1.80)	OHIO	2/100
CHKD. BY DATE		FHWA REGION	

SCHEMATIC PLAN

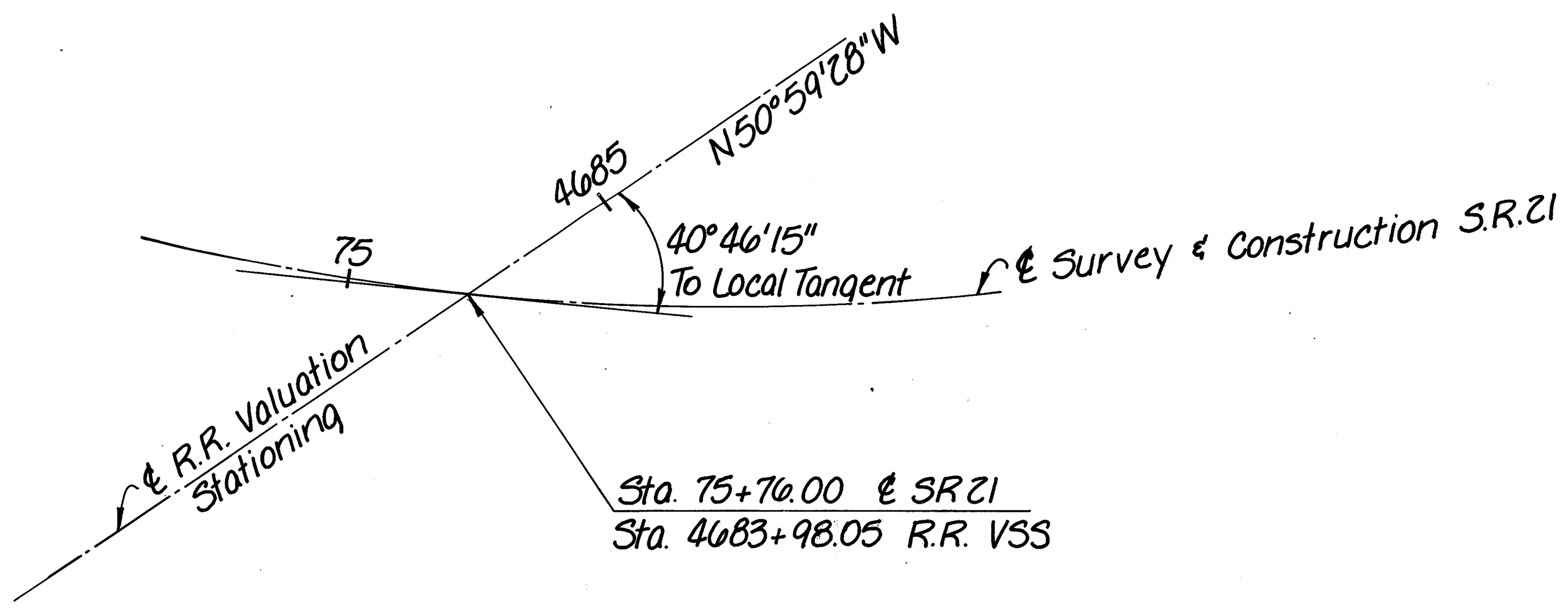
0 100 200 400
SCALE IN FEET

CURVE DATA
T.R. 172 (Galehouse Rd)

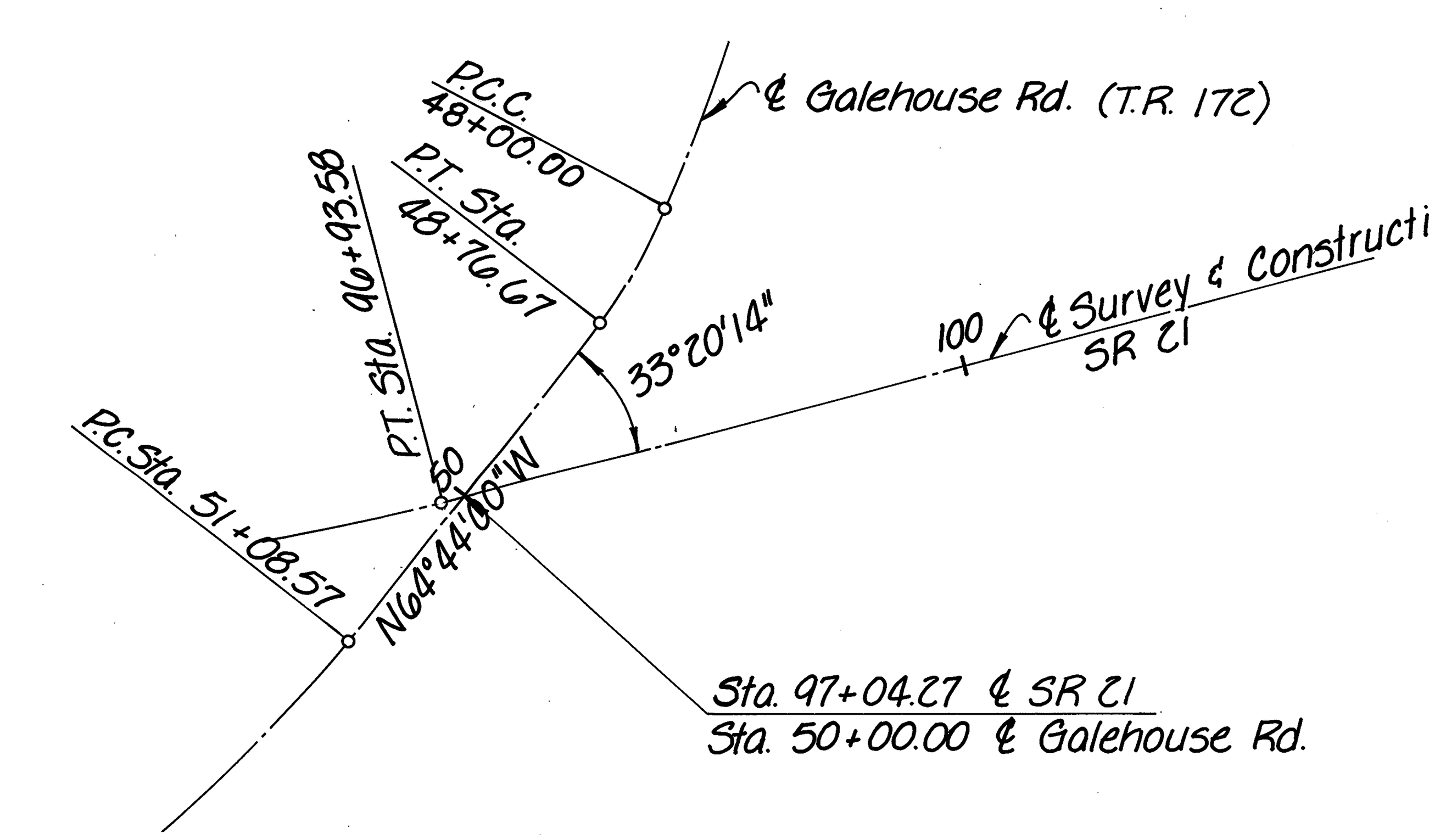
P.I. Sta. 48+38.46	P.I. Sta. 52+22.00
Δ = 11°30'00"	Δ = 18°00'00"
D = 15°00'00"	D = 8°00'00"
R = 381.97	R = 716.19
T = 38.46	T = 113.43
L = 76.67	L = 225.00
E = 1.93	E = 8.93

CURVE DATA S.R.21

P.I. Sta. 81+55.02
Δ = 31°35'50" Rt.
D = 1°00'00"
R = 5729.58'
T = 1621.16'
L = 3159.72'
E = 224.93'



DETAIL A

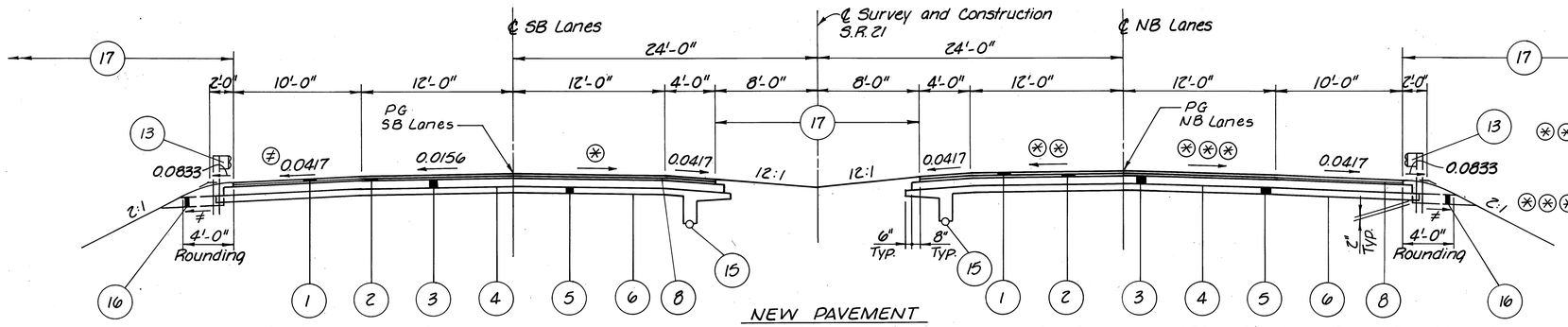


DETAIL B

SCHEMATIC PLAN

TYPICAL SECTIONS

CALC. BY / DATE	WAY-21-(1.39)(1.80)	OHIO	3 / 100
CHKD. BY / DATE		FHWA REGION	



NEW PAVEMENT
Normal

Sta. 95+75.00, 24' Lt. to Sta. 96+14.21, 24' Lt. = 39.05 Lin. Ft.
Sta. 98+67.34, 24' Lt. to Sta. 99+10.00, 24' Lt. = 42.48 Lin. Ft.
Total = 81.53 Lin. Ft.

Sta. 95+10.00, 24' Rt. to Sta. 95+43.88, 24' Rt. = 34.02 Lin. Ft.
Sta. 97+94.38, 24' Rt. to Sta. 98+35.00, 24' Rt. = 40.79 Lin. Ft.
Total = 74.81 Lin. Ft.

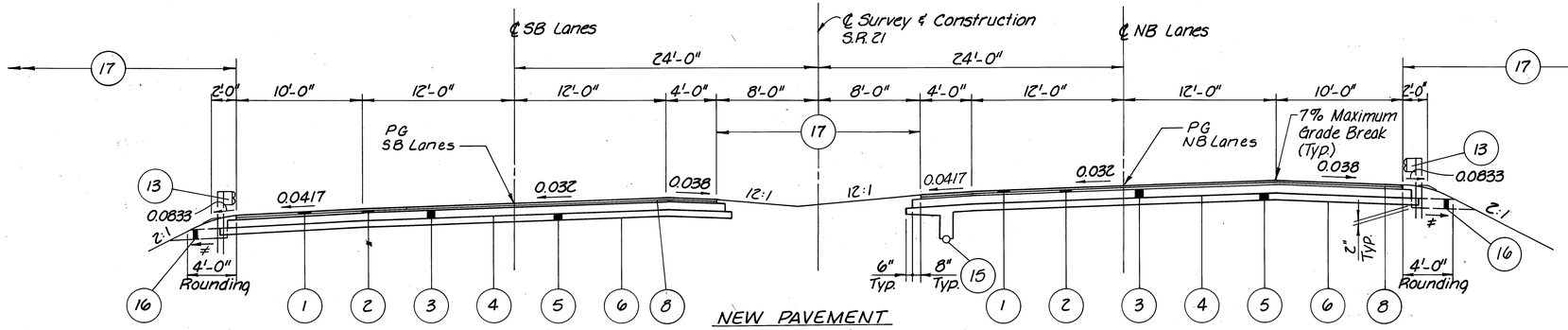
⊛ 0.0096 @ 95+75.00 to 0.0156 @ 96+00.00
0.0156 from 96+00.00 to 96+14.21
0.0156 @ 98+67.34 to 0.0139 @ 99+10.00

⊜ 0.0813 @ 95+75.00 to 0.0156 @ 96+32.18

⊛⊛ 0.0156 from 95+10.00 to 95+43.88
0.0156 from 97+94.38 to 98+25.00
0.0156 from 98+25.00 to 0.0135 @ 98+35.00

⊛⊛⊛ 0.0156 from 95+10.00 to 95+43.88
0.0156 from 97+94.38 to 98+25.00
0.0156 @ 98+25.00 to 0.0129 @ 98+35.00

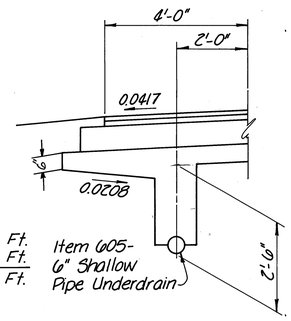
≠ 0.0417 Min., 0.0833 Desirable



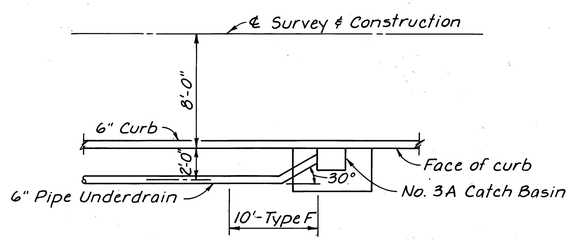
NEW PAVEMENT
Superelevated

Sta. 74+00.00, 24' Lt. to Sta. 74+54.23, 24' Lt. = 54.00 Lin. Ft.
Sta. 78+46.77, 24' Lt. to Sta. 79+00.00, 24' Lt. = 53.01 Lin. Ft.
Total = 107.01 Lin. Ft.

Sta. 73+50.00, 24' Rt. to Sta. 74+01.01, 24' Rt. = 51.22 Lin. Ft.
Sta. 77+86.38, 24' Rt. to Sta. 78+25.00, 24' Rt. = 38.78 Lin. Ft.
Total = 90.00 Lin. Ft.



UNDERDRAIN DETAIL



UNDERDRAIN OUTLET INTO CATCH BASIN

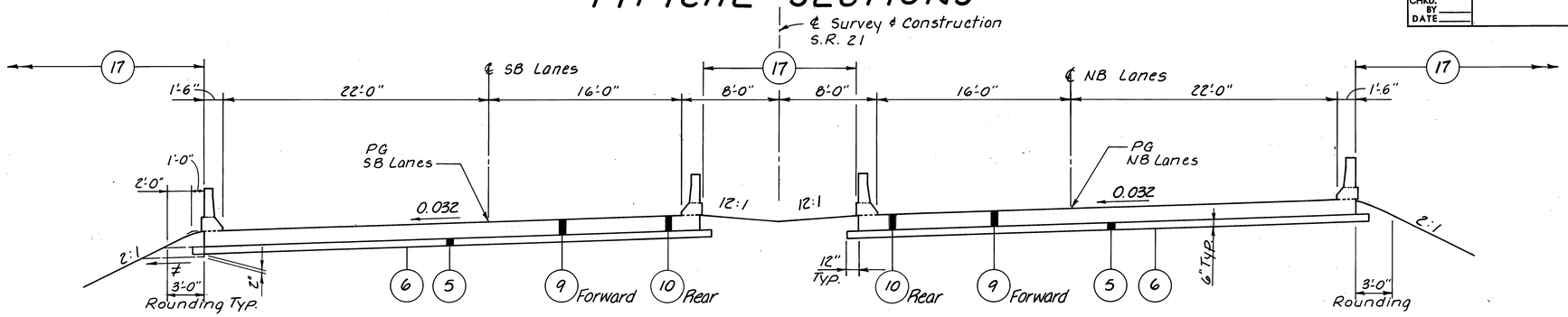
LEGEND

1. Item 404 - 1¼" Asphalt Concrete, AC-20
2. Item 402 - 1¾" Asphalt Concrete, AC-20
3. Item 301 - 8" Bituminous Aggregate Base, AC-20
4. Item 408 - Bituminous Prime Coat (0.40 Gal./Sq. Yd.)
5. Item 304 - 6" Aggregate Base
6. Item 203 - Subgrade Compaction
7. Item 403 - 0" Minimum Asphalt Concrete Pre-leveling Course, AC-20
8. Item 407 - Tack Coat (See General Notes)
9. Item 611 - Reinforced Concrete Approach Slab (T=15"), As Per Plan (See Sheet 32 & 33)
10. Item 611 - Reinforced Concrete Approach Slab (T=17"), As Per Plan (See Sheet 32)
11. Not Used
12. Item 202 - Wearing Course Removed
13. Item 606 - Guardrail, Type 5
14. Item 606 - Guardrail, Barrier Design, Type 5
15. Item 605 - 6" Shallow Pipe Underdrain
16. Item 605 - Aggregate Drain
17. Item 659 - Seeding and Mulching (See General Notes)
18. Existing 3"± Asphalt on 9"± Concrete Pavement

Note: All stations are along ℄ Survey and Construction.
All lengths are along ℄ Lanes.

TYPICAL SECTIONS

CALC. BY / DATE	WAY-21-(1.39)(1.80)	OHIO
CHKD. BY / DATE		FHWA REGION

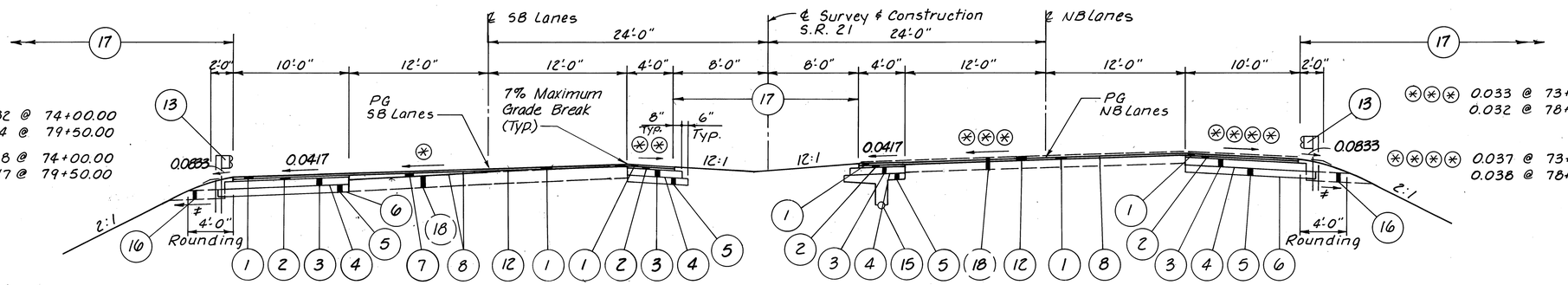


Sta. 74+54.23, 24'Lt. to Sta. 74+84.36, 24'Lt. = 30.00 Lin. Ft.
Sta. 78+21.67, 24'Lt. to Sta. 78+46.77, 24'Lt. = 25.00 Lin. Ft.
Total = 55.00 Lin. Ft.

APPROACH SLAB, AS PER PLAN

Sta. 74+01.01, 24'Rt. to Sta. 74+30.89, 24'Rt. = 30.00 Lin. Ft.
Sta. 77+61.48, 24'Rt. to Sta. 77+86.38, 24'Rt. = 25.00 Lin. Ft.
Total = 55.00 Lin. Ft.

≠ 0.0417 Min., 0.0833 Desirable



⊛ 0.040 @ 73+50.00 to 0.032 @ 74+00.00
0.032 @ 79+00.00 to 0.024 @ 79+50.00

⊛⊛ 0.030 @ 73+50.00 to 0.038 @ 74+00.00
0.038 @ 79+00.00 to 0.0417 @ 79+50.00

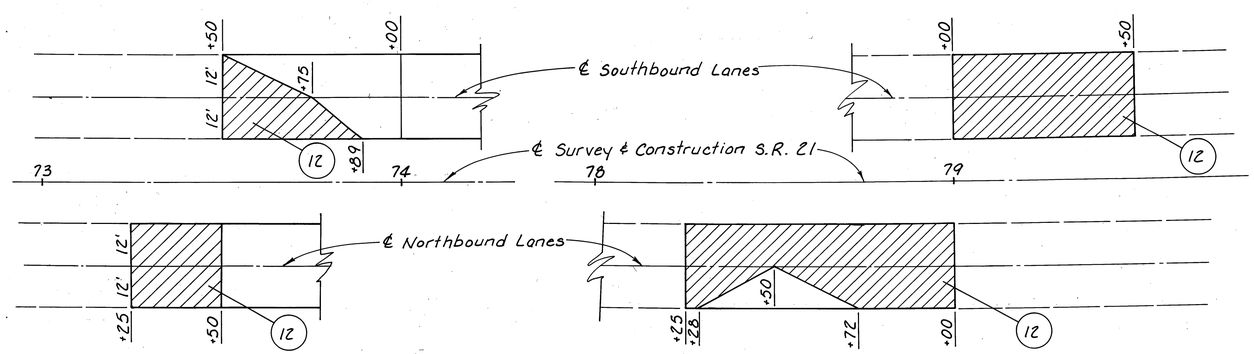
⊛⊛⊛ 0.033 @ 73+25.00 to 0.032 @ 73+50.00
0.032 @ 78+25.00 to 0.030 @ 79+00.00

⊛⊛⊛⊛ 0.037 @ 73+25.00 to 0.038 @ 73+50.00
0.038 @ 78+25.00 to 0.040 @ 79+00.00

Sta. 73+50.00, 24'Lt. to Sta. 74+00.00, 24'Lt. = 49.79 Lin. Ft.
Sta. 79+00.00, 24'Lt. to Sta. 79+50.00, 24'Lt. = 49.79 Lin. Ft.
Total = 99.58 Lin. Ft.

RESURFACING

Sta. 73+25.00, 24'Rt. to Sta. 73+50.00, 24'Rt. = 25.10 Lin. Ft.
Sta. 78+25.00, 24'Rt. to Sta. 79+00.00, 24'Rt. = 75.31 Lin. Ft.
Total = 100.41 Lin. Ft.



WEARING COURSE REMOVAL DETAILS

▨ – Wearing Course Removed

See sheet 3 For Legend And Pipe Underdrain Details.

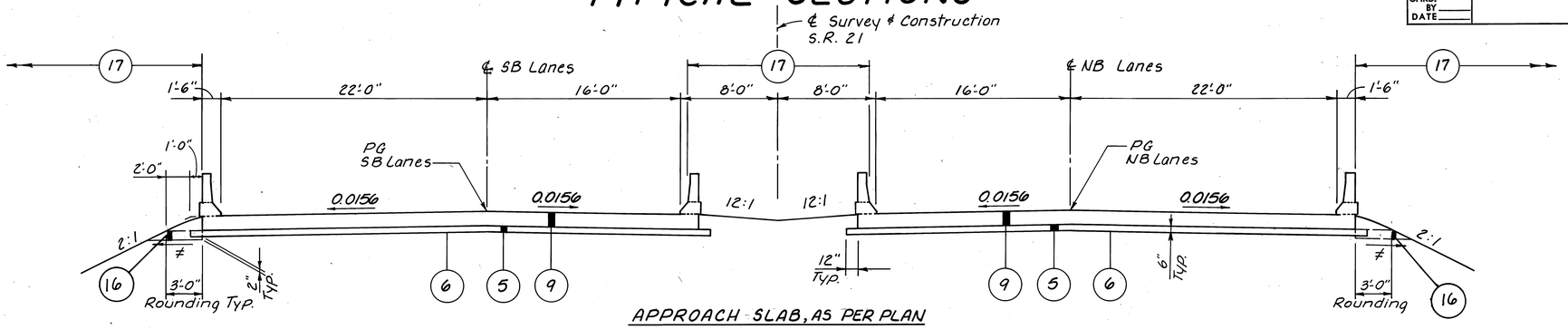
Note: All stations are along ℄ Survey and Construction.
All lengths are along ℄ Lanes.

TYPICAL SECTIONS

TYPICAL SECTIONS

CALC. BY / DATE	WAY-21-(1.39)(1.80)	OHIO
CHKD. BY / DATE		FHWA REGION

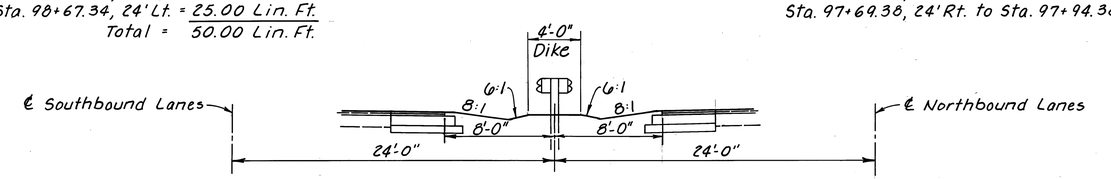
5/100



APPROACH SLAB, AS PER PLAN

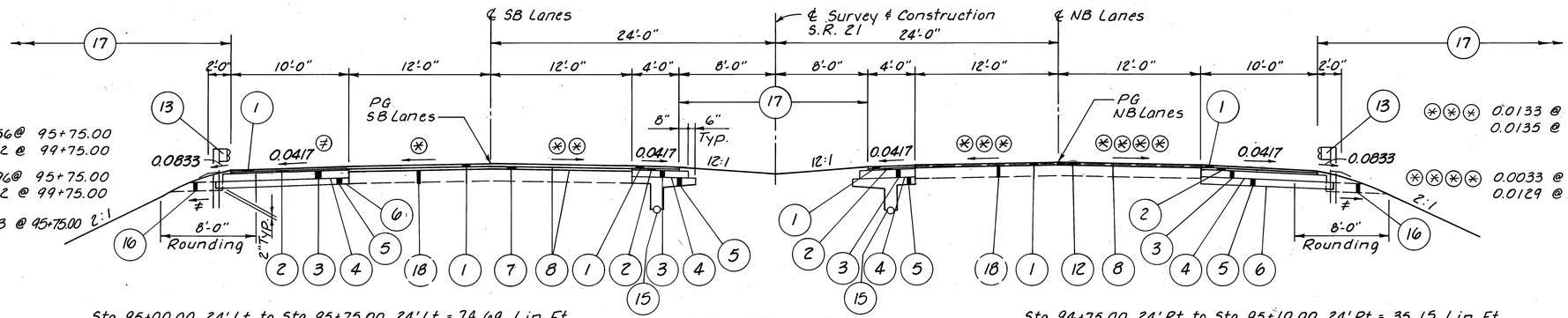
Sta. 96+14.21, 24' Lt. to Sta. 96+39.32, 24' Lt. = 25.00 Lin. Ft.
Sta. 98+42.34, 24' Lt. to Sta. 98+67.34, 24' Lt. = 25.00 Lin. Ft.
Total = 50.00 Lin. Ft.

Sta. 95+43.88, 24' Rt. to Sta. 95+68.78, 24' Rt. = 25.00 Lin. Ft.
Sta. 97+69.38, 24' Rt. to Sta. 97+94.38, 24' Rt. = 25.00 Lin. Ft.
Total = 50.00 Lin. Ft.



MEDIAN

≠ 0.0417 Min., 0.0833 Desirable



⊛ 0.0192 @ 95+00.00 to 0.0156 @ 95+75.00
0.0156 @ 99+10.00 to 0.0142 @ 99+75.00

⊛⊛ 0.0083 @ 95+00.00 to 0.0096 @ 95+75.00
0.0139 @ 99+10.00 to 0.0092 @ 99+75.00

⊜ 0.1675 @ 95+00.00 to 0.0813 @ 95+75.00

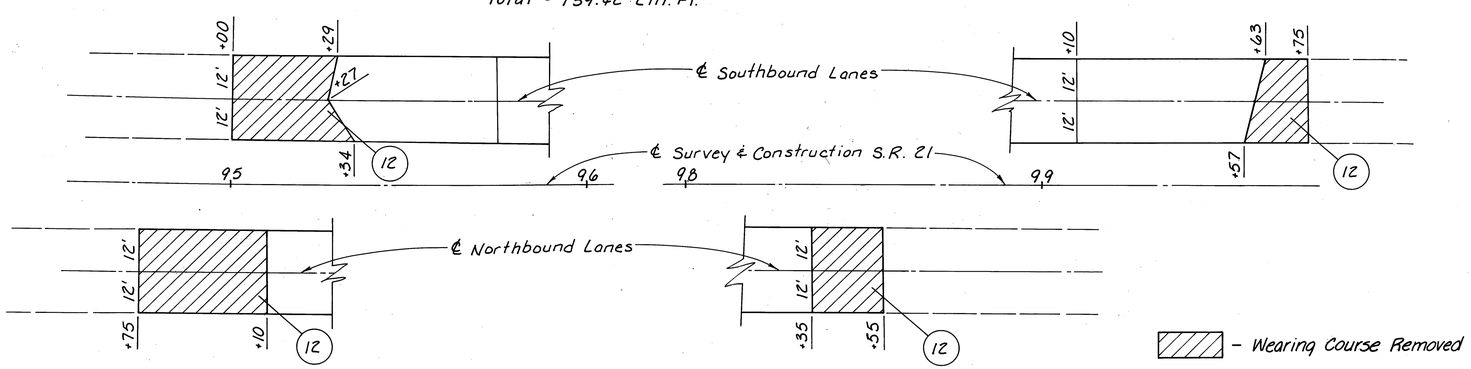
⊛⊛⊛ 0.0133 @ 94+75.00 to 0.0156 @ 95+10.00
0.0135 @ 98+35.00 to 0.0092 @ 98+55.00

⊛⊛⊛⊛ 0.0033 @ 94+75.00 to 0.0156 @ 95+10.00
0.0129 @ 98+35.00 to 0.0075 @ 98+55.00

RESURFACING

Sta. 95+00.00, 24' Lt. to Sta. 95+75.00, 24' Lt. = 74.69 Lin. Ft.
Sta. 99+10.00, 24' Lt. to Sta. 99+75.00, 24' Lt. = 64.73 Lin. Ft.
Total = 139.42 Lin. Ft.

Sta. 94+75.00, 24' Rt. to Sta. 95+10.00, 24' Rt. = 35.15 Lin. Ft.
Sta. 98+35.00, 24' Rt. to Sta. 98+55.00, 24' Rt. = 20.08 Lin. Ft.
Total = 55.23 Lin. Ft.



▨ – Wearing Course Removed

WEARING COURSE REMOVAL DETAILS

See sheet 3 For Legend And Pipe Underdrain Details.

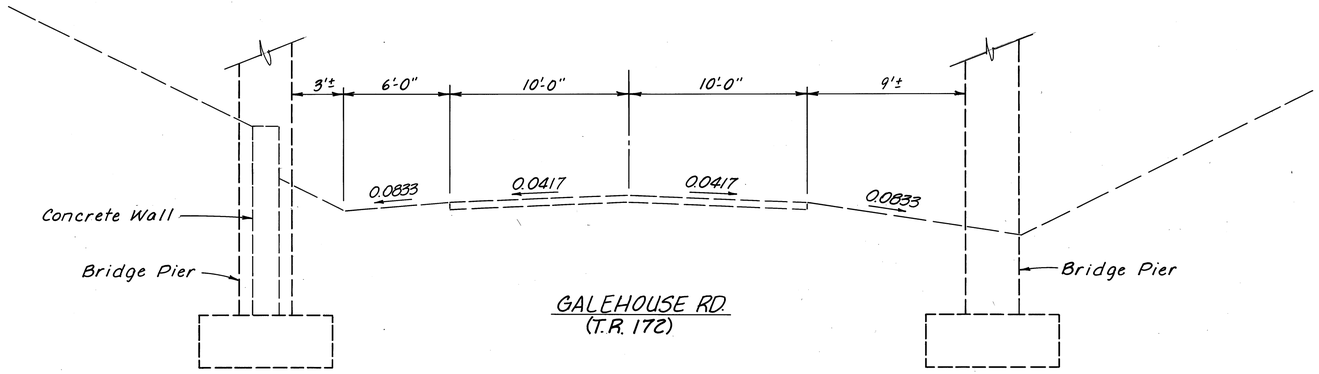
Note: All stations are along ℄ Survey and Construction.
All lengths are along ℄ Lanes

TYPICAL SECTIONS

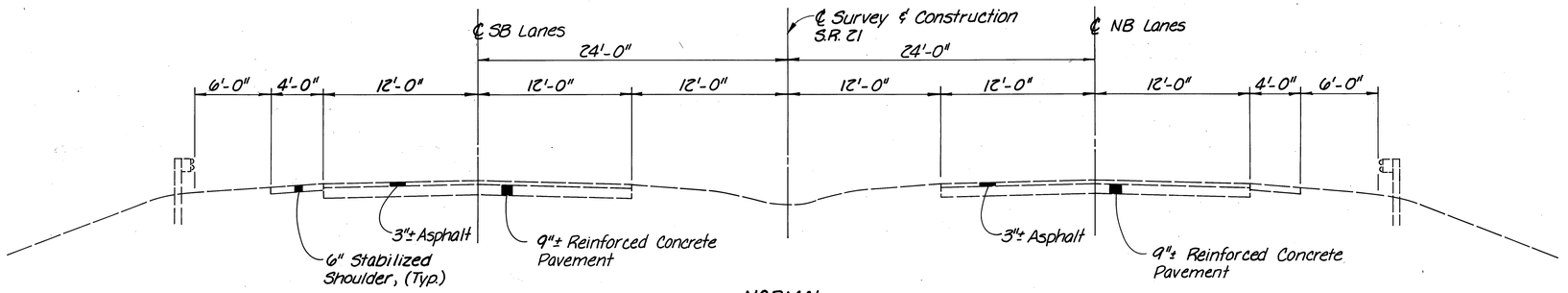
TYPICAL SECTIONS

CALC. BY / DATE	WAY-21-(1.39)(1.80)	OHIO
CHKD. BY / DATE		FHWA REGION

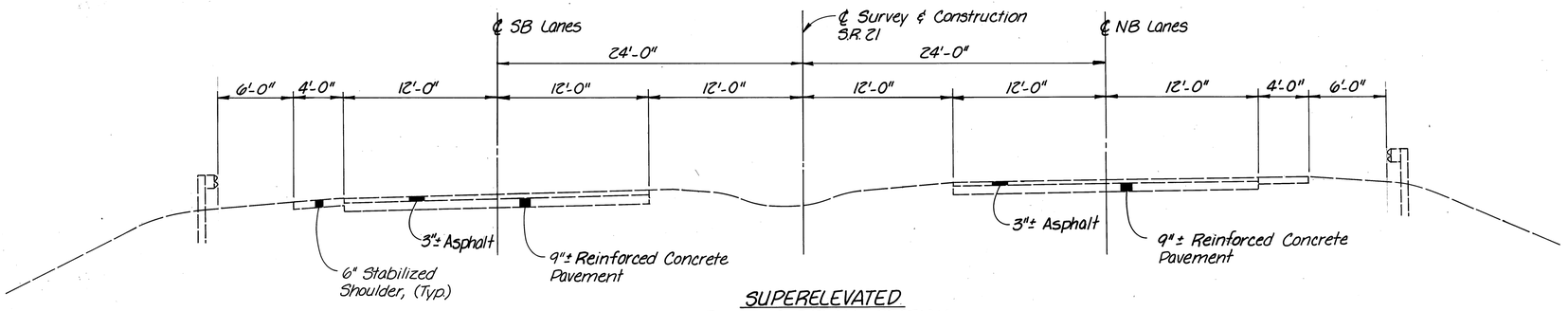
6/100



GALEHOUSE RD.
(T.R. 172)



NORMAL
EXISTING TYPICAL SECTION
S.R. 21 NEAR T.R. 172



SUPERELEVATED
EXISTING TYPICAL SECTION
S.R. 21 NEAR R.R. BRIDGE

GENERAL NOTES

CALC. BY RVK DATE 11/96	WAY-21-(1.39)(1.80)	OHIO	7
CHKD BY AFS DATE 11/96		FHWA REGION 5	100

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

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

ELECTRIC: OHIO EDISON
76 SOUTH MAIN STREET
AKRON, OHIO 44308
PHONE: (330) 384-7928

TELEPHONE: WORLD COMM (1.39)
120 RAVINE STREET
AKRON, OHIO 44303
PHONE: (330) 253-8267

DOYLESTOWN TELEPHONE COMPANY (1.80)
28 EAST MARION STREET
DOYLESTOWN, OHIO 44230
PHONE: (330) 658-6666

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

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

TEMPORARY SHEETING
TEMPORARY SHEETING SHALL BE REQUIRED AT THE NEW FOOTING CONSTRUCTION OF PIER 3, BRIDGE NO. WAY-21-0143 L/R. THE TEMPORARY SHEETING SHALL BE PLACED PRIOR TO EXCAVATION TO PROTECT THE FIBER OPTIC CABLE DURING CONSTRUCTION. COORDINATE PLACEMENT OF THE SHEETING WITH WORLD COMM. FOR ADDITIONAL NOTES SEE SHEET 37.

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.

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

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:

SIZES	NO. TREES	NO. STUMPS	TOTAL
18'	45	0	45
30'	0	0	0
48'	0	0	0
60'	0	0	0

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	150 EACH
ITEM 207	FILTER FABRIC FENCE	1250 LIN FT

EROSION CONTROL
ITEM 601 IS PROVIDED IN THE PLANS FOR EROSION CONTROL. ROCK OF A STABLE NATURE SHALL NOT BE REMOVED IN ORDER TO PLACE THIS ITEM. THE ENGINEER SHALL CHECK AND NON-PERFORM QUANTITIES OR ADJUST LOCATIONS AND QUANTITIES OF THIS ITEM WHERE INDICATED BY FIELD CONDITIONS DURING CONSTRUCTION. IN ADDITION, THIS ITEM SHALL MEET THE REQUIREMENTS OF 108.04.

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

ITEM 659	WATER	19 M GAL

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.

ITEM SPECIAL, IMPACT ATTENUATOR, TYPE 1 BIDIRECTIONAL
THIS WORK SHALL CONSIST OF FURNISHING AND INSTALLING ONE OF THE FOLLOWING TYPES OF IMPACT ATTENUATOR SYSTEMS:

1. THE BRAKEMASTER IMPACT ATTENUATING SYSTEM MANUFACTURED BY ENERGY-ABSORPTION SYSTEMS, INC., ONE EAST WACKER DRIVE, CHICAGO, ILLINOIS 60601 (TELEPHONE 312-467-6750).

2. THE C.A.T. IMPACT ATTENUATING SYSTEM MANUFACTURED BY SYRO STEEL COMPANY, 1170 NORTH STATE STREET, GIRARD, OHIO 44420 (TELEPHONE 330-545-4373).

THE ATTENUATOR (SHALL BE DESIGNED FOR BIDIRECTIONAL IMPACTS AND) SHALL BE PLACED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND AT THE LOCATIONS SHOWN ON THE PLANS.

THE NOSE OF THE ATTENUATOR SHALL BE MARKED WITH THREE, EVENLY SPACED, FOUR (4) INCH WIDE HORIZONTAL STRIPES OF WHITE REFLECTIVE MATERIAL MEETING THE REQUIREMENTS OF CMS 730.19.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE CONTRACT PRICE FOR ITEM SPECIAL, EACH, IMPACT ATTENUATOR TYPE 1 (BIDIRECTIONAL). THIS ITEM SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THIS ITEM IN PLACE, INCLUDING ALL RELATED HARDWARE, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER TO CONSTRUCT A COMPLETE AND FUNCTIONAL IMPACT ATTENUATOR SYSTEM.

JOINT SEALERS
ALL REFERENCES TO 705.01 OR 705.02, APPEARING ON STANDARD DRAWINGS OR ON THE PLANS, SHALL BE CONSIDERED TO READ 705.04.

ITEM 407, TACK COAT
THE RATE OF APPLICATION OF THE 407 TACK COAT SHALL BE SUBJECT TO ADJUSTMENT AS DIRECTED BY THE ENGINEER. PLAN QUANTITIES INDICATE AN AVERAGE APPLICATION RATE OF 0.10 GALLONS PER SQUARE YARD OF TACK COAT FOR ESTIMATING PURPOSES ONLY. THIS AVERAGE APPLICATION RATE IS TO BE USED FOR AREAS OF RESURFACING.

ITEM 407, TACK COAT (FOR FINAL SURFACE COURSE)
TACK COAT SHALL BE APPLIED AT AN AVERAGE APPLICATION RATE OF 0.05 GALLONS PER SQUARE YARD BETWEEN THE ASPHALT CONCRETE SURFACE COURSE AND THE INTERMEDIATE COURSE. AN ESTIMATED QUANTITY OF 123 GALLONS OF ITEM 407 IS PROVIDED TO BE USED AS DIRECTED BY THE ENGINEER FOR THIS PURPOSE.

GUARDRAIL, TYPE 5, AS PER PLAN
GUARDRAIL, TYPE 5, AS PER PLAN SHALL MEET THE REQUIREMENTS OF ITEM 606 EXCEPT THAT USED RAILING AND HARDWARE MAY BE USED. GUARDRAIL SHALL BE ATTACHED TO NEW POSTS. THE REMOVAL OF THE GUARDRAIL, TYPE 5, AS PER PLAN SHALL TAKE PLACE AT THE CONCLUSION OF EACH PHASE OF MAINTENANCE OF TRAFFIC.

PAYMENT WILL BE MADE AT THE UNIT PRICE PER LINEAR FOOT OF GUARDRAIL, TYPE 5, AS PER PLAN AND SHALL INCLUDE ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY FOR THE ERECTION AND REMOVAL OF THE GUARDRAIL, TYPE 5, AS PER PLAN AS SHOWN ON THE DRAWINGS.

GUARDRAIL MISC.: TEMPORARY BRIDGE TERMINAL ASSEMBLY, TYPE 1
GUARDRAIL MISC.: TEMPORARY BRIDGE TERMINAL ASSEMBLY, TYPE H
GUARDRAIL MISC.: TEMPORARY BRIDGE ASSEMBLY, TYPE 1 AND TYPE H SHALL MEET THE REQUIREMENTS OF ITEM 606 EXCEPT THAT USED RAILING AND HARDWARE MAY BE USED. THE REMOVAL OF GUARDRAIL MISC.: TEMPORARY BRIDGE TERMINAL ASSEMBLY, TYPE 1 AND TYPE H SHALL TAKE PLACE AT THE CONCLUSION OF EACH PHASE OF MAINTENANCE OF TRAFFIC.

PAYMENT WILL BE MADE AT THE UNIT PRICE PER EACH GUARDRAIL MISC.: TEMPORARY BRIDGE TERMINAL ASSEMBLY TYPE 1 OR TYPE H AND SHALL INCLUDE ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY FOR ERECTION AND REMOVAL OF THE RESPECTIVE GUARDRAIL MISC.: TEMPORARY BRIDGE TERMINAL ASSEMBLY AS SHOWN ON THE PLANS.

ITEM 611, REINFORCED CONCRETE APPROACH SLAB (T=15'), AS PER PLAN
ITEM 611, REINFORCED CONCRETE APPROACH SLAB (T=17'), AS PER PLAN
ALL REINFORCING STEEL FOR THE APPROACH SLABS SHALL BE EPOXY COATED IN CONFORMANCE WITH 509. FOR APPROACH SLAB DETAILS SEE SHEETS 32 AND 33.

PAYMENT FOR CONSTRUCTION OF THE APPROACH SLABS SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO INSTALL THE APPROACH SLABS, REINFORCED CONCRETE PARAPETS, CURBING AND SEALING OF CONCRETE SURFACES AS DETAILED ON SHEETS 32 AND 33.

DUST CONTROL
THE CONTRACTOR SHALL FURNISH AND APPLY WATER AND CALCIUM CHLORIDE FOR DUST CONTROL AS DIRECTED BY THE ENGINEER. THE FOLLOWING CONTINGENCY QUANTITIES HAVE BEEN INCLUDED FOR DUST CONTROL PURPOSES.

ITEM 616 WATER	50 M-GAL
ITEM 616 CALCIUM CHLORIDE	6 TON

TEMPORARY WORK ZONE MARKINGS AND SIGNS
THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR TEMPORARY WORK ZONE PAVEMENT MARKINGS AND SIGNS PER THE REQUIREMENTS OF THE STANDARD CONSTRUCTION DRAWINGS:

ITEM 614 TEMPORARY LANE LINE, CLASS II	0.38 MILE
ITEM 614 WORK ZONE MARKING SIGN (NO EDGE LINE)	4 EACH

WINTER TRAFFIC LIMITATIONS
ALL EXISTING LANES SHALL BE OPENED TO TRAFFIC BETWEEN NOVEMBER 15 THRU APRIL 6. NOVEMBER 15 SHALL BE AN INTERIM COMPLETION DATE AND LIQUIDATED DAMAGES SHALL BE ASSESSED IN ACCORDANCE WITH 108.07 FOR EACH CALENDAR DAY THAT ALL LANES ARE NOT OPEN AND AVAILABLE TO TRAFFIC.

FIELD OFFICE
SEE PART 1 FOR FIELD OFFICE FOR THIS PROJECT

NOTE: SEE SHEET 8 FOR ADDITIONAL NOTES.

GENERAL NOTES

CONTRACTORS EQUIPMENT - OPERATION AND STORAGE

IN ADDITION TO THE REQUIREMENTS OF SECTION 614.03A OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS THE FOLLOWING SHALL APPLY.

THE CONTRACTOR'S EQUIPMENT SHALL BE OPERATED IN THE DIRECTION OF TRAFFIC WHERE PRACTICAL. A FLAGGER SHALL BE USED WHERE THE CONTRACTOR'S EQUIPMENT MUST MERGE WITH THE TRAFFIC STREAM. THE CONTRACTOR'S VEHICLES AND EQUIPMENT SHALL BE EQUIPPED WITH AT LEAST ONE AMBER FLASHING LIGHT.

EQUIPMENT MAY BE PARKED IN AREAS ALONG THE HIGHWAY WHEN VARIOUS OPERATIONS ARE SCHEDULED TO CONTINUE THE NEXT WORKDAY. ON WEEKENDS OR AT OTHER TIMES OF SUSPENSIONS OF WORK, THE EQUIPMENT SHALL BE STORED AT A STORAGE AREA REMOVED FROM THE INTERSTATE RIGHT-OF-WAY. THE LOCATION SHALL HAVE PRIOR APPROVAL OF THE ENGINEER. NO EQUIPMENT SHALL BE IN THE MEDIAN OF THE HIGHWAY. ADEQUATE BARRICADES AND LIGHTS SHALL BE PLACED ON THE PAVEMENT SIDE OF THE EQUIPMENT TO IDENTIFY THE LIMITS OF THE EQUIPMENT. ALL OTHER EQUIPMENT, INCLUDING PRIVATE VEHICLES, SHALL BE STORED AT THE APPROVED CONTRACTORS STORAGE AREA.

ITEM 614, MAINTAINING TRAFFIC

A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES BY USE OF THE EXISTING PAVEMENT AND 615 TEMPORARY PAVEMENT. CONSTRUCTION OF BOTH CROSSOVERS SHALL BE COMPLETED DURING PHASE 1. SEE SHEETS 9-16 FOR PHASED CONSTRUCTION DETAILS.

THE CONTRACTOR SHALL FURNISH, ERECT, MAINTAIN, REPAIR AND SUBSEQUENTLY REMOVE ALL MAINTENANCE FACILITIES AS SHOWN ON SHEETS 9-16 AND STANDARD CONSTRUCTION DRAWING MT-95.70. ALL SIGNS SHALL BE IN PLACE BEFORE THE TRAFFIC MAINTENANCE FACILITIES ARE INSTALLED. WHEN THE TRAFFIC MAINTENANCE FACILITIES ARE NO LONGER REQUIRED, THE CONTRACTOR SHALL REMOVE ALL TRAFFIC MAINTENANCE FACILITIES AND THEN THE SIGNS.

ALL PORTABLE CONCRETE BARRIERS, BARRIER REFLECTORS, SIGNS, TEMPORARY PAVEMENT AND TEMPORARY PAVEMENT MARKINGS SHALL BE IN PLACE BEFORE CLOSING ANY PORTION OF THE PAVEMENT TO TRAFFIC.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR THE MAINTENANCE OF TRAFFIC.

ITEM 404, BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC 30 CU YD

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.

MAINTENANCE OF TRAFFIC - MAINLINE OVER GALEHOUSE ROAD

TWO-WAY TRAFFIC ON GALEHOUSE ROAD SHALL BE MAINTAINED AT ALL TIMES DURING THE REHABILITATION OF THE MAINLINE BRIDGE EXCEPT DURING THE FOLLOWING OPERATIONS OR AS DIRECTED BY THE ENGINEER:

1. DEMOLITION OF THE EXISTING BRIDGE PARAPETS

2. DURING CONSTRUCTION OF THE PROPOSED PARAPETS

A SAFETY NET OR PLATFORM SHALL BE REQUIRED TO PROTECT THE UNDERPASS ROADWAY DURING REMOVAL OF EXISTING AND CONSTRUCTION OF THE NEW PARAPETS. THE DESIGN OF THE NET OR PLATFORM SHALL CONFORM WITH OSHA REQUIREMENTS, SHALL HAVE APPROVAL FROM THE ODOT BUREAU OF BRIDGES AND STRUCTURAL DESIGN, AND SHALL REMAIN IN PLACE UNTIL WORK HAS BEEN COMPLETED. THE EXISTING VERTICAL CLEARANCE OVER GALEHOUSE ROAD SHALL BE MAINTAINED AT ALL TIMES.

IF A LANE RESTRICTION IS NECESSARY, THE METHOD OF INSTALLATION AND DESIGN OF THE TEMPORARY LANE CLOSURE* SHALL CONFORM TO STANDARD CONSTRUCTION DRAWING MT-97.10. COST FOR THE ABOVE WORK SHALL BE CONSIDERED INCIDENTAL TO AND SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614 MAINTAINING TRAFFIC.

* DURING WORKING HOURS ONLY

ITEM 253, PAVEMENT REPAIR

THE FOLLOWING ESTIMATED QUANTITY IS TO BE USED AS DIRECTED BY THE ENGINEER TO REPAIR THE EXISTING PAVED BERM PRIOR TO THE IMPLEMENTATION OF MAINTENANCE OF TRAFFIC.

ITEM 253, PAVEMENT REPAIR 50 CU YD

ITEM SPECIAL, LAW ENFORCEMENT OFFICER WITH PATROL CAR

IN ADDITIONS 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 LIGHT) SHALL BE PROVIDED FOR CONTROLLING TRAFFIC FOR THE FOLLOWING TASK: 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.

LAW ENFORCEMENT OFFICERS (LEO'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:

THE STATE HIGHWAY	WAYNE COUNTY SHERIFF
PATROL HEADQUARTERS	201 WEST NORTH
660 EAST MAIN STREET	WOOSTER, OHIO 44691
COLUMBUS, OHIO 43205	PHONE: (330) 264-3333
PHONE: (614) 466-2300	

LEO'S WITH PATROL CAR REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON A UNIT PRICE (HOURLY) BASIS UNDER ITEM SPECIAL-LAW ENFORCEMENT OFFICER WITH PATROL CAR. THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM SPECIAL, LAW ENFORCEMENT OFFICER WITH PATROL CAR 100 HOUR

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 614, TEMPORARY CROSSOVER LIGHTING SYSTEM

THIS WORK SHALL CONSIST OF FURNISHING, ERECTING, OPERATING, MAINTAINING AND REMOVING A TEMPORARY LIGHTING SYSTEM FOR A SINGLE CROSSOVER OR OVERLAPPING A PAIR OF CROSSOVERS ON A TWO-LANE, TWO-WAY OPERATION (TLTWO). THE SYSTEM SHALL BE AS SHOWN ON STANDARD CONSTRUCTION DRAWING MT-100.00. THE CONTRACTOR SHALL ARRANGE FOR AND PAY FOR POWER.

POLES MAY BE LESS THAN 30' FROM EDGE OF PAVEMENT WHEN BEHIND GUARDRAIL. ADDITIONAL POLE LINES, CABLES AND APPURTENANCES NECESSARY TO FURNISH POWER TO THE LIGHTING SYSTEM SHALL BE INCLUDED IN THIS ITEM. SERVICE POLES SHALL BE POSITIONED WITH THE SAME CONSTRAINTS AS THE LIGHTING POLES AS A MINIMUM.

PAYMENT WILL BE MADE AT THE UNIT PRICE PER EACH TEMPORARY CROSSOVER LIGHTING SYSTEM THROUGHOUT ALL PHASES OF WORK WHEN THE CROSSOVER ROADWAYS ARE USED. THE FOLLOWING QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY:

ITEM 614, TEMPORARY CROSSOVER LIGHTING SYSTEM 1 EACH

ITEM 622, PORTABLE CONCRETE BARRIER, 50'

THE USE OF GLARE SHIELDS WILL NOT BE PERMITTED ON THIS PROJECT. SURFACE PREPARATION FOR ALL PORTABLE CONCRETE BARRIER, 50' SHALL BE AS DETAILED ON STANDARD CONSTRUCTION DRAWING PCB-91.

THE COST OF PROVIDING, ERECTING, MAINTAINING AND REMOVING ALL PORTABLE CONCRETE BARRIER AS CALLED FOR IN THE PLANS AND THE APPROPRIATE STANDARD DRAWINGS SHALL BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF THE APPROPRIATE ITEM 622.

TRENCH WIDENING

TRENCH EXCAVATION SHALL BE ONLY ON ONE SIDE OF THE PAVEMENT AT A TIME. THE OPEN TRENCH SHALL BE ADEQUATELY MAINTAINED AND PROTECTED WITH DRUMS OR BARRICADES AT ALL TIMES. PLACEMENT OF PROPOSED SUBBASE AND BASE MATERIAL SHALL FOLLOW AS CLOSELY AS POSSIBLE BEHIND EXCAVATION OPERATIONS. THE LENGTH OF WIDENING TRENCH WHICH IS OPEN AT ANY ONE TIME SHALL BE HELD TO A MINIMUM AND SHALL AT ALL TIMES BE SUBJECT TO APPROVAL OF THE ENGINEER.

ITEM 615, TEMPORARY ROADS

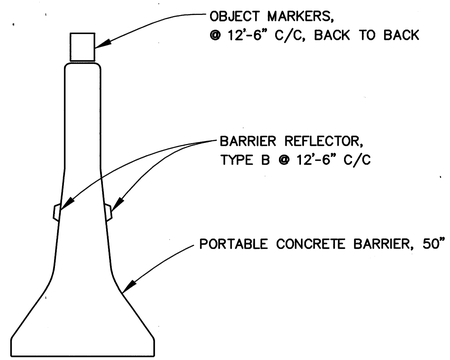
THIS WORK SHALL MEET THE REQUIREMENTS OF ITEM 615 TEMPORARY ROADS AND INCLUDE THE COST OF ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO COMPLETE THE TEMPORARY ROADS AS SHOWN IN THE PLANS.

ITEM 614, BARRIER REFLECTORS

REFLECTORS AND THEIR MOUNTING SHALL CONFORM TO SUPPLEMENTAL SPECIFICATION 802 EXCEPT THAT SPACING SHALL BE AS SHOWN BELOW.

SEQUENCE OF CONSTRUCTION

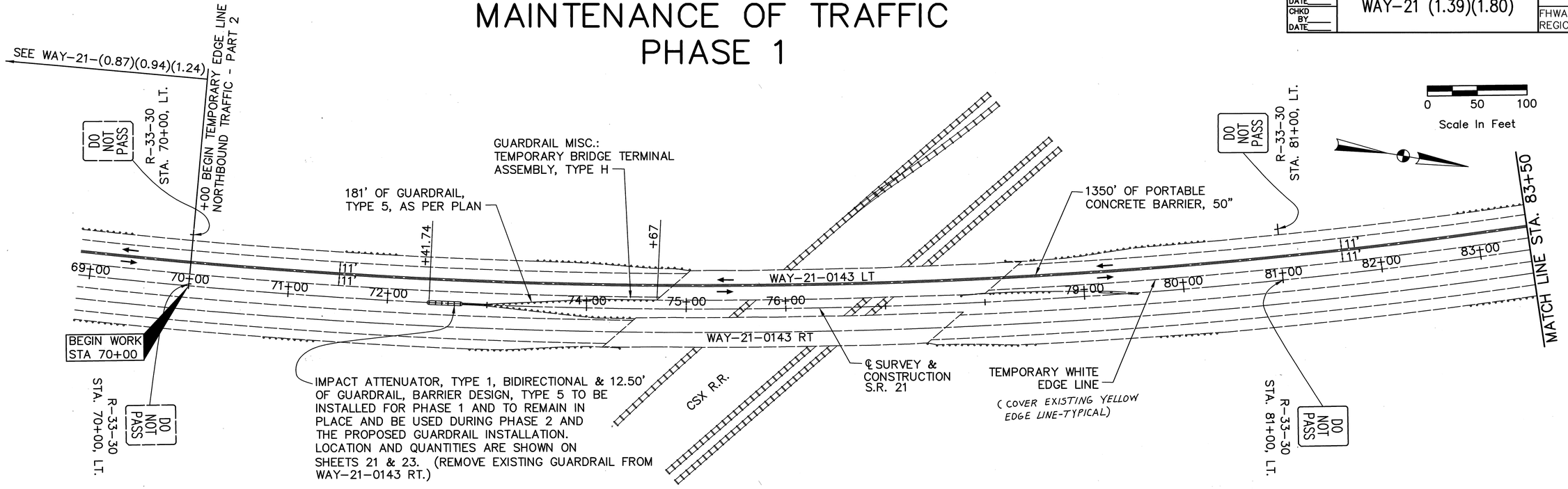
FOR GENERAL SEQUENCE OF CONSTRUCTION OPERATION PLAN SEE SHEET 7 OF 98 OF WAY-21-(0.87)(0.94)(1.24) PART 1.

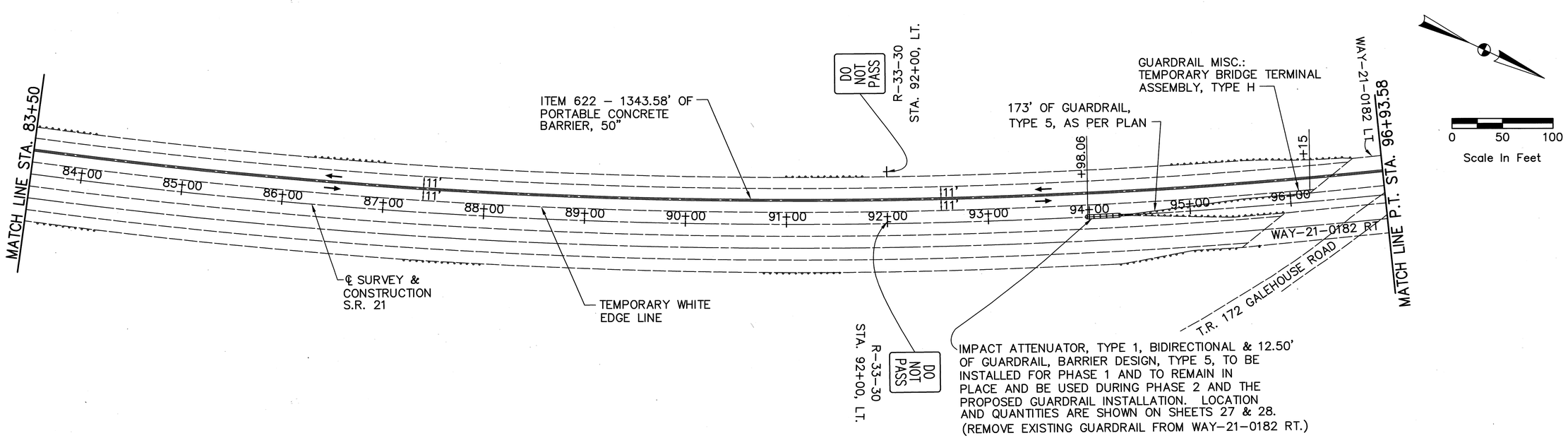


GENERAL NOTES

MAINTENANCE OF TRAFFIC
PHASE 1

CALC. BY		WAY-21 (1.39)(1.80)	OHIO	9/100
CHKD BY			FHWA REGION 5	
DATE				

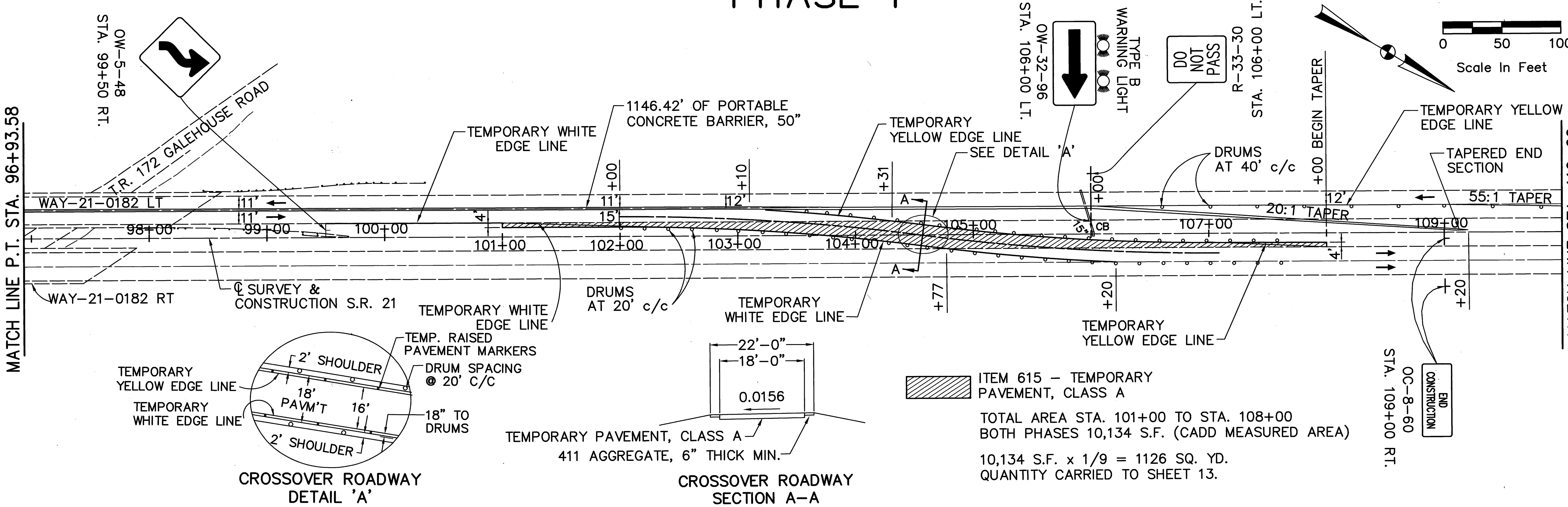




FOR QUANTITIES SEE SHEET 13.

CALC. BY RVK DATE 11/96 CHKD BY AFS DATE 11/96	WAY-21 (1.39)(1.80)	OHIO FHWA REGION 5	10 / 100

MAINTENANCE OF TRAFFIC
PHASE 1



DO NOT DISTURB CATCH BASIN AT STATION 106+00 DURING PLACEMENT OR REMOVAL OF TEMPORARY PAVEMENT.

FOR TEMPORARY PAVEMENT DETAILS, SEE SHEET 14.

REMOVE ALL CONFLICTING PAVEMENT MARKINGS UNDER ITEM 614.

ALL PAVEMENT MARKINGS REMOVED FOR MAINTENANCE OF TRAFFIC PURPOSES BEYOND THE LIMITS OF THE PROPOSED RESURFACING SHALL BE REPLACED UNDER ITEM 614.

FOR TEMPORARY RAISED PAVEMENT MARKER DETAILS, SEE SHEET 16.

FOR TEMPORARY CROSSOVER LIGHTING DETAILS, SEE MT-100.00.

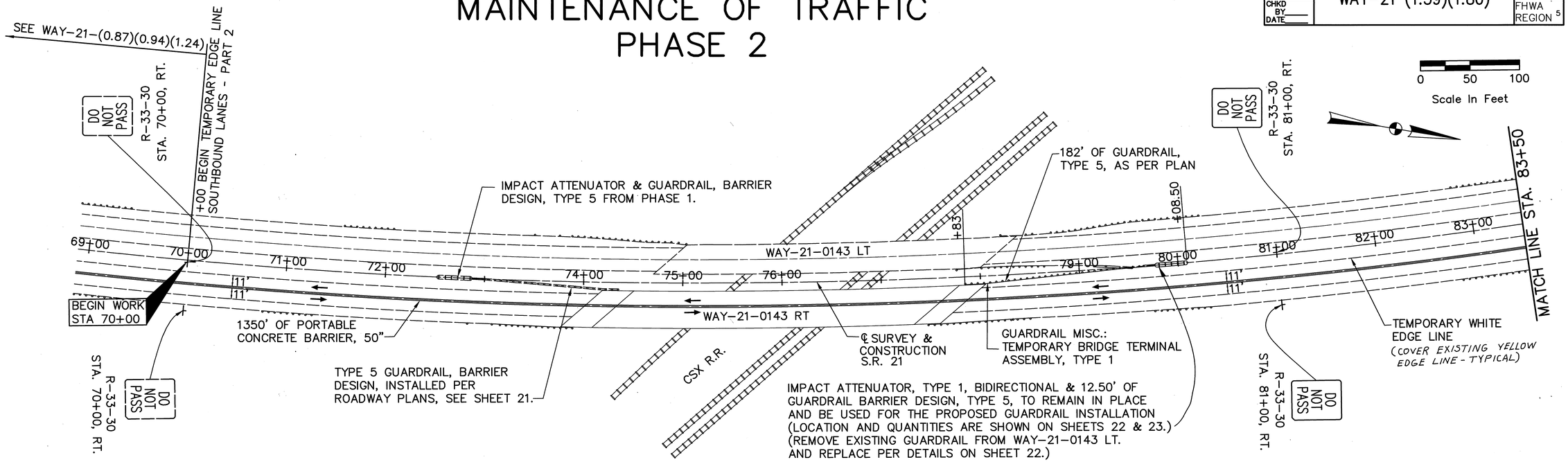
FOR ADDITIONAL DETAILS, SEE MT-95.30 & MT-95.70.

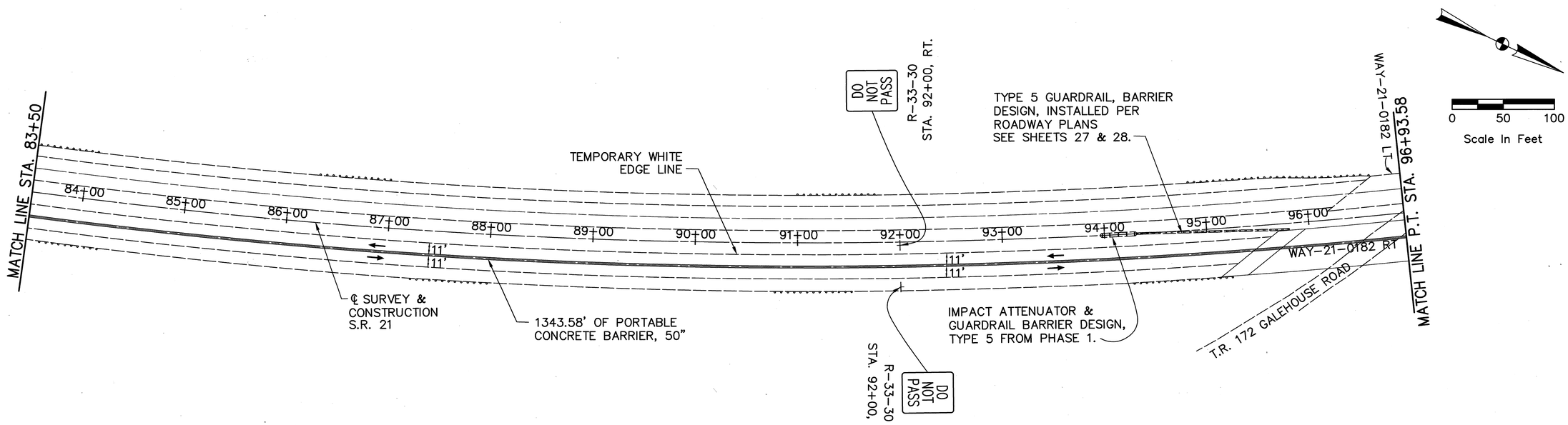
FOR QUANTITIES SEE SHEET 13.

MAINTENANCE OF TRAFFIC
PHASE 2

CALC. BY / DATE	WAY-21 (1.39)(1.80)	OHIO
CHKD BY / DATE		FHWA REGION 5

11 / 100



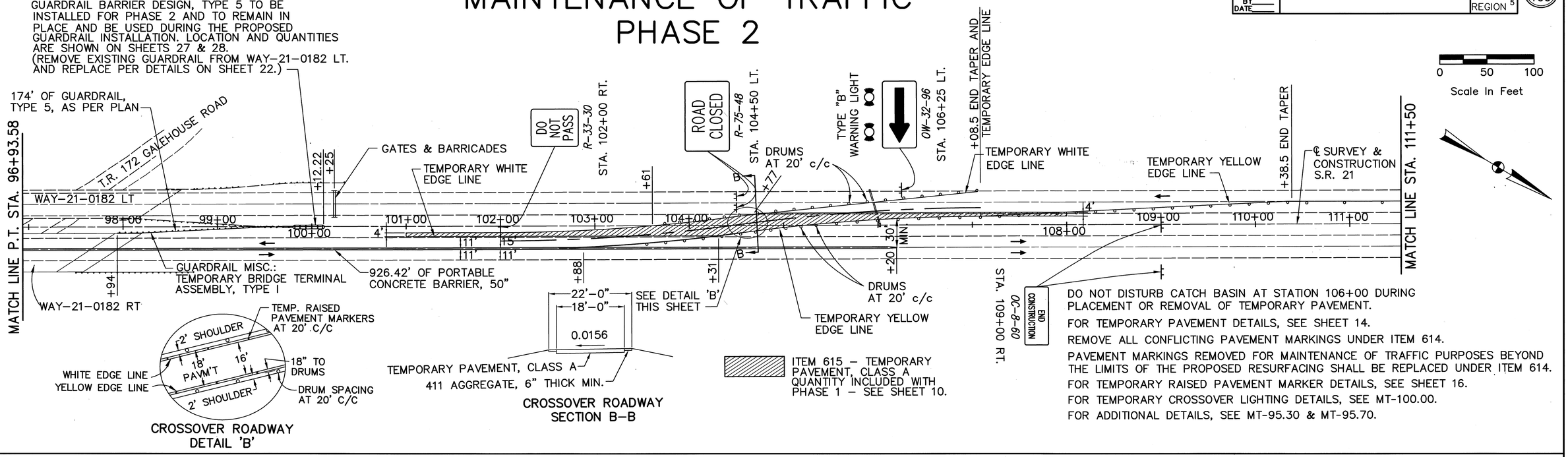


FOR QUANTITIES SEE SHEET 13.

CALC. BY		WAY-21 (1.39)(1.80)	OHIO	12
CHKD BY			FHWA REGION 5	100
DATE				

MAINTENANCE OF TRAFFIC PHASE 2

IMPACT ATTENUATOR, TYPE 1, BIDIRECTIONAL & 12.50' OF GUARDRAIL BARRIER DESIGN, TYPE 5 TO BE INSTALLED FOR PHASE 2 AND TO REMAIN IN PLACE AND BE USED DURING THE PROPOSED GUARDRAIL INSTALLATION. LOCATION AND QUANTITIES ARE SHOWN ON SHEETS 27 & 28. (REMOVE EXISTING GUARDRAIL FROM WAY-21-0182 LT. AND REPLACE PER DETAILS ON SHEET 22.)



CROSSOVER ROADWAY DETAIL 'B'

CROSSOVER ROADWAY SECTION B-B

ITEM 615 - TEMPORARY PAVEMENT, CLASS A QUANTITY INCLUDED WITH PHASE 1 - SEE SHEET 10.

DO NOT DISTURB CATCH BASIN AT STATION 106+00 DURING PLACEMENT OR REMOVAL OF TEMPORARY PAVEMENT.

FOR TEMPORARY PAVEMENT DETAILS, SEE SHEET 14.

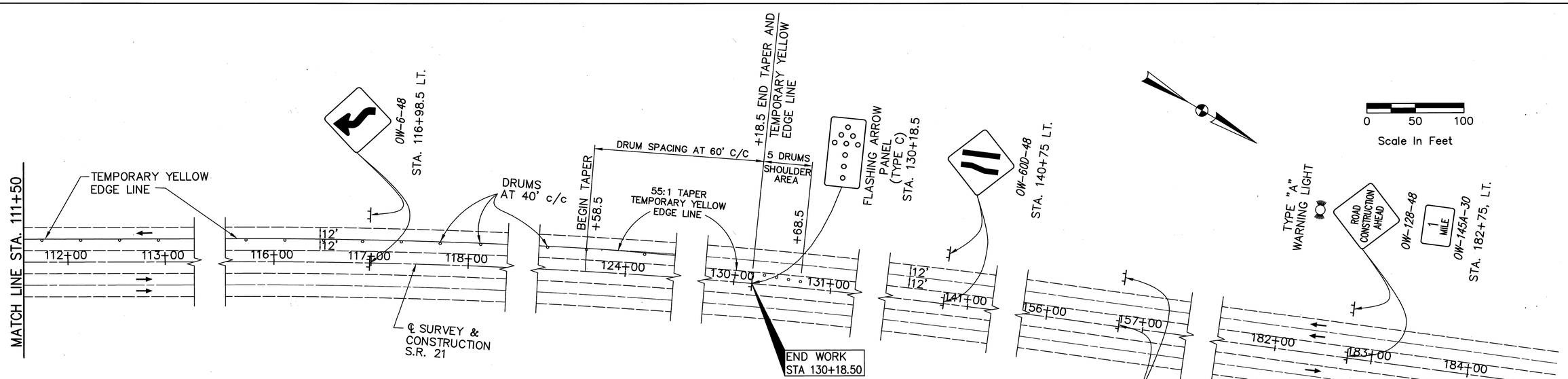
REMOVE ALL CONFLICTING PAVEMENT MARKINGS UNDER ITEM 614.

PAVEMENT MARKINGS REMOVED FOR MAINTENANCE OF TRAFFIC PURPOSES BEYOND THE LIMITS OF THE PROPOSED RESURFACING SHALL BE REPLACED UNDER ITEM 614.

FOR TEMPORARY RAISED PAVEMENT MARKER DETAILS, SEE SHEET 16.

FOR TEMPORARY CROSSOVER LIGHTING DETAILS, SEE MT-100.00.

FOR ADDITIONAL DETAILS, SEE MT-95.30 & MT-95.70.



FOR QUANTITIES SEE SHEET 13.

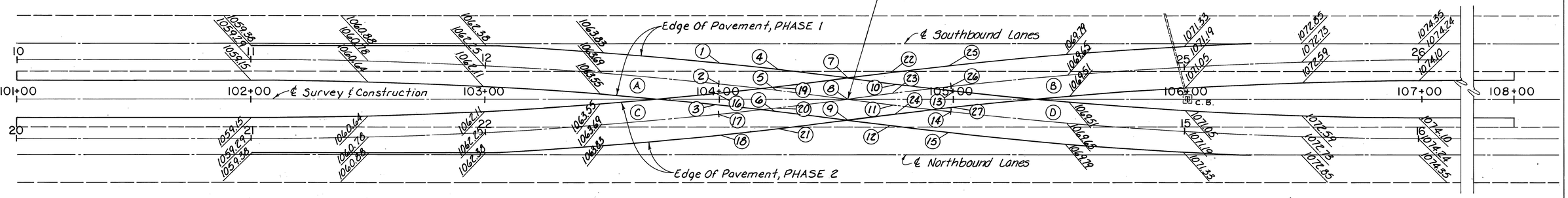
MAINTENANCE OF TRAFFIC

CALC. BY RVK DATE 11/96
CHKD BY AFS DATE 11/96
WAY-21-(1.39)(1.80)
OHIO
FHWA REGION 5
13/100

MAINTENANCE OF TRAFFIC

SHEET NO.	STATION FROM:	STATION TO:	SIDE	606 GUARDRAIL, TYPE 5, AS PER PLAN LIN. FT.	606 GUARDRAIL MISC.: TEMPORARY BRIDGE TERMINAL ASSEMBLY, TYPE 1 EACH	606 GUARDRAIL MISC.: TEMPORARY BRIDGE TERMINAL ASSEMBLY, TYPE H EACH	614 BARRIER REFLECTOR, TYPE A EACH	614 BARRIER REFLECTOR, TYPE B EACH	614 OBJECT MARKER EACH	614 TEMPORARY EDGE LINE, CLASS I WHITE LIN. FT.	614 TEMPORARY EDGE LINE, CLASS I YELLOW LIN. FT.	614 TEMPORARY EDGE LINE, CLASS I 740.05, TYPE C WHITE LIN. FT.	614 TEMPORARY EDGE LINE, CLASS I 740.05, TYPE C YELLOW LIN. FT.	411 STABILIZED CRUSHED AGGREGATE CU. YD.	615 TEMPORARY ROAD LUMP	615 TEMPORARY PAVEMENT CLASS A SQ. YD.	622 PORTABLE CONCRETE BARRIER, 50" LIN. FT.
	PHASE I																
9	70+00	83+50	LT.														1350
9	70+00	83+50	LT.					218	216								
9	70+00	96+93.58	LT.									2694					
9	72+85.74	74+92	LT.	181		1	17										
9	74+92	77+76.40	LT.					23									
9	77+76.40	79+53.54	LT.				15										
9	83+50	96+93.58	LT.														1343.58
9	83+50	96+93.58	LT.					214	216								
9	94+42	96+40	LT.	173		1	16										
9	96+40	96+93.58	LT.					5									
10	96+93.58	97+92.06	LT.					8									
10	97+92.06	99+69.24	LT.				14										
10	96+93.58	109+20	LT.														1226.42
10	96+93.58	103+10	LT.					100	100								
10	103+10	109+20	LT.					49	44								
10	96+93.58	101+00	LT.									406					
10	101+00	104+77	LT.							377							
10	99+50	104+31	LT.										481				
10	104+31	108+00	L/R								369						
10	106+00	114+60	LT.										860				
	PHASE I TOTAL			354		2	62	617	576	377	369	3100	1341		LUMP		3920
	PHASE 2																
11	70+00	96+93.58	RT.									2694					
11	70+00	83+50	RT.														1350
11	70+00	83+50	RT.					218	216								
11	77+83	79+64.50	RT.	182	1		15										
11	83+50	96+93.58	RT.														1343.58
11	83+50	96+93.58	RT.					218	216								
11	72+85.74	74+92	RT.				8										
11	74+92	77+76.40	RT.					12									
11	77+76.40	79+53.54	RT.				15										
11	94+42	96+40	RT.				8										
11	96+40	96+93.58	RT.					3									
12	96+93.58	97+92.06	RT.					4									
12	97+92.06	99+68.22	RT.				15										
12	96+93.58	101+00	RT.									406					
12	96+93.58	106+20	RT.														926.42
12	96+93.58	102+88	RT.					96	94								
12	102+88	106+20	RT.					27	28								
12	97+94	99+68.22	RT.	174	1		8										
12	101+00	104+77	L/R							377							
12	104+77	107+08.5	RT.									232					
12	99+50	104+31	RT.										481				
12	104+31	108+00	L/R								369						
12	108+00	130+18.5	LT.										2219				
	PHASE 2 TOTAL			356	2		69	578	554	377	369	3332	2700		LUMP		3620
PHASE 1 & 2 TOTALS:				710	2	2	131	1195	1130	754	738	6432	4041	56	LUMP	1126	7540
QUANTITIES CARRIED TO GENERAL SUMMARY SHEET 18.				710	2	2	131	1195	1130	0.28 MI.		1.98 MI.		56	LUMP	1126	7540

CALC. BY		WAY-21-(1.39)(1.80)	OHIO	14/100
CHKD. BY				
DATE				



NO.	STATION	OFFSET	ELEVATION
1	104+00.58	15.49 LT.	1065.26
2	103+99.63	6.54 LT.	1065.12
3	103+98.69	2.41 RT.	1064.98
4	104+25.54	12.70 LT.	1065.97
5	104+24.48	3.76 LT.	1065.83
6	104+23.42	5.18 RT.	1065.69
7	104+54.26	9.08 LT.	1066.73
8	104+54.26	0.00	1066.73
9	104+54.26	9.08 RT.	1066.73
10	104+75.18	6.37 LT.	1067.17
11	104+74.08	2.56 RT.	1067.29
12	104+72.97	11.49 LT.	1067.41
13	104+99.90	3.48 LT.	1067.90
14	104+98.91	5.46 RT.	1068.04

NO.	STATION	OFFSET	ELEVATION
15	104+97.92	14.41 RT.	1068.18
16	103+98.69	2.41 LT.	1064.98
17	103+99.63	6.54 RT.	1065.12
18	104+00.58	15.49 RT.	1065.26
19	104+23.42	5.18 LT.	1065.69
20	104+24.48	3.76 RT.	1065.83
21	104+25.54	12.70 RT.	1065.97
22	104+72.97	11.49 LT.	1067.41
23	104+74.08	2.56 LT.	1067.29
24	104+75.18	6.37 RT.	1067.17
25	104+97.94	14.41 LT.	1068.18
26	104+98.91	5.46 LT.	1068.04
27	104+99.00	3.48 RT.	1067.90

CURVE DATA

△ = 7° 39' 01"
D = 3° 00' 00"
R = 1909.86'
T = 127.69'
L = 255.01'
E = 4.25'

CURVES	PI	PC	PRC	PT
A	STA.103+27.69,17' Lt.	STA.102+00,17' Lt.	STA.104+54.25, ℄	
B	STA.105+80.81,17' Lt.		STA.104+54.25, ℄	STA.107+08.5,17' Lt.
C	STA.103+27.69,17' Rt.	STA.102+00,17' Rt.	STA.104+54.25, ℄	
D	STA.105+80.81,17' Rt.		STA.104+54.25, ℄	STA.107+08.5,17' Rt.

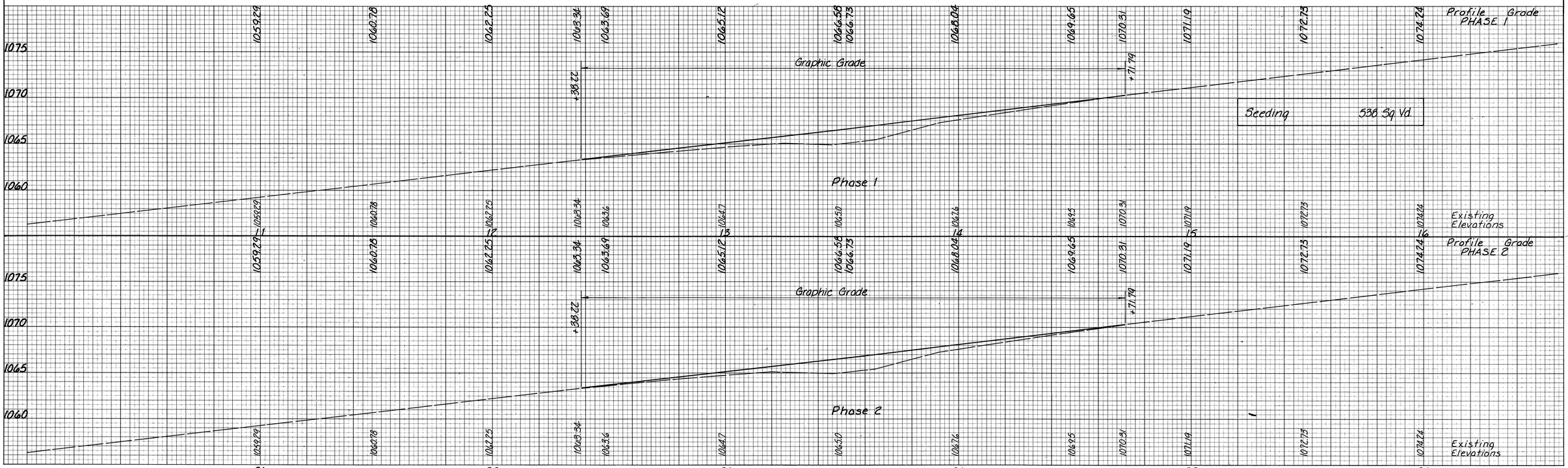
Notes: All Elevations Shown On Southbound And Northbound Lanes Are Existing Pavement Elevations.

Install Temporary Pavement Required For Phase 1 And Phase 2 Prior To Phase 1.

Provide Positive Drainage As Per The Requirements of Item 615.

For Temporary Crossover Earthwork See Sheet 15.

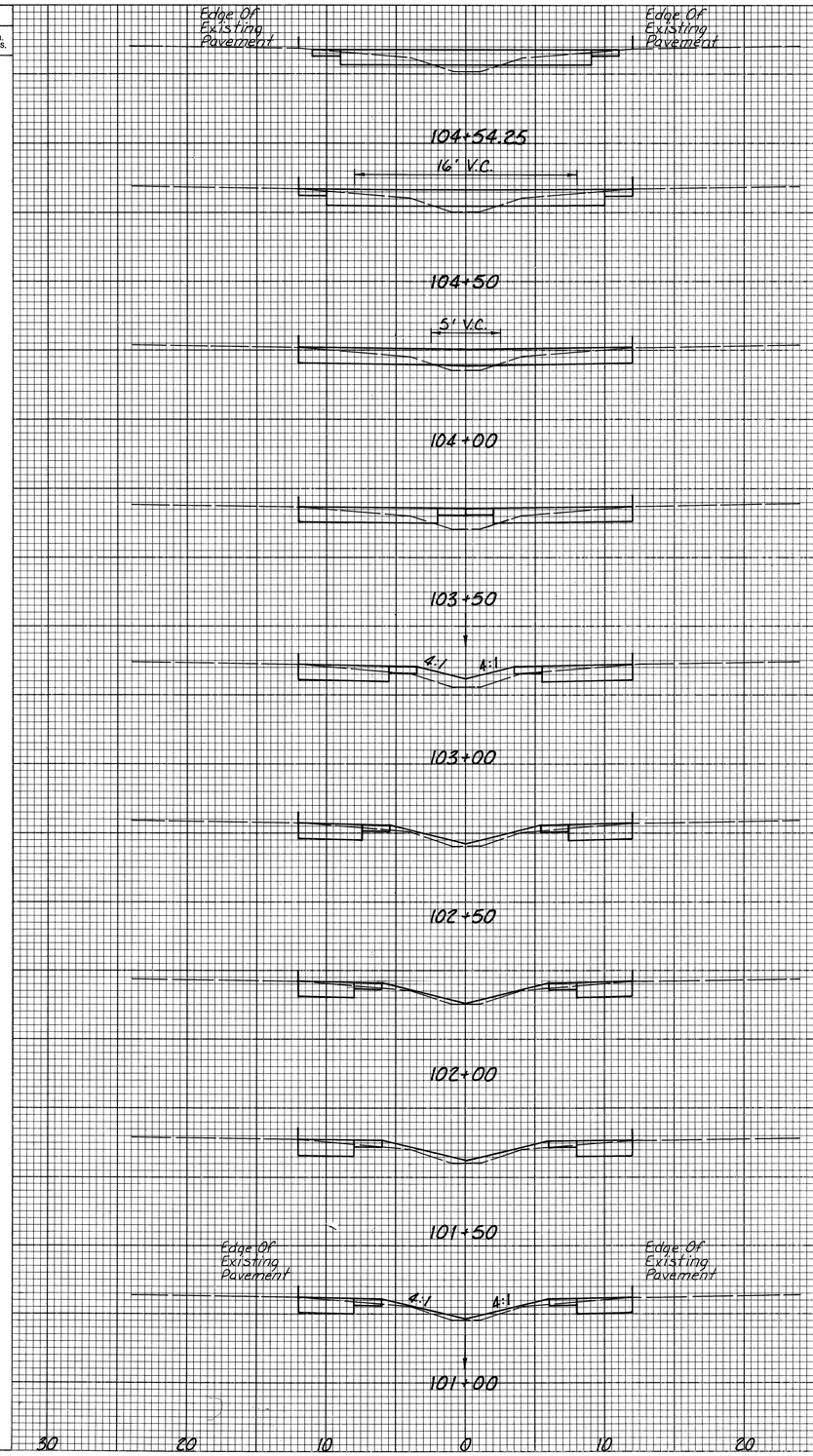
All Temporary Pavement Shall Be Removed Except 4' Width Adjacent To Pavement Edge.

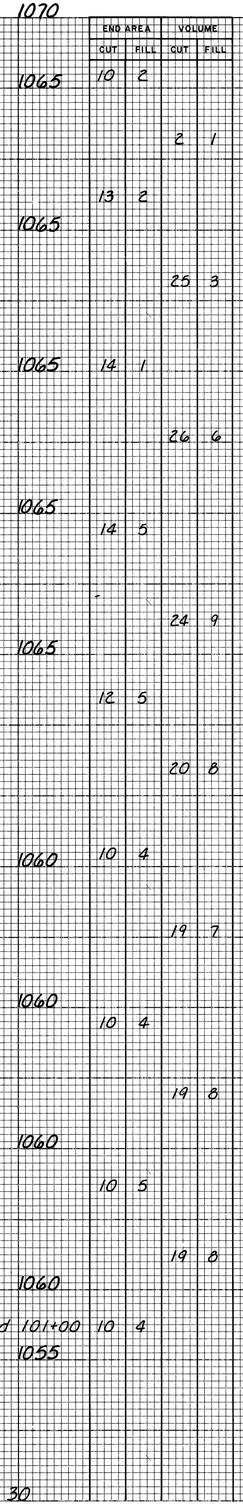


FINAL SURVEY — SURVEYED BY, DATE; PLOTTED; TEMPLATE; NOTE BOOK; AREAS; NO.; AREAS CHECKED

ORIGINAL SURVEY — SURVEYED BY, DATE; PLOTTED; TEMPLATE; NOTE BOOK; AREAS; NO.; AREAS CHECKED

SEEDING	
END WIDTH	SQ. YDS.





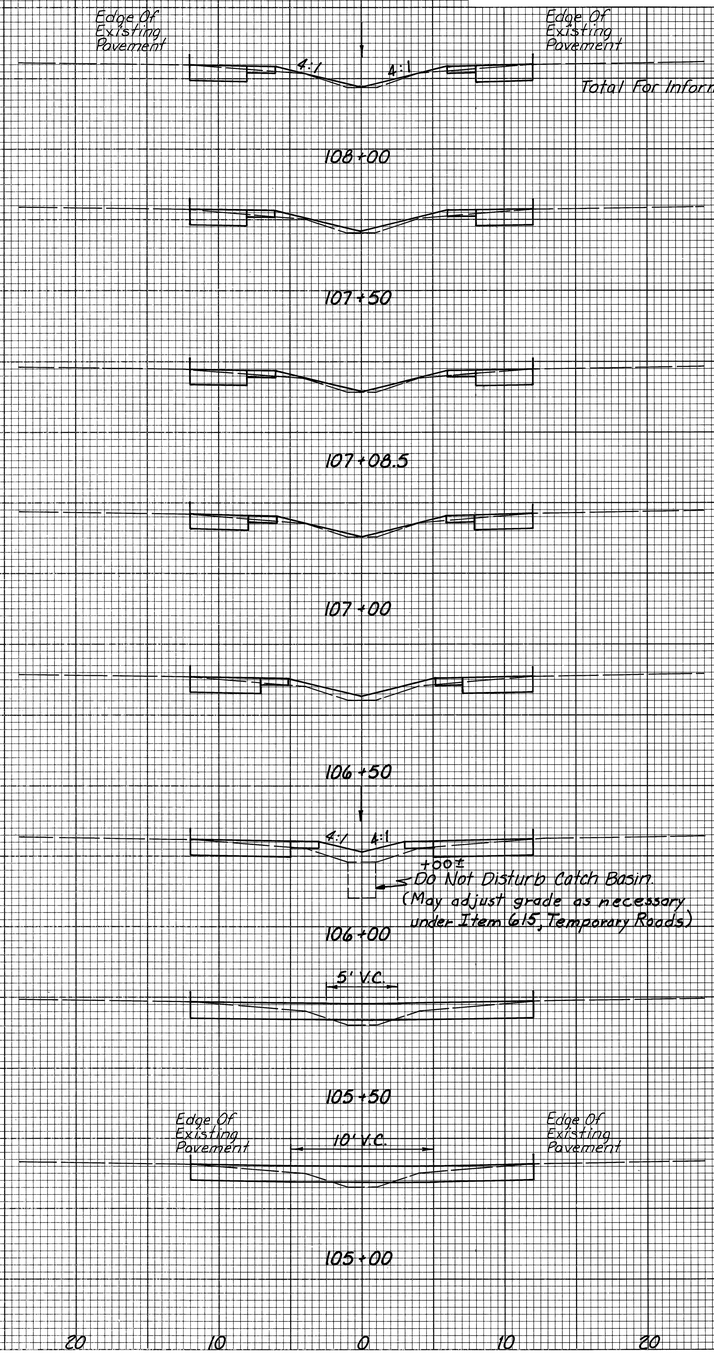
END AREA		VOLUME	
CUT	FILL	CUT	FILL
10	2		
		2	1
13	2		
		25	3
14	1		
		26	6
14	5		
		24	9
12	5		
		20	8
10	4		
		19	7
10	4		
		19	8
10	5		
		19	8
10	4		

CALC. BY MDG DATE 8/96
CHKD. BY SLM DATE 9/96

WAY-21-(1.39)(1.80)

OHIO
FHWA REGION 5

15
100



END AREA		VOLUME	
CUT	FILL	CUT	FILL
		300	93
Back 108+00 10	4		
		19	7
10	4		
		15	6
10	4		
		3	1
10	4		
		19	7
10	4		
		20	9
12	6		
		24	7
14	2		
		26	3
14	1		
		20	3

614 TEMPORARY RAISED PAVEMENT MARKERS

CALC. BY PLD DATE 11/96	FHWA REGION	STATE	PROJECT	
CHKD. BY AFS DATE 11/96	5	OHIO		

16
100

WAY-21-(1.39)(1.80)

THIS WORK SHALL CONSIST OF FURNISHING, INSTALLING, MAINTANING, AND SUBSEQUENTLY REMOVING TEMPORARY RAISED PAVEMENT MARKERS (TRPM'S). THE TRPM'S SHALL BE YELLOW OR WHITE, AS DESCRIBED IN THE PLANS.

MATERIAL

ALL UNITS SHALL BE OF SUFFICENT STRENGH AND PROPERLY SHAPED SO AS NOT TO BE DISLODGED OR BROKEN, OR THE REFLECTORS DISLODGED OR DAMAGED, BY IMPACTS FROM VEHICLE TIRES, INCLUDING HIGH-PRESSURE TRUCK TIRES LOADED TO 4500 POUNDS.

RETROREFLECTORS SHALL BE PROVIDED IN ONE OR TWO DIRECTIONS ON EACH UNIT AS REQUIRED BY THE USAGE AND SHALL RETURN WHITE OR YELLOW LIGHT AS IS APPROPRIATE FOR THE APPLICATION.

THE REFLECTOR SHALL HAVE AN EFFECTIVE AREA OF 0.35 SQUARE INCH FOR TYPE A OR 3.0 SQUARE INCH FOR TYPE B. ITS BRIGHTNESS OR SPECIFIC INTENSITY (WHEN TESTED AT 0.2 DEGREE ANGLE OF OBSERVATION AND THE FOLLOWING ANGLES OF INCIDENCE) SHALL MEET OR EXCEED THE FOLLOWING:

SPECIFIC INTENSITY

INCIDENCE ANGLE (DEGREES)	TYPE A WHITE	TYPE A YELLOW
0	1.0	0.6
20	0.4	0.24
45	–	–

INCIDENCE ANGLE (DEGREES)	TYPE B WHITE	TYPE B YELLOW
0	3.0	1.8
20	1.2	0.72
45	0.3	0.2

ANGLE OF INCIDENCE IS FORMED BETWEEN A RAY FROM THE LIGHT SOURCE TO THE MARKER, AND THE NORMAL TO THE LEADING EDGE OF THE MARKER FACE (ALSO HORIZONTAL ENTRANCE ANGLE).

ANGLE OF OBSERVATION IS FORMED BETWEEN A RAY FROM THE LIGHT SOURCE TO THE MARKER AND THE RETURN RAY FROM THE MARKER TO THE MEASURING RECEPTOR.

SPECIFIC INTENSITY IS THE MEAN CANDLEPOWER OF THE REFLECTED LIGHT (AT GIVEN INCIDENCE AND DIVERGENCE ANGLES) FOR EACH FOOT-CANDLE AT THE REFLECTOR (ON A PLANE PERPENDICULAR TO THE INCIDENT LIGHT).

TYPE A UNITS ARE INTENDED TO PROVIDE HIGH VISIBILTY BOTH AT NIGHT AND DURING DAYLIGHT. THEIR DAYTIME VISIBILITY SHALL BE ASSURED BY SIZE, SHAPE, AND COLOR AS FOLLOWS:

1) THE UNITS SHALL BE A HIGH VISIBILITY YELLOW OR WHITE COLOR WHICH WILL NOT DEGRADE SUBSTANTIALLY DUE TO TRAFFIC WEAR AND WHICH WILL MATCH THE COLOR OF THE REFLECTOR.

2) WHEN VIEWED FROM ABOVE, THE UNITS SHALL HAVE A VISIBILE AREA OF NOT LESS THAN 14 SQUARE INCHES.

3) WHEN VIEWED FROM THE FRONT PARALLEL TO THE PAVEMENT, AS FROM APPROACHING TRAFFIC, THE UNIT SHALL HAVE A WIDTH OF APPROXIMATELY 4 INCHES AND A VISIBILE AREA OF NOT LESS THAN 1.5 SQUARE INCHES.

TYPE B UNITS ARE INTENDED TO PROVIDE HIGH VISIBILITY AT NIGHT BY RETROREFLECTING A VEHICLE'S HEADLIGHTS BACK TO ITS DRIVER.

INSTALLATION EACH UNIT SHALL BE ATTACHED TO CLEAN, DRY PAVEMENT BY A BUTYL ADHESIVE PAD, A BITUMINOUS ADHESIVE, OR OTHER CONSTRUCTION GRADE ADHESIVE (SUCH AS FRANKLIN PANEL AND METAL ADHESIVE) SUITABLE FOR ANCHORING THE UNIT. WHEN IT IS NECESSARY TO ATTACH UNITS TO NEW CONCRETE HAVING CURING COMPOUNDS REMAINING ON IT, THE CURING COMPOUND MEMBRANE SHALL BE REMOVED BY SANDBLASTING OR OTHER MECHANICAL CLEANING METHOD ACCEPTABLE TO THE ENGINEER. ALL UNITS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

THE CONTRACTOR SHALL IMMEDIATELY REPLACE AT HIS COST, ANY UNITS WHICH FAIL DUE TO: BROKEN HOUSING, HOUSING WORN TO THE EXTENT THAT DAYTIME VISABILITY IS SIGNIFICANTLY DIMINISHED OR THE HOUSING IS OF AN UNACCEPTABLE COLOR; DETACHED OR BROKEN REFLECTOR; HOUSING DETACHED FROM ADHESIVE; ETC.

TRPM'S ARE LIKELY TO BE REMOVED BY SNOW PLOWING OPERATIONS; THEREFORE, THEY ARE NOT CONSIDERED SUITABLE FOR USE DURING THE PERIOD FROM OCTOBER 15 TO APRIL 30. THE CONTRACTOR IS ADVISED TO SCHEDULE HIS WORK TO AVOID THE NEED TO USE THESE DEVICES DURING THAT PERIOD. SHOULD THE CONTRACTOR CHOOSE TO USE TRPM'S DURING THE TIME SPECIFIED AS INAPPROPRIATE FOR THEIR USE AND THEY ARE REMOVED BY SNOW AND ICE CONTROL ACTIVITES, THE CONTRACTOR SHALL IMMEDIATELY AT HIS COST, PROVIDE A SUBSTITUTE TRAFFIC GUIDANCE SYSTEM WHICH IS EFFECTIVE DURING LIGHT AND DARK AND WHICH IS ACCEPTABLE TO THE ENGINEER.

THE UNITS SHALL BE ACCURATELY PLACED TO FOLLOW LINES BEING SUPPLEMENTED OR TO DEFINE THE INTENDED LOCATIONS OF LINES BEING SIMULATED. UNITS USED TO SUPPLEMENT PAVEMENT MARKINGS MAY BE PLACED ON OR IMMEDIATELY ADJACENT TO THE MARKINGS BEING SUPPLEMENTED; HOWEVER, THEY SHALL NOT BE PLACED DIRECTLY ON PAVMENT MARKINGS IF THAT PLACEMENT WOULD PREVENT ADEQUATE ADHESION OF THE MARKER TO THE PAVEMENT. MARKER LOCATIONS SHALL BE ADJUSTED UP TO ONE FOOT LONGITUDINALLY AND/OR SIX INCHES LATERALLY TO AVOID PLACEMENT ON JOINTS OR ON CRACKED OR OTHERWISE DETERIORATED PAVEMENT.

APPLICATION

1) WHEN USED TO SUPPLEMENT PAVEMENT MARKINGS, TRPM'S SHALL BE PLACED AS FOLLOWS:

LINE	TYPE	SPACING
EDGE LINE	A OR B	20' C/C
LANE LINE	A OR B	40' C/C •
CENTER LINE (SINGLE/BROKEN)	A OR B	40' C/C •
CENTER LINE (DOUBLE SOLID)	A OR B	2 UNITS SIDE BY SIDE 4 INCHES APART 20' C/C
CHANNELIZING LINE (INCLUDES EXIT GORE NOSE)	A OR B	10' C/C

• CENTERED IN GAP

2) WHEN USED TO SIMULATE (REPLACE) PAVEMENT MARKINGS, TRPM'S SHALL BE PLACED AS FOLLOWS:

LINE	TYPE	SPACING
EDGE LINE	A	5' C/C
LANE LINE	A	4 @ 3.33' C/C 30' GAP (40' CYCLE)
CENTER LINE (DOUBLE SOLID)	A	2 UNITS SIDE BY SIDE 5' C/C
CENTER LINE (SINGLE BROKEN)	A	4 @ 3.33' C/C 30' GAP (40' CYCLE)
CHANNELIZING LINE (INCLUDES EXIT GORE NOSE)	A	5' C/C
EDGE LINE (TWO COLOR) (YELLOW/WHITE)	A	BACK TO BACK 5' C/C

YELLOW TRPM'S USED TO SEPARATE OPPOSITE FLOWS OF TRAFFIC (CENTER LINES) SHALL PROVIDE RETROREFLECTION IN BOTH DIRECTIONS; ANY OTHER TRPM SHALL PROVIDE RETROREFLECTION IN ONLY ONE DIRECTION.

REMOVAL

REMOVAL SHALL BE ACCOMPLISHED IN A MANNER SUCH THAT LITTLE OR NONE OF THE ADHESIVE REMAINS ON THE PAVEMENT AND PERMANENT PAVEMENT SURFACES SHALL NOT BE SCARRED, BROKEN, OR SIGNIFICANTLY ROUGHENED.

