STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

TUS-250-(23.72)(24.21)

UNION TOWNSHIP
TUSCARAWAS COUNTY

TUS-250-(23.72)(24.21)	OHIO	1/30
	FHWA REGION 5	
BRM-5KII(1)	FEDERAL PROJECT	
BRZ-7903(1)		

DESIGN DESIGNATION

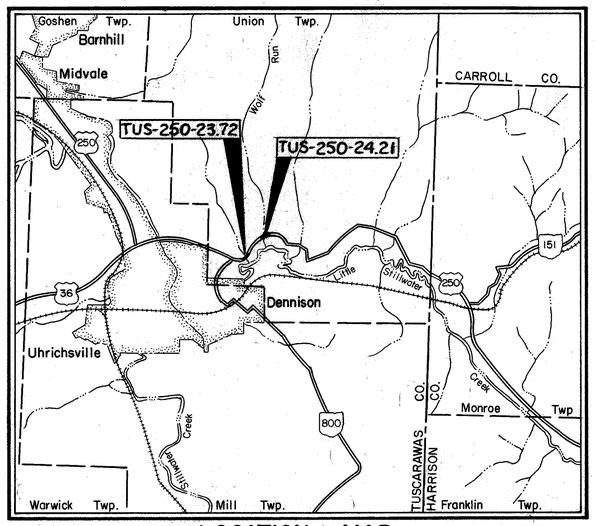
Current ADT 1983	=	5620
Design Year ADT 2003	=	16352
DHV	=	2453
D	=	60 %
T	=	8 %
V	=	50 M.P.H.

CONVENTIONAL SIGNS

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

Limited Access (only) LA
Right of Way (only) RW
Limited Access & Right of Way LA & RW
Existing Right of Way R/W
Property Line (in existing fence)
Railroad or
Guardrail (existing) (proposed)
Underground Telephone T T

INDEX OF SHEETS



LOCATION MAP

SCALE IN MILES
0 1 2 3 4

Portion to be improved
State & Federal Routes
Other Roads

SCALES

Plan 0 100
Profile: Horizontal 0 100, Vertical 0 20
Cross Section: Horizontal 0 20, Vertical 0 20

LINE DATA

	TUS-250-23.72 BRM-5KII(1)	TUS-250-24.21 BRZ-7903(1)
Begin Project	Sta. 1251+66.42	
End Project	Sta. 1252+37.58	
Begin Project		Sta. 1278+24.42
End Project		Sta. 1278+95.59
Length of Project	71.16 Lin. Ft. or 0.013 Mi.	71.17 Lin. Ft. or 0.013 Mi.
Begin Work	Sta. 1249+50	
Suspend Work	Sta. 1254+00	
Resume Work		Sta. 1276+00
End Work		Sta. 1281+00
Length of Work	450 Lin. Ft. or 0.085 Mi.	500 Lin. Ft. or 0.095 Mi.

Total Length of Project = 142.33 Lin. Ft. or 0.027 Mi.

Total Work Length = 950 Lin. Ft. or 0.180 Mi.

UNDERGROUND UTILITIES
48 HOURS
BEFORE YOU DIG
Call···800-362-2764 (Toll free)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

Plan Prepared By:
District No. 11
Ohio Department of Transportation

Project: TUS-250-(23.72)(24.21)
Date of Letting ____ 19__, Contract No. ____

LD 0300 Rev. 1-1-81

SUPPLEMENTAL SPECIFICATIONS

947 10-17-83	
847 10-17-83	

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS

BP-5 1-11-85	MC-4 7-26-76				
BP-6 6-1-65					
CB-2-2-B 5-1-79					
GR-1 1-11-85					
GR-2B 2-5-82	AS-1-81 11-27-81				
GR-3 1-21-85					
GR-4 2-5-82					
GR-4B 2-5-82	DBR-2-73 4-10-73				
HW-4A 4-1-80					
HW-4B 4-1-80	PSBD-1-81 9-18-81				

1985 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.

Approved [signature]
Date 4/9/85 District Deputy Director of Transportation

HMD Approved [signature]
Date 4-30-85 Engineer, Bureau of Bridges and Structural Design

Approved [signature]
Date 7-28-85 Chief Engineer, Planning and Design

Approved [signature]
Date 7-28-85 Director, Department of Transportation

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ADMINISTRATOR DATE

TYPICAL SECTIONS

TYPE 404

Calculated By	Checked By
JWH 3-19-84	DWI 3-23-84

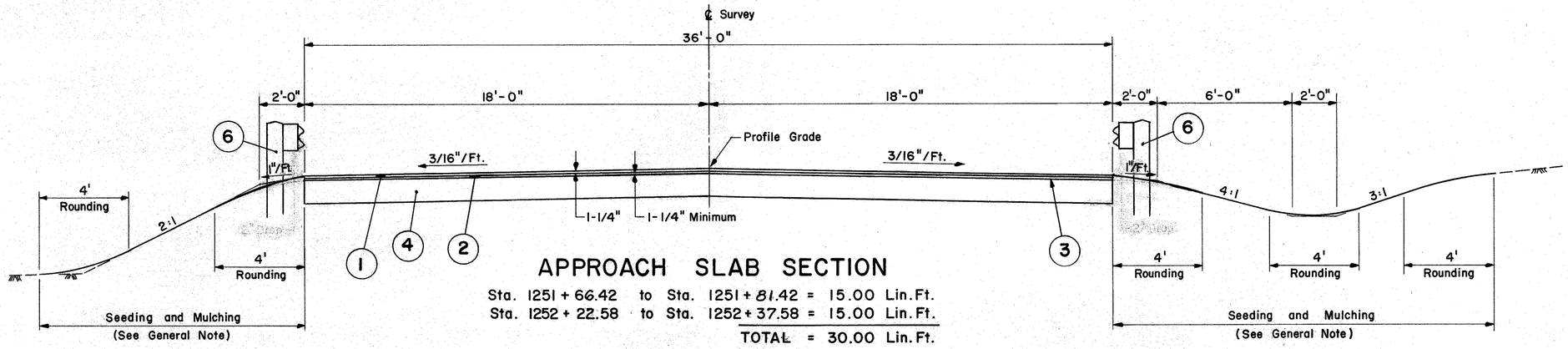
FHWA REGION	STATE	PROJECT	
5	OHIO		

TUS-250-(23.72)(24.21)

2 / 30

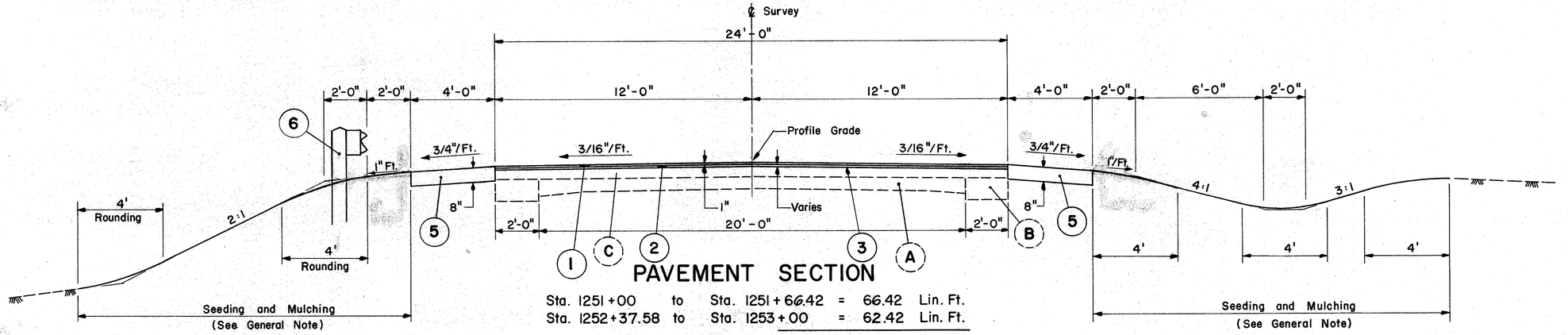
SCALE IN FEET

0 3 6



APPROACH SLAB SECTION

Sta. 1251+66.42 to Sta. 1251+81.42 = 15.00 Lin.Ft.
Sta. 1252+22.58 to Sta. 1252+37.58 = 15.00 Lin.Ft.
TOTAL = 30.00 Lin.Ft.



PAVEMENT SECTION

Sta. 1251+00 to Sta. 1251+66.42 = 66.42 Lin.Ft.
Sta. 1252+37.58 to Sta. 1253+00 = 62.42 Lin.Ft.
TOTAL = 128.84 Lin.Ft.

LEGEND

1	Item 404	Asphalt Concrete, AC-20
2	Item 403	Asphalt Concrete, AC-20
3	Item 407	Tack Coat and Cover Aggregate (See General Note)
4	Item 611	Reinforced Concrete Approach Slabs (T=12")
5	Item 304	Aggregate Base
6	Item 606	Guardrail, Type 5
A		Existing Portland Cement Concrete Base
B		Existing Bituminous Aggregate Base
C		Existing Bituminous Pavement

TYPICAL SECTIONS

TYPE 404

Calculated By	Checked By
JWH 3-23-84	WWW 12/17/84

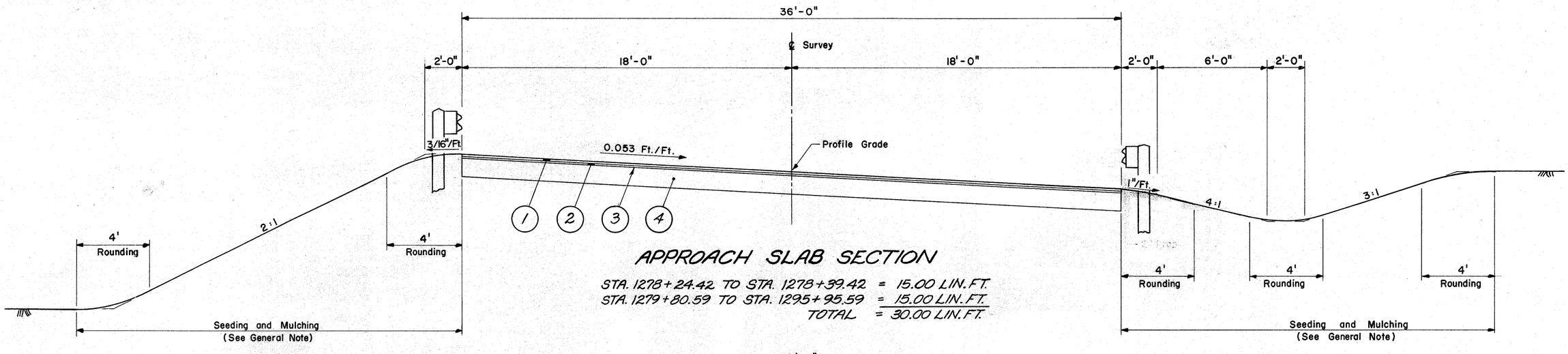
FHWA REGION	STATE	PROJECT	
5	OHIO		

3/30

TUS-250-(23.72)(24.21)

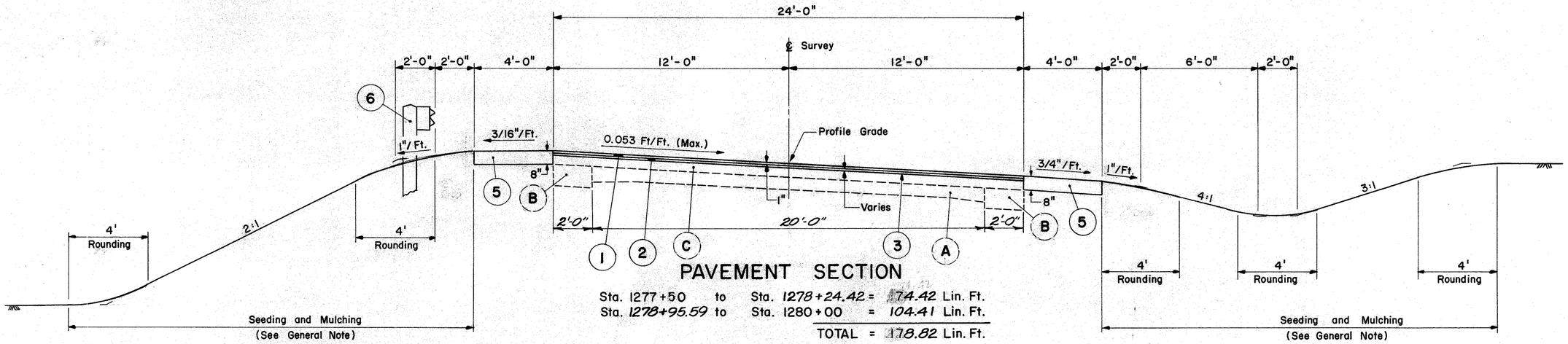
SCALE IN FEET

0 3 6



APPROACH SLAB SECTION

STA. 1278+24.42 TO STA. 1278+39.42 = 15.00 LIN. FT.
STA. 1279+80.59 TO STA. 1295+95.59 = 15.00 LIN. FT.
TOTAL = 30.00 LIN. FT.



PAVEMENT SECTION

Sta. 1277+50 to Sta. 1278+24.42 = 74.42 Lin. Ft.
Sta. 1278+95.59 to Sta. 1280+00 = 104.41 Lin. Ft.
TOTAL = 178.82 Lin. Ft.

LEGEND

1	Item 404	Asphalt Concrete, AC-20
2	Item 403	Asphalt Concrete, AC-20
3	Item 407	Tack Coat and Cover Aggregate (See General Note)
4	Item 611	Reinforced Concrete Approach Slabs (T=12")
5	Item 304	Aggregate Base
6	Item 606	Guardrail, Type 5
A		Existing Portland Cement Concrete Base
B		Existing Bituminous Aggregate Base
C		Existing Bituminous Pavement

Calculated By:	Checked By:
JWH 5-31-84	DWI 6-1-84

FHWA REGION	STATE	PROJECT	
5	OHIO		

4/30

TUS-250-(23.72)(24.21)

GENERAL NOTES

FIELD OFFICE : The Contractor shall provide a suitable field office having a minimum of 300 sq. ft. of floor space. Payment for the above shall be included in the lump sum price bid for Item 619, Field Office.

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.

ELEVATION DATUM : All elevations refer to U.S.G.S.

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.

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.

SEEDING : Quantities for seeding are calculated for the soil areas between the work limits, as shown on the cross sections.

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.

	BRM-5K11(1)	BRZ-7903(1)
659 Water	2 M. Gal.	2 M. Gal.

TEMPORARY STREAM CROSSING FORDS : Where stream crossing fords are required for equipment crossings, the following shall apply to the Contractor's operations :

The crossing shall consist of clean non-toxic granular or rock material, properly maintained to prevent erosion with provisions for conveyance of anticipated high flows.

Furthermore, it shall follow Part 330.5 Specific Categories of Discharges - Nationally Permitted, paragraph (a)(14) Minor Road Crossing Fills - of the Federal Register - Corps of Engineers Final Regulations published July 22, 1982.

407 TACK COAT : The Tack Coat and Cover Aggregate Operation shall be determined as per Spec. 407.05. Plan quantities indicate average application rates of 0.10 gallons per square yard of Tack Coat and 7 pounds per square yard of Cover Aggregate for estimating purposes only.

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 O.R.C.

CONDUIT END TREATMENT : Immediately after placement of any conduits, the Contractor shall construct the end treatments required by the plans at both the outlet and inlet ends. This shall include headwalls, concrete riprap, rock channel protection, sodding, etc.

UTILITY OWNERSHIP: The Contractor shall notify, at least two working days before breaking ground, all public service corporations having wires, poles, conduit or other structures, which may be affected by the operation. He shall conduct his operations in such a manner to avoid damages to any and all utilities. Any and all work required for public or private utilities will be done by and at the expense of their respective owners, unless otherwise noted on these plans.

Following is a list of the owners of utilities known to be within the area of this project :

Ohio Bell Telephone Co.
150 E. Gay St.
Columbus, Ohio 43215
Phone 614/223-8262

Ohio Power Co.
301 Cleveland Ave. S.W.
P.O. Box 400
Canton, Ohio 44701
Phone 216/438-7040

East Ohio Gas Co.
332 Second St. N.W.
Canton, Ohio 44702
Phone 216/438-6130

Twin City Water Dept.
314 Grant St.
Dennison, Ohio 44621
Phone 614/922-1460

REMOVAL OF TREES OR STUMPS : All trees or stumps within the construction limits of the project shall be removed under the lump sum price 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"	5	0	5
30"	0	0	0
48"	0	0	0
60"	0	0	0

The above estimate is approximate and the State Of Ohio reserves the right to order the removal of additional trees or stumps outside of the limits of construction but within the right-of-way and/or easement lines. Payment for these additional trees or stumps shall be included in the lump sum price bid for Item 201, Clearing And Grubbing.

ITEM 614 MAINTAINING TRAFFIC : The Contractor shall maintain traffic at all times in accordance with the requirements of Spec. 614. Two-way traffic shall be maintained at all times by use of the existing pavement, the completed pavement, Item 502 Temporary Structure, and Item 615 Temporary Roads and Pavements. The limits and duration of use of temporary roadways shall be held to an absolute minimum, and in all cases shall be subject to the approval of the Engineer.

Separate payment shall be made for Items 502 and 615 noted above. All other work required for traffic maintenance, (except temporary striping) shall be included with payment for Item 614 Maintaining Traffic.

The following estimated quantities have been included in the General Summary to be used as directed by the Engineer for the maintenance of traffic

	BRM-5K11(1)	BRZ-7903(1)
Item 410 - Traffic Compacted Surface Type A Or B	10 Cu.Yds.	10 Cu.Yds.
Item 616 - Calcium Chloride	1 Ton	1 Ton
Item 616 - Water	5 M-Gals.	5 M-Gals.

CALC. BY JWH DATE 6-1-84		OHIO	5
CHKD. BY DWI DATE 6-1-84	TUS-250-(23.72)(24.21)	FHWA REGION 5	30

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 MAINTAINED IN GOOD CONDITION TO PROVIDE DAY AND NIGHT VISIBILITY. THE MARKINGS SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE ENGINEER TO MAINTAIN REQUIRED VISUAL EFFECTIVENESS AND NIGHT VISIBILITY AT NO ADDITIONAL COST TO THE STATE.

THE CONTRACTOR SHALL, IN ADVANCE OF ANY SECTION OF ROADWAY LACKING OMUTCD FULL PATTERN STANDARD DIMENSION EDGE LINE OR CENTER LINE MARKINGS, ERECT A "NO EDGE LINES" (OW-167) SIGN OR "UNMARKED NO PASSING ZONES" (OW-168) SIGN OR BOTH AS MAY BE APPROPRIATE. THESE SIGNS SHALL BE IN PLACE PRIOR TO EXPOSING THE ROADWAY TO TRAFFIC. THESE SIGNS SHALL BE REPEATED EVERY 1 TO 2 MILES AND AT OTHER LOCATIONS AS NECESSARY. THESE SIGNS SHALL BE REMOVED WHEN THEY NO LONGER APPLY. THE COST FOR FURNISHING AND ERECTING AND SUBSEQUENTLY REMOVING THESE SIGNS SHALL BE INCLUDED IN 614 MAINTAINING TRAFFIC, UNLESS SPECIFICALLY ITEMIZED.

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 C PREFORMED MATERIAL. Where pavement marking are not liable to be tracked, either conventional or fast drying paint may be used for 621.02.

PAINT

PAINTED MARKINGS SHALL BE IN ACCORDANCE WITH 621 EXCEPT THAT THE INCREASE OF 25 PERCENT IN THE APPLICATION RATE FOR NEW BITUMINOUS PAVEMENT AND PARAGRAPH 621.14 SHALL NOT APPLY.

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 APPLIED IN ACCORDANCE WITH 847 EXCEPT AS MODIFIED HEREIN.

PLACEMENT

TEMPORARY MARKINGS SHALL BE COMPLETE AND IN PLACE ON ALL PAVEMENT 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.

TEMPORARY MARKING CLASSES

CLASS I MARKINGS

CLASS I MARKINGS SHALL BE APPLIED TO THE FULL DIMENSIONS AS DEFINED IN 621 WITH THE FOLLOWING ADDITIONS OR EXCEPTIONS:

1) LANE LINES SHALL BE 4-INCHES IN WIDTH.
2) TRANSVERSE LINES SHALL BE 8-INCHES IN WIDTH.
3) STOP LINES SHALL BE 12-INCHES IN WIDTH.
4) CROSS WALK LINES SHALL BE 8-INCHES IN WIDTH.

CLASS II MARKINGS

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

CENTER LINES SHALL CONSIST OF SINGLE, YELLOW 4-INCH WIDE BY A MINIMUM OF 48-INCH LONG DASHES SPACED AT A MAXIMUM OF 40-FOOT INTERVALS.

LANE LINES SHALL CONSIST OF WHITE 4-INCH WIDE BY A MINIMUM OF 48-INCH LONG DASHES SPACED AT A MAXIMUM OF 40-FOOT INTERVALS.

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

THE PAINT APPLICATION RATE SHALL BE NOT LESS THAN 1.6 GALLONS PER MILE FOR LANE LINE AND CENTER LINE AND 16 GALLONS PER MILE FOR GORE MARKINGS.

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.

INTERIM MARKINGS

WITHIN 21 CALENDAR DAYS AFTER OPENING ANY LENGTH OF PAVEMENT TO TRAFFIC, THE 621 OR 847 PAVEMENT MARKINGS CALLED FOR IN THE PLANS OR EQUIVALENT 614 CLASS I, PAINT MARKINGS SHALL BE APPLIED. THE CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT, AND MATERIAL NECESSARY TO PLACE AND MAINTAIN 614 CLASS I PAINT MARKINGS AS PART OF THE LUMP SUM BID FOR 614 MAINTAINING TRAFFIC.

FOR EACH CALENDAR DAY BEYOND 21 DAYS THAT THIS WORK SHALL REMAIN UNCOMPLETED, THE PROVISIONS OF 108.07 WILL BE INVOKED, EXCEPT THAT BETWEEN NOVEMBER 15 AND APRIL 15 WEATHER CONDITIONS SHALL NOT BE AN ACCEPTABLE REASON FOR EXTENSION.

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, IN ACCORDANCE WITH 621.15.

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 THE MARKINGS.

ITEM	UNIT	DESCRIPTION	BRM Br. 23.72	BRZ Br. 24.21
614	MILES	TEMPORARY EDGE LINES, CLASS I, * (WHITE)	0.17	0.19
614	MILES	TEMPORARY CENTER LINES, CLASS I, * (SOLID, DOUBLE)	0.09	0.10
614	MILES	Temporary Center Lines, Class II, *	0.09	0.10

*621 PAINT, 947.03 TYPE B OR 947.03 TYPE C

Permanent pavement markings shall be installed by ODOT. The District Traffic Engineer shall be notified at least 5 working days prior to opening the road to allow for scheduling of the pavement marking installation.

A quantity of 0.19 miles of Temporary Center Lines, Class II is carried to the General Summary to be used as directed by the Engineer.

The road shall not be opened to traffic without either the permanent or temporary pavement markings in place.

GENERAL NOTES
May 1, 1985

Calculated By	Checked By
JWH 6-4-84	M.M.M. 12/18/84

FHWA REGION	STATE	PROJECT	
5	OHIO		

6/30

TUS-250-(23.72)(24.21)

CALCULATIONS

Quantities Carried to Sheet 7

TUS-250-23.72

ITEM 403 ASPHALT CONCRETE
Sta. 1251+00 To Sta. 1253+00
200 Lin. Ft. – 71.16 Lin. Ft. (Bridge & Appr. Slabs) = 128.84 Lin. Ft.
128.84' x 24' x 1" ÷ 12 ÷ 27 = 9.5 Cu. Yds.
(Appr. Slabs) 30' x 36' x 1.25" ÷ 12 ÷ 27 = 4.2 Cu. Yds.
TOTAL ITEM 403 ASPHALT CONCRETE = 14 CU. YDS.

ITEM 404 ASPHALT CONCRETE
128.84' x 24' x 1" (Avg.) ÷ 12 ÷ 27 = 9.5 Cu. Yds.
(Appr. Slabs) 30' x 36' x 1.25" ÷ 12 ÷ 27 = 4.2 Cu. Yds.
TOTAL ITEM 404 ASPHALT CONCRETE = 14 CU. YDS.

ITEM 407 TACK COAT
128.84' x 24' ÷ 9 x 0.1 Gal./Sq. Yd. = 34.4 Gals.
(Appr. Slabs) 30' x 36' ÷ 9 x 0.1 Gal./Sq. Yd. = 12.0 Gals.
TOTAL ITEM 407 TACK COAT = 47 GALS.

ITEM 407 COVER AGGREGATE
128.84' x 24' ÷ 9 x 7 Lbs./Sq. Yd. ÷ 2000 = 1.2 Tons
(Appr. Slabs) 30' x 36' ÷ 9 x 7 Lbs./Sq. Yd. ÷ 2000 = 0.4 Ton
TOTAL ITEM 407 COVER AGGREGATE = 2 TONS

ITEM 304 AGGREGATE BASE
128.84' x 8' x 8" ÷ 12 ÷ 27 = 25.4 Cu. Yds.
(Deduct Drive) 29' x 4' x 8" ÷ 12 ÷ 27 = – 2.9 Cu. Yds.
TOTAL ITEM 304 AGGREGATE BASE = 23 CU. YDS.

ITEM 615 TEMPORARY PAVEMENT, CLASS B
345' x 20' ÷ 9 = 767 Sq. Yds.
TOTAL ITEM 615 TEMPORARY PAVEMENT, CLASS B = 767 SQ. YDS.

ITEM 659 COMMERCIAL FERTILIZER
1674 Sq. Yds. x (20 Lbs./1000 Sq. Ft.) x 9 ÷ 2000 = 0.15 Ton
TOTAL ITEM 659 COMMERCIAL FERTILIZER = 0.15 TON

ITEM 659 AGRICULTURAL LIMING
1674 Sq. Yds. x (100 Lbs./1000 Sq. Ft.) x 9 ÷ 2000 = 0.75 Ton
TOTAL ITEM 659 AGRICULTURAL LIMING = 0.75 TON

EARTHWORK AND SEEDING				
STATION FROM	STATION TO	EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.	SEEDING SQ. YDS.
1249+50	1254+00	56	76	1674

TUS-250-24.21

ITEM 403 ASPHALT CONCRETE
Sta. 1277+50 To Sta. 1280+00
250 Lin. Ft. – 71.17 Lin. Ft. (Bridge & Appr. Slabs) = 178.83 Lin. Ft.
178.83' x 24' x 1" (Avg.) ÷ 12 ÷ 27 = 13.3 Cu. Yds.
(Appr. Slabs) 30' x 36' x 1.25" ÷ 12 ÷ 27 = 4.2 Cu. Yds.
TOTAL ITEM 403 ASPHALT CONCRETE = 18 CU. YDS.

ITEM 404 ASPHALT CONCRETE
178.83' x 24' x 1" ÷ 12 ÷ 27 = 13.3 Cu. Yds.
(Appr. Slabs) 30' x 36' x 1.25" ÷ 12 ÷ 27 = 4.2 Cu. Yds.
TOTAL ITEM 404 ASPHALT CONCRETE = 18 CU. YDS.

ITEM 407 TACK COAT
178.83' x 24' ÷ 9 x 0.1 Gal./Sq. Yd. = 47.7 Gals.
(Appr. Slabs) 30' x 36' ÷ 9 x 0.1 Gal./Sq. Yd. = 12.0 Gals.
TOTAL ITEM 407 TACK COAT = 60 GALS.

