MICROFILMED
FEB 8 1996

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

UNI-36-17.32

DOVER TOWNSHIP
UNION COUNTY

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

1/18

UNION COUNTY
UNI-36-17.32

BRF - 33 (13)

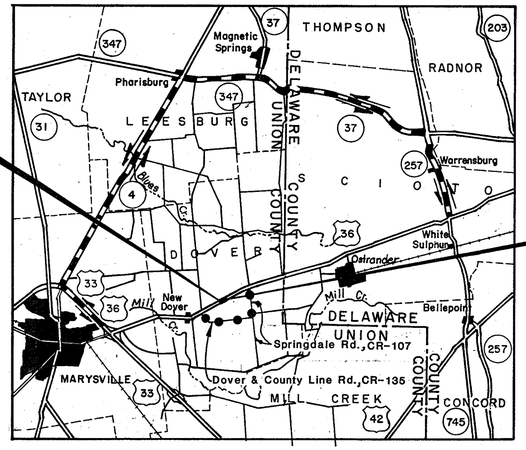
CONVENTIONAL SIGNS

LIMITED ACCESS	LA
PROPOSED R/W	R/W
LIMITED ACCESS R/W	LA R/W
PROPOSED EASEMENT	
CENTER LINE	
EXISTING R/W	
PROPERTY LINE	P/L
CORPORATION LINE	
EXISTING FENCE	
PROPOSED FENCE	
WATER LINE	W W
GAS LINE	G G
UNDERGROUND TELEPHONE	T T
RAILROADS	
EXISTING RETAINING WALL	
PAVED SHOULDERS	
EXISTING SEWER	
PROPOSED SEWER	
EXISTING GUARD RAIL	
PROPOSED GUARD RAIL	

VALVES	TREES AND STUMPS
EXISTING MANHOLES	TREES AND STUMPS TO BE REMOVED
PROPOSED MANHOLES	TELEPHONE OR TELEGRAPH POLE
MANHOLES ADJUSTED TO GRADE	LIGHT POLE
MANHOLES REMOVED OR ABANDONED	POWER POLE
EXISTING INLETS OR CATCH BASINS	WATER HYDRANT
PROPOSED INLET OR CATCH BASIN	
CATCH BASINS ADJUSTED TO GRADE	
CATCH BASINS REMOVED OR ABAND.	

BEGIN PROJECT
STA. 914+40
SLM. 17.32

END PROJECT
STA. 915+80
SLM. 17.34



N

DETOUR & LOCATION MAP

SCALE IN MILES
0 2 4 6

U.S. ROUTE
STATE ROUTE
PORTION TO BE IMPROVED
PRIMARY DETOUR
LOCAL DESIGNATED DETOUR

PLAN 0 20 40
PROFILE HORIZONTAL 0 20 40 VERTICAL 0 5 10
CROSS SECTIONS HORIZONTAL 0 5 10 VERTICAL 0 5 10

INDEX OF SHEETS

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LINE DATA

BEGIN PROJECT	STA.	914 + 40
END PROJECT	STA.	915 + 80
LENGTH OF PROJECT		140 Lin Ft. OR 0.027 Miles
BEGIN WORK	STA.	913 + 35
END WORK	STA.	916 + 87
LENGTH OF WORK		352 Lin. Ft. OR 0.067 Miles

DESIGN	DESIGNATION	
CURRENT A.D.T. (1993)	=	4096
DESIGN YEAR A.D.T. (2013)	=	5734
D.H.V. (2013)	=	573
D	=	50%
T % TRUCKS	=	11%
LEGAL SPEED	=	55 M.P.H.
V (DESIGN SPEED)	=	55 M.P.H.
FUNCTIONAL CLASSIFICATION		MINOR ARTERIAL

DESIGN EXCEPTION — APPROVED
Bridge Width

STRUCTURE PLANS REVIEWED BY:
Burgess & Niple, Limited
Engineers and Architects

PROJECT UNI-36-17.32

DATE OF LETTING _____ CONTRACT NO. _____

PLANS COMPLETED BY
COLUMBUS ENGINEERING CONSULTANTS, INC.
950 MICHIGAN AVE.
COLUMBUS, OHIO 43215

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

PLANS PREPARED BY
L. THOMPSON CONSULTANTS, INC.
929 HARRISON AVE.- SUITE 301
COLUMBUS, OHIO 43215

STANDARD CONSTRUCTION DRAWINGS

GR-1.1	5-6-91	DBR-2-73	4-10-73		
GR-2.1	5-6-91	AS-1-81	11-27-81		
GR-3.4	5-6-91	PSBD-1-81	6-20-89		
GR-4.1	5-6-91				
GR-4.2	5-6-91	TC-41.10	8-29-84		
MC-4	7-26-76	TC-41.20	3-26-79		
MC-11	8-1-78	TC-52.10	4-3-79		
BP-3.1	2-21-92	TC-52.20	4-3-79		
BP-4.1	2-21-92				
MT-99.10	11-14-86	GR-1.2	10-30-92		
MT-101.60	7-1-92	GR-1.3	2-2.1-92		
MT-105.10	7-1-92				
MT-105.11	7-1-92				

SUPPLEMENTAL SPECIFICATIONS

NUMBER	DATE	NUMBER	DATE
802	4-13-90		
942	3-18-92		
820	3-18-92		

1993 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 REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT DETOURS WILL BE PROVIDED AS INDICATED ON THE PLANS.

FOR THE STATE OF OHIO

APPROVED _____
DATE 2/4/93 DISTRICT DEPUTY DIRECTOR OF TRANSPORTATION

APPROVED B.D. Hambleton/dtH
DATE 3-4-93 ENGINEER, BUREAU OF BRIDGES AND STRUCTURAL DESIGN

APPROVED Christopher L. Runyan
DATE 6-4-93 Chief Engineer, Design

APPROVED Jerry Wray
DATE 6-4-93 DIRECTOR, DEPARTMENT OF TRANSPORTATION

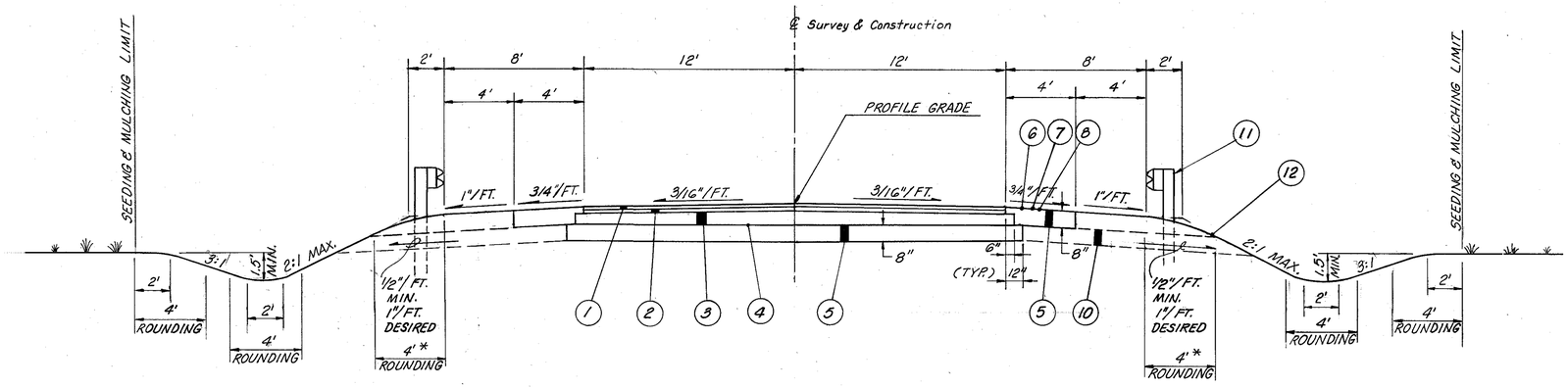
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED

_____ _____
DIVISION ADMINISTRATOR DATE

CALC. BY M.Q. DATE 10/12/88	UNION COUNTY UNI-36-17.32	OHIO	2/18
CHKD. BY J.J. DATE 8/22/91		FHWA REGION 5	

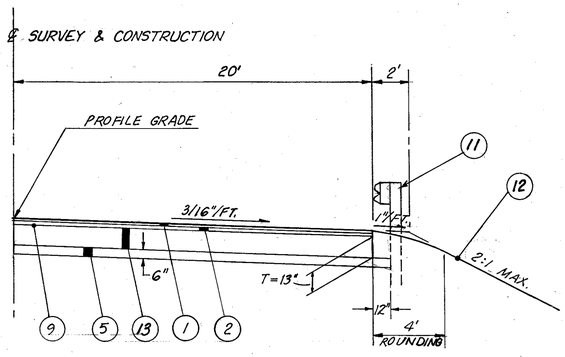
TYPICAL SECTION
TYPE 404 ON 301



ROADWAY SECTION

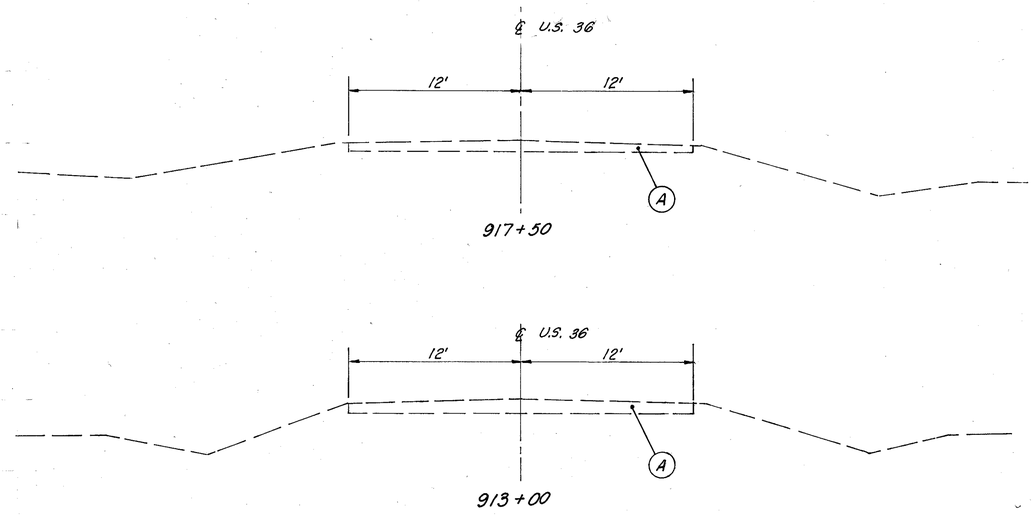
FROM STA.	914 + 40	TO STA. 914 + 74.65	= 34.65 FT.
FROM STA.	915 + 57.36	TO STA. 915 + 80	= 22.64 FT.
		TOTAL	= 57.29 LIN. FT.

* PROVIDE 8' ROUNDING WHERE GUARDRAIL IS NOT INSTALLED



APPROACH SLAB SECTION

FROM STA.	914 + 74.65	TO STA.	914 + 94.65 = 20 FT.
FROM STA.	915 + 37.36	TO STA.	915 + 57.36 = 20 FT.
		TOTAL	= 40 FT.



EXISTING ADJOINING SECTIONS

LEGEND

1. ITEM 404 – 1½" ASPHALT CONCRETE, AC-20
2. ITEM 402 – 1¾" ASPHALT CONCRETE, AC-20
3. ITEM 301 – 6" BITUMINOUS AGGREGATE BASE, AC-20
4. ITEM 408 – BITUMINOUS PRIME COAT AT A RATE OF 0.5 GAL. PER SQ. YD.
5. ITEM 304 – AGGREGATE BASE, AS PER PLAN (SEE GENERAL NOTES)
6. ITEM 408 – BITUMINOUS PRIME COAT AT A RATE OF 0.4 GAL PER SQ. YD.
7. ITEM 409 – SEAL COAT BITUMINOUS MATERIAL AT 0.3 GAL PER SQ. YD.
8. ITEM 409 – SEAL COAT COVER AGGREGATE No. 8 AT 0.008 C.Y. PER S.Y.
9. ITEM 407 – TACK COAT (SEE GENERAL NOTES)
10. ITEM 605 – AGGREGATE DRAINS
11. ITEM 606 – GUARDRAIL, TYPE 5
12. ITEM 659 – SEEDING AND MULCHING
13. ITEM 611 – REINFORCED CONCRETE APPROACH SLAB (T=13")

(A) EXISTING PAVEMENT CONSISTS OF 6"± ASPHALT AND 5"± TRAFFIC COMPACTED GRANULAR SUBBASE.

CALC. BY M.O. DATE 10/12/88	UNION COUNTY	OHIO	3
CHK'D. BY J.J. DATE 8/22/91	UNI-36-17.32	FHWA REGION 5	18

GENERAL NOTES

CONSTRUCTION INITIATION

THE CONTRACTOR WILL ADVISE THE DISTRICT COMMUNICATIONS OFFICER AT 614-363-1251 EXTENSION 261 OR FAX 614-469-0235 SEVEN DAYS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES. THE PROJECT ENGINEER WILL PROVIDE ASSISTANCE / CLARIFICATION FOR ANY QUESTIONS.

CONTINGENCY QUANTITIES

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK LISTED IN THE GENERAL SUMMARY 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 AT THE ENGINEER'S DISCRETION SHALL BE MADE A MATTER OF RECORD BY INCORPORATION INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT.

UNDERGROUND UTILITIES

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS OF THE UTILITY AS REQUIRED BY SECTION 153.64 ORC.

UTILITY OWNERSHIP

THE FOLLOWING UTILITIES AND OWNERS ARE LOCATED WITHIN THE WORK LIMITS OF THIS PROJECT:

DAYTON POWER & LIGHT CO.
P. O. BOX 1247
COURTHOUSE PLAZA S.W.
DAYTON, OHIO 45401

UNITED TELEPHONE
127 N. MAIN STREET
BELLEFONTAINE, OHIO 43311
513-599-1833

WARNER CABLE
INDUSTRIAL PARKWAY
MARYSVILLE, OHIO 43040

WATERING PERMANENT SEEDED AREAS

THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER TO PROMOTE GROWTH AND TO CARE FOR THE PERMANENT SEEDED AREAS, AS PER 659.09

ITEM 659 WATER 2 M GAL.

~~EROSION CONTROL PADS AND ANIMAL GUARDS~~

~~EROSION CONTROL PADS AND ANIMAL GUARDS SHALL BE PROVIDED AT THE OUTLET END OF ALL PIPE UNDERDRAINS AND FARM DRAINS, AS PER STANDARD CONSTRUCTION DRAWING MC-4, EXCEPT WHEN THEY OUTLET INTO A DRAINAGE STRUCTURE.~~

~~PAYMENT FOR THE EROSION CONTROL PADS AND THE ANIMAL GUARD SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 6C~~

ROUNDING OF CORNERS SHOWN ON CROSS-SECTIONS

THE ROUNDED CORNERS SHOWN ON THE TYPICAL SECTIONS, APPLY TO ALL CROSS-SECTIONS EVEN THOUGH OTHERWISE SHOWN ON THESE PLANS.

CLEARING AND GRUBBING

ALTHOUGH THERE ARE NO TREES AND/OR STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE LIMITS OF THIS PROJECT, A LUMP SUM QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR ITEM 201, CLEARING AND GRUBBING. ALL PROVISIONS AS SET FORTH IN THE SPECIFICATIONS UNDER THIS ITEM SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

DETOUR LIMITATIONS & MAINTAINING TRAFFIC

TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES, EXCEPT FOR A SINGLE PERIOD NOT TO EXCEED 90 CONSECUTIVE CALENDAR DAYS, THROUGH TRAFFIC WILL BE DETOURED AS SHOWN ON THE TITLE SHEET MAP, SHEET NO. 1. LIQUIDATED DAMAGES SHALL BE ASSESSED IN ACCORDANCE WITH SECTION 108.07 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS FOR EACH CALENDAR DAY THAT THE ROADWAY REMAINS CLOSED TO TRAFFIC BEYOND THE SPECIFIED LIMIT.

THE CONTRACTOR SHALL NOTIFY THE DISTRICT TRAFFIC ENGINEER AND THE UNION COUNTY ENGINEER IN WRITING A MINIMUM OF FOURTEEN (14) DAYS IN ADAVANCE OF THE DATE THE DETOUR IS NEEDED. THE STATE OF OHIO WILL INSTALL, MAINTAIN, AND SUBSEQUENTLY REMOVE THE DETOUR SIGNING.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC MAINTENANCE AT ALL TIMES IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 614 - MAINTAINING TRAFFIC.

DESIGNATED LOCAL DETOUR ROUTE

IN ADDITION TO THE OFFICIAL, SIGNED DETOUR ROUTE, A LOCAL ROUTE HAS BEEN DETERMINED TO BE THE SECONDARY, UNSIGNED DETOUR OR "DESIGNATED LOCAL DETOUR ROUTE". THIS ROUTE IS SHOWN ON SHEET NO. 1. DURING THE TIME THAT TRAFFIC IS DETOURED, THE CONTRACTOR SHALL MAINTAIN THIS ROUTE IN A CONDITION WHICH IS REASONABLY SMOOTH AND FREE FROM HOLES, RUTS, RIDGES, BUMPS, DUST AND STANDING WATER. ONCE THE DETOUR IS REMOVED AND TRAFFIC RETURNED TO ITS NORMAL PATTERN, THE DESIGNATED LOCAL DETOUR ROUTE SHALL BE RESTORED TO A CONDITION THAT IS EQUIVALENT TO THAT WHICH EXISTED PRIOR TO ITS USE FOR THIS PURPOSE. ALL SUCH WORK SHALL BE PERFORMED WHEN AND AS DIRECTED BY THE ENGINEER.

THE FOLLOWING ESTIMATED QUANTITIES ARE PROVIDED FOR USE AS DIRECTED BY THE ENGINEER TO MAINTAIN AND SUBSEQUENTLY RESTORE THE DESIGNATED LOCAL DETOUR ROUTE:

ITEM	QUANTITY	DESCRIPTION
301	5 CU.YD.	BITUMINOUS AGGREGATE BASE, AC-20
404	172 CU.YD.	ASPHALT CONCRETE, AC-20
404	16 CU.YD.	BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC
407	400 GAL.	TACK COAT
616	4 M. GAL.	WATER
617	61 CU.YD.	COMPACTED AGGREGATE, TYPE A
642	1 MILE	CENTER LINE

LOCATION OF GUARDRAIL

THE LOCATIONS OF GUARDRAIL RUNS, AS SHOWN IN THESE PLANS, ARE SUBJECT TO ADJUSTMENT PRIOR TO FINAL ACCEPTANCE. THE ENGINEER SHALL BE SATISFIED THAT ALL INSTALLATIONS WILL AFFORD MAXIMUM PROTECTION FOR TRAFFIC.