PAYMENT

BASIS OF PAYMENT SHALL BE THE CONTRACT UNIT PRICE BID FOR EACH TRPM WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, HARDWARE, AND INCIDENTALS REQUIRED TO PERFORM THE WORK. THE CONTRACT UNIT PRICE BID SHALL ALSO INCLUDE REPLACEMENT, WITHOUT COST TO THE STATE OF OHIO, OF ALL TRPM'S WHICH, IN THE JUDGEMENT OF THE ENGINEER, FAIL FOR ANY REASON OTHER THAN THE FAILURE OF THE PAVEMENT TO WHICH THEY ARE ATTACHED.

ITEM	UNIT	DESCRIPTION
614	EACH	TEMPORARY RAISED PAVEMENT MARKERS

STATIONING (FROM-TO)/(SIDE)	SPACING	TYPE A W	TYPE A Y	TYPE A Y/Y	TYPE B W	TYPE B Y	TYPE B Y/Y	LINE TYPE
PHASE 1								
99+50 to 104+50	20'C/c		26					Supplemental Edge Line
99+50 to 103+70	20'C/c	22						Supplemental Edge Line
PHASE 2								
101+00 to 103+74	20'C/c	15						Supplemental Edge Line
102+00 to 103+74	20'C/c		10					Supplemental Edge Line
104+54 to 107+08.5	20'C/c	14						Supplemental Edge Line
104+54 to 110+38.5	20'C/c		30					Supplemental Edge Line
SUB-TOTALS		51	66					
Totals Carried to General Summary, Sheet 18.		117						

DESIGN FILE: $.DGNFILESPECIFICATIONS$

614 WORK ZONE PAVEMENT MARKINGS

GENERAL

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND WHEN NECESSARY, REMOVE WORK ZONE RETROREFLECTIVE PAVEMENT MARKINGS ON EXISTING, RECONSTRUCTED, RESURFACED OR TEMPORARY ROADS WITHIN THE WORK LIMITS, IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.

THE MARKINGS SHALL BE EVALUATED BY THE ENGINEER IN ACCORDANCE WITH THE THREE PERFORMANCE PARAMETERS CONTAINED IN SUPPLEMENT 1047. THE MARKINGS SHALL BE REPAIRED OR REPLACED WHEN THE NUMERICAL RATING OF A PARAMETER IS (a) SIX OR LOWER FOR DURABILITY, (b) FOUR OR LOWER FOR VISUAL EFFECTIVENESS AND (c) FOUR OR LOWER FOR NIGHT VISIBILITY. THE CONTRACTOR SHALL REPAIR OR REPLACE UNSATISFACTORY MARKINGS IMMEDIATELY AND AT NO ADDITIONAL COST TO THE STATE.

TEMPORARY PAVEMENT MARKING MATERIALS

UNLESS OTHERWISE INDICATED ON THE PLANS, TEMPORARY PAVEMENT MARKINGS MAY BE EITHER 621.02 PAINT OR 947.03 TYPE B OR TYPE C PREFORMED MATERIAL.

PAINT

PAINTED MARKINGS SHALL BE IN ACCORDANCE WITH 621 EXCEPT THAT (a) PARAGRAPH 621.14 SHALL NOT APPLY, (b) WHERE THE MARKINGS ARE NOT LIABLE TO BE TRACKED, EITHER CONVENTIONAL OR FAST DRY PAINT MAY BE USED FOR 621.02 AND **(c) WHEN** APPLYIED TO NEW ASPHALT PAVEMENT SURFACES PLACED BY THIS PROJECT, THE SPECIFIED APPLICATION RATE SHALL BE AS FOLLOWS:

GALLONS PER MILE OF LINE	WIDTH OF LINE (INCHES) 4	8	12		
SOLID LINE	20	40	60	-	-
10 FOOT DASHED LINE	5	-	-	-	-
4 FOOT DASHED LINE	2	-	-	-	-
DOTTED LINE	6.7	-	-	-	-

(d) WHEN APPLIED TO PLANED ASPHALT PAVEMENT SURFACES THE SPECIFIED APPLICATION RATE SHALL BE AS FOLLOWS:

GALLONS PER MILE OF LINE	WIDTH OF LINE (INCHES) 4	8	12		
SOLID LINE	24	48	72	-	-
10 FOOT DASHED LINE	6	-	-	-	-
4 FOOT DASHED LINE	2.4	-	-	-	-
DOTTED LINE	8	-	-	-	-

TYPE B AND TYPE C PREFORMED MATERIAL

PREFORMED MATERIAL SHALL COMPLY WITH 947.03 EXCEPT THAT NO PREFORMED MATERIAL CONTAINING METAL SHALL BE PLACED ON ANY SURFACE UNLESS IT WILL BE REMOVED LATER BY THE CONTRACTOR. TEMPORARY PAVEMENT MARKINGS OF 947.03 PREFORMED MATERIAL SHALL BE REMOVED PRIOR TO PLACEMENT OF 621 OR 847 SURFACE COURSE MARKINGS AT THAT LOCATION. PREFORMED MATERIAL SHALL BE IN ACCORDANCE WITH 847 EXCEPT AS MODIFIED HEREIN.

PLACEMENT

TEMPORARY MARKINGS SHALL BE COMPLETE AND IN PLACE ON ALL PAVEMENT, INCLUDING RAMPS, PRIOR TO EXPOSING IT TO TRAFFIC. WHEN TEMPORARY MARKINGS CONFLICT WITH THE TRAFFIC PATTERN, THEY SHALL BE REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH 621.134.

LINE PLACEMENT TOLERANCE FOR FINAL SURFACES SHALL BE IN ACCORDANCE WITH 621.052. ON SURFACES OTHER THAN THE FINAL, THE TOLERANCE PERMITTED SHALL BE TWICE THAT IN 621.052. LAYOUT AND PREMARKING SHALL BE IN ACCORDANCE WITH 621.051.

TEMPORARY MARKING CLASSES

CLASS I MARKINGS

CLASS I MARKINGS SHALL BE APPLIED TO THE STANDARD DIMENSIONS AS DEFINED IN 621 WITH THE FOLLOWING EXCEPTION:

1. TRANSVERSE LINES SHALL BE 8-INCHES IN WIDTH.
2. STOP LINES SHALL BE 12-INCHES IN WIDTH.
3. CROSSWALK LINES SHALL BE 8-INCHES IN WIDTH.

CLASS I I MARKINGS

CLASS I I MARKINGS (ABBREVIATED) SHALL BE DEFINED AS FOLLOWS:

CENTER LINES SHALL CONSIST OF SINGLE, YELLOW 4-INCH WIDE BY A MINIMUM OF 4 FOOT LONG DASHES SPACED AT A MAXIMUM OF 40 FOOT INTERVALS.

LANE LINES SHALL CONSIST OF WHITE 4-INCH WIDE BY A MINIMUM OF 4 FOOT LONG DASHES SPACED AT A MAXIMUM OF 40-FOOT INTERVALS.

GORE MARKINGS SHALL BE CONTINUOUS, WHITE 4-INCH LINES PLACED AT THE THEORETICAL GORE OF AN EXIT RAMP OR DIVERGING ROADWAYS.

CONFLICTING EXISTING MARKINGS

THE CONTRACTOR SHALL, PRIOR TO PLACING TEMPORARY MARKINGS, REMOVE ALL CONFLICTING EXISTING MARKINGS VISIBLE TO THE TRAVELING PUBLIC DURING DAYLIGHT OR NIGHTTIME HOURS IN ACCORDANCE WITH 621.134. THE COST FOR REMOVAL OF CONFLICTING MARKINGS SHALL BE INCLUDED IN 614 MAINTAINING TRAFFIC UNLESS SPECIFICALLY ITEMIZED.

THE CONTRACTOR SHALL ALSO REMOVE THE PRISMATIC RETRO-REFLECTOR WITHIN ANY RAISED PAVEMENT MARKER (RPM) WHICH IS IN CONFLICT WITH THE TEMPORARY PAVEMENT MARKINGS. WHEN THE TEMPORARY PAVEMENT MARKINGS ARE REMOVED AND THE RPM IS NO LONGER IN CONFLICT, THE CONTRACTOR SHALL THOROUGHLY CLEAN THE RECESSED REFLECTOR ATTACHMENT AREA OF THE CASTING AND INSTALL A NEW PRISMATIC RETRO-REFLECTOR OF THE SAME KIND AND COLOR. THE COST FOR THIS WORK SHALL BE INCIDENTAL TO THE VARIOUS PAY ITEMS.

ALLOWABLE DURATION OF CLASS II CENTER LINES

EXCEPT AS NOTED BELOW, ANYTIME EXISTING PERMANENT NO PASSING ZONE MARKINGS HAVE BEEN REMOVED OR OBLITERATED AS THE RESULT OF A CONSTRUCTION OPERATION (PAVEMENT GRINDING, ASPHALT PAVEMENT OVERLAYS, ETC,) AND THE SECTION OF PAVEMENT CONTINUES TO BE USED BY THE TRAVELING PUBLIC, THE CONTRACTOR MUST WITHIN 3 CALENDAR DAYS PLACE FINAL CENTER LINE MARKINGS AS SPECIFIED BY THE PLAN. EQUIVALENT 614 CLASS I CENTER LINE MARKINGS MAY BE USED IN LIEU OF FINAL MARKINGS. IN THIS EVENT, THE CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT, AND MATERIAL NECESSARY TO PLACE AND MAINTAIN 614 CLASS I MARKINGS AS PART OF THE LUMP SUM BID FOR MAINTAINING TRAFFIC.

IF AFTER THE ORIGINAL MARKINGS ARE REMOVED OR OBLITERATED, THE CONTRACTOR RETURNS TO THE SUBJECT NO PASSING ZONE AND PLACES A PLAN SPECIFIED PAVEMENT COURSE WITHIN THE 3 CALENDAR DAY LIMIT, OR PERFORMS WORK IN PREPARATION FOR A SUBSEQUENT PAVEMENT COURSE, THE CONTRACTOR WILL HAVE TEMPORARILY SATISFIED THE CONDITIONS OF THE PREVIOUS PARAGRAPH. IN THIS EVENT THE 3 CALENDAR DAY LIMIT WILL BEGIN AGAIN.

SECTIONS OF PAVEMENT WHERE PASSING IS PERMITTED IN BOTH DIRECTIONS SHALL BE GOVERNED BY THE 21 DAY LIMIT DESCRIBED BELOW IN THE PARAGRAPH ENTITLED " ALLOWABLE DURATION OF CLASS II LANE LINES, GORE MARKINGS AND ABSENCE OF EDGE LINES."

FOR EACH CALENDAR DAY BEYOND 3 DAYS THAT THIS WORK SHALL REMAIN UNCOMPLETED, THE SUM OF $200 PER CALENDAR DAY WILL BE DEDUCTED FROM ANY MONEY DUE THE CONTRACTOR, NOT AS A PENALTY BUT AS LIQUIDATED DAMAGES.

ALLOWABLE DURATION OF CLASS II LANE LINES AND GORE MARKINGS AND ABSENCE OF EDGE LINES

ANYTIME EXISTING PERMANENT LANE LINES, GORE MARKINGS OR EDGE LINES HAVE BEEN REMOVED OR OBLITERATED AS THE RESULT OF A CONSTRUCTION OPERATION (PAVEMENT GRINDING, ASPHALT PAVEMENT OVERLAYS, PAVEMENT WIDENING, ETC.) AND THE SECTION OF PAVEMENT CONTINUES TO BE USED BY THE TRAVELING PUBLIC, THE CONTRACTOR MUST WITHIN 21 CALENDAR DAYS PLACE FINAL PAVEMENT MARKINGS AS SPECIFIED BY THE PLAN. EQUIVALENT 614 CLASS I MARKINGS MAY BE USED IN LIEU OF FINAL MARKINGS. IN THIS EVENT, THE CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT, AND MATERIAL NECESSARY TO PLACE AND MAINTAIN 614 CLASS I MARKINGS AS PART OF THE LUMP SUM BID FOR 614 MAINTAINING TRAFFIC.

IF, AFTER THE ORIGINAL MARKINGS ARE REMOVED OR OBLITERATED, THE CONTRACTOR RETURNS TO THE SUBJECT SECTION OF PAVEMENT AND PLACES A PLAN SPECIFIED PAVEMENT COURSE WITHIN THE 21 CALENDAR DAY LIMIT, OR PERFORMS SPECIFIED WORK WHICH REQUIRES A LANE CLOSURE, EXCEPT ROUTINE MAINTENANCE REQUIRED BY 614.02, THE CONTRACTOR WILL HAVE TEMPORARILY SATISFIED THE CONDITIONS OF THE PREVIOUS PARAGRAPH. IN THIS EVENT, THE 21 CALENDAR DAY LIMIT WILL BEGIN AGAIN.

FOR EACH CALENDAR DAY BEYOND 21 DAYS THAT THIS WORK SHALL REMAIN UNCOMPLETED, THE SUM OF $200 PER CALENDAR DAY WILL BE DEDUCTED FROM ANY MONEY DUE THE CONTRACTOR, NOT AS A PENALTY BUT AS LIQUIDATED DAMAGES.

IF A SECTION OF PAVEMENT IS IN A CONTINUOUS PART OF THE PROJECT THEN A NEW 21 DAY LIMIT FOR RENEWED WORK ON A SECTION SHALL APPLY TO ALL SECTIONS IN THAT PART. IF THE PROJECT IS IN PARTS AND THE TRAVELING PUBLIC WOULD NOT DISCERN THE PARTS AS ONE CONTINUOUS PROJECT, THEN A NEW 21 DAY LIMIT IN ONE PART WILL NOT APPLY TO THE OTHER PARTS. THE TWO DIRECTIONAL SIDES OF A FREEWAY SHALL BE TREATED AS SEPARATE PARTS. WORK ON ONE SIDE OF A FREEWAY SHALL NOT CREATE A NEW 21 DAY LIMIT FOR THE OTHER SIDE.

METHOD OF MEASUREMENT

TEMPORARY PAVEMENT MARKINGS WILL BE MEASURED COMPLETE IN PLACE, BY CLASS AND MATERIAL, IN THE UNITS DESIGNATED. LINE QUANTITIES WILL BE THE LENGTH OF THE COMPLETED STRIPE, INCLUDING GAPS, INTERSECTIONS, AND OTHER SECTIONS OF PAVEMENT NOT NORMALLY MARKED.

TEMPORARY PAVEMENT MARKINGS WILL INCLUDE THE LAYOUT, APPLICATION AND REMOVAL OF THE MARKINGS, WHEN REQUIRED.

BASIS OF PAYMENT

PAYMENT FOR ACCEPTED QUANTITIES COMPLETE IN PLACE WILL BE MADE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL BE FULL COMPENSATION FOR ALL MATERIALS, LABOR, INCIDENTALS AND EQUIPMENT FOR PLACEMENT, MAINTENANCE AND NECESSARY REMOVAL OF MARKINGS.

ITEM	UNIT	DESCRIPTION
614	MILE	TEMPORARY LANE LINES, CLASS____, ____*
614	MILE	TEMPORARY CENTER LINES, CLASS____, ____*
614	LIN. FT.	TEMPORARY CHANNELIZING LINES, CLASS I, ____ *
614	MILE	TEMPORARY EDGE LINES, CLASS I, ____*
614	LIN. FT.	TEMPORARY GORE MARKINGS, CLASS I I, ____*
614	LIN. FT.	TEMPORARY STOP LINES, CLASS I, ____*
614	LIN. FT.	TEMPORARY CROSSWALK LINES, CLASS I, ____*
614	LIN. FT.	TEMPORARY DOTTED LINES, CLASS I, ____*

* TYPE MATERIAL (621 PAINT, 947.03 TYPE B OR 947.03 TYPE C OR LEFT BLANK TO PERMIT ANY OF THE THREE)

614 WORK ZONE MARKING SIGNS

GENERAL

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND SUBSEQUENTLY REMOVE WORK ZONE MARKING SIGNS (OW-I67, R-33 AND R-34) AND THEIR SUPPORTS WITHIN THE WORK LIMITS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.

THE CONTRACTOR SHALL, IN ADVANCE OF ANY SECTION OF ROADWAY LACKING OMUTCD STANDARD EDGE LINE MARKINGS, ERECT A " NO EDGE LINES" (OW-I67-36) SIGN. ON FREEWAYS AND EXPRESSWAYS AN OW-I67-48 SIGN SHALL BE USED. THESE SIGNS SHALL BE IN PLACE PRIOR TO EXPOSING THE ROADWAY TO TRAFFIC. THESE SIGNS SHALL ALSO BE ERECTED ON EACH ENTRANCE RAMP, AT INTERSECTIONS OF THROUGH ROADS TO WARN ENTERING OR TURNING TRAFFIC OF THE CONDITIONS AND AT LEAST ONCE EVERY 2 MILES ALONG THE ROADWAY. THESE SIGNS SHALL BE REMOVED WHEN THEY DO NOT APPLY.

THE CONTRACTOR SHALL AT THE BEGINNING OF EACH NO-PASSING ZONE LACKING OMUTCD STANDARD CENTER LINE MARKINGS, ERECT A " DO NOT PASS" (R-33-30) SIGN AND AT THE END OF EACH NO-PASSING ZONE, ERECT A " PASS WITH CARE" (R-34-30) SIGN.

MATERIALS

THE CONTRACTOR MAY USE SIGNS AND SUPPORTS IN USED BUT GOOD CONDITION. SIGN FACES SHALL BE REFLECTORIZED WITH TYPE G SHEETING COMPLYING WITH THE REQUIREMENTS OF 730.19. WORK ZONE MARKING SIGNS SHALL BE PROVIDED WITH SUITABLE YIELDING SUPPORTS OF SUFFICIENT STRENGTH AND STABILITY.

METHOD OF MEASUREMENT

WORK ZONE MARKING SIGNS WILL BE MEASURED AS THE NUMBER OF SIGN INSTALLATIONS, INCLUDING THE SIGN, NECESSARY SUPPORTS AND ALL ATTACHMENT HARDWARE. ALL OTHER WORK ZONE SIGNS SHALL BE INCLUDED IN 614 MAINTAINING TRAFFIC UNLESS SEPARATELY ITEMIZED.

BASIS OF PAYMENT

PAYMENT FOR ACCEPTED QUANTITIES, COMPLETE, IN PLACE WILL BE MADE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL BE FULL COMPENSATION FOR ALL MATERIALS, LABOR, INCIDENTALS AND EQUIPMENT FOR PLACEMENT, MAINTENANCE AND REMOVAL OF THE SIGNS.

ITEM	UNIT	DESCRIPTION
614	EACH	WORK ZONE MARKING SIGNS

REVISED BY: DATE:

209910A.DGN

DATE 11/14/86 03/03/88

WORK ZONE PAVEMENT MARKINGS AND SIGNS

PLAN INSERT SHEET

WCC

GENERAL SUMMARY

CALC. BY PLD DATE 11/96	WAY-21-(1.39)(1.80)	OHIO
CHKD BY MDG DATE 11/96		FHWA REGION 5

17/100

BHF FUNDS

ITEM	FROM SHEET NUMBER																	ITEM NO.	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET
		7		14			19	20	21	22	23		27	28										
																						ROADWAY	
201		LUMP																201	11000	LUMP		CLEARING AND GRUBBING	
202							1503											202	23000	1503	SQ YD	PAVEMENT REMOVED	
202							695											202	23500	695	SQ YD	WEARING COURSE REMOVED	
202											752			546				202	38000	1298	LIN FT	GUARDRAIL REMOVED	
202														76				202	38300	76	LIN FT	GUARDRAIL REMOVED, BARRIER DESIGN	
202											1							202	58100	1	EACH	CATCH BASIN REMOVED	
203									1535	283			474					203	12000	2292	CU YD	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	
203									240	761			573					203	20000	1574	CU YD	EMBANKMENT	
203							2873											203	50000	2873	SQ YD	SUBGRADE COMPACTION	
606											437.50			425.00				606	13000	862.50	LIN FT	GUARDRAIL, TYPE 5	
606											275.00			250.00				606	15500	525.00	LIN FT	GUARDRAIL, BARRIER DESIGN, TYPE 5	
606														1				606	26500	1	EACH	ANCHOR ASSEMBLY, TYPE T	
606											4			4				606	35000	8	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE 1	
606											2			2				606	35100	4	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE 2	
607											345			290				607	35000	635	LIN FT	FENCE REMOVED AND REBUILT	
SPECIAL											2			2				SPECIAL	69010360	4	EACH	IMPACT ATTENUATOR, TYPE 1, BI-DIRECTIONAL	7
																						EROSION CONTROL	
207		1250																207	30000	1250	LIN FT	FILTER FABRIC FENCE (SEE PROPOSAL NOTE)	
207		150																207	70000	150	EACH	STRAW OR HAY BALES	
601											2			4				601	32204	6	CU YD	ROCK CHANNEL PROTECTION, TYPE C WITH FABRIC FILTER	
659				538					2622	2560			3147					659	10000	8867	SQ YD	SEEDING AND MULCHING	
659								0.80										659	20000	0.80	TON	COMMERCIAL FERTILIZER	
659		19																659	35000	19	M GAL	WATER	
																						DRAINAGE	
602											0.3			0.5				602	20000	0.8	CU YD	CONCRETE MASONRY	
603											20			40				603	01500	60	LIN FT	6" CONDUIT, TYPE F, 707.17 NON-PERFORATED, ASTM D3034 SDR 35, SS931, SS944	
603											4							603	03300	4	LIN FT	10" CONDUIT, TYPE C	
603											128			194				603	05900	322	LIN FT	15" CONDUIT, TYPE B	
603											228			66				603	06100	294	LIN FT	15" CONDUIT, TYPE C	
603											78			60				603	06700	138	LIN FT	15" CONDUIT, TYPE F, 707.05, TYPE C	
603														4				603	07400	4	LIN FT	18" CONDUIT, TYPE B	
603											4			4				603	07600	8	LIN FT	18" CONDUIT, TYPE C	
604											4			8				604	00800	12	EACH	CATCH BASIN, NO. 3A	
604											2							604	04500	2	EACH	CATCH BASIN, NO. 2-2B	
604														1				604	09000	1	EACH	CATCH BASIN ADJUSTED TO GRADE	
605											47			133				605	11100	180	LIN FT	6" SHALLOW PIPE UNDERDRAIN	
605											72			146				605	13300	218	LIN FT	6" UNCLASSIFIED PIPE UNDERDRAIN	
605											52			63				605	31100	115	LIN FT	AGGREGATE DRAIN	
																						PAVEMENT	
301							489											301	10002	489	CU YD	BITUMINOUS AGGREGATE BASE, AC-20	
304							553											304	20000	553	CU YD	AGGREGATE BASE (SEE PROPOSAL NOTE)	
402								102										402	20000	102	CU YD	ASPHALT CONCRETE, AC-20	
403								12										403	20000	12	CU YD	ASPHALT CONCRETE, AC-20	
404								110										404	20000	110	CU YD	ASPHALT CONCRETE, AC-20	
407		123						105										407	10000	228	GALLON	TACK COAT	
408								880										408	10000	880	GALLON	BITUMINOUS PRIME COAT	
609											93			182				609	26000	275	LIN FT	CURB, TYPE 6	
611								673										611	25001	673	SQ YD	REINFORCED CONCRETE APPROACH SLAB (T=15"), AS PER PLAN	32,33
611								268										611	30001	268	SQ YD	REINFORCED CONCRETE APPROACH SLAB (T=17"), AS PER PLAN	32

GENERAL SUMMARY

GENERAL SUMMARY

BHF FUNDS

ITEM NO.	FROM SHEET NUMBER																		ITEM NO.	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET
		7	8		13	16					23			28		34								
																							TRAFFIC CONTROL	
642																0.77			642	00102	0.77	MILE	EDGE LINE, TYPE 2	
642																0.38			642	00202	0.38	MILE	LANE LINE, TYPE 2	
802											9			8					802	00100	17	EACH	BARRIER REFLECTOR, TYPE A	
802											19			12					802	00200	31	EACH	BARRIER REFLECTOR, TYPE B	
																							CAST-IN-PLACE STRUCTURES	
																							WAY-21-0143 L/R, QUANTITIES ON SHEETS 38,39.	
																							WAY-21-0182 L/R, QUANTITIES ON SHEETS 38,39.	
																							MAINTENANCE OF TRAFFIC	
253			50																253	02000	50	CU YD	PAVEMENT REPAIR	
404			30																404	35000	30	CU YD	BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC	
606					710														606	13001	710	LIN FT	GUARDRAIL, TYPE 5, AS PER PLAN	7
SPECIAL					2														SPECIAL	60698100	2	EACH	GUARDRAIL MISC. : TEMPORARY BRIDGE TERMINAL	7
																							ASSEMBLY, TYPE 1	
SPECIAL					2														SPECIAL	60698100	2	EACH	GUARDRAIL MISC. : TEMPORARY BRIDGE TERMINAL	7
																							ASSEMBLY, TYPE H	
614			100																614	11100	100	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR	8
614		4																	614	12460	4	EACH	WORK ZONE MARKING SIGN	
614			1																614	12756	1	EACH	TEMPORARY CROSSOVER LIGHTING SYSTEM	8
614						117													614	12800	117	EACH	TEMPORARY RAISED PAVEMENT MARKER	16
614					131														614	13200	131	EACH	BARRIER REFLECTOR, TYPE A	
614					1195														614	13300	1195	EACH	BARRIER REFLECTOR, TYPE B	
614					1130														614	13350	1130	EACH	OBJECT MARKER	
614		0.38																	614	20400	0.38	MILE	TEMPORARY LANE LINE, CLASS II	
614					0.28														614	22000	0.28	MILE	TEMPORARY EDGE LINE, CLASS I	
614					1.98														614	22300	1.98	MILE	TEMPORARY EDGE LINE, CLASS I, 740.05, TYPE C	
615					LUMP														615	10000	LUMP		TEMPORARY ROAD	8
615					1126														615	20000	1126	SQ YD	TEMPORARY PAVEMENT, CLASS A	
616		50																	616	10000	50	M GAL	WATER	
616		6																	616	20000	6	TON	CALCIUM CHLORIDE	
622					7540														622	40030	7540	LIN FT	PORTABLE CONCRETE BARRIER, 50"	7
					56														411	10000	56	CU. YD.	STABILIZED CRUSHED AGGREGATE	
614			LUMP																614	11000	LUMP		MAINTAINING TRAFFIC	
623																			623	10000	LUMP		CONSTRUCTION LAYOUT STAKES	
624																			624	10000	LUMP		MOBILIZATION	

GENERAL SUMMARY

CALCULATIONS

CALC. BY PJD DATE 11/96 | CHKD BY RVK DATE 11/96 | WAY-21 (1.39)(1.80) | OHIO | FHWA REGION 5 | 19/100

LINE NO.	DESCRIPTION			QUANTITY	UNIT
1					
2	ITEM 202 – PAVEMENT REMOVED				
3					
4	SOUTHBOUND LANES				
5	STA. 74+00.00 TO STA. 74+84.36:	(84.36)(24.00) =	2024.64 S.F.		
6	STA. 78+21.67 TO STA. 79+00.00:	(78.33)(24.00) =	1879.92 S.F.		
7	NORTHBOUND LANES				
8	STA. 73+50.00 TO STA. 74+30.89:	(80.89)(24.00) =	1941.36 S.F.		
9	STA. 77+61.48 TO STA. 78+25.00:	(63.52)(24.00) =	1524.48 S.F.		
10	SOUTHBOUND LANES				
11	STA. 95+75.00 TO STA. 96+39.32:	(64.32)(24.00) =	1543.68 S.F.		
12	STA. 98+42.34 TO STA. 99+10.00:	(67.66)(24.00) =	1623.84 S.F.		
13	NORTHBOUND LANES				
14	STA. 95+10.00 TO STA. 95+68.78:	(58.78)(24.00) =	1410.72 S.F.		
15	STA. 97+69.38 TO STA. 98+35.00:	(65.62)(24.00) =	1574.88 S.F.		
16	TOTAL OF LINES 5 THRU 15:	(13,523.52)(1/9) =	1502.61 S.Y. USE	1503	SQ.YD.
17					
18					
19					
20	ITEM 203 – SUBGRADE COMPACTION				
21					
22	SOUTHBOUND LANES				
23	PAVEMENT: STA. 74+00.00 TO STA. 74+54.23:	(54.23)(24.00) =	1301.52 S.F.		
24	STA. 78+46.77 TO STA. 79+00.00:	(53.23)(24.00) =	1277.52 S.F.		
25	APPROACH SLABS: STA. 74+54.23 TO STA. 74+84.36:	(30.00)(41.00) =	1230.00 S.F.		
26	STA. 78+21.67 TO STA. 78+46.77:	(25.00)(41.00) =	1025.00 S.F.		
27	SHOULDERS: STA. 73+50.00 TO STA. 74+73.32 LT.:	(123.32)(10.00) =	1233.20 S.F.		
28	STA. 74+00.00 TO STA. 74+38.65 RT.:	(38.65)(4.00) =	154.60 S.F.		
29	STA. 78+68.72 TO STA. 79+50.00 LT.:	(81.28)(10.00) =	812.80 S.F.		
30	STA. 78+28.87 TO STA. 79+00.00 RT.:	(71.13)(4.00) =	284.52 S.F.		
31	NORTHBOUND LANES				
32	PAVEMENT: STA. 73+50.00 TO STA. 74+01.01	(51.01)(24.00) =	1224.24 S.F.		
33	STA. 77+86.38 TO STA. 78+25.00:	(38.62)(24.00) =	926.88 S.F.		
34	APPROACH SLABS: STA. 74+01.01 TO STA. 74+30.89:	(30.00)(41.00) =	1230.00 S.F.		
35	STA. 77+61.48 TO STA. 77+86.38:	(25.00)(41.00) =	1025.00 S.F.		
36	SHOULDERS: STA. 73+50.00 TO STA. 74+16.30 LT.:	(66.30)(4.00) =	265.20 S.F.		
37	STA. 73+25.00 TO STA. 73+82.61 RT.:	(57.61)(10.00) =	576.10 S.F.		
38	STA. 78+03.90 TO STA. 78+25.00 LT.:	(21.10)(4.00) =	84.40 S.F.		
39	STA. 77+65.31 TO STA. 79+00.00 RT.:	(134.69)(10.00) =	1346.90 S.F.		
40					
41	SOUTHBOUND LANES				
42	PAVEMENT: STA. 95+75.00 TO STA. 96+14.21:	(39.21)(24.00) =	941.04 S.F.		
43	STA. 98+67.34 TO STA. 99+10.00:	(42.66)(24.00) =	1023.84 S.F.		
44	APPROACH SLABS: STA. 96+14.21 TO STA. 96+39.32:	(25.00)(41.00) =	1025.00 S.F.		
45	STA. 98+42.34 TO STA. 98+67.34:	(25.00)(41.00) =	1025.00 S.F.		
46	SHOULDERS: STA. 95+00.00 TO STA. 96+39.72 LT.:	(139.72)(10.00) =	1397.20 S.F.		
47	STA. 95+75.00 TO STA. 95+93.45 RT.:	(18.45)(4.00) =	73.80 S.F.		
48	STA. 98+93.18 TO STA. 99+75.00 LT.:	(81.82)(10.00) =	818.20 S.F.		
49	STA. 98+46.06 TO STA. 99+10.00 RT.:	(63.94)(4.00) =	255.76 S.F.		
50	NORTHBOUND LANES				
51	PAVEMENT: STA. 95+10.00 TO STA. 95+43.88:	(33.88)(24.00) =	813.12 S.F.		
52	STA. 97+94.38 TO STA. 98+35.00:	(40.62)(24.00) =	974.88 S.F.		
53	APPROACH SLABS: STA. 95+43.88 TO STA. 95+68.78:	(25.00)(41.00) =	1025.00 S.F.		
54	STA. 97+69.38 TO STA. 97+94.38:	(25.00)(41.00) =	1025.00 S.F.		
55	SHOULDERS: STA. 95+10.00 TO STA. 95+64.14 LT.:	(54.14)(4.00) =	216.56 S.F.		
56	STA. 94+75.00 TO STA. 95+19.54 RT.:	(44.54)(10.00) =	445.40 S.F.		
57	STA. 98+15.66 TO STA. 98+35.00 LT.:	(19.34)(4.00) =	77.36 S.F.		
58	STA. 97+68.53 TO STA. 98+55.00 RT.:	(86.47)(10.00) =	864.70 S.F.		
59	FROM LINES 23 THRU 58:	(25,999.74)(1/9) =	2888.86 S.Y.		
60	FROM SHEET 20, LINES 118 AND 129: DEDUCT (10.28 S.Y. + 5.61 S.Y.)	=	−15.89 S.Y.		
61	TOTAL OF LINES 59 AND 60:		2872.97 S.Y. USE	2873	SQ.YD.
62					
63					
64					
65					
66					
67					
68					
69					
70					
71					

LINE NO.	DESCRIPTION			QUANTITY	UNIT
72					
73	ITEM 202 – WEARING COURSE REMOVED				
74					
75	SOUTHBOUND LANES				
76	STA. 73+50.00 TO STA. 73+89.00:		534.00 S.F.		
77	STA. 79+00.00 TO STA. 79+50.00:	(50.00)(24.00) =	1200.00 S.F.		
78	NORTHBOUND LANES				
79	STA. 73+25.00 TO STA. 73+50.00:	(25.00)(24.00) =	600.00 S.F.		
80	STA. 78+25.00 TO STA. 79+00.00:		1536.00 S.F.		
81	SOUTHBOUND LANES				
82	STA. 95+00.00 TO STA. 95+34.00:		702.00 S.F.		
83	STA. 99+57.00 TO STA. 99+75.00:		360.00 S.F.		
84	NORTHBOUND LANES				
85	STA. 94+75.00 TO STA. 95+10.00:	(35.00)(24.00) =	840.00 S.F.		
86	STA. 98+35.00 TO STA. 98+55.00:	(20.00)(24.00) =	480.00 S.F.		
87	TOTAL OF LINES 76 THRU 86:	(6252.00)(1/9) =	694.67 S.Y. USE	695	SQ.YD.
88	(SEE SUPPLEMENTAL CALCULATIONS)				
89					
90					
91	ITEM 301 – BITUMINOUS AGGREGATE BASE				
92					
93	PAVEMENT AREA FROM SHEET 20, LINE 17:		8483.04 S.F.		
94	SHOULDER AREA FROM SHEET 20, LINE 57:		10,486.70 S.F.		
95	ADDITIONAL AT SHOULDERS: (8" EDGE COURSE)				
96	SOUTHBOUND LANES				
97	STA. 73+50.00 TO STA. 74+55.10 LT.:		105.10 L.F.		
98	STA. 73+50.00 TO STA. 74+38.65 RT.:		88.65 L.F.		
99	STA. 78+95.40 TO STA. 79+50.00 LT.:		54.60 L.F.		
100	STA. 78+26.33 TO STA. 79+50.00 RT.:		123.67 L.F.		
101	NORTHBOUND LANES				
102	STA. 73+25.00 TO STA. 73+94.50 LT.:		69.50 L.F.		
103	STA. 73+25.00 TO STA. 73+79.61 RT.:		54.61 L.F.		
104	STA. 78+25.80 TO STA. 79+00.00 LT.:		74.20 L.F.		
105	STA. 77+59.15 TO STA. 79+00.00 RT.:		140.85 L.F.		
106	SOUTHBOUND LANES				
107	STA. 95+00.00 TO STA. 96+24.90 LT.:		124.90 L.F.		
108	STA. 95+00.00 TO STA. 95+71.30 RT.:		71.30 L.F.		
109	STA. 99+20.90 TO STA. 99+75.00 LT.:		54.10 L.F.		
110	STA. 98+64.70 TO STA. 99+75.00 RT.:		110.30 L.F.		
111	NORTHBOUND LANES				
112	STA. 94+75.00 TO STA. 95+44.60 LT.:		69.60 L.F.		
113	STA. 94+75.00 TO STA. 94+92.30 RT.:		17.30 L.F.		
114	STA. 98+38.30 TO STA. 98+55.00 LT.:		16.70 L.F.		
115	STA. 97+84.70 TO STA. 98+55.00 RT.:		70.30 L.F.		
116	TOTAL OF LINES 97 THRU 115:	(1245.68)(0.6667)=	830.49 S.F.		
117	FROM LINES 93, 94 & 116: (8483.04 S.F. + 10,486.70 S.F. + 830.49 S.F.)(0.6667)(1/27) = 488.92 C.Y. USE			489	CU.YD.
118					
119					
120					
121					
122	ITEM 304 – AGGREGATE BASE				
123					
124	PAVEMENT AREA FROM SHEET 20, LINE 17:		8483.04 S.F.		
125	SHOULDER AREA FROM SHEET 20, LINE 57:		10,486.70 S.F.		
126	APPROACH SLAB AREA FROM SHEET 20, LINE 116:		6150.00 S.F.		
127	APPROACH SLAB AREA FROM SHEET 20, LINE 127:		2460.00 S.F.		
128	ADDITIONAL AT SHOULDERS: (14" EDGE COURSE)				
129	FROM LINE 116: (1245.68)(1.1667) =		1453.33 S.F.		
130	ADDITIONAL AT APPROACH SLABS:				
131	FROM SHEET 20, LINE 116: (150.00)(1.00)(2) =		300.00 S.F.		
132	FROM SHEET 20, LINE 127: (60.00)(1.00)(2) =		120.00 S.F.		
133	FROM LINES 124 THRU 132: (29,453.07 S.F.)(0.50)(1/27) =		545.43 C.Y.		
134	ADDITIONAL AT UNDERDRAINS:		7.08 C.Y.		
135	TOTAL OF LINES 133 AND 134		552.51 C.Y. USE	553	CU.YD.
136	(SEE SUPPLEMENTAL CALCULATIONS)				
137					
138					
139					
140					
141					
142					

CALCULATIONS

LINE NO.	DESCRIPTION	QUANTITY	UNIT
1			
2	ITEM 404 – ASPHALT CONCRETE, AC-20		
3			
4	PAVEMENT AREA		
5	SOUTHBOUND LANES:		
6	STA. 74+00.00 TO STA. 74+54.23: (54.23)(24.00) = 1301.52 S.F.		
7	STA. 78+46.77 TO STA. 79+00.00: (53.23)(24.00) = 1277.52 S.F.		
8	NORTHBOUND LANES:		
9	STA. 73+50.00 TO STA. 74+01.01: (51.01)(24.00) = 1224.24 S.F.		
10	STA. 77+86.38 TO STA. 78+25.00: (38.62)(24.00) = 926.88 S.F.		
11	SOUTHBOUND LANES:		
12	STA. 95+75.00 TO STA. 96+14.21: (39.21)(24.00) = 941.04 S.F.		
13	STA. 98+67.34 TO STA. 99+10.00: (42.66)(24.00) = 1023.84 S.F.		
14	NORTHBOUND LANES:		
15	STA. 95+10.00 TO STA. 95+43.88: (33.88)(24.00) = 813.12 S.F.		
16	STA. 97+94.38 TO STA. 98+35.00: (40.62)(24.00) = 974.88 S.F.		
17	TOTAL OF LINES 6 THRU 16 = 8483.04 S.F.		
18			
19			
20			
21	RESURFACING AREA		
22	SOUTHBOUND LANES:		
23	STA. 73+50.00 TO STA. 74+00.00: (50.00)(24.00) = 1200.00 S.F.		
24	STA. 79+00.00 TO STA. 79+50.00: (50.00)(24.00) = 1200.00 S.F.		
25	NORTHBOUND LANES:		
26	STA. 73+25.00 TO STA. 73+50.00: (25.00)(24.00) = 600.00 S.F.		
27	STA. 78+25.00 TO STA. 79+00.00: (75.00)(24.00) = 1800.00 S.F.		
28	SOUTHBOUND LANES:		
29	STA. 95+00.00 TO STA. 95+75.00: (75.00)(24.00) = 1800.00 S.F.		
30	STA. 99+10.00 TO STA. 99+75.00: (65.00)(24.00) = 1560.00 S.F.		
31	NORTHBOUND LANES:		
32	STA. 94+75.00 TO STA. 95+10.00: (35.00)(24.00) = 840.00 S.F.		
33	STA. 98+35.00 TO STA. 98+55.00: (20.00)(24.00) = 480.00 S.F.		
34	TOTAL OF LINES 23 THRU 33= 9480.00 S.F.		
35			
36	SHOULDER AREA:		
37	SOUTHBOUND LANES:		
38	STA. 73+50.00 TO STA. 74+73.32 LT.: (123.32)(10.00) = 1233.20 S.F.		
39	STA. 73+50.00 TO STA. 74+38.65 RT.: (88.65)(4.00) = 354.60 S.F.		
40	STA. 78+68.72 TO STA. 79+50.00 LT.: (81.28)(10.00) = 812.80 S.F.		
41	STA. 78+28.87 TO STA. 79+50.00 RT.: (121.13)(4.00) = 484.52 S.F.		
42	NORTHBOUND LANES:		
43	STA. 73+25.00 TO STA. 74+16.30 LT.: (91.30)(4.00) = 365.20 S.F.		
44	STA. 73+25.00 TO STA. 73+82.61 RT.: (57.61)(10.00) = 576.10 S.F.		
45	STA. 78+03.90 TO STA. 79+00.00 LT.: (96.10)(4.00) = 384.40 S.F.		
46	STA. 77+65.31 TO STA. 79+00.00 RT.: (134.69)(10.00) = 1346.90 S.F.		
47	SOUTHBOUND LANES:		
48	STA. 95+00.00 TO STA. 96+39.72 LT.: (139.72)(10.00) = 1397.20 S.F.		
49	STA. 95+00.00 TO STA. 95+93.45 RT.: (93.45)(4.00) = 373.80 S.F.		
50	STA. 98+93.18 TO STA. 99+75.00 LT.: (81.82)(10.00) = 818.20 S.F.		
51	STA. 98+46.06 TO STA. 99+75.00 RT.: (128.94)(4.00) = 515.76 S.F.		
52	NORTHBOUND LANES:		
53	STA. 94+75.00 TO STA. 95+64.14 LT.: (89.14)(4.00) = 356.56 S.F.		
54	STA. 94+75.00 TO STA. 95+19.54 RT.: (44.54)(10.00) = 445.40 S.F.		
55	STA. 98+15.66 TO STA. 98+55.00 LT.: (39.34)(4.00) = 157.36 S.F.		
56	STA. 97+68.53 TO STA. 98+55.00 RT.: (86.47)(10.00) = 864.70 S.F.		
57	TOTAL OF LINES 38 THRU 56= 10,486.70 S.F.		
58	FROM LINES 17, 34 & 57: (8483.04 S.F. + 9480.00 S.F. + 10,486.70 S.F.)(1.25/12)(1/27) = 109.76 C.Y.		
59	USE	110	CU.YD.
60			
61			
62			
63			
64	ITEM 402 – ASPHALT CONCRETE, AC-20		
65			
66	PAVEMENT AREA FROM LINE 17: 8483.04 S.F.		
67	SHOULDER AREA FROM LINE 57: 10,486.70 S.F.		
68	FROM LINES 66 & 67: (8483.04 S.F. + 10,486.70 S.F.)(1.75/12)(1/27) = 102.46 C.Y. USE	102	CU.YD.
69			
70			
71			

LINE NO.	DESCRIPTION	QUANTITY	UNIT
72			
73	ITEM 403 – ASPHALT CONCRETE, AC-20, VARIABLE THICKNESS		
74			
75	SOUTHBOUND LANES		
76	STA. 73+50.00 TO STA. 74+00.00: 40.20 C.F.		
77	NORTHBOUND LANES		
78	STA. 78+28.00 TO STA. 78+72.00: 11.88 C.F.		
79	SOUTHBOUND LANES		
80	STA. 95+27.00 TO STA. 95+75.00: 113.64 C.F.		
81	STA. 99+10.00 TO STA. 99+63.00: 164.82 C.F.		
82	TOTAL OF LINES 76 THRU 81: (330.54 C.F.)(1/27) = 12.24 C.Y. USE	12	CU.YD.
83	(SEE SUPPLEMENTAL CALCULATIONS)		
84			
85			
86	ITEM 407 – TACK COAT (RESURFACING AREA)		
87			
88	FROM LINE 34: (9480.00 S.F.)(1/9)(0.10 GAL/S.Y.)= 105.33 GAL USE	105	GALLON
89			
90	ITEM 407 – TACK COAT (FOR FINAL SURFACE COURSE)		
91			
92	FROM LINE 17, 34 & 57: (8483.04 S.F. + 9480.00 S.F. + 10,486.70 S.F.)(1/9) = 3161.08 S.Y.		
93	FROM SHEET 19, LINE 87: DEDUCT 694.67 S.Y.		
94	TOTAL OF LINES 92 AND 93: (3161.08 S.Y. – 694.67 S.Y.)(0.05 GAL/S.Y.) = 123.32 GAL USE	123	GALLON
95	(QUANTITY CARRIED TO GENERAL NOTES)		
96			
97			
98	ITEM 408 – BITUMINOUS PRIME COAT		
99			
100	FROM SHEET 19, LINES 93, 94 & 116:		
101	(8483.04 S.F. + 10,486.70 S.F. + 830.49 S.F.)(1/9)(0.40 GAL./S.Y.) = 880.01 GAL. USE	880	GALLON
102			
103			
104	ITEM 611 – REINFORCED CONCRETE APPROACH SLAB (T=15"), AS PER PLAN		
105			
106	SOUTHBOUND LANES		
107	STA. 78+21.67 TO STA. 78+46.77: 25.00 L.F.		
108	NORTHBOUND LANES		
109	STA. 77+61.48 TO STA. 77+86.38: 25.00 L.F.		
110	SOUTHBOUND LANES		
111	STA. 96+14.21 TO STA. 96+39.32: 25.00 L.F.		
112	STA. 98+42.34 TO STA. 98+67.34: 25.00 L.F.		
113	NORTHBOUND LANES		
114	STA. 95+43.88 TO STA. 95+68.78: 25.00 L.F.		
115	STA. 97+69.38 TO STA. 97+94.38: 25.00 L.F.		
116	FROM LINES 107 THRU 115: (150.00)(41.00)(1/9) = 683.33 S.Y.		
117	DEDUCT FOR AREAS AT TYPE 2A CURB:		
118	(9.58 + 5.67 + 5.50 + 10.00 + 10.00 + 5.50) (2)(1.0)(1/9) = –10.28 S.Y.		
119	TOTAL OF LINES 116 AND 118: (683.33 S.Y. – 10.28 S.Y.) = 673.05 S.Y. USE	673	SQ.YD.
120			
121	ITEM 611 – REINFORCED CONCRETE APPROACH SLAB (T=17"), AS PER PLAN		
122			
123	SOUTHBOUND LANES		
124	STA. 74+54.23 TO STA. 74+84.36: 30.00 L.F.		
125	NORTHBOUND LANES		
126	STA. 74+01.01 TO STA. 74+30.89: 30.00 L.F.		
127	FROM LINES 124 AND 126: (60.00)(41.00)(1/9) = 273.33 S.Y.		
128	DEDUCT FOR AREAS AT TYPE 2A CURB:		
129	(10.67 + 14.58) (2)(1.0)(1/9) = –5.61 S.Y.		
130	TOTAL OF LINES 127 AND 129: (273.33 S.Y. – 5.61 S.Y.) = 267.72 S.Y. USE	268	SQ.YD.
131			
132	ITEM 659 – COMMERCIAL FERTILIZER		
133			
134	FROM GENERAL SUMMARY: SEEDING AND MULCHING = 8867 S.Y.		
135	8867 S.Y. x 9 S.F./S.Y. x 20 LB/1000 S.F. x TON/2000 LB = 0.80 TON USE	0.80	TON
136			
137	ITEM 659 – WATER		
138			
139	FROM GENERAL SUMMARY: SEEDING AND MULCHING = 8867 S.Y.		
140	8867 S.Y. x 9 S.F/S.Y. x 120 GAL/1000 S.F. x 2 APPLICATIONS x 1/1000 = 19.15 M.GAL. USE	19	M.GAL.
141	(QUANTITY CARRIED TO GENERAL NOTES)		
142			

Begin Work
Sta. 70+00.00

Bench Mark: Chiseled mark (X) on walkway at SE corner of rear abutment, left bridge @ Sta. 74+60.60, 7.68' Lt. Elev. 987.61

Bench Mark: E-306 U.S.G.S. Brass disk in north face of Pier 1 (Right structure). Sta. 74+98.42, 32.94' Rt., 2'± above ground. Elev. 960.84

Begin Project
Sta. 73+50.00
SLM 1.39
BHF-48(21)

Rock Channel Protection, Type C with Fabric Filter (T=18") 6'x6'x1.5'x1'27 =2.0 C.Y.

CURVE DATA
Δ = 31°35'50" Lt.
6" D = 1°00'00"
R = 5729.58'
T = 1621.16
L = 3159.72
PC = 65+33.86
PI = 81+55.02
PT = 96+93.58

CALC. BY PLD DATE 11/96
CHKD. BY AFS DATE 11/96

WAY-21-(1.39)(1.80)

OHIO FHWA REGION 5

21/100

Item 607 - Fence Removed And Rebuilt. Remove the existing fence (Type CLT or 47) to beyond the work limits and rebuild and reconnect to the new abutment wingwalls. The additional length of fence removed and not reused shall be removed under Item 201 (Typical).

Wearing Course Removed & Resurfacing

For Quantities See Sheet 23.

⊛ Transition curb height from 6" to 0" in 10'

*NOTE:
All stations are along ℄ Survey & Construction. All lengths are along ℄ Lanes.

Left Bridge ℄ Southbound Lanes →
Right Bridge ℄ Northbound Lanes →

℄ Southbound Lanes
℄ Northbound Lanes
℄ Survey & Construction S.R. 21
10' Paved Shoulder
4' Paved Shoulder
4' Paved Shoulder
10' Paved Shoulder
Connect to Exist. Guardrail
Aggregate Drain, Typ.
Remove Existing Crib Wall (See Bridge Details)
Exist. 8" Conduit
Exist. 6" Crib Wall Drain To Remain
Exist. 8" Downspout Conduit (Abandon), Typ.
Aerial Easement
R.R. Right of Way
CSX Transportation 4685
Eastbound Track N50°54'28"W
Spur Track
Westbound Track
Buried Fiber Optic Cable (World Comm.)
Match Line 76+50
Sta. 75+76.00 ℄ Survey & Constr. S.R. 21
Sta. 4683+98.05 ℄ R.R. Valuation Stationing
See 607 Note
Bridge Limits = 337.31'
Actual Bridge Length = 333.91' along ℄ Lanes
Bridge Limits = 330.59'
Meet Exist. Butt Jt.
Meet Exist. Butt Joint As Per Sht. 3 of 3 (Typ.)
Resurfacing
Graphic Grade
New Pavement
30' Approach Slab
Existing Profile Grade
Profile Grade +0.83%
80'-15" @ 1.0%
10'-6" F
78'-15" F
72' Of 6" Unclassified Pipe Underdrain, Rt.
+25 10' Rt. ℄ 981.90 Plug End
+07.2 8.7' Rt. ℄ 981.10 Outlet
Crushed Aggregate Slope Protection
** Proposed Elevation of Widened Substructure
965.0 Lt. ℄ Rt.
Sta. 74+67.8 117' Lt. HW-4A Headwall 15" Inv. Elev. 949.1
952.5 Lt.** 950.0 Rt.**
954.0 Lt.** 950.0 Rt.**

Excavation	1535	Cu. Yd.
Embankment	240	Cu. Yd.
Seeding	2622	Sq. Yd.

Quantities Carried to General Summary Sheet 17.

C.B. No. 3A
Sta. 74+07.2, 8' Rt.
℄ Grate Elev. 986.19
℄ 15" Elev. 980.60

C.B. No. 3A
Sta. 74+07.8, 46' Lt.
℄ Grate Elev. 985.59
℄ 15" Elev. 979.80

EXISTING STRUCTURE

TYPE: Twin continuous steel beam bridges with reinforced concrete deck and substructure.
SPANS: 74.36', 91.99', 89.98', 70.55', C/c Brgs. along ref. chord
ROADWAY: 30'-0" T/T 2'-3" Safety curb
LOADING: Lane loading / CF 2000 Load frequency
WEARING SURFACE: Concrete
ALIGNMENT: 1°00' Curve (left)
SKEW: 49°45'05" L.F. to ref. chord
APPROACH SLABS: AS-1-54 (25' long)
DATE BUILT: Left bridge 1957; Right bridge 1961
STRUCTURE FILE NUMBER: 8501327 Left bridge; 8501351 Right bridge

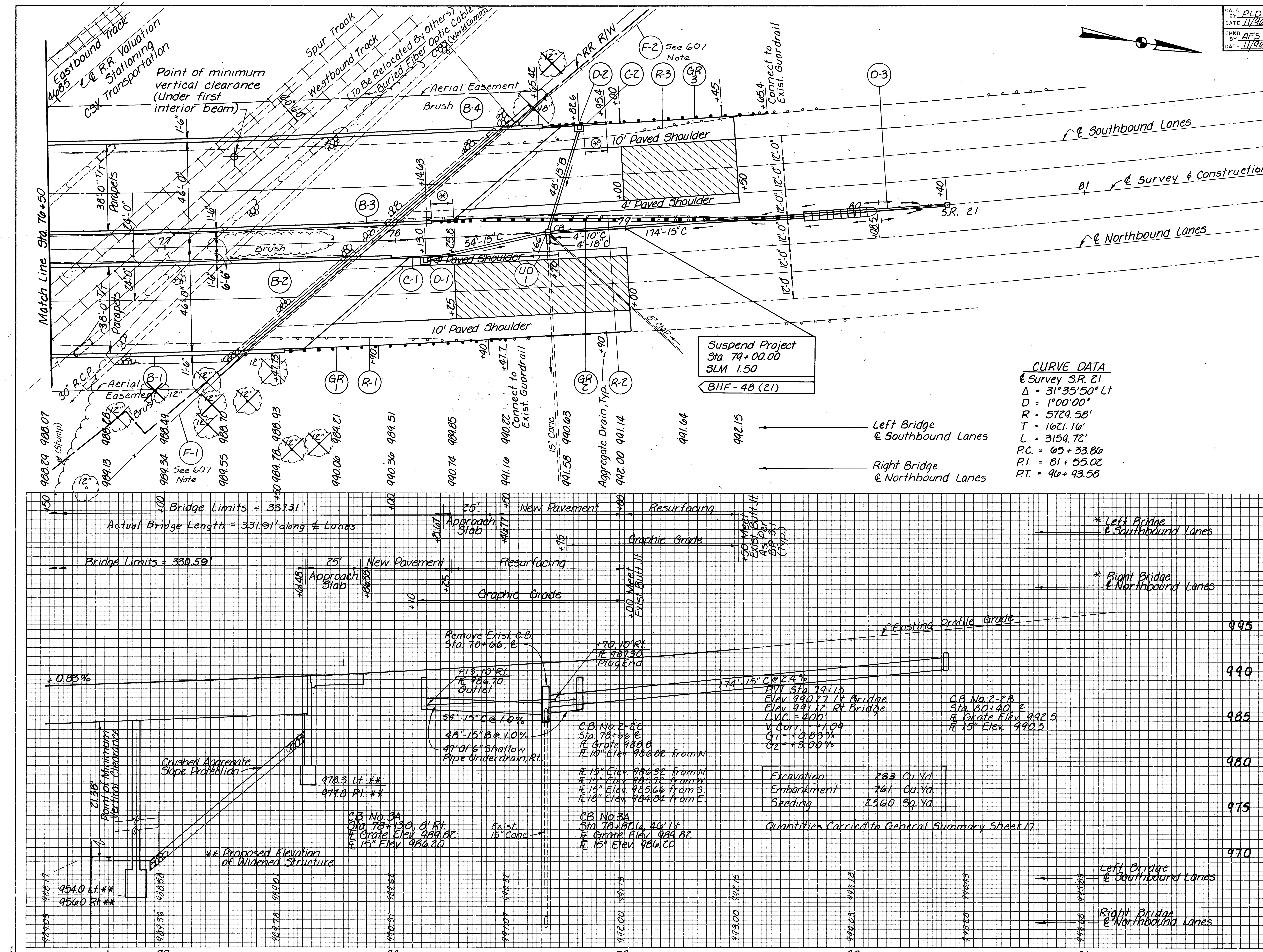
PROPOSED STRUCTURE

PROPOSED WORK: New composite reinforced concrete deck on widened superstructure and substructure.
TYPE: Twin continuous steel beam bridges with reinforced concrete deck and substructure.
SPANS: 74.36', 91.99', 89.98', 70.55' C/c Brgs. along ref. chord
ROADWAY: 38'-0" T/T Deflector parapet
LOADING: HS 20-44, Case II and alternate military loading
WEARING SURFACE: Concrete
ALIGNMENT: 1°00' Curve (left)
SKEW: 49°45'05" L.F. to ref. chord
SUPERELEVATION: 0.032'/Ft.
APPROACH SLABS: AS-1-81 (30' R.A., 25' F.A.)
DESIGN YEAR TRAFFIC: 9760 * (Yr. 2016)
DESIGN YEAR ADTT: 1750 *
BRIDGE LOCATION
U.S.G.S. QUADRANGLE: Doylestown
LATITUDE: N40°55'33"
LONGITUDE: W81°38'56"

* Total Both Directions

WAY-21-1.39
Sta. 70+00 to Sta. 76+50

CALC. BY PLD DATE 11/96 · CHKD. BY AFS DATE 11/96	WAY-21-(1.39)(1.80)	OHIO · FHWA REGION 5	22/100



Item 607 - Fence Removed And Rebuilt. Remove the existing fence (Type CLT or 47) to beyond the work limits and rebuild and reconnect to the new abutment wingwalls. The additional length of fence removed and not reused shall be removed under Item 201 (Typical).

Wearing Course Removed & Resurfacing

For Quantities See Sheet 23.

(*) Transition curb height from 6" to 0" in 10'

* NOTE:
All stations are along ℄ Survey & Construction.
All lengths are along ℄ Lanes.

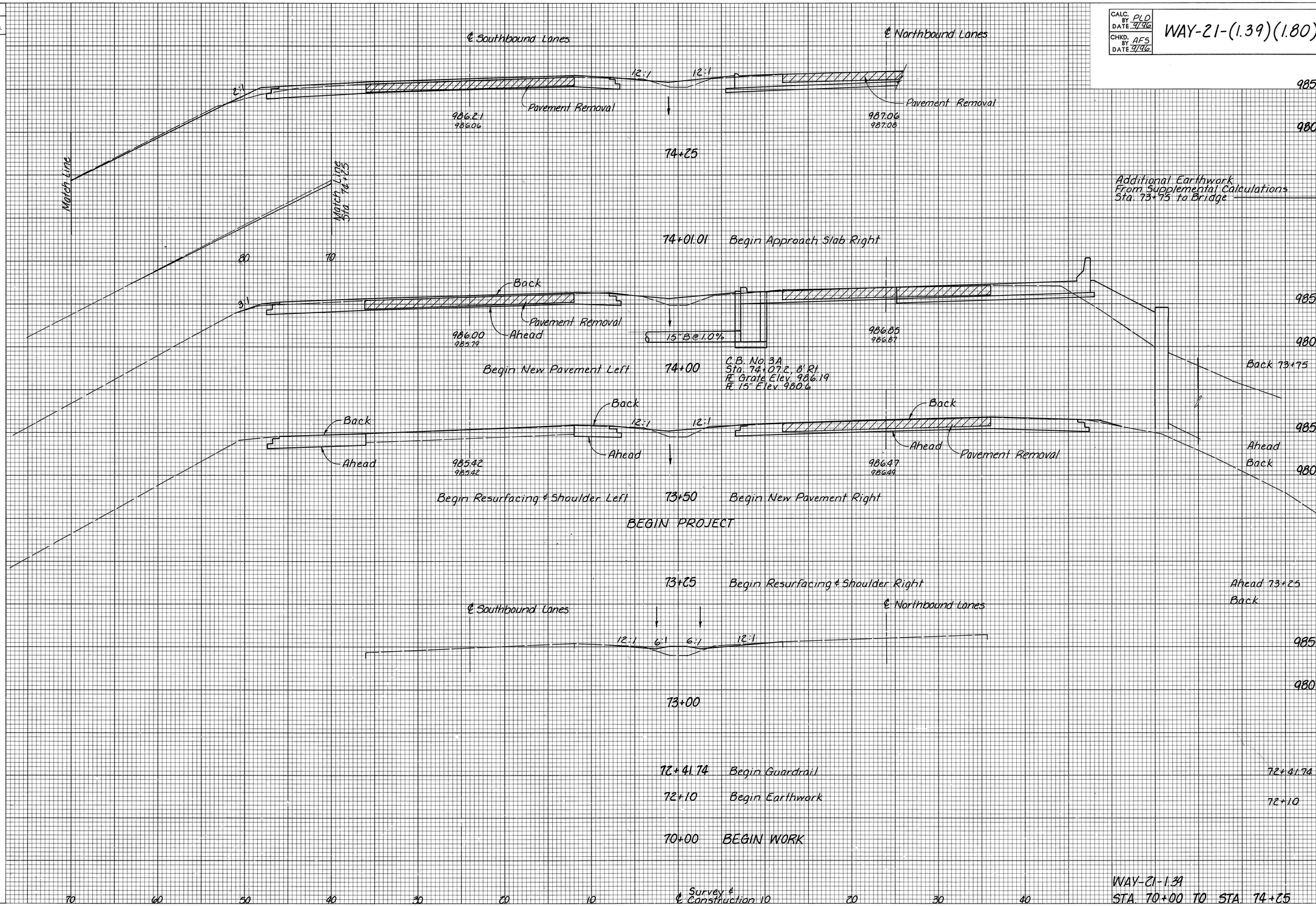
WAY-21-1.39
Sta. 76+50 to Sta. 82+00

FROM SHEET NO.	REFERENCE	STATIONS FROM	STATIONS TO	SIDE	202 GUARDRAIL REMOVED LIN. FT.	202 CATCH BASIN REMOVED EACH	601 ROCK CHANNEL PROTECTION, TYPE C WITH FABRIC FILTER CU. YD.	602 CONCRETE MASONRY CU. YD.	603 6" CONDUIT, TYPE F, 707.17 NON-PERFORATED, ASTM D3034 SDR35, SS931, SS944 LIN. FT.	603 10" CONDUIT, TYPE C LIN. FT.	603 15" CONDUIT, TYPE B LIN. FT.	603 15" CONDUIT, TYPE C LIN. FT.	603 15" CONDUIT, TYPE F, 707.05 TYPE C LIN. FT.	603 18" CONDUIT, TYPE C LIN. FT.	604 CATCH BASIN, NO. 2-2B EACH	604 CATCH BASIN, NO. 3A EACH	605 6" SHALLOW PIPE UNDERDRAIN LIN. FT.	605 6" UNCLASSIFIED PIPE UNDERDRAIN LIN. FT.	605 AGGREGATE DRAIN LIN. FT.	606 GUARDRAIL, TYPE 5 LIN. FT.	606 GUARDRAIL, BARRIER DESIGN, TYPE 5 LIN. FT.	606 BRIDGE TERMINAL ASSEMBLY, TYPE 1 EACH	606 BRIDGE TERMINAL ASSEMBLY, TYPE 2 EACH	607 FENCE REMOVED AND REBUILT LIN. FT.	609 CURB, TYPE 6 LIN. FT.	SPECIAL IMPACT ATTENUATOR, TYPE 1, BI-DIRECTIONAL EACH	802 BARRIER REFLECTOR, TYPE A EACH	802 BARRIER REFLECTOR, TYPE B EACH		BENDS AND BRANCHES 15" 22 1/2° BEND EACH
CSX TRANSPORTATION																																
21	B-1	73+04	76+50	RT.																										1	3		
21	B-2	72+41.74	76+50	RT.																										2	3		
21	B-3	74+51	76+50	LT.																											3		
21	B-4	73+96	76+50	LT.																										1	2		
21	C-1	73+94.5	74+18.5	RT.																									24.0				
21	C-2	74+55.1	74+79	LT.																									23.9				
21	D-1	74+07.2	74+67.8	L/R			2.0	0.27			80		78				2															2
21	F-1	73+50	74+05	RT.																							80					
21	F-2	75+10	75+75	LT.																							85					
21	GR-1	72+41.74	74+35.36	℄/R																		25.00	137.50	1					1			
21	GR-2	73+04	73+91.5	RT.																		87.50		1								
21	GR-3	73+96	74+95.95	LT.																		100.00			1							
21	R-1	73+04	74+14	RT.	110																											
21	R-2	73+96	75+04	LT.	108																											
21	R-3	72+97	74+49	RT.	152																											
21	UD-1	73+25	74+07	RT.					10									72														
21		73+30		RT.															10													
21		73+75		LT.															6													
21		73+80		RT.															10													
21		74+25		LT.															5													
CSX TRANSPORTATION																																
22	B-1	76+50	78+47.7	RT.																										1	2		
22	B-2	76+50	77+98	RT.																											2		
22	B-3	76+50	80+08.5	℄/L																										2	2		
22	B-4	76+50	79+65.4	LT.																										2	2		
22	C-1	78+03.9	78+25.8	RT.																									21.9				
22	C-2	78+72.6	78+95.4	LT.																									22.8				
22	D-1	78+13	78+66	℄/R		1				4		54		4	1	1																
22	D-2	78+66	78+82.6	℄/L							48					1																
22	D-3	78+66	80+40	℄								174			1																	
22	F-1	76+70	77+35	RT.																							85					
22	F-2	78+50	79+30	LT.																							95					
22	GR-1	77+47.73	78+47.7	RT.																		100.00			1							
22	GR-2	78+14.63	80+08.5	℄/L																		25.00	137.50	1					1			
22	GR-3	78+65.42	79+65.4	LT.																		100.00		1								
22	R-1	77+42	78+47.7	RT.	106																											
22	R-2	78+01	79+54	℄/L	153																											
22	R-3	78+42	79+65.4	LT.	123																											
22	UD-1	78+13	78+70	RT.					10								47															
22		77+90		RT.															5													
22		78+40		RT.															3													
22		78+90		RT.															5													
22		79+00		LT.															5													
22		79+45		LT.															3													
QUANTITIES CARRIED TO GENERAL SUMMARY					752	1	2	0.27	20	4	128	228	78	4	2	4	47	72	52	437.50	275.00	4	2	345	93	2	9	19			

QUANTITIES

SEEDING	
END WIDTH	SQ. YDS.

CALC. BY PLD DATE 9/96	WAY-21-(1.39)(1.80)	OHIO	24
CHKD. BY AFS DATE 9/96		FHWA REGION 5	100



Additional Earthwork
From Supplemental Calculations
Sta. 73+75 to Bridge →

	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
	.	.	1463	204
Back 73+75	51	32		
			50	17
Ahead	56	4		
Back	24	4		
			22	4
Ahead 73+25	24	4		
Back	0	4		
			0	4
	0	4		
			0	9
72+41.74	0	4		
			0	2
72+10	0	0		

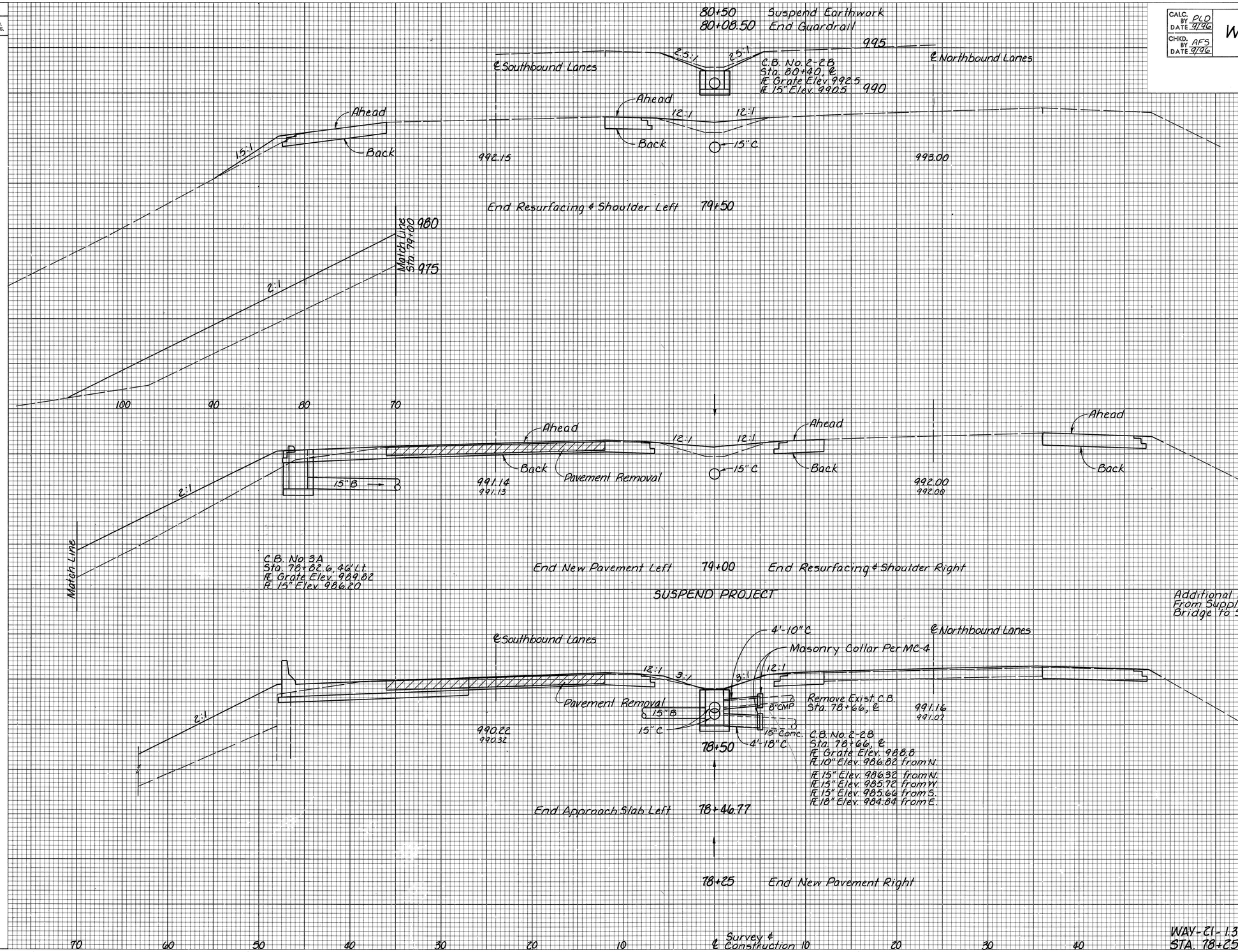
WAY-21-1.39
STA. 70+00 TO STA. 74+25

SEEDING
END WIDTH
SQ. YDS.
CALC. BY DATE
CHKD. BY DATE
WAY-21-(1.39)(1.80)
OHIO
FHWA REGION 5
25/100
END AREA
VOLUME
CUT
FILL
CUT
FILL
Begin Approach Slab Left 78+21.67
℄ Northbound Lanes
Pavement Removal
12:1
990
985
990.36
78+00
990.31
C.B. No 3A
Sta. 78+13.0, 8' Rt.
℄ Grate Elev. 989.82
℄ 15" Elev. 986.20
77+86.38 End Approach Slab Right
990
Pavement Removal
2:1
985
990.06
77+75
990.05
Match Line
77+61.48 Begin Approach Slab Right
Bridge Limits = 335.90'
975
Match Line Sta. 74+75
970
2:1
80
70
Bridge Limits = 331.98'
End Approach Slab Left 74+84.36
℄ Southbound Lanes
Match Line Sta. 77+75
990
985
2:1
70
80
Pavement Removal
986.62
74+75
986.56
2:1
Match Line
975
Match Line Sta. 74+50
970
110
100
90
2:1
2'-6"
80
70
78"-15" F. 707.05, Type C
Begin Approach Slab Left 74+54.23
Rock Channel Protection, Type C with Fabric Filter
HW-4A Headwall Sta. 74+67.8 117' Lt. ℄ 15" Elev. 954.1
℄ Southbound Lanes
990
15"-22½° Bend
12:1
12:1
985
1%
2:1
1%
15" B @ 1.0%
Pavement Removal
986.56
74+67.8
985.98
15"-22½° Bend
Match Line
C.B. No 3A
Sta. 74+67.8, 46' Lt.
℄ Grate Elev. 985.59
℄ 15" Elev. 979.80
74+30.89 End Approach Slab Right
70
60
50
40
30
20
10
℄ Survey & Construction 10
20
30
40
WAY-21-1.39
STA. 74+30.89 TO STA. 78+21.67

SEEDING	
END WIDTH	SQ. YDS.

CALC. BY PLD DATE 9/96	WAY-21-(1.39)(1.80)	OHIO
CHKD. BY AFS DATE 9/96		FHWA REGION 5

26/100



	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
80+50 990	0	0		
			1	0
80+40	3	0		
985			2	6
80+08.50	0	10		
			0	26
Ahead	0	14		
Back 79+50	20	14		
			32	196
Ahead	15	198		
Back	47	198		
990				
			43	176
985				
Ahead 78+75	46	182		
			205	357

Additional Earthwork From Supplemental Calculations Bridge to Sta. 78+75 →

WAY-21-1.39
STA. 78+25 TO STA. 80+08.50

CALC BY PLD DATE 11/96
CHKD BY AFS DATE 11/96

WAY-21-(1.39)(1.80)

OHIO FHWA REGION 5

27/100

Item 607 - Fence Removed And Rebuilt. Remove the existing fence (Type CLT or 47) to beyond the work limits and rebuild and reconnect to the new abutment wingwalls. The additional length of fence removed and not reused shall be removed under Item 201 (Typical).

Wearing Course Removed & Resurfacing

For Quantities See Sheet 28.

⊛ Transition curb height from 6" to 0" in 10'

* NOTE: All stations are along ℄ Survey & Construction. All lengths are along ℄ Lanes.

EXISTING STRUCTURE

TYPE: Twin continuous steel beam bridges with reinforced concrete deck and substructure.
SPANS: 60'-0", 75'-0", 60'-0" ℄c Brgs. along forward tangent.
ROADWAY: 30'-0" T/T 2-3" safety curb
LOADING: Lane/CF 2000 load frequency
WEARING SURFACE: Concrete
ALIGNMENT: 1°00' Curve (left) to Sta. 96+93.58, tangent ahead of this point.
SKEW: 56°39'46" L.F. to ref. tangent
APPROACH SLABS: AS-1-54 (25' long)
DATE BUILT: 1957
STRUCTURE FILE NUMBER: 8501386 Left bridge; 8501416 Right bridge

PROPOSED STRUCTURE

PROPOSED WORK: New composite reinf. concrete deck on widened superstructure and substructure.
TYPE: Twin continuous steel beam bridges with reinforced concrete deck and substructure.
SPANS: 60'-0", 75'-0", 60'-0" ℄c Brgs. along forward tangent.
ROADWAY: 38'-0" T/T Deflector parapet
LOADING: HS 20-44, Case II and alternate military loading.
WEARING SURFACE: Concrete
ALIGNMENT: 1°00' Curve (left) to Sta. 96+93.58, tangent ahead of this point.
SKEW: 56°39'46" L.F. to ref. tangent
CROWN: 3/16"/Ft.
APPROACH SLABS: AS-1-81 (25' long)
DESIGN YEAR TRAFFIC: 9760* (Yr. 2016)
DESIGN YEAR ADTT: 1750*
BRIDGE LOCATION
U.S.G.S. QUADRANGLE: Doylestown
LATITUDE: N40°55'52"
LONGITUDE: W81°39'05"

* Total both directions

WAY-21-1.80
Sta. 94+00 to Sta. 100+00

542895

CALC. BY PLD DATE 11/96
CHKD BY MDG DATE 11/96

WAY-21-(1.39)(1.80)

OHIO
FHWA REGION 5

28
100

FROM SHEET NO.	REFERENCE	STATIONS FROM	STATIONS TO	SIDE	202 GUARDRAIL REMOVED LIN. FT.	202 GUARDRAIL REMOVED, BARRIER DESIGN LIN. FT.	601 ROCK CHANNEL PROTECTION, TYPE C WITH FABRIC FILTER CU. YD.	602 CONCRETE MASONRY CU. YD.	603 6" CONDUIT, TYPE F, 707.17 NON-PERFORATED, ASTM D3034 SDR35, SS931, SS944 LIN. FT.	603 15" CONDUIT, TYPE B LIN. FT.	603 15" CONDUIT, TYPE C LIN. FT.	603 15" CONDUIT, TYPE F, 707.05, TYPE C LIN. FT.	603 18" CONDUIT, TYPE B LIN. FT.	603 18" CONDUIT, TYPE C LIN. FT.	604 CATCH BASIN, NO. 3A EACH	604 CATCH BASIN ADJUSTED TO GRADE EACH	605 6" SHALLOW PIPE UNDERDRAIN LIN. FT.	605 6" UNCLASSIFIED PIPE UNDERDRAIN LIN. FT.	605 AGGREGATE DRAIN LIN. FT.	606 GUARDRAIL, TYPE 5 LIN. FT.	606 GUARDRAIL, BARRIER DESIGN, TYPE 5 LIN. FT.	606 ANCHOR ASSEMBLY, TYPE T EACH	606 BRIDGE TERMINAL ASSEMBLY, TYPE 1 EACH	606 BRIDGE TERMINAL ASSEMBLY, TYPE 2 EACH	607 FENCE REMOVED AND REBUILT LIN. FT.	609 CURB, TYPE 6 LIN. FT.		SPECIAL IMPACT ATTENUATOR, TYPE 1, BI-DIRECTIONAL EACH	802 BARRIER REFLECTOR, TYPE A EACH	802 BARRIER REFLECTOR, TYPE B EACH	BENDS AND BRANCHES 15" 22 1/2° BEND EACH
		GALEHOUSE ROAD																																
27	B-1	94+22	98+55.16	RT.																											2	3	
27	B-2	93+98.06	98+11	RT.																											2	3	
27	B-3	95+98	100+12.22	LT.																											2	3	
27	B-4	95+72	99+72	LT.																											2	3	
27	C-1	94+92.3	95+15.2	RT.																										22.9				
27	C-2	95+44.6	95+67.1	RT.																										22.5				
27	C-3	95+71.3	95+93.5	LT.																										22.2				
27	C-4	96+24.9	96+47.3	LT.																										22.4				
27	C-5	97+60.93	97+84.7	RT.																										23.8				
27	C-6	98+15.2	98+38.3	RT.																										23.1				
27	C-7	98+43.0	98+64.7	LT.																										21.7				
27	C-8	98+97.7	99+20.9	LT.																										23.2				
27	D-1	95+05.0	95+57.3	RT.			2.0	0.27		64		50			2																		2
27	D-2	95+57.3	96+37.6	L/R						64	32				2																		
27	D-3	97+71.9		RT.			2.2	0.27				10			1																		
27	D-4	98+25.5	98+51.9	L/R							34		4	4	2	1																	
27	D-5	98+51.9	99+08.1	LT.						66					1																		
27	F-1	94+90	95+40	RT.																									65					
27	F-2	96+75	97+35	LT.																									75					
27	F-3	96+95	97+40	RT.																									45					
27	F-4	98+75	99+45	LT.																									105					
27	GR-1	93+98.06	95+79.16	℄/R																		25.00	125.00		1					1			
27	GR-2	94+22	95+22.21	RT.																		100.00			1								
27	GR-3	95+72	96+59.46	LT.																		87.50				1							
27	GR-4	97+48.91	98+55.16	RT.																		106.25		1		1							
27	GR-5	98+31.00	100+12.22	℄/L																		25.00	125.00		1					1			
27	GR-6	98+90.92	99+72	LT.																		81.25			1								
27	R-1	94+22	95+45	RT.	123																													
27	R-2	94+42	95+90	RT.	110	38																												
27	R-3	95+72	96+64	LT.	92																													
27	R-4	98+18	99+69	LT.	113	38																												
27	R-5	98+64	99+72	LT.	108																													
27	UD-1	94+75	95+57.3	RT.					10									72																
27	UD-2	95+00	95+84	LT.					10									74																
27	UD-3	98+25.5	98+55	RT.					10								20																	
27	UD-4	98+51.9	99+75	LT.					10								113																	
27		94+90		RT.															11															
27		95+10		LT.															5															
27		95+60		LT.															4															
27		96+10		LT.															4															
27		97+95		RT.															17															
27		98+45		RT.															12															
27		99+20		LT.															5															
27		99+70		LT.															5															
QUANTITIES CARRIED TO GENERAL SUMMARY					546	76	4	0.54	40	194	66	60	4	4	8	1	133	146	63	425.00	250.00	1	4	2	290	182		2	8	12			

QUANTITIES

SEEDING	
END WIDTH	SQ. YDS.

CALC. BY JRS DATE 4/96
CHKD. BY DJD DATE 4/96

WAY-21-(1.39)(1.80)

OHIO
FHWA REGION 5

29
100

64'-15" B @ 2.0%
32'-15" B @ 2.34%
64'-15" B @ 1.0%
1040
1035
C.B. No. 3A
Sta. 95+84.0, 8' Lt.
℄ Grate Elev. 1040.79
℄ 15" Elev. 1037.17
℄ 15" Elev. 1033.55
℄ Southbound Lanes
C.B. No. 3A
Sta. 95+73, 8' Rt.
℄ Grate Elev. 1039.74
℄ 15" Elev. 1032.8
℄ Northbound Lanes
1040
1035
1038.6
15:1
1039.59
1039.45
95+35
1039.48
1039.63
Pavement Removal
Match Line Sta. 95+00
2'-6"½
1%
Additional Earthwork from Supplemental Calculations, Sta. 95+00 to Bridge
Sta. 95+05.0, 93.5' Rt.
℄ 15" Elev. 1021.6
15"-22½° Bend
HW-4A Headwall
95+10
Resume Project
Begin New Pavement Right
Back
Ahead
1037.5
1038.36
1038.36
Begin Resurfacing & Shoulder Left
95+00
1038.49
1038.58
64'-15" B @ 1.0%
15"-22½° Bend
1%
C.B. No. 3A
Sta. 95+05.0, 46' Rt.
℄ Grate Elev. 1037.91
℄ 15" Elev. 1032.16
50'-15" F. 701.05 Type C
Match Line
1040
1035
95+00 Back 47 10
+75
Back
Ahead
12:1
1036.9
1037.60
1037.87
1037.87
94+75 Begin Resurfacing & Shoulder Right
94+75 Ahead 24 0
Back 0 0
℄ Southbound Lanes
℄ Northbound Lanes
6:1
6:1
6:1
6:1
1036.01
1036.51
94+50 2 3
1035 2 3
1030 2 3
94+25
93+98.06 Begin Guardrail
93+75 0 0
93+75 Resume Earthwork
℄ Survey & ℄ Construction

END AREA		VOLUME	
CUT	FILL	CUT	FILL
		216	424
		33	5
		1	1
		2	3
		2	3

70 60 50 40 30 20 10 0 10 20 30 40

WAY-21-1.80
STA. 92+98.06 TO STA. 95+35

SEEDING	
END WIDTH	SQ. YDS.

CALC. BY / DATE	JBS 11/96
CHKD. BY / DATE	PLD 11/96

WAY-21-(1.39)(1.80)

OHIO

FHWA REGION 5

30/100

END AREA		VOLUME	
CUT	FILL	CUT	FILL

97+94.38 End Approach Slab Right

℄ Northbound Lanes

Pavement Removal

2:1

10'-15" F @ 1.0%

Sta. 97+71.9, 55' Rt.
℞ 15" Elev. 1042.25

1046.79
1046.81

HW-4A Headwall

1040

C.B. No. 3A
Sta. 97+71.9, 46' Rt.
℞ Grate Elev. 1046.00
℞ 15" Elev. 1042.35

1035

Rock Channel Protection, Type C with Fabric Filter

97+75

97+69.38 Begin Approach Slab Right

Bridge Limits = 200.80'

End Approach Slab Left 96+39.32

1040

64'-15" B @ 2.0%

1040

C.B. No. 3A
Sta. 96+37.6, 46' Lt.
℞ Grate Elev. 1042.09
℞ 15" Elev. 1038.45

Begin Approach Slab Left 96+14.21

1035

℄ Southbound Lanes

Bridge Limits = 201.12'

1040

15:1

Pavement Removal

1041.63
1041.54

1035

96+00

Begin New Pavement Left 95+75

95+68.78 End Approach Slab Right

95+43.88 Begin Approach Slab Right

70 60 50 40 30 20 10 ℄ Survey ℄ Construction 10 20 30 40

WAY-21-1.80
STA. 95+43.88 TO STA. 97+94.38

SEEDING	
END WIDTH	SQ. YDS.

CALC. BY JRS DATE 11/90	WAY-21-(1.39)(1.80)	OHIO
CHKD. BY PLD DATE 11/90		FHWA REGION 5

31/100

130+18.50 END WORK

100+25 End Earthwork

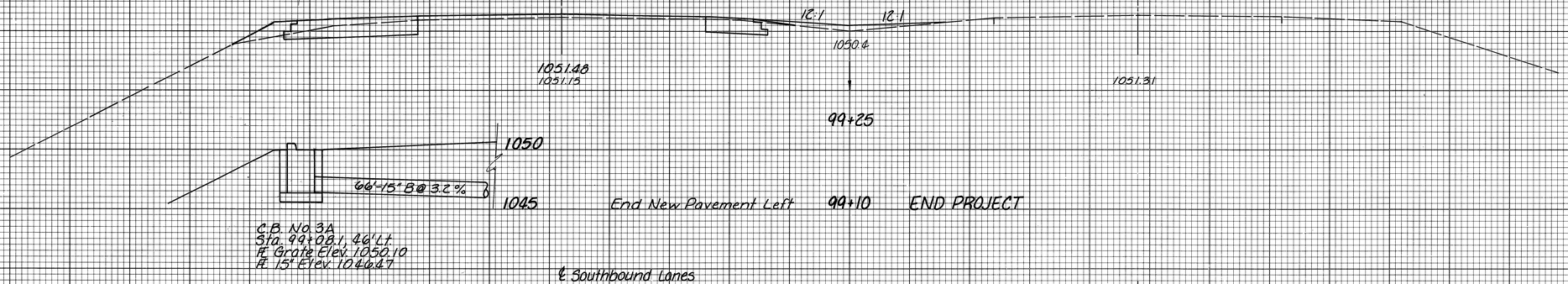
100+12.22 End Guardrail

Provide positive drainage from end of earthwork back.

End Resurfacing & Shoulder Left 99+75

℄ Southbound Lanes

℄ Northbound Lanes

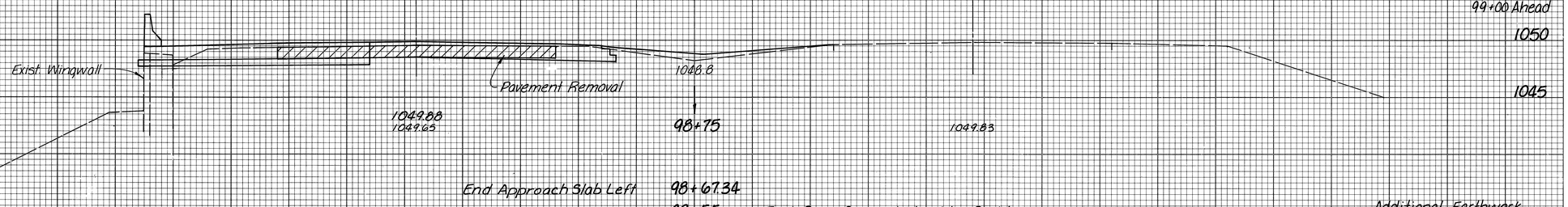


99+25

End New Pavement Left 99+10 END PROJECT

C.B. No 3A
Sta. 99+08.1, 46' Lt.
RE Grate Elev. 1050.10
RE 15" Elev. 1046.47

℄ Southbound Lanes



98+75

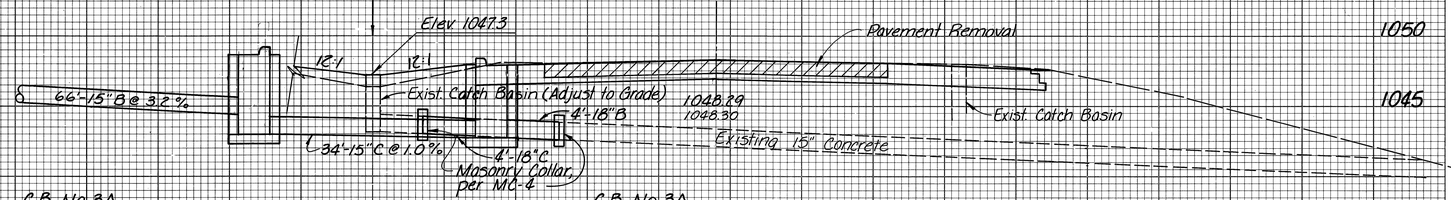
End Approach Slab Left 98+67.34

98+55 End Resurfacing & Shoulder Right

Begin Approach Slab Left 98+42.34

98+35 End New Pavement Right

℄ Northbound Lanes



C.B. No 3A
Sta. 98+51.9, 8' Lt.
RE Grate Elev. 1048.67
RE 15" Elev. 1044.36
RE 15" Elev. 1043.01

98+25

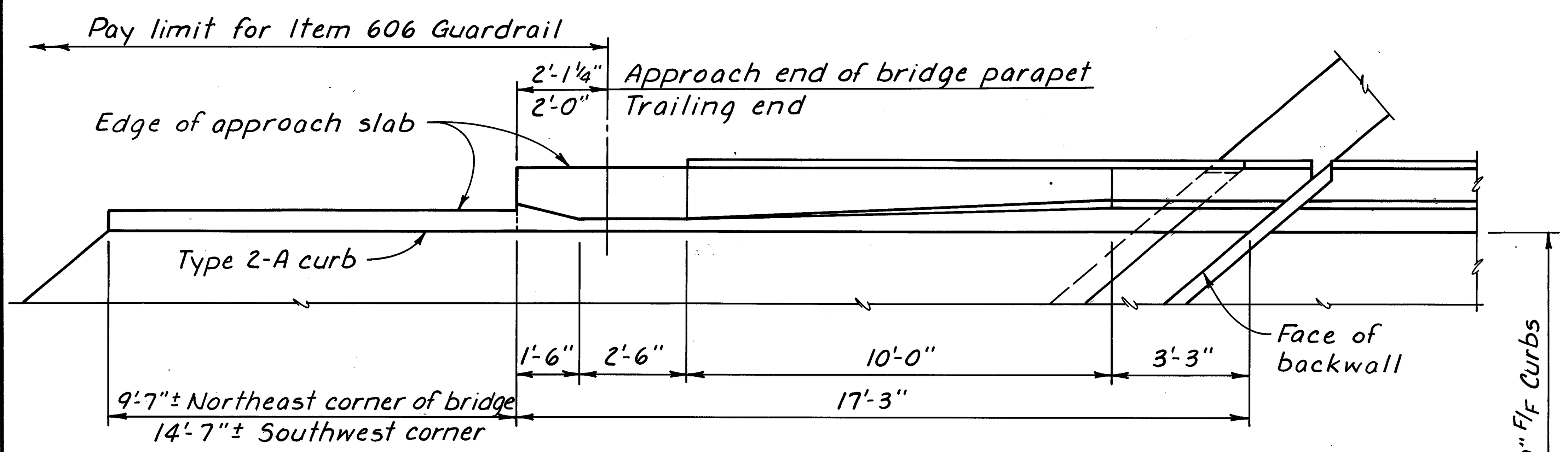
C.B. No 3A
Sta. 98+25.5, 8' Rt.
RE Grate Elev. 1047.79
RE 15" Elev. 1042.67

℄ Survey & Construction 10

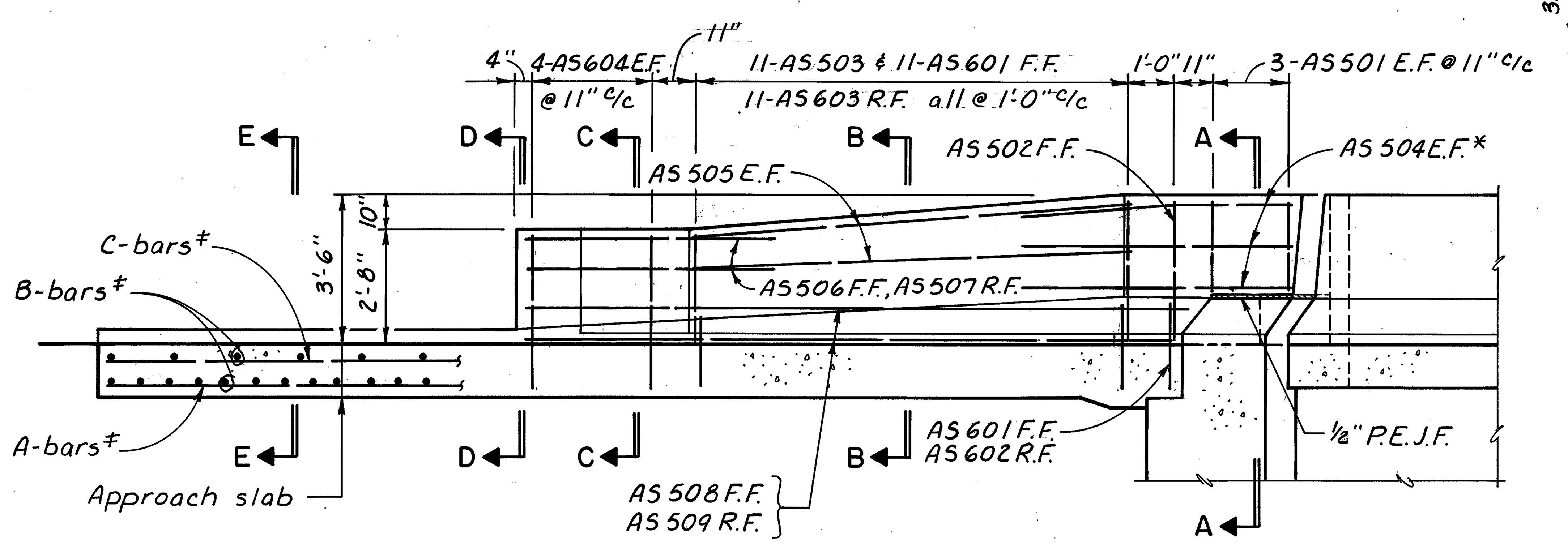
70 60 50 40 30 20 10 20 30 40

	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
100+25	0	0		
100+12.22	0	6	0	1
Ahead	0	12	0	12
99+75 Back	16	12		
			30	22
1050	16	12		
1045				
			9	6
Ahead	16	11		
99+10 Back	17	11		
			6	4
99+00 Ahead	17	11		
1050				
1045				
Additional Earthwork From Supplemental Calculations From Bridge to Sta. 99+00			175	92

WAY-21-1.80
STA. 98+25 TO STA. 130+18.50



PARAPET PLAN

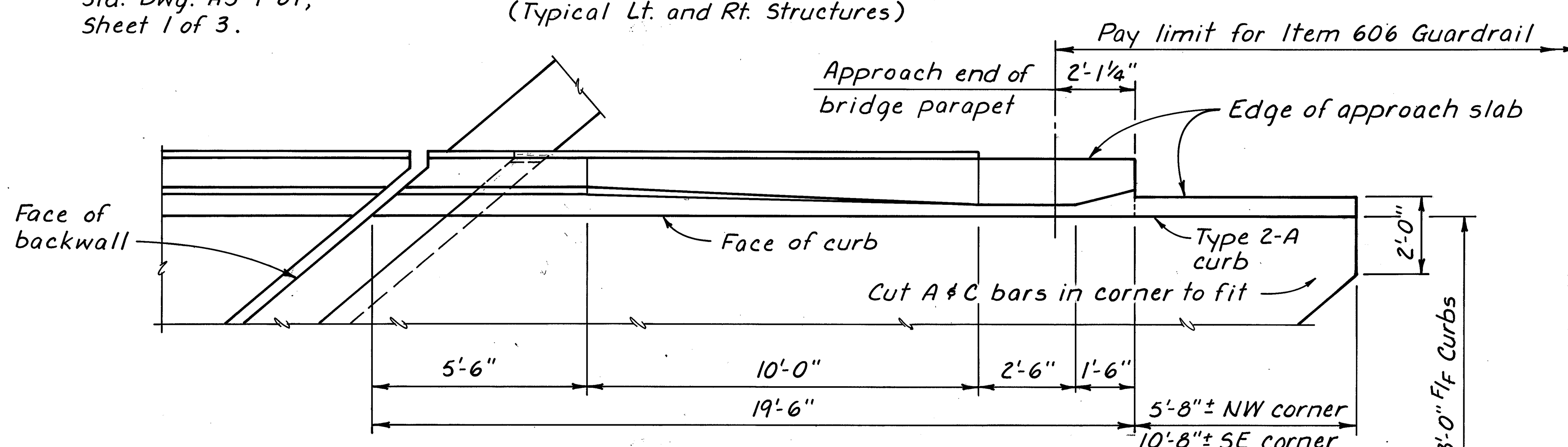


PARAPET ELEVATION

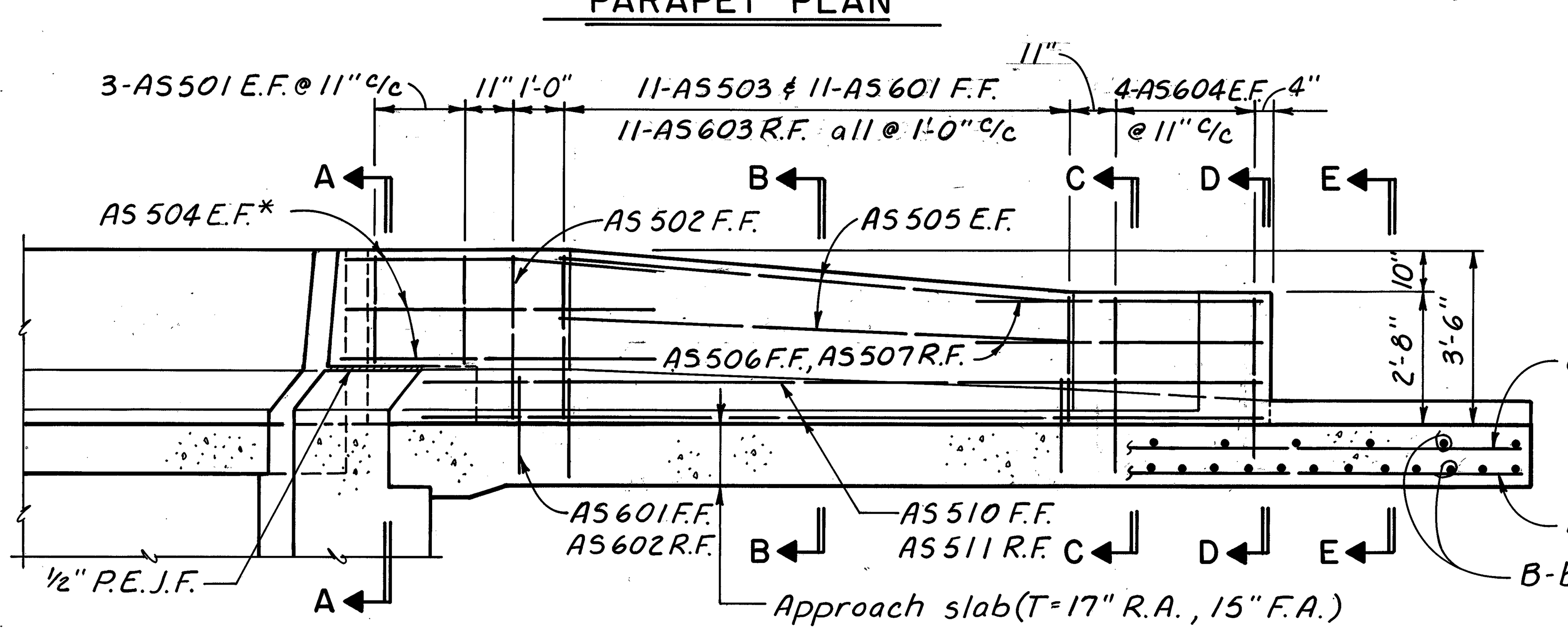
Northeast and Southwest Corners
(Typical Lt. and Rt. Structures)

‡ For A, B & C bars see Std. Dwg. AS-1-81, Sheet 1 of 3.

* Bend in field where necessary.

