MAH-45-8.38	OHIO
	FHWA REGION 5
	FEDERAL PROJECT

1/23

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
MAH-45-8.38
ELLSWORTH TOWNSHIP
MAHONING COUNTY

SURFACE TRANSPORTATION PROGRAM PID-7565

ALL REFERENCES TO FEDERAL NUMBER STP-68(19) APPEARING IN THESE PLANS SHALL BE CONSIDERED TO READ SURFACE TRANSPORTATION PROGRAM.

Mike Tskovris 538-0447

DESIGN DESIGNATION

Current Year ADT (1992)	= 4310
Design Year ADT (2012)	= 4680
D H V	= 398
D	=55%
T	=7%
Vd	=55mph
LEGAL SPEED	=55mph
FUNTION	= Rural, Minor
CLASSIFICATION	Arterial, Primary

DESIGN EXCEPTIONS=NONE

CONVENTIONAL SIGNS

County Line
Township Line
Section Line
Corporation Line
Fence Line(existing) (proposed)
Center Line
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 EX RW
Property Line (in existing fence)
Railroad or
Guardrail (existing) (proposed)

INDEX OF SHEETS

TITLE SHEETS.....1
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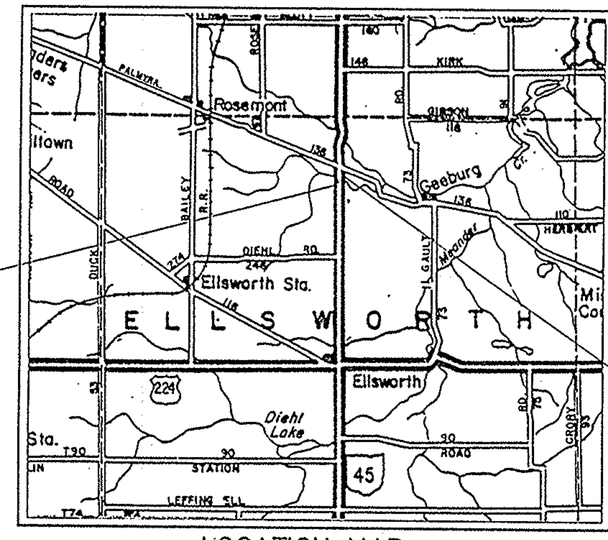
CROSS–SECTIONS.....9–17
DRIVEWAY DETAILS.....18
CULVERT DETAILS.....19
RIGHT–OF–WAY PLANS.....20–23

BEGIN PROJECT STA. 439+00



END PROJECT STA.453+00

LOCATION MAP

SCALE IN MILES 0 1 2 3

Portion to be Improved
State & Federal Routes
Other Roads

SCALES

Plan 50 25 0 50
Profile Horizontal 50 25 0 50, Vertical 5 0 5
Cross Section Horzt 5 0 5, Vertical 5 0 5

1993 SPECIFICATIONS

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

I hereby approve these plans and declare that the making of this improvement will require the closing to traffic of the highway and that detours will be provided as indicated on sheet No. 5.

Approved David R Dreger
Date 1-27-93 District Deputy Director of Transportation

Approved B.D. Vandlemis/HCH
Date 2-19-93 Engineer, Bureau of Bridges and Structural Design

Approved Christopher L. Pampan
Date 2-16-93 Deputy Director Design

Approved Jerry Wray
Date 2-16-93 Director, Department of Transportation

UNDERGROUND UTILITIES

TWO WORKING DAYS
BEFORE YOU DIG
Call 800–362–2764 (Toll Free)
OHIO UTILITIES PROTECTION SERVICE
NON–MEMBERS
MUST BE CALLED DIRECTLY

LINE DATA

BEGIN PROJECT..... Sta. 439+00
END PROJECT ..... Sta. 453+00
TOTAL 1400.00 L.F. = 0.265 mi.

BEGIN WORK.....Sta. 438+75
END WORK .....Sta. 453+50
TOTAL 1475.00 L.F. = 0.279 mi.

SUPPLEMENTAL SPECIFICATIONS		
802	4–13–90	
820	3-18-92	
931	3-18-92	
841	5-16-84	
843	7-29-88	
944	3-18-92	

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS							
BP-1.1	2-21-92			LA-1	6-1-79		
BP-4.1	2-21-92	HW-4A	4-1-80	TC-41.10	8-29-84		
BP-3.1	2-21-92	HW-4B	4-1-80	TC-42.20	3-26-79		
				TC-52.10	4-3-79		
				TC-52.20	4-3-79		
GR-1.1	5-6-91	MC-1	6-13-69				
GR-1.2	10-30-92	MC-4	7-26-76	MT-99.10	11-14-86		
GR-2.1	5-6-91	MC-11	8-1-78	MT-101.60	7-01-92		
		MC-10	5-1-76	MT-105.10	7-01-92		
GR-1.3	2-21-92			MT-105.11	7-01-92		

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

Plan Prepared By: THOMAS FOX & ASSOCIATES, LTD. 3896 MAHONING AVE. YOUNGSTOWN, OHIO 44515 216–799–1501

STATE OF OHIO Thomas D.Y. Fox 24379 REGISTERED ENGINEER

Project MAH–45–8.83 MAHONING COUNTY
Date of Letting _____ 19__ Contract No. _____

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED

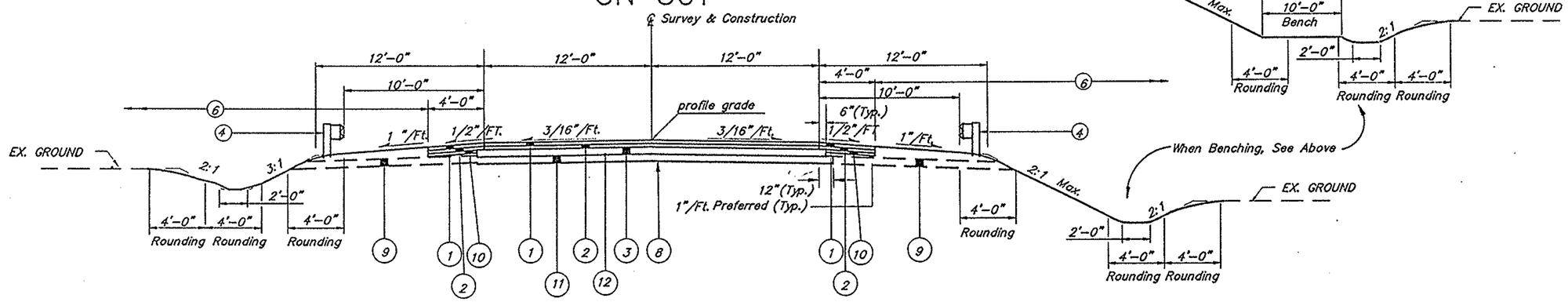
DIVISION ADMINISTRATOR DATE

REGION	STATE	PROJECT	
5	OHIO		

2/23

MAHONING COUNTY
MAH-45-8.38

TYPICAL SECTION
TYPE 404
ON 301

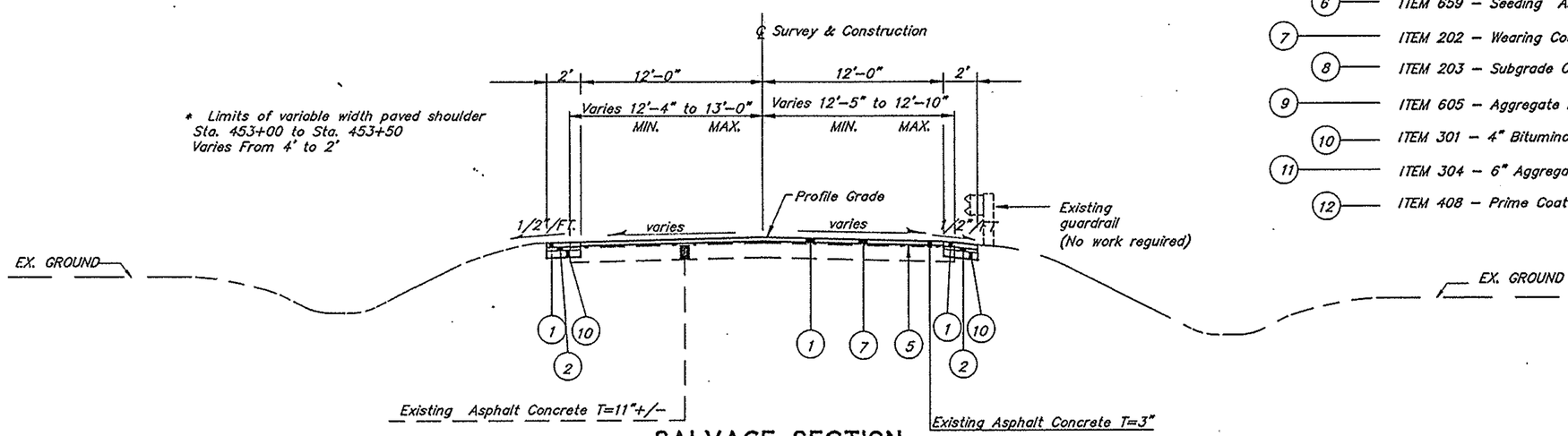


NORMAL SECTION

Sta. 443+00 to Sta. 450+00 = 700 L.F.

LEGEND (PROPOSED)

1. ITEM 404 - 1 1/4" Asphalt Concrete , AC 20
2. ITEM 402 - 1 3/4" Asphalt Concrete , AC 20
3. ITEM 301 - 7" Bituminous Aggregate Base, AC-20
4. ITEM 606 - Guardrail , Type 5
5. ITEM 407 - Tack Coat (see general notes)
6. ITEM 659 - Seeding And Mulching (see general notes)
7. ITEM 202 - Wearing Course Removed (T = 1 1/4" Max.)
8. ITEM 203 - Subgrade Compaction
9. ITEM 605 - Aggregate Drains (see general notes)
10. ITEM 301 - 4" Bituminous Aggregate Base, AC-20
11. ITEM 304 - 6" Aggregate Base, As Per Plan
12. ITEM 408 - Prime Coat @ 0.40 Gal./S.Y. (see general notes)



SALVAGE SECTION

Sta. 438+75 to Sta. 439+00 = 25 L.F.

Sta. 453+00 to Sta. 453+50 = 50 L.F.

75 L.F.

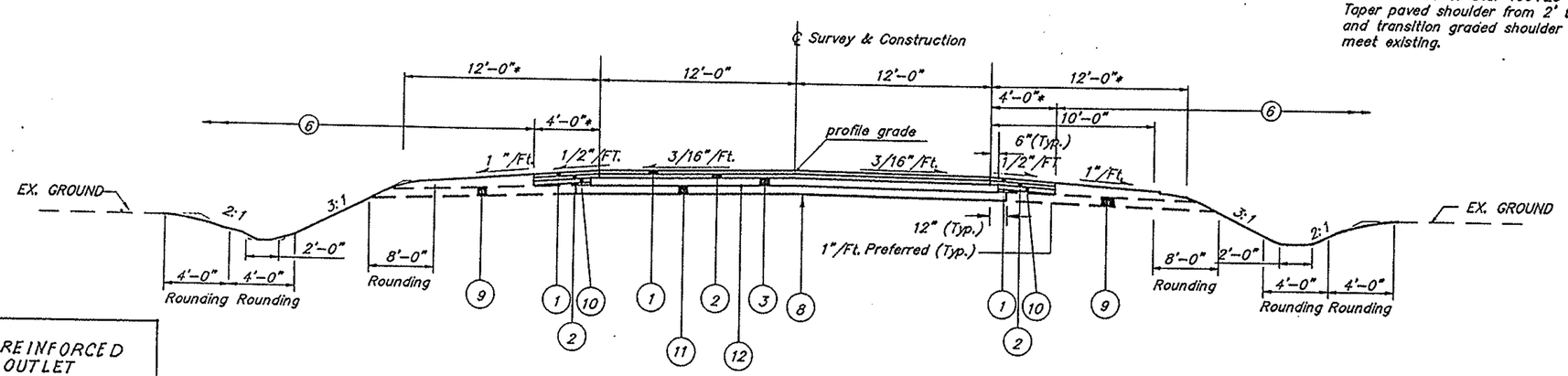
REGION	STATE	PROJECT	
5	OHIO		

3/23

MAHONING COUNTY
MAH-45-8.38

TYPICAL SECTION
TYPE 404
ON 301

* Sta. 439+00 to Sta. 439+25
Taper paved shoulder from 2' to 4'.
and transition graded shoulder to
meet existing.

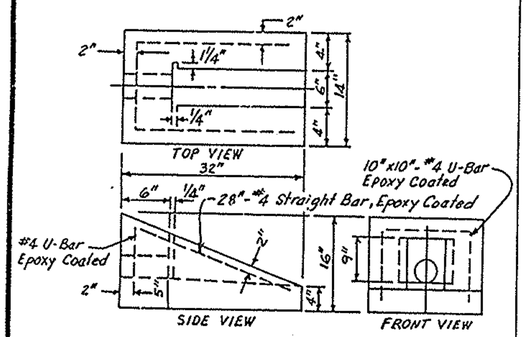


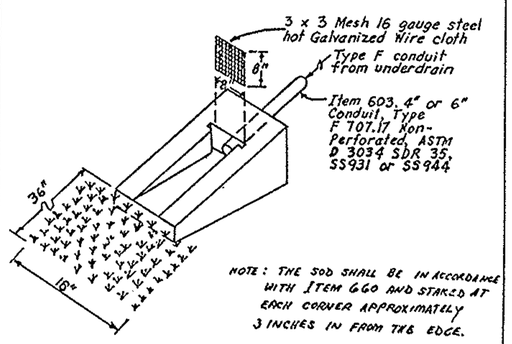
NORMAL SECTION

Sta. 439+00 to Sta. 443+00 = 400 L.F.
Sta. 450+00 to Sta. 453+00 = 300 L.F.
700 L.F.

ITEM SPECIAL - PRECAST REINFORCED CONCRETE OUTLET

The Concrete outlet shall meet the requirements of Item 604 in the Construction & Materials Specifications. Payment shall be made on an Each basis. Payment shall include the cost of the Sod & Wire Cloth.





NOTE: THE SOD SHALL BE IN ACCORDANCE WITH ITEM 660 AND STAKED AT EACH CORNER APPROXIMATELY 3 INCHES IN FROM THE EDGE.

LEGEND (PROPOSED)

1. ITEM 404 - 1 1/4" Asphalt Concrete, AC 20
2. ITEM 402 - 1 3/4" Asphalt Concrete, AC 20
3. ITEM 301 - 7" Bituminous Aggregate Base, AC-20
4. ITEM 606 - Guardrail, Type 5
5. ITEM 407 - Tack Coat (see general notes)
6. ITEM 659 - Seeding And Mulching (see general notes)
7. ITEM 202 - Wearing Course Removed (T = 1 1/4" Max.)
8. ITEM 203 - Subgrade Compaction
9. ITEM 605 - Aggregate Drains (see general notes)
10. ITEM 301 - 4" Bituminous Aggregate Base, AC-20
11. ITEM 304 - 6" Aggregate Base, As Per Plan
12. ITEM 408 - Prime Coat @ 0.40 Gal./S.Y. (see general notes)

MAHONING COUNTY
MAH-45-8.38

GENERAL NOTES

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.

UNDERGROUND UTILITIES : THE LOCATION OF UNDERGROND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS OF THE UTILITY, AS REQUIRED BY SECTION 153.64 ORC.

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

OHIO BELL
CITY CENTER ONE, 2ND FLOOR
YOUNGSTOWN, OHIO 44503
(216) 744-6450

OHIO EDSION
730 SOUTH AVENUE
YOUNGSTOWN, OHIO 44502
(216) 393-1531

STAR CABLE COMPANY
5537 MAHONING AVE.
YOUNGSTOWN, OHIO 44515
(216) 792-9577

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.

REMOVAL OF TREES OR STUMPS: ALL TREES AND STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE CONSTRUCTION LIMITS OF THIS PROJECT SHALL BE REMOVED UNDER THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING, EXCEPT THAT THOSE TREES FOR WHICH PROTECTION AND PRESERVATION WORK IS INDICATED ELSEWHERE IN THESE PLANS SHALL NOT BE REMOVED.

THE FOLLOWING IS AN APPROXIMATE ESTIMATE OF THE NUMBER OF TREES AND STUMPS TO BE REMOVED:

SIZES	NO. TREES	NO. STUMPS	TOTAL
18"	6	1	7
30"	1	0	1

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 THE REMOVAL OF THESE ADDITIONAL TREES OR STUMPS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL: THE FOLLOWING ESTIMATED QUANTITY IS TO BE USED, AS DIRECTED BY THE ENGINEER, FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES:

ITEM 207 STRAW OR HAY BALES 100 EACH
ITEM 207 FILTER FABRIC FENCE 350 L.F.

ITEM 407 TACK COAT : THE RATE OF APPLICATION OF 407 TACK COAT SHALL BE SUBJECT TO ADJUSTMENT, AS DIRECTED BY THE ENGINEER. PLAN QUANTITIES INDICATE AN AVERAGE APPLICATION RATE OF 0.075 GALLONS PER SQUARE YARD OF TACK COAT, FOR ESTIMATING PURPOSES ONLY.

ITEM 408 BITUMINOUS PRIME COAT: THE RATE OF APPLICATION OF 408 BITUMINOUS PRIME COAT SHALL BE SUBJECT TO ADJUSTMENT, AS DIRECTED BY THE ENGINEER. PLAN QUANTITIES INDICATE AN AVERAGE APPLICATION RATE OF 0.40 GALLONS PER SQUARE YARD OF PRIME COAT, FOR ESTIMATING PURPOSES ONLY.

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

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

ITEM 605 AGGREGATE DRAINS : AGGREGATE DRAINS SHALL BE PLACED AT FIFTY (50) FOOT INTERVALS ON EACH SIDE OF NORMAL CROWNED SECTIONS AND AT TWENTY-FIVE (25) FOOT INTERVALS ON THE LOW SIDE ONLY OF SUPERELEVATED SECTIONS, EXCEPT WHERE ITEM 605 PIPE UNDERDRAINS HAVE BEEN PROVIDED.

AGGREGATE DRAINS ADJACENT TO REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT SHALL BE PLACED AT EACH TRANSVERSE JOINT ON THE OUTSIDE EDGE OF NORMAL SECTIONS AND ON THE LOW SIDE OF SUPERELEVATED SECTIONS.

AN AGGREGATE DRAIN SHALL BE PLACED AT THE LOW POINT OF EACH SAG VERTICAL CURVE.

EROSION CONTROL: ITEMS 601 AND 670 ARE PROVIDED IN THE PLANS FOR EROSION CONTROL. ROCK OF A STABLE NATURE WILL NOT BE REMOVED IN ORDER TO PLACE ANY OF THESE ITEMS, AND TURF OF A STABLE NATURE WILL NOT BE REMOVED IN ORDER TO PLACE 670. THE ENGINEER SHALL CHECK AND NON-PERFORM QUANTITIES OR ADJUST LOCATIONS AND QUANTITIES FOR THESE ITEMS WHERE INDICATED BY FIELD CONDITIONS DURING CONSTRUCTION.

BENCHING OF FOUNDATION SLOPES:
ALTHOUGH CROSS SECTIONS ON THIS PLAN INDICATE SPECIFIC WIDTHS AND DEPTHS OF PROPOSED BENCHING OF THE EMBANKMENT FOUNDATION IN CERTAIN AREAS, NO WAIVER OF THE SPECIFICATIONS IS INTENDED, AND ALL OTHER SLOPED FOUNDATION AREAS SHALL BE BENCHED AS SET FORTH IN 203.09. NO ADDITIONAL PAYMENT WILL BE MADE FOR BENCHING REQUIRED BY THE PROVISIONS OF 203.09

DATUM ELEVATIONS ALL ELEVATIONS ARE BASED ON EXISTING U.S.C. & G.S. DATUM.

ITEM 304 AGGREGATE BASE, AS PER PLAN
MATERIALS FURNISHED FOR THIS ITEM SHALL EXCLUDE ALL SLAG EXCEPT GRANULATED SLAG OR CRUSHED AIR - COOLED BLAST FURNACE SLAG. [THE MAXIMUM TOTAL PERCENT PASSING THE NO. 200 SIEVE FOR 304 SHALL BE 8 PERCENT AS OPPOSED TO THE 13 PERCENT SHOWN IN 304.02.]

MONUMENTS:
A MONUMENT SHALL BE CONSTRUCTED AT CENTERLINE STA. 442+00 IN ACCORDANCE WITH DETAILS SHOWN ON STANDARD CONSTRUCTION DRAWING MC-1.

THE FOLLOWING QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY:

ITEM 604 MONUMENT ASSEMBLY 1 EACH

WATERING PERMANENT SEEDED AREAS

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

ITEM 659 WATER 30 M. GAL.

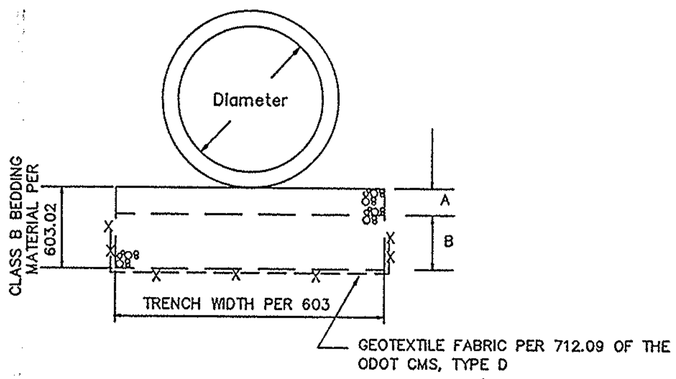
MAHONING COUNTY
MAH-45-8.38

GENERAL NOTES

DATUM ELEVATIONS ALL ELEVATIONS ARE BASED ON EXISTING U.S.C. & G.S. DATUM.

ITEM 503, UNCLASSIFIED EXCAVATION, AS PER PLAN
THE FOUNDATION FOR THE CONDUIT BED SHALL BE FIRM FOR ITS FULL LENGTH. UNSUITABLE MATERIAL ENCOUNTERED BELOW THE PLAN FOUNDATION SHALL BE REMOVED TO THE DEPTH DIRECTED BY THE ENGINEER UNDER THE CONDUIT AND TO THE WIDTH OF THE TRENCH AND REPLACED WITH COMPACTED GRANULAR MATERIAL PLACED OVER GEOTEXTILE FABRIC. COMPACTED GRANULAR MATERIAL SHALL CONFORM WITH 603.04, CLASS B. EXCAVATION OF UNSUITABLE MATERIAL, BACKFILL WITH COMPACTED GRANULAR MATERIAL AND GEOTEXTILE FABRIC, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 503, UNCLASSIFIED EXCAVATION, AS PER PLAN. THE FOLLOWING QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER.

ITEM 503.....20 C.Y. UNCLASSIFIED EXCAVATION, AS PER PLAN



A = 6" MINIMUM PER 603.

B = REMOVAL OF UNSUITABLE MATERIAL AND REPLACEMENT WITH COMPACTED GRANULAR MATERIAL. INCLUDED WITH ITEM 503, UNCLASSIFIED EXCAVATION AS PER PLAN. DEPTH OF 2.0 FEET ASSUMED FOR ESTABLISHING PAY QUANTITY.

CORRUGATED STEEL CONDUIT FIELD PAVED AS PER PLAN
THE BOTTOM 1/4 OF THE CIRCUMFERENCE OF THE CONDUIT SHALL BE FIELD PAVED WITH CLASS C PORTLAND CEMENT CONCRETE. THE PAVING SHALL BE REINFORCED WITH 10 GAUGE GALVANIZED WIRE MESH HAVING OPENINGS OF 10" BY 6" (OR COMPARABLE). MESH SHALL HAVE A WIDTH 4" LESS THAN THE FINISHED PAVING. THE MESH SHALL BE SECURELY FASTENED TO THE CONDUIT BY CLIPS, TACK WELDING, OR ANOTHER METHOD APPROVED BY THE ENGINEER. IF TACK WELDING IS UTILIZED, THE MESH MUST BE INSTALLED PRIOR TO PLACEMENT OF THE CONDUIT. ANY GALVANIZING OR OTHER COATING MATERIAL DAMAGED DUE TO TACK WELDING, EITHER INSIDE OR OUTSIDE THE CONDUIT, SHALL BE REPAIRED.

THE CONCRETE PAVING SHALL BE 3" THICK MEASURED FROM THE TOP OF THE CORRUGATIONS OF THE CONDUIT. AFTER PLACING, THE CONCRETE SHALL BE STRUCK OFF WITH A TEMPLETE TO PRODUCE THE PROPER RADIUS AND FINISH WITH A FLOAT TO PRODUCE A SMOOTH FINISH. THE CURING OF THE CONCRETE SHALL BE IN ACCORDANCE WITH 451.10. THE PAVING SHALL BE PLACED AFTER COMPLETION OF THE FILL OVER THE CONDUIT. WHERE THE DEPTH OF THE FILL EXCEEDS FOUR FEET OVER THE CROWN OF THE CONDUIT THE PAVING MAY BE PLACED AFTER PLACEMENT OF 4 FEET OF FILL. IF THE PAVING IS PLACED PRIOR TO COMPLETION OF THE PLACEMENT OF THE ENTIRE FILL, ANY GAP BETWEEN THE STEEL CONDUIT AND CONCRETE PAVING SHALL BE CLEANED AND THEN FILLED WITH HEATED BITUMINOUS MATERIAL MEETING 705.04. PAYMENT FOR ALL OF THE ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID PER LINEAL FOOT FOR ITEM 603, CONDUIT TYPE A.