SEEDING

QUANTITIES FOR SEEDING ARE CALCULATED FOR THE SOIL AREAS BETWEEN TEN (10) FEET OUTSIDE THE WORK LIMITS, AS SHOWN ON THE CROSS-SECTIONS, OR THE RIGHT-OF-WAY LINE, IF SUCH LINE IS LESS THAN TEN (10) FEET FROM THE WORK LIMITS.

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	TEMPORARY SEEDING AND MULCHING	221 SQ. YD.
"	207	STRAW OR HAY BALES	50 EACH
"	659	COMMERCIAL FERTILIZER	0.03 TON
"	659	REPAIR SEEDING AND MULCHING	55 SQ. YD.
"	659	WATER	1 M GAL.

NOTE: STRAW OR HAY BALES MAY BE REQURED FOR USE AS DITCH CHECKS, AS PER STD. DW'G. MC-11.

ITEM 304 AGGREGATE BASE, AS PER PLAN

MATERIALS FURNISHED FOR THIS ITEM SHALL EXCLUDE ALL SLAG EXCEPT GRANULATED SLAG OR CRUSHED AIR-COOLED BLAST FURNACE SLAG.

ITEM 407 TACK COAT

THE TACK COAT OPERATION SHALL BE DETERMINED AS PER SPEC. 407.05. PLAN QUANTITIES INDICATE AN AVERAGE APPLICATION RATE OF 0.075 GALLONS PER SQUARE YARD OF TACK COAT FOR ESTIMATING PURPOSES ONLY.

FARM DRAINS

ALL FARM DRAINS, WHICH ARE ENCOUNTERED DURING CONSTRUCTION, SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS UNDER THE DIRECTION OF THE ENGINEER. EXISTING COLLECTORS WHICH ARE LOCATED BELOW THE ROADWAY DITCH ELEVATIONS, AND WHICH CROSS THE ROADWAY, SHALL BE REPLACED WITHIN THE RIGHT-OF-WAY LIMITS BY ITEM 603 CONDUIT, TYPE B, ONE COMMERCIAL SIZE LARGER THAN THE EXISTING CONDUIT.

EXISTING COLLECTORS AND ISOLATED FARM DRAINS, WHICH ARE ENCOUNTERED ABOVE THE ELEVATION OF THE ROADWAY DITCHES, SHALL BE OUTLETTED INTO THE ROADWAY DITCH BY 603 TYPE F CONDUIT. THE OPTIMUM OUTLET ELEVATION SHALL BE, IF POSSIBLE, ONE FOOT ABOVE THE FLOWLINE ELEVATION OF THE DITCH. LATERAL TILE FIELDS WHICH CROSS THE ROADWAY SHALL BE INTERCEPTED BY 603, TYPE E CONDUIT, AND CARRIED IN A LONGITUDINAL DIRECTION TO AN ADEQUATE OUTLET OR ROADWAY CROSSING.

THE LOCATION, TYPE, SIZE AND GRADE OF REQUIRED REPLACEMENTS SHALL BE DETERMINED BY THE ENGINEER DURING CONSTRUCTION, AND PAYMENT SHALL BE MADE ON FINAL MEASUREMENTS.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE:

ITEM	603	6"	CONDUIT, TYPE B 50 LIN. FT.
"	603	6"	CONDUIT, TYPE E 50 LIN. FT.
"	603	6"	CONDUIT, TYPE F 50 LIN. FT.

ITEM 601, ROCK CHANNEL PROTECTION TYPE C WITH FILTER 5 CU. YDS.

NECESSARY BENDS OR BRANCHES SHALL BE INCLUDED FOR PAYMENT IN THE PERTINENT CONDUIT ITEM.

NONE OF THE ABOVE MATERIALS SHALL BE ORDERED BY THE CONTRACTOR UNTIL AUTHORIZED BY THE ENGINEER.

ITEM 605 AGGREGATE DRAINS

AGGREGATE DRAINS SHALL BE PLACED AT FIFTY (50) FOOT INTERVALS ON EACH SIDE OF THE NORMAL CROWNED SECTIONS.

WIDENING EXISTING BERMS

PORTIONS OF THE EXISTING BERM ON THIS PROJECT SHALL BE BUILT UP AND GRADED TO THE WIDTH AND SLOPES INDICATED ON THE CROSS-SECTIONS. THE EXISTING BERM SHALL BE PREPARED AS REQUIRED IN SPEC. 201.04. ALL EMBANKMENT SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH SPEC. 203.09 EXCEPT THAT THE REQUIREMENTS FOR MOISTURE, DENSITY CONTROL, AND BENCHING ARE HEREBY WAIVED FOR WIDENED BERMS WHICH DO NOT SUPPORT ANY PORTION OF NEW PAVEMENT OR SHOULDER. ALL OF THE ABOVE PROVISIONS SHALL BE CONSIDERED INCIDENTAL TO THE NORMAL EARTHWORK ITEMS AND SHALL NOT BE PAID FOR SEPARATELY.

CONNECTION TO EXISTING PIPE

WHERE THE PLANS PROVIDE FOR PROPOSED CONDUIT TO BE CONNECTED TO, OR TO CROSS EITHER OVER OR UNDER AN EXISTING SEWER, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE EXISTING PIPE BOTH AS TO LINE AND GRADE BEFORE HE STARTS TO LAY THE PROPOSED CONDUIT. AN ELBOW SHALL BE FURNISHED FOR THE CONNECTION.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE AND THE ELBOW SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PERTINENT 603 CONDUIT ITEM.

ITEM SPECIAL - MAILBOX SUPPORT

DESCRIPTION. THIS WORK SHALL CONSIST OF FURNISHING AND ERECTING MAILBOX SUPPORTS AND ANY ASSOCIATED MOUNTING HARDWARE IN ACCORDANCE WITH PLAN DETAILS, AND ATTACHING AN OWNER-SUPPLIED MAILBOX, AT LOCATIONS SPECIFIED IN THE PLAN, OR OTHERWISE ESTABLISHED BY THE ENGINEER.

MATERIALS. WOOD POST SHALL BE NOMINAL 4"×4" SQUARE OR 4-1/2" DIAMETER ROUND, AND CONFORM TO 710.14

STEEL POSTS SHALL BE NOMINAL PIPE SIZE 2" I.D., AND CONFORM TO AASHTO M 181.

HARDWARE (PLATES, SCREWS, BOLTS, ETC.) SHALL BE COMMERCIAL - GRADE GALVANIZED STEEL.

SETTING POST. POST SHALL BE SET PER THE FIRST PARAGRAPH OF 606.03, AND SHALL IN NO INSTANCE BE ENCASED IN CONCRETE.

MOUNTING BOXES. SUPPORT HARDWARE SHALL ACCOMODATE EITHER A SINGLE OR A DOUBLE MAILBOX INSTALLATION, AND NO MORE THAN TWO BOXES MAY BE MOUNTED ON A SINGLE POST.

THE MAILBOX SHALL BE SECURELY AND NEATLY ATTACHED BY THECONTRACTOR TO THE NEW SUPPORT. THE CONTRACTOR SHALL FURNISH ALL NECESSARY ATTACHMENT HARDWARE(NUTS, BOLTS, PLATES, SPACERS, AND WASHERS) AS NECESSARY TO ACCOMMODATE THE COMPLETE INSTALLATION.

IN THE ABSENCE OF A NEW BOX SUPPLIED BY THE OWNER, THE CONTRACTOR SHALL SALVAGE THE EXISTING BOX AND PLACE IT ON THE NEW SUPPORT. DUE CARE SHALL BE EXERCISED IN SUCH AN OPERATION, AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING OR REPLACING ANY BOX DAMAGED BY IMPROPER HANDLING ON HIS PART, AS JUDGED AND DIRECTED BY THE ENGINEER.

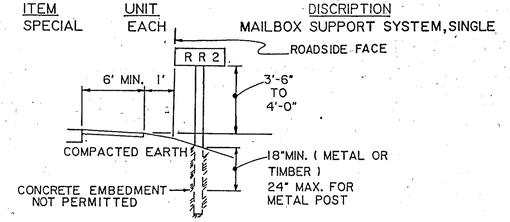
THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE LOCAL POST MASTER REGARDING THE TIMING OF THE MOVEMENT OF ANY MAILBOX TO A NEW LOCATION.

BASIS OF PAYMENT. PAYMENT UNDER THIS ITEM SHALL BE LIMITED TO FINAL PERMANENT INSALLATION. TEMPORARY INSTALLATIONS SHALL BE IN ACCORDANCE WITH 107.12. HOWEVER, THE SAME MATERIAL AND SIZE LIMITATIONS AS FOR PERMANENT INSTALLATIONS SHALL APPLY.

MAILBOX SUPPORTS WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EACH, FOR THE TYPE SPECIFIED, COMPLETED IN PLACE.

PAYMENT WILL BE MADE UNDER:

ITEM	UNIT	DISCRIPTION
SPECIAL	EACH	MAILBOX SUPPORT SYSTEM, SINGLE



MAILBOX SUPPORT DETAIL

CALCULATIONS

From Sta. 913+37 To Sta. 914+40 (For Bituminous treated shoulders in transition)

AREA — $\left[\left[\left(\frac{1+4}{2}\right) \times 73.64\right]+\left[29.36 \times 4\right]\right] \times 2 \times \frac{1}{9}$ = 67.00 Sq.Yd.

ITEM 409 — 0.30 x 67 = 20.10 Gal.

ITEM 409 — 0.008 x 67 = 0.54 Cu.Yd.

ITEM 408 — 0.40 x 67 = 26.80 Gal.

ITEM 304 — $\frac{8}{12} \times \frac{1}{3} \times 67$ = 14.89 Cu.Yd.

From Sta. 914+40 To Sta. 914+94.65

ITEM 611 — $20 \times 40 \times \frac{1}{9}$ = 88.89 Sq.Yd.

ITEM 409 — $0.30 \times (30.90+38.93) \times 4 \times \frac{1}{9}$ = 9.31 Gal.

ITEM 409 — $0.008 \times (30.90+38.93) \times 4 \times \frac{1}{9}$ = 0.25 Cu.Yd.

ITEM 408 — $0.40 \times (30.90+38.93) \times 4 \times \frac{1}{9}$ = 12.41 Gal.

ITEM 408 — $34.65 \times 26 \times \frac{1}{9} \times 0.5$ = 50.05 Gal.

ITEM 404 — $(20 \times 40 + 34.65 \times 24) \times \frac{1.25}{12} \times \frac{1}{27}$ = 6.29 Cu.Yd.

ITEM 402 — $(20 \times 40 + 34.65 \times 24) \times \frac{1.75}{12} \times \frac{1}{27}$ = 8.81 Cu.Yd.

ITEM 407 — $20 \times 40 \times \frac{1}{9} \times 0.075$ = 6.67 Gal.

ITEM 304 — $\left[\left[(34.65 \times 26)+(30.90+38.93) \times 4\right] \times \frac{8}{12}+(20 \times 42 \times \frac{6}{12})\right] \times \frac{1}{27}$ = 44.70 Cu.Yd.

ITEM 301 — $34.65 \times 25 \times \frac{6}{12} \times \frac{1}{27}$ = 16.04 Cu.Yd.

ITEM 203 — Subgrade Compaction $(24 \times 34.65 + 20 \times 40) \times \frac{1}{9}$ = 181.29 Sq.Yd.

From Sta. 915+37.36 To Sta. 915+80

ITEM 611 — $20 \times 40 \times \frac{1}{9}$ = 88.89 Sq.Yd.

ITEM 409 — $0.30 \times (26.39+18.90) \times 4 \times \frac{1}{9}$ = 6.04 Gal.

ITEM 409 — $0.008 \times (26.39+18.90) \times 4 \times \frac{1}{9}$ = 0.16 Cu.Yd.

ITEM 408 — $0.40 \times (26.39+18.90) \times 4 \times \frac{1}{9}$ = 8.05 Gal.

ITEM 408 — $22.64 \times 26 \times \frac{1}{9} \times 0.5$ = 32.70 Gal.

ITEM 404 — $(20 \times 40 + 22.64 \times 24) \times \frac{1.25}{12} \times \frac{1}{27}$ = 5.18 Cu.Yd.

ITEM 402 — $(20 \times 40 + 22.64 \times 24) \times \frac{1.75}{12} \times \frac{1}{27}$ = 7.26 Cu.Yd.

ITEM 407 — $20 \times 40 \times \frac{1}{9} \times 0.075$ = 6.67 Gal.

ITEM 304 — $\left[\left[(22.64 \times 26)+(26.39+18.90) \times 4\right] \times \frac{8}{12}+(20 \times 42 \times \frac{6}{12})\right] \times \frac{1}{27}$ = 34.56 Cu.Yd.

ITEM 301 — $22.64 \times 25 \times \frac{6}{12} \times \frac{1}{27}$ = 10.48 Cu.Yd.

ITEM 203 — Subgrade Compaction $(22.64 \times 24 + 20 \times 40) \times \frac{1}{9}$ = 149.26 Cu.Yd.

From Sta. 915+80 To Sta. 916+37, Lt. & Sta. 916+85, Rt. (For Bituminous treated shoulders in transition)

AREA, Lt. — $\left[\left[4 \times 32.86\right]+\left\{\left(\frac{4+1}{2}\right) \times 24.14\right\}\right] \times \frac{1}{9}$ = 21.29 Sq.Yd.

AREA, Rt. — $4' \times 105' \times \frac{1}{9}$ = 46.67 " "

ITEM 409 — $0.30 \times (21.29+46.67)$ = 20.39 Gal.

ITEM 409 — $0.008 \times (21.29+46.67)$ = 0.54 Cu.Yd.

ITEM 408 — $0.40 \times (21.29+46.67)$ = 27.18 Gal.

ITEM 304 — $\frac{8}{12} \times \frac{1}{3} \times (21.29+46.67)$ = 15.16 Cu.Yd.

Relocation Gravel Field Drive (1-DR)

AREA — $\left[\left((\text{Sta. } 0+62 - \text{Sta. } 0+19.53^{**}) \times 14'\right)+(307.49)+(25.5')\right] \times \frac{1}{9}$ = 103.06 Sq.Yd.

ITEM 304 — $103.06 \times \frac{6}{12} \times \frac{1}{3}$ = 17.18 Cu.Yd.

** SEE SHEET 9 FOR PROFILE OF GRAVEL FIELD DRIVE

ITEM 802 - Barrier Reflector, Type A

Lengths of Guardrail: L_1 = 187.50
L_2 = 162.50

Number of Barrier Reflectors (N) = $\left(\frac{L_1}{100}+1\right)+\left(\frac{L_2}{100}+1\right)$
= 5.5
≃ 6 each *

Item 659 - Commercial Fertilizer

$\frac{1032 \times 9}{1000} \times \frac{20}{2000}$ = 0.093 Ton *

Item 659 - Agricultural Liming

$\frac{1032 \times 9}{1000} \times \frac{100}{2000}$ = 0.464 Ton *

Item 601 - Rock Channel Protection, Type C with Filter

Rear Abutment: $18.09 \times 78 \times 2.0 \times \frac{1}{27}$ = 104.52 Cu.Yd.

Forward Abutment: $18.09 \times 82 \times 2.0 \times \frac{1}{27}$ = 109.88 Cu.Yd.

Total = 214.40 Cu.Yd. *

Residence Gravel Drive, Sta. 916 45, Rt. (2-DR) (for feathering & transition)

AREA $12' \times 12' \times \frac{1}{9}$ = 15.98 Sq. Yd.

Item 304 $15.98 \times \frac{4}{12}$" Ave $\times \frac{1}{3}$ = 1.77 Cu.Yd.

* Carried to General Summary Sheet No. 5

NOTE: All quantity totals carried to Sub-Summary sheet No. 7, Except as noted

GENERAL SUMMARY

CALC. BY M.Q. DATE 10/12/88	UNION COUNTY UNI-36-17.32	OHIO
CHKD. BY J.J. DATE 8/22/91		FHWA REGION

5
18

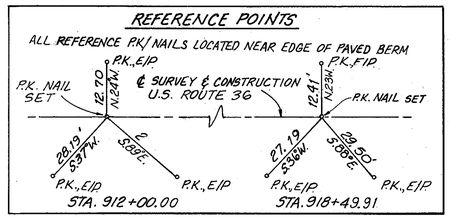
ITEM	SHEET NUMBER								ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION
	3	4	6	7									
													ROADWAY
201	LUMP								201	11000	LUMP		CLEARING AND GRUBBING
202				368.75					202	38000	368.75	LIN.FT.	GUARDRAIL REMOVED
203			265						203	12000	265	CU.YD.	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION
203			338						203	20000	338	CU.YD.	EMBANKMENT
203				331					203	50000	331	SQ.YD.	SUBGRADE COMPACTION
606				250					606	13000	250	LIN.FT.	GUARDRAIL, TYPE 5
606				2					606	25000	2	EACH	ANCHOR ASSEMBLY, TYPE A
606				4					606	35140	4	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE 4
606				2					606	26500	2	EACH	ANCHOR ASSEMBLY, TYPE T
SPECIAL	1								SPECIAL	69050100	1	EACH	MAILBOX SUPPORT SYSTEM, SINGLE
													EROSION CONTROL
207	50								207	70000	50	EACH	STRAW OR HAY BALES
207	221								207	10000	221	SQ.YD.	TEMPORARY SEEDING AND MULCHING
601	5	214							601	32200	219	CU.YD.	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER
659	3								659	35000	3	M GAL.	WATER
659			1104						659	10000	1104	SQ.YD.	SEEDING AND MULCHING
659	55								659	14000	55	SQ.YD.	REPAIR SEEDING AND MULCHING
659	0.03	0.09							659	20000	0.12	TON	COMMERCIAL FERTILIZER
659		0.47							659	30000	0.47	TON	AGRICULTURAL LIMING
													DRAINAGE
603				14					603	04900	14	LIN.FT.	12" CONDUIT, TYPE D, 707.01
603				52					603	04900	52	LIN. FT.	12" CONDUIT, TYPE D
603	50								603	00900	50	LIN. FT.	6" CONDUIT, TYPE B
603	50								603	01400	50	LIN. FT.	6" CONDUIT, TYPE E
603	50								603	01500	50	LIN. FT.	6" CONDUIT, TYPE F
605				51					605	31100	51	LIN. FT.	AGGREGATE DRAINS
													PAVEMENT
301	5			27					301	10002	32	CU.YD.	BITUMINOUS AGGREGATE BASE, AC-20
304				128					304	20001	128	CU.YD.	AGGREGATE BASE, AS PER PLAN
402				16					402	20000	16	CU.YD.	ASPHALT CONCRETE, AC-20
404	172			11					404	20000	183	CU.YD.	ASPHALT CONCRETE, AC-20
407	400			13					407	10000	413	GAL.	TACK COAT
408				157					408	10000	157	GAL.	BITUMINOUS PRIME COAT
409				2					409	12000	2	CU.YD.	SEAL COAT COVER AGGREGATE NO.8
409				56					409	20000	56	GAL.	SEAL COAT BITUMINOUS MATERIAL
611				178					611	15000	178	SQ.YD.	REINFORCED CONCRETE APPROACH SLAB (T=13")
													TRAFFIC CONTROL
642	1.0			0.06					642	00290	1.06	MILE	CENTER LINES
642				0.12					642	00090	0.12	MILE	EDGE LINES
802		6							802	00100	6	EACH	BARRIER REFLECTOR, TYPE A
													MAINTENANCE OF TRAFFIC
404	16								404	35000	16	Cu.Yd.	Bituminous Concrete for Maintaining Traffic
614				0.06					614	21400	0.06	MILE	TEMPORARY CENTER LINES, CLASS II
616	4								616	10000	4	M.Gal.	WATER
617	61								617	10100	61	CU.YD.	COMPACTED AGGREGATE, TYPE A
													STRUCTURE OVER 20' SPAN
													FOR QUANTITIES OF BRIDGE NO. UNI-36-1733, SEE SHEET 12
614	LUMP								614	11000	LUMP		MAINTAINING TRAFFIC
619									619	15000	LUMP		FIELD OFFICE, TYPE A
623									623	10000	LUMP		CONSTRUCTION LAYOUT STAKES
624									624	10000	LUMP		MOBILIZATION

CALC. BY M.Q.	UNION COUNTY	OHIO
DATE 10/12/88	UNI-36-17.32	FHWA REGION 5
CHKD. BY J.J.		
DATE 8/22/91		

6/18

REFERENCE POINTS

ALL REFERENCE PK/ NAILS LOCATED NEAR EDGE OF PAVED BERM



CULTIVATED FIELD

EX. 9" C.S.P. STA. 915+00 18' LT. *

CONSTRUCTION LIMIT

EX. 6" CORR. STEEL PIPE (FIELD DRAIN)

BRF-33(13)

BEGIN PROJECT STA. 914+40 SLM. 17.32

15°-00' SKEW

914+91 42'± LT.