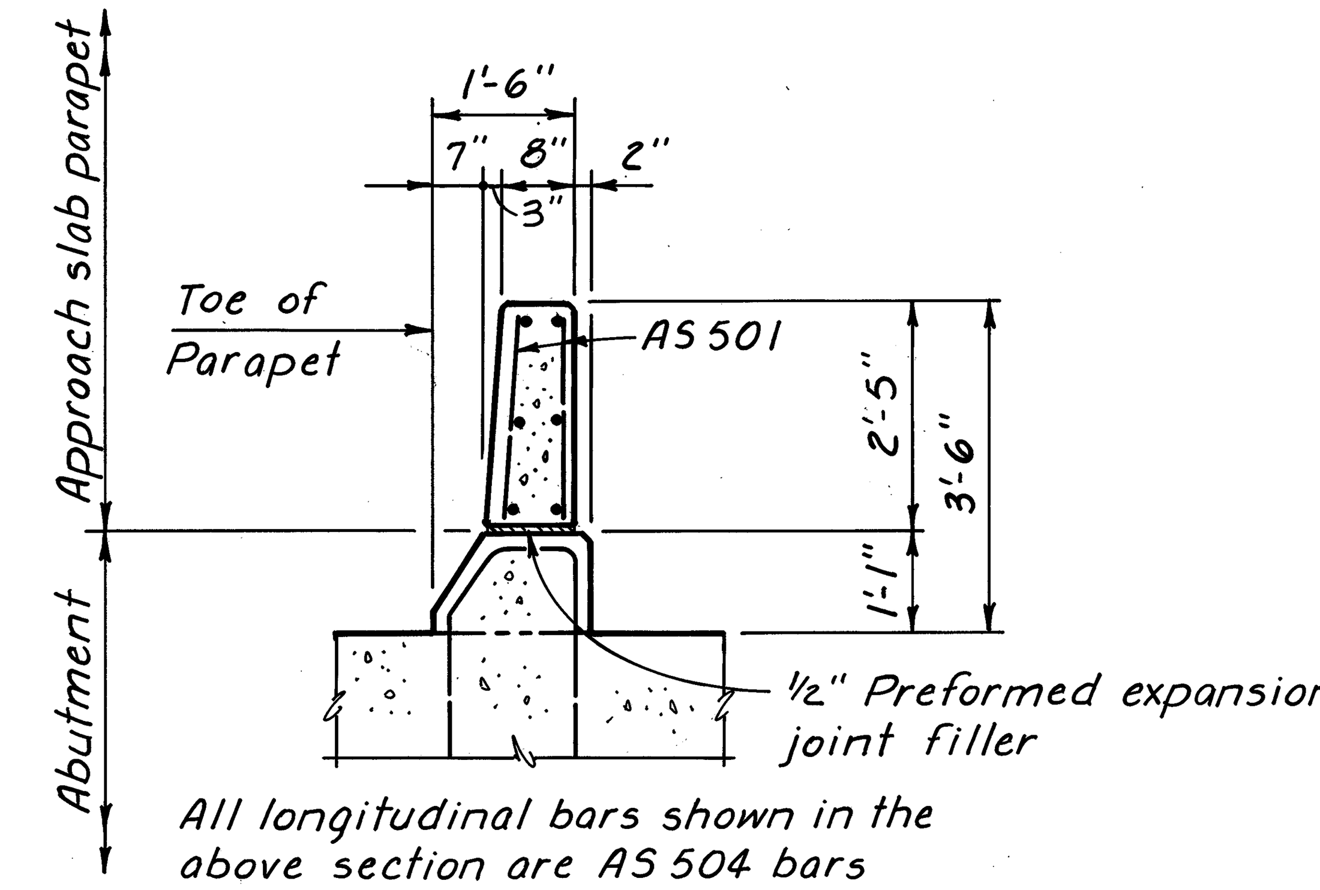


PARAPET PLAN



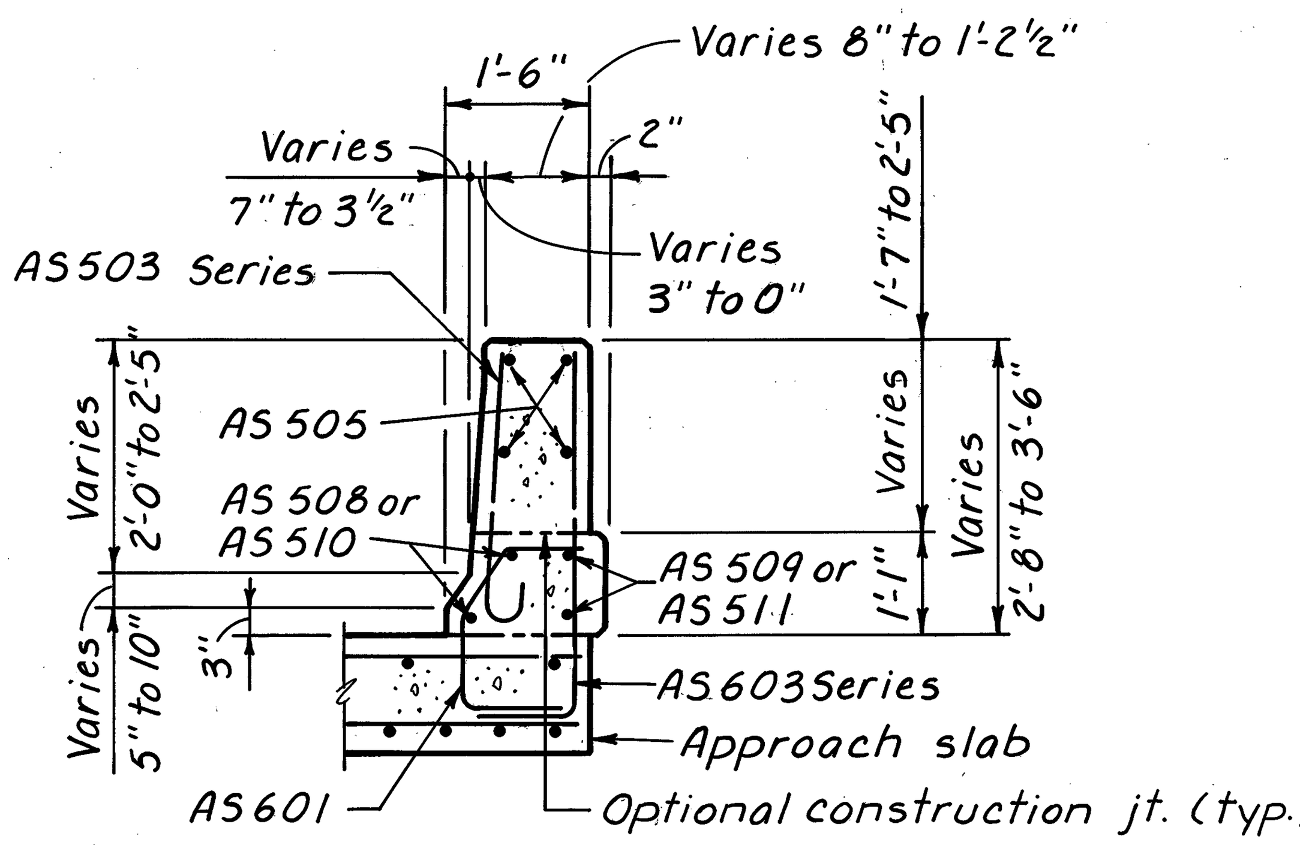
PARAPET ELEVATION

Northwest and Southeast Corners
(Typical Lt. and Rt. Structures)

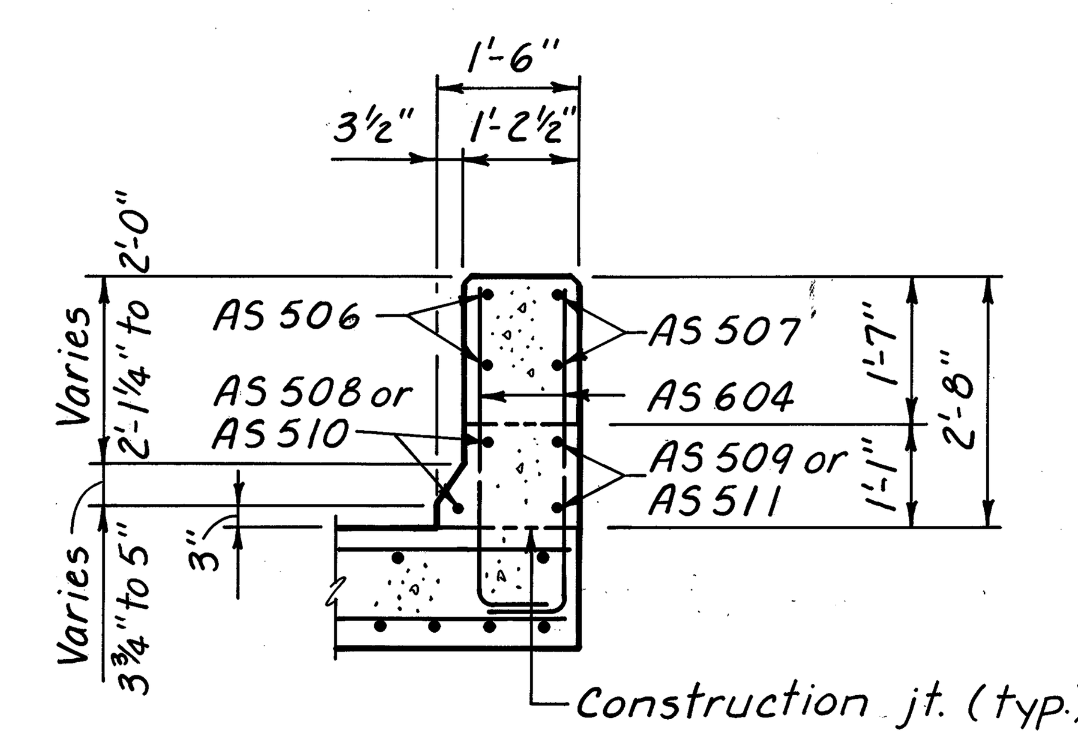


All longitudinal bars shown in the above section are AS504 bars

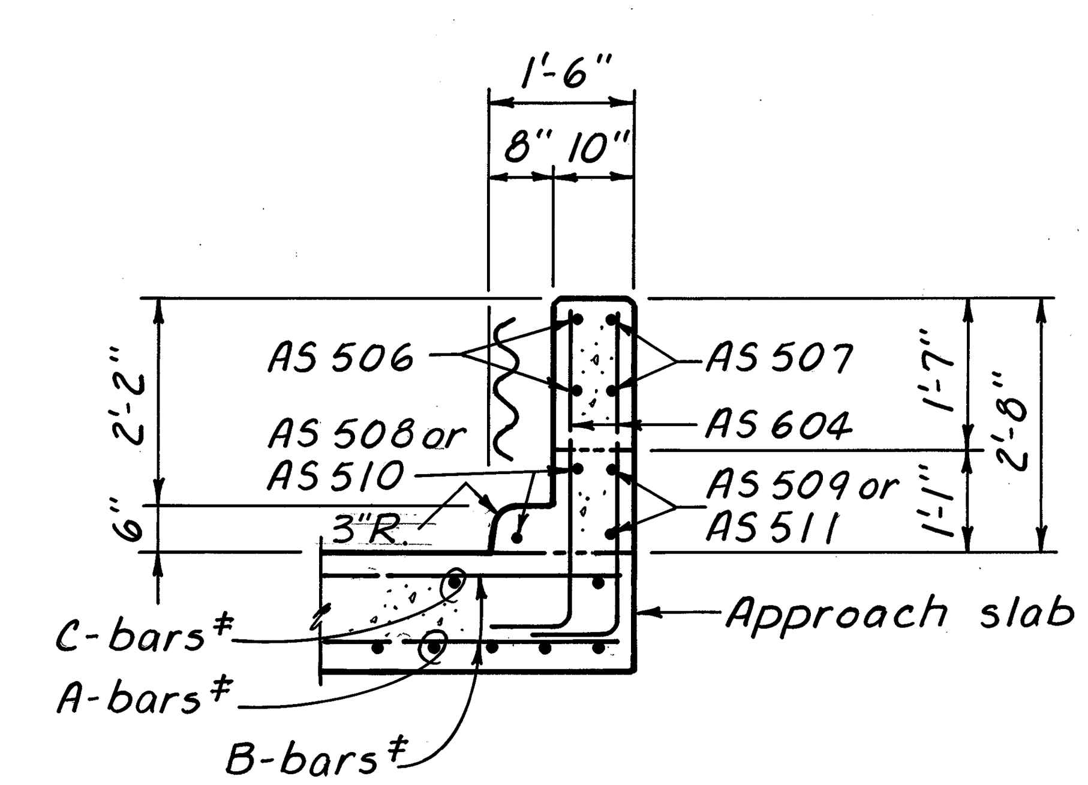
SECTION A-A



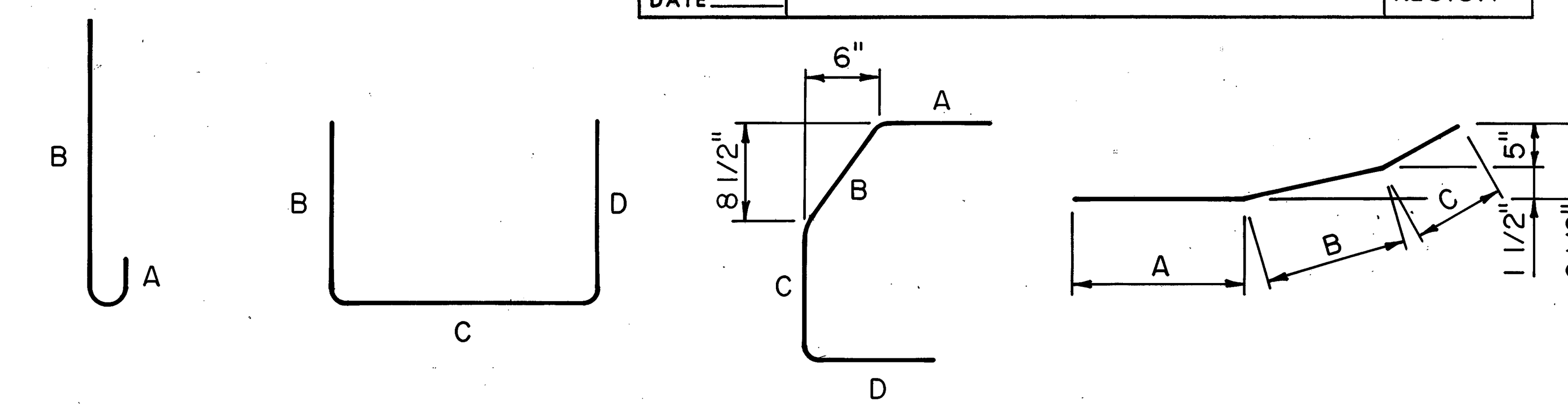
SECTION B-B



SECTION C-C



SECTION D-D



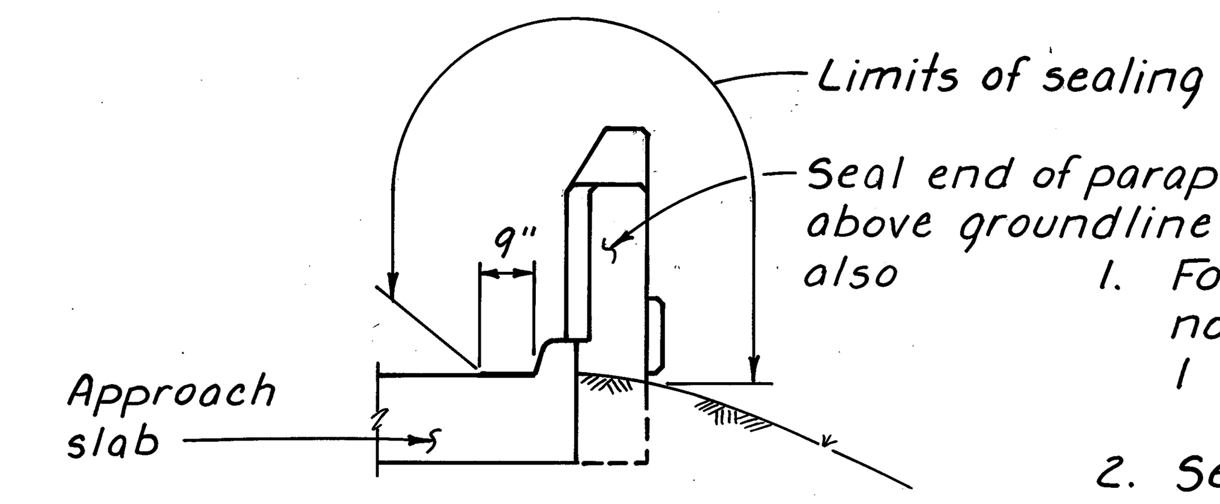
BENDING DIAGRAMS

APPROACH SLAB PARAPET REINFORCING STEEL SCHEDULE										
MARK	NUMBER			LENGTH	TYPE	A	B	C	D	E
	LT. STR.	RT. STR.	TOTAL							
AS501	24	24	48	2'-1"	Str.					
AS502	4	4	8	3'-10"	1	Std.	3'-3"			
AS503	44	44	88	3'-0" to 3'-10"	1	Std.	①			
AS504	24	24	48	6'-3"	Str.					
AS505	16	16	32	10'-0"	Str.					
AS506	8	8	16	5'-9"	31	1'-11"	2'-5"	1'-5"		
AS507	8	8	16	5'-9"	Str.					
AS508	4	4	8	15'-0"	Str.					
AS509	4	4	8	16'-6"	Str.					
AS510	4	4	8	16'-10"	Str.					
AS511	4	4	8	15'-6"	Str.					
AS601	48	48	96	3'-3"	28	9"	10⅜"	1'-1"	10½"	
AS602	4	4	8	5'-0"	17		4'-3"	11"	0	
AS603	44	44	88	4'-2" to 5'-0"	17		②	11"	0	
AS604	32	32	64	4'-2"	17		3'-5"	11"	0	

① - 8 Sets of 11 bars; Vary dimension "B" from 2'-5" to 3'-3" by 1"

② - 8 Sets of 11 bars; Vary dimension "B" from 3'-5" to 4'-3" by 1"

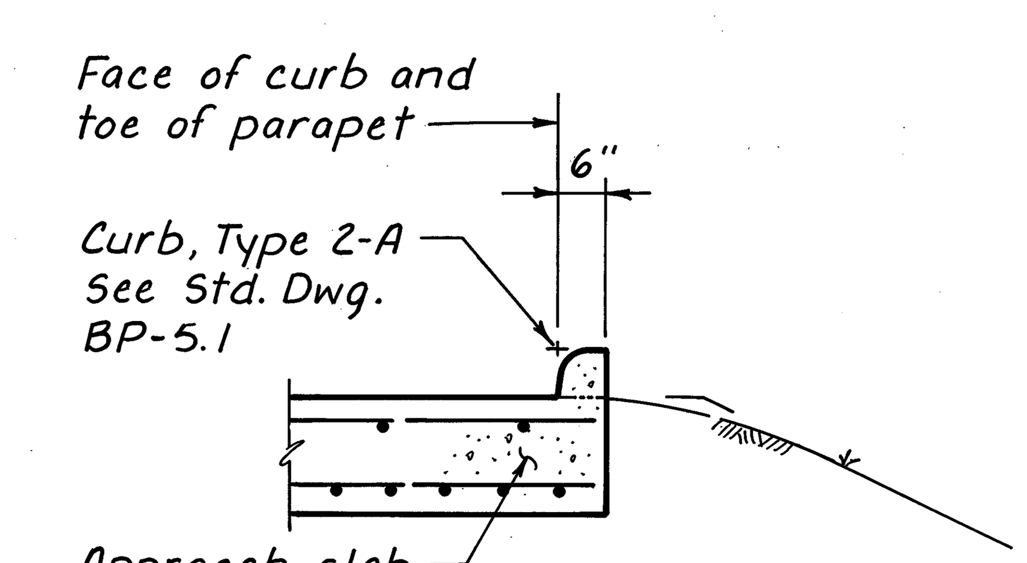
NOTES:
1. All reinforcing steel shall be epoxy coated.
2. Dimensions shown are out-to-out of bar except "A" on Standard 180 degree hooks.
3. "Std." in place of a dimension indicates a standard bend at the end of the bar per CMS 509.05.



SEALING OF CONCRETE SURFACES

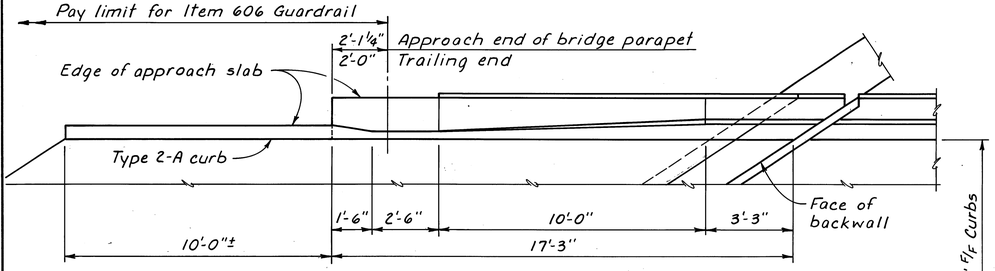
APPROACH SLAB NOTES

1. For additional notes, details and reinforcing not shown, see Std. Dwg. AS-1-81, sheets 1 thru 3.
2. See Roadway General Notes on Sheet 7.
3. Abbreviations:
   - F.F. - Front Face
   - R.F. - Rear Face
   - E.F. - Each Face
   - P.E.J.F. - Preformed Expansion Joint Filler
   - NW - Northwest
   - SE - Southeast
   - R.A. - Rear Abutment
   - F.A. - Forward Abutment
4. For Bridge Terminal Assembly Details, see Std. Dwgs. GR-3.1 and GR-3.2.

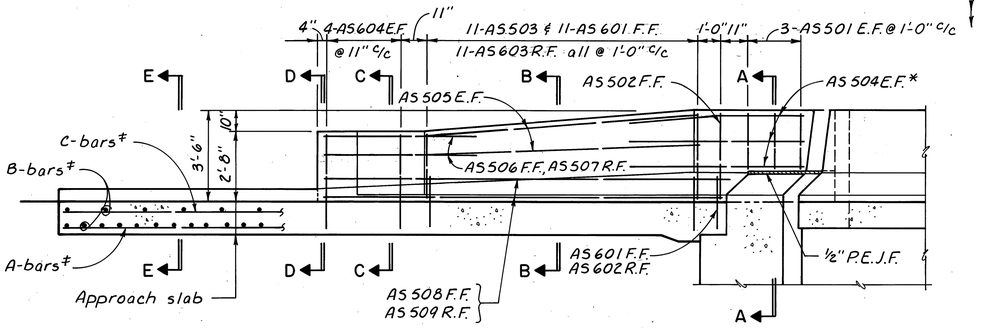


SECTION E-E

BRIDGE NO. WAY-21-0143 L/R
APPROACH SLAB DETAILS



PARAPET PLAN

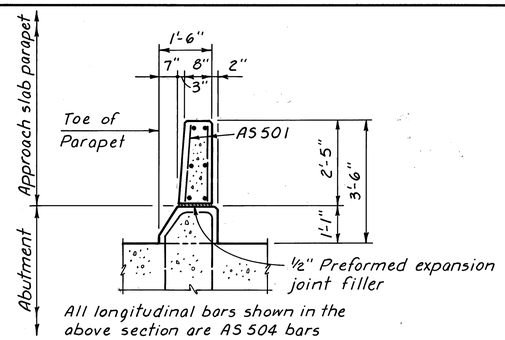


PARAPET ELEVATION

Northeast and Southwest Corners
(Typical Lt. and Rt. Structures)

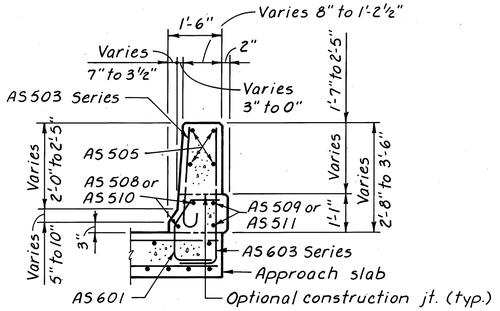
‡ For A, B & C bars see Std. Dwg. AS-1-81, Sheet 1 of 3.

* Bend in field where necessary.

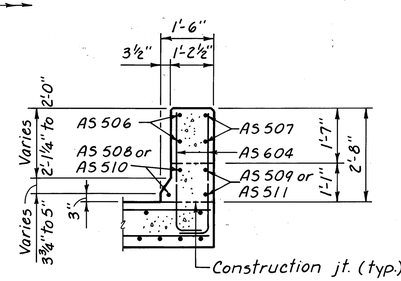


All longitudinal bars shown in the above section are AS 504 bars

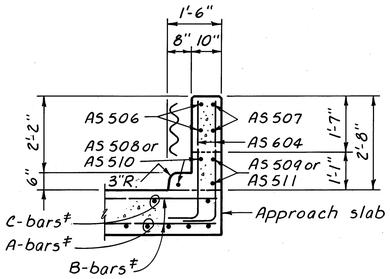
SECTION A-A



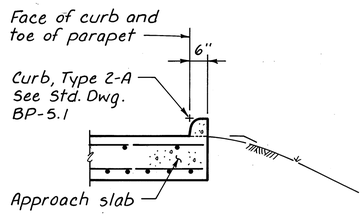
SECTION B-B



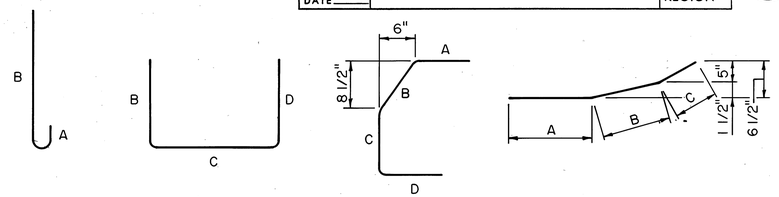
SECTION C-C



SECTION D-D



SECTION E-E



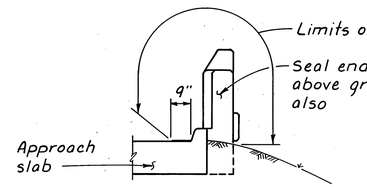
BENDING DIAGRAMS

APPROACH SLAB PARAPET REINFORCING STEEL SCHEDULE

MARK	NUMBER LT. STR.	NUMBER RT. STR.	NUMBER TOTAL	LENGTH	TYPE	A	B	C	D	E
AS 501	24	24	48	2'-1"	Str.					
AS 502	4	4	8	3'-10"	1	Std.	3'-3"			
AS 503	44	44	88	3'-0" to 3'-10"	1	Std.	①			
AS 504	24	24	48	6'-3"	Str.					
AS 505	16	16	32	10'-0"	Str.					
AS 506	8	8	16	5'-9"	31	1'-11"	2'-5"	1'-5"		
AS 507	8	8	16	5'-9"	Str.					
AS 508	4	4	8	15'-0"	Str.					
AS 509	4	4	8	16'-6"	Str.					
AS 510	4	4	8	16'-10"	Str.					
AS 511	4	4	8	15'-6"	Str.					
AS 601	48	48	96	3'-3"	28	9"	10 3/8"	1'-1"	10½"	
AS 602	4	4	8	5'-0"	17		4'-3"	11"	0	
AS 603	44	44	88	4'-2" to 5'-0"	17		②	11"	0	
AS 604	32	32	64	4'-2"	17		3'-5"	11"	0	

① - 8 Sets of 11 bars; Vary dimension "B" from 2'-5" to 3'-3" by 1"
② - 8 Sets of 11 bars; Vary dimension "B" from 3'-5" to 4'-3" by 1"

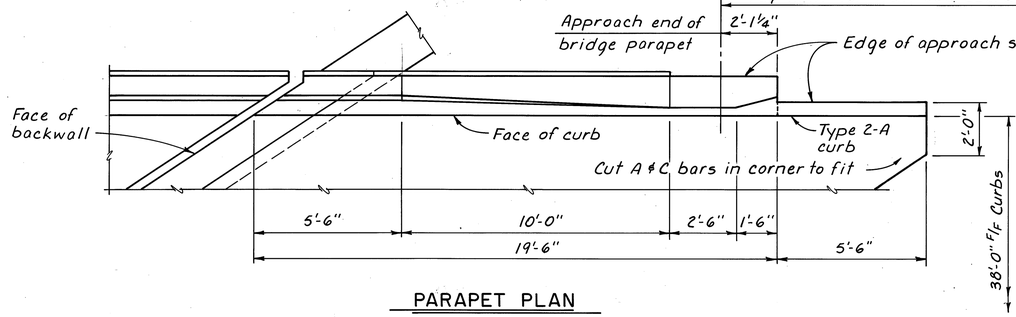
NOTES:
1. All reinforcing steel shall be epoxy coated.
2. Dimensions shown are out-to-out of bar except "A" on Standard 180 degree hooks.
3. "Std." in place of a dimension indicates a standard bend at the end of the bar per CMS 509.05.



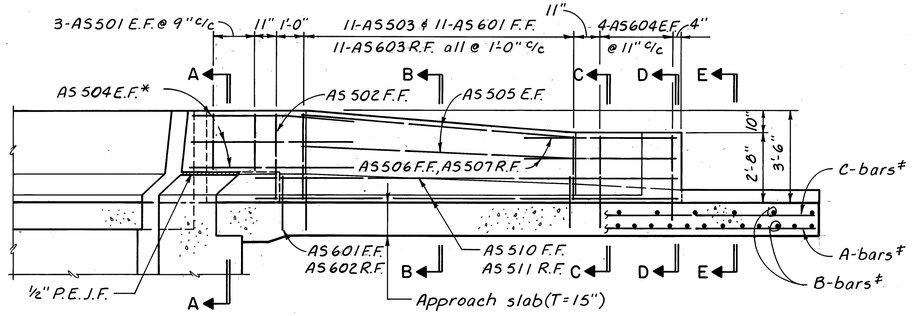
SEALING OF CONCRETE SURFACES

APPROACH SLAB NOTES

1. For additional notes, details and reinforcing not shown, see Std. Dwg. AS-1-81, sheets 1 thru 3.
2. See Roadway General Notes on Sheet 7.
3. Abbreviations:
   F.F. - Front Face
   R.F. - Rear Face
   E.F. - Each Face
   P.E.J.F. - Preformed Expansion Joint Filler
   NW - Northwest
   SE - Southeast
   R.A. - Rear Abutment
   F.A. - Forward Abutment
4. For Bridge Terminal Assembly Details, see Std. Dwgs. GR-3.1 and GR-3.2.



PARAPET PLAN

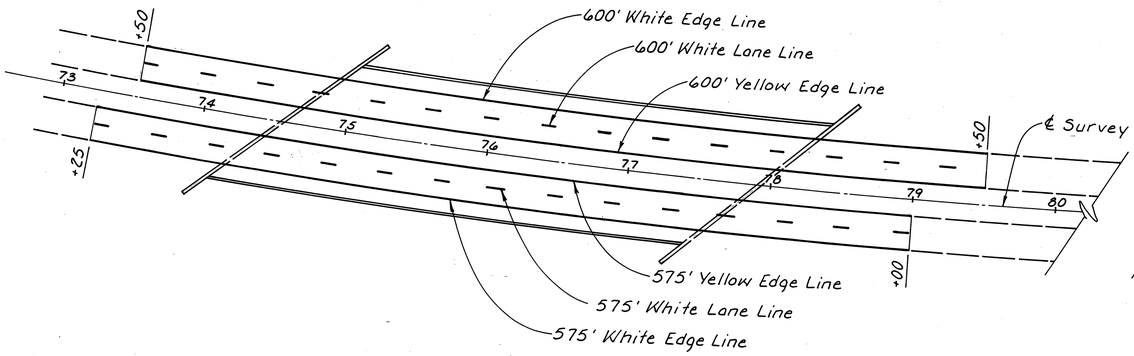


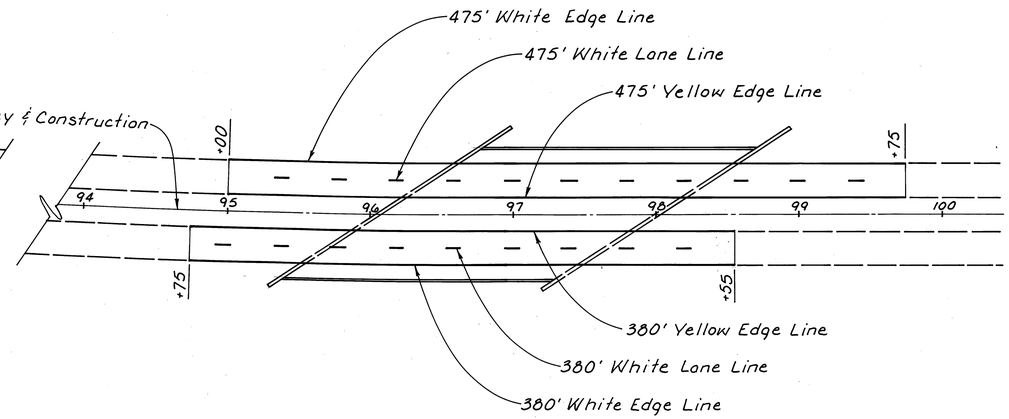
PARAPET ELEVATION

Northwest and Southeast Corners
(Typical Lt. and Rt. Structures)

BRIDGE NO. WAY-21-0182 L/R
APPROACH SLAB DETAILS

CALC. BY DL.D DATE 9-96	WAY-21 (1.39) (1.80)	OHIO
CHKD. BY A.F.S. DATE 9-96		FHWA REGION





PAVEMENT MARKING DETAIL

PAVEMENT MARKING SUB-SUMMARY

	STATION From	STATION To	SIDE	642 Type 2 Edge Line White		642 Type 2 Edge Line Yellow		642 Type 2 Lane Line	
				Lin. Ft.		Lin. Ft.		Lin. Ft.	
	73+50	79+50	Lt.	600		600		600	
	73+25	79+00	Rt.	575		575		575	
	95+00	99+75	Lt.	475		475		475	
	94+75	98+55	Rt.	380		380		380	
Sub	Totals			2030		2030		2030	
					4060			2030	
					4060			2030	
Total Carried To General Sum. Sht. 18				0.77 Mi.				0.38 Mi.	

STRUCTURE GENERAL NOTES

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

AS-1-81	REVISED	9-15-94
BR-1	REVISED	12-15-94
BS-1-93	DATED	12-19-94
EXJ-4-87	REVISED	1-20-94
RB-1-55	REVISED	2-02-59
SD-1-69	DATED	6-12-69

AND TO SUPPLEMENTAL SPECIFICATIONS:

815	DATED	7-17-95
910	DATED	7-17-95
944	DATED	12-07-95

DESIGN SPECIFICATIONS: THESE STRUCTURES CONFORM TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1992, INCLUDING THE 1993, 1994, 1995 AND 1996 INTERIM SPECIFICATIONS AND THE ODOT BRIDGE DESIGN MANUAL.

DESIGN LOADING: HS20-44, CASE II AND THE ALTERNATE MILITARY LOADING.

DESIGN DATA:

HIGH PERFORMANCE CONCRETE - ASSUMED COMPRESSIVE STRENGTH 4500 P.S.I. (SUPERSTRUCTURE)

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

REINFORCING STEEL - ASTM A615, A616 OR A617 GRADE 60, MINIMUM YIELD STRENGTH 60,000 P.S.I. SPIRAL REINFORCEMENT MAY BE PLAIN BARS, ASTM A82 OR A615. ALL REINFORCING SHALL BE EPOXY COATED.

EXISTING STRUCTURAL STEEL - ASTM A373, UNIT STRESS 18,000 P.S.I.

PROPOSED STRUCTURAL STEEL - ASTM A572, YIELD STRENGTH 50,000 P.S.I.

DECK PROTECTION METHODS: EPOXY COATED REINFORCING STEEL, 2 1/2" CONCRETE COVER, AND SEALING OF CONCRETE SURFACES.

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

EXISTING STRUCTURE PLANS: PLANS OF THE EXISTING BRIDGES MAY BE EXAMINED BY PROSPECTIVE BIDDERS AT THE DISTRICT 3 OFFICE OF THE OHIO DEPARTMENT OF TRANSPORTATION, 906 NORTH CLARK STREET, ASHLAND, OHIO. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE DRAWINGS.

EXISTING STRUCTURE VERIFICATION: DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURES HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURES AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURES AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05, 105.02 AND 513.02.

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

RAILROAD CONSTRUCTION CLEARANCES: SEE PROPOSAL NOTE.

UTILITY LINES: THE CONTRACTOR SHALL EXERCISE EXTREME CARE TO PROTECT THE EXISTING UTILITY LINES IN THE VICINITY OF THE STRUCTURES WHILE PERFORMING HIS WORK. ALL EXPENSE INVOLVED IN RELOCATION OF ANY AFFECTED UTILITY LINES, IF NECESSARY, SHALL BE BORNE BY THE UTILITIES. THE CONTRACTOR AND UTILITIES ARE REQUESTED TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

REFER TO THE ROADWAY GENERAL NOTES FOR A LIST OF THE UTILITY OWNERS ON THE PROJECT.

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN (ABUTMENTS): ALTERATIONS TO EXISTING CONCRETE ABUTMENTS SHALL BE PERFORMED WITH CARE TO LEAVE REMAINING PORTIONS OF THE STRUCTURES UNDAMAGED. CONCRETE SHALL BE REMOVED 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 EXCEEDING 90 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.

CERTAIN CONDITIONS, SUCH AS WHERE AN ENTIRE CONCRETE UNIT IS TO BE REMOVED, MAY WARRANT THE USE OF HYDRAULIC OR PNEUMATIC HOE-RAMS AND WILL BE PERMITTED WITH SPECIFIC APPROVAL OF THE ENGINEER.

IF PORTIONS OF THE EXISTING STRUCTURES DESIGNATED TO REMAIN ARE DAMAGED, REPAIR OR REPLACEMENT SHALL BE MADE AT THE CONTRACTOR'S EXPENSE AND TO THE APPROVAL OF THE ENGINEER.

CUT LINE CONSTRUCTION JOINT PREPARATION: ON SUBSTRUCTURE ALTERATIONS SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1" DEEP. REMOVE CONCRETE TO A ROUGH SURFACE. WHERE PRACTICABLE, THE EXISTING REINFORCING STEEL WHERE REQUIRED IN THE PLANS SHALL BE LEFT IN PLACE. INSTALL DOWEL BARS IF SPECIFIED. PRIOR TO CONCRETE PLACEMENT ABRASIVELY CLEAN JOINT SURFACES AND EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THE JOINT SURFACES 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 THOROUGHLY SATURATED WITHOUT FREE WATER AS CONCRETE IS PLACED.

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN (DECK AND PARAPET): THIS ITEM OF WORK SHALL BE USED TO REMOVE THE EXISTING CONCRETE DECK, SAFETY CURBS, PARAPETS AND SCUPPERS. CARE SHALL BE TAKEN NOT TO DAMAGE THE STEEL BEAMS DURING THE DECK REMOVAL. THE USE OF EXPLOSIVES, HEADACHE BALLS, HOE RAMS, CONCRETE CRUSHERS AND OTHER SIMILAR TYPE IMPACTIVE DEVICES IS NOT PERMITTED.

PROTECTION OF TRAFFIC. PRIOR TO DEMOLITION OF ANY PORTIONS OF THE EXISTING SUPERSTRUCTURES, THE CONTRACTOR SHALL SUBMIT HIS PLANS FOR THE PROTECTION OF TRAFFIC (VEHICULAR, TRAIN, ETC.) ADJACENT TO AND/OR UNDER THE STRUCTURES 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.

REMOVAL METHODS. THE CONCRETE DECK OVER THE STEEL BEAMS MAY BE REMOVED BY SAWING WITH THE FOLLOWING RESTRICTIONS:

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

CONCRETE MAY BE REMOVED BY MEANS OF APPROVED PNEUMATIC HAMMERS EMPLOYING POINTED AND BLUNT CHISEL EDGED TOOLS. THE WEIGHT OF THE HAMMERS SHALL NOT EXCEED 35 POUNDS WITHIN EIGHTEEN (18) INCHES OF THE STEEL BEAMS. OUTSIDE THE EIGHTEEN (18) INCH LIMIT THE WEIGHT OF THE HAMMERS SHALL NOT EXCEED NINETY (90) POUNDS. CARE SHALL BE TAKEN NOT TO NICK OR GOUGE THE STEEL BEAMS WITH THE PNEUMATIC HAMMERS.

DECK REMOVALS. BEFORE REMOVAL OF THE DECK, SCUPPER AND END DAM CONNECTIONS TO THE BEAMS SHALL BE CUT OR THE CONCRETE REMOVED AROUND SAME TO PREVENT DAMAGE TO THE BEAMS.

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

EXTRANEOUS MEMBERS, BOLTS AND PROJECTIONS WELDED TO THE STRUCTURAL STEEL BEAMS SHALL BE REMOVED. ALL IMPERFECTIONS, TACK WELDS AND WELDS FOR BOLTS AND PROJECTIONS SHALL BE GROUND SMOOTH. THE TOP FLANGE OF THE STEEL BEAMS SHALL BE ABRASIVE BLAST CLEANED ACCORDING TO SSPC-SP10 AND AS SHOWN IN SSPC-VIS-1-89 (PICTORIAL SURFACE PREPARATION STANDARDS FOR PAINTING STEEL SURFACES).

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

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

SHORING: ALL PROPOSED SHEETING AND BRACING REQUIRED TO PROTECT THE RAILROAD TRACKS DURING BRIDGE NO. WAY-21-0143L/R PIER EXCAVATION/CONSTRUCTION SHALL BE IN ACCORDANCE WITH CSX TRANSPORTATION CRITERIA FOR OVERHEAD BRIDGES. SUBMIT SEVEN SETS OF DETAILED PLANS FOR REVIEW PER 501.06.

CONSTRUCTION CONSTRAINTS: ALL EMBANKMENT MATERIAL FOR FILLING THE VOID CREATED BY EXCAVATING FOR THE REAR ABUTMENT OF BRIDGE NO. WAY-21-0143L/R SHALL BE 203 GRANULAR EMBANKMENT MATERIAL. AFTER THE FOOTING AND THE BREASTWALL HAVE BEEN CONSTRUCTED, THE VOID BEHIND THE ABUTMENT SHALL BE FILLED UP TO THE BEAM SEAT ELEVATION AND FROM THE BEAM SEAT UP ON A 1:1 SLOPE TO THE SUBGRADE ELEVATION PRIOR TO CONSTRUCTING THE BACKWALL AND SETTING THE BEAMS ON THE ABUTMENT.

ITEM 503 - UNCLASSIFIED EXCAVATION, AS PER PLAN: UNCLASSIFIED EXCAVATION FOR THE REAR ABUTMENT OF BRIDGE NO. WAY-21-0143L/R SHALL BE IN ACCORDANCE WITH 503 EXCEPT THAT THE BACKFILL MATERIAL BEHIND THE ABUTMENT SHALL BE 203 GRANULAR MATERIAL PLACED IN 6 INCH LIFTS AND COMPACTED IN ACCORDANCE WITH 304.04.

PILE DESIGN LOADS (SAFE BEARING CAPACITY): THE DESIGN LOAD FOR THE REAR ABUTMENT PILES UNDER BRIDGE NO: WAY-21-0143L/R IS 60 TONS PER PILE. THE DESIGN LOAD FOR THE PIER PILES ON THIS SAME STRUCTURE IS ALSO 60 TONS PER PILE.

ITEM 507 - 14" CAST-IN-PLACE REINFORCED CONCRETE PILES, AS PER PLAN: THE RESPONSIBILITY OF CHOOSING AND PROVIDING A SATISFACTORY PILE WALL THICKNESS FOR THIS PROJECT SHALL BE BORNE BY THE CONTRACTOR EXCEPT THAT THE PILE WALL THICKNESS SHALL NOT BE LESS THAN 0.22 INCHES. IF A PILE WALL THICKNESS GREATER THAN 0.22 INCHES IS NECESSARY TO RESIST THE PILE INSTALLATION DRIVING STRESS, THE CONTRACTOR SHALL MAKE THIS DETERMINATION AND SHALL FURNISH A PILE WITH AN ACCEPTABLE WALL THICKNESS. IF MONOTUBE PILES ARE USED, THE MINIMUM WALL THICKNESS SHALL BE 0.17 INCHES.

THE PILE HAMMER USED TO INSTALL THE CAST-IN-PLACE REINFORCED CONCRETE PILES SHALL HAVE A STATE'S ENERGY RATING OF NOT LESS THAN 16,500 FOOT-POUNDS. THIS REQUIREMENT DOES NOT RELIEVE THE CONTRACTOR FROM 108.05 WHICH STATES THAT THE CONTRACTOR IS TO PROVIDE SUFFICIENT EQUIPMENT FOR PROSECUTING THE REQUIRED WORK. REFER TO "ODOT'S MANUAL OF PROCEDURES FOR STRUCTURES" TO OBTAIN THE STATE'S ENERGY RATING.

PILE INSTALLATION: IF EQUIPMENT FOR PILE DRIVING INSTALLATION OCCUPIES ANY PORTION OF THE EXISTING STRUCTURE, STRESS CALCULATIONS BY A REGISTERED STRUCTURAL ENGINEER SHALL BE SUBMITTED TO THE ENGINEER IN ACCORDANCE WITH CMS 501.09.

ITEM 507 - PREBORED HOLES: CONSTRUCTION RECORDS AND BORING B-1 FOR BRIDGE NO. WAY-21-0143L/R INDICATE THE EMBANKMENTS FOR THIS BRIDGE WERE BUILT FROM SANDSTONE ROCK. THIS CONDITION MAY DISRUPT PILE DRIVING ACTIVITIES AT THE REAR ABUTMENT AND MAY REQUIRE THE USE OF PREBORED HOLES. A QUANTITY OF 890 LINEAL FEET OF PREBORED HOLES HAS BEEN PROVIDED IN THE TABLE OF ESTIMATED QUANTITIES FOR THIS PURPOSE. THE USE OF PREBORED HOLES SHALL BE FIRST APPROVED BY THE ENGINEER PRIOR TO BEGINNING PREBORING OPERATIONS.

ADDITIONAL STRUCTURE GENERAL NOTES: SEE SHEETS G2 / 6 & G3 / 6 .

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

STRUCTURE GENERAL NOTES

BRIDGE NO. WAY-21-0143L/R
BRIDGE NO. WAY-21-0182L/R

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	BJR	CAD	DBC	DWS	9/4/96	

STRUCTURE GENERAL NOTES

FOUNDATION BEARING PRESSURE: THE EXTENSION OF THE FORWARD ABUTMENT FOOTING UNDER BRIDGE NO. WAY-21-0143L/R, AS DESIGNED, PRODUCES A MAXIMUM BEARING PRESSURE OF 1.4 TONS PER SQUARE FOOT. THE ALLOWABLE BEARING PRESSURE IS 1.5 TONS PER SQUARE FOOT.

THE EXTENSION OF THE ABUTMENT FOOTINGS UNDER BRIDGE NO. WAY-21-0182L/R, AS DESIGNED, PRODUCE A MAXIMUM BEARING PRESSURE OF 1.2 TONS PER SQUARE FOOT. THE ALLOWABLE BEARING PRESSURE IS 1.5 TONS PER SQUARE FOOT.

PIER FOOTINGS UNDER BRIDGE NO. WAY-21-0182L/R, AS DESIGNED, PRODUCE A MAXIMUM BEARING PRESSURE OF 4.2 TONS PER SQUARE FOOT. THE ALLOWABLE BEARING PRESSURE IS 6.0 TONS PER SQUARE FOOT.

PIER FOOTINGS OF BRIDGE NO. WAY-21-0182L/R SHALL EXTEND A MINIMUM OF 3 INCHES INTO BEDROCK OR TO THE ELEVATION SHOWN, WHICHEVER IS LOWER.

REINFORCING STEEL: NEW REINFORCING STEEL MAY REQUIRE FIELD CUTTING OR BENDING TO PROPERLY FIT. PAYMENT SHALL BE INCLUDED IN 509.

REPLACEMENT OF EXISTING REINFORCING STEEL: ANY EXISTING REINFORCING BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND WHICH ARE MADE UNUSABLE BY CONCRETE REMOVAL OPERATIONS SHALL BE REPLACED WITH NEW STEEL AT THE CONTRACTOR'S COST. ANY EXISTING REINFORCING BARS DEEMED BY THE ENGINEER TO BE UNUSABLE BECAUSE OF CORROSION SHALL BE REPLACED WITH NEW STEEL. AN ALLOWANCE OF 100 POUNDS PER BRIDGE IS INCLUDED IN ITEM 509 FOR THIS PURPOSE, LISTED IN THE 'GENERAL' COLUMN OF THE ESTIMATED QUANTITIES TABLE.

DRILLING DOWEL HOLES, FURNISHING AND PLACING NONSHRINKING, EPOXY GROUT, AND DOWEL BARS, WHERE NEEDED TO REPLACE EXISTING REINFORCEMENT DAMAGED BY THE CONTRACTOR, SHALL BE DONE AT THE CONTRACTOR'S EXPENSE.

ITEM 510 - DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT, AS PER PLAN: NONSHRINKING EPOXY GROUT ONLY SHALL BE USED. PAYMENT SHALL BE INCLUDED WITH ITEM 510.

ITEM 511 - CLASS C CONCRETE, AS PER PLAN: COARSE AGGREGATE SHALL BE #8 LIMESTONE ONLY. PAYMENT SHALL BE INCLUDED IN THE UNIT PRICE BID PER CUBIC YARD FOR THE PERTINENT 511 CLASS C CONCRETE PAY ITEM, WHICH SHALL INCLUDE ALL LABOR, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.

HIGH PERFORMANCE CONCRETE, SUPERSTRUCTURE (DECK)/(PARAPET): THESE ITEMS SHALL BE IN ACCORDANCE WITH THE PROPOSAL NOTE EXCEPT THAT THE DECK CONCRETE SHALL CONSIST OF MIX 4. EITHER CONCRETE MIX 2 OR 4 SHALL BE USED FOR THE SUPERSTRUCTURE PARAPET. ALL COARSE AGGREGATE SHALL BE #8 LIMESTONE.

NO CONCRETE SHALL BE PLACED BETWEEN OCTOBER 1ST AND MARCH 15TH.

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 (DECK) FOR PAYMENT.

STRUCTURAL STEEL: NEW STRUCTURAL STEEL FOR DECK EXPANSION JOINTS, BEARING DEVICES AND REPLACEMENT OF DETERIORATED END CROSS FRAMES SHALL CONFORM TO ASTM A36. ALL OTHER STRUCTURAL STEEL SHALL BE ASTM A572.

STRUCTURAL STEEL, A572-50 AISC CATEGORY I, AS PER PLAN: NEW STEEL SHALL BE CLEANED AND 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.

ITEM 513 - STRUCTURAL STEEL, REPLACEMENT OF DETERIORATED END CROSSFRAMES, 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 ENGINEER SHALL HAVE THE 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 ALL END CROSSFRAME MEMBERS WITH THE EXCEPTION OF THE TOP GUSSET PLATES WHICH ARE INCLUDED WITH THE STRUCTURAL EXPANSION JOINTS FOR PAYMENT.

ALL STEEL SHALL BE CLEANED AND PRIME PAINTED IN THE FIELD. AT THE CONTRACTOR'S OPTION, THE 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.

ITEM 513 - TRIMMING OF BEAM ENDS: TRIM ENDS OF BEAMS TO PROVIDE THE SPECIFIED CLEARANCE. BURNING SHALL BE DONE WITH THE AID OF A GUIDE TO HELP ACHIEVE STRAIGHT CUTS WITH RELATIVELY SMOOTH SURFACES. BURNED SURFACES SHALL BE GROUND RELATIVELY SMOOTH AND CUT EDGES BEVELED TO MAKE THEM SUITABLE FOR PAINT APPLICATION.

ERECTION PLANS: DETAILED PLANS INCLUDING PROPOSED ERECTION AND HANDLING PROCEDURES SHALL BE SUBMITTED FOR REVIEW. SUBMIT THREE SETS OF THE PLANS AND AN ADDITIONAL FOUR SETS FOR EACH INVOLVED RAILROAD, WHERE APPLICABLE, TO THE DIRECTOR. WORK MAY NOT PROCEED UNTIL APPROVAL IS RECEIVED. SEE CMS 501.06.

ITEM 516 - REFURBISH BEARING DEVICES, AS PER PLAN: THIS ITEM SHALL INCLUDE THE FURNISHING OF ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED TO PROPERLY ALIGN EXISTING STEEL ROCKERS AND BOLSTERS, INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL PERFORM THE WORK IN SUCH A MANNER AS TO NOT ENDANGER THE STABILITY OR INTEGRITY OF THE STRUCTURE DURING THE BEARING REALIGNMENT OPERATIONS.

INCLUDED SHALL BE ANY NECESSARY DISASSEMBLY OF THE BEARINGS, HAND TOOL CLEANING (GRINDING IF NECESSARY), REALIGNMENT OF THE BEARING ASSEMBLY AND MASONRY PLATE TRANSVERSELY AND LONGITUDINALLY WITH THE UPPER BEARING PLATE SO THAT THE BEARINGS ARE VERTICALLY ALIGNED AT 60 DEGREES F., REPLACEMENT OF ANY DAMAGED SHEET LEAD (711.19), REPLACEMENT OF MISSING OR DAMAGED KEEPER PLATES AT ENDS OF UPPER BEARING PLATES, AND REASSEMBLY OF THE BEARINGS. REFER TO THE FRAMING PLAN FOR BEARING DESIGNATIONS AND STANDARD DRAWING RB-1-55 FOR NECESSARY DIMENSIONS, WELD SIZES, ETC. ALL WORK SHALL BE TO THE SATISFACTION OF THE ENGINEER.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF AN ADEQUATE JACKING SYSTEM, INCLUDING ARRANGING ALL TEMPORARY SUPPORTS NECESSARY TO PERFORM THE WORK DESCRIBED ABOVE. THE STRUCTURE SHALL NOT BE RAISED MORE THAN NECESSARY TO ACCOMPLISH THE REQUIRED WORK.

PAYMENT FOR ALL THE ABOVE DESCRIBED LABOR, MATERIAL AND EQUIPMENT EXCLUDING THE JACKING SYSTEM AND TEMPORARY SUPPORT WILL BE MADE AT THE CONTRACT PRICE BID FOR ITEM 516 - REFURBISH BEARING DEVICE, AS PER PLAN. JACKING AND BLOCKING OF THE BEAMS WILL BE PAID FOR AS PART OF ITEM 516 - JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN.

THE COST OF PAINTING THE REFURBISHED BEARINGS SHALL BE INCLUDED IN THE SEVERAL OZEU ITEMS.

ITEM 516 - BEARING DEVICE, AS PER PLAN: ALL APPLICABLE PROVISIONS OF 516 SHALL APPLY EXCEPT AS MODIFIED HEREIN.

SHOP DRAWINGS SHALL BE PREPARED SHOWING DETAILS, DIMENSIONS, ETC. NECESSARY FOR FABRICATION OF EACH OF THE ROCKERS AND BOLSTERS. THE DRAWINGS SHALL SPECIFICALLY IDENTIFY THE GRADE (ASTM DESIGNATION) OF EACH PIECE OF STEEL.

THE FABRICATOR OF THE BEARING DEVICES SHALL BE CERTIFIED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AISC QUALITY CERTIFICATION PROGRAM, CATEGORY I.

THE BEARINGS SHALL BE LEFT UNPAINTED FOR PREPARATION AND PAINTING IN THE FIELD. COST OF PAINTING SHALL BE INCLUDED IN THE SEVERAL OZEU ITEMS.

ITEM 516 - JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN: THIS ITEM SHALL CONSIST OF FURNISHING ALL THE NECESSARY LABOR, MATERIALS, AND EQUIPMENT TO RAISE AND ADEQUATELY SUPPORT THE EXISTING STRUCTURE AFTER THE CONCRETE DECK IS REMOVED AND AS WORK DEFINED IN THE PROJECT PLANS PROGRESSES.

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.

JACKING SUBMITTALS SHALL INCLUDE AT LEAST THE FOLLOWING:

1. THE SIGNATURE AND NUMBER, OR PROFESSIONAL SEAL, OF THE REGISTERED PROFESSIONAL ENGINEER WHO PREPARED THE SUBMITTAL.

2. CALCULATIONS AND ANALYSIS OF THE STRUCTURE TO DETERMINE AND DEFINE THE ACTUAL LOADING APPLIED AT THE CONTRACTOR'S SELECTED JACKING POINTS.

3. A DRAWING SHOWING THE PHYSICAL AND DIMENSIONAL POSITION OF THE JACKS WITH RESPECT TO THE STRUCTURE INCLUDING CLEARANCES AND CENTER OF LIFT.

4. A SCHEMATIC LAYOUT OF JACKS, CHECK VALVES, PUMPS WITH 3 WAY RETRACTOR VALVE, PRESSURE GAGES, FLOW CONTROL VALVES, ETC. IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. ALL JACKS FOR EACH ABUTMENT OR PIER SHALL BE CONNECTED TOGETHER. ALL JACKS AT EACH ABUTMENT OR PIER SHALL BE THE SAME SIZE.

5. ANALYSIS AND CALCULATIONS OF THE STRESSES INDUCED OR CREATED IN THE STRUCTURE AND ANY TEMPORARY OR PERMANENT SUPPORTS. DESIGN CALCULATIONS FOR ANY TEMPORARY OR PERMANENT SUPPORTS.

6. PHYSICAL DIMENSIONS, MATERIALS, AND FABRICATION DETAILS OF ANY TEMPORARY OR PERMANENT SUPPORTS. HORIZONTAL AND VERTICAL MOVEMENT RESTRAINT SHALL BE PROVIDED.

7. A STEP BY STEP PROCEDURE DETAILING ALL STEPS IN THE JACKING OPERATION.

8. METHOD OF ATTACHMENT TO STRUCTURAL MEMBERS. WELDING TO TENSION AREAS WILL NOT BE PERMITTED.

THE ENTIRE SYSTEM INCLUDING JACKS SHALL HAVE 20% MORE CAPACITY THAN REQUIRED BASED ON CALCULATED LOADS.

FOR LIFTS GREATER THAN 1", JACKS SHALL HAVE LOCKING NUTS TO POSITIVELY LOCK AND SUPPORT THE STRUCTURE DURING THE LIFT.

JACKS SHALL HAVE A SWIVEL LOAD CAP, A DOMED PISTON HEAD OR SOME OTHER DEVICE TO PROTECT AGAINST THE EFFECTS OF SIDE LOAD ON THE JACK.

JACKS ALONE SHALL NOT BE USED TO SUPPORT LOADS EXCEPT DURING THE ACTUAL JACKING OPERATION. TEMPORARY SUPPORTS, BLOCKING OR OTHER METHODS APPROVED BY THE DIRECTOR SHALL BE USED.

SINGLE ACTING RAMS WITH NO OVER-TRAVEL PROTECTION SYSTEM SHALL NOT BE USED.

SPARE EQUIPMENT SHALL BE AVAILABLE ON SITE FOR THE REQUIRED STRUCTURE RAISING TO PROCEED IN THE EVENT OF BREAKDOWN. A LIST OF SPARE EQUIPMENT SHALL BE PROVIDED THE ENGINEER.

AT A MINIMUM, A JACKING OPERATION SHALL LIFT ALL BEAMS AT ANY ONE ABUTMENT OR PIER SIMULTANEOUSLY. THE ONLY EXCEPTION IS THE SITUATION WHERE THE WORK INVOLVES REPLACING OR REHABILITATING INDIVIDUAL BEARINGS; NO PERMANENT SHIMMING IS REQUIRED AND THE HEIGHT OF THE LIFT SHALL NOT EXCEED 1/4 INCH.

MAXIMUM DIFFERENTIAL JACKING HEIGHT BETWEEN ANY ADJACENT ABUTMENTS OR PIERS SHALL BE LIMITED BY STRESSES INDUCED IN THE AFFECTED STRUCTURAL MEMBERS. CALCULATIONS DETAILING ALL STRESSES INDUCED IN THE AFFECTED MEMBERS AND LIMITED BY ALLOWABLE STRESSES OF 136.5% OF NORMAL DESIGN STRESSES SHALL BE INCLUDED IN THE JACKING PROCEDURE SUBMITTAL.

IF, DURING THE JACKING OPERATIONS, DAMAGE TO THE STRUCTURE IS VISUALLY OBSERVED, THE JACKING OPERATION SHALL IMMEDIATELY CEASE AND APPROVED SUPPORTS SHALL BE INSTALLED. THE CONTRACTOR SHALL THEN ANALYZE THE DAMAGE AND SUBMIT A METHOD OF CORRECTION TO THE ENGINEER FOR APPROVAL. COST OF REQUIRED REPAIRS SHALL BE BORNE BY THE CONTRACTOR.

THE CONTRACTOR SHALL DEMONSTRATE TO THE ENGINEER THAT THE BRIDGE BEARINGS ARE FULLY SEATED BETWEEN ALL CONTACT AREAS. IF FULL SEATING IS NOT ATTAINED, SUITABLE MEANS OF REPAIR, SUBJECT TO THE APPROVAL OF THE ENGINEER, WILL BE REQUIRED AT THE CONTRACTOR'S EXPENSE.

THE JACKING OPERATION SHALL BE DIRECTED BY A PROFESSIONAL ENGINEER EMPLOYED BY THE CONTRACTOR. FAILURE TO HAVE A PROFESSIONAL ENGINEER PRESENT SHALL BE CAUSE FOR CEASING JACKING OPERATIONS.

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.

ADDITIONAL STRUCTURE GENERAL NOTES: SEE SHEETS G1 / 6 & G3 / 6 .

G2 / 6

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

STRUCTURE GENERAL NOTES

BRIDGE NO. WAY-21-0143L/R
BRIDGE NO. WAY-21-0182L/R

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	BJR	CAD	DBC	DWS	9/24/96	

STRUCTURE GENERAL NOTES

PAINTING OF STRUCTURAL STEEL: ALL 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 SUPPLEMENTAL 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.

ITEM 518 - POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN: POROUS BACKFILL SHALL BE NO. 57 GRAVEL. PAYMENT SHALL BE INCLUDED IN THE UNIT PRICE BID PER CUBIC YARD FOR ITEM 518 POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN, WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.

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 SUPPLEMENTAL SPECIFICATION 944, AASHTO M294, TYPE SP.

ITEM 518 - 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN: CORRUGATED PIPE USED IN ABUTMENT DRAINAGE SHALL BE 6 INCH DIAMETER, PLASTIC CORRUGATED AS PER SUPPLEMENTAL SPECIFICATION 944, AASHTO M294, TYPE S. THIS ITEM SHALL INCLUDE ALL ELBOWS, TEES, END CAPS, ANIMAL GUARDS, ETC. REQUIRED TO COMPLETE THE ABUTMENT DRAINAGE SYSTEM.

PATCHING CONCRETE STRUCTURES: ALL SURFACES TO BE PATCHED AND THE EXPOSED REINFORCING STEEL WITHIN SHALL BE THOROUGHLY CLEANED BY ABRASIVE BLASTING PRIOR TO THE CLEANING SPECIFIED BY 519.04 AND 520.05. CLEANING SHALL PRECEDE APPLICATION OF THE PATCHING MATERIAL OR ERECTION OF THE FORMS BY NOT MORE THAN 24 HOURS.

ITEM SPECIAL - STRUCTURE, MISC.: GRAFFITI REMOVAL: ALL GRAFFITI AREAS AS DIRECTED BY THE ENGINEER SHALL BE PREPARED AND SEALED WITH AN EPOXY SEALER MEETING THE PROPOSAL NOTE FOR SEALING OF CONCRETE SURFACES (EPOXY). SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURES.

COLOR OF EPOXY SEALER TO MATCH EXISTING COLOR OF CONCRETE BY MIXING APPROVED GRAY PAINT.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER SQUARE FOOT FOR ITEM SPECIAL - STRUCTURE, MISC.: GRAFFITI REMOVAL, WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIAL AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM 601 - 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 THE 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".

PROTECTION OF FIBER OPTIC CABLE: COST OF FURNISHING AND INSTALLING TEMPORARY SHEETING REQUIRED FOR PROTECTION OF THE UNDERGROUND FIBER OPTIC CABLE, DURING THE CONSTRUCTION OF PIER 3, BRIDGE NO. WAY-21-0143 L/R, (SEE ROADWAY GENERAL NOTES, SHEET 7) SHALL BE INCLUDED WITH ITEM 503 COFFERDAMS, CRIBS AND SHEETING FOR PAYMENT.

MAINTENANCE OF TRAFFIC DETAILS: REFER TO SHEETS 9 THROUGH 16 OF THE ROADWAY PLANS.

REINFORCED CONCRETE APPROACH SLABS, AS PER PLAN: SEE ROADWAY PLANS, SHEETS 32 AND 33.

ADDITIONAL STRUCTURE GENERAL NOTES: SEE SHEETS G1 / 6 & G2 / 6 AND REFERENCED STANDARD DRAWINGS.

G3 / 6

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

STRUCTURE GENERAL NOTES

BRIDGE NO. WAY-21-0143L/R
BRIDGE NO. WAY-21-0182L/R

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	BJR	CAD	DBC	DWS	9/24/96	

ESTIMATED QUANTITIES

WAY - 21 - 0143										WAY - 21 - 0182										BHF FUNDS				
LEFT STRUCTURE (SFN: 8501327)					RIGHT STRUCTURE (SFN: 8501351)					LEFT STRUCTURE (SFN: 8501386)					RIGHT STRUCTURE (SFN: 8501416)					ITEM	ITEM EXT.	GRAND TOTAL*	UNIT	DESCRIPTION
ABUTS	PIERS	SUPER	GEN'L	TOTAL	ABUTS	PIERS	SUPER	GEN'L	TOTAL	ABUTS	PIERS	SUPER	GEN'L	TOTAL	ABUTS	PIERS	SUPER	GEN'L	TOTAL					CALC. BY: JRS DATE: 05-96 CHKD. BY: PPM DATE: 11-96
122				**122**	120				**120**	116				**116**	119				**119**	202	11301		CU YD	PORTIONS OF STRUCTURE REMOVED, AS PER PLAN (ABUTMENTS)
		1,122		**1,122**			1,107		**1,107**			799		**799**			791		**791**	202	11305		SQ YD	PORTIONS OF STRUCTURE REMOVED, AS PER PLAN (DECK AND PARAPET)
		665		**665**			682		**682**			398		**398**			398		**398**	202	38500		LIN FT	BRIDGE RAILING REMOVED
		8		**8**			8		**8**			8		**8**			8		**8**	202	98100		EACH	REMOVAL MISC.: END CROSSFRAMES
		10		**10**			10		**10**			10		**10**			10		**10**	202	98100		EACH	REMOVAL MISC.: BEARING DEVICES
		20		**20**																202	98100		EACH	REMOVAL MISC.: BLAST PLATES
		12		**12**			7		**7**			14		**14**			14		**14**	202	98100		EACH	REMOVAL MISC.: SCUPPERS
			61	**61**				70	**70**											202	98200		LIN FT	REMOVAL MISC.: DRAIN PIPE
			647	**647**				1,395	**1,395**		133			**133**						202	98400		SQ FT	REMOVAL MISC.: CRIBWALL
			LUMP	**LUMP**				LUMP	**LUMP**				LUMP	**LUMP**				LUMP	**LUMP**	503	11100		LUMP	COFFERDAMS, CRIBS AND SHEETING
47	107			**154**	46	81			**127**	119				**119**	77				**77**	503	21100		CU YD	UNCLASSIFIED EXCAVATION
319				**319**	444				**444**											503	21101		CU YD	UNCLASSIFIED EXCAVATION, AS PER PLAN
											49			**49**		35			**35**	503	21102		CU YD	UNCLASSIFIED EXCAVATION, INCLUDING SHALE
			LUMP	**LUMP**				LUMP	**LUMP**											505	11100		LUMP	PILE DRIVING EQUIPMENT MOBILIZATION
2,090	840			**2,930**	2,805	840			**3,645**											507	42201		LIN FT	14" CAST-IN-PLACE REINFORCED CONCRETE PILES, AS PER PLAN
510				**510**	380				**380**											507	92200		LIN FT	PREBORED HOLES
24,158	13,380	94,323	100	**131,961**	27,674	12,958	93,605	100	**134,337**	8,553	4,538	56,353	100	**69,544**	7,580	3,435	55,961	100	**67,076**	509	15840		POUND	EPOXY COATED REINFORCING STEEL, GRADE 60
125	36			**161**	126	36			**162**	34	4			**38**	28				**28**	510	10001		EACH	DOWEL HOLES, WITH NONSHRINK, NONMETALLIC GROUT, AS PER PLAN
	88			**88**		79			**79**		7			**7**						511	40501		CU YD	CLASS C CONCRETE, PIER ABOVE FOOTINGS, AS PER PLAN, WALLS
											13			**13**		11			**11**	511	41001		CU YD	CLASS C CONCRETE, PIER ABOVE FOOTINGS, AS PER PLAN, CAP AND COLUMN
48				**48**	56				**56**	124				**124**	88				**88**	511	43501		CU YD	CLASS C CONCRETE, ABUTMENT INCLUDING FOOTING, AS PER PLAN
142				**142**	141				**141**											511	44101		CU YD	CLASS C CONCRETE, ABUTMENT NOT INCLUDING FOOTING, AS PER PLAN
					27				**27**											511	46001		CU YD	CLASS C CONCRETE, AS PER PLAN, RET WALL/WINGWALL - ABOVE FTG
91	40			**131**	127	38			**165**		11			**11**		11			**11**	511	46501		CU YD	CLASS C CONCRETE, FOOTING, AS PER PLAN
		396		**396**			392		**392**			236		**236**			234		**234**	SPECIAL	51148000		CU YD	HIGH PERFORMANCE CONCRETE, SUPERSTRUCTURE (DECK) (SEE PROPOSAL NOTE)
		85		**85**			84		**84**			49		**49**			49		**49**	SPECIAL	51148020		CU YD	HIGH PERFORMANCE CONCRETE, SUPERSTRUCTURE (PARAPET) (SEE PROPOSAL NOTE)
		LUMP		**LUMP**			LUMP		**LUMP**			LUMP		**LUMP**			LUMP		**LUMP**	SPECIAL	51149000		LUMP	HIGH PERFORMANCE CONCRETE, TRIAL MIX (SEE PROPOSAL NOTE)
		LUMP		**LUMP**			LUMP		**LUMP**			LUMP		**LUMP**			LUMP		**LUMP**	SPECIAL	51149010		LUMP	HIGH PERFORMANCE CONCRETE TESTING (SEE PROPOSAL NOTE)

CONTINUED

* THIS COLUMN IS LEFT BLANK INTENTIONALLY. SUMMATION OF COMMON BID ITEMS BETWEEN MULTIPLE BRIDGE STRUCTURES IN A PROJECT IS NOT PRACTICAL DUE TO COMPUTER TRACING OF QUANTITIES BASED ON STRUCTURE FILE NUMBER.

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

ESTIMATED QUANTITIES

BRIDGE NO. WAY-21-0143L/R
BRIDGE NO. WAY-21-0182L/R

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	SLM	CAD	DBC	DWS	9/24/96	

ESTIMATED QUANTITIES

CALC. BY / DATE	WAY-21-(1.39)(1.80)	OHIO
CHKD BY / DATE		FHWA REGION 5

BHF FUNDS

WAY - 21 - 0143										WAY - 21 - 0182										ITEM	ITEM EXT.	GRAND TOTAL*	UNIT	DESCRIPTION
LEFT STRUCTURE (SFN: 8501327)					RIGHT STRUCTURE (SFN: 8501351)					LEFT STRUCTURE (SFN: 8501386)					RIGHT STRUCTURE (SFN: 8501416)									CALC. BY: JRS DATE: 05-96 CHKD. BY: PPM DATE: 11-96
ABUTS	PIERS	SUPER	GEN'L	TOTAL	ABUTS	PIERS	SUPER	GEN'L	TOTAL	ABUTS	PIERS	SUPER	GEN'L	TOTAL	ABUTS	PIERS	SUPER	GEN'L	TOTAL					
11				11	22				22	3	11			14	3				3	512	44400		SQ YD	TYPE B WATERPROOFING
143				143	210				210	202	339			541	177	290			467	SPECIAL	51267502		SQ YD	SEALING OF CONCRETE SURFACES (EPOXY) (SEE PROPOSAL NOTE)
		920		920			920		920			538		538			541		541	SPECIAL	51267504		SQ YD	SEALING OF CONCRETE SURFACES (NON-EPOXY) (SEE PROPOSAL NOTE)
		96,200		96,200			94,600		94,600			33,200		33,200			33,200		33,200	513	11401		POUND	STRUCTURAL STEEL, A572-50 AISC CATEGORY I, AS PER PLAN
		2,344		2,344			2,176		2,176			2,704		2,704			2,704		2,704	513	15901		POUND	STRUCTURAL STEEL, REPLACEMENT OF DETERIORATED END CROSSFRAMES, AS PER PLAN
		4,272		4,272			4,272		4,272			2,610		2,610			2,610		2,610	513	20000		EACH	WELDED STUD SHEAR CONNECTOR
		5		5			5		5			10		10			10		10	513	21000		EACH	TRIMMING OF BEAM END
		119		119			117		117			137		137			136		136	516	11210		LIN FT	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL (SEE PROPOSAL NOTE)
25				25	25				25											516	13200		SQ FT	1/2" PREFORMED EXPANSION JOINT FILLER
30				30	62				62	10				10	10				10	516	13600		SQ FT	1" PREFORMED EXPANSION JOINT FILLER
	2			2																516	45305		EACH	REFURBISH BEARING DEVICE, AS PER PLAN
	1			1		1			1		1			1		1			1	516	46001		EACH	BEARING DEVICE, BOLSTER, AS PER PLAN
12	2			14	12	2			14	12	1			13	12	1			13	516	46201		EACH	BEARING DEVICE, ROCKER, AS PER PLAN
		LUMP		LUMP			LUMP		LUMP			LUMP		LUMP			LUMP		LUMP	516	47001		LUMP	JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN
160				160	190				190	136	12			148	119				119	518	21201		CU YD	POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN
166				166	205				205	217				217	191				191	518	40001		LIN FT	6" PERFORATED CORRUGATED PLASTIC PIPE, AS PER PLAN
21				21	22				22	20				20	19				19	518	40011		LIN FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN
9				9	9				9	48	6			54	24				24	519	11100		SQ FT	PATCHING CONCRETE STRUCTURE
			3	3				3	3											523	11100		HOUR	DYNAMIC LOAD TEST
	1,000			1,000		1,000			1,000											SPECIAL	53000600		SQ FT	STRUCTURE, MISC.: GRAFFITI REMOVAL
			829	829				657	657				805	805				830	830	601	20001		SQ YD	CRUSHED AGGREGATE SLOPE PROTECTION, AS PER PLAN
		24,056		24,056			23,918		23,918			12,300		12,300			12,300		12,300	815	00050		SQ FT	SURFACE PREPARATION OF EXISTING STEEL, SYSTEM OZEU
		24,056		24,056			23,918		23,918			12,300		12,300			12,300		12,300	815	00056		SQ FT	FIELD PAINTING OF EXISTING STEEL, PRIME COAT, SYSTEM OZEU
		24,056		24,056			23,918		23,918			12,300		12,300			12,300		12,300	815	00060		SQ FT	FIELD PAINTING OF EXISTING STEEL, INTERMEDIATE COAT, SYSTEM OZEU
		24,056		24,056			23,918		23,918			12,300		12,300			12,300		12,300	815	00066		SQ FT	FIELD PAINTING OF EXISTING STEEL, FINISH COAT, SYSTEM OZEU
		100		100			100		100			100		100			100		100	815	00504		MAN HOUR	GRINDING FINS, TEARS, SLIVERS
												1,790		1,790			1,790		1,790	815	00508		LIN FT	GRINDING FLANGE EDGES
		1,398		1,398			1,379		1,379			831		831			824		824	SPECIAL	85050070		SQ YD	BRIDGE DECK GROOVING (SEE PROPOSAL NOTE)

* THIS COLUMN IS LEFT BLANK INTENTIONALLY. SUMMATION OF COMMON BID ITEMS BETWEEN MULTIPLE BRIDGE STRUCTURES IN A PROJECT IS NOT PRACTICAL DUE TO COMPUTER TRACING OF QUANTITIES BASED ON STRUCTURE FILE NUMBER.

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

ESTIMATED QUANTITIES

BRIDGE NO. WAY-21-0143L/R
BRIDGE NO. WAY-21-0182L/R

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	SLM	CAD	DBC	DWS	9/24/96	

STAGE CONSTRUCTION NOTES

STAGE CONSTRUCTION NOTES / BRIDGE NUMBER WAY-21-0143L/R: THE PROPOSED WORK (INCLUDING APPROACH SLABS) SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:

1. WHEN NO LONGER NEEDED TO MAINTAIN TRAFFIC, THE RIGHT BRIDGE SHALL BE CLOSED.
2. INSTALL TEMPORARY SHEETING AND BRACING FOR STAGE-I CONSTRUCTION.
3. REMOVE PORTIONS OF THE EXISTING SUPERSTRUCTURE, INCLUDING RAILING, CONCRETE DECK, SCUPPERS, DRAINPIPES, ETC.
4. JACK THE EXISTING STEEL SUPERSTRUCTURE AND INSTALL TEMPORARY SUPPORTS. REMOVE THE EXISTING ABUTMENT BEARINGS.
5. REMOVE PORTIONS OF THE REAR AND FORWARD ABUTMENTS DELINEATED IN THE PLANS TO BE REMOVED UNDER STAGE-I.
6. REMOVE PORTION OF EXISTING CRIBWALL IN FRONT OF REAR ABUTMENT AND LOWER SPILL THROUGH EMBANKMENT SLOPE.
7. EXCAVATE FOR NEW FOOTINGS OF REAR/FORWARD ABUTMENTS AND PIERS, SHORE EXCAVATIONS AS NECESSARY, AND DRIVE PILES.
8. CONSTRUCT REAR ABUTMENT TO ELEVATION OF BEAM SEATS. WIDEN FORWARD ABUTMENT AND CONSTRUCT NEW BRIDGE/BEAM SEATS OVER EXISTING. WIDEN PIERS.
9. INSTALL POROUS BACKFILL AND DRAINAGE PIPE BEHIND ABUTMENTS, BACKFILL TO WITHIN 1 FOOT OF THE BRIDGE SEAT, SHAPE EMBANKMENT SLOPES AND PLACE CRUSHED AGGREGATE SLOPE PROTECTION.
10. INSTALL NEW BEARING DEVICES AT ABUTMENTS AND PIERS. REFURBISH EXISTING BEARINGS AT PIERS, AS REQUIRED. REMOVE TEMPORARY SUPPORT.
11. INSTALL NEW BEAM AND CROSSFRAMES. TRIM EXISTING BEAM ENDS AT THE FORWARD ABUTMENT TO PROVIDE ADEQUATE EXPANSION CAPACITY. REPLACE EXISTING END CROSSFRAMES AT BOTH ABUTMENTS.
12. INSTALL STUD SHEAR CONNECTORS AND DECK JOINT ARMOR.
13. PLACE SUPERSTRUCTURE REINFORCING STEEL AND POUR SLAB.
14. CONSTRUCT NEW ABUTMENT BACKWALLS AND COMPLETE BACKFILLING BEHIND SAME.
15. CONSTRUCT APPROACH SLABS AND PARAPETS.
16. INSTALL STRIP SEALS IN DECK JOINTS.
17. PREPARE/PAINT ALL EXISTING AND NEW STRUCTURAL STEEL.
18. SEAL CONCRETE SURFACES SHOWN IN THE PLANS.
19. UPON COMPLETION OF THE ABOVE AND SIMILAR WORK ON OTHER STRUCTURES IN THE PROJECT, OPEN THE RIGHT STRUCTURE TO TRAFFIC AND REPEAT SIMILAR PROCEDURE FOR THE LEFT BRIDGE (STAGE-II).

STAGE CONSTRUCTION NOTES / BRIDGE NUMBER WAY-21-0182L/R: THE PROPOSED WORK (INCLUDING APPROACH SLABS) SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:

1. WHEN NO LONGER NEEDED TO MAINTAIN TRAFFIC, THE RIGHT BRIDGE SHALL BE CLOSED.
2. INSTALL TEMPORARY SHEETING AND BRACING FOR STAGE-I CONSTRUCTION.
3. REMOVE PORTIONS OF THE EXISTING SUPERSTRUCTURE, INCLUDING RAILING, CONCRETE DECK, SCUPPERS, ETC.
4. JACK THE EXISTING STEEL SUPERSTRUCTURE AND INSTALL TEMPORARY SUPPORTS. REMOVE THE EXISTING ABUTMENT BEARINGS.
5. REMOVE PORTIONS OF THE REAR AND FORWARD ABUTMENTS DELINEATED IN THE PLANS TO BE REMOVED UNDER STAGE-I.
6. REMOVE PORTION OF EXISTING CRIBWALL AT WEST END OF PIER 2, LEFT STRUCTURE.
7. EXCAVATE FOR NEW FOOTINGS OF REAR/FORWARD ABUTMENTS AND PIERS. SHORE EXCAVATIONS AS NECESSARY.
8. WIDEN THE ABUTMENTS TO THE ELEVATION OF THE BEAM SEATS AND SHIM EXISTING BRIDGE/BEAM SEATS. WIDEN PIERS.
9. INSTALL POROUS BACKFILL AND DRAINAGE PIPE BEHIND ABUTMENTS, INSTALL POROUS BACKFILL BEHIND THE NEW PIER WALL, BACKFILL TO WITHIN 1 FOOT OF THE BRIDGE SEAT, SHAPE EMBANKMENT SLOPES AND PLACE CRUSHED AGGREGATE SLOPE PROTECTION.
10. INSTALL NEW BEARING DEVICES AT ABUTMENTS AND PIERS AND REMOVE TEMPORARY SUPPORT.
11. INSTALL NEW BEAM AND CROSSFRAMES. TRIM EXISTING BEAM ENDS TO PROVIDE ADEQUATE EXPANSION CAPACITY. REPLACE EXISTING END CROSSFRAMES AT BOTH ABUTMENTS.
12. INSTALL STUD SHEAR CONNECTORS AND DECK JOINT ARMOR.
13. PLACE SUPERSTRUCTURE REINFORCING STEEL AND POUR SLAB.
14. CONSTRUCT NEW ABUTMENT BACKWALLS AND COMPLETE BACKFILLING BEHIND SAME.
15. CONSTRUCT APPROACH SLABS AND PARAPETS.
16. INSTALL STRIP SEALS IN DECK JOINTS.
17. PREPARE/PAINT ALL EXISTING AND NEW STRUCTURAL STEEL.
18. SEAL CONCRETE SURFACES SHOWN IN THE PLANS.
19. UPON COMPLETION OF THE ABOVE AND SIMILAR WORK ON OTHER STRUCTURES IN THE PROJECT, OPEN THE RIGHT STRUCTURE TO TRAFFIC AND REPEAT SIMILAR PROCEDURE FOR THE LEFT BRIDGE (STAGE-II).

G6 / 6

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

STAGE CONSTRUCTION NOTES

BRIDGE NO. WAY-21-0143L/R
BRIDGE NO. WAY-21-0182L/R

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	BJR	CAD	DBC	DWS	9/24/96	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

41 / 100

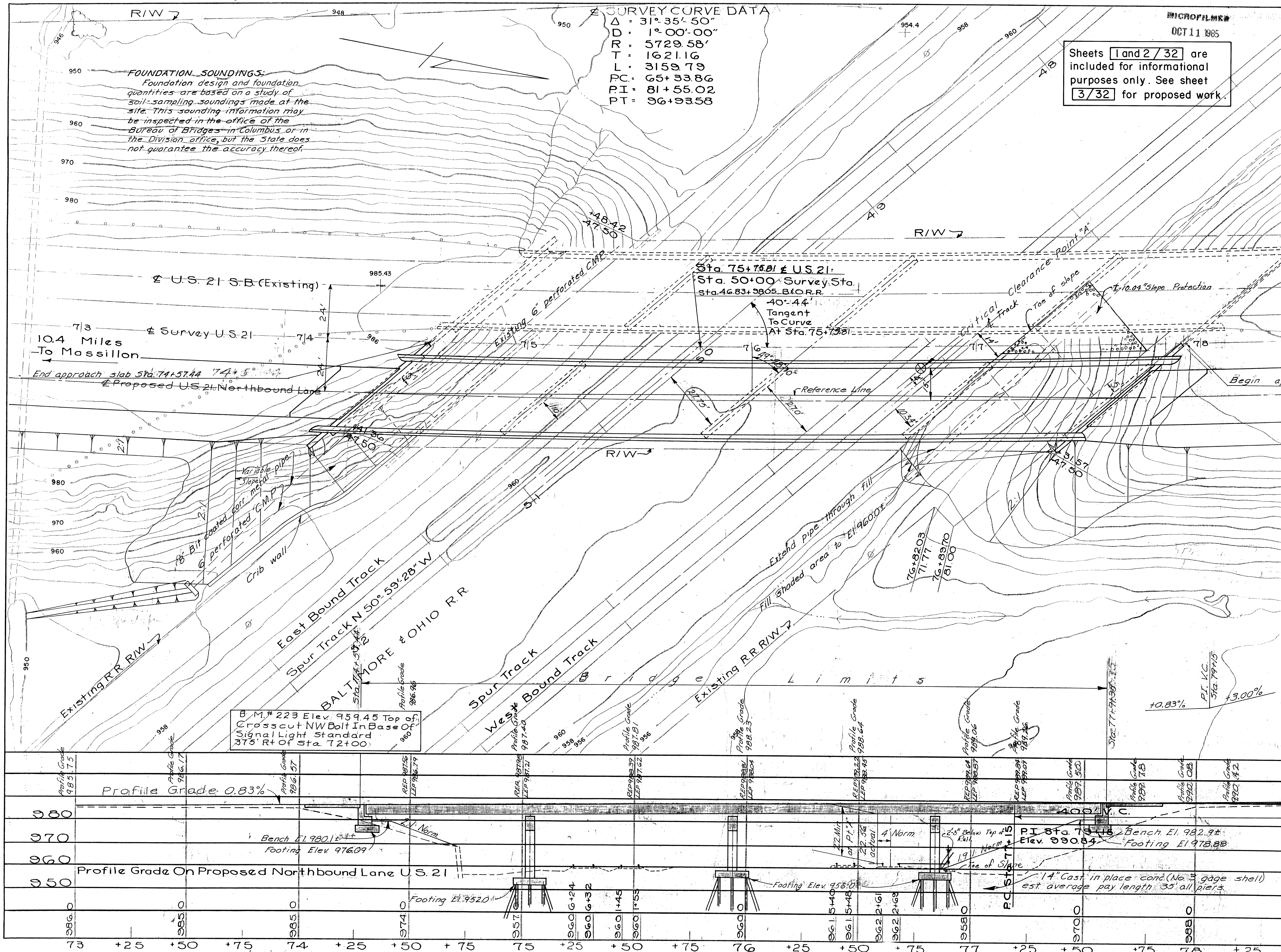
STA - 21 - 11.49
WAY - 21 - 0.00
10.4 ± Miles N. of Massillon

MICROFILMED OCT 11 1985

Sheets 1 and 2 / 32 are included for informational purposes only. See sheet 3 / 32 for proposed work.

FOUNDATION SOUNDINGS:
Foundation design and foundation quantities are based on a study of soil-sampling soundings made at the site. This sounding information may be inspected in the office of the Bureau of Bridges in Columbus or in the Division office, but the State does not guarantee the accuracy thereof.

℄ SURVEY CURVE DATA
Δ = 31°-35'-50"
D = 1°-00'-00"
R = 5729.58'
T = 1621.16
L = 3159.79
P.C. = 65+33.86
P.I. = 81+55.02
P.T. = 96+93.58



ADJACENT EXISTING STRUCTURE
Type: Continous Steel Beam With Reinforced Deck And Substructure.
Spans 73'-0", 91'-6", 91'-6", 73'-0" c/c Brgs
Roadway 30'-0"
2'-0" Safety Curbs
Load Frequency Rating F 2000
Surface Course 1" Monolithic Conc.
Skew 49°-17'-45" L.F.
Approach Slabs AS-1-54
Alignment- 1°-0'-0" Curve Left
Superelevation - 0.032 Ft/Ft

PROPOSED STRUCTURE
TYPE: Continuous steel beams with reinforced conc. deck & substr.
SPANS: 72.10'-90.63'-90.29'-72.03' c/c brgs.
ROADWAY: 30'-0" f/f 2'-3" safety curbs
LOAD FREQUENCY: CF=2000(57)
WEARING SURFACE: 1" Monolithic conc.
SKEW: 49°-28' L.F.
APPROACH SLABS: AS-1-54 (25' long)
ALIGNMENT: 1°00' curve left
SUPERELEVATION: 0.032 ft/ft.

1 / 32

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

SITE PLAN

BRIDGE NO. WAY-21-0143 R
U.S.R. 21 OVER B & O R.R. (CSX TRANSPORTATION) U.S.R. 21
WAYNE CO.

SEC. WAY 21-0.00 STA. 74+57.44 – 77+91.35
SCALE 1" = 20'

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.H.B.	J.H.B.		J.a.P.	G.E.S.		1-13-61

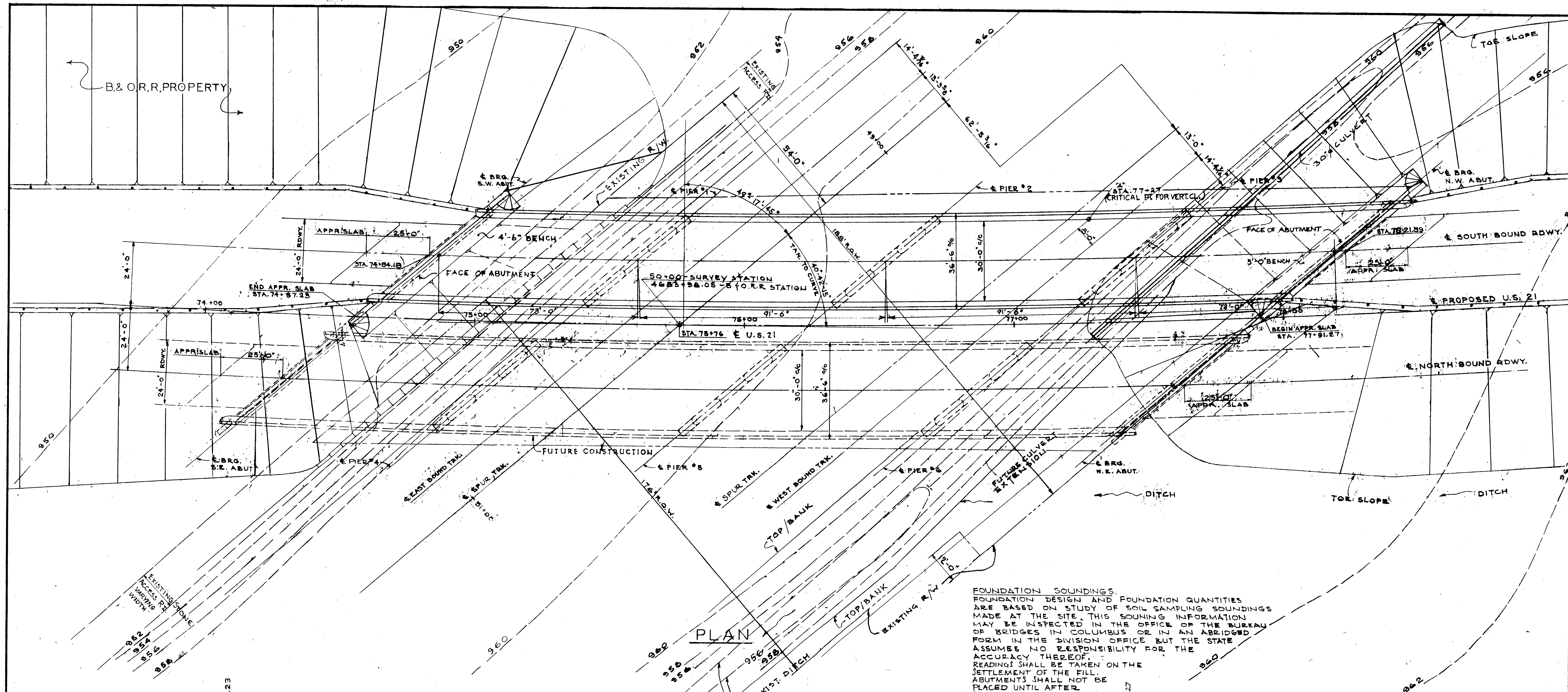
BFG GJF 10-5-60

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1010(3)	

42 / 100

STA-21-17.80
WAY-21-0.00
SUM.-21-0.00

Sheets 1 and 2 / 32 are included for informational purposes only. See sheet 3/32 for proposed work.



B.& O.R.R. PROPERTY
EXISTING R/W
EXISTING ACCESS R/W
℄ BRG. S.W. ABUT.
℄ PIER #1
℄ PIER #2
℄ PIER #3
℄ PIER #4
℄ PIER #5
℄ PIER #6
℄ BRG. N.W. ABUT.
℄ BRG. S.E. ABUT.
℄ BRG. N.E. ABUT.
STA. 77+27
CRITICAL PT. FOR VERT. CL.
APPR. SLAB 25'-0"
4'-6" BENCH
STA. 74+84.18
FACE OF ABUTMENT
END APPR. SLAB STA. 74+57.23
50+00 SURVEY STATION
4683+58.05-B & O.R.R. STATION
STA. 75+76 ℄ U.S. 21
STA. 78+21.39
3'-0" BENCH
BEGIN APPR. SLAB STA. 77+91.27
30" CULVERT
℄ SOUTH BOUND RDWY.
℄ PROPOSED U.S. 21
℄ NORTH BOUND RDWY.
FUTURE CONSTRUCTION
℄ EAST BOUND TRK.
℄ SPUR TRK.
℄ WEST BOUND TRK.
FUTURE CULVERT EXTENSION
TOP/BANK
TOE SLOPE
DITCH
BOTTOM EXIST. DITCH
EXISTING STONE ACCESS R/W VARYING WIDTH
PLAN

CURVE DATA ℄ U.S. 21

Δ	31°35'50"
D	1°-00
R	5729.58
T	1621.16
L	3159.72
P.C. STA.	65+33.86
P.I.	81+55.02
P.T.	96+93.58

FOUNDATION SOUNDINGS.

FOUNDATION DESIGN AND FOUNDATION QUANTITIES ARE BASED ON STUDY OF SOIL SAMPLING SOUNDINGS MADE AT THE SITE. THIS SOUNING INFORMATION MAY BE INSPECTED IN THE OFFICE OF THE BUREAU OF BRIDGES IN COLUMBUS OR IN AN ABRIDGED FORM IN THE DIVISION OFFICE BUT THE STATE ASSUMES NO RESPONSIBILITY FOR THE ACCURACY THEREOF.

READINGS SHALL BE TAKEN ON THE SETTLEMENT OF THE FILL. ABUTMENTS SHALL NOT BE PLACED UNTIL AFTER SETTLEMENT HAS STOPPED.

PROPOSED STRUCTURE

TYPE: CONTINUOUS STEEL BEAM WITH REINFORCED DECK AND SUBSTRUCTURE

SPANS: 73'-0", 91'-6", 91'-6", 73'-0" c/c BRGS.

ROADWAY: 30'-0" f/f; 2'-0" SAFETY CURBS

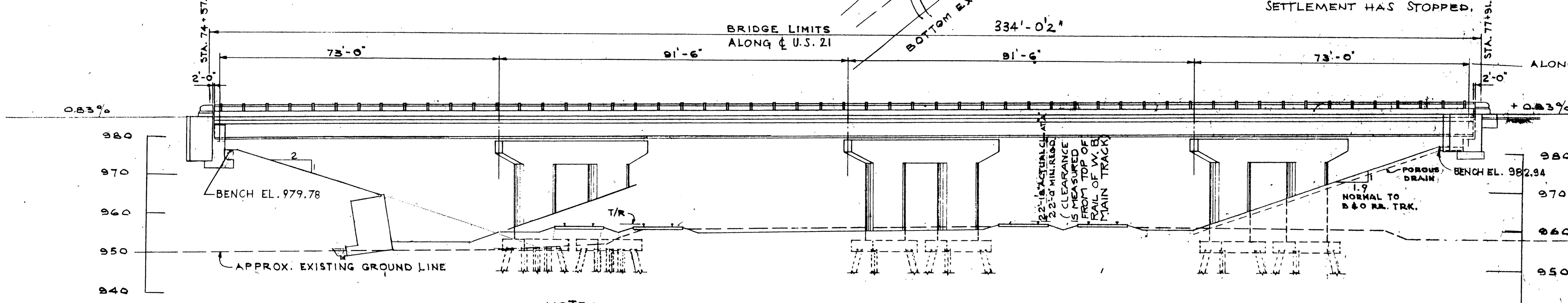
LOAD FREQUENCY RATING: C.F. 2000.

SKEW: 49°-17'-45" L.F.

SURFACE COURSE: 1" MONOLITHIC CONCRETE

APPROACH SLAB: - AS SHOWN

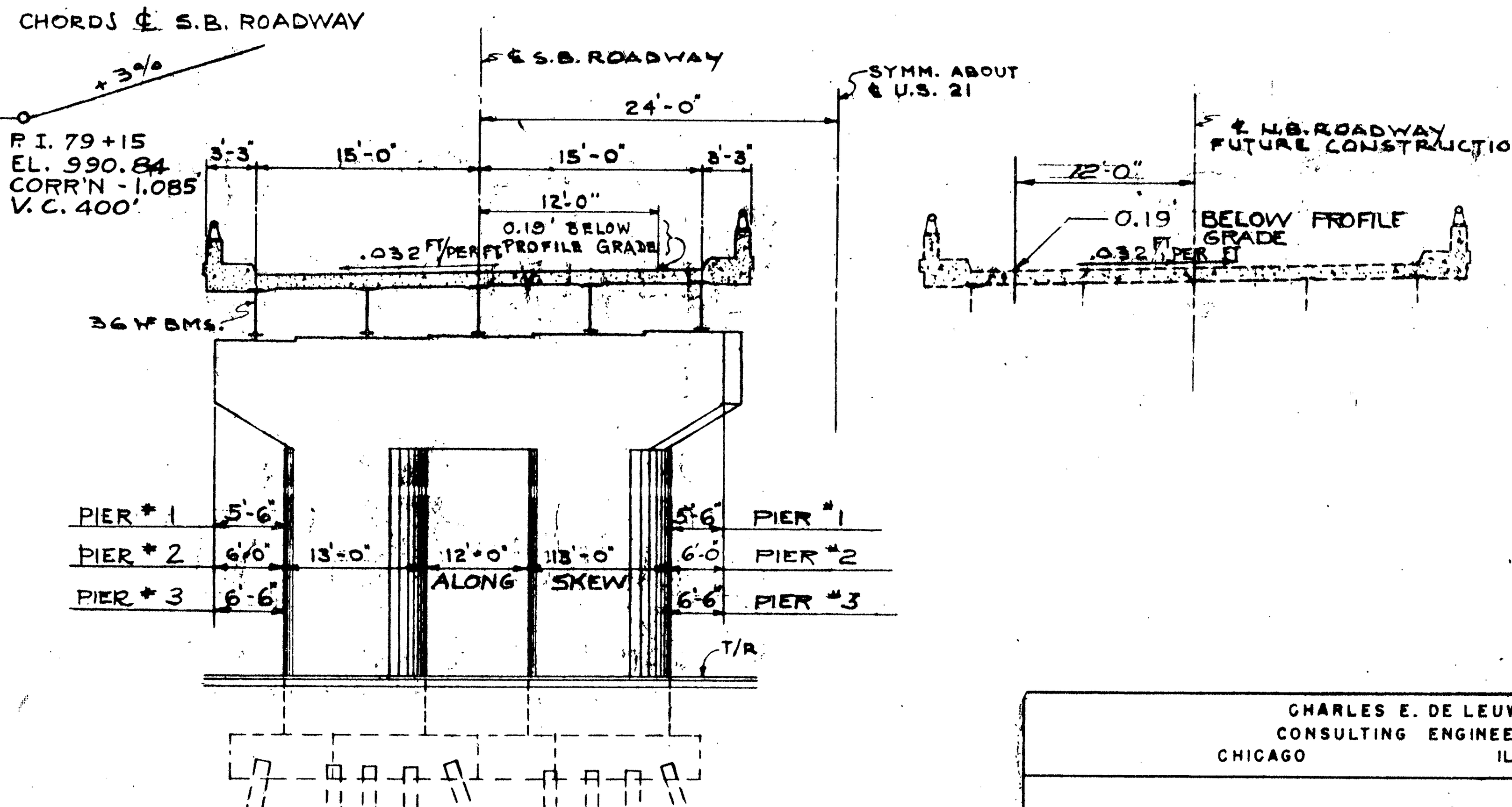
ALIGNMENT: ON 1°-0'-0" CURVE LEFT



BRIDGE LIMITS ALONG ℄ U.S. 21
334'-0 1/2"
STA. 74+57.23
STA. 77+91.27
73'-0"
91'-6"
91'-6"
73'-0"
2'-0"
ALONG CHORDS ℄ S.B. ROADWAY
0.83%
+0.83%
+3%
P.I. 79+15
EL. 990.84
CORR'N -1.085
V.C. 400'
BENCH EL. 979.78
BENCH EL. 982.94
POROUS DRAIN
NORMAL TO B&O RR. TRK.
APPROX. EXISTING GROUND LINE
T/R
980
970
960
950
940

NOTE:
PILING - 16" CAST-IN-PLACE CONC. (NO. 3-GAGE SHELL)
EST. AVERAGE PAY LENGTH - 35' ALL PIERS

ELEVATION

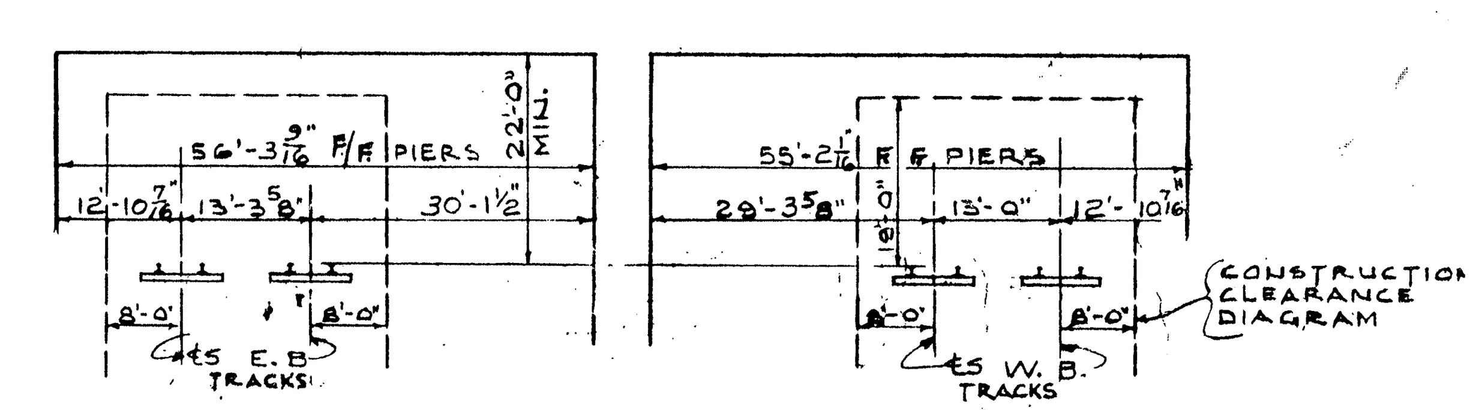


CROSS SECTION OF BRIDGE

(LOOKING NORTH)

TOP OF RAIL ELEVATIONS									
SURVEY STATION	W.B. MAIN	W.B. SIDING	E.B. MAIN	E.B. SIDING	SURVEY STATION	W.B. MAIN	W.B. SIDING	E.B. MAIN	E.B. SIDING
40+00	964.21	963.51	962.90	962.17	51+00	962.07	961.36	960.49	959.95
41+00	964.02	963.44	962.82	962.15	52+00	961.88	961.09	960.33	959.87
42+00	963.82	963.02	962.65	961.94	53+00	961.78	960.94	960.19	959.81
43+00	963.59	962.74	962.46	961.87	54+00	961.65	960.85	960.04	959.95
44+00	963.37	962.64	962.17	961.84	55+00	961.44	960.83	959.93	959.92
45+00	963.16	962.54	961.93	961.66	56+00	961.23	961.06	959.82	959.82
46+00	962.89	962.35	961.64	961.66	57+00	960.90	960.86	959.70	959.65
47+00	962.71	962.17	961.33	961.38	58+00	960.78	960.75	959.66	959.70
48+00	962.55	962.00	961.03	960.89	59+00	960.61	960.49	959.72	959.68
49+00	962.35	961.72	960.84	960.66	60+00	960.42	960.39	959.76	959.72
50+00*	962.19	961.51	960.63	960.24					

B.M. #223 EL. 959.45
TOP OF NORTHWEST CROSSCUT BOLT IN BASE OF SIGNAL LIGHT STANDARD 375' RIGHT STA. 72+00.