MAINTENANCE OF TRAFFIC: THE INSTALLATION, MAINTENANCE AND OPERATION OF ALL TRAFFIC CONTROLS, AND TRAFFIC CONTROL DEVICES, SHALL CONFORM TO THE REQUIREMENTS OF "THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS", AND THE SPECIFICATIONS OF ITEM 614.
ALL THROUGH TRAFFIC SHALL BE DETOURED, BY THE STATE OF OHIO, AS SHOWN ON PLAN SHEET NO. 5.
THE COST OF MAINTAINING LOCAL TRAFFIC SHALL BE INCLUDED IN THE LUMP SUM BID 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.

ITEM 616	CALCIUM CHLORIDE	10	TONS
ITEM 616	WATER	5	M GAL.
ITEM 410	TRAFFIC COMPACTED SURFACE TYPE A	50	C.Y.

SEPARATE PAYMENT SHALL BE MADE FOR 616 & 410 ITEMS NOTED ABOVE. ALL OTHER WORK REQUIRED FOR TRAFFIC MAINTENANCE SHALL BE INCLUDED WITH PAYMENT FOR ITEM 614 MAINTAINING TRAFFIC.

DETOUR LIMITATIONS: TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES, EXCEPT FOR A PERIOD NOT TO EXCEED 120 CALENDAR DAYS, WHEN THROUGH TRAFFIC MAY BE DETOURED AS SHOWN HEREIN. LIQUIDATED DAMAGES SHALL BE ASSESSED IN ACCORDANCE WITH SECTION 108.07 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS, FOR EACH CALENDAR DAY THAT THE ROADWAY REMAINS CLOSED TO TRAFFIC, BEYOND THE SPECIFIED LIMITS.

THE DETOUR SHOWN ON THIS SHEET SHALL NOT BE PLACED INTO EFFECT PRIOR TO APRIL 1, * UNLESS OTHERWISE APPROVED BY THE DIRECTOR. UNTIL THE DETOUR IS PLACED INTO EFFECT, TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.

* 1994

LIGHTS AND SIGNS AT ADJACENT ROAD INTERSECTIONS: THE CONTRACTOR SHALL, IN ADDITION TO THE GENERAL REQUIREMENTS OF ITEM 614 ON THIS PROJECT, PERFORM THE FOLLOWING:

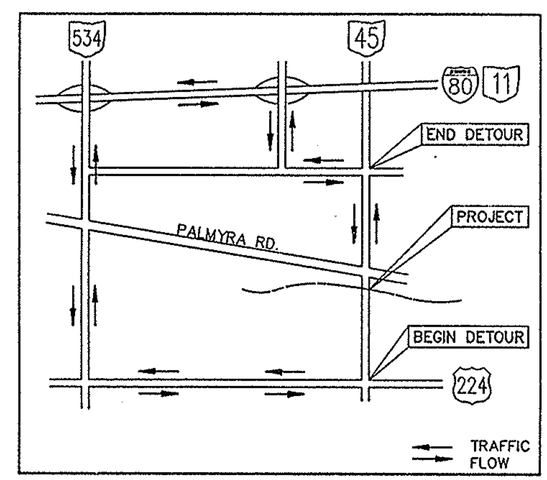
PROVIDE, ERECT, AND MAINTAIN STANDARD 48" X 30" SIZE "ROAD CLOSED" SIGNS, SIGN SUPPORTS, AND LIGHTS, AT THE FOLLOWING LOCATIONS, DURING PERIODS IN WHICH THE AFFECTED ROADS ARE CLOSED TO TRAFFIC:

1. AT INTERSECTION OF U.S. 224 & S.R. 45
2. AT INTERSECTION OF PALMYRA RD. & S.R. 45
3. AT INTERSECTION OF DIEHL RD. & S.R. 45

SIGN SUPPORTS AND LIGHTS FOR "ROAD CLOSED" SIGNS SHALL BE AS DETAILED IN "THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS." PAYMENT FOR PROVIDING, ERECTING, MAINTAINING, AND REMOVING LIGHTS, SIGNS, AND SIGN SUPPORTS, SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614, MAINTAINING TRAFFIC.

ITEM 614 WORK ZONE PAVEMENT MARKINGS
THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE BY THE ENGINEER FOR TEMPORARY PAVEMENT MARKINGS AS PER STD. DWG. MT-99.10. IF THE PERMANENT PAVEMENT MARKINGS ARE IN PLACE PRIOR TO OPENING THE ROAD TO TRAFFIC THE TEMPORARY PAVEMENT MARKINGS SHALL BE NON-PERFORMED.

ITEM	UNIT	DESCRIPTION
614	0.28 MI.	TEMPORARY CENTERLINES, CLASS II



DETOUR MAP

CALCULATIONS AND GENERAL SUMMARY

CALC. BY J.T. DATE 6-91
CHKD. BY W.S. DATE 7-91

REGION	STATE	PROJECT	
5	OHIO		

MAHONING COUNTY
MAH-45-8.38

STATION LIMITS	LENGTH	WIDTH
STA. 438+75 TO STA. 439+00 =	25 L.F.	25.13' SALVAGE
STA. 439+00 TO STA. 439+25 =	25 L.F.	24'
STA. 439+25 TO STA. 453+00 =	1375 L.F.	24'
STA. 439+00 TO STA. 453+00 =	1400 L.F.	24'
STA. 453+00 TO STA. 453+50 =	50 L.F.	25.50' SALVAGE

ITEM 202 - WEARING COURSE REMOVED

(25 L.F.) (25.13')(1/9) +
(50 L.F.) (25.50)(1/9) = 211.48 S.Y.
USE 212 S.Y.

ITEM 203 - SUBGRADE COMPACTION

(1400 L.F.) (32') (1/9) = 4977.78 S.Y.
USE 4978 S.Y.

ITEM 301 - BITUMINOUS BASE, AC-20

(T = 4")
(2)[(25 L.F.)$(\frac{2+4}{2})$(4/12)+(1375 L.F.)(3.5)(4/12) +
(50 L.F)$(\frac{2+4}{2})$(4/12)](1/27) = 124.38 C.Y.

(T = 7")
(1400 L.F.)(25)(7/12)(1/27) = 756.17 C.Y.

TOTAL: 124.38 C.Y.+ 756.17 C.Y. = 880.55 C.Y.
USE 881 C.Y.

ITEM 304 - 6" AGGREGATE BASE, AS PER PLAN

(1400 L.F.)(26)(6"/12)(1/27) = 674.1 C.Y.
USE 674 C.Y.

ITEM 402 -ASPHALT CONCRETE, AC-20

(2)(25 L.F.)$(\frac{2+4}{2})(\frac{1\ 3/4}{12})$(1/27) = 0.81 C.Y.

(25 L.F.)$(\frac{28+32}{2})(\frac{1\ 3/4}{12})$(1/27) +
(1375 L.F.)(32)$(\frac{1\ 3/4}{12})$(1/27) = 241.71 C.Y.

(2)(50 L.F.)$(\frac{2+4}{2})(\frac{1\ 3/4}{12})$(1/27) = 1.62 C.Y.

TOTAL: 0.81 C.Y.+241.71 C.Y.+1.62 C.Y.=244.14 C.Y.
USE 244 C.Y.

ITEM 404 - ASPHALT CONCRETE, AC-20

(25 L.F.)$(\frac{28+32}{2})(\frac{1\ 1/4}{12})$(1/27) = 2.89 C.Y.

(25 L.F.)$(\frac{28+32}{2})(\frac{1\ 1/4}{12})$(1/27) +
(1375 L.F.)(32)$(\frac{1\ 1/4}{12})$(1/27) = 172.65 C.Y.

(50 L.F.)$(\frac{28+32}{2})(\frac{1\ 1/4}{12})$(1/27) = 5.79 C.Y.

TOTAL: 2.89 C.Y.+172.65 C.Y.+5.79 C.Y.=181.33 C.Y.
USE 182 C.Y.

ITEM 407 - TACK COAT (0.075 GAL./S.Y.)

(25 L.F.)(25.13)(1/9) (0.075 GAL./S.Y.) = 5.24 GAL.
(50 L.F.)(25.50)(1/9)(0.075 GAL./S.Y.) = 10.62 GAL.

TOTAL: 5.24 GAL.+ 10.62 GAL. = 15.86 GAL.
USE 16 GAL.

ITEM 408 - PRIME COAT (0.40 GAL./S.Y.)

(1400 L.F.)(25)(1/9) (0.40 GAL./S.Y.) = 1555.6 GAL.
USE 1556 GAL.

ITEM 659 - WATER

(2)(14116 SY)(9)(120 GAL/1000 SF)(1/1000) = 30.49 MGAL
USE 30 MGAL

ITEM 659 - COMMERCIAL FERTILIZER

(14116 SY) (9) (1/1000) (20) (1/2000) = 1.27 TONS
USE 1.27 TONS

ITEM 659 - AGRICULTURAL LIMING

(14116 S.Y.)(9)(1/1000)(100)(1/20000) = 6.35 TONS
USE 6.35 TONS

ITEM 605 - AGGREGATE DRAIN

(2)(1400 LF)(1/50)(12) = 672 LF
USE 672 LF

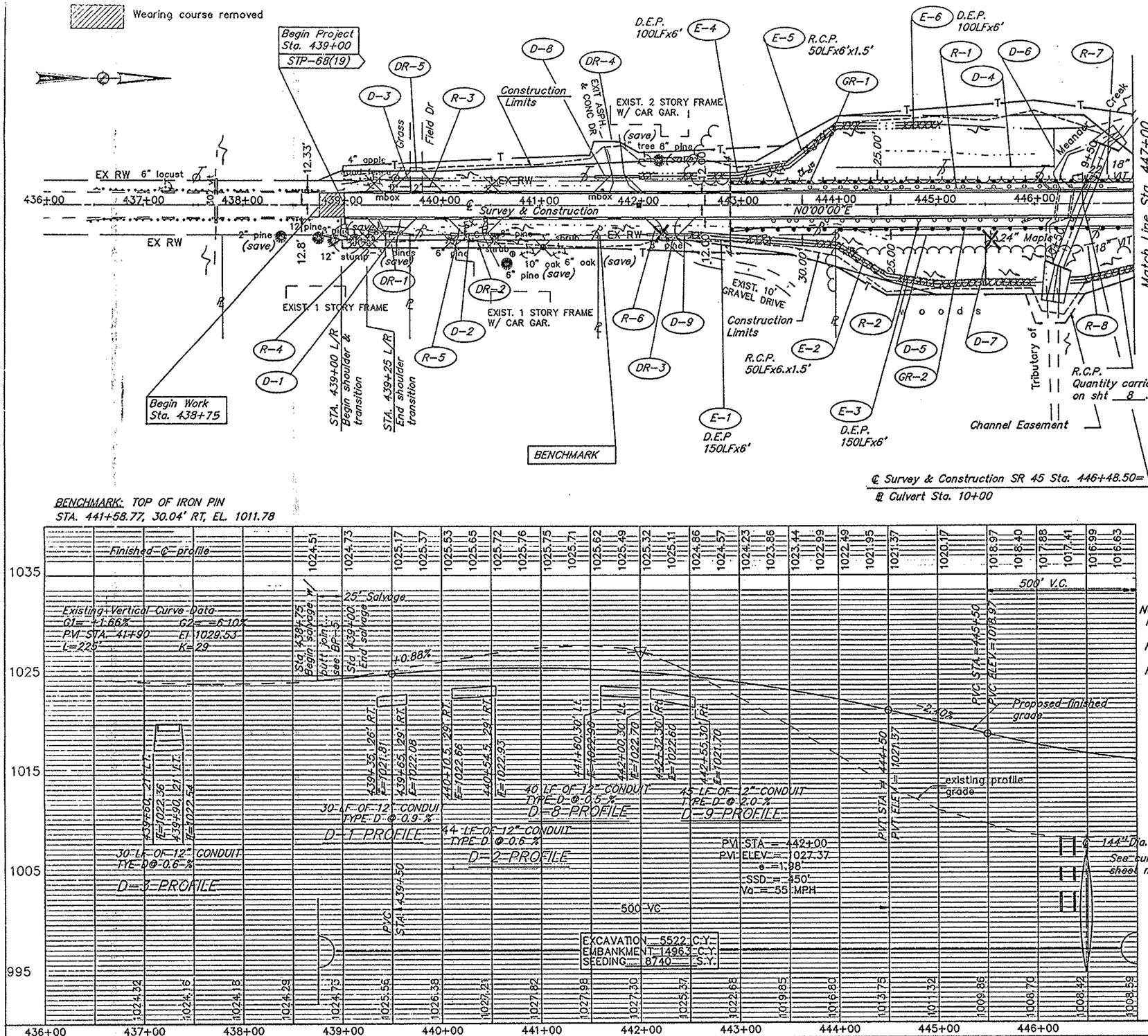
ITEM 614 - TEMPORARY CENTERLINE CLASS II

STA. 438+75 - STA. 453+50 = 1475 LF
(1475 LF) (1/5280) = 0.28 MI.
USE 0.28 MI.

TOTAL FROM SHEET NO. 4	5	6	7	8	18	19			EXT.	GRAND TOTAL		DESCRIPTION
												ROADWAY
Lump								201	11000	Lump		Clearing and Grubbing
						Lump		202	11000	LUMP		Structure Removed
					36			202	23000	36	S.Y.	Pavement Removed
		212						202	23500	212	S.Y.	Wearing Course Removed
			191					202	35100	191	L.F.	Pipe Removed, 24"and under
			720	142.5				202	38000	862.5	L.F.	Guardrail Removed
			5522	1595				203	12000	7117	C.Y.	Excavation not Including Embankment Construction
			14963	3805				203	20000	18768	C.Y.	Embankment
		4978						203	50000	4978	S.Y.	Subgrade Compaction
	20							503	21101	20	C.Y.	Unclassified Excavation as per plan,(see sht. 5)
1								604	38500	1	Each	Monument Assembly
			800	550				606	13000	1350	L.F.	Guardrail , Type 5
			2	2				606	26100	4	Each	Anchor Assembly, Type E
												EROSION CONTROL
350								207	30000	350	L.F.	FILTER FABRIC FENCE
100								207	70000	100	Each	Straw or Hay Bales
			34	34				601	32200	68	C.Y.	Rock Channel Protection, Type C w/Filter
						89		601	32004	89	C.Y.	Rock Channel Protection, Type A w/Fabric Filter
			8740	5376				659	10000	14116	S.Y.	Seeding and Mulching
		1.27						659	20000	1.27	Ton	Commercial Fertilizer
		6.35						659	30000	6.35	Ton	Agricultural Liming
30								659	35000	30	M.Gal.	Water
			401	701				670	40000	1102	S.Y.	Ditch Erosion Protection
												DRAINAGE
						66		601	11000	66	S.Y.	Riprap Using 6" Reinforced Concrete Slab
						26		602	20000	26	C.Y.	Concrete Masonry
			81					603	01500	81	L.F.	6" Conduit, Type F 707.17, Non-Perforated, ASTM 3034 SDR 35 , SS 931 or SS 944
			186					603	04900	186	L.F.	12" Conduit, Type D
						132		603	38000	132	L.F.	144" Conduit Type A, 706.02 or 150", 707.03 (0.109) W/Concrete Field Paving, as per plan (see sht. 5)
			2					SPECIAL	404-36600	2	Each	Precast Reinforced Concrete Outlet (SEE SHT 3)
			320					605	13300	320	L.F.	6" Unclassified Pipe Underdrain, 707.17, ASTM SDR 35 SS944 for SS 931 Perforated as per 707.15 3034
		672						605	31100	672	L.F.	Aggregate Drain
												PAVEMENT
		881						301	10002	881	C.Y.	Bituminous Aggregate Base, AC-20
		674			61			304	20001	735	C.Y.	Aggregate Base, as per plan(see sht. 4)
		244						402	20000	244	C.Y.	Asphalt Concrete, AC-20
		182						404	20000	182	C.Y.	Asphalt Concrete, AC-20
					16			404	25000	16	C.Y.	Asphalt Concrete, AC-20 (Driveways)
		16						407	10000	16	Gal.	Tack Coat
		1556						408	10000	1556	Gal.	Bituminous Prime Coat
					74			452	10000	74	S.Y.	6" Plain Concrete Pavement
												MAINTENANCE OF TRAFFIC
	50							410	10000	50	C.Y.	Traffic Compacted Surface, Type A
		0.28						614	21400	0.28	Mi.	Temporary Centerline, Class II
	5							616	10000	5	MGal	Water
	10							616	20000	10	TON	Calcium Chloride
												TRAFFIC CONTROL
				0.56				642	00100	0.56	Mi.	Edgeline Type 1
				0.28				642	00300	0.28	Mi.	Centerline Type 1
				16				802	00100	16	Each	Barrier Reflector, Type A
	Lump							614	11000	Lump		Maintaining Traffic
								619	15000	Lump		Field Office, Type A
								623	10000	Lump		Construction Layout Stakes
								624	10000	Lump		Mobilization

	BY	DATE	REGION	STATE	PROJECT
Calculated	TJM	5/91	5	OHIO	
Checked	WJS	7/91			

MAHONING COUNTY
MAH-45-8.38



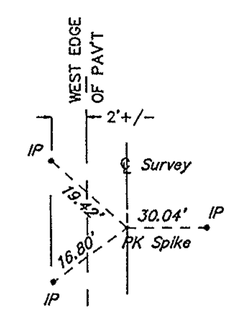
BENCHMARK: TOP OF IRON PIN
STA. 441+58.77, 30.04' RT, EL. 1011.78

* 707.17 Non-perforated, ASTM 3034 or SDR 35, SS 931 or SS944

ROADWAY QUANTITIES

Ref. No.	Station To Station	Side	202 Pipe removed 24" and under Lf.	202 Guardrail Removed Lf.	603 6" Conduit Type F* Lf.	603 12" Conduit Type D Lf.	605 6" Unclassified Pipe Underdrain Lf.	606 Guardrail Type 5 Lf.	606 Anchor Assembly Type 5 Ea.	Spec. Precast Reinf. Conc. Outlet Ea.	601 Rock Chan. Prot. Type C w/Filter C.Y.	670 Ditch Erosion Protection S.Y.
R-1	443+47-447+00	LT		353								
R-2	443+43-447+00	RT		367								
R-3	439+56-439+95	LT	39									
R-4	439+37-439+59	RT	22									
R-5	440+18-440+46	RT	28									
R-6	442+14-442+41	RT	27									
R-7	446+55-446+95	LT	40									
R-8	446+50-446+85	RT	35									
E-1	442+50-444+00	RT										100
E-2	444+00-444+50	RT									17	
E-3	444+50-446+00	RT										100
E-4	442+50-443+50	LT										67
E-5	443+50-444+00	LT									17	67
E-6	444+00-445+00	LT										67
D-1	439+35-439+65	RT				30						
D-2	440+10.5-440+54.5	RT				44						
D-3	439+60-439+90	LT				30						
D-4	444+00-446+20	LT					220					
D-5	444+50-445+50	RT					100					
D-6	446+20	LT			36					1		
D-7	445+50	RT			45					1		
D-8	441+60-442+00					40						
D-9	442+10-442+55					42						
GR-1	442+75-447+00	LT						400	1			
GR-2	442+75-447+00	RT						400	1			
	TOTAL		191	720	81	186	320	800	2	2	34	401

NOTE:
For driveway details...see sheet no. 18.
For pavement marking quantities...see sheet 8.
Monument assembly quantity carried on sheet 4.
■ = Monument Assembly



Centerline Reference Tie
P.O.T. STA. 441+57.88

EXISTING STRUCTURE

TYPE : Single Span Concrete Slab Bridge
SPANS : 12' f\f Abutments
ROADWAY : 27' f\f Guardrail
SKEW : 80° L.F.
ALIGNMENT : Tangent
CONDITION : Poor
YEAR BUILT : Unknown

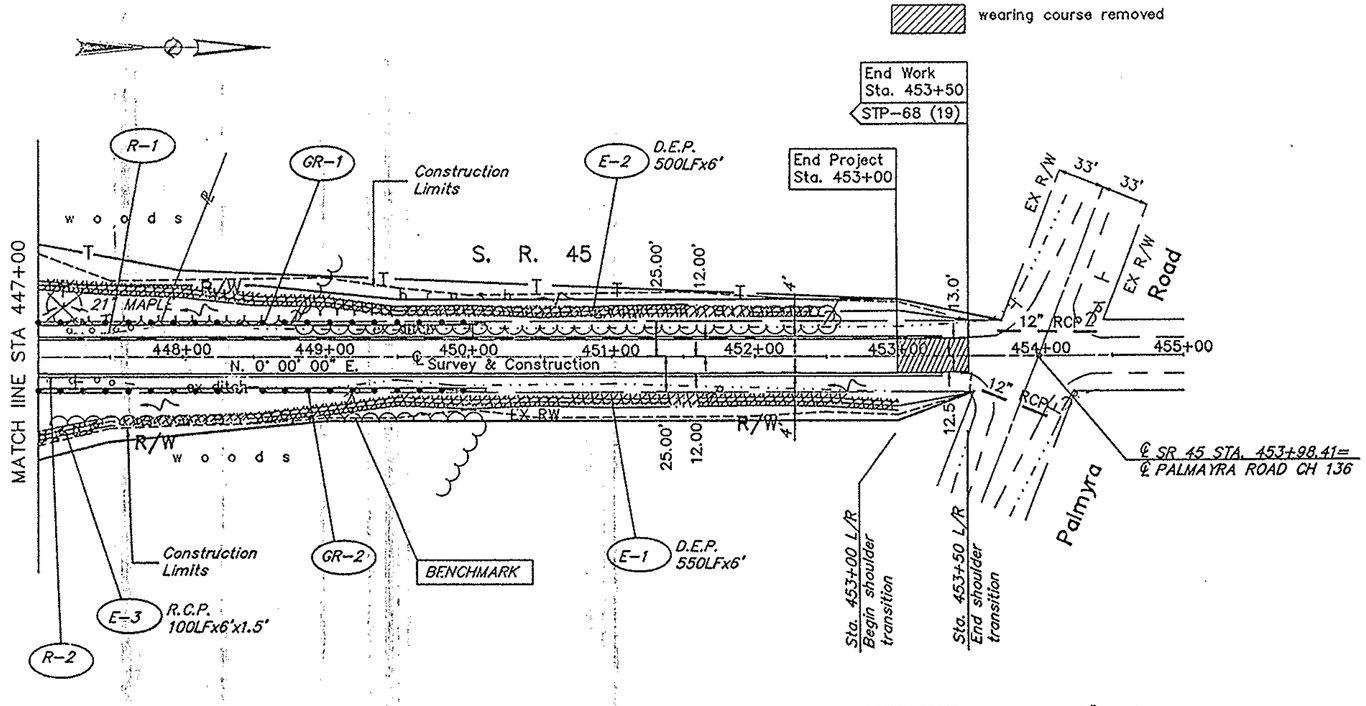
PROPOSED STRUCTURE

TYPE : 144" Dia. 603 Conduit Type A 706.02 or 150" 707.03 (0.109) w/conc. field paving
SPANS : N/A
ROADWAY : 44'-0" F/F Guardrail
SKEW : 22° L.F.
ALIGNMENT : Tangent
DESIGN LOADING HS-20-44 Alt. Military Loading
APPROACH SLAB : N/A
SUPERELEVATION : None
WEARING SURFACE : Asphalt Concrete
AVG. DAILY TRAFFIC : 4310 1992, 5600 2012