ITEM 407 COVER AGGREGATE
178.83' x 24' ÷ 9 x 7 Lbs./Sq. Yd ÷ 2000 = 1.67 Tons
(Appr. Slabs) 30' x 36' ÷ 9 x 7 Lbs./Sq. Yd. ÷ 2000 = 0.42 Ton
TOTAL ITEM 407 COVER AGGREGATE = 2 TONS

ITEM 304 AGGREGATE BASE
178.83' x 8' x 8" ÷ 12 ÷ 27 = 35.3 Cu. Yds.
TOTAL ITEM 304 AGGREGATE BASE = 36 CU. YDS.

ITEM 615 TEMPORARY PAVEMENT, CLASS B
390' x 20' ÷ 9 = 867 Sq. Yds.
TOTAL ITEM 615 TEMPORARY PAVEMENT, CLASS B = 867 SQ. YDS.

ITEM 659 COMMERCIAL FERTILIZER
2673 Sq. Yds. x 20 Lbs./1000 Sq. Ft. x 9 ÷ 2000 = 0.24 Ton
TOTAL ITEM 659 COMMERCIAL FERTILIZER = 0.24 TON

ITEM 659 AGRICULTURAL LIMING
2673 Sq. Yds. x 100 Lbs./1000 Sq. Ft. x 9 ÷ 2000 = 1.20 Tons
TOTAL ITEM 659 AGRICULTURAL LIMING = 1.20 TONS

EARTHWORK AND SEEDING				
STATION FROM	STATION TO	EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.	SEEDING SQ. YDS.
1276+00	1281+00	34	52	2673

CALC. BY JWH DATE 9-4-84
CHKD. BY W.H.W. DATE 12/19/84

TUS-250-(23.72)(24.21) | OHIO | FHWA REGION 5 | 7 / 30

GENERAL SUMMARY

TUS-250-23.72 | SHEET NUMBER | TUS-250-24.21

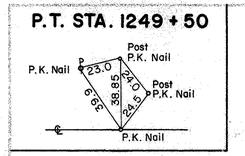
ITEM	BRM-5K11(1) 4	5	6	8	BRZ-7903(1) 4	5	6	9	TUS-250-23.72 TOTAL BRM-5K11(1)	TUS-250-24.21 TOTAL BRZ-7903(1)	ITEM	TOTAL QUANT.	UNIT	DESCRIPTION
														ROADWAY
201	Lump				Lump				Lump	Lump	201	Lump		Clearing and Grubbing
202				47				47	47	47	202	94	Sq.Yd.	Pavement Removed
202				175				139	175	139	202	314	Lin.Ft.	Guardrail Removed
202				86				63	86	63	202	149	Sq.Yd.	Approach Slab Removed
203			56	16			34	40	72	74	203	146	Cu.Yd.	Excavation Not Including Embankment Construction
203			76				52		76	52	203	128	Cu.Yd.	Embankment
203				120				120	120	120	203	240	Sq.Yd.	Subgrade Compaction
606				237.5				287.5	237.5	287.5	606	525	Lin.Ft.	Guardrail, Type 5
606				3				2	3	2	606	5	Each	Anchor Assembly, Standard Type A
606				1				1	1	1	606	2	Each	Anchor Assembly, Standard Type B
606				4				4	4	4	606	8	Each	Bridge Terminal Assembly, Standard Type B
614		0.09				0.10			0.09	0.10	614	0.19	Mi.	Temporary Center Lines, Class I
614		0.17				0.19			0.17	0.19	614	0.36	Mi.	Temporary Edge Lines, Class I
614		0.09				0.10			0.09	0.10	614	0.19	Mi.	Temporary Center Lines, Class II
615			767				867		767	867	615	1634	Sq.Yd.	Temporary Pavement, Class B
615	Lump				Lump				Lump	Lump	615	Lump		Temporary Roads
410	10				10				10	10	410	20	Cu.Yd.	Traffic Compacted Surface, Type A or B
616	1				1				1	1	616	2	Ton	Calcium Chloride
616	5				5				5	5	616	10	M.Gal.	Water
														EROSION CONTROL
601				74				107	74	107	601	181	Cu.Yd.	Rock Channel Protection, Type C Without Filter
659	2				2				2	2	659	4	M.Gal.	Water
659			1674				2673		1674	2673	659	4347	Sq.Yd.	Seeding and Mulching
659			0.15				0.24		0.15	0.24	659	0.39	Ton	Commercial Fertilizer
659			0.75				1.20		0.75	1.20	659	1.95	Ton	Agricultural Liming
														DRAINAGE
602				0.2					0.2		602	0.2	Cu.Yd.	Concrete Masonry
603				112					112		603	112	Lin. Ft.	12" Conduit, Type C
604				1					1		604	1	Each	Catch Basin, Standard No. 2-2-B
														PAVEMENT
304			23	12			36		35	36	304	71	Cu.Yd.	Aggregate Base
403			14				18		14	18	403	32	Cu.Yd.	Asphalt Concrete, AC-20
404			14				18		14	18	404	32	Cu.Yd.	Asphalt Concrete, AC-20
404				4					4		404	4	Cu.Yd.	Asphalt Concrete, AC-20 (Driveways)
407			47				60		47	60	407	107	Gal.	Tack Coat
407			2				2		2	2	407	4	Ton	Cover Aggregate
611				120				120	120	120	611	240	Sq.Yd.	Reinforced Concrete Approach Slab (T=12")
														Bridge No. TUS-250-2372 over branch Little Stillwater Creek, for Quantities See Sheet No. 14
														Bridge No. TUS-250-2421 over Wolf Run, for Quantities See Sheet No. 22
614	Lump				Lump				Lump	Lump	614	Lump		Maintaining Traffic
619	Lump				Lump				Lump	Lump	619	Lump		Field Office
623									Lump	Lump	623	Lump		Construction Layout Stakes
624									Lump	Lump	624	Lump		Mobilization

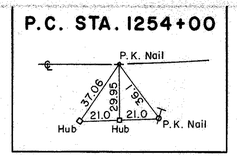
Calculated By	Checked By
J.W.H. 6-4-84	D.W.T. 6-11-84

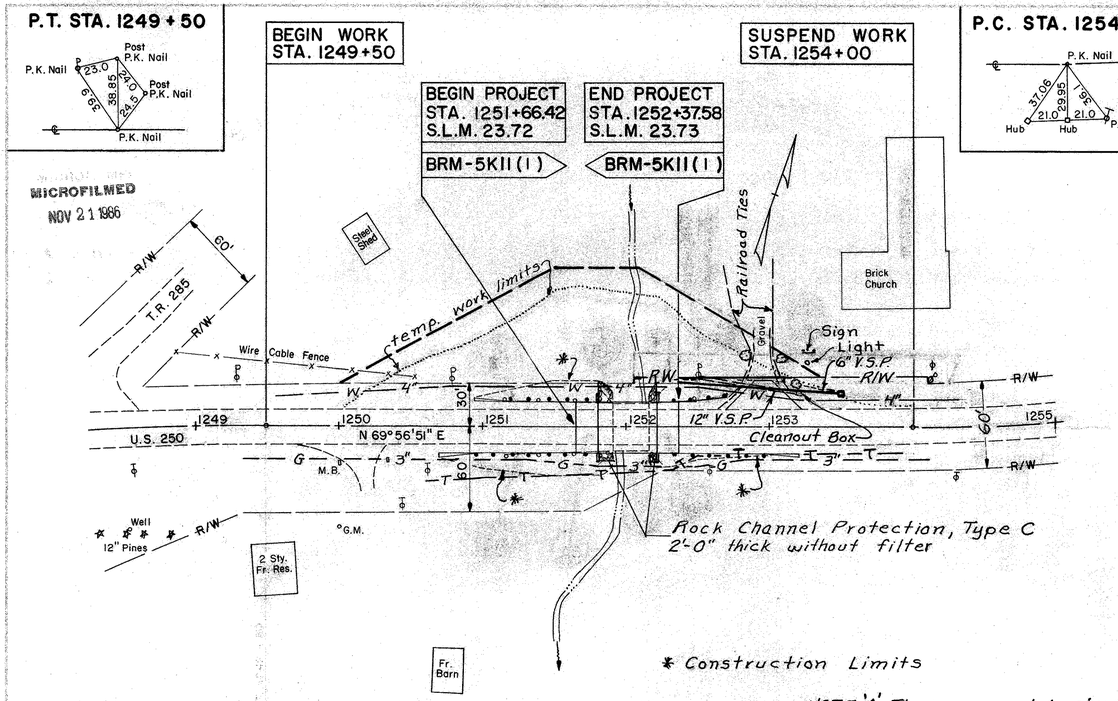
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

8
30

TUS-250-(23.72)(24.21)







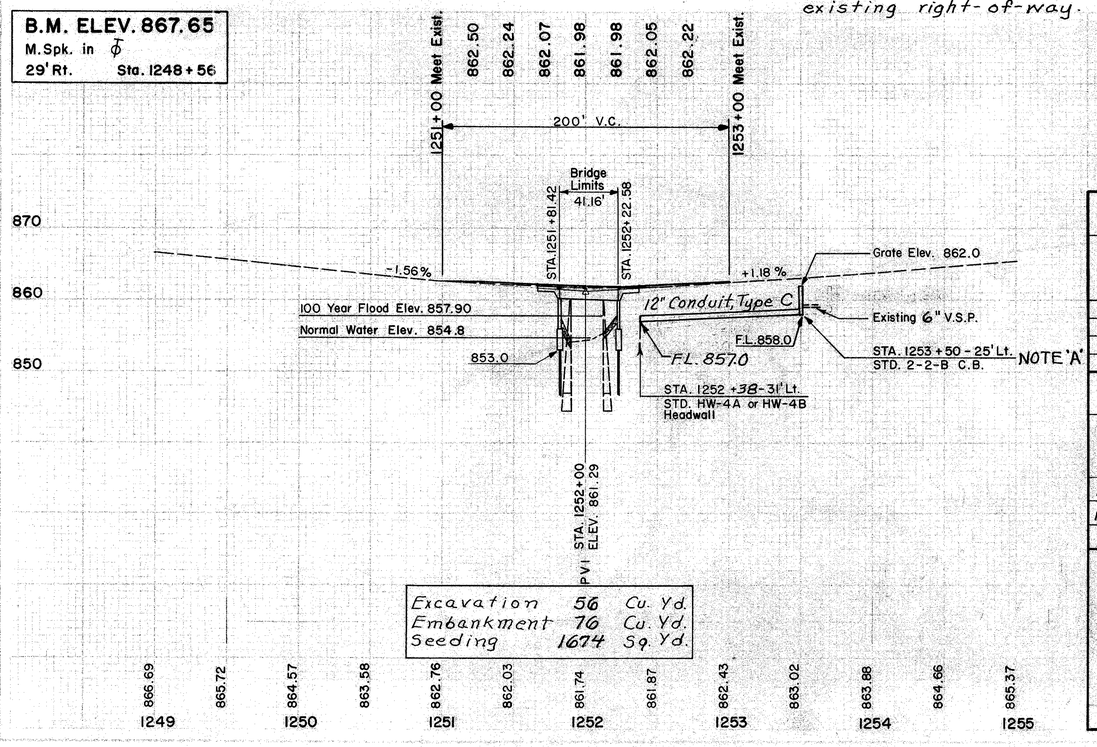
NOTE 'A': The proposed basin shall be constructed to intercept the existing 6" V.S.P. which flows into the box left of Sta. 1252+21. The proposed basin shall be located outside of the limits of the proposed temporary road and within the existing right-of-way.

EXISTING STRUCTURE

TYPE : Concrete Slab
SPAN : 22'-0" Clear
ROADWAY : 29'-0" F/F Curb (With Reinforced Concrete Railing)
ABUTMENTS : Concrete (Gravity)
SURFACE COURSE : 4" Concrete & 2-3/4" Bituminous Macadum
APPROACH SLABS : 14'-0" Long (Concrete)
SKEW : 0°
ALIGNMENT : Tangent
CONDITION : Poor

PROPOSED STRUCTURE

TYPE : Single Span Prestressed Concrete Box Beams With Reinforced Concrete Substructure Units
SPAN : 40'-0" Measured Along ℄ Survey
ROADWAY : 36'-0" F/F Guardrail
SKEW : 0° With Reference Line
SURFACE COURSE : 2-1/2" Asphalt Concrete
LOADING : HS 20-44 With Alternate Military Loading
APPROACH SLABS : AS-1-81, 15'-0" Long
ALIGNMENT : Tangent



Excavation	56	Cu. Yd.
Embankment	76	Cu. Yd.
Seeding	1674	Sq. Yd.

GUARD RAIL

Station To Station	Side	ITEM 202 Guardrail Removed Lin. Ft.	ITEM 606 Guardrail Type 5 Lin. Ft.	Bridge Term. Ass'y Std. Type B Each	Anchor Ass'y Std. Type A Each	Anchor Ass'y Std. Type B Each
1250+70.75 to 1253+20.75	Rt.	75	150	2	2	
1250+95.75 to 1252+70.75	Lt.	100	87.5	2	1	1
TOTAL		175	237.5	4	3	1

CONDUIT

Station To Station	Side		ITEM 602 Concrete Masonry Cu. Yd.	ITEM 603 Conduit, 12" Type C Lin. Ft.	ITEM 604 Catch Basin Std. 2-2-B Each
1252+38 to 1253+50	Lt.		0.2	112	1
TOTAL			0.2	112	1

APPROACH SLABS

Station To Station	Calculations	ITEM 203 Subgrade Compaction Sq. Yd.	ITEM 611 Reinf. Conc. Approach Slabs T=12" Sq. Yd.
1251+66.42 to 1251+81.42		60	60
	15'x36'÷9=60 Sq. Yd.		
1252+22.58 to 1252+37.58		60	60
TOTAL		120	120

ROCK CHANNEL PROTECTION

Station To Station	Calculations	ITEM 601 Rock Channel Protection Type C W/O Filter Cu. Yd.
1251+81 to 1251+91	10'x56'x2'÷27	42
1252+16 to 1252+24	8'x54'x2'÷27	32
TOTAL		74

PAVEMENT REMOVAL

Station To Station	Calculations	ITEM 202 Pavement Removed 9"-7"-9" Sq. Yd.	ITEM 202 Approach Slab Removed T=9-1/2" Sq. Yd.
1251+66.42 to 1251+79	12.6'x20'÷9=28 Sq. Yd.	28	
1251+79 to 1251+93	14'x27.6 (Avg.)÷9=43 Sq. Yd.		43
1252+15 to 1252+29	do		43
1252+29 to 1252+37.58	8.6' x 20'÷9=19 Sq. Yd.	19	
TOTAL		47	86

DRIVEWAY

Station To Station	Side	Calculations	ITEM 203 Excavation Not Including Embankment Construction Cu. Yd.	ITEM 304 Aggregate Base Cu. Yd.	ITEM 404 Asphalt Concrete AC-20 For Driveways Cu. Yd.
1252 + 95	Lt.	20'x32' (Avg.) x 2"÷12÷27=3.95	16	12	4
		20'x32' (Avg.) x 6"÷12÷27=11.85			
TOTAL			16	12	4

TUS-250-23.72 PLAN AND PROFILE

Calculated By:	Checked By:
JWH 5-18-84	DWI 5-28-84

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

9
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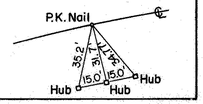
TUS-250-(23.72)(24.21)

P.C.C. STA. 1276+50



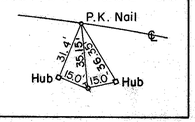
BEGIN PROJECT
STA. 1278+24.42
S.L.M. 24.21

BRZ-7903(1)

END PROJECT
STA. 1278+95.59
S.L.M. 24.22

BRZ-7903(1)

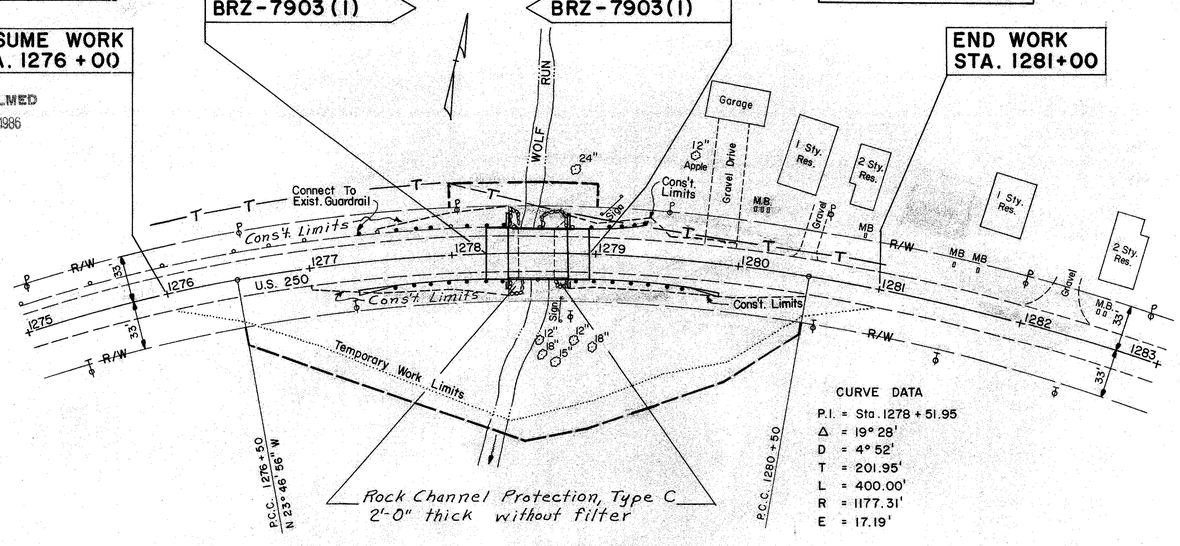
P.C.C. STA. 1280+50



RESUME WORK
STA. 1276+00

END WORK
STA. 1281+00

MICROFILMED
NOV 21 1986



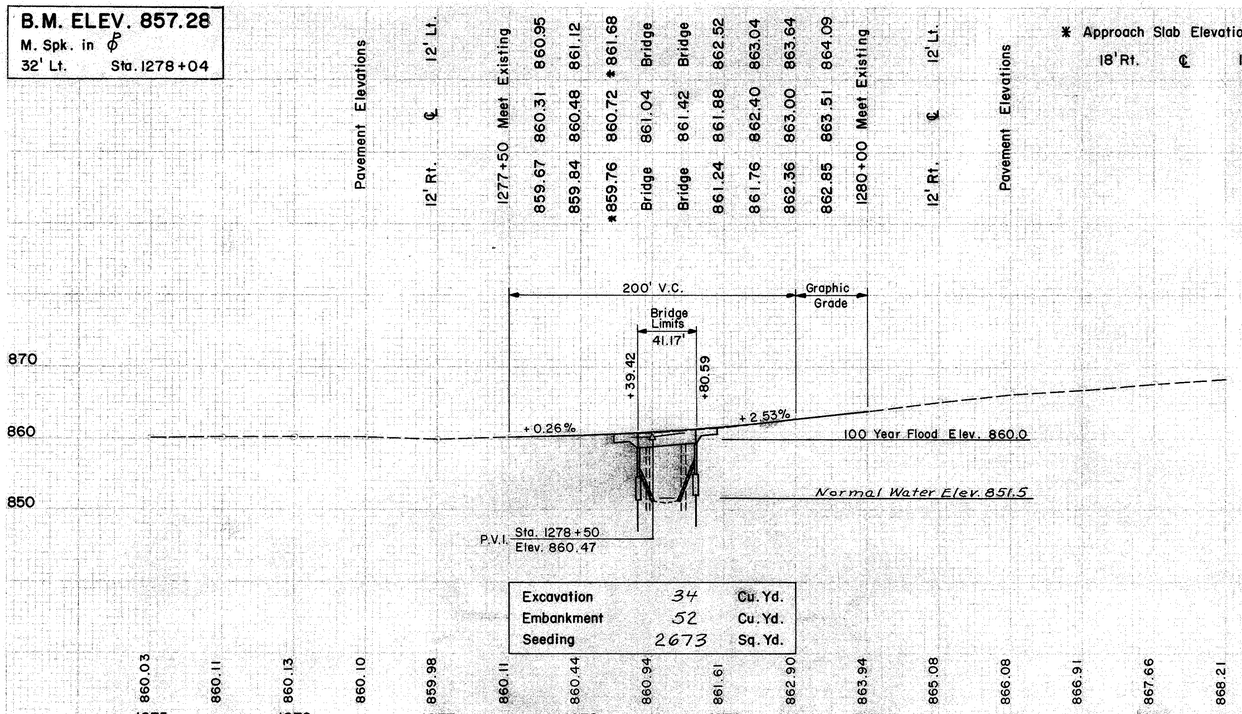
EXISTING STRUCTURE

TYPE : Concrete Slab
SPAN : 22'-0" Clear
ROADWAY : 29.5' F/F Curb
ABUTMENTS : Concrete (Gravity)
SURFACE COURSE : 4" Concrete & 2" Bituminous Macadum
APPROACH SLABS : 10'-0" Long (Concrete)
SKEW : 0°
ALIGNMENT : 4°-52' Rt. Curve (Superelevated)
CONDITION : Poor

PROPOSED STRUCTURE

TYPE : Single Span Prestressed Concrete Box Beams With Reinforced Concrete Substructure Units
SPAN : 40'-0" Measured Along Reference Line
ROADWAY : 36'-0" F/F Guardrail
SKEW : 0° With Reference Line
SURFACE COURSE : 2-1/2" Asphalt Concrete
LOADING : HS 20-44 With Alternate Military Loading
APPROACH SLABS : AS-1-81, 15'-0" Long
ALIGNMENT : Curve 4°-52' Rt. (Structure Built Tangent)
SUPERELEVATION : 0.05333'/Ft.

B.M. ELEV. 857.28
M. Spk. in ℄ P
32' Lt. Sta. 1278+04



Excavation	34	Cu. Yd.
Embankment	52	Cu. Yd.
Seeding	2673	Sq. Yd.

B.M. ELEV. 871.80
M. Spk. in ℄ P
30' Lt. Sta. 1282+86

ESTIMATED QUANTITIES

GUARD RAIL

Station To Station	Side	ITEM 202 Guardrail Removed Lin. Ft.	ITEM 606 Guardrail Type 5 Lin. Ft.	Bridge Term. Ass'y Std. Type B Each	Anchor Ass'y Std. Type A Each	Anchor Ass'y Std. Type B Each
1277+33.06 to 1279+86.94	Rt.	14	150	2	2	
1277+36.89 to 1279+33.86	Lt.	125	137.5	2		1
TOTAL		139	287.5	4	2	1

APPROACH SLABS

Station To Station	Calculations	ITEM 203 Excavation Not Incl. Emb. Const. Cu. Yd.	ITEM 203 Subgrade Compaction Sq. Yd.	ITEM 611 Reinf. Conc. Approach Slabs, T = 12" Sq. Yd.
1278+24.42 to 1278+39.42	15'x 36' ÷ 9 = 60 S.Y.	20	60	60
1278+80.59 to 1278+95.59	15'x 36'x 1' ÷ 27 = 20 C.Y.	20	60	60
TOTAL		40	120	120

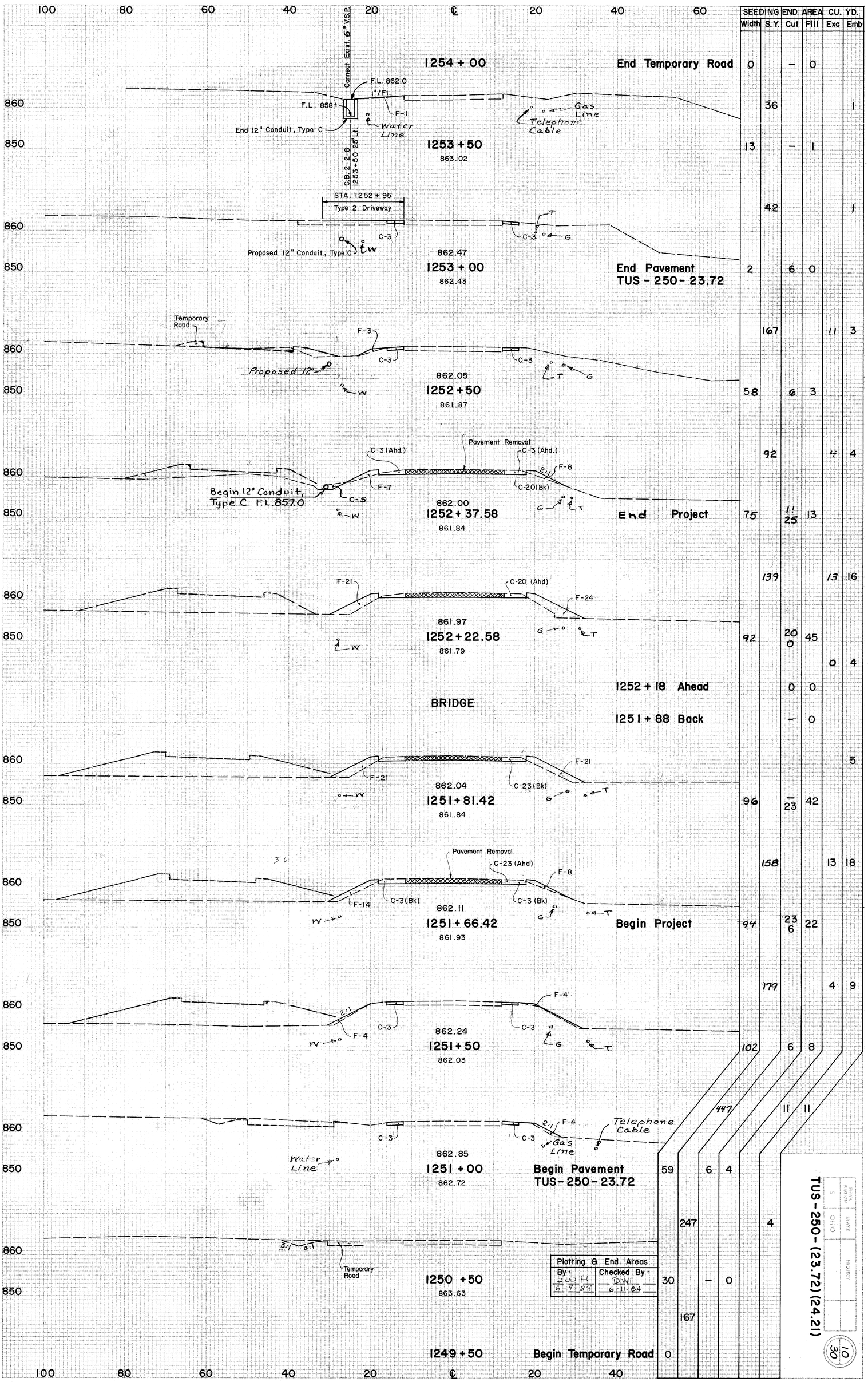
PAVEMENT REMOVAL

Station To Station	Calculations	ITEM 202 Pavement Removed 9"-7"-9" Sq. Yd.	ITEM 202 Approach Slab Removed T= 7-1/2" Sq. Yd.
1278+24.42 to 1278+36.31	12'x 20' ÷ 9 = 26.7 Sq. Yd.	27	
1278+36.31 to 1278+46.41	10' x 28' ÷ 9 = 31.1 Sq. Yd.		31.1
1278+71.61 to 1278+86.61	10' x 28' ÷ 9 = 31.1 Sq. Yd.		31.1
1278+86.61 to 1278+95.59	9' x 20' ÷ 9 = 20 Sq. Yd.	20	
TOTAL		47	63

ROCK CHANNEL PROTECTION

Station to Station	Calculations	ITEM 601 Rock Chan. Prot. Type C W/O Filter CU. YD.
1278+39 to 1278+50	59'x 11'x 2' ÷ 27	48
1278+67 to 1278+81	57'x 14'x 2' ÷ 27	59
TOTAL		107