TRACK CENTERS AND CLEARANCE

2/32

CHARLES E. DE LEUW
CONSULTING ENGINEER
CHICAGO ILLINOIS

SITE PLAN
BRIDGE NO. WAY-21-0143 L
U.S. 21 OVER B & O.R.R.
(CSX TRANSPORTATION)
STA. 75+76.00
WAYNE CO.
SEC. WAY-21

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
M.C.	J.L.	H.P.	E.S.M.	L.N.R.	6-11-56	

BENCH MARK: Chisled mark on walk at S.E. Corner of rear abutment, left bridge ℄ Sta. 74+60.60, 7.68' Lt. Elev. 987.61

BENCH MARK: E-306 U.S.G.S. Brass disk in north face of Pier 1 (Right structure). Sta. 74+98.42, 32.94' Rt., 2'± above ground. Elev. 960.84

CALC. BY DATE
CHKD BY DATE

WAY-21-(1.39)(1.80)

OHIO
FHWA REGION 5

43
100

CURVE DATA
℄ Survey S.R. 21
Δ = 31°35'50"
D = 1°00'00"
R = 5729.58'
T = 1621.16'
L = 3159.72'
P.C. = 65+33.86
P.I. = 81+55.02
P.T. = 96+93.58

Regrade slope and place crushed aggregate slope protection.

FOUNDATION INVESTIGATION LEGEND
◔ Indicates core boring locations.

EARTHWORK limits shown are approximate. Actual slopes shall conform to plan cross sections.

EXISTING STRUCTURE

TYPE: Twin continuous steel beam bridges with reinforced concrete deck and substructure.
SPANS: 74.36', 91.99', 89.98', 70.55' c/c Brgs. along ref. chord
ROADWAY: 30'-0" T/r 2'-3" Safety curb
LOADING: Lane loading/CF 2000 Load frequency
WEARING SURFACE: Concrete
ALIGNMENT: 1°00' Curve (left)
SKEW: 49°45'05" L.F. To ref. chord
APPROACH SLABS: AS-1-54 (25' long)
DATE BUILT: Left bridge 1957; Right bridge 1961
STRUCTURE FILE NUMBER: 8501327 Left bridge; 8501351 Right bridge

PROPOSED STRUCTURE

PROPOSED WORK: New composite reinf. conc. deck on widened superstructure & substructure.
TYPE: Twin continuous steel beam bridges with reinforced concrete deck and substructure.
SPANS: 74.36', 91.99', 89.98', 70.55' c/c Brgs. along ref. chord
ROADWAY: 38'-0" T/r Deflector parapet
LOADING: HS 20-44, Case II and Alternate military loading.
WEARING SURFACE: Concrete
ALIGNMENT: 1°00' Curve (left)
SKEW: 49°45'05" L.F. To ref. chord
SUPERELEVATION: 0.032'/Ft.
APPROACH SLABS: AS-1-81 (30'R.A., 25'F.A.)
DESIGN YEAR TRAFFIC: 9760* (Yr. 2016)
DESIGN YEAR ADTT: 1750 *

BRIDGE LOCATION
U.S.G.S. QUADRANGLE: Doylestown
LATITUDE : N40°55'33"
LONGITUDE: W81°38'56"

* Total both directions
** Proposed elevation of widened substructure.

3/32

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

SITE PLAN
BRIDGE NO. WAY-21-0143L/R
OVER CSX TRANSPORTATION
WAYNE COUNTY STA. 74+57.44
77+91.35

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
SLW	RLE	SLM	DBC	DWS	8/3/94	

REVIEWED BY BURGESS & NIPLE, LIMITED
DWR DECEMBER 13 1996

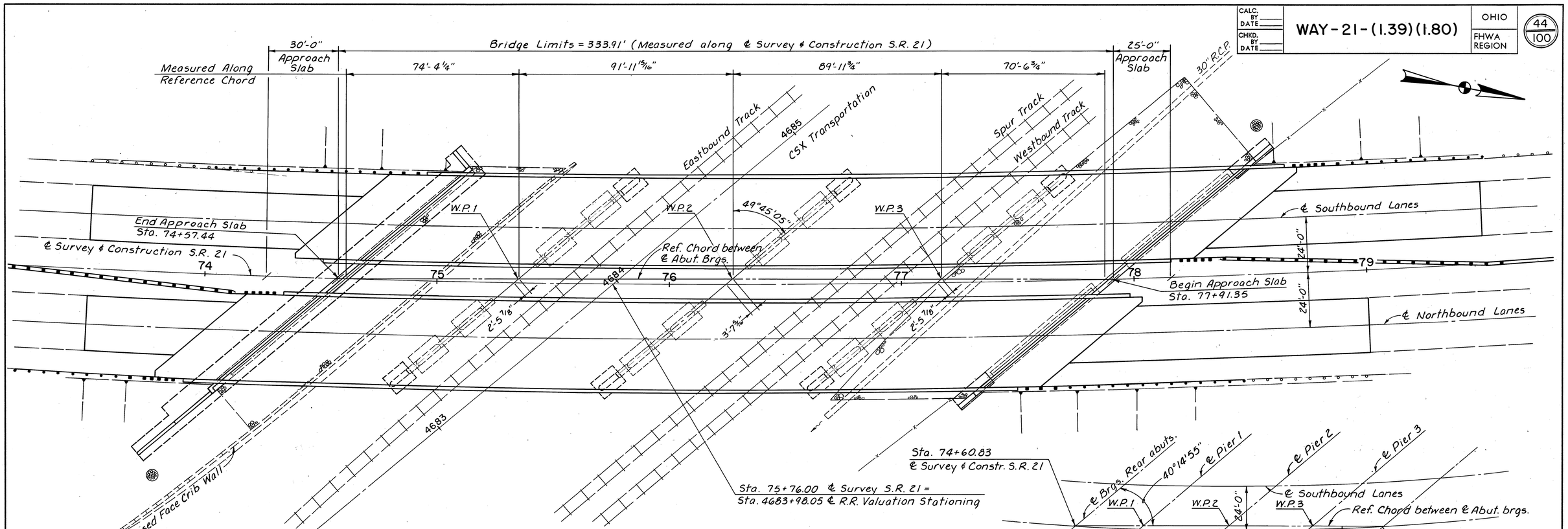
PLAN

PROFILE ALONG ℄ LANES ⊕

⊕ Except as noted.

CALC. BY DATE	WAY-21-(1.39)(1.80)	OHIO
CHKD. BY DATE		FHWA REGION

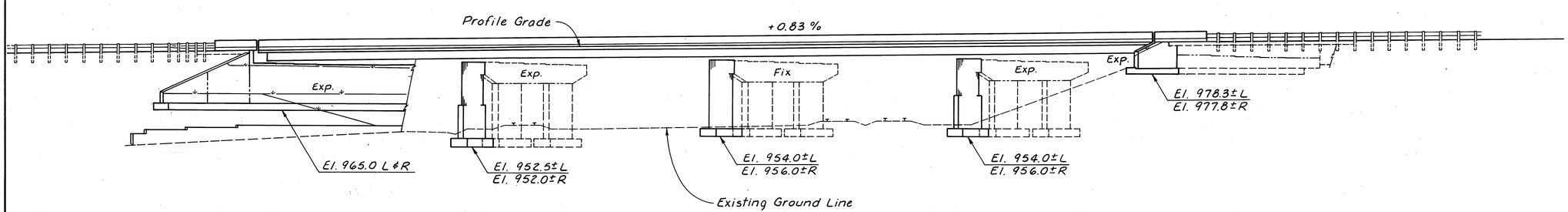
44/100



GENERAL PLAN

NOTE: See Site Plan for location of Fiber Optic cable adjacent to Pier 3. Also see Protection Note on Sheet 3G/6.

ALIGNMENT SCHEMATIC



ELEVATION

W.P. = Workpoint

4/32

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

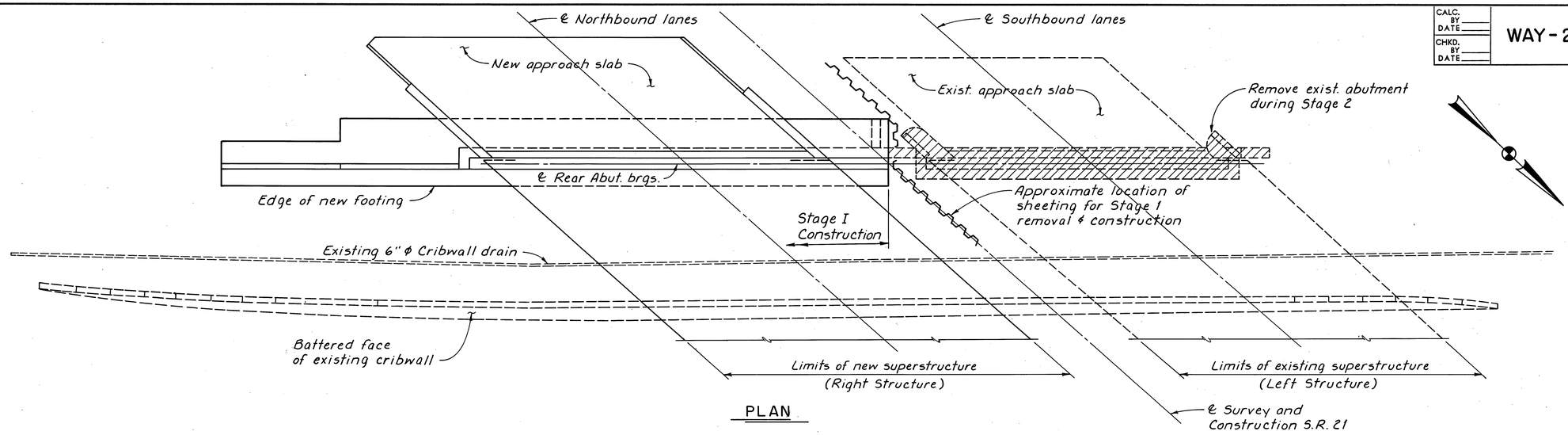
GENERAL PLAN & ELEVATION

BRIDGE NO. WAY-21-0143L/R
OVER CSX TRANSPORTATION

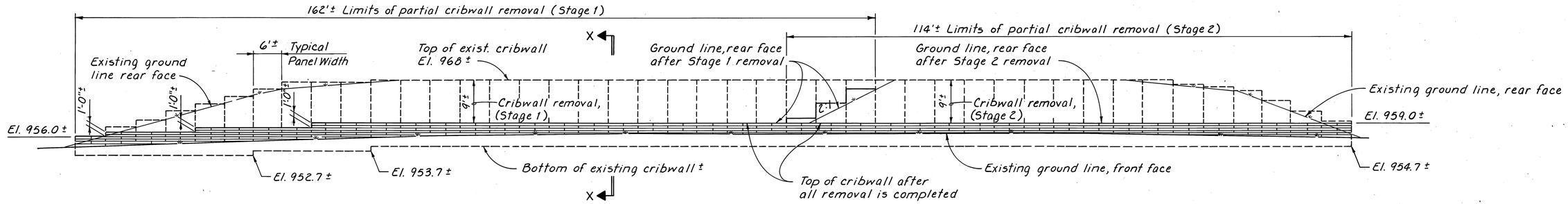
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	2/2/96	

CALC. BY DATE	WAY-21-(1.39)(1.80)	OHIO
CHKD. BY DATE		FHWA REGION

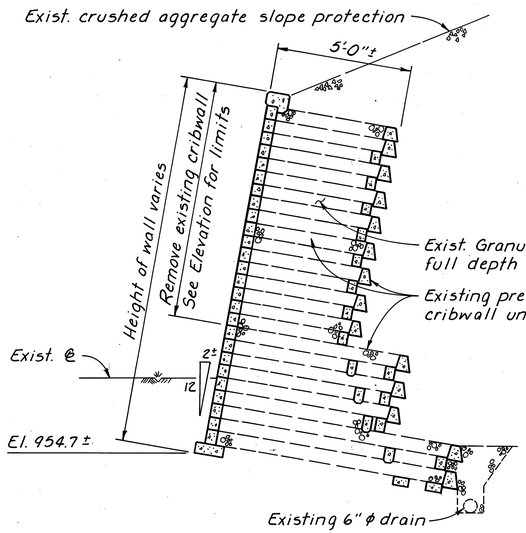
45/100



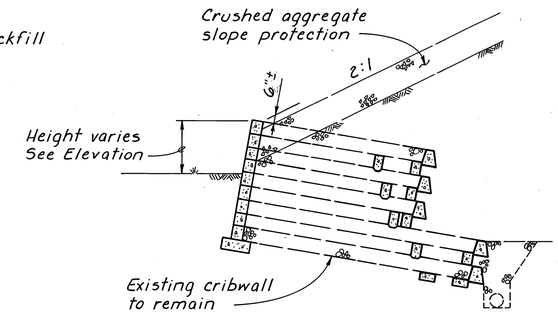
PLAN



ELEVATION



BEFORE REMOVAL



AFTER REMOVAL

CRIBWALL SECTION X-X

NOTES

ITEM 202 - REMOVAL MISC : CRIBWALL : Upon receipt of permission from the Engineer, the existing cribwall shall be removed in stages per details this sheet.

Care shall be taken to not damage any cribwall units designated to be left in place. Any cribwall units that are damaged by the Contractor's removal operations which are to be incorporated into the proposed work shall, at no cost to the project, be replaced or repaired.

Cost for all work necessary to remove and dispose of the cribwall shall be included with Item 202 - Removal Misc : Cribwall. Payment shall be based on the exposed surface area (face) of the wall removed.

5/32

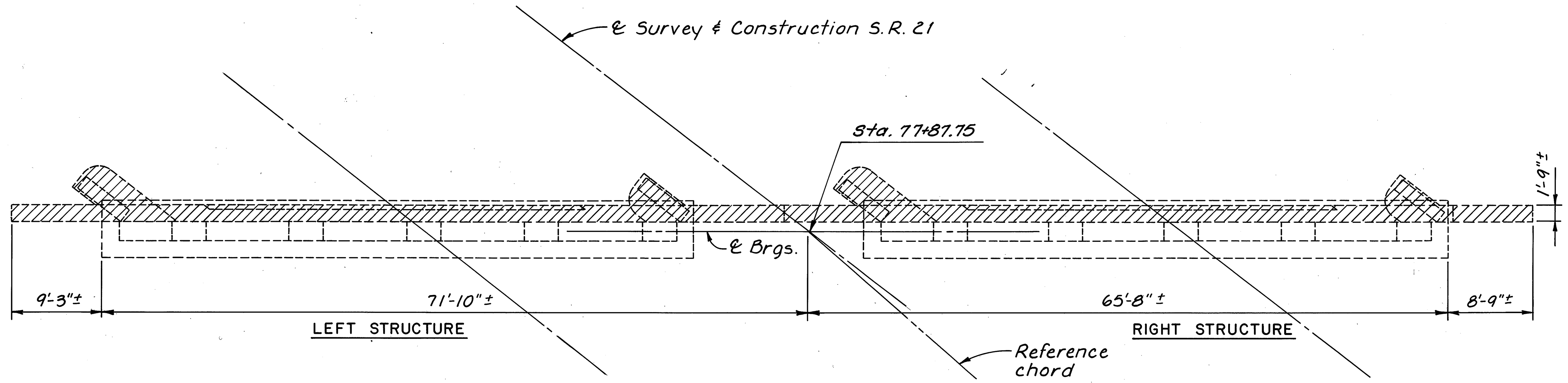
ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

CRIBWALL DETAILS

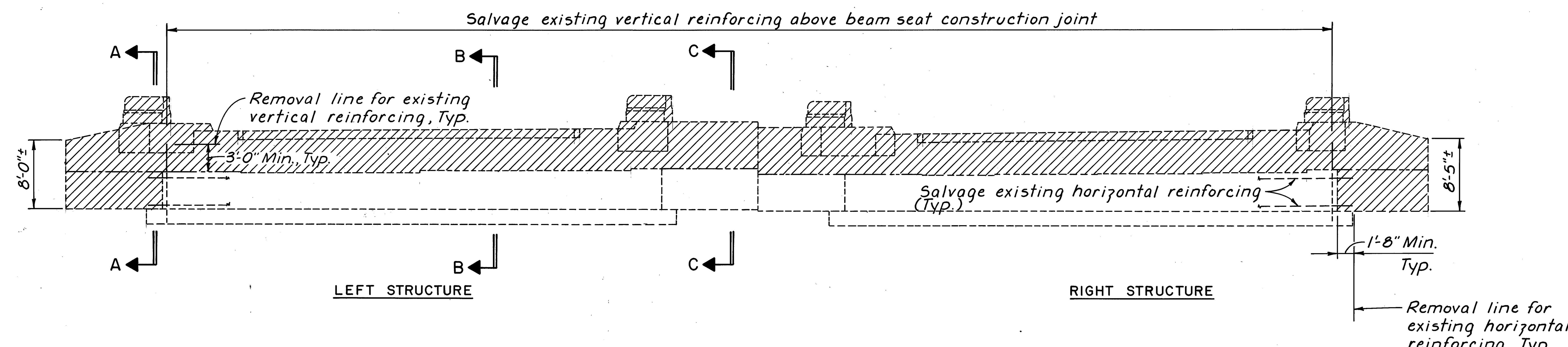
BRIDGE NO. WAY-21-0143L/R
OVER CSX TRANSPORTATION

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	2/2/96	

ST0065



FORWARD ABUTMENT PLAN



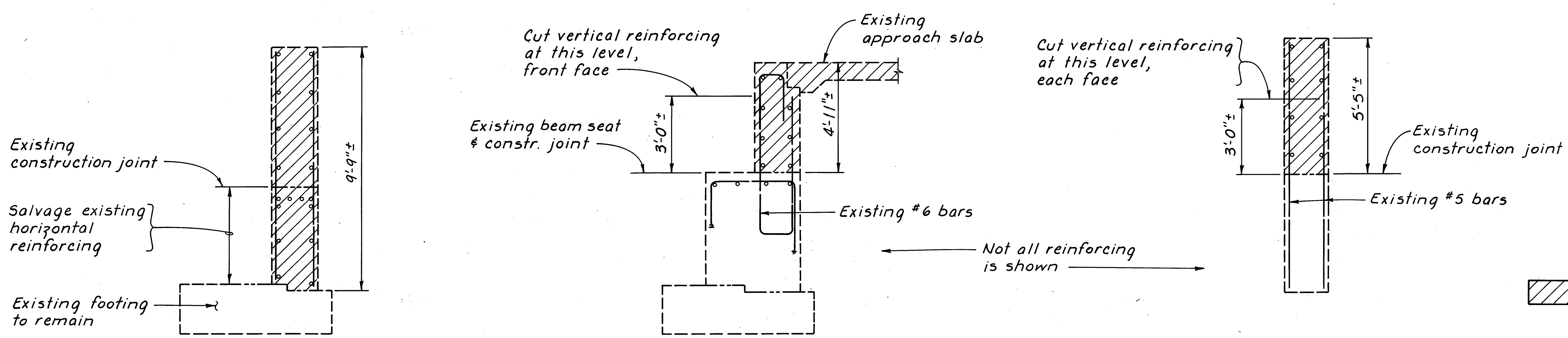
FORWARD ABUTMENT ELEVATION

NOTES

PORTIONS OF STRUCTURE REMOVED: The entire rear abutments shall be removed in stages. Abutment concrete designated for removal shall be removed with care to not damage adjacent concrete and reinforcing steel that is to remain. Payment for removal shall be included with Item 202 - Portions of structure removed, As per plan (Abutments). See sheet G1 for additional information.

Existing reinforcing steel that is partially exposed by concrete removal shall be left in place but shall be bent as necessary to provide 2" minimum clearance to proposed concrete surfaces.

ADDITIONAL DETAILS: See sheets 7 & 19/32.



SECTION A-A

SECTION B-B

SECTION C-C

▨ - Hatching indicates portion of existing structure to be removed.

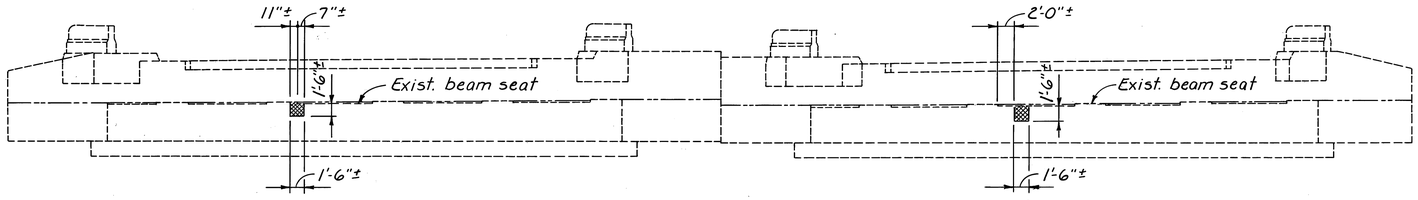
6/32

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

DEMOLITION DETAILS

BRIDGE NO. WAY-21-0143L/R
OVER CSX TRANSPORTATION

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	2/2/96	



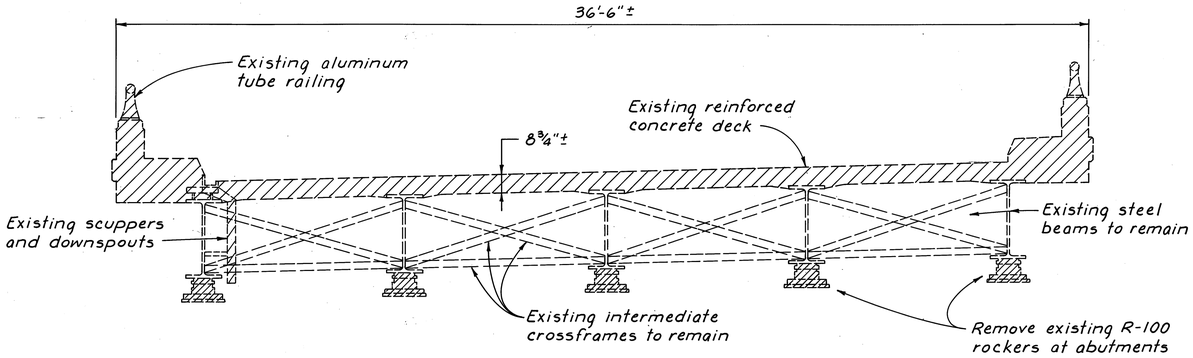
LEFT STRUCTURE

RIGHT STRUCTURE

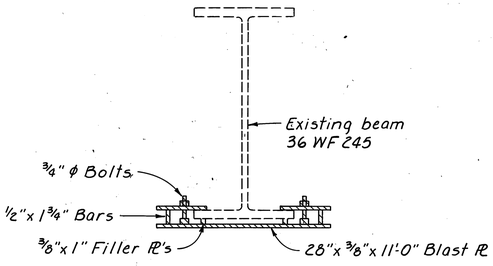
PATCHING DETAILS FORWARD ABUTMENT

CONCRETE PATCHING SUMMARY			
LOCATION	UNIT	MEASURED QUANTITY	ESTIMATED QUANTITY
Left Forward Abutment	Sq. Ft.	3	9
Right Forward Abutment	Sq. Ft.	3	9
		TOTAL	18

▨ - Indicates approximate area to be patched per Item 519 - Patching Concrete Structures. These measured quantities are included in the table above. The exact dimensions and locations of the concrete patches shall be determined by the Engineer in the field for final pay quantity.

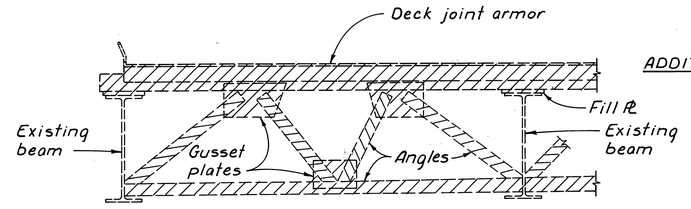


SUPERSTRUCTURE TRANSVERSE SECTION

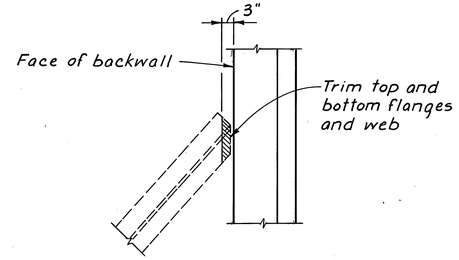


REMOVAL OF BLAST PLATES

Remove 20 Blast Plate Assemblies, Left Structure only. All dimensions are approximate and are shown for informational purposes only.

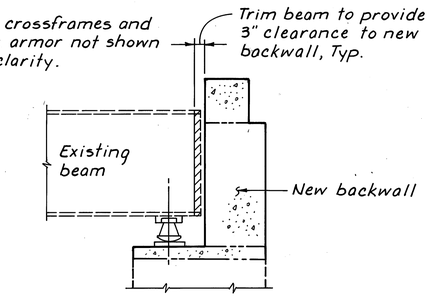


REMOVAL OF END CROSSFRAMES



PLAN

NOTE: End crossframes and deck armor not shown for clarity.



ELEVATION

TRIMMING OF BEAM ENDS

Forward Abutment

▨ - Hatching indicates portion of existing structure to be removed.

ADDITIONAL DETAILS: See sheet 19/32.

7/32

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

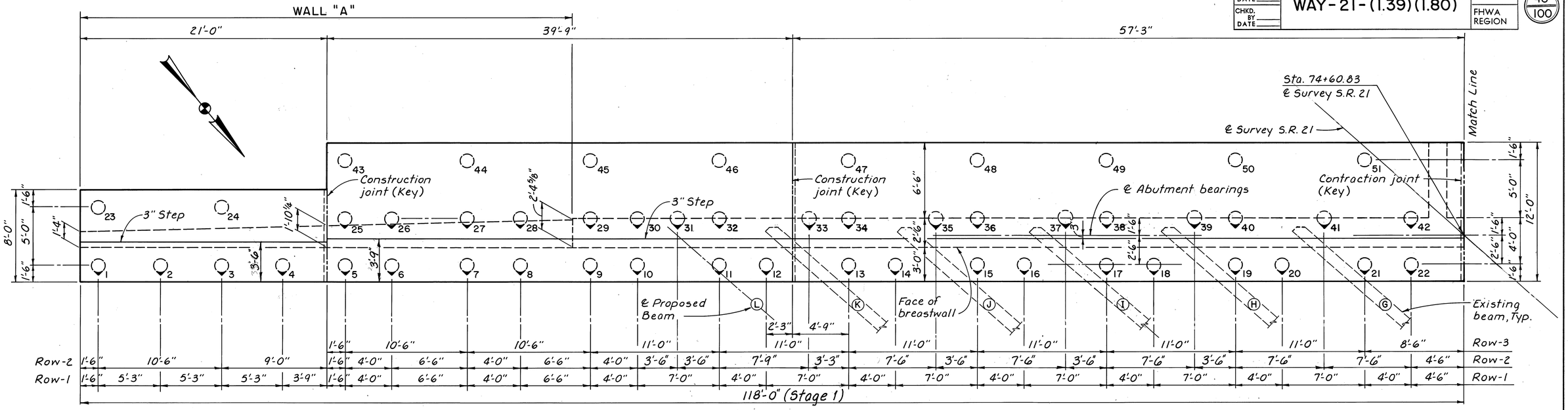
DEMOLITION AND PATCHING DETAILS

BRIDGE NO. WAY-21-0143L/R OVER CSX TRANSPORTATION

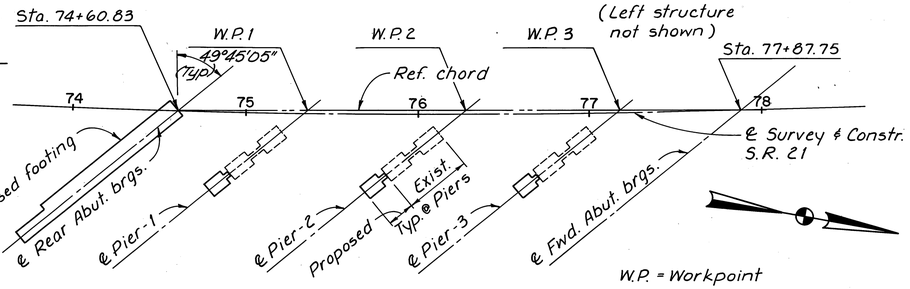
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	2/2/96	

CALC. BY DATE	WAY-21-(1.39)(1.80)	OHIO
CHKD. BY DATE		FHWA REGION

48/100



FOUNDATION PLAN - REAR ABUTMENT



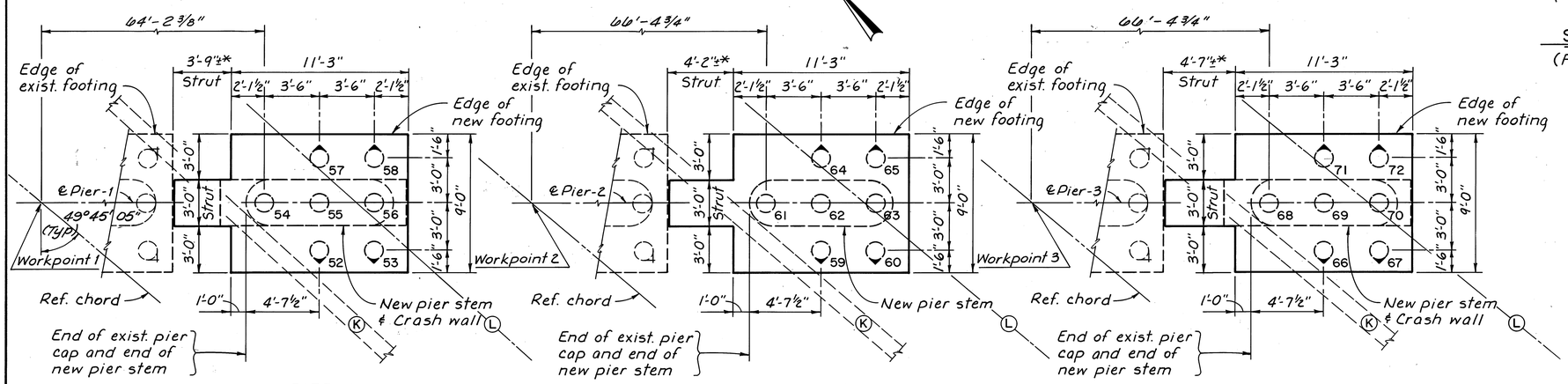
PILE LEGEND

- ○N – Vertical piles
- ○N – Battered (1:4) piles
- N – Pile identification number

* May vary due to construction tolerance See sheet 21/32 .

SCHEMATIC PLAN

(For footings on piles)



PIER-1 PIER-2 PIER-3

FOUNDATION PLAN - PIERS

ABUTMENT NOTES : See sheet 10/32 .

8/32

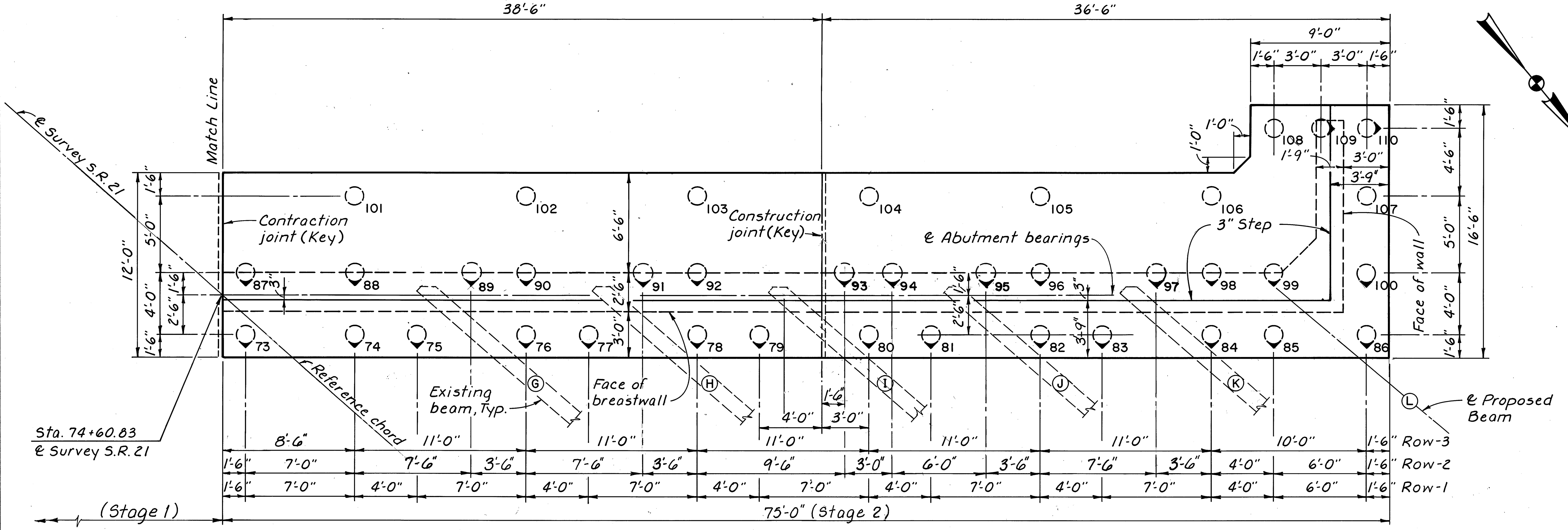
ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

FOUNDATION PLAN - 1

BRIDGE NO. WAY-21-0143R
OVER CSX TRANSPORTATION

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	2/2/96	

87050

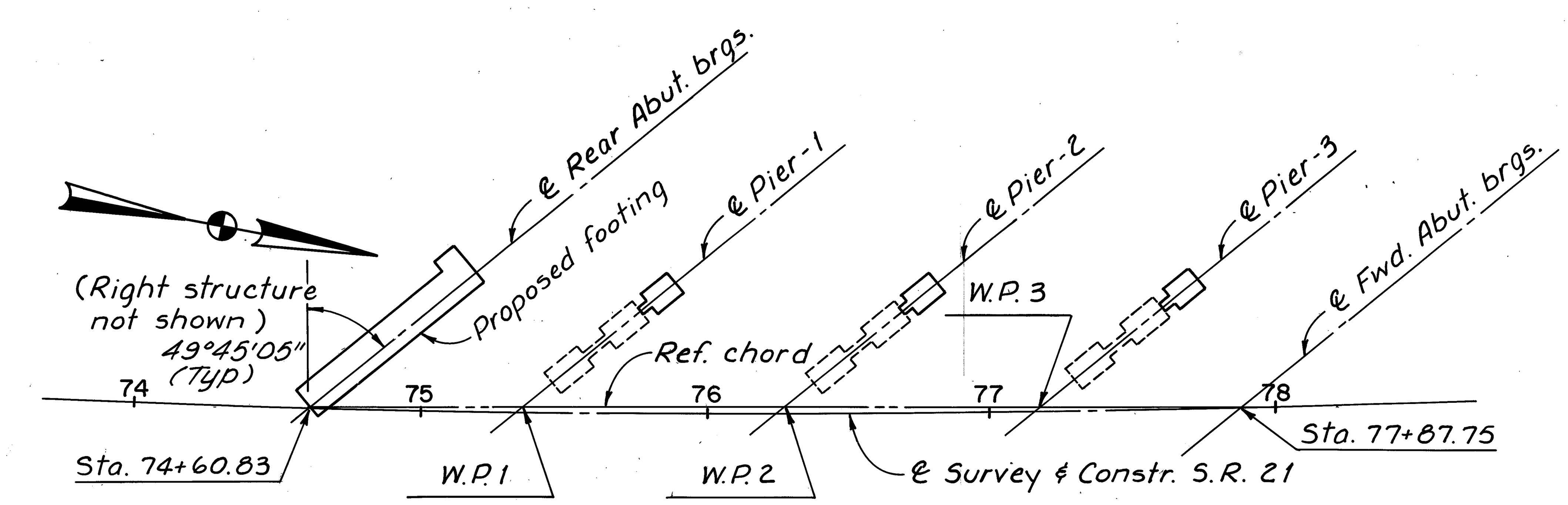


FOUNDATION PLAN - REAR ABUTMENT

PILE LEGEND

- ◯N - Vertical piles
- ◯N - Battered (1:4) piles
- N - Pile identification number

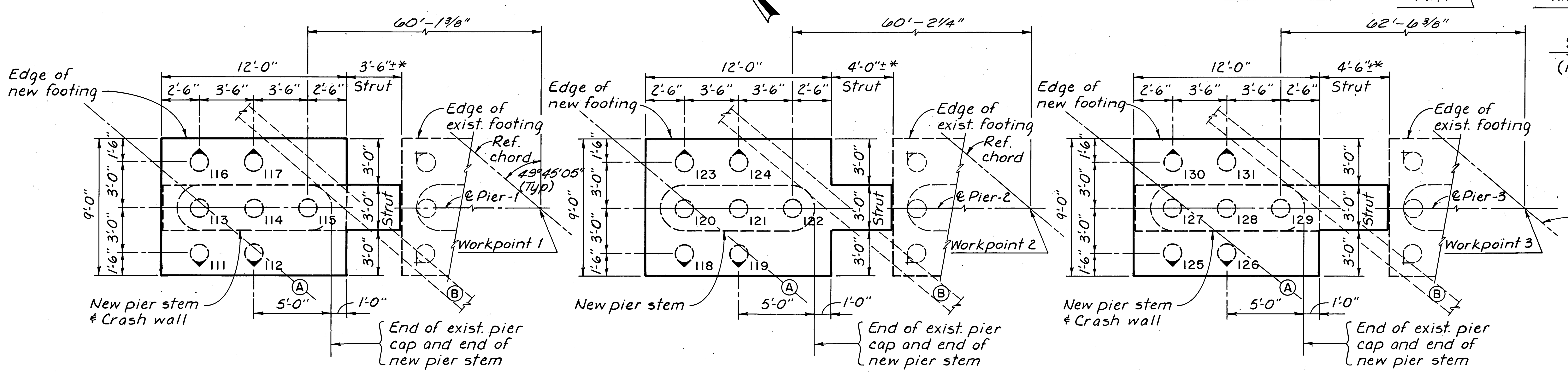
* May vary due to construction tolerance See sheet 20/32.



SCHEMATIC PLAN

(For footings on piles)

W.P. = Workpoint



FOUNDATION PLAN - PIERS

ABUTMENT NOTES: See sheet 10/32.

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

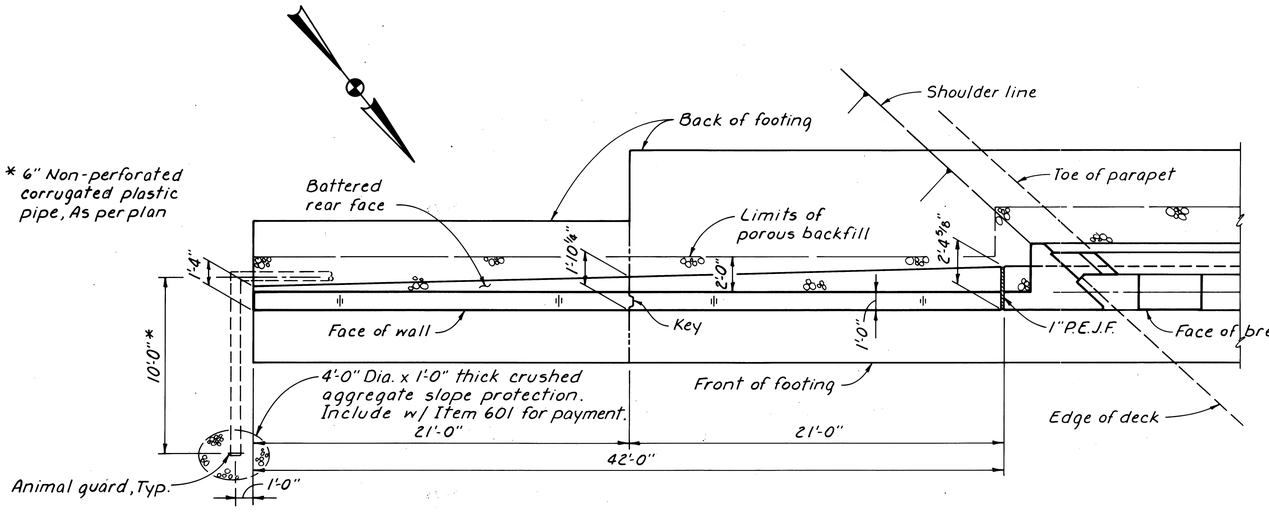
FOUNDATION PLAN - 2

BRIDGE NO. WAY-21-0143L
OVER CSX TRANSPORTATION

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	2/2/96	

CALC. BY DATE	WAY-21-(1.39)(1.80)	OHIO
CHKD. BY DATE		FHWA REGION

50/100



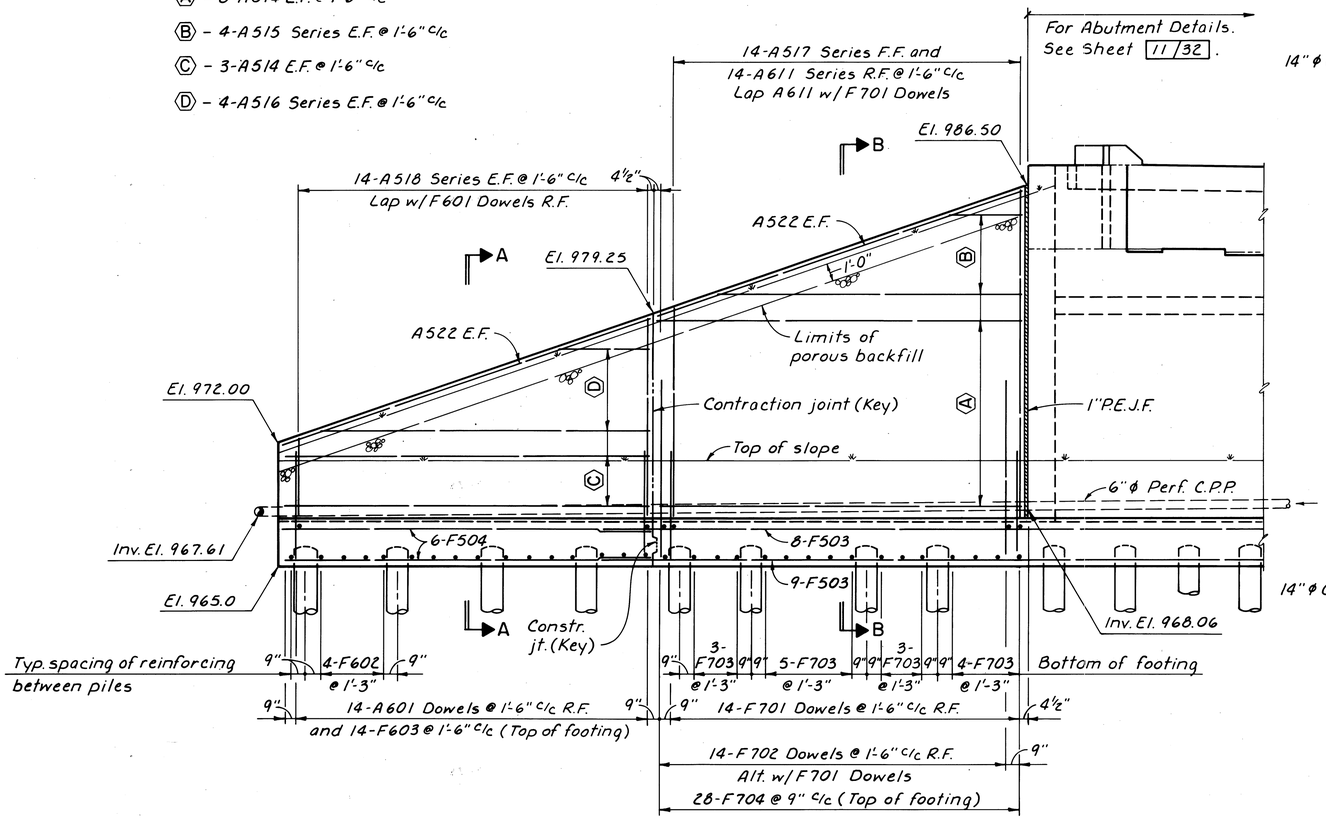
PLAN WALL "A"

Ⓐ - 8-A514 E.F. @ 1'-6" c/c

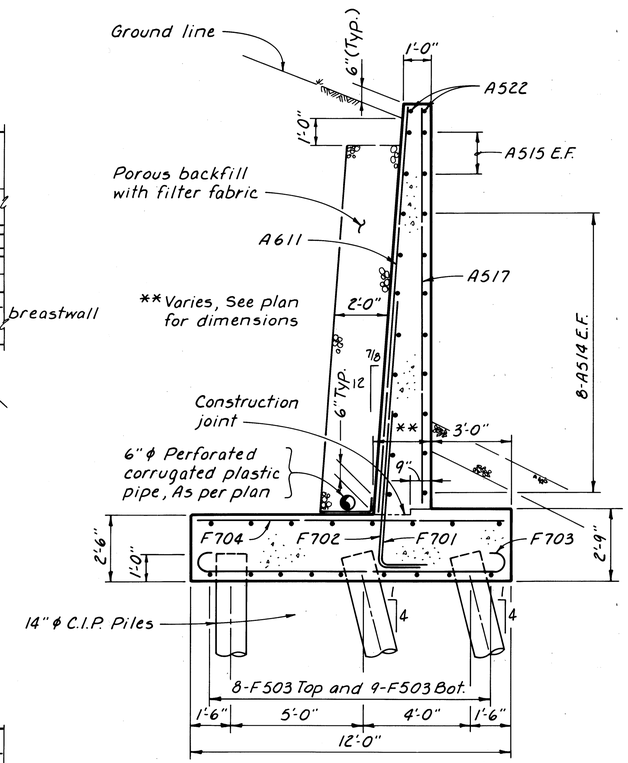
Ⓑ - 4-A515 Series E.F. @ 1'-6" c/c

Ⓒ - 3-A514 E.F. @ 1'-6" c/c

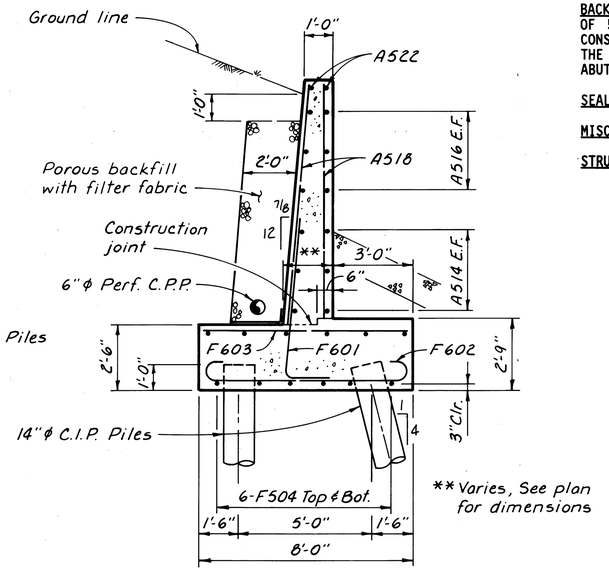
Ⓓ - 4-A516 Series E.F. @ 1'-6" c/c



ELEVATION WALL "A"



SECTION B-B



SECTION A-A

** Varies, See plan for dimensions

ABUTMENT NOTES

ABBREVIATIONS:

F.F. = FRONT FACE
R.F. = REAR FACE
E.F. = EACH FACE
P.E.J.F. = PREFORMED EXPANSION JOINT FILLER

MINIMUM BAR LAPS ARE AS FOLLOWS UNLESS NOTED OTHERWISE.

#4 BARS = 1'-7"
#5 BARS = 1'-11"
#6 BARS = 2'-6"
#7 BARS = 3'-10"

REINFORCING STEEL: NEW REINFORCING STEEL MAY REQUIRE FIELD CUTTING OR BENDING TO BE PROPERLY FITTED. PAYMENT SHALL BE INCLUDED IN ITEM 509.

CRIBWALL DETAILS: SEE SHEET 5/32 .

DEMOLITION AND PATCHING DETAILS: SEE SHEET 6&7/32 .

FOUNDATION AND PILING PLAN: SEE SHEET 8&9/32 .

REINFORCING STEEL LISTS: SEE SHEETS 30,31&32/32 .

CONTROL JOINT DETAILS: SEE SHEET 11/32 .

POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN, 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. GEOTEXTILE FABRIC SHALL CONFORM WITH 712.09, TYPE A. GEOTEXTILE FABRIC SHALL BE INCLUDED WITH POROUS BACKFILL FOR PAYMENT.

ANIMAL GUARDS SHALL BE PROVIDED AT THE OUTLET ENDS OF THE DRAINAGE PIPE. SEE STANDARD CONSTRUCTION DRAWING MC-4 FOR DETAILS. PAYMENT FOR THE ANIMAL GUARD SHALL BE INCLUDED WITH THE DRAINAGE PIPE BID ITEM 518.

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

SEALING OF CONCRETE SURFACES: SEE SHEET 22&23/32 .

MISCELLANEOUS ABUTMENT DETAILS: SEE SHEET 19/32 .

STRUCTURE GENERAL NOTES: SEE SHEET G1&G2/6 .

10/32

ENGINEERING ASSOCIATES INC.
700 WINKLER DR. CONSULTING ENGINEERS WOOSTER, OHIO

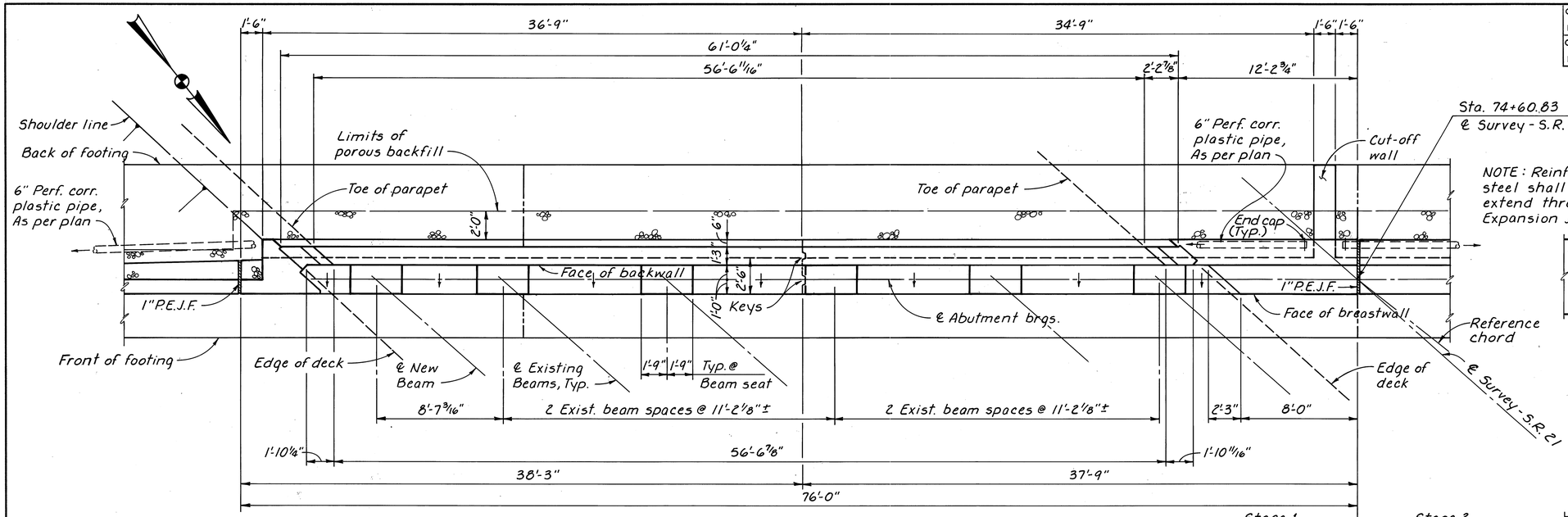
REAR ABUTMENT - I

BRIDGE NO. WAY-21-0143R
OVER CSX TRANSPORTATION

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	2/2/96	

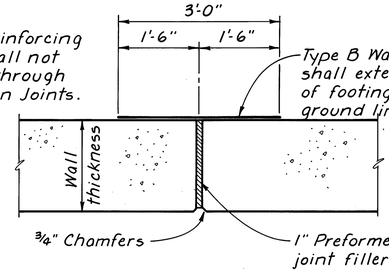
CALC. BY DATE	WAY-21-(1.39)(1.80)	OHIO
CHKD. BY DATE		FHWA REGION

51/100

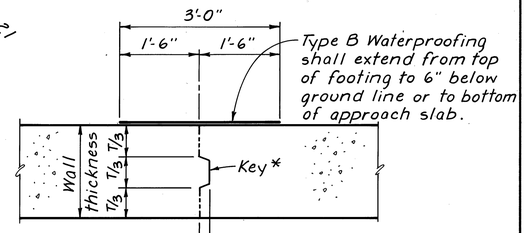


PLAN

NOTE : Reinforcing steel shall not extend through Expansion Joints.



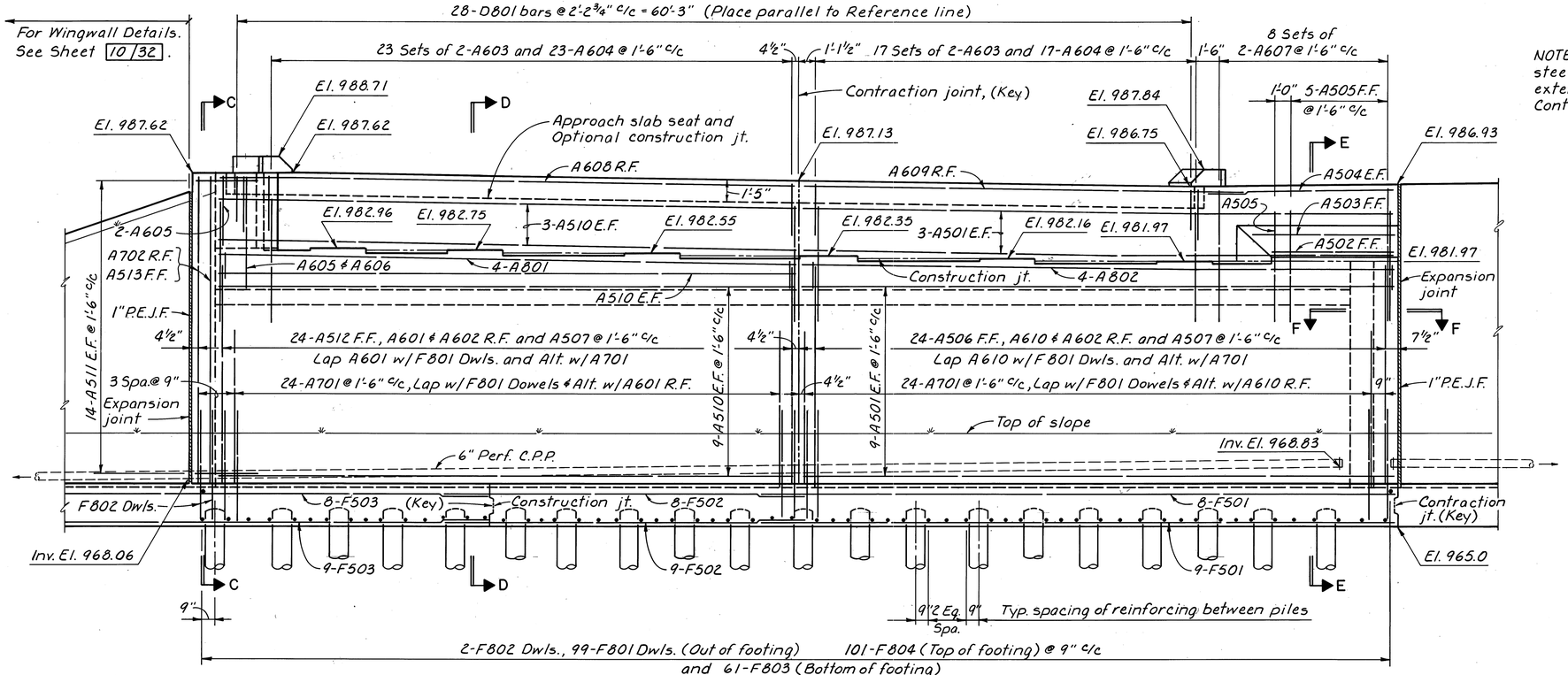
EXPANSION JOINTS



NOTE : Reinforcing steel shall not extend through Contraction Joints.

CONSTRUCTION OR CONTRACTION JOINTS

CONTROL JOINT DETAILS



ELEVATION

NOTES

ABUTMENT NOTES : See sheet 10/32 .

SECTIONS C-C, D-D, E-E AND F-F : See sheet 12/32 .

BACKWALL PLAN AND PARAPET SECTION : See sheet 12/32 .

11/32

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

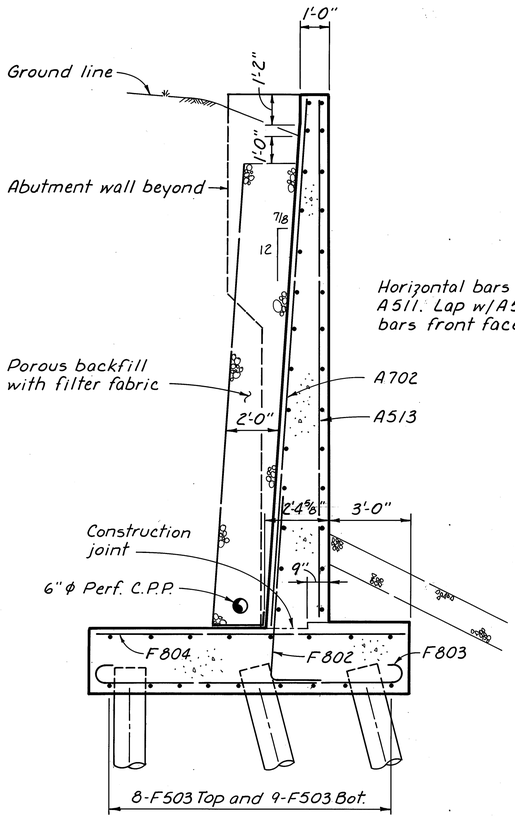
REAR ABUTMENT - 2

BRIDGE NO. WAY-21-0143R
OVER CSX TRANSPORTATION

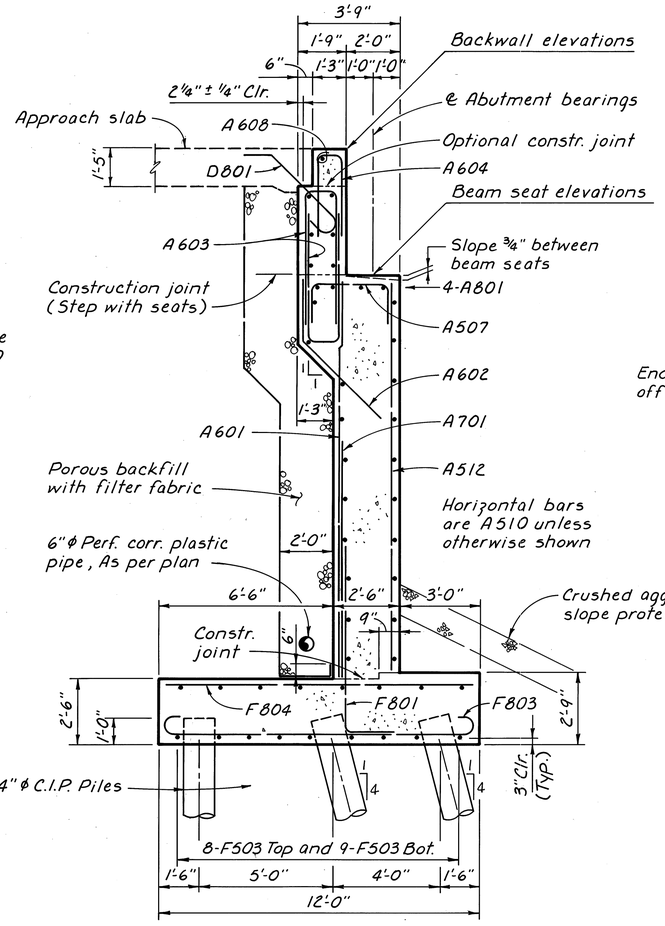
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	2/2/96	

GS1093

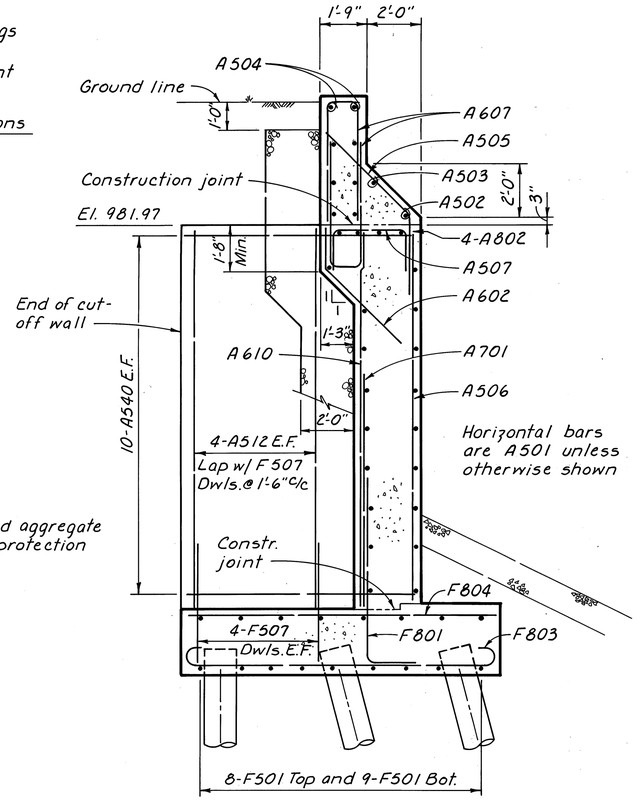
CALC. BY / DATE	WAY-21-(1.39)(1.80)	OHIO / FHWA REGION	52/100
CHKD. BY / DATE			



SECTION C-C

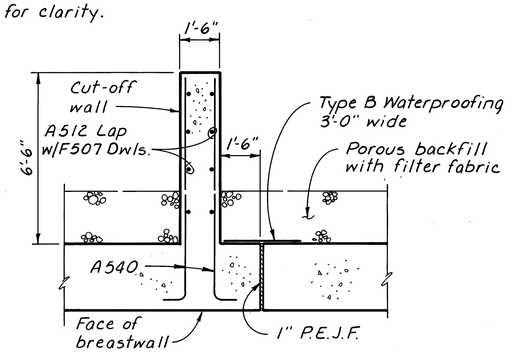


SECTION D-D

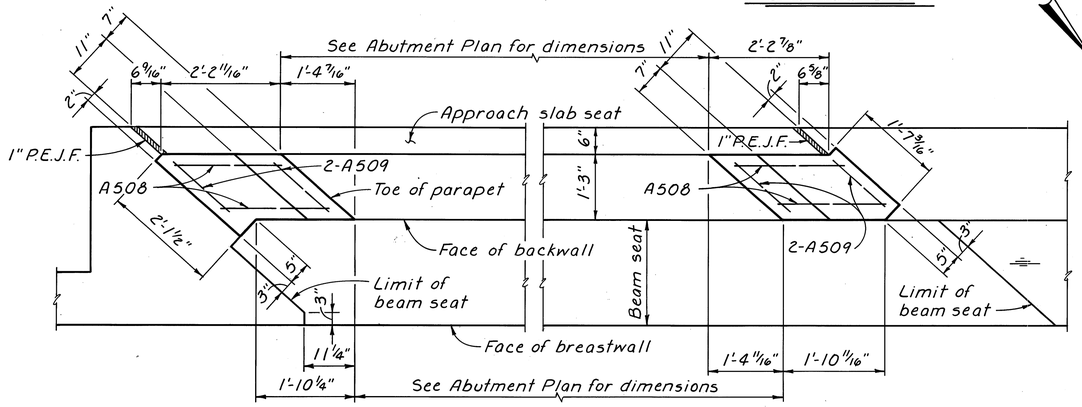


SECTION E-E

NOTE: Reinforcing in breastwall is not shown for clarity.

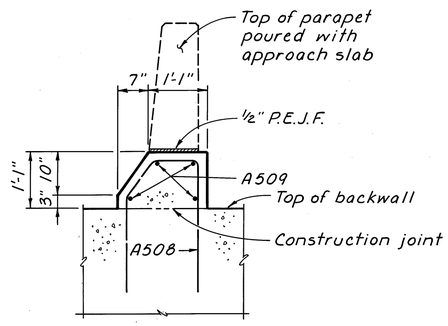


SECTION F-F



BACKWALL PLAN

Showing Parapet Details



PARAPET SECTION

Drawn normal to face of parapet

NOTES

ABUTMENT NOTES: See sheet 10/32.

FOR LOCATION OF SECTIONS C-C, D-D, E-E AND F-F: See sheet 11/32.

12/32

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

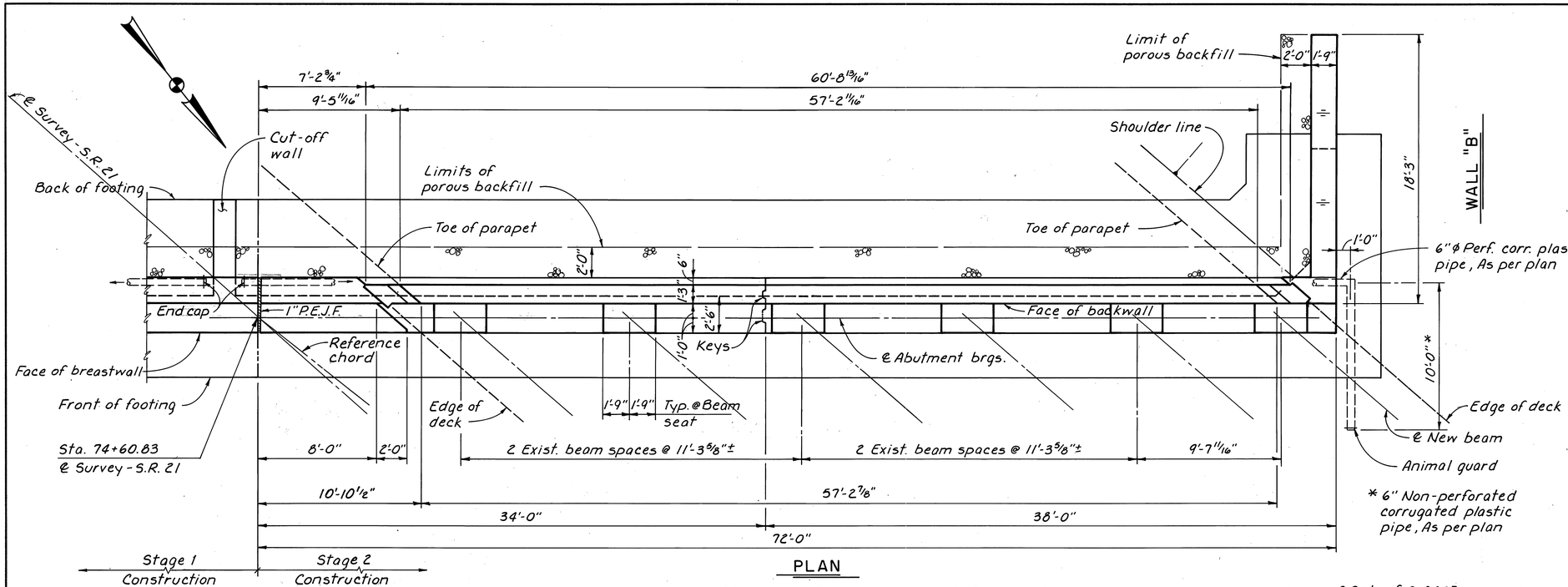
REAR ABUTMENT - 3

BRIDGE NO. WAY-21-0143R OVER CSX TRANSPORTATION

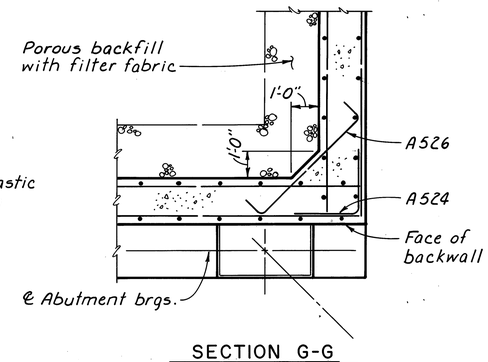
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	2/2/96	

851092

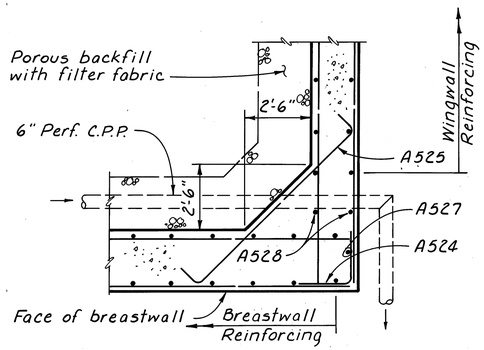
CALC. BY / DATE	WAY-21-(1.39)(1.80)	OHIO / FHWA REGION	53/100
CHKD. BY / DATE			



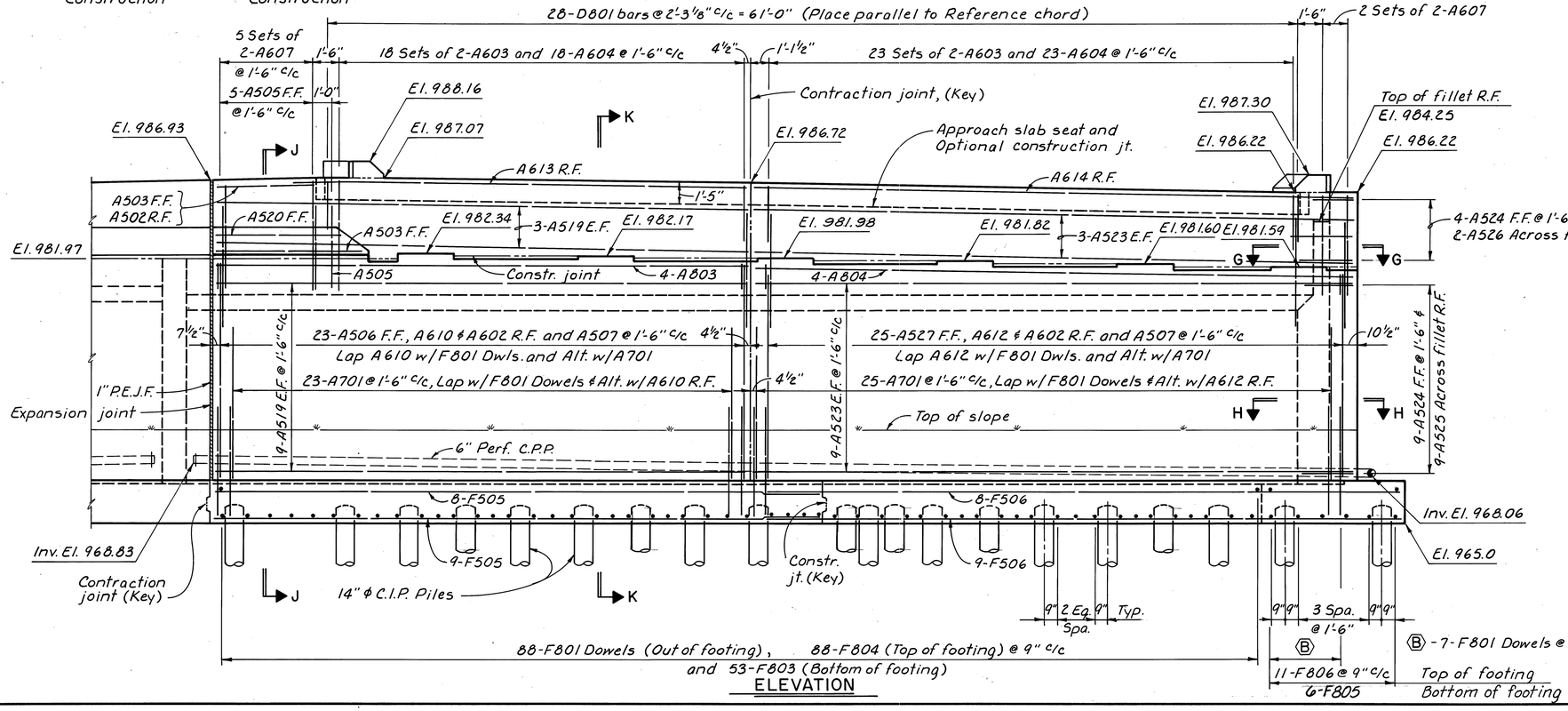
PLAN



SECTION G-G



SECTION H-H



ELEVATION

NOTES

ABUTMENT NOTES: See sheet 10/32.

CONTROL JOINT DETAILS: See sheet 11/32.

PARAPET SECTION: See sheet 12/32.

SECTIONS J-J, AND K-K: See sheet 14/32.

BACKWALL PLAN: See sheet 14/32.

WALL "B": See sheet 14/32.

13/32

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

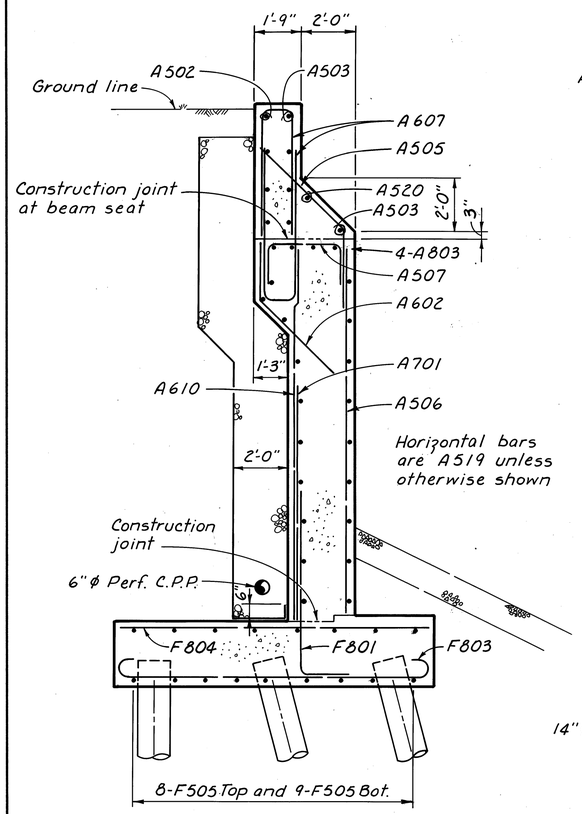
REAR ABUTMENT - 4

BRIDGE NO. WAY-21-0143L
OVER CSX TRANSPORTATION

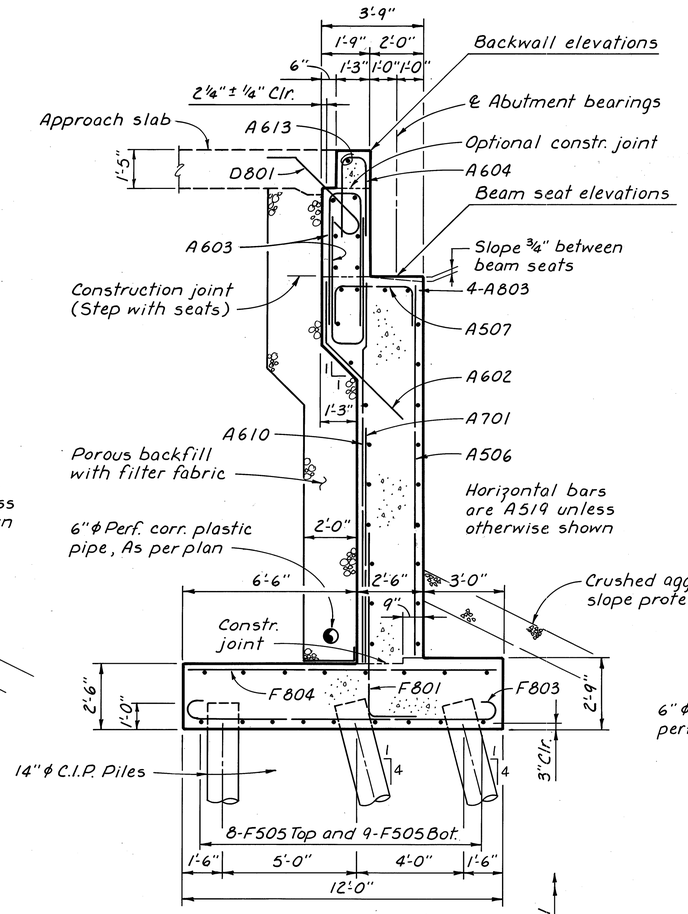
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	2/2/96	

857252

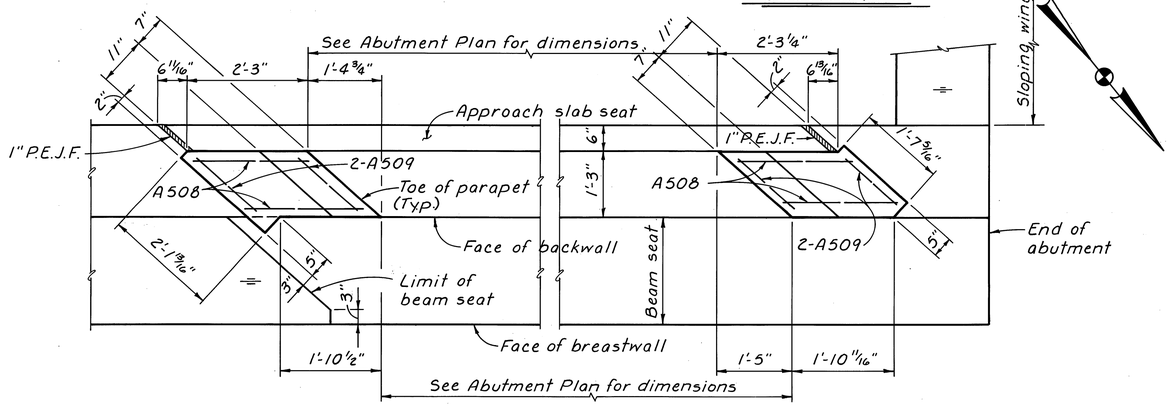
CALC. BY / DATE	WAY-21-(1.39)(1.80)	OHIO / FHWA REGION	54/100
CHKD. BY / DATE			



SECTION J-J

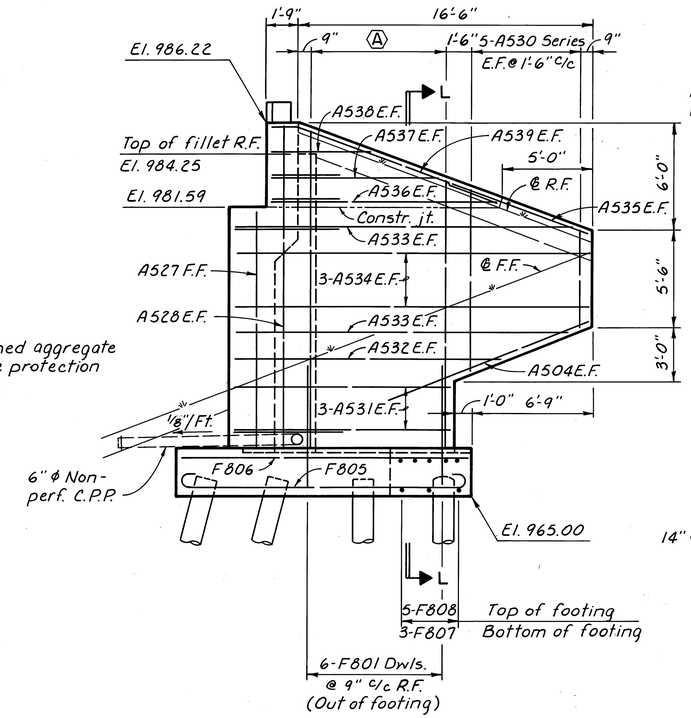


SECTION K-K

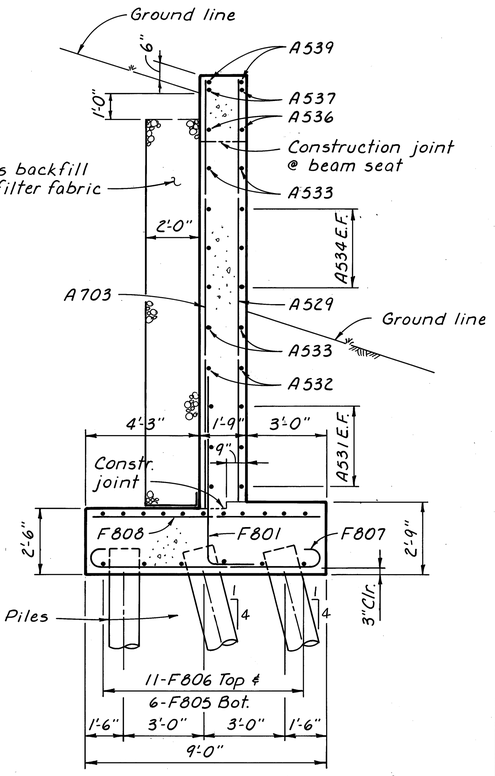


BACKWALL PLAN
Showing Parapet Details

Ⓐ - 11-A703 Series @ 9" c/c R.F. (Lap w/F801 Dowels)
6-A529 Series @ 1'-6" c/c F.F.



ELEVATION - WALL "B"



SECTION L-L

NOTES

ABUTMENT NOTES : See sheet 10/32 .

PARAPET SECTION : See sheet 12/32 .

FOR LOCATION OF SECTIONS J-J, AND K-K : See sheet 13/32 .

14/32

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

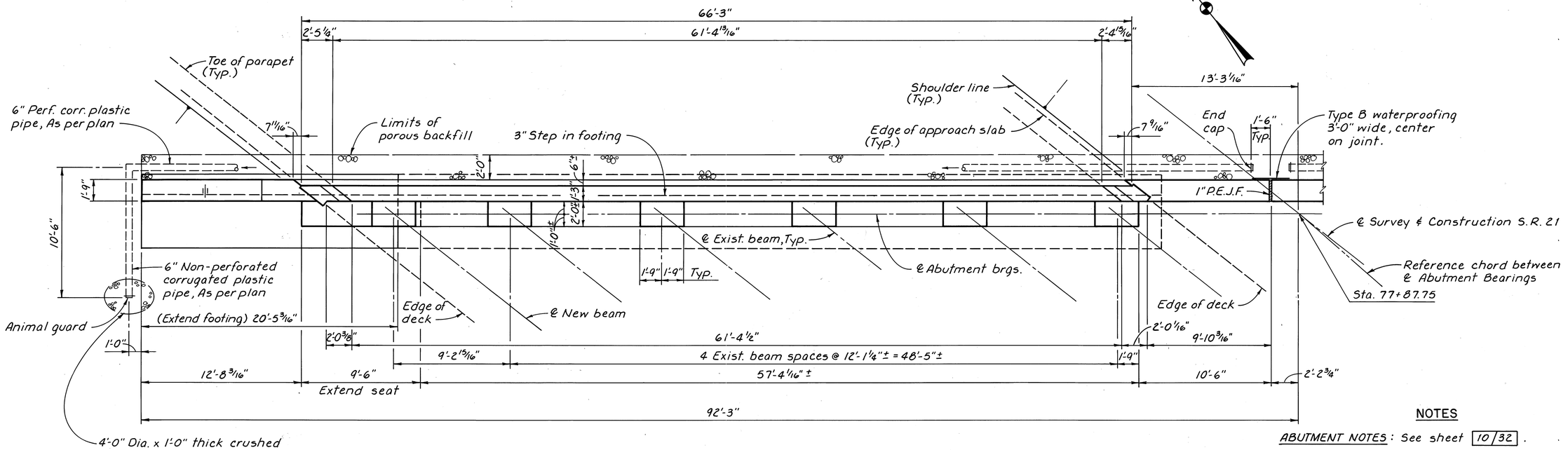
REAR ABUTMENT - 5

BRIDGE NO. WAY-21-0143L
OVER CSX TRANSPORTATION

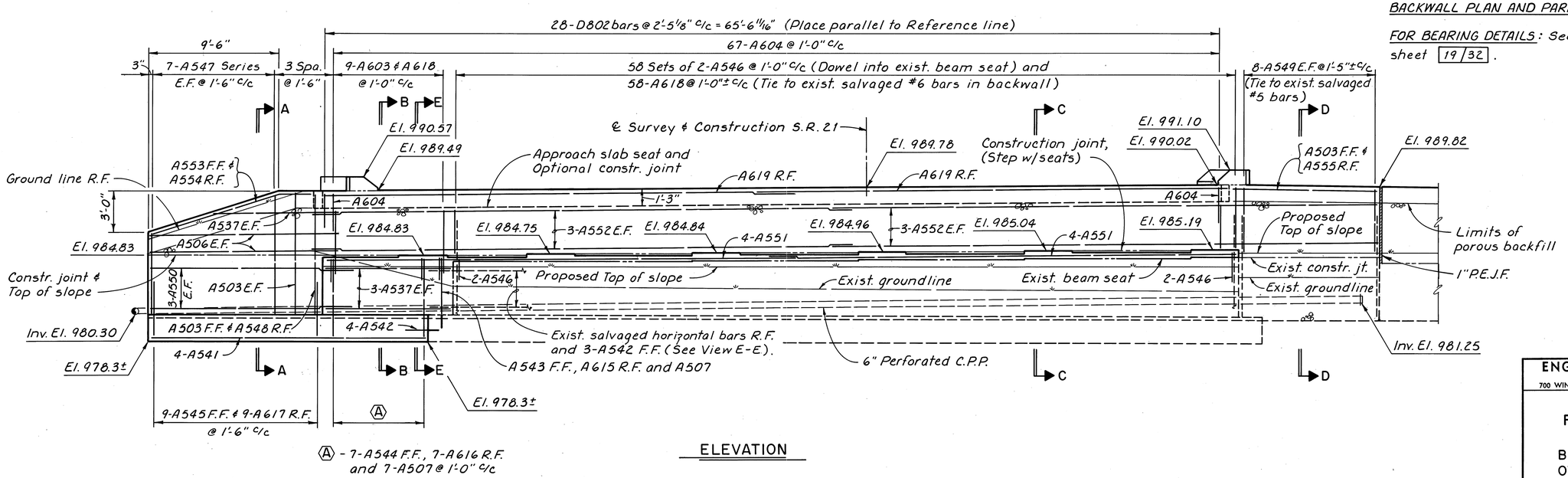
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	2/2/96	

851052

CALC. BY / DATE	WAY-21-(1.39)(1.80)	OHIO / FHWA REGION	55/100
CHKD. BY / DATE			



PLAN



ELEVATION

NOTES

ABUTMENT NOTES: See sheet 10/32.

SECTIONS A-A, B-B, C-C, D-D AND VIEW E-E: See sheet 16/32.

BACKWALL PLAN AND PARAPET SECTION: See sheet 16/32.

FOR BEARING DETAILS: See sheet 19/32.

15/32

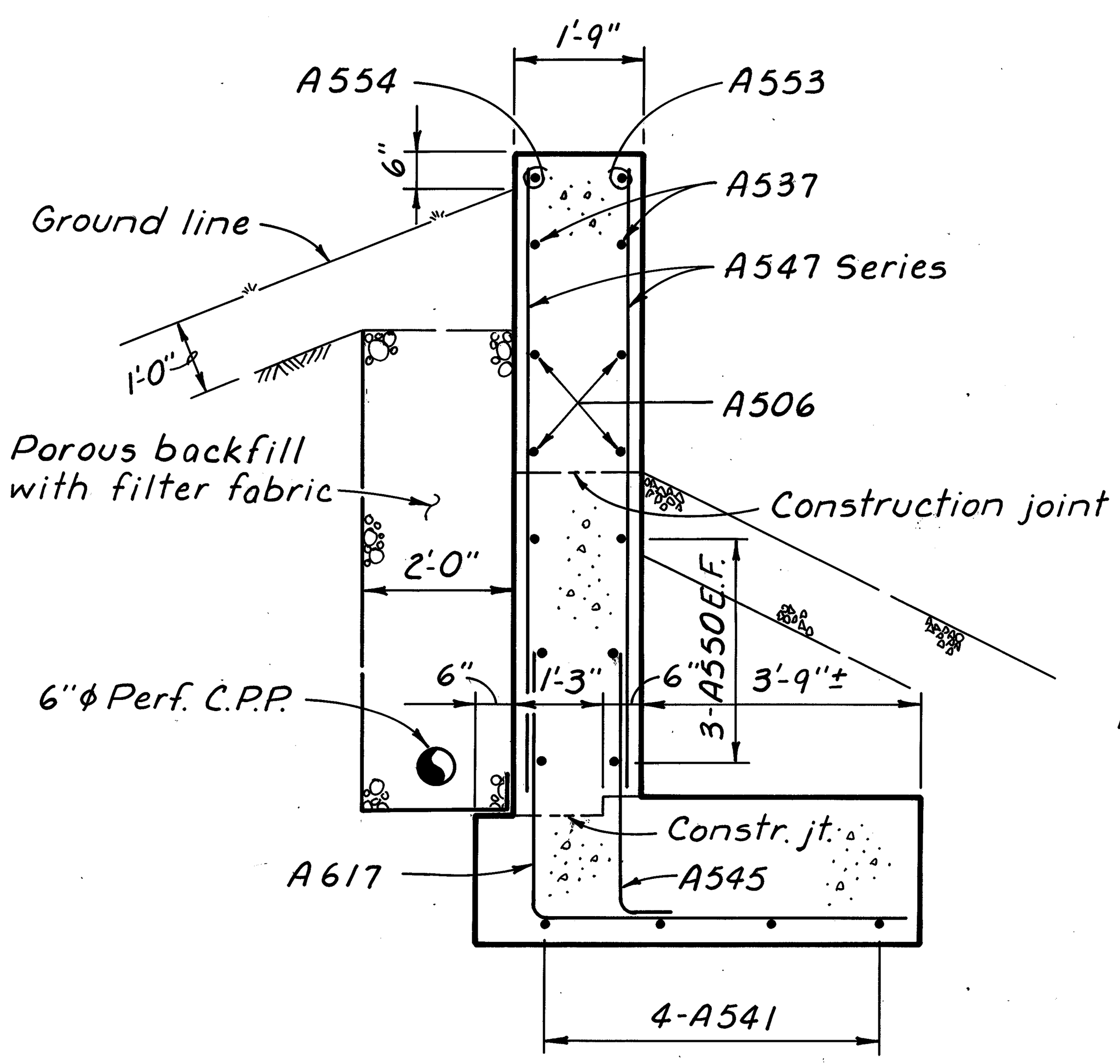
ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

FORWARD ABUTMENT - 1

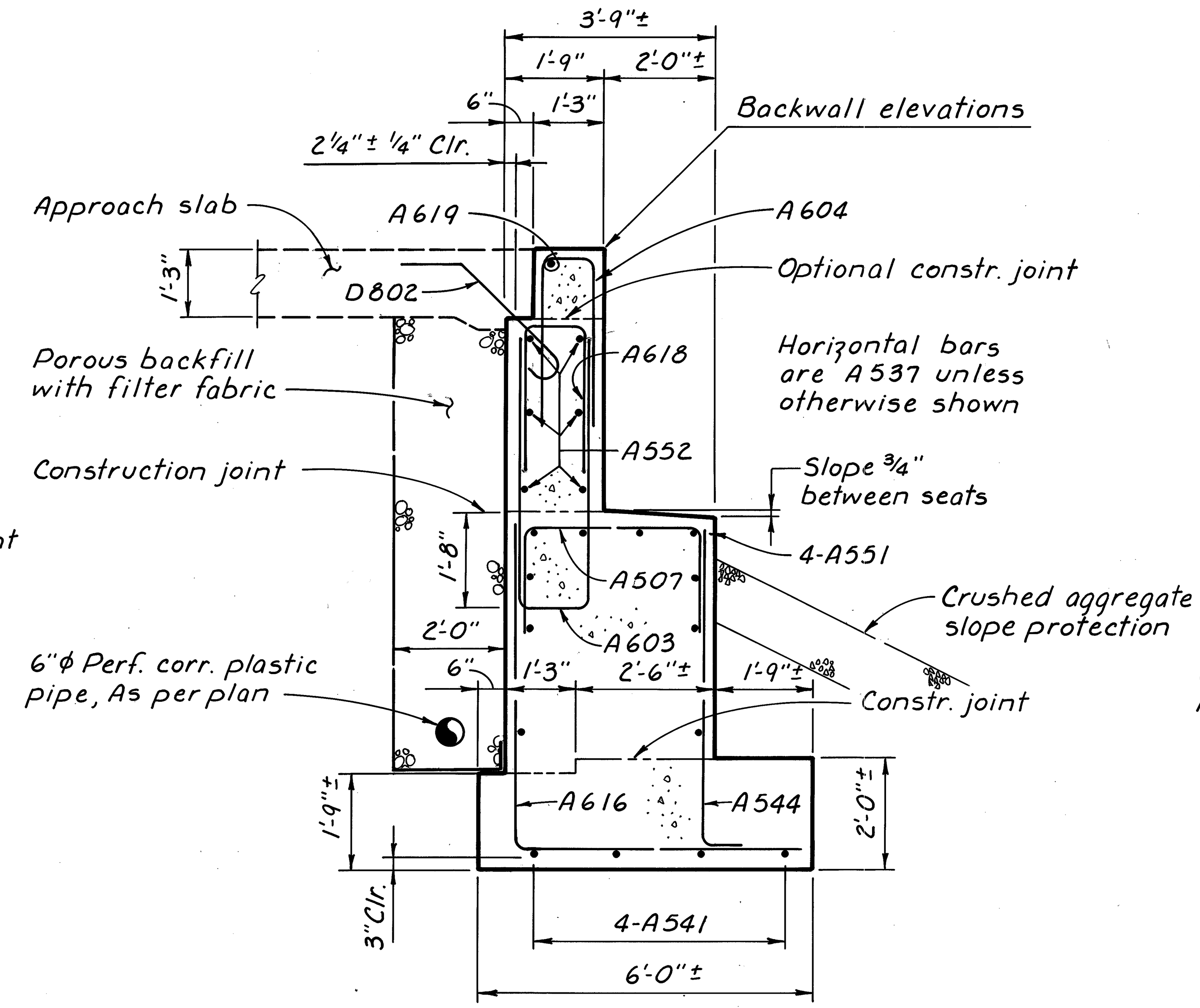
BRIDGE NO. WAY-21-0143L OVER CSX TRANSPORTATION

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	2/2/96	

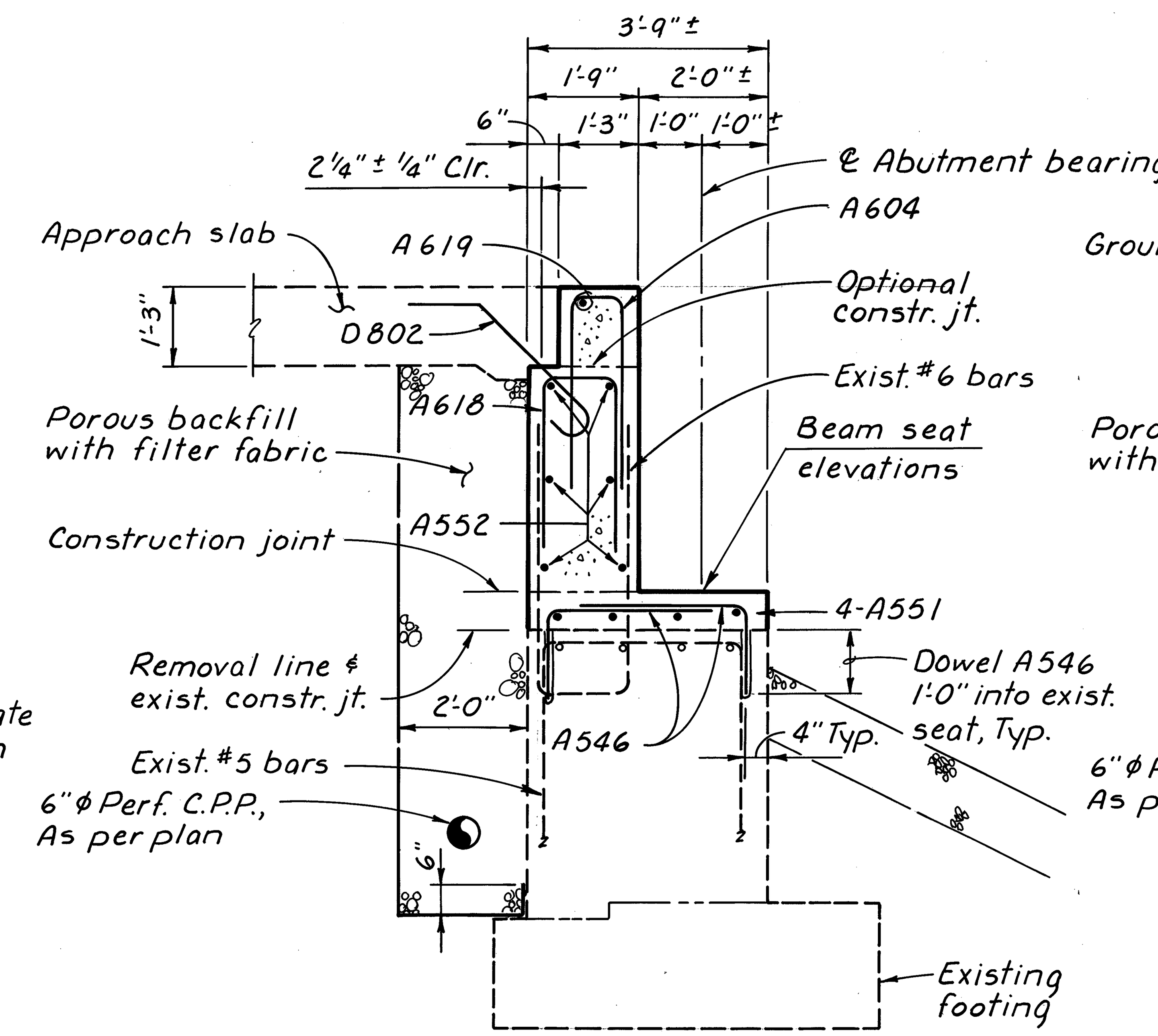
021702



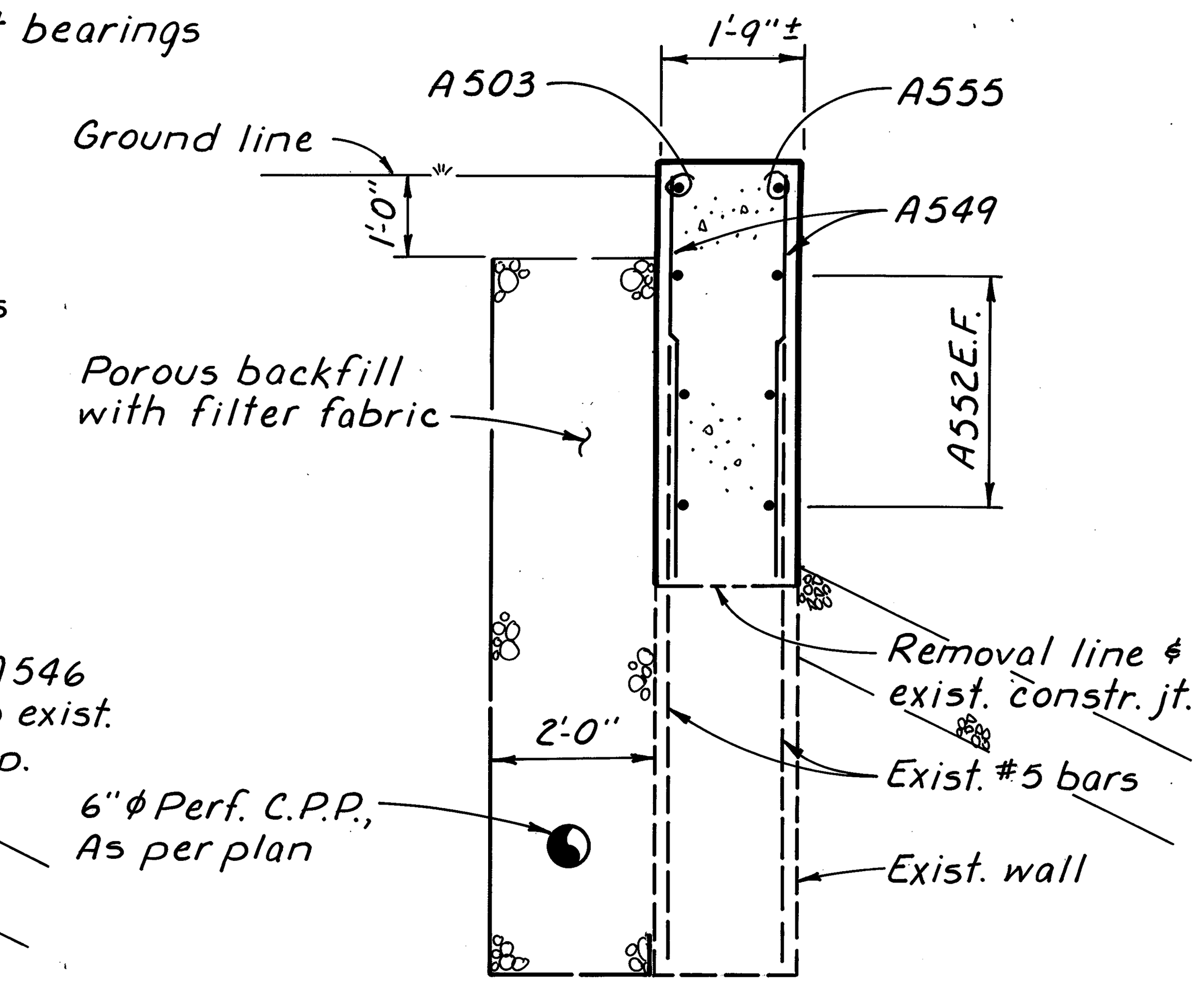
SECTION A-A



SECTION B-B



SECTION C-C

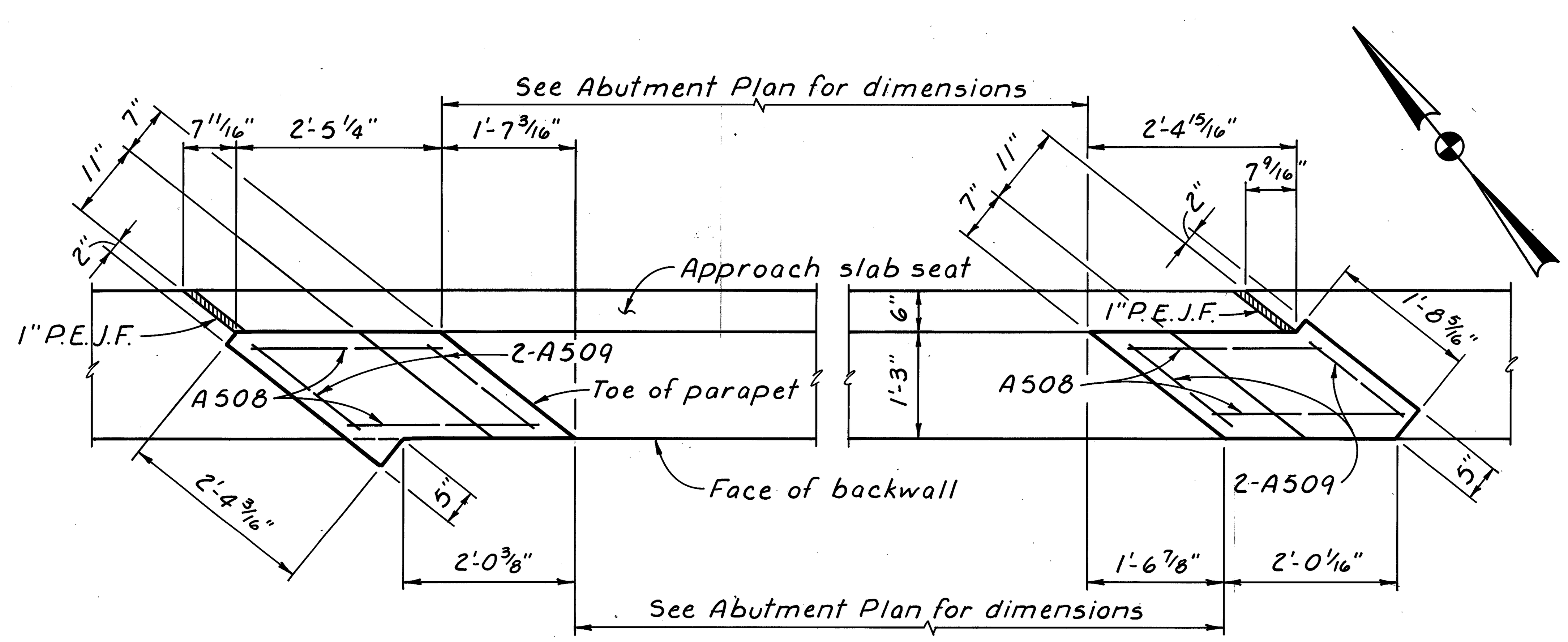


SECTION D-D

NOTES

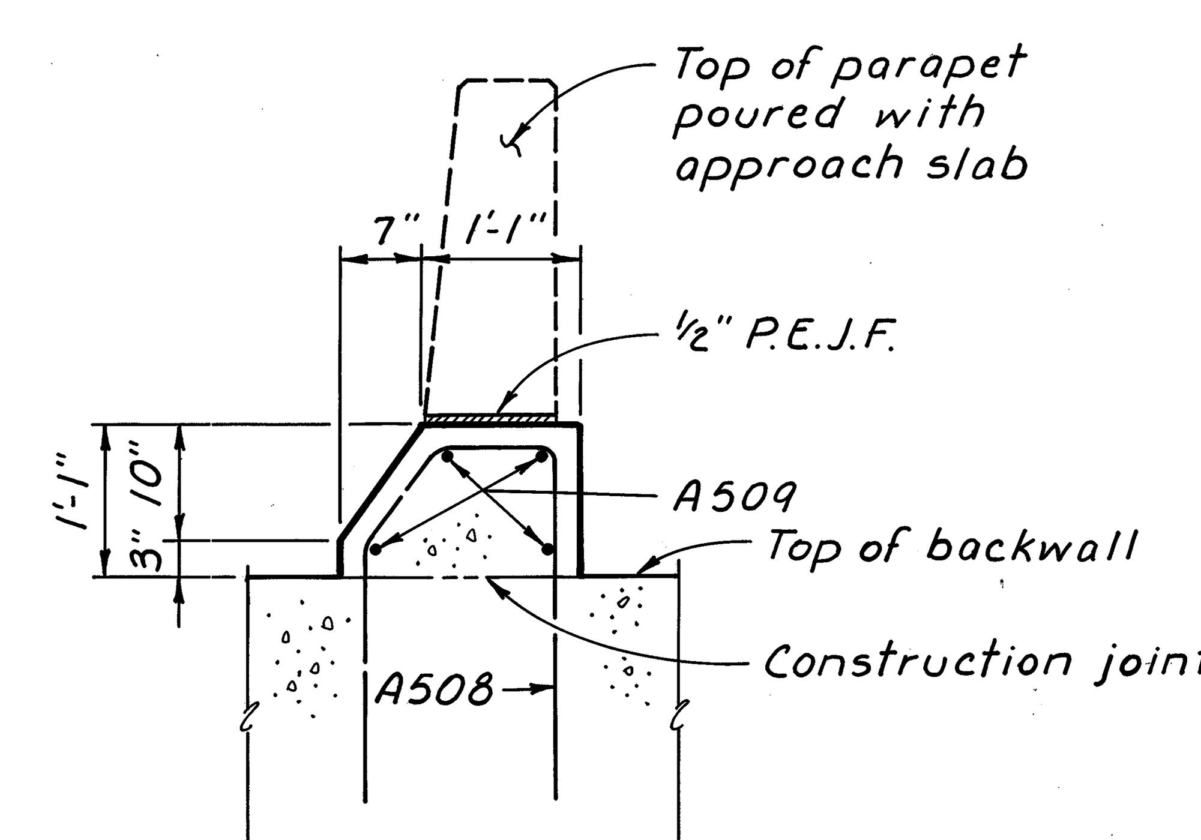
ABUTMENT NOTES: See sheet 10/32.