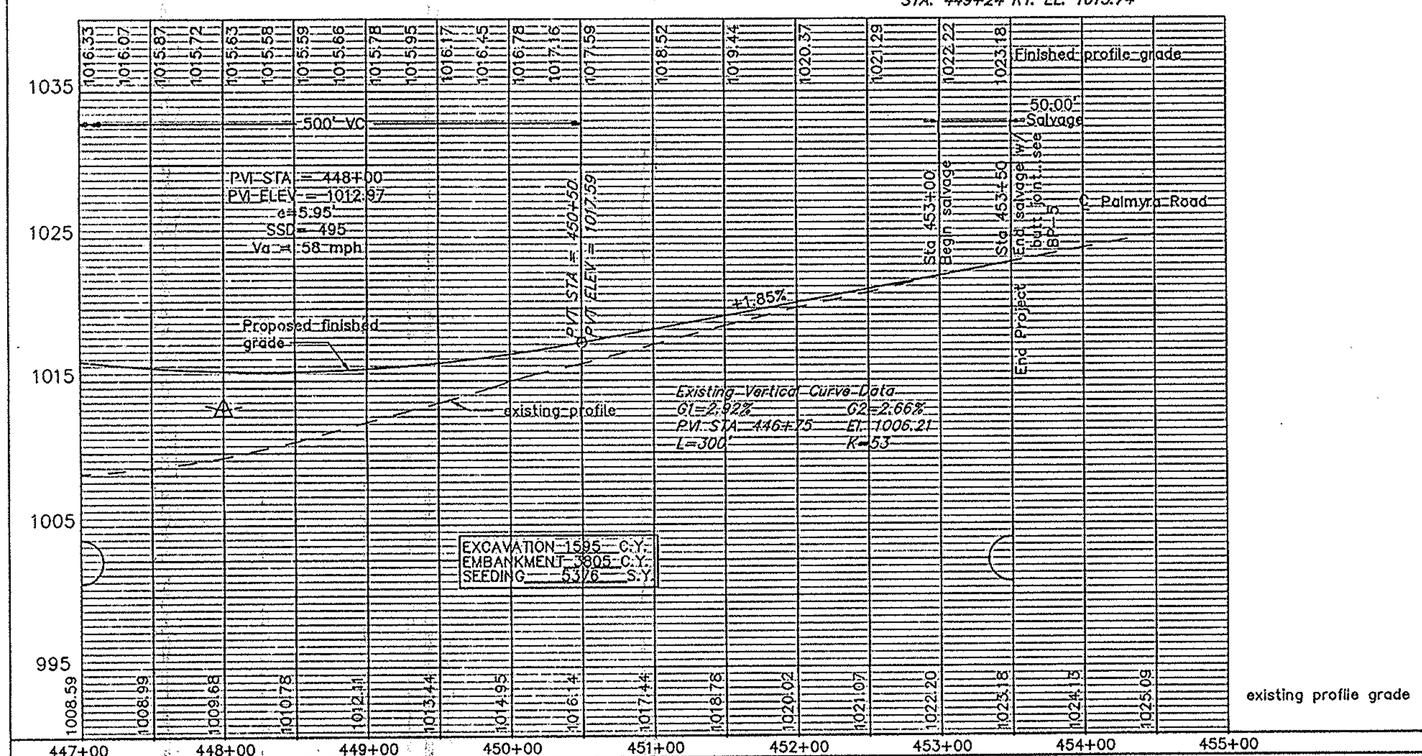
PLAN AND PROFILE STA. 436+00 to 447+00

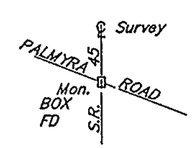
	BY	DATE	REGION	STATE	PROJECT
Calculated	T.J.M.	5/91	5	OHIO	
Checked	W.J.S.	7/91			

MAHONING COUNTY
MAH-45-8.38



BENCHMARK: RR Spike in 18" Maple
STA. 449+24 RT. EL. 1013.74





Centerline Reference Tie
P.O.T. STA. 453+98.41

ROADWAY QUANTITIES

Ref. No.	Station To Station	Side	202 Guardrail Removed (LF)			606 Guardrail Type 5 (LF)	606 Anchor Assm'y Type E (EA)		601 Rock Chan Prot Type C (C.Y.)	670 Ditch Erosion Protection (S.Y.)		
R-1	447+00-447+72	LT	72									
R-2	447+00-447+70.5	RT	70.5									
GR-1	447+00-450+00	LT				275	1					
GR-2	447+00-450+00	RT				275	1					
E-1	447+50-453+00	RT								367		
E-2	447+50-452+50	LT								334		
E-3	446+50-447+50	RT							34			
	TOTAL		142.5			550	2		34	701		

TRAFFIC CONTROL QUANTITIES

Station To Station	Side	ITEM 802 Barrier Reflectors Type A (Ea.)	ITEM 642 White-Type 1 Edge Lines (Mi.)	ITEM 642 Yellow-Type 1 Centerlines (Mi.)
438+75-447+00	LT		0.16	
438+75-447+00	RT		0.16	
438+75-447+00	℄			0.16
442+75-447+00	RT	5		
442+75-447+00	LT	5		
447+00-453+50	LT		0.12	
447+00-453+50	RT		0.12	
447+00-453+50	℄			0.12
447+00-450+00	LT	3		
447+00-450+00	RT	3		
TOTAL		16	0.56	0.28

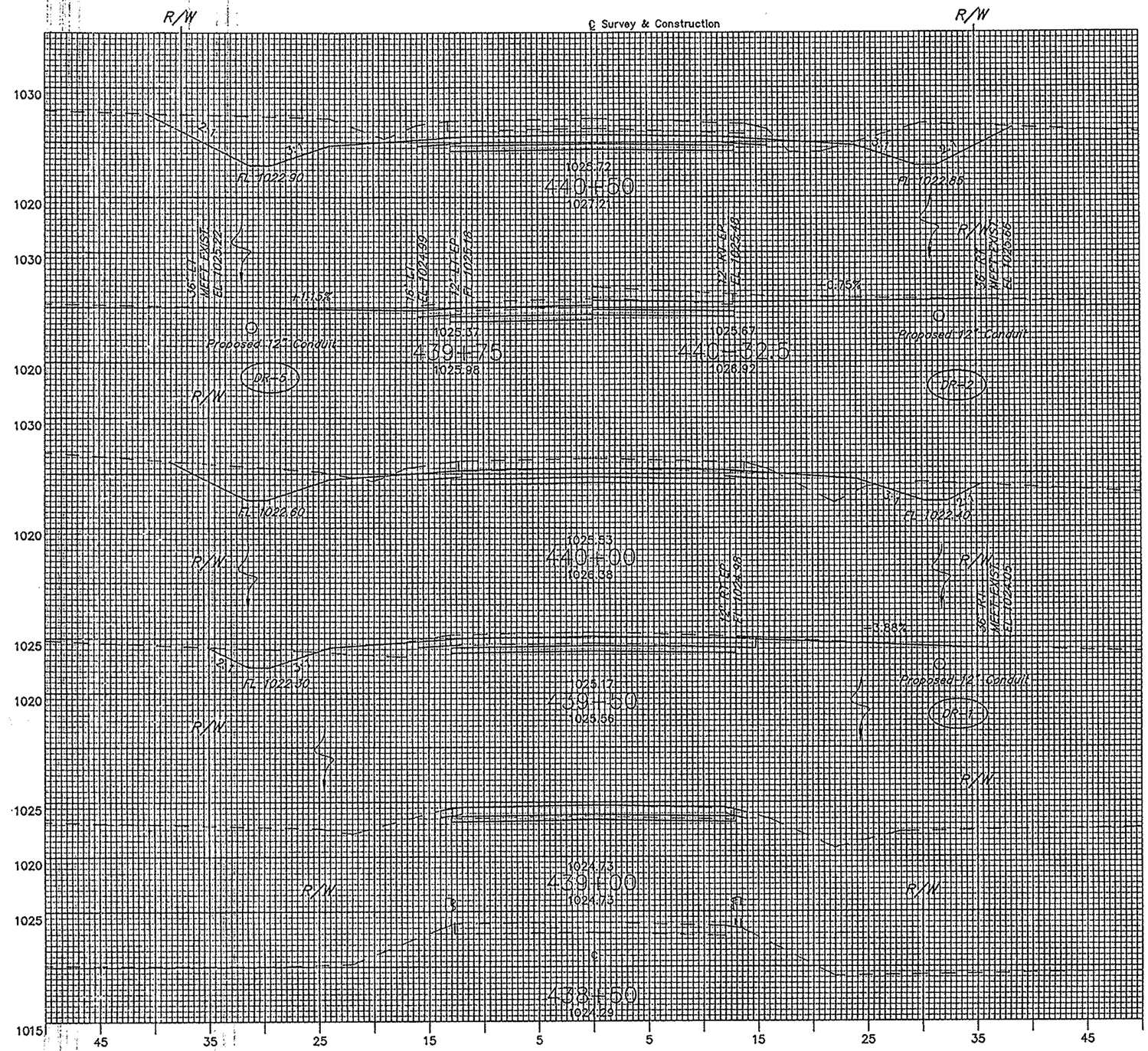
PLAN AND PROFILE STA. 447+00 to 455+00

	BY	DATE
Calculated	WS	10-92
Checked	TM	10-92

FED. RD. DIVISION	STATE	PROJECT	
	OHIO		

9/23

MAHONING COUNTY
MAH-45-8.38



			END AREA CUT SQ.FT.	END AREA FILL SQ.FT.	VOLUME CUT CU.YD.	VOLUME FILL CU.YD.
68			170	4		
	361				250	15
62			100	12		
	342				143	17
61			54	6		
	225				82	6
20		Begin Seeding Sta. 439+00 L/R	35	0		
		Begin Project Sta. 439+00			32	0
		Begin Work Sta. 438+75	35	0		

Quantities Carried to Sheet No. 7

CROSS-SECTION STA. 439+00 TO 440+50

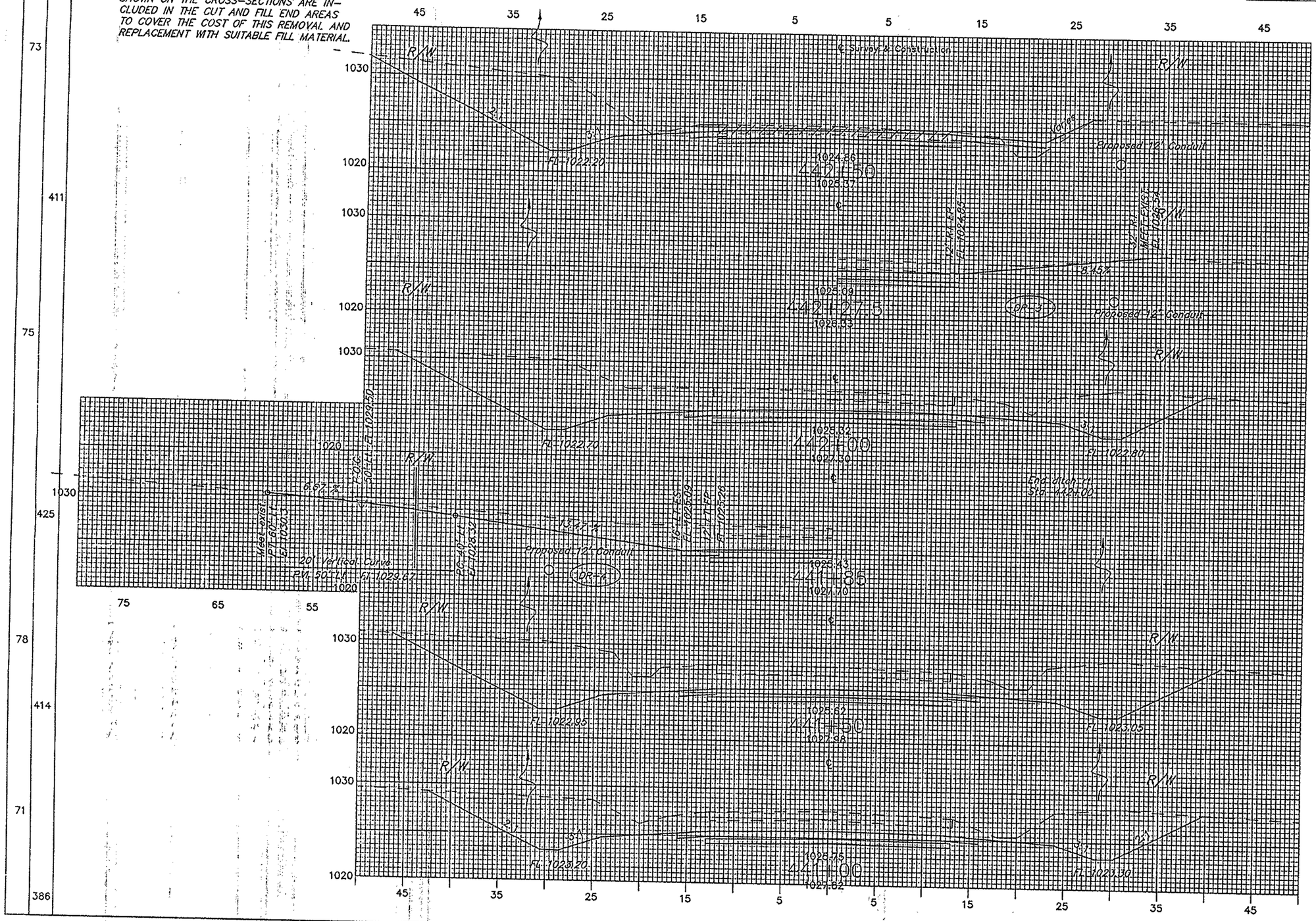
THE CONTRACTOR SHALL REMOVE THE EXISTING PAVEMENT FROM STA. 442+50 TO STA. 443+50 AND FROM STA. 449+50 TO 452+50 AS PER SPEC. 203.04. THE CROSSHATCHED AREAS SHOWN ON THE CROSS-SECTIONS ARE INCLUDED IN THE CUT AND FILL END AREAS TO COVER THE COST OF THIS REMOVAL AND REPLACEMENT WITH SUITABLE FILL MATERIAL.

	BY	DATE
Calculated	WS	10-92
Checked	TM	10-92

FED. RD. DIVISION	STATE	PROJECT	
	OHIO		

10/23

MAHONING COUNTY
MAH-45-8.38



		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
+50	AHD	176	7		
	BAK	176	7		
				428	3
		287	0		
				558	0
		315	0		
				515	0
		241	0		
				381	4

Quantity Carried to Sheet No. 7

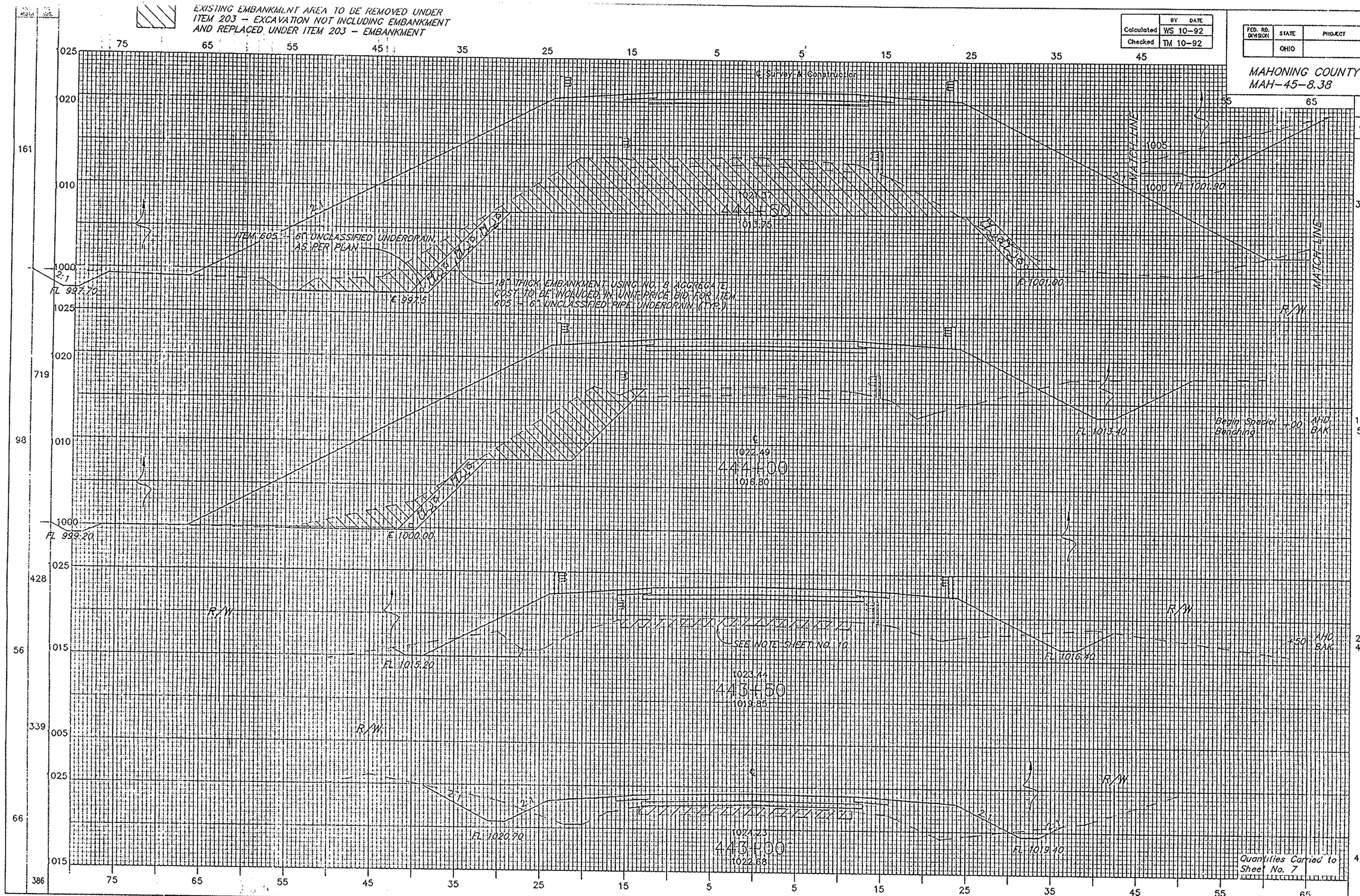
CROSS-SECTION STA. 441+00 TO STA. 442+50

	BY	DATE
Calculated	WS	10-92
Checked	TM	10-92

FED. RD. DIVISION	STATE	PROJECT	
	OHIO		

11/23

MAHONING COUNTY
MAH-45-8.38



Station	End Area Cut	End Area Fill	Volume Cut	Volume Fill
444+50	381	1377		
			490	1915
444+00	148	691		
Begin Special Benching +00 AHD	50	596		
			66	740
443+50	21	203		
+50 AHD	41	223		
			77	296
443+00	42	97		
			202	96

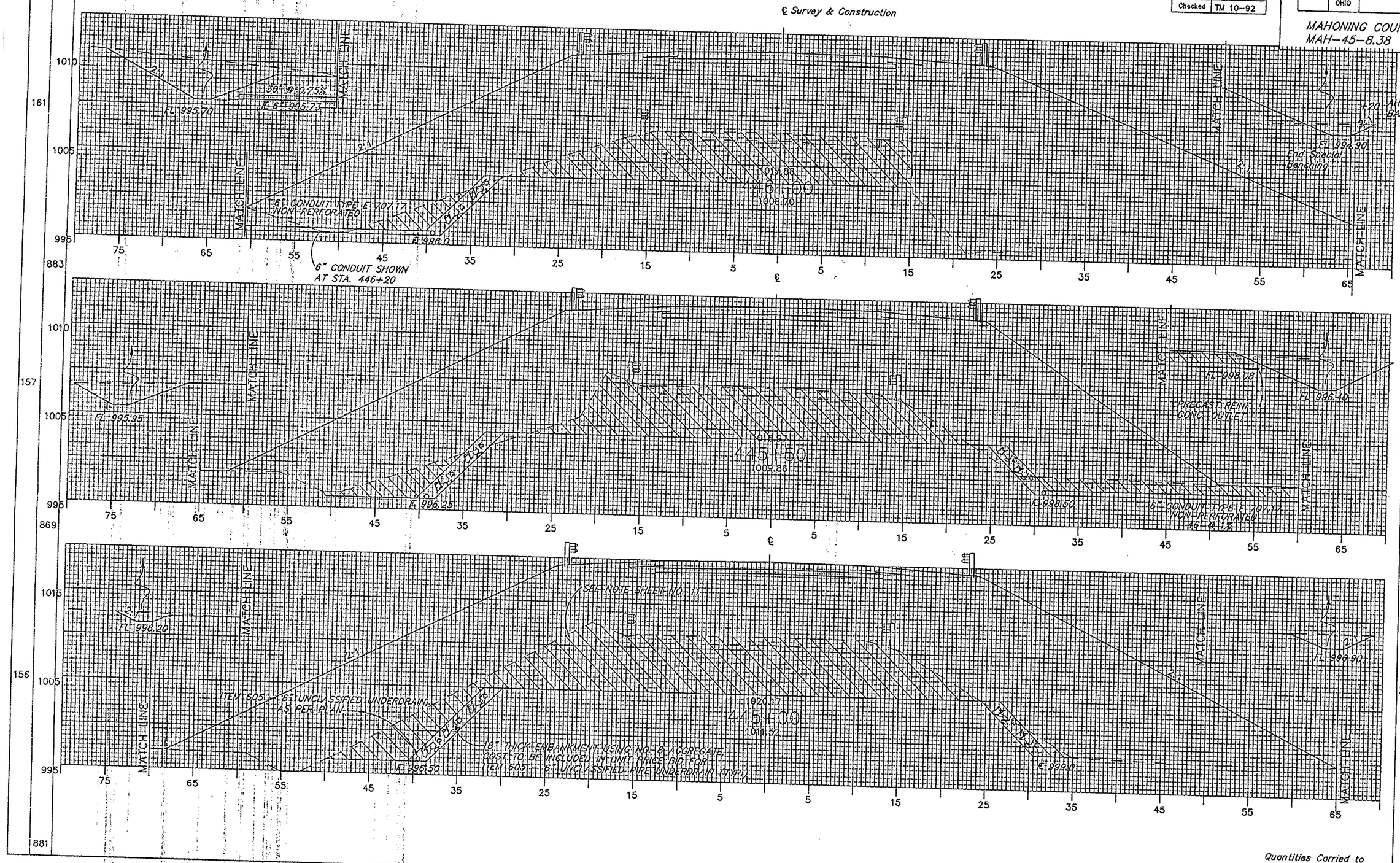
CROSS-SECTIONS STA. 443+00 TO STA. 444+50

	BY	DATE
Calculated	WS	10-92
Checked	TM	10-92

FED. RD. DIVISION	STATE	PROJECT	
	OHIO		

12/23

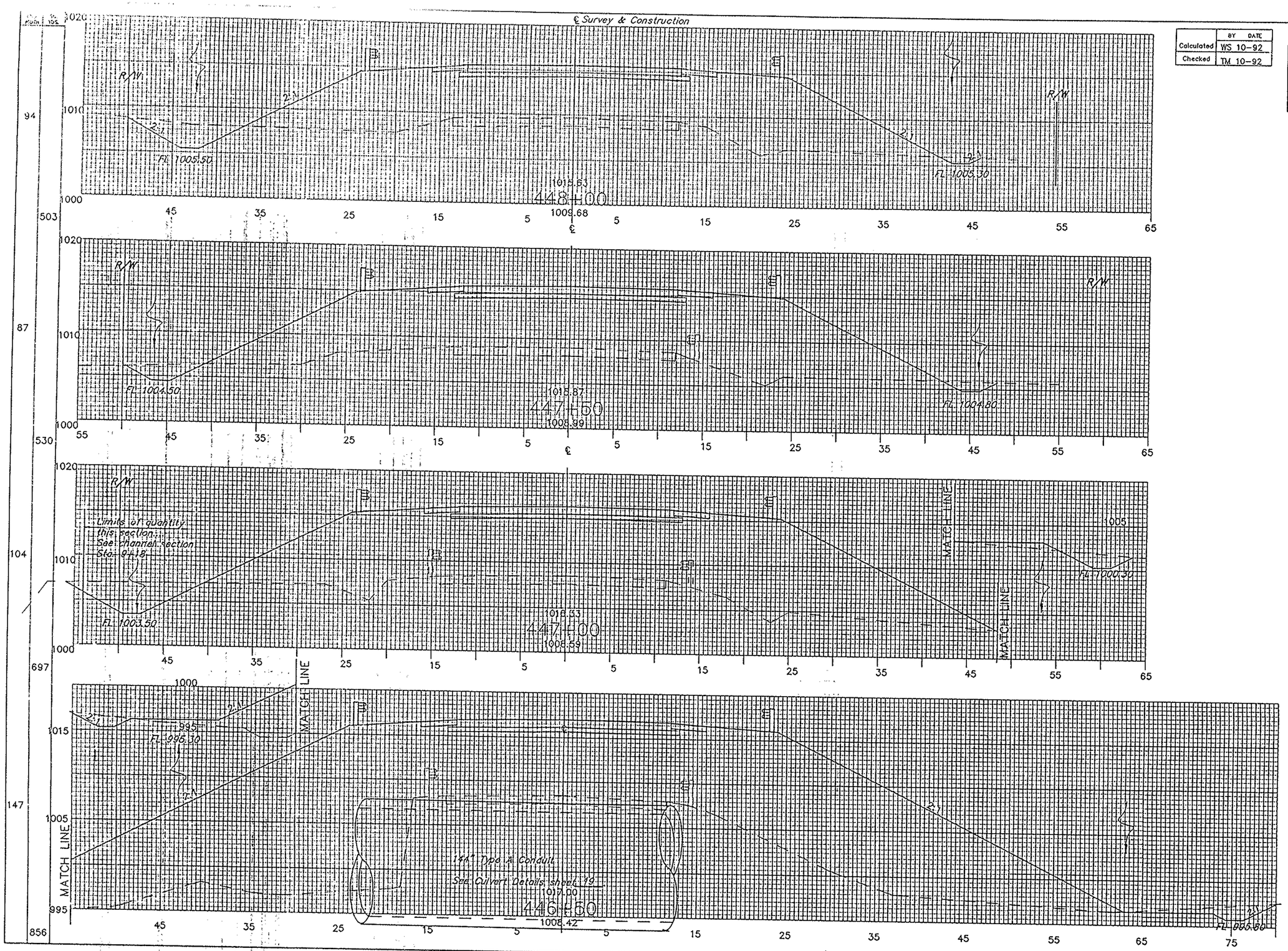
MAHONING COUNTY
MAH-45-8.38



	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
	61	1332		
	285	1556		
			211	1153
	285	1556		
			588	2608
	350	1261		
			665	2520
	368	1461		
			694	2628