TUS-250-24.21 PLAN AND PROFILE



SEEDING Width	SEEDING S.Y.	END AREA Cut	END AREA Fill	CU. YD. Exc	CU. YD. Emb
0		–	0		
	36				1
13		–	1		
	42				1
2		6	0		
	167			11	3
58		6	3		
	92			4	4
75		11 25	13		
	139			13	16
92		20 0	45		
				0	4
		0	0		
		–	0		
					5
96		1 23	42		
	158			13	18
94		23 6	22		
	179			4	9
102		6	8		
	447	11	11		
59		6	4		
	247				
	4				
30		–	0		
	167				
0					

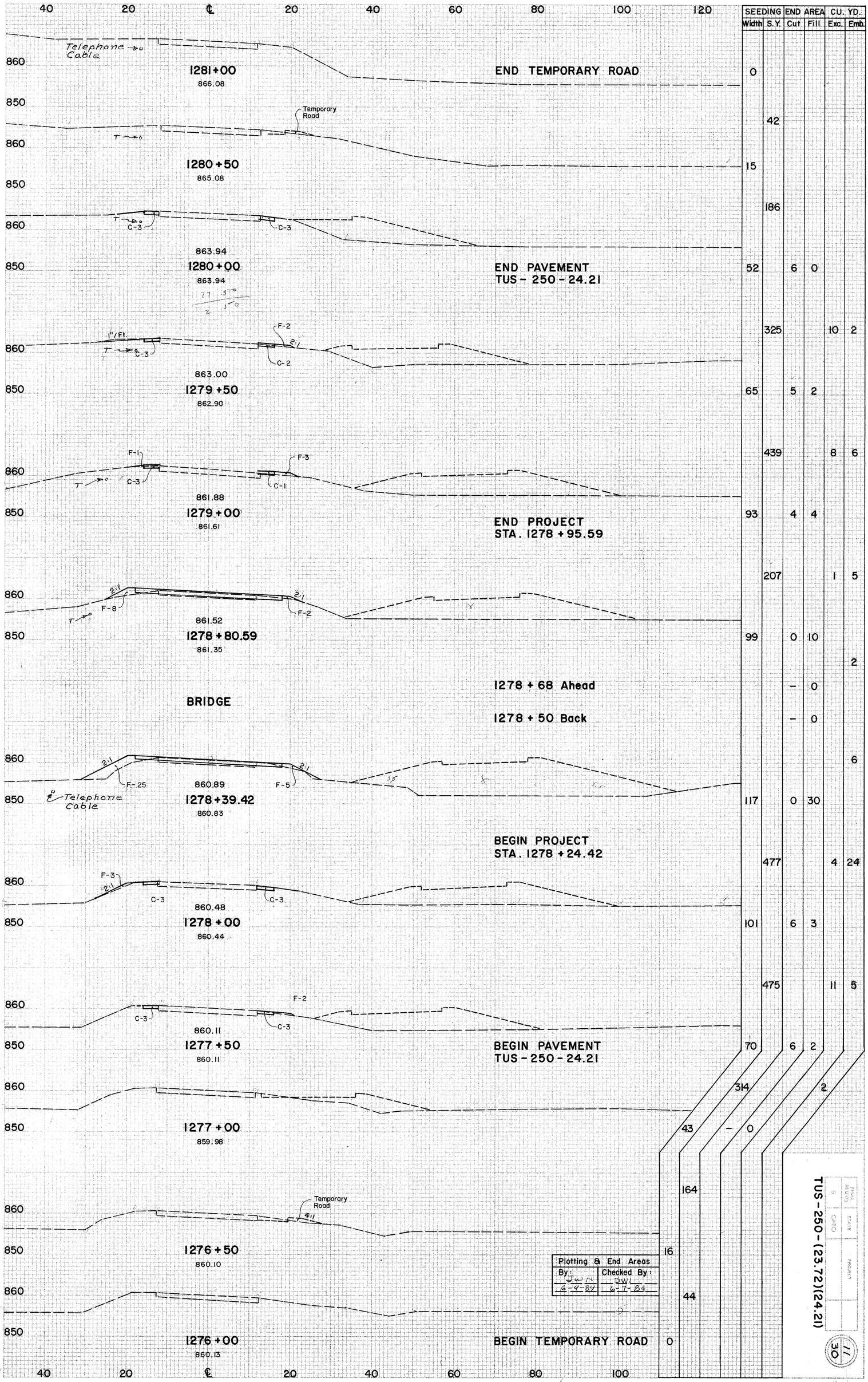
Plotting & End Areas
By: DCW 6-7-84
Checked By: DWF 6-11-84

TUS - 250 - 23.72 CROSS SECTIONS

TUS - 250 - (23.72)(24.21)

OHIO | DEPARTMENT OF TRANSPORTATION | STATE | PROJECT

10/30



SEEDING Width	SEEDING S.Y.	END AREA Cut	END AREA Fill	CU. YD. Exc.	CU. YD. Emb.
0					
	42				
15					
	186				
52		6	0		
	325			10	2
65		5	2		
	439			8	6
93		4	4		
	207			1	5
99		0	10		
					2
		-	0		
		-	0		
					6
117		0	30		
	477			4	24
101		6	3		
	475			11	5
70		6	2		
	314			2	
43		-	0		
	164				
16					
	44				
0					

TUS-250-24.21 CROSS SECTIONS

MICROFILMED
NOV 21 1986

TUS-250-23.72 | OHIO | FHWA REGION 5 | 12/30

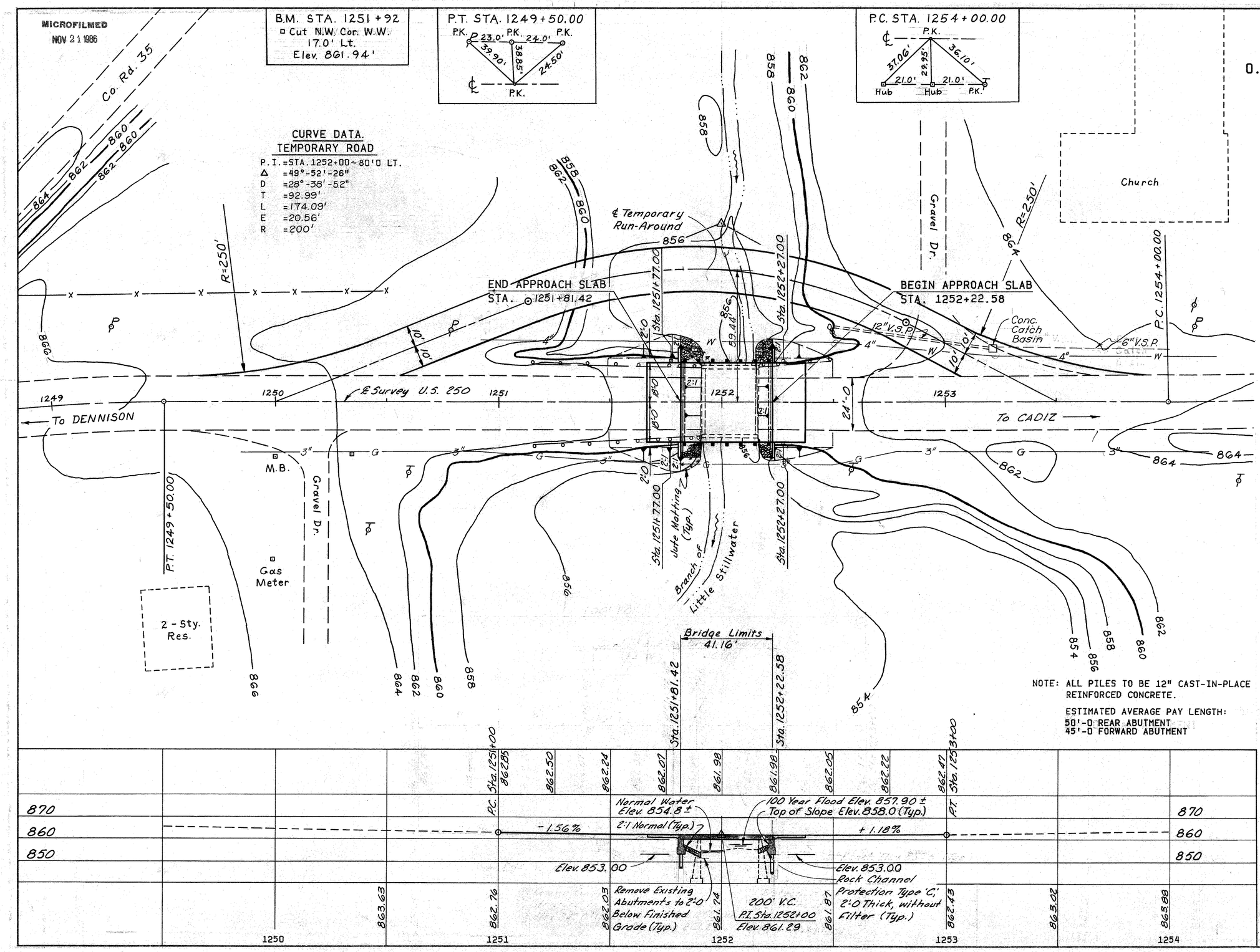
0.38 MILES NORTHEAST OF DENNISON

B.M. STA. 1251+92
□ Cut N.W. Cor. W.W.
17.0' Lt.
Elev. 861.94'

P.T. STA. 1249+50.00
P.K. 23.0' P.K. 24.0' P.K.
39.90' 38.85' 24.50'
℄ P.K.

P.C. STA. 1254+00.00
℄ P.K.
37.06' 29.95' 36.10'
21.0' 21.0'
Hub Hub P.K.

CURVE DATA.
TEMPORARY ROAD
P.I. = STA. 1252+00 ~ 80'0 LT.
Δ = 49°-52'-26"
D = 28°-38'-52"
T = 92.99'
L = 174.09'
E = 20.56'
R = 200'



NOTE: ALL PILES TO BE 12" CAST-IN-PLACE REINFORCED CONCRETE.

ESTIMATED AVERAGE PAY LENGTH:
50'-0 REAR ABUTMENT
45'-0 FORWARD ABUTMENT

DESIGN DESIGNATION

1983 ADT	5620
2003 ADT	16352

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

STREAM DATA

DRAINAGE AREA: 0.53 SQ. MILES

Q100 = 595 CFS
V100 = 6.5FT./SEC
STRUCTURE CLEARS 100 YR. FLOOD ELEVATION BY 1.7'±

EXISTING STRUCTURE DATA

SFN 7900759 (TO BE REMOVED) DATE BUILT 1930

TYPE: CONCRETE SLAB
SPAN: 22'0 CLEAR
ROADWAY: 29'0 F/F CURB (WITH REINFORCED CONCRETE RAILING)
ABUTMENTS: CONCRETE (GRAVITY)
SURFACE COURSE: 4" CONCRETE & 2¾" BITUMINOUS MACADUM
APPROACH SLABS: 14'-0 LONG (CONCRETE)
SKEW: 0°
ALIGNMENT: TANGENT
CONDITION: POOR

PROPOSED STRUCTURE

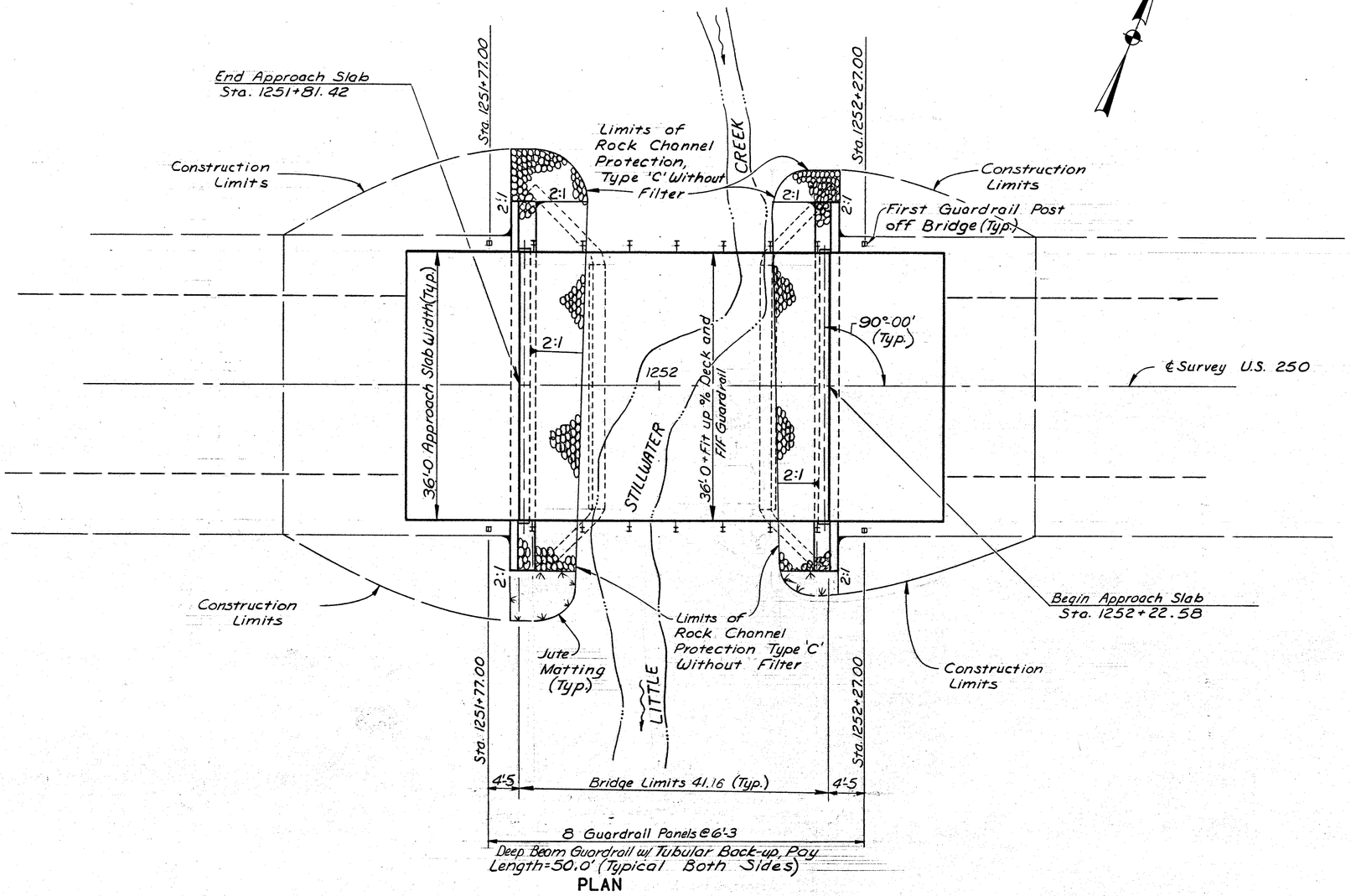
TYPE: SINGLE SPAN PRESTRESSED CONCRETE BOX BEAMS WITH REINFORCED CONCRETE SUBSTRUCTURE UNITS
SPAN: 40'-0 MEASURED ALONG ℄ SURVEY
ROADWAY: 36'-0 FACE TO FACE OF GUARDRAIL.
SKEW: 0° WITH REFERENCE LINE
SURFACE COURSE: 2½" ASPHALT CONCRETE
LOADING: HS20-44 WITH ALTERNATE MILITARY LOADING.
APPROACH SLABS: AS-1-81, 15'-0 LONG.
ALIGNMENT: TANGENT

SHEET 1 / 8

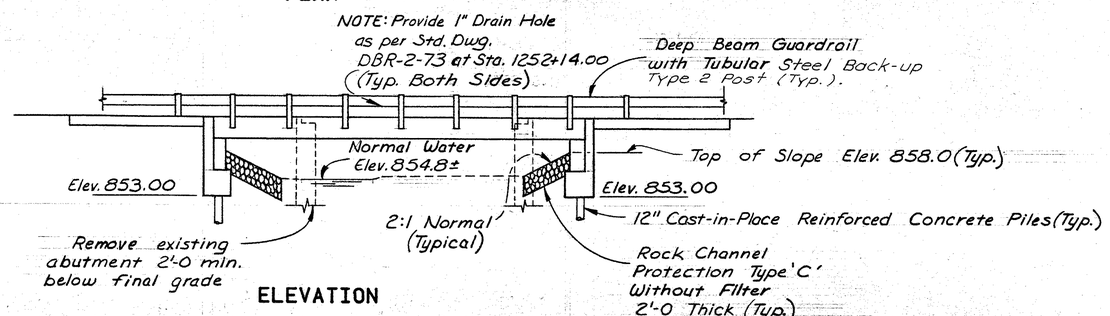
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SNF 7900759 **SITE PLAN**
BRIDGE NO. TUS-250-2372
U.S.250 OVER BRANCH OF LITTLE STILLWATER CREEK
STA. 1251+81.42
TUSCARAWAS COUNTY STA. 1252+22.58

EXIST. TOPO		PROPOSED WORK			
SURVEY	DRAWN	DESIGN	DRAWN	CHECKED	REVIEWED
O.D.O.T	O.D.O.T	C.F.D.	C.F.D.	JMS	wda 3/94



PLAN



ELEVATION

Sheet 2/8

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

GENERAL PLAN AND ELEVATION

BRIDGE NO. TUS-250-2372
U.S. 250 OVER BRANCH OF LITTLE STILLWATER CREEK

TUSCARAWAS COUNTY
STA. 1251+81.42
STA. 1252+22.58

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		FDH	JMG	7/84	

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	ABUTS	PIERS	SUPER	GEN'L.
202	LUMP	SUM	PORTIONS OF STRUCTURES REMOVED				LUMP
403	9	CU.YD.	ASPHALT CONCRETE(AC-20)			9	
404	6	CU.YD.	ASPHALT CONCRETE(AC-20)			6	
503	LUMP	SUM	COFFERDAMS CRIBS AND SHEETING				LUMP
503	LUMP	SUM	UNCLASSIFIED EXCAVATION	LUMP			
502	LUMP	SUM	TEMPORARY STRUCTURE				LUMP
505	LUMP	SUM	PILE DRIVING EQUIPMENT MOBILIZATION				LUMP
507	665	LIN.FT.	12"CAST-IN-PLACE REINFORCED CONCRETE PILES, AS PER PLAN	665			
509	6191	LBS.	REINFORCING STEEL, GRADE 60	6191			
511	33	CU.YD.	CLASS'C'CONCRETE, ABUTMENTS ABOVE FOOTINGS	33			
511	35	CU.YD.	CLASS'C'CONCRETE, FOOTINGS	35			
512	182	SQ.YD.	TYPE'D'WATERPROOFING			182	
515	9	EACH	PRESTRESSED CONCRETE BOX BEAMS(B21-48)			9	
516	36	EACH	1/2"x 5"x 12" ELASTOMERIC BEARING PADS (50 DUROMETER)	36			
516	6	SQ.FT.	1/8" PREFORMED BEARING PADS 711.21			6	
516	134	SQ.FT.	1"PREFORMED EXPANSION JOINT FILLER	134			
517	100.0	LIN.FT.	RAILING(DEEP BEAM RAIL WITH TUBULAR BACK-UP INCLUDING TYPE 2 STEEL POST, BOLTS AND ACCESSORIES			100.0	
SPECIAL	65	SQ.FT.	STEEL DRIP STRIP			65	
518	18	CU.YD.	POROUS BACKFILL	18			
SPECIAL	21	SQ.YD.	SEALING OF CONCRETE SURFACES(SEE PROPOSAL NOTE)			21	

DESIGN NOTES

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 OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA:
DESIGN LOADING: HS20-44 AND THE ALTERNATE MILITARY LOADING

CONCRETE CLASS 'C': COMPRESSIVE STRENGTH 4000 P.S.I. (SUB-STRUCTURE)
REINFORCING STEEL: ASTM A615, A616, A617-GRADE 60 MINIMUM YIELD STRENGTH 60,000 P.S.I.
CONCRETE FOR PRESTRESSED BEAMS: UNIT STRESS 2,200 P.S.I.-COMPRESSION
UNIT STRESS 444 P.S.I.-TENSION
PRESTRESSING STRAND: ASTM A416
F'_s = 270,000 P.S.I.
INITIAL STRESS = 0.70 F'_s

DECK PROTECTION METHOD:
2-1/2" MIN. ASPHALT CONCRETE (AC-20), TYPE'D'WATERPROOFING.

SHOP DRAWINGS
THE FABRICATOR'S SHOP DRAWINGS SHALL INCLUDE COMPLETE DETAILS OF THE REINFORCING IN THE BOX BEAMS.

REFERENCE SHALL BE MADE TO:
STANDARD DRAWINGS

AS-1-81 DATED 11-27-81
DBR-2-73 DATED 4-10-73
PSBD-1-81 DATED 9-18-81

REINFORCING STEEL SPLICES:
ALL REINFORCING STEEL SPLICES SHALL BE IN ACCORDANCE WITH ITEM 509.08. UNLESS SHOWN OTHERWISE, ALL SPLICES SHALL BE MADE BY OVERLAPPING THE ENDS OF THE BARS NOT LESS THAN SHOWN IN THE FOLLOWING TABLE.

BAR SIZE	LAP LENGTH
#5	1'-8"
#8	3'-3"

SPECIAL CARE AND APPROPRIATE MEASURES SHALL BE TAKEN TO PREVENT REMOVAL DEBRIS FROM FALLING INTO THE CREEK.

REMOVAL OF THE EXISTING STRUCTURE:
WHEN NO LONGER NEEDED TO MAINTAIN TRAFFIC THE EXISTING STRUCTURE SHALL BE REMOVED TO THE LIMITS SPECIFIED.

PORTIONS OF STRUCTURES TO BE REMOVED: THE FOLLOWING PORTIONS OF THE EXISTING STRUCTURE SHALL BE REMOVED IN SEQUENCE, TO THE LIMITS SHOWN ON THE PLAN:

1. COMPLETE SUPERSTRUCTURE, INCLUDING ASPHALT AND CONCRETE WEARING SURFACE, REINFORCED CONCRETE DECK, CURBS AND RAILING.
2. EXISTING ABUTMENTS(TO THE LIMITS SHOWN ON THE PLAN).

PILES:
12 INCH PRECAST PRESTRESSED CONCRETE PILES MAY BE SUBSTITUTED FOR THE 12 INCH CAST-IN-PLACE REINFORCED CONCRETE PILES SHOWN ON THESE PLANS. DRAWINGS SHOWING DETAILS OF AND SPECIFICATIONS FOR PRESTRESSED CONCRETE PILES ARE AVAILABLE FROM THE DIRECTOR (BUREAU OF BRIDGES). IF THE PRESTRESSED PILE ALTERNATE IS CHOSEN, THE METHOD OF MEASUREMENT AND BASIS OF PAYMENT SHALL BE THE SAME AS FOR CAST-IN-PLACE REINFORCED CONCRETE PILES PER 507.

THE DESIGN LOAD FOR ABUTMENT PILES IS 40 TONS PER PILE.

PILE HAMMER:
THE PILE HAMMER USED TO INSTALL THE CAST-IN-PLACE REINFORCED CONCRETE PILES SHALL HAVE A "STATES ENERGY RATING" OF NOT LESS THAN 12,000 FOOT-POUNDS. THE 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 O.D.O.T.'S "MANUAL OF PROCEDURES FOR STRUCTURES", TO OBTAIN THE "STATES ENERGY RATING".

SEALING OF CONCRETE SURFACES:
AN(EPOXY)SEALER SHALL BE APPLIED TO THE EXPOSED SURFACE OF THE FASCIA BEAMS (AS PER PROPOSAL NOTE). REFER TO TYPICAL DRIP STRIP DETAIL FOR LIMITS OF SEALANT ON SHEET 8/8.

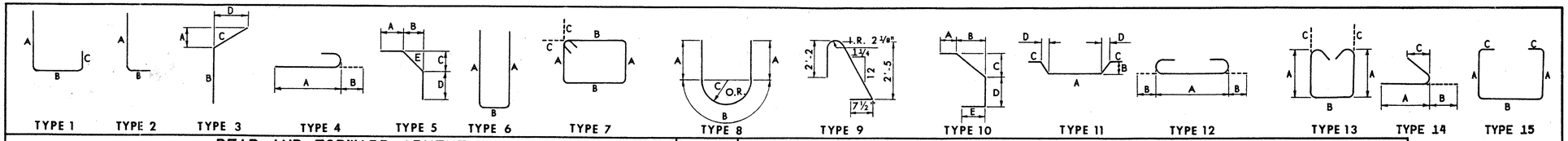
Sheet 3/8

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

DESIGN NOTES AND ESTIMATED QUANTITIES

BRIDGE NO. TUS-250-2372
U.S.250 OVER BRANCH OF LITTLE STILLWATER CREEK
TUSCARAWAS COUNTY
STA.1251+81.42
STA.1252+22.58

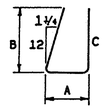
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		FDH	JMG	7/84	



REAR AND FORWARD ABUTMENTS

MARK	TYPE	A	B	C	D	E	NUMBER REAR	NUMBER FWD.	TOTAL	LENGTH	WEIGHT
A801	5	1'-5	1'-1 3/4	1'-1 3/4	1'-5	1'-7 1/2	24	24	48	4'-3	545
A802	Str.						4	4	8	30'-0	641
A803	Str.						4	4	8	21'-11	468
A804	Str.						4	4	8	36'-2	773
A501	Str.						6	6	12	36'-2	453
A502	Str.						4	4	8	20'-4	170
A503	Str.						4	4	8	30'-0	250
A504	Str.						16	16	32	7'-11	264
A505	Str.						4	4	8	5'-11	49
A506	6	2'-4	10"				36	36	72	5'-3	394
A507	6	7'-2	10"				10	10	20	14'-11	311
A508	6	5'-6	2'-2				26	26	52	12'-11	701
A509	6	2'-2	2'-11				68	68	136	7'-0	993
A401	7	1'-9	2'-9 1/2	4 1/2"			14	14	28	9'-7	179

MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT



NOTES

REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

ALL DIMENSIONS ARE OUT-TO-OUT

STR. IN THE "TYPE" COLUMN INDICATES STRAIGHT BARS.