FOR LOCATION OF SECTIONS A-A, B-B, C-C, D-D AND VIEW E-E: See sheet 15/32.



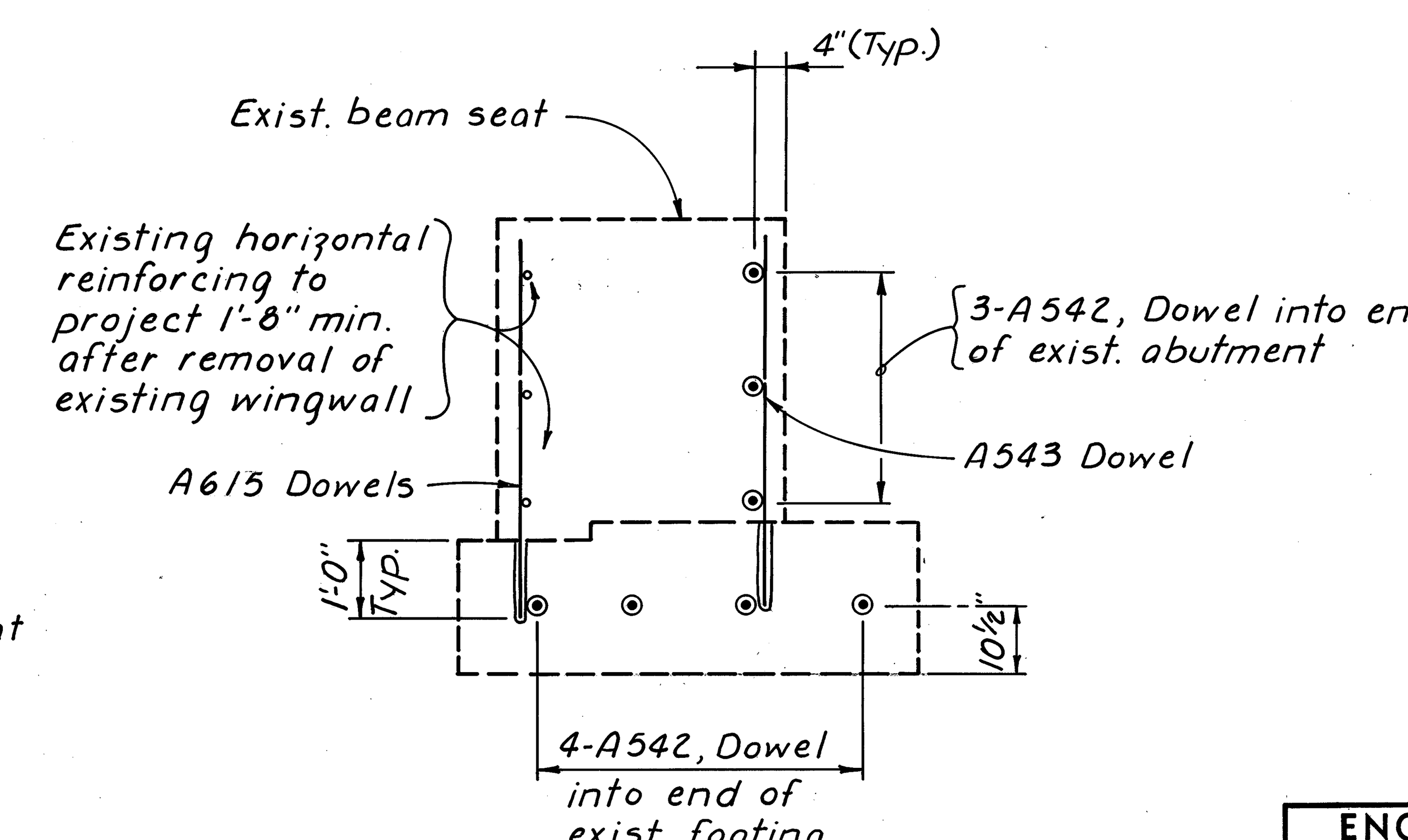
BACKWALL PLAN

Showing Parapet Details



PARAPET SECTION

Drawn normal to face of parapet



VIEW E-E

View after existing backwall and wingwall have been removed

16/32

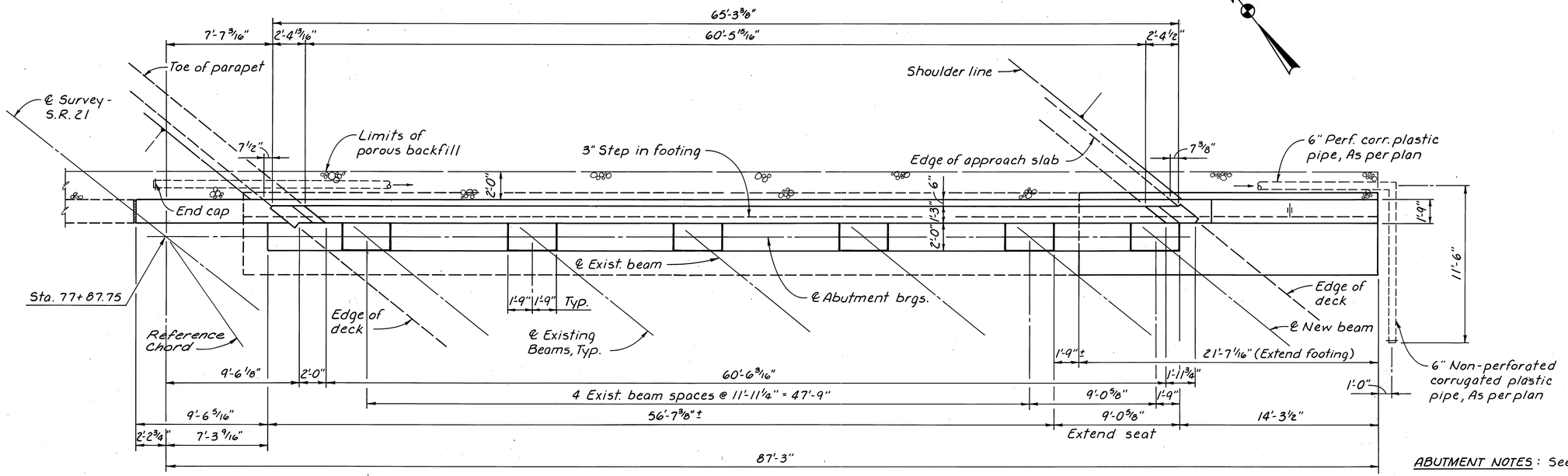
ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

FORWARD ABUTMENT - 2

BRIDGE NO. WAY-21-0143L
OVER CSX TRANSPORTATION

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	2/2/96	

CALC. BY DATE	WAY-21-(1.39)(1.80)	OHIO
CHKD. BY DATE		FHWA REGION



PLAN

NOTES

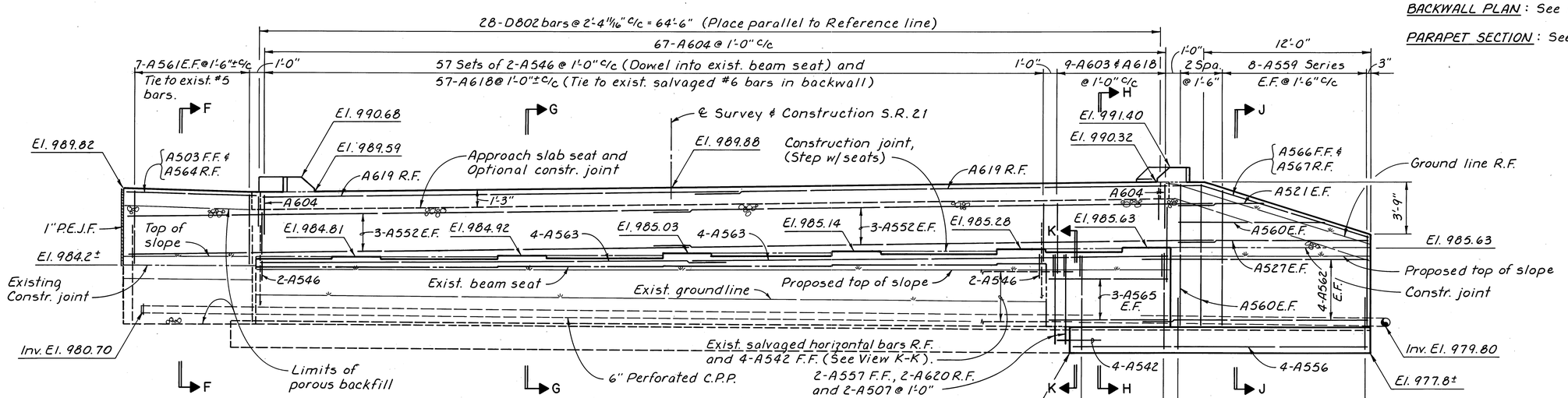
ABUTMENT NOTES : See sheet 10/32 .

FOR SECTIONS F-F, G-G, H-H, J-J AND VIEW K-K : See sheet 18/32 .

FOR BEARING DETAILS : See sheet 19/32 .

BACKWALL PLAN : See sheet 18/32 .

PARAPET SECTION : See sheet 12/32 .



ELEVATION

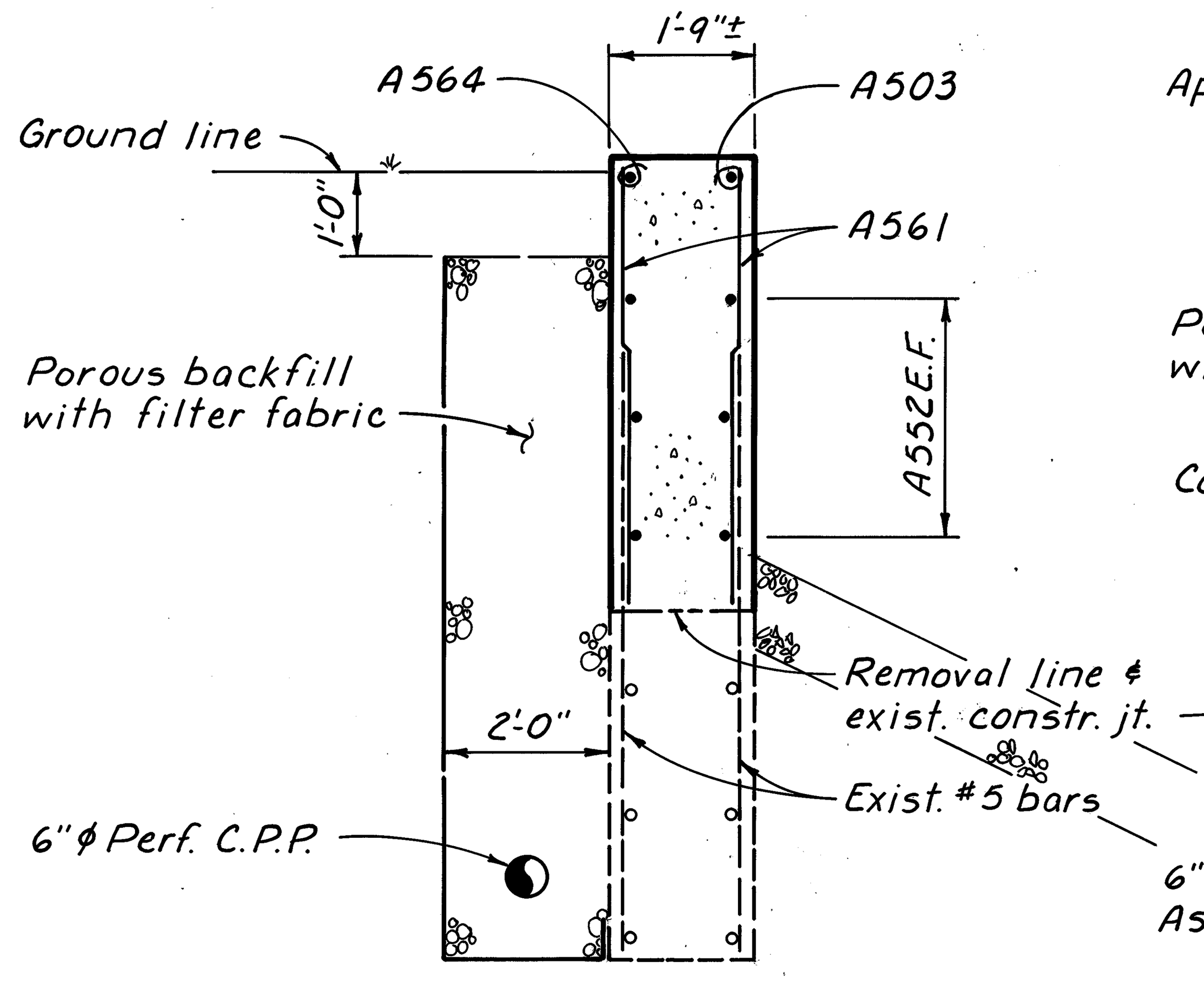
17/32

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

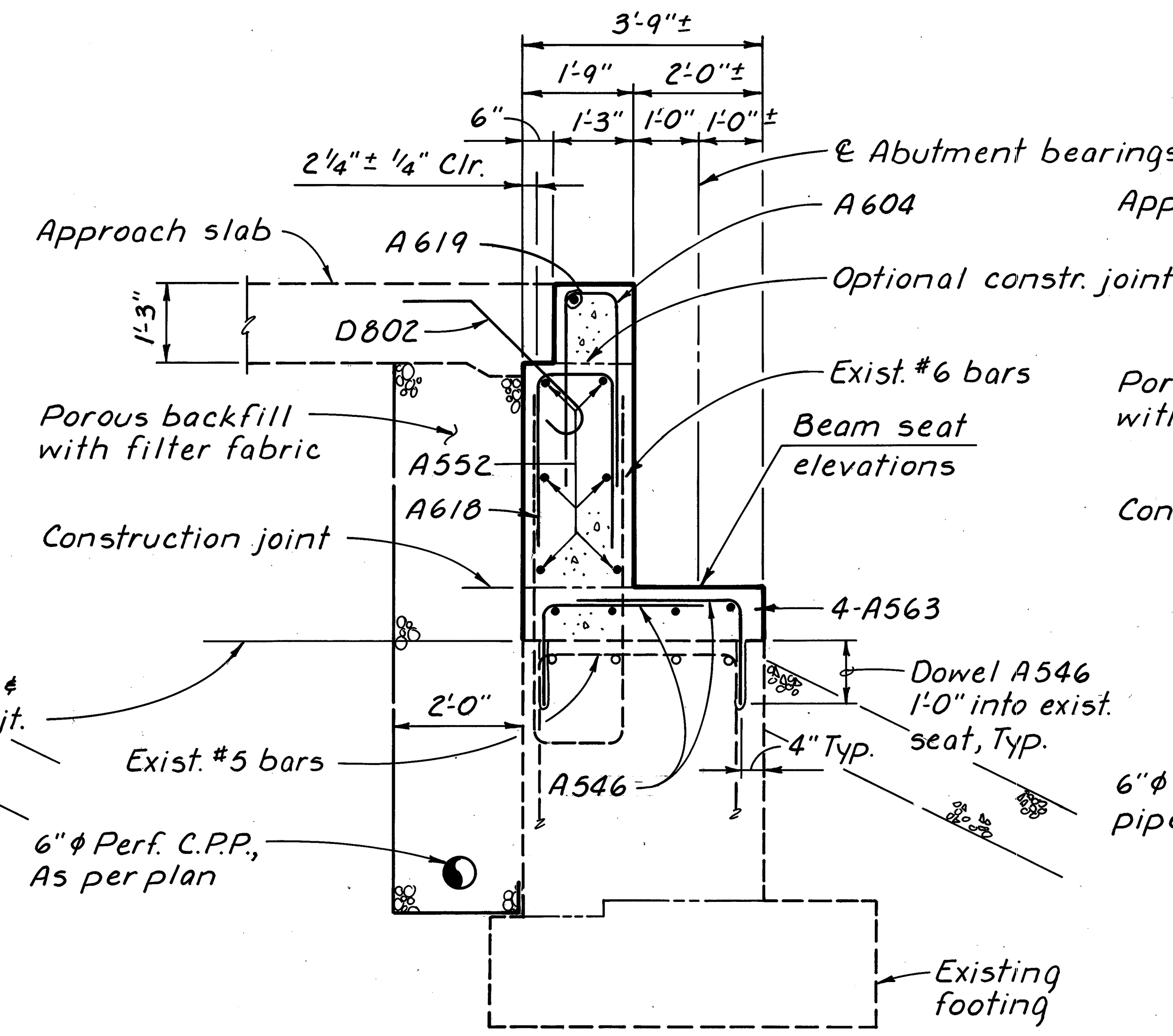
FORWARD ABUTMENT - 3

BRIDGE NO. WAY-21-0143R
OVER CSX TRANSPORTATION

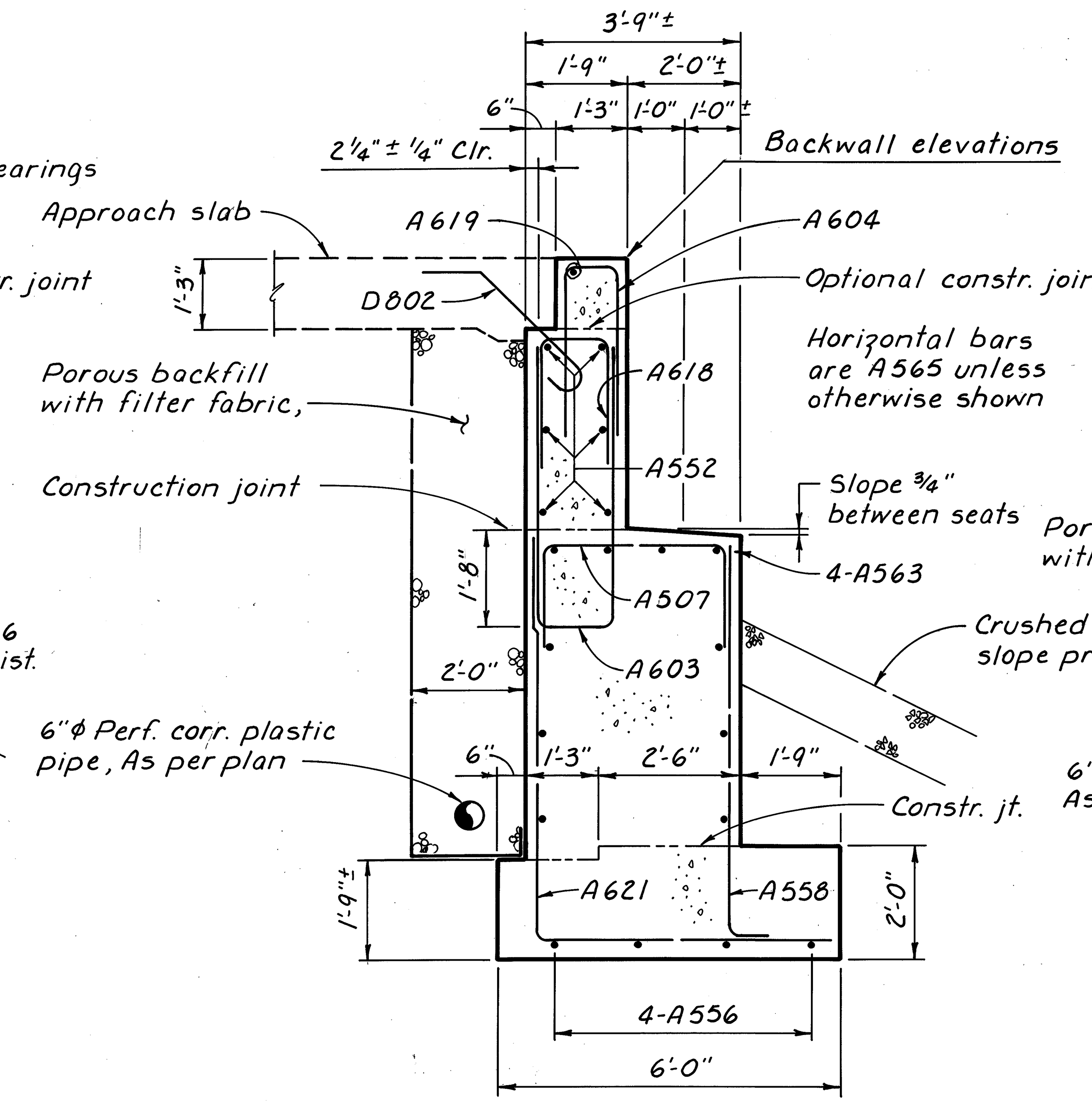
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	2/2/96	



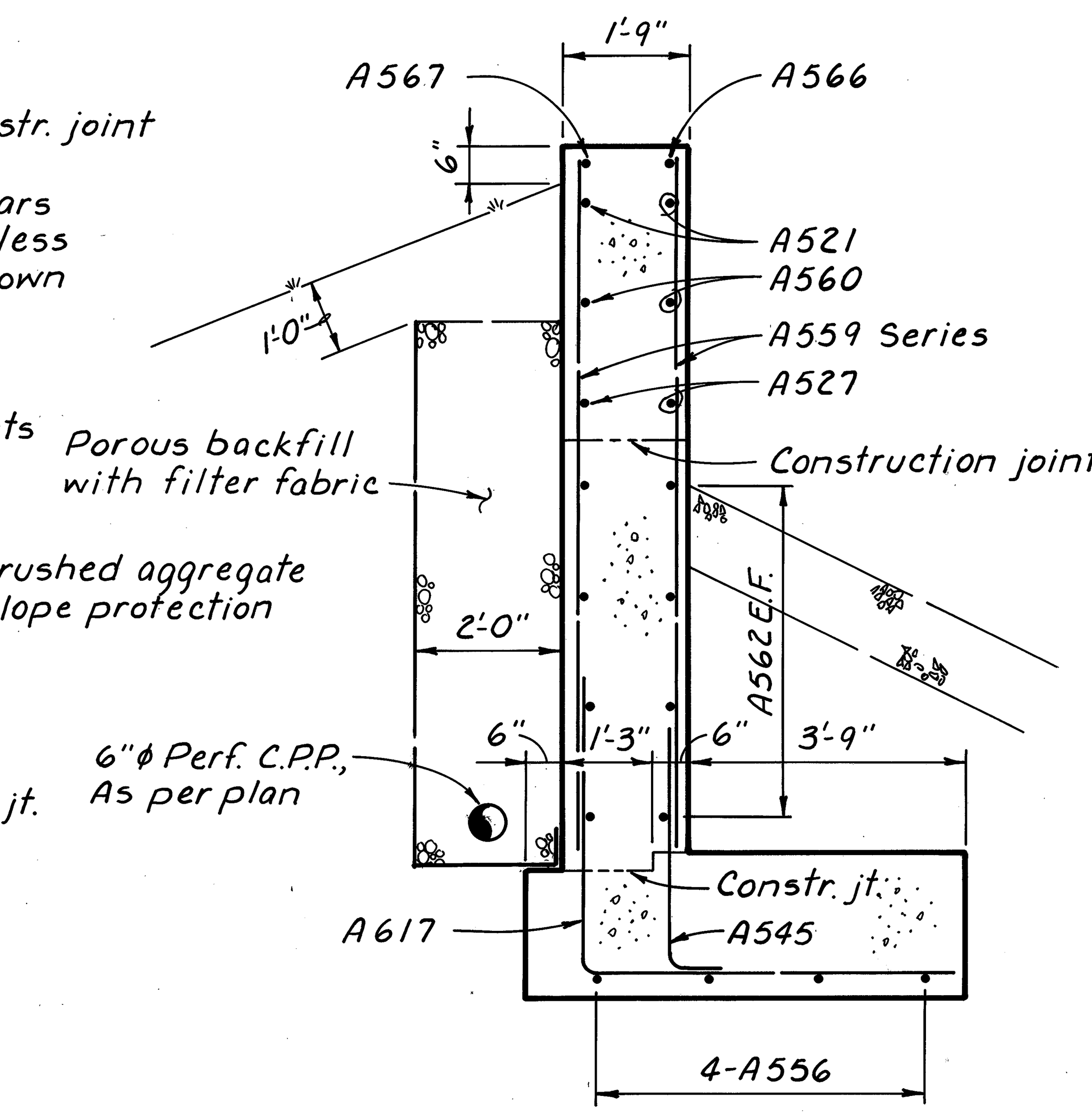
SECTION F-F



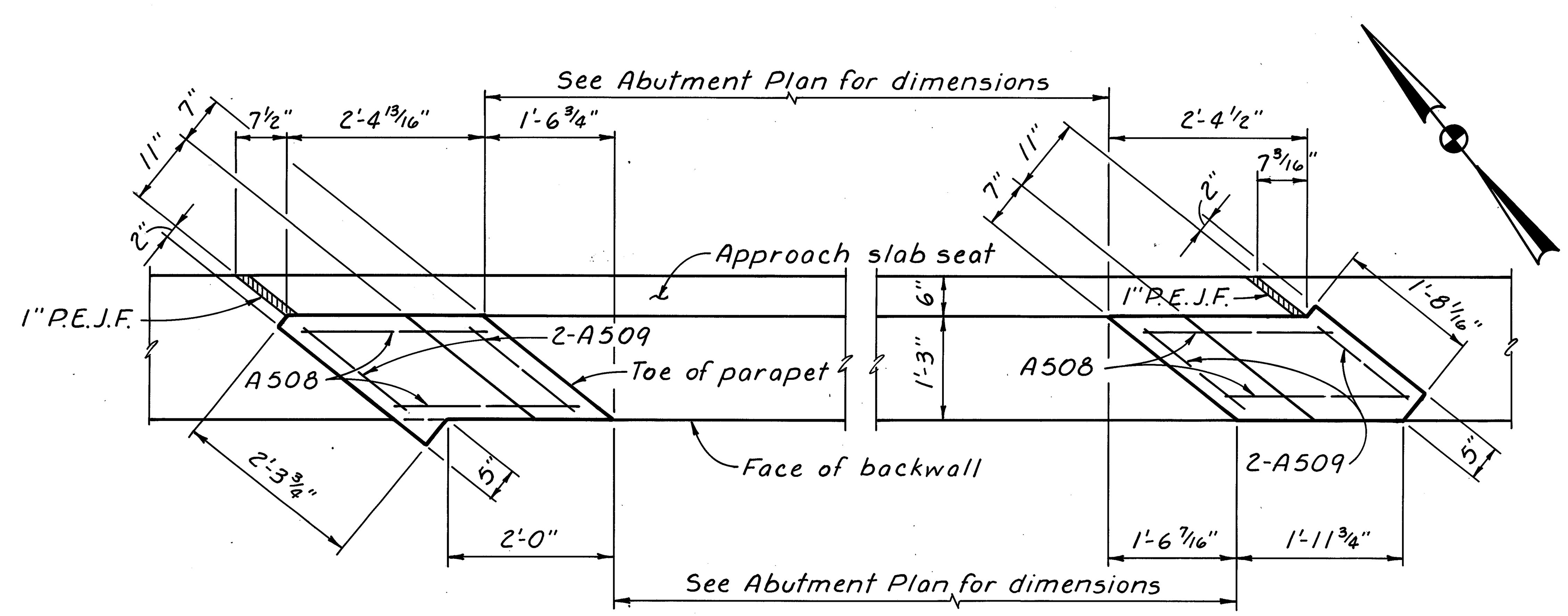
SECTION G-G



SECTION H-H

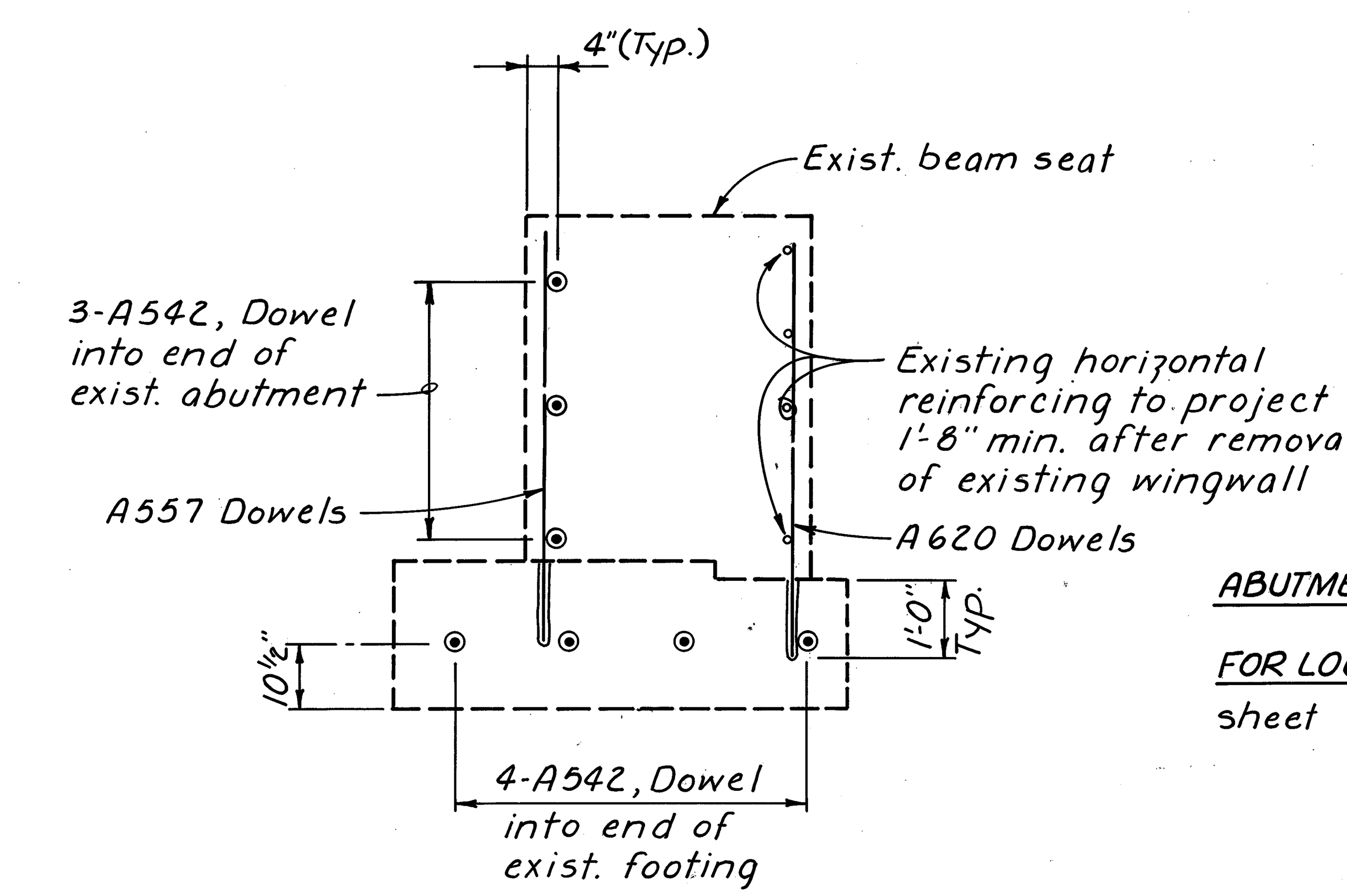


SECTION J-J



BACKWALL PLAN

Showing Parapet Details



VIEW K-K

View after existing backwall and wingwall have been removed

NOTES

ABUTMENT NOTES: See sheet 10/32.

FOR LOCATION OF SECTIONS F-F, G-G, H-H, J-J AND VIEW K-K: See sheet 17/32.

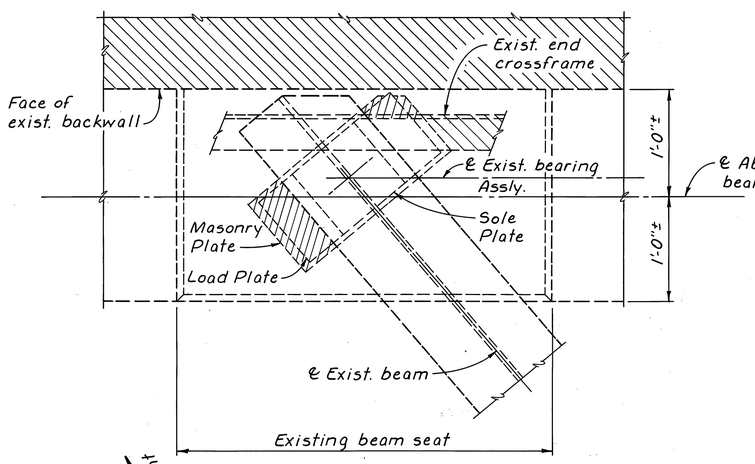
18/32

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

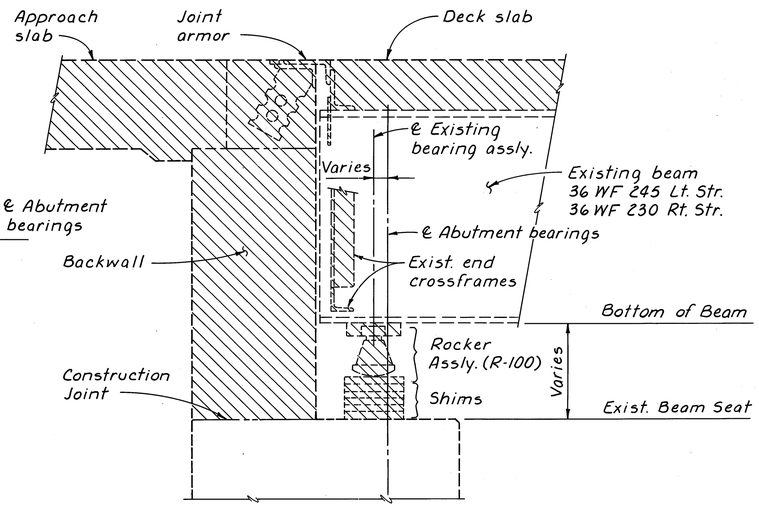
FORWARD ABUTMENT - 4

BRIDGE NO. WAY-21-0143R
OVER CSX TRANSPORTATION

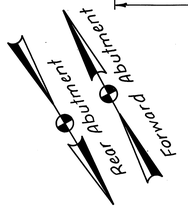
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	2/2/96	



PLAN

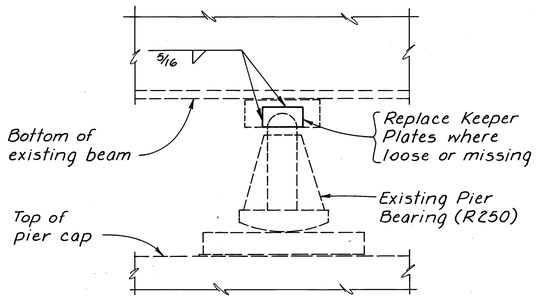


SECTION



EXISTING ABUTMENT BEARING DETAILS

▨ – Hatching indicates portions of existing structure to be removed.



BEARING REPAIR DETAIL

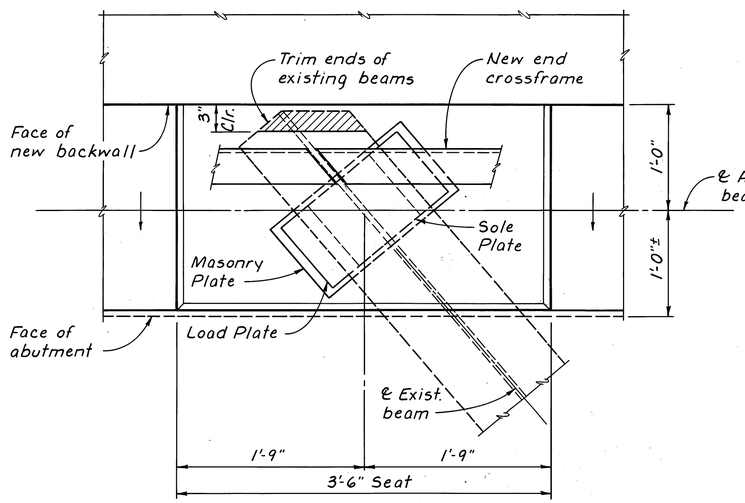
MISCELLANEOUS NOTES

BEARINGS REPLACED : Bearings under the existing beams at the rear and forward abutments shall be replaced with new bearings positioned as shown in Section, this sheet. Existing sole plates shall be cleaned (repaired if necessary) and left in place for reuse.

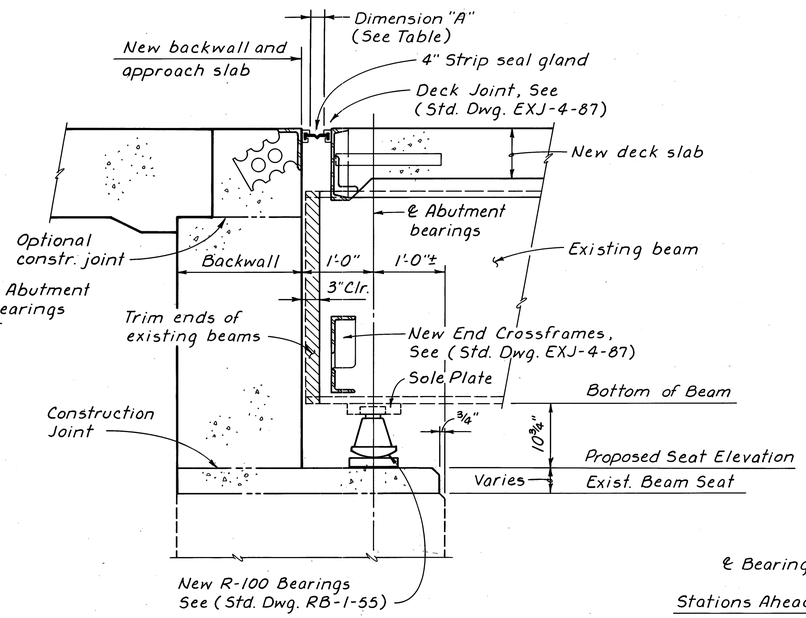
BEARINGS REFURBISHED : See Framing Plan, Left structure, sheet 28/32, for bearings to be refurbished. Refer to bearing repair detail this sheet for additional details.

PAINTING : New end crossframes and proposed bearings under all beams shall be primed and painted with System OZEU.

ADDITIONAL NOTES : See Structure General Notes, sheet 62/6.



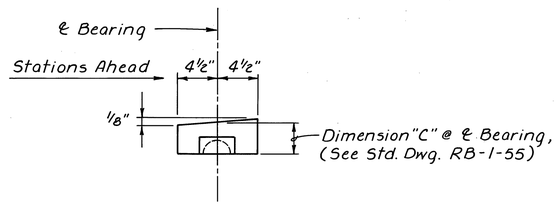
PLAN



SECTION

DECK JOINT OPENING	
TEMPERATURE (°F)	DIMENSION "A"
30°	2 3/8"
40°	2 5/16"
50°	2 3/16"
60°	2 1/8"
70°	2 1/16"
80°	1 15/16"
90°	1 7/8"

A 4" Strip seal gland shall be installed in both expansion joints.



SOLE PLATE DETAILS

PROPOSED ABUTMENT BEARING AND END CROSSFRAME DETAILS

19/32

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

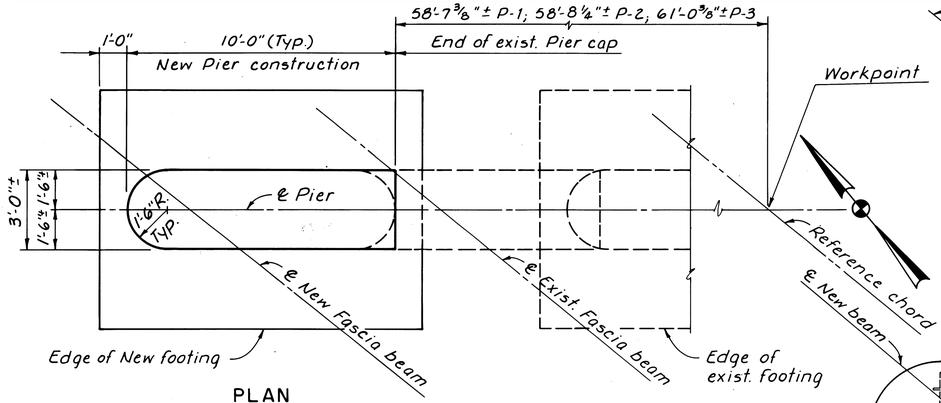
MISCELLANEOUS DETAILS

BRIDGE NO. WAY-21-0143L/R
OVER CSX TRANSPORTATION

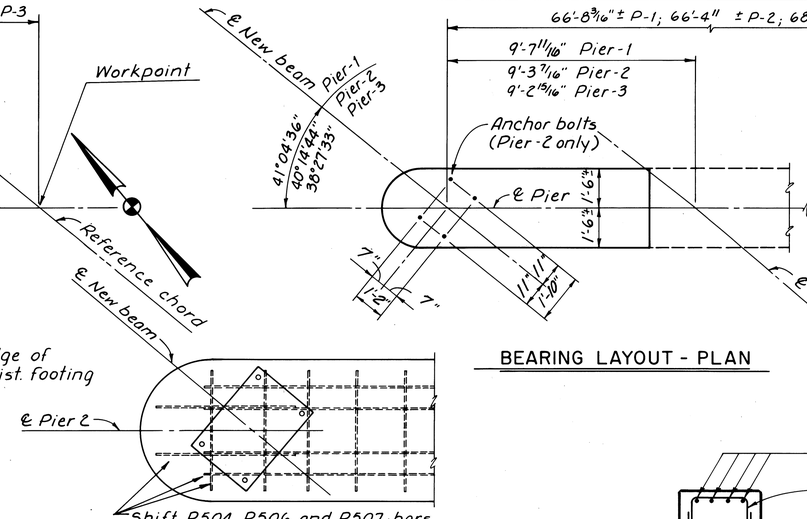
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	2/2/96	

STRMS

CALC. BY DATE	WAY-21-(1.39)(1.80)	OHIO	60/100
CHKD. BY DATE		FHWA REGION	



PLAN

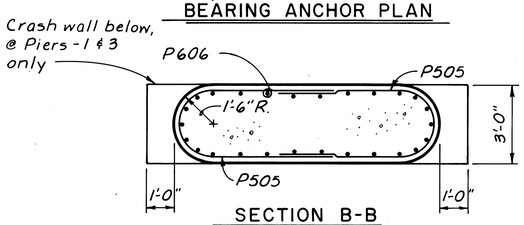


BEARING LAYOUT - PLAN

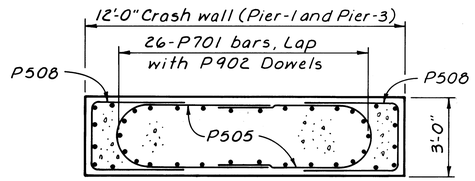
ANCHOR BOLTS shall be 1¼" ϕ x 1'-8" swedge anchors set 1'-3" into concrete. For Bearing Details see Std. Drawing RB-1-55. Include cost of anchor bolts with the bearings for payment.

Shift P504, P506 and P507 bars as necessary to avoid interference with the drilling of bearing anchor rod holes or the pre-setting of bearing anchors.

BEARING ANCHOR PLAN

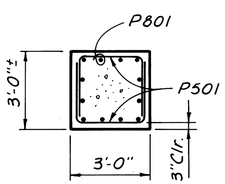


SECTION B-B

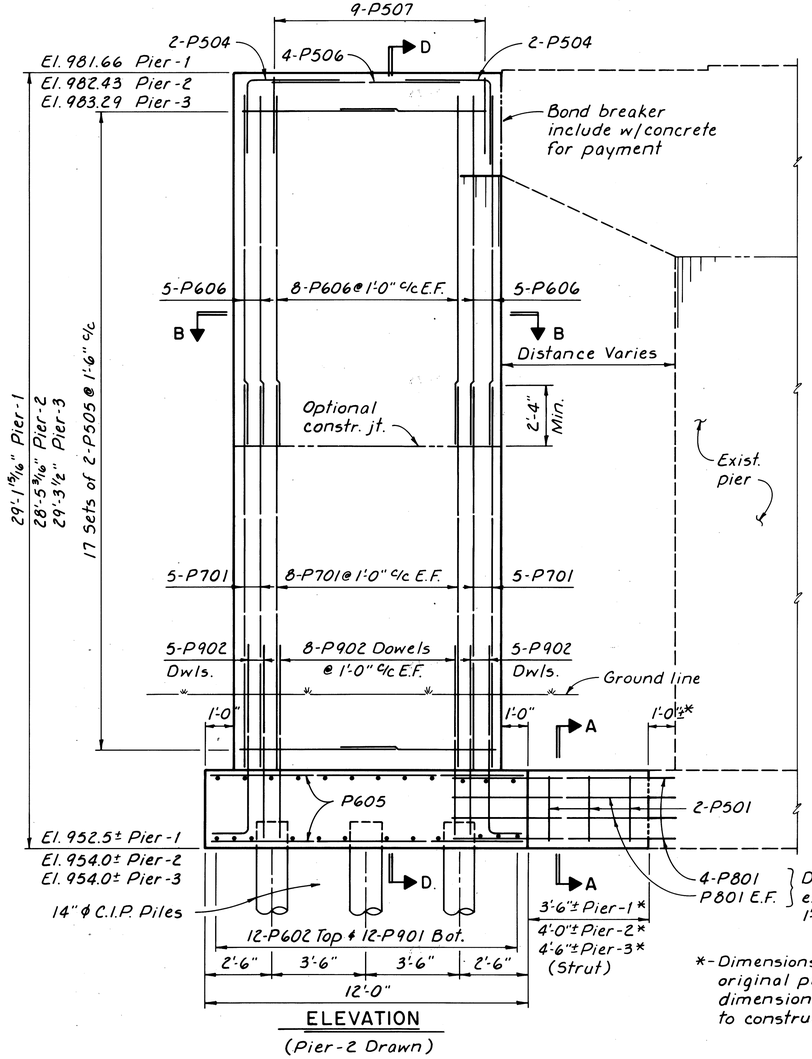


Vertical bars, unless otherwise noted are P702 bars Lapped with P902 dowels.

SECTION C-C



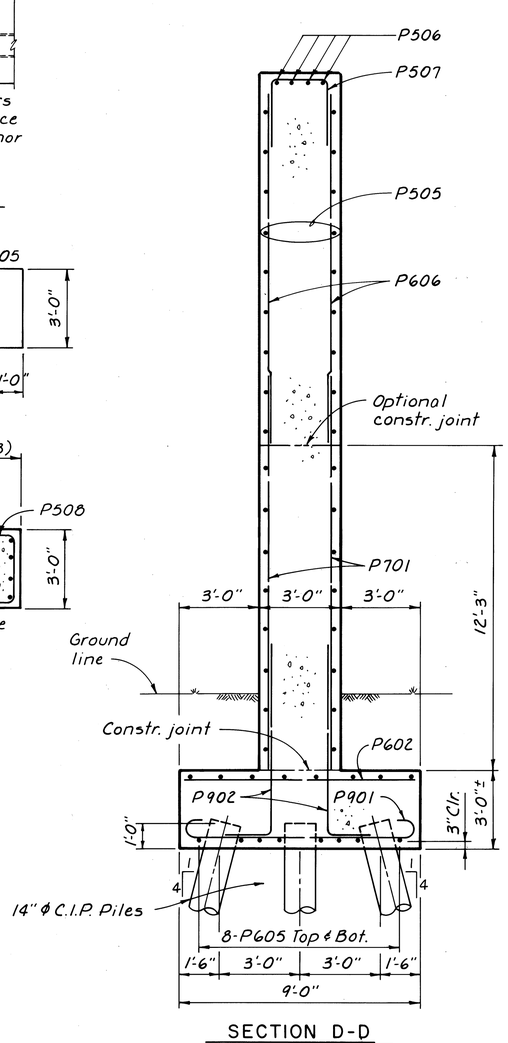
SECTION A-A



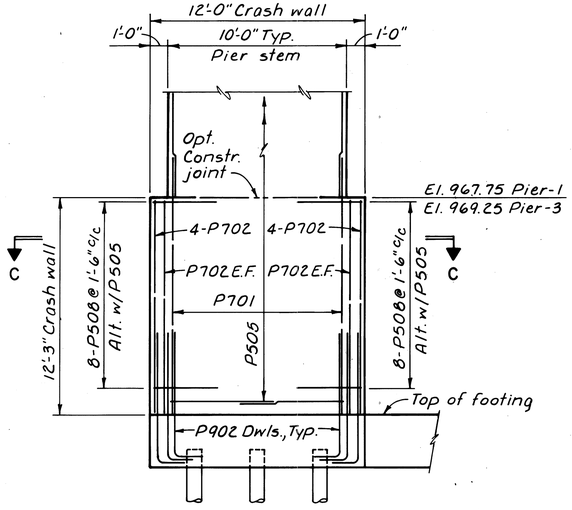
ELEVATION

(Pier-2 Drawn)

*- Dimensions are based on original plans. Actual dimension may vary due to construction tolerance.



SECTION D-D



PARTIAL ELEVATION

(Showing Crash wall and additional reinforcing at Pier-1 and Pier-3)

PIER NOTES

FOUNDATION AND PILING PLANS: SEE SHEETS 8 & 9 / 32.

BRIDGE SEAT REINFORCING: REINFORCING STEEL IN THE VICINITY OF THE BEARINGS AT PIER 2 SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF BEARING ANCHORS OR THE PRESETTING OF BEARING ANCHORS.

REINFORCING STEEL LISTS: SEE SHEETS 30,31 & 32 / 32.

STRUCTURE GENERAL NOTES: SEE SHEETS G1,G2 & G3 / 6.

ABBREVIATIONS:

F.F. = FRONT FACE
R.F. = REAR FACE
E.F. = EACH FACE

20/32

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

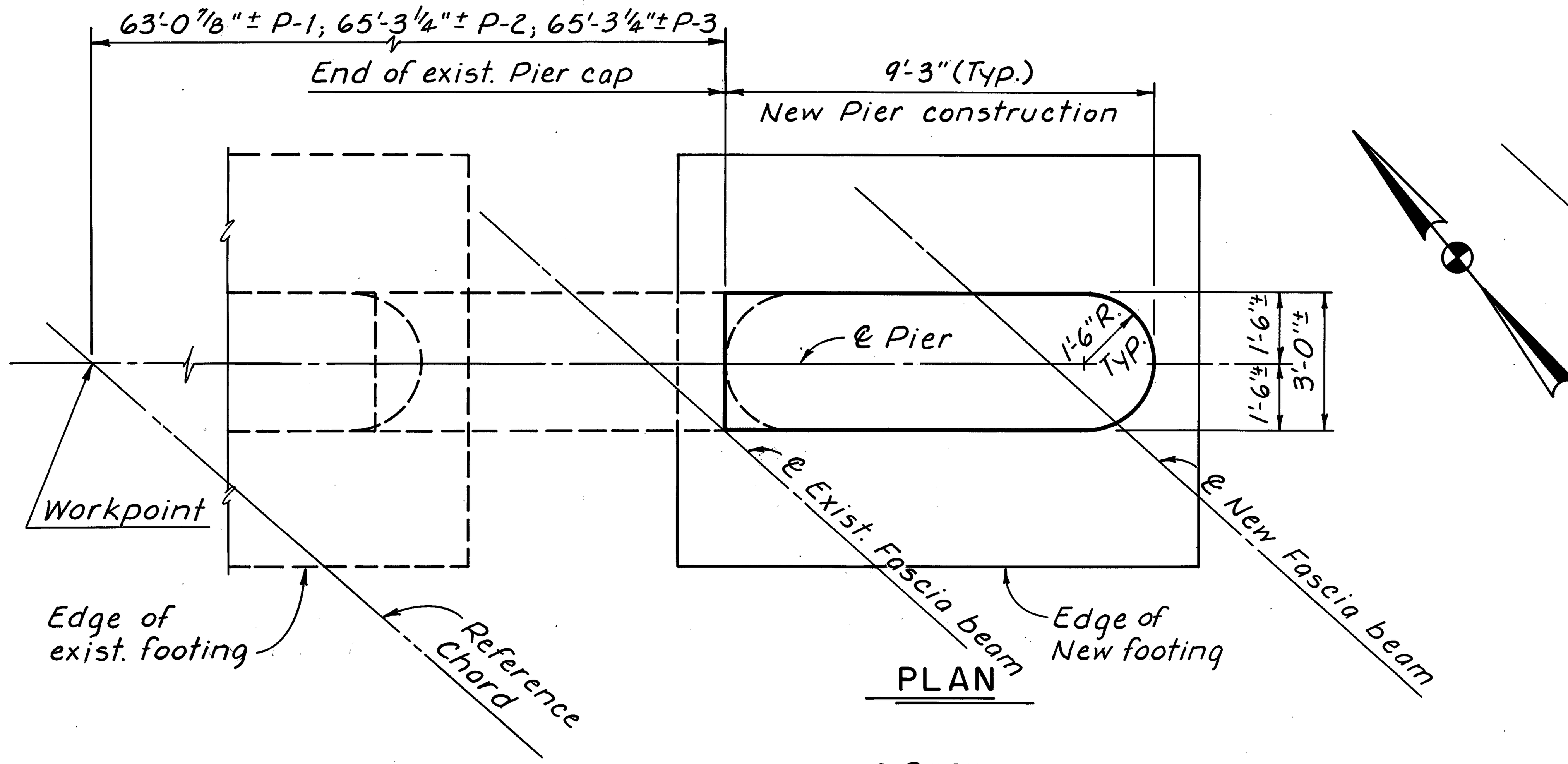
PIERS - 1

BRIDGE NO. WAY-21-0143L
OVER CSX TRANSPORTATION

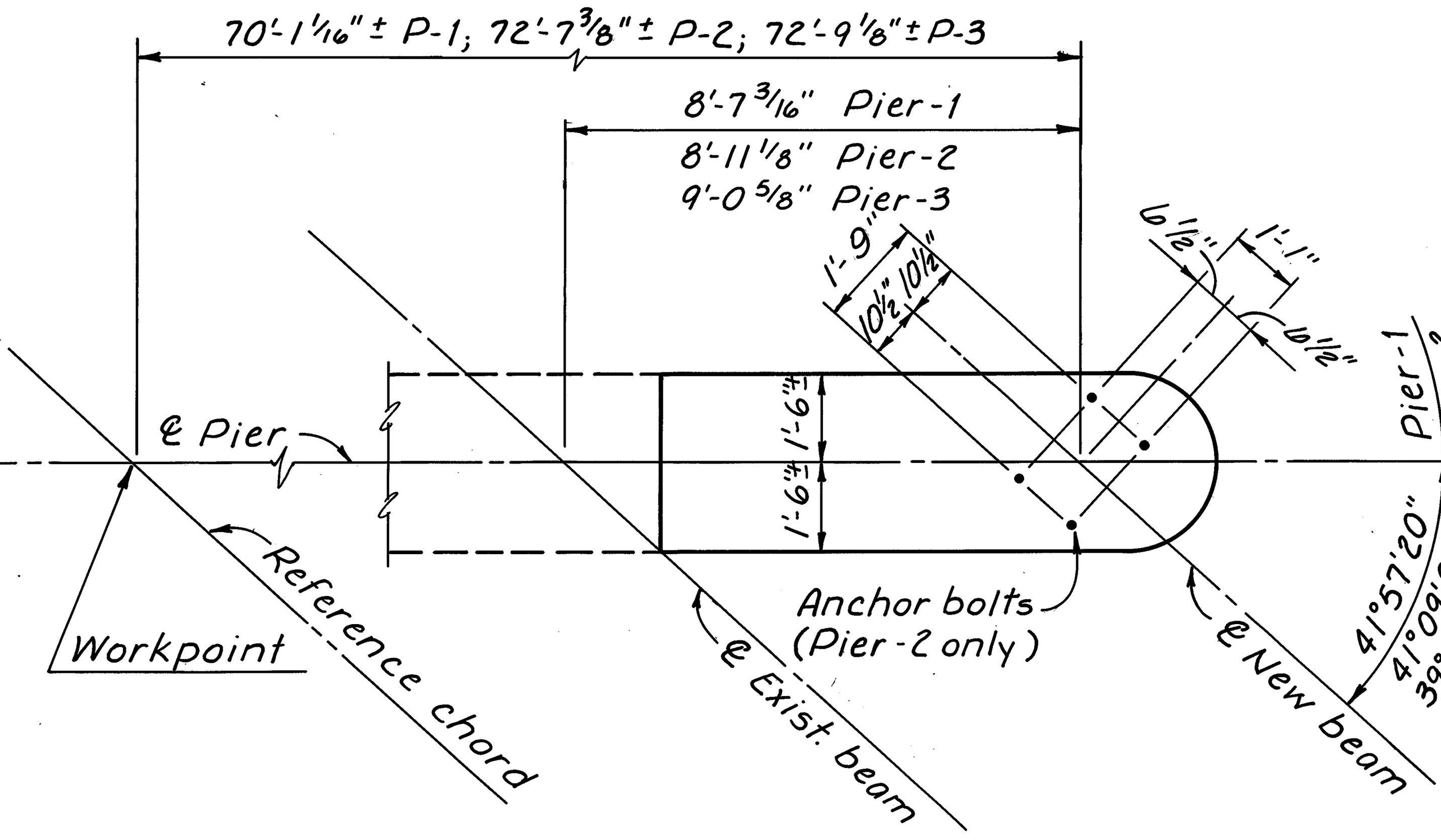
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	2/2/96	

687093

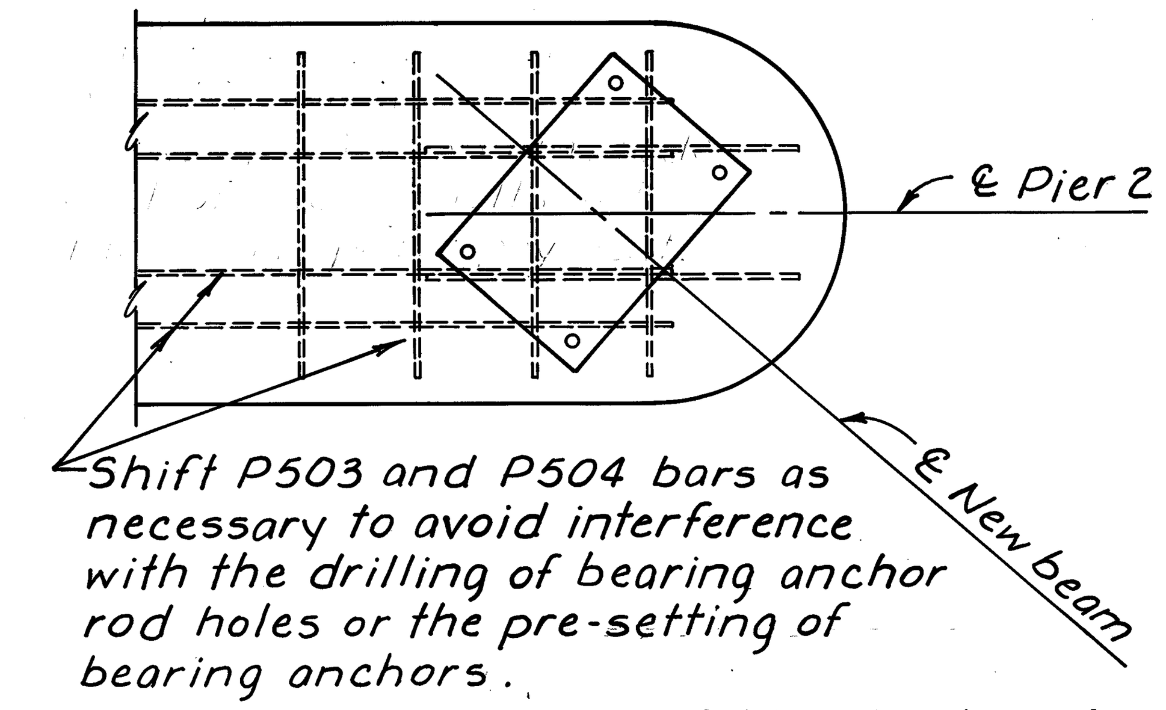
CALC. BY DATE / CHKD. BY DATE	WAY-21-(1.39)(1.80)	OHIO / FHWA REGION	61 / 100



PLAN

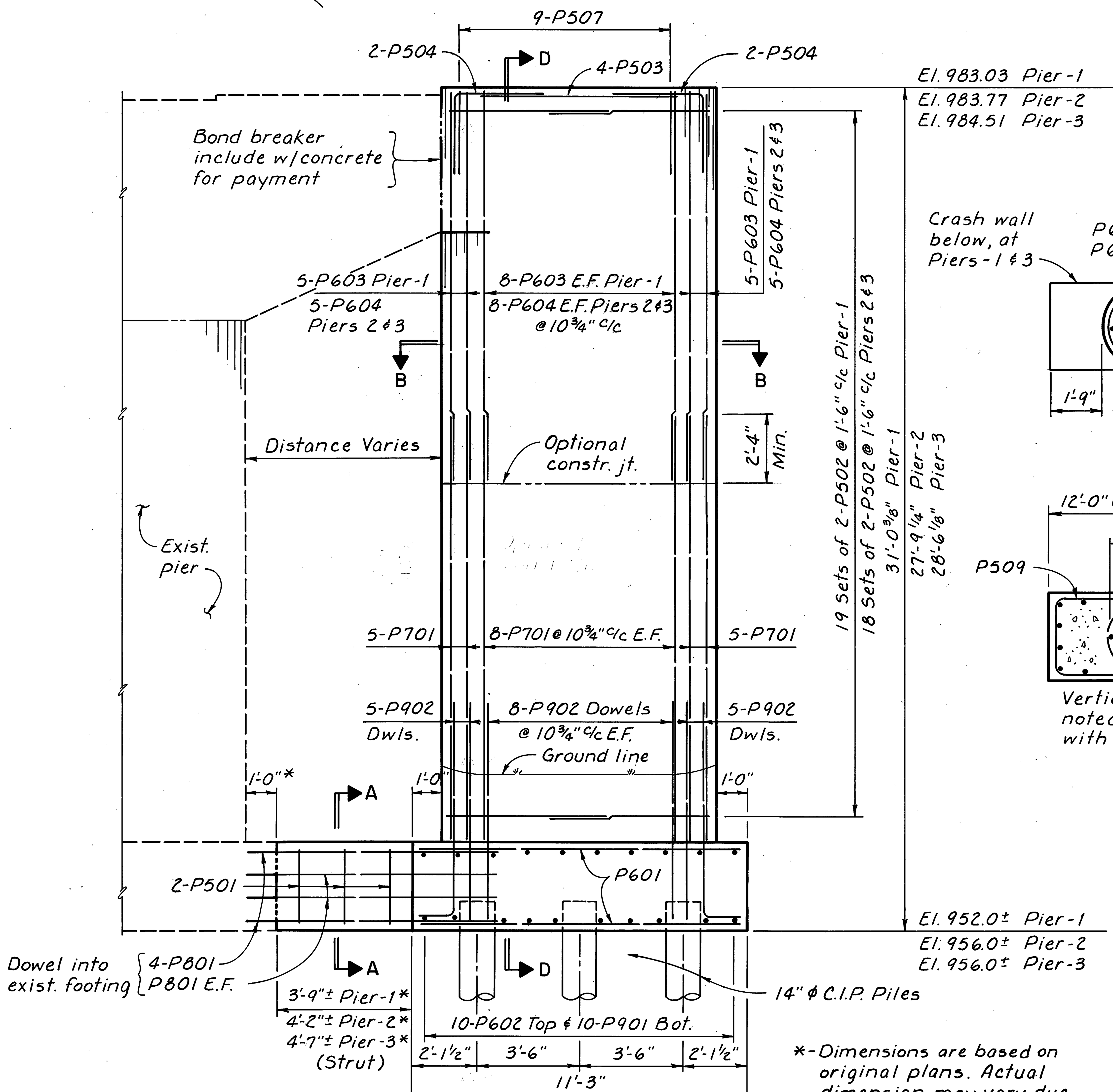


BEARING LAYOUT - PLAN



BEARING ANCHOR PLAN

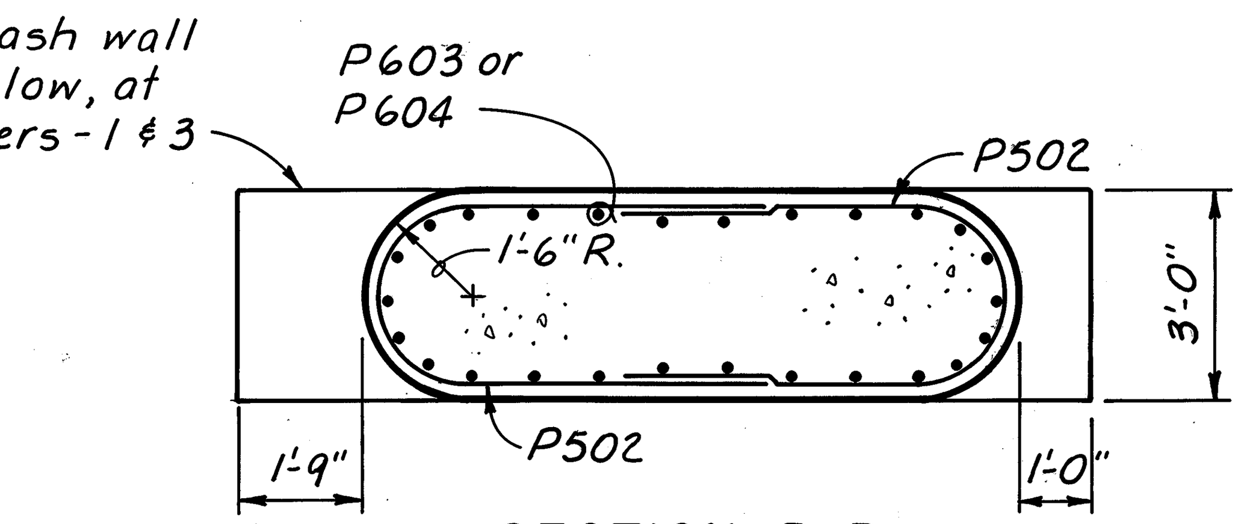
ANCHOR BOLTS shall be 1 1/4" ϕ x 1'-8" swedge anchors set 1'-3" into concrete. For Bearing Details see Std. Drawing RB-1-55. Include cost of anchor bolts with the bearings for payment.



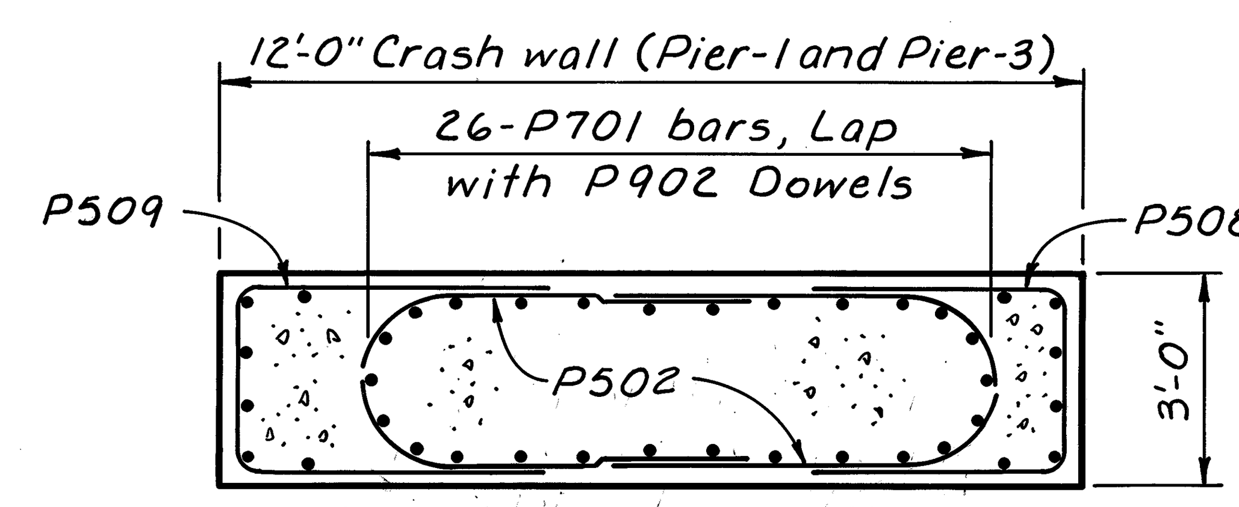
ELEVATION

(Pier-2 Drawn)

*-Dimensions are based on original plans. Actual dimension may vary due to construction tolerance.

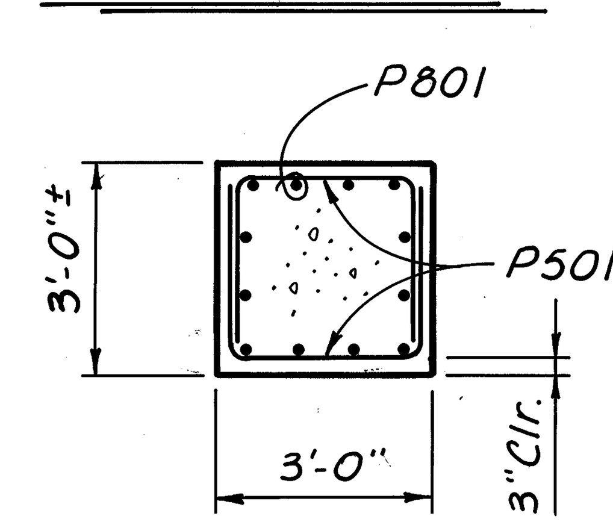


SECTION B-B

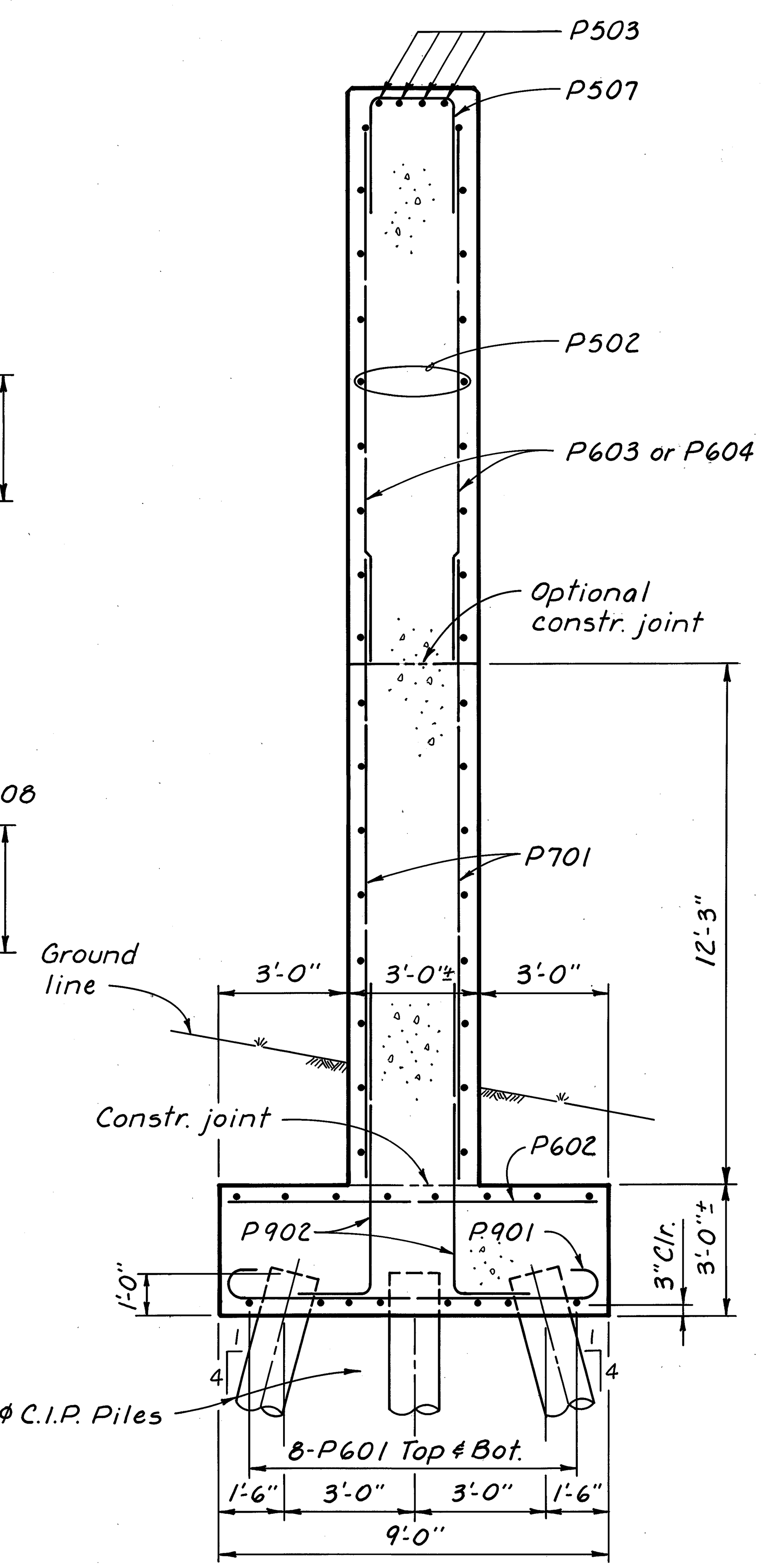


Vertical bars, unless otherwise noted are P702 bars Lapped with P902 dowels.

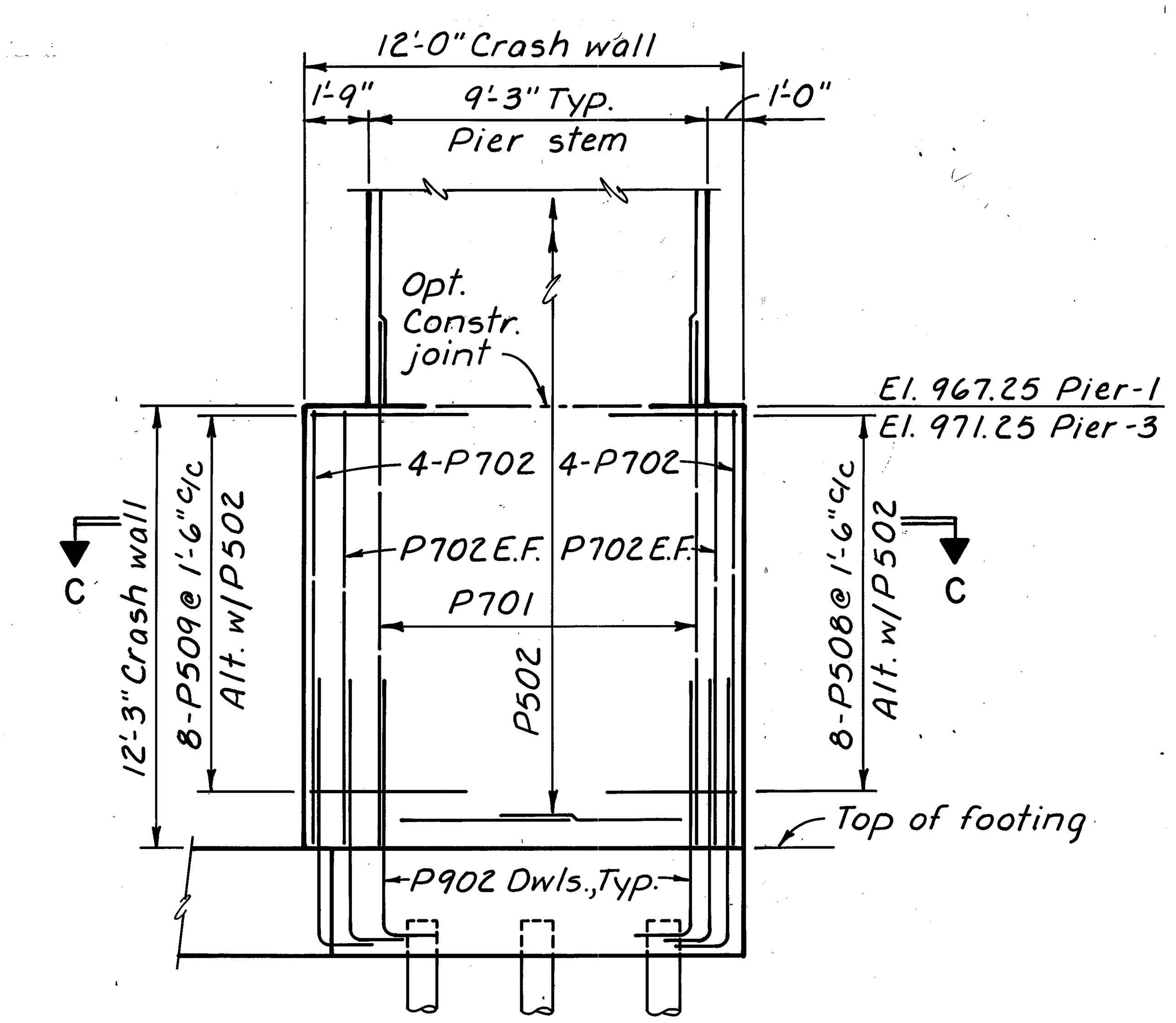
SECTION C-C



SECTION A-A



SECTION D-D



PARTIAL ELEVATION

(Showing Crash wall and additional reinforcing at Pier-1 and Pier-3)

PIER NOTES: See sheet 20/32 .

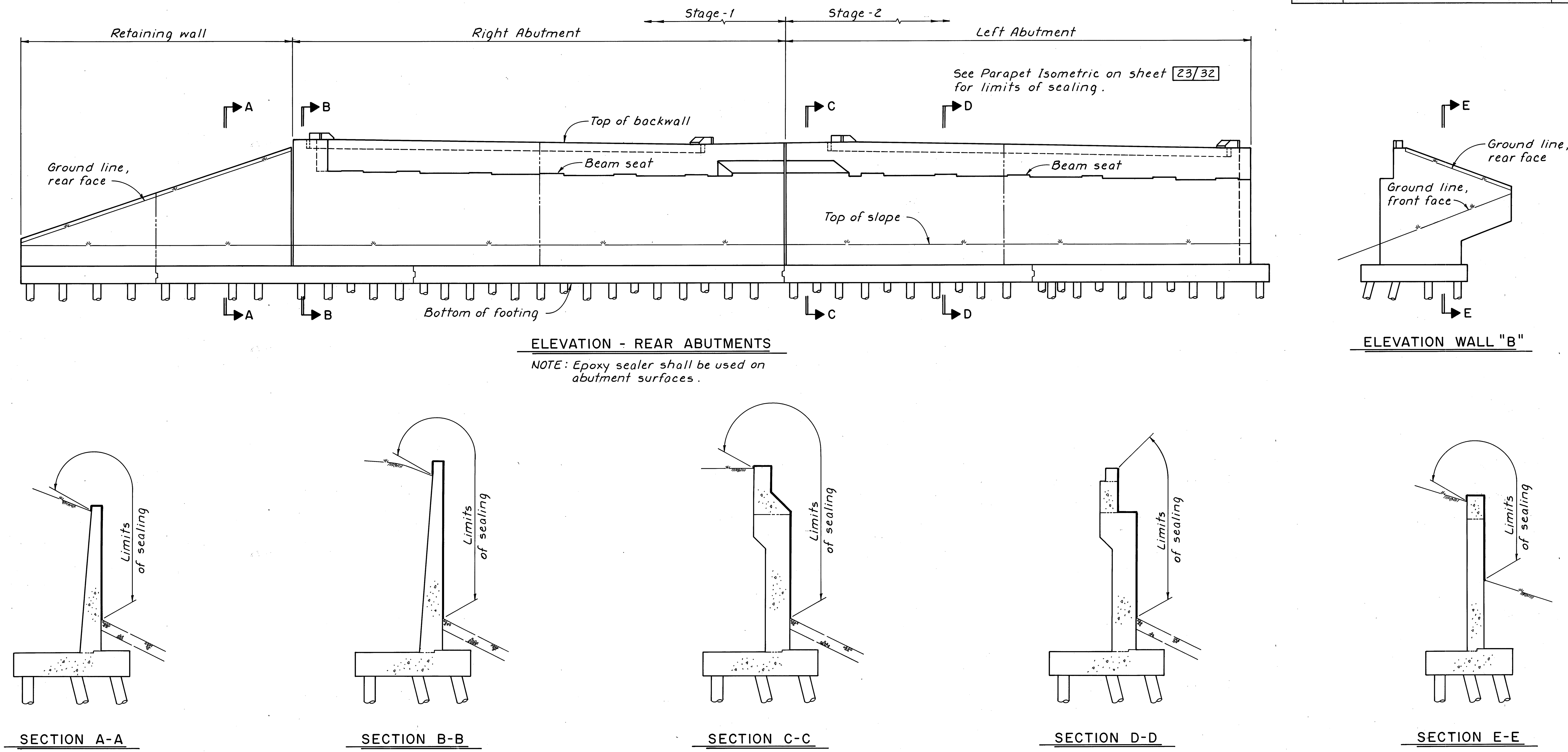
21/32

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

PIERS-2

BRIDGE NO. WAY-21-0143R
OVER CSX TRANSPORTATION

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	2/2/96	



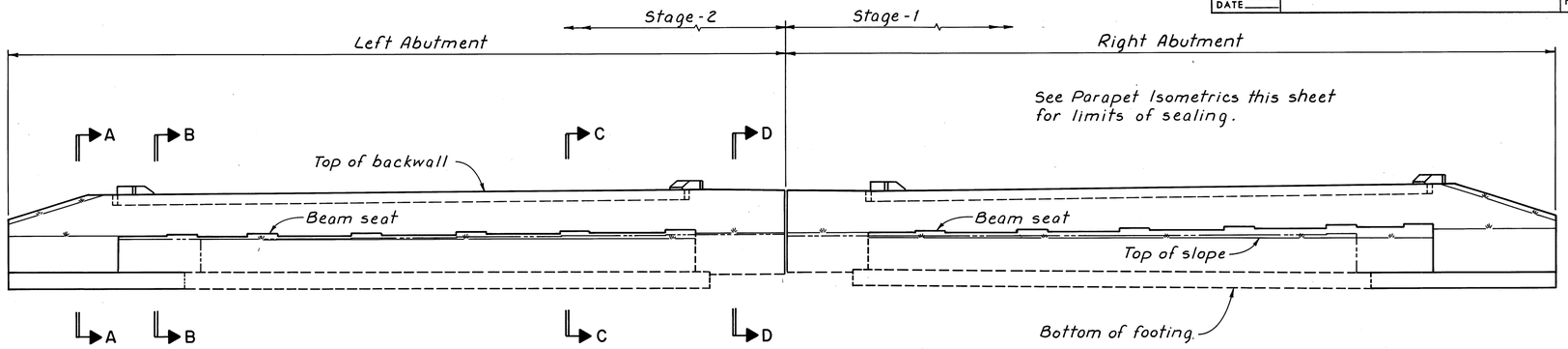
NOTE: Epoxy sealer shall be used on abutment surfaces.

22/32

ENGINEERING ASSOCIATES INC. CONSULTING ENGINEERS 700 WINKLER DR. WOOSTER, OHIO						
SEALING OF CONCRETE SURFACES						
BRIDGE NO. WAY-21-0143L/R OVER CSX TRANSPORTATION						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	2/2/96	

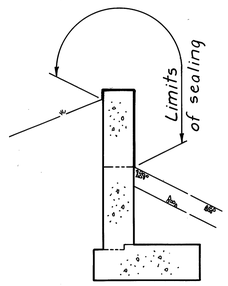
CALC. BY / DATE	WAY-21-(1.39)(1.80)	OHIO
CHKD. BY / DATE		FHWA REGION

63/100

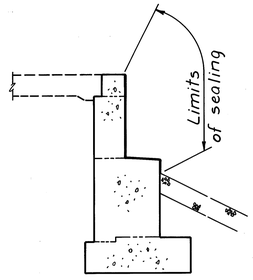


ELEVATION FORWARD ABUTMENTS

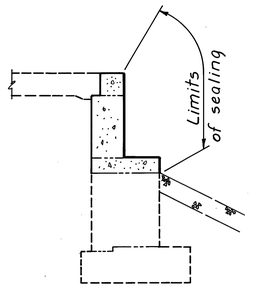
NOTE: Epoxy sealer shall be used on abutment surfaces.



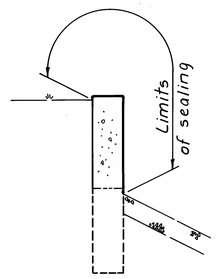
SECTION A-A



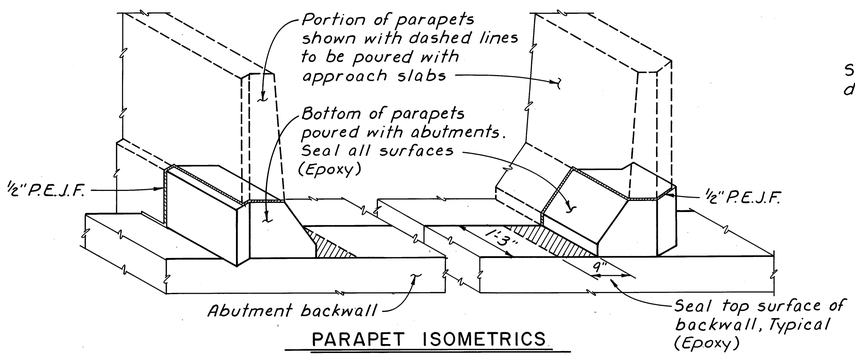
SECTION B-B



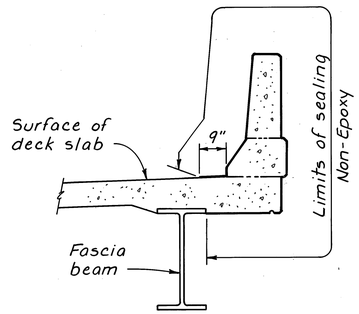
SECTION C-C



SECTION D-D



PARAPET ISOMETRICS



PARAPET SECTION

23/32

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

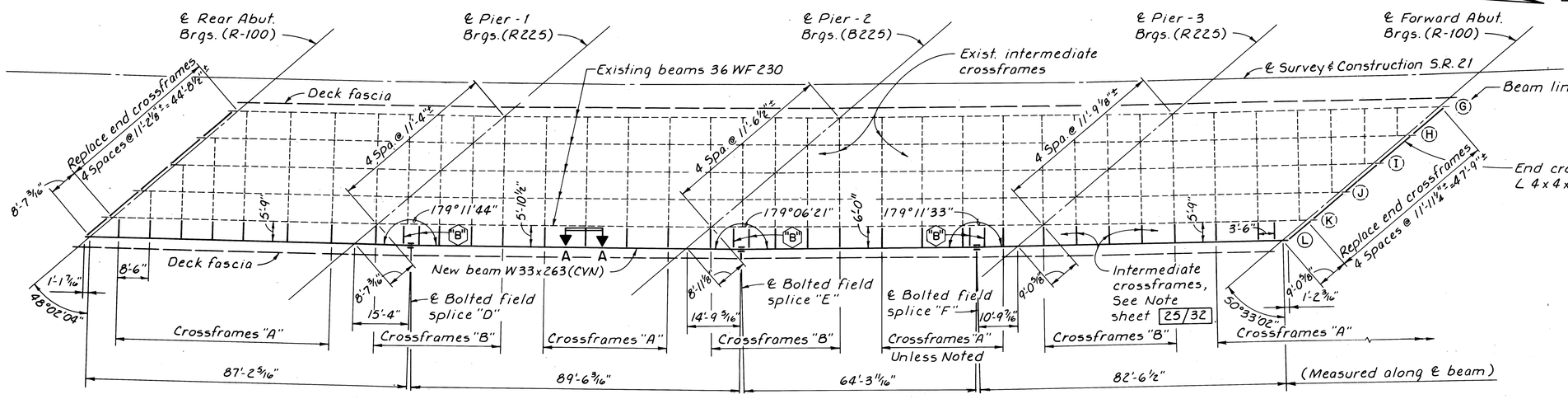
SEALING OF CONCRETE SURFACES

BRIDGE NO. WAY-21-0143L/R
OVER CSX TRANSPORTATION

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	2/2/96	

ST2845

CALC. BY / DATE	WAY-21-(1.39)(1.80)	OHIO / FHWA REGION	64/100
CHKD. BY / DATE			

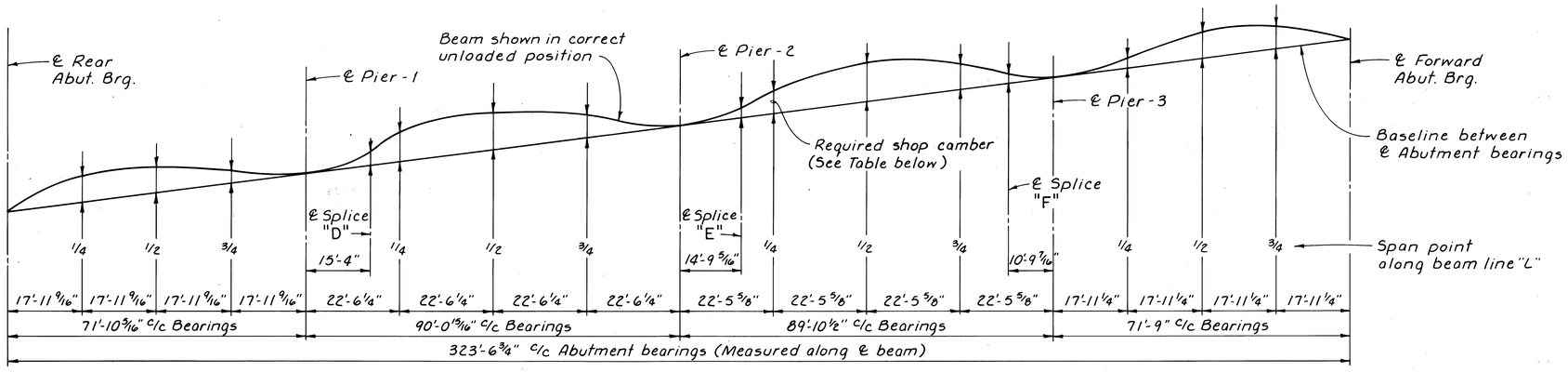


"B" - Provide additional special crossframes "B" 2'-0" min. each side of Bolted field splice.

FRAMING PLAN

All lengths are horizontal distances and do not take into account changes in elevation from support to support.

NOTE: Existing beam lines deflect at piers, Typ.



BEAM LAYOUT DIAGRAM
(Beam "L")

Cambering of beam is required in accordance with the following table:

CAMBER AND DEFLECTION TABLE (Beam "L")

ITEMS \ LOCATION	SPAN-1			SPAN-2				SPAN-3					SPAN-4		
	1/4	1/2	3/4	SPL."A"	1/4	1/2	3/4	SPL."B"	1/4	1/2	3/4	SPL."C"	1/4	1/2	3/4
Deflection due to weight of steel	1/8"	1/8"	1/16"	1/16"	1/8"	3/16"	1/8"	-0-	1/8"	3/16"	1/8"	1/16"	1/16"	1/8"	1/8"
Deflection due to weight of slab	5/16"	3/8"	3/16"	3/16"	5/16"	1/2"	5/16"	1/8"	1/4"	1/2"	5/16"	1/8"	3/16"	3/8"	5/16"
Deflection due to remaining dead load	1/16"	1/16"	-0-	-0-	1/8"	1/16"	1/16"	-0-	1/16"	1/16"	1/16"	-0-	-0-	1/16"	1/16"
Geometric camber (Vertical)	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
Geometric camber (Horizontal)	-0-	<1/16">	-0-	-0-	-0-	<1/16">	<1/16">	1/16"	-0-	-0-	-0-	1/16"	<1/16">	<1/16">	<1/16">
Required shop camber	1/2"	1/2"	1/4"	1/4"	9/16"	11/16"	7/16"	3/16"	7/16"	3/4"	1/2"	3/16"	3/16"	1/2"	7/16"

< > Indicates a negative value.

SUPERSTRUCTURE NOTES

ABBREVIATIONS:

F.F. = FRONT FACE
R.F. = REAR FACE
E.F. = EACH FACE
LT. = LEFT
RT. = RIGHT

MINIMUM BAR LAPS ARE AS FOLLOWS UNLESS NOTED OTHERWISE.

#4 BARS = 1'-7"
#5 BARS = 1'-11"
#6 BARS = 2'-6"

DEMOLITION DETAILS: SEE SHEET 7/32 .

ALL NEW STRUCTURAL STEEL SHALL BE ASTM A572 UNLESS NOTED OTHERWISE. SEE STRUCTURE GENERAL NOTES, SHEETS G1 & G2 / 6 .

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

BOLTED FIELD SPLICES: SEE SHEET 27/32 AND STANDARD DRAWING BS-1-93.

HIGH STRENGTH BOLTS SHALL BE 1 1/8" DIAMETER A325, GALVANIZED, UNLESS OTHERWISE NOTED.

STUD SHEAR CONNECTOR DETAILS: SEE SHEET 27/32 .

BEARINGS SHALL CONFORM TO DETAILS SHOWN ON STD. DRAWING RB-1-55 EXCEPT AS NOTED. CHANGE THE TOP DIAMETER OF THE 1 1/2" TAPERED DOWEL (SEE DOWEL DETAIL) FROM 1 3/8" TO 1 1/4", R-100 BEARINGS ONLY.

DECK JOINT AND END CROSSFRAME DETAILS: SEE SHEET 19/32 AND STANDARD DRAWING EXJ-4-87.

SECTION A-A: SEE SHEET 27/32 .

REINFORCING STEEL LISTS: SEE SHEETS 30,31&32/32 .

STRUCTURE GENERAL NOTES: SEE SHEETS G1,G2&G3/6 .

24/32

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

SUPERSTRUCTURE - 1

BRIDGE NO. WAY-21-0143R
OVER CSX TRANSPORTATION

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	2/2/96	

CALC. BY DATE	WAY-21-(1.39)(1.80)	OHIO
CHKD. BY DATE		FHWA REGION

65/100

328'-1½" % Parapet (Measured along toe of parapet)

60-S604 Series @ 8" C/c = 39'-4" (Top)
60-S504 Series @ 8" C/c = 39'-4" (Bot.)

8"

419-S601 @ 8" C/c = 278'-8" (Top)
419-S501 @ 8" C/c = 278'-8" (Bot.)

8"

64-S605 Series @ 8" C/c = 42'-0" (Top)
64-S505 Series @ 8" C/c = 42'-0" (Bot.)

7 1/16"

Additional 49-S404 over Pier

NOTE: Place transverse reinforcing steel perpendicular to chord between ℄ Abutment Brgs. & ℄ Northbound Lanes.

11-Sets of 50-S401 and 1-Set of 50-S403 (Top)
11-Sets of 39-S507 and 1-Set of 39-S509 (Bot.)

Additional 49-S404 over Pier (See Stagger Diagram this sheet, Typ.)

Additional 49-S404 over Pier

℄ Northbound lanes

9-S606 Top #
9-S506 Bot.
(Fanned)

9-S606 Top #
9-S506 Bot.
(Fanned)

7 1/16"

℄ Rear abutment bearings

℄ Pier-1

℄ Pier-2

℄ Pier-3

℄ Forward abutment bearings

325'-2⅛" % Parapet (Measured along toe of parapet)

SLAB PLAN

6'-6¾" Lt.
5'-1 1/16" Rt.

5 Panels @ 9'-0" = 45'-0"

6 Panels @ 7'-6" = 45'-0"

5 Panels @ 9'-0" = 45'-0"

3 Panels @ 7'-6" = 22'-6"

218-S510 @ 1'-6" C/c = 325'-6" Lt.
216-S510 @ 1'-6" C/c = 322'-6" Rt.

11 Sets of 10-S507 and 1 Set of 10-S509 each parapet, Lap 1'-7" Min.

Symmetrical about ℄ bridge

S404 over Pier, Lt. & Rt.

Deck slab

218-S607 & S608 @ 1'-6" C/c = 325'-6" Lt.
216-S607 & S608 @ 1'-6" C/c = 322'-6" Rt.

℄ Survey & Construction S.R. 21

24'-0"*

PARAPET ELEVATION

View of Right Fascia

Control joints (Sawcut) See Detail on sheet 29/32.

6'-6¾" Lt.
5'-1 1/16" Rt.

Meas. along toe of parapet

S404

℄ Pier

3'-0" 17'-0" 17'-0" 3'-0"

DIAGRAM SHOWING STAGGER OF ADDITIONAL TOP REINFORCEMENT OVER PIERS

* All horizontal dimensions are radial unless noted otherwise.

41'-0" % Deck *

1'-6"* 16'-0"* 22'-0"* 1'-6"*

2" 8" 7" 3"

S401 and S403 9 Equal spaces

S507 or S509 8 Equal spaces

℄ Northbound lanes S.R. 21

Top of slab (Lap 1'-3" min.)
Bottom of slab (Lap 1'-7" min.)

S401 and S403 7 Equal spaces

S507 or S509 6 Equal spaces

Longitudinal bars in the parapet are S507 or S509 unless otherwise noted.

S510

S608

S404

S607

3'-6"
2'-5"
1'-1"
11 7/16"
3"
10"

Constr. Jt. (Typ.)

Additional S404 bars over Piers

2½" Clr.

S601 @ 8" C/c

S501 @ 8" C/c

1½" Clr.

Profile grade

0.032'/Ft.

"D" Varies See Table

"T" = 8½"

"D" = 10½"

1'-0½"

1/4

1" ℄ Half round Drip groove, Terminate 2'-6" from face of backwall, Typ.