914+80 35'± LT.

UNDERGR'D TELE. MARKER

EX. 12" C.S.P. TO BE MOVED

℄ RELOCATED 14' GRAVEL FIELD DRIVE (TYPE 2 PER BP-6) 1-DR

℄ EXIST. 14' GRAVEL FIELD DRIVE

BRF-33(13)

END PROJECT STA. 915+80 SLM. 17.34

END WORK STA. 916+87

913+31 ℄ DIRT FIELD DRIVE

CONSTRUCTION LIMIT

UNDERGR'D TELE. MARKER PROP. R/W

GR-2

GR-4

915+25 42'± LT.

913+06 35'± LT.

EX. 6" CORR. STEEL PIPE (FIELD DRAIN)

PROP. 12"

R=15'

TEMP. R/W

10' EASEMENT UNITED TELEPHONE DEED VOL. 302 PG. 129

2-S

T.B.M. #2

TELEPHONE BOX

BURIED TELEPHONE LINE

BURIED TELEPHONE LINE

EX. R/W

EX. R/W

EX. CONC. WALL

TYPE 2 ANCHOR

3-D

CONST. LIMITS

EX. 10" CORR. STEEL PIPE

E/P

E/P

+85.64

+35.64

+15

EX. MAIL BOX

R-2

1-D

R-4

9/5

9/6

9/7

9/3 ℄ U.S. 36 N 57°55'09" E ℄ SURVEY, CONSTRUCTION AND RIGHT OF WAY 9/4

9/2+00

12'

2:1

8'

0.13

BUTT END JOINT

+96.36

915+49.5 RRS. END

+46.36

BUTT END JOINT

12'

90°

N 57°55'09"E

90°

M.B.

E/P

916+49.91

E/P

TYPE T ANCHOR

EX. R/W

EX. R/W

BURIED CATV

BURIED CATV

R=15'

EX. 12" C.S.P.

2-DR

T.B.M. #1

BEGIN WORK STA. 913+35

CONSTRUCTION LIMIT

R-1

GR-1

2-D

915+05 36'± RT.

915+22 34'± RT.

915+31 41'± RT.

915+45 40'± RT.

PROP. R/W

1-S

GR-3

4-D

R-3

MAIL BOX RELOCATION STA. 916+60, 15' RT.

916+45 12' GRAVEL DR.

916+94 14' GRAVEL RES. DR.

CONSTRUCTION LIMIT

℄

℄

℄

N22W

EX. BOARD FENCE

HORSE PASTURE

CATV

18"

HOUSE 1-STORY WOOD FRAME

HOUSE 1-STORY WOOD FRAME

T.B.M.#1: IRON PIN IN GROUND IN FRONT OF POWER POLE @ STA. 913+65, 32.5' RT. EL. 950.29

T.B.M.#2: IRON PIN IN GROUND IN FRONT OF TELEPHONE POLE @ STA. 916+14, 32' LT. EL. 950.97

*NOTE: THIS EX. PIPE'S ALIGNMENT IS SUBJECT TO ADJUSTMENT AT THE TIME OF CONSTRUCTION TO ACCOMODATE THE REAR ABUTMENT REINFORCING PLACEMENT AS DIRECTED BY THE ENGINEER.

LEGENDS

- 4' STABILIZED SHOULDER, CARRIED ACROSS EX. DRIVE TO NEXT DRIVE
- ITEM 304 FEATHERING TRANSITION FOR EX. DRIVE

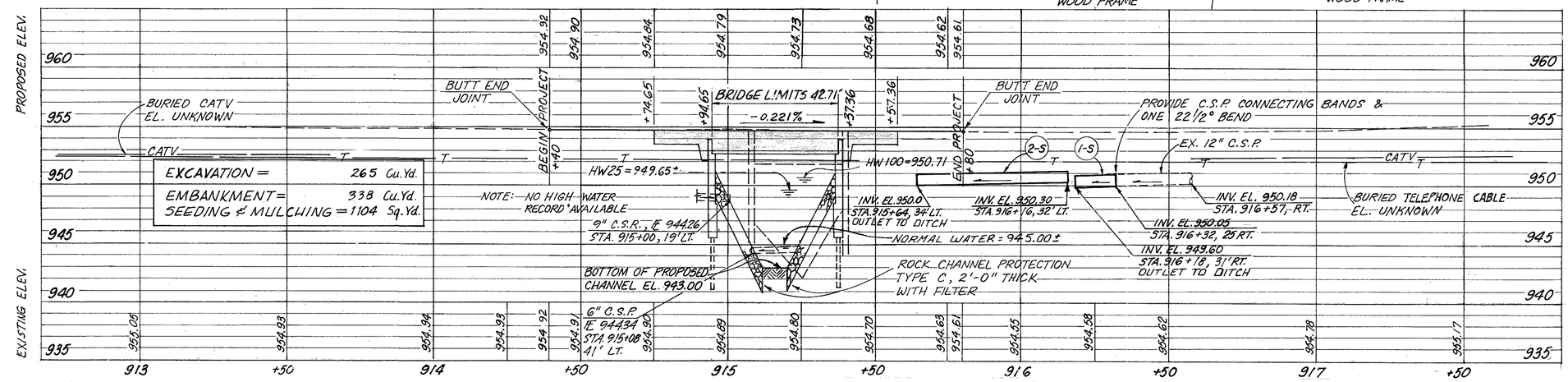
PLAN

EXISTING STRUCTURE

TYPE: SINGLE SPAN CONC. BEAM ON CONC. SUBSTRUCTURE.
SPAN: 30'-0" F/F ABUTMENTS
ROADWAY: 28'-8" O/O DECK
LOADING: H-15 OR LESS
SKEW: NONE
ALIGNMENT: TANGENT
APPROACH SLABS: NONE
DATE BUILT: UNKNOWN
STRUCTURE FILE NO.: 8001863
CONDITION: POOR

PROPOSED STRUCTURE

TYPE: SINGLE SPAN PRESTRESSED CONC. BOX BEAM ON CAPPED PILE ABUTMENT
SPANS: 40'-0" F/F ABUTMENT
ROADWAY: 40'-0" F/F GUARDRAIL
LOADING: HS-20-44 & ALTERNATE MILITARY LOADING
SKEW: 15°-00' RT. FORWARD
ALIGNMENT: TANGENT
DECK SURFACE: 2½" MIN. ASPHALT CONCRETE
APPROACH SLABS: AS-1-81 (20' LONG)



EXCAVATION =	265 Cu. Yd.
EMBANKMENT =	338 Cu. Yd.
SEEDING & MULCHING =	1104 Sq. Yd.

PROFILE ON ℄ SURVEY

PLAN & PROFILE STA. 913+00 TO STA. 917+50

CALC. BY M.Q. DATE 10/12/88
CHKD. BY J.J. DATE 8/22/91

UNION COUNTY
UNI-36-17.32

OHIO
FHWA REGION 5

7/18

SUB - SUMMARIES

ROADWAY

SHEET NO.	REF. NO.	STATION FROM	STATION TO	SIDE		202 Guardrail Removed	606 Guardrail Type 5	606 Anchor Assembly Type A	606 Anchor Assembly Type T	606 Bridge Terminal Assembly Type B			Remarks
						Lin.Ft.	Lin. Ft.	Each	Each	Each			
6	GR1	913+96.36	914+96.36	Rt.			75	1		1			
6	GR2	913+85.64	914+85.64	Lt.			75	1		1			
6	GR3	915+46.36	916+36.36	Rt.			75		1	1			
6	GR4	915+35.64		Lt.			25		1	1			
6	R1	913+77	915+02	Rt.		125							
6	R2	913+77	915+02	Lt.		125							
6	R3	915+36	916+29.75	Rt.		93.75							
6	R4	915+36	915+62	Lt.		25							
TOTAL						368.75	250	2	2	4			

PAVEMENT

SHEET NO.	REF. NO.	STATION FROM	STATION TO	SIDE	203 Subgrade Compaction	301 Bituminous Aggregate Base, AC-20	304 Aggregate Base As Per Plan	407 Tack Coat	402 Asphalt Concrete, AC-20	404 Asphalt Concrete, AC-20	408 Bituminous Prime Coat (1.50 Gal./S.Y.)	408 Bituminous Prime Coat (0.40 Gal./S.Y.)	409 Seal Coat Bituminous Material (0.30 Gal./S.Y.)	409 Seal Coat Cover Aggregate (0.008 C.Y./S.Y.)	611 Reinforced Concrete Approach Slab (T=13")
					Sq. Yd.	Cu. Yd.	Cu. Yd.	Gal.	Cu. Yd.	Cu. Yd.	Gal.	Gal.	Gal.	Cu. Yd.	Sq. Yd.
4		913+37	914+40	Lt.&Rt.			14.89					26.80	20.10	0.54	
4		914+40	914+94.65	Lt.&Rt.	181.29	16.04	44.70	6.67	8.81	6.29	50.05	12.41	9.31	0.25	88.89
4		915+37.36	915+80	Lt.&Rt.	149.26	10.48	34.56	6.67	7.26	5.18	32.70	8.05	6.04	0.16	88.89
4		915+80	916+55	Lt.&Rt.			15.16					27.18	20.39	0.54	
	1-DR	Gravel Field DR@ 916+15		Lt.			17.18								
	2-DR	Gravel Residential Drive @ 916+45		Rt.			1.77								
											*82.75	*74.44			
TOTAL					330.55	26.52	128.26	13.34	16.07	11.47	157.19		55.84	1.49	177.78

* = SUBTOTAL

PAVEMENT MARKING

REF. NO.	STATION FROM	STATION TO	SIDE	614 Temporary Center Lines, Class II		642 4-inch Center Lines: Broken & Solid Double	642 4-inch Edge Lines						
						Lin.Ft.	Lin. Ft.						
	913+35	916+39	℄	304		304 *							
	913+35	916+39	Lt.&Rt.				608						
TOTAL (Feet)				304		304	608						
TOTAL (Miles)				0.06		0.06	0.12						

* Center lines to match existing lines.

DRAINAGE

SHEET NO.	REF. NO.	STATION FROM	STATION TO	SIDE		603 12" Conduit Type D	603 12" Conduit Type D 707.01	603 Bends & Branches	605 Aggregate Drain				
						Lin.Ft.	Lin. Ft.		Lin. Ft.				
6	1-D	914+45		Lt.					13				
6	2-D	914+76		Rt.					13				
6	3-D	915+60		Lt.					12				
6	4-D	915+77		Rt.					13				
6	1-S	916+18	916+32	RT.			14	1					
6	2-S	915+64	916+16	Lt.		52							
TOTAL						52	14	—	51				

NOTE : All quantity totals carried to GENERAL SUMMARY sheet No. 5

CALC. BY M.Q.	UNION COUNTY	OHIO	8
DATE 10/12/88	UNI-36-17.32	FHWA REGION 5	18
CHKD. BY J.J.			
DATE 8/22/91			

Seeding		End Area		Cu. Yds.	
Width.	S.Y.	Cut	Fill	Cut	Fill
42	191	51.8	59	66	76
48.5	259	22	49.5	*52	84
44.5	202	19.6	41.6	21	50
28	24	3	12	1	4
0		0	0		

℄ SURVEY & CONSTRUCTION

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

955 / 950 / 945

EX. R/W — C/L — PROP. R/W — 2:1

EX. TELEPHONE CABLE

954.81
914+87.82
954.90

EX. 9" C.S.P.

℄ 949.50

CUT AREA = 24 × 1.5 = 36 FT.²

954.90
914+50
954.91

℄ 950.00

FULL DEPTH PAVEMENT CUT $(C_1) = 36 \times [(914+50) - 914+40)] \times \frac{1}{27}$
$C_1 = 13.33$ CU. YD.

℄ 950.00

* THIS QUANTITY INCLUDES THE ABOVE CALCULATED QUANTITY C_1.

BEGIN PROJECT STA. 914+40

3:1

914+00
954.94

℄ 950.75

955 / 950

EX. R/W — C/L — PROP. R/W — 2:1 — 3:1

℄ 950.80

25:1

913+50
954.93

℄ 951.10

BURIED CATV

℄ EX. EARTH FIELD DR., LT.
STA. 913+30

BEGIN WORK STA. 913+35

960 / 955 / 950

EX. TELPHONE CABLE

951.30

913+00
955.05

℄ SURVEY & CONSTRUCTION

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

STA. 913+00 TO STA. 914+87.82

ORIGINAL DRAWING PLOTTED ON MYLAR DATE 10-10-88 BY [illegible] CO. [illegible]

FINAL SURVEY SUBMITTED [illegible] DATE [illegible] BY [illegible] CO. [illegible]

CALC BY M.Q. DATE 10/12/88	UNION COUNTY	OHIO	9
CHKD. BY J.J. DATE 8/22/91	UNI-36-17.32	FHWA REGION 5	18

Seeding		End Area		Cu.Yds.	
Width	S.Y.	Cut	Fill	Cut	Fill
0		0	0		
120				11	19
55				16.4	28.1
308				** 97	68
445				4	12
				13	15