Sheet 4 | 8

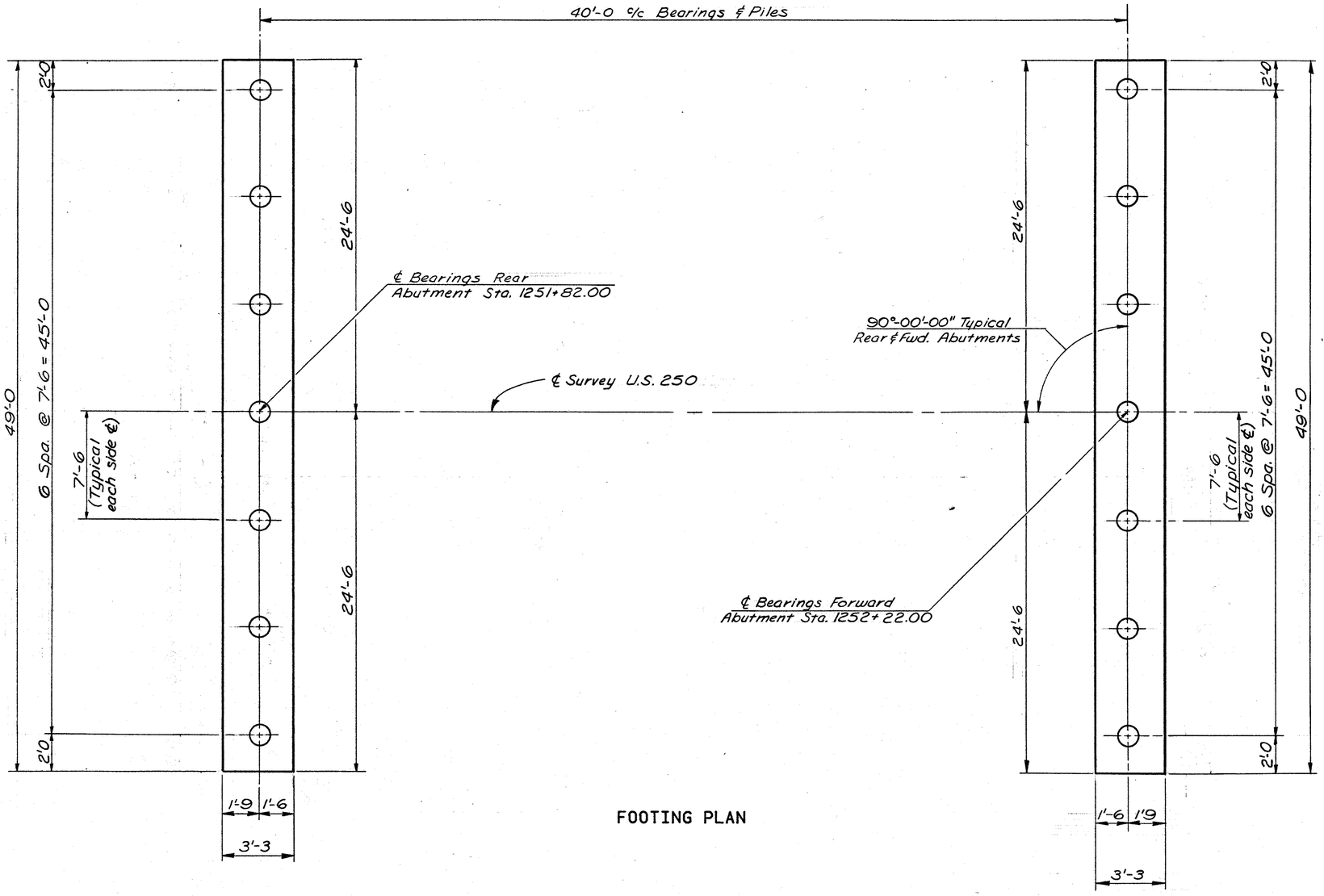
W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

REINFORCING BAR SCHEDULE

BRIDGE NO. TUS-250-2372
U.S.250 OVER BRANCH OF LITTLE STILLWATER CREEK

TUSCARAWAS COUNTY
STA. 1251+81.42
STA. 1252+22.58

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.D.		FDH	JMG	7/84	



FOOTING PLAN

NOTE: All Piles are 12" Cost-in-Place Reinforced Concrete.

Sheet 5/8

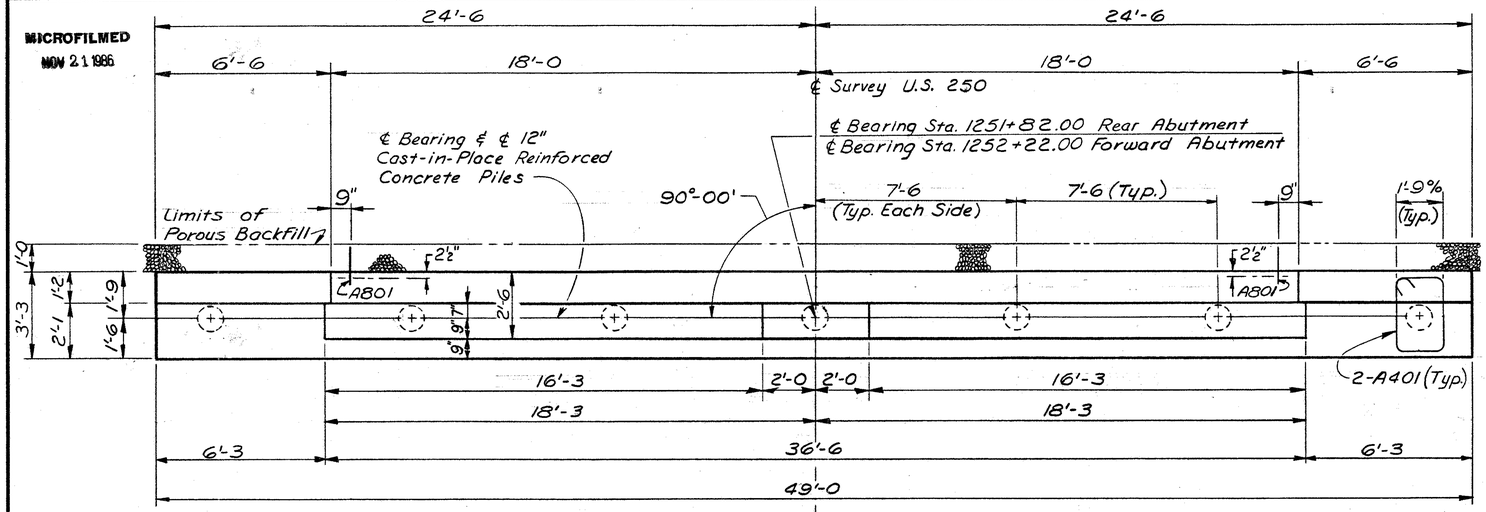
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

FOOTING PLAN

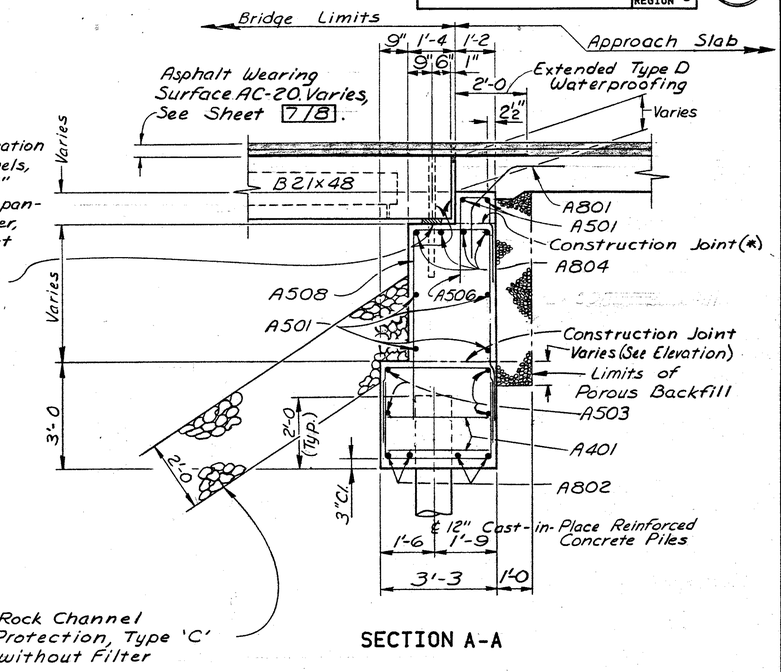
BRIDGE NO. TUS-250-2372
U.S.250 OVER BRANCH OF LITTLE STILLWATER CREEK

TUSCARAWAS COUNTY
STA. 1251+81.42
STA. 1252+22.58

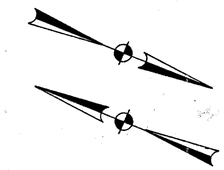
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		FDH	JMG	7/84	



For detail & location of Anchor Dowels, Bearings & 1" Preformed Expansion Joint Filler, see plan sheet 7/8 and details sheet 8/8



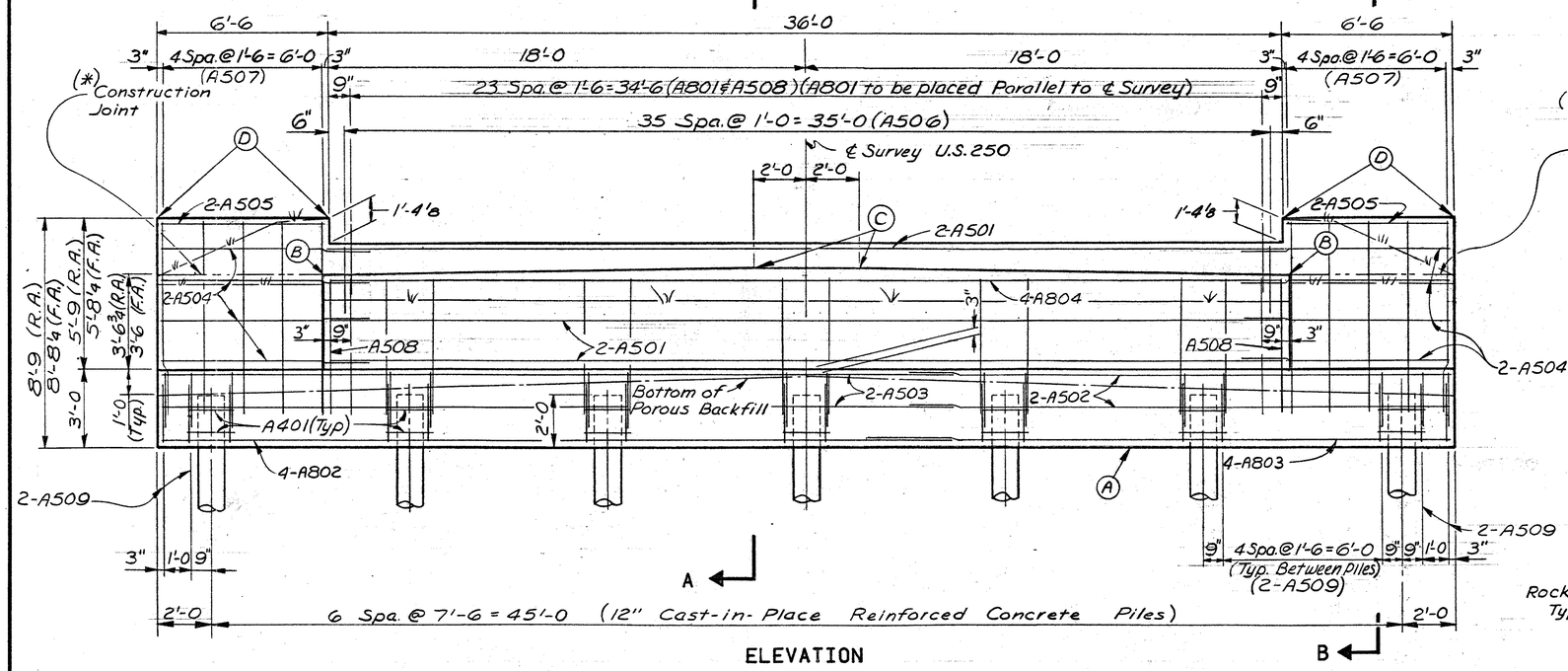
SECTION A-A



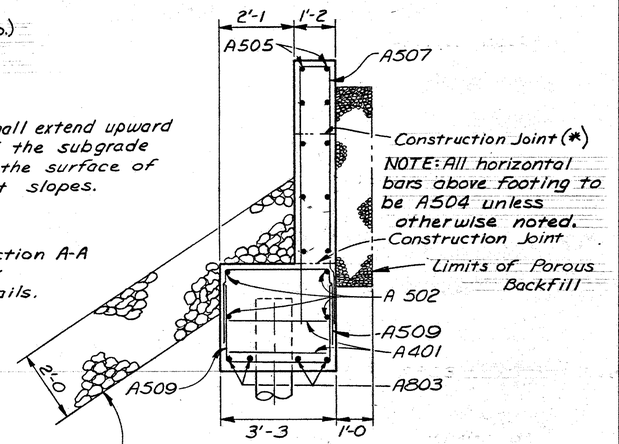
BRIDGE SEAT REINFORCING:

Reinforcing Steel in the vicinity of the Bridge Seat shall be accurately placed to avoid interference with the drilling of Anchor Bar holes.

PLAN



ELEVATION



SECTION B-B

ELEVATIONS							
LOCATION	A	B	C	D			
FORWARD ABUTMENT	853.00	859.55	859.83	861.69			
REAR ABUTMENT	853.00	859.61	859.89	861.75			

(*) Note: Concrete above the beam seat shall be poured after the prestressed concrete box beams are set in place.

Note:
R.A. Denotes Rear Abutment
F.A. Denotes Forward Abutment

Sheet 6/8

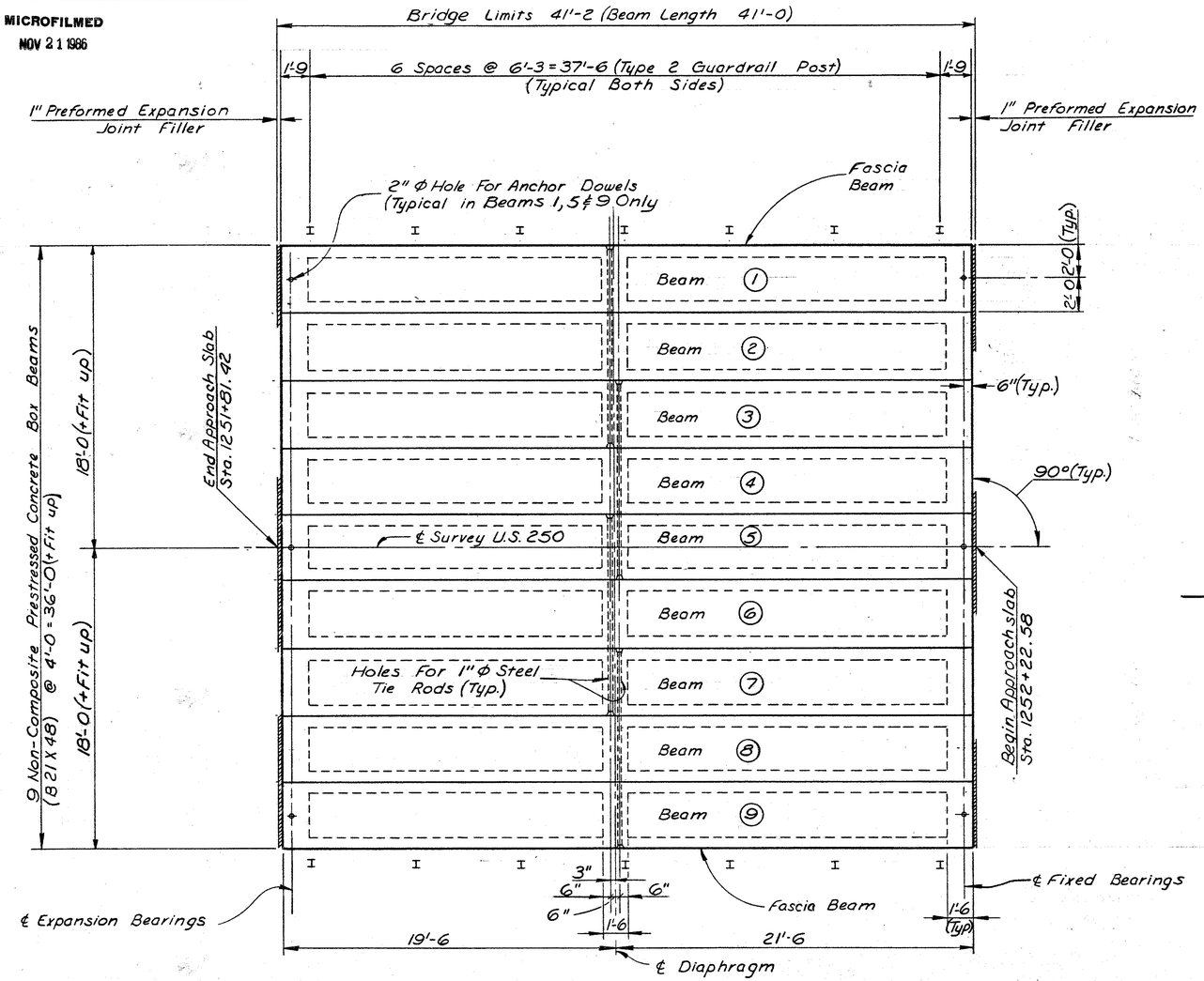
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

REAR AND FORWARD ABUTMENT DETAILS

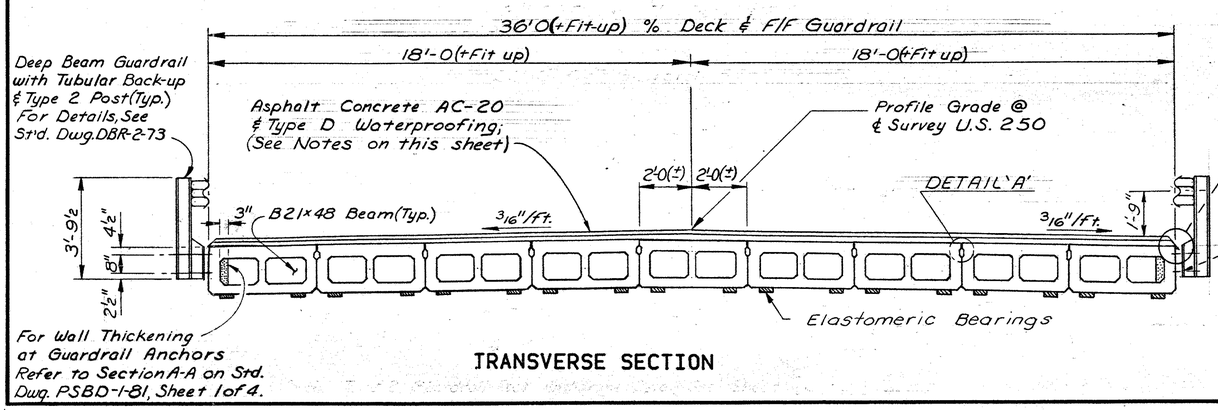
BRIDGE NO. TUS-250-23.72
U.S.250 OVER BRANCH OF LITTLE STILLWATER CREEK

TUSCARAWAS COUNTY
STA. 1251+81.42
STA. 1252+22.58

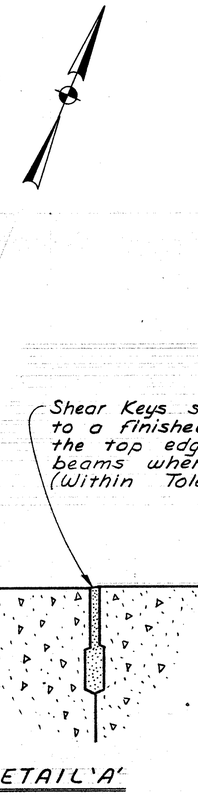
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		FDH	JMC	7/84	



DECK PLAN



TRANSVERSE SECTION



DETAIL 'A'

NOTE: Omit Keyway on outside of Fascia Beams.

For Typical Box Beam Detail, See Sheet 8/8

For Typical Section Through Abutment, See Section A-A on Sheet 6/8

SUPERSTRUCTURE NOTES

CALCULATED CAMBER AT TIME OF PAVING, INCLUDING ALLOWANCE FOR CAMBER GROWTH DUE TO CREEP, IS 1 5/16 INCHES.

CALCULATED DEFLECTION DUE TO WEIGHT OF SURFACE COURSE AND GUARDRAIL IS 1/16 INCHES.

CAMBER OF -3/8 INCH AT CENTER OF SPANS IS REQUIRED FOR SAG VERTICAL CURVE.

NET FINAL CAMBER OF BEAMS IS 1¼ INCH. THIS IS 15/8 INCHES IN EXCESS OF THE AMOUNT REQUIRED TO PLACE THE TOP OF THE BEAM PARALLEL TO PROFILE GRADE. THIS EXCESS AMOUNT SHALL BE COMPENSATED FOR BY THICKENING THE 403 LEVELING COURSE FROM 1¼ INCHES AT CENTER OF SPANS TO 2 7/8 INCHES AT THE ABUTMENTS.

ASPHALT CONCRETE SURFACE COURSE SHALL CONSIST OF A VARIABLE THICKNESS OF 403 AND A 1¼ INCH THICKNESS OF 404. THE 403 SHALL BE PLACED IN TWO OPERATIONS. THE FIRST COURSE SHALL BE OF 1¼ INCHES UNIFORM THICKNESS. THE SECOND COURSE SHALL BE FEATHERED TO PLACE THE SURFACE PARALLEL TO AND 1¼ INCHES BELOW FINAL PAVEMENT SURFACE ELEVATION.

REFER TO STANDARD DRAWING PSBD-1-81 FOR THE FOLLOWING:

DETAILS	NOTES
BEAM LIFTING INSERTS	TRANSVERSE TIE RODS
DETAILS AND REINFORCEMENT OF BEAM ENDS	GALVANIZING
ANCHOR DOWELS	ANCHOR DOWELS
END DETAILS OF TRANSVERSE TIE ROD ANCHORAGE	NON-SHRINKING MORTAR AND GROUT
TYPICAL PLANS OF DIAPHRAGMS AND TRANSVERSE TIE RODS	MORTARING OF SHEAR KEYS
NORMAL CROWN TREATMENT AT CENTERLINE ROADWAY	
BEAM DIMENSIONAL TOLERANCES	
TYPICAL BEAM B21X48	

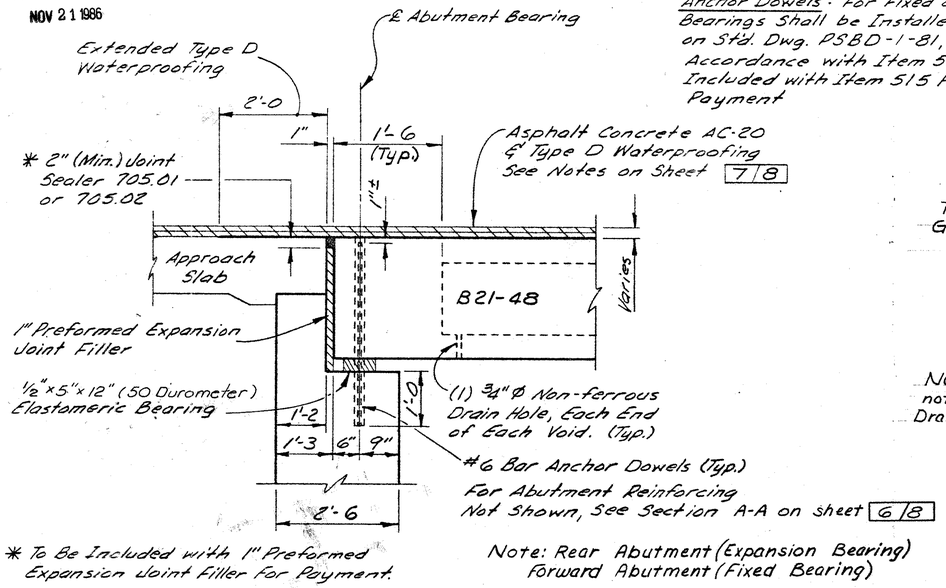
Sheet 7/8

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS

BRIDGE NO. TUS-250-2372
U.S.250 OVER BRANCH OF LITTLE STILLWATER CREEK
TUSCARAWAS COUNTY
STA. 1251+81.42
STA. 1252+22.58

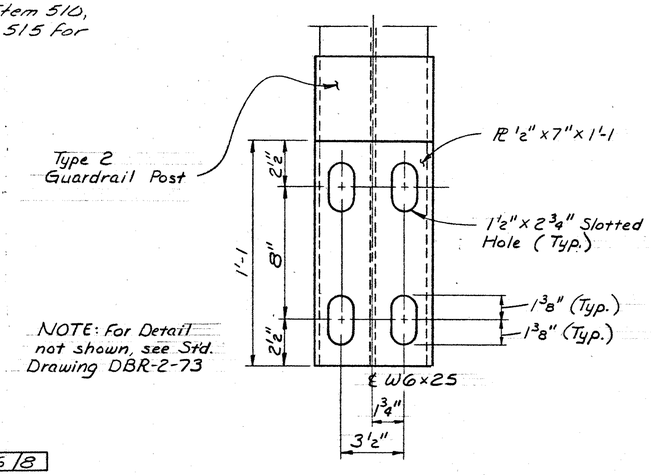
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		FDH	JMG	7/84	



Note: Rear Abutment (Expansion Bearing)
Forward Abutment (Fixed Bearing)

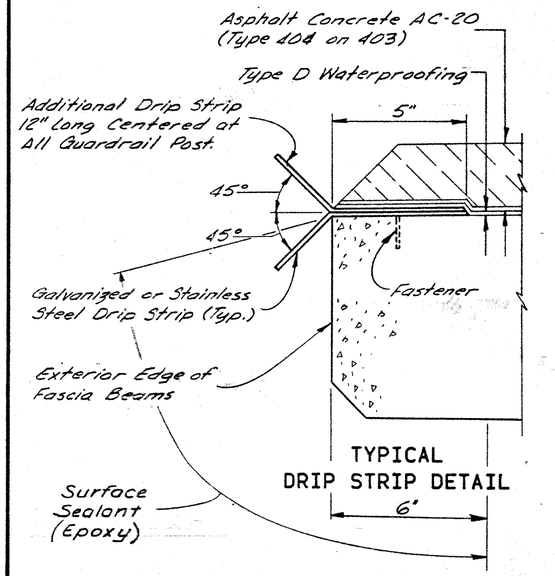
TYPICAL BEARING DETAIL
AT ABUTMENTS

Anchor Dowels: For Fixed or Expansion Bearings Shall be Installed as Shown on Std. Dwg. PSBD-1-81, and in Accordance with Item 510, Included with Item 515 for Payment



NOTE: For Detail not shown, see Std. Drawing DBR-2-73

TYPE 2 GUARDRAIL POST
ANCHORAGE PLATE DETAIL
(FOR VERTICAL ADJUSTMENT)

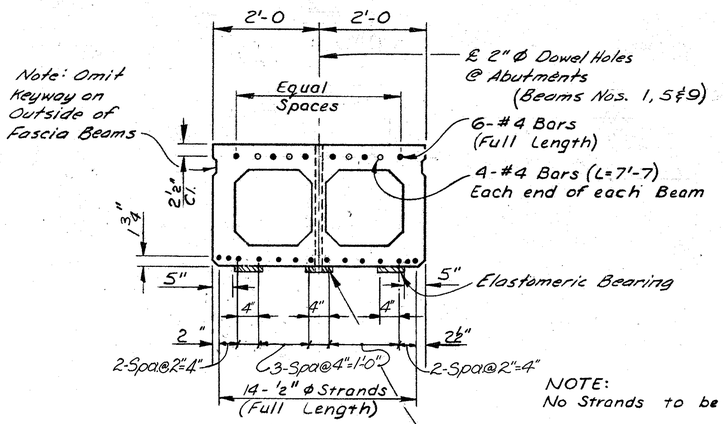


TYPICAL
DRIP STRIP DETAIL

DRIP STIRIP

PRIOR TO APPLYING 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 ¼" FLAT HEAD PINS AND WASHERS. (LENGTH X SHANK DIA. X HEAD DIA.) OR #10 GALVANIZED SCREWS AND EXPANSION ANCHORS, SUBJECT TO APPROVAL OF THE ENGINEER. THE STRIPS SHALL BE PLACED THE FULL LENGTH OF THE DECK, ENDING AT THE FACE OF THE APPROACH SLAB.

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" AND SHALL MEET THE REQUIREMENTS OF ASTM A568. GALVANIZING SHALL BE IN ACCORDANCE WITH ITEM 711.02. STAINLESS STEEL SHALL BE 20 GAGE ASTM A167, TYPE 304, MILL FINISH. PAYMENT SHALL BE AT THE CONTRACT PRICE BID FOR ITEM SPECIAL, SQ. FT., STEEL DRIP STRIP, WHICH SHALL INCLUDE ALL MATERIALS, LABOR, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THE ITEM.