3"

Dim. "A" See Table

A HAUNCH WIDTH of 9" shall be used for computing quantity of concrete However, the haunch width may vary between 6" and 12".

4 Existing beam spaces @ 7'-6 17/32" ± = 30'-2 1/8" ±

Existing intermediate crossframe angles

Varies

Intermediate crossframe angles 3"x3"x 5/16", Match crossframe legs on opposite side of web (typ.). Weld both sides of vertical leg and top side of horizontal leg to beam with ¼" continuous fillet weld.

New fascia beam W 33 x 263 (CVN)

1" Clr. (Typ.)

Dim. "B" See Table

Provide additional 3"x3"x 5/16" angle at all crossframes "B". See Framing Plan sheet 24/32. Weld similar to intermediate crossframes.

TRANSVERSE SECTION

DECK SLAB DEPTH: THE DISTANCE, "D", FROM THE TOP OF DECK SLAB TO TOP OF THE EXISTING OR PROPOSED STEEL BEAM (SEE TRANSVERSE SECTION AND TABLE THIS SHEET) IS THE THEORETICAL DESIGN DIMENSION. VALUES LISTED FOR THIS DIMENSION IN THE TABLE BELOW REPRESENT THE AVERAGE DEPTH OVER THE EXISTING BEAMS AT THE INDICATED POINTS. DESIGN DEPTH OVER THE NEW STRINGER IS 10 1/2" EVERYWHERE.

IN ORDER TO MEET THE ESTABLISHED ROADWAY GRADE, TO ASSURE THE CONSTRUCTION OF THE REQUIRED DECK SLAB THICKNESS, AND TO ASSURE THE PROPER LOCATION OF THE REINFORCING STEEL IN THE DECK; THE CONTRACTOR SHALL OBTAIN THE ACTUAL TOP OF BEAM ELEVATIONS OF THE NEW AND EXISTING STEEL BEAMS AT LOCATIONS SHOWN IN THE TABLE OF DECK SCREED ELEVATIONS ON SHEET 26/32, AFTER THE EXISTING DECK SLAB IS REMOVED AND THE ABUTMENT BEARINGS ARE REPLACED. THE CONTRACTOR SHALL COMPUTE THE DECK FILLS OVER THE BEAMS (DIFFERENCE IN ELEVATION BETWEEN THE POINTS ON THE BEAMS AND CORRESPONDING SCREED ELEVATIONS) AND FURNISH THE CALCULATIONS TO THE ENGINEER FOR FINAL CHECKING. IF THE COMPUTED DECK THICKNESS IS FOUND TO BE LESS THAN THE MINIMUM THICKNESS REQUIRED, THE TOP OF FINAL PAVEMENT ELEVATIONS SHALL BE ADJUSTED AS DIRECTED BY THE ENGINEER. FORM WORK SHALL NOT PROCEED UNTIL A CHECK OF THE FINAL ELEVATIONS HAS BEEN PERFORMED BY THE ENGINEER.

THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED ON A SLAB THICKNESS, "T" OF 8 1/2".

DECK SLAB OVERHANG: SEE TABLE OF DECK FASCIA DIMENSIONS ON SHEET 26/32 FOR DIMENSIONS "A" AND "B".

SUPERSTRUCTURE NOTES: SEE SHEET 24/32.

DECK SLAB OFFSETS "D"

R.A.	1/2	P-1	1/2	P-2	1/2	P-3	1/2	F.A.
10⅝"	10⅜"	10¼"	10⅛"	10¼"	10⅜"	10⅝"	10⅜"	11⅜"

25/32

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

SUPERSTRUCTURE - 2

BRIDGE NO. WAY-21-0143R
OVER CSX TRANSPORTATION

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	2/2/96	

CALC. BY / DATE	WAY-21-(1.39)(1.80)	OHIO / FHWA REGION	66 / 100
CHKD. BY / DATE			

DECK FASCIA DIMENSIONS LEFT STRUCTURE

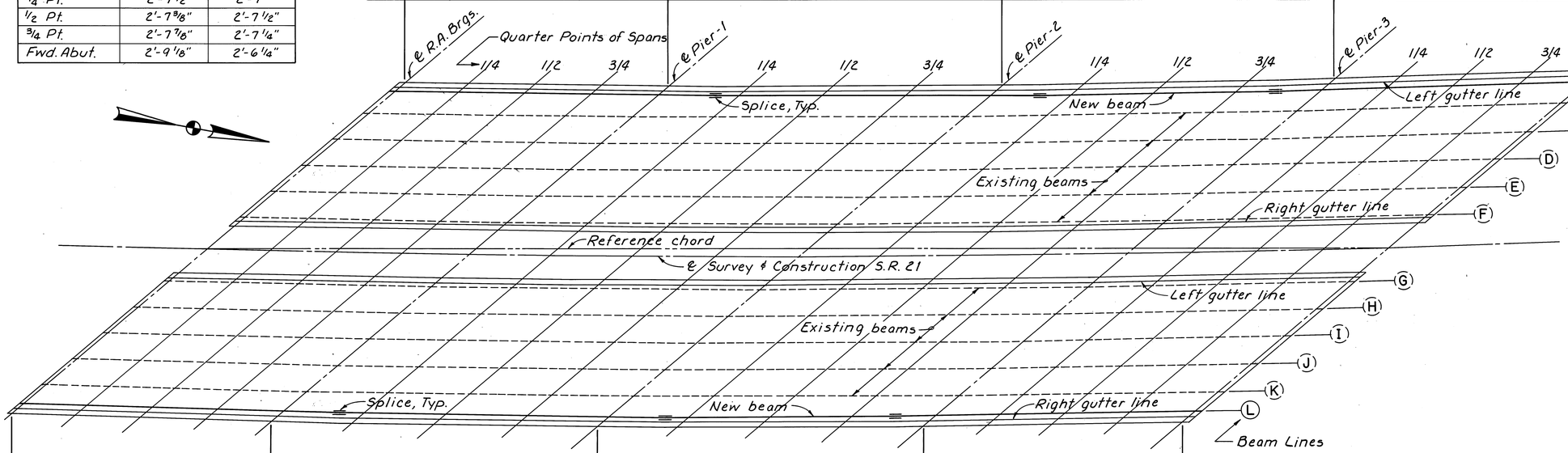
LOCATION	DIM."A"	DIM."B"
Rear Abut.	2'-1 3/8"	2'-6 1/8"
1/4 Pt.	2'-0 5/8"	2'-7 1/8"
1/2 Pt.	2'-0 5/8"	2'-7 3/8"
3/4 Pt.	2'-1 1/4"	2'-7"
Pier-1	2'-2 5/8"	2'-5 7/8"
1/4 Pt.	2'-4"	2'-7 1/2"
1/2 Pt.	2'-3 3/4"	2'-8"
3/4 Pt.	2'-4 3/4"	2'-7 1/2"
Pier-2	2'-6 3/4"	2'-5 3/4"
1/4 Pt.	2'-8"	2'-7 1/2"
1/2 Pt.	2'-7 3/4"	2'-8"
3/4 Pt.	2'-8 3/4"	2'-7 1/2"
Pier-3	2'-8 1/2"	2'-5 7/8"
1/4 Pt.	2'-7 1/2"	2'-7"
1/2 Pt.	2'-7 3/8"	2'-7 1/2"
3/4 Pt.	2'-7 7/8"	2'-7 1/4"
Fwd. Abut.	2'-9 1/8"	2'-6 1/4"

ESTIMATED BEAM DEFLECTIONS DUE TO WEIGHT OF CONCRETE

																				LOCATION
-0-	3/8"	7/16"	5/16"	-0-	5/16"	3/8"	5/8"	3/8"	-0-	5/16"	5/16"	9/16"	5/16"	1/8"	-0-	3/16"	7/16"	3/8"	-0-	Beam "A"
-0-	7/16"	1/2"	1/4"	-0-	—	1/4"	1/2"	5/16"	-0-	—	1/4"	1/2"	1/4"	—	-0-	3/16"	1/2"	7/16"	-0-	Beams "B,C,D,E"
-0-	3/8"	7/16"	5/16"	-0-	—	1/4"	1/2"	1/4"	-0-	—	1/4"	1/2"	1/4"	—	-0-	3/16"	7/16"	3/8"	-0-	Beam "F"

DECK SCREED ELEVATIONS

℄ R.A. BRG.	1/4	1/2	3/4	℄ PIER-1	SPLICE	1/4	1/2	3/4	℄ PIER-2	SPLICE	1/4	1/2	3/4	SPLICE	℄ PIER-3	1/4	1/2	3/4	℄ F.A. BRG.	LOCATION		
986.23	986.41	986.57	986.70	986.84	—	987.06	987.27	987.44	987.61	—	987.83	988.05	988.24	—	988.47	988.71	988.96	989.21	989.46	Left Gutter		
986.24	986.42	986.59	986.72	986.86	987.01	987.08	987.29	987.47	987.63	987.80	987.86	988.07	988.27	988.30	988.49	988.73	988.98	989.23	989.48	"A"	BEAM	LEFT STRUCTURE
986.38	986.56	986.73	986.86	987.00	—	987.20	987.41	987.59	987.76	—	987.97	988.18	988.37	—	988.59	988.82	989.07	989.31	989.54	"B"		
986.55	986.73	986.89	987.03	987.16	—	987.37	987.58	987.75	987.93	—	988.13	988.34	988.52	—	988.73	988.95	989.19	989.42	989.64	"C"		
986.72	986.90	987.06	987.20	987.33	—	987.54	987.75	987.92	988.09	—	988.30	988.51	988.68	—	988.88	989.08	989.31	989.53	989.75	"D"		
986.89	987.07	987.23	987.36	987.49	—	987.70	987.91	988.08	988.26	—	988.46	988.67	988.84	—	989.03	989.22	989.40	989.65	989.86	"E"		
987.06	987.24	987.40	987.53	987.67	—	987.87	988.08	988.25	988.42	—	988.63	988.84	989.01	—	989.18	989.37	989.58	989.78	989.97	"F"		
987.09	987.26	987.43	987.56	987.69	—	987.90	988.11	988.27	988.45	—	988.65	988.86	989.03	—	989.20	989.40	989.60	989.80	989.99	Right Gutter		



DECK ELEVATION KEY

DECK FASCIA DIMENSIONS RIGHT STRUCTURE

LOCATION	DIM."A"	DIM."B"
Rear Abut.	2'-6"	2'-8 1/2"
1/4 Pt.	2'-5"	2'-9 3/4"
1/2 Pt.	2'-4 5/8"	2'-10 1/4"
3/4 Pt.	2'-5"	2'-10 1/4"
Pier-1	2'-6"	2'-9 1/2"
1/4 Pt.	2'-4 3/8"	2'-8 3/4"
1/2 Pt.	2'-3 7/8"	2'-9 5/8"
3/4 Pt.	2'-4 3/8"	2'-9 3/8"
Pier-2	2'-6"	2'-8 1/8"
1/4 Pt.	2'-4 3/8"	2'-7 1/4"
1/2 Pt.	2'-3 7/8"	2'-8"
3/4 Pt.	2'-4 3/8"	2'-7 7/8"
Pier-3	2'-6"	2'-8 3/4"
1/4 Pt.	2'-5"	2'-9 3/4"
1/2 Pt.	2'-4 5/8"	2'-10 1/4"
3/4 Pt.	2'-5"	2'-10 1/4"
Fwd. Abut.	2'-6"	2'-9 1/2"

SCREED ELEVATIONS shown are for the deck slab surface prior to concrete placement. Allowance has been made for anticipated calculated dead load deflections.

DECK SCREED ELEVATIONS

℄ R.A. BRG.	1/4	1/2	3/4	℄ PIER-1	SPLICE	1/4	1/2	3/4	℄ PIER-2	SPLICE	1/4	1/2	3/4	SPLICE	℄ PIER-3	1/4	1/2	3/4	℄ F.A. BRG.	LOCATION		
986.77	986.95	987.11	987.25	987.37	—	987.58	987.79	987.96	988.12	—	988.33	988.54	988.71	—	988.87	989.05	989.23	989.41	989.58	Left Gutter		
986.79	986.97	987.13	987.26	987.39	—	987.60	987.80	987.97	988.15	—	988.35	988.56	988.72	—	988.90	989.07	989.25	989.42	989.60	"G"	BEAM	RIGHT STRUCTURE
986.97	987.14	987.30	987.43	987.56	—	987.77	987.97	988.14	988.31	—	988.52	988.73	988.89	—	989.06	989.23	989.40	989.57	989.73	"H"		
987.14	987.31	987.47	987.60	987.73	—	987.93	988.14	988.31	988.48	—	988.68	988.89	988.06	—	989.23	989.39	989.56	989.72	989.87	"I"		
987.31	987.48	987.64	987.77	987.90	—	988.10	988.31	988.48	988.65	—	988.85	989.05	989.22	—	989.39	989.56	989.72	989.87	990.02	"J"		
987.48	987.63	987.81	987.94	988.07	—	988.25	988.48	988.65	988.82	—	989.02	989.22	989.39	—	989.56	989.72	989.89	990.03	990.16	"K"		
987.61	987.78	987.94	988.07	988.20	988.37	988.41	988.62	988.78	988.94	989.10	989.16	989.36	989.53	989.56	989.68	989.84	990.01	990.15	990.28	"L"		
987.64	987.81	987.98	988.10	988.23	—	988.45	988.64	988.82	988.97	—	989.19	989.39	989.56	—	989.71	989.88	990.05	990.18	990.31	Right Gutter		

ESTIMATED BEAM DEFLECTIONS DUE TO WEIGHT OF CONCRETE

																				LOCATION
-0-	3/8"	7/16"	5/16"	-0-	—	1/4"	1/2"	1/4"	-0-	—	1/4"	1/2"	1/4"	—	-0-	3/16"	7/16"	3/8"	-0-	Beam "G"
-0-	3/8"	1/2"	1/4"	-0-	—	1/4"	1/2"	1/4"	-0-	—	5/16"	1/2"	1/4"	—	-0-	3/16"	1/2"	3/8"	-0-	Beams "H,I,J,K"
-0-	3/8"	7/16"	5/16"	-0-	5/16"	3/8"	5/8"	3/8"	-0-	3/16"	5/16"	9/16"	5/16"	1/8"	-0-	3/16"	7/16"	3/8"	-0-	Beam "L"

26/32

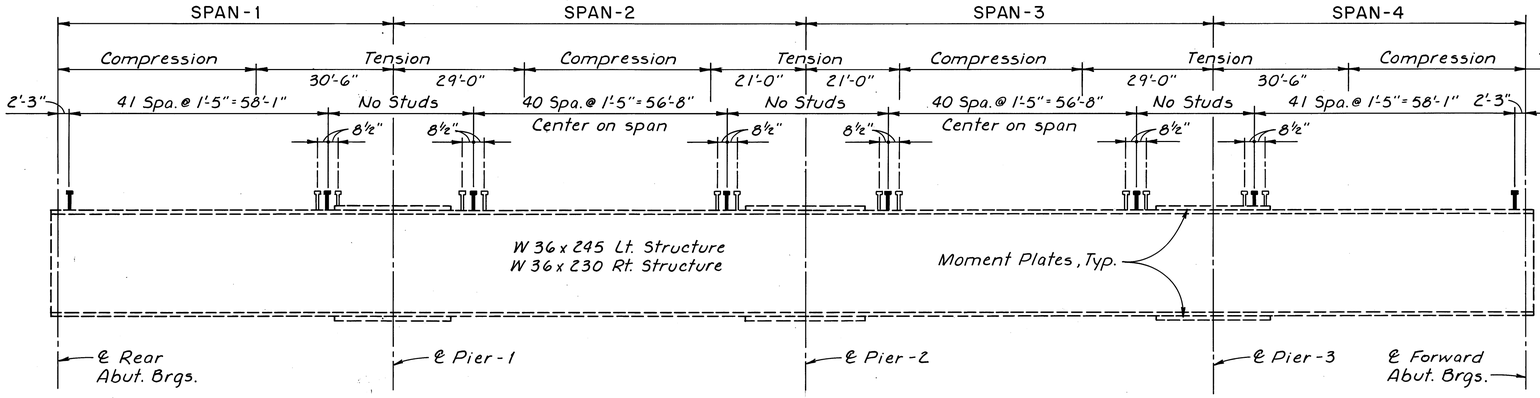
ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

SUPERSTRUCTURE - 3

BRIDGE NO. WAY-21-0143L/R
OVER CSX TRANSPORTATION

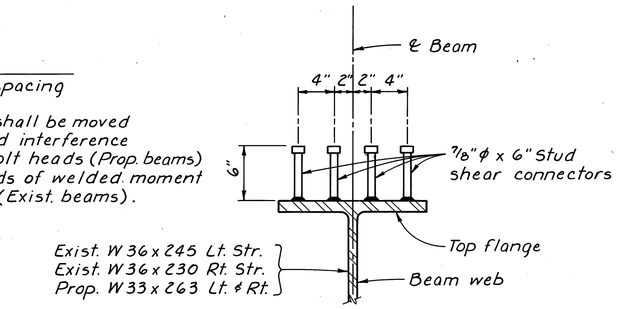
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	2/2/96	

S72645



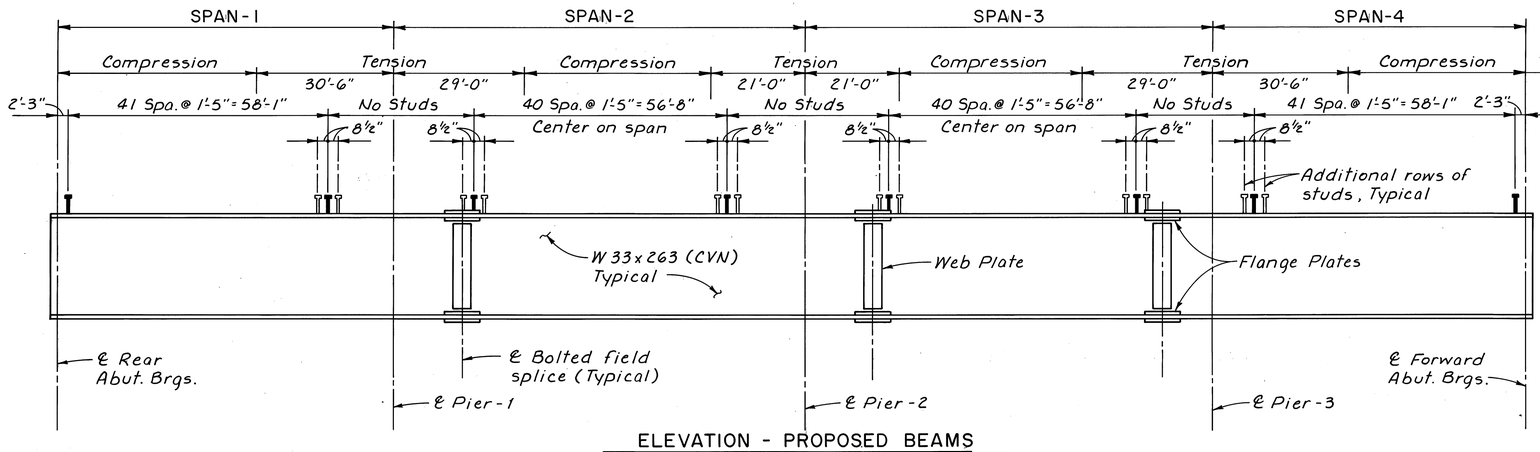
ELEVATION - EXISTING BEAMS

Studs shall be moved to avoid interference with bolt heads (Prop. beams) and ends of welded moment plates (Exist. beams).



STUD SHEAR CONNECTOR DETAIL

Place Studs in groups of four normal to ℄ Beam. See Beam Elevations this sheet for longitudinal spacing.

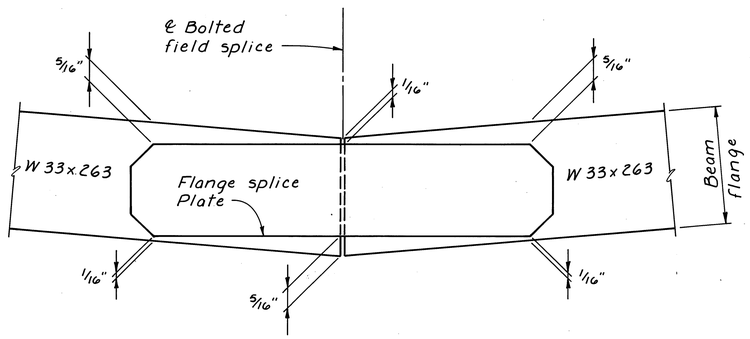


ELEVATION - PROPOSED BEAMS

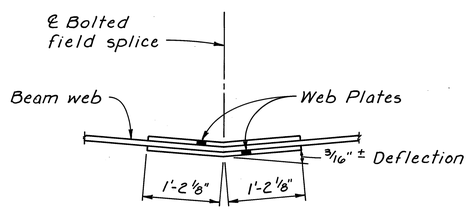
NOTES

* *WELDED ATTACHMENT* of supports for the 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 be not closer than 1" from edge of flange, be not more than 2" long, and be not smaller than the minimum size required by AASHTO.

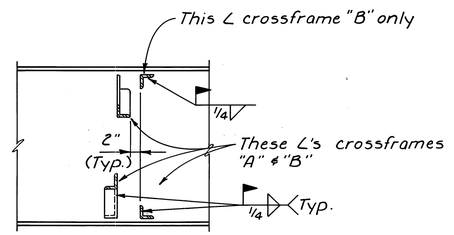
SUPERSTRUCTURE NOTES: See sheet 24/32.



FLANGE SPLICE



WEB SPLICE



All intermediate crossframe angles are ∠ 3 x 3 x 5/16. Align the outstanding leg of new crossframe angles with the outstanding leg of the existing adjacent crossframe angles.

SECTION A-A

SCHEMATIC LAYOUTS

27/32

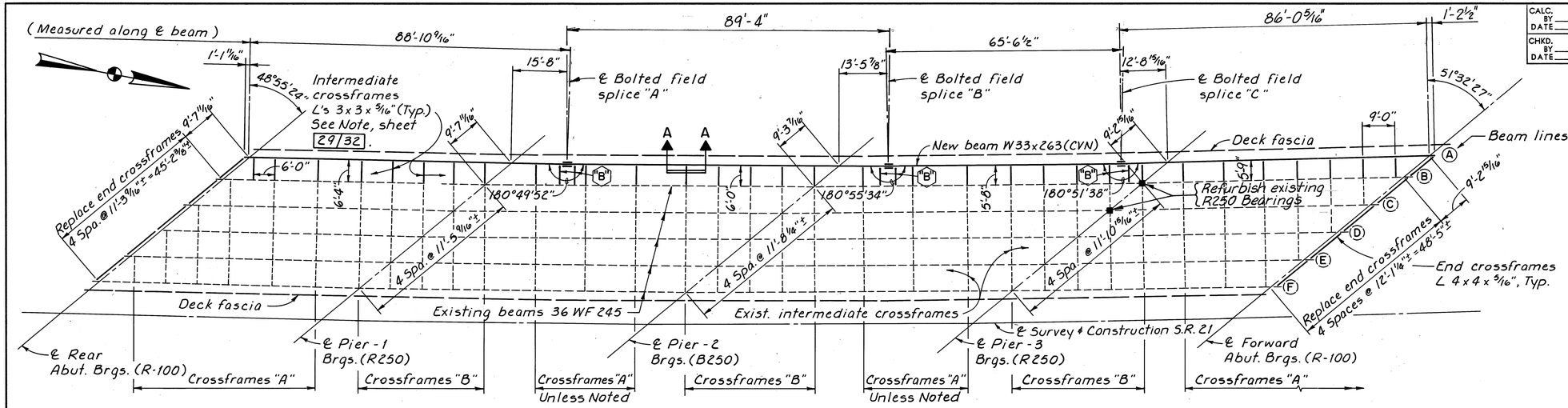
ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

SUPERSTRUCTURE - 4

BRIDGE NO. WAY-21-0143L/R
OVER CSX TRANSPORTATION

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	2/2/96	

851092

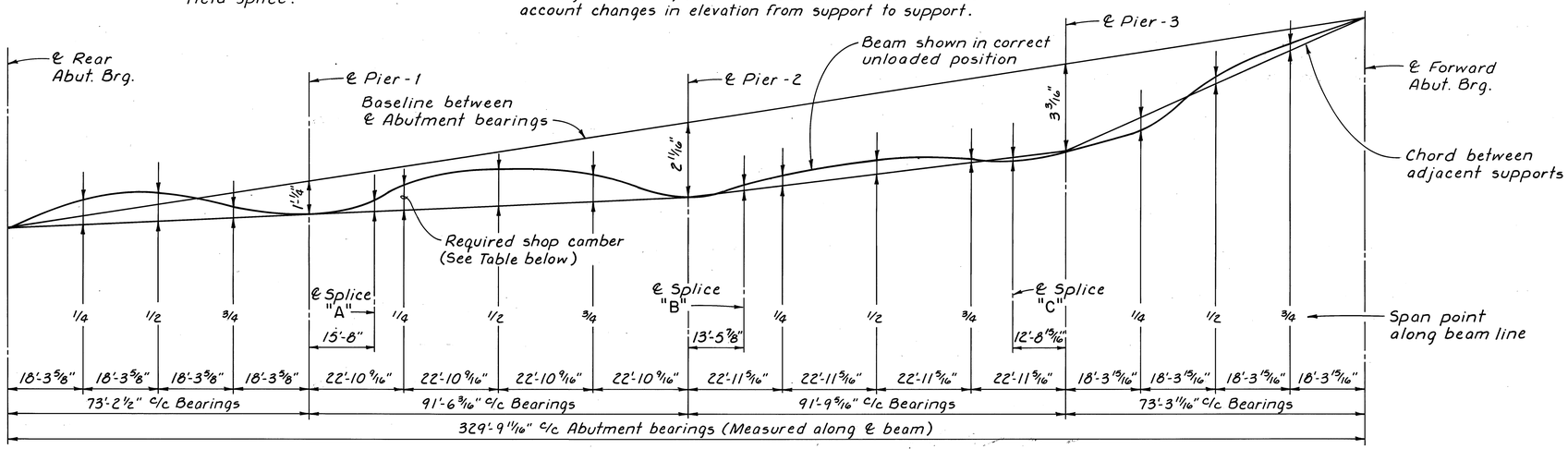


"B" - Provide additional special crossframes "B" 2'-0" min. each side of Bolted field splice.

NOTE: Existing beam lines deflect at piers, Typ.

FRAMING PLAN

All lengths are horizontal distances and do not take into account changes in elevation from support to support.



BEAM LAYOUT DIAGRAM
(Beam "A")

Cambering of beam is required in accordance with the following table:

CAMBER AND DEFLECTION TABLE (Beam "A")

ITEMS \ LOCATION	SPAN-1			SPAN-2				SPAN-3					SPAN-4		
	1/4	1/2	3/4	SPL."A"	1/4	1/2	3/4	SPL."B"	1/4	1/2	3/4	SPL."C"	1/4	1/2	3/4
Deflection due to weight of steel	1/8"	1/8"	1/16"	1/16"	1/8"	3/16"	1/8"	-0-	1/8"	3/16"	1/8"	1/16"	1/16"	1/8"	1/8"
Deflection due to weight of slab	5/16"	3/8"	3/16"	3/16"	5/16"	1/2"	5/16"	1/8"	1/4"	1/2"	5/16"	1/8"	3/16"	3/8"	5/16"
Deflection due to remaining dead load	1/16"	1/16"	-0-	-0-	1/16"	-0-	1/16"	-0-	1/16"	1/16"	1/16"	-0-	-0-	1/16"	1/16"
Geometric camber (Vertical)	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	<1/4">	<1/2">	<7/16">	<1/4">	<5/16">	<7/16">	<5/16">
Geometric camber (Horizontal)	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	<1/16">	-0-	<1/16">
Required shop camber	1/2"	9/16"	1/4"	1/4"	1/2"	11/16"	1/2"	1/8"	3/16"	1/4"	1/16"	<1/16">	<1/4">	1/8"	1/8"

<> Indicates a negative value.

SUPERSTRUCTURE NOTES: See sheet 24/32.

SECTION A-A: See sheet 27/32.

28/32

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

SUPERSTRUCTURE - 5

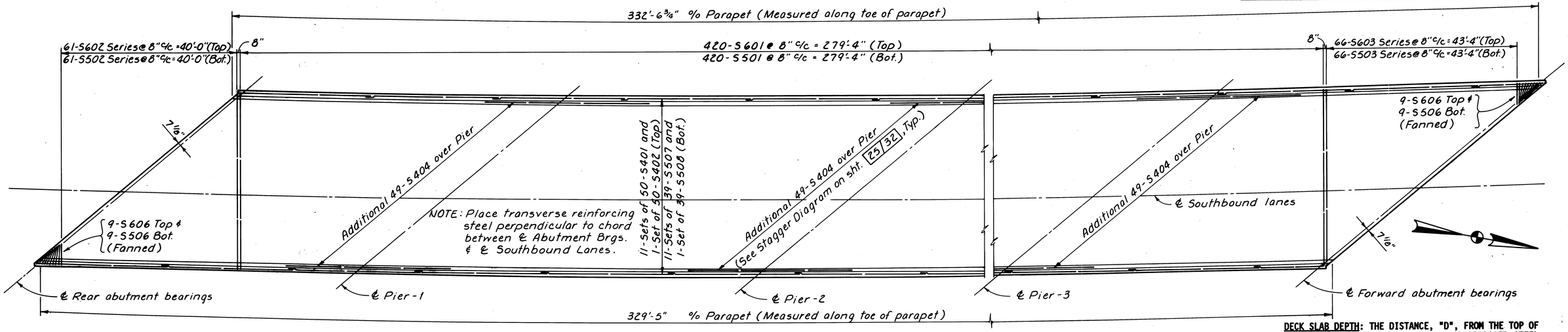
BRIDGE NO. WAY-21-0143L
OVER CSX TRANSPORTATION

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	2/2/96	

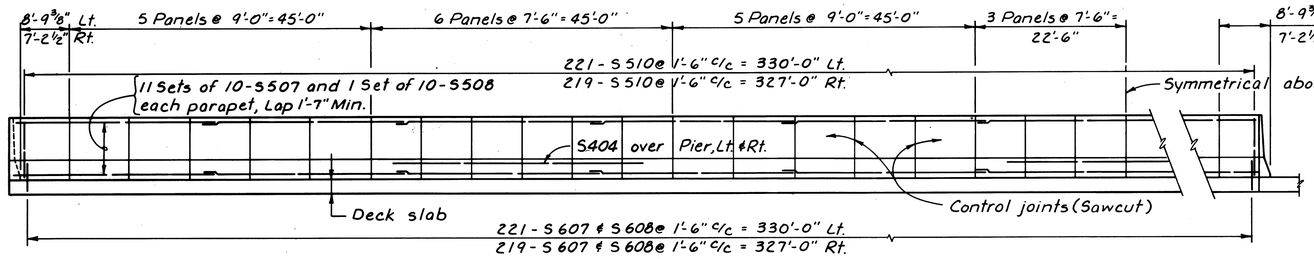
S07082

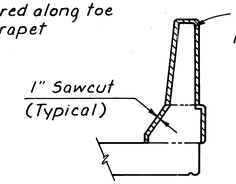
CALC. BY DATE	WAY-21-(1.39)(1.80)	OHIO
CHKD. BY DATE		FHWA REGION

69/100



SLAB PLAN





See Std. Dwg. BR-1 for Control Joints for Concrete Parapets note.

CONTROL JOINT DETAIL

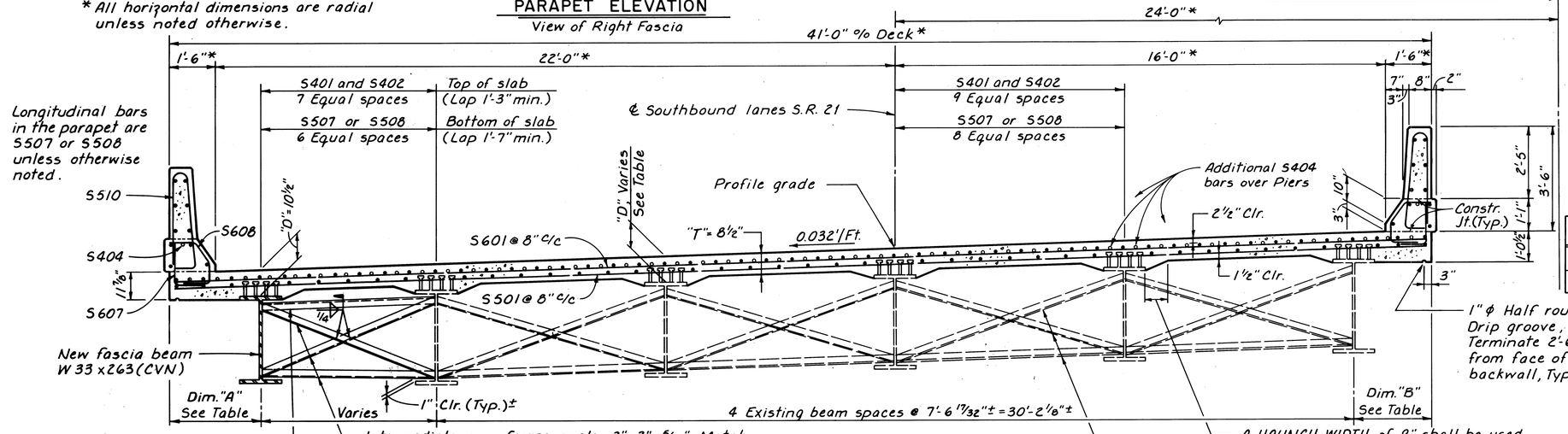
(Section thru sawcut)

& Survey & Construction S.R. 21

* All horizontal dimensions are radial unless noted otherwise.

PARAPET ELEVATION

View of Right Fascia



Provide additional 3" x 3" x 5/16" angle at all crossframes "B". See Framing Plan sheet 28/32. Weld similar to intermediate crossframes.

Intermediate crossframe angles 3" x 3" x 5/16", Match crossframe legs on opposite side of web (typ.). Weld both sides of vertical leg and top side of horizontal leg to beam with ¼" continuous fillet weld.

Existing intermediate crossframe angles

A HAUNCH WIDTH of 9" shall be used for computing quantity of concrete However, the haunch width may vary between 6" and 12".

TRANSVERSE SECTION

DECK SLAB DEPTH: THE DISTANCE, "D", FROM THE TOP OF DECK SLAB TO TOP OF THE EXISTING OR PROPOSED STEEL BEAM (SEE TRANSVERSE SECTION AND TABLE THIS SHEET) IS THE THEORETICAL DESIGN DIMENSION. VALUES LISTED FOR THIS DIMENSION IN THE TABLE BELOW REPRESENT THE AVERAGE DEPTH OVER THE EXISTING BEAMS AT THE INDICATED POINTS. DESIGN DEPTH OVER THE NEW STRINGER IS 10 1/2" EVERYWHERE.

IN ORDER TO MEET THE ESTABLISHED ROADWAY GRADE, TO ASSURE THE CONSTRUCTION OF THE REQUIRED DECK SLAB THICKNESS, AND TO ASSURE THE PROPER LOCATION OF THE REINFORCING STEEL IN THE DECK; THE CONTRACTOR SHALL OBTAIN THE ACTUAL TOP OF BEAM ELEVATIONS OF THE NEW AND EXISTING STEEL BEAMS AT LOCATIONS SHOWN IN THE TABLE OF DECK SCREED ELEVATIONS ON SHEET 26/32, AFTER THE EXISTING DECK SLAB IS REMOVED AND THE ABUTMENT BEARINGS ARE REPLACED. THE CONTRACTOR SHALL COMPUTE THE DECK FILLS OVER THE BEAMS (DIFFERENCE IN ELEVATION BETWEEN THE POINTS ON THE BEAMS AND CORRESPONDING SCREED ELEVATIONS) AND FURNISH THE CALCULATIONS TO THE ENGINEER FOR FINAL CHECKING. IF THE COMPUTED DECK THICKNESS IS FOUND TO BE LESS THAN THE MINIMUM THICKNESS REQUIRED, THE TOP OF FINAL PAVEMENT ELEVATIONS SHALL BE ADJUSTED AS DIRECTED BY THE ENGINEER. FORM WORK SHALL NOT PROCEED UNTIL A CHECK OF THE FINAL ELEVATIONS HAS BEEN PERFORMED BY THE ENGINEER.

THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED ON A SLAB THICKNESS, "T" OF 8 1/2",

DECK SLAB OVERHANG: SEE TABLE OF DECK FASCIA DIMENSIONS ON SHEET 26/32 FOR DIMENSIONS "A" AND "B".

SUPERSTRUCTURE NOTES: SEE SHEET 24/32.

DECK SLAB OFFSETS "D"								
R.A.	1/2	P-1	1/2	P-2	1/2	P-3	1/2	F.A.
10"	10⅛"	10¼"	9⅞"	9¾"	10⅜"	11⅜"	10⅞"	11"

29/32

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

SUPERSTRUCTURE - 6

BRIDGE NO. WAY-21-0143L
OVER CSX TRANSPORTATION

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	2/2/96	

CALC. BY DATE	WAY–21–(1.39)(1.80)	OHIO
CHKD BY DATE		FHWA REGION 5

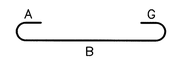
70/100

ABUTMENT REINFORCING STEEL SCHEDULE

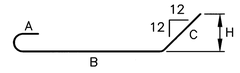
MARK	NUMBER LT. STRUCTURE REAR	LT. STRUCTURE FWD.	RT. STRUCTURE REAR	RT. STRUCTURE FWD.	TOTAL	LENGTH	TYPE	A	B	C	D	G	H	O	WEIGHT
F501			17		17	40'–0"	STR								709
F502			17		17	22'–9"	STR								403
F503			17		17	39'–6"	STR								700
F504			12		12	20'–9"	STR								260
F505	17				17	38'–3"	STR								678
F506	17				17	39'–9"	STR								705
F507			8		8	5'–6"	17		0'–10"	4'–10"	–0–				46
F601			14		14	7'–9"	32	1'–8"	6'–3"	7/8					163
F602			16		16	9'–0"	1	STD	7'–8"			STD			216
F603			14		14	7'–8"	STR								161
F701			14		14	7'–7"	32	1'–8"	6'–1"	7/8					217
F702			14		14	12'–1"	32	1'–8"	10'–3"	7/8					336
F703			16		16	13'–4"	1	STD	11'–8"			STD			436
F704			28		28	11'–8"	STR								668
F801	101		99		200	10'–3"	17		1'–8"	8'–9"	–0–				5474
F802			2		2	10'–3"	32	1'–8"	8'–9"	7/8					55
F803	61		53		114	13'–6"	1	STD	11'–8"			STD			4109
F804	88		101		189	11'–8"	STR								3146
F805	6				6	18'–0"	1	STD	16'–2"			STD			288
F806	11				11	16'–2"	STR								475
F807	3				3	10'–6"	1	STD	8'–8"			STD			84
F808	5				5	8'–8"	STR								116
A501			24		24	37'–5"	STR								937
A502	1		1		2	7'–9"	STR								16
A503	2	4	1	1	8	9'–0"	STR								75
A504	2		2		4	12'–0"	STR								50
A505	6		6		12	7'–3"	19		4'–3"	3'–0"			12		90
A506	23	4	24		51	13'–11"	STR								740
A507	48	8	48	9	113	6'–2"	17		1'–6"	3'–5"	1'–6"				727
A508	4	4	4	4	16	6'–5"	28	1'–8"	1'–1"	1'–5"	2'–6"		8 1/2"	2'–2"	107
A509	8	8	8	8	32	1'–3"	STR								42
A510			26		26	36'–5"	STR								988
A511			28		28	3'–9"	STR								110
A512			32		32	14'–3"	STR								476
A513			2		2	19'–8"	STR								41
A514			22		22	20'–8"	STR								474
A515			8		8	4'–0" to 17'–0"	STR	2 SETS OF 4 BARS; VARY EACH BY 4'–4"							88
A516			8		8	5'–0" to 18'–0"	STR	2 SETS OF 4 BARS; VARY EACH BY 4'–4"							96
A517			14		14	11'–9" to 18'–5"	STR	1 SET OF 14 BARS; VARY EACH BY 6"(+)							220
A518			28		28	4'–6" to 11'–2"	STR	2 SETS OF 14 BARS; VARY EACH BY 6"(+)							229
A519	24				24	33'–9"	STR								845
A520	1				1	7'–6"	STR								8
A521				2	2	6'–0"	STR								13
A522			4		4	21'–9"	STR								91
A523	24				24	37'–9"	STR								945
A524	13				13	3'–9"	17		1'–11"	1'–11"	–0–				51
A525	9				9	9'–8"	17		10"	8'–3"	10"				91
A526	2				2	6'–8"	17		10"	5'–3"	10"				14
A527	26			2	28	13'–3"	STR								387
A528	2				2	18'–3"	STR								38
A529	6				6	15'–0" to 17'–9"	STR	1 SET OF 6 BARS; VARY EACH BY 7"(–)							102
A530	10				10	5'–6" to 10'–3"	STR	2 SETS OF 5 BARS; VARY EACH BY 1'–2"(+)							82
A531	6				6	12'–2"	STR								76
A532	2				2	15'–0"	STR								31
A533	4				4	19'–0"	STR								79
A534	6				6	19'–11"	STR								125
A535	2				2	8'–3"	STR								17
A536	2				2	12'–6"	STR								26

CONTINUED

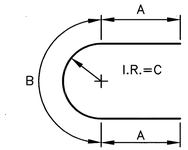
I.R. = INSIDE RADIUS



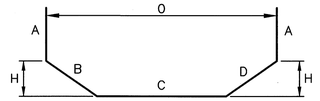
TYPE–1



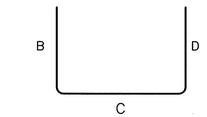
TYPE–3



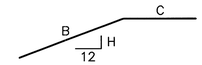
TYPE–10



TYPE–14

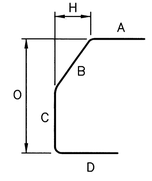


TYPE–17

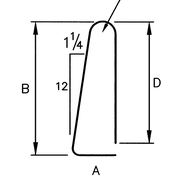


TYPE–19

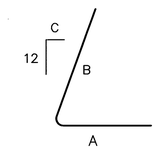
I.R. = INSIDE RADIUS



TYPE–28



TYPE–29



TYPE–32

BENDING DIAGRAMS

NOTES

ALL REINFORCING STEEL SHALL BE EPOXY COATED. SEE STRUCTURE GENERAL NOTES, SHEETS G1 / 6, FOR ADDITIONAL MATERIAL REQUIREMENTS.

BAR DIMENSIONS SHOWN ARE OUT–TO–OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS UNLESS OTHERWISE INDICATED.

BAR BENDS: BEND BARS CAREFULLY TO THE DIMENSIONS LISTED IN THE ABOVE SCHEDULES AND/OR STANDARD BENDS TABLE (CMS 509.05). "STD." WRITTEN IN PLACE OF A DIMENSION INDICATES A STANDARD BEND AT THE END OF THE BAR.

30/32

ENGINEERING ASSOCIATES INC.
700 WINKLER DR. CONSULTING ENGINEERS WOOSTER, OHIO

REINFORCING STEEL

BRIDGE NO. WAY–21–0143 L/R
OVER CSX TRANSPORTATION

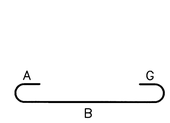
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	SLM	CAD	DBC	DWS	2/2/96	

CALC. BY / DATE	WAY-21-(1.39)(1.80)	OHIO
CHKD BY / DATE		FHWA REGION 5

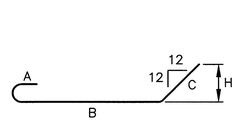
ABUTMENT REINFORCING STEEL SCHEDULE

MARK	NUMBER LT. STRUCTURE REAR	NUMBER LT. STRUCTURE FWD.	NUMBER RT. STRUCTURE REAR	NUMBER RT. STRUCTURE FWD.	NUMBER TOTAL	LENGTH	TYPE	A	B	C	D	G	H	O	WEIGHT
A537	2	8			10	9'-3"	STR								96
A538	2				2	5'-6"	STR								11
A539	2				2	13'-6"	19		12'-0"	1'-6"			4 1/2"		28
A540			20		20	9'-2"	17		8'-5"	0'-10"	-0-				191
A541		4			4	20'-3"	STR								84
A542		7		7	14	2'-6"	STR								37
A543		1			1	5'-0"	STR								5
A544		7			7	6'-7"	17		5'-10"	10"	-0-				48
A545		9		10	19	4'-3"	17		3'-6"	10"	-0-				84
A546		116		114	230	3'-8"	17		1'-3"	2'-6"	-0-				880
A547		14			14	6'-0" to 8'-9"	STR	2 SETS OF 7 BARS; VARY EACH BY 5"(+)							108
A548		1			1	8'-0"	STR								8
A549		16			16	4'-9"	STR								79
A550		6			6	14'-9"	STR								92
A551		8			8	34'-3"	STR								286
A552		12		12	24	40'-0"	STR								1,001
A553		1			1	14'-0"	19		9'-9"	4'-3"			3 3/4"		15
A554		1			1	12'-0"	19		9'-9"	4'-3"			3 3/4"		13
A555		1			1	10'-9"	STR								11
A556				4	4	21'-3"	STR								89
A557				2	2	6'-6"	STR								14
A558				7	7	7'-9"	17		7'-0"	10"	-0-				57
A559				16	16	6'-8" to 10'-0"	STR	2 SETS OF 8 BARS; VARY EACH BY 6"(-)							139
A560				6	6	10'-3"	STR								64
A561				14	14	5'-3"	STR								77
A562				8	8	16'-3"	STR								136
A563				8	8	33'-9"	STR								282
A564				1	1	9'-4"	STR								10
A565				6	6	8'-10"	STR								55
A566				1	1	13'-6"	19		12'-6"	1'-0"			3 3/4"		14
A567				1	1	15'-0"	19		12'-6"	2'-6"			3 3/4"		16
A601			24		24	14'-6"	STR								523
A602	48		48		96	8'-11"	19		4'-11"	4'-0"			12		1286
A603	82	9	80	9	180	10'-11"	17		4'-11"	1'-5"	4'-11"				2951
A604	41	67	40	67	215	6'-7"	17		3'-0"	0'-11"	3'-0"				2126
A605			3		3	14'-11"	17		5'-11"	3'-5"	5'-11"				67
A606			1		1	9'-11"	17		3'-8"	2'-11"	3'-8"				15
A607	14		16		30	10'-5"	17		4'-8"	1'-5"	4'-8"				469
A608			1		1	36'-5"	STR								55
A609			1		1	28'-0"	STR								42
A610	23		24		47	14'-2"	STR								1,000
A611			14		14	12'-0" to 18'-8"	STR	1 SET OF 14 BARS; VARY EACH BY 6"(+)							322
A612	25				25	13'-6"	STR								507
A613	1				1	28'-6"	STR								43
A614	1				1	37'-8"	STR								57
A615		1			1	5'-6"	STR								8
A616		7			7	11'-0"	17		6'-0"	5'-2"	-0-				116
A617		9		10	19	8'-9"	17		3'-9"	5'-2"	-0-				258
A618		67		66	133	5'-9"	17		2'-4"	1'-5"	2'-4"				1149
A619		2		2	4	34'-0"	STR								204
A620				2	2	6'-6"	STR								20
A621				7	7	12'-0"	17		7'-0"	5'-2"	-0-				126
A701	48		48		96	10'-0"	STR								1962
A702			2		2	20'-0"	STR								82
A703	6				6	15'-0" to 17'-9"	STR	1 SET OF 6 BARS; VARY EACH BY 7"(-)							201
A801			4		4	36'-5"	STR								389
A802			4		4	37'-5"	STR								400
A803	4				4	33'-8"	STR								360
A804	4				4	37'-8"	STR								402
D801	28		28		56	6'-9"	3	STD	4'-5"	1'-5"			1'-0"		1009
D802		28		28	56	6'-4"	3	STD	4'-0"	1'-5"			1'-0"		947
														TOTAL	51,832

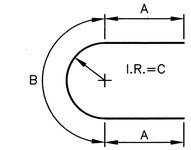
I.R. = INSIDE RADIUS



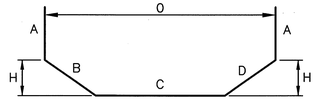
TYPE-1



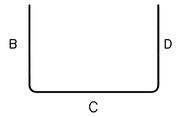
TYPE-3



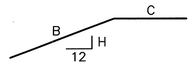
TYPE-10



TYPE-14

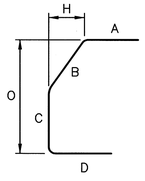


TYPE-17

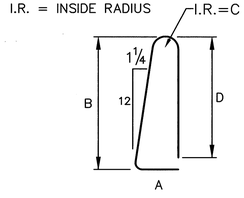


TYPE-19

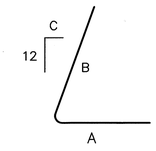
I.R. = INSIDE RADIUS



TYPE-28



TYPE-29



TYPE-32

BENDING DIAGRAMS

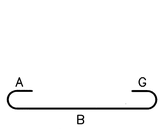
REINFORCING STEEL NOTES: SEE SHEET [30 / 32].

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

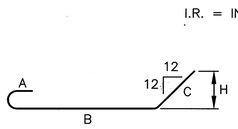
REINFORCING STEEL

BRIDGE NO. WAY-21-0143 L/R
OVER CSX TRANSPORTATION

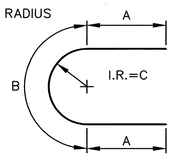
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	SLM	CAD	DBC	DWS	2/2/96	



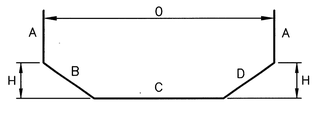
TYPE-1



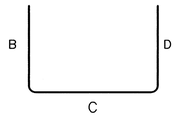
TYPE-3



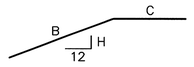
TYPE-10



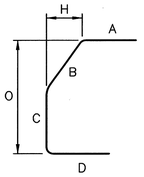
TYPE-14



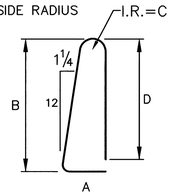
TYPE-17



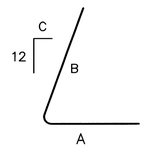
TYPE-19



TYPE-28



TYPE-29



TYPE-32

BENDING DIAGRAMS

PIER REINFORCING STEEL SCHEDULE

MARK	NUMBER LT. STRUCTURE 1	2	3	RT. STRUCTURE 1	2	3	TOTAL	LENGTH	TYPE	A	B	C	D	G	WEIGHT
P501	6	6	6	6	6	6	36	6'-9"	17		2'-2"	2'-8"	2'-2"		254
P502				38	36	36	110	12'-4"	10	4'-2"	3'-9 1/8"	1'-3 3/8"			1,415
P503				4	4	4	12	6'-3"	STR						78
P504	4	4	4	4	4	4	24	6'-4"	17		3'-3"	3'-3"	-0-		158
P505	34	34	34				102	13'-10"	10	4'-11"	3'-9 1/8"	1'-3 3/8"			1,472
P506	4	4	4				12	7'-0"	STR						88
P507	9	9	9	9	9	9	54	8'-0"	17		2'-10"	2'-6 3/4"	2'-10"		451
P508	16		16	8		8	48	9'-7"	17		3'-7"	2'-8"	3'-7"		480
P509				8		8	16	11'-1"	17		4'-4"	2'-8"	4'-4"		185
P601				16	16	16	48	10'-11"	STR						787
P602	12	12	12	10	10	10	66	8'-8"	STR						860
P603				26			26	15'-6"	STR						605
P604					26	26	52	12'-3"	STR						957
P605	16	16	16				48	11'-8"	STR						841
P606	26	26	26				78	13'-6"	STR						1,582
P701	26	26	26	26	26	26	156	14'-10"	STR						4,730
P702	12		12	12		12	48	12'-1"	STR						1,186
P801	12	12	12	12	12	12	72	8'-6"	STR						1,634
P901	12	12	12	10	10	10	66	11'-2"	1	STD	8'-8"			STD	2,506
P902	38	26	38	38	26	38	204	8'-9"	17		7'-6"	1'-7"	-0-		6,069
													TOTAL		26,338

SUPERSTRUCTURE REINFORCING STEEL SCHEDULE

MARK	NUMBER LT. STRUCTURE	RT. STRUCTURE	TOTAL	LENGTH	TYPE	A	B	C	D	H	O	WEIGHT
S401	550	550	1100	30'-0"	STR.							22,044
S402	50	–	50	16'-3"	STR.							543
S403	–	50	50	11'-10"	STR.							395
S404	153	153	306	37'-0"	STR.							7,564
S501	420	419	839	40'-7"	STR.							35,514
S502	61	–	61	5'-5" to 40'-1"	STR.	1 SET OF 61 BARS; VARY EACH BY 7"(–)						1,447
S503	66	–	66	5'-0" to 40'-1"	STR.	1 SET OF 66 BARS; VARY EACH BY 6"(+)						1,552
S504	–	60	60	5'-4" to 40'-1"	STR.	1 SET OF 60 BARS; VARY EACH BY 7"(+)						1,421
S505	–	64	64	5'-4" to 40'-1"	STR.	1 SET OF 64 BARS; VARY EACH BY 7"(–)						1,516
S506	18	18	36	4'-9"	STR.							178
S507	649	649	1298	30'-0"	STR.							40,614
S508	59	–	59	19'-10"	STR.							1,220
S509	–	59	59	15'-6"	STR.							954
S510	440	434	874	7'-1"	29	8"	3'-3"	1 1/2"	3'-0"			6,457
S601	420	419	839	40'-7"	STR.							51,142
S602	61	–	61	5'-5" to 40'-1"	STR.	1 SET OF 61 BARS; VARY EACH BY 7"(–)						2,084
S603	66	–	66	5'-0" to 40'-1"	STR.	1 SET OF 66 BARS; VARY EACH BY 6"(+)						2,235
S604	–	60	60	5'-4" to 40'-1"	STR.	1 SET OF 60 BARS; VARY EACH BY 7"(+)						2,046
S605	–	64	64	5'-4" to 40'-1"	STR.	1 SET OF 64 BARS; VARY EACH BY 7"(–)						2,183
S606	18	18	36	4'-9"	STR.							256
S607	440	434	874	2'-2"	17		1'-5"	11"	-0-			2,844
S608	440	434	874	2'-10"	28	9"	10 3/8"	8"	10 1/2"	6"	1'-5 1/2"	3,719
											TOTAL	187,928

REINFORCING STEEL NOTES: SEE SHEET 30 / 32 .

32/32

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

REINFORCING STEEL

BRIDGE NO. WAY-21-0143 L/R
OVER CSX TRANSPORTATION

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	SLM	CAD	DBC	DWS	2/2/96	

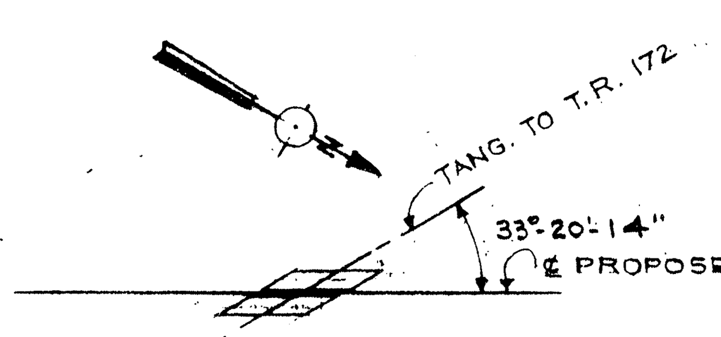
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1010(3)	

73/100

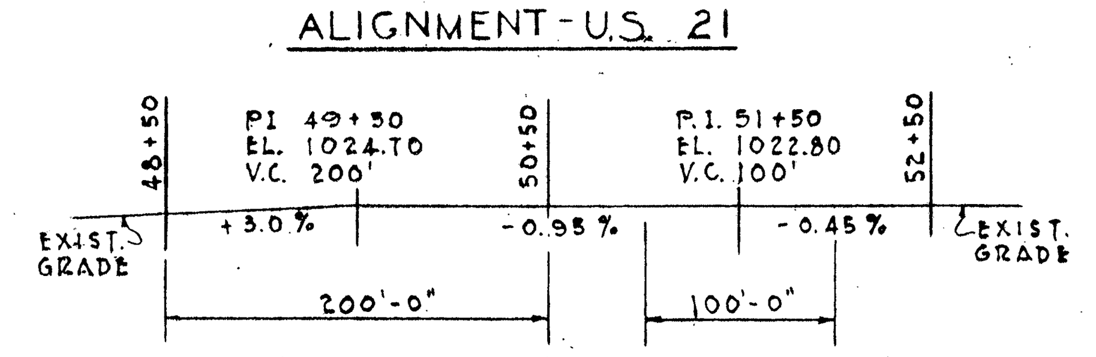
This sheet provided for informational purposes only. See sheet 2/26 for proposed work.

CURVE DATA CENTER LINE
℄ U.S. 21
Δ = 31° 35' 50"
D = 1° 00' 00"
R = 5729.58'
T = 1621.16'
L = 3159.72'
P.C. = 65+33.86
P.I. = 81+55.02
P.T. = 96+93.58

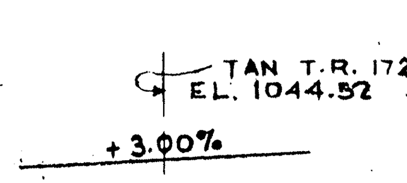
PLAN



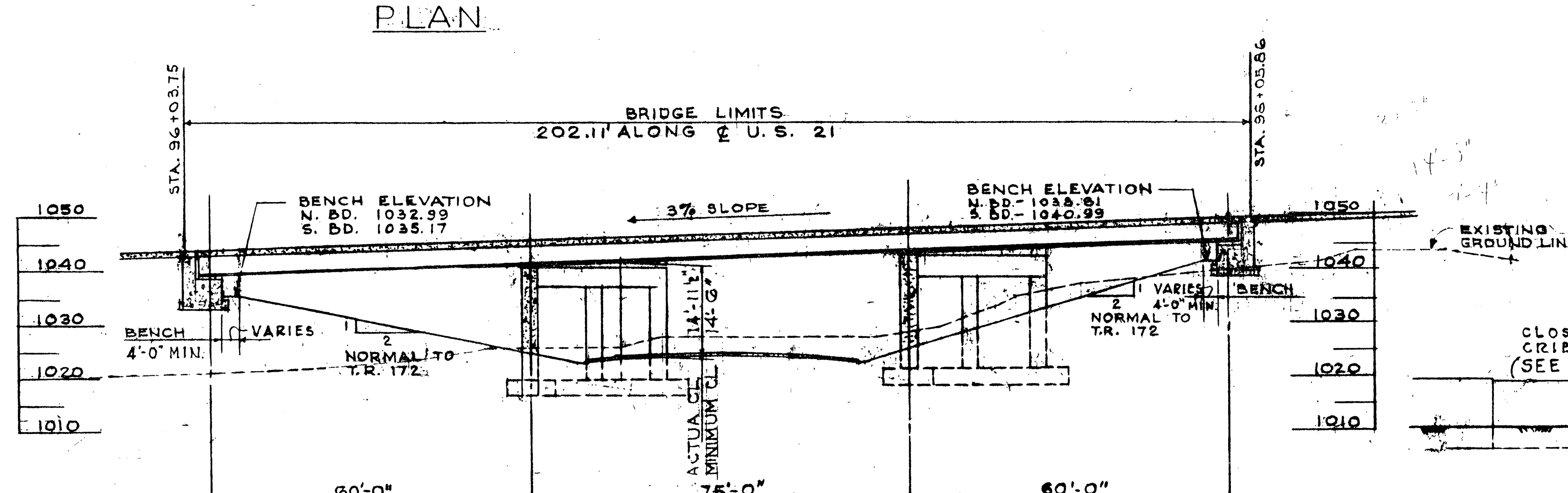
ALIGNMENT - U.S. 21



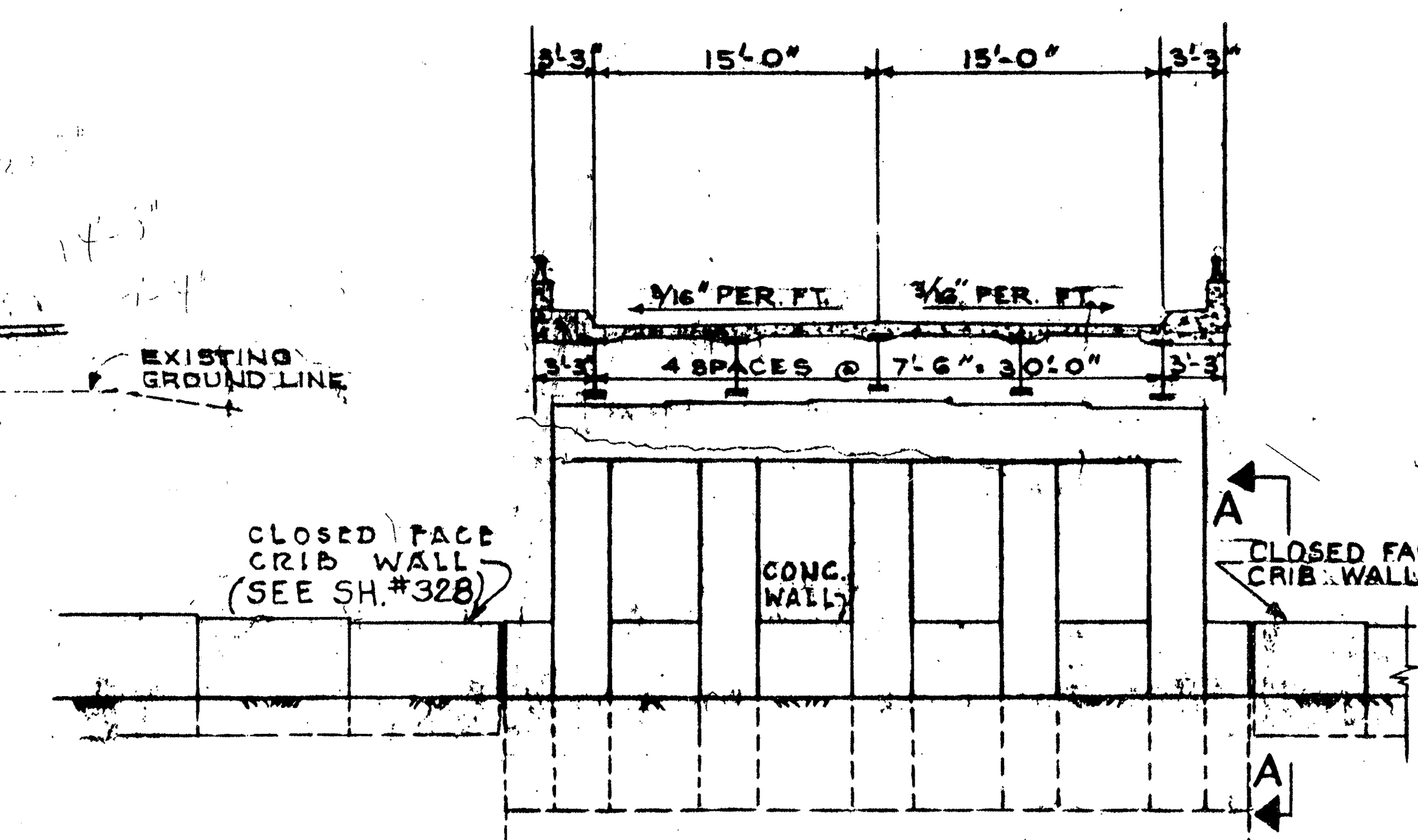
PROFILE T.R. 172



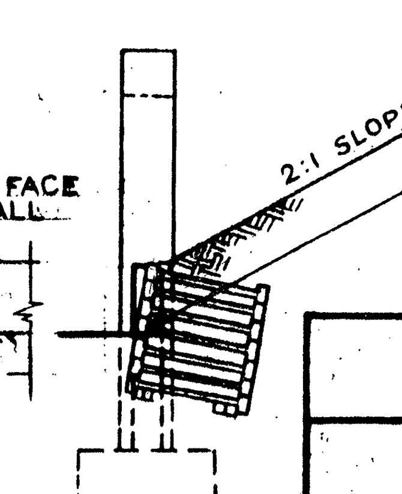
PROFILE OF U.S. 21



SECTION AT ℄ OF N.B. BRIDGE



CROSS-SECTION OF BRIDGE LOOKING NORTH AT PIER #2



SECTION A-A

NOTE: FRONT FACE OF CRIB WALL AT GROUND LINE TO COINCIDE WITH FRONT FACE OF RETAINING WALL BETWEEN PIER COLUMNS

FOUNDATION SOUNDINGS:
FOUNDATION DESIGN AND FOUNDATION QUANTITIES ARE BASED ON A STUDY OF ROD SOUNDINGS (AND/OR SOIL-SAMPLING SOUNDINGS) MADE AT THE SITE. THIS SOUNDING INFORMATION MAY BE INSPECTED IN THE OFFICE OF THE OFFICE OF THE BUREAU OF BRIDGES IN COLUMBUS OR IN THE DIVISION OFFICE BUT THE STATE ASSUMES NO RESPONSIBILITY FOR THE ACCURACY THEREOF.

B.M. #225 EL. 1020.44
R.R. SPIKE IN POWER POLE 200' RIGHT STA. 94+00, SOUTH SIDE T.R. 172.

PROPOSED STRUCTURE

TYPE: CONTINUOUS STEEL BEAM WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE.
SPANS: 60'-0", 75'-0" & 60'-0" c/c BRGS.
ROADWAY: 30'-0" f/c; 2'-0" SAFETY CURBS
LOAD FREQUENCY RATING: C.F. 2000
SKEW: 56°-39'-46" (R.F.) LF
SURFACE COURSE: 1" MONOLITHIC CONCRETE
APPROACH SLAB: AS SHOWN
ALIGNMENT: ON TANGENT FROM STA. 96+93.58 NORTH. 1°00'00" CURVE (LEFT) TO STA. 96+93.58

1/26

CHARLES E. DE LEUW
CONSULTING ENGINEER
CHICAGO ILLINOIS

SITE PLAN

BRIDGE NO. WAY-21-0182
U.S. 21 OVER T.R. 172
WAYNE CO. STA. 97+04.27
SEC. WAY-21

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.A.E.	J.H.		R.S.	L.N.R.	6-11-56	

BENCH MARK: Chisled mark on S.E. Corner of rear abutment, left bridge ℄ Sta. 96+08.94, 7.14' Lt. Elev. 1042.18

CALC. BY ____ DATE ____
CHKD BY ____ DATE ____

WAY-21-(1.39)(1.80)

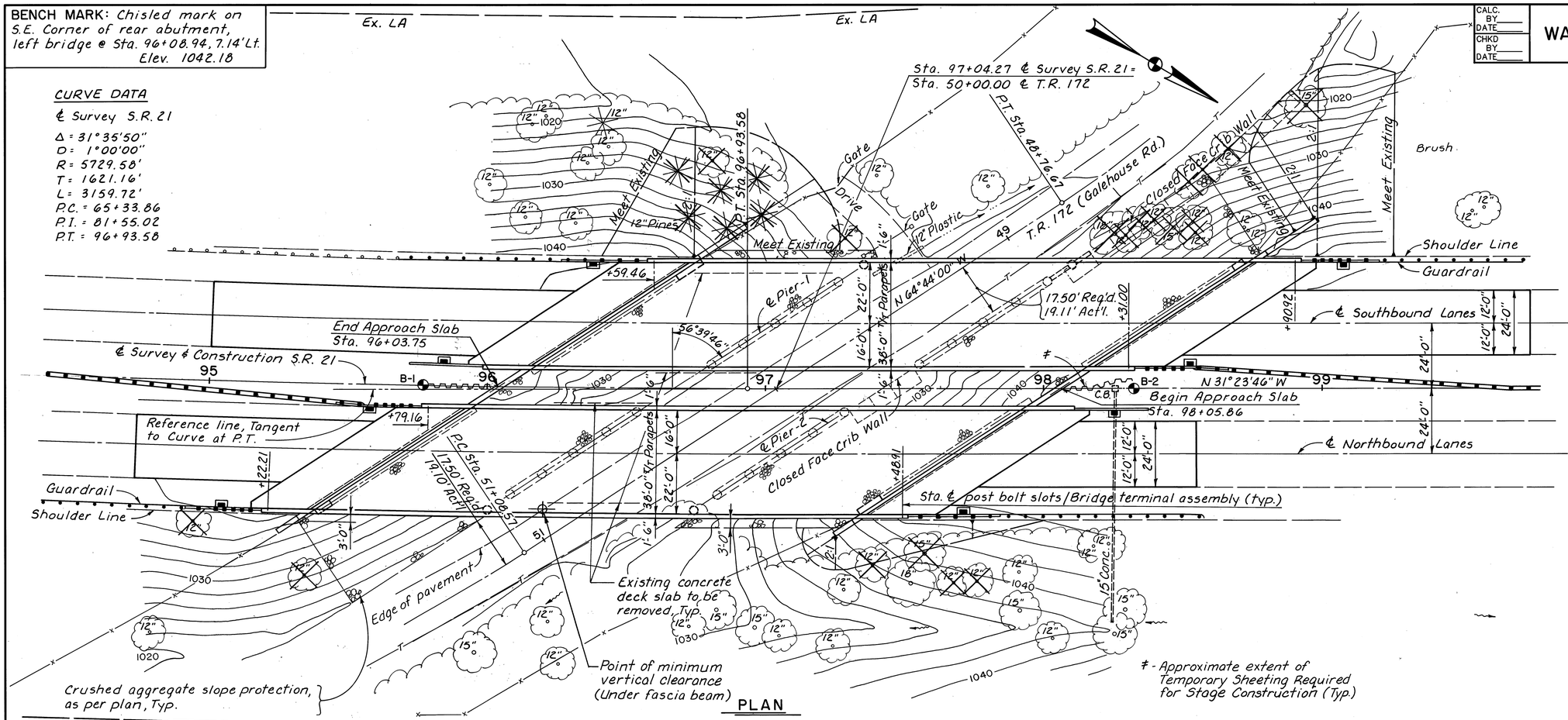
OHIO
FHWA REGION 5

74
100

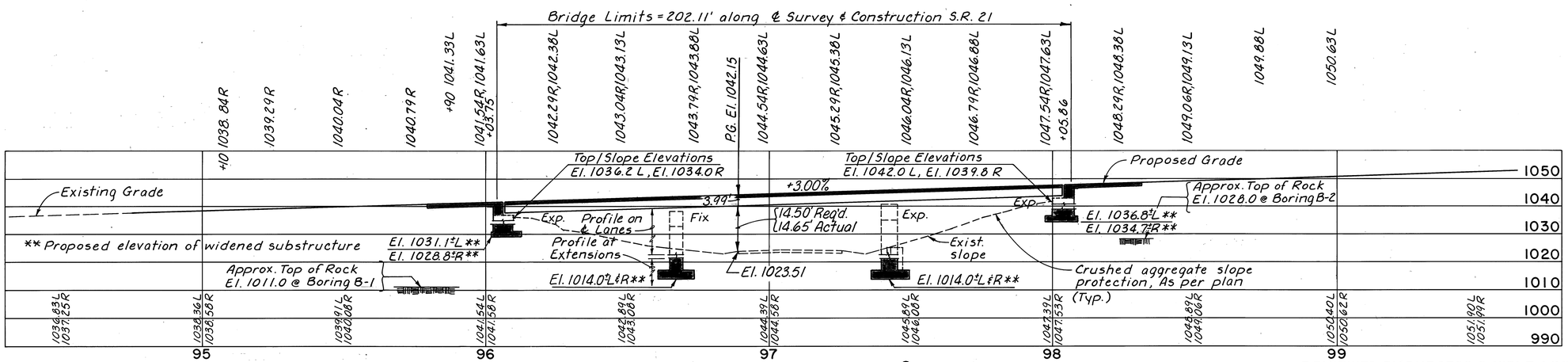
CURVE DATA

℄ Survey S.R. 21

Δ = 31°35'50"
D = 1°00'00"
R = 5729.58'
T = 1621.16'
L = 3159.72'
P.C. = 65+33.86
P.I. = 81+55.02
P.T. = 96+93.58



PLAN



PROFILE ALONG ℄ LANES ⊕

⊕ Except as noted.

REVIEWED BY BURGESS & NIPLE, LIMITED
DWR DECEMBER 16 1996

FOUNDATION INVESTIGATION LEGEND

◓ Indicates core boring locations.

EARTHWORK limits shown are approximate. Actual slopes shall conform to plan cross sections.

EXISTING STRUCTURE

TYPE: Twin continuous steel beam bridges with reinforced concrete deck and substructure.
SPANS: 60'-0", 75'-0", 60'-0" C/c Brgs. along forward tangent.
ROADWAY: 30'-0" T/r 2'-3" Safety curb
LOADING: Lane/CF 2000 load frequency
WEARING SURFACE: Concrete
ALIGNMENT: 1°00' Curve (left) to Sta. 96+93.58, tangent ahead of this point.
SKEW: 56°39'46" L.F. to ref. tangent
APPROACH SLABS: AS-1-54 (25' long)
DATE BUILT: 1957
STRUCTURE FILE NUMBER: 8501386 Left bridge; 8501416 Right bridge

PROPOSED STRUCTURE

PROPOSED WORK: New composite reinf. conc. deck on widened superstructure & substructure.
TYPE: Twin continuous steel beam bridges with reinforced concrete deck and substructure.
SPANS: 60'-0", 75'-0", 60'-0" C/c Brgs. along forward tangent.
ROADWAY: 36'-0" T/r Deflector parapet
LOADING: HS 20-44, Case II and Alternate military loading.
WEARING SURFACE: Concrete
ALIGNMENT: 1°00' Curve (left) to Sta. 96+93.58, tangent ahead of this point.
SKEW: 56°39'46" L.F. to ref. tangent
CROWN: 3/16"/Ft.
APPROACH SLABS: AS-1-81 (25' long)
DESIGN YEAR TRAFFIC: 9760* (Yr. 2016)
DESIGN YEAR ADTT: 1750*
BRIDGE LOCATION
U.S.G.S. QUADRANGLE: Doylestown
LATITUDE: N40°55'52"
LONGITUDE: W81°39'05"

* Total both directions

2/26

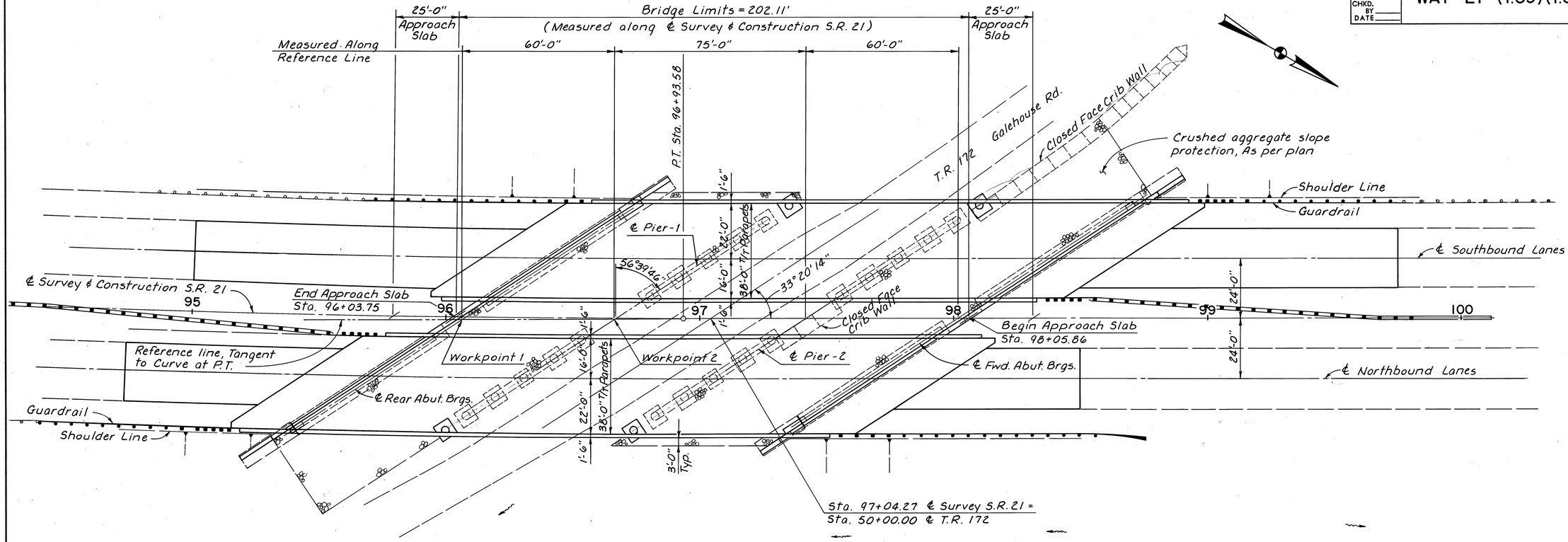
ENGINEERING ASSOCIATES INC.
700 WINKLER DR. CONSULTING ENGINEERS WOOSTER, OHIO

SITE PLAN
BRIDGE NO. WAY-21-0182L/R
OVER T.R. 172
WAYNE COUNTY STA. 96+03.75
98+05.86

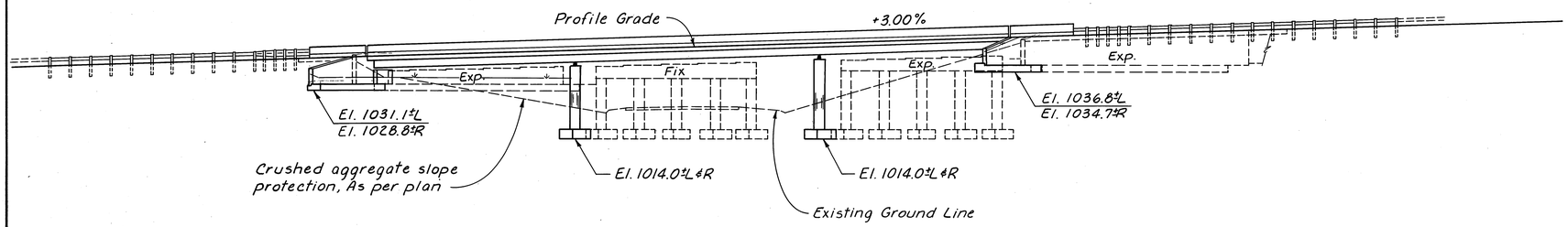
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
SLW	RLE	SLM	DBC	DWS	8-3-94	

CALC. BY DATE	WAY-21-(1.39)(1.80)	OHIO
CHKD. BY DATE		FHWA REGION

75/100



GENERAL PLAN



ELEVATION

3/26

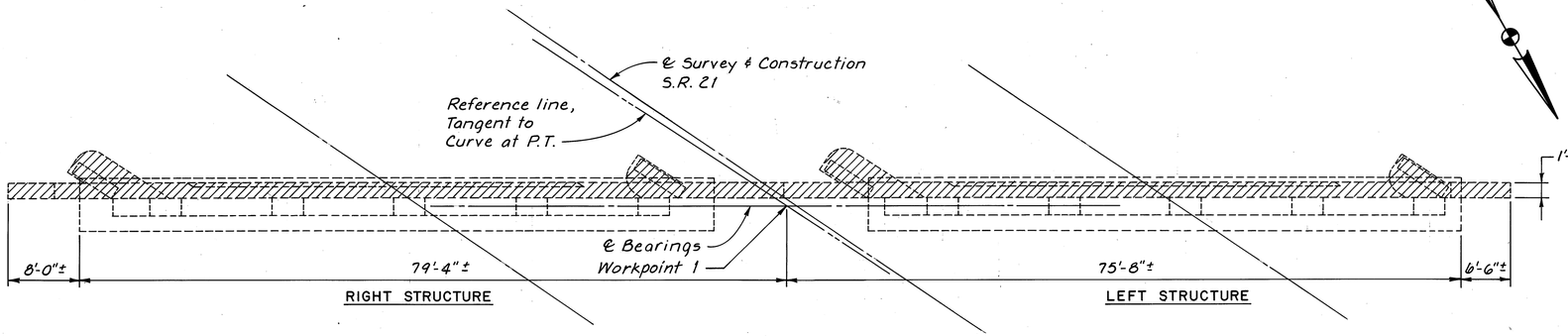
ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

GENERAL PLAN & ELEVATION

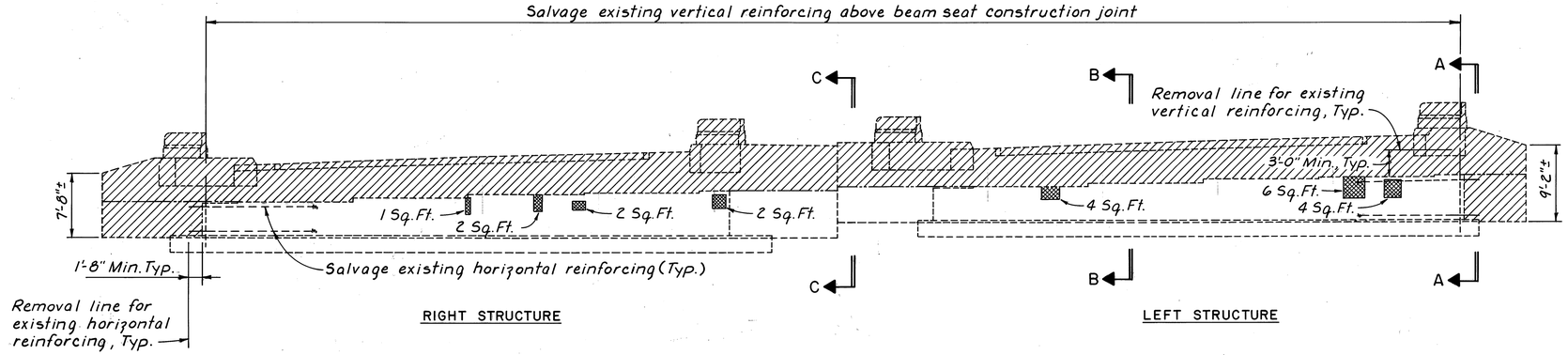
BRIDGE NO. WAY-21-0182L/R
OVER T.R. 172

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	9/24/96	

CALC. BY / DATE	WAY-21-(1.39)(1.80)	OHIO / FHWA REGION	76/100
CHKD. BY / DATE			



REAR ABUTMENT PLAN

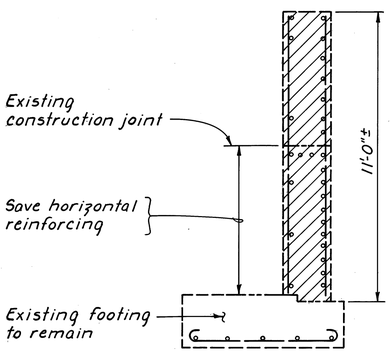


REAR ABUTMENT ELEVATION

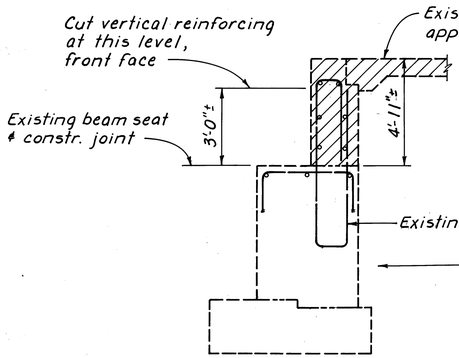
CONCRETE PATCHING SUMMARY			
LOCATION	UNIT	MEASURED QUANTITY	ESTIMATED QUANTITY
Left Rear Abutment	Sq.Ft.	14	42
Right Rear Abutment	Sq.Ft.	7	21
Left Forward Abutment	Sq.Ft.	2	6
Right Forward Abutment	Sq.Ft.	1	3
Left Structure, Pier-1	Sq.Ft.	2	6
			78

▨ - Indicates approximate area to be patched per Item 519-Patching Concrete Structures. These measured quantities are included in the table above. The exact dimensions and locations of the concrete patches shall be determined by the Engineer in the field for final pay quantity.

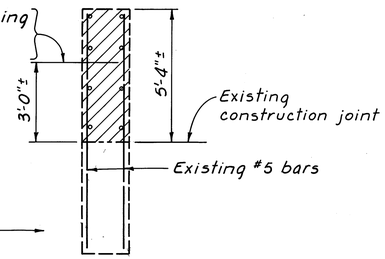
▨ - Hatching indicates portion of existing structure to be removed.



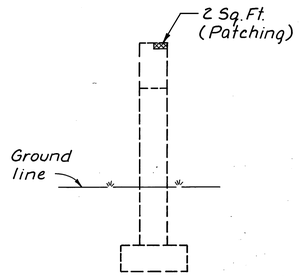
SECTION A-A



SECTION B-B



SECTION C-C



PIER ELEVATION

View of west end of Pier-1, Left structure

4/26

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

DEMOLITION AND PATCHING DETAILS

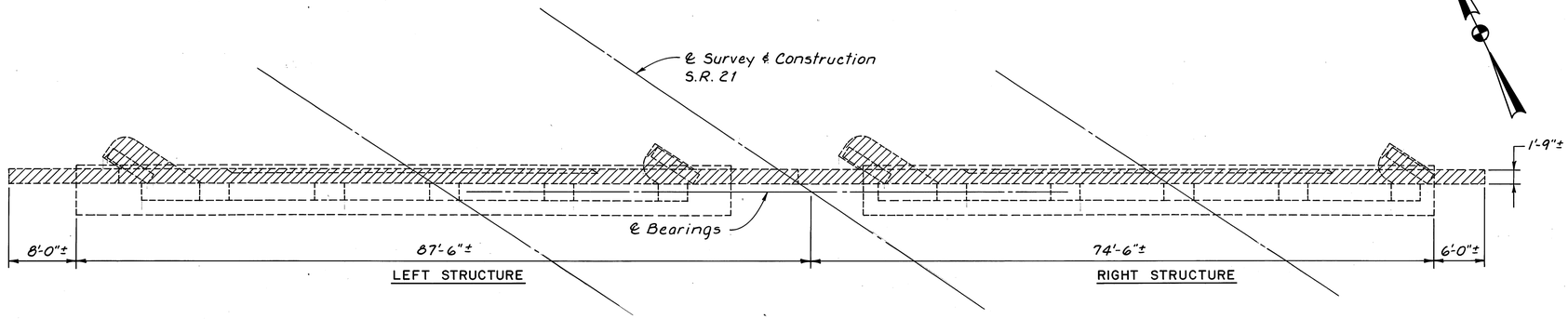
BRIDGE NO. WAY-21-0182L/R
OVER T.R. 172

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	9/24/96	

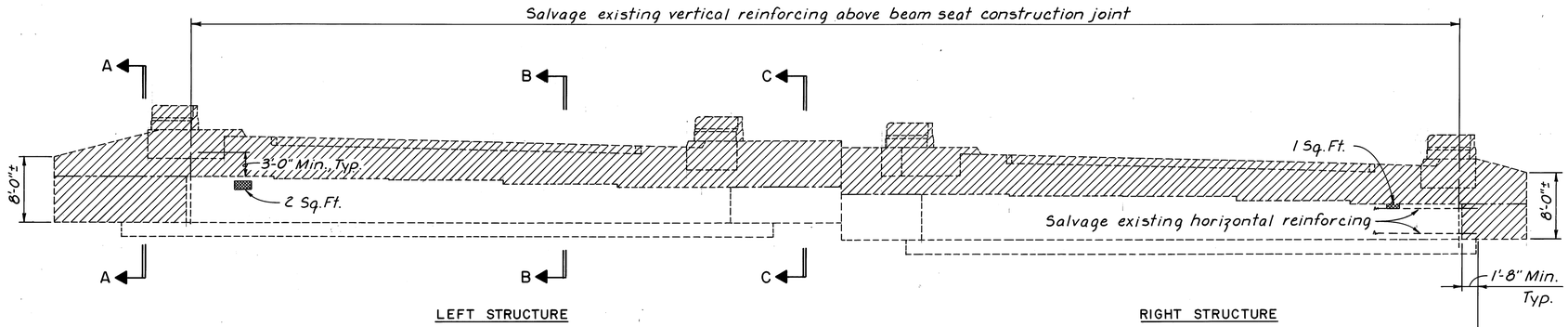
851092

CALC. BY DATE	WAY-21-(1.39)(1.80)	OHIO
CHKD. BY DATE		FHWA REGION

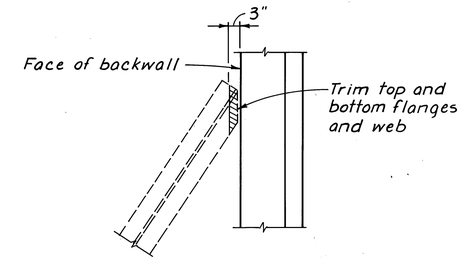
77/100



FORWARD ABUTMENT PLAN

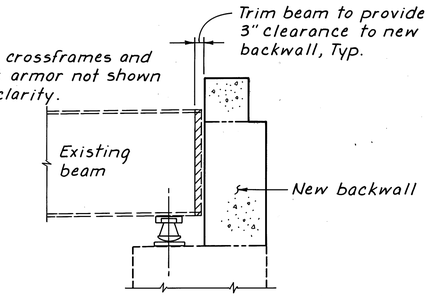


FORWARD ABUTMENT ELEVATION



PLAN

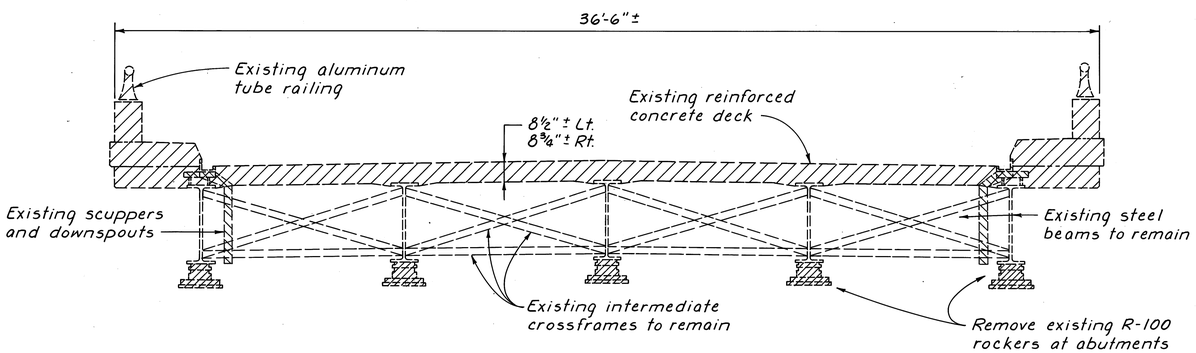
NOTE: End crossframes and deck armor not shown for clarity.



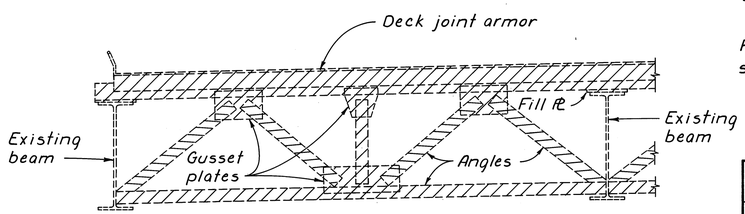
ELEVATION

TRIMMING OF BEAM ENDS

Hatching indicates portion of existing structure to be removed.



SUPERSTRUCTURE TRANSVERSE SECTION



REMOVAL OF END CROSSFRAMES

For Patching Summary and additional details and notes see sheet 4/26.

For Cribwall removal details see sheet 16/26.

5/26

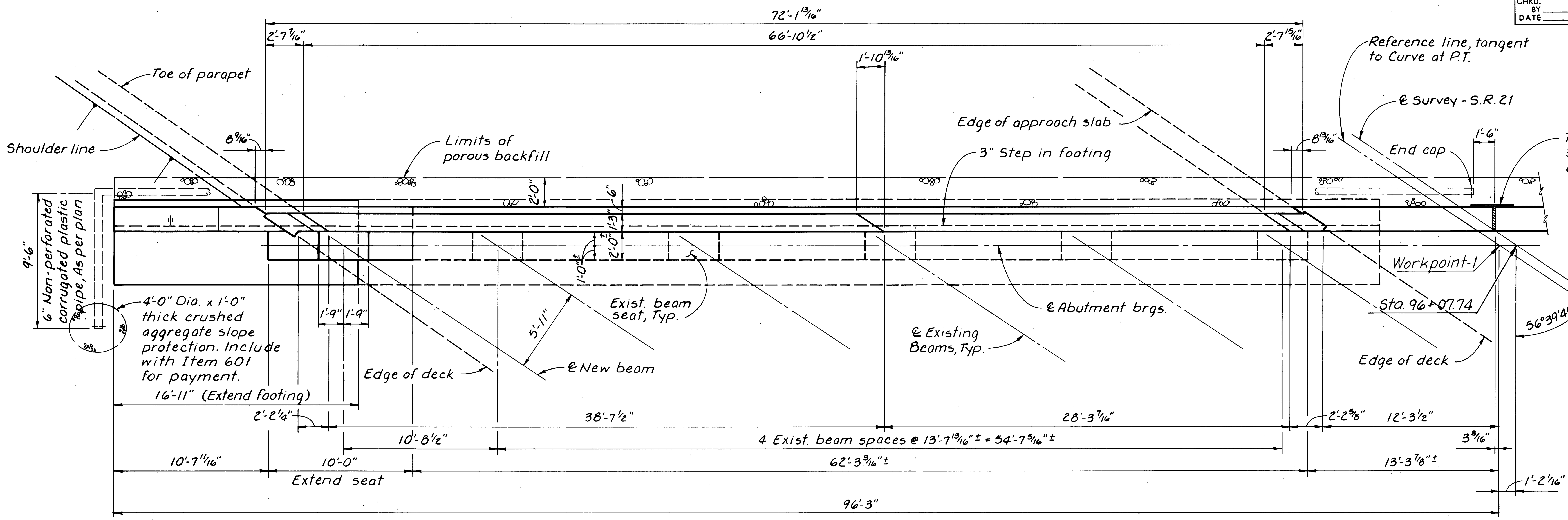
ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

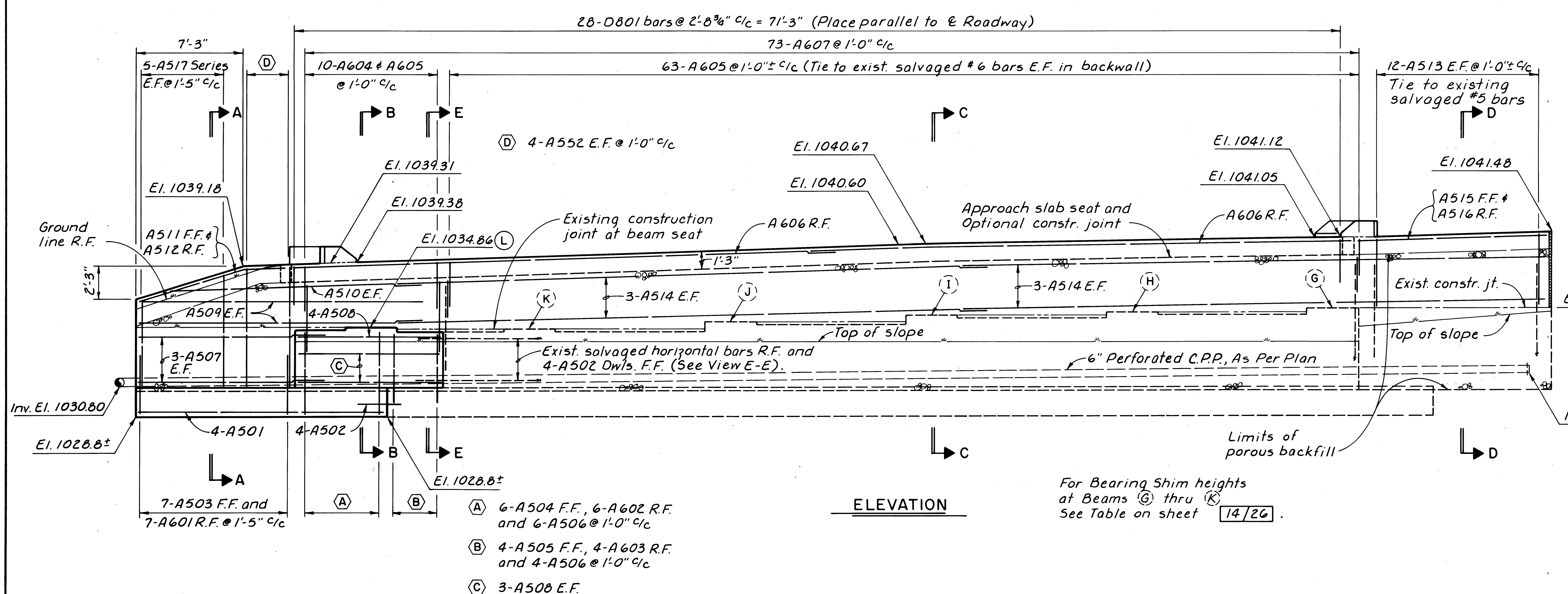
DEMOLITION AND PATCHING DETAILS

BRIDGE NO. WAY-21-0182L/R
OVER T.R. 172

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	9/24/96	

021102





ABUTMENT NOTES

ABBREVIATIONS:

F.F. = FRONT FACE
R.F. = REAR FACE
E.F. = EACH FACE
P.E.J.F. = PREFORMED EXPANSION JOINT FILLER

MINIMUM BAR LAPS ARE AS FOLLOWS UNLESS NOTED OTHERWISE.

#4 BARS = 1'-7"
#5 BARS = 1'-11"
#6 BARS = 2'-6"

REINFORCING STEEL: NEW REINFORCING STEEL MAY REQUIRE FIELD CUTTING OR BENDING TO BE PROPERLY FITTED. PAYMENT SHALL BE INCLUDED IN ITEM 509.

DEMOLITION AND PATCHING DETAILS: SEE SHEET 4&5/26.

REINFORCING STEEL LIST: SEE SHEET 25/26.

EXPANSION JOINT DETAILS: SEE SHEET 14/26.

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. GEOTEXTILE FABRIC SHALL CONFORM WITH 712.09, TYPE A. GEOTEXTILE FABRIC SHALL BE INCLUDED WITH POROUS BACKFILL FOR PAYMENT.

ANIMAL GUARDS SHALL BE PROVIDED AT THE OUTLET ENDS OF THE DRAINAGE PIPE. SEE STANDARD CONSTRUCTION DRAWING MC-4 FOR DETAILS. PAYMENT FOR THE ANIMAL GUARD SHALL BE INCLUDED WITH THE DRAINAGE PIPE BID ITEM 518.

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

SEALING OF CONCRETE SURFACES: SEE SHEET 15/26.

MISCELLANEOUS ABUTMENT DETAILS: SEE SHEET 14/26.

FOR SECTIONS A-A, B-B, C-C, D-D AND VIEW E-E: SEE SHEET 7/26.

STRUCTURE GENERAL NOTES: SEE SHEET G1,G2&G3/6.