Quantities Carried to Sheet No. 7

CROSS-SECTION STA. 445+00 TO STA. 446+00



	BY	DATE
Calculated	WS	10-92
Checked	TM	10-92

FED. RD. DIVISION	STATE	PROJECT	
	OHIO		

13/23

MAHONING COUNTY
MAH-45-8.38

	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
448+00	24	388		
			34	781
447+50	13	456		
			47	939
447+00	38	558		
			51	1580
446+50	17	1148		
			43	1378

Quantities Carried to Sheet No. 7 & 8

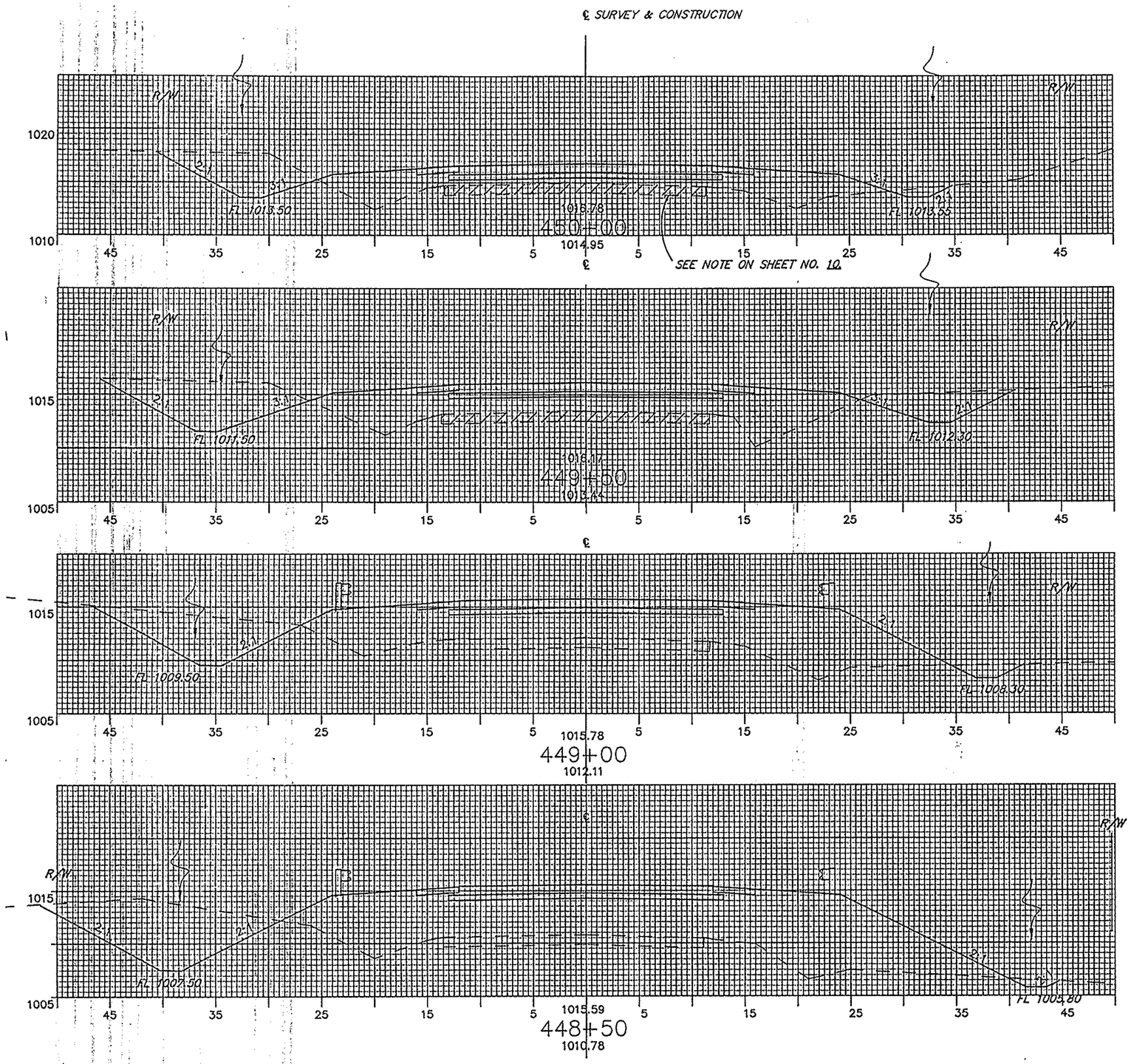
CROSS-SECTION STA. 446+50 TO STA. 448+00

	BY	DATE
Calculated	WS	10-92
Checked	TM	10-92

FED. RD. DIVISION	STATE	PROJECT	
	OHIO		

14/23

MAHONING COUNTY
MAH-45-8.38



			END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
64			59	91		
433					145	208
92	+50	BK	98	134		
		AHD	78	114		
472					142	291
78			75	200		
453					147	447
85			84	283		
497					100	621

Quantities Carried to Sheet No. 8

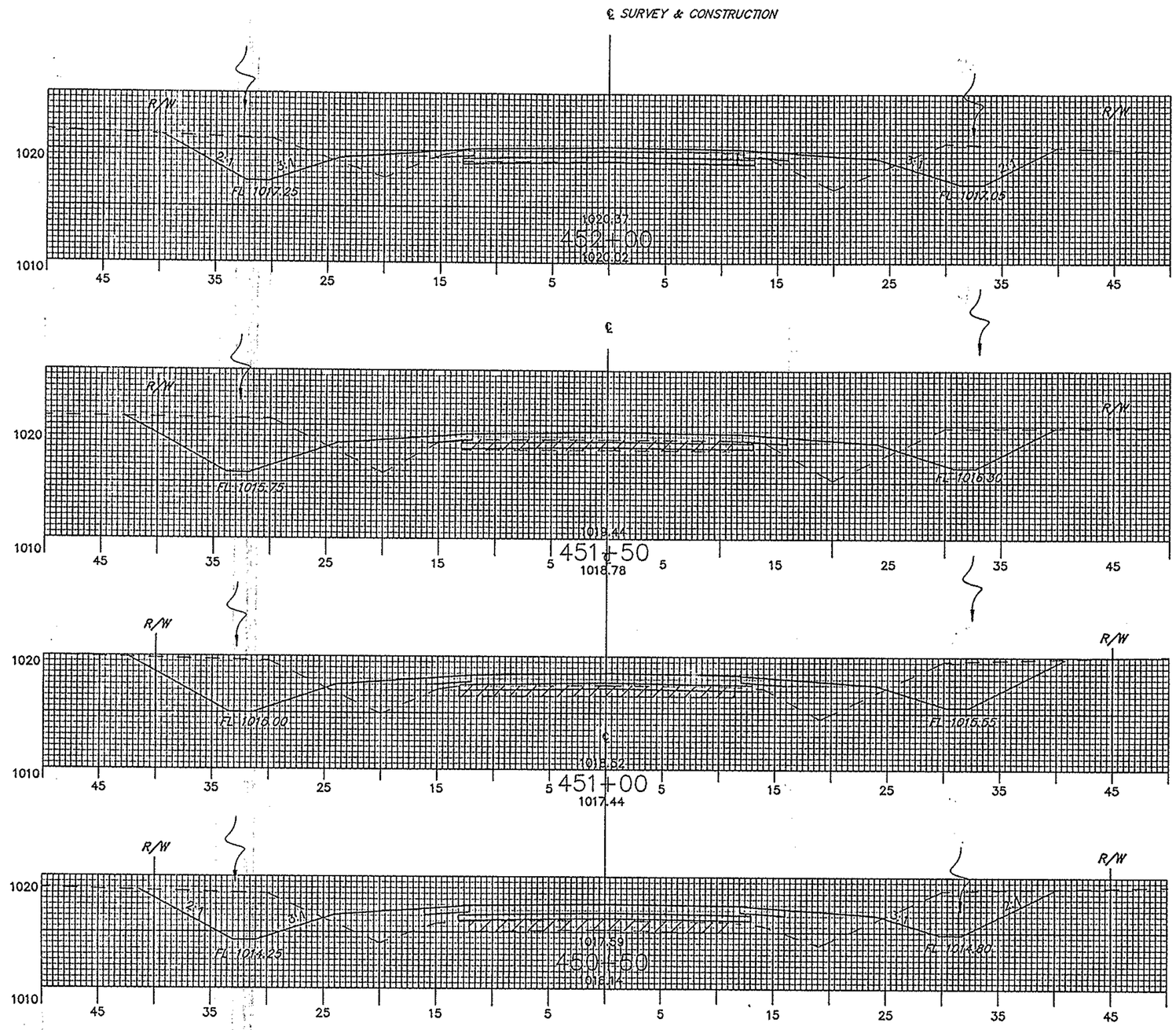
CROSS-SECTION STA. 448+50 TO STA. 450+00

	BY	DATE
Calculated	WS	10-92
Checked	TM	10-92

FED. RD. DIVISION	STATE	PROJECT	
	OHIO		

15/23

MAHONING COUNTY
MAH-45-8.38



			END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
68			90	29		
386					176	61
71	+50	AHD	100	37		
		BAK	120	37		
394					196	78
71			92	47		
389					170	104
69			92	65		
369					140	144

Quantities Carried to Sheet No. 8

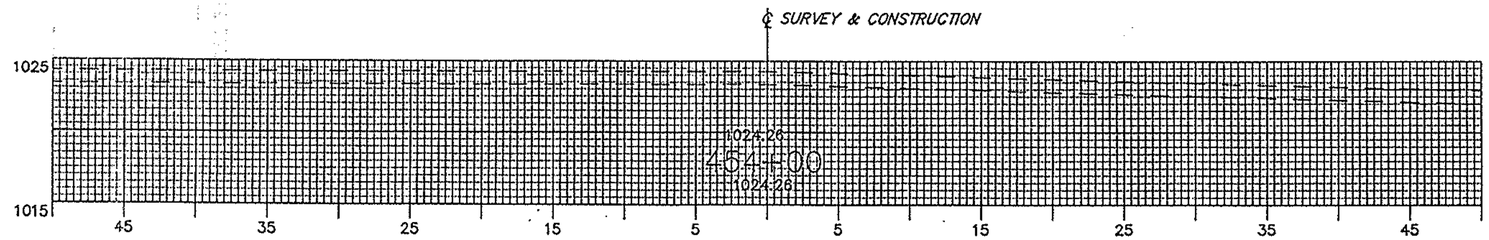
CROSS-SECTION STA. 450+50 TO STA. 452+00

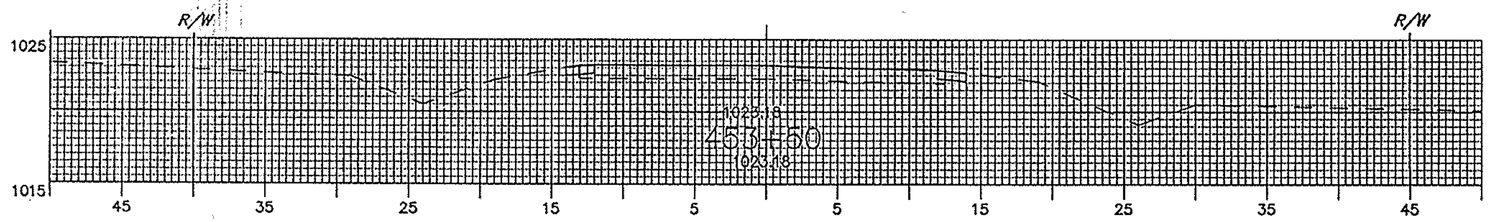
	BY	DATE
Calculated	WS	10-92
Checked	TM	10-92

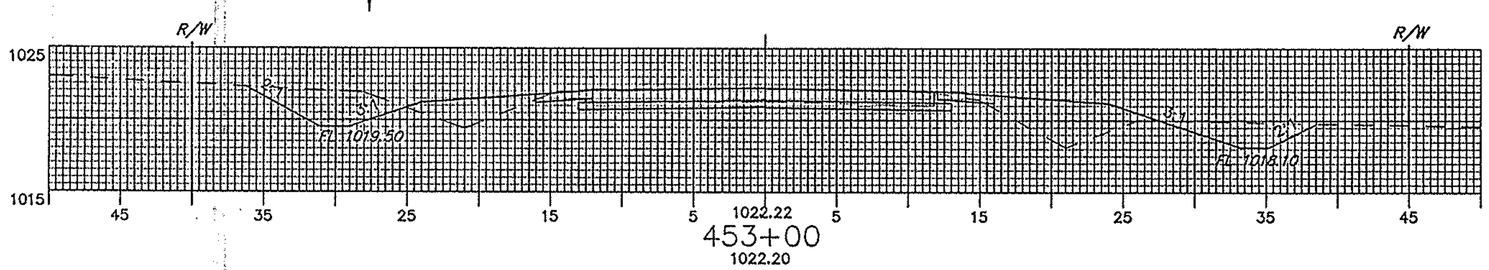
FED. RD. DIVISION	STATE	PROJECT	
	OHIO		

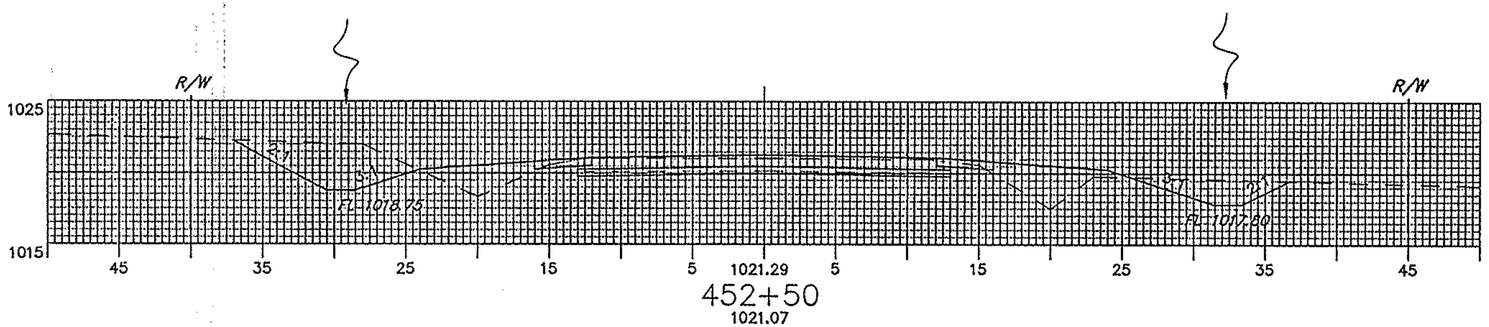
16/23

MAHONING COUNTY
MAH-45-8.38









				END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
20	233	End Seeding Sta. 453+50 L/R	End Work Bak Sta. 453+50	0	0	0	0
				3	0	33	29
64	353	End Project Sta. 453+00	AHD	33	31	120	52
			BK	64	31		
63	364	Quantities Carried to Sheet No. 8		66	25	145	50

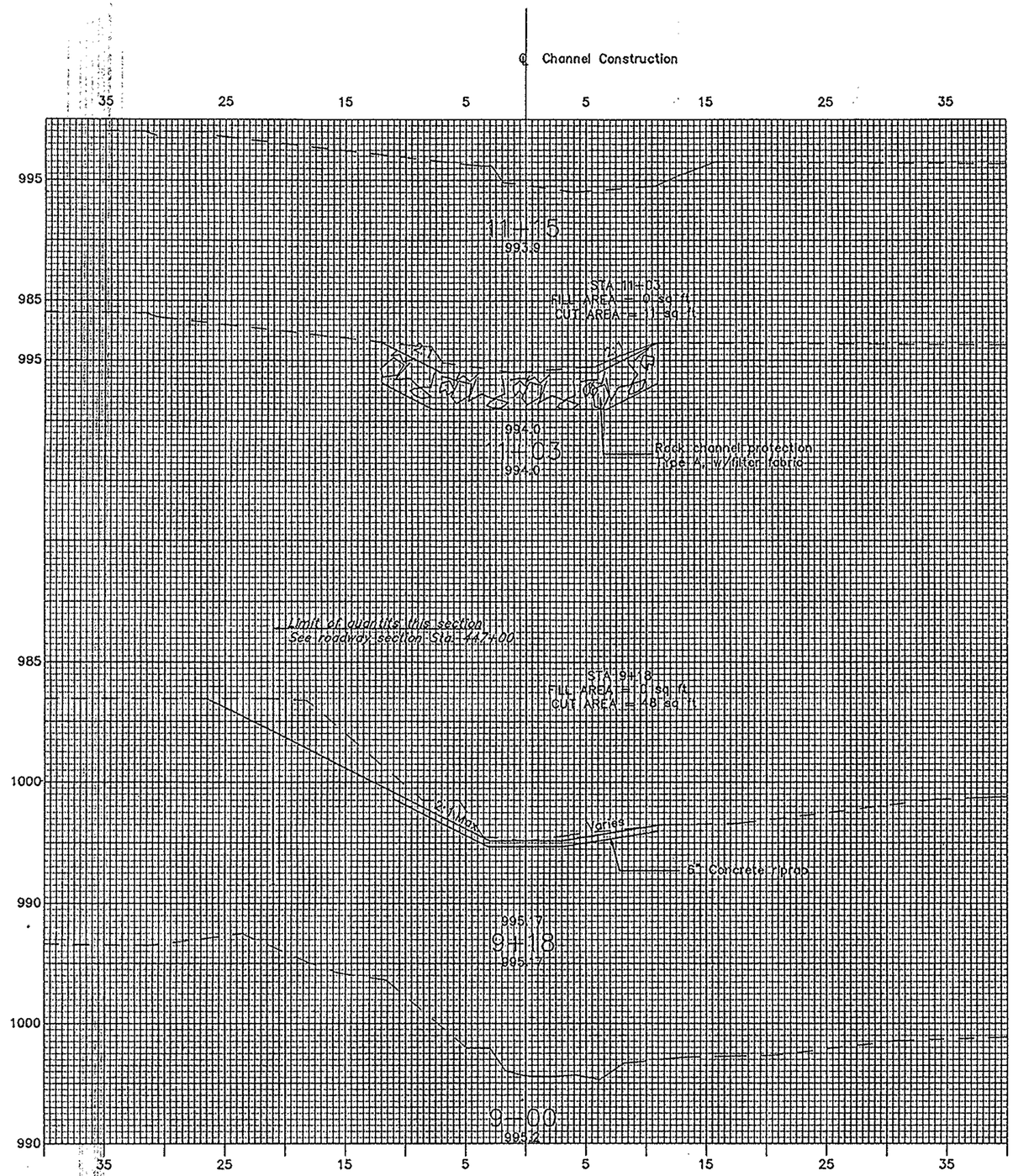
CROSS-SECTION STA. 452+50 TO STA. 454+00

	BY	DATE
Calculated	WD	7-91
Checked	TM	7-91

FED. RD. DIVISION	STATE	PROJECT	
	OHIO		

17/23

MAHONING COUNTY
MAH-45-8.38



				End Area Cut	End Area Fill	Volume Cut	Volume Fill
20		End Seeding Sta. 11+03	End Channel Work & Rock Channel Protection Sta. 11+03	11	0		
	78					14	0
20		10+68 AHD	Sta. 10+68 AHD End 144" Conduit	11	0		
20		9+36 BAK	Sta. 9+36 BAK Begin 144" Conduit	48	0		
	40					32	0
20		Begin Seeding Sta. 9+18	Begin Channel Work & Riprap Sta. 9+18	48	0		

Quantities Carried to Sheet No. 7.

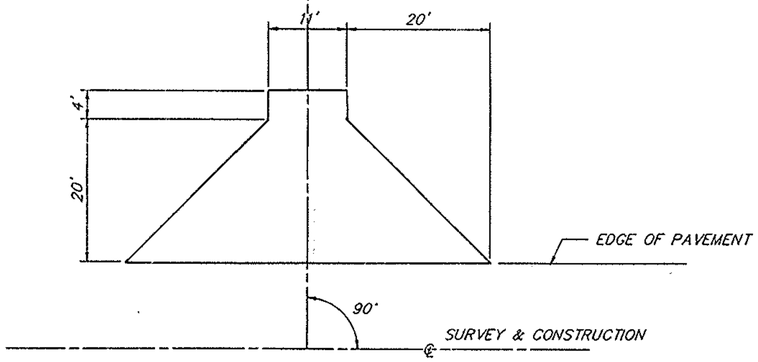
CHANNEL CROSS-SECTION STA. 9+00 TO 11+15

CALC. BY J.J.M. DATE 5/91	MAHONING COUNTY MAH-45-8.38	OHIO
CHECKED BY W.J.J. DATE 7/91		FHWA REGION 5

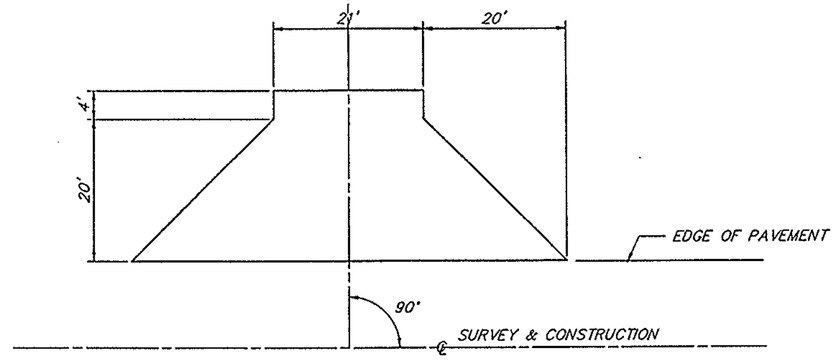
DRIVEWAY DETAILS

DR-5 ℄ STA. 439+75 LEFT

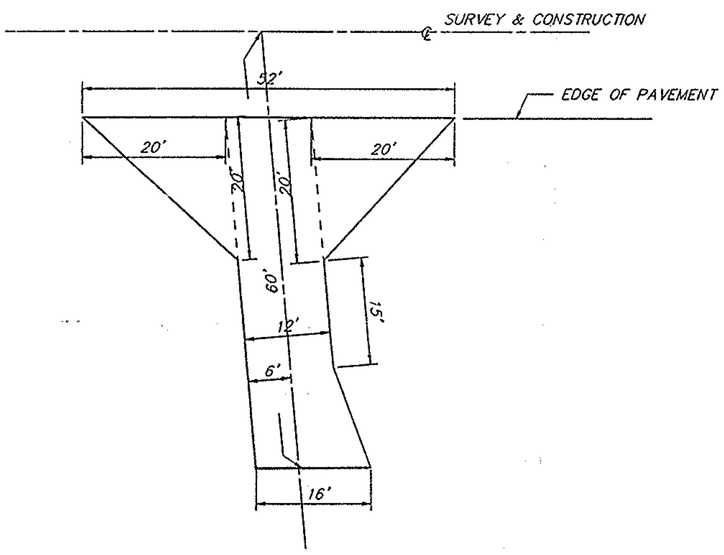
DR-1 ℄ STA. 439+50 RIGHT



DR-2 ℄ STA. 440+32.5 RIGHT

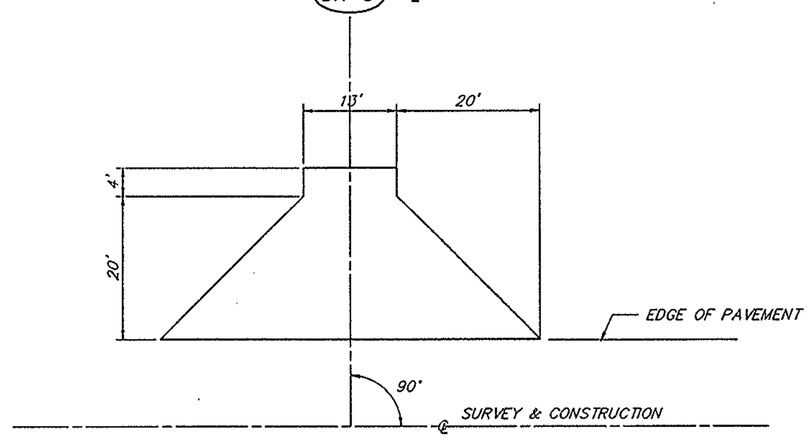


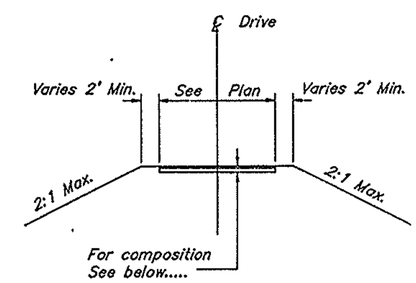
DRIVEWAY QUANTITIES										
DR. No.	Station	Drive Type	Side	202 Pavement Removed S.Y.		452 6" Plain Conc. Pav't S.Y.	404 Asphalt Conc. (Driveways) C.Y.	304 Aggregate Base C.Y.		
DR-1	439+50	2	RT	36		74				
DR-2	440+32.5	3	RT				6	17		
DR-4	441+81.5	3	LT				6	19		
DR-3	442+32	3	RT				4	13		
DR-5	439+75	1	LT					12		
TOTAL				36		74	16	61		



DR-4 ℄ STA. 441+81.5 LEFT

DR-3 ℄ STA. 442+32 RIGHT





DRIVEWAY SECTION

DRIVE TYPE

Type 1 — AGGREGATE DRIVES
ITEM 304 – Aggregate Base (t=8")