TYPICAL BEAM DETAIL
(B 21-48)

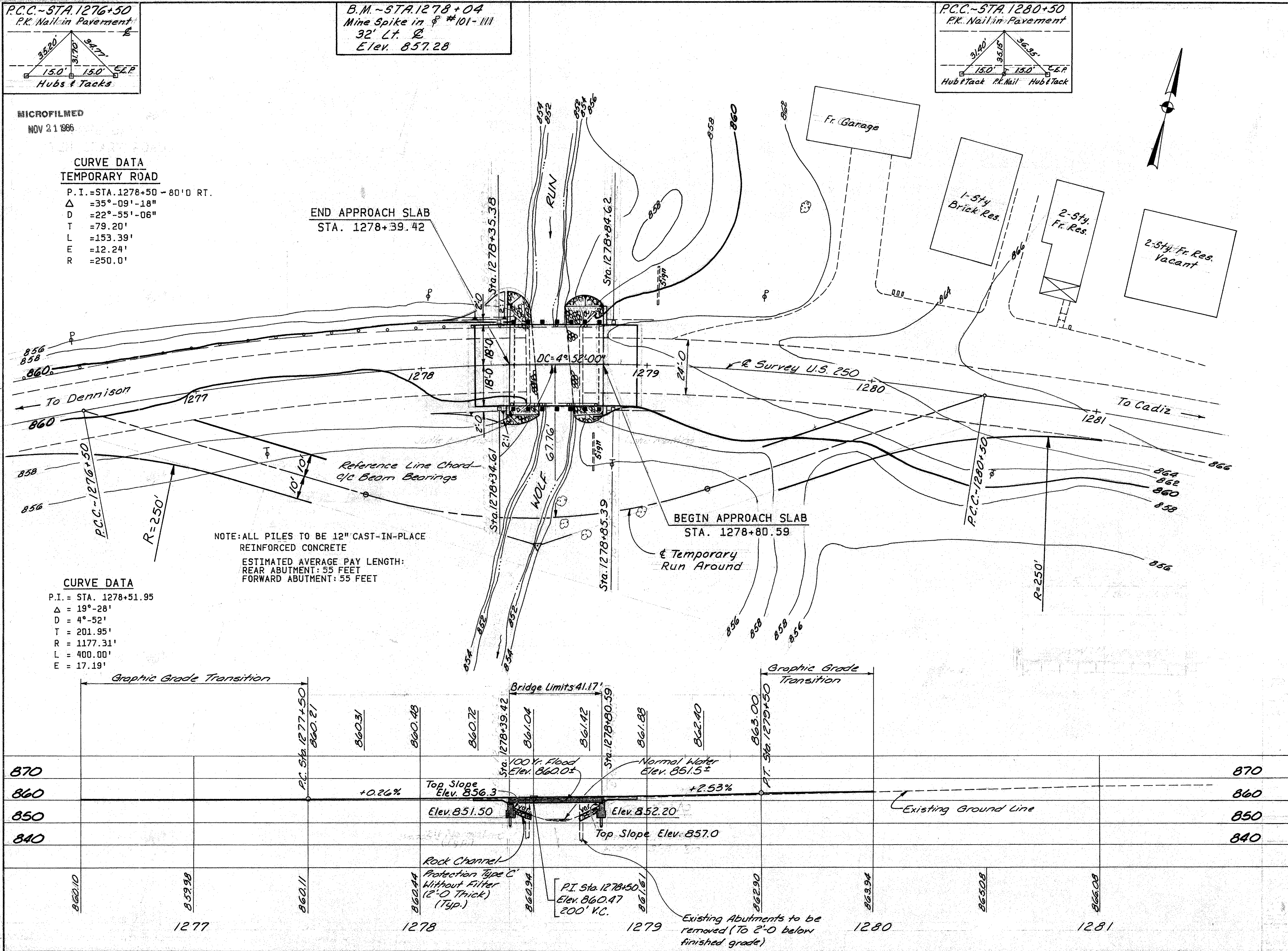
NOTE:
No Strands to be Debonded.

SHEET 8/8

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

MISCELLANEOUS DETAILS
BRIDGE NO. TUS-250-2372
U.S.250 OVER BRANCH OF LITTLE STILLWATER CREEK
TUSCARAWAS COUNTY
STA. 1251+81.42
STA. 1252+22.58

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		FDH	[illegible]	1/84	


P.C.C.~STA.1276+50
P.K. Nail in Pavement
35.20'
31.70'
34.77'
15.0'
15.0'
E.E.P.
Hubs & Tacks
B.M.~STA.1278+04
Mine Spike in ℘ #101-111
32' Lt. ℄
Elev. 857.28
P.C.C.~STA.1280+50
P.K. Nail in Pavement
31.40'
35.15'
36.35'
15.0'
15.0'
E.E.P.
Hub & Tack
P.K. Nail
Hub & Tack
MICROFILMED
NOV 21 1986
CURVE DATA
TEMPORARY ROAD
P.I.=STA.1278+50 - 80'0 RT.
Δ =35°-09'-18"
D =22°-55'-06"
T =79.20'
L =153.39'
E =12.24'
R =250.0'
END APPROACH SLAB
STA. 1278+39.42
Sta.1278+35.38
Sta.1278+84.62
RUN
Fr. Garage
1-Sty. Brick Res.
2-Sty. Fr. Res.
2-Sty. Fr. Res. Vacant
DC=4°52'00"
℄ Survey U.S. 250
To Dennison
To Cadiz
1277
1278
1279
1280
1281
24'-0
18'-0
Reference Line Chord–c/c Beam Bearings
10'
P.C.C.-1276+50
R=250'
WOLF
67.76'
Sta.1278+34.61
Sta.1278+85.39
BEGIN APPROACH SLAB
STA. 1278+80.59
℄ Temporary Run Around
P.C.C.-1280+50
R=250'
NOTE: ALL PILES TO BE 12" CAST-IN-PLACE REINFORCED CONCRETE
ESTIMATED AVERAGE PAY LENGTH:
REAR ABUTMENT: 55 FEET
FORWARD ABUTMENT: 55 FEET
CURVE DATA
P.I.= STA. 1278+51.95
Δ = 19°-28'
D = 4°-52'
T = 201.95'
R = 1177.31'
L = 400.00'
E = 17.19'
Graphic Grade Transition
Bridge Limits 41.17'
Graphic Grade Transition
P.C. Sta.1277+50 860.21
860.31
860.48
860.72
Sta.1278+39.42
861.04
861.42
Sta.1278+80.59
861.88
862.40
863.00 P.T. Sta.1279+50
100 Yr. Flood Elev. 860.0±
Normal Water Elev. 851.5±
Top Slope Elev. 856.3
+0.26%
+2.53%
Elev. 851.50
Elev. 852.20
Top Slope Elev. 857.0
Existing Ground Line
870
860
850
840
Rock Channel Protection Type 'C' Without Filter (2'-0 Thick) (Typ.)
P.I. Sta. 1278+50
Elev. 860.47
200' V.C.
Existing Abutments to be removed (To 2'-0 below finished grade)
860.10
859.98
860.11
860.44
860.94
861.61
862.90
863.94
865.08
866.08

TUS-250-24.21 | OHIO | FHWA REGION 5 | 20/30

0.87 MILE NORTHEAST OF DENNISON

DESIGN DESIGNATION

1983 ADT	4,950
2003 ADT	15,120

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

STREAM DATA

DRAINAGE AREA: 3.83 SQ. MI.
Q100 = 1521 CFS V100 = 9.0 FT/SEC.
STRUCTURE DOES NOT CLEAR 100 YR. FLOOD ELEVATION BY 2.2'(±)

EXISTING STRUCTURE DATA

SFN 7900783 (TO BE REMOVED) DATE BUILT 1930

TYPE: CONCRETE SLAB
SPAN: 22'-0 CLEAR
ROADWAY: 29.5' F/F OF GUARDRAIL
ABUTMENTS: CONCRETE (GRAVITY)
SKEW: NONE
ALIGNMENT: 4°-52'RT. CURVE (SUPERELEVATED)
SURFACE COURSE: 4" CONCRETE & 2" BITUMINOUS MACADUM
APPROACH SLABS: 10'-0 LONG (CONC.)
CONDITION: POOR

PROPOSED STRUCTURE

TYPE: SINGLE SPAN PRESTRESSED CONCRETE BOX BEAMS WITH REINFORCED CONCRETE SUBSTRUCTURE UNITS.
SPAN: 40.00' MEASURED ALONG REFERENCE LINE
ROADWAY: 36'-0 F/F OF GUARDRAIL
SKEW: 0° WITH REFERENCE LINE
SURFACE COURSE: 2½" ASPHALT CONCRETE
LOADING: HS20-44 AND THE ALTERNATE MILITARY LOADING
APPROACH SLABS: AS-1-81, 15' LONG
ALIGNMENT: CURVE 4°-52' RT. (STRUCTURE BUILT TANGENT)
SUPERELEVATION: 0.05333'/'

SHEET 1 / 9

W.E. QUICKSALL AND ASSOCIATES INC.
NEW PHILADELPHIA, OHIO

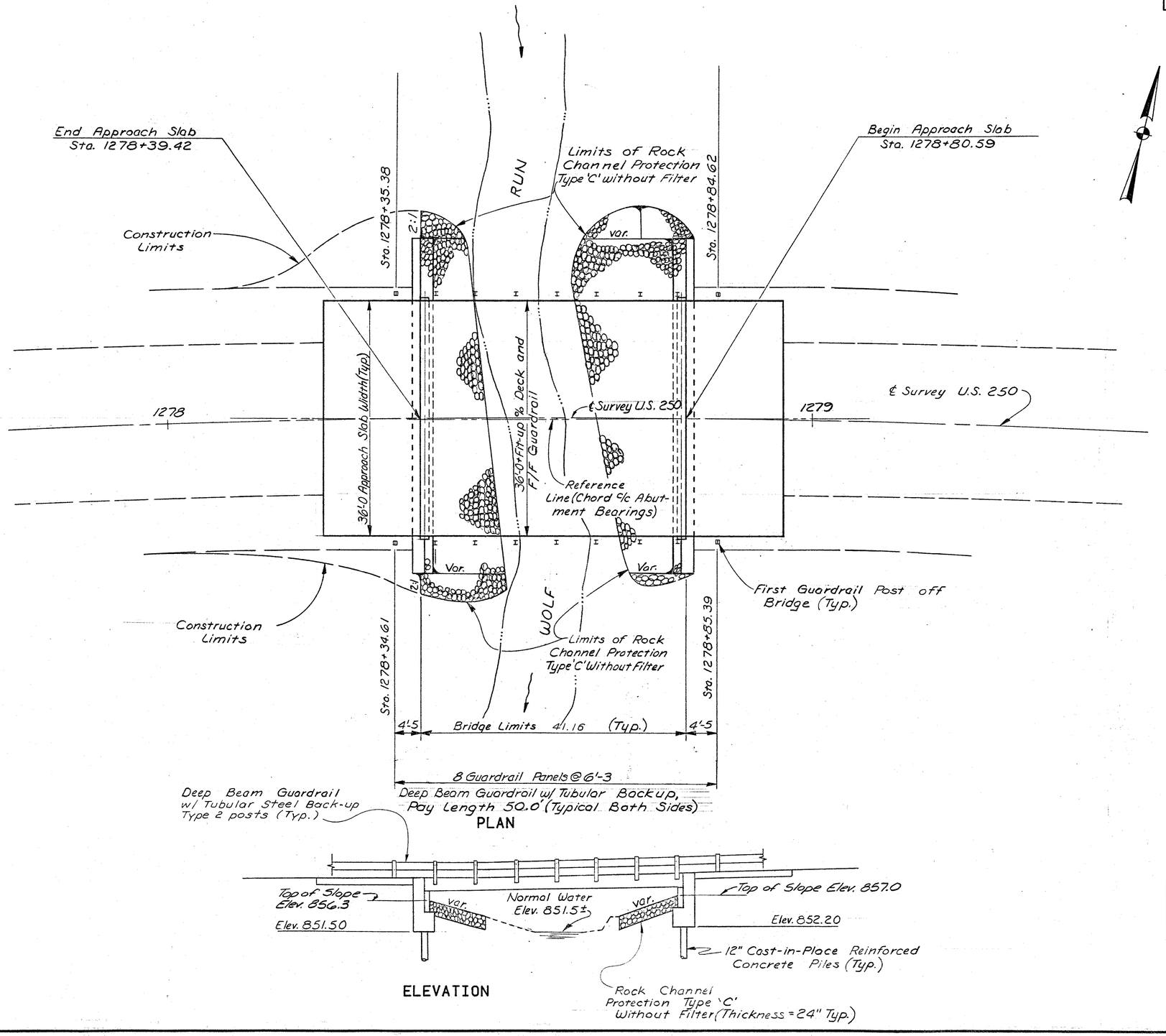
SFN 7900783

SITE PLAN

BRIDGE NO. TUS-250-2421
U.S. 250 OVER WOLF RUN

TUSCARAWAS COUNTY STA.1278+39.42 STA.1278+80.59

EXIST. TOPO		PROPOSED WORK			
SURVEY	DRAWN	DESIGN	DRAWN	CHECKED	REVIEWED
O.D.O.T.	O.D.O.T.	FDH	FDH	YMG	WDA 4/84



Sheet 2/9

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

GENERAL PLAN AND ELEVATION

BRIDGE NO. TUS-250-2421
U.S. 250 OVER WOLF RUN

TUSCARAWAS COUNTY

STA. 1278+39.42
STA. 1278+80.59

DESIGNED	DRAWN	TRACED	CHECKED	REVISED	DATE	SHEET
D.D.B.	D.D.B.		FDH			

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	ABUTS	PIERS	SUPER	GEN'L
202	LUMP	SUM	PORTIONS OF STRUCTURES REMOVED				LUMP
403	10	CU.YD.	ASPHALT CONCRETE (AC-20)			10	
404	6	CU.YD.	ASPHALT CONCRETE (AC-20)			6	
503	LUMP	SUM	COFFERDAMS, CRIBS AND SHEETING				LUMP
503	LUMP	SUM	UNCLASSIFIED EXCAVATION	LUMP			
502	LUMP	SUM	TEMPORARY STRUCTURE				LUMP
505	LUMP	SUM	PILE DRIVING EQUIPMENT MOBILIZATION				LUMP
507	770	LIN.FT.	12"CAST-IN-PLACE REINFORCED CONCRETE PILES	770			
509	6962	LBS.	REINFORCING STEEL, GRADE 60	6962			
511	41	CU.YD.	CLASS'C'CONCRETE, ABUTMENTS ABOVE FOOTINGS	41			
511	38	CU.YD.	CLASS'C'CONCRETE, FOOTINGS	38			
512	182	SQ.YD.	TYPE'D'WATERPROOFING			182	
515	9	EACH	PRESTRESSED CONCRETE BOX BEAMS (B21-48)			9	
516	36	EACH	1/2"X5"X12" ELASTOMERIC BEARING PADS (50 DUROMETER)	36			
516	6	SQ.FT.	1/8" PREFORMED BEARING PADS, 711.12			6	
516	134	SQ.FT.	1"PREFORMED EXPANSION JOINT FILLER	134			
517	100.00	LIN.FT.	RAILING(DEEP BEAM RAIL WITH TUBULAR BACK-UP INCLUDING TYPE 2 STEEL POST, BOLTS AND ACCESSORIES			100.00	
SPECIAL	65	SQ.FT.	STEEL DRIP STRIP			65	
518	22	CU.YD.	POROUS BACKFILL	22			
SPECIAL	21	SQ.YD.	SEALING OF CONCRETE SURFACES (SEE PROPOSAL NOTE)			21	

DESIGN NOTES

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 OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA:
DESIGN LOADING: HS20-44 AND THE ALTERNATE MILITARY LOADING

CONCRETE CLASS 'C': COMPRESSIVE STRENGTH 4000 P.S.I. (SUBSTRUCTURE)
REINFORCING STEEL: ASTM A615, A616, A617-GRADE 60 MINIMUM YIELD STRENGTH 60,000 P.S.I.
CONCRETE FOR PRESTRESSED BEAMS: UNIT STRESS 2,200 P.S.I.- COMPRESSION
UNIT STRESS 444 P.S.I.- TENSION
PRESTRESSING STRAND: ASTM A416
F'_s = 270,000 P.S.I.
INITIAL STRESS = 0.70 F'_s

DECK PROTECTION METHOD:
2-1/2" MIN. ASPHALT CONCRETE (AC-20) AND TYPE 'D' WATERPROOFING.

SHOP DRAWINGS
THE FABRICATOR'S SHOP DRAWINGS SHALL INCLUDE COMPLETE DETAILS OF THE REINFORCING IN THE BOX BEAMS.

REFERENCE SHALL BE MADE TO:
STANDARD DRAWINGS

AS-1-81 DATED 11-27-81
DBR-2-73 DATED 4-10-73
PSBD-1-81 DATED 9-18-81

REINFORCING STEEL SPLICES:
ALL REINFORCING STEEL SPLICES SHALL BE IN ACCORDANCE WITH ITEM 509.08. UNLESS SHOWN OTHERWISE, ALL SPLICES SHALL BE MADE BY OVERLAPPING THE ENDS OF THE BARS NOT LESS THAN SHOWN IN THE FOLLOWING TABLE.

BAR SIZE	LAP LENGTH
#5	1'-8
#8	3'-3

SPECIAL CARE AND APPROPRIATE MEASURES SHALL BE TAKEN TO PREVENT REMOVAL DEBRIS FROM FALLING INTO THE CREEK.

REMOVAL OF THE EXISTING STRUCTURE:
WHEN NO LONGER NEEDED TO MAINTAIN TRAFFIC THE EXISTING STRUCTURE SHALL BE REMOVED TO THE LIMITS SPECIFIED.

PORTIONS OF STRUCTURES TO BE REMOVED: THE FOLLOWING PORTIONS OF THE EXISTING STRUCTURE SHALL BE REMOVED IN SEQUENCE, TO THE LIMITS SHOWN ON THE PLAN:

1. COMPLETE SUPERSTRUCTURE, INCLUDING ASPHALT AND CONCRETE WEARING SURFACE, REINFORCED CONCRETE DECK, CURBS AND GUARDRAIL
2. EXISTING ABUTMENTS(TO THE LIMITS SHOWN ON THE PLAN).

PILES:
12 INCH PRECAST PRESTRESSED CONCRETE PILES MAY BE SUBSTITUTED FOR THE 12 INCH CAST-IN-PLACE REINFORCED CONCRETE PILES SHOWN ON THESE PLANS. DRAWINGS SHOWING DETAILS OF AND SPECIFICATIONS FOR PRESTRESSED CONCRETE PILES ARE AVAILABLE FROM THE DIRECTOR (BUREAU OF BRIDGES). IF THE PRESTRESSED PILE ALTERNATE IS CHOSEN, THE METHOD OF MEASUREMENT AND BASIS OF PAYMENT SHALL BE THE SAME AS FOR CAST-IN-PLACE REINFORCED CONCRETE PILES PER 507.

THE DESIGN LOAD FOR ABUTMENT PILES IS 40 TONS PER PILE.

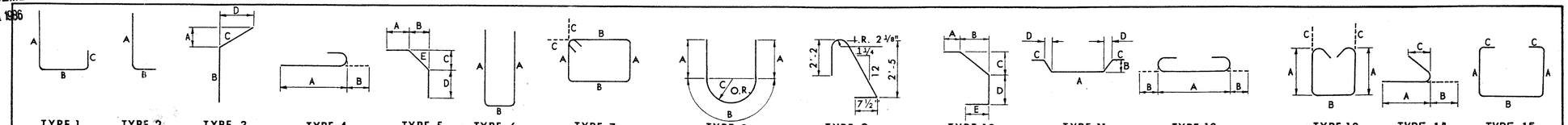
Sheet 3 / 9

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

DESIGN NOTES
AND ESTIMATED QUANTITIES
BRIDGE NO. TUS-250-2421
U.S. 250 OVER WOLF CREEK

TUSCARAWAS COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVISED	STA.
D.D.B.	D.D.B.				STA.

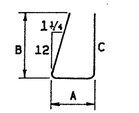


REAR ABUTMENT

MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT
A801	5	1'-5	1'-1¾	1'-1¾	1'-5	1'-7½		24	4'-3	272
A802	STR.							4	30'-0	320
A803	STR.							4	24'-11	266
A804	STR.							4	36'-2	386
A501	STR.							8	36'-2	302
A502	STR.							4	23'-4	97
A503	STR.							4	30'-0	125
A504	STR.							2	5'-7	12
A505	STR.							2	9'-8	20
A506	STR.							10	11'-5	119
A507	STR.							8	7'-5	62
A508	6	2'-4	10"					36	5'-3	197
A509	6	8'-10	10"					8	18'-3	152
A510	6	5'-3	2'-2					7	12'-5	91
A511	6	5'-9	2'-2					6	13'-5	84
A512	6	6'-3	2'-2					6	14'-5	90
A513	6	6'-8	2'-2					7	15'-3	111
A514	6	2'-2	2'-11					80	7'-0	584
A515	6	6'-11	10"					1	14'-5	15
A516	STR.							5	5'-5	28
A517	6	6'-11	1'-5					4	15'-0	63
A401	7	1'-9	2'-9½	4½"				14	9'-7	90

FORWARD ABUTMENT

MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT
B801	5	1'-5	1'-1¾	1'-1¾	1'-5	1'-7½		24	4'-3	272
B802	STR.							4	30'-0	320
B803	STR.							4	24'-11	266
B804	STR.							4	36'-2	386
B501	STR.							8	36'-2	302
B502	STR.							4	23'-4	97
B503	STR.							4	30'-0	125
B504	STR.							2	9'-9	20
B505	STR.							2	5'-7	12
B506	STR.							8	7'-5	62
B507	STR.							10	11'-5	119
B508	6	2'-4	10"					36	5'-3	197
B509	6	6'-10	10"					1	14'-3	15
B510	6	6'-7	2'-2					7	15'-1	110
B511	6	6'-1	2'-2					6	14'-1	88
B512	6	5'-7	2'-2					6	13'-1	82
B513	6	5'-1	2'-2					7	12'-1	88
B514	6	2'-2	2'-11					80	7'-0	584
B515	6	8'-9	10"					8	18'-1	151
B516	STR.							5	5'-5	28
B517	6	6'-10	1'-5					4	14'-10	62
B401	7	1'-9	2'-9½	4½"				14	9'-7	90



NOTES

REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

ALL DIMENSIONS ARE OUT-TO-OUT.

STR. IN THE "TYPE" COLUMN INDICATES STRAIGHT BARS.

Sheet 4 / 9

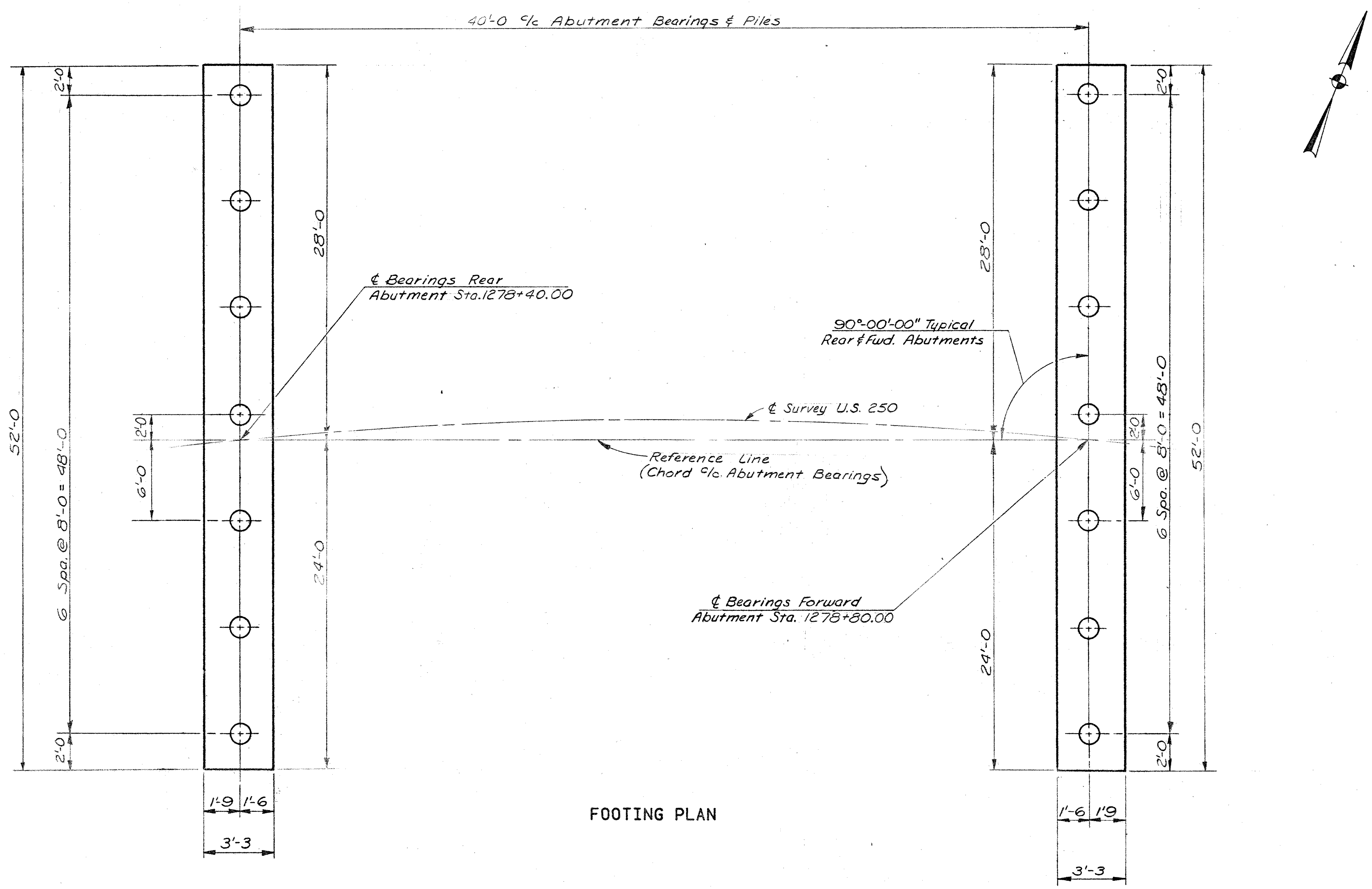
W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

REINFORCING BAR SCHEDULE

BRIDGE NO. TUS-250-2421
U.S. 250 OVER WOLF RUN

TUSCARAWAS COUNTY
STA. 1278+39.42
STA. 1278+80.59

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		FDH	JMS	7-96	



FOOTING PLAN

NOTE: All Piles are 12" Cast-in-Place Reinforced Concrete.