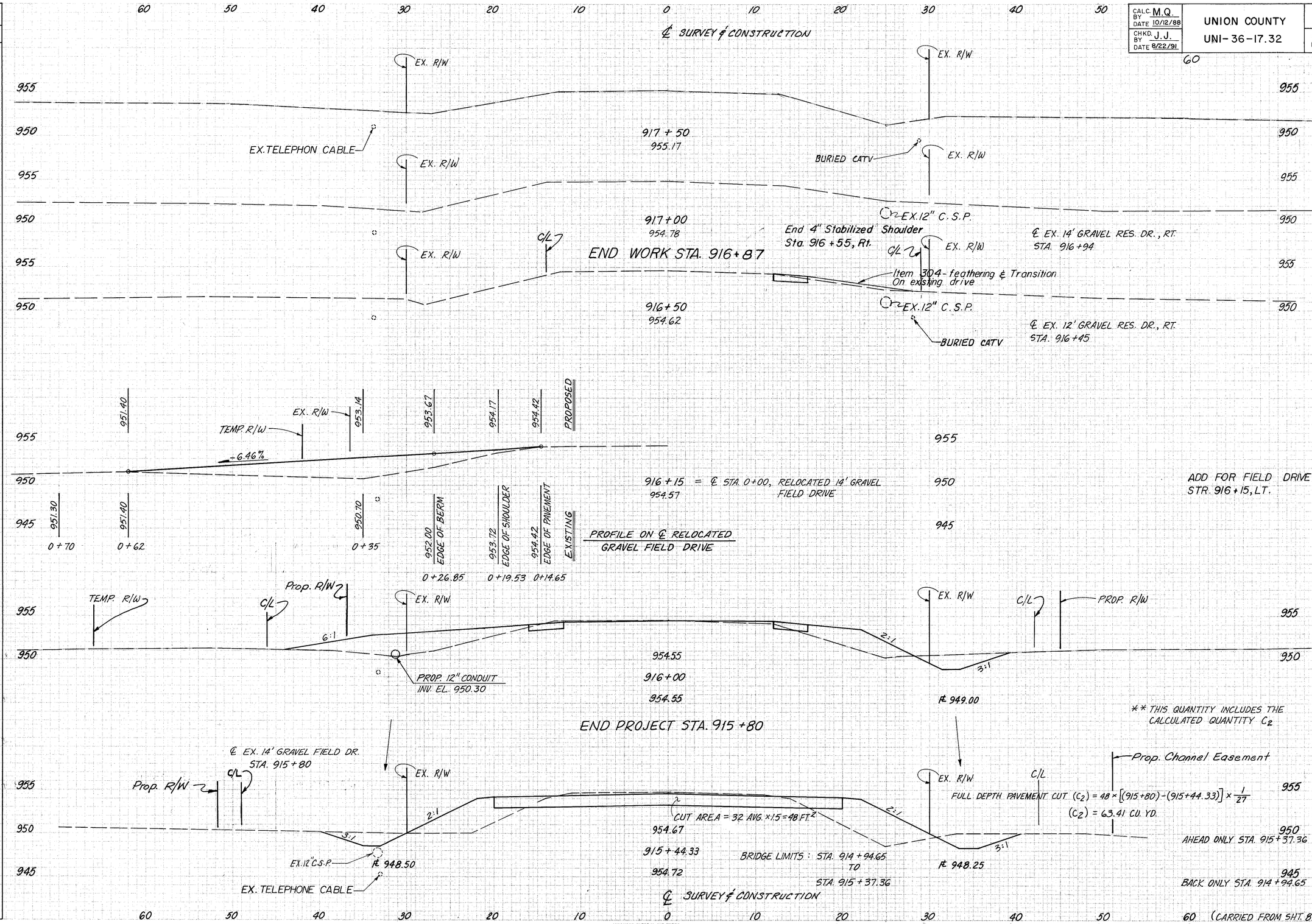
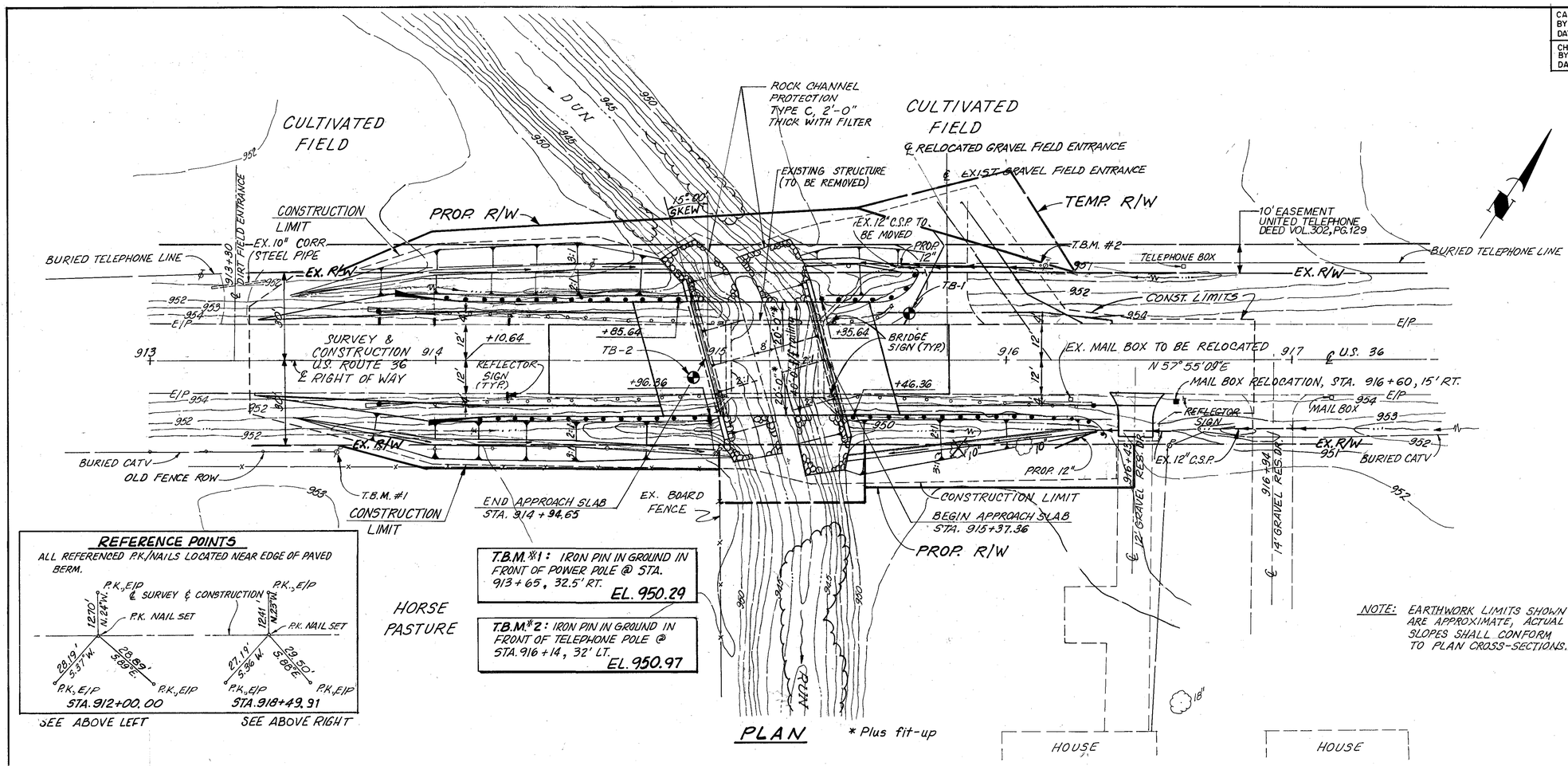


PLATE 3-FULL CROSS SECTION-FULL LINE

STA. 915+44.33 TO STA. 917+50

CALC. BY J.J.	UNION COUNTY	OHIO	10
CHKD. BY M.Q.	UNI-36-17.32	FHWA REGION 5	18
DATE 10/12/88 / 10/14/88			



T.B.M. #1: IRON PIN IN GROUND IN FRONT OF POWER POLE @ STA. 913+65, 32.5' RT. EL. 950.29

T.B.M. #2: IRON PIN IN GROUND IN FRONT OF TELEPHONE POLE @ STA. 916+14, 32' LT. EL. 950.97

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

REFERENCE POINTS

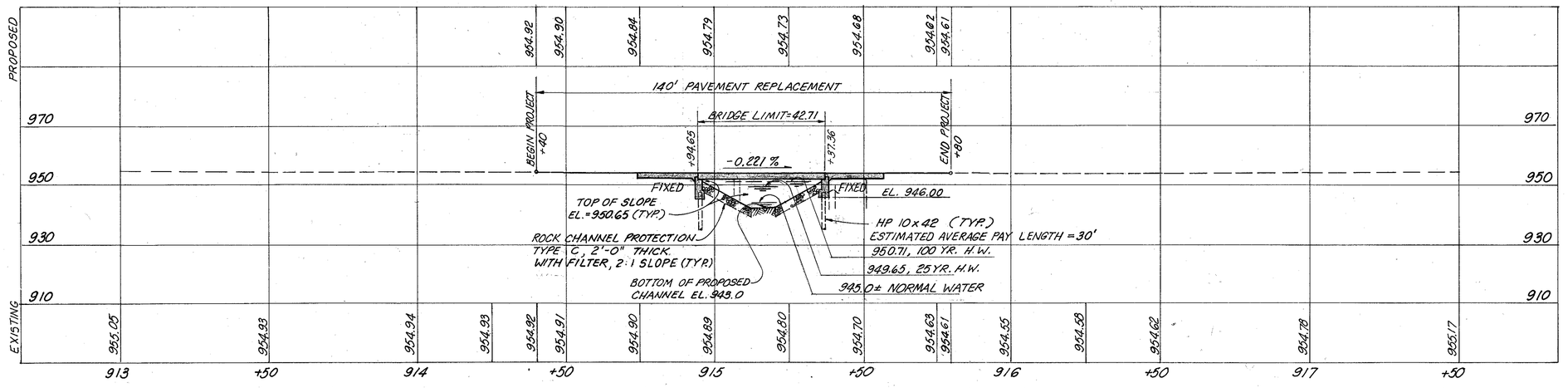
ALL REFERENCED P.K./NAILS LOCATED NEAR EDGE OF PAVED BERM.

STA. 912+00.00 — SEE ABOVE LEFT

STA. 918+49.91 — SEE ABOVE RIGHT

PLAN

* Plus fit-up



PROFILE ON ℄ SURVEY

REVIEWED BY BURGESS & NIPLE, LTD. T.J.K. 9-06-91

HYDRAULIC DATA

DRAINAGE AREA	2.4 SQ. MI.
EXISTING WATERWAY OPENING	210 SQ. FT.
PROPOSED WATERWAY OPENING	244.87 SQ. FT.
Q_{25} = 583 C.F.S., V_{25} = 6.22 F.P.S.,	HW_{25} = 949.60
Q_{100} = 815 C.F.S., V_{100} = 6.73 F.P.S.,	HW_{100} = 950.71

EXISTING STRUCTURE

TYPE: SINGLE SPAN CONC. BEAM ON CONC. SUBSTRUCTURE.
SPAN: 30'-0" F/F ABUTMENTS
ROADWAY: 23'-8" F/F CURBS
LOADING: H-15
SKEW: NONE
ALIGNMENT: TANGENT
APPROACH SLABS: NONE
DATE BUILT: UNKNOWN
STRUCTURE FILE NO.: 8001863
CONDITION: POOR

PROPOSED STRUCTURE

TYPE: SINGLE SPAN PRESTRESSED CONC. BOX BEAM ON CAPPED PILE ABUTMENT
SPANS: 41'-6" C/C BEARINGS
ROADWAY: 40'-0" F/F GUARDRAIL
LOADING: HS-20-44 & ALTERNATE MILITARY LOADING
SKEW: 15°-00' RT. FORWARD
ALIGNMENT: TANGENT
DECK SURFACE: 2½" (MIN.) ASPHALT CONCRETE
APPROACH SLAB: AS-1-81 (20' LONG)

TRAFFIC DATA

CURRENT A.D.T. (1989) = 2297
DESIGN YEAR A.D.T. (2009) = 3224

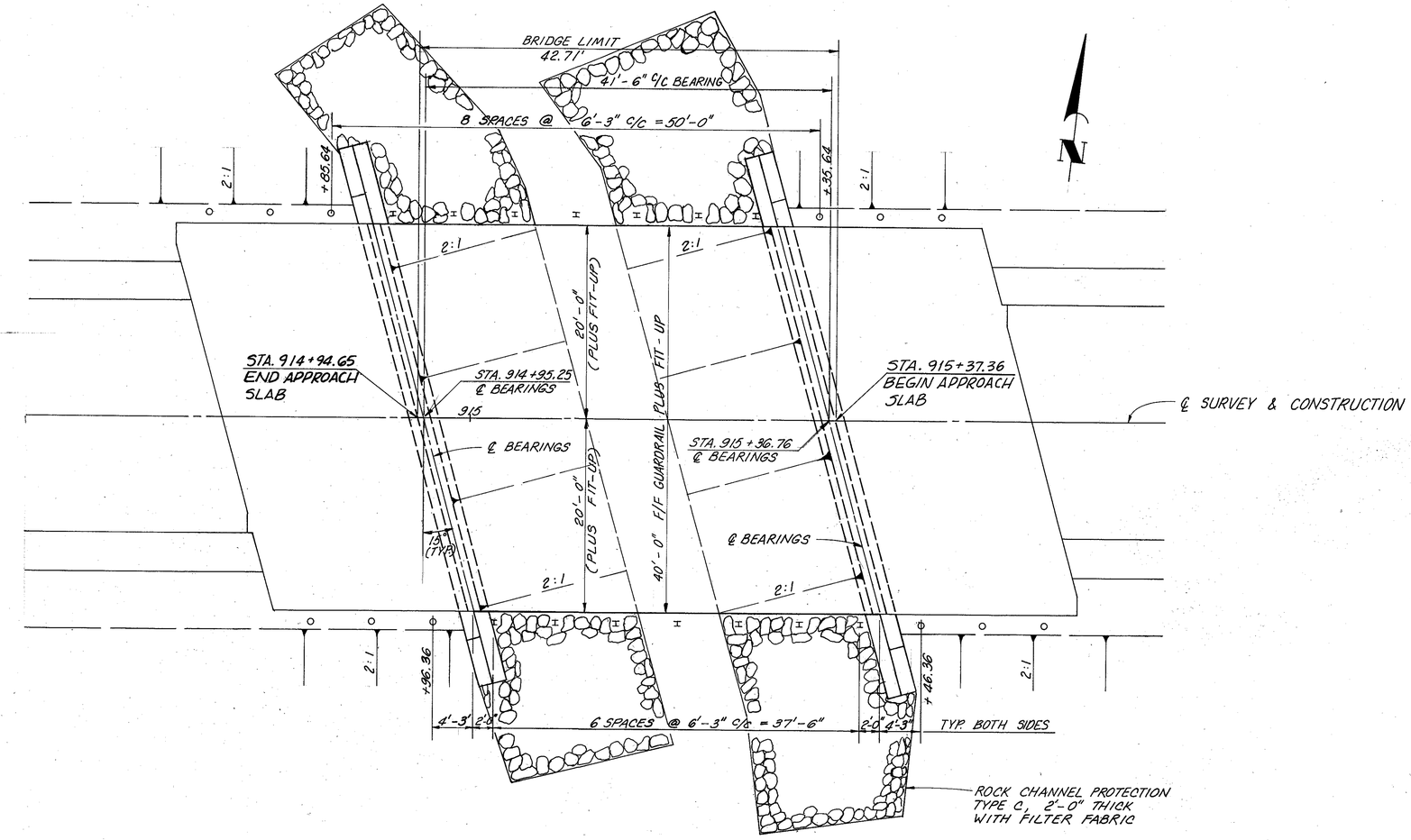
L. THOMPSON CONSULTANTS, INC. 1 / 8
CONSULTING ENGINEERS
COLUMBUS OHIO 43215

SITE PLAN

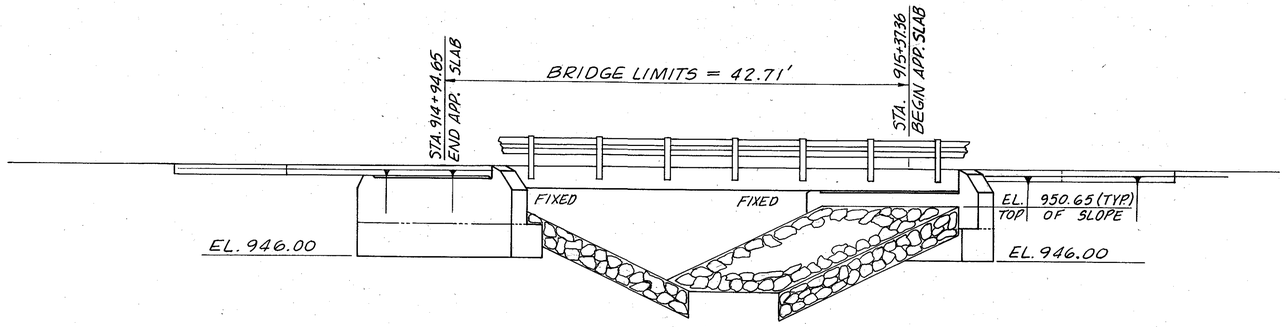
BRIDGE NO. UNI-36-17.33
OVER DUN RUN
UNION COUNTY
STA. 914+94.65 TO STA. 915+37.36

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
M.Q.	M.Q.	G.S.	J.J.	L.E.T.	10/17/88	

CALC. J.J. BY DATE 10/12/88	UNION COUNTY	OHIO	11/1
CHKD. M.Q. BY DATE 10/14/88	UNI-36-17.32	FHWA REGION	18



GENERAL PLAN



ELEVATION

NOTE: HP 10 x 42 STEEL PILES ARE NOT SHOWN. SEE SHTS. 4/8 & 5/8 FOR DETAILS.

L. THOMPSON CONSULTANTS, INC. 2/8
CONSULTING ENGINEERS
COLUMBUS, OHIO 43215

GENERAL PLAN & ELEVATION
BRIDGE NO. UNI-36-17.33
OVER DUN RUN
UNION COUNTY STA. 914+94.65 TO STA. 915+37.36

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.J.	J.J.	H.L.D.	M.Q.	L.E.T.	10/17/88	

CALC. BY J.J. DATE 10/12/88	UNION COUNTY	OHIO
CHKD. BY M.Q. DATE 10/14/88	UNI-36-17.32	FHWA REGION 5

12/18

GENERAL NOTES

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

DBR-2-73	DATED 4-10-73
AS-1-81	DATED 11-27-81
PSBD-1-81	DATED 6-20-89 (SHTS) 1, 2, & 3 OF 4),

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1983, INCLUDING THE 1984, 1985, 1986, AND 1987 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA:

DESIGN LOADING - HS 20-44 AND THE ALTERNATE MILITARY LOADING
CONCRETE CLASS "C" - UNIT STRESS 1333 P.S.I. (SUBSTRUCTURE)
REINFORCING STEEL ASTM A615, A616 OR A617
GRADE 60 - UNIT STRESS 24,000 P.S.I.
GRADE 40 - UNIT STRESS 20,000 P.S.I.

CONCRETE FOR PRESTRESSED BEAMS - UNIT STRESS 2200 P.S.I. COMPRESSION
444 P.S.I. TENSION

PRESTRESSING STRAND ASTM A416
F's - 270,000 P.S.I.
INITIAL STRESS - 0.70 F's

ABUTMENT PILING:

BENDING STRESSES MAY APPROACH, REACH OR EXCEED YIELD STRESSES.

DECK PROTECTION METHOD:

TYPE D WATERPROOFING AND ASPHALT CONCRETE WEARING SURFACE, STEEL DRIP STRIP AND SEALING OF CONCRETE SURFACES.

PILE DESIGN LOADS:

THE DESIGN LOAD FOR THE REAR ABUTMENT PILES AND FOR THE FORWARD ABUTMENT PILES IS 25 TONS PER PILE.

REINFORCING STEEL

IN THE PRESTRESSED BOX BEAMS SHALL BE AS PER CONSTRUCTION AND MATERIAL SPECIFICATIONS SECTION 515 WHICH ALLOWS GRADE 40, 40,000 P.S.I. YIELD AND DOES NOT RESTRICT TO GRADE 60.

NON-SHRINKING MORTAR:

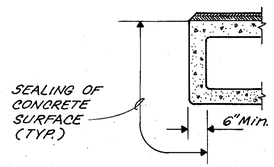
MORTAR OR GROUT FOR KEYWAYS BETWEEN PRESTRESSED CONCRETE BOX BEAMS, FOR TIE ROD RECESSES AND FOR ANCHOR DOWEL HOLES SHALL BE A NON-SHRINKING NON-METALLIC MORTAR HAVING A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 5000 P.S.I. ACCORDING TO THE CORPS OF ENGINEERS SPECIFICATION CRD-C621-83 WHEN PREPARED TO A MODERATE FLUIDITY (124-145% FLOW TABLE FLOW). THE MORTAR OR GROUT SHALL ALSO MEET ALL OTHER REQUIREMENTS OF SPECIFICATION CRD-C621-83. THE MORTAR SHALL BE PREPARED, PLACED AND CURED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, AGAINST SURFACES AS SPECIFIED.

PREPARATION OF CONCRETE SURFACES IN CONTACT WITH NON-SHRINKING MORTAR

THE KEYWAY SURFACES SHALL BE GIVEN A MEDIUM SANDBLAST AT THE PLANT WITHIN FOUR DAYS BEFORE THE BEAMS LEAVE THE PLANT. BEFORE MORTARING, THE KEYWAYS SHALL BE THOROUGHLY CLEAN OF ALL DIRT, DUST AND OTHER FOREIGN MATTER. THE KEYWAY SURFACES SHALL BE WETTED, BUT NO FREE WATER SHALL BE ALLOWED TO REMAIN IN THE KEYWAYS.