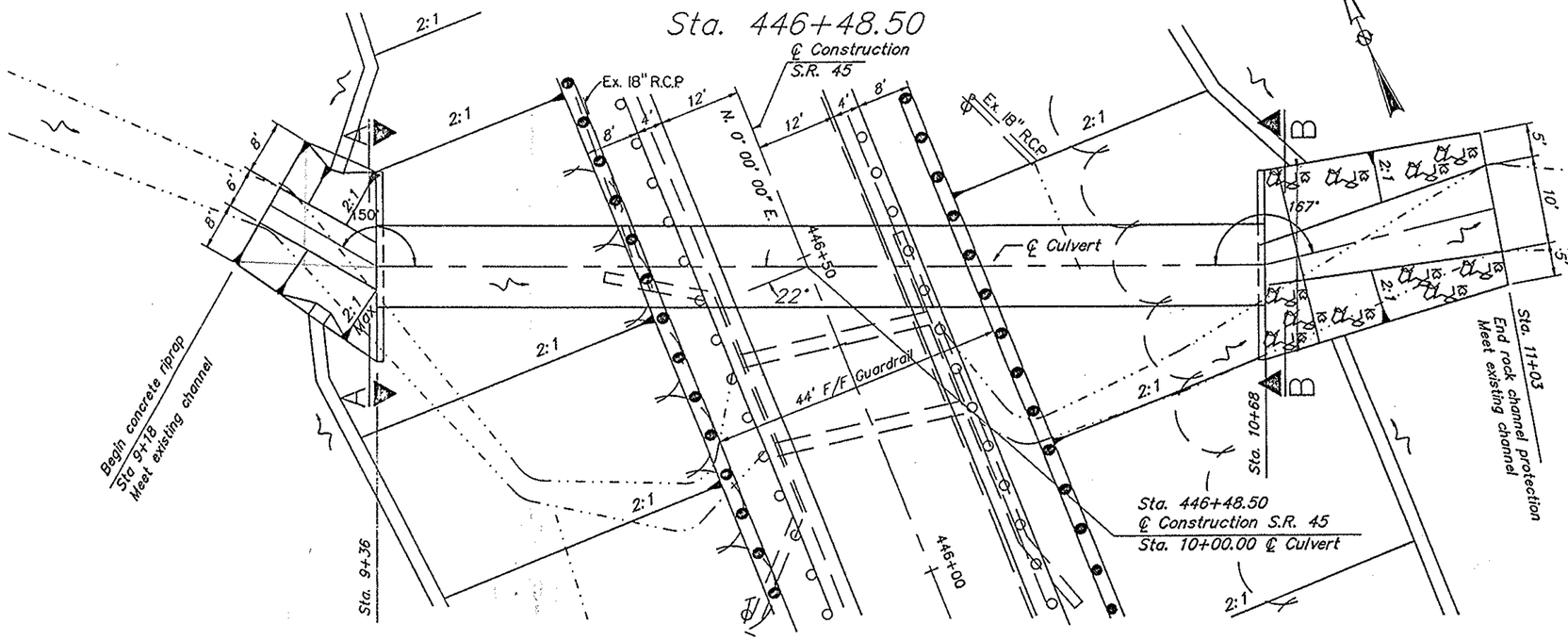
Type 2 — CONCRETE DRIVES
ITEM 452 – Plain Concrete Pavement (t=6")

Type 3 — ASPHALT DRIVES
ITEM 404 – Asphalt Concrete, AC-20 (t=2")
ITEM 304 – Aggregate Base (t=6")

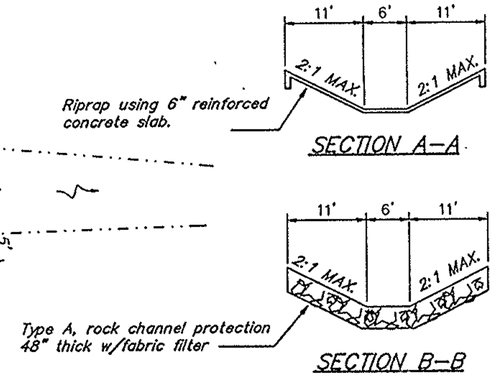
CALC. BY W.J.S. DATE 6/91	MAHONING COUNTY MAH-45-8.38	OHIO
CHECKED BY A.L. DATE 6/91		FHWA REGION 5

STRUCTURE – MAH-45-8.38

Sta. 446+48.50



PLAN



NOTES

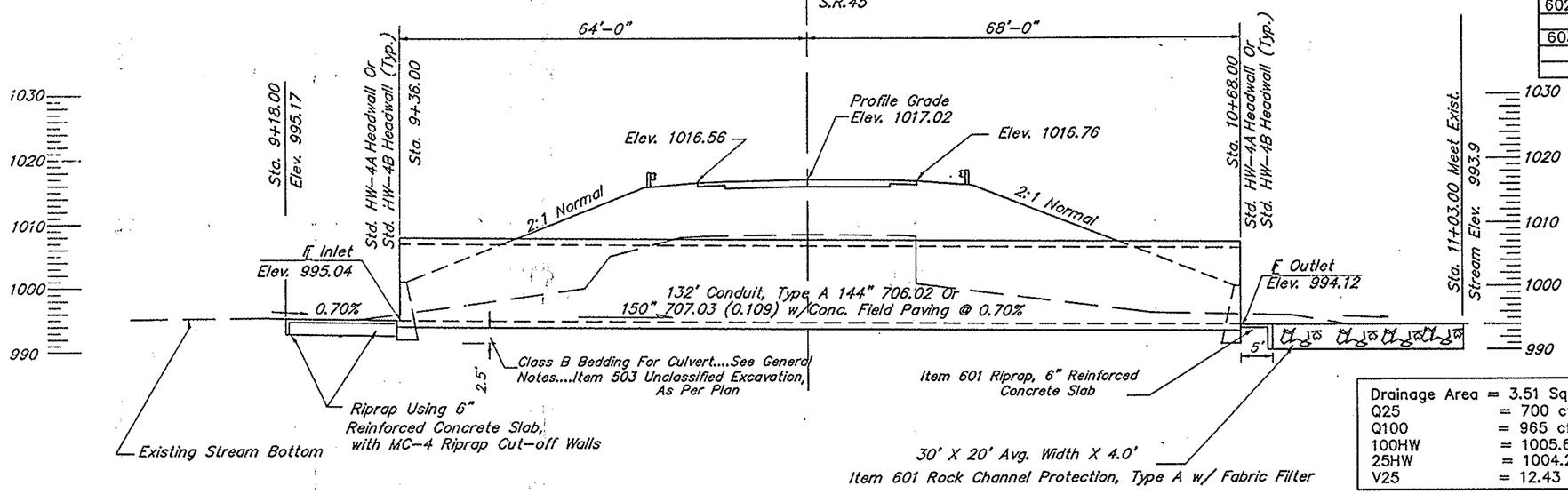
For headwall details, see standard drawing HW-4A or HW-4B

Estimated quantities have been carried forward to the General Summary

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION
202	Lump		Structure Removed
503	20	C.Y.	Unclassified Excavation, As Per Plan, See Sht. 5
601	89	C.Y.	Rock Channel Protection, Type "A" W/Fabric Filter
601	66	S.Y.	Riprap Using 6" Reinforced Concrete Slab
602	26	C.Y.	Concrete Masonry
603	132	L.F.	Conduit Type A, 144" 706.02 or 150" 707.03 (0.109) w/Conc. Field Paving

REVIEWED BY BURGESS & NIPLE, LTD.
J.L.G. 11-11-92



ELEVATION ALONG ℄ CULVERT

Drainage Area	= 3.51 Sq. Mi.
Q25	= 700 cfs
Q100	= 965 cfs
100HW	= 1005.65
25HW	= 1004.23
V25	= 12.43 fps

10 0 10 20
Scale in Feet

EXISTING STRUCTURE

TYPE: Single Span Reinforced Concrete Slab Bridge On Stone Gravity Abutments

SPAN: 12'-0" Clear
ROADWAY: 27'-0"+/- f/f Guardrail
SKEW: 10° LF
ALIGNMENT: Tangent
WEARING SURFACE: Asphalt
STRUCTURE FILE NO. 5001560
DISPOSITION: To Be Removed

PROPOSED STRUCTURE

TYPE: 144" Dia. 603 Conduit, Type A, 706.02 Or 150" 707.03 (0.109) w/conc. field pav.
LOADING: HS-20-44 and the Alternate Military Load
SKEW: 22° LF
ALIGNMEMT: Tangent
APPROACH SLABS: None
ROADWAY: 44'-0" f/f Guardrail
WEARING SURFACE: Asphalt Concrete

CONDUIT, TYPE A, STA.446+48.50 (MAH-45-8.38)

REGION	STATE	PROJECT		
5	OHIO			

20/23

MAHONING COUNTY
MAH-45-8.38

RIGHT OF WAY PLAN 1/4

CENTERLINE SURVEY PLAT

MAH-45-8.38

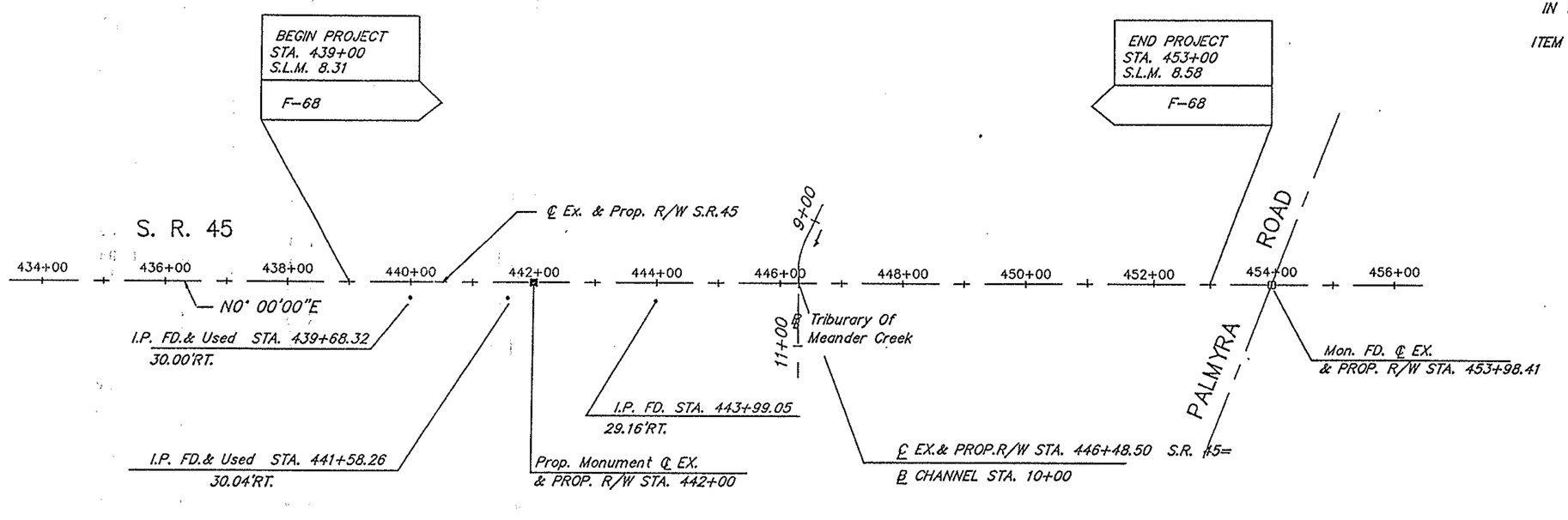
MAHONING COUNTY ELLSWORTH TOWNSHIP
SEC 23 R-4W T-1N

MONUMENTS WILL BE SET ON THE CENTERLINE OF PROPOSED R/W DURING CONSTRUCTION AT THE FOLLOWING LOCATIONS.

P.O.T. STA 442+00

THE FOLLOWING QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR THIS ITEM:

ITEM 604 1 EA. MONUMENT ASSEMBLY



BASIS OF BEARING:
Great Open Spaces Plat
Vol. 29 Pg. 52

LEGEND

- • EXISTING IRON PIN
- ■ PROPOSED MONUMENT ASSEMBLY
- □ EXISTING MONUMENT FOUND

100 50 0 100
SCALE IN FEET

I hereby certify that this plat is a true delineation of a survey made for the Department Of Transportation, State Of Ohio in September, 1990 .

Thomas D. Y. Fok

Thomas D.Y. Fok, Registered Surveyor No.4896

STATE OF OHIO
Thomas D.Y. Fok
4896
REGISTERED
SURVEYOR

Approved _____, in _____, 199 .

District Deputy director

Received for record this _____ day of _____, 199___
at _____ o'clock _____ m.

Recorded this day_____day of_____, 199___
in Volume_____Page_____of the Mahoning County Record of Plats

Mahoning County Recorder

REV.	DATE	DESCRIPTION
COMPLETED		10-14-92

RIGHT OF WAY CENTERLINE SURVEY PLAT

REGION	STATE	PROJECT	
5	OHIO		

21/23

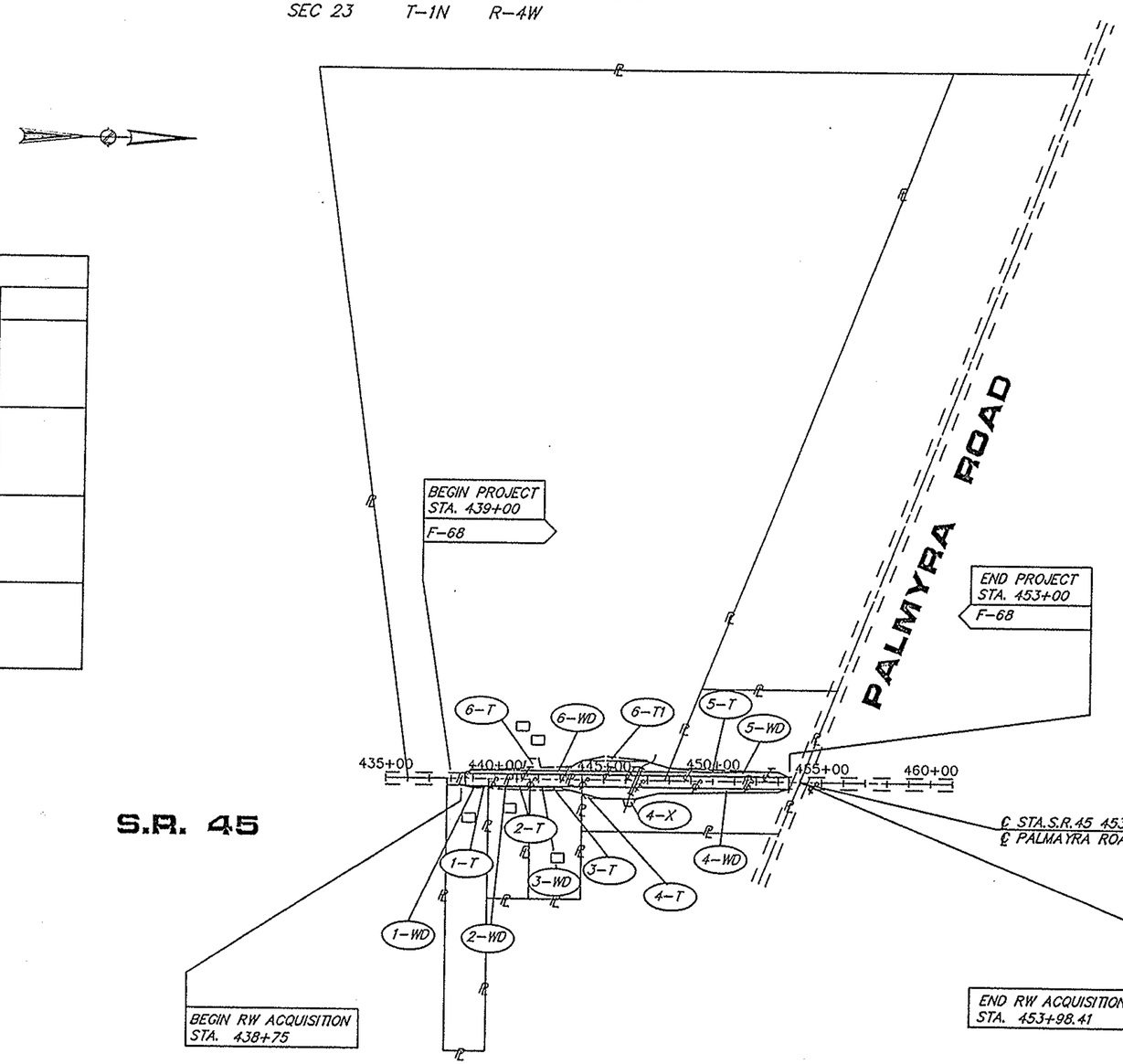
MAHONING COUNTY
MAH-45-8.38

RIGHT-OF WAY PLAN 2/4

PROPERTY MAP

MAHONING COUNTY ELLSWORTH TOWNSHIP
SEC 23 T-1N R-4W

UTILITY OWNERS			
Utility	Address	Tel No.	
Telephone	Ohio Bell City Center One, 2nd Floor Youngstown, Ohio 44503	(216) 744-6450	
Electric	Ohio Edison 730 South Avenue Youngstown, Ohio 44502	(216) 393-1531	
Cable	Star Cable Co. 5537 Mahoning Avenue Youngstown, Ohio 44515	(216) 792-9577	



OWNERS

1. Charles L. & Betty J. Crawford
2. Jean Zeppernick
3. Richard J. Genge
4. Anna Ryzner Shervack
5. Thelma M. Terry & Bernita R. Scurich
6. Margaret L. & Steve V. Kutsko

UTILITY NOTE:
The location 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.

TYPE FUNDS: STATE

300 0 300
SCALE IN FEET

REV.	DATE	DESCRIPTION
COMPLETED		10-14-92

PROPERTY MAP

SUMMARY OF ADDITIONAL RIGHT OF WAY (JOB NO. 046710 AND PROJECT IDENTIFICATION NO. 7565)

PARCEL	OWNER	SHEET NO.	OWNERS RECORD BOOK	OWNERS RECORD PAGE	PERM. PARCEL NO.	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 AQUIRED BOOK	AS AQUIRED PAGE
1-WD	Charles I. & Betty J. Crawford	3	691	52	23-027-0-009	5.38 Ac.	0.130 Ac.	0.0736Ac.	0.0643Ac.	0.0093Ac.	—		5.2407Ac.	STATE			
1-T	" "									0.0126Ac.					Grading		
2-WD	Jean Zeppernick	3	993	64	23-027-0-010	2.791 Ac.	0.131 Ac.	0.1527Ac.	0.1309Ac.	0.0218Ac.	—		2.6382Ac.				
2-T	" "									0.0349Ac.					Grading		
3-WD	Richard J. Genge	3	1218	507	23-027-0-011	3.526 Ac.	0.165 Ac.	0.2339Ac.	0.1653Ac.	0.0686Ac.	—		3.2924Ac.				
3-T	" "									0.0334Ac.					Grading		
4-WD	Anna Ryzner Shervack	3-4	588	282	23-027-0-012	7.000 Ac.	0.839 Ac.	1.3073Ac.	0.5609Ac.	0.7464Ac.	—		5.3846Ac.				
4-T	" "	3								0.0155Ac.					Grading		
4-X	" "	3								0.0300Ac.					Grading		
5-WD	Thelma M. Terry & Bernita R. Scurich	4	1422	294	23-028-0-001	6.330 Ac.	0.700 Ac.	0.5607Ac.	0.3576Ac.	0.2031Ac.	—	5.4269Ac.					
5-T	" "	4								0.1180Ac.					Grading		
6-WD	Margaret L. & Steve V. Kutsko	3-4	729	457	23-027-0-025	109.100 Ac.	0.675 Ac.	1.2248Ac.	0.5168Ac.	0.7080Ac.	—	107.7170Ac.					
6-T	" "	3-4								0.1029Ac.					Grading		
6-T1	" "	3-4								0.1183Ac.					Grading		

REGION	STATE	PROJECT
5	OHIO	

22/23

MAHONING COUNTY
MAH-45-8.38

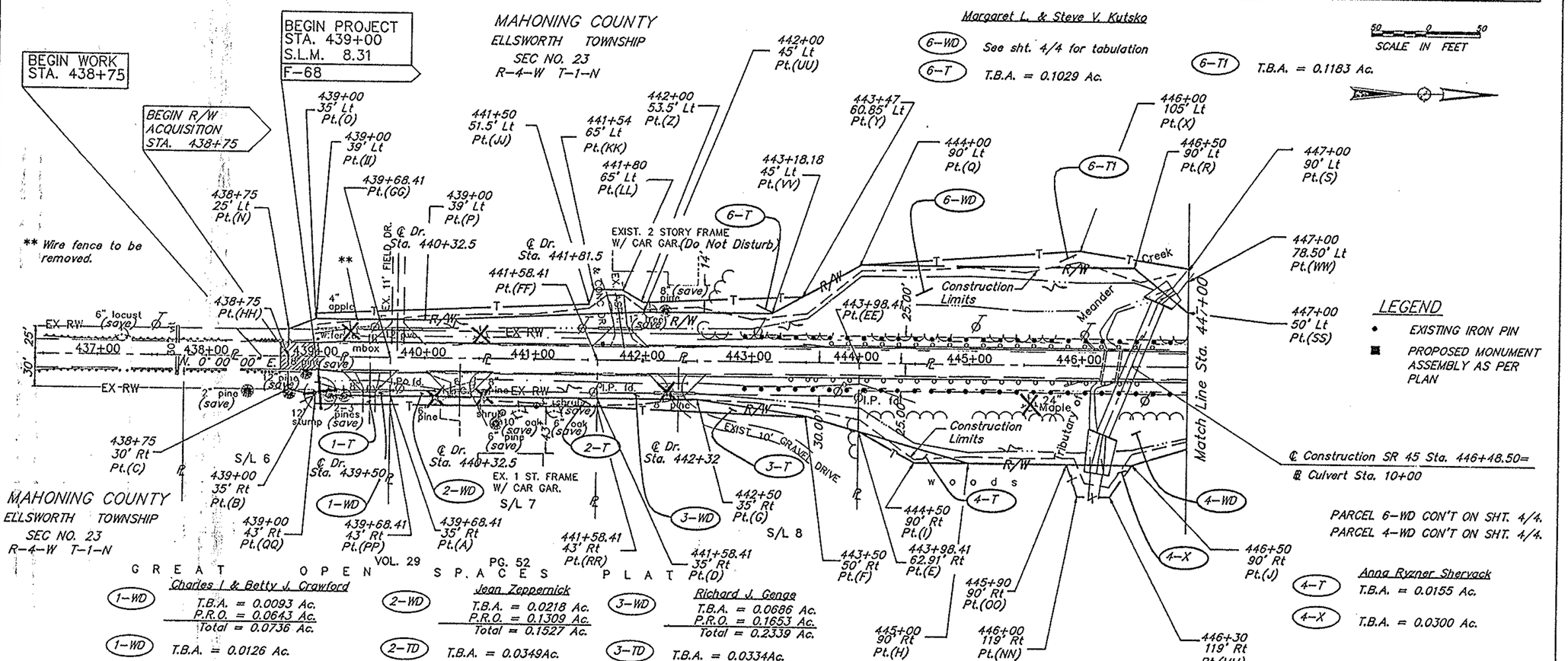
RIGHT OF WAY PLAN 3/4

TOTAL NUMBERS IN

6 OWNERSHIP
0 TOTAL TAKE
0 OWNERSHIPS WITH STRUCTURE INCL.
0 OWNERSHIPS WITH "P" ITEMS

TYPE FUNDS: STATE

LINE	BEARING	DISTANCE	
(AA-GG)	S0°-00'-00"W	1430.00'	
(GG-A)	S90°-00'-00"E	35.00'	1-WD
(A-B)	S0°-00'-00"W	68.41'	
(B-C)	S11°-18'-36"W	25.50'	
(C-HH)	N90°-00'-00"W	30.00'	
(HH-GG)	N0°-00'-00"E	93.41'	
(AA-FF)	S0°-00'-00"W	1240.00'	
(FF-D)	S90°-00'-00"E	35.00'	
(D-A)	S0°-00'-00"W	190.00'	2-WD
(A-GG)	N90°-00'-00"W	35.00'	
(GG-FF)	N0°-00'-00"E	190.00'	
(AA-EE)	S0°-00'-00"W	1000.00'	
(EE-E)	S90°-00'-00"E	62.91'	
(E-F)	S14°-55'-53"W	50.10'	
(F-G)	S8°-31'-51"W	50.10'	
(G-D)	S0°-00'-00"W	91.59'	3-WD
(D-FF)	N90°-00'-00"W	35.00'	
(FF-EE)	N0°-00'-00"E	240.00'	
(J-H)	S0°-00'-00"W	150.00'	
(H-E)	S14°-55'-53"W	105.14'	
(E-EE)	N90°-00'-00"W	62.91'	
(EE-AA)	N0°-00'-00"E	1000.00'	4-WD
(DD-HH)	S0°-00'+00"W	900.41'	
(HH-N)	N90°-00'-00"W	25.00'	
(N-O)	N21°-48'-05"W	26.93'	
(O-P)	N0°-00'-00"E	100.00'	
(P-UU)	N2°-51'+45"W	200.25'	
(UU-VV)	N0°-00'-00"E	118.18'	
(VV-Q)	N28°-48'-39"W	93.38'	
(Q-R)	N0°-00'-00"E	250.00'	6-WD
(R-SS)	N38°-39'-35"E	64.03'	
(B-A)	N0°-00'-00"E	68.41'	
(A-PP)	S90°-00'-00"E	8.00'	
(PP-QQ)	S0°-00'-00"W	68.41'	1-T
(QQ-B)	N90°-00'-00"W	8.00'	
(A-D)	N0°-00'-00"E	190.00'	
(D-RR)	S90°-00'-00"E	8.00'	2-T
(RR-PP)	S0°-00'-00"W	190.00'	
(PP-A)	N90°-00'-00"W	8.00'	