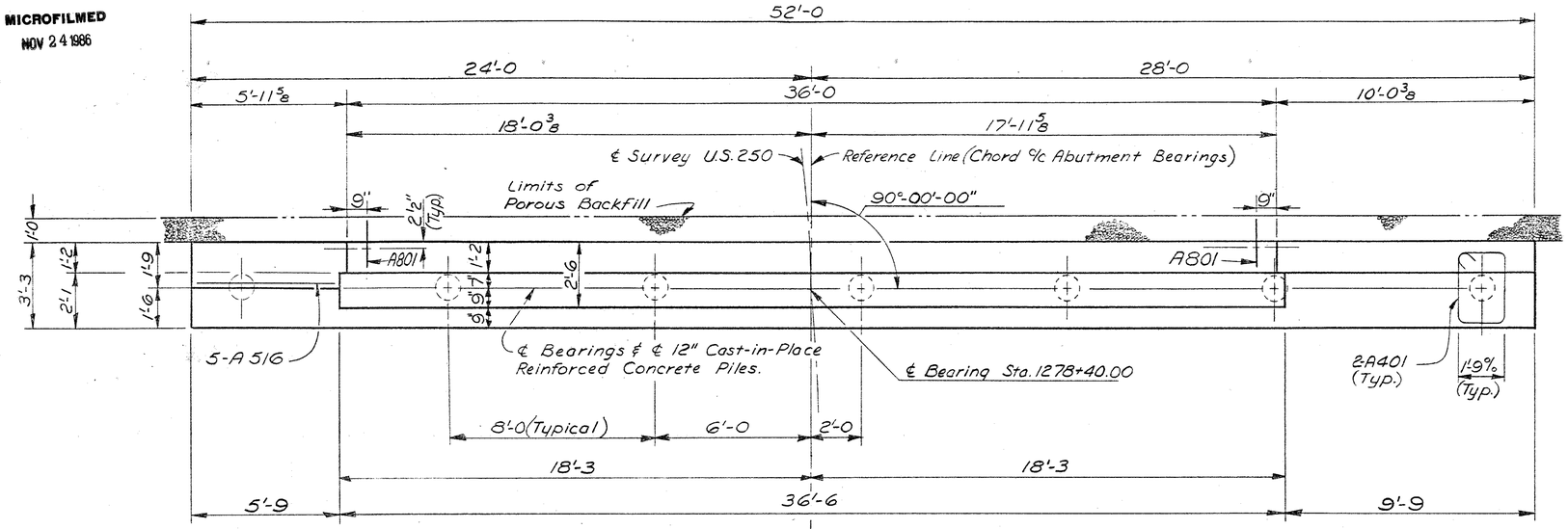
Sheet 5/9

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA OHIO

FOOTING PLAN
BRIDGE NO. TUS 250

TUSCARAWAS

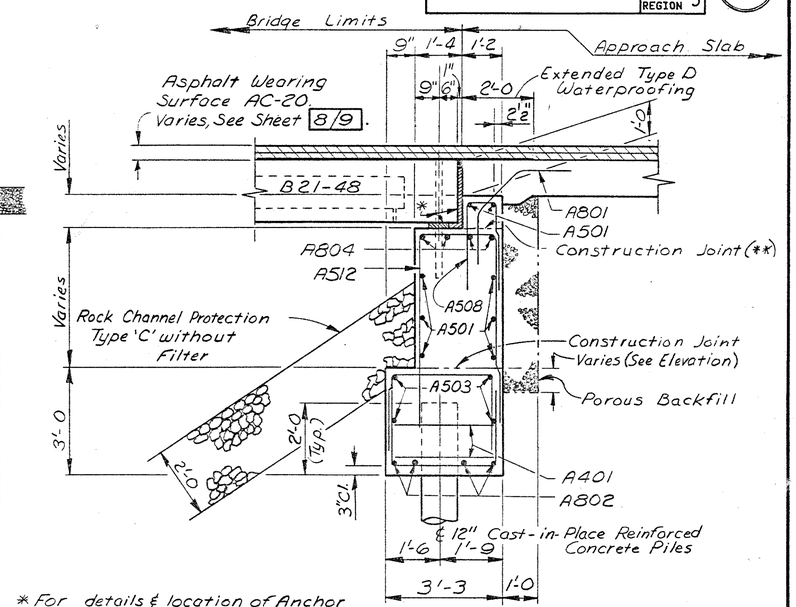
DESIGNED	DRAWN
D.D.B.	D.D.B.



PLAN

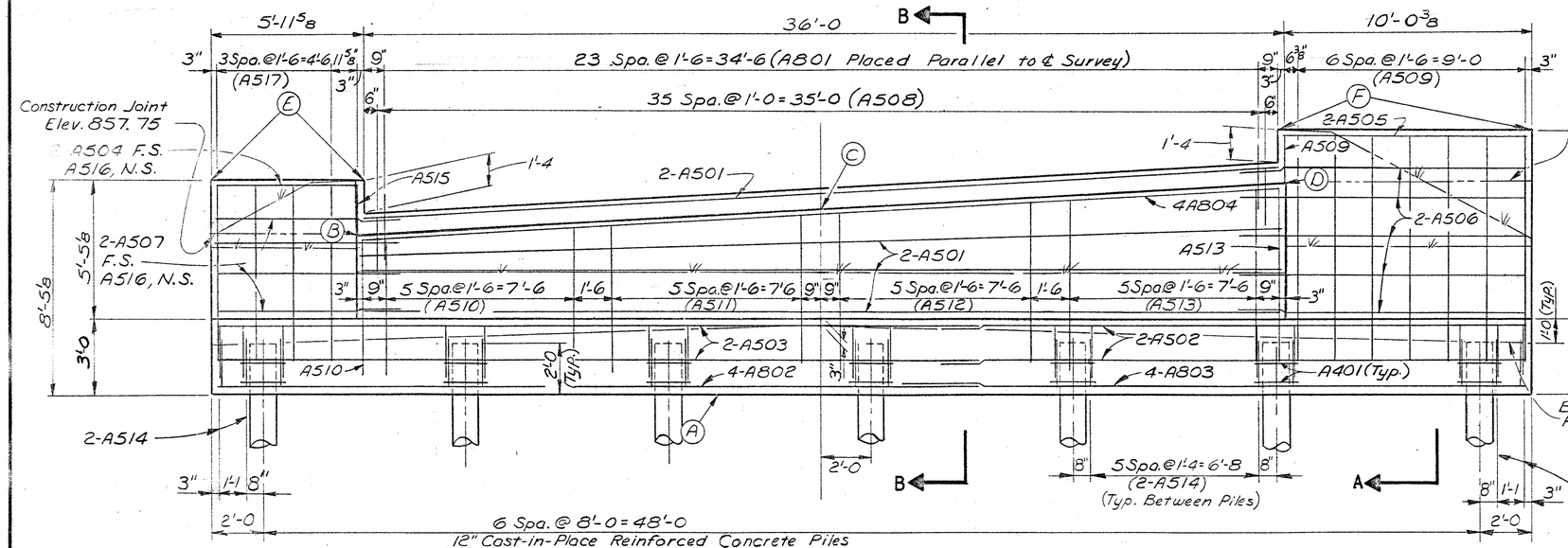
℄ Survey U.S. 250

BRIDGE SEAT REINFORCING: Reinforcing steel in the vicinity of the bridge seat Shall be accurately placed to avoid interference with the drilling of anchor bar holes.

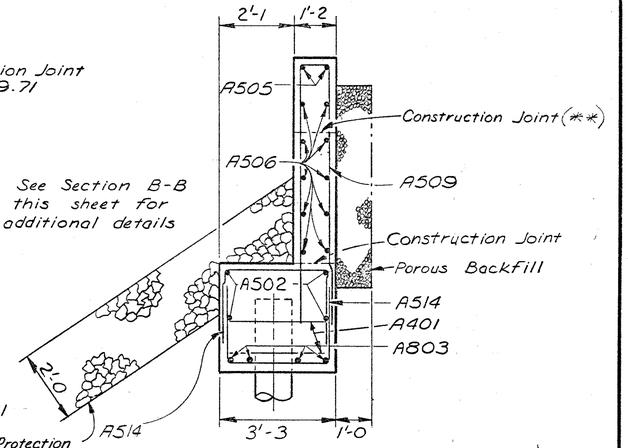


SECTION B-B

* For details & location of Anchor Dowels, Bearings & Preformed Expansion Joint Filler, see plan sheet 8/9 and details sheet 9/9.



ELEVATION



SECTION A-A

ELEVATIONS						
LOCATION	A	B	C	D	E	F
REAR ABUTMENT	851.50	857.82	858.83	859.78	859.93	861.86

(**) NOTE: Concrete above the beam seat shall be poured after the prestressed beams are set in place.

POROUS BACKFILL: Shall extend upward to the plane of the subgrade and laterally to the surface of the embankment slopes.

Sheet 6/9

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

REAR ABUTMENT DETAILS

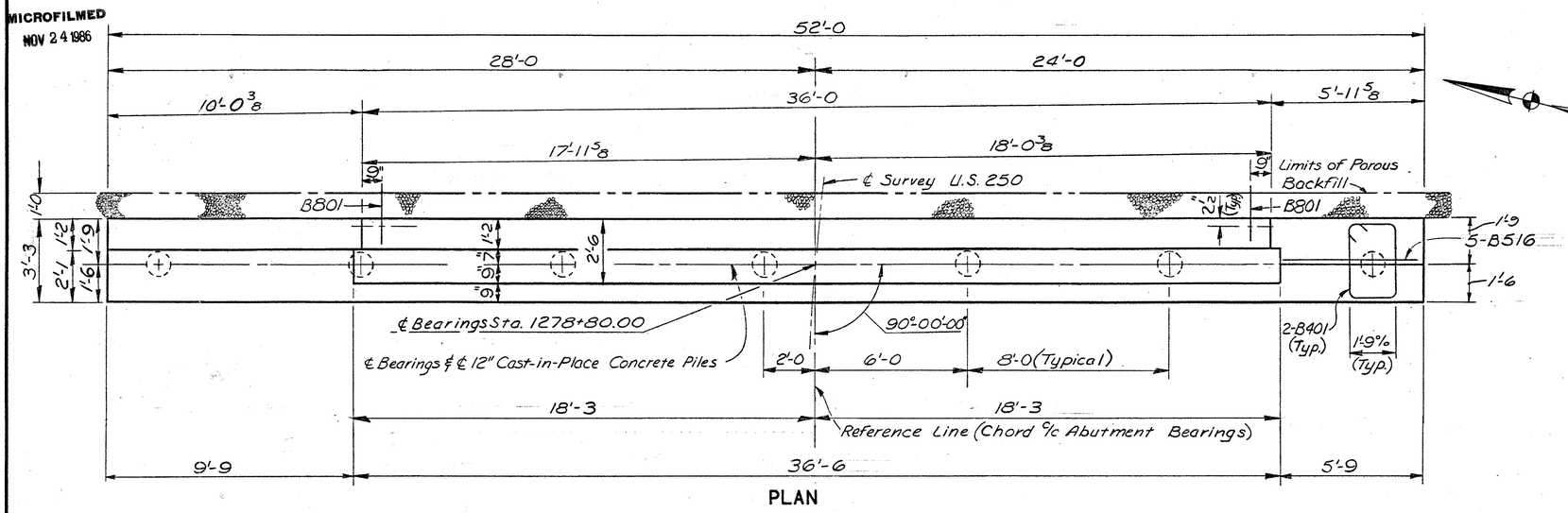
BRIDGE NO. TUS-250-2421
U.S.250 OVER WOLF RUN

TUSCARAWAS COUNTY
STA. 1278+39.42
STA. 1278+80.59

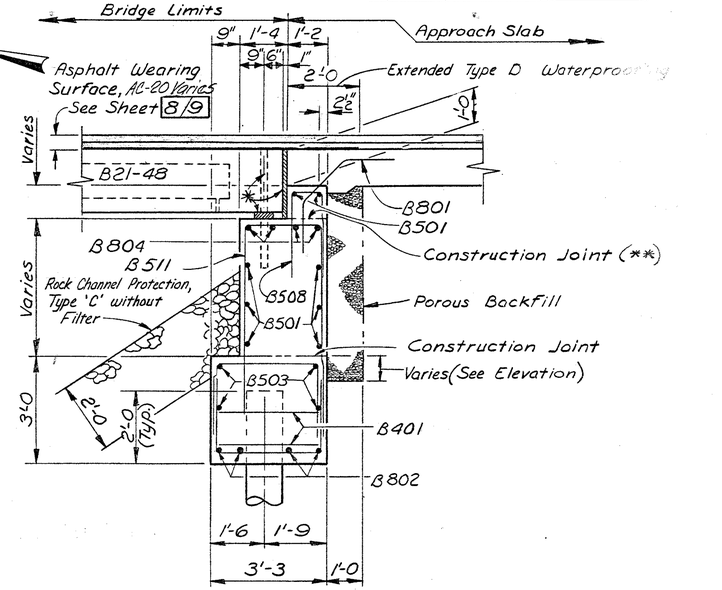
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		FDH	JMG	7/84	

MICROFILMED
NOV 24 1986

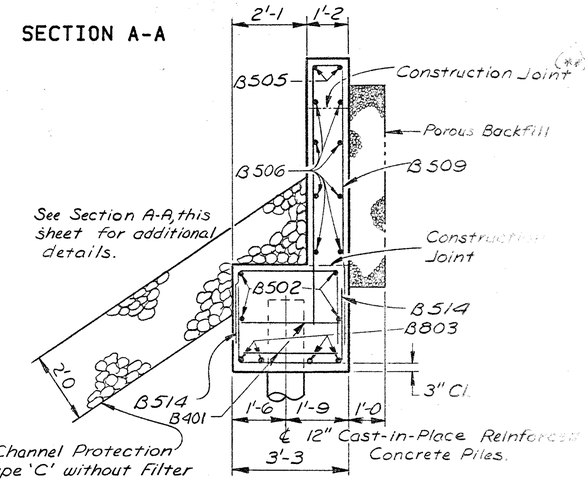
TUS-250-24.21	OHIO	26 / 30
	FHWA REGION 5	



PLAN

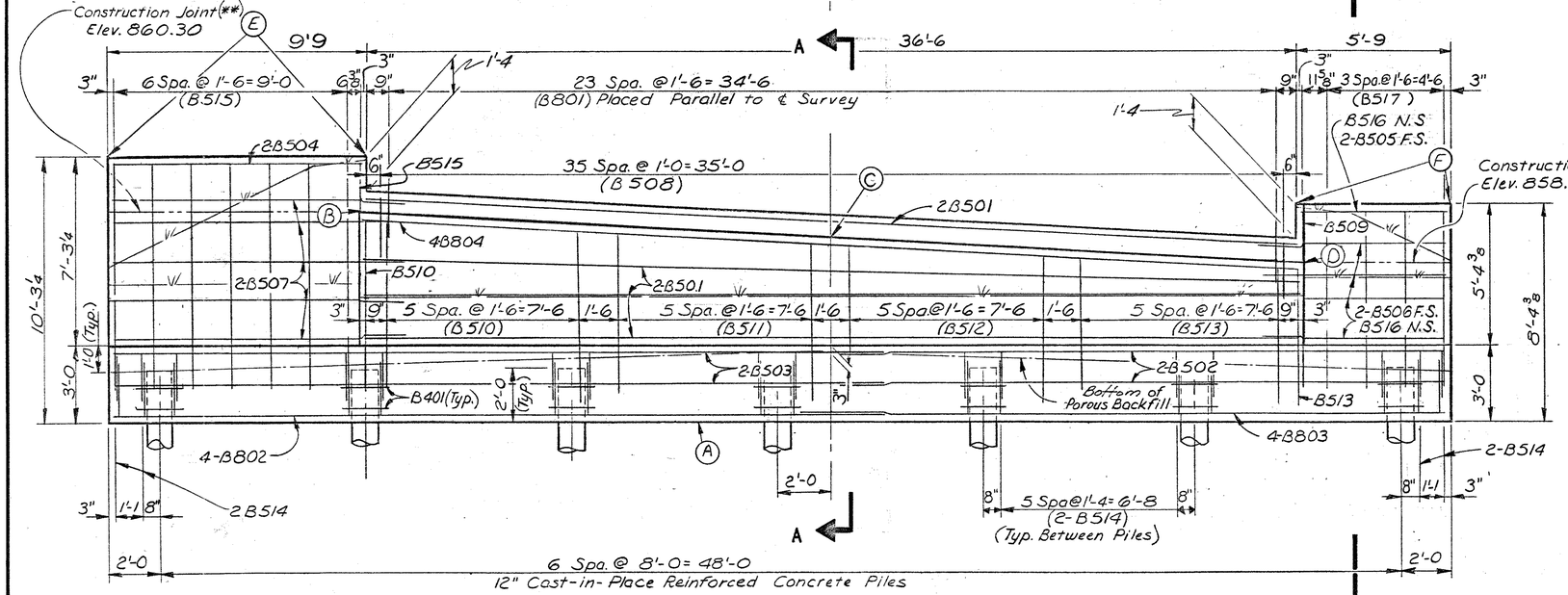


SECTION A-A



SECTION B-B

* For detail & location of Anchor Dowels, Bearings & 1" Preformed Expansion Joint Filler, see plan sheet 8/9 and details sheet 9/9.



ELEVATION

ELEVATIONS						
LOCATION	A	B	C	D	E	F
FORWARD ABUTMENT	852.20	860.37	859.40	858.43	862.47	860.56

(**) NOTE:
Concrete above the beam seat shall be poured after the prestressed beams are set in place.

For Porous Backfill Note, see sheet 6/9
For Bridge Seat Reinforcing Note, see sheet 6/9

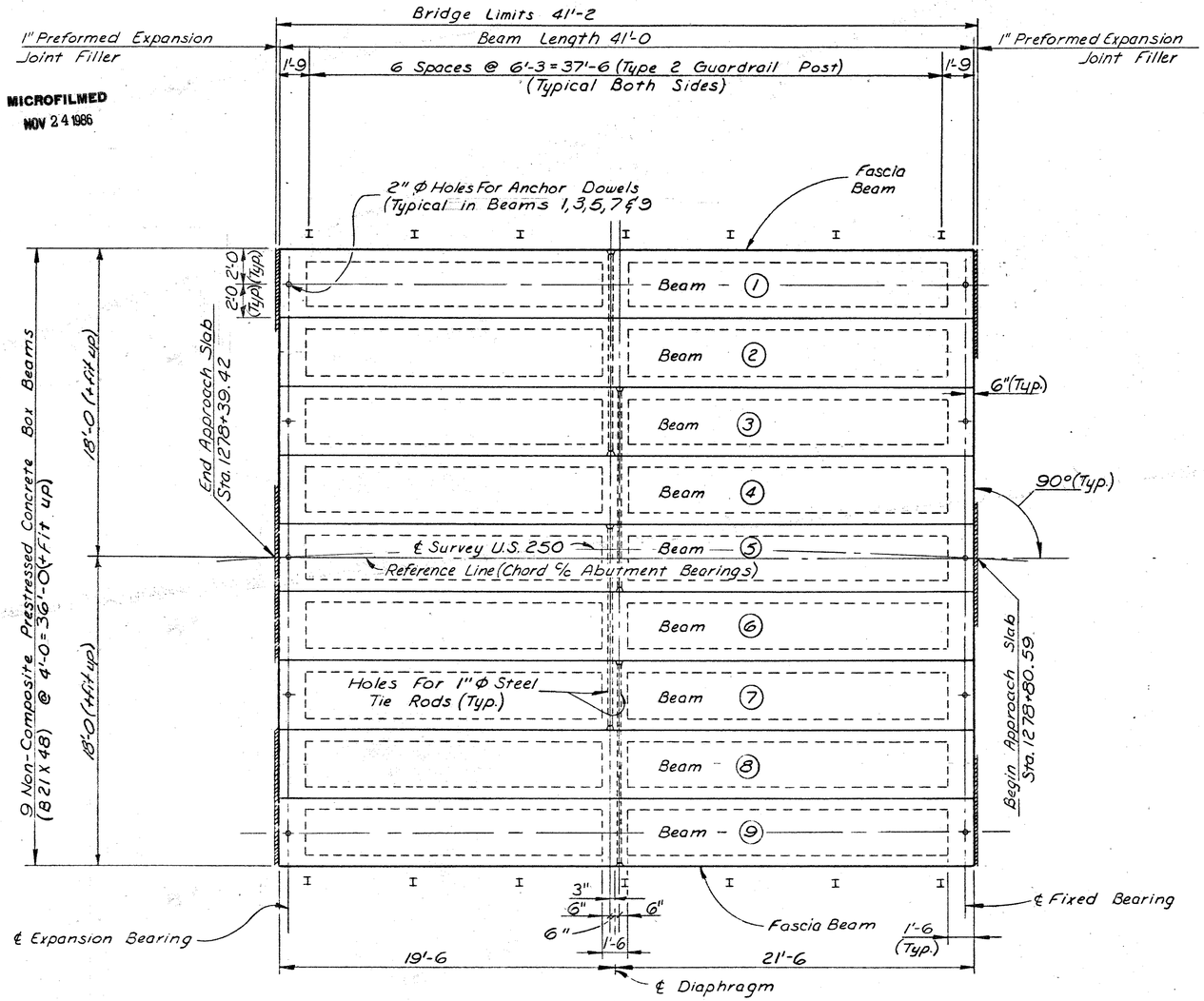
Sheet

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

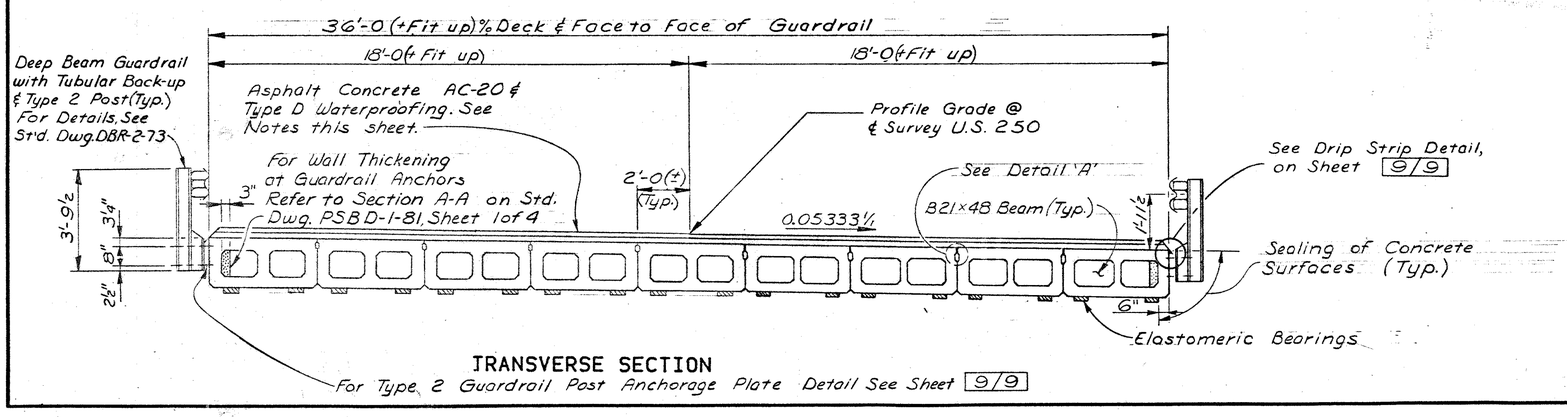
FORWARD ABUTMENT DETAILS
BRIDGE NO. TUS-250-
U.S.250 OVER WOLF
STA
TUSCARAWAS COUNTY STA. 12/8

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
D.D.B.	D.D.B.		FDH	JMG	7/84

W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

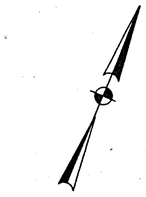


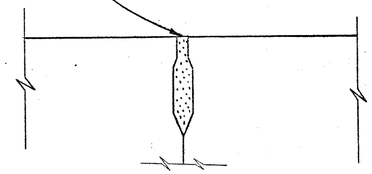
DECK PLAN



TRANSVERSE SECTION

For Type 2 Guardrail Post Anchorage Plate Detail See Sheet 9/9





DETAIL 'A'

SUPERSTRUCTURE NOTES

CALCULATED CAMBER AT TIME OF PAVING, INCLUDING ALLOWANCE FOR CAMBER GROWTH DUE TO CREEP, IS 1 5/16 INCHES.

CALCULATED DEFLECTION DUE TO WEIGHT OF SURFACE COURSE AND GUARDRAIL IS 1/16 INCHES.

CAMBER OF -1/4 INCH AT CENTER OF SPANS IS REQUIRED FOR CREST VERTICAL CURVE.

NET FINAL CAMBER OF BEAMS IS 1 1/4 INCH. THIS IS 1 1/2 INCHES IN EXCESS OF THE AMOUNT REQUIRED TO PLACE THE TOP OF THE BEAM PARALLEL TO PROFILE GRADE. THIS EXCESS AMOUNT SHALL BE COMPENSATED FOR BY THICKENING THE 403 LEVELING COURSE FROM 1 1/4 INCHES AT CENTER OF SPANS TO 2 3/4 INCHES AT THE ABUTMENTS.

ASPHALT CONCRETE SURFACE COURSE SHALL CONSIST OF A VARIABLE THICKNESS OF 403 AND A 1 1/4 INCH THICKNESS OF 404. THE 403 SHALL BE PLACED IN TWO OPERATIONS. THE FIRST COURSE SHALL BE OF 1 1/4 INCHES UNIFORM THICKNESS. THE SECOND COURSE SHALL BE FEATHERED TO PLACE THE SURFACE PARALLEL TO AND 1 1/4 INCHES BELOW FINAL PAVEMENT SURFACE ELEVATION.

REFER TO STANDARD DRAWING PSBD-1-81 FOR THE FOLLOWING:

DETAILS	NOTES
BEAM LIFTING INSERTS	TRANSVERSE TIE RODS
DETAILS AND REINFORCEMENT OF BEAM ENDS	GALVANIZING
ANCHOR DOWELS	ANCHOR DOWELS
END DETAILS OF TRANSVERSE TIE ROD ANCHORAGE	NON-SHRINKING MORTAR AND GROUT
TYPICAL PLANS OF DIAPHRAGMS AND TRANSVERSE TIE RODS	MORTARING OF SHEAR KEYS
BEAM DIMENSIONAL TOLERANCES	
TYPICAL BEAM B21X48	

For Typical Box Beam Detail, See Sheet 9/9

For Typical Section Through Abutment, See Section A-A on Sheet 7/9

Sheet 8/9

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

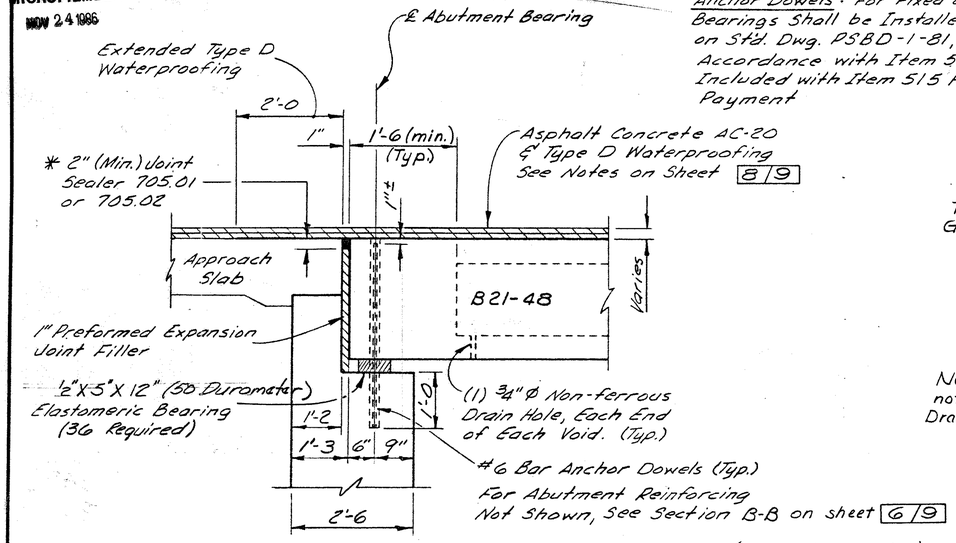
SUPERSTRUCTURE DETAILS

BRIDGE NO. TUS-250-2421
U.S.250 OVER WOLF RUN

TUSCARAWAS COUNTY

STA. 1278+39.42
STA. 1278+80.59

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		FDH	JMG	7/84	

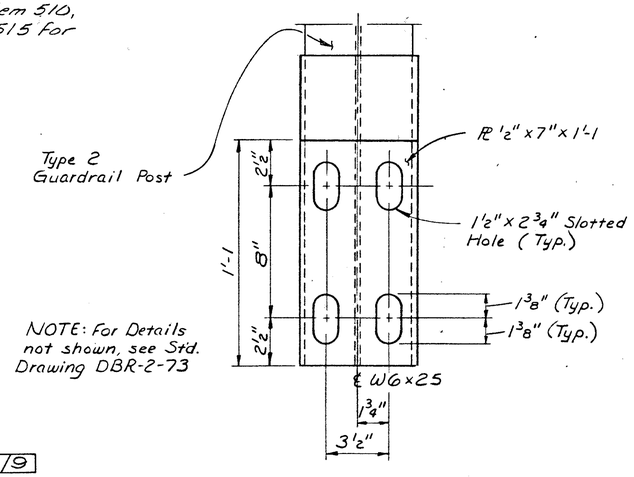


* To Be Included with 1" Preformed Expansion Joint Filler For Payment.