SEALING OF CONCRETE SURFACES:

A CONCRETE SEALER SHALL BE APPLIED TO THE SURFACES INDICATED IN DETAIL A BELOW AND ON SHEETS 4 OF 8 AND 5 OF 8. SEE PROPOSAL NOTE FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURES.



DETAIL A

EMBANKMENT CONSTRUCTION

THE EMBANKMENTS SHALL BE CONSTRUCTED TO THE LEVEL OF THE SUBGRADE. EXCAVATION MAY THEN BE MADE FOR THE ABUTMENTS AND PILES DRIVEN.

REMOVAL OF EXISTING STRUCTURE

WHEN NO LONGER NEEDED TO MAINTAIN TRAFFIC, THE EXIST. STRUCTURE SHALL BE REMOVED. SUITABLE WASTE MASONRY MAY BE PLACED AS BANK PROTECTION AS DIRECTED BY THE ENGINEER.

UTILITY LINES

ALL EXPENSE INVOLVED IN RELOCATING (INSTALLING) THE AFFECTED UTILITY LINES SHALL BE BORNE BY THE OWNER(S). THE CONTRACTOR AND OWNER(S) ARE REQUESTED TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

ESTIMATED QUANTITIES

ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SUPER.	ABUT.	GEN.	
202	11002	LUMP		STRUCTURES REMOVED, OVER 20 FOOT SPAN			LUMP	
403	20000	10	CU.YD.	ASPHALT CONCRETE, AC-20	10			
404	20000	7	CU.YD.	ASPHALT CONCRETE, AC-20	7			
503	11100	LUMP		COFFERDAMS, CRIBS AND SHEETING			LUMP	
503	21100	111	CU.YD.	UNCLASSIFIED EXCAVATION		111		
505	11100	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION			LUMP	
507	11100	480	LIN.FT.	STEEL PILES HP 10x42		480		
509	15800	1574	LB.	EPOXY COATED REINFORCING STEEL, GRADE 60		1574		
509	11500	5056	L.B.	REINFORCING STEEL, GRADE 60		5056		
511	46500	38	CU.YD.	CLASS C CONCRETE, FOOTING		38		
511	44100	35	CU.YD.	CLASS C CONCRETE ABUTMENT, NOT INCLUDING FOOTING		35		
512	55800	208	SQ.Y.D.	TYPE D WATERPROOFING	208			
515	53900	10	EA.	PRESTRESSED CONCRETE BOX BEAM (40'-52' LENGHT), B21x48	10			
516	42000	40	EA.	ELASTOMERIC BEARING PADS MISC. (8"x16"x 3/4" 50 DUROMETER)	40			
516	46920	18	SQ.FT.	PREFORMED BEARING PAD, 711.21	18			
516	31011	83	LIN.FT.	2" DEEP JOINT SEALER, AS PER PLAN	83			
516	13600	140	SQ.FT.	1" PREFORMED EXPANSION JOINT FILLER		140		
517	72300	100	LIN.FT.	RAILING (DEEP BEAM RAIL W/STEEL TUBULAR BACKUP AND TYPE 2 STEEL POSTS AND BOLTS)	100			
518	21200	29	CU.YD.	POROUS BACKFILL, WITH FILTER FABRIC		29		
518	41100	115	LIN.FT.	6" PERFORATED HELICAL CORRUGATED STEEL PIPE, 707.01		115		
518	41200	40	LIN.FT.	6" NON-PERFORATED HELICAL CORRUGATED STEEL PIPE, INCLUDING SPECIALS, 707.01		40		
SPECIAL	51822200	65	SQ.FT.	STEEL DRIP STRIP	65			
SPECIAL	51267500	21	SQ.YD.	SEALING OF CONCRETE SURFACES	21	15		
SPECIAL	51267502	36	SQ.YD.	SEALING OF CONCRETE SURFACES (EPOXY)		36		
SPECIAL	51631200	83	LIN.FT.	SAWING AND SEALING BITUMINOUS CONCRETE JOINTS	83			

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COLUMBUS OHIO 43215

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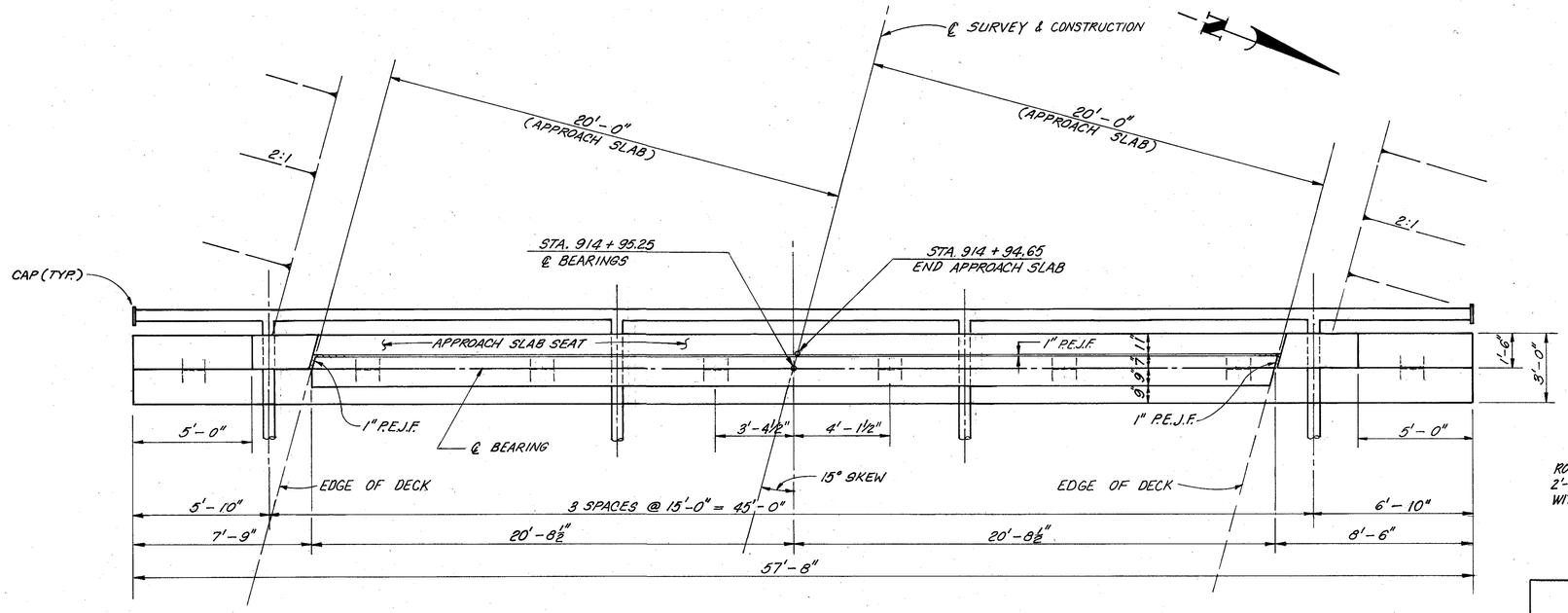
GENERAL NOTES & ESTIMATED QUANTITIES
BRIDGE NO. UNI-36-17.32
OVER DUN RUN

UNION COUNTY
STA. 9+94.65 TO STA. 9+37.36

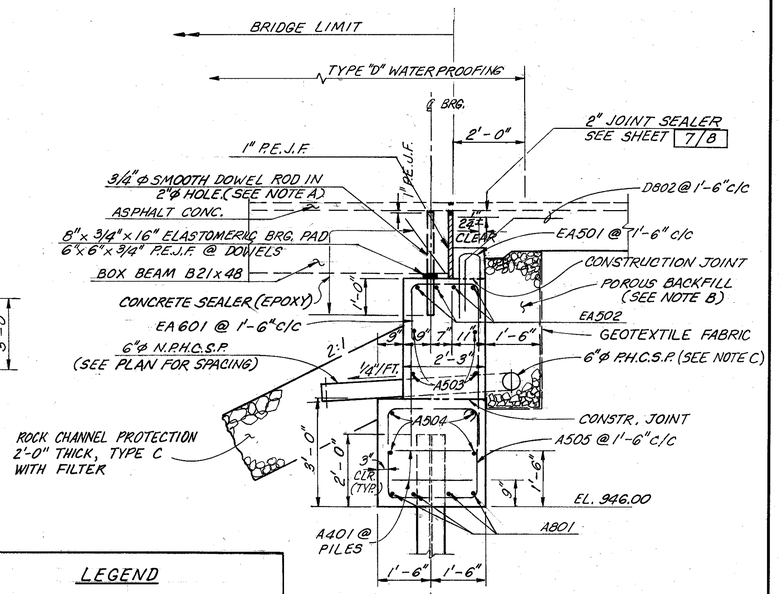
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.J.	J.J.	G.S.	M.Q.	L.E.T.	10/17/88	

CALC. BY J.J. DATE 10/12/88	UNION COUNTY UNI-36-17.32	OHIO
CHKD. BY M.Q. DATE 10/14/88		FHWA REGION 5

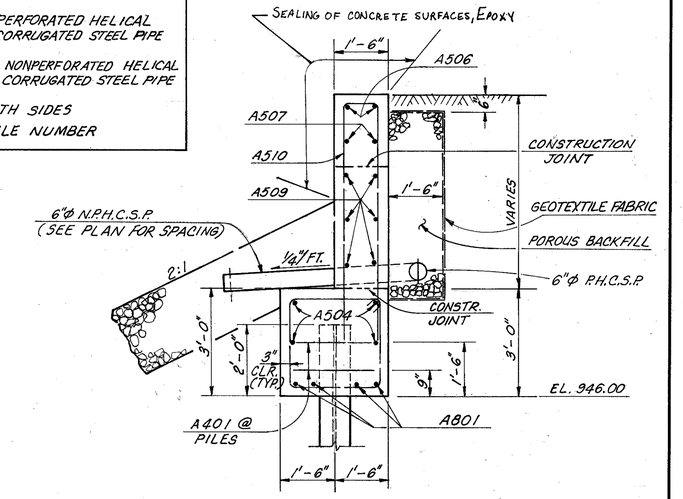
13/18



PLAN



SECTION "X-X"



SECTION "Y-Y"

LEGEND

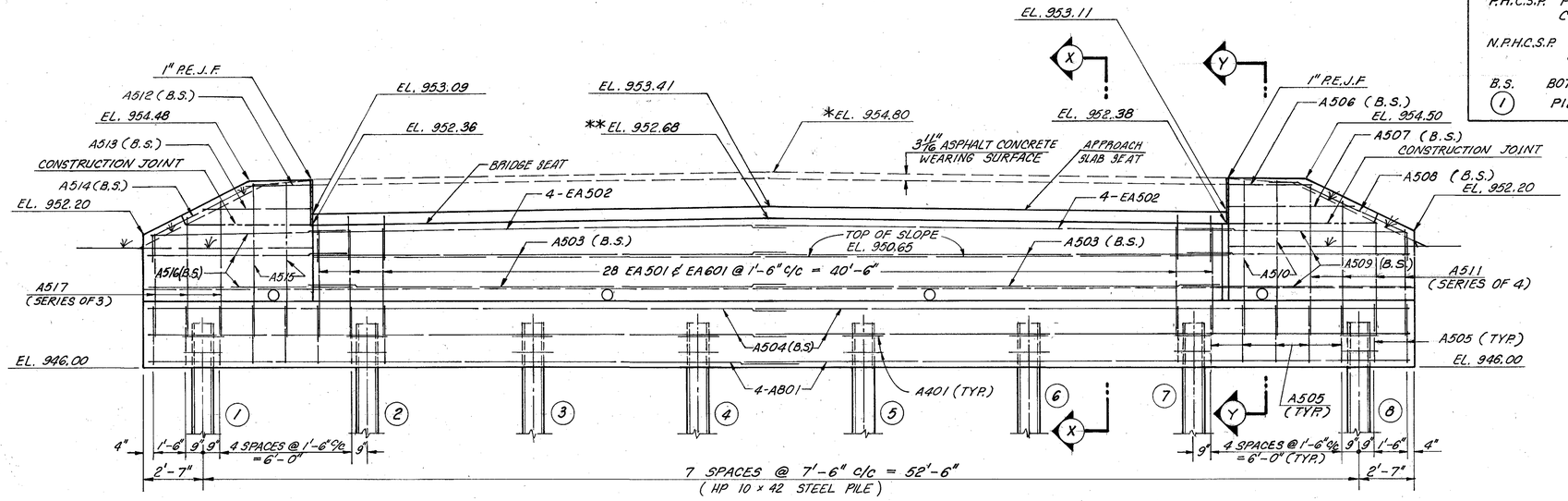
P.E.J.F. PREFORMED EXPANSION JOINT FILLER

P.H.C.S.P. PERFORATED HELICAL CORRUGATED STEEL PIPE

N.P.H.C.S.P. NONPERFORATED HELICAL CORRUGATED STEEL PIPE

B.S. BOTH SIDES

(1) PILE NUMBER



ELEVATION

*AT END APPROACH SLAB

**AT ℄ BEARING

LAP SPLICES FOR REINFORCING STEEL

5 BARS = 1'-6" MIN.

8 BARS = 2'-6" MIN.

NOTE A: FILL DOWEL HOLE WITH NON-SHRINKING GROUT. BOND BREAKER SHALL BE APPLIED TO DOWEL ABOVE BRIDGE SEAT. SEE DETAIL A SHEET 5/8.

NOTE B: POROUS BACKFILL, 1'-6" THICK, SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE TO 6" BELOW FINAL SURFACE ELEVATION AND LATERALLY TO THE ENDS OF THE WINGWALL.

BRIDGE SEAT REINFORCING: REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR DOWEL HOLES.

BACKWALL CONCRETE: ABOVE THE CONSTRUCTION JOINT IN THE WINGWALLS SHALL NOT BE PLACED UNTIL THE PRESTRESSED BEAMS ARE ERECTED.

NOTE C: GEOTEXTILE FABRIC SHALL CONFORM TO CMS 712.09, TYPE A AND SHALL BE INCLUDED WITH ITEM 518, POROUS BACKFILL FOR PAYMENT.

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REAR ABUTMENT

BRIDGE NO. UNI-36-17.33
OVER DUN RUN

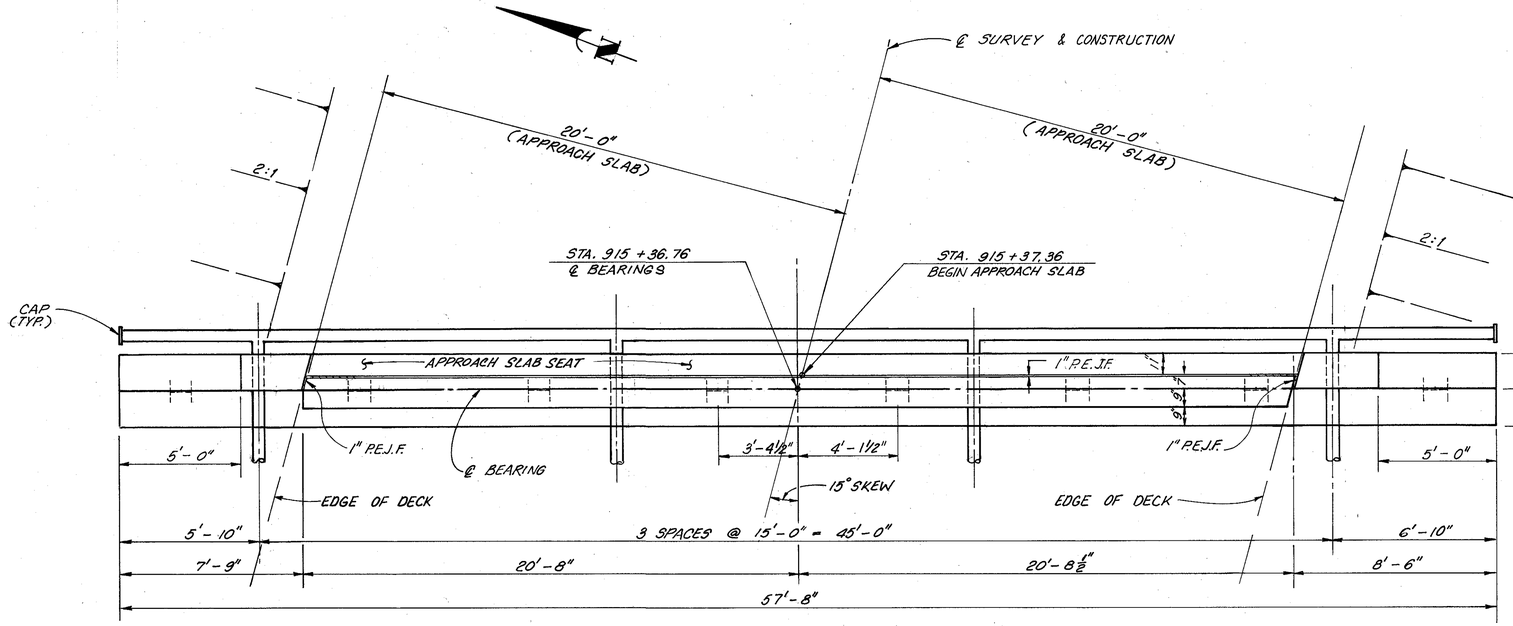
UNION COUNTY

STA. 914+94.65 TO STA. 915+37.36

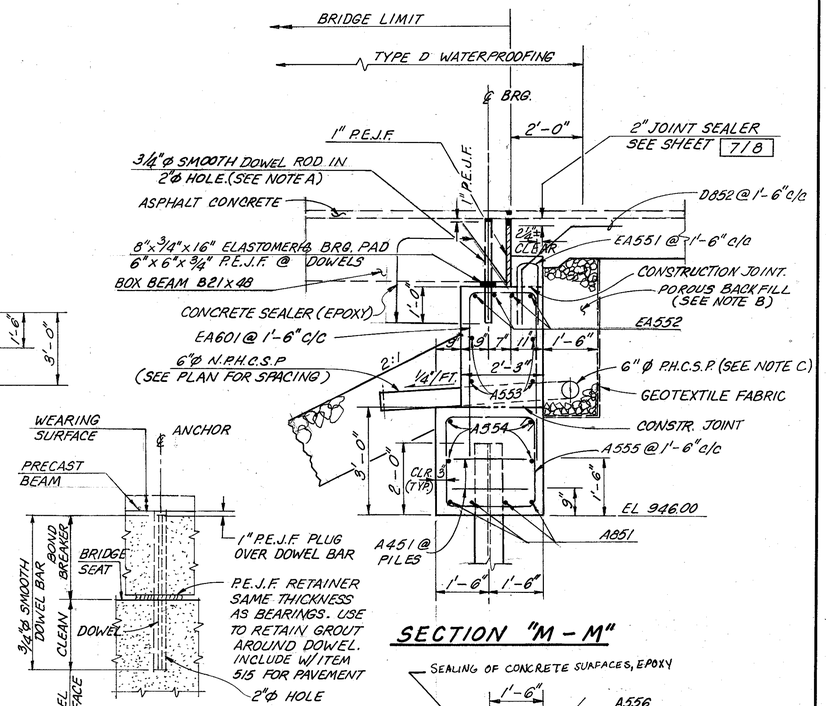
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.J.	J.J.	G.S.	M.Q.	L.E.T.	10/17/88	