6/26

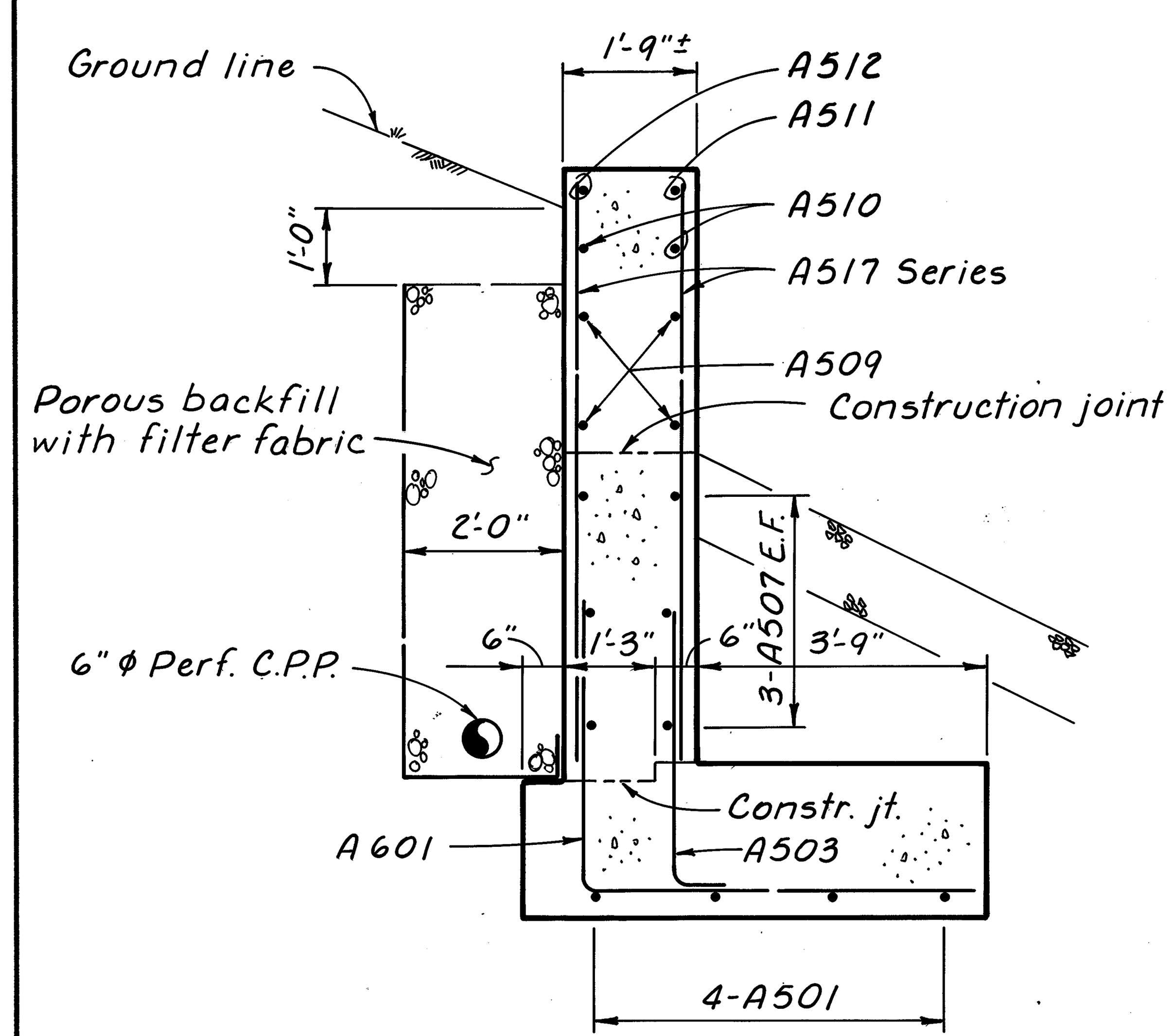
ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

REAR ABUTMENT - 1

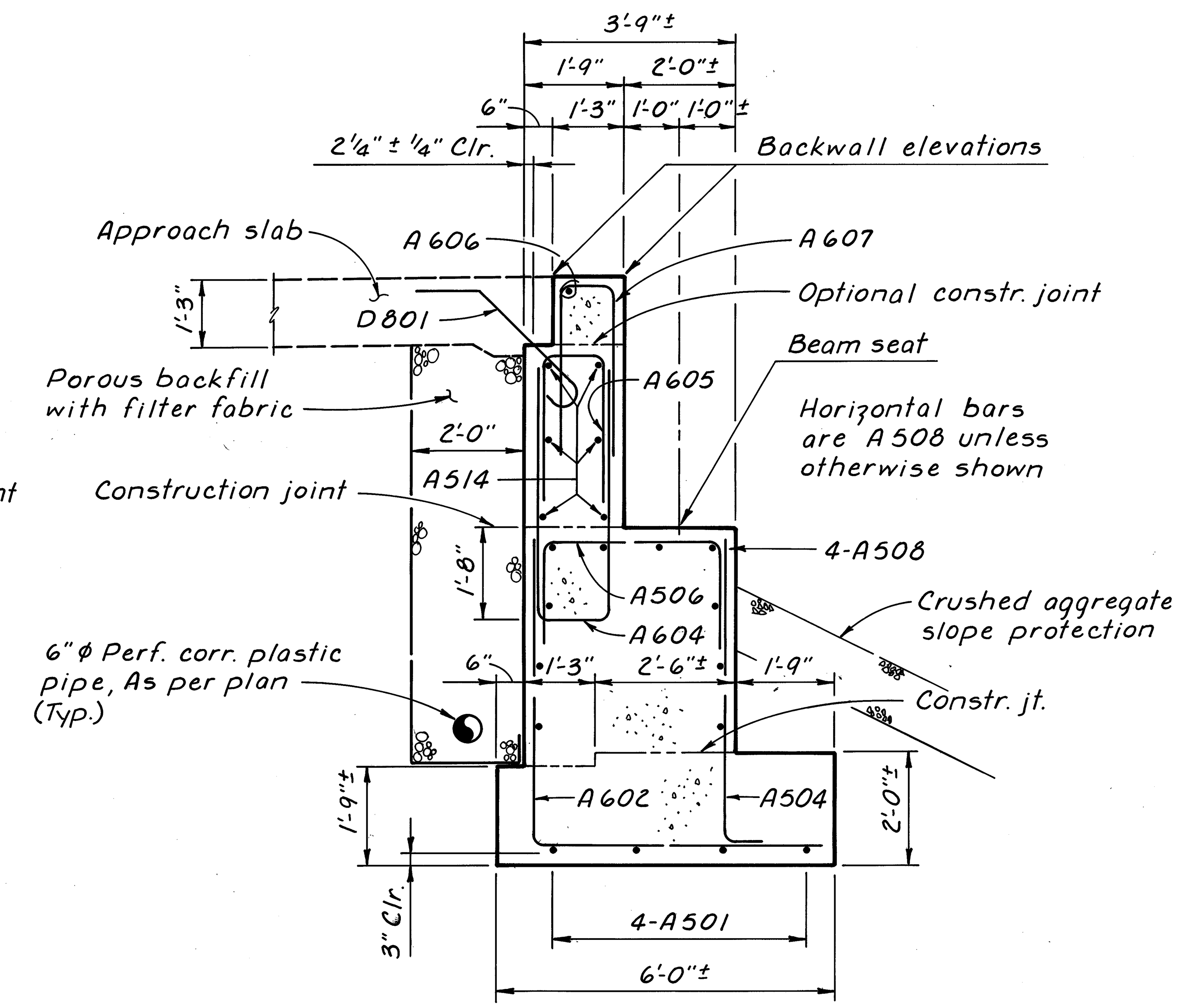
BRIDGE NO. WAY-21-0182R
OVER T.R. 172

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	9/24/96	

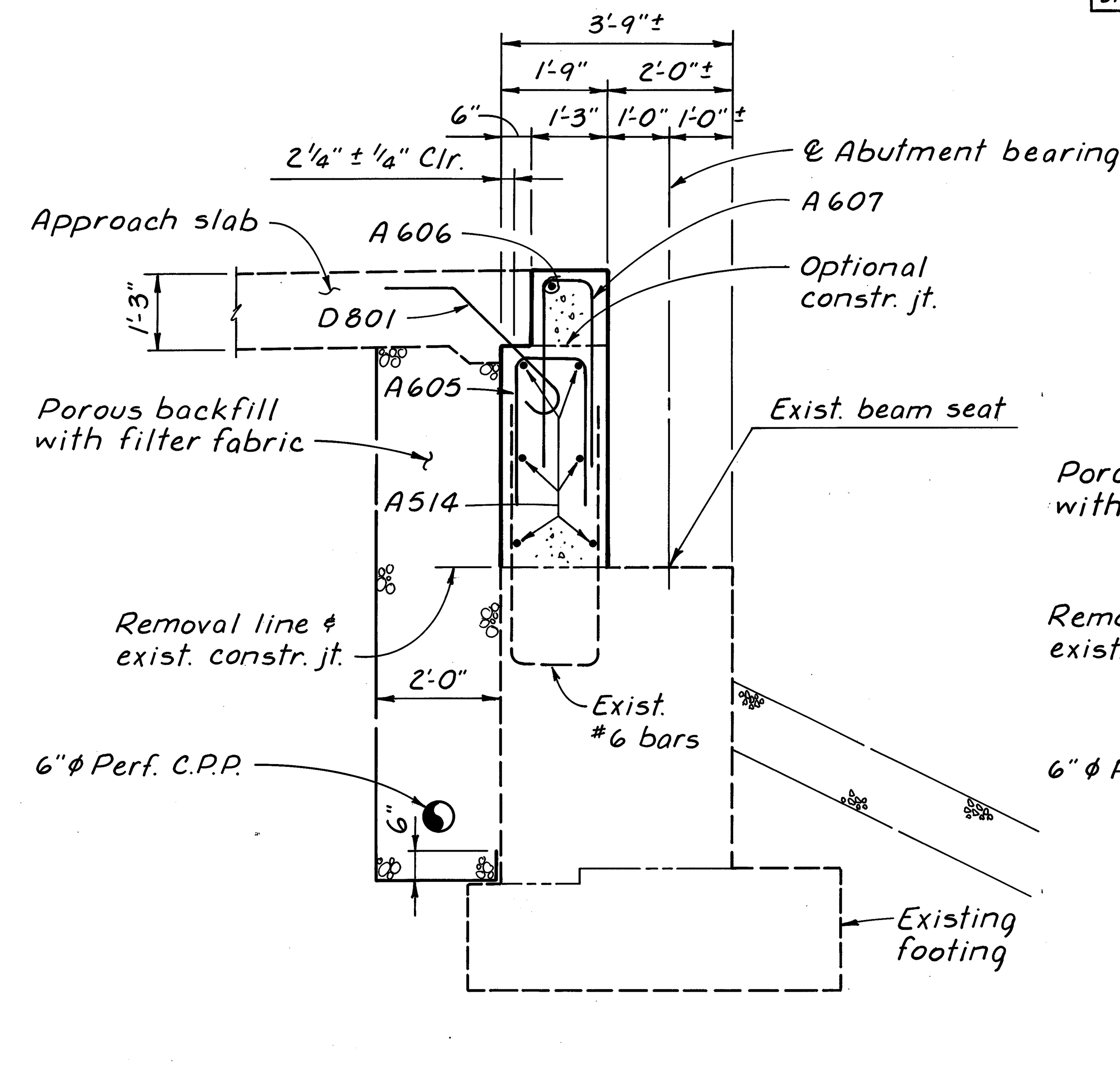
CALC. BY DATE
CHKD. BY DATE



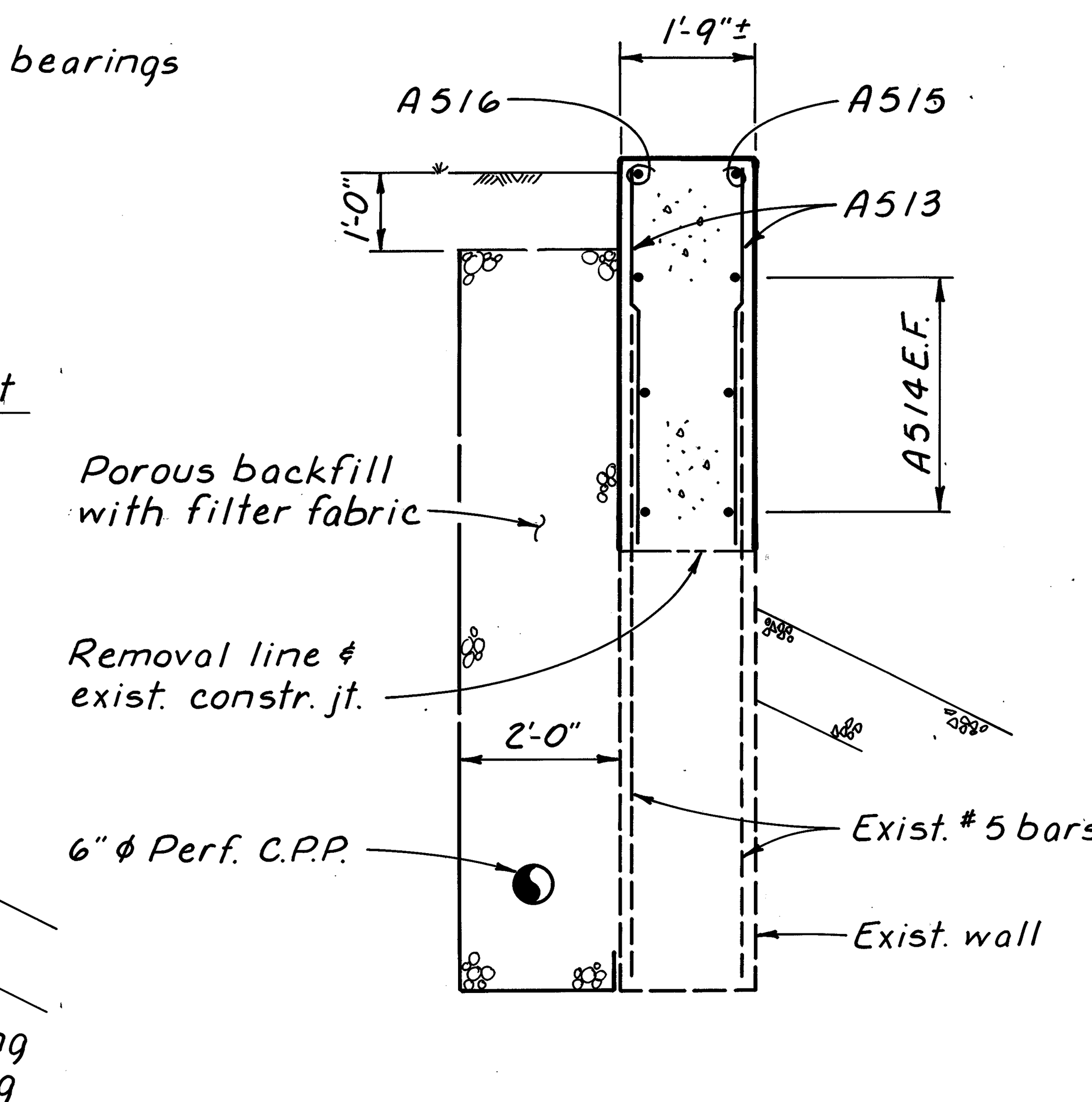
SECTION A-A



SECTION B-B



SECTION C-C

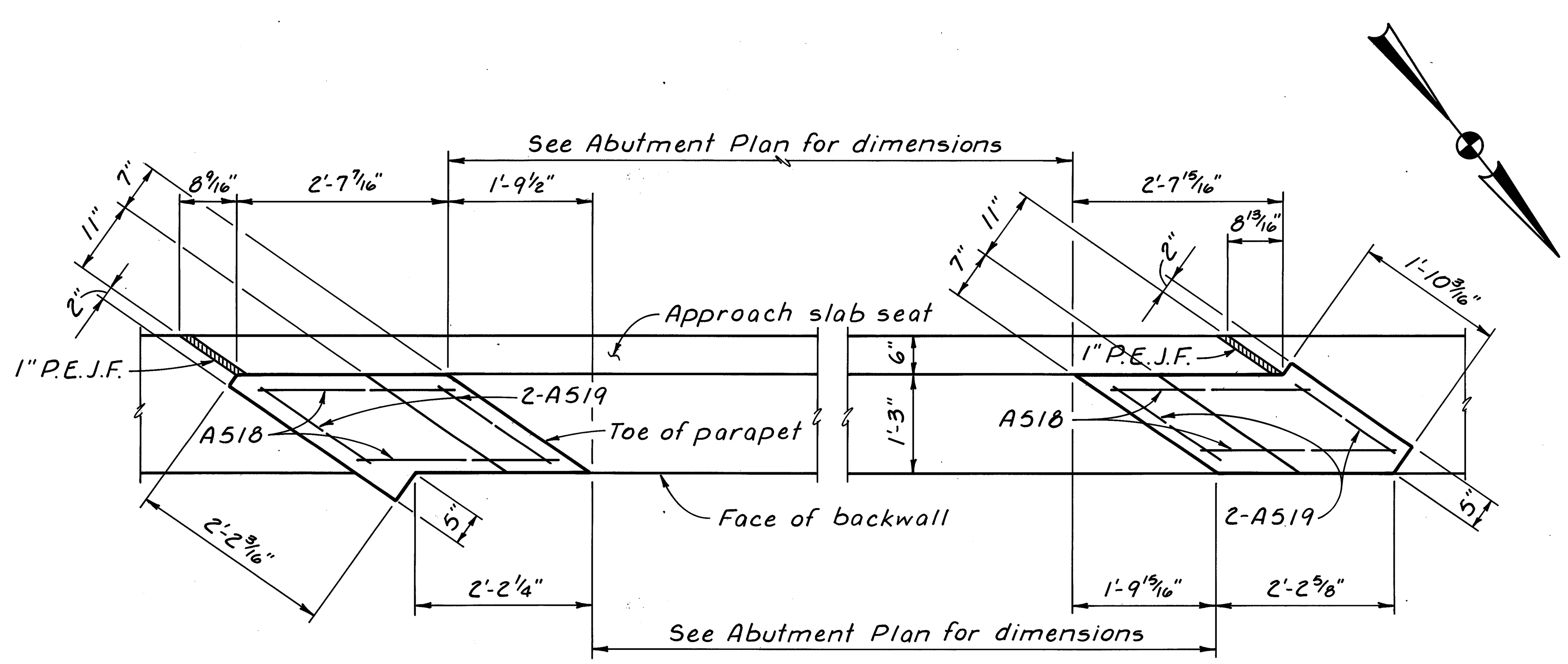


SECTION D-D

NOTES

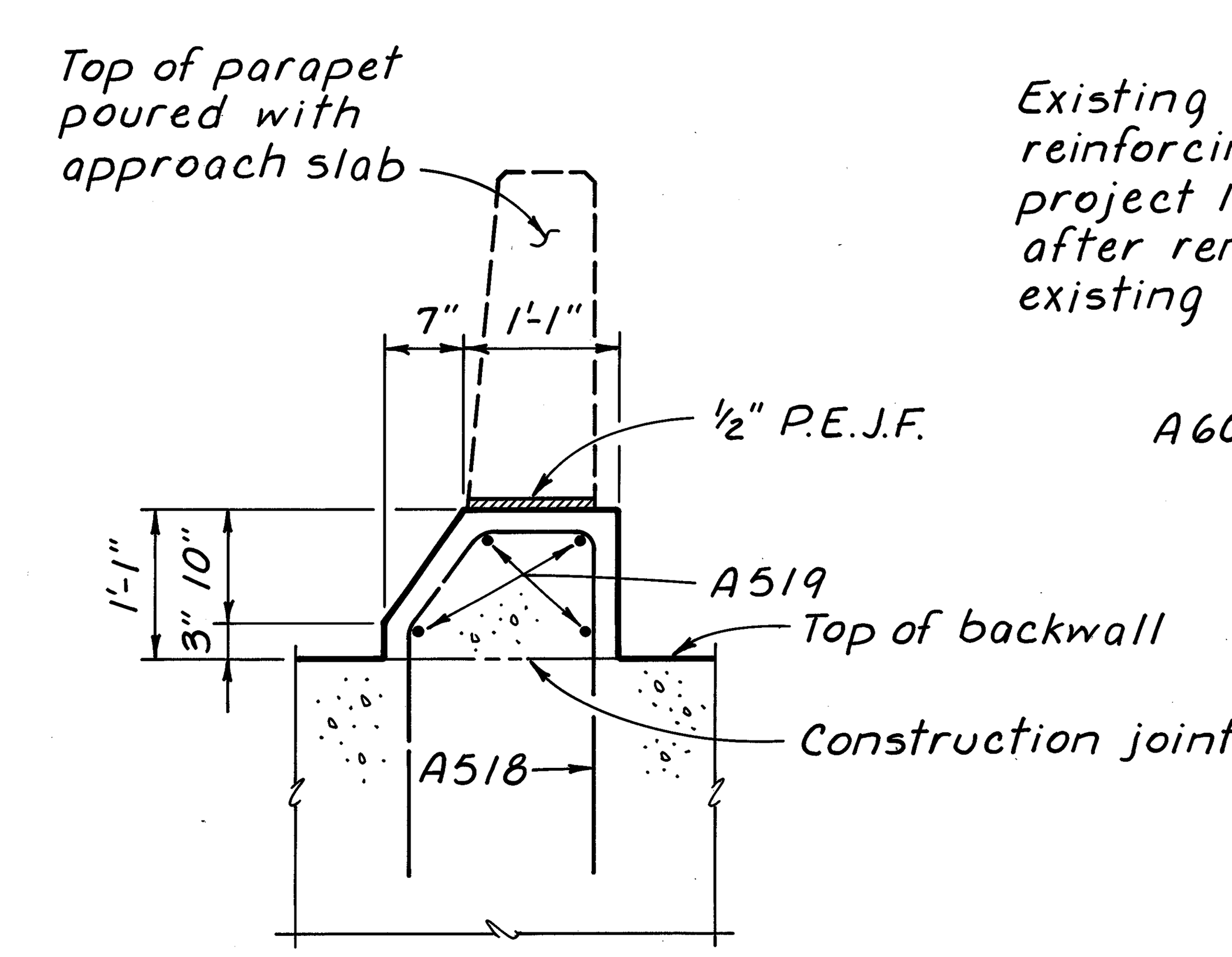
ABUTMENT NOTES: See sheet 6/26.

FOR LOCATION OF SECTIONS A-A, B-B, C-C, D-D AND VIEW E-E: See sheet 6/26.



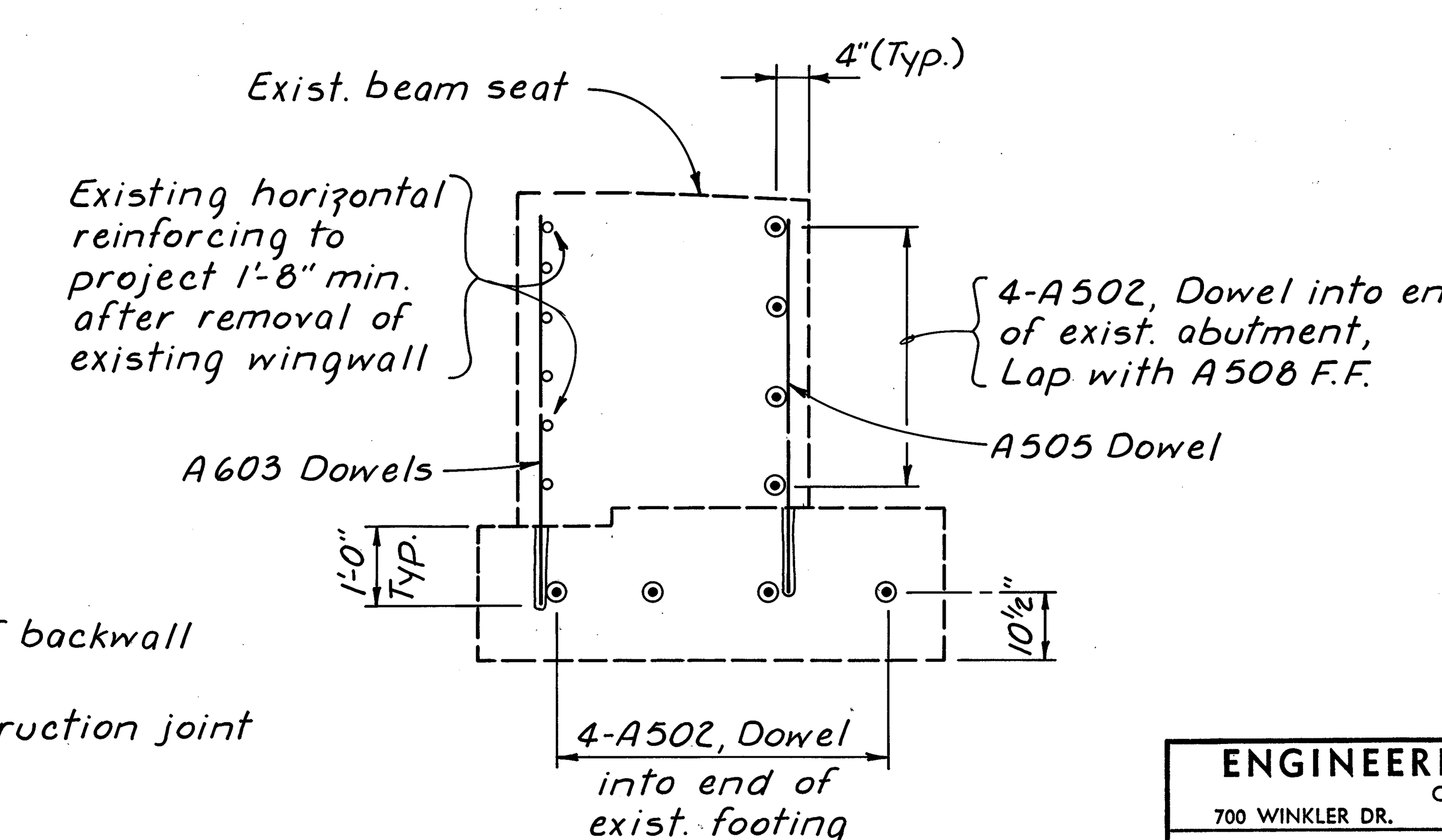
BACKWALL PLAN

Showing Parapet Details



PARAPET SECTION

Drawn normal to face of parapet



VIEW E-E

View after existing backwall and wingwall have been removed

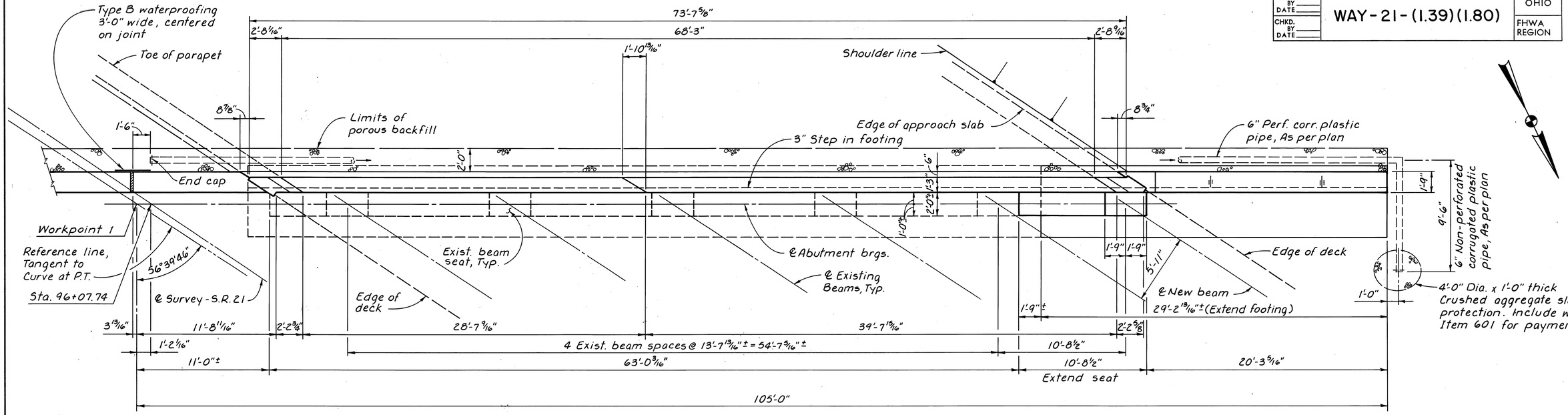
ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

REAR ABUTMENT - 2

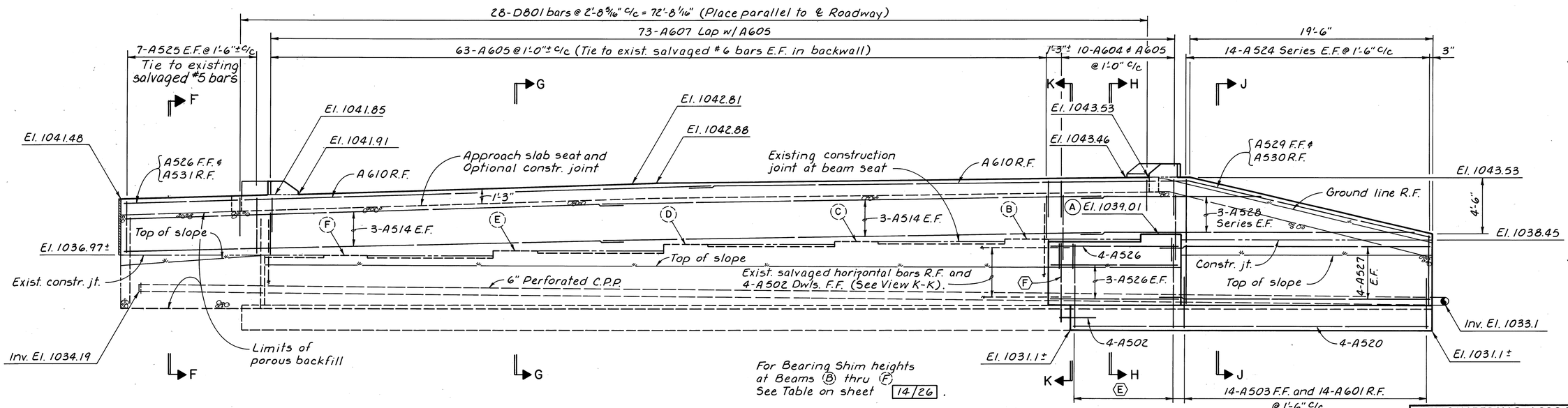
BRIDGE NO. WAY-21-0182R OVER T.R. 172

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	9/24/96	

CALC. BY / DATE	WAY-21-(1.39)(1.80)	OHIO / FHWA REGION	80/100
CHKD. BY / DATE			



PLAN



ELEVATION

For Bearing Shim heights at Beams (B) thru (F) See Table on sheet 14/26.

(E) 8-A522 F.F., 8-A608 R.F. and 8-A506

(F) A523 F.F., A609 R.F. and A506

NOTES

ABUTMENT NOTES: See sheet 6/26.

SECTIONS F-F, G-G, H-H, J-J AND VIEW K-K: See sheet 9/26.

BACKWALL PLAN: See sheet 9/26.

BEARING DETAILS: See sheet 14/26.

8/26

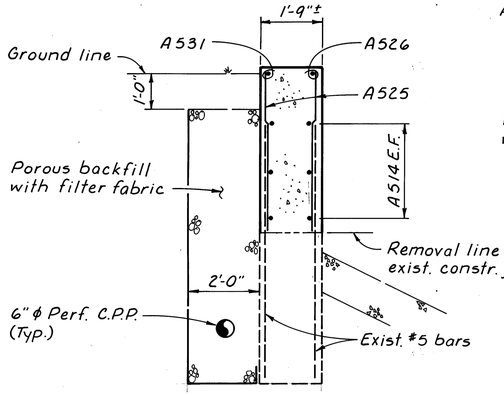
ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

REAR ABUTMENT - 3

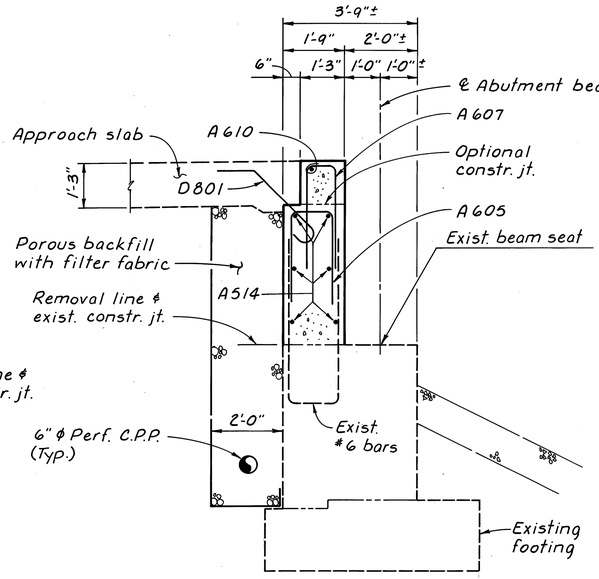
BRIDGE NO. WAY-21-0182L
OVER T.R. 172

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	9/24/96	

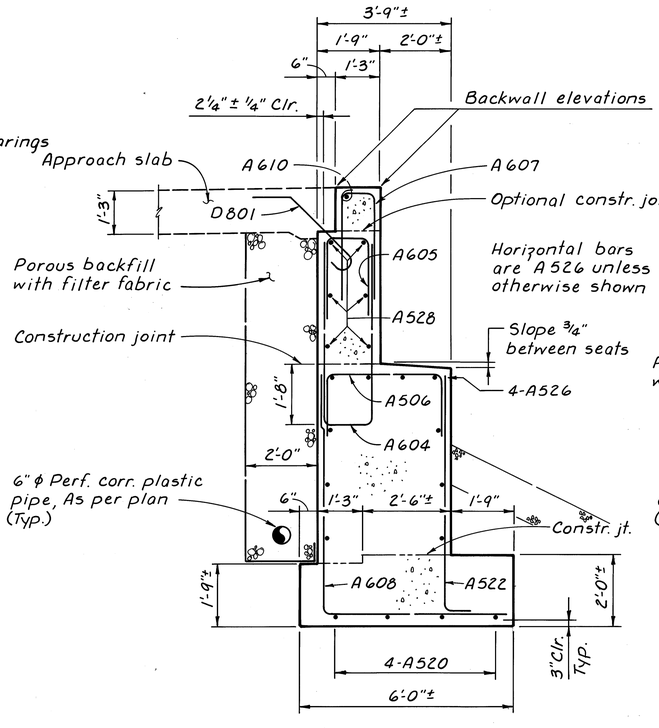
851102



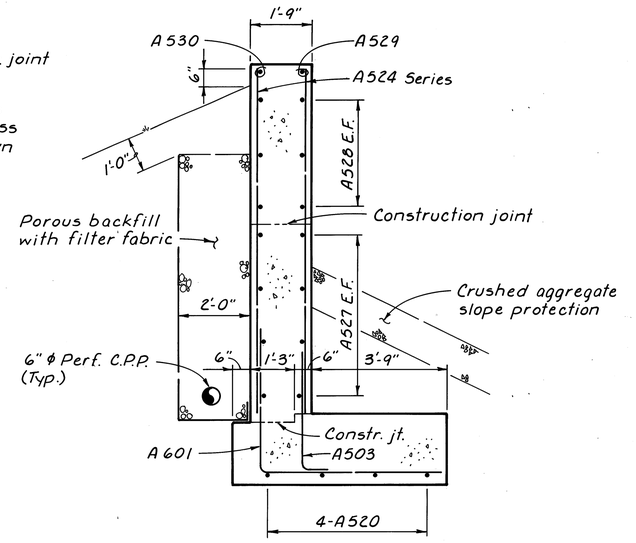
SECTION F-F



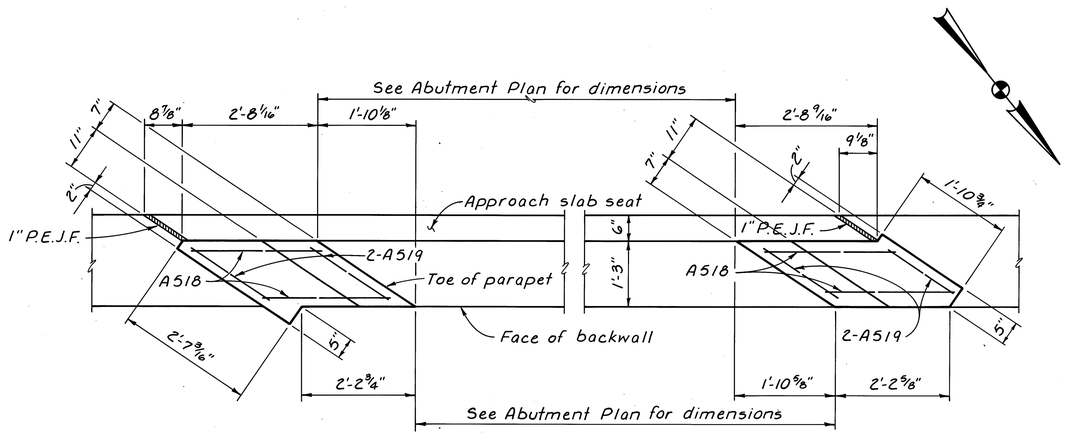
SECTION G-G



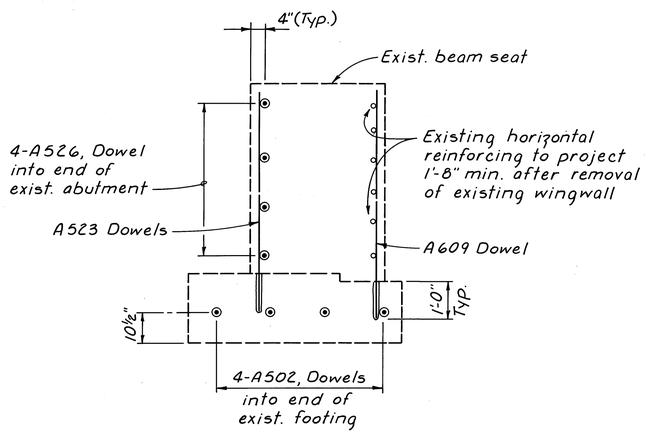
SECTION H-H



SECTION J-J



BACKWALL PLAN
Showing Parapet Details



VIEW K-K
View after existing backwall and wingwall have been removed

NOTES

ABUTMENT NOTES: See sheet 6/26.

PARAPET SECTION: See sheet 7/26.

FOR LOCATION OF SECTIONS F-F, G-G, H-H, J-J AND VIEW K-K: See sheet 8/26.

9/26

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

REAR ABUTMENT - 4

BRIDGE NO. WAY-21-0182L
OVER T.R. 1.72

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	9/24/96	

PLAN

For Bearing Shim heights at Beams Ⓑ thru Ⓕ. See Table on sheet 14/26.

Ⓐ A533 F.F., A 611 R.F. and A506

Ⓑ 8-A534 Dwls. F.F., 8-A612 Dwls. R.F. and 8-A506 @ 1'-0" c/c

Ⓒ 4-A537 E.F.

ELEVATION

NOTES

ABUTMENT NOTES: See sheet 6/26.

SECTIONS A-A, B-B, C-C, D-D AND VIEW E-E: See sheet 11/26.

BACKWALL PLAN: See sheet 11/26.

BEARING DETAILS: See sheet 14/26.

10/26

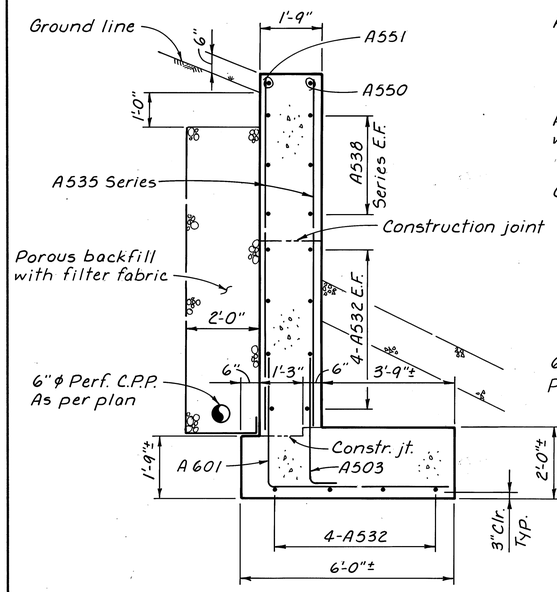
ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

FORWARD ABUTMENT - I

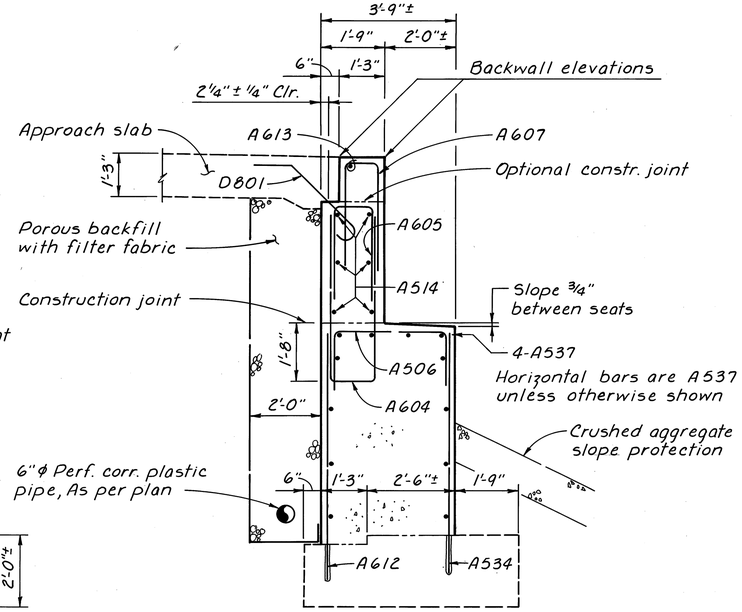
BRIDGE NO. WAY-21-0182L
OVER T.R. 172

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	9/24/96	

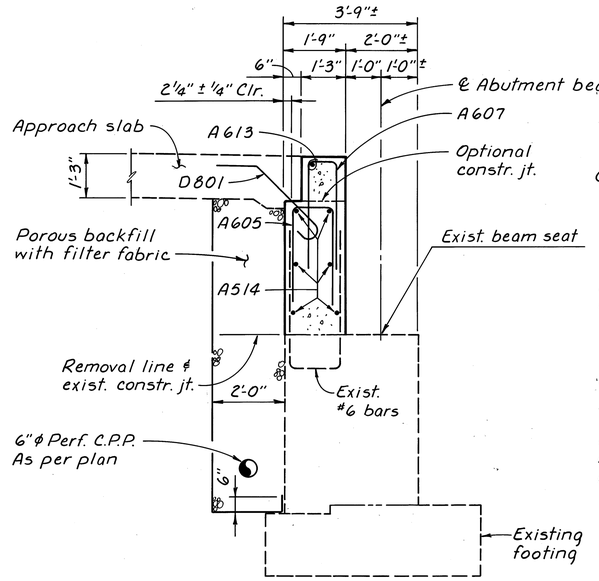
CALC. BY DATE	WAY-21-(1.39)(1.80)	OHIO
CHKD. BY DATE		FHWA REGION



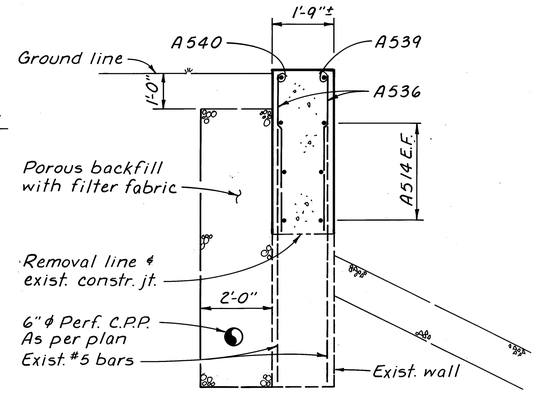
SECTION A-A



SECTION B-B



SECTION C-C

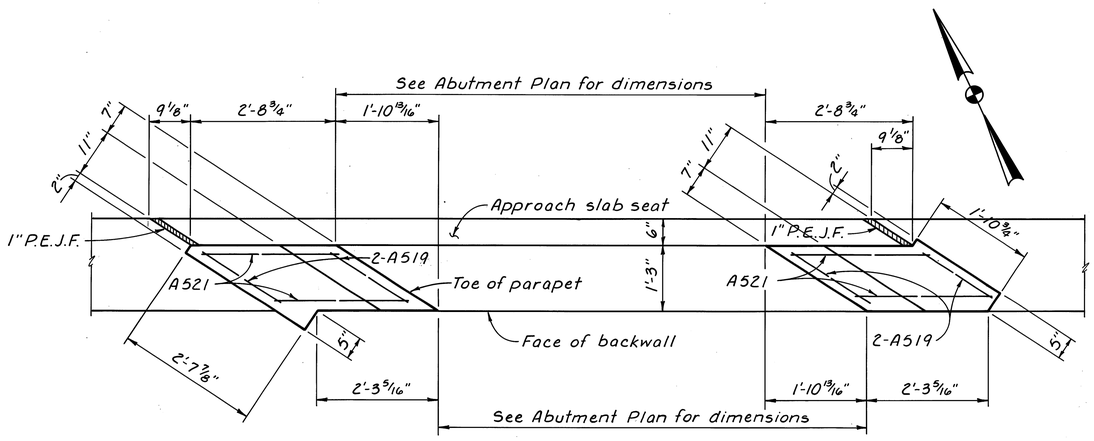


SECTION D-D

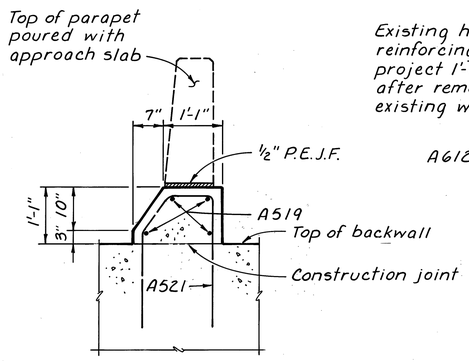
NOTES

ABUTMENT NOTES : See sheet 6/26 .

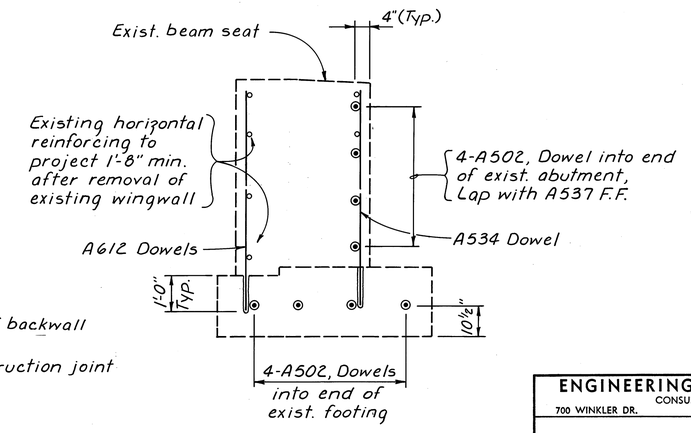
FOR LOCATION OF SECTIONS A-A, B-B, C-C, D-D AND VIEW K-K : See sheet 10/26 .



BACKWALL PLAN
Showing Parapet Details



PARAPET SECTION
Drawn normal to face of parapet



VIEW E-E
View after existing backwall and wingwall have been removed

11/26

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

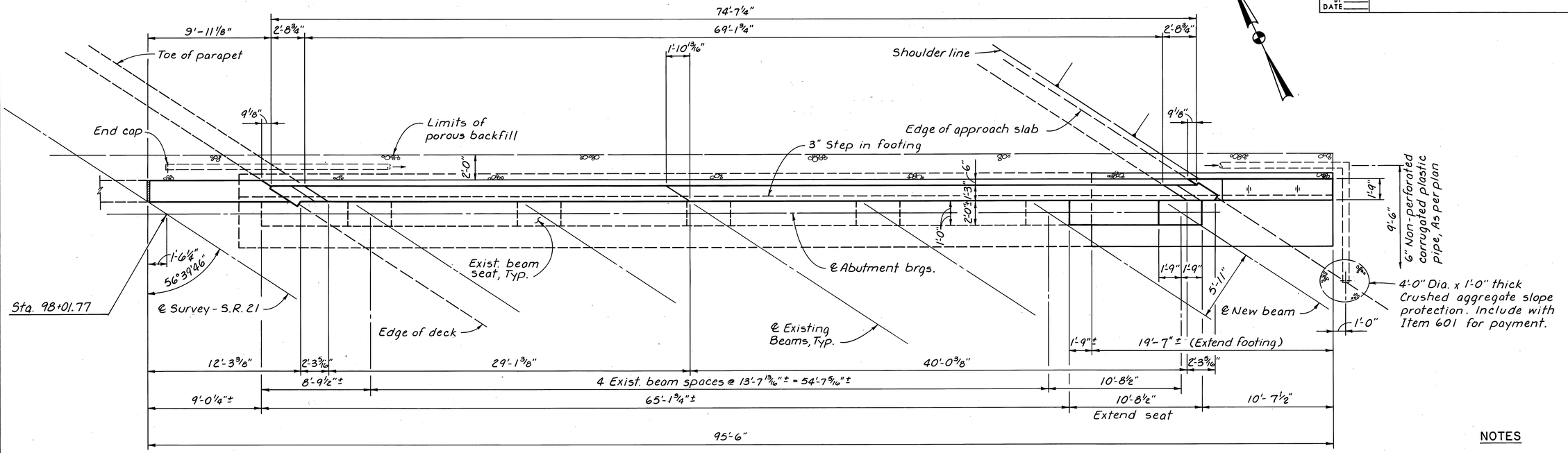
FORWARD ABUTMENT - 2

BRIDGE NO. WAY-21-0182L
OVER T.R. 172

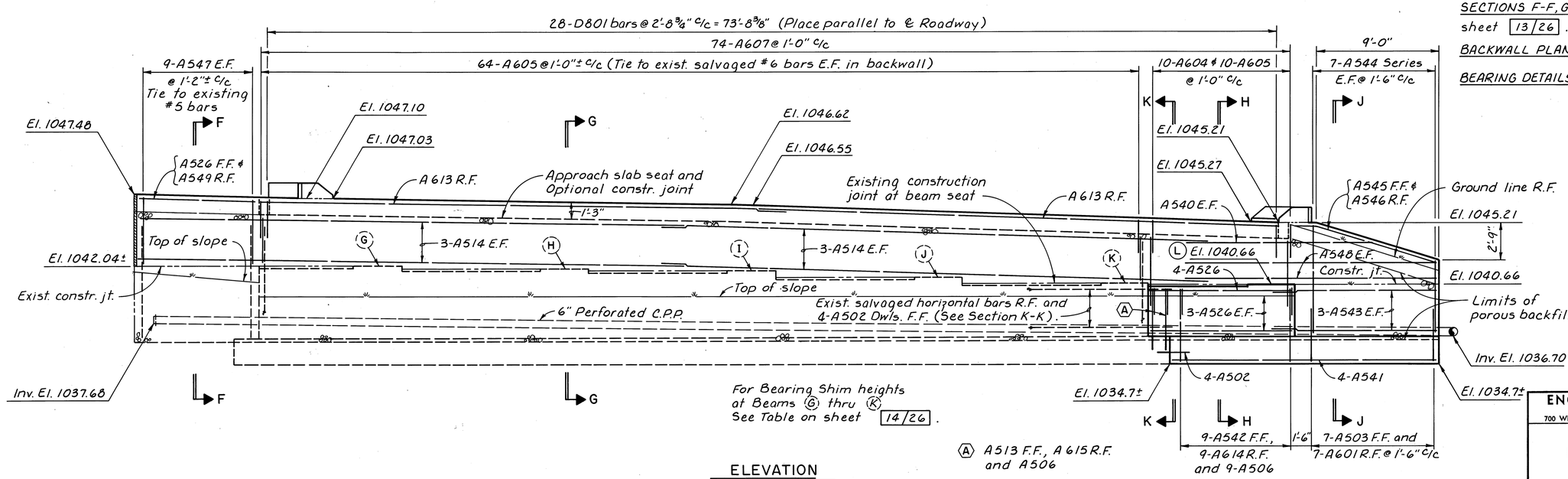
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	9/24/96	

STRMS

CALC. BY / DATE	WAY-21-(1.39)(1.80)	OHIO
CHKD. BY / DATE		FHWA REGION



PLAN



ELEVATION

NOTES

ABUTMENT NOTES: See sheet 6/26.

SECTIONS F-F, G-G, H-H, J-J AND VIEW K-K: See sheet 13/26.

BACKWALL PLAN: See sheet 11/26.

BEARING DETAILS: See sheet 14/26.

12/26

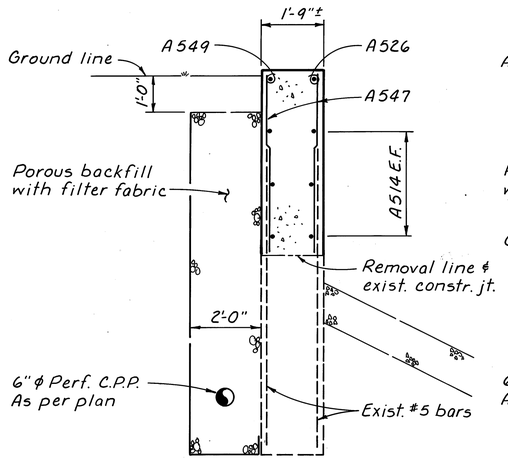
ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

FORWARD ABUTMENT - 3

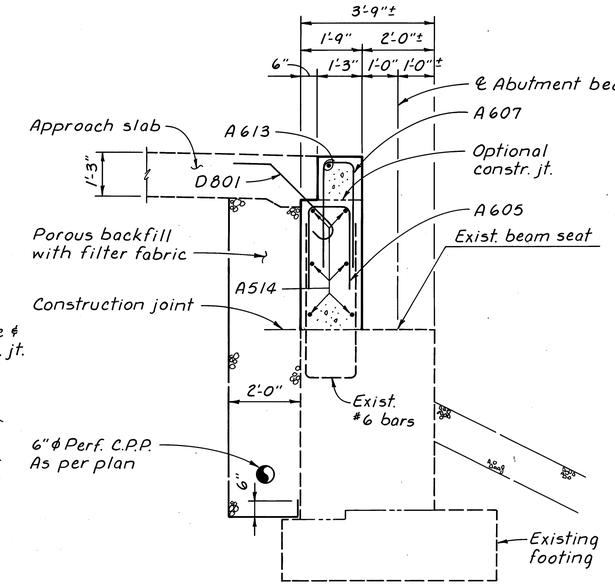
BRIDGE NO. WAY-21-0182R
OVER T.R. 172

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	9/24/96	

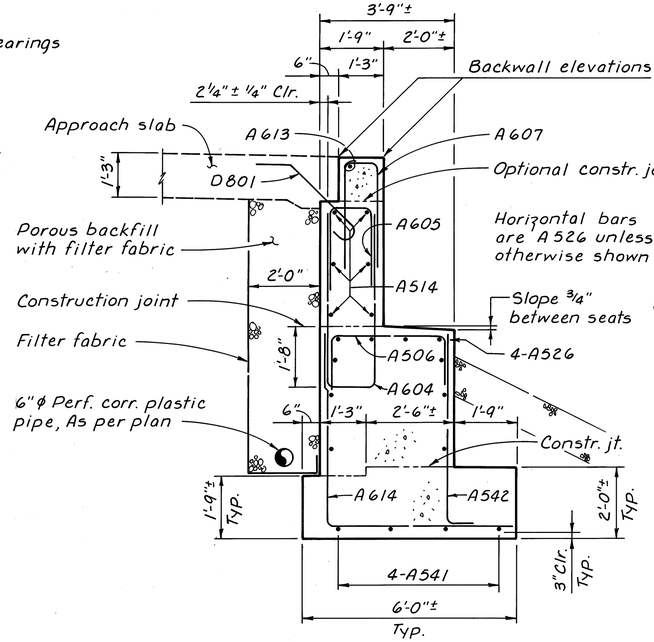
CALC. BY DATE	WAY-21-(1.39)(1.80)	OHIO	85
CHKD. BY DATE		FHWA REGION	100



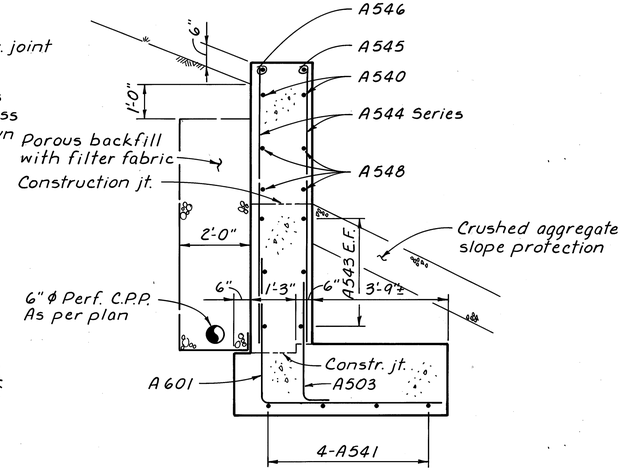
SECTION F-F



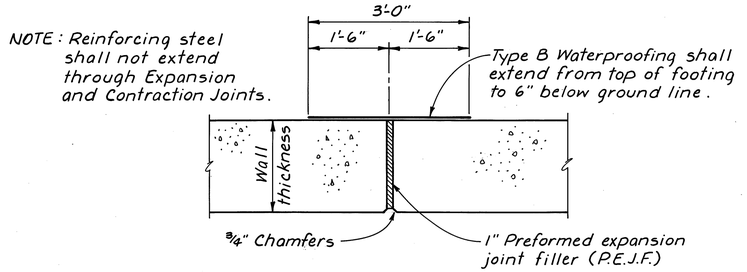
SECTION G-G



SECTION H-H

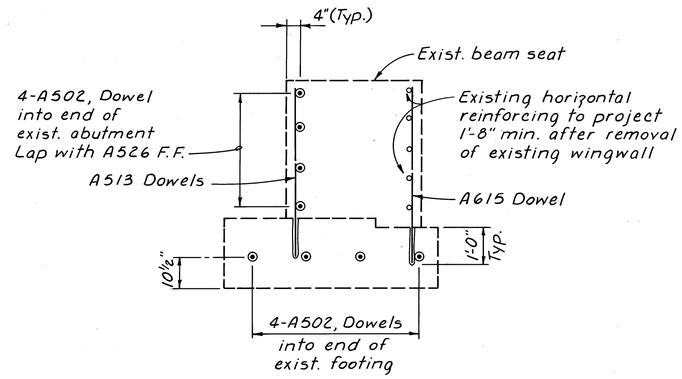


SECTION J-J



EXPANSION JOINTS

CONTROL JOINT DETAIL



VIEW K-K

View after existing backwall and wingwall have been removed

NOTES

ABUTMENT NOTES: See sheet 6/26.

FOR LOCATION OF SECTIONS F-F, G-G, H-H, J-J AND VIEW K-K: See sheet 12/26.

13/26

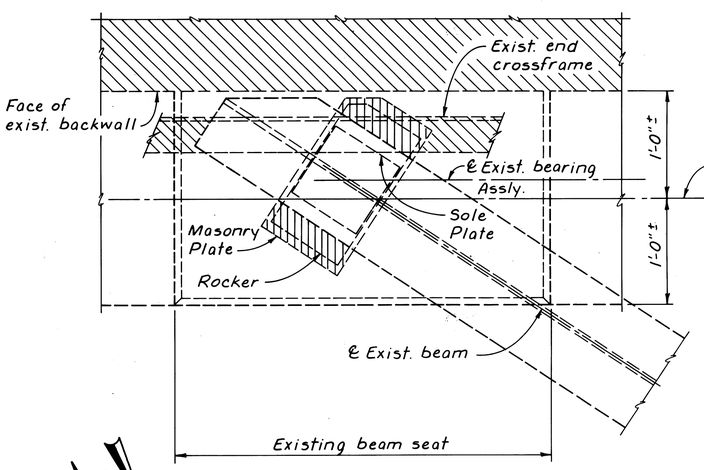
ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

FORWARD ABUTMENT - 4

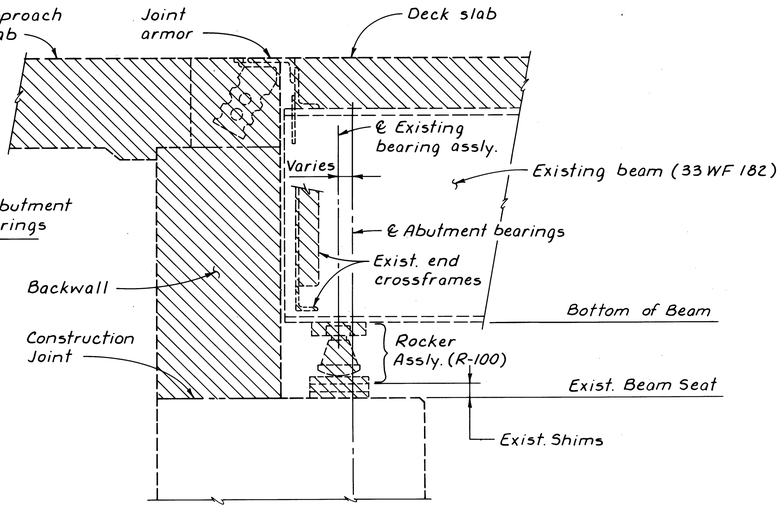
BRIDGE NO. WAY-21-0182R OVER T.R. 172

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	9/24/96	

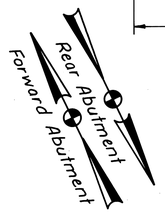
S12645



PLAN



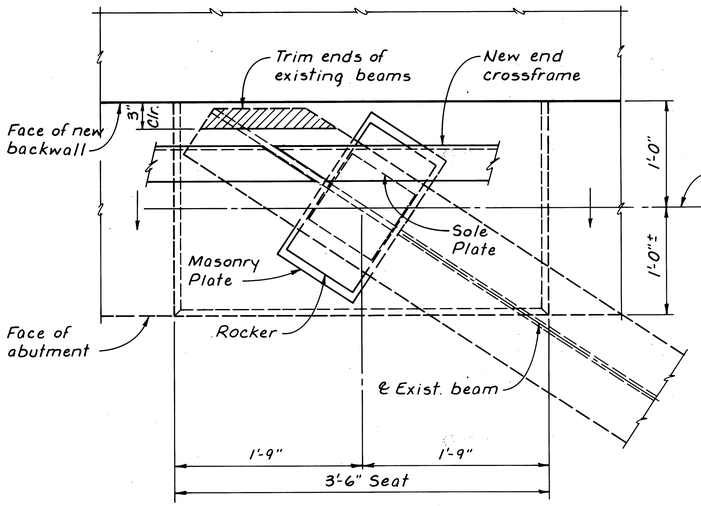
SECTION



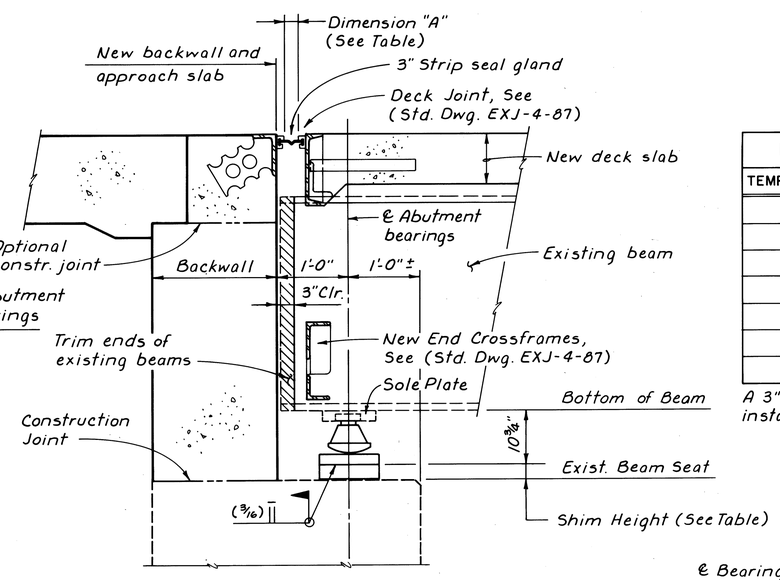
Hatching indicates portions of existing structure to be removed.

EXISTING ABUTMENT BEARING DETAILS

BEARING SHIMS					
RIGHT STRUCTURE REAR ABUTMENT					
BEAM LINE:	(K)	(J)	(I)	(H)	(G)
Bottom of Beam Elevation	1035.89	1036.38	1036.86	1037.04	1037.24
Beam Seat Elevation	1034.82	1035.30	1035.82	1036.05	1036.25
Calculated Shim Height	2 1/8"	2 1/4"	1 3/4"	1 1/8"	1 1/8"
LEFT STRUCTURE REAR ABUTMENT					
BEAM LINE:	(F)	(E)	(D)	(C)	(B)
Bottom of Beam Elevation	1038.13	1038.62	1039.07	1039.29	1039.49
Beam Seat Elevation	1037.00	1037.50	1037.99	1038.21	1038.46
Calculated Shim Height	2 3/4"	2 3/4"	2 1/4"	2 1/4"	1 3/8"
LEFT STRUCTURE FORWARD ABUTMENT					
BEAM LINE:	(B)	(C)	(D)	(E)	(F)
Bottom of Beam Elevation	1045.17	1045.04	1044.86	1044.43	1043.95
Beam Seat Elevation	1044.11	1043.96	1043.78	1043.33	1042.88
Calculated Shim Height	2"	2 1/4"	2 1/4"	2 1/2"	2 1/8"
RIGHT STRUCTURE FORWARD ABUTMENT					
BEAM LINE:	(G)	(H)	(I)	(J)	(K)
Bottom of Beam Elevation	1043.09	1042.88	1042.68	1042.21	1041.69
Beam Seat Elevation	1042.06	1041.85	1041.65	1041.22	1040.77
Calculated Shim Height	1 3/8"	1 3/8"	1 3/8"	1 1/8"	1/4"



PLAN

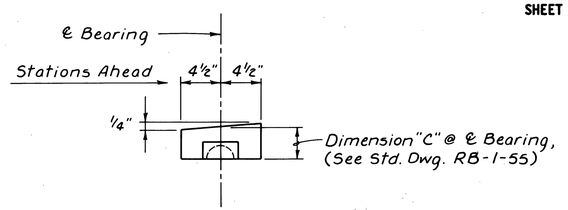


SECTION

PROPOSED ABUTMENT BEARING AND END CROSSFRAME DETAILS

DECK JOINT OPENING	
TEMPERATURE (°F)	DIMENSION "A"
30°	1 7/8"
40°	1 3/4" (+)
50°	1 3/4" (-)
60°	1 5/8"
70°	1 5/8"
80°	1 9/16" (-)
90°	1 1/2"

A 3" Strip seal gland shall be installed in both expansion joints.



SOLE PLATE DETAILS

MISCELLANEOUS NOTES

BEARINGS REPLACED: BEARINGS UNDER THE EXISTING BEAMS AT THE REAR AND FORWARD ABUTMENTS SHALL BE REPLACED WITH NEW BEARINGS POSITIONED AS SHOWN IN SECTION, THIS SHEET. EXISTING SOLE PLATES SHALL BE CLEANED (REPAIRED IF NECESSARY) AND LEFT IN PLACE FOR REUSE.

PLAN DIMENSIONS OF THE STEEL SHIMS UNDER THE BEARINGS SHALL MATCH THOSE OF THE BEARING. THE SHIMS MAY BE FURNISHED IN ONE PIECE OR MAY BE FABRICATED FROM SEVERAL PLATES OF EQUAL OR DIFFERENT THICKNESSES TO ATTAIN THE HEIGHT LISTED IN THE TABLE ABOVE. THE INTERFACE BETWEEN EACH OF THE PLATES SHALL BE SEALED WITH A CONTINUOUS WELD ALONG THE EDGES OF THE PLATES TO KEEP MOISTURE OUT OF THE JOINT.

THE CONTRACTOR SHALL BE SURE THAT ALL BEARINGS ARE SHIMMED ADEQUATELY AND THAT NO BEAMS AND/OR BEARING DEVICES ARE "FLOATING" BEFORE WELDING THE SHIMS TO THE BEARING. PAYMENT FOR ALL THE ABOVE DESCRIBED WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE BEARINGS.

PAINTING: NEW END CROSSFRAMES AND PROPOSED BEARINGS UNDER ALL BEAMS SHALL BE PRIMED AND PAINTED WITH SYSTEM OZEU.

ADDITIONAL NOTES: SEE STRUCTURE GENERAL NOTES, SHEET G2 / 6 .

14/26

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

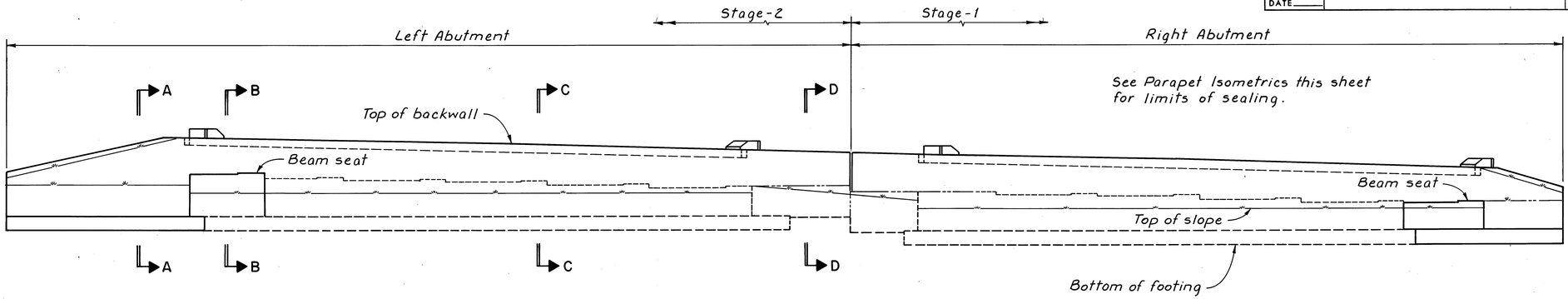
MISCELLANEOUS DETAILS

BRIDGE NO. WAY-21-0182L/R
OVER T.R. 172

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	9/24/96	

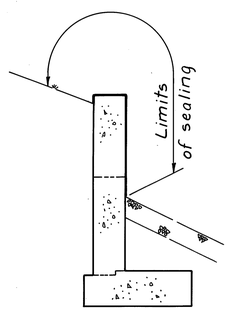
CALC. BY DATE	WAY-21-(1.39)(1.80)	OHIO
CHKD. BY DATE		FHWA REGION

87/100

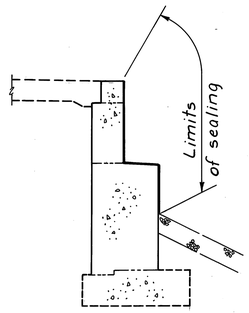


ELEVATION FORWARD ABUTMENTS

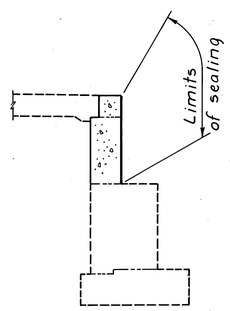
NOTE: Epoxy sealer shall be used on abutment surfaces.



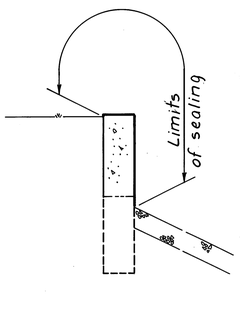
SECTION A-A



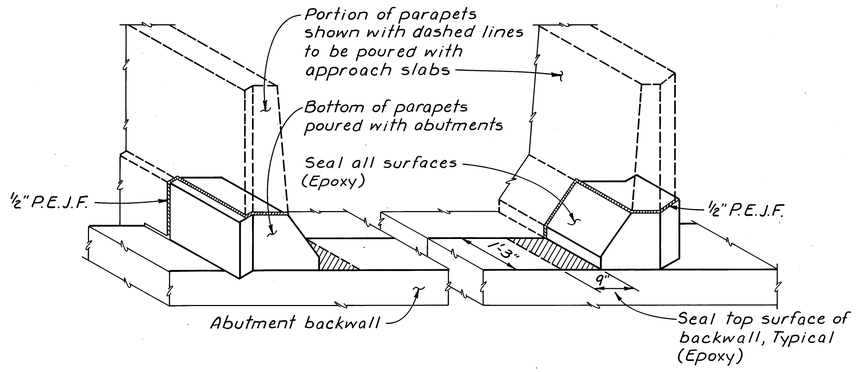
SECTION B-B



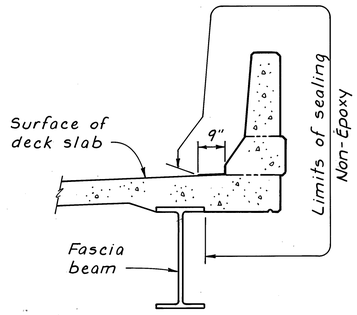
SECTION C-C



SECTION D-D



PARAPET ISOMETRICS



PARAPET SECTION

15/26

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

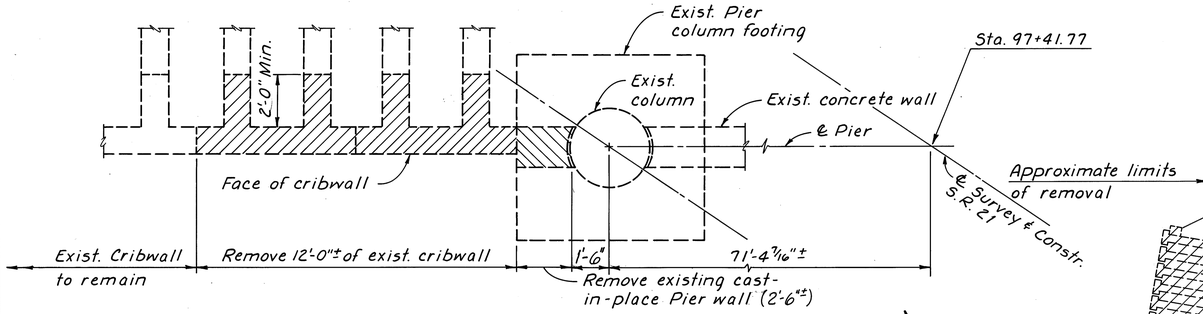
SEALING OF CONCRETE SURFACES

BRIDGE NO. WAY-21-0182L/R
OVER T.R. 172

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	9/24/96	

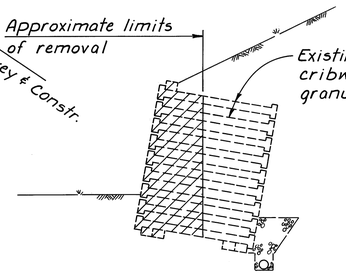
ST9845

NOTE: Hatching indicates limits of removal.

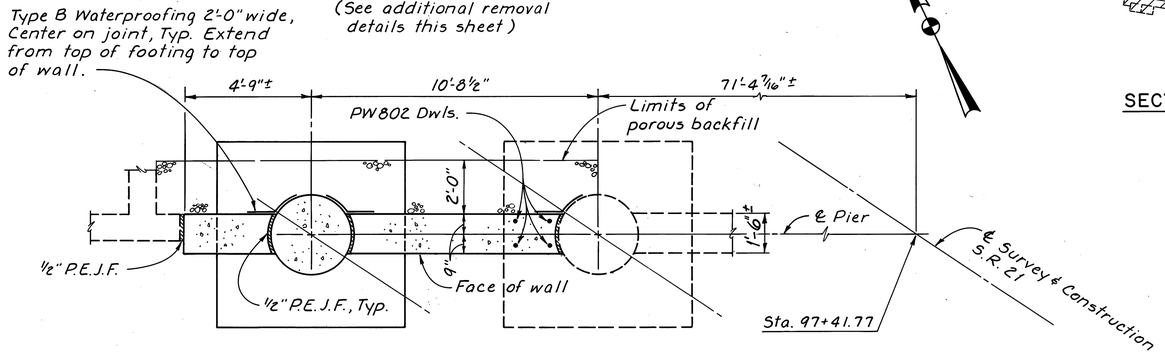


REMOVAL DETAIL - PLAN

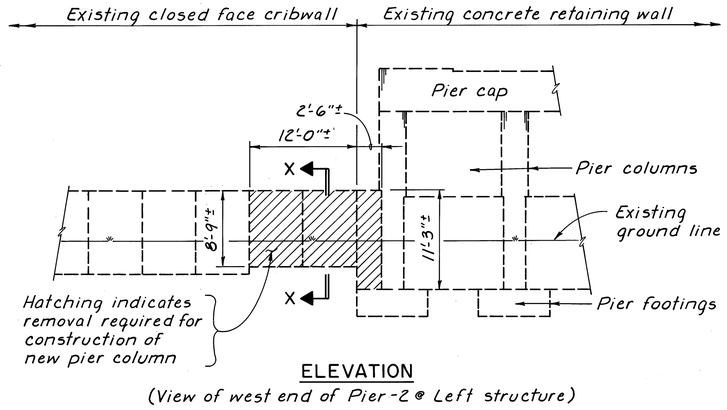
(See additional removal details this sheet)



SECTION X-X



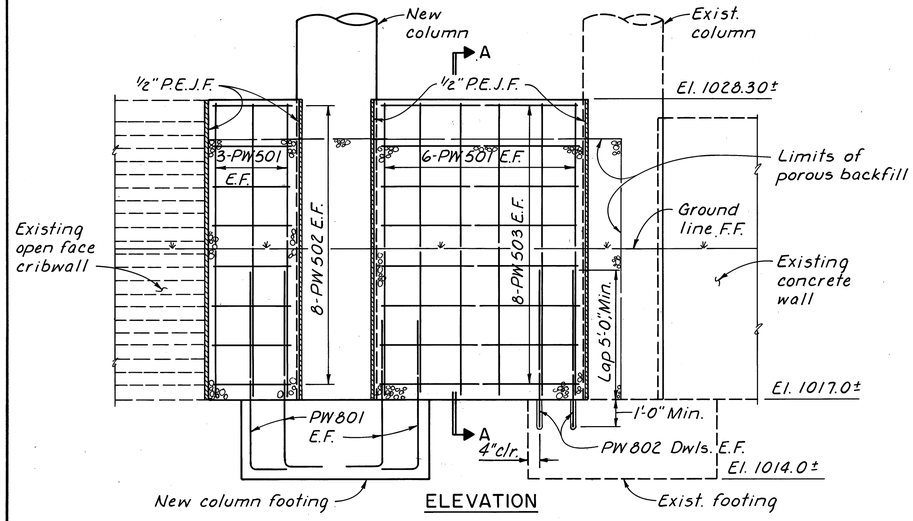
PLAN - PIER 2 AT LEFT STRUCTURE



ELEVATION

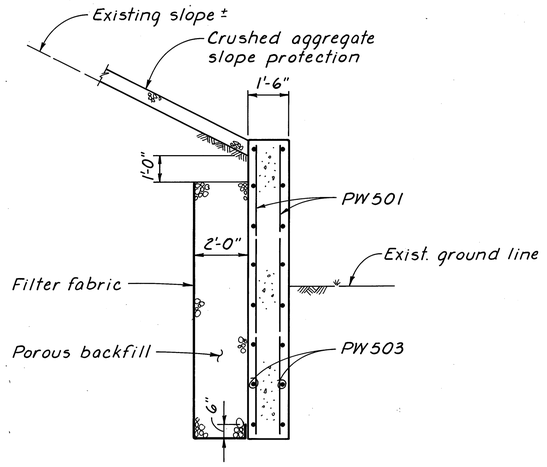
(View of west end of Pier-2 @ Left structure)

REMOVAL DETAILS



ELEVATION

PIER WALL



SECTION A-A

PIER NOTES: See sheet 17/26.

16/26

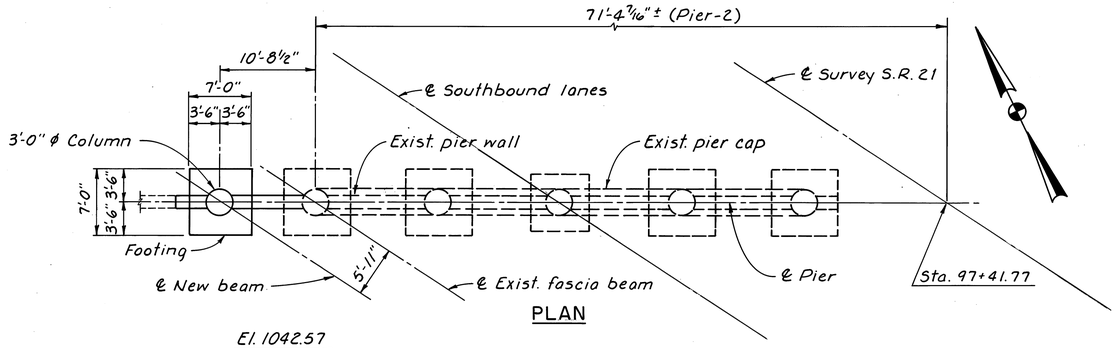
ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

PIER WALL DETAILS

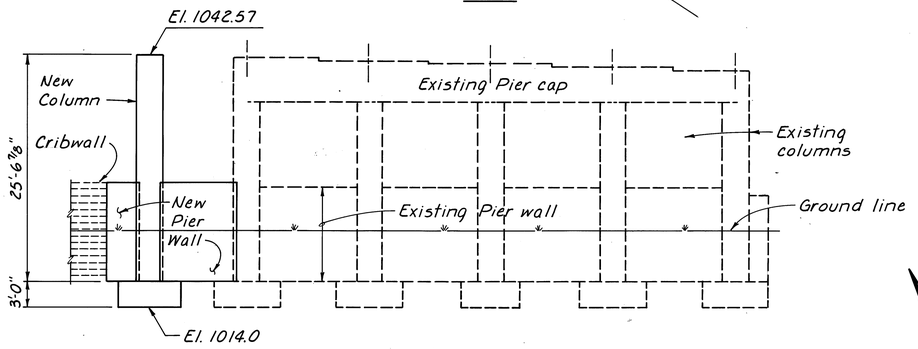
BRIDGE NO. WAY-21-0182L
OVER T.R. 172

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	DBC	SLM	DBC	DWS	9/24/96	

021502

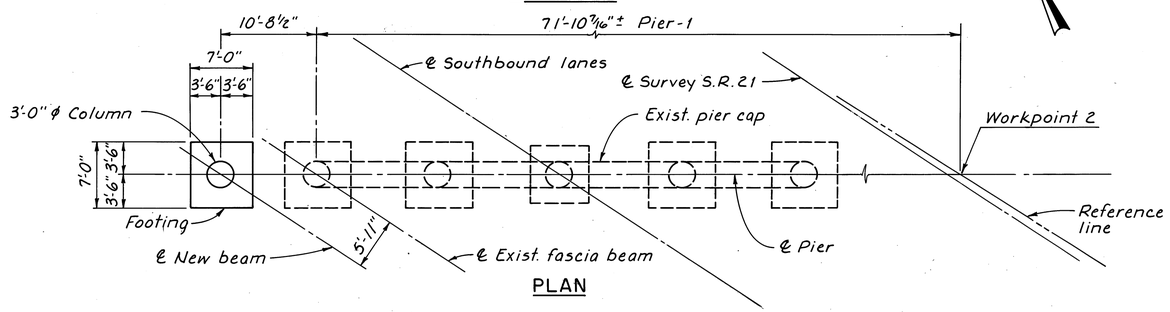


PLAN

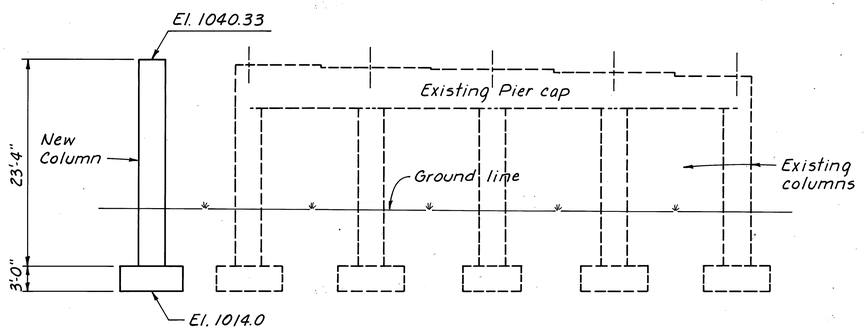


ELEVATION

PIER 2

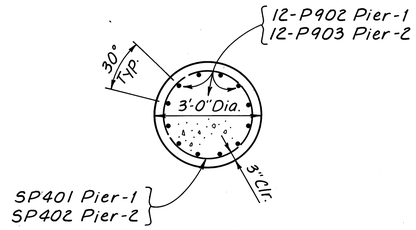


PLAN

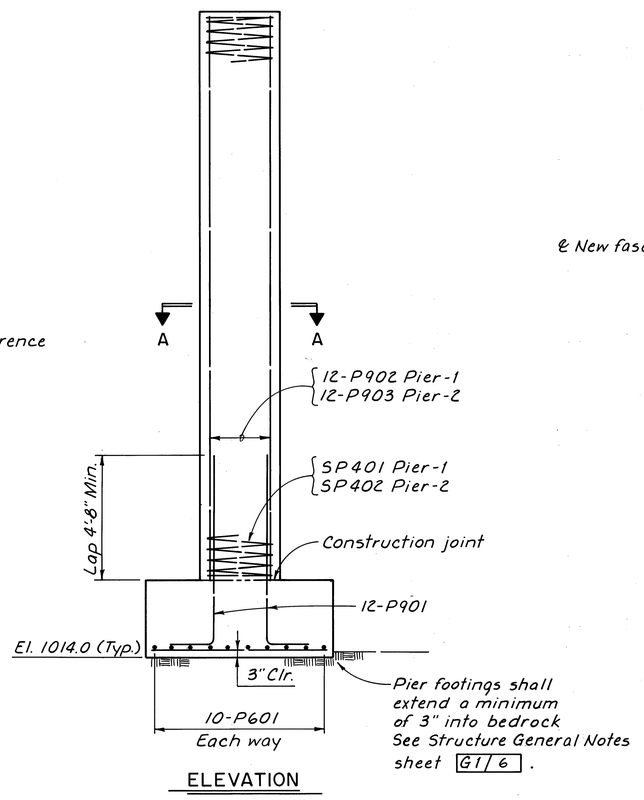


ELEVATION

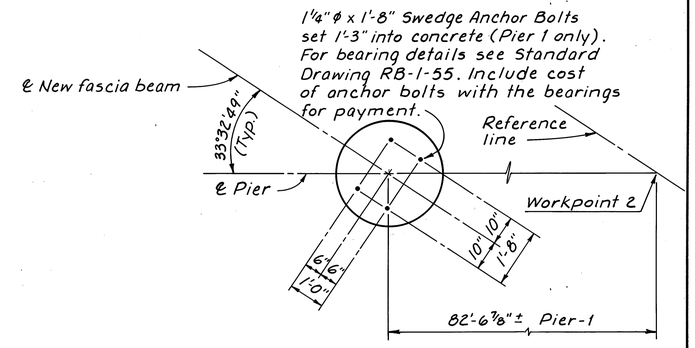
PIER 1



SECTION A-A



ELEVATION



ANCHOR BOLT PLAN

PIER NOTES

ABBREVIATIONS:

F.F. = Front face
R.F. = Rear face
E.F. = Each face

REINFORCING STEEL LISTS: See sheets 25 & 26/26.

BRIDGE SEAT REINFORCING: Reinforcing steel in the vicinity of the bearings at Pier 1 shall be accurately placed to avoid interference with the drilling of bearing anchors or the presetting of bearing anchors.

REMOVAL DETAILS: See sheet 16/26.

PIER WALL DETAILS: See sheet 16/26.

SEALING OF CONCRETE SURFACES: See sheet 18/26.

STRUCTURE GENERAL NOTES: See sheet G1, G2 & G3/6.

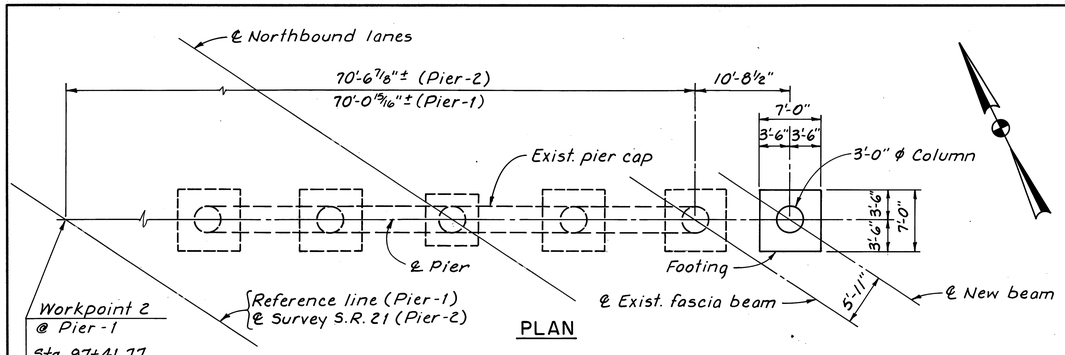
17/26

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

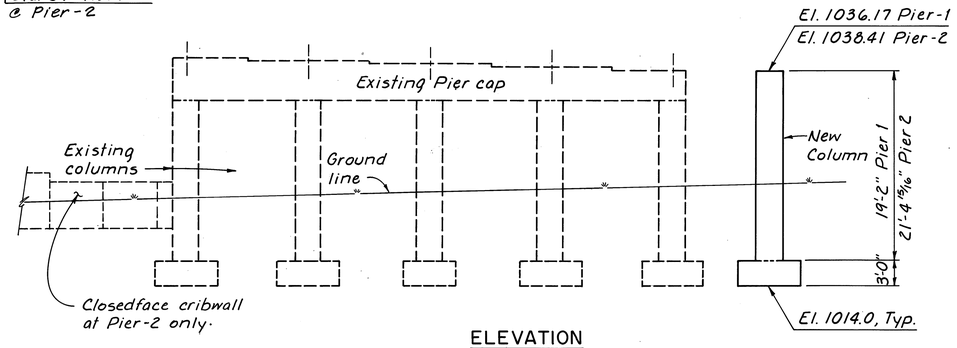
PIERS 1 & 2

BRIDGE NO. WAY-21-0182L
OVER T.R. 172

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	9/24/96	

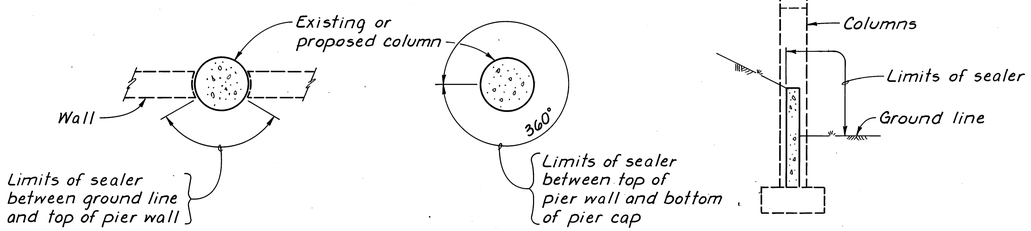


PLAN



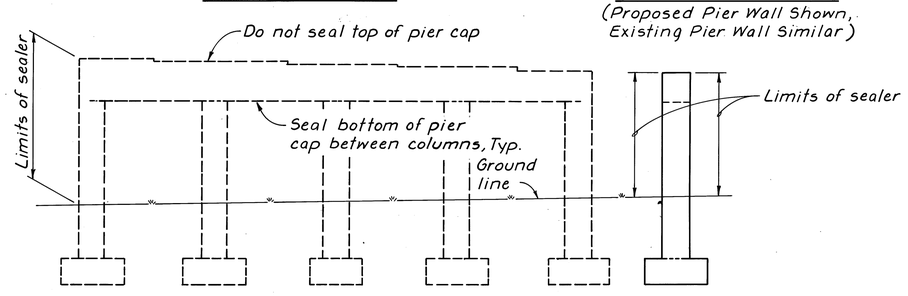
ELEVATION

PIERS 1 & 2



COLUMN SECTIONS

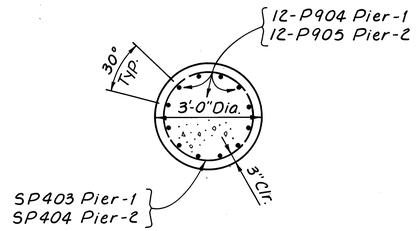
SECTION - PIER WALL
(Proposed Pier Wall Shown, Existing Pier Wall Similar)



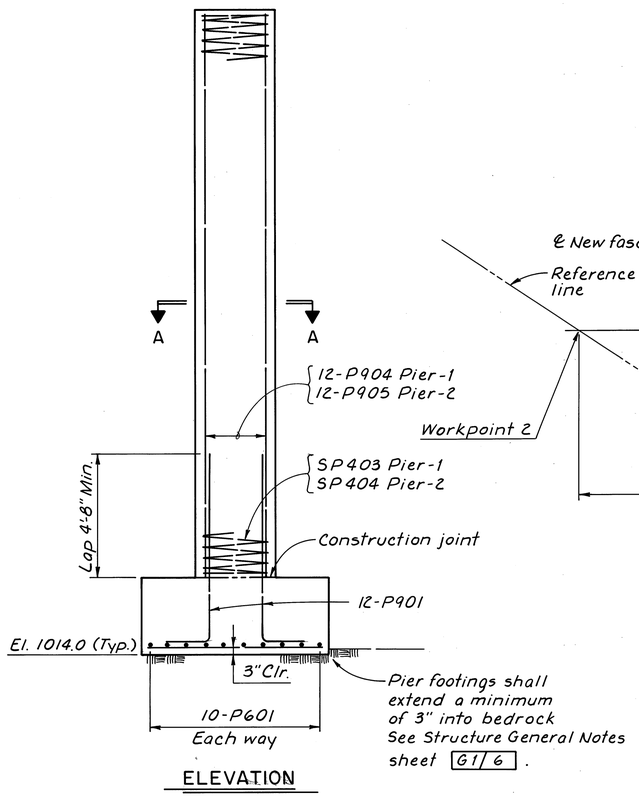
ELEVATION

SEALING OF CONCRETE SURFACES

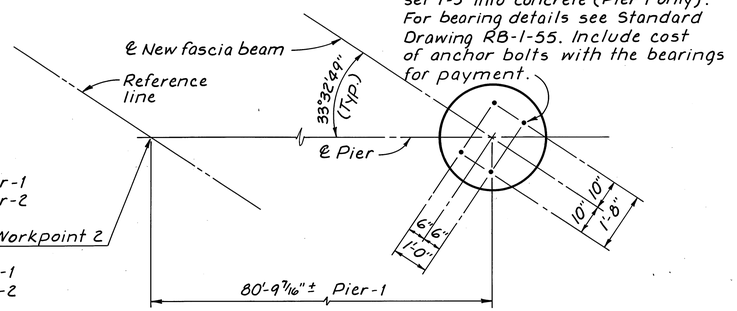
NOTE: Epoxy sealer shall be used on all pier surfaces.



SECTION A-A



ELEVATION



ANCHOR BOLT PLAN

PIER NOTES: See sheet 17/26 .

18/26

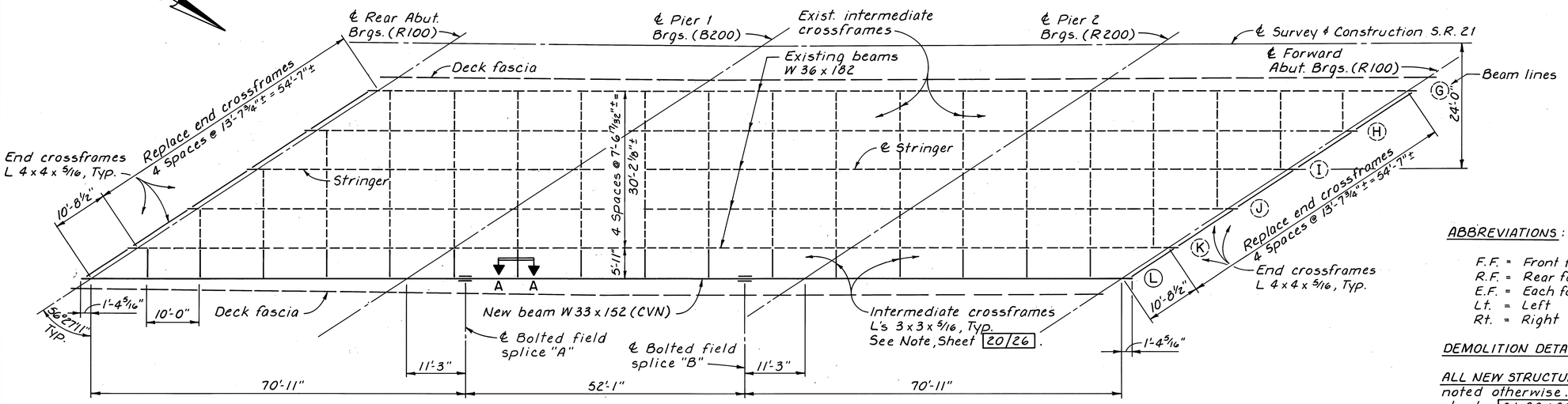
ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

PIERS 1 & 2

BRIDGE NO. WAY-21-0182R
OVER T.R. 172

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	9/24/96	

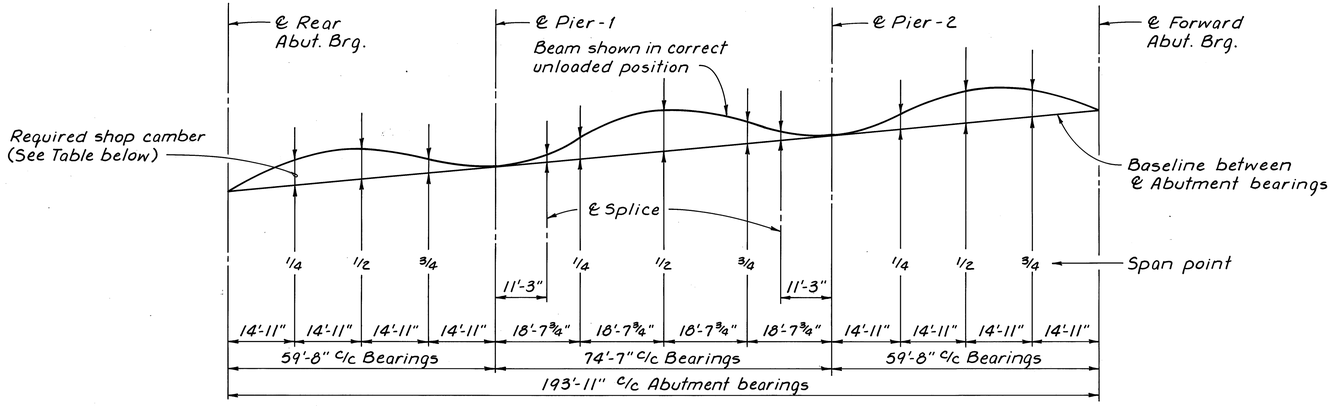
CALC. BY / DATE	WAY-21-(1.39)(1.80)	OHIO	91
CHKD. BY / DATE		FHWA REGION	100



NOTE: Existing beam lines are straight.

FRAMING PLAN

All lengths are horizontal distances and do not take into account changes in elevation from support to support.



BEAM LAYOUT DIAGRAM

(Beam "L")

DEFLECTION AND CAMBER TABLE (Beam "L")

ITEMS \ LOCATION	SPAN - 1			SPAN - 2					SPAN - 3		
	1/4	1/2	3/4	SPL. "A"	1/4	1/2	3/4	SPL. "B"	1/4	1/2	3/4
Deflection due to weight of steel	1/16"	1/16"	-0-	-0-	1/16"	1/8"	1/16"	-0-	-0-	1/16"	1/16"
Deflection due to weight of slab	1/4"	5/16"	3/16"	1/8"	3/16"	3/8"	3/16"	1/8"	3/16"	5/16"	1/4"
Deflection due to remaining dead load	1/16"	1/16"	-0-	-0-	1/16"	1/16"	1/16"	-0-	-0-	1/16"	1/16"
Adjustment required for vertical curve	—	—	—	—	—	—	—	—	—	—	—
Adjustment required for horizontal curve	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
Required shop camber	3/8"	7/16"	3/16"	1/8"	5/16"	9/16"	5/16"	1/8"	3/16"	7/16"	3/8"

SUPERSTRUCTURE NOTES

ABBREVIATIONS:

F.F. = Front face
R.F. = Rear face
E.F. = Each face
Lt. = Left
Rt. = Right

DEMOLITION DETAILS: See sheets 5 & 14/26 .

ALL NEW STRUCTURAL STEEL shall be ASTM A572 unless noted otherwise. See Structure General Notes, sheets G1, G2 & G3/6 .

STEEL NOTCH TOUGHNESS: Where a shape or plate is designated (CVN) the material shall meet specified minimum notch toughness requirements as specified in 711.01. All splice material shall meet CVN requirements.

BOLTED FIELD SPLICES: See Standard Drawing BS-1-93.

HIGH STRENGTH BOLTS shall be 1 1/8" Diameter A325, galvanized, unless otherwise noted.

STUD SHEAR CONNECTOR DETAILS: See sheet 22/26 .

BEARINGS shall conform to details shown on Standard Drawing RB-1-55 except as noted. Change the top diameter of the 1 1/2" tapered dowel (See Dowel Detail) from 1 3/8" to 1 1/2", R-100 bearings only.

DECK JOINT AND END CROSSFRAME DETAILS: See sheet 14/26 and Standard Drawing EXJ-4-87.

SECTION A-A: See sheet 22/26 .

REINFORCING STEEL LISTS: See sheets 25 & 26/26 .

STRUCTURE GENERAL NOTES: See sheet G1, G2 & G3/6 .

19/26

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

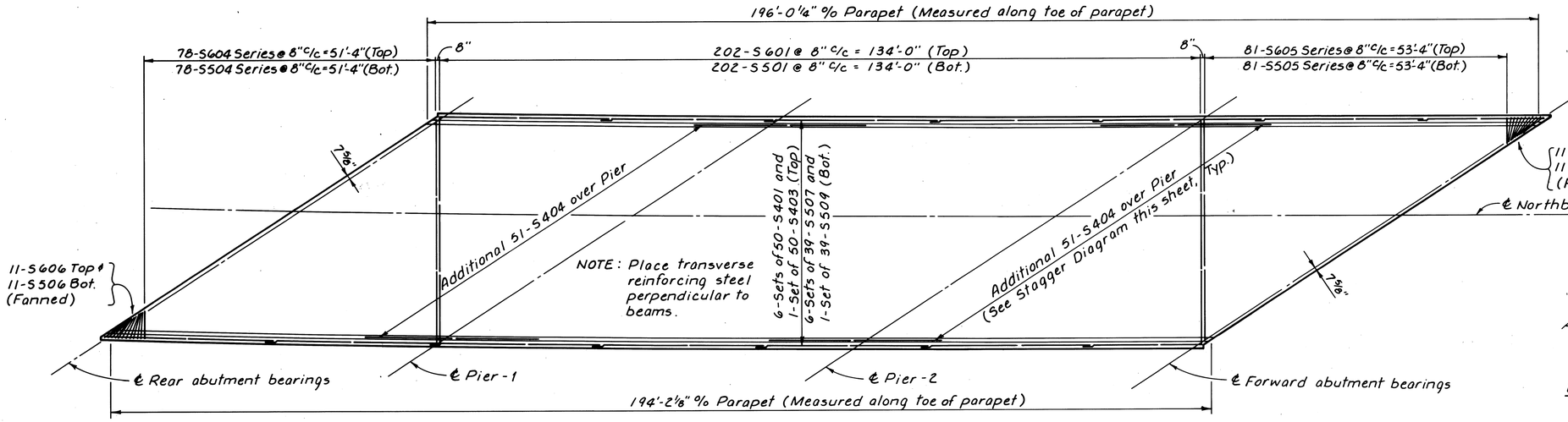
SUPERSTRUCTURE - 1

BRIDGE NO. WAY-21-0182R
OVER T.R. 172

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	9/24/96	

587093

CALC. BY DATE	WAY-21-(1.39)(1.80)	OHIO
CHKD. BY DATE		FHWA REGION



SLAB PLAN

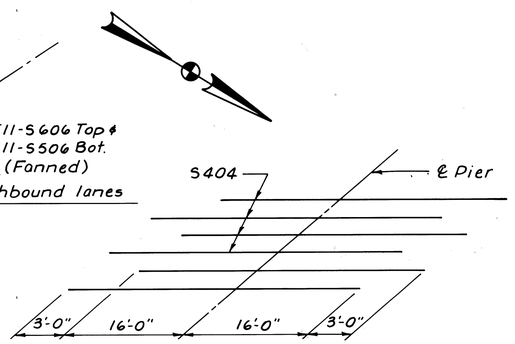
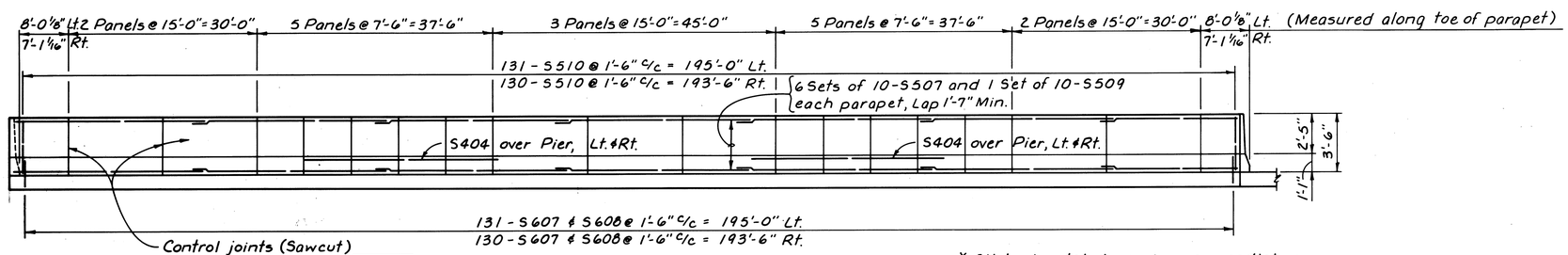


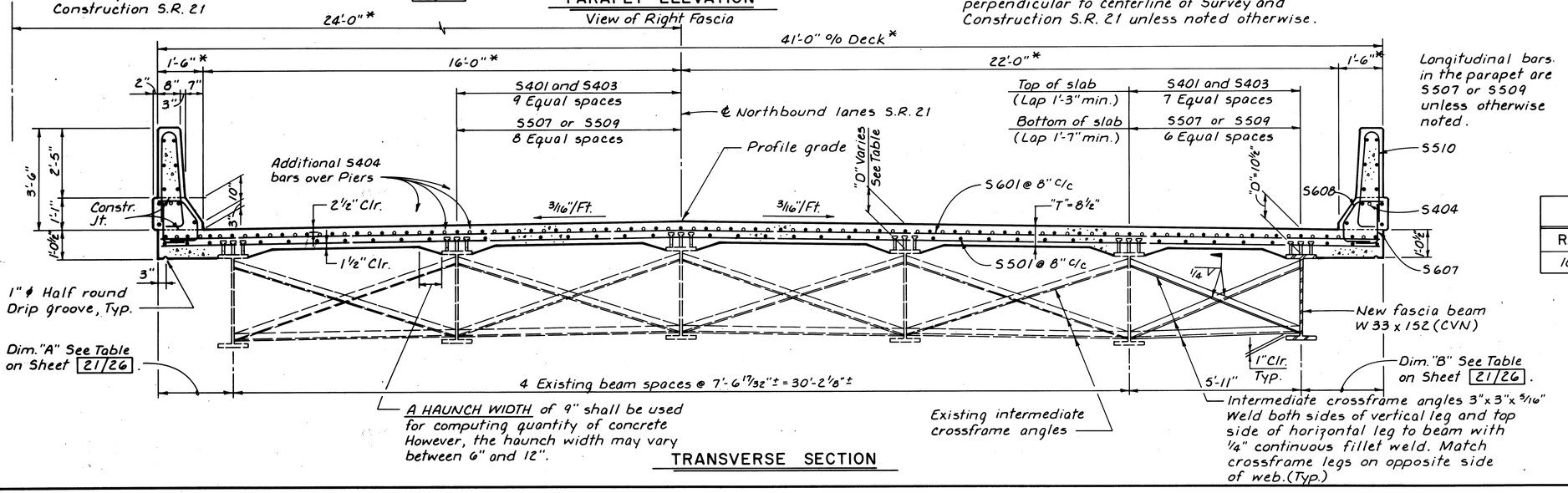
DIAGRAM SHOWING STAGGER OF ADDITIONAL TOP REINFORCEMENT OVER PIERS



PARAPET ELEVATION

View of Right Fascia

* All horizontal dimensions are radial or perpendicular to centerline of Survey and Construction S.R. 21 unless noted otherwise.



TRANSVERSE SECTION

DECK SLAB DEPTH: THE DISTANCE, "D", FROM THE TOP OF DECK SLAB TO TOP OF THE EXISTING OR PROPOSED STEEL BEAM (SEE TRANSVERSE SECTION AND TABLE THIS SHEET) IS THE THEORETICAL DESIGN DIMENSION. VALUES LISTED FOR THIS DIMENSION IN THE TABLE BELOW REPRESENT THE AVERAGE DEPTH OVER THE EXISTING BEAMS AT THE INDICATED POINTS. DESIGN DEPTH OVER THE NEW STRINGER IS 10 1/2" EVERYWHERE.

IN ORDER TO MEET THE ESTABLISHED ROADWAY GRADE, TO ASSURE THE CONSTRUCTION OF THE REQUIRED DECK SLAB THICKNESS, AND TO ASSURE THE PROPER LOCATION OF THE REINFORCING STEEL IN THE DECK; THE CONTRACTOR SHALL OBTAIN THE ACTUAL TOP OF BEAM ELEVATIONS OF THE NEW AND EXISTING STEEL BEAMS AT LOCATIONS SHOWN IN THE TABLE OF DECK SCREED ELEVATIONS ON SHEET 21/26, AFTER THE EXISTING DECK SLAB IS REMOVED AND THE ABUTMENT BEARINGS ARE REPLACED. THE CONTRACTOR SHALL COMPUTE THE DECK FILLS OVER THE BEAMS (DIFFERENCE IN ELEVATION BETWEEN THE POINTS ON THE BEAMS AND CORRESPONDING SCREED ELEVATIONS) AND FURNISH THE CALCULATIONS TO THE ENGINEER FOR FINAL CHECKING. IF THE COMPUTED DECK THICKNESS IS FOUND TO BE LESS THAN THE MINIMUM THICKNESS REQUIRED, THE TOP OF FINAL PAVEMENT ELEVATIONS SHALL BE ADJUSTED AS DIRECTED BY THE ENGINEER. FORM WORK SHALL NOT PROCEED UNTIL A CHECK OF THE FINAL ELEVATIONS HAS BEEN PERFORMED BY THE ENGINEER.

THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED ON AN AVERAGE SLAB THICKNESS, "D" OF 10".

SUPERSTRUCTURE NOTES: SEE SHEET 19/26.

DECK SLAB OFFSETS "D"						
R.A.	1/2	P-1	1/2	P-2	1/2	F.A.
10"	10 1/8"	10"	10"	10"	10"	9 7/8"

20/26

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

SUPERSTRUCTURE - 2

BRIDGE NO. WAY-21-0182R
OVER T.R. 172

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	9/24/96	

CALC. BY / DATE	WAY-21-(1.39)(1.80)	OHIO	93
CHKD. BY / DATE		FHWA REGION	100

DECK FASCIA DIMENSIONS
LEFT STRUCTURE

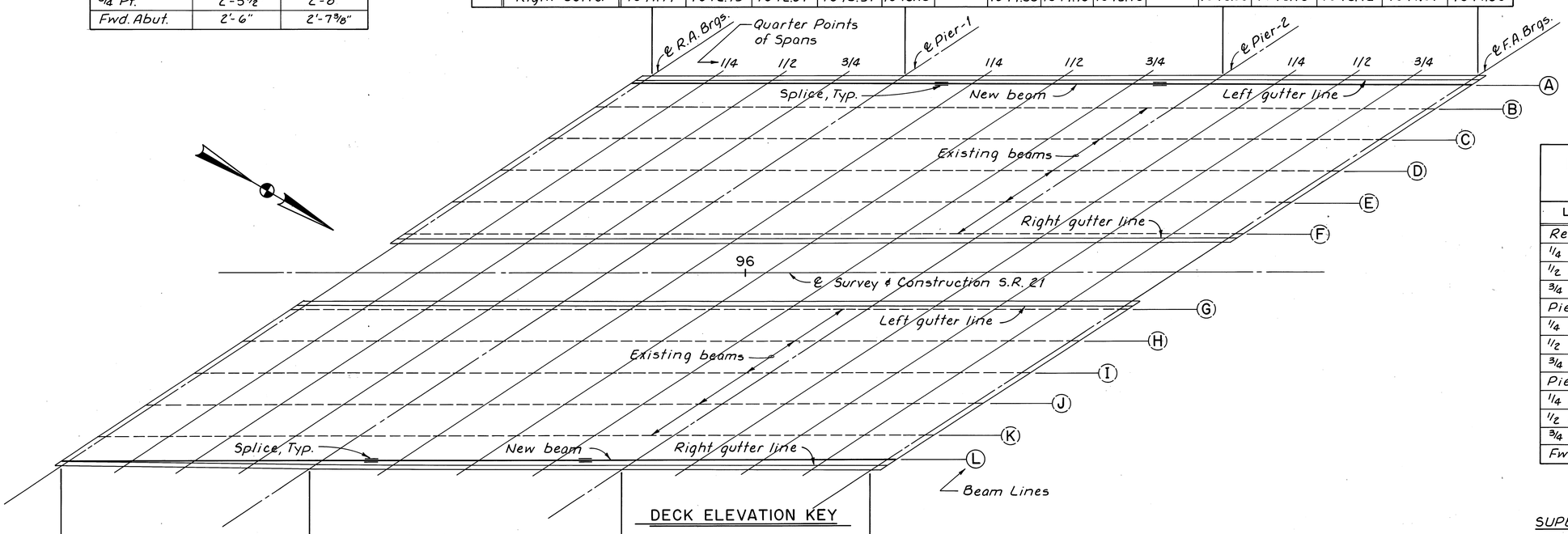
LOCATION	DIM. "A"	DIM. "B"
Rear Abut.	2'-7 3/4"	1'-3 1/4"
1/4 Pt.	2'-5"	1'-7 1/8"
1/2 Pt.	2'-3 3/4"	1'-10 1/2"
3/4 Pt.	2'-2 1/2"	2'-1 1/2"
Pier-1	2'-1 3/4"	2'-4"
1/4 Pt.	2'-1 3/8"	2'-6 1/2"
1/2 Pt.	2'-1 5/8"	2'-8 1/4"
3/4 Pt.	2'-2 1/2"	2'-9 1/4"
Pier-2	2'-3 3/8"	2'-9 1/2"
1/4 Pt.	2'-4"	2'-9 1/4"
1/2 Pt.	2'-4 5/8"	2'-8 5/8"
3/4 Pt.	2'-5 1/2"	2'-8"
Fwd. Abut.	2'-6"	2'-7 3/8"

ESTIMATED BEAM DEFLECTIONS DUE TO WEIGHT OF CONCRETE

LOCATION															
Beam "A"	-0-	5/16"	3/8"	7/16"	-0-	1/8"	1/4"	1/2"	1/4"	1/8"	-0-	7/16"	3/8"	5/16"	-0-
Beams "B,C,D,E"	-0-	1/4"	1/4"	1/8"	-0-	—	3/16"	5/16"	3/16"	—	-0-	1/8"	1/4"	1/4"	-0-
Beam "F"	-0-	3/16"	1/4"	1/8"	-0-	—	3/16"	3/8"	3/16"	—	-0-	1/8"	1/4"	1/4"	-0-

DECK SCREED ELEVATIONS
LEFT STRUCTURE

LOCATION		℄ R.A. BRG.	1/4	1/2	3/4	℄ PIER-1	SPLICE	1/4	1/2	3/4	SPLICE	℄ PIER-2	1/4	1/2	3/4	℄ F.A. BRG.
Left Gutter		1043.58	1044.07	1044.52	1044.97	1045.39	—	1045.97	1046.55	1047.10	—	1047.64	1048.12	1048.57	1049.02	1049.44
BEAM	"A"	1043.57	1044.05	1044.50	1044.95	1045.37	1045.82	1045.95	1046.53	1047.07	1047.16	1047.61	1048.09	1048.54	1048.99	1049.40
BEAM	"B"	1043.39	1043.86	1044.31	1044.75	1045.19	—	1045.77	1046.34	1046.89	—	1047.43	1047.89	1048.35	1048.80	1049.22
BEAM	"C"	1043.17	1043.64	1044.09	1044.53	1044.96	—	1045.55	1046.12	1046.67	—	1047.21	1047.66	1048.12	1048.57	1049.00
BEAM	"D"	1042.94	1043.41	1043.86	1044.30	1044.74	—	1045.32	1045.89	1046.44	—	1046.98	1047.44	1047.90	1048.35	1048.78
BEAM	"E"	1042.50	1042.97	1043.42	1043.86	1044.30	—	1044.87	1045.44	1045.99	—	1046.53	1046.99	1047.44	1047.89	1048.32
BEAM	"F"	1042.04	1042.51	1042.96	1043.40	1043.84	—	1044.41	1044.98	1045.53	—	1046.07	1046.53	1046.98	1047.43	1047.86
Right Gutter		1041.97	1042.43	1042.87	1043.31	1043.75	—	1044.33	1044.90	1045.46	—	1046.00	1046.46	1046.92	1047.37	1047.80



DECK ELEVATION KEY

DECK SCREED ELEVATIONS
RIGHT STRUCTURE

℄ R.A. BRG.	1/4	1/2	3/4	℄ PIER-1	SPLICE	1/4	1/2	3/4	SPLICE	℄ PIER-2	1/4	1/2	3/4	℄ F.A. BRG.	LOCATION	
1041.17	1041.63	1042.07	1042.50	1042.94	—	1043.51	1044.08	1044.64	—	1045.18	1045.61	1046.10	1046.55	1046.98	Left Gutter	
1041.14	1041.60	1042.04	1042.48	1042.91	—	1043.49	1044.06	1044.61	—	1045.15	1045.61	1046.07	1046.52	1046.95	"G"	BEAM
1040.92	1041.38	1041.82	1042.26	1042.69	—	1043.27	1043.84	1044.39	—	1044.93	1045.39	1045.84	1046.29	1046.72	"H"	BEAM
1040.68	1041.15	1041.60	1042.04	1042.47	—	1043.05	1043.62	1044.16	—	1044.70	1045.16	1045.62	1046.07	1046.50	"I"	BEAM
1040.23	1040.70	1041.15	1041.58	1042.02	—	1042.60	1043.17	1043.71	—	1044.25	1044.71	1045.16	1045.61	1046.04	"J"	BEAM
1039.77	1040.24	1040.69	1041.13	1041.56	—	1042.14	1042.71	1043.26	—	1043.79	1044.25	1044.70	1045.15	1045.58	"K"	BEAM
1039.42	1039.90	1040.34	1040.79	1041.21	1041.67	1041.79	1042.36	1042.90	1043.01	1043.45	1043.91	1044.36	1044.80	1045.22	"L"	BEAM
1039.43	1039.89	1040.32	1040.76	1041.16	—	1041.73	1042.30	1042.83	—	1043.36	1043.83	1044.28	1044.73	1045.15	Right Gutter	

RIGHT STRUCTURE

ESTIMATED BEAM DEFLECTIONS DUE TO WEIGHT OF CONCRETE

															LOCATION
-0-	5/16"	1/4"	1/8"	-0-	—	3/16"	3/8"	3/16"	—	-0-	1/8"	1/4"	1/4"	-0-	Beam "G"
-0-	1/4"	1/4"	1/8"	-0-	—	3/16"	5/16"	3/16"	—	-0-	1/8"	1/4"	1/4"	-0-	Beams "H,I,J,K"
-0-	5/16"	3/8"	7/16"	-0-	1/8"	1/4"	1/2"	1/4"	1/8"	-0-	7/16"	3/8"	5/16"	-0-	Beam "L"

DECK FASCIA DIMENSIONS
RIGHT STRUCTURE

LOCATION	DIM. "A"	DIM. "B"
Rear Abut.	1'-11 1/8"	2'-9"
1/4 Pt.	1'-11 1/2"	2'-10 3/8"
1/2 Pt.	2'-0 1/8"	2'-11 1/4"
3/4 Pt.	2'-0 3/4"	2'-11 3/4"
Pier-1	2'-1 3/8"	2'-11 5/8"
1/4 Pt.	2'-2 1/4"	2'-11"
1/2 Pt.	2'-3 1/8"	2'-10 1/4"
3/4 Pt.	2'-3 7/8"	2'-9 3/8"
Pier-2	2'-4 3/4"	2'-8 1/2"
1/4 Pt.	2'-5 5/8"	2'-7 7/8"
1/2 Pt.	2'-6"	2'-7 1/4"
3/4 Pt.	2'-6 5/8"	2'-6 5/8"
Fwd. Abut.	2'-7 3/8"	2'-6"

SUPERSTRUCTURE NOTES : See sheet 19/26 .

SCREED ELEVATIONS shown are for the deck slab surface prior to concrete placement. Allowance has been made for anticipated calculated dead load deflections.

FOR LOCATION OF DIMENSIONS A & B : See transverse sections, sheets 20/26 and 24/26 .

21/26

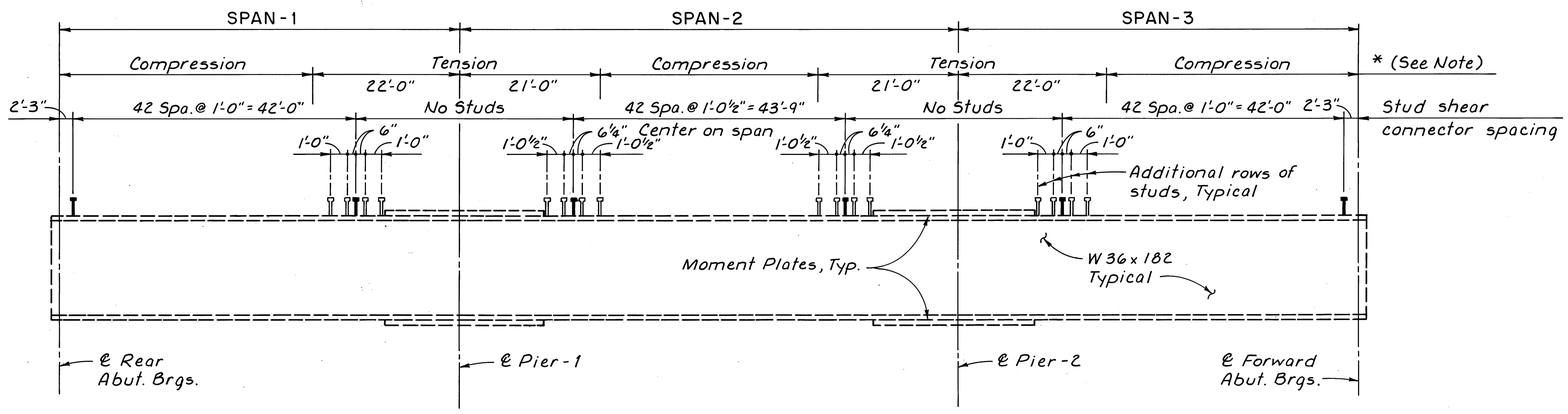
ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

SUPERSTRUCTURE - 3

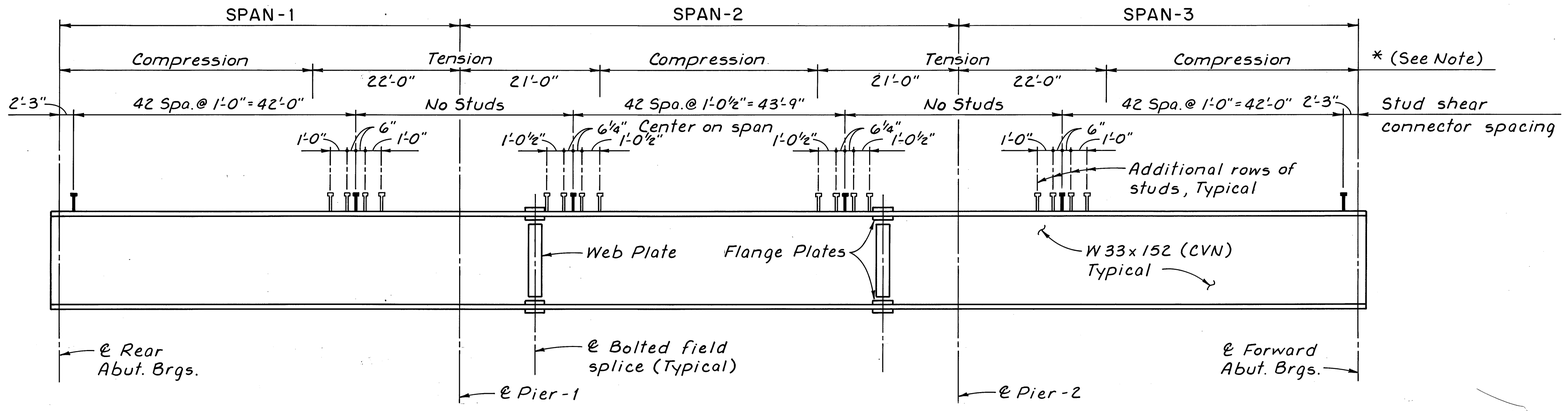
BRIDGE NO. WAY-21-0182L/R
OVER T.R. 172

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	9/24/96	

457093

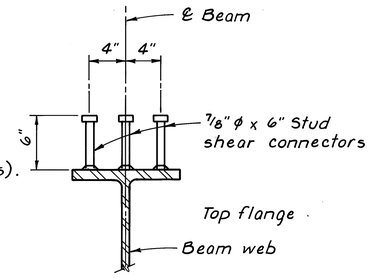


ELEVATION - EXISTING BEAMS



ELEVATION - PROPOSED BEAMS

Studs shall be moved to avoid interference with bolt heads (Prop. beams) and ends of welded moment plates (Exist. beams).

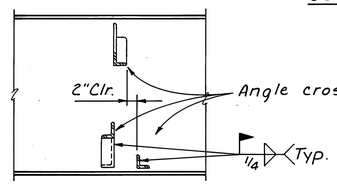


STUD SHEAR CONNECTOR DETAIL

Place Studs in groups of three normal to ℄ Beam. See Beam Elevations this sheet for longitudinal spacing.

* WELDED ATTACHMENT of supports for the 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 be not closer than 1" from edge of flange, be not more than 2" long, and be not smaller than the minimum size required by AASHTO.

SUPERSTRUCTURE NOTES : See sheet 19/26 .



All intermediate crossframe angles are L 3 x 3 x 5/16 . Align the outstanding leg of new crossframe angles with the outstanding leg of the existing adjacent crossframe angles.

SECTION A-A

22/26

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

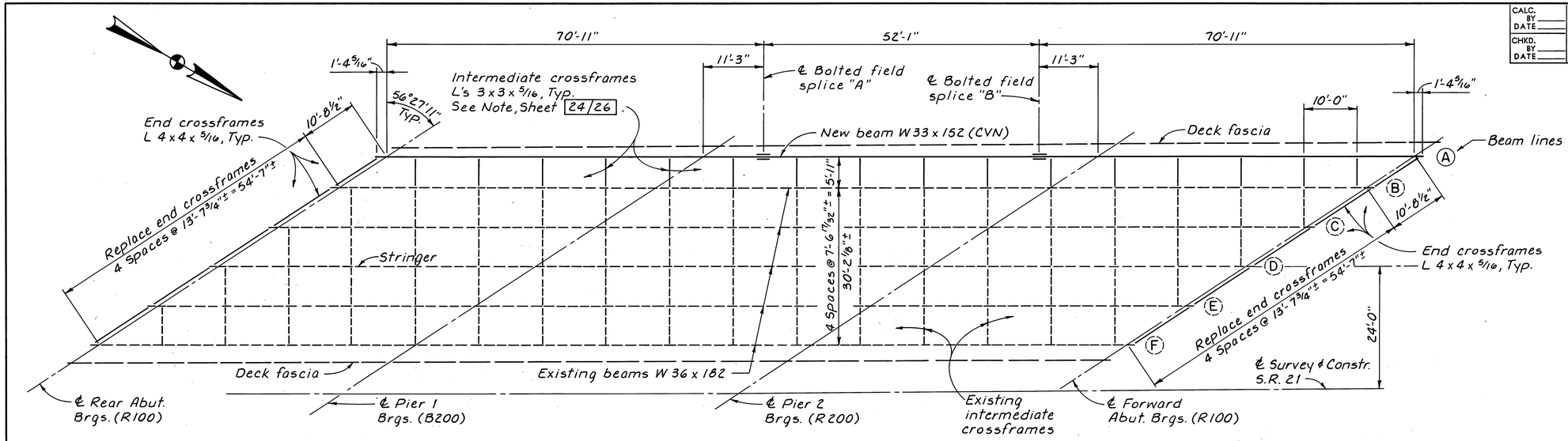
SUPERSTRUCTURE - 4

BRIDGE NO. WAY-21-0182L/R
OVER T.R. 172

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	9/24/96	

687092

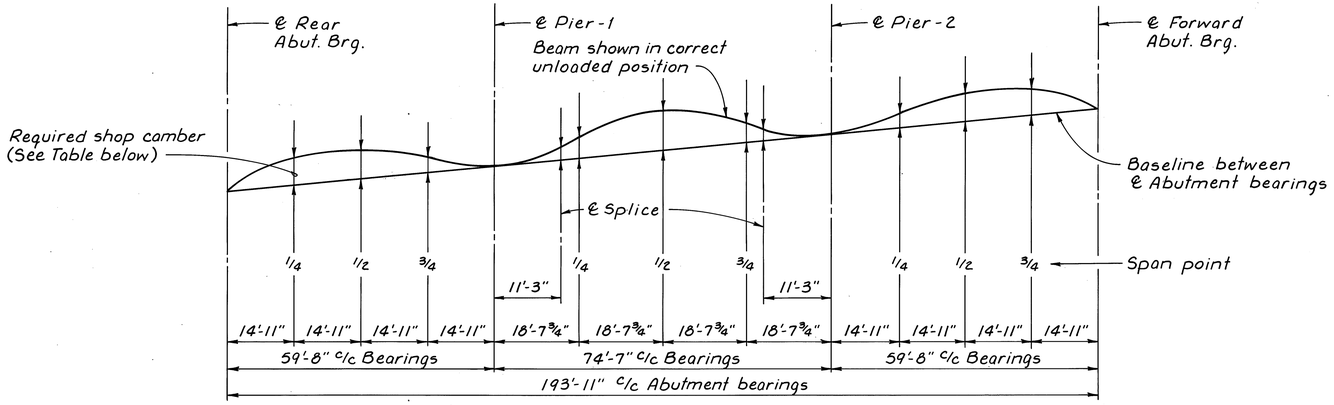
CALC. BY		WAY-21-(1.39)(1.80)	OHIO	95/100
DATE			FHWA REGION	
CHKD. BY				
DATE				



FRAMING PLAN

All lengths are horizontal distances and do not take into account changes in elevation from support to support.

NOTE: Existing beam lines are straight.



BEAM LAYOUT DIAGRAM

(Beam "A")

DEFLECTION AND CAMBER TABLE (Beam "A")

ITEMS \ LOCATION	SPAN-1			SPAN-2					SPAN-3		
	1/4	1/2	3/4	SPL. "A"	1/4	1/2	3/4	SPL. "B"	1/4	1/2	3/4
Deflection due to weight of steel	1/16"	1/16"	-0-	-0-	1/16"	1/8"	1/16"	-0-	-0-	1/16"	1/16"
Deflection due to weight of slab	1/4"	5/16"	3/16"	1/8"	5/16"	3/8"	5/16"	1/8"	3/16"	5/16"	1/4"
Deflection due to remaining dead load	1/16"	1/16"	-0-	-0-	1/16"	1/16"	1/16"	-0-	-0-	1/16"	1/16"
Adjustment required for vertical curve	——	——	——	——	——	——	——	——	——	——	——
Adjustment required for horizontal curve	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
Required shop camber	3/16"	7/16"	3/16"	1/8"	5/16"	9/16"	5/16"	1/8"	3/16"	7/16"	3/16"

SUPERSTRUCTURE NOTES: See sheet 19/26.

23/26

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

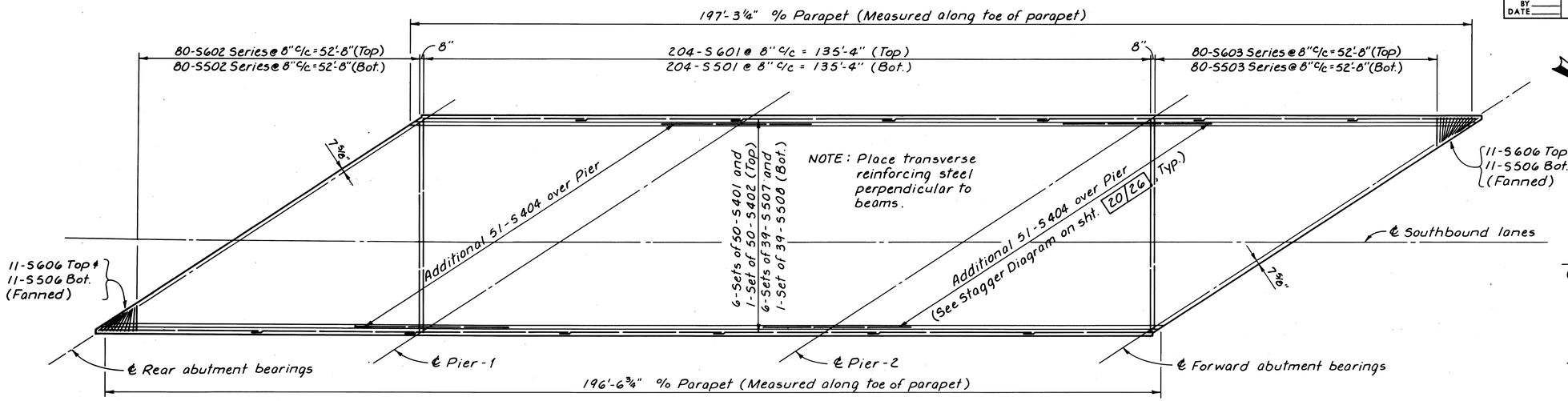
SUPERSTRUCTURE - 5

BRIDGE NO. WAY-21-0182L
OVER T.R. 172

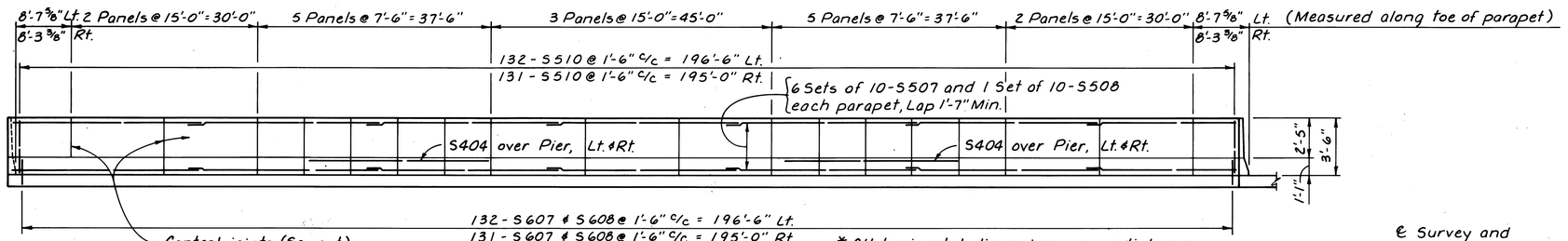
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	9/24/96	

257092

CALC. BY / DATE	WAY-21-(1.39)(1.80)	OHIO / FHWA REGION	96 / 100
CHKD. BY / DATE			

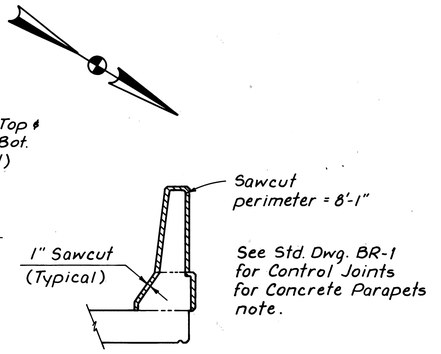


SLAB PLAN



PARAPET ELEVATION
View of Right Fascia

TRANSVERSE SECTION



CONTROL JOINT DETAIL
(Section thru sawcut)

DECK SLAB DEPTH: THE DISTANCE, "D", FROM THE TOP OF DECK SLAB TO TOP OF THE EXISTING OR PROPOSED STEEL BEAM (SEE TRANSVERSE SECTION AND TABLE THIS SHEET) IS THE THEORETICAL DESIGN DIMENSION. VALUES LISTED FOR THIS DIMENSION IN THE TABLE BELOW REPRESENT THE AVERAGE DEPTH OVER THE EXISTING BEAMS AT THE INDICATED POINTS. DESIGN DEPTH OVER THE NEW STRINGER IS 10 1/2" EVERYWHERE.

IN ORDER TO MEET THE ESTABLISHED ROADWAY GRADE, TO ASSURE THE CONSTRUCTION OF THE REQUIRED DECK SLAB THICKNESS, AND TO ASSURE THE PROPER LOCATION OF THE REINFORCING STEEL IN THE DECK; THE CONTRACTOR SHALL OBTAIN THE ACTUAL TOP OF BEAM ELEVATIONS OF THE NEW AND EXISTING STEEL BEAMS AT LOCATIONS SHOWN IN THE TABLE OF DECK SCREED ELEVATIONS ON SHEET 21 / 26, AFTER THE EXISTING DECK SLAB IS REMOVED AND THE ABUTMENT BEARINGS ARE REPLACED. THE CONTRACTOR SHALL COMPUTE THE DECK FILLS OVER THE BEAMS (DIFFERENCE IN ELEVATION BETWEEN THE POINTS ON THE BEAMS AND CORRESPONDING SCREED ELEVATIONS) AND FURNISH THE CALCULATIONS TO THE ENGINEER FOR FINAL CHECKING. IF THE COMPUTED DECK THICKNESS IS FOUND TO BE LESS THAN THE MINIMUM THICKNESS REQUIRED, THE TOP OF FINAL PAVEMENT ELEVATIONS SHALL BE ADJUSTED AS DIRECTED BY THE ENGINEER. FORM WORK SHALL NOT PROCEED UNTIL A CHECK OF THE FINAL ELEVATIONS HAS BEEN PERFORMED BY THE ENGINEER.

THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED ON AN AVERAGE SLAB THICKNESS, "D" OF 10 5/8".

SUPERSTRUCTURE NOTES: SEE SHEET 19 / 26.

DECK SLAB OFFSETS "D"						
R.A.	1/2	P-1	1/2	P-2	1/2	F.A.
10¼"	10½"	10⅝"	10½"	10½"	10⅞"	11"

24/26

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

SUPERSTRUCTURE - 6

BRIDGE NO. WAY-21-0182L
OVER T.R. 172

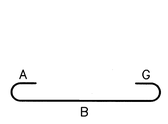
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	RLE	SLM	DBC	DWS	9/24/96	

CALC. BY / DATE	WAY-21-(1.39)(1.80)	OHIO
CHKD BY / DATE		FHWA REGION 5

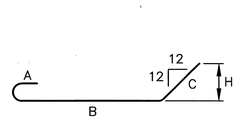
ABUTMENT REINFORCING STEEL SCHEDULE

MARK	NUMBER LT. STRUCTURE REAR	LT. STRUCTURE FWD.	RT. STRUCTURE REAR	RT. STRUCTURE FWD.	TOTAL	LENGTH	TYPE	A	B	C	D	G	H	O	WEIGHT
A501			4		4	16'-9"	STR								70
A502	8	8	8	8	32	2'-9"	STR								92
A503	14	17	7	7	45	4'-3"	17		3'-6"	10"	-0-				199
A504			6		6	6'-3"	17		5'-7"	10"	-0-				39
A505			4		4	4'-10"	STR								20
A506	9	10	10	11	40	7'-0"	17		1'-11"	3'-5"	1'-11"				292
A507			6		6	12'-9"	STR								80
A508			10		10	9'-8"	STR								101
A509			4		4	19'-3"	STR								80
A510			2		2	17'-0"	STR								36
A511			1		1	12'-2"	19		7'-5"	4'-9"			3 3/4		13
A512			1		1	9'-11"	19		7'-5"	2'-6"			3 3/4		10
A513			24	2	26	4'-8"	STR								127
A514	12	12	12	12	48	40'-0"	STR								2,003
A515			1		1	11'-6"	STR								12
A516			1		1	13'-6"	STR								14
A517			10		10	6'-0" to 7'-9"	STR	2 SETS OF 5 BARS, VARY EACH BY 5" (+)							72
A518	4		4		8	7'-2"	28	2'-4"	1'-1 3/4"	10 1/2"	3'-1"		8 1/2	2'-5 1/4"	60
A519	8	8	8	8	32	1'-8"	STR								56
A520	4				4	29-0"	STR								121
A521		4		4	8	7'-4"	28	2'-4"	1'-2 1/2"	11 3/4"	3'-1"		8 1/2	2'-8 1/2"	61
A522	8				8	7'-6"	17		6'-10"	10"	-0-				63
A523	1				1	6'-1"	STR								6
A524	28				28	5'-3" to 10'-2"	STR	2 SETS OF 14 BARS, VARY EACH BY 4" (+)							218
A525	14				14	4'-3"	STR								62
A526	11	4		11	26	10'-6"	STR								285
A527	8				8	22'-0"	STR								184
A528	6				6	14'-6" to 27'-0"	STR	2 SETS OF 3 BARS, VARY EACH BY 6'-3"							130
A529	1				1	20'-6"	19		19'-9"	9"			2 3/4		21
A530	1				1	22'-3"	19		19'-9"	2'-6"			2 3/4		23
A531	1				1	8'-9"	STR								9
A532		12			12	26-9"	STR								335
A533		2			2	8'-2"	17		7'-5"	10"	-0-				17
A534		8			8	6'-9"	STR								56
A535		30			30	5'-2" to 10'-7"	STR	2 SETS OF 15 BARS, VARY EACH BY 4" (+)							241
A536		18			18	4'-5"	STR								83
A537		12			12	9'-10"	STR								123
A538		6			6	21'-6" to 34'-0"	STR	2 SETS OF 3 BARS, VARY EACH BY 6'-3"							174
A539		1			1	11'-9"	STR								12
A540		1		2	3	13'-9"	STR								43
A541				4	4	19'-5"	STR								81
A542				9	9	6'-2"	17		5'-5"	10"	-0-				58
A543				6	6	12'-0"	STR								75
A544				14	14	5'-7" to 8'-4"	STR	2 SETS OF 7 BARS, VARY EACH BY 5" (+)							102
A545				1	1	9'-3"	STR								10
A546				1	1	11'-3"	19		9'-3"	2'-0"			3 11/16		12
A547				18	18	5'-0"	STR								94
A548				4	4	18'-6"	STR								77
A549				1	1	9'-0"	STR								9
A550		1			1	23'-9"	19		21'-6"	2'-3"			3 3/16		25
A551		1			1	25'-6"	19		21'-6"	4'-0"			3 3/16		27
A552			8		8	8'-2"	STR								68
A601	14	17	7	7	45	8'-9"	17		3'-9"	5'-2"	-0-				591
A602			6		6	10'-7"	17		5'-7"	5'-2"	-0-				95
A603			4		4	4'-10"	STR								29
A604	10	10	10	10	40	11'-0"	17		4'-11"	1'-5"	4'-11"				661
A605	73	74	73	74	294	5'-10"	17		2'-4"	1'-5"	2'-4"				2,576
A606			2		2	36'-9"	STR								110
A607	73	74	73	74	294	6'-7"	17		3'-0"	11"	3'-0"				2,906
A608	8				8	11'-10"	17		6'-10"	5'-2"	-0-				142
A609	1				1	6'-1"	STR								9
A610	2				2	37'-6"	STR								113
A611		2			2	12'-5"	17		7'-5"	5'-2"	-0-				37
A612		8			8	6'-9"	STR								81
A613		2		2	4	38'-3"	STR								229
A614				9	9	10'-5"	17		5'-5"	5'-2"	-0-				141
A615				2	2	4'-8"	STR								14
D801	28	28	28	28	112	7'-1"	3	STD	4'-9"	1'-5"			1'-0"		2,118
														TOTAL	16,133

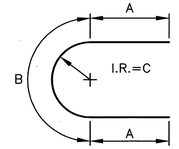
I.R. = INSIDE RADIUS



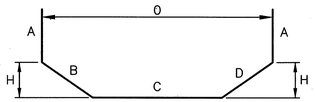
TYPE-1



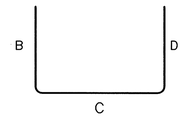
TYPE-3



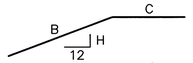
TYPE-10



TYPE-14

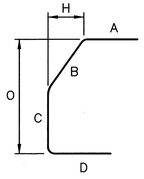


TYPE-17

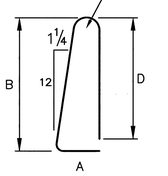


TYPE-19

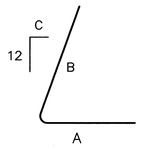
I.R. = INSIDE RADIUS



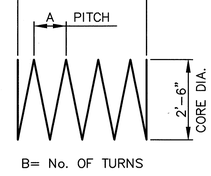
TYPE-28



TYPE-29



TYPE-32



SPIRAL

BENDING DIAGRAMS

NOTES

ALL REINFORCING STEEL SHALL BE EPOXY COATED. SEE STRUCTURE GENERAL NOTES, SHEETS G1 / 6, FOR ADDITIONAL MATERIAL REQUIREMENTS.

BAR DIMENSIONS SHOWN ARE OUT-TO-OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS UNLESS OTHERWISE INDICATED.

BAR BENDS: BEND BARS CAREFULLY TO THE DIMENSIONS LISTED IN THE ABOVE SCHEDULES AND/OR STANDARD BENDS TABLE (CMS 509.05). "STD." WRITTEN IN PLACE OF A DIMENSION INDICATES A STANDARD BEND AT THE END OF THE BAR.

25/26

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

REINFORCING STEEL-1

BRIDGE NO. WAY-21-0182 L/R
OVER T.R. 172

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	SLM	CAD	DBC	DWS	9/24/96	

BENDING DIAGRAMS

PIER REINFORCING STEEL SCHEDULE

MARK	NUMBER LT. STRUCTURE 1	LT. STRUCTURE 2	RT. STRUCTURE 1	RT. STRUCTURE 2	TOTAL	LENGTH	TYPE	A	B	C	D	G	WEIGHT
PW501		18			18	11'-0"	STR						207
PW502		16			16	2'-10"	STR						47
PW503		16			16	7'-6"	STR						125
PW801		8			8	8'-11"	17		7'-9"	1'-4"	-0-		190
PW802		4			4	6'-0"	STR						64
P601	20	20	20	20	80	6'-8"	STR						802
P901	12	12	12	12	48	8'-8"	17		7'-5"	1'-7"	-0-		1,414
P902	12				12	23'-2"	STR						945
P903		12			12	25'-4"	STR						1,034
P904			12		12	19'-0"	STR						775
P905				12	12	21'-3"	STR						867
SP401	1				1	23'-2"	SPIRAL	4 1/2"	65	2'-6"			391
SP402		1			1	25'-4"	SPIRAL	4 1/2"	71	2'-6"			427
SP403			1		1	19'-0"	SPIRAL	4 1/2"	54	2'-6"			324
SP404				1	1	21'-3"	SPIRAL	4 1/2"	60	2'-6"			361
											TOTAL		7,973

SUPERSTRUCTURE REINFORCING STEEL SCHEDULE

MARK	NUMBER LT. STRUCTURE	RT. STRUCTURE	TOTAL	LENGTH	TYPE	A	B	C	D	H	O	WEIGHT
S401	300	300	600	30'-0"	STR							12,024
S402	50	–	50	24'-6"	STR							818
S403	–	50	50	23'-3"	STR							778
S404	102	102	204	35'-0"	STR							4,770
S501	204	202	406	40'-7"	STR							17,185
S502	80	–	80	5'-0" to 40'-0"	STR	1 SET OF 80 BARS; VARY EACH BY 5"(+)						1,877
S503	80	–	80	5'-4" to 40'-0"	STR	1 SET OF 80 BARS; VARY EACH BY 5"(+)						1,891
S504	–	78	78	5'-2" to 40'-1"	STR	1 SET OF 78 BARS; VARY EACH BY 5"(+)						1,841
S505	–	81	81	5'-0" to 40'-1"	STR	1 SET OF 81 BARS; VARY EACH BY 5"(+)						1,904
S506	22	22	44	4'-9"	STR							218
S507	354	354	708	30'-0"	STR							22,153
S508	59	–	59	26'-6"	STR							1,631
S509	–	59	59	25'-3"	STR							1,554
S510	263	261	524	7'-1"	29	8"	3'-3"	1 1/2"	3'-0"			3,871
S601	204	202	406	40'-7"	STR							24,748
S602	80	–	80	5'-0" to 40'-0"	STR	1 SET OF 80 BARS; VARY EACH BY 5"(+)						2,704
S603	80	–	80	5'-4" to 40'-0"	STR	1 SET OF 80 BARS; VARY EACH BY 5"(+)						2,724
S604	–	78	78	5'-2" to 40'-1"	STR	1 SET OF 78 BARS; VARY EACH BY 5"(+)						2,651
S605	–	81	81	5'-0" to 40'-1"	STR	1 SET OF 81 BARS; VARY EACH BY 5"(+)						2,743
S606	22	22	44	4'-9"	STR							314
S607	263	261	524	2'-2"	17		1'-5"	11"	-0-			1,705
S608	263	261	524	2'-10"	28	9"	10 3/8"	8"	10 1/2"	6"	1'-5 1/2"	2,230
										TOTAL		112,314

NOTES

ABUTMENT REINFORCING STEEL SCHEDULE: SEE SHEET 25 / 26 .

SPIRAL REINFORCING STEEL: THE "LENGTH" SHOWN IN THE STEEL LIST FOR THE SPIRAL BARS IS THE DISTANCE OUT-TO-OUT OF COILS, INCLUDING THE FINISHING TURNS AT THE TOP AND BOTTOM, MEASURED FROM THE TOP OF THE FOOTING TO 2" BELOW THE TOP OF THE PIER COLUMN.

THE "NUMBER OF TURNS" SHOWN IS THE "LENGTH" IN INCHES DIVIDED BY THE PITCH, PLUS 3 TURNS (TOTAL NUMBER OF CLOSED COILS), EXPRESSED AS THE NEAREST WHOLE NUMBER. 1 1/2 CLOSED COILS SHALL BE PROVIDED AT THE ENDS OF EACH SPIRAL UNIT.

THREE STEEL CHANNELS, TEE OR ANGLE SPACERS WEIGHING APPROXIMATELY 0.80 LBS./FT. EACH SHALL BE PROVIDED FOR EACH SPIRAL UNIT. ALL SPACERS SHALL BE EQUALLY SPACED ALONG THE PERIPHERY OF THE COIL. THE QUANTITY OF SPACERS REQUIRED, BASED ON THE PRECEDING INFORMATION, WILL BE PAID FOR AS REINFORCING STEEL AND IS INCLUDED IN THE TABULATED WEIGHT OF SPIRAL BARS.

ADDITIONAL REINFORCING STEEL NOTES: SEE SHEET 25 / 26 .

ENGINEERING ASSOCIATES INC.
CONSULTING ENGINEERS
700 WINKLER DR. WOOSTER, OHIO

REINFORCING STEEL-2

BRIDGE NO. WAY-21-0182 L/R
OVER T.R. 172

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLE	SLM	CAD	DBC	DWS	9/24/96	

STATE JOB NO.		OHIO
037370	WAY-21-(1.39)(1.80)	FHWA REGION 5

FEDERAL PROJECT NO.

99 / 100

1 / 2

WAY-21-(1.39) AND (1.80)
CHIPPEWA TOWNSHIP, WAYNE COUNTY, OHIO
N.E. QTR. SECTION 25, T-18N, R-11W

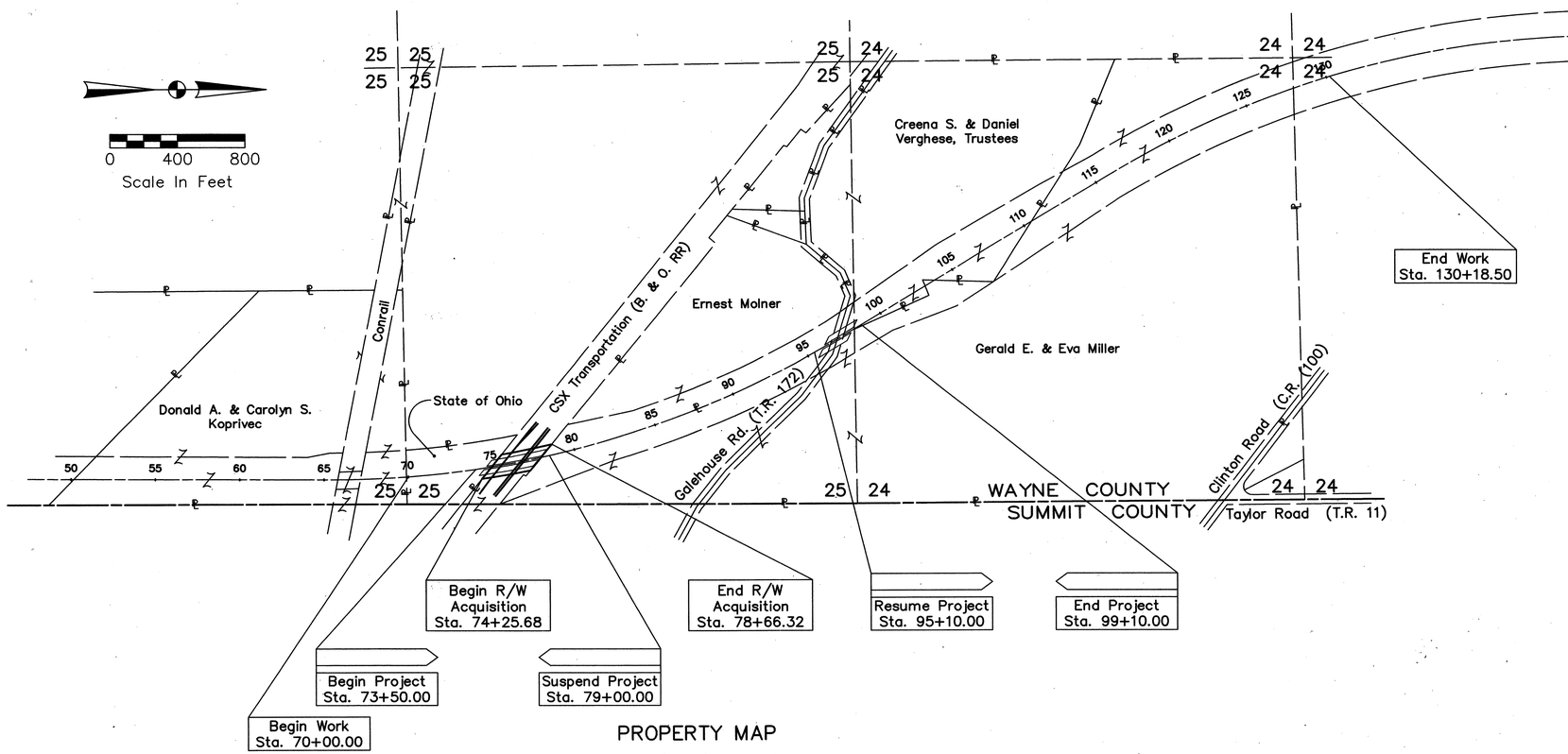
NOTE: All areas in Square Feet unless noted otherwise

SUMMARY OF ADDITIONAL RIGHT OF WAY REQUIRED

PROJECT I.D. NO. 9453

TOTAL NO. OWNERS | TOTAL NO. COMPLETE TAKES | TOTAL NO. OWNERS WITH STRUCTURES INVOLVED | TOTAL NO. OWNERS WITH P ITEMS

PARCEL NUMBER	OWNER	AUDITORS NO.	SHEET NO.	DEED RECORD BOOK	DEED RECORD PAGE	DEED RECORD DATE	RECORD AREA	TOTAL PRO	GROSS TAKE	PRO IN TAKE	NET TAKE	NET RES. LT.	NET RES. RT.	BLDGS. ACQ'D.	TYPE FUNDS	REMARKS	AS ACQUIRED VOL.	AS ACQUIRED PAGE
1	CSX TRANSPORTATION INC.	12-00082	2	197	18	4/13/23	8.91ac.	0.66ac.	2200	0	2200	7.14ac.	0.89ac.		STATE	Total PRO and Residue Areas relate to		
1-1				197	27	5/14/23			1001	840	161					8.91 acre parcel only.		
1-A									3240	2376	864							
1-B									3240	2376	864							
1-C									3240	2376	864							
1-R									36478	28140	8338							
1-SL									14979	10280	4699							



PROPERTY MAP

WAY-21-(1.39) AND (1.80)
CHIPPEWA TOWNSHIP, WAYNE COUNTY, OHIO
N.E. QTR. SECTION 25, T-18N, R-11W

UNDERGROUND UTILITIES

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.

UTILITY OWNERS

Ohio Edison
76 S. Main Street
Akron, Ohio 44308
330-382-5244

World Comm (Formerly Willtel Business Networks)
120 Ravine Street
Akron, Ohio 44303
330-253-8267

REV.	DATE	DESCRIPTION

PLAN COMPLETED: 9-18-96

STATE JOB NO.	WAY-21-(1.39)(1.80)	OHIO	100/100
037370		FHWA REGION	2/2

JOB NO.
RIGHT OF WAY PLAN

CSX TRANSPORTATION, INC.
RAILROAD PLAT

N.E. QUARTER OF SECTION 25, T-18N, R-11W
CHIPPEWA TOWNSHIP
WAYNE COUNTY, OHIO

PARCEL NUMBER	EASEMENT REQUIRED	TOTAL AREA	P.R.O.	NET AREA	AREA OF OVERLAP		
					HIGHWAY	AERIAL	SLOPE
1-R	Aerial	36,478 S.F.	28,140 S.F.	8,338 S.F.	12,177 S.F.	——	15,383 S.F.
1	Highway	2,200 S.F.	——	2,200 S.F.	——	1,472 S.F.	1,507 S.F.
1-1	Highway	1,001 S.F.	840 S.F.	161 S.F.	——	985 S.F.	1,001 S.F.
1-A	Highway	3,240 S.F.	2,376 S.F.	864 S.F.	——	3,240 S.F.	2,734 S.F.
1-B	Highway	3,240 S.F.	2,376 S.F.	864 S.F.	——	3,240 S.F.	——
1-C	Highway	3,240 S.F.	2,376 S.F.	864 S.F.	——	3,240 S.F.	2,543 S.F.
1-SL	Slope	14,979 S.F.	*10,280 S.F.	4,699 S.F.	3,544 S.F.	9,903 S.F.	——

All P.R.O. Acquired Under Deed Vol. 338, Page 571, Wayne Co. Deed Records.

* The P.R.O. for parcel 1-SL is 10,280 S.F. (From Deed Parcel 62-SL1)
The actual S.F. for Deed Parcel 62-SL1 calculates to be 9,388 S.F.

Centerline Lead-In Table

Curve	Δ	R	Arc	Chord	Chord Bearing
A-B	5°09'00"	5,729.58	515.01	514.83	N06°50'03"W
A-C	5°22'19"	5,729.58	537.19	536.99	N06°56'42"W
A-D	6°17'06"	5,729.58	628.51	628.19	N07°24'06"W
A-E	7°11'50"	5,729.58	719.72	719.24	N07°51'28"W
A-F	7°15'53"	5,729.58	726.48	725.99	N07°53'29"W
A-G	7°59'16"	5,729.58	798.78	798.13	N08°15'11"W

Aerial Curve Data
Δ = 2°59'49"
R = 5667.08'
L = 296.43'
Chd. = 249.40'
Chd. Brg. = N11°37'30"W

Aerial Curve Data
Δ = 2°50'36"
R = 5792.08'
L = 287.44'
Chd. = 287.41'
Chd. Brg. = S 10°08'20"E

I-SL Curve Data
Δ = 0°50'43"
R = 5617.58'
L = 82.86'
Chd. = 82.86'
Chd. Brg. = N13°21'18"W

℄ S.R. 21 Curve Data
Δ = 31°35'50" Lt.
D = 1°00'00"
R = 5729.58'
T = 1621.16'
L = 3159.72'
P.C. = 65+33.86
P.I. = 81+55.02
P.T. = 96+93.58

NOTES:
On the former right of way plan for WAY-21-0.00 (1956), the centerline for the railroad was set on the centerline of the eastbound spur (now removed). I used the same line to maintain continuity with the plan callouts.
The track maps and deeds indicate the location of the railroads northerly right of way line to be 53 feet ℄ 65 feet off the center of the westbound main track, as it existed in 1923. This plan does not concur. I found evidence in survey N-81 that the tracks have been moved, therefore, I am accepting the location of the railroad right of way lines as shown on the WAY-21-0.00 plan of 1956.

STA-21-17.80
WAY-21-0.00
SUM-21-0.00
Right-of-Way Sta. 60+00 to Sta. 90+00
(Sheet 14 of 30)

Location Plat WAY-21-0.00
Massillon-Cleveland Road
Wayne County, Chippewa Township
Plat Vol. 5, Pg. 52 (Also Basis of Bearings)
Deed of Easement
Vol. 338, Pg. 571 Wayne County

Right-of-Way and Track Map
The Baltimore and Ohio Railroad Co.
Akron-Chicago Division. Main Line
Sta. 4659+52 to Sta. 4712+32
Valuation Sheet: V. 116.1/1

FOOTER LOCATION
(Pier 3 shown)

I hereby certify that this is a true delineation of a survey made by ENGINEERING ASSOCIATES INC. of Wooster, Ohio.

William H. Long 6-21-96
William H. Long, P.S. #6505 Date

Surveyor's Seal
STATE OF OHIO · WILLIAM H. LONG · 6505 · REGISTERED SURVEYOR

REV.	DATE	DESCRIPTION
SAS	10-4-96	Rev. Lead-in Table
		PLAN COMPLETED: 9-18-96

WAY-21-(1.39)(1.80)

RAILROAD PLAT

WAYNE COUNTY
WAY-21-1.43

GEOLOGY OF THE SITE

THE STRUCTURE SITES ARE LOCATED IN THE MODERATELY ROLLING GLACIATED PORTION OF THE ALLEGHENY PLATEAU REGION, ON THE BROAD FLOODPLAIN OF CHIPPEWA CREEK AND NEAR THE FORMER B & O RAILROAD, IN AN AREA WHERE EXTREMELY DEEP ALLUVIAL DEPOSITS FILL MATERIAL AND GLACIAL DERIVED MATERIAL OVERLIE BEDROCK OF MISSISSIPPIAN AGE.

EXPLORATION

THE EXPLORATION CONSISTED OF TWO DRIVE-PRESS SAMPLE BORINGS MADE BY MEANS OF A MECHANICALLY-POWERED HOLLOW STEM ROTARY AUGER MOUNTED ON A MOBILE PLATFORM, PERFORMED ON DECEMBER 10 AND 11, 1990.

INVESTIGATIONAL FINDINGS AND OBSERVATIONS

THE TEST BORINGS ENCOUNTERED INTERVALS OF LOOSE TO EXTREMELY DENSE UNSTRATIFIED BASIC GRAVEL, CLAY, SILT AND SAND MODIFIED WITH STONE FRAGMENTS AND VARYING AMOUNTS OF EACH OTHER THAT FLUCTUATE ERRATICALLY IN DENSITY WITH INCREASE IN DEPTH. TEST BORING B-1 (MADE IN THE GENERAL VICINITY OF THE REAR ABUTMENTS) PENETRATED TO A DEPTH OF 66.5 FEET, ELEVATION 919.6 FEET AND WAS TERMINATED AT THAT POINT AFTER PENETRATING IN EXCESS OF 6.5 FEET OF MATERIAL REQUIRING IN EXCESS OF 35 BLOWS PER FOOT IN THE STANDARD PENETRATION TEST IMMEDIATELY PRIOR TO TERMINATION. COBBLES WERE ENCOUNTERED IN MOST OF BORING B-1 UP TO 36.5 FOOT DEPTH, ELEVATION 949.6 FEET. ORGANIC MATERIAL WAS ENCOUNTERED IN BORING B-1 AT 35.0 FOOT DEPTH, ELEVATION 951.1 FEET. TEST BORING B-2 (MADE IN THE GENERAL VICINITY OF THE FORWARD ABUTMENTS) PENETRATED TO A DEPTH OF 66.5 FEET, ELEVATION 922.5 FEET AND WAS TERMINATED AT THAT POINT AFTER PENETRATING IN EXCESS OF 6.5 FEET OF MATERIAL REQUIRING IN EXCESS OF 25 BLOWS PER FOOT IN THE STANDARD PENETRATION TEST IMMEDIATELY PRIOR TO TERMINATION. A TRACE OF ORGANIC MATERIAL WAS ENCOUNTERED IN BORING B-2 AT 32.5 FOOT DEPTH, ELEVATION 956.5 FEET.

FREE WATER WAS OBSERVED AND MEASURED IN TEST BORING B-1 AT 35.0 FOOT DEPTH, ELEVATION 951.1 FEET AND IN TEST BORING B-2 AT 15.0 FOOT DEPTH, ELEVATION 974.0 FEET.

BEDROCK SURFACE WAS NOT ENCOUNTERED IN EITHER OF THE TEST BORINGS PERFORMED.

LEGEND

- Auger Boring Location - Plan View.
- Press and / or Drive Sample and / or Core Boring Location - Plan View.
- Drive Rod Penetration Resistance Sounding Location - Plan View.
- T.R — Top of Rock
- Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
- X/Y/Z — Figures Beside the Boring Log in Profile Indicate the Number of Blows for Standard Penetration Test.
  - X = Number of Blows for First 6 inches.
  - Y = Number of Blows for Second 6 inches.
  - Z = Number of Blows for Third 6 inches.
- W — Indicates Free Water Elevation
- ▽ — Indicates Static Water Elevation

SYMBOLS OF ROCK TYPES

- Coal
- Weathered Mudstone or Claystone
- Mudstone or Claystone
- Weathered Shale
- Shale
- Weathered Siltstone
- Siltstone
- Weathered Sandstone
- Sandstone
- Leached Dolomite
- Dolomite
- Leached Limestone
- Limestone
- Boulders or Cobbles

GENERAL INFORMATION

Drive Rod Penetration Sounding Tests

Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine the amount of penetration achieved in three hammer drops. This reading is converted to an empirical value for capacity "R", in thousands of pounds (which is a measure of both the point resistance and frictional resistance on the rod), by using charts prepared by the Ohio Department of Highways, Bureau of Bridges, on the basis of correlation study of rod penetration with past performance of pile driving. For interpretation, a graph is prepared by plotting the value "R" against the depth at which the reading was taken, and connecting the plotted points. The curve so obtained reflects the density of subsurface materials in a manner that can be readily compared with data from similar tests at other locations on the structure site. From this comparison, the overall uniformity of subsurface condition may be evaluated.

Drive Sample Borings - Drive-Press Sample Borings

Drive sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. sampler, at 2-1.2 and / or 5-foot depth intervals, driven by means of a 140 - pound drop-hammer with a free fall of 30 inches. The number of blows required to drive the sampler 18 inches is considered the standard penetration test.

Drive-press sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. drive sampler, and 3" O.D. thin-wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drill rig.

The boring log sheets show a graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the standard penetration tests in three 6-inch increments, depth of press samples, field sample number, sample description - based on laboratory tests and the Casagrande AC classification system - and gradation, plasticity, and moisture content determinations. Results of strength and consolidation testing, if performed, appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

Particle Size Definitions

Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt	Clay
12"	3"	2.0mm (No. 10 sieve)	0.42mm (No. 45 sieve)	0.074mm (No. 200 sieve)	0.005mm	

NOTE - ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE BUREAU OF TESTS AT 1600 WEST BROAD STREET, THE PAVEMENT AND SOILS SECTION OF THE BUREAU OF LOCATION AND DESIGN OR IN THE BRIDGE BUREAU AT 25 SOUTH FRONT STREET.

REVISED 4/ 6 /93

NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

OHIO DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS — TESTING LABORATORY
1600 WEST BROAD STREET, COLUMBUS, OHIO 43223

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. WAY-21-0143 L/R
OVER FORMER B.& O. RAILROAD
SEC. WAY-21-1.43

CHECKED BY	REVIEWED BY	DATE
A. F.	M.R.S.	1/25/91

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

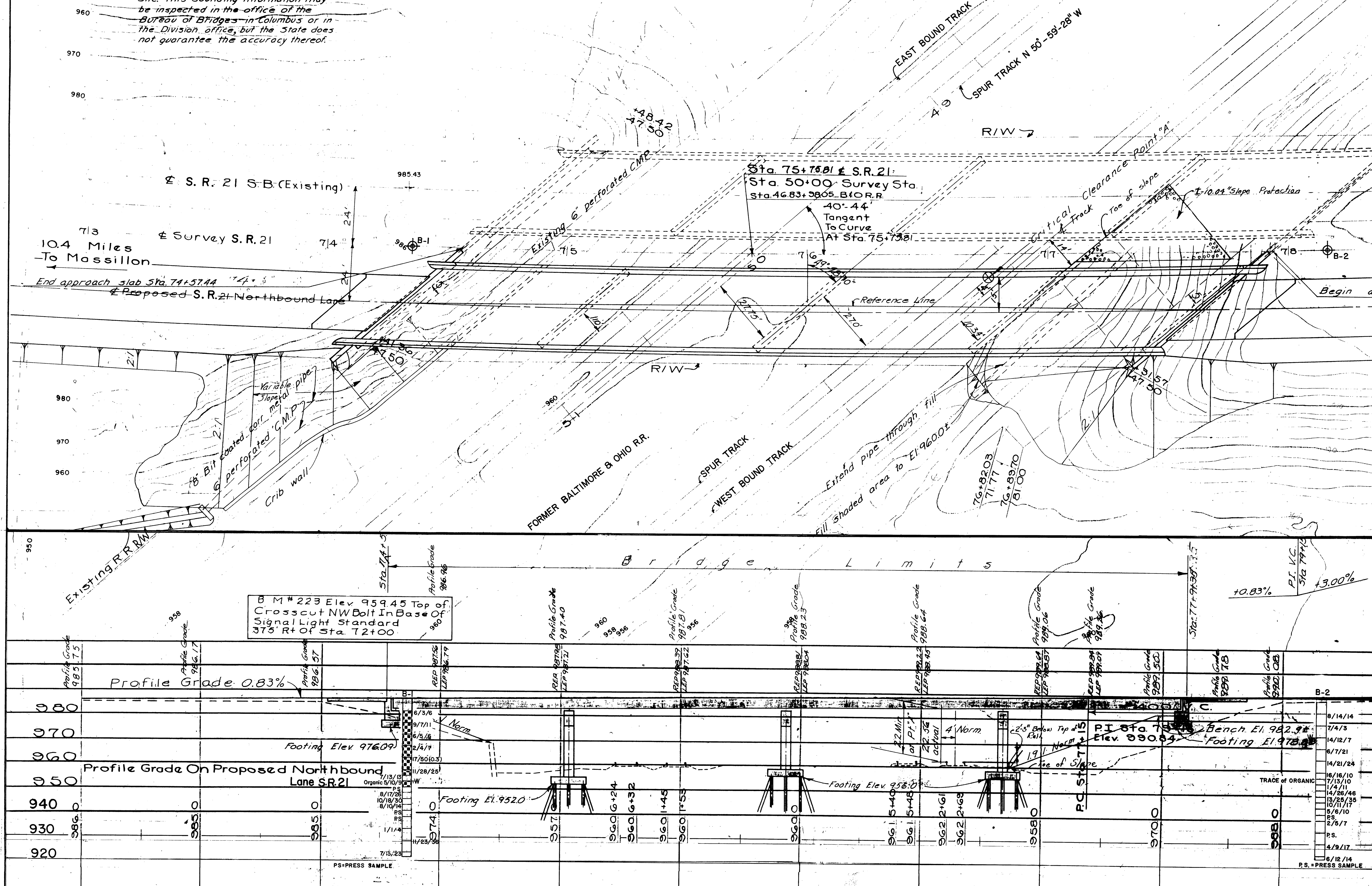
WAY-21-1.43 (26/6)

MICROFILMED OCT 11 1985

SURVEY CURVE DATA

Δ = 31°-35'-50"
D = 1°-00'-00"
R = 5729.58'
T = 1621.16
L = 3159.79
PC = 65+33.86
P.I. = 81+55.02
PT = 96+93.58

FOUNDATION SOUNDINGS:
Foundation design and foundation quantities are based on a study of soil-sampling soundings made at the site. This sounding information may be inspected in the office of the Bureau of Bridges in Columbus or in the Division office, but the State does not guarantee the accuracy thereof.



ADJACENT EXISTING STRUCTURE

Type: Continous Steel Beam With Reinforced Deck And Substructure.
Spans 73'-0", 91'-6", 91'-6", 73'-0" c/c Brgs
Roadway 30'-0"
2'-0" Safety Curbs
Load Frequency Rating F 2000
Surface Course 1" Monolithic Conc.
Skew 49°-17'-45" L.F.
Approach Slabs AS-1-54
Alignment- 1°-0'-0" Curve Left
Superelevation - 0.032 Ft/Ft

PROPOSED STRUCTURE

TYPE: Continuous steel beams with reinforced conc. deck & substr.
SPANS: 72.10'-90.63'-90.29'-72.03' c/c brgs
ROADWAY: 30'-0" f/f 2'-3" safety curbs
LOAD FREQUENCY: CF=2000(57)
WEARING SURFACE: 1" Monolithic conc.
SKEW: 49°-28' L.F.
APPROACH SLABS: AS-1-54 (25' long)
ALIGNMENT: 1°-00' curve left
SUPERELEVATION: 0.032 ft/ft.

REVISED 4/6/93

OHIO DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS-TESTING LABORATORY
1600 WEST BROAD STREET COLUMBUS, OHIO 43223

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. WAY-21-0143 L/R
OVER FORMER B.& O. RAILROAD
SEC. WAY-21-1.43

PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
J.B.H.	A.F.	M.R.S.	1/25/91

TE-122
400-12-78

LOG OF BORING

Date Started 12/10/90 Sampler: Type SS Dia. 1 3/8" Water Elev. 951.1'
Date Completed 12/11/90
Boring No. B-1 Station & Offset 74+35, $\mathcal{L}$ (REAR ABUT.) Surface Elev. 986.1'

Elev.	Depth	Std. (N)	Pen.	Rec. ft	Rec. in	Loss	Description	Sample No.	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class
986.1	0																
	2																
	4																
981.1	6	6/3/6					BROWN SILTY SANDY GRAVEL W/COBBLES	1	60	5	15	13	7	NP	NP	14	A-1-B
	8																
976.1	10																
	12	9/7/11					BROWN SANDY GRAVEL W/COBBLES	2	73	1	17	6	3	NP	NP	14	A-1-A
	14																
971.1	16																
	18	6/5/6					BROWN SANDY GRAVEL W/COBBLES	3	76	2	13	6	3	NP	NP	13	A-1-A
966.1	20																
	22	2/4/7					BROWN SILTY GRAVELLY SAND W/COBBLES	4	23	9	33	25	10	NP	NP	13	A-2-4
	24																
961.1	26	17/50(0.3)					BROWN STONE FRAGMENTS W/COBBLES	5	-	-	-	-	-	-	-	8	VISUAL
	28																
956.1	30																
953.6	32	11/28/25					REDDISH BROWN SILTY SANDY GRAVEL W/COBBLES	6	49	8	29	9	5	NP	NP	9	A-1-B
	34	7/13/13					REDDISH BROWN SILTY GRAVELLY SAND	7	30	9	34	17	10	NP	NP	13	A-2-4
951.1	36	5/10/9					BLACK AND BROWN SILTY SANDY GRAVEL, ORGANIC, W/COBBLES	8	41	9	30	14	6	NP	NP	25	A-1-B
948.6	38						BROWN AND GRAY SANDY SILT (GRADING ONLY)	9	12	4	33	28	23	23	8	26	A-4A
		PRESS					BROWN AND GRAY SILTY GRAVELLY SAND	9A	15	7	45	16	17	24	7	18	A-2-4
946.1	40																
	42	8/17/26					BROWN SILTY CLAY	10	14	1	3	35	47	39	16	22	A-6B
943.6	44	10/18/30					BROWN SILT AND CLAY	11	0	0	1	47	52	39	15	20	A-6A
941.1	46	8/10/14					BROWN SILT AND CLAY	12	0	1	1	55	43	38	15	24	A-6A
938.6	48						GRAY WITH BROWN CLAY	13	0	0	1	56	43	42	20	23	A-7-6
		PRESS					BROWN SILT AND CLAY	13A	0	1	2	76	21	38	13	23	A-6A
936.1	50																
	52	PRESS					GRAY CLAY (AVERAGE)	14	0	0	0	33	67	44	20	29	A-7-6
	54																
931.1	56	1/1/4					GRAY SANDY SILT	15	13	12	27	24	24	23	8	24	A-4A
	58																
926.1	60																
	62	11/23/36					GRAYISH BROWN FINE SAND	16	7	20	64	9	0	NP	NP	18	A-3
	64																
921.1	66	7/13/23					GRAYISH BROWN SILTY SANDY GRAVEL	17	47	18	25	9	1	NP	NP	9	A-1-B
919.6	68						BOTTOM OF BORING										

NOTE:
To see the Unconfined/Traxial Compression Test results, see sheets 4 & 5.

LOG OF BORING

Date Started 12/10/90 Sampler: Type SS Dia. 1 3/8" Water Elev. 974.0'
Date Completed 12/11/90
Boring No. B-2 Station & Offset 78+16, $\mathcal{L}$ (FWD. ABUT.) Surface Elev. 989.0'

Elev.	Depth	Std. (N)	Pen.	Rec. ft	Rec. in	Loss	Description	Sample No.	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class
989.0	0																
988.5	2	AUGERED					SOD AND TOPSOIL										VISUAL
	4																
984.0	6	8/14/14					BROWN SILTY GRAVELLY SAND	1	37	5	34	16	8	NP	NP	14	A-2-4
	8																
979.0	10																
	12	7/4/3					BROWN SILTY SANDY GRAVEL	2	41	3	32	15	9	NP	NP	13	A-2-4
	14																
974.0	16																
	18	14/12/7					BROWN SILTY GRAVELLY SAND	3	18	12	42	17	11	NP	NP	16	A-3A
969.0	20																
	22	6/7/21					BROWN SANDY SILT	4	11	7	35	34	13	NP	NP	16	A-4A
	24																
964.0	26	14/21/24					BROWN SANDY SILT	5	14	7	30	32	17	21	7	11	A-4A
	28																
959.0	30																
	32	16/16/10					BROWN SILTY GRAVELLY SAND	6	27	12	40	14	7	NP	NP	15	A-3A
956.5	34	7/13/10					GRAY, BROWN & BLACK GRAVELLY SANDY SILT, TR. OF ORGANIC	7	17	5	30	25	23	NP	NP	25	A-4A
954.0	36	1/4/11					BROWN SILTY GRAVELLY SAND	8	19	5	56	14	6	NP	NP	23	A-3A
951.5	38																
		14/26/46					BROWN AND GRAY SILTY CLAY	9	0	1	2	22	75	46	19	25	A-7-6
949.0	40																
	42	13/25/35					BROWN AND GRAY GRAVELLY CLAY	10	25	2	10	29	34	31	11	26	A-6A
946.5	44	10/11/17					GRAY CLAYEY SILT	11	0	0	1	62	37	31	10	22	A-4B
944.0	46	5/6/10					GRAY SILT	12	0	0	2	75	23	NP	NP	24	A-4B
941.5	48																
		PRESS					GRAY CLAY (AVERAGE)	13	0	0	0	52	48	42	21	25	A-7-6
939.0	50																
	52	2/5/7					GRAY SILTY CLAY	14	0	0	1	36	63	39	16	29	A-6B
	54																
934.0	56						GRAY SILT AND CLAY	15	0	0	1	35	64	39	15	28	A-6A
		PRESS					BROWN SILTY SAND (GRADING ONLY)	15A	0	0	78	21	1	NP	NP	20	A-3A
	58																
929.0	60																
	62	4/9/17					GRAY SANDY SILT	16	0	1	21	42	36	24	8	27	A-4A
	64																
924.0	66	6/12/14					GRAY SILTY GRAVELLY SAND	17	37	19	28	14	2	NP	NP	17	A-1-B
922.5	68						BOTTOM OF BORING										

NOTE:
To see the Unconfined/Traxial Compression Test results, see sheet 6.

REVISED 4/6/93

OHIO DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS - TESTING LABORATORY
1600 WEST BROAD STREET COLUMBUS, OHIO 43223

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. WAY-21-0143 L/R
OVER FORMER B.& O. RAILROAD
SEC. WAY-21-1.43 2.00

BORING DATA

TYPED BY	CHECKED BY	REVIEWED BY	DATE
L.A.O.	A.F.	M.R.S.	1/25/91

TE-132
400-12-72

State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

UNCONFINED COMPRESSION TEST

Boring No. ___ Station & Offset 74+35, $\mathcal{L}$
Field No. 9A Lab No.So. 65111A
Depth 38.3' - 38.8'

Project Identification WAYNE CO.
WAY-21-0143 L/R
OVER B & O RAILROAD
STRUCTURE FOUNDATION INVESTIGATION

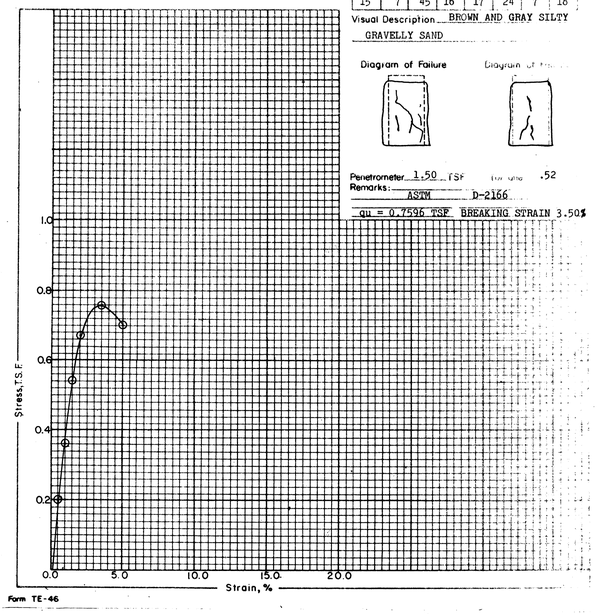
Specimen Data
Diameter 2.80 IN. Wet Density 135.45 LB/CU.FT.
Length 6.00 IN. Dry Density 114.82 LB/CU.FT.
Specific Gravity

Physical Characteristics							
% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.
15	7	45	16	17	24	7	18

Visual Description BROWN AND GRAY SILTY GRAVELLY SAND

Diagram of Failure | Diagram of Failure

Penetrometer 1.50 TSF Torvane .52 TSF
Remarks: ASTM D-2166
qu = 0.7596 TSF BREAKING STRAIN 3.50%



Form TE-46

State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

UNCONFINED COMPRESSION TEST

Boring No. ___ Station & Offset 74+35, $\mathcal{L}$
Field No. 13 Lab No.So. 65112
Depth 47.7' - 48.2'

Project Identification WAYNE CO.
WAY-21-0143 L/R
OVER B & O RAILROAD
STRUCTURE FOUNDATION INVESTIGATION

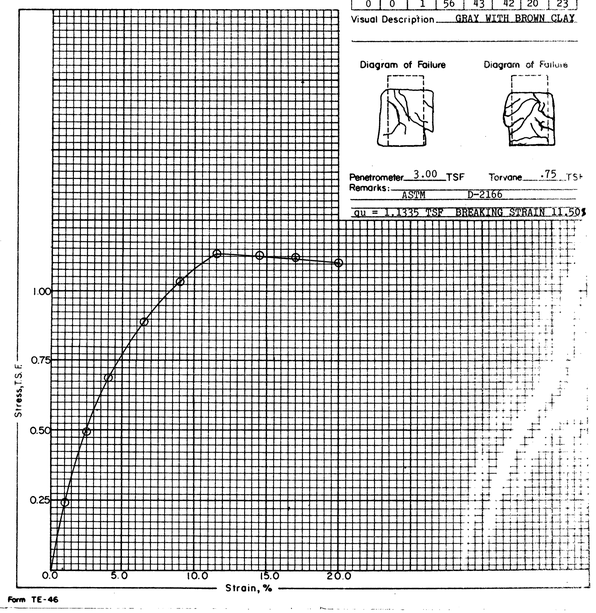
Specimen Data
Diameter 2.85 IN. Wet Density 129.03 LB/CU.FT.
Length 6.00 IN. Dry Density 105.23 LB/CU.FT.
Specific Gravity

Physical Characteristics							
% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.
0	0	1	56	43	42	20	23

Visual Description GRAY WITH BROWN CLAY

Diagram of Failure | Diagram of Failure

Penetrometer 3.00 TSF Torvane .75 TSF
Remarks: ASTM D-2166
qu = 1.1335 TSF BREAKING STRAIN 11.50%



Form TE-46

State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

UNCONFINED COMPRESSION TEST

Boring No. ___ Station & Offset 74+35, $\mathcal{L}$
Field No. 13A Lab No.So. 65113
Depth 48.5' - 49.0'

Project Identification WAYNE CO.
WAY-21-0143 L/R
OVER B & O RAILROAD
STRUCTURE FOUNDATION INVESTIGATION

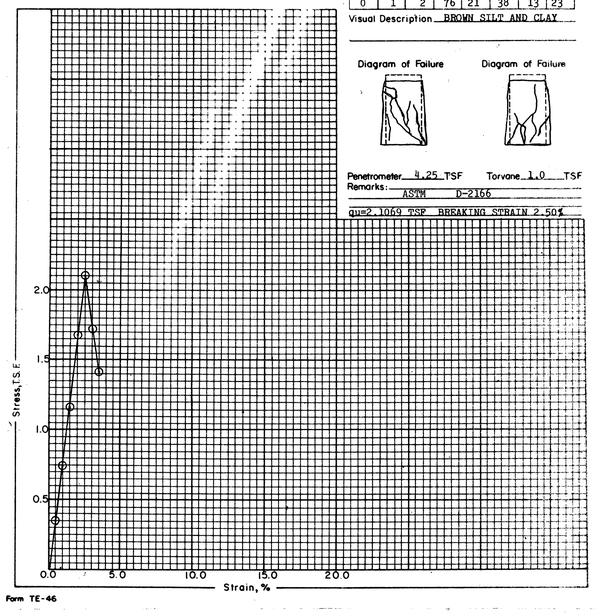
Specimen Data
Diameter 2.85 IN. Wet Density 128.03 LB/CU.FT.
Length 6.00 IN. Dry Density 103.77 LB/CU.FT.
Specific Gravity

Physical Characteristics							
% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.
0	1	2	76	21	38	13	23

Visual Description BROWN SILT AND CLAY

Diagram of Failure | Diagram of Failure

Penetrometer 4.25 TSF Torvane 1.0 TSF
Remarks: ASTM D-2166
qu=2.1069 TSF BREAKING STRAIN 2.50%



Form TE-46

OHIO DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS - TESTING LABORATORY
1600 WEST BROAD STREET COLUMBUS, OHIO 43223

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. WAY-21-0143 L/R
OVER FORMER B.&O. RAILROAD
SEC. WAY-21-1.43

BORING DATA

TYPED BY	CHECKED BY	REVIEWED BY	DATE
L.A.O.	A.F.	M.R.S.	1/25/91

TE-192
400-12-78

6/12

State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

TRIAXIAL COMPRESSION TEST

Station & Offset 74+35, C_L — Project Ident. WAY-21-0143 L/R
Sample No. 14 — Lab No. 65114, A&B
Depth 50.2' - 51.3' — Rate of Strain 0.52%/MIN.
Type of Test UNCONSOLIDATED, UNDRAINED WITH PORE PRESSURE

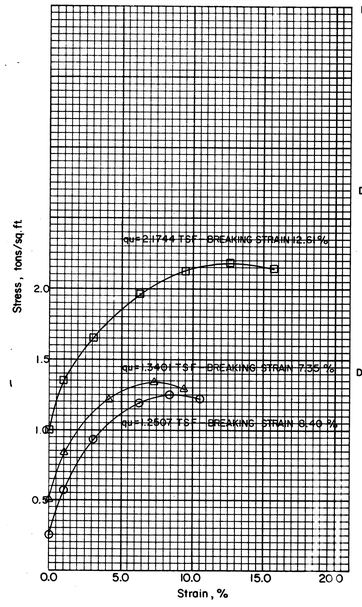


Diagram of Failure

Diagram of Failure

Penetrometer 1.25
Torvane .65
Chamber Pressure 1.00 kg./cm²

Diagram of Failure

Diagram of Failure

Penetrometer 1.25
Torvane .65
Chamber Pressure 0.50 kg./cm²

Diagram of Failure

Diagram of Failure

Penetrometer 1.20
Torvane .65
Chamber Pressure 0.25 kg./cm²

Remarks

Form TE-194

7/12

State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

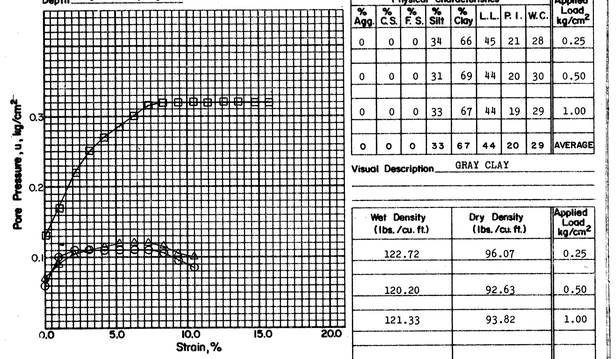
TRIAXIAL COMPRESSION TEST

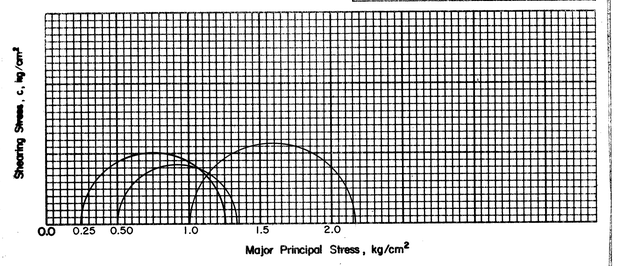
Station & Offset 74+35, C_L — Project Ident. WAY-21-0143 L/R
Sample No. 14 — Lab. No. 65114, A+B
Depth 50.2' - 51.3'

Physical Characteristics								Applied Load kg/cm²
% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
0	0	0	34	66	45	21	28	0.25
0	0	0	31	69	44	20	30	0.50
0	0	0	33	67	44	19	29	1.00
0	0	0	33	67	44	20	29	AVERAGE

Visual Description GRAY CLAY

Wet Density (lbs./cu. ft.)	Dry Density (lbs./cu. ft.)	Applied Load kg/cm²
122.72	96.07	0.25
120.20	92.63	0.50
121.33	93.82	1.00





Form TE-21

OHIO DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS - TESTING LABORATORY
1600 WEST BROAD STREET COLUMBUS, OHIO 43223

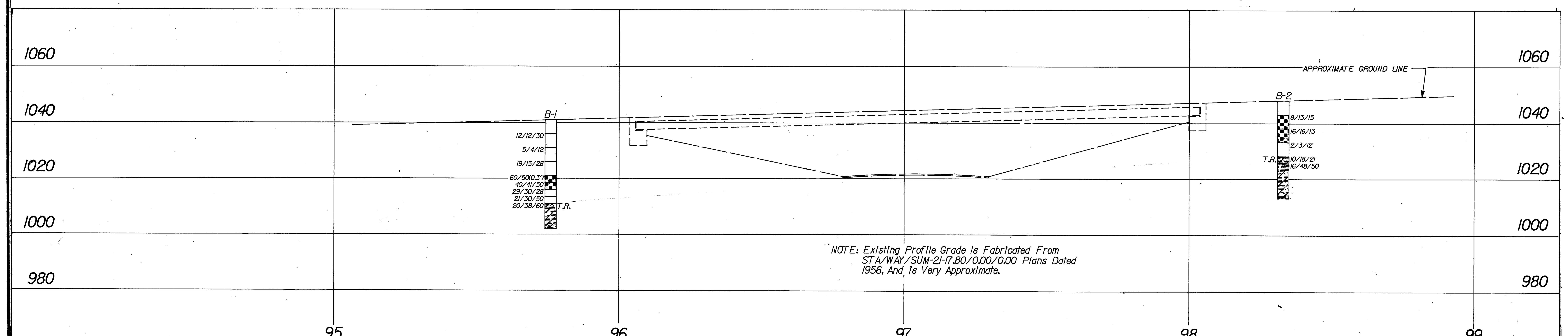
STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. WAY-21-0143 L/R
OVER FORMER B. & O. RAILROAD
SEC. WAY-21-1.43

BORING DATA

TYPED BY	CHECKED BY	REVIEWED BY	DATE
L.A.O.	A.F.	M.R.S.	1/25/91

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1010(3)	

WAY-21-1.82



NOTE: Existing Profile Grade Is Fabricated From STA/WAY/SUM-21-17.80/0.00/0.00 Plans Dated 1956, And Is Very Approximate.

REVISED 3/26/93

OHIO DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS-TESTING LABORATORY
1600 WEST BROAD STREET COLUMBUS, OHIO 43223

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. WAY-21-0182 L/R
OVER TWP. RD. 172
SEC. WAY-21-1.82

PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
J.B.H.	A.F.	M.R.S.	1/2/91

TE - 118
600 - 6 - 73

WAYNE COUNTY
WAY-21-1.82

GEOLOGY OF THE SITE

THE STRUCTURE IS LOCATED IN THE MODERATELY ROLLING GLACIATED PORTION OF THE ALLEGHENY PLATEAU REGION NEAR TOWNSHIP ROAD 172, IN AN AREA WHERE THIN TO MODERATELY DEEP GLACIAL DERIVED MATERIAL, FILL MATERIAL AND RESIDUAL SOILS OVER WEATHERED SHALE AND WEATHERED CLAYSHALE BEDROCK OF MISSISSIPPIAN AGE.

EXPLORATION

THE EXPLORATION CONSISTED OF TWO DRIVE SAMPLE-CORE BORINGS MADE BY MEANS OF A MECHANICALLY-POWERED HOLLOW STEM ROTARY AUGER MOUNTED ON A MOBILE PLATFORM, PERFORMED ON DECEMBER 11 AND 12, 1990.

INVESTIGATIONAL FINDINGS AND OBSERVATIONS

THE TEST BORINGS DISCLOSED THAT INTERVALS OF MEDIUM DENSE TO EXTREMELY DENSE UNSTRATIFIED BASIC SAND, GRAVEL, CLAY AND SILT MODIFIED WITH VARYING AMOUNTS OF EACH OTHER THAT FLUCTUATE IN DENSITY WITH INCREASE IN DEPTH OVERLIE SLOPING BEDROCK SURFACE. TEST BORING B-1 ENCOUNTERED BEDROCK SURFACE AT 30.0 FOOT DEPTH, ELEVATION 1011.0 FEET AND CONTINUED TO ADVANCE TO A TOTAL DEPTH OF 39.0 FEET, ELEVATION 1002.0 FEET WHERE THE BORING WAS TERMINATED AFTER HAVING PENETRATED 9.0 FEET BELOW BEDROCK SURFACE. COBBLES WERE ENCOUNTERED IN BORING B-1 FROM 20.0 FOOT DEPTH, ELEVATION 1021.0 FEET TO 24.0 FOOT DEPTH, ELEVATION 1017.0 FEET. TEST BORING B-2 ENCOUNTERED BEDROCK SURFACE AT 20.0 FOOT DEPTH, ELEVATION 1028.1 FEET AND CONTINUED TO ADVANCE TO A TOTAL DEPTH OF 35.0 FEET, ELEVATION 1013.1 FEET WHERE THE BORING WAS TERMINATED AFTER HAVING PENETRATED 15.0 FEET BELOW BEDROCK SURFACE. COBBLES WERE ENCOUNTERED IN BORING B-2 FROM 5.0 FOOT DEPTH, ELEVATION 1043.1 FEET TO 11.5 FOOT DEPTH, ELEVATION 1036.6 FEET.

NO FREE WATER OBSERVATIONS WERE MADE IN EITHER OF THE TEST BORINGS PERFORMED DURING, OR AT THE CONCLUSION OF DRILLING OPERATIONS.

LEGEND

- Auger Boring Location - Plan View.
- Press and / or Drive Sample and / or Core Boring Location - Plan View.
- Drive Rod Penetration Resistance Sounding Location - Plan View.
- T.R. Top of Rock
- Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
- X/Y/Z Figures Beside the Boring Log in Profile Indicate the Number of Blows for Standard Penetration Test.
  - X = Number of Blows for First 6 inches.
  - Y = Number of Blows for Second 6 inches.
  - Z = Number of Blows for Third 6 inches.
- W---- Indicates Free Water Elevation
- ▽ Indicates Static Water Elevation

SYMBOLS OF ROCK TYPES

- Coal
- Weathered Mudstone or Claystone
- Mudstone or Claystone
- Weathered Shale
- Shale
- Weathered Siltstone
- Siltstone
- Weathered Sandstone
- Sandstone
- Leached Dolomite
- Dolomite
- Leached Limestone
- Limestone
- Boulders or Cobbles

GENERAL INFORMATION

Drive Rod Penetration Sounding Tests

Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine the amount of penetration achieved in three hammer drops. This reading is converted to an empirical value for capacity "R", in thousands of pounds (which is a measure of both the point resistance and frictional resistance on the rod), by using charts prepared by the Ohio Department of Highways, Bureau of Bridges, on the basis of correlation study of rod penetration with past performance of pile driving. For interpretation, a graph is prepared by plotting the value "R" against the depth at which the reading was taken, and connecting the plotted points. The curve so obtained reflects the density of subsurface materials in a manner that can be readily compared with data from similar tests at other locations on the structure site. From this comparison, the overall uniformity of subsurface condition may be evaluated.

Drive Sample Borings - Drive-Press Sample Borings

Drive sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. sampler, at 2-1.2 and / or 5-foot depth intervals, driven by means of a 140 - pound drop-hammer with a free fall of 30 inches. The number of blows required to drive the sampler 18 inches is considered the standard penetration test.

Drive-press sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. drive sampler, and 3" O.D. thin-wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drill rig.

The boring log sheets show a graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the standard penetration tests in three 6-inch increments, depth of press samples, field sample number, sample description - based on laboratory tests and the Casagrande AC classification system - and gradation, plasticity, and moisture content determinations. Results of strength and consolidation testing, if performed, appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

Particle Size Definitions

Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt	Clay
	12" / 3"	2.0mm (No. 10 sieve)	0.42mm (No. 45 sieve)	0.074mm (No. 200 sieve)	0.005mm	

LOG OF BORING

Date Started 12/11/90 Sampler: Type SS Dia. 1 3/8"
Date Completed 12/12/90 Water Elev. —
Boring No. B-1 Station & Offset 95+76, $\mathcal{L}$ (REAR ABUT.) APPROX. Surface Elev. 1041.0

Elev.	Depth	Std. Pen.	Rec. ft.	Loss ft.	Description	Sample No.	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class
1041.0	0														
1040.6		AUGERED			SOD AND TOPSOIL										VISUAL
	2														
	4														
1036.0	6	12/12/30			RED AND GRAY SILTY GRAVELLY SAND	1	35	11	40	12	2	NP	NP	10	A-3A
	8														
1034.0	10														
	12	5/8/12			RED AND GRAY SILTY GRAVELLY SAND	2	41	10	37	10	2	NP	NP	10	A-1-B
	14														
1026.0	16														
	18	19/15/28			REDDISH BROWN SILTY SANDY GRAVEL	3	45	5	35	14	1	NP	NP	10	A-1-B
1021.0	20														
	22	60/50(0.3)			BROWN SILTY GRAVELLY SAND WITH COBBLES	4	41	8	38	12	11	NP	NP	10	A-2-4
1018.5	24	40/41/50			GRAY SILTY SANDY GRAVEL WITH COBBLE	5	51	7	25	15	2	NP	NP	12	A-1-B
1016.0	26														
	28	29/30/28			BROWN SANDY GRAVELLY CLAY	6	31	9	17	24	19	29	11	15	A-6A
1013.5					TOP OF ROCK										
1011.0	30	21/30/50			BROWN SILT AND CLAY	7	0	2	3	51	44	39	18	15	A-6A
1009.5	32	20/38/60			GRAY WEATHERED CLAY SHALE	8	-	-	-	-	-	-	-	14	VISUAL
	34		0.8	2.7	CLAY SHALE, GRAY, MEDIUM-FIRM WITH SCATTERED THIN SOFT CRUMBLY INTERVALS AND CLAY SEAMS, FISSILE, WEATHERED, BADLY BROKEN AND JOINTED. CORE LOSS 40%.										
	36														
	38		3.5	0.5	HIGH CORE LOSS DUE TO MECHANICAL DIFFICULTIES ENCOUNTERED DURING DRILLING.										
1002.0	40														
	42				BOTTOM OF BORING										

LOG OF BORING

Date Started 12/11/90 Sampler: Type SS Dia. 1 3/8"
Date Completed 12/12/90 Water Elev. —
Boring No. B-2 Station & Offset 98+33, $\mathcal{L}$ (FORWARD ABUT.) APPROX. Surface Elev. 1048

Elev.	Depth	Std. Pen.	Rec. ft.	Loss ft.	Description	Sample No.	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class
1048.6	0														
	2														
	4														
1043.1	6	8/13/15			RED SILTY SAND WITH COBBLES	1	11	25	49	10	5	NP	NP	8	A-3A
	8														
1038.1	10														
	12	16/16/13			REDDISH GRAY SANDY GRAVEL W/COBBLES	2	51	9	32	6	2	NP	NP	9	A-1-B
	14														
1033.1	16														
	18	2/3/12			BROWN AND GRAY SANDY GRAVELLY SILT	3	29	4	18	32	17	26	7	15	A-4A
1028.1	20				TOP OF ROCK										
	22	10/18/21			BROWN WEATHERED CLAY SHALE	4	-	-	-	-	-	-	-	18	VISUAL
1025.6	24	16/48/50			GRAY CLAY SHALE	5	-	-	-	-	-	-	-	13	VISUAL
1023.1	26														
	28		4.9	0.1	CLAY SHALE, GRAY, MEDIUM-FIRM, WITH SCATTERED THIN SOFT CRUMBLY INTERVALS, AND CLAY SEAMS, FISSILE, WEATHERED, BADLY BROKEN AND JOINTED. CORE LOSS 1%.										
	30														
	32		5.0	0.0											
	34														
1013.1	36				BOTTOM OF BORING										

NOTE - ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE BUREAU OF TESTS AT 1600 WEST BROAD STREET, THE PAVEMENT AND SOILS SECTION OF THE BUREAU OF LOCATION AND DESIGN OR IN THE BRIDGE BUREAU AT 25 SOUTH FRONT STREET.

REVISED 3/26/93

NOTE: Information shown by this subsurface investigation was assessed solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

OHIO DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS — TESTING LABORATORY
1600 WEST BROAD STREET, COLUMBUS, OHIO 43223

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. WAY-21-0182 L/R
OVER TWP. RD. 172
SEC. WAY-21-1.82

CHECKED BY	REVIEWED BY	DATE
A.F.	M.R.S.	1/2/91

TE-122
400-12-72

State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

TRIAXIAL COMPRESSION TEST

Station & Offset 78+16, C_L
Sample No. 13 Lab. No. 65115, A&B
Depth 47.9' - 48.9' Rate of Strain 0.52%/MIN.
Type of Test UNCONSOLIDATED, UNDRAINED WITH PORE PRESSURE
Project Ident. WAY-21-0143 L/R

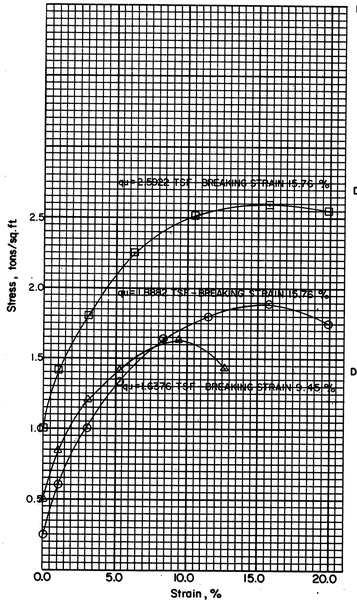


Diagram of Failure

Diagram of Failure

Penetrometer 1.30
Torvane .74
Chamber Pressure 1.00 kg./cm²

Diagram of Failure

Diagram of Failure

Penetrometer 1.10
Torvane .58
Chamber Pressure 0.50 kg./cm²

Diagram of Failure

Diagram of Failure

Penetrometer 1.85
Torvane .65
Chamber Pressure 0.25 kg./cm²

Remarks

Form TE-194

State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

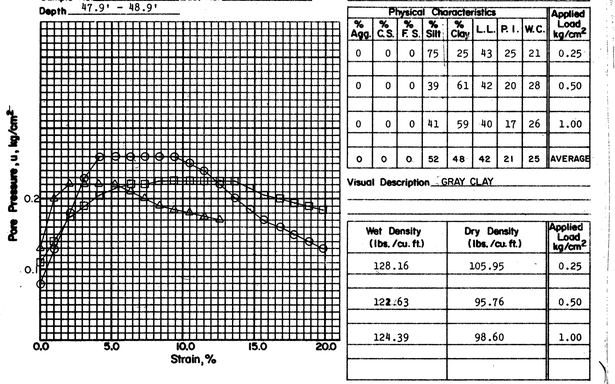
TRIAXIAL COMPRESSION TEST

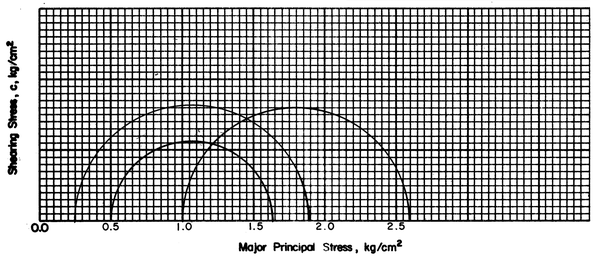
Station & Offset 78+16, C_L
Sample No. 13 Lab. No. 65115, A&B
Depth 47.9' - 48.9'
Project Ident. WAY-21-0143 L/R

Physical Characteristics								
% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	Applied Load kg/cm²
0	0	0	75	25	43	25	21	0.25
0	0	0	39	61	42	20	28	0.50
0	0	0	41	59	40	17	26	1.00
0	0	0	52	48	42	21	25	AVERAGE

Visual Description GRAY CLAY

Wet Density (lbs./cu. ft.)	Dry Density (lbs./cu. ft.)	Applied Load kg/cm²
128.16	105.95	0.25
122.63	95.76	0.50
124.39	98.60	1.00





Form TE-21

State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

UNCONFINED COMPRESSION TEST

Boring No. Station & Offset 78+16, C_L
Field No. 15 Lab No. So. 65116
Depth 55.2' - 55.5'
Project Identification WAYNE CO. WAY-21-0143 L/R OVER B & O RAILROAD STRUCTURE FOUNDATION INVESTIGATION

Specimen Data
Diameter 1.40 IN. Wet Density 122.15 LB/CU.FT.
Length 2.97 IN. Dry Density 95.64 LB/CU.FT.
Specific Gravity

Physical Characteristics							
% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.
0	0	1	35	64	39	15	28

Visual Description GRAY SILT AND CLAY

Diagram of Failure

Diagram of Failure

Penetrometer 0.85 TSF Torvane .36 TSF
Remarks: ASTM D-2166
qu=0.5646 TSF AT 19.53% STRAIN

Form TE-46

OHIO DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS - TESTING LABORATORY
1600 WEST BROAD STREET COLUMBUS, OHIO 43223

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. WAY-21-0143 L/R
OVER FORMER B. & O. RAILROAD
SEC. WAY-21-1.43

BORING DATA

TYPED BY	CHECKED BY	REVIEWED BY	DATE
L.A.O.	A.F.	M.R.S.	1/25/91