Note: Rear Abutment (Expansion Bearing)
Forward Abutment (Fixed Bearing)

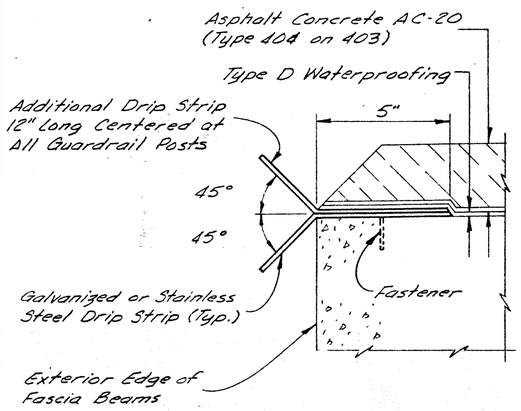
TYPICAL BEARING DETAIL AT ABUTMENTS

Anchor Dowels: For Fixed or Expansion Bearings Shall be Installed as Shown on Std. Dwg. PSBD-1-81, and in Accordance with Item 510, Included with Item 515 for Payment



NOTE: For Details not shown, see Std. Drawing DBR-2-73

TYPE 2 GUARDRAIL POST ANCHORAGE PLATE DETAIL (FOR VERTICAL ADJUSTMENT)

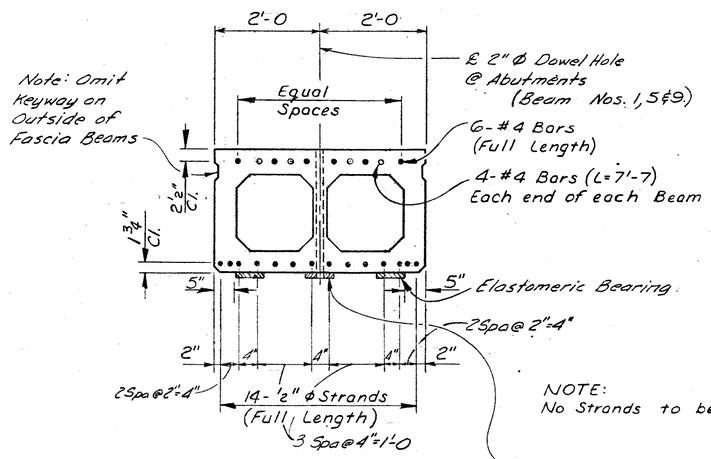


TYPICAL DRIP STRIP DETAIL

DRIP STIRIP

PRIOR TO APPLYING 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 ¼" FLAT HEAD PINS AND WASHERS. (LENGTH X SHANK DIA. X HEAD DIA.) OR #10 GALVANIZED SCREWS AND EXPANSION ANCHORS, SUBJECT TO APPROVAL OF THE ENGINEER. THE STRIPS SHALL BE PLACED THE FULL LENGTH OF THE DECK, ENDING AT THE FACE OF THE APPROACH SLAB.

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" AND SHALL MEET THE REQUIREMENTS OF ASTM A568. GALVANIZING SHALL BE IN ACCORDANCE WITH ITEM 711.02. STAINLESS STEEL SHALL BE 20 GAGE ASTM A167, TYPE 304, MILL FINISH. PAYMENT SHALL BE AT THE CONTRACT PRICE BID FOR ITEM SPECIAL, SQ. FT., STEEL DRIP STRIP, WHICH SHALL INCLUDE ALL MATERIALS, LABOR, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THE ITEM.



TYPICAL BEAM DETAIL (B 21-48)

NOTE:
No Strands to be Debonded.

Provide 6"x6" Preformed Expansion Joint Filler same thickness as Elastomeric Bearing. Filler shall be included with box beam for payment. Drill 2" ϕ Hole in Filler, for anchor dowels.

SHEET 9/9

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

MISCELLANEOUS DETAILS

BRIDGE NO. TUS-250-2421
U.S. 250 OVER WOLF RUN

TUSCARAWAS COUNTY

STA. 1278+39.42
STA. 1278+80.59

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		FDH	JMG	7/84	

TUSCARAWAS COUNTY
UNION TOWNSHIP
T14N R7W SEC. 31

Calculated By	Checked By
JWH 4-5-84	[illegible] 4-31-85

FHWA REGION	STATE	STATE PROJECT NUMBER	
5	OHIO	11612 (0)	

29/30

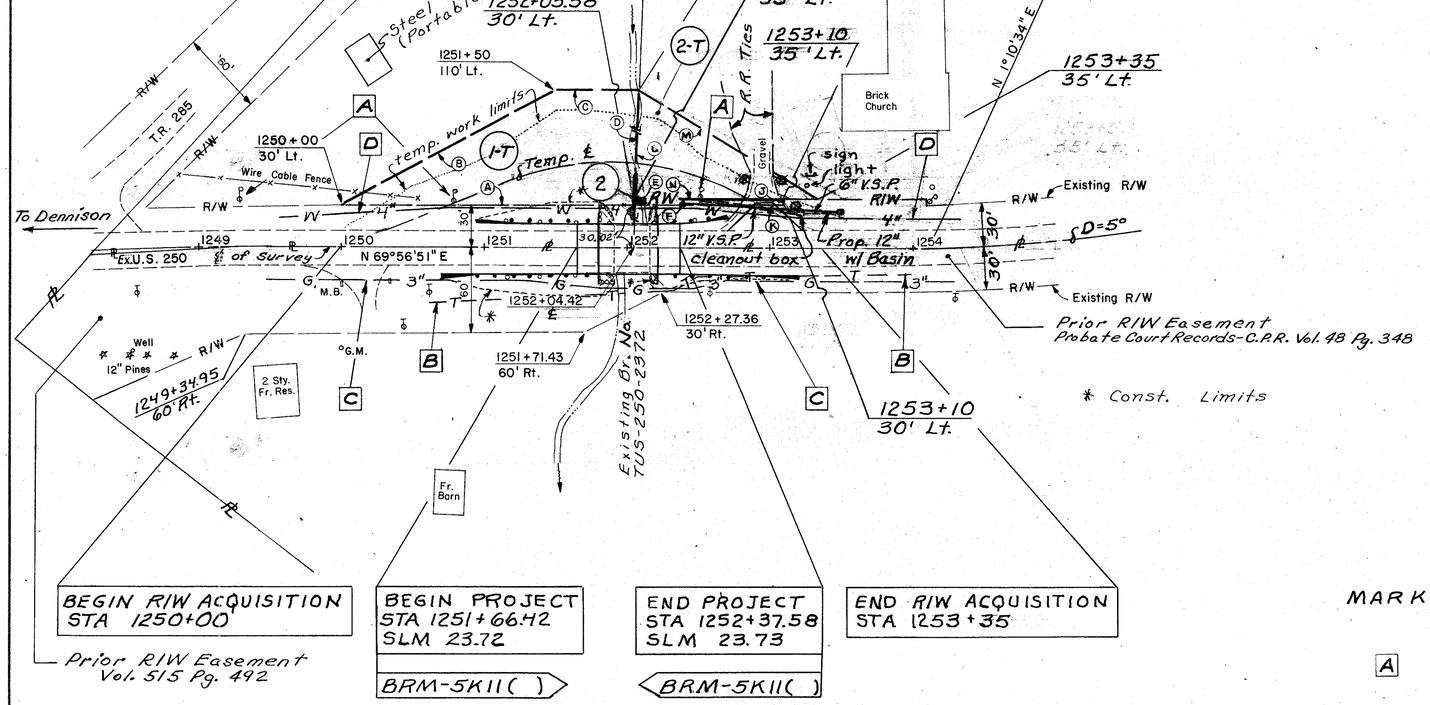
TUS-250-(23.72)(24.21)

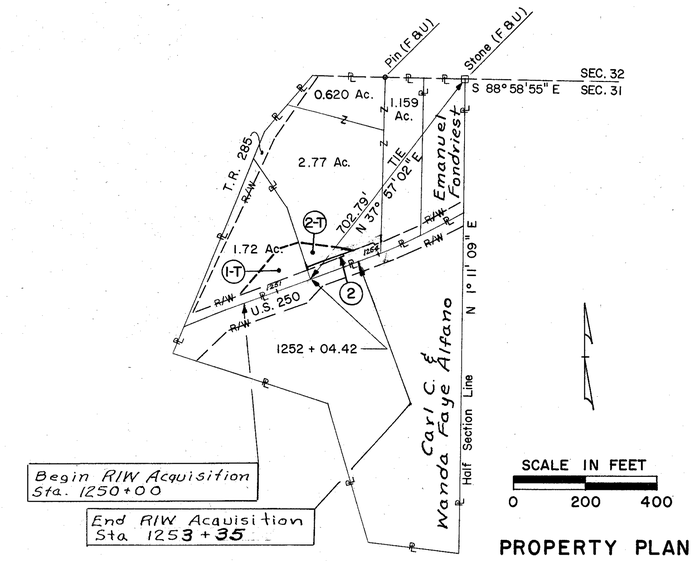
1/2

R/W PLAN

TUS-250-23.72

State Project No. 11612(0)





PROPERTY PLAN

Begin R/W Acquisition Sta. 1250+00

End R/W Acquisition Sta 1253+35

PARCEL 1-T

Line	Bearing	Distance
A	S 69° 56' 51" W	205.58'
B	N 41° 52' 30" E	170.00'
C	N 69° 56' 51" E	58.68'
D	S 17° 50' 15" E	80.06'

PARCEL 2

Line	Bearing	Distance
E	N 17° 50' 15" W	5.00'
F	N 69° 56' 51" E	104.22'
J	S 20° 03' 09" E	5.00'
K	S 69° 56' 51" W	104.42'

PARCEL 2-T

Line	Bearing	Distance
L	N 17° 50' 15" W	75.06'
M	S 79° 21' 14" E	146.91'
N	S 69° 56' 51" W	129.22'

MARK — UTILITY OWNERS

A — Ohio Power Co.
301 Cleveland Ave. SW
P.O. Box 400
Canton, Ohio 44701
Phone 216/438-7040

B — The Ohio Bell Telephone Co.
53055 High Ridge Road
Bridgeport, Ohio 43912
Phone 614/695-6138

C — East Ohio Gas Co.
4725 Southway St. S.W.
Canton, Ohio 44706
Phone 216/478-3140

D — Twin City Water Dept.
314 Grant St.
Dennison, Ohio 44621
Phone 614/922-1460

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

SUMMARY OF ADDITIONAL RIGHT OF WAY

All Areas In Acres Unless Otherwise Noted

NOTE: Record Area After Outsales Minus Total P.R.O. Minus Net Take Equals Net Residue.

REVISION	BY	DATE
Rev. Par. 2 & 2-T and Rev. Topo.	JWH	2-19-85
COMPLETED		2-6-85

PARCEL	OWNER	SHEET 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-T	Tony R. Besozzi and Pauline M. Besozzi	1	458	881	1.72	0.444	0.243	0	0.243		1.276	—	State	To Construct, Maintain and Remove Temporary Road		
2	International Church of the Foursquare Gospel	1	467	552	2.77	0.279	0.012	0	0.012		2.479	—				
2-T	do	1	do	do			0.111	0	0.111					To Construct, Maintain and Remove Temporary Road		
	do		504	627	1.159	0.083	–	–	–		1.076	—		Tract Not Involved		
	do		504	627	0.620	0.069	–	–	–		0.551	—		Tract Not Involved		

TUSCARAWAS COUNTY
UNION TOWNSHIP
T14N R7W SEC. 32

Calculated By	Checked By
JWH 6-1-84	GBL 1-31-85

FHWA REGION	STATE	STATE PROJECT NUMBER	
5	OHIO	11614 (0)	

30/30

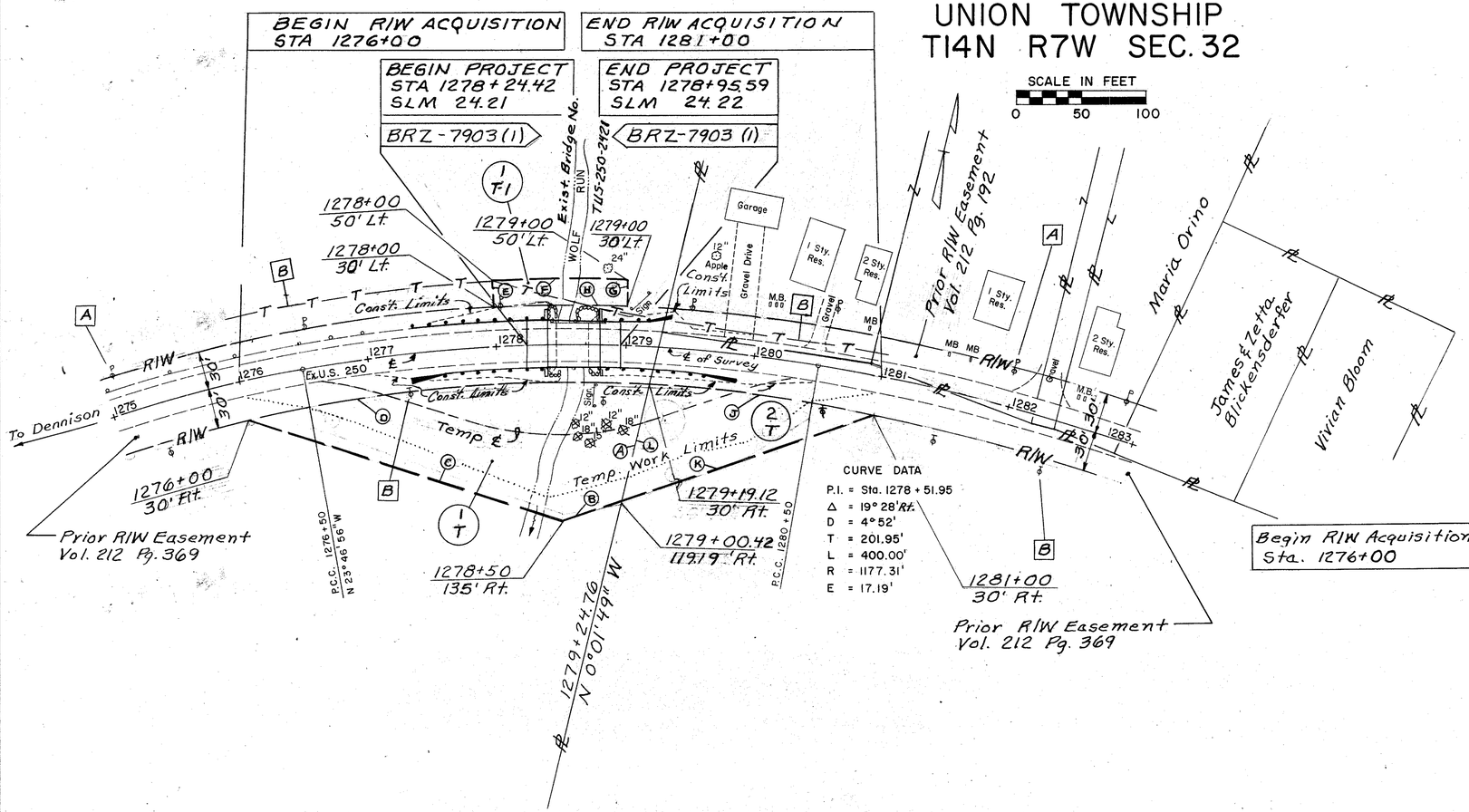
TUS-250-(23.72)(24.21)

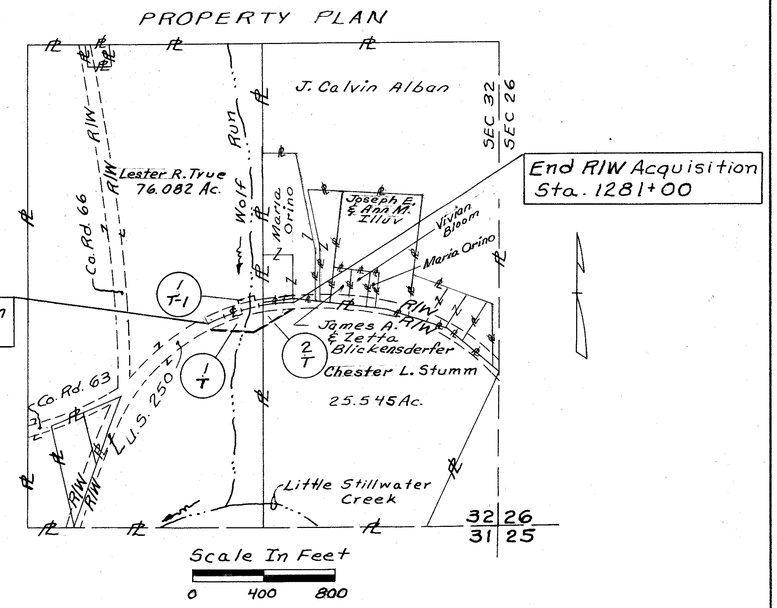
2/2

R/W PLAN

TUS-250-24.21

State Project No. 11614(0)





PARCEL 1-T

Line	Bearing	Distance
A	S 0°01'49" E	90.89'
B	S 57°48'33" W	47.67'
C	N 85°54'25" W	254.45'
D	N 71°32'59" E R=1147.31'	310.03' (chord) 310.99' (arc)

PARCEL 1-T-1

Line	Bearing	Distance
E	N 16°28'56" W	20.00'
F	N 75°57'04" E R=1227.31'	104.22' (chord) 104.25' (arc)
G	S 11°36'56" E	20.00'
H	S 75°57'04" W R=1207.31'	102.52' (chord) 102.55' (arc)

PARCEL 2-T

Line	Bearing	Distance
J	N 83°42'59" E R=1147.31'	176.10' (chord) 176.27' (arc)
K	S 57°48'33" W	206.78'
L	N 0°01'49" W	90.89'

UTILITY OWNERS

[A] Ohio Power Co. The
301 Cleveland Ave. SW
P.O. Box 400
Canton, Ohio 44701
Phone 216/438-7040

[B] Ohio Bell Telephone Co.
53055 High Ridge Road
Bridgeport, Ohio 43912
Phone 614/695-6138

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

SUMMARY OF ADDITIONAL RIGHT OF WAY

NOTE:
Record Area After Outsales Minus Total P.R.O. Minus Net Take Equals Net Residue. All Areas in Acres Unless Otherwise Noted.

REVISION	BY	DATE
Revised Ownership on Par 2-T	Dist. 11	4-10-85
COMPLETED		2-6-85

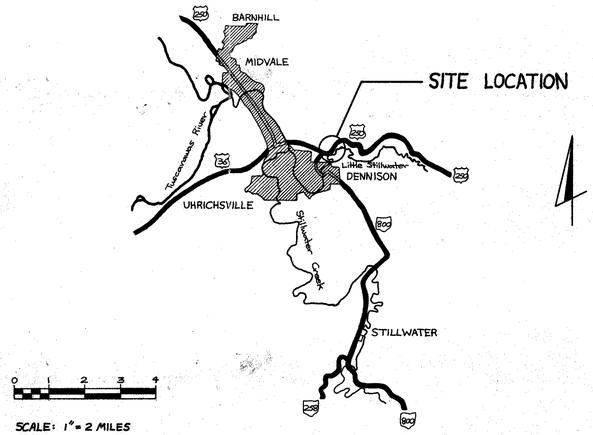
PARCEL	OWNER	SHEET NO.	OWNERS RECORD BOOK	OWNERS RECORD PAGE	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUCTURE	NET RESIDUE LEFT	NET RESIDUE RIGHT	TYPE FUND	REMARKS AND PERSONALTY	AS ACQUIRED BOOK	AS ACQUIRED PAGE
1-T	Lester R. True	2	407	558	76.082	4.536	0.439	0	0.439	P	52.382	19.164	State	To construct, maintain & remove Temporary Road.		
1-T-1		2					0.047	0	0.047					To do necessary grading & provide working room.		
	TOTAL						0.486	0	0.486							
2-T	Chester L. Stumm	2	382,399	641,264	25.545	1.182	0.192	0	0.192		—	24.363		To construct, maintain & remove Temporary Road.		

GENERAL INFORMATION

BORINGS ARE MADE BY MEANS OF A ROTARY TYPE DRILL RIG, EMPLOYING A 2-INCH O.D., 1-3/8-INCH 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 THE LAST 12 INCHES IS CONSIDERED THE STANDARD PENETRATION TEST..

THE BORING LOG SHEETS SHOW A GRAPHIC PLOT OF THE INFORMATION OBTAINED, INCLUDING DEPTH OF THE SAMPLE, ELEVATION REFERENCE, NUMBER OF BLOWS FOR THE STANDARD PENETRATION TESTS IN THREE 6-INCH INCREMENTS, DEPTH OF PRESS SAMPLES, FIELD SAMPLE NUMBER AND SAMPLE DESCRIPTION BASED ON LABORATORY TESTS AND THE OHIO DEPARTMENT OF TRANSPORTATION CLASSIFICATION SYSTEM. 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 CANNOT BE DRIVEN, A WASH SAMPLE IS PROCURED FOR VISUAL CLASSIFICATION, TO DETERMINE THE GENERAL CHARACTER OF THE MATERIAL. THESE SAMPLES ARE NOT CONSIDERED SUFFICIENTLY REPRESENTATIVE TO WARRANT LABORATORY TESTING.



LEGEND

BORING LOCATION - PLAN

W INDICATES FREE WATER

X/Y # BORING LOCATION - PROFILE - DRAWN TO VERTICAL SCALE ONLY
X/Y INDICATES NUMBER OF BLOWS FOR STANDARD PENETRATION TEST
X - NUMBER OF BLOWS FOR SECOND 6 INCHES
Y - NUMBER OF BLOWS FOR THIRD 6 INCHES
- INDICATES WATER CONTENT IN PERCENT

● INDICATES WATER CONTENT ≥ LL-3

⊖ INDICATES NON-PLASTIC SOIL WITH WATER CONTENT > 25

SOIL TYPES

SANDY SILT (A-4a)

SILT (A-4b)

SILT AND CLAY (A-6a)

SILTY CLAY (A-6b)

WEATHERED SANDSTONE

VARIOUS OTHER MATERIALS

INTRODUCTION:

THE PROJECT CONSISTS OF CONSTRUCTING A NEW BRIDGE TO REPLACE THE EXISTING STRUCTURE ON STATE ROUTE 250 OVER A BRANCH OF THE LITTLE STILLWATER.

GEOLOGY:

THE AREA IS UNGLACIATED ALTHOUGH THE SURFACE DEPOSITS MAY BE ATTRIBUTABLE STREAM TRANSPORT OF GLACIAL DEBRIS LOCATED NORTH OF TUSCARAWAS COUNTY. THE SOILS ENCOUNTERED WERE PREDOMINANTLY SILTS, CLAYEY SILTS, AND SILTY CLAYS WITH SOME FINE SAND. THE UNDERLYING SANDSTONE IS A PORTION OF THE LOWER PENNSYLVANIAN KITTANNING MEMBER OF THE ALLEGHENY GROUP.

EXPLORATION:

THE EXPLORATION CONSISTS OF 2 EXPLORATORY BORINGS, DESIGNATED D-1 AND D-2 DRILLED TO DEPTHS OF 80.1 FEET AND 90.1 FEET, RESPECTIVELY. FORTY-TWO SAMPLES WERE OBTAINED, VISUALLY CLASSIFIED AND TESTED TO DETERMINE THE NATURAL MOISTURE CONTENT. FOURTEEN SAMPLES WERE DETERMINED TO BE REPRESENTATIVE OF THE SITE SOILS AND TESTED FOR ATTERBERG LIMITS AND GRADATIONS.

INVESTIGATIONAL FINDINGS:

THE MAJORITY OF THE SOIL IS COHESIVE OF THE A-4A TO A-6B CATEGORY. CLASSIFICATION IS ACCORDING TO THE OHIO DEPARTMENT OF TRANSPORTATION SYSTEM.

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.

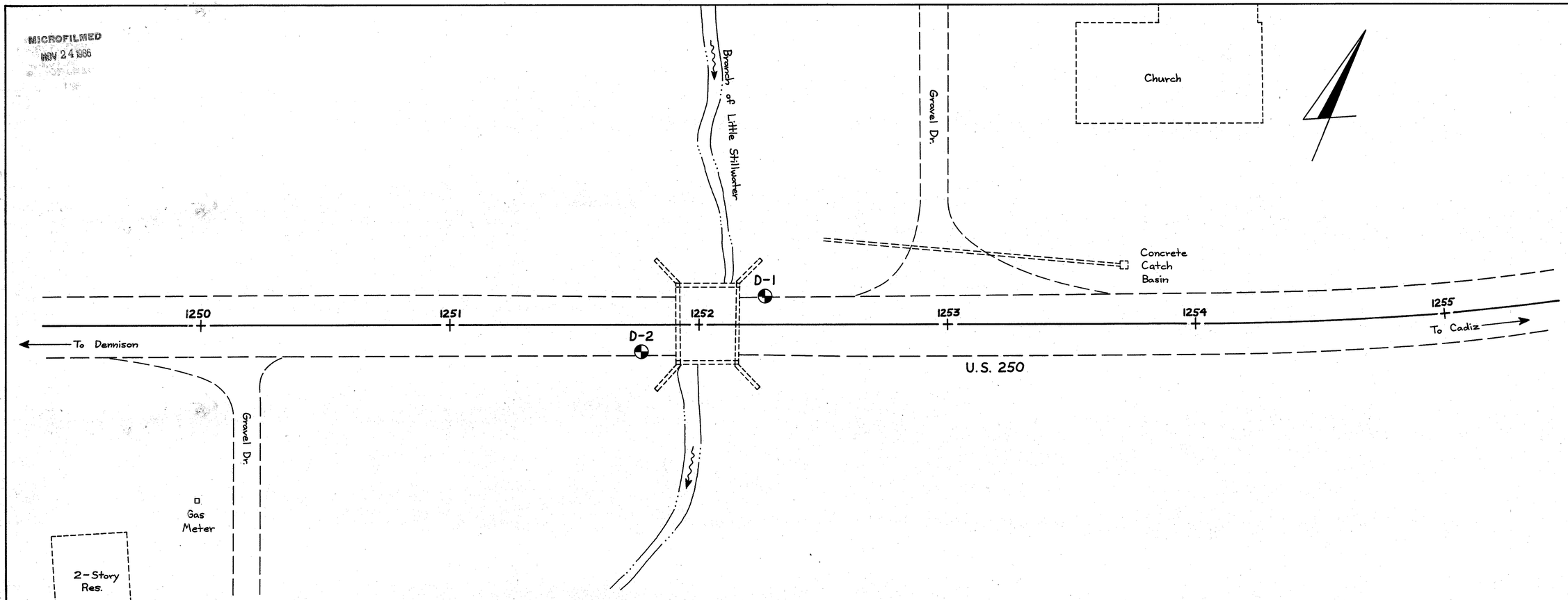
PARTICLE SIZE DEFINITION

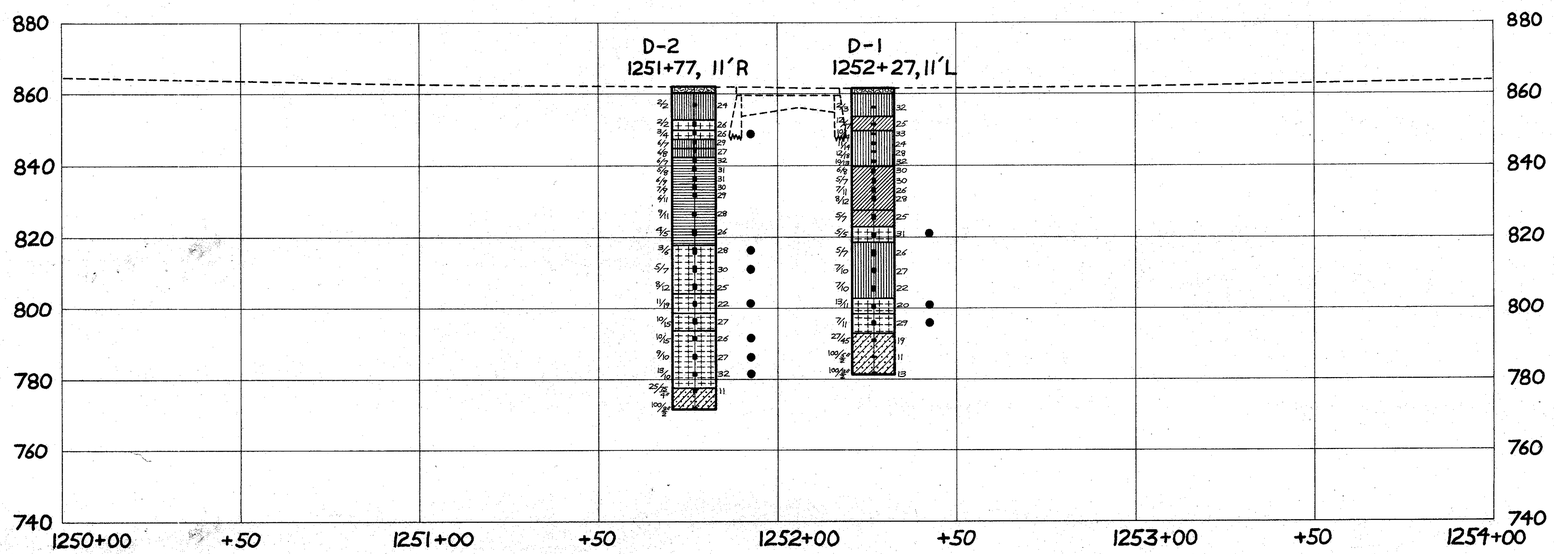
BOULDER	COBBLES	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY
8"	3"	2 mm (NO. 10)	.42 mm (NO. 40)	.074 mm (NO. 200)		.005 mm

RESOURCE INTERNATIONAL INC.
281 ENTERPRISE DR.
COLUMBUS, OHIO 43081
(614) 885-1959

TUSCARAWAS COUNTY
TUS-250-2372
STRUCTURE FOUNDATION INVESTIGATION

DATE: 3-8-84	DRAWN BY:	CHECKED BY:	





SCALE: HOR. and VERT.