NOTE: Pt. AA,DD,& T ARE SHOWN ON SHEET 4/4

LINE	BEARING	DISTANCE	
(D-G)	N0°-00'-00"E	91.59'	
(G-F)	N8°-31'-51"E	101.12'	
(F-RR)	S2°-05'-33"W	191.72'	3-T
(RR-D)	N90°-00'-00"W	8.00'	

LINE	BEARING	DISTANCE	
(E-H)	N14°-55'-53"E	105.14'	
(H-I)	S0°-00'-00"W	50.00'	
(I-E)	S27°-42'-17"W	58.27'	
(OO-J)	N0°-00'-00"E	60.00'	4-X
(J-MM)	S55°-24'-28"E	35.23'	

LINE	BEARING	DISTANCE	
(MM-NN)	S0°-00'-00"W	30.00'	
(NN-OO)	S70°-58'-28"W	104.12'	4-X
(O-II)	N90°-00'-00"W	4.00'	
(II-JJ)	N2°-51'-45"W	250.31'	
(JJ-KK)	N73°-29'-44"W	14.08'	6-T

LINE	BEARING	DISTANCE
(KK-LL)	N0°-00'-00"E	26.00'
(LL-Z)	N29°-53'-56"E	23.07'
(Z-Y)	N2°-51'-45"W	147.18'
(Y-VV)	S28°-48'-39"E	53.64'
(VV-UU)	S0°-00'-00"W	118.18'

LINE	BEARING	DISTANCE	
(UU-P)	S2°-51'-45"E	200.25'	
(P-O)	S0°-00'-00"W	100.00'	6-T
(Q-X)	N4°-17'-21"W	200.56'	
(X-S)	N8°-31'-51"E	101.12'	
(SS-R)	S38°-39'-35"W	64.03'	6-T1
(R-Q)	S0°-00'-00"W	250.00'	

REV.	DATE	DESCRIPTION

COMPLETED 10-14-92

RIGHT OF WAY PLAN STA. 436+00 to 447+00

REGION	STATE	PROJECT	
5	OHIO		

23/23

MAHONING COUNTY
MAH-45-8.38

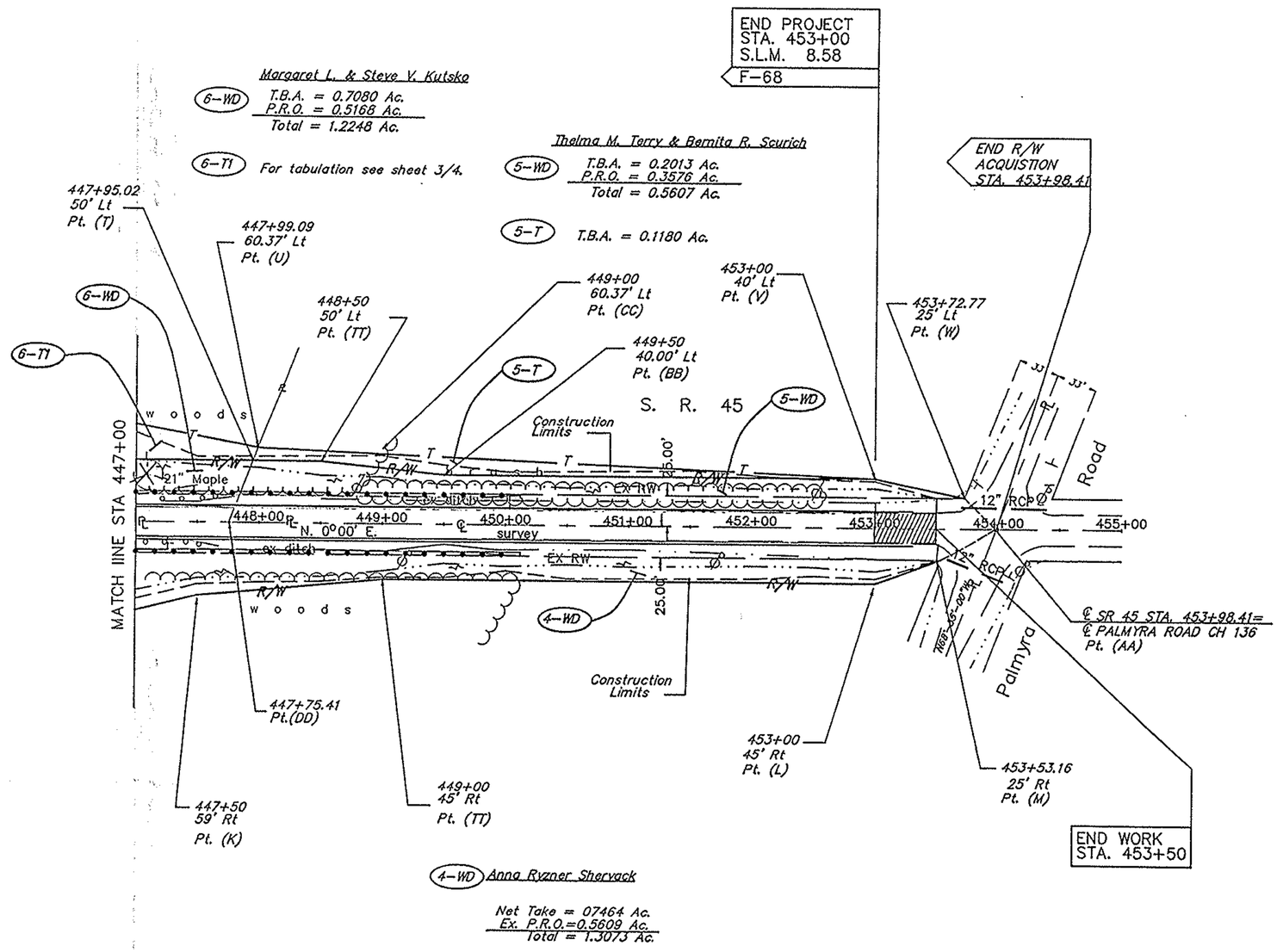
RIGHT OF WAY PLAN 4/4

MAHONING COUNTY
ELLSWORTH TOWNSHIP
SEC NO. 23
R-4-W T-1-N

NOTE: PT. J & R SHOWN ON SHEET 3/4.

LINE	BEARING	DISTANCE	
(AA-M)	S28°-55'-05"E	51.70'	4-WD
(M-L)	S20°-37'-07"E	56.79'	
(L-TT)	S0°-00'-00"W	400.00'	
(TT-K)	S5°-19'-56"E	150.65'	
(K-J)	S17°-13'-24"E	104.69'	
(AA-DD)	S0°-00'-00"W	623.00'	5-WD
(DD-T)	N68°-35'-00"W	53.71'	
(T-TT)	N0°-00'-00"W	54.98'	
(TT-BB)	N5°-42'-38"E	100.50'	
(BB-V)	N0°-00'-00"E	350.00'	
(V-W)	N11°-38'-51"E	74.30'	
(W-AA)	N44°-16'-26"E	35.81'	
(T-U)	N68°-35'-00"W	11.14'	5-T
(U-CC)	N0°-00'-00"E	100.91'	
(C-V)	N2°-54'-56"E	400.52'	
(V-BB)	S0°-00'-00"W	350.00'	
(BB-TT)	S5°-42'-38"W	100.50'	
(TT-T)	S0°-00'-00"W	54.98'	
(AA-DD)	S0°-00'-00"W	623.00'	6-WD
(SS-T)	N0°-00'-00"E	95.02'	
(T-DD)	S68°-35'-00"E	53.71'	
(S-WW)	N90°-00'-00"E	11.50'	
(WW-U)	N10°-22'-00"E	100.73'	
(U-T)	S68°-35'-00"E	11.14'	6-TT
(T-SS)	S0°-00'-00"W	95.02'	

PARCEL 4-WD CON'T ON SHT 3/4
PARCEL 6-WD CON'T ON SHT 3/4



4-WD Anna Ryzner Shervack

Net Take = 07464 Ac.
Ex. P.R.O.=0.5609 Ac.
Total = 1.3073 Ac.

MAHONING COUNTY
ELLSWORTH TOWNSHIP
SEC NO. 23
R-4-W T-1-N

LEGEND

□ EXISTING MONUMENT

TYPE FUNDS: STATE

50 0 50
SCALE IN FEET

REV.	DATE	DESCRIPTION
COMPLETED		10-14-92

RIGHT OF WAY PLAN STA. 470+00 to 454+00

MAH-45-8.38	OHIO FHWA REGION 5 FEDERAL PROJECT

P.I.D. #7565
STATE JOB # 046710

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
MAH-45-8.38
ELLSWORTH TOWNSHIP
MAHONING COUNTY

R/W PLANS

ACQUIRING AGENCY: STATE

DESIGN DESIGNATION	
Current Year ADT (1992)	= 4310
Design Year ADT (2012)	= 4680
D H V	= 398
D	=55%
T	=7%
Vd	=55mph
LEGAL SPEED	=55mph
FUNTION CLASSIFICATION	= Rural, Minor Arterial, Primary

DESIGN EXCEPTIONS=Graded Shoulders

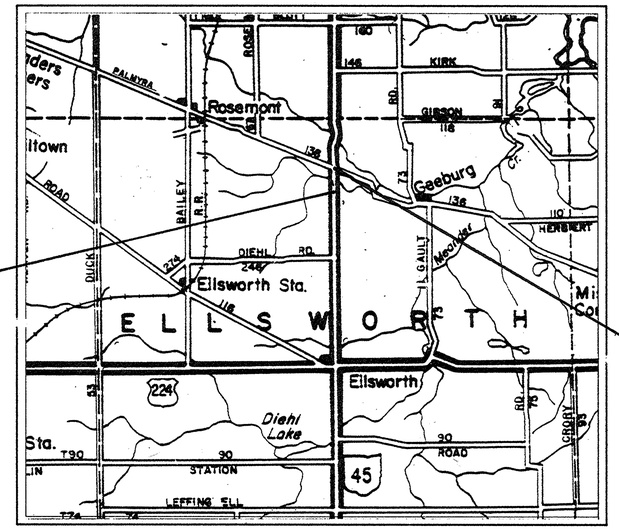
CONVENTIONAL SIGNS

County Line
Township Line
Section Line
Corporation Line or
Fence Line(existing) (proposed)
Center Line
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 EX RW
Property Line (in existing fence)
Railroad or
Guardrail (existing) (proposed)

INDEX OF SHEETS

CENTERLINE PLAT.....1
PROPERTY MAP.....2
SUMMARY OF ADDITIONAL RIGHT-OF-WAY....3-4
AND RIGHT-OF-WAY PLANS

BEGIN PROJECT
STA. 439+00
F-68



END PROJECT
STA.453+00
F-68

LOCATION MAP

SCALE IN MILES
0 1 2 3

Portion to be Improved
State & Federal Routes
Other Roads

SCALES

Plan 50 25 0 50
Profile Horizontal 50 25 0 50, Vertical 5 0 5
Cross Section Horzt 5 0 5, Vertical 5 0 5

1991 SPECIFICATIONS

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

I hereby approve these plans and declare that the making of this improvement will require the closing to traffic of the highway and that detours will be provided as indicated on sheet No. 5.

SUPPLEMENTAL SPECIFICATIONS	

Approved _____
Date _____ Assistant Deputy Director
Real Estate Administration

Approved _____
Date _____ Director, Department of Transportation

LINE DATA

BEGIN PROJECT..... Sta. 439+00
END PROJECT..... Sta. 453+00
TOTAL 1400.00 L.F. = 0.265 mi.

BEGIN WORK.....Sta. 438+50
END WORK.....Sta. 453+50
TOTAL 1500.00 L.F. = 0.284 mi.

UNDERGROUND UTILITIES
TWO WORKING DAYS
BEFORE YOU DIG
Call 800-362-2764 (Toll Free)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS				

Plan Prepared By:
THOMAS FOK & ASSOCIATES, LTD.
3896 MAHONING AVE.
YOUNGSTOWN, OHIO 44515
216-799-1501

SEAL

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED

DIVISION ADMINISTRATOR DATE

Project MAH-45-8.83 MAHONING COUNTY
Date of Letting _____ 19__ Contract No. _____

07397

REGION	STATE	PROJECT	
5	OHIO		

20/23

MAHONING COUNTY
MAH-45-8.38

RIGHT OF WAY PLAN 1/4

CENTERLINE SURVEY PLAT

MAH-45-8.38

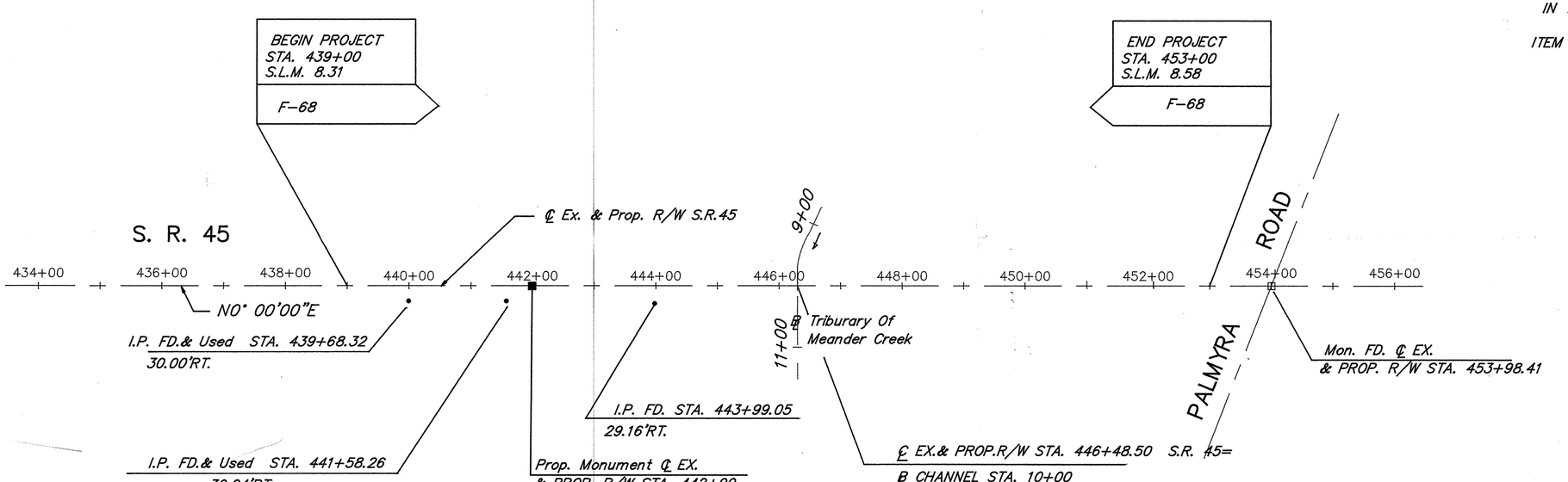
MAHONING COUNTY ELLSWORTH TOWNSHIP
SEC 23 R-4W T-1N

MONUMENTS WILL BE SET ON THE CENTERLINE OF PROPOSED R/W DURING CONSTRUCTION AT THE FOLLOWING LOCATIONS.

P.O.T. STA 442+00 ■

THE FOLLOWING QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR THIS ITEM:

ITEM 604 1 EA. MONUMENT ASSEMBLY



BASIS OF BEARING:
Great Open Spaces Plat
Vol. 29 Pg. 52

LEGEND
- • EXISTING IRON PIN
- ■ PROPOSED MONUMENT ASSEMBLY
- □ EXISTING MONUMENT FOUND

100 50 0 100
SCALE IN FEET

Needs to Trans
this 15th day of March 1993 D J Sablack for R Jochman

STATE OF OHIO
Thomas D.Y. Fok
4896
REGISTERED SURVEYOR

I hereby certify that this plat is a true delineation of a survey made for the Department Of Transportation, State Of Ohio in September, 1990 .

Thomas D.Y. Fok

Thomas D.Y. Fok, Registered Surveyor No.4896

Approved _____, in _____, 199 .

District Deputy director

Received for record this _____ day of _____, 199___
at _____ o'clock _____ m.

Recorded this day 15 day of March, 1993
in Volume 86 Page 38 of the Mahoning County Record of Plats
2:30 P.M.

Bruce E. Papalin
Mahoning County Recorder
$39.00

VOL 86 PAGE 38

REV.	DATE	DESCRIPTION
COMPLETED	10-14-92	

RIGHT OF WAY CENTERLINE SURVEY PLAT

REGION	STATE	PROJECT	
5	OHIO		

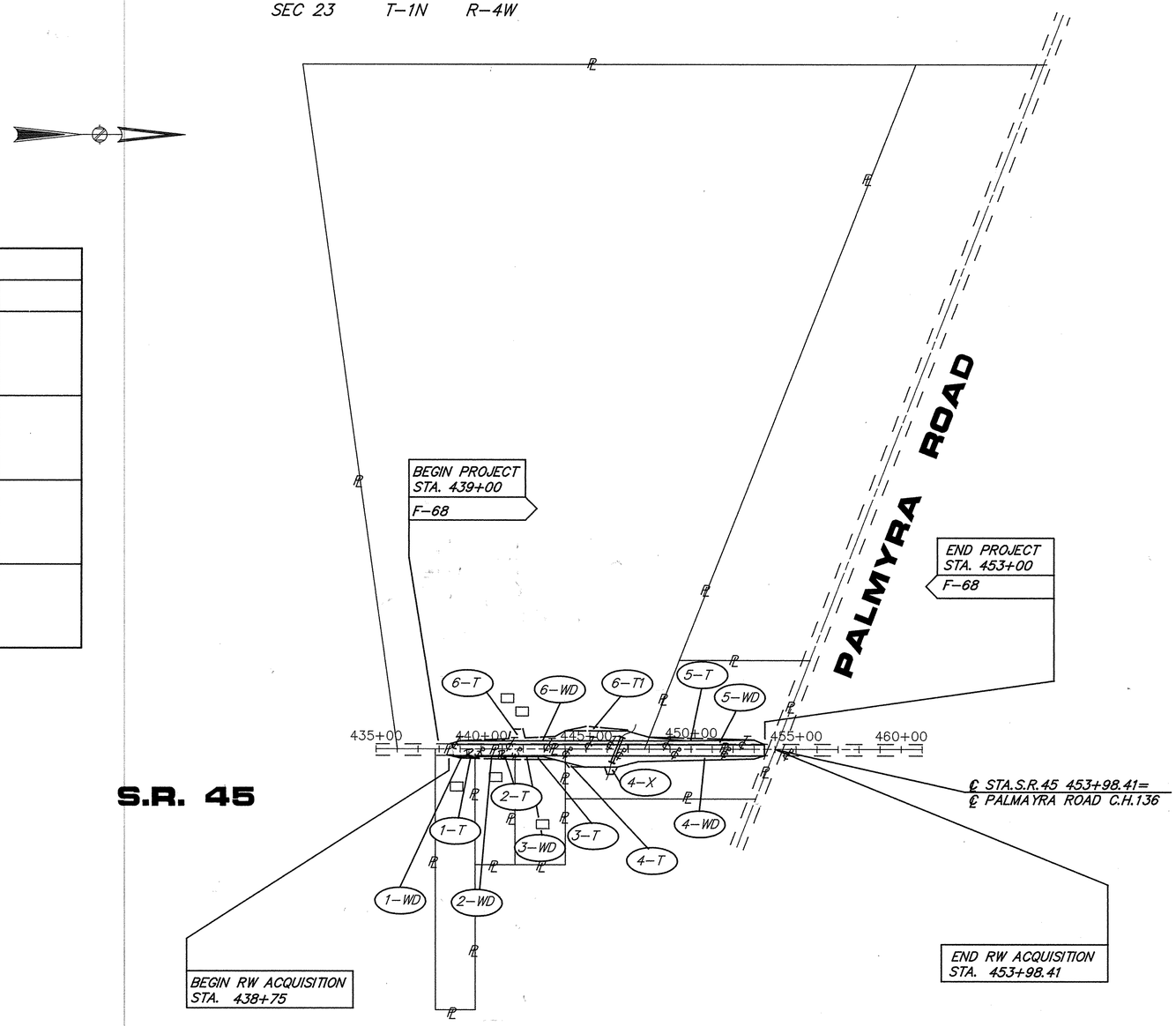
21/23

MAHONING COUNTY
MAH-45-8.38

RIGHT-OF WAY PLAN 2/4

PROPERTY MAP

MAHONING COUNTY ELLSWORTH TOWNSHIP
SEC 23 T-1N R-4W



UTILITY OWNERS			
Utility	Address	Tel No.	
Telephone	Ohio Bell City Center One, 2nd Floor Youngstown, Ohio 44503	(216) 744-6450	
Electric	Ohio Edison 730 South Avenue Youngstown, Ohio 44502	(216) 393-1531	
Cable	Star Cable Co. 5537 Mahoning Avenue Youngstown, Ohio 44515	(216) 792-9577	

OWNERS

1 Betty J. Crawford
2 Clifford E. Zeppernick & Brontless Jean Zeppernick
3 Richard J. Genge
4 Jerome Liptak
5 Carl D. Kutsko & Lucinda Kutsko
6 Steve V. Kutsko

UTILITY NOTE:
The location 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.

TYPE FUNDS: STATE

300 0 300
SCALE IN FEET

REV.	DATE	DESCRIPTION
	9-30-93	Rev. Name Pcl 6WD
	8-11-93	Rev. Name Pcl 4WD
	6-30-93	Rev. Name Pcl 1WD
	4-13-93	Rev. P.'s Pcl 1WD, 2WD & 3WD Rev. Name Pcl 2WD & 6WD
	3-26-93	Rev. Name Pcl 5WD

COMPLETED 10-14-92

SUMMARY OF ADDITIONAL RIGHT OF WAY (JOB NO. 046710 AND PROJECT IDENTIFICATION NO. 7565)

REGION	STATE	PROJECT	
5	OHIO		

22/23

MAHONING COUNTY
MAH-45-8.38

RIGHT OF WAY PLAN 3/4

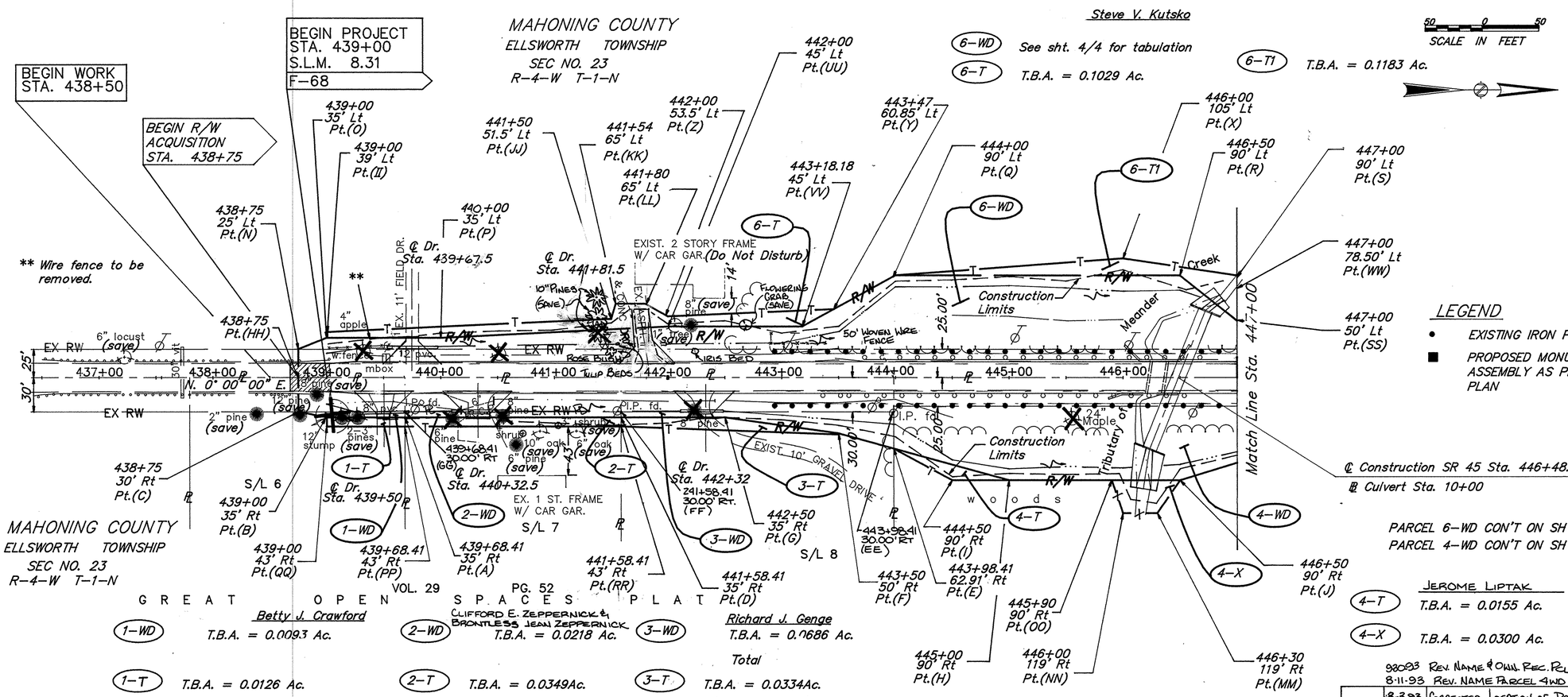
TOTAL NUMBERS IN

6 OWNERSHIP
0 TOTAL TAKE
0 OWNERSHIPS WITH STRUCTURE INCL.
0 OWNERSHIPS WITH "P" ITEMS

TYPE FUNDS: STATE

PARCEL	OWNER	SHEET NO.	OWNERS RECORD BOOK	OWNERS RECORD PAGE	PERM. PARCEL NO.	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRU-TURE	NET RESIDUE LEFT	NET RESIDUE RIGHT	TYPE FUND	REMARKS AND PERSONALTY	AS AQUIRED BOOK	AS AQUIRED PAGE
1-WD	Betty J. Crawford	3	691	52	23-027-0-009	5.38 Ac.	0 Ac.	0.0093Ac.	0 Ac.	0.0093Ac.	—		5.3064Ac.	STATE			
1-T	" "		OR 1880	182						0.0126Ac.					Grading		
2-WD	Clifford E. Zeppernick & Brontless Jean	3	993	64	23-027-0-010	2.791 Ac.	0 Ac.	0.0218Ac.	0 Ac.	0.0218Ac.	—		2.6383Ac.				
2-T	Zeppernick									0.0349Ac.					Grading		
3-WD	Richard J. Genge AKA Richard Genge	3	1218 695	507 453	23-027-0-011	3.526 Ac.	0 Ac.	0.0686Ac.	0 Ac.	0.0686Ac.	—		3.2921 Ac.				
3-T	" "		1070	450, 4528 454						0.0334Ac.					Grading		
4-WD	Jerome Liptak	3-4	1825	315	23-027-0-012	7.000 Ac.	0.839 Ac.	1.3073Ac.	0.5609Ac.	0.7464Ac.	—		5.3846Ac.				
4-T	" "	3								0.0155Ac.					Grading		
4-X	" "	3								0.0300Ac.					Grading		
5-WD	Carl D. Kutsko & Lucinda Kutsko	4	OR 858	37	23-028-0-001	6.330 Ac.	0.700 Ac.	0.5607Ac.	0.3576Ac.	0.2031Ac.	—	5.4269Ac.					
5-T	" "	4								0.1180Ac.					Grading		
6-WD	Steve V. Kutsko	3-4	OR 2021	209	23-027-0-025	109.100 Ac.	0.675 Ac.	1.2248Ac.	0.5168Ac.	0.7080Ac.	—	107.7170Ac.					
6-T	" "	3-4	765	284						0.1029Ac.					Grading		
6-T1	" "	3-4								0.1183Ac.					Grading		

LINE	BEARING	DISTANCE	
(AA-GG)	S0°-00'-00"W	1430.00'	
(GG-A)	S90°-00'-00"E	5.00'	
(A-B)	S0°-00'-00"W	68.41'	
(B-C)	S11°-18'-36"W	25.50'	1-WD
(C-GG)	N0°-00'-00"E	93.41'	
(AA-FF)	S0°-00'-00"W	1240.00'	
(FF-D)	S90°-00'-00"E	5.00'	
(D-A)	S0°-00'-00"W	190.00'	
(A-GG)	N90°-00'-00"W	5.00'	2-WD
(GG-FF)	N0°-00'-00"E	190.00'	
(AA-EE)	S0°-00'-00"W	1000.00'	
(EE-E)	S90°-00'-00"E	32.91'	
(E-F)	S14°-55'-53"W	50.10'	
(F-G)	S8°-31'-51"W	101.12'	
(G-D)	S0°-00'-00"W	91.59'	3-WD
(D-FF)	N90°-00'-00"W	5.00'	
(FF-EE)	N0°-00'-00"E	240.00'	
(J-H)	S0°-00'-00"W	150.00'	
(H-E)	S14°-55'-53"W	105.14'	
(E-EE)	N90°-00'-00"W	62.91'	
(EE-AA)	N0°-00'-00"E	1000.00'	4-WD
(DD-HH)	S0°-00'-00"W	900.41'	
(HH-N)	N90°-00'-00"W	25.00'	
(N-O)	N21°-48'-05"W	26.93'	
(O-P)	N0°-00'-00"E	100.00'	
(P-UU)	N2°-51'-45"W	200.25'	
(UU-VV)	N0°-00'-00"E	118.18'	6-WD
(VV-Q)	N28°-48'-39"W	93.38'	
(Q-R)	N0°-00'-00"E	250.00'	
(R-SS)	N38°-39'-35"E	64.03'	
(B-A)	N0°-00'-00"E	68.41'	
(A-PP)	S90°-00'-00"E	8.00'	
(PP-QQ)	S0°-00'-00"W	68.41'	1-T
(QQ-B)	N90°-00'-00"W	8.00'	
(A-D)	N0°-00'-00"E	190.00'	
(D-RR)	S90°-00'-00"E	8.00'	
(RR-PP)	S0°-00'-00"W	190.00'	
(PP-A)	N90°-00'-00"W	8.00'	



LINE	BEARING	DISTANCE		LINE	BEARING	DISTANCE		LINE	BEARING	DISTANCE		LINE	BEARING	DISTANCE		LINE	BEARING	DISTANCE	
(D-G)	N0°-00'-00"E	91.59'		(E-H)	N14°-55'-53"E	105.14'		(MM-NN)	S0°-00'-00"W	30.00'		(KK-LL)	N0°-00'-00"E	26.00'		(UU-P)	S2°-51'-45"E	200.25'	
(G-F)	N8°-31'-51"E	101.12'		(H-I)	S0°-00'-00"W	50.00'	4-T	(NN-OO)	S70°-58'-28"W	30.68'	4-X	(LL-Z)	N29°-53'-56"E	23.07'		(P-O)	S0°-00'-00"W	100.00'	
(F-RR)	S2°-05'-33"W	191.72'	3-T	(I-E)	S27°-42'-17"W	58.27'		(O-II)	N90°-00'-00"W	4.00'		(Z-Y)	N2°-51'-45"W	147.18'	6-T	(Q-X)	N4°-17'-21"W	200.56'	6-T
(RR-D)	N90°-00'-00"W	8.00'		(OO-J)	N0°-00'-00"E	60.00'	4-X	(II-JJ)	N2°-51'-45"W	250.31'	6-T	(Y-VV)	S28°-48'-39"E	32.89'		(X-S)	N8°-31'-51"E	101.12'	
				(J-MM)	S55°-24'-28"E	35.23'		(JJ-KK)	N73°-29'-44"W	14.08'		(VV-UU)	S0°-00'-00"W	118.18'		(SS-R)	S38°-39'-35"W	64.03'	
																(R-Q)	S0°-00'-00"W	250.00'	

REV.	DATE	DESCRIPTION
	9-30-93	Rev. Name & Own. Rec. Pcl 6 WD
	8-11-93	Rev. Name Parcel 4 WD
	8-3-93	Corrected Location of Prop. Drive
	7-21-93	Rev. Location Prop. Drive Pcl 6-T
	7-2-93	Add Topo. Pcl 6 WD 6-T
	6-30-93	Rev Name Pcl 1 WD
	4-13-93	Rev. Pcl's 1 WD, 2 WD & 3 WD Removed Prop. & Rev. Prop. Lines Rev. Names & Own's Rec. Pcl's 1 WD 2 WD 3 WD
	3-26-93	Rev Name & Own. Rec. Pcl 5 WD

COMPLETED 10-14-92

RIGHT OF WAY PLAN STA. 436+00 to 447+00

REGION	STATE	PROJECT		
5	OHIO			

23/23

MAHONING COUNTY
MAH-45-8.38

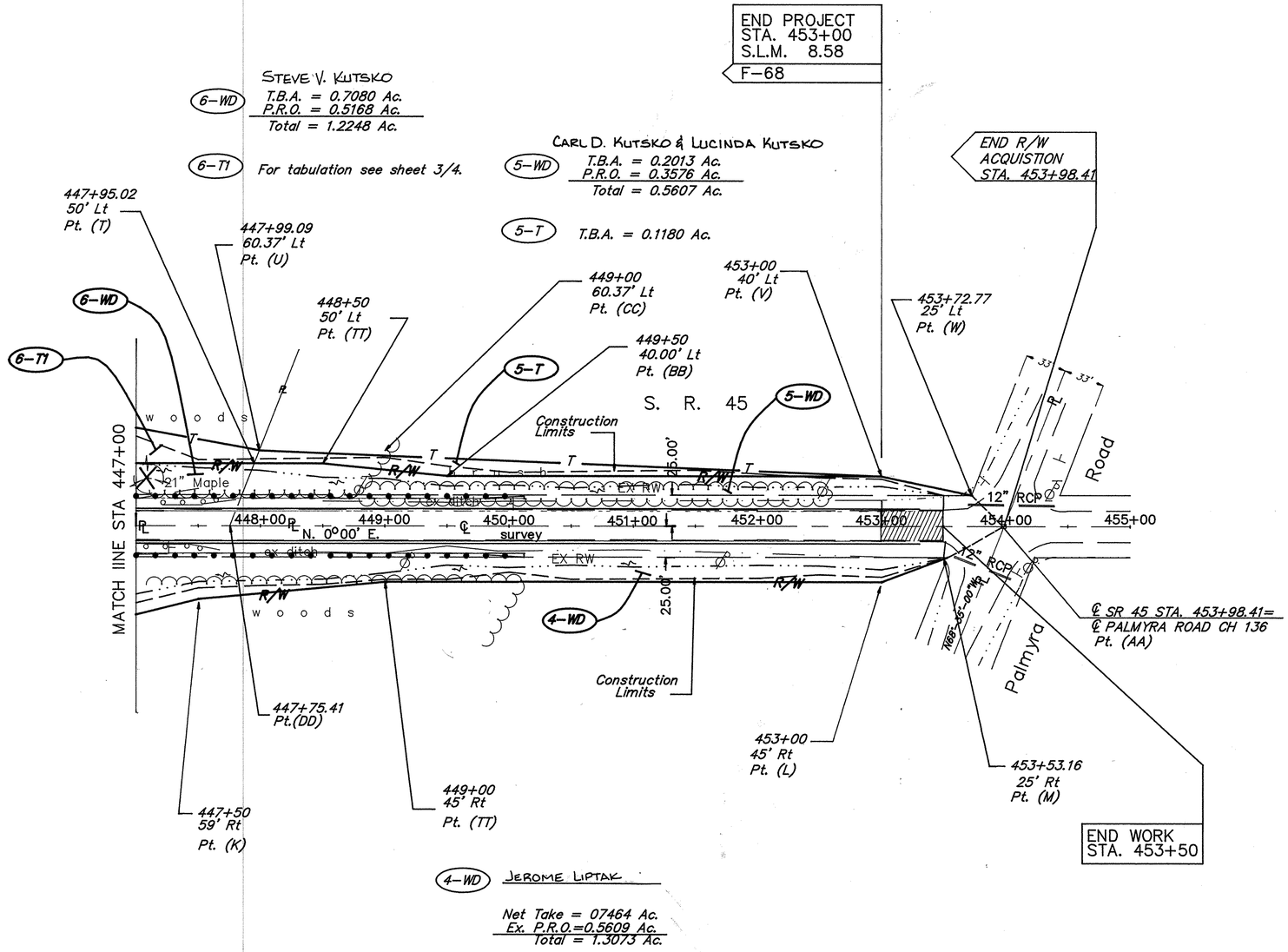
RIGHT OF WAY PLAN 4/4

MAHONING COUNTY
ELLSWORTH TOWNSHIP
SEC NO. 23
R-4-W T-1-N

NOTE: PT. J & R SHOWN ON SHEET 3/4.

LINE	BEARING	DISTANCE	
(AA-M)	S28°-55'-05"E	51.70'	4-WD
(M-L)	S20°-37'-07"E	56.80'	
(L-TT)	S0°-00'-00"W	400.00'	
(TT-K)	S5°-19'-56"E	150.65'	
(K-J)	S17°-13'-24"E	104.69'	
(AA-DD)	S0°-00'-00"W	623.00'	5-WD
(DD-T)	N68°-35'-00"W	53.71'	
(T-TT)	N0°-00'-00"W	54.98'	
(TT-BB)	N5°-42'-38"E	100.50'	
(BB-V)	N0°-00'-00"E	350.00'	
(V-W)	N11°-38'-51"E	74.30'	
(W-AA)	N44°-16'-26"E	35.81'	
(T-U)	N68°-35'-00"W	11.14'	5-T
(U-CC)	N0°-00'-00"E	100.91'	
(C-V)	N2°-54'-56"E	400.52'	
(V-BB)	S0°-00'-00"W	350.00'	
(BB-TT)	S5°-42'-38"W	100.50'	
(TT-T)	S0°-00'-00"W	54.98'	
(AA-DD)	S0°-00'-00"W	623.00'	6-WD
(SS-T)	N0°-00'-00"E	95.02'	
(T-DD)	S68°-35'-00"E	53.71'	
(S-WW)	N90°-00'-00"E	11.50'	6-TT
(WW-U)	N10°-22'-00"E	100.73'	
(U-T)	S68°-35'-00"E	11.14'	
(T-SS)	S0°-00'-00"W	95.02'	

PARCEL 4-WD CON'T ON SHT 3/4
PARCEL 6-WD CON'T ON SHT 3/4



4-WD JEROME LIPTAK

Net Take = 07464 Ac.
Ex. P.R.O.=0.5609 Ac.
Total = 1.3073 Ac.

MAHONING COUNTY
ELLSWORTH TOWNSHIP
SEC NO. 23
R-4-W T-1-N

LEGEND

☐ EXISTING MONUMENT

TYPE FUNDS: STATE

50 0 50
SCALE IN FEET

REV.	DATE	DESCRIPTION
	9-30-93	REV. NAME PCL 6WD
	8-11-93	REV. NAME PCL 4WD
	4-13-93	REV. NAME PCL 6WD
	3-26-93	REV. NAME PCL 5WD

COMPLETED 10-14-92

RIGHT OF WAY PLAN STA. 470+00 to 454+00

MAH-45-8.38

FHWA REGION	STATE	PROJECT

SOIL PROFILE

1/6

GEOLOGY OF THE SITE

THE PROJECT SITE LIES ON THE RELATIVELY SMOOTH, GLACIATED, ALLEGHENY PLATEAU AT AN APPROXIMATE ELEVATION OF 1020. THE EXISTING STRUCTURE WHICH IS TO BE REPLACED, PRESENTLY SPANS A TRIBUTARY OF MEANDER CREEK IN MAHONING COUNTY, OHIO.

THE WISCONSIN ICE SHEET PASSED OVER THE AREA LEAVING VARIABLE DEPOSITS OF GLACIAL TILL GENERALLY RANGING FROM 25 TO 50 FEET IN THICKNESS. IT IS EXPECTED THAT ALLUVIAL DEPOSITS LIE IN THE VICINITY OF THE SITE. THESE DEPOSITS ARE COMPOSED MAINLY OF SILT, SILTY SAND AND GRAVEL.

THE OHIO GEOLOGICAL SURVEY INDICATES THAT THE BEDROCK STANDS AT AN APPROXIMATE ELEVATION OF 980. AT THIS ELEVATION IT IS EXPECTED THAT BEDROCK IS COMPRISED OF PENNSYLVANIAN AGE SANDSTONE OF THE POTTSVILLE FORMATION.

EXPLORATION

THE SUBSURFACE EXPLORATION PROGRAM FOR THIS PROJECT INCLUDED ADVANCING A TOTAL OF FIVE (5) DRIVE SAMPLE CORE BORINGS. FOUR OF THE TEST BORINGS WERE ADVANCED WITH A CME-75 TRUCK MOUNTED DRILLING RIG USING CONVENTIONAL 3.25 INCH I.D. HOLLOW STEM AUGERS AND ONE OF THE TEST BORINGS WAS ADVANCED WITH A HAND AUGER. THE DRILLING WAS PERFORMED DURING NOVEMBER AND DECEMBER, 1990. TWO (2) OF THE TEST BORINGS WERE ADVANCED FOR FOUNDATION DESIGN AND THREE (3) OF THE TEST BORINGS WERE ADVANCED FOR SCOUR ANALYSIS.

INVESTIGATIONAL FINDINGS

TEST BORINGS B-1 AND B-2 WERE ADVANCED THROUGH THE EXISTING ASPHALT PAVEMENT WHICH IS 0.5 AND 0.7 FEET OF THICKNESS RESPECTIVELY. THE ASPHALT PAVEMENT AT BOTH OF THE TEST BORING LOCATIONS WAS UNDERLAIN BY ROADBASE MATERIAL WHICH EXTENDED TO A DEPTH OF 3.0 FEET. TEST LOCATIONS S-1 AND S-2 WERE ADVANCED THROUGH 2.0 FEET OF ASPHALT AND SLAG MATERIAL. TEST LOCATION S-3 WAS ADVANCED IN THE STREAM BED AND WAS TERMINATED IN THE SAND AND GRAVEL MATERIAL AT AN APPROXIMATE ELEVATION OF 986.5. THE PAVEMENT LAYER AT TEST LOCATIONS B-1, B-2, S-1 AND S-2 IS DIRECTLY UNDERLAIN BY A STRATA OF CLAY CLASSIFIED AS A-7-6, SANDY SILT CLASSIFIED AS A-4a, SAND CLASSIFIED AS A-3a, SAND AND GRAVEL CLASSIFIED AS A-1-b AND A-2-4. THE RELATIVE CONSISTENCY OF THE COHESIVE SOILS WAS FOUND TO RANGE FROM "STIFF" TO "VERY STIFF." THE RELATIVE DENSITY OF THE NON COHESIVE SOILS ENCOUNTERED WAS FOUND TO RANGE FROM "DENSE" TO "VERY DENSE". BEDROCK WAS ENCOUNTERED AT AN APPROXIMATE ELEVATION OF 975 AT TEST LOCATIONS B-1 AND B-2 AND IS COMPRISED OF MODERATELY WEATHERED GRAY SANDSTONE WITH RQD VALUE OF 30 PERCENT IN THE UPPER FIVE FEET AT TEST LOCATION B-1, AND A RQD VALUE OF 50 PERCENT IN THE UPPER FIVE FEET AT TEST LOCATION B-2. TEST BORINGS B-1 AND B-2 WERE TERMINATED IN THE SANDSTONE LAYER AT AN APPROXIMATE ELEVATION OF 963 AND 966 RESPECTIVELY. TEST BORINGS S-1 AND S-2 WERE TERMINATED IN THE SANDY SILT MATERIAL AT AN APPROXIMATE ELEVATION OF 984.

FOR SPECIFIC CONDITIONS AT VARIOUS DEPTHS, REFER TO THE INDIVIDUAL TEST BORING LOGS WHICH FORM A PART OF THESE PLANS.

LEGEND

- AUGER BORING LOCATION - PLAN VIEW
- PRESS AND/OR DRIVE SAMPLE AND/OR CORE BORING LOCATION - PLAN VIEW
- TR — TOP OF ROCK
- CAPPED PILE
- FOOTING
- FOOTING ON PILE
- HORIZONTAL BAR ON BORING LOG INDICATES THE DEPTH THE SAMPLE WAS TAKEN
- X/Y/Z — FIGURES BESIDE THE BORING LOG IN PROFILE INDICATE THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST
  - X = NO. OF BLOWS FOR FIRST 6"
  - Y = NO. OF BLOWS FOR SECOND 6"
  - Z = NO. OF BLOWS FOR THIRD 6"
- W — INDICATES FREE WATER ELEVATION
- INDICATES STATIC WATER ELEVATION

SYMBOLS OF ROCK TYPES

- COAL
- WEATHERED MUDSTONE
- MUDSTONE
- WEATHERED SHALE
- SHALE
- CLAYSTONE
- SILTSTONE
- WEATHERED SANDSTONE
- SANDSTONE
- LEACHED DOLOMITE
- DOLOMITE
- LEACHED LIMESTONE
- LIMESTONE
- BOULDERS or COBBLES

GENERAL INFORMATION

Drive sample / Press sample / Core borings

Drive sample borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampler, at 2.5 and/or 5-foot depth intervals, driven by means of a 140 lb. drop hammer with a free fall of 30". The number of blows required to drive the sampler 18" is considered the standard penetration test.

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

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

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

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

PARTICLE SIZE DEFINITIONS

Boulders	12"	Cobbles	3"	Gravel	2.0mm (No. 10 sieve)	Coarse Sand	0.42mm (No. 40 sieve)	Fine Sand	0.074mm (No. 200 sieve)	Silt	0.005mm	Clay

NOTE - ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE BUREAU OF TESTS AT 1600 WEST BROAD STREET, THE PAVEMENT AND SOILS SECTION OF THE BUREAU OF LOCATION AND DESIGN OR IN THE BRIDGE BUREAU AT 25 SOUTH FRONT STREET.

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE No. MAH.-45-8.38
MAHONING COUNTY

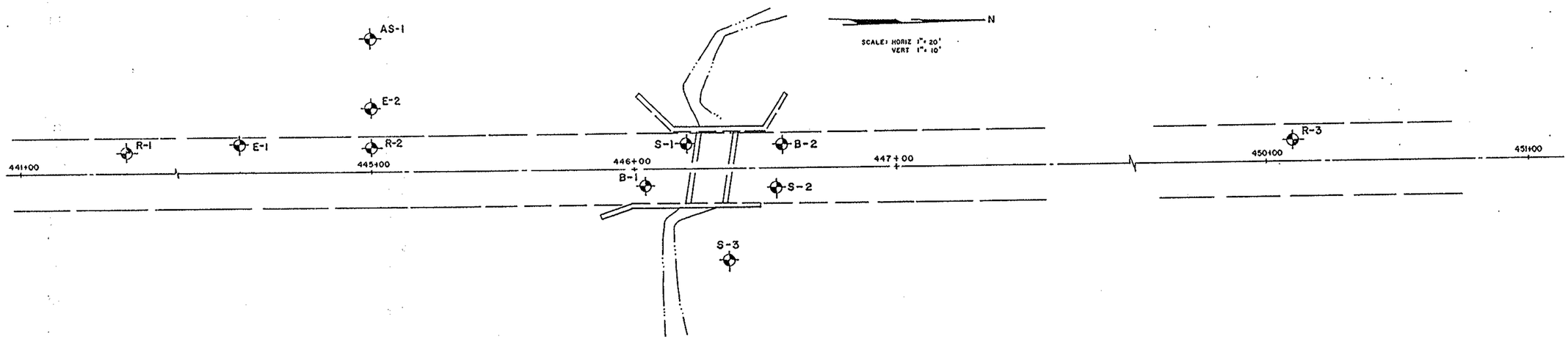
R&R INTERNATIONAL INC
Geotechnical Engineers • Geologists
1204 S. CLEVELAND-MASSILLON ROAD
P.O. BOX 4383
AKRON, OH 44321

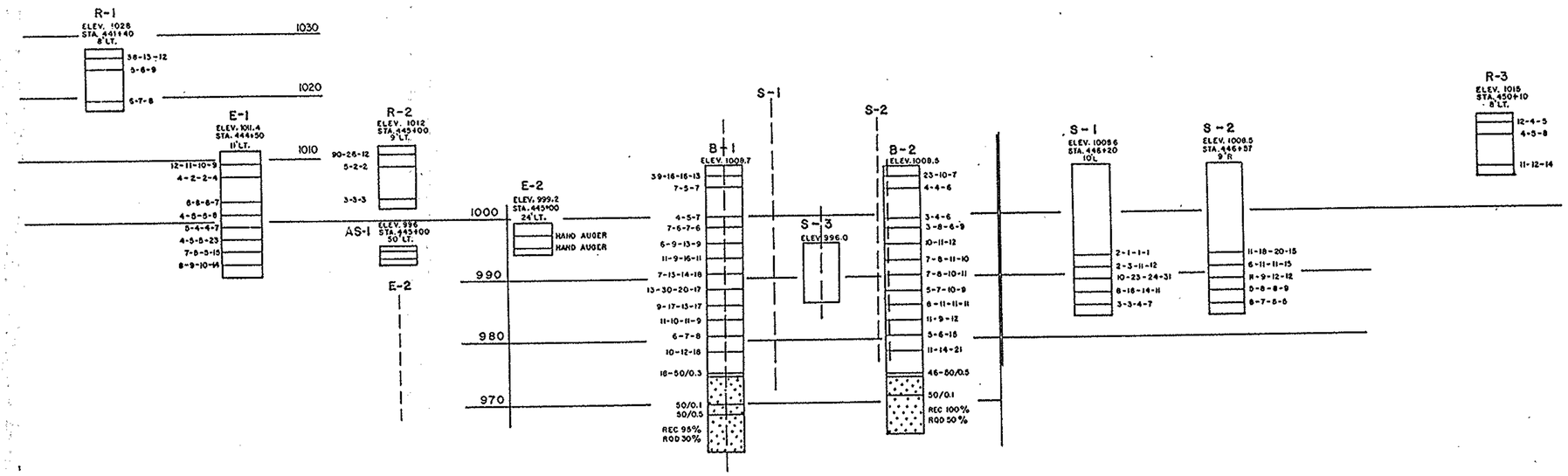
CHECKED BY	REVIEWED	DATE
N.K.	G.M.R.	1-31-91

MAH-45-8.38

FHWA REGION	STATE	PROJECT

2/6





REVISED 2-92 ADDED E-1, E-2
REVISED 7-91 ADDED R-1, R-2, R-3, AS-1

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE No. MAH.-45-8.38
MAHONING COUNTY

R&R INTERNATIONAL INC.
Geotechnical Engineers • Geologists
1234 S. CLEVELAND-MASSILLON ROAD
P.O. BOX 4383
AKRON, OH 44321

DRAWN BY	CHECKED BY	REVIEWED	DATE
V.K.	J.H.	G.M.R.	1/23/91

MAH-45-8.38

FHWA REGION	STATE	PROJECT

3/6

R&R INTERNATIONAL INC

DRILLING LOG

HOLE NO. R-1
ELEV. 1026±

Client THOMAS FOX & ASSOCIATES, LIMITED
Project BRIDGE NO. MAH-45-0838 — Project No. 001071
Location MAHONING COUNTY, OHIO STA 441+40 8' LT

Date: Started 8-24-91 Completed 8-24-91 Driller M.F.
Sampler: Dia 2.0 ins Type SS Hammer Wt 140 lbs Fall 30 ins
Casing: Dia 3.25 ins Type HSA Hammer Wt ___ Fall ___
Water/Mud used in drilling: Yes ___ No N Other ___

Depth (ft)	Graphic Log	Material Description	Sample No	Sample Depth	Blows/0.5'	N	Rec (ft)
		ASPHALT					
1.5		ROADBASE MATERIAL	1	1.5	38-13-12	25	1.0
3.0		Very stiff, brown CLAY, trace sand, trace gravel, dry to moist.	2	3.5	5-6-9	15	1.2
			3	8.5	6-7-A	15	1.5
10.0		TERMINATION DEPTH = 10.0 FEET					

WATER DEPTH: During Drilling DRY ft. Upon Compl. DRY ft. ___ Hrs. after Compl. NA ft.
Weather/Remarks: N.A = No Reading Taken

R&R INTERNATIONAL INC

DRILLING LOG

HOLE NO. R-2
ELEV. 1012±

Client THOMAS FOX & ASSOCIATES, LIMITED
Project BRIDGE NO. MAH-45-0838 — Project No. 001071
Location MAHONING COUNTY, OHIO STA 445+00 8' LT

Date: Started 8-24-91 Completed 8-24-91 Driller M.F.
Sampler: Dia 2.0 ins Type SS Hammer Wt 140 lbs Fall 30 ins
Casing: Dia 3.25 ins Type HSA Hammer Wt ___ Fall ___
Water/Mud used in drilling: Yes ___ No N Other ___

Depth (ft)	Graphic Log	Material Description	Sample No	Sample Depth	Blows/0.5'	N	Rec (ft)
		ASPHALT					
1.5		ROADBASE MATERIAL	1	1.5	20-20-12	36	0.8
3.0		Hard to medium stiff, brown and gray CLAY, trace gravel, trace sand, moist.	2	3.5	5-2-2	4	0.5
			3	8.5	3-3-3	6	1.0
10.0		TERMINATION DEPTH = 10.0 FEET					

WATER DEPTH: During Drilling DRY ft. Upon Compl. DRY ft. ___ Hrs. after Compl. NA ft.
Weather/Remarks: N.A = No Reading Taken

R&R INTERNATIONAL INC

DRILLING LOG

HOLE NO. R-3
ELEV. 1015±

Client THOMAS FOX & ASSOCIATES, LIMITED
Project BRIDGE NO. MAH-45-0838 — Project No. 001071
Location MAHONING COUNTY, OHIO STA 450+10 8' LT

Date: Started 8-24-91 Completed 8-24-91 Driller M.F.
Sampler: Dia 2.0 ins Type SS Hammer Wt 140 lbs Fall 30 ins
Casing: Dia 3.25 ins Type HSA Hammer Wt ___ Fall ___
Water/Mud used in drilling: Yes ___ No N Other ___

Depth (ft)	Graphic Log	Material Description	Sample No	Sample Depth	Blows/0.5'	N	Rec (ft)
		ASPHALT					
1.5		ROADBASE MATERIAL	1	1.5	12-4-5	9	0.8
3.0		Stiff to very stiff, brown and gray CLAY, trace gravel, trace to little sand, moist.	2	3.5	4-5-8	13	1.5
			3	8.5	11-12-14	26	1.5
10.0		TERMINATION DEPTH = 10.0 FEET					

WATER DEPTH: During Drilling DRY ft. Upon Compl. DRY ft. ___ Hrs. after Compl. NA ft.
Weather/Remarks: N.A = No Reading Taken

R&R INTERNATIONAL INC

DRILLING LOG

HOLE NO. AS-1
ELEV. 996±

Client THOMAS FOX & ASSOCIATES, LIMITED
Project BRIDGE NO. MAH-45-0838 — Project No. 001071
Location MAHONING COUNTY, OHIO STA 445+00 50' LT

Date: Started 8-19-91 Completed 8-24-91 Driller N/A
Sampler: Dia 3.0 ins Type HAND AUGER Hammer Wt ___ lbs Fall ___ ins
Casing: Dia ___ ins Type ___ Hammer Wt ___ Fall ___
Water/Mud used in drilling: Yes ___ No N Other ___

Depth (ft)	Graphic Log	Material Description	Sample No	Sample Depth	Blows/0.5'	N	Rec (ft)
0.8		Dense, brown SAND, some silt, trace gravel, saturated.					
2.0		Dense, brown SAND AND GRAVEL, little silt, saturated.					
3.0		Very dense, brown GRAVEL, some sand, trace silt, saturated.					
		TERMINATION DEPTH = 3.0 FEET					

WATER DEPTH: During Drilling 1.5 ft. Upon Compl. 2.0 ft. ___ Hrs. after Compl. NA ft.
Weather/Remarks: N.A = No Reading Taken

R&R INTERNATIONAL INC

PROJECT: Roadway Borings for Bridge No. MAH-45-8.38 PROJECT NUMBER: 001071

ATTERBERG LIMITS (ASTM D-4318-64)

BORING NUMBER	DEPTH (FT.)	MOISTURE PERCENT	L.L.	P.L.	P.I.	CLASSIFICATION
R-1	8.5	23.9	51.6	27.8	23.8	A-7-6
R-2	8.5	22.8	43.3	25.3	18.0	A-7-6
R-3	3.5	20.6	47.2	26.8	20.4	A-7-6

R&R INTERNATIONAL INC

PROJECT: Roadway Borings for Bridge No. MAH-45-8.38 PROJECT NUMBER: 001071

MOISTURE (ASTM D-2216-80) AND GRADATION (ASTM D-422-63)

BORING NUMBER	DEPTH (FT.)	MOISTURE PERCENT	GRADATION (% RETAINED ON STANDARD SIEVE) #4	#10	#40	#100	#200	PAN	SILT	CLAY	CLASSIFICATION
R-1	3.5	22.3	0.5	1.3	2.1	0.9	0.4	94.8			A-7-6
	8.5	23.9	0.0	1.0	1.3	0.7	0.4	96.6			A-7-6
R-2	8.5	22.8	2.4	2.4	4.6	3.5	1.9	85.2			A-7-6
R-3	3.5	20.6	0.9	1.0	2.5	2.3	1.1	91.9			A-7-6
	8.5	16.6	2.6	2.5	5.5	7.1	4.8	77.3			A-7-6
AS-1	0.0	22.8	4.0	1.0	6.5	45.6	15.3	27.6			A-3a
	0.8	15.6	46.5	4.7	6.2	15.1	7.9	19.6			A-1-b
	2.0	12.6	46.1	11.2	12.6	15.4	5.2	9.5			A-1-a

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE No. MAH.-45-8.38
MAHONING COUNTY

R&R INTERNATIONAL INC

Geotechnical Engineers • Geologists
1234 S. CLEVELAND-MASSILLON ROAD
P.O. BOX 4353
AKRON, OH 44321

DRAWN BY	CHECKED BY	REVIEWED	DATE
V.K.	J.H.	D.M.R.	1/23/91

MAH-45-8.38

FHWA REGION	STATE	PROJECT

4/6

R&R INTERNATIONAL INC

DRILLING LOG

HOLE NO. E-1
ELEV. 1015.4

Client THOMAS FOX & ASSOCIATES, LIMITED
Project MAH-45-8.38 ENBANKMENT STUDY — Project No. 001124
Location MAHONING COUNTY, OHIO Sta 444+50 11' Lt

Date: Started 12-23-91 Completed 12-23-91 Driller E.P.
Sampler: Dia 2.0 inc Type SS Hammer Wt 140 lbs Fall 30 inc
Casing: Dia 3.25 inc Type HSA Hammer Wt ____ Fall ____
Water/Mud used in drilling/Yes ____ No X Other ____

Depth (ft)	Graphic Log	Material Description	Sample No	Sample Depth	Blows/0.5'	N	RQD (%)
		ASPHALT					
1.9		BOADBASE MATERIAL	1	2.0	12-11-10-9	21	1.5
3.0		Soft to stiff, brown and gray CLAY, some to trace sand, some to trace gravel, trace little silt, moist.	2	4.0	4-2-2-4	4	1.4
			ST	6.0			
			4	8.0	5-6-6-7	12	1.0
			5	10.0	4-5-5-6	10	0.9
			6	12.0	5-4-4-7	8	1.4
14.0		Stiff, brown SANDY SILT, some gravel, moist.	7	14.0	4-5-5-23	10	1.8
16.0		Stiff, brown SILT AND CLAY, some sand, trace trace gravel, wet.	8	16.0	7-5-5-15	10	1.4
18.0		Medium dense, brown and gray SAND, little silt, little gravel, saturated.	9	18.0	8-9-10-14	19	1.5
20.0		TERMINATION DEPTH = 20.0 FEET					

WATER DEPTH: During Drilling 16.0 ft. Upon Compl. DRY ft. ___ Hrs. after Compl. NR ft.
Weather/Remarks: N.R = NONE RECORDED

R&R INTERNATIONAL INC

DRILLING LOG

HOLE NO. E-2
ELEV. 990.2

Client THOMAS FOX & ASSOCIATES, LIMITED
Project MAH-45-8.38 ENBANKMENT STUDY — Project No. 001124
Location MAHONING COUNTY, OHIO Sta 445+00 24' Lt

Date: Started 12-20-91 Completed 12-20-91 Driller E.P.
Sampler: Dia 2.0 inc Type SS Hammer Wt 3lbs Fall 1ft
Casing: Dia ___ Type ____ Hammer Wt ____ Fall ____
Water/Mud used in drilling/Yes ____ No X Other ____

Depth (ft)	Graphic Log	Material Description	Sample No	Sample Depth	Blows/0.5'	N	RQD (%)
0.4		TOPSOIL	1	0.0	HAND AUGER	N/A	0.7
2.0		Brown and gray SANDY SILT, some gravel, moist.	2	2.0	HAND AUGER	N/A	1.8
5.0		Gray SAND AND GRAVEL, some to little silt, moist to wet. Note: gray shale fragments at 4.5 feet.	3	4.0	HAND AUGER	N/A	0.5
		TERMINATION DEPTH = 5.0 FEET					

WATER DEPTH: During Drilling 3.0 ft. Upon Compl. 3.0 ft. ___ Hrs. after Compl. NR ft.
Weather/Remarks: N.R = NONE RECORDED

R&R INTERNATIONAL INC

PROJECT: Bridge No. MAH-45-8.38 Embankment Study PROJECT NUMBER: 001124

ATTERBERG LIMITS (ASTM D-4318-64)

BORING NUMBER	DEPTH (FT.)	MOISTURE PERCENT	L.L.	P.L.	P.I.	CLASSIFICATION
E-1	4.0	22.5	42.5	22.9	19.6	A-7-6
	10.0	15.9	44.0	22.3	21.7	A-7-6
	16.0	21.7	34.1	20.5	13.6	A-6a

R&R INTERNATIONAL INC

PROJECT: Bridge No. MAH-45-8.38 Embankment Study PROJECT NUMBER: 001124

MOISTURE (ASTM D-2216-50) AND GRADATION (ASTM D-422-63)

BORING NUMBER	DEPTH (FT.)	MOISTURE PERCENT	GRADATION (% RETAINED ON STANDARD SIEVE) #4	#10	#40	#100	#200	PAN	SILT	CLAY	CLASSIFICATION
E-1	2.0	12.2	29.0	18.7	26.4	11.3	4.2	10.4			A-1-b
	4.0	22.5	9.0	4.7	10.1	6.7	2.8	66.7			A-7-6
	10.0	15.9	12.8	11.0	13.6	8.0	3.7	50.9			A-7-6
	12.0	24.8	0.6	1.4	2.4	1.8	0.8	93.0	19.1	73.9	A-7-6
	14.0	21.8	13.4	6.7	13.2	14.0	6.6	47.1			A-4a
	16.0	21.7	0.7	2.6	10.3	11.7	6.7	68.0			A-6a
	18.0	21.3	3.4	7.0	29.3	35.1	8.2	17.0			A-3a
E-2	0.0	20.6	28.0	3.6	5.9	14.6	11.6	35.3			A-4a
	2.0	16.3	19.3	12.7	18.9	13.8	6.3	29.0			A-1-b
	4.0	16.9	38.8	9.3	17.2	13.7	4.0	17.0			A-1-b

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE No. MAH.-45-8.38
MAHONING COUNTY

R&R INTERNATIONAL INC

Geotechnical Engineers • Geologists
1204 S. CLEVELAND-MASSILLON ROAD
P.O. BOX 4383
AKRON, OH 44321

TYPED BY	CHECKED BY	REVIEWED	DATE
J.K.	J.H.	G.M.R.	1/23/92

MAH-45-8.38

FHWA REGION	STATE	PROJECT

5/6

LOG OF BORING

Date Started 11-5-90
Date Completed 11-5-90
Boring No. B-1

Sampler Type SS Dia. 2.00 inch.
Casing: length -- Dia. 3.25 inch.
Station & Offset STA 446+04 7' RT.

Water Elev. 995.7
Surface Elev. 1008.7+

ELEV.	DEPTH	STD.PEN. (N)	REC. Ft.	LOSS Ft.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	AGG. %	COAR. SAND %	FINE SAND %	SILT %	CLAY %	L.L.	P.L.	P.I.	W.C. %	SHTL CLASS.
1008.7	0.0																
1008.0	0.7	39-16-13	0.7		ASPHALT	1	SS										
1005.7	3.0	7-5-7	0.3		ROADBASE MATERIAL WITH SOME SLAG	2	SS										
1000.2	8.5	4-5-7	0.7		Dense to medium dense, black and gray SAND, little gravel, little silt, moist.	3	SS	0.9	2.8	9.7	*	86.6	41.4	23.3	18.1	21.1	A-7-6
998.7	10.0	7-6-7-6	0.6		Stiff, brown CLAY, little sand, trace gravel, moist.	4	SS	21.6	12.6	15.9	*	49.9	25.6	19.5	6.1	13.9	A-4a
996.2	12.5	6-9-13-9	1.0		Stiff, brown SANDY SILT, some gravel, moist	5	SS	50.2	18.5	12.2	*	19.1	—	—	—	12.2	A-1-b
		11-9-16-11	0.7		Medium dense, brown SAND AND GRAVEL, little silt, moist.	6	SS										
991.2	17.5	7-13-14-18	1.5			7	SS	21.2	17.0	16.5	*	45.3	—	—	—	14.7	A-4a
		13-30-20-17	0.9		Very stiff to hard, brown and gray to gray SANDY SILT, some gravel, moist.	8	SS										
		9-17-13-17	1.5			9	SS										
983.7	25.0	11-10-11-9	1.5		Medium dense, gray SAND AND GRAVEL, some silt, saturated.	10	SS	35.4	17.2	23.6	*	23.9	—	—	—	17.4	A-1-b
981.2	27.5	6-7-8	1.2			11	SS	32.1	11.8	12.6	*	43.5	--	--	--	17.7	A-4a
		10-12-18	1.2		Medium dense to dense, gray SANDY SILT, some gravel, wet.	12	SS	36.6	11.5	15.7	*	36.2	—	—	--	15.1	A-4a
974.7	34.0	18-50-0.3	0.5			13	SS										
		50/0.1	0.1		Gray SANDSTONE, moderately weathered, fractured.	14	SS										
		50/0.5	0.4			15	SS										
		REC = 95%			Note: auger refusal at 43.0 ft.	RUN 1	NXW										
		ROD = 30%				43.0 to 46.0											
962.7	46.0				TERMINATION DEPTH 46.0 FEET												

*: SILT AND CLAY COMBINED

LOG OF BORING

Date Started 11-5-90
Date Completed 11-5-90
Boring No. B-2

Sampler Type SS Dia. 2.00 inch.
Casing: length -- Dia. 3.25 inch.
Station & Offset STA 446+57 9' LT.

Water Elev. 991.0
Surface Elev. 1008.5

ELEV.	DEPTH	STD.PEN. (N)	REC. Ft.	LOSS Ft.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	AGG. %	COAR. SAND %	FINE SAND %	SILT %	CLAY %	L.L.	P.L.	P.I.	W.C. %	SHTL CLASS.
1008.5	0.0																
1008.0	0.5	23-10-7	0.5		ASPHALT	1	SS										
1005.5	3.0	4-4-6	0.2		ROADBASE MATERIAL WITH SOME SLAG	2	SS	27.8	17.6	13.8	*	40.8	—	—	—	15.2	A-4a
1000.0	8.5	3-4-6	1.1		Very stiff to stiff, gray SANDY SILT, some gravel, wet.	3	SS	3.8	4.3	8.7	*	83.2	43.0	22.3	20.7	22.4	A-7-6
998.5	10.0	3-8-6-9	0.9		Stiff, brown CLAY, some sand, trace gravel, moist.	4	SS	24.0	9.0	19.9	*	47.1	—	—	—	14.6	A-4a
		10-11-10-12	0.4		Stiff, brown and gray to gray SANDY SILT, some to little gravel, moist.	5	SS										
		7-8-11-10	0.8			6	SS	14.0	10.6	18.4	36.3	20.7	19.5	15.9	3.6	11.0	A-4a
991.0	17.5	7-8-10-11	1.5		Medium dense, brown SAND, little silt, trace gravel, saturated.	7	SS	1.7	19.0	60.4	*	18.9	—	—	—	24.1	A-3a
988.5	20.0	5-7-10-9	1.5		Very stiff, brown and gray SANDY SILT, little gravel, wet, some gravel, moist.	8	SS	13.4	13.2	26.2	*	47.2	—	—	—	15.2	A-4a
986.0	22.5	6-11-11-11	1.5			9	SS	26.2	15.6	27.5	*	30.7	—	—	—	12.9	A-2-4
		11-9-12	0.1		Medium dense to dense, gray SAND AND GRAVEL, saturated.	10	SS										
		5-6-15	1.1			11	SS	37.8	12.0	15.6	*	34.7	—	—	—	13.0	A-2-4
		11-14-21	1.1			12	SS										
974.5	34.0	48-50/0.5	1.0			13	SS										
		50/0.1	0.1		Gray SANDSTONE with coal seams, moderately weathered, fractured.	14	SS										
		REC = 100%				RUN 1	NXW										
		ROD = 50%				38.0 to 43.0											
965.6	43.0				TERMINATION DEPTH 43.0 FEET												

*: SILT AND CLAY COMBINED

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE No. MAH.-45-8.38
MAHONING COUNTY

R&R INTERNATIONAL INC.
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P.O. BOX 4383
AKRON, OH 44321

TYPED BY	CHECKED BY	REVIEWED	DATE
J.X.	J.H.	G.M.P.	1/23/91

MAH-45-8.38

FHWA REGION	STATE	PROJECT

6/6

LOG OF BORING

Date Started 12-10-90 | Sampler Type SS | Dia. 2.00 inch. | Water Elev. 992.1
Date Completed 12-10-90 | Casing: length -- | Dia. 3.25 inch.
Boring No. S-1 | Station & Offset STA 446+20 10' LT. | Surface Elev. 1008.6 ±

ELEV.	DEPTH	STD.PEN. (N)	REC. Ft.	LOSS Ft.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	AGG. %	COAR. SAND %	FINE SAND %	SILT %	CLAY %	L.L.	P.L.	P.I.	W.C. %	SHTL CLASS.
1008.6	0.0				ASPHALT UNDERLAIN BY SLAG MATERIAL												
1006.6	2.0																
1005.0	3.0				ROADBASE MATERIAL												
					Very stiff to stiff, gray SANDY SILT, some gravel, wet.												
1000.6	8.0																
					Stiff, brown CLAY, some sand, trace gravel, moist.												
998.6	10.0																
		2-1-1-1	0.3		Stiff to hard, brown and gray SANDY SILT, trace to some gravel, moist to wet.	1	SS	19.7	8.3	32.6	*	39.4	—	—	—	12.0	A-4a
		2-3-11-12	1.0			2	SS	21.2	8.5	14.9	*	55.4	—	—	—	11.3	A-4a
		10-23-24-31	1.5			3	SS	32.2	7.4	12.4	*	48.0	—	—	—	11.3	A-4a
988.6	20.0	6-16-14-11	2.0			4	SS	4.1	18.8	48.6	*	28.5	—	—	—	14.5	A-3a
					Medium dense, brown and gray SAND, some silt, moist.												
986.1	22.5	3-3-4-7	1.5			5	SS	0.2	1.7	43.5	45.2	9.4	—	—	—	19.7	A-4a
					Medium stiff, brown and gray SANDY SILT, trace clay, trace gravel, wet.												
984.1	24.5																
					TERMINATION DEPTH 24.5 FEET												

*: SILT AND CLAY COMBINED

LOG OF BORING

Date Started 12-10-90 | Sampler Type SS | Dia. 2.00 inch. | Water Elev. 992.0
Date Completed 12-10-90 | Casing: length -- | Dia. 3.25 inch.
Boring No. S-2 | Station & Offset STA 446+54 9' LT. | Surface Elev. 1008.5 ±

ELEV.	DEPTH	STD.PEN. (N)	REC. Ft.	LOSS Ft.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	AGG. %	COAR. SAND %	FINE SAND %	SILT %	CLAY %	L.L.	P.L.	P.I.	W.C. %	SHTL CLASS.
1008.5	0.0				ASPHALT UNDERLAIN BY SLAG MATERIAL												
1006.5	2.0																
1005.5	3.0				ROADBASE MATERIAL												
					Stiff, gray SANDY SILT, some gravel, wet.												
1000.0	8.5				Stiff, brown CLAY, some sand, trace gravel, moist.												
998.5	10.0																
					Stiff to hard, brown and gray SANDY SILT, trace to some gravel, moist to wet.												
		11-18-20-15	1.5			1	SS	12.9	8.1	10.9	41.0	28.2	—	—	—	19.5	A-4a
992.0	16.5	6-11-11-5	2.0			2	SS	42.9	15.6	14.2	*	27.3	—	—	—	10.0	A-2-4
					Medium dense, brown and gary GRAVEL, some sand, some												
990.0	18.5	11-9-12-12	0.9			3	SS	15.4	9.5	15.9	40.5	18.7	—	—	—	11.5	A-4a
					Very stiff, brown and gray SANDY SILT, trace gravel, moist.												
988.0	20.5	5-8-8-9	1.5			4	SS	0.2	11.7	59.8	*	28.3	—	—	—	18.4	A-3a
					Medium dense, gray SAND, some silt, moist.												
985.0	22.5	8-7-5-5	2.0			5	SS	18.4	9.4	24.7	*	49.5	—	—	—	13.3	A-4a
					Stiff, gray SANDY SILT, little gravel, moist.												
984.0	24.5																
					TERMINATION DEPTH 24.5 FEET												

*: SILT AND CLAY COMBINED

LOG OF BORING

Date Started 12-7-90 | Sampler Type Hand Auger | Dia. 3.00 inch. | Water Elev. (DRY)
Date Completed 12-7-90 | Casing: length -- | Dia. inch.
Boring No. S-3 | Station & Offset STA 446+35 35' RT. | Surface Elev. 996.0 ±

ELEV.	DEPTH	STD.PEN. (N)	REC. Ft.	LOSS Ft.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	AGG. %	COAR. SAND %	FINE SAND %	SILT %	CLAY %	L.L.	P.L.	P.I.	W.C. %	SHTL CLASS.
996.0	0					1	HA	67.0	27.0	13.3		1.3	—	—	—	18.0	A-1-a
						2	HA	65.2	26.1	7.0	*	1.7	—	—	—	17.2	A-1-a
						3	HA	63.7	17.9	14.8	*	5.6	—	—	—	18.7	A-1-a
					Medium dense, brown SAND AND GRAVEL, trace to little silt, moist.	4	HA	71.3	17.3	6.9	*	4.5	—	—	—	13.8	A-1-a
					Note: auger refusal at 9.5 ft.	5	HA	58.7	22.5	9.7	*	9.1	—	—	—	13.3	A-1-a
986.5	9.5					6	HA	52.5	21.0	13.0	*	12.5	—	—	—	16.8	A-1-a
					TERMINATION DEPTH 9.5 FEET												

*: SILT AND CLAY COMBINED

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE No. MAH.-45-8.38
MAHONING COUNTY

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P.O. BOX 4383
AKRON, OH 44321

TYPED BY	CHECKED BY	REVIEWED	DATE
J K	J H	G M R	1/23/91