CALC. J.J. BY DATE 10/12/88	UNION COUNTY UNI-36-17.32	OHIO
CHKD. M.Q. BY DATE 10/14/88		FHWA REGION 5

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PLAN

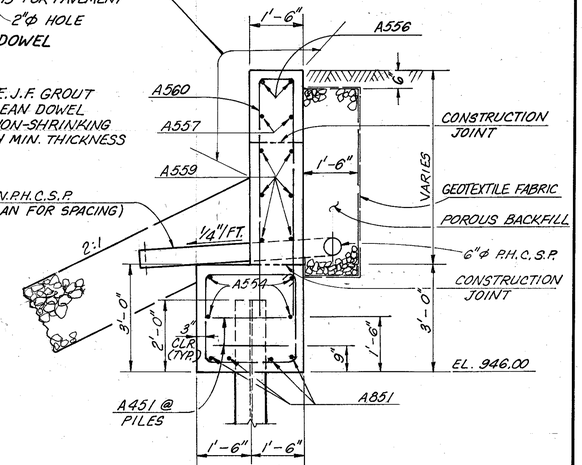


SECTION "M-M"

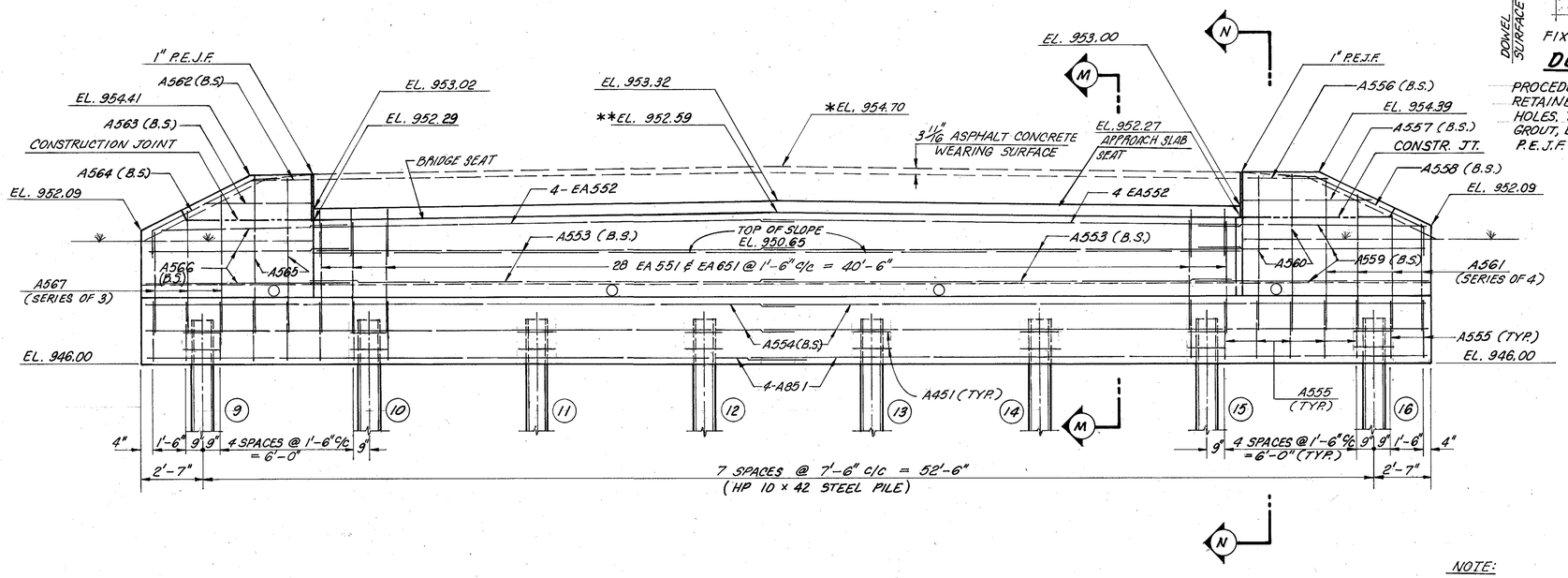
FIXED ANCHOR DOWEL

DETAIL A

PROCEDURE: PLACE P.E.J.F. GROUT RETAINER. DRILL & CLEAN DOWEL HOLES. THEN PLACE NON-SHRINKING GROUT, DOWEL & 1-INCH MIN. THICKNESS P.E.J.F. PLUG.



SECTION "N-N"



ELEVATION

* AT BEGIN APPROACH SLAB
** AT ℄ BEARING

NOTE:
FOR LEGENDS AND NOTES, SEE SHEET 4/8

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FORWARD ABUTMENT

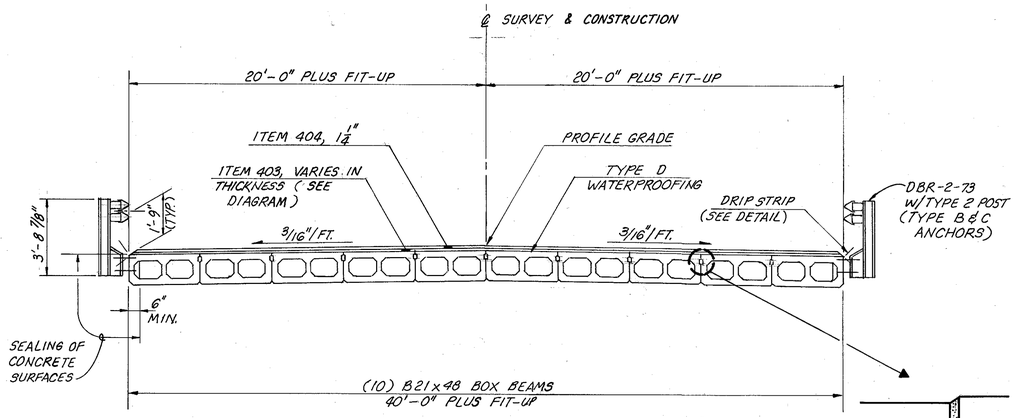
BRIDGE NO. UNI-36-1733
OVER DUN RUN

UNION COUNTY

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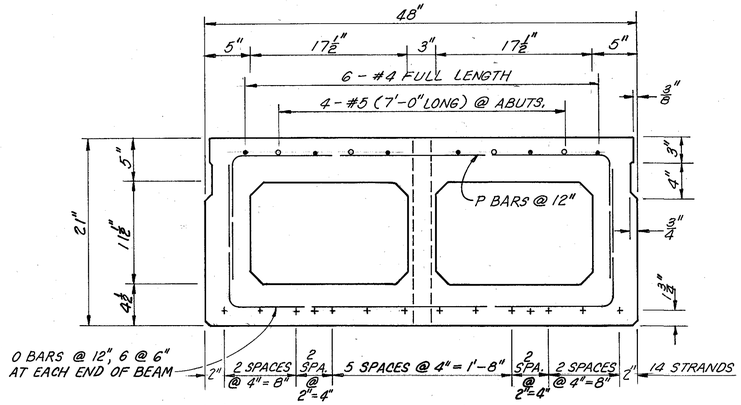
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.J.	J.J.	G.S.	M.Q.	LET.	10/17/88	

CALC. BY J.J. DATE 10/12/88	UNION COUNTY	OHIO	15 / 18
CHKD. BY M.Q. DATE 10/14/88	UNI-36-17.32	FHWA REGION 5	



TRANSVERSE SECTION

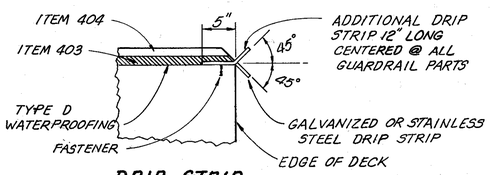
SHEAR KEYS SHALL BE MORTARED TO A FINISHED PLANE BETWEEN THE TOP EDGES OF THE ADJACENT BEAMS AS SHOWN, WHERE VERTICAL OFFSET (WITHIN TOLERANCE) OCCURS.



NOTES:

1. FOR DETAILS NOT SHOWN, SEE STD. DWG. PSBD-1-81
2. ALL STRANDS ½" DIAM., 270 K SEVEN WIRE, UNCOATED STRESS-RELIEVED STRANDS. As= 0.153 IN².

STRAND LOCATION (B21-48)



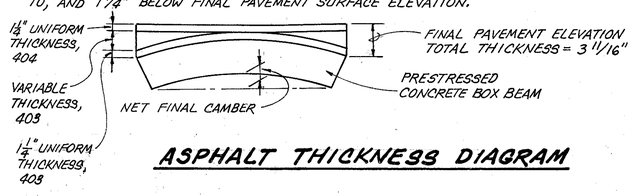
DRIP STRIP

PRIOR TO APPLYING DECK TYPE D WATERPROOFING, A BENT DRIP STRIP SHALL BE INSTALLED ALONG THE EDGES OF THE DECK AS SHOWN. THE STRIPS SHALL BE FASTENED AT 1'-6" c/c MAXIMUM WITH 1¼" x 5/32" x ½" FLAT HEAD DRIVE PIN AND WASHER (LENGTH x SHANK DIAM. x HEAD DIAM.) OR #10 GALVANIZED SCREWS AND EXPANSION ANCHORS SUBJECT TO THE APPROVAL OF THE ENGINEER. THE STRIPS SHALL BE PLACED THE FULL LENGTH OF THE DECK, ENDING AT THE FACE OF THE ABUTMENT WINGWALL.
WHERE SPLICES ARE REQUIRED, A 3" (MIN.) LAP SHALL BE USED WITH A FASTENER THROUGH THE LAP. STEEL FOR GALVANIZED STRIPS SHALL BE 8" x 0.105" & SHALL MEET THE REQUIREMENTS OF ASTM A568. GALVANIZING SHALL BE IN ACCORDANCE WITH 711.02. STAINLESS STEEL SHALL BE 20-GUAGE ASTM A167, TYPE 304, MILL FINISH. PAYMENT SHALL BE AT THE CONTRACT PRICE BID FOR ITEM SPECIAL, 32. FT. STEEL DRIP STRIP, WHICH SHALL INCLUDE ALL MATERIALS, LABOR, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THE ITEM.

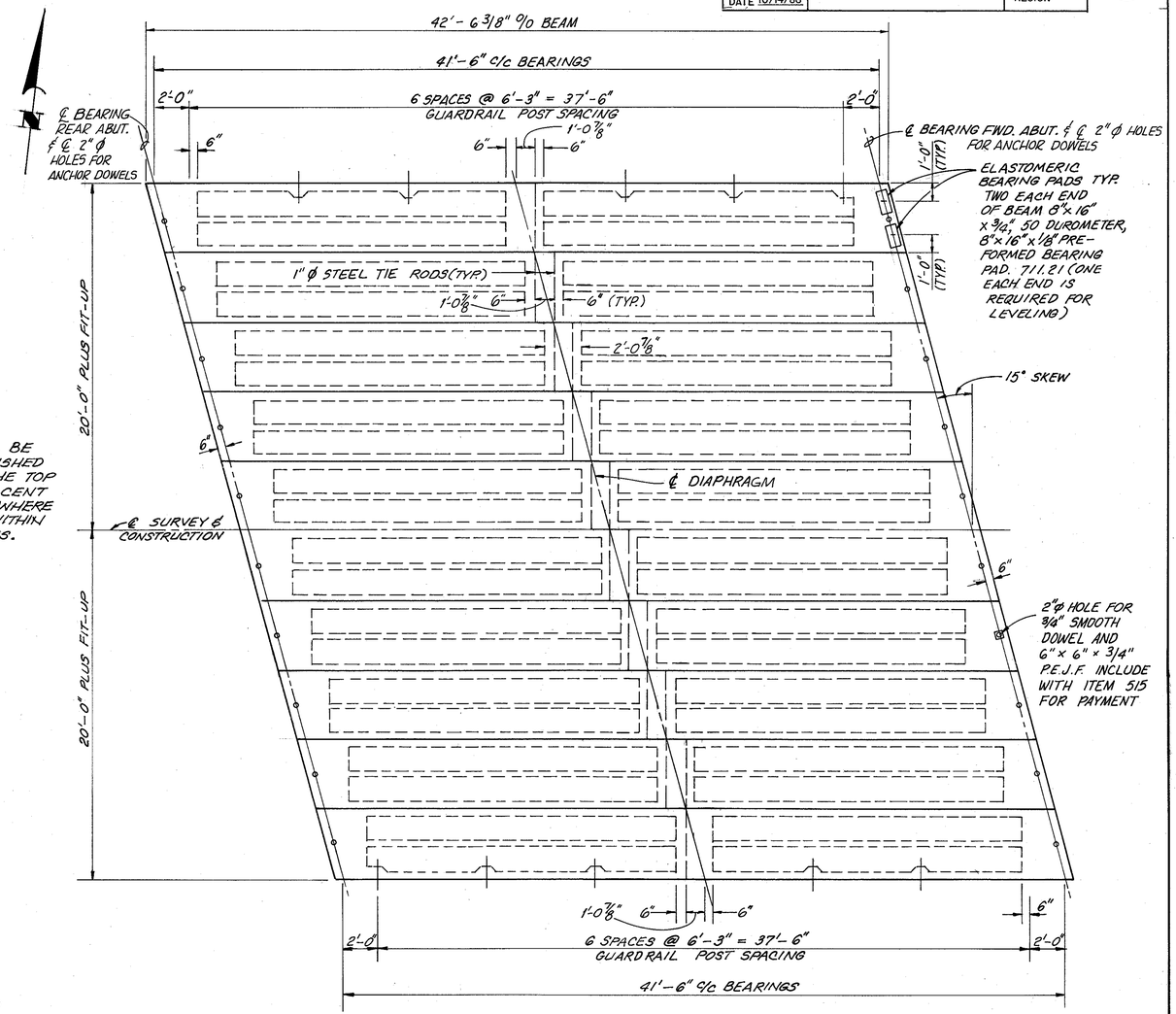
CAMBER

CALCULATED CAMBER AT TIME OF PAVING, INCLUDED ALLOWANCE FOR CAMBER GROWTH DUE TO CREEP IS 1¼".
CALCULATED DEFLECTION DUE TO WEIGHT OF SURFACE COURSE AND RAILING IS 1/16"

NET FINAL CAMBER OF BEAMS IS 1 3/16". THIS 1 3/16" IS IN EXCESS OF THE AMOUNT REQUIRED TO PLACE THE TOP OF BEAM PARALLEL TO PROFILE GRADE. THIS EXCESS AMOUNT SHALL BE COMPENSATED FOR BY THICKENING THE 403 LEVELING COURSE FROM 1 ¼" AT CENTER OF SPAN TO 2 7/16" AT ENDS OF SPAN.
ASPHALT CONC. SURFACE COURSE SHALL CONSIST OF A VARIABLE THICKNESS OF 403 & 1¼" THICKNESS OF 404. THE 403 SHALL BE PLACED IN TWO OPERATIONS. THE FIRST COURSE SHALL BE 1¼" UNIFORM THICKNESS. THE SECOND COURSE SHALL BE FEATHERED TO PLACE THE SURFACE PARALLEL TO, AND 1¼" BELOW FINAL PAVEMENT SURFACE ELEVATION.



ASPHALT THICKNESS DIAGRAM



PLAN

THE FOLLOWING DETAILS FROM PSBD-1-81 APPLY TO THIS PROJECT:

SHEET 1 OF 4: BEAM LIFTING INSERTS, WALL THICKENING AT GUARDRAIL ANCHORS, DETAILS AND REINFORCEMENT OF BEAM ENDS.

SHEET 2 OF 4: TYPICAL PLANS OF DIAPHRAGMS AND TRANSVERSE TIE RODS, NORMAL CROWN TREATMENT AT CENTERLINE OF ROADWAY, BEAM DIMENSIONAL TOLERANCES, AND END DETAILS OF TRANSVERSE TIE ROD ANCHORAGE.

SHEET 3 OF 4: 48" WIDE NONCOMPOSITE BEAMS (B21-48).

THE FOLLOWING NOTES FROM PSBD-1-81 APPLY TO THIS PROJECT:

SHEET 1 OF 4: TRANSVERSE TIE RODS, GALVANIZING, ANCHOR DOWELS, END OF BEAMS, AND AS REQUIRED TO SUPPLEMENT APPLICABLE DETAILS.

SHEET 2 OF 4: AS REQUIRED TO SUPPLEMENT APPLICABLE DETAILS.

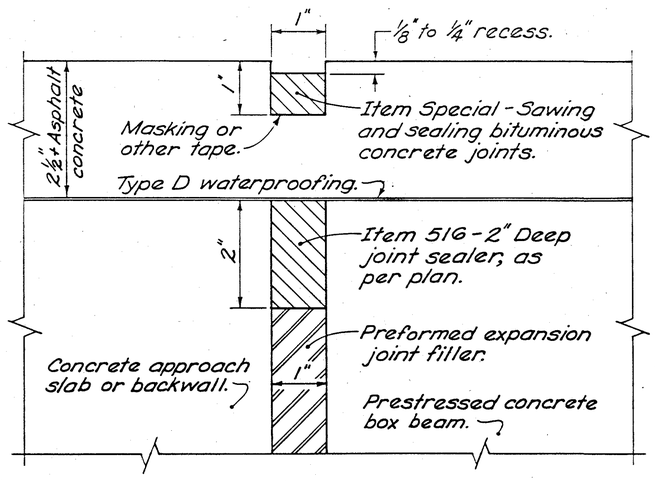
SHEET 3 OF 4: AS REQUIRED TO SUPPLEMENT APPLICABLE DETAILS.

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COLUMBUS OHIO 43215

SUPERSTRUCTURE DETAILS

BRIDGE NO. UNI-36-1733
OVER DUN RUN
UNION COUNTY
STA. 9+14+34.65 TO STA. 9+15+37.36

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.J.	J.J.	G.S.	M.Q.	L.E.T.	10/17/88	



SEALING OF JOINTS AT ABUTMENTS

ITEM SPECIAL - SAWING AND SEALING BITUMINOUS CONCRETE JOINTS

1) Description:

This work shall consist of cutting and sealing transverse joints on the new bituminous concrete overlay of box beam bridges. Bituminous concrete joints shall be constructed directly over, and in line with, the existing underlying transverse abutment joint of the box beams.

2) Materials:

The joint sealant shall meet the requirements of ASTM Specification D3405, Joint sealants, Hot-poured, for Concrete and Aspalt Pavements. Acceptable alternate materials are:

Roof-Flex 176, polyurethane, as produced by the Carboline Company, 350 Hanley Industrial Court, St. Louis, Missouri 63144 (Roger Zubal, 614-877-3406); a silicone sealant meeting Federal Specifications TT-S-001543A Class A (one-part silicone sealants) and TT-S-00230C Class A (one-component sealants), such as those manufactured by General Electric, Silicone Products Division, 6155 Rockside Rd., Rockside Square I, Independence, Ohio 44131 (John Fromholtz, 216-447-1750) or Dow Corning, 3737 Park East, Beachwood, Ohio 44122 (Robert Ruppel, 216-464-2330); or Sof-Seal, a cold-applied, low-modulus, two-component polymeric compound horizontal sealant as manufactured by W. R. Meadows, Inc., P.O. Box 543, Elgin, Illinois 60121 (Robert Cameron, 312-683-4500). Sealant will be accepted on the basis of the manufacturer's certification that it conforms to the requirements of these specifications.

3) Construction Details:

A) General: The contractor shall conduct his operation so that the cutting, cleaning and sealing of transverse joints is a continuous operation that will be performed as soon as practical after the paving, but no later than four (4) days after placement of the asphalt concrete surface course. Traffic shall not be allowed to knead together or damage the joint cut prior to sealing.

B) Cutting of Transverse Joints: The contractor shall saw or rout transverse joints to the dimensions shown in the details on this sheet. The cut joints shall lie directly above each box beam abutment joint. The joint location shall be marked on the new asphalt surface with a chalk line, or by some other acceptable method, before cutting. Details of the method for locating and accurately marking the proposed cuts shall be subject to the approval of the Engineer prior to starting any surfacing or paving operations.

The blade or blades shall be of such size that the full width and depth of the cut can be made with one pass. Dry or wet cutting will be allowed. Joints shall extend the full width of the bridge.

C) Cleaning Joints: Dry sawed joints shall be thoroughly cleaned with a sufficient amount of compressed air to remove any dirt, dust, or deleterious matter. Wet sawed joints shall be washed clean of all cuttings by flushing with a jet of water and with other tools as necessary. After flushing, the joint shall be blown out with compressed air. When the surfaces are thoroughly clean and dry, and just prior to placing the joint sealer, compressed air having a pressure of at least 90 p.s.i. shall be used to blow out the joint and remove all traces of dust.

In the event freshly cut joints become contaminated before they are sealed, they shall be recleaned of all foreign material by high pressure water jet.

D) Sealing Joints: The joint shall be thoroughly dried before the sealant is placed. After cleaning and drying, a bond-breaker (tape) shall be applied to the bottom of the groove.

Hot-poured joint sealant material shall be heated in a kettle or melter constructed as a double boiler, with the space between the inner and outer shells filled with oil or other heat transfer medium. Positive temperature control and mechanical agitation shall be provided. Heating must be in strict accordance with the manufacturer's recommendation. Joint sealer material shall never be kept heated at the pouring temperature for more than four (4) hours and shall never be reheated. Sealer left in the applicator at the end of a day's work shall be removed and discarded.

Hot-poured sealant shall be applied immediately through a nozzle, which must project into the sawed joint, filling from the bottom up. The seal shall completely fill the joint in such a manner that, after cooling, the level of the sealer will not be higher than 1/8" below the pavement surface. Any depression in the cooled seal greater than 3/16" shall be brought up to the specified limit by further addition of hot-poured sealant. Care shall be taken in the sealing of the joints so that the final appearance will present a neat fine line.

FHWA REGION	STATE	PROJECT	
5	OHIO		

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UNION COUNTY
UNI-36-17.32

The cold applied sealant materials (polyurethane, silicone, and polymeric compounds) shall be installed as per manufacturers' recommendations, or as directed by the Engineer. The sealant shall be installed when the ambient temperature is 40 degrees F or higher. Traffic shall not be allowed on the joint for one hour after application of the sealant.

4) Method of Measurement:

The quantity to be paid for under this item will be the number of linear feet of joints sawed and sealed as per the above requirements.

5) Basis of Payment:

The unit price per linear foot for Item Special - "Sawing and sealing bituminous concrete joints" shall include the cost of all labor, materials, and equipment necessary to complete the work, including the furnishing and placing of the joint sealer material.

ITEM 516 - 2" DEEP JOINT SEALER, AS PER PLAN

This item shall meet the material (para. 2) and sealing (para. 3D) specifications of Item Special - Sawing and sealing bituminous concrete joints.

REVISIONS
2-8-84
3-10-87
4-14-87
6-16-87

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
BUREAU OF BRIDGES AND STRUCTURAL DESIGN

7/8

ABUTMENT JOINTS IN BITUMINOUS CONCRETE, BOX BEAM BRIDGES

BRIDGE NO. UNI-36-1733

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
JEB	MJB		WTF	WJJ	2-2-84

KEY BLUE PRINT CO. M/3414

CALC. BY: J.J. DATE: 10/12/88	UNION COUNTY UNI-36-17.32	OHIO
CHKD. BY: M.Q. DATE: 10/14/88		FHWA REGION 5

17/18

REAR ABUTMENT

MARK	NO.	LENGTH	WEIGHT	TYPE	A	B	C	D	INCR.	REMARKS
D802	28	4'-11 3/8"	370	3	1'-5"	2'-3 7/8"	1'-5"			
A801	8	31'-3"	668	STR.						
A503	8	21'-11"	183	STR.						
A504	16	30'-0"	501	STR.						
A505	39	10'-6"	427	2	2'-6"	2'-6"				
A506	2	3'-8"	8	STR.						
A507	2	5'-6"	11	STR.						
A508	2	7'-5"	15	4	1'-0"	5'-0"	2'-2"	1'-0"		
A509	6	9'-9"	61	STR.						
A510	2	15'-5"	32	1	7'-4"	1'-0"	7'-4"			
		14'-9"			7'-0"		7'-0"			
A511	4	TO	52	1	TO	1'-0"	TO		0'-9"	SERIES OF 4
		10'-3"			4'-9"		4'-9"			
A512	2	2'-10"	6	STR.						
A513	2	5'-0"	10	STR.						
A514	2	7'-5"	15	4	1'-0"	5'-0"	2'-2"	1'-0"		
A515	2	15'-5"	32	1	7'-4"	1'-0"	7'-4"			
A516	4	9'-2"	38	STR.						
		12'-9"			6'-3"		6'-3"			
A517	3	TO	36	1	TO	1'-0"	TO		0'-9"	SERIES OF 3
		10'-3"			4'-9"		4'-9"			
A401	16	8'-3 1/2"	89	2	2'-4 3/4"	1'-9"				
		TOTAL	2554							

EPOXY COATED - REAR ABUTMENT

EA601	28	11'-7"	487	1	5'-1"	1'-9"	5'-1"			
EA501	28	4'-0"	117	1	1'-10"	0'-7"	1'-10"			
EA502	8	21'-11"	183	STR.						
		TOTAL	787							

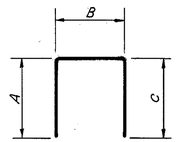
FORWARD ABUTMENT

MARK	NO.	LENGTH	WEIGHT	TYPE	A	B	C	D	INCR.	REMARKS
D852	28	4'-11 3/8"	370	3	1'-5"	2'-3 7/8"	1'-5"			
A851	8	31'-3"	668	STR.						
A553	8	21'-11"	183	STR.						
A554	16	27'-0"	451	STR.						
A555	39	10'-6"	427	2	2'-6"	2'-6"				
A556	2	3'-8"	8	STR.						
A557	2	5'-6"	11	STR.						
A558	2	7'-5"	15	4	1'-0"	5'-0"	2'-2"	1'-0"		
A559	6	9'-9"	61	STR.		1'-0"				
A560	2	15'-1"	31	1	7'-2"	1'-0"	7'-2"			
		14'-5"			6'-10"		6'-10"			
A561	4	TO	51	1	TO	1'-0"	TO		0'-9"	SERIES OF 4
		9'-11"			4'-7"		4'-7"			
A562	2	2'-10"	6	STR.						
A563	2	5'-0"	10	STR.						
A564	2	7'-5"	15	4	1'-0"	5'-0"	2'-2"	1'-0"		
A565	2	15'-1"	31	1	7'-2"	1'-0"	7'-2"			
A566	4	9'-2"	38	STR.						
		13'-3"			6'-3"		6'-3"			
A567	3	TO	37	1	TO	1'-0"	TO		0'-9 1/2"	SERIES OF 3
		10'-1"			4'-8"		4'-8"			
A451	16	8'-3 1/2"	89	2	2'-4 3/4"	1'-9"				
		TOTAL	2502							

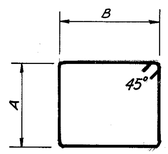
EPOXY COATED - FORWARD ABUTMENT

EA651	28	11'-7"	487	1	5'-1"	1'-9"	5'-1"			
EA551	28	4'-0"	117	1	1'-10"	0'-7"	1'-10"			
EA552	8	21'-11"	183	STR.						
		TOTAL	787							

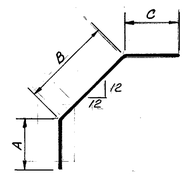
BENDING DIAGRAM



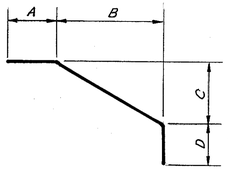
TYPE 1



TYPE 2



TYPE 3



TYPE 4

NOTE: ALL DIMENSIONS SHOWN ARE OUTSIDE-TO-OUTSIDE DIMENSIONS.

LEGEND

INCR. = INCREMENT

L. THOMPSON CONSULTANTS, INC. 8/8
CONSULTING ENGINEERS
COLUMBUS, OHIO 43215

REINFORCING STEEL LIST

BRIDGE NO. UNI-36-1733
OVER DUN RUN

UNION COUNTY STA. 914+94.65 TO STA. 915+37.36

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.J.	J.J	G.S.	M.Q.	LET.	10/17/88	

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
UNION COUNTY, DOVER TOWNSHIP
V.M.S. 5502

CALC. BY M. Q. DATE 2-8-89	UNION COUNTY UNI-36-17.32		OHIO
CHKD. BY D. A. DATE 2-24-89			FHWA REGION 5
FEDERAL PROJECT	BRF - 33 (13)	STATE JOB NO.	06397 (0)

18 / 18

1 / 1

TOTAL NUMBER OF
OWNERSHIPS : 3
TOTAL TAKES : 0
OWNERSHIPS WITH STRUCTURES INVOLVED : 0
OWNERSHIPS WITH "P" ITEMS : 0

SUMMARY OF ADDITIONAL RIGHT-OF-WAY REQUIRED

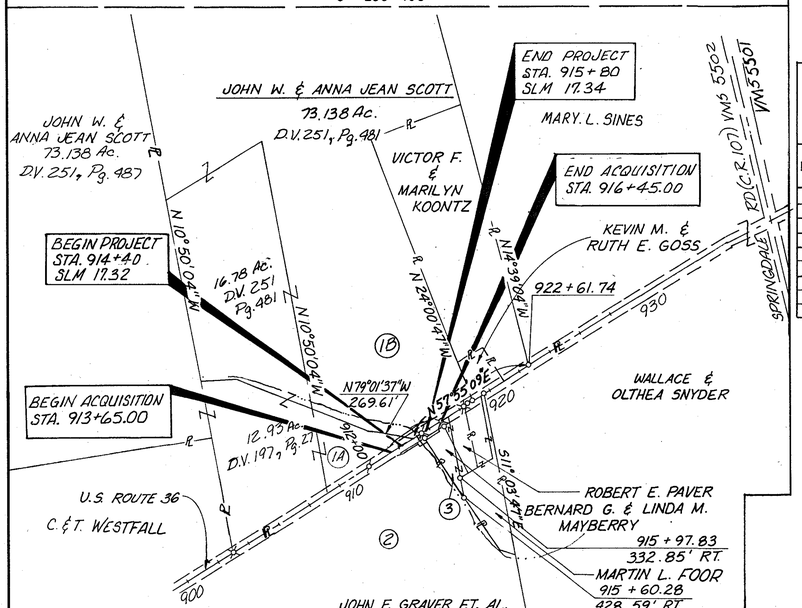
PARCEL	OWNER	AUDITOR'S TAX I.D. NO.	OWNERS RECORD BOOK	OWNERS RECORD PAGE	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUCTURE	NET RESIDUE LEFT	NET RESIDUE RIGHT	TYPE FUND	REMARKS AND PERSONALTY	AS ACQUIRED BOOK	AS ACQUIRED PAGE
1	JOHN W. & ANNA JEAN SCOTT	11-00-0701-1001	251	487	119.00	1.127 AC.	0.267 AC.	0.179 AC.	0.088 AC.	NO	119.785		STATE	FOR CONSTRUCTION OF ROADSIDE SLOPES		
1T	" " " " "	11-00-0701-1001	197	27					0.027 AC.	NO			STATE	FOR CONSTRUCTION OF DRIVE AND GRADING		
2	JOHN F. GRAVER, S. ROBERT DAVIS &	11-00-0700 2001	241	110	245.45	0.852 AC.	0.176 AC.	0.094 AC.	0.022 AC.	NO		244.576	STATE	FOR CONSTRUCTION OF ROADSIDE SLOPES		
2X	R. David Thomas								0.022 AC.	NO			STATE	FOR CONSTRUCTION OF CHANNEL IMPROVEMENTS		
3	BERNARD G. & LINDA M. MAYBERRY	11-00-0700 3000	269	202	0.867 AC	0.121 AC.	0.098 AC.	0.065 AC.	0.033 AC.	NO	0.712		STATE	FOR CONSTRUCTION OF ROADSIDE SLOPES		

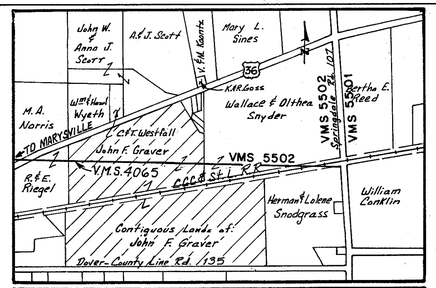
PROPERTY MAP

UNI-36-17.32

UNION COUNTY, DOVER TOWNSHIP
V.M.S. 5502

SCALE : 1 INCH = 400 FEET
0 200 400

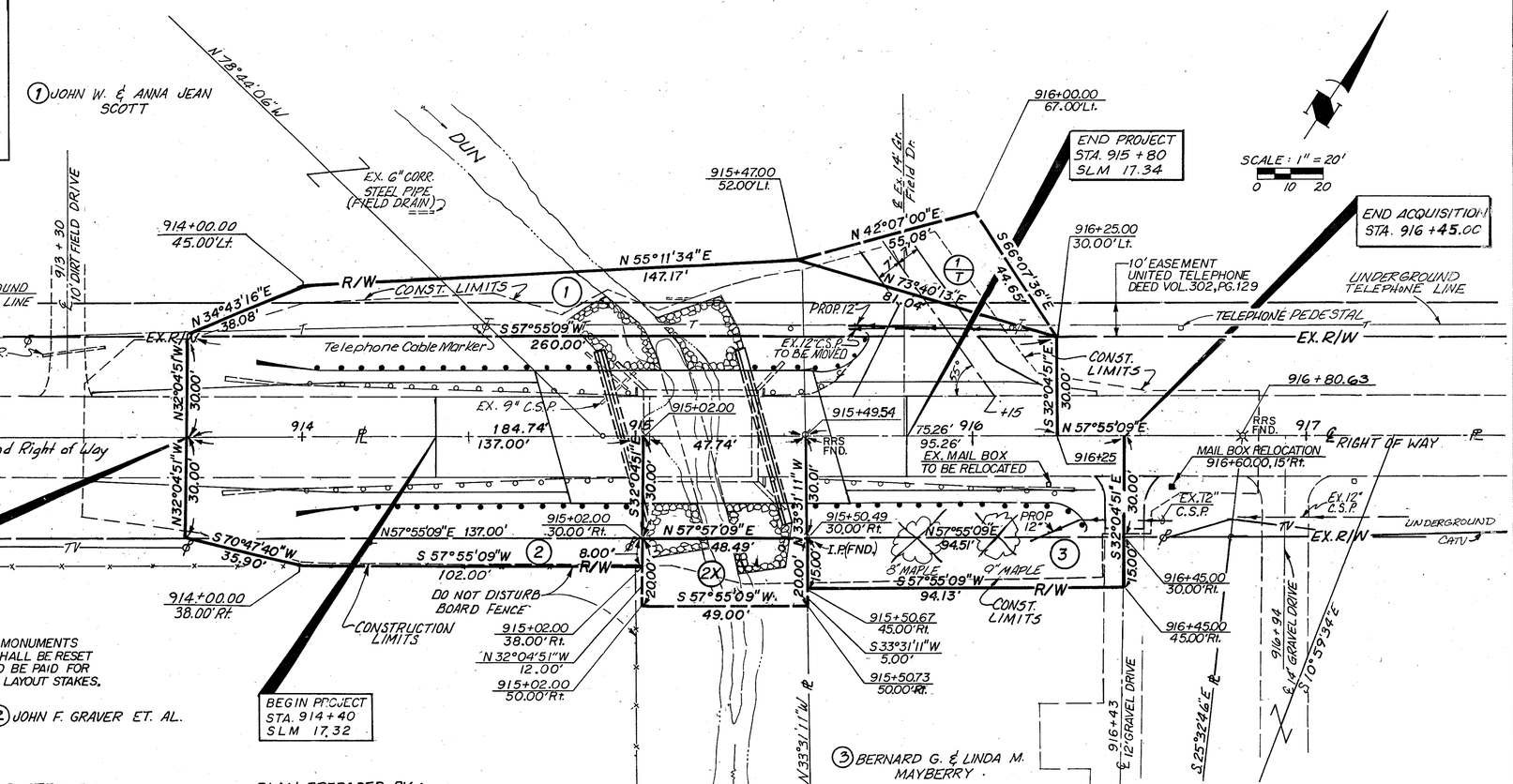




UTILITY OWNERS

TYPE	NAME & ADDRESS
ELECTRIC	DAYTON POWER & LIGHT Co. P.O. Box 1247 Courthouse Plaza S.W. Dayton, Ohio 45401 (513) 227-2498
TELEPHONE	UNITED TELEPHONE 127 N. MAIN ST. BELLEFONTAINE, OHIO 43311 (513) 599-1833
CATV	WARNER CABLE Industrial Parkway Marysville, Ohio 43040 (513) 644-9171

NOTE :
" THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THESE PLANS ARE AS OBTAINED FROM THE OWNERS OF UTILITIES AS REQUIRED BY SECTION 153.64 OHIO REVISED CODE."



NOTE
ANY AND ALL PROPERTY CORNER MONUMENTS DISTURBED BY THE CONTRACTOR SHALL BE RESET BY A REGISTERED SURVEYOR AND BE PAID FOR UNDER ITEM 623 CONSTRUCTION LAYOUT STAKES.

LEGEND
- ○ IRON PIN FOUND
- ⌧ SPIKE FOUND
- ⌀ P.K. NAIL FOUND

PLAN COMPLETED BY:
COLUMBUS ENGINEERING CONSULTANTS
950 MICHIGAN AVENUE
COLUMBUS, OHIO 43215
PHONE: (614) 228-3500

PLAN PREPARED BY :
L. THOMPSON CONSULTANTS, INC.
929 HARRISON AVE., SUITE 301
COLUMBUS, OHIO 43215

I HEREBY CERTIFY THAT THIS IS A TRUE DELINEATION OF A CENTERLINE SURVEY MADE FOR THE STATE OF OHIO IN 1988. BY L. THOMPSON CONSULTANTS, INC. REVISED & CALCULATED
BY: Richard D. Marang 2-24-89
REGISTERED SURVEYOR NO. S-5882

STATE OF OHIO — RICHARD D. MARANG — S-5882 — REGISTERED SURVEYOR — SEAL

FILING DATE	DATE OF COMPLETION

REV.	DATE	DESCRIPTION

UNI-36-17.32

GEOLOGY OF THE SITE

THE PROPOSED STRUCTURE SITE LIES IN THE MISSISSIPPI VALLEY PLAIN OF CENTRAL OHIO. WISCONSIN AGE GLACIAL DEPOSITS OVERLIE SILURIAN AGE DOLOMITES OF THE MONROE GROUP.

EXPLORATION

TWO DRIVE SAMPLE CORE BORINGS WERE MADE BY MEANS OF MECHANICALLY DRIVEN HOLLOW STEM AUGERS AND WATER CIRCULATION CORING EQUIPMENT, POWERED BY MEANS OF A TRUCK MOUNTED ROTARY DRILLING RIG. BORINGS WERE PERFORMED ON MARCH 17 AND 21, 1988.

INVESTIGATIONAL FINDINGS AND OBSERVATIONS

TEST BORINGS ENCOUNTERED VERY SIMILAR CONDITIONS BETWEEN DRILLING LOCATIONS. BORING B-2 AT THE REAR ABUTMENT INDICATES BROWN, SANDY FILL MATERIAL UNDERLYING THE ASPHALT TO ELEVATION 944.5 FEET. SLIGHTLY ORGANIC, SILTY SAND (A-2-4) IS ENCOUNTERED AT THE FORWARD ABUTMENT (B-1) TO THE SAME ELEVATION. VERY SIMILAR LAYERS OF VERY STIFF TO HARD BROWN, STRATIFIED SILTS AND CLAYS (A-6a, A-6b, A-7-6) ARE ENCOUNTERED IN BOTH BORINGS TO ELEVATION 933.0 FEET TO 934.0 FEET. BELOW THESE LAYERS, SOILS CONSIST OF MEDIUM DENSE TO VERY DENSE GRANULAR OUTWASH (A-1-a) CONTAINING ZONES OF VERY LOOSE SAND, COBBLES AND TILL LENSES.

BEDROCK WAS ENCOUNTERED AT ELEVATION 912.6 FEET IN BORING B-1 AND ELEVATION 913.1 FEET IN BORING B-2. BOTH BORINGS WERE CORED TO FIVE FEET BELOW THE ROCK SURFACE.

FREE WATER WAS OBSERVED IN BORING B-1 AT ELEVATION 934.1 FEET AND IN BORING B-2 AT ELEVATION 933.1 FEET.

LEGEND

- Auger Boring Location - Plan View.
- Press and/or Drive Sample and/or Core Boring Location - Plan View.
- TR — Top of Rock
- Capped Pile
- Footing
- Footing on Pile
- Darkened area 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 Tests. X= No. of Blows for First 6 inches, Y= No. of Blows for 2nd 6 inches. Z= No. of Blows for 3rd 6 inches.
- W——— Indicates Free Water Elevation
- ▼——— Indicates Static Water Elevation
- Moisture Content of Non-Plastic Soil > 25%

GENERAL INFORMATION

Drive Sample/Press Sample/Core Borings

Drive sample borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampling device, 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 sampling device 18 inches is considered the standard penetration test.

Drive/press sample borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampling device, and 3" O.D. thin wall press sampling device. The press sampler is advanced by continuous uniform pressure, applied by the drilling machine.

Core borings are made by means of a mechanically-powered rotary-type drilling machine, employing NQ core barrel with industrial diamond cutting head.

The boring log sheets display a graphic plot of the information obtained, including depth and elevation of the sample, type of sample, the standard penetration test readings in three 6-inch increments, depth and elevation of press samples, field number assigned to sample, sample description based on laboratory tests utilizing the Casagrande AC classification system and gradation, plasticity and moisture content determinations. Results of strength and consolidation testing, if performed on undisturbed samples, will appear graphically on separate enclosures. Rock samples are displayed on the log sheets including depth and elevation of the sample, amount of recovery and a visual classification based on type, color, degree of hardness, grain size, deterioration, bedding and reaction and other qualifying factors.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be utilized, a wash sample is procured and visually classified, in order to determine the general characteristics of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

ROCK TYPES

- Coal
- Weathered Mudstone
- Mudstone
- Weathered Shale
- Shale
- Claystone
- Siltstone
- Weathered Sandstone
- Sandstone
- Leached Dolomite
- Dolomite
- Leached Limestone
- Limestone
- Boulders or Cobbles

SOIL LEGEND

	CLASSIFICATION
Gravel and/or Stone Fragments	A-1-a
Gravel and/or Stone Fragments with Sand	A-1-b
Fine Sand	A-3
Coarse and Fine Sand	A-3a
Gravel and/or Stone Fragments with Sand and Silt	A-2-4 A-2-5
Gravel and/or Stone Fragments with Sand, Silt and Clay	A-2-6 A-2-7
Sandy Silt	A-4a
Silt	A-4b
Elastic Silt and Clay	A-5
Silt and Clay	A-6a
Silty Clay	A-6b
Elastic Clay	A-7-5
Clay	A-7-6

ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE SOIL PROFILE FOUNDATION INVESTIGATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATION, SOIL TESTS, AND BEDROCK BORINGS 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.

NOTE: INFORMATION SHOWN BY THIS SUBGRADE PROFILE WAS OBTAINED SOLELY FOR 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.

PARTICLE SIZE DEFINITIONS

8"	3"	2.0mm	0.42mm	0.074mm	0.005 mm
Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt	Clay
		No. 10 sieve	No.40 sieve	No.200 sieve	

CTL ENGINEERING INC.
CONSULTING ENGINEERS
TESTING • INSPECTION
LABORATORY SERVICES
2860 Fisher Road • Columbus, Ohio 43204 • 614-276-8123

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. UNI-36-17.3

CHECKED BY	REVIEWED BY	DATE
S.L. Burgess 3-29-88		

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2/3

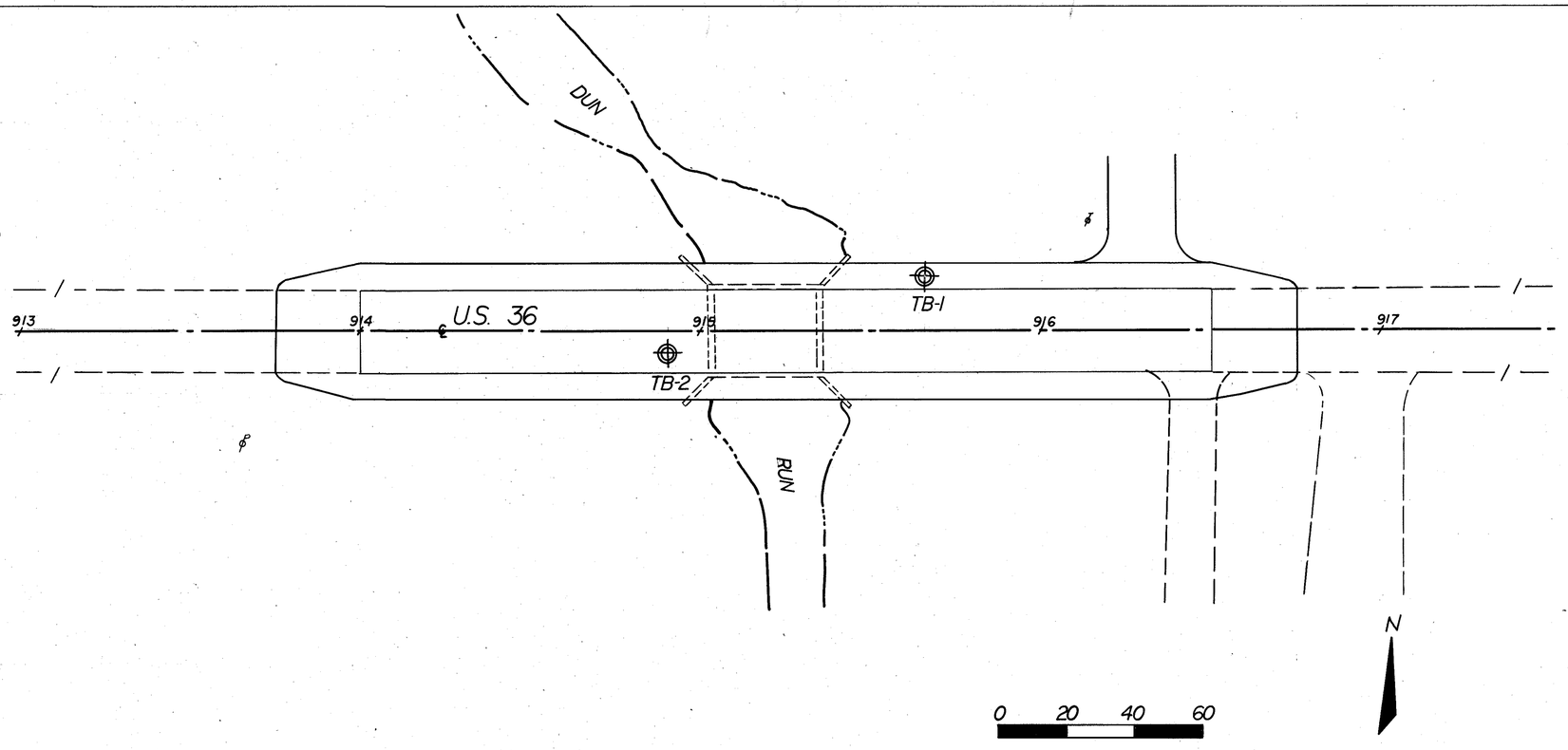
STRUCTURE FOUNDATION INVESTIGATION

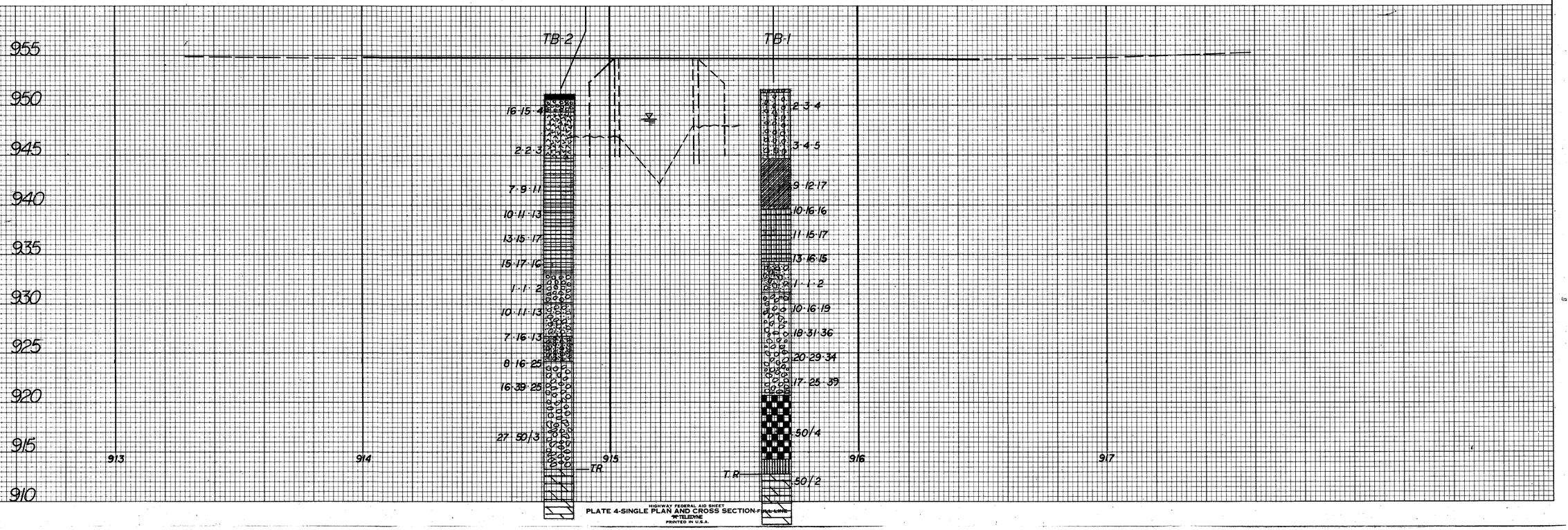
BRIDGE NO. UNI-36-17.32

PLAN & PROFILE

CHECKED BY	REVIEWED BY	DATE
S.L. Burgess 3-25-88		

2/3





HIGHWAY FEDERAL AID SHEET
PLATE 4-SINGLE PLAN AND CROSS SECTION-FULL LINE
TELEDYNE
PRINTED IN U.S.A.

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

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

UNI-36-17.32

3/3

LOG OF BORING

Date Started 3-17-88 Sampler:Type S.S. Dia 1 3/8" Water Elev. 934.1 Project Identification UNI-36-17.31
Date Completed 3-17-88 Casing:Length — Dia — Water at Comp. 940.0
Water Level at — hrs
Boring No. 1 Station & Offset 915 + 66 16' lt. Surface Elev. 951.6

ELEV.	Depth	Std. Pen. (N)	DESCRIPTION	Samp No.	Casing Bl./Ft.	Physical Characteristics % Agg.	% C.S.	% F.S.	% Silt	% Clay	% L.L.	% P.I.	% W.C.	SHTL Class
951.3	0		GRAVEL 3.0"											
	2	2-3-4	Brown, Silty, SAND (Slightly Organic)	S-1									24	Visual
	4													
944.6	6	3-4-5	Brown, Silty SAND 7.0'	S-2		31	27	8	26	8	26	10	18	A-2-4
	8													
	10	9-12-17	Brown, Clayey SILT	S-3		7	8	12	46	27	32	14	16	A-6a
939.6	12	10-16-16	Gray, Silty CLAY 12.0'	S-4									14	Visual
	14	11-15-17	Gray, Silty CLAY	S-5									15	Visual
	16	13-16-15	Gray, Silty CLAY 17.5'	S-6		4	7	8	34	47	41	20	16	A-7-6
934.1	18		(Water encountered at 17.5', rose to 6.9' in 1 minute)											
931.1	20	1-1-2	Gray, Coarse SAND 20.5'	S-7		32	61	6	1		NP	NP	22	A-1-b
	22	10-16-19	Gray, Sandy, GRAVEL	S-8									12	Visual
	24													
	26	18-31-36	Gray, Sandy, GRAVEL	S-9									17	Visual
	28	20-29-34	Gray, Sandy, GRAVEL	S-10									9	Visual
	30	17-25-39	Gray, Sandy, GRAVEL 31.0'	S-11		69	22	6	3		NP	NP	8	A-1-a
920.6	32													
	34													
	36	50/4	Cobble Zone 37.5'	S-12									13	Visual
914.1	38		Brown, Sandy, SILT Top of Rock 39.0'											
912.6	40	50/2	Core 39'-44' Core loss 50% Dolomite, Light Gray with Calcite Seams, Firm, Slightly Leached, Massive Bottom of boring	S-13									20	Visual
907.6	44													

LOG OF BORING

Date Started 3-21-88 Sampler:Type S.S. Dia 1 3/8" Water Elev. 933.1 Project Identification UNI-36-17.31
Date Completed 3-21-88 Casing:Length — Dia — Water at Comp. 944.2
Water Level at — hrs
Boring No. 2 Station & Offset 914 + 90.5 6.5' rt. Surface Elev. 951.1

ELEV.	Depth	Std. Pen. (N)	DESCRIPTION	Samp No.	Casing Bl./Ft.	Physical Characteristics % Agg.	% C.S.	% F.S.	% Silt	% Clay	% L.L.	% P.I.	% W.C.	SHTL Class
950.6	0		ASPHALT 6.0"											
949.3	2	16-15-4	BASE 1.8'	S-1									19	Visual
	4		Brown, Silty SAND (FILL)											
944.6	6	2-2-3	Brown, Silty SAND with Asphalt (FILL) 6.5'	S-2									20	Visual
	8													
	10	7-9-11	Brown, Clayey SILT	S-3									19	Visual
939.1	12	10-11-13	Brown, Clayey SILT 12.0'	S-4		8	7	12	42	31	36	18	15	A-6b
	14	13-15-17	Gray, Silty CLAY	S-5									16	Visual
	16	15-17-16	Gray, Silty CLAY 18.0'	S-6		3	7	8	34	48	39	19	17	A-6b
933.1	18													
930.1	20	1-1-2	Gray, Sandy, GRAVEL 21.0'	S-7		60	29	9	2		NP	NP	9	A-1-a
	22	10-11-13	Gray, Sandy, GRAVEL	S-8									9	Visual
	24	7-16-13	24.5'	S-9									9	Visual
926.6	26		Gray, Silty SAND AND GRAVEL											
924.1	28	8-16-25	27.0'	S-10									11	Visual
	30	16-39-25	Gray, Sandy, GRAVEL	S-11									12	Visual
	32													
	34	27-50/3	Gray, Sandy, GRAVEL	S-12		82	12	3	3		NP	NP	9	A-1-a
	36													
913.1	38		Top of Rock 38.0'											
	40	50/1	Core 38'-43' Core Loss 50% Dolomite, Light Gray with Brown Streaks, Moderately Weathered, Firm, Fracture Zone, 39.5'40' Bottom Of Boring	S-13										
908.1	42													

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2860 Fisher Road • Columbus, Ohio 43204 • 614-276-8123

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. UNI-36-17.32

BORING DATA

CHECKED BY	REVIEWED BY	DATE
S.L. Burgess 3-29-88		