0' 10' 20' 40'

RESOURCE INTERNATIONAL INC.
281 ENTERPRISE DR.
COLUMBUS, OHIO 43081
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TUSCARAWAS COUNTY
TUS-250-2372
STRUCTURE FOUNDATION INVESTIGATION

DATE: 3-8-84 | DRAWN BY: BJH | CHECKED BY:

BORING LOG: D-1 | STATION AND OFFSET: 1252+27, 11' Lt. | SURFACE ELEVATION: 862.0 FEET | DATE STARTED: 2/23/84 | DATE FINISHED: 2/24/84 | SAMPLER TYPE: ALL 2S

ELEV.	SAMP. NO.	BLOWS PER 6"	REC	DEPTH	SOIL DESCRIPTION	WC	ATT L LL	ATT L PI	PHYSICAL CHARACTERISTICS A AGG	A CS	A FS	A SI	A CL	ODOT CLASS
					ASPHALT (0.5) OVER CONCRETE. 1.5									
					GRAY CLAYEY SILT, LITTLE FINE SAND. MEDIUM STIFF. MOIST.									
	S-1	2 2 3		5		32								
854.0					8.0									
	S-2	8 12 17		10	BROWN AND GRAY CLAY, AND SILT, TRACE FINE TO COARSE SAND, TRACE FINE GRAVEL. VERY STIFF. MOIST. 12.0	25	35	11	1	1	2	42	54	A-6a
850.0														
	S-3	6 10 14			BROWN SILTY CLAY, TRACE FINE SAND. VERY STIFF. DAMP TO MOIST.	33								
	S-4	6 11 14		15		24	34	10	0	0	1	35	64	A-4a
	S-5	6 12 18				28								
	S-6	6 10 13		20		32								
840.0					22.0									
	S-7	5 6 8			GRAY SILTY CLAY. STIFF TO VERY STIFF. MOIST.	30								
	S-8	4 5 7		25		30	38	13	0	0	0	31	69	A-6a
	S-9	5 7 11				26								
	S-10	7 8 12		30		28	39	12	V	I	S	U	A L	A-6a
828.0					34.0									
	S-11	4 5 7		35	GRAY SILTY CLAY, TRACE FINE SAND. STIFF. MOIST.	25								
823.5					38.5									
	S-12	4 5 5		40	GRAY CLAYEY SILT, TRACE FINE SAND. STIFF. MOIST TO WET.	31	31	8	0	0	2	51	47	A-4b
819.0					43.0									
	S-13	4 5 7		45	GRAY-GREEN CLAYEY SILT, SOME FINE TO COARSE SAND. STIFF TO VERY STIFF. MOIST.	26								
	S-14	5 7 10		50		27								
	S-15	6 7 10		55		22	27	7	0	1	20	42	37	A-4a
803.5					58.5									
	S-16	8 13 11		60	GRAY CLAYEY SILT, SOME FINE TO COARSE SAND. VERY STIFF. WET. 63.0	20	19	1	V	I	S	U	A L	A-4b
799.0					GRAY SILT, TRACE FINE SAND. MEDIUM DENSE. MOIST.									
	S-17	5 7 11		65		29								
793.5					68.5									
	S-18	60 27 45		70	GRAY WEATHERED SANDSTONE.	19								
	S-19	100/2½"		75		11								
781.9	S-20	100/1½"		80	BOTTOM OF BORING - 80.1 FEET.	13								

BORING LOG: D-2 | STATION AND OFFSET: 1251+77, 11' Rt. | SURFACE ELEVATION: 862.0 FEET | DATE STARTED: 2/21/84 | DATE FINISHED: 2/23/84 | SAMPLER TYPE: ALL 2S

ELEV	SAMP. NO.	BLOWS PER 6"	REC	DEPTH	SOIL DESCRIPTION	WC	ATT L LL	ATT L PI	PHYSICAL CHARACTERISTICS A AGG	A CS	A FS	A SI	A CL	ODOT CLASS
					ASPHALT AND CONCRETE. 1.5									
					BROWN CLAYEY SILT, LITTLE FINE SAND. SOFT TO MEDIUM STIFF. MOIST.									
	S-1	2 2 2		5		24								
853.0					9.0									
	S-2	2 2 2		10	GRAY CLAYEY SILT, LITTLE FINE SAND. SOFT TO MEDIUM STIFF. MOIST. 12.0	26								
850.0														
	S-3	3 3 4			GRAY CLAYEY SILT, LITTLE FINE SAND. MEDIUM STIFF. MOIST.	26	27	4	0	0	12	66	22	A-4b
847.5					14.5									
	S-4	4 6 7		15	GRAY SILT, AND CLAY, LITTLE FINE SAND. MEDIUM DENSE. MOIST. 17.0	29								
845.0														
	S-5	4 6 8			GRAY SILTY CLAY, LITTLE FINE SAND. STIFF. MOIST.	27	38	12	0	0	1	26	73	A-6a
842.5					19.5									
	S-6	4 6 7		20		32								
	S-7	5 5 8			GRAY CLAY, LITTLE SILT. STIFF TO VERY STIFF. MOIST.	31								
	S-8	5 6 9		25		31	47	19	0	0	0	18	82	A-6b
	S-9	6 7 9				30								
	S-10	6 6 11		30	SAME AS ABOVE WITH SILT SEAMS.	29								
	S-11	7 9 11		35		28	32	7	V	I	S	U	A L	
	S-12	4 4 5		40		26								
818.0					44.0									
	S-13	4 3 6		45	GRAY SILT, AND CLAY, TRACE FINE SAND. STIFF TO MEDIUM DENSE. MOIST.	28								
	S-14	5 5 7		50		30	31	6	0	0	1	52	47	A-4b
	S-15	6 8 12		55		25								
804.5					57.5									
	S-16	9 11 19		60	GRAY CLAYEY SILT, SOME FINE SAND. HARD. MOIST. 63.0	22	25	5	0	1	22	50	27	A-4b
799.0					GRAY CLAYEY SILT, LITTLE FINE SAND. VERY STIFF. MOIST.									
	S-17	6 10 15		65		27								
794.0					68.0									
	S-18	8 10 15		70	GRAY SILT, SOME CLAY, SOME FINE SAND. MEDIUM DENSE. MOIST TO WET.	26								
	S-19	6 9 10		75		27	26	4	0	0	18	63	19	A-4b
	S-20	7 13 10		80		32								
778.0					84.0									
	S-21	41 25 75/4"		85	GRAY WEATHERED SANDSTONE.	11								
771.9	S-22	100/1½"		90	BOTTOM OF BORING - 90.1 FEET.									

RESOURCE INTERNATIONAL INC.
281 ENTERPRISE DR.
COLUMBUS, OHIO
(614) 885-1959

TUSCARAWAS COUNTY

TUS-250-2372

STRUCTURE FOUNDATION INVESTIGATION

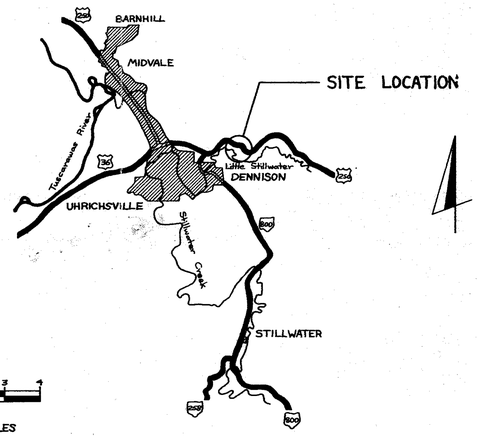
DATE: 3-8-84 | DRAWN BY: BJH | CHECKED BY:

GENERAL INFORMATION

BORINGS ARE MADE BY MEANS OF A ROTARY TYPE DRILL RIG, EMPLOYING A 2-INCH O.D., 1-3/8-INCH 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 THE LAST 12 INCHES IS CONSIDERED THE STANDARD PENETRATION TEST.

THE BORING LOG SHEET SHOWS 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, AND SAMPLE DESCRIPTION BASED ON LABORATORY TESTS AND THE OHIO DEPARTMENT OF TRANSPORTATION CLASSIFICATION SYSTEM. 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 CANNOT BE DRIVEN, A WASH SAMPLE IS PROCURED FOR VISUAL CLASSIFICATION, TO DETERMINE THE GENERAL CHARACTER OF THE MATERIAL. THESE SAMPLES ARE NOT CONSIDERED SUFFICIENTLY REPRESENTATIVE TO WARRANT LABORATORY TESTING.



LEGEND

BORING LOCATION - PLAN

W INDICATES FREE WATER

BORING LOCATION - PROFILE - DRAWN TO VERTICAL SCALE ONLY
X/Y INDICATES NUMBER OF BLOWS FOR STANDARD PENETRATION TEST
X - NUMBER OF BLOWS FOR SECOND 6 INCHES
Y - NUMBER OF BLOWS FOR THIRD 6 INCHES
- INDICATES WATER CONTENT IN PERCENT

● INDICATES WATER CONTENT ≥ LL-3

⊖ INDICATES NON-PLASTIC SOIL WITH WATER CONTENT > 25

SOIL TYPES

GRAVEL and/or STONE FRAGMENTS with SAND (A-1-b)

COARSE and FINE SAND (A-3a)

SANDY SILT (A-4a)

SILT (A-4b)

SILT and CLAY (A-6a)

SILTY CLAY (A-6b)

CLAY (A-7-6)

VARIOUS OTHER MATERIALS

INTRODUCTION:

THE PROJECT CONSISTS OF CONSTRUCTING A NEW BRIDGE TO REPLACE THE EXISTING STRUCTURE ON STATE ROUTE 250 OVER A BRANCH OF THE LITTLE STILLWATER.

GEOLOGY:

THE AREA IS UNGLACIATED ALTHOUGH THE SURFACE DEPOSITS MAY BE STREAM TRANSPORTED GLACIAL DEBRIS FROM NORTH OF TUSCARAWAS COUNTY. THE SOILS ENCOUNTERED WERE PREDOMINANTLY SILTS, CLAYEY SILTS, AND SILTY CLAYS WITH SOME FINE SAND. THE UNDERLYING SANDSTONE IS A PORTION OF THE LOWER PENNSYLVANIAN KITTANNING MEMBER OF THE ALLEGHENY GROUP.

EXPLORATION:

THE EXPLORATION CONSISTS OF 2 EXPLORATORY BORINGS, DESIGNATED U-1 AND U-2 DRILLED TO DEPTHS OF 91.5 FEET AND 91.5 FEET, RESPECTIVELY. FORTY-FOUR SAMPLES WERE OBTAINED, VISUALLY CLASSIFIED, AND TESTED TO DETERMINE THE NATURAL MOISTURE CONTENT. SIXTEEN SAMPLES WERE DETERMINED TO BE REPRESENTATIVE OF THE SITE SOILS AND TESTED FOR ATTERBERG LIMITS AND GRADATIONS.

INVESTIGATIONAL FINDINGS:

THE MAJORITY OF THE SOIL IS COHESIVE OF THE $A\text{-}4_A$ TO A-7-6 CATEGORY. ZONES OF GRANULAR SOILS OF THE $A\text{-}1\text{-}_B$ TO $A\text{-}3_A$ CATEGORY WERE ALSO PRESENT. CLASSIFICATION IS ACCORDING TO THE OHIO DEPARTMENT OF TRANSPORTATION SYSTEM.

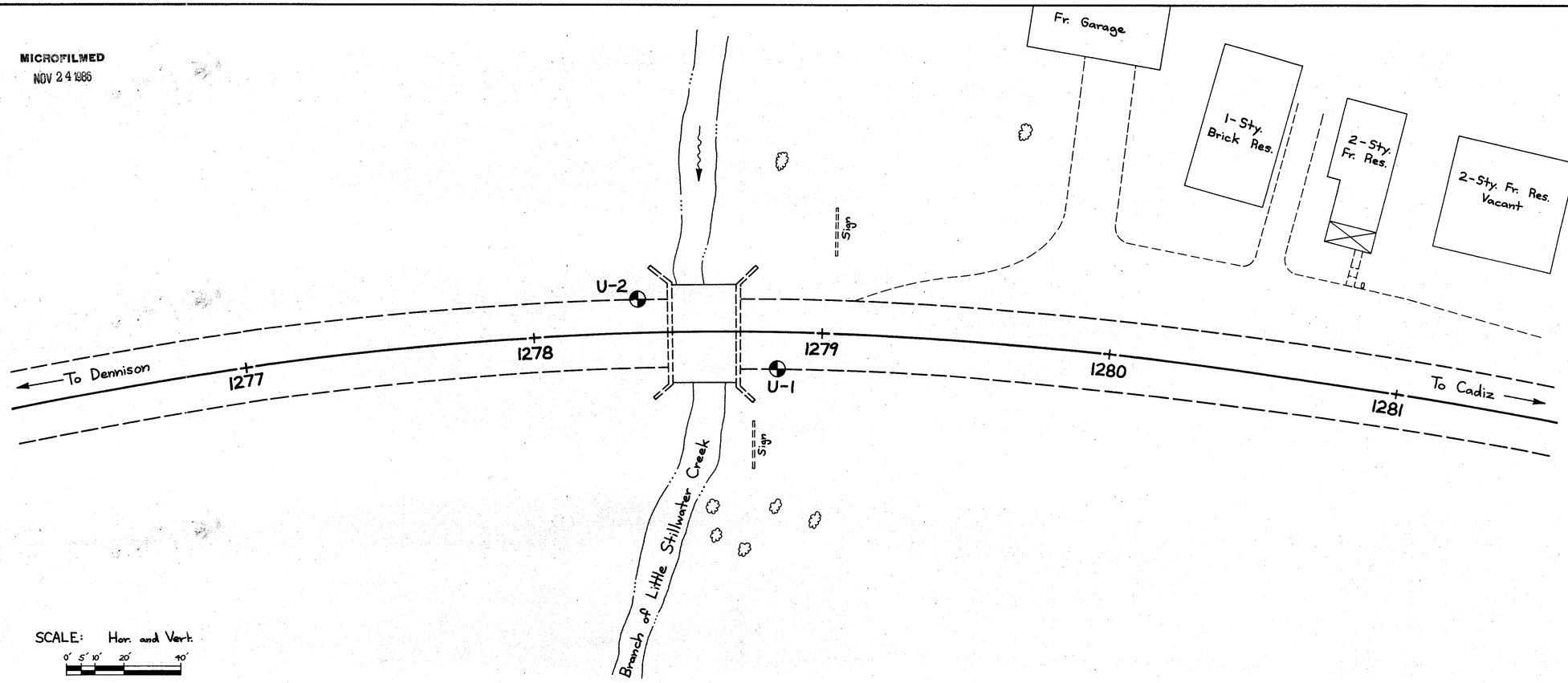
PARTICLE SIZE DEFINITION

BOULDER	COBBLES	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY
8"	3"	2 mm (NO. 10)	.42 mm (NO. 40)	.074 mm	.005 mm (NO. 200)	

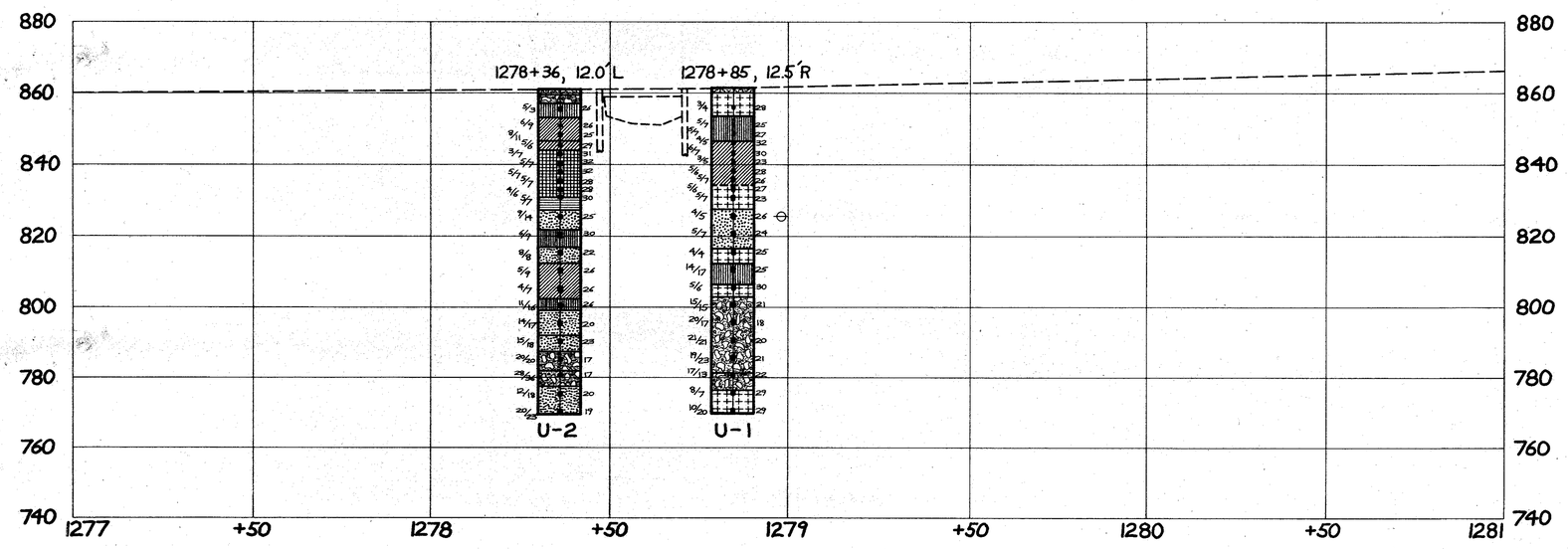
RESOURCE INTERNATIONAL INC.
281 ENTERPRISE DR.
COLUMBUS, OHIO 43081
(614) 885-1959

TUSCARAWAS COUNTY
TUS-250-2421
STRUCTURE FOUNDATION INVESTIGATION

DATE: 4-3-84	DRAWN BY: BJH	CHECKED BY:	



SCALE: Hor. and Vert.
0' 5' 10' 20' 40'



RESOURCE INTERNATIONAL INC.
281 ENTERPRISE DR.
COLUMBUS, OHIO 43081
(614) 885-1959

TUSCARAWAS COUNTY
TUS-250-2421
STRUCTURE FOUNDATION INVESTIGATION

DATE: 4-3-84	DRAWN BY: BJH	CHECKED BY:	

S28 - 2UT - 28

6/6

BORING LOG: U-1
STATION AND OFFSET: 1278+85, 12.5' R
SURFACE ELEVATION: 861.5'
DATE STARTED: 3/19/84
DATE FINISHED: 3/20/84
SAMPLER TYPE: ALL 2S

ELEV.	SAMP. NO.	BLOWS PER 6"	REC	DEPTH	SOIL DESCRIPTION	WC	ATT L LL	ATT L PI	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% Si	% CL	ODOT CLASS
860.0					Brown fine to coarse sand & gravel. Fill, (0.5'), over concrete. 1.5									
				5	Brown silt & clay, trace to little fine to coarse sand, trace fine gravel. Loose. Moist - Wet. 8.0	28	28	6	1	1	9	52	37	A-4b
853.5	S-1	2 3 4												
	S-2	2 5 7		10	Brown & gray clay & silt. Stiff. Moist.	25								
	S-3	4 5 7			15.0	27	35	9	0	0	0	42	58	A-4a
846.5	S-4	3 4 5		15	Gray clay & silt. Stiff. Damp.	32								
	S-5	4 6 7				30								
	S-6	3 3 5		20		23	36	12	0	0	0	36	64	A-6a
	S-7	4 5 6				28								
	S-8	4 5 7		25		26								
	S-9	4 5 6			Gray silt & clay, trace fine sand. Medium dense. Moist.	27								
	S-10	4 5 7		30	34.0	23	27	7	0	0	6	57	37	A-4b
827.5					Gray fine to coarse sand, some clayey silt, trace fine gravel. Loose - medium dense. Wet.									
	S-11	4 4 5		35		26								
	S-12	5 5 7		40		24			5	3	61	19	12	A-3a
816.5					45.0									
	S-13	3 4 4		45	Gray clayey silt, some fine to coarse sand. Loose. Wet.	25								
812.5					49.0									
	S-14	6 14 17		50	Gray clayey silt, some fine to coarse sand, trace fine gravel. Hard. Moist.	25			1	1	33	48	17	A-4a
806.5					55.0									
	S-15	3 5 6		55	Gray silt, little fine sand, little clay, trace fine gravel. Medium Dense. Wet.	30	25	2	1	0	18	63	18	A-4b
803.0					58.5									
	S-16	14 15 15		60	Gray fine to coarse sand & fine gravel, little clayey silt. Dense. Wet.	21								
	S-17	19 20 17		65		18								
	S-18	19 21 21		70		20			38	16	35	-11-		A-1-b
	S-19	19 19 23		75		21								
781.5					80.0									
	S-20	19 17 13		80	Gray fine to coarse sand, some fine gravel, little clayey silt, Medium Dense - Dense. Wet.	22			34	18	32	-16-		A-1-b
776.5					85.0									
	S-21	5 8 7		85	Gray silt, some fine sand, little clay. Medium Dense - Dense. Wet.	29								
770.0	S-22	5 10 20		90		29	20	-	0	0	31	50	19	A-4b

Bottom of Boring at 91.5 feet

BORING LOG: U-2
STATION AND OFFSET: 1278+36, 12.0' L.
SURFACE ELEVATION: 861.5 FEET
DATE STARTED: 3/20/84
DATE FINISHED: 3/26/84
SAMPLER TYPE: ALL 2S

ELEV.	SAMP. NO.	BLOWS PER 6"	REC	DEPTH	SOIL DESCRIPTION	WC	ATT L LL	ATT L PI	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% Si	% CL	ODOT CLASS
860.0					Asphalt & Base. 1.5									
856.0					Brown fine to coarse sand & fine to coarse gravel. 4.0									
	S-1	5 5 3		5	Brown & gray clay & silt, trace to little fine sand. Medium stiff - stiff. Moist. 8.0	26								
852.0														
	S-2	4 6 9		10	Gray & brown silty clay, little fine to coarse sand. Stiff to very stiff. Damp-Moist.	26								
	S-3	6 8 11			14.5	25	37	12						A-6a
845.5	S-4	5 5 6		15	Gray & brown silt & clay. Stiff. Moist. 17.0	29								
843.0	S-5	3 3 7			Gray silty clay, trace fine sand. Stiff. Moist.	31								
	S-6	4 5 7		20		32								
	S-7	3 5 7				32	41	13	0	0	1	32	67	A-7-6
	S-8	4 5 7		25		28								
	S-9	5 4 6				28								
831.5					30.0									
	S-10	4 5 7		30	Gray silty clay. Stiff. Moist. 33.5	30								
828.0					Gray fine to coarse sand, some clayey silt, trace fine gravel. Medium dense. Wet.									
	S-11	5 9 14		35		25			1	1	69	21	8	A-3a
822.5					39.0									
	S-12	5 6 9		40	Gray clayey silt, some fine to coarse sand. Stiff - very stiff. Moist. 44.0	30								
817.5					Gray fine to coarse sand, some clayey silt, trace fine gravel, Medium dense. Wet.									
	S-13	6 8 8		45		22			4	4	67	-2	5-	A-3a
813.0					48.5									
	S-14	4 5 9		50	Gray clay & silt, trace fine sand. Stiff. Moist. 58.5	26								
	S-15	4 4 7		55		26								
803.0					Gray fine to coarse sand, some silt, trace fine gravel. Very stiff. Moist. 62.0									
	S-16	11 11 16		60		26								
799.5					Gray fine to coarse sand, some fine gravel, little clayey silt. Dense. Wet.									
	S-17	16 14 17		65	69.0	20			21	13	51	-1	5-	A-3a
792.5					Gray fine to coarse sand, little fine gravel, trace silt. Dense. Wet.									
	S-18	13 15 18		70	73.5	23								
788.0					Gray fine to coarse sand, some fine gravel, little silt. Dense. Wet.									
	S-19	20 20 20		75	79.0	17								
782.5					Gray fine to coarse sand, little fine gravel, trace silt. Very dense. Wet.									
	S-20	23 28 36		80	83.5	17								
778.0					Gray fine to coarse sand, little clayey silt, trace fine gravel. Medium Dense - dense. Wet.									
	S-21	11 12 18		85		20			9	7	65	-1	9-	A-3a
770.0	S-22	14 20 23		90		19								

Bottom of Boring @ 91.5 feet

RESOURCE INTERNATIONAL INC.
281 ENTERPRISE DR.
COLUMBUS, OHIO
(614) 885-1959

TUSCARAWAS COUNTY

TUS-250-2421

STRUCTURE FOUNDATION INVESTIGATION

DATE: 4-3-84 | DRAWN BY: | CHECKED BY: