MICROFILMED
FEB 1 1991

	OHIO
	FHWA REGION
	FEDERAL PROJECT

1 / 36

HOL-520-9.57

BRZ-3802(2)

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
HOL-520-9.57
KILLBUCK TOWNSHIP
HOLMES COUNTY

MICROFILMED
MAR 5 1992

DESIGN DESIGNATION

Current A.D.T. (1987)	750
Design Year A.D.T. (2007)	1248
D.H.V.	200
D (Direction Distribution)	60%
T (Trucks)	1%
* V (Design Speed)	55 MPH
Legal Speed	55 MPH

* Design Exceptions Listed On Sheet No. 2 of 36

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
Property Line (in existing fence)
Railroad or
Guardrail (existing) (proposed)

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LINE DATA

S.R. 520

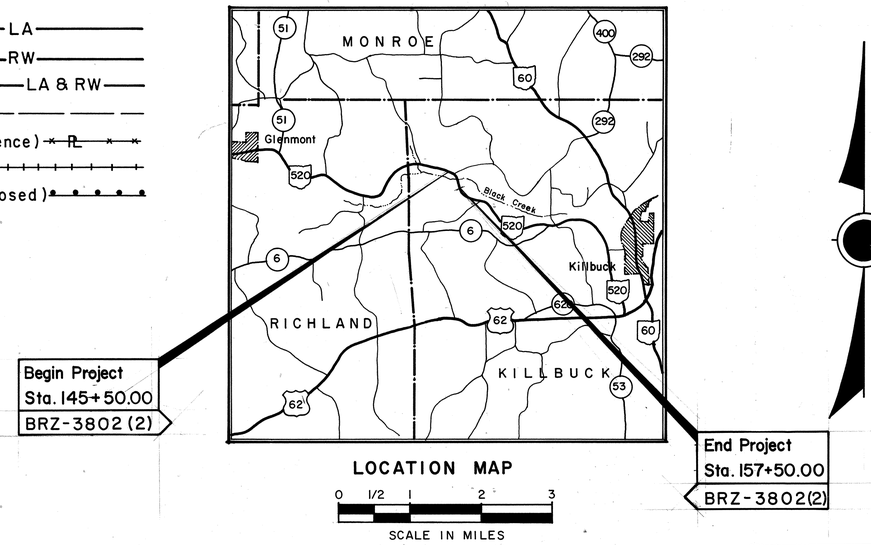
Begin Project And Work	STA. 145 + 50.00
End Project And Work	STA. 157 + 50.00
Length Of Project	1200.00 L.F. or 0.227 Miles

T.R. 54

Begin Work	STA. 50 + 12.65
End Work	STA. 53 + 25
	312.35 L.F. or 0.059 Miles
Length Of Work	1512.35 L.F. or 0.286 Miles

STRUCTURE PLANS REVIEWED BY:
Burgess & Niple, Limited
Columbus, Ohio

Plan Prepared By:
KARL R. ROHRER ASSOC. INC.
3810 RIDGEWOOD ROAD
AKRON, OHIO



LOCATION MAP

SCALE IN MILES 0 1/2 1 2 3

1987 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 _____
Date 2/26/88 District Deputy Director of Transportation

Approved B.D. Hankilammi / WTL
Date 5/4/88 Engineer, Bureau of Bridges and Structural Design

Approved George E. Downing
Date 5-27-88 Chief Engineer, Planning and Design

Approved Bernard B. Hurst
Date 5-27-88 Director, Department of Transportation

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED: _____

DIVISION ADMINISTRATOR _____ DATE

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

PLAN 0 50
PROFILE HORIZONTAL 0 50 VERTICAL 0 5
CROSS SECTIONS HORIZONTAL 0 10 VERTICAL 0 10

SUPPLEMENTAL SPECIFICATIONS

824	10-8-82	
836	11-12-85	
847	10-17-83	
947	10-17-83	
944	10-1-87	
992	10-29-86	

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS

BP-5	10-1-87	HW-4B	4-1-80	AS-1-81	11-27-81		
BP-6	10-1-87	HW-4A	4-1-80	CPA-2-73	4-10-73		
		MC-1	6-13-69	CPP-2-73	4-10-73		
CB-5	11-10-83	MC-4	7-26-76	CS-2-73, SHT. 1&2			
		MC-10	5-1-76		4-10-73		
				DBR-2-73	4-10-73		
GR-1	1-11-85	MC-11	8-1-78				
GR-2B	2-5-82						
GR-3	1-21-85			MT-99.10	11-14-86		
GR-4	2-5-82	LA-1	6-1-79				
GR-4A	1-30-84						

Project : HOL-520-9.57
Date of letting 19 Contract No.

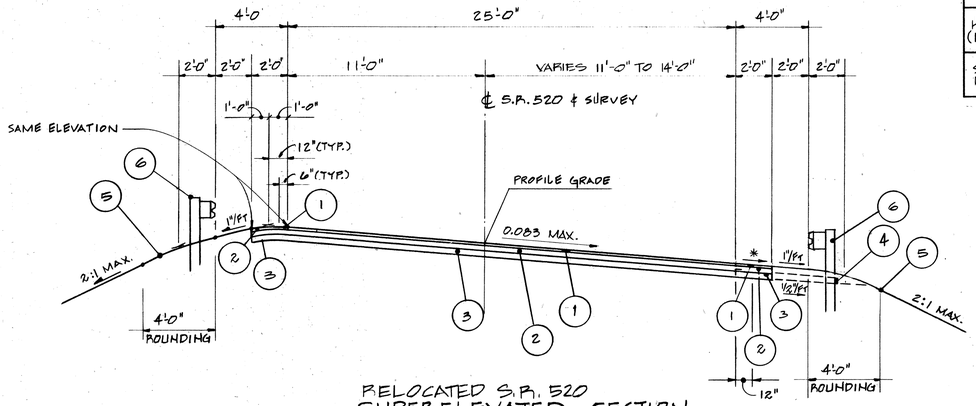
TYPICAL SECTIONS

TYPE 404 ON TYPE 304

CALC. BY LBD DATE 12-06		OHIO	2
CHKD. BY LCM DATE 1/2007		FHWA REGION 5	36

HOL.-520-9.57

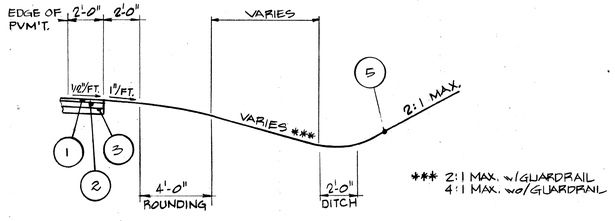
DESIGN EXCEPTION	REQUIRED	PROPOSED
GRADED SHOULDER WIDTH	8'-0"	6'-0"
HORIZONTAL ALIGNMENT (MAXIMUM CURVATURE)	6°	12°-30'
STOPPING SIGHT DISTANCE	450'-0"	400'-0"



RELOCATED S.R. 520
SUPERELEVATED SECTION

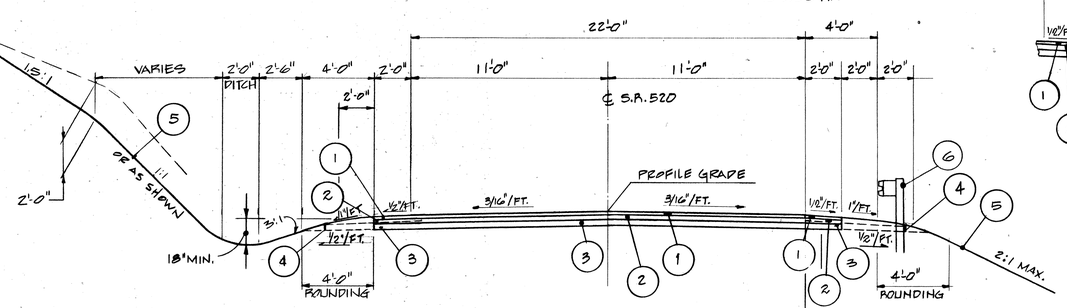
STA. 147+87.39 TO STA 150 +80 = 292.61 L.F.
STA. 152+13.91 TO STA 156 +31.16 = 417.25 L.F.
709.86 L.F.

* SLOPE AT 1/2" PER FOOT OR AT RATE OF SUPERELEVATION, WHICH EVER IS GREATER.



*** 2:1 MAX. w/GUARDRAIL
4:1 MAX. w/o GUARDRAIL

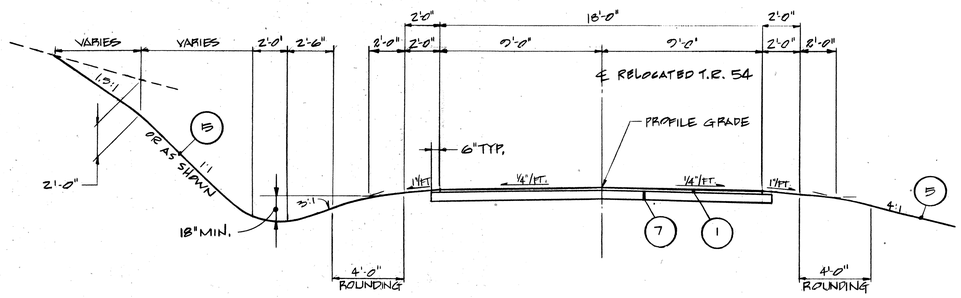
DITCH SECTION
STA 131+93.75 TO STA 157+50 LT/RT



DITCH SECTION
STA 143+50 TO STA 150+00 LT.

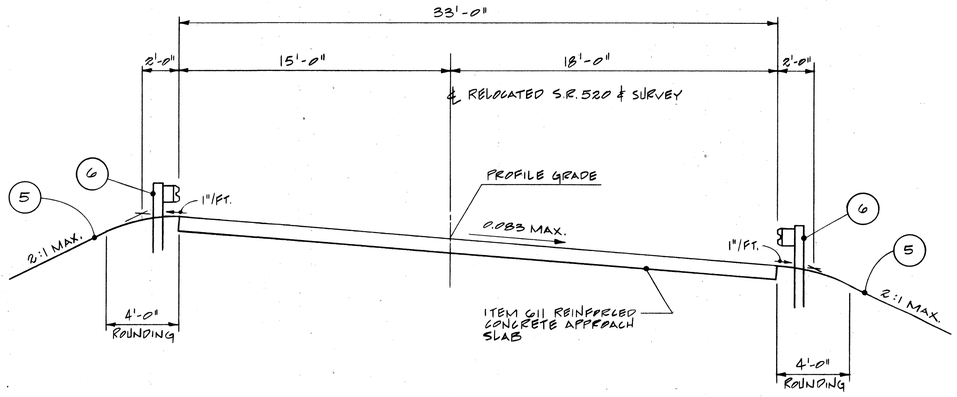
RELOCATED S.R. 520
NORMAL SECTION

STA. 145+50 TO STA. 147+87.39 = 237.39 L.F.
STA. 156+31.16 TO STA. 157+50 = 118.84 L.F.
356.23 L.F.



RELOCATED T.R. 54
NORMAL SECTION

STA. 50+12.65 TO STA. 53+06.01 = 293.36 L.F.



RELOCATED S.R. 520
APPROACH SLAB SECTION

STA. 150+80 TO STA. 151+00 = 20'-0" L.F.
STA. 151+93.91 TO STA. 152+13.91 = 20'-0" L.F.
40'-0" L.F.

LEGEND

1. ITEM 404 - 1 1/2" ASPHALT CONCRETE AC-20
2. ITEM 301 - 3" BITUMINOUS AGGREGATE BASE AC-20
3. ITEM 304 - 4" AGGREGATE BASE
4. ITEM 605 - AGGREGATE DRAINS
5. ITEM 659 - SEEDING AND MULCHING
6. ITEM 606 - GUARDRAIL, TYPE B
7. ITEM 301 - 6" BITUMINOUS AGGREGATE BASE AC-20

NOTES:

1. ALL ANGLES AT CHANGE OF SLOPES SHALL HAVE 4'-0" MIN. ROUNDING UNLESS SHOWN OTHERWISE.
2. TRANSITION SHOULDER SLOPES TO MEET APPROACH SLAB.
3. FOR PROPOSED PAVEMENT OFF-SETS & ELEVATIONS SEE SUPERELEVATION TABLE ON SHT. NO 7.

GENERAL NOTES

CALC. BY LCH DATE 2.2.87
CHKD. BY LBO DATE 2.9.87
OHIO
FHWA REGION 5
3
36
HOL-520-9.57

FIELD OFFICE: THE CONTRACTOR SHALL PROVIDE A SUITABLE FIELD OFFICE HAVING A MINIMUM OF 300 SQ. FT. OF FLOOR SPACE WHICH SHALL BE IN ACCORDANCE WITH 619.01 AND 610.02. PAYMENT 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.

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

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

MR. RON HAYOK
UNITED TELEPHONE
224 EAST LIBERTY STREET
WOOSTER, OHIO 44691 216/262-0486

MR. GARY MILLER
HILL PRODUCING CO.
P.O. BOX 307
KILLBUCK, OHIO 44637 216/276-5361

MR. JOHN SHRADE
OHIO POWER COMPANY
301 CLEVELAND AVENUE S.W.
BOX 400
CANTON, OHIO 44701 216/438-7040

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.

PAVEMENT MARKING: PAVEMENT MARKING SHALL BE INSTALLED FROM STA 145+50 TO STA 157+50 RELOC. S.R. 520 AND STA 50+12.65 TO STA 53+06.01 RELOC. T.R. 54.

THE FOLLOWING IS AN ESTIMATED QUANTITY FOR ITEM 621 PAVEMENT MARKING:

ITEM 621	EDGE LINES (WHITE)	0.57 MILES
ITEM 621	CENTER LINES	0.28 MILES
ITEM 614	TEMPORARY CENTER LINES, CLASS II	0.28 MILES
ITEM 614	Temporary Center Lines, Class I	0.04 Miles
ITem 614	Temporary Edge Lines, Class I	0.09 Miles

MONUMENTS: MONUMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH DETAILS SHOWN ON STANDARD CONSTRUCTION DRAWING MC-1. FOR LOCATIONS, SEE SHEET NO. 30

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.

CHANNEL EMBANKMENTS: PORTIONS OF THE EXISTING CHANNEL OUTSIDE THE ROADBED, SHALL BE FILLED AND SLOPED TO DRAIN, AS CALLED FOR ON THE PLANS. THE CONTRACTOR SHALL USE EITHER SUITABLE OR UNSUITABLE MATERIALS, TO THE EXTENT AVAILABLE, FOR CHANNEL EMBANKMENTS.

AREAS WHERE CHANNEL EMBANKMENTS ARE TO BE PLACED SHALL BE CLEARED OF WEEDS AND BRUSH.

THE REQUIREMENTS FOR MOISTURE, DENSITY CONTROL, BENCHING, AND SUITABLE MATERIALS SHALL BE WAIVED.

THE DEPTH OF LAYERS IN WHICH THE EMBANKMENTS ARE PLACED AND THEIR COMPACTION SHALL, IN LIEU OF THE REQUIREMENTS OF ITEM 203, CONFORM WITH ACCEPTABLE CONSTRUCTION PRACTICES AS DETERMINED BY THE ENGINEER.

NO PROVISIONS OF THE SPECIFICATIONS SHALL BE WAIVED FOR EMBANKMENTS WHICH SUPPORT ANY PORTION OF THE NEW ROADBED OR STRUCTURAL MEMBERS.

PAYMENT FOR ALL THE ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 203, EMBANKMENT.

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:

659 WATER 10 M GAL.

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL

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

207	TEMPORARY SEEDING AND MULCHING	1885 SQ. YD.
207	STRAW OR HAY BALES	16 EACH
207	TEMPORARY SLOPE DRAINS	75 LIN. FT.
207	TEMPORARY BENCHES, DIKES DAMS AND SEDIMENT BASINS	215 CU. YD.
601	TYPE C ROCK CHANNEL PROTECTION (WITHOUT FILTER)	13 CU. YD.
659	COMMERCIAL FERTILIZER	0.17 TON
659	REPAIR SEEDING AND MULCHING	472 SQ. YD.
659	WATER	4 M. GAL.

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.

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

ITEM 605 350 L.F. AGGREGATE DRAINS.

SPRING DRAINS: REFERENCE IS MADE TO THE DETAILED DRAWING ON STANDARD CONSTRUCTION DRAWING MC-1, SHOWING THE METHOD OF DRAINING ANY SPRING THAT MAY BE SHOWN ON THE PLAN, OR ENCOUNTERED DURING CONSTRUCTION, AS DETERMINED BY THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THIS PURPOSE:

ITEM 605 - 50 L.F. 6" UNCLASSIFIED PIPE UNDERDRAIN, 707.01 TYPE III OR 707.21 TYPE III, AS PER PLAN.

ITEM 605 - 50 L.F. AGGREGATE DRAINS FOR SPRINGS.

THE CONTRACTOR SHALL NOT ORDER MATERIALS FOR "SPRING DRAINS" UNTIL AUTHORIZED BY THE ENGINEER, AND IN THE EVENT NO SPRINGS ARE ENCOUNTERED, THE ITEM SHALL BE NON-PERFORMED.

EROSION CONTROL: ITEM 601 AND 670 IS 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.

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, ETC.

PART-WIDTH CONSTRUCTION: BECAUSE OF THE NECESSITY OF BUILDING (PORTIONS OF) THIS PROJECT UNDER TRAFFIC AND CONSTRUCTING THE FULL PAVEMENT WIDTH IN STAGES, EXTREME CARE SHALL BE TAKEN TO PREVENT THE CONSTRUCTION OF BUTT JOINT ON CENTERLINE IN THE BASE COURSES. LONGITUDINAL JOINTS SHALL BE LAPPED AS SHOWN ON STANDARD CONSTRUCTION DRAWING BP-5.

* MAINTAINING TRAFFIC: THE CONTRACTOR SHALL MAINTAIN TRAFFIC AT ALL TIMES IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 614. TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES BY USE OF THE EXISTING PAVEMENT, THE COMPLETED PAVEMENT, AND TEMPORARY ROADWAYS SURFACED WITH 410 AGGREGATE AND STABILIZED WITH ITEM 616 CALCIUM CHLORIDE. 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.

TEMPORARY ROADWAYS SHALL BE SURFACED WITH ITEM 410 TRAFFIC COMPACTED SURFACE TYPE A & B, TREATED WITH ITEM 616 WATER & CALCIUM CHLORIDE, AND SURFACE MAINTAINED DAILY IN A MANNER SATISFACTORY TO THE ENGINEER. TWO-WAY TRAFFIC LANES SHALL BE SURFACED WITH AGGREGATE AT LEAST (24') WIDE AND ONE-WAY TRAFFIC LANES SHALL HAVE THE SURFACING AGGREGATE NOT LESS THAN (12') WIDE.

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 615 - TEMPORARY ROADS LUMP

ITEM 410	TRAFFIC COMPACTED SURFACE TYPE A & B	756 CU. YD.
ITEM 616	CALCIUM CHLORIDE	15 TONS
ITEM 616	WATER	50 M-GALS.

SEPARATE PAYMENT SHALL BE MADE FOR ITEMS 410, 615, 616 NOTED ABOVE. ALL OTHER WORK REQUIRED FOR TRAFFIC MAINTENANCE SHALL BE INCLUDED WITH PAYMENT FOR ITEM 614 MAINTAINING TRAFFIC.

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"	43	1	44
30"	1		1
48"	1	-	1
60"	-	-	-

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.

* MAINTAINING TRAFFIC: MAXIMUM USE SHALL BE MADE OF THE EXISTING PAVEMENT AND EXISTING BRIDGE FOR MAINTAINING TRAFFIC. THE CONTRACTOR SHALL MAINTAIN TRAFFIC ON THE EXISTING PAVEMENT AND TEMPORARY ROAD AS SHOWN ON SHT. NOS. 7 AND 21 UNTIL THE PROPOSED BRIDGE AND EMBANKMENT BETWEEN STA 149+50 AND STA 153+5 HAVE BEEN CONSTRUCTED.
THE CONTRACTOR SHALL THEN MAINTAIN TRAFFIC ON THE NEW BRIDGE AND EMBANKMENT AND COMPLETE THE REMAINDER OF THE WORK.

HOL-520-9.57

3A
36

DESCRIPTION

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING BARRIER REFLECTORS ON GALVANIZED STEEL GUARD RAIL, CONCRETE BARRIER, RETAINING WALL AND/OR BRIDGE PARAPETS IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.

MATERIAL

THE BARRIER REFLECTOR SHALL BE AS MANUFACTURED BY STIMSONITE, REFLEXITE OR AN APPROVED FUNCTIONAL EQUIVALENT.

STIMSONITE - MODEL 965 (WHITE & YELLOW) OR
REFLEXITE - MODEL 650 (WHITE & YELLOW)

THE REFLECTORS MAY BE ATTACHED BY ADHESIVE OR OTHER ACCEPTABLE METHOD.

THE ADHESIVE SHALL BE FRANKLIN PANEL AND METAL FRAMING ADHESIVE AS MANUFACTURED BY FRANKLIN CHEMICAL INDUSTRIES, PR-365 AS MANUFACTURED BY PRODUCTS RESEARCH AND CHEMICAL CORPORATION, OR AN APPROVED EQUAL.

ALL MOUNTING HARDWARE UTILIZED IN ANY ACCEPTABLE ALTERNATE ATTACHMENT METHOD SHALL BE STAINLESS STEEL.

LAYOUT

THE CONTRACTOR SHALL LAYOUT ALL LOCATIONS TO ASSURE PROPER PLACEMENT. THE LAYOUT SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION OF THE REFLECTORS.

ALL BARRIERS SHALL HAVE A REFLECTOR AT THE BEGINNING AND THE END OF THE RUN AND AT LEAST ONE EVENLY SPACED BETWEEN THE TERMINI. THE REQUIRED NUMBER OF REFLECTORS (N) PER RUN FOR EACH LENGTH (L) OF RUN SHALL BE DETERMINED AS FOLLOWS:

N = L/100 + 1 (FOR TANGENTS AND CURVES LESS THAN 5°)
N = L/50 + 1 (FOR CURVES WITH DEGREE OF CURVATURE OF 5° OR GREATER).
ROUND N TO NEXT WHOLE NUMBER WITH A MINIMUM OF 3.

THE SPACING ON TANGENTS AND CURVES LESS THAN 5° MAY VARY FROM 75' TO 100' IN THE FINAL 250' TO ASSURE APPROXIMATELY EVEN SPACING OF THE REFLECTORS.

INSTALLATION

1. ON CONCRETE BARRIERS, RETAINING WALLS AND BRIDGE PARAPETS THE HEIGHT OF THE TOP OF THE REFLECTOR SHALL BE 26 INCHES ABOVE THE NEAR EDGE OF PAVEMENT, BUT IN NO CASE SHALL THE TOP OF THE REFLECTOR BE LESS THAN 3 INCHES BELOW THE TOP OF THE CONCRETE BARRIER.

2. GUARDRAIL REFLECTORS SHALL BE INSTALLED WITHIN THE CONCAVE SURFACE OF THE GUARDRAIL. ATTACHMENT MAY BE BY BRACKET WHICH FITS UNDER THE HEAD OF THE POST BOLT, BY THE ABOVE REFERENCED ADHESIVE APPLIED PER MANUFACTURER'S RECOMMENDATION, OR OTHER ACCEPTABLE METHOD.

3. THE ABOVE REFERENCED ADHESIVE SHALL BE FLASHED WHEN APPLIED TO ACHIEVE MAXIMUM BONDING STRENGTH.

4. WHEN MOUNTED ON A FLAT SURFACE, THE TOP OF THE REFLECTOR SHALL BE TILTED FORWARD FROM THE VERTICAL OR PLUMB POSITION 2-3 DEGREES TO FACILITATE 'RAIN WASHING' OF THE REFLECTOR FACE.

5. ON TWO-LANE HIGHWAYS, WHITE UNITS SHALL BE PLACED ON THE RIGHT SIDE OF APPROCHING TRAFFIC. BIDIRECTIONAL WHITE REFLECTORS SHALL BE USED ON THE OUTSIDE OF CURVES.

6. ON DIVIDED HIGHWAYS, DIRECTIONAL ROADWAYS AND RAMPS, WHITE UNITS SHALL BE PLACED ON THE RIGHT SIDE OF APPROACHING TRAFFIC AND YELLOW ON THE LEFT.

METHOD OF MEASUREMENT

THE NUMBER OF BARRIER REFLECTORS OF EACHTYPE SHALL BE THE ACTUAL NUMBER IN PLACE, COMPLETED AND ACCEPTED. REFLECTORS MOUNTED ON GUARDRAIL SHALL BE MEASURED AS TYPE A. REFLECTORS MOUNTED ON CONCRETE BARRIER, RETAINING WALL OR BRIDGE PARAPETS SHALL BE MEASURED AS TYPE B. BIDIRECTIONAL REFLECTORS SHALL BE MEASUREDAS TYPE A2 OR TYPE B2 AS APPROPRIATE. A BIDIRECTIONAL REFLECTOR MAY ACTUALLY CONSIST OF TWO 1-WAY REFLECTORS MOUNTED BACK-TO-BACK; HOWEVER, BOTH WILL BE INCLUDED IN THE UNIT PRICE FOR FOR A BIDIRECTIONAL REFLECTOR.

BASIS OF PAYMENT

BASIS OF PAYMENT SHALL BE AT THE UNIT PRICE BID FOR EACH REFLECTOR AND SHALL INCLUDE ALL LABOR, EQUIPMENT, HARDWARE, AND INCIDENTALS REQUIRED TO PERFORM THE WORK.

ITEM	UNIT	DESCRIPTION
620	EACH	BARRIER REFLECTOR, TYPE A AS PER PLAN
620	EACH	BARRIER REFLECTOR, TYPE B AS PER PLAN
620	EACH	BARRIER REFLECTOR, TYPE A2 AS PER PLAN
620	EACH	BARRIER REFLECTOR, TYPE B2 AS PER PLAN

STATIONING FROM	STATIONING TO	SIDE	SPACING (FT)	TYPE A W	TYPE A Y	TYPE B W	TYPE B Y	TYPE A2 W	TYPE A2 Y	TYPE B2 W	TYPE B2 Y	REMARKS
145+58.13	153+18.72	RT.	100	9								
51+06.81	153+51.94	LT.	100	5								

COMPUTATIONS

ITEM 203 - SUBGRADE COMPACTION

S.R. 520

STA. 145+50 TO 146+50 (L/R)
(100') (23.8+26 / 2) = 2,490 S.F.

STA. 146+50 TO 149+04.01 (L/R)
(254.01) (26) = 6,604.26 S.F.

STA. 149+04.01 TO 150+60.26 (L/R)
(156.25) (26+29 / 2) = 4,296.87 S.F.

STA. 150+60.26 TO 150+80 (L/R)
(19.74) (29) = 572.46 S.F.

STA. 152+13.91 TO 153+58.29 (L/R)
(144.38) (29) = 4,187.02 S.F.

STA. 153+58.29 TO 155+14.54 (L/R)
(156.25) (26+29 / 2) = 4,296.87 S.F.

STA. 155+14.54 TO 156+52.04 (L/R)
(137.5) (26) = 3,575 S.F.

STA. 156+52.04 TO 157+50 (L/R)
(97.96) (26+24 / 2) = 2,449 S.F.

T.R. 54

STA. 50+12.65 TO 50+90.20 (L/R)
AREA BY COMPUTER = 2,541.41 S.F.

STA. 50+90.20 TO 52+56.01 (L/R)
(165.81) (18) = 2,984.58 S.F.

STA. 52+56.01 TO 53+06.01 (L/R)
(50) (14+18 / 2) = 800 S.F.

APPROACH SLABS

STA. 150+80 TO 151+00 (L.R)
(20.00') (33) = 660.00 S.F.

STA. 151+93.91 TO 152+13.91 (L/R)
(20.00') (33) = 660.00 S.F.
36,117.47 S.F.

(36,117.47 S.F.) (1/9) TOTAL 4,013.05 S.Y.

ITEM 301 - BITUMINOUS AGGREGATE BASE: AC-20

S.R. 520

STA. 145+50 TO 146+50 (L/R)
(100) (23.8+26 / 2) = 2,490 S.F.

STA. 146+50 TO 149+04.01 (L/R)
(254.01) (26) = 6,604.26 S.F.

STA. 149+04.01 TO 150+60.26 (L/R)
(156.25) (26+29 / 2) = 4,296.87 S.F.

STA. 150+60.26 TO 150+80 (L/R)
(19.74) (29) = 572.46 S.F.

STA. 152+13.91 TO 153+58.29 (L/R)
(144.38) (29) = 4,187.02 S.F.

STA. 153+58.29 TO 155+14.54 (L/R)
(156.25) (26+29 / 2) = 4,296.87 S.F.

STA. 155+14.54 TO 156+52.04 (L/R)
(137.5) (26) = 3,575 S.F.

STA. 156+52.04 TO 157+50 (L/R)
(97.96) (26+24 / 2) = 2,449 S.F.

(28,471.48 S.F.) (0.25') (1/27) = 263.62 C.Y.

T.R. 54

STA. 50+12.65 TO 50+90.20 (L/R)
AREA BY COMPUTER = 2,541.41 S.F.

STA. 50+90.20 TO 52+56.01 (L/R)
(165.81) (19) = 3,150.39 S.F.

STA. 52+56.01 TO 53+06.01 (L/R)
(50) (15+19 / 2) = 850 S.F.
6,541.8 S.F.

(6,541.8 S.F.) (0.50) (1/27) = 121.14 C.Y.

TOTAL ITEM 301 = 384.76 C.Y.

ITEM 304 - AGGREGATE BASE

S.R. 520

STA. 145+50 TO 146+50 (L/R)
(100) (23.8+26 / 2) = 2,490 S.F.

STA. 146+50 TO 149+04.01 (L/R)
(254.01) (26) = 6,604.26 S.F.

STA. 149+04.01 TO 150+60.26 (L/R)
(156.25) (26+29 / 2) = 4,296.87 S.F.

STA. 150+60.26 TO 150+80 (L/R)
(19.74) (29) = 572.46 S.F.

STA. 152+13.91 TO 153+58.29 (L/R)
(144.38) (29) = 4,187.02 S.F.

STA. 153+58.29 TO 155+14.54 (L/R)
(156.25) (26+29 / 2) = 4,296.87 S.F.

STA. 155+14.54 TO 156+52.04 (L/R)
(137.5) (26) = 3,575 S.F.

STA. 156+52.04 TO 157+50 (L/R)
(97.96) (26+24 / 2) = 2,449 S.F.
28,471.48 S.F.

(28,471.48 S.F.) (0.33) (1/27) = TOTAL 347.98 C.Y.

ITEM 404 - ASPHALT CONCRETE: AC-20

S.R. 520

STA. 145+50 TO 146+50 (L/R)
(100) (23.8+26 / 2) = 2,490 S.F.

STA. 146+50 TO 149+04.01 (L/R)
(254.01) (26) = 6,604.26 S.F.

STA. 149+04.01 TO 150+60.26 (L/R)
(156.25) (26+29 / 2) = 4,296.87 S.F.

STA. 150+60.26 TO 150+80 (L/R)
(19.74) (29) = 572.46 S.F.

STA. 152+13.91 TO 153+58.29 (L/R)
(144.38) (29) = 4,187.02 S.F.

STA. 153+58.29 TO 155+14.54 (L/R)
(156.25) (26+29 / 2) = 4,296.87 S.F.

STA. 155+14.54 TO 156+52.04 (L/R)
(137.5) (26) = 3,575 S.F.

STA. 156+52.04 TO 157+50 (L/R)
(97.96) (26+24 / 2) = 2,449 S.F.
28,471.48 S.F.

T.R. 54

STA. 50+12.65 TO 50+90.20 (L/R)
AREA BY COMPUTER 2,541.41 S.F.

STA. 50+90.20 TO 52+56.01 (L/R)
(165.81) (18) 2,984.58 S.F.

STA. 52+56.01 TO 53+06.01 (L/R)
(50) (14+18 / 2) = 800 S.F.
34,797.47 S.F.

(34,797.47 S.F.) (0.125) (1/27) = TOTAL 161.10 C.Y.

ITEM 659 - COMMERCIAL FERTILIZER

(9426.4 S.Y. (9) (1/1000) (20#) (1/2000) = 0.85 TONS

ITEM 659 - AGRICULTURAL LIMING

(9426.4 S.Y. (9) (1/1000) (100#) (1/2000) = 4.24 TONS

GENERAL SUMMARY

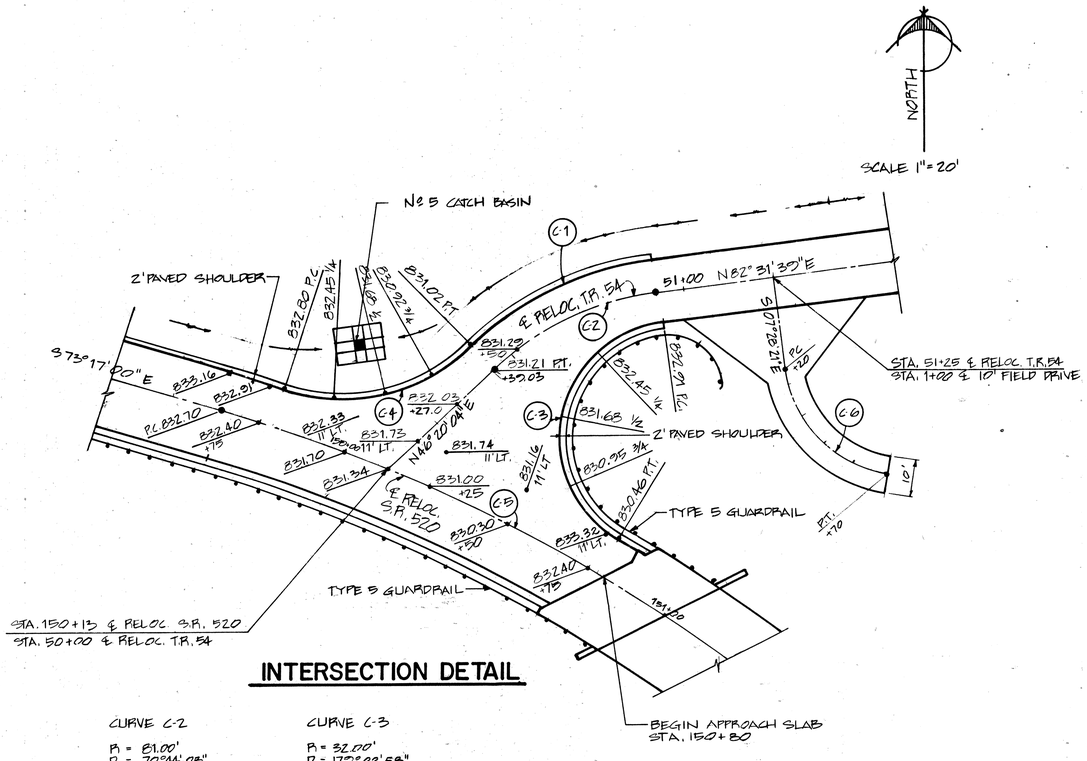
CALC BY LGH DATE 2.16.87		OHIO	5 / 36
CHKD BY LBB DATE 2.19.87		FHWA REGION 5	

HOL-520 - 9.57

| ITEM | SHEET NUMBER | | |

CALC. BY LCK DATE 2207		OHIO	6
CHKD. BY LSD DATE 2.19.07		FHWA REGION 5	36

HOL-520-9.57



INTERSECTION DETAIL

CURVE C-1
R = 90.00'
D = 63° 39' 43"
Δ = 36° 11' 33" RT.
L = 56.85'
T = 29.41'
C = 55.91'
M = 4.45'
E = 4.65'
P.C. STA. 50+39.03 -9.00' LT.
P.T. STA. 50+90.20 -9.00' LT.

CURVE C-2
R = 83.00'
D = 70° 44' 08"
Δ = 36° 11' 35" RT.
L = 51.17'
T = 26.47'
C = 50.32'
M = 4.01'
E = 4.22'
P.C. STA. 50+39.03 - ℄
P.T. STA. 50+90.20 - ℄

CURVE C-3
R = 32.00'
D = 177° 02' 58"
Δ = 141° 41' 43" LT.
L = 79.14'
T = 92.14'
C = 60.46'
M = 21.50'
E = 65.54'
P.C. STA. 50+90.20 - 9.00 RT.
PT. STA. 150+76.87 -11.00' LT.

CURVE C-4
R = 49.50'
D = 115° 44' 57"
Δ = 62° 18' 04" LT.
L = 53.82'
T = 29.32'
C = 51.21'
M = 7.14'
E = 8.34'
P.C. STA 149+79.30 -11.00' LT
P.T. STA 150+33.03 - 11.00' LT.

CURVE C-5
R = 458.37'
D = 12° 30' 00"
Δ = 61° 20' 00" RT.
L = 490.67'
T = 271.80'
C = 467.57'
M = 64.10'
E = 74.53'
P.C. STA. 149+63.04 - ℄
P.T. STA. 154+54.61 - ℄

CURVE C-6
R = 35.00'
D = 163° 42' 08"
Δ = 72° 01' 44" LT.
L = 44.00'
T = 25.44'
C = 41.16'
M = 6.65'
E = 8.27'
P.C. STA 1+26 - ℄
P.T. STA. 1+70 - ℄

SUPERELEVATION TABLE

STATION	LEFT ELEV.	LEFT RATE	LEFT OFFSET	℄ ELEV.	RIGHT OFFSET	RIGHT RATE	RIGHT ELEV.	REMARKS
157+50	MATCH EXIST.	MATCH EXIST.	10.00'	818.24	10.00'	MATCH EXIST.	MATCH EXIST.	END PROJECT
157+00	818.21	-0.0148	10.51'	818.36	10.51'	-0.0073	818.28	
156+75	818.26	-0.0152	10.77'	818.42	10.77'	-0.0113	818.29	
156+52.04	818.31	-0.0156	11.00'	818.48	11.00'	-0.0156	818.31	N.C.
156+25	818.45	-0.0095	↓	818.55	↓	↓	818.38	
156+17.11	818.49	-0.0077		818.57			818.40	P.V.T.
156+00	818.58	-0.0038		818.62		↓	818.45	
155+83.29	818.70	℄		818.70		-0.0156	818.53	
155+50	818.99	+0.0075		818.91		-0.0156	818.74	
155+25	819.28	+0.0132		819.13	↓	-0.0156	818.96	
155+14.54	819.41	+0.0156		819.24	11.00'	-0.0156	819.07	
155+00	819.64	+0.0220		819.40	11.28'	-0.0220	819.15	
154+75	820.07	+0.0328	↓	819.71	11.76'	-0.0328	819.32	
154+54.61	820.47	+0.0416	11.00'	820.01	12.15'	-0.0416	819.51	P.T. P.V.I.
154+25	821.00	+0.0547		820.40	12.72'	-0.0547	819.79	
154+00	821.68	+0.0654		820.96	13.20'	-0.0654	820.10	
153+75	822.31	+0.0761		821.47	13.68'	-0.0761	820.43	
153+58.23	822.76	+0.0833		821.84	14.00'	-0.0833	820.67	FULL SUPERELEVATION
153+00	824.22	↓		823.30	↓	↓	822.13	
152+92.11	824.44			823.52			822.35	P.V.C.
152+50	825.62		↓	824.70			823.53	
152+13.91	826.63		11.00'	825.71			824.54	END APPROACH SLAB
152+00			↓	826.10				
151+50				827.50				
151+00				828.90				
150+80	830.38	↓		829.46	↓	↓	828.29	BEGIN APPROACH SLAB
150+60.26	830.93	+0.0833		830.01	14.00'	-0.0833	828.84	FULL SUPERELEVATION
150+50	831.16	+0.0784		830.30	13.80'	-0.0784	829.22	
150+25	831.74	+0.0677		831.00	13.32'	-0.0677	830.10	
150+00	832.33	+0.0570		831.70	12.84'	-0.0570	830.97	
149+75	832.91	+0.0463		832.40	12.36'	-0.0463	831.83	P.V.T.
149+63.94	833.16	+0.0416		832.70	12.15'	-0.0416	832.20	P.C.
149+50	833.46	+0.0355		833.07	11.881	-0.0355	832.65	
149+25	833.96	+0.0247	↓	833.69	11.401	-0.0247	833.41	
149+04.01	834.33	+0.0156	11.00'	834.16	11.001	-0.0156	833.99	
149+00	834.42	+0.0150		834.25		-0.0156	834.08	
148+75	834.85	+0.0092		834.75		-0.0156	834.58	
148+50	835.24	+0.0034		835.20		-0.0156	835.03	
148+35.26	835.43	℄		835.43		-0.0156	835.26	
148+25	835.57	-0.0092		835.59		↓	835.42	
148+00	835.83	-0.0008		835.92			835.75	
147+77.13	836.04	-0.0132		836.18			836.01	P.T.
147+75	836.05	-0.0137		836.20		↓	836.03	
147+66.51	836.11	-0.0156		836.28		-0.0156	836.11	N.C.
147+62.50	836.14	-0.0166		836.32		-0.0156	836.15	P.V.I
147+50	836.22	-0.0183		836.42		-0.0154	836.25	
147+25	836.35	-0.0218		836.59		-0.0150	836.43	
147+00	836.42	-0.0253		836.70		-0.0147	836.54	
146+75	836.43	-0.0288	↓	836.75	↓	-0.0143	836.59	
146+50	836.40	-0.0323	11.00'	836.75	11.00'	-0.0140	836.60	
146+25	836.31	-0.0358	10.62'	836.69	10.82'	-0.0136	836.54	
146+00	836.17	-0.0393	10.25'	836.57	10.65'	-0.0133	836.43	
145+75	835.98	-0.0428	9.87'	836.40	10.47'	-0.0129	836.27	
145+57.50	835.81	-0.0453	9.61'	836.24	10.35'	-0.0127	836.11	P.C.C.
145+50	MEET EXIST.	MEET EXIST.	MEET EXIST.	836.17	MEET EXIST.	MEET EXIST.	MEET EXIST.	P.V.C (BEGIN PROJECT)

INTERSECTION DETAIL & SUPERELEVATION TABLE

MICROFILMED FEB 1 1991

BEGIN PROJECT & WORK STA. 145+50
BRZ 3802 (2)
S.L.M. 9.57

NORTH

CURVE DATA
P.I. STA. 146+47.41
Δ = 4°-23'-38"LT.
R = 2,864.79'
T = 109.90'
L = 219.69'
C = 219.64'
D = 2°00'-00"
E = 2.11'

P.C.C. STA. 145+57.51

P.T. STA. 147+77.20

P.C. STA. 143+10 (S.R.520) STA. 1+90 ℄ TEMP. RD. BEGIN 200' R.

DEAN & DORIS BOYD

P.C. STA. 1+90.78 ℄ TEMP. ROAD 200' R. PROP. P.C. STA. 1+49+83.94

P.I. STA. 150+13 (PROP. S.R.520) STA. 150+07 (BELIC. T.R.54)

CONSTRUCTION LIMITS

R-16

P/W

EXIST. R/W

S 52°-31'-31" W

℄ RELOCATED TWP. RD. 54

EXIST. ℄ T.R.54

EXIST. BARB WIRE FENCE

EXIST. R/W

DEAN & DORIS BOYD

PROPOSED STRUCTURE HOL-520-0967

PROP. P.I. STA. 152+35.74

15'Pl

CONSTRUCTION LIMITS

R-17

℄ RELOCATED BLACK CREEK

EXIST. BARB WIRE FENCE

EXIST. R/W

152+00

EXIST. S.R. 520

℄ EXIST. S.R. 520 & SURVEY

℄ SURVEY ℄ S.R. 520

9.5' 10.3'

EXIST. ASPHALT PAVEMENT

TYPICAL SECTION OF ADJOINING PVMT.

CURVE DATA
P.I. STA. 143+79.14
Δ = 9°-14'-08" LT.
R = 2,217.90'
T = 179.14'
C = 357.12'
L = 357.51'
D = 2°-35'-00"
E = 7.22'

CONSTRUCTION LIMITS

EXIST. SPRING HOUSE FOUNDATION (DO NOT DISTURB)

R-15 R-5 R-6 EC-1 R-7 R-11 R-8 R-9 R-10 R-12 R-1 R-2 P-1 R-4 R-3 R-14 R-13 R-18 P-2

℄ TEMP. ROAD P.C. STA. 2+85.41
℄ TEMP. ROAD END 280' R. BEGIN 175' R. BLACK CREEK
P.T. STA. 3+76.94 ℄ TEMP. RD.
STA. 150+89 ℄ EXIST. S.R. 520 END 175' R.

EXISTING STRUCTURE (TO BE REMOVED) BRIDGE NO. HOL-520-0967

CONSTRUCTION LIMITS

P.C. STA. 143+68.42

P.T. STA. 150+56.42

MATCH LINE

FOR SUPERELEVATION TABLE SEE SHT. No. 7
FOR INTERSECTION DETAIL SEE SHT. No. 7
FOR PROPOSED STRUCTURE DRAWING & DETAILS SEE SHEET No. 22-30
FOR RELOCATED BLACK CREEK PLAN & PROFILE SEE SHEET No. 13.

CURVE DATA
P.I. STA. 147+64.20
Δ = 28°-51'-43" RT.
R = 372.53'
T = 95.87'
L = 187.66'
C = 185.67'
D = 15°-22'-47"
E = 12.14'

℄ RELOCATED S.R. 520

CURVE DATA
P.I. STA. 152+35.74
Δ = 61°-20'-00" RT.
R = 450.37'
T = 271.80'
CH = 467.57'
L = 490.67'
D = 12°-30'-00"
E = 74.53'
P.C. STA. 149+63.94
P.T. STA. 154+54.61

℄ RELOCATED T.R. 54

CURVE DATA
P.I. STA. 50+65.50
Δ = 36°-11'-35" RT.
R = 81.00'
T = 26.47'
CH = 50.92'
L = 51.17'
D = 70°-44'-08"
E = 4.22'
P.C. STA. 50+37.03
P.T. STA. 50+90.20

T.B.M. #1
TOP OF RAILROAD SPIKE SET IN NORTH SIDE TELEPHONE POLE 2' UP FROM GROUND, 62' RT. OF ℄ SURVEY STA. 150+11. ELEV. = 821.31

P.O.T. STA. 149+53.94
PK. NAIL SET IN EDGE PVMT.
PROP. P.C. STA. 149+63.94
P.T.E. 64
℄ S.R. 520
126.98'
PROP. ℄ S.R. 520
CROSS CHISELED IN TOP CONC. PARAPET (NORTH PARAPET WEST END)
TACKED HUB SET
PK. NAIL N.E. SIDE 7' RT.
EXIST. BRIDGE

PROPOSED STRUCTURE

TYPE : THREE-SPAN REINF. CONCRETE SLAB
SPAN : 28'-0" - 35'-0" - 28'-0" (CLEAR)
ROADWAY : 33' F/F GUARDRAIL
ALIGNMENT : 12°-30'-00" CURVE TO RIGHT
SKEW : 24° 08' 27"
DECK : REINFORCED CONCRETE SLAB (T=17")
WEARING SURFACE : MONOLITHIC CONCRETE
APPROACH SLABS : AS-1-81, 20'-0" LONG
SUPERELEVATION : 0.083 / FT.

EXISTING STRUCTURE

TYPE : CONCRETE TRUSS
SPAN : 38'-0"
ROADWAY : 22'-0" F/F PARAPET
ALIGNMENT : TANGENT
SKEW : NONE
DECK : REINFORCED CONCRETE SLAB
WEARING SURFACE : ASPHALT
APPROACH SLABS : NONE

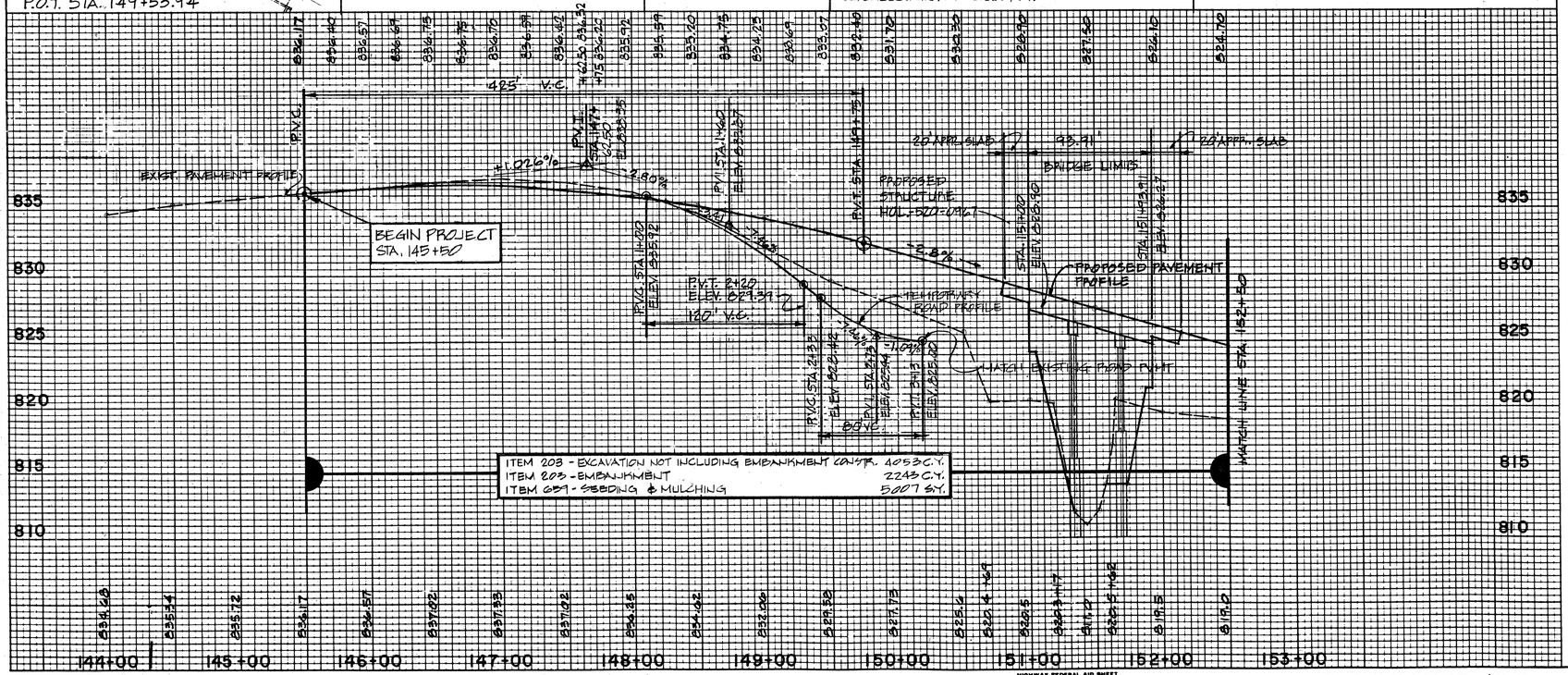


PLATE 4-SINGLE PLAN AND CROSS SECTION-FULL LINE
HIGHWAY FEDERAL AID SHEET
℄ TELEDYNE
PRINTED IN U.S.A.

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	202 GUARDRAIL REMOVED LF.	202 SIGN REMOVED EACH	606 GUARDRAIL TYPE S LF.	606 ANCHOR ASSEMBLY STANDARD TYPE A EACH	606 ANCHOR ASSEMBLY STANDARD TYPE T EACH	606 BRIDGE TERMINAL ASSEMBLY STANDARD TYPE B EACH	610 DITCH EROSION PROTECTION S.Y.	611 REINFORCED CONCRETE APPROACH SLAB T=15" S.Y.	SEE SHEET NO.
R-1	150+18 TO 150+80	RT.	56.25	1							4
R-2	150+45 TO 150+85	RT.	56.25	1							4
R-5	151+33 TO 152+00	RT.	62.50	1							4
R-4	151+29 TO 152+15	RT.	75.00	1							4
R-5	146+24				18	1					1
R-6	147+67	LT.			14	1					1
R-7	147+09	LT.			15	1					1
R-8	149+10	RT.			17	1					1
R-9	149+46	RT.			23	1					1
R-10	149+90	RT.			34	1					1
R-11	150+10	LT.			29	1					1
R-12	150+55	RT.			45	1					1
R-13	152+16	RT.			44	1					1
R-14	152+45	RT.			75	1					1
R-15	145+83.15 TO 150+88.18	RT.									1
R-16	151+26.61 TO 151+56.99	LT.									1
R-17	152+21.76 TO 152+80	RT.									1
R-18	151+95.72 TO 152+80	RT.									1
EC-1	146+50 TO 150+00	L/R			500	1			733.33	146.66	1
P-1	150+80 TO 151+00	L/R			112.5				750.00		4
P-2	151+83.11 TO 152+80	L/R			46.06				766.66		4
					96.26					125	4
	TOTALS		250	10	1	1	1	1	710.94		1

RELOCATED (S.R. 520) PLAN & PROFILE STA. 144 + 00 TO STA. 152 + 50

HOL-520-9.57

CALC. BY LJA DATE 12-86
CHKD. BY LJBP DATE 2-87

OHIO
FHWA REGION 5

7.
36

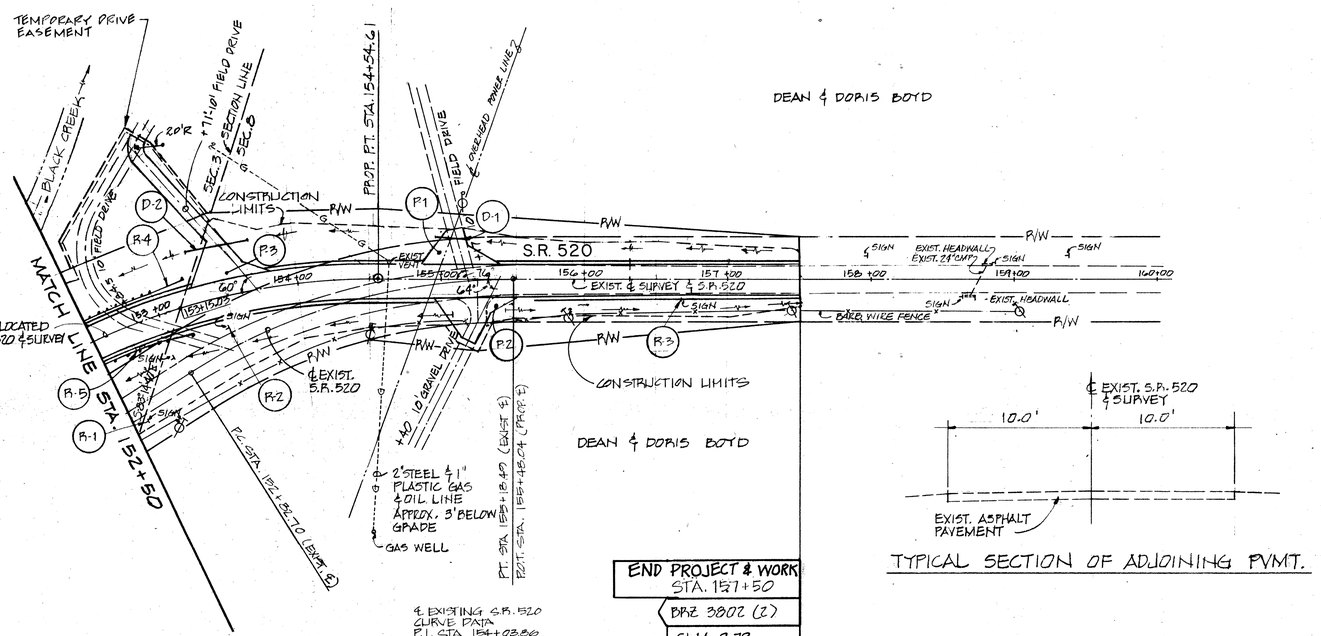
FINAL SURVEY: SURVEYED, PLOTTED, TEMPLATE, AREAS CHECKED, NOTE BOOK, NO., BY, DATE

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

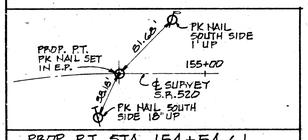
NORTH

℄ RELOCATED S.R. 520

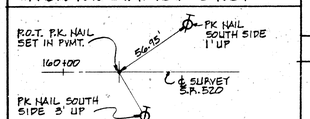
CURVE DATA
P.I. STA. 152+35.74
Δ = 61°-30'-00" RT
R = 458.37'
T = 271.80'
L = 490.67'
LH = 467.57'
D = 12°-30'-00"
E = 74.53'



TYPICAL SECTION OF ADJOINING PVMT.



PROP. P.T. STA. 154+54.61



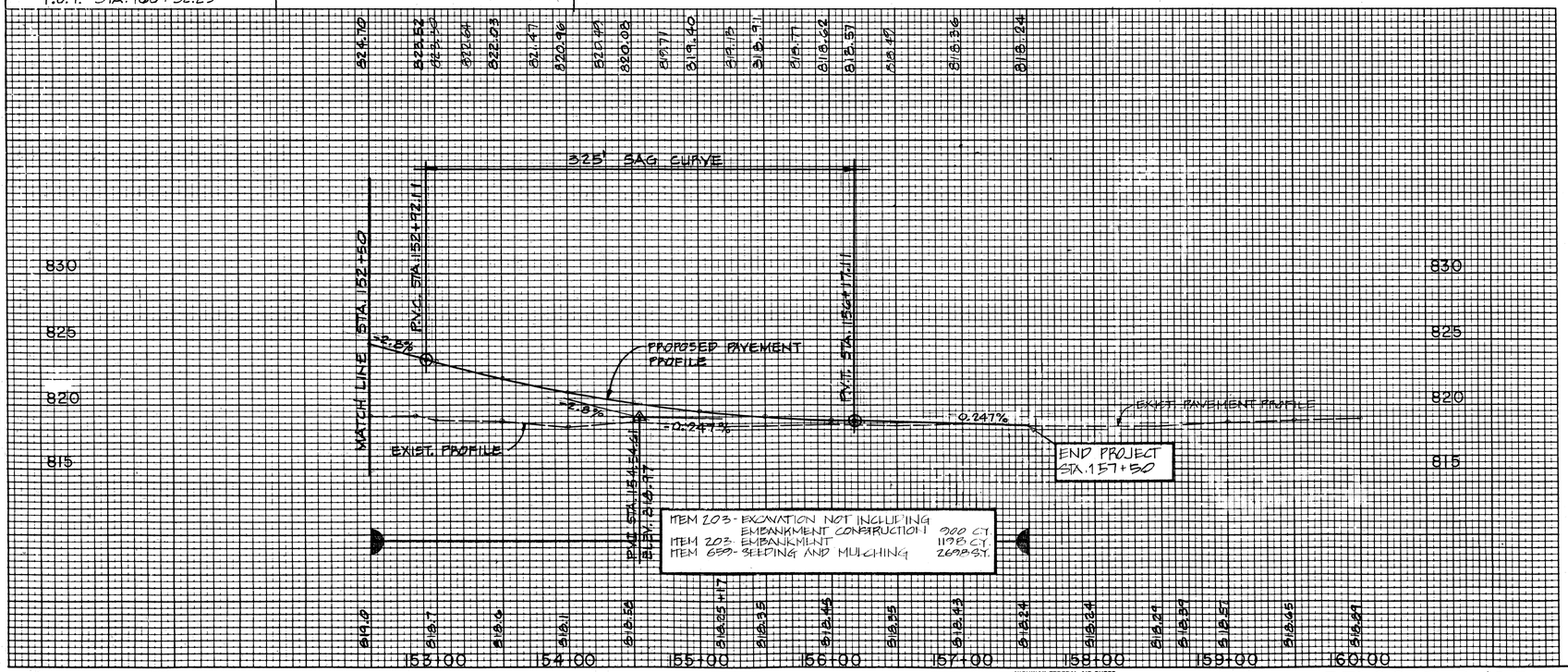
P.O.T. STA. 160+32.25

T.B.M. #1

TOP OF RAILROAD SPIKE SET IN NORTH SIDE TELEPHONE POLE 2' UP FROM GROUND, 62' PT. OF ℄ SURVEY STA. 150+11 ELEV. = 821.31

℄ EXISTING S.R. 520
CURVE DATA
P.I. STA. 154+23.86
Δ = 52°-28' 12" RT
R = 416.67'
T = 121.16'
L = 235.73'
LC = 232.69'
D = 13°-46'-14"
E = 17.28'

FOR SUPERELEVATION TABLE SEE SHEET NO. 7
FOR RELOCATED BLACK CREEK PLAN & PROFILE SEE SHEET NO. 10


824.70
823.52
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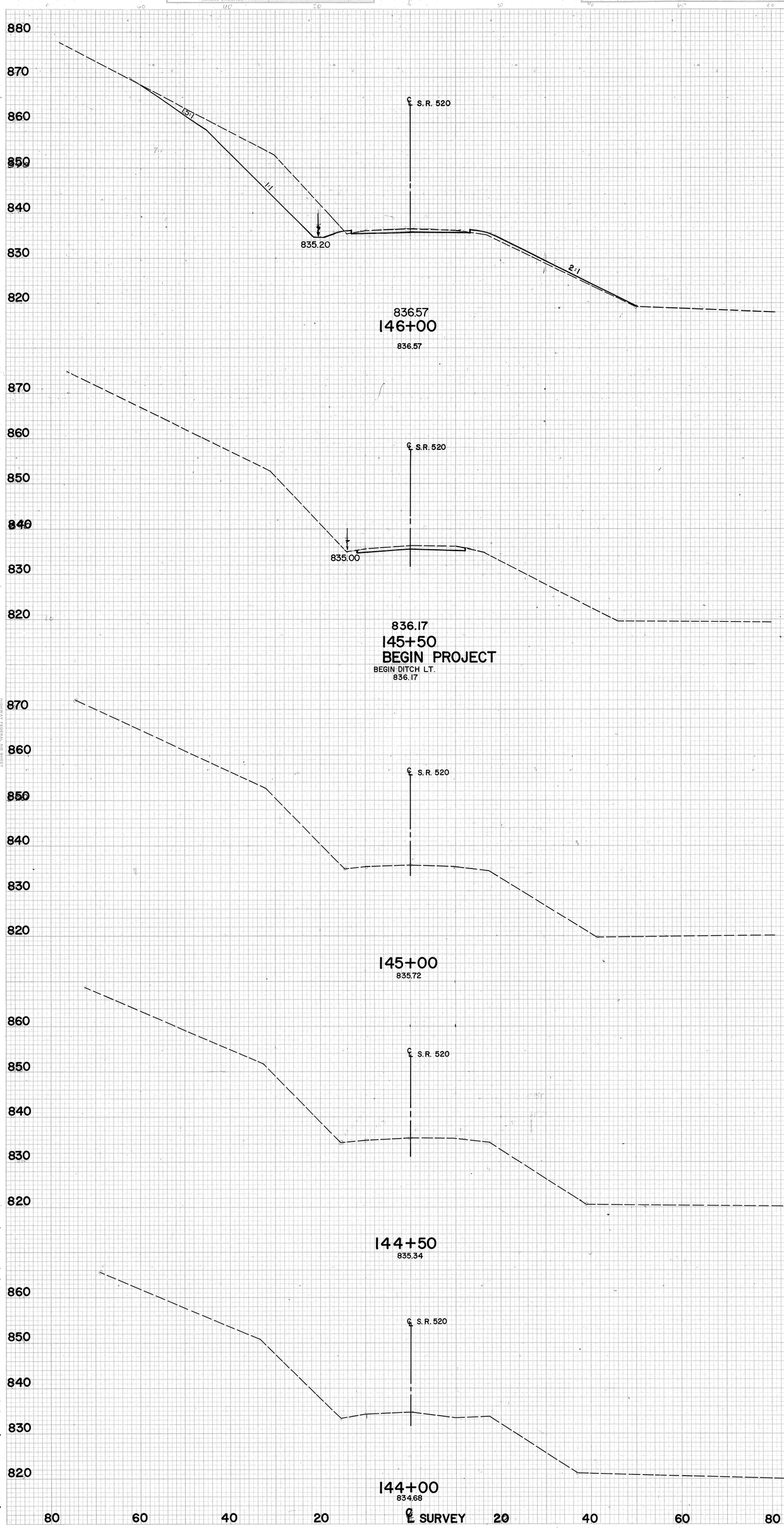


SEEDING		END AREA		VOLUME	
E.W.	S.Y.	CUT	FILL	CUT	FILL
84		237.1	23.4		
	233.3			230.4	21.7
0		11.7	0		

X-SECTION STA. 144+00 TO STA. 146+00 (S.R. 520)

HOL. 520-9.57

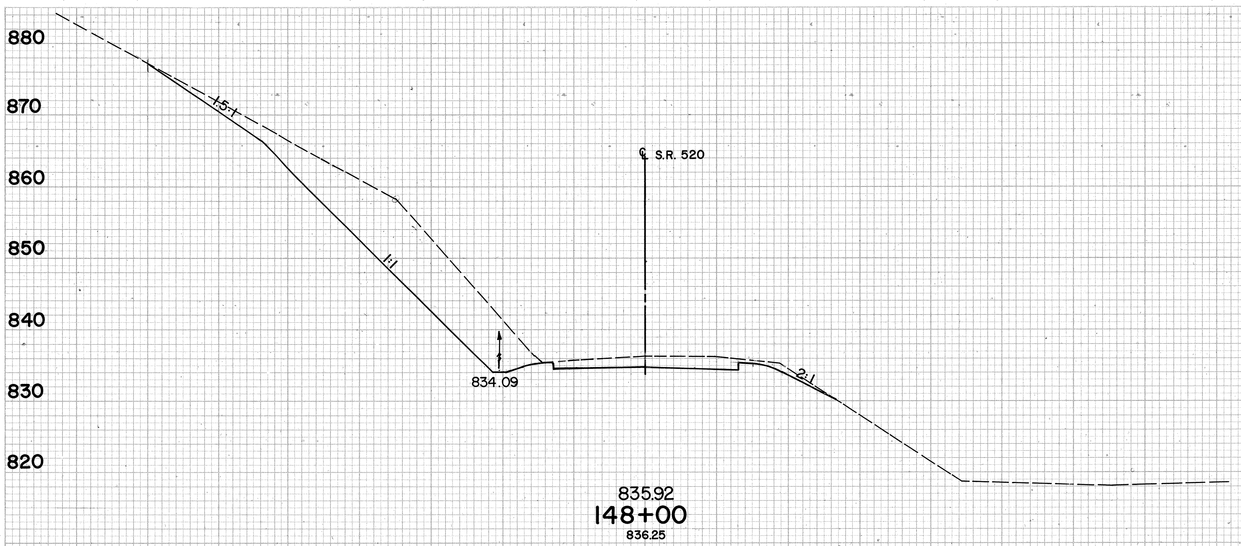
CALC. BY AMS DATE 1.1986
CHK'D. BY LAS DATE 12-2-86

OHIO
FHWA REGION 5

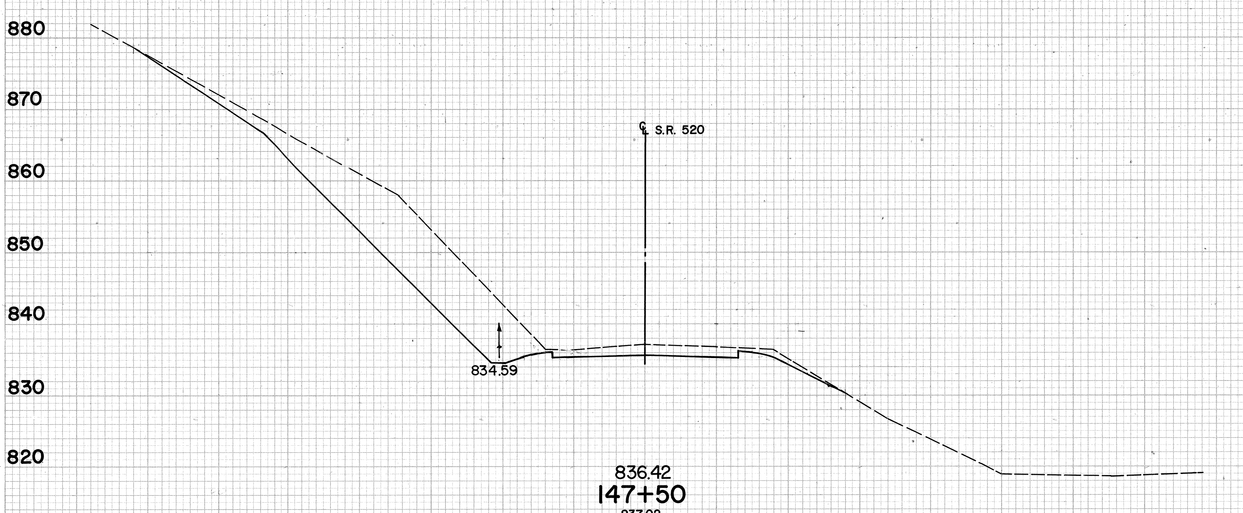
9
36

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

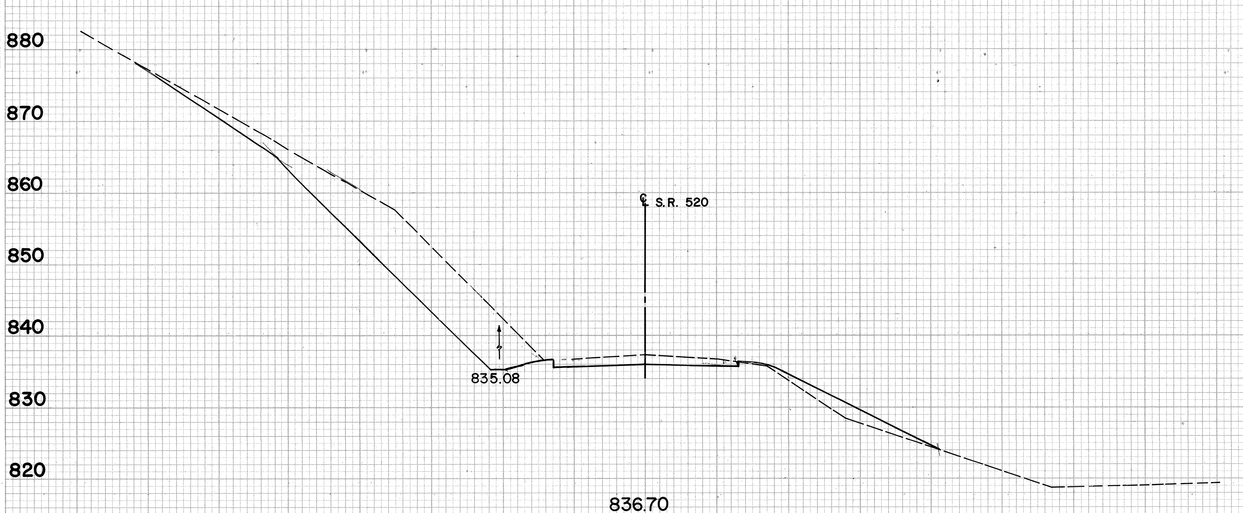
FINAL SURVEY — NOTE BOOK NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE



835.92
148+00
836.25

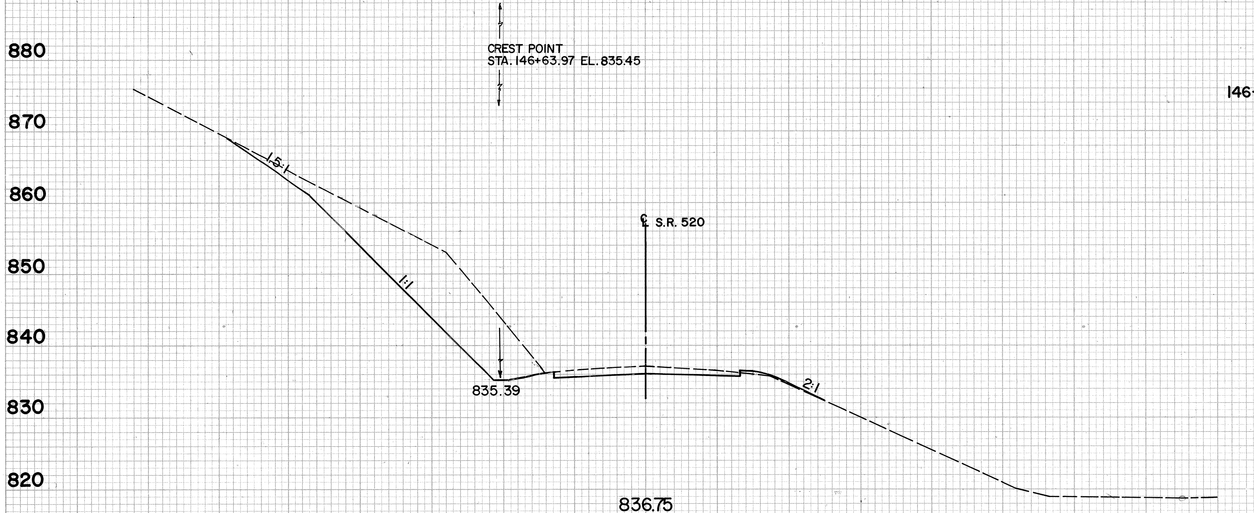


836.42
147+50
837.02



836.70
147+00
837.33

CREST POINT
STA. 146+63.97 EL. 835.45



836.75
146+50
837.02

	SEEDING		END AREA		VOLUME	
	E.W.	S.Y.	CUT	FILL	CUT	FILL
	89		358	0		
		500			640	0
	90		333	0		
		544			594	52
	106		308	56		
		500			529	53
146+50	73		263	1.3		
		439		—	463	23

80 60 40 20 ℄ SURVEY 20 40 60 80

X-SECTION STA. 146+50 TO STA. 148+00 (S.R. 520)

HOL. 520-9.57

CALC. BY JHMD DATE 11/12/64
CHK'D BY [illegible] DATE 12-5-64

OHIO
FHWA REGION 5

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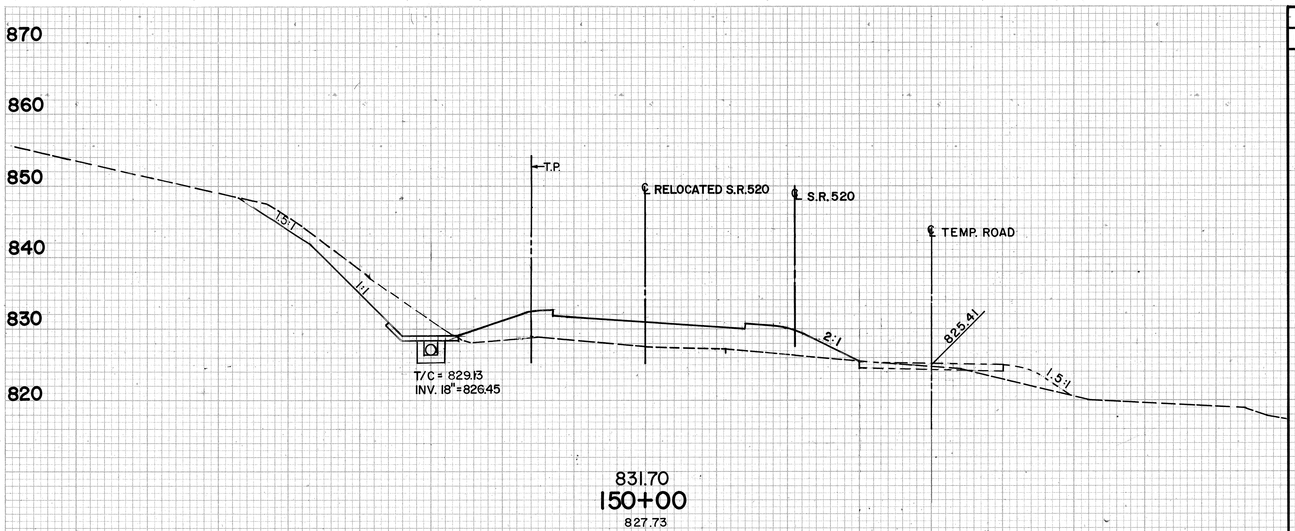
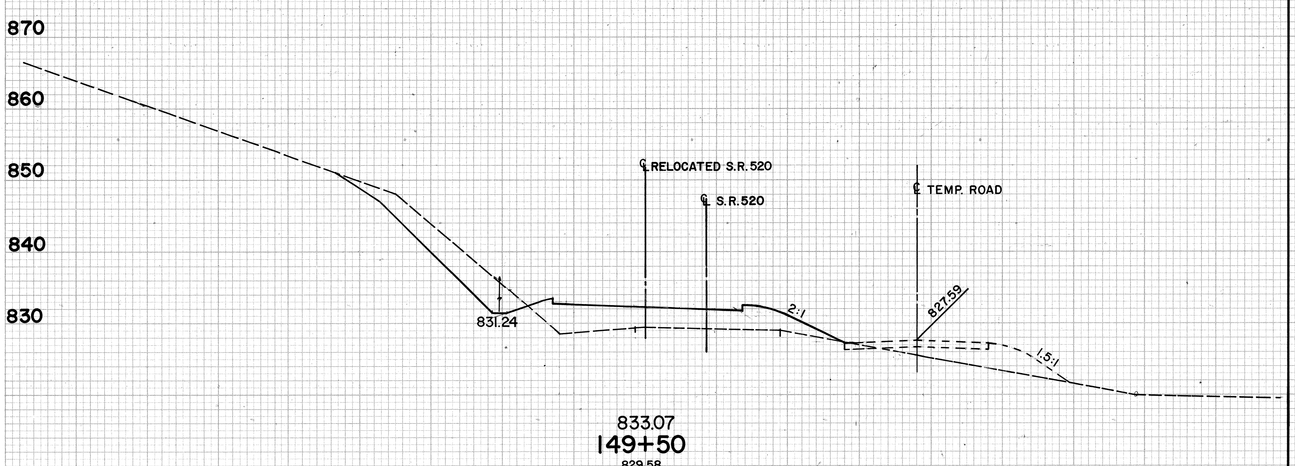
PLATE 3-FULL CROSS SECTION-FULL LINE
-INTERLINE

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

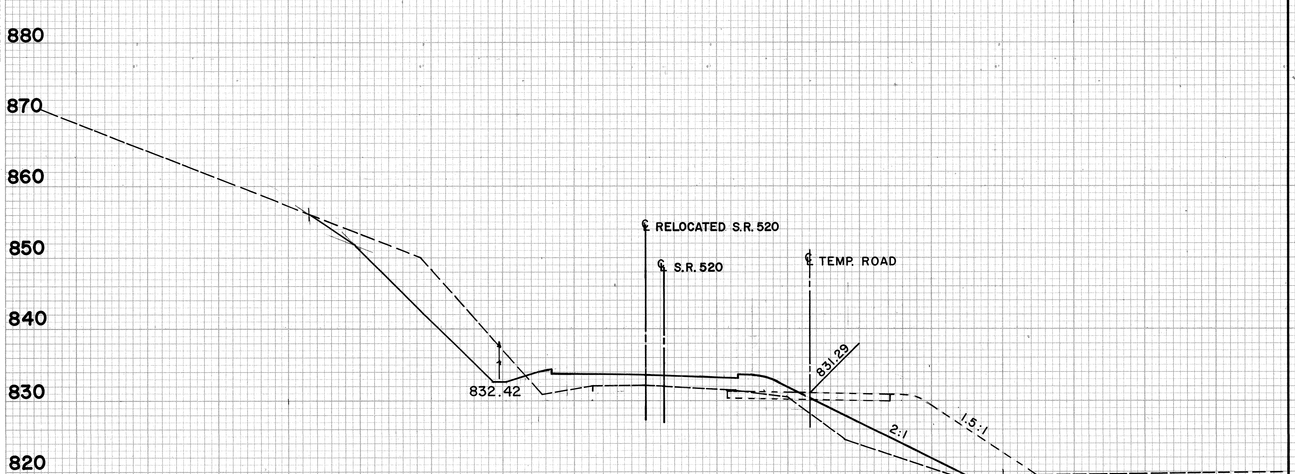
FINAL SURVEY — SURVEYED / PLOTTED / TEMPLATE / AREAS / AREAS CHECKED — BY — DATE — NOTE BOOK NO.



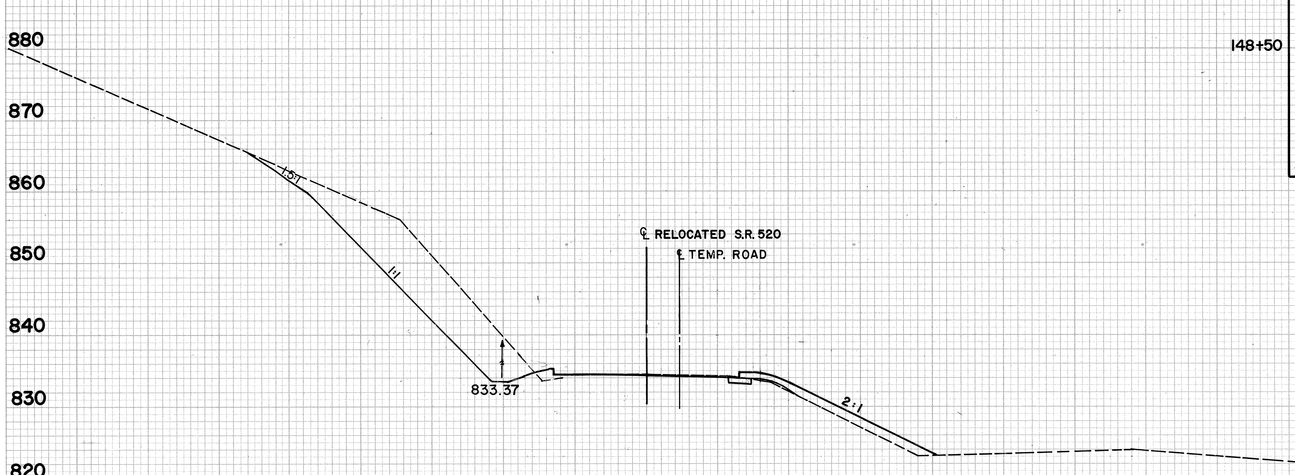
831.70
150+00
827.73



833.07
149+50
829.58



834.25
149+00
832.06



835.20
148+50
834.62

80 60 40 20 ℄ SURVEY 20 40 60 80

	SEEDING		END AREA		VOLUME	
	E.W.	S.Y.	CUT	FILL	CUT	FILL
	69		95	168		
		339			175	280
	53		94	135		
		367			216	242
	79		139	126		
		464			340	159
148+50	88		228	45		
		494			542	42

CALC. BY AMS DATE 11-11-86
CHK'D. LAP DATE 12-5-86

HOL. 520-9.57

OHIO
FHWA REGION 5
11
36

X-SECTION STA. 148+50 TO STA. 150+00 (S.R. 520)

PLATE 3-FULL CROSS SECTION-FULL LINE
-INTERLINE

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

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

	SEEDING		END AREA		VOLUME	
	E.W.	S.Y.	CUT	FILL	CUT	FILL
AH	83		72	264		
BK	83		72	245		
		197			73	195
	93		124	278		
		137			18	262
AH	58		18	358		
BK	58		18	382		
		153			19	291
150+50	34		15	143		
		285			102	287

840
830
820
810

℄ RELOCATED S.R. 520
℄ EXIST. SR. 520
℄ TEMP. ROAD
2:1
40:1
815.67
816.08

825.72
152+13.91 SKEWED
819.36
END APPROACH SLAB

840
830
820
810

℄ RELOCATED S.R. 520
℄ EXIST. SR. 520
℄ TEMP. ROAD
2:1
40:1
815.65
816.05

826.28
151+93.75 SKEWED
819.06
BEGIN APPROACH SLAB

RESUME EARTHWORK AND SEEDING

SEE RELOCATED BLACK CREEK CROSS SECTIONS (SEE SHEET 20-21)

840
830
820
810

℄ RELOCATED S.R. 520
℄ EXIST. S.R. 520
℄ TEMP. ROAD
2:1
40:1

828.90
151+00 SKEWED
820.50
END APPROACH SLAB

SUSPEND EARTHWORK AND SEEDING

840
830
820
810

℄ TEMP. ROAD
℄ RELOCATED S.R. 520
℄ EXIST. S.R. 520
2:1
40:1

829.46
150+80 SKEWED
823.84
BEGIN APPROACH SLAB

840
830
820
810

← SEE STATION 50+12.65 FOR CONTINUATION
℄ EXIST. T.R. 54
℄ RELOCATED S.R. 520
℄ EXIST. S.R. 520
℄ TEMP. ROAD
2:1
824.58

830.30
150+50
825.60

80 60 40 20 ℄ SURVEY 20 40 60 80

PLATE 3-FULL CROSS SECTION-FULL LINE

X-SECTIONS STA. 150+50 TO STA. 152+13.75 (S.R. 520)

CALC. BY Avis DATE 11-15-86
CHK'D. [illegible] DATE 12-5-86

HOL. 520-9.57

FHWA REGION 5 — OHIO

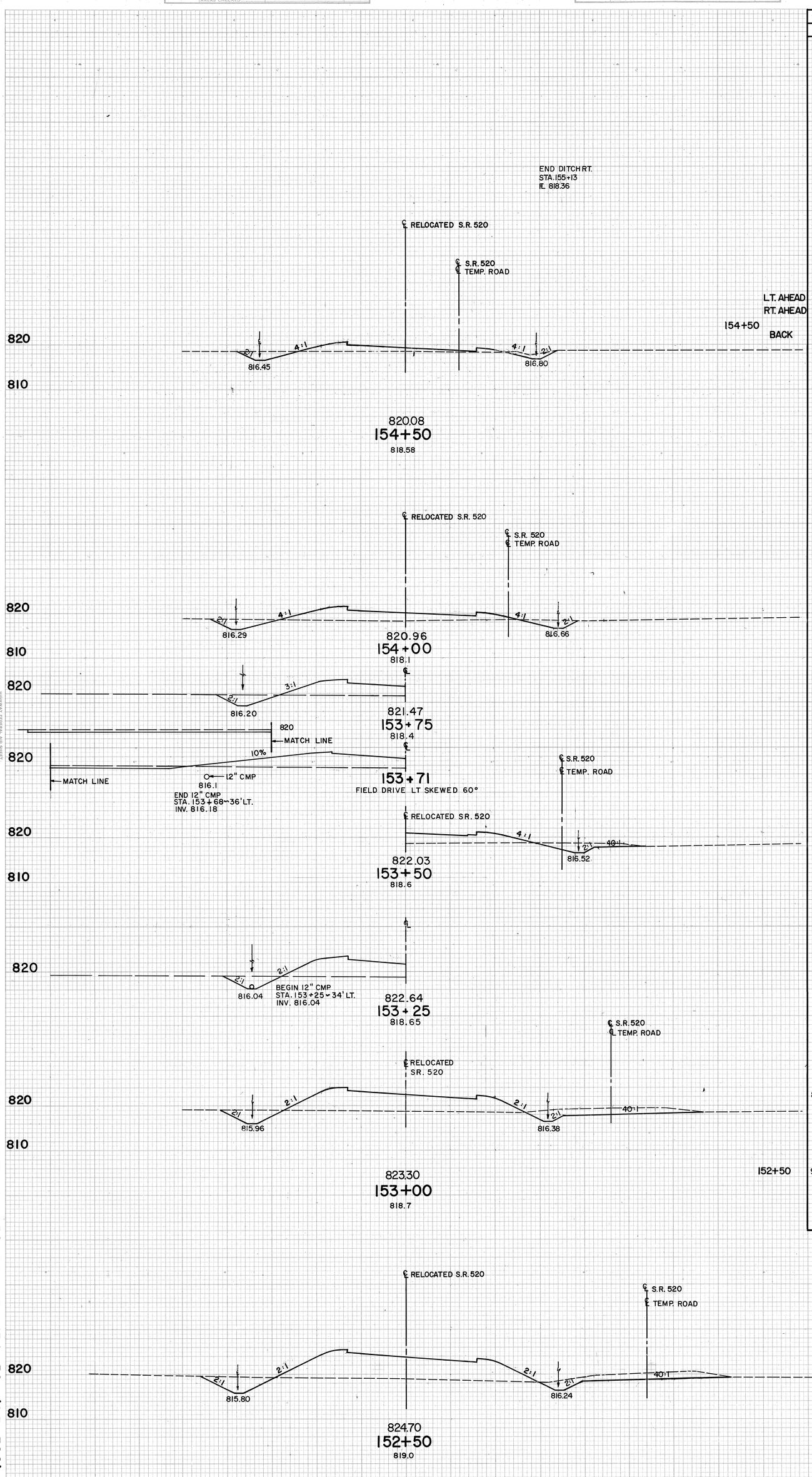
12/36

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

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

X-SECTIONS STA. 152+50 TO STA. 154+50 (S.R. 520)

PLATE 3-FULL CROSS SECTION-FULL LINE



	SEEDING		END AREA		VOLUME	
	E.W.	S.Y.	CUT	FILL	CUT	FILL
LT. AHEAD	25		25	42		
RT. AHEAD	19		18	22		
154+50 BACK	44		43	63		
		275			89	153
	55		54	103		
		367			116	231
	77		72	147		
		450			159	306
	85		101	183		
		497			183	391
152+50	94		97	240		
		355			113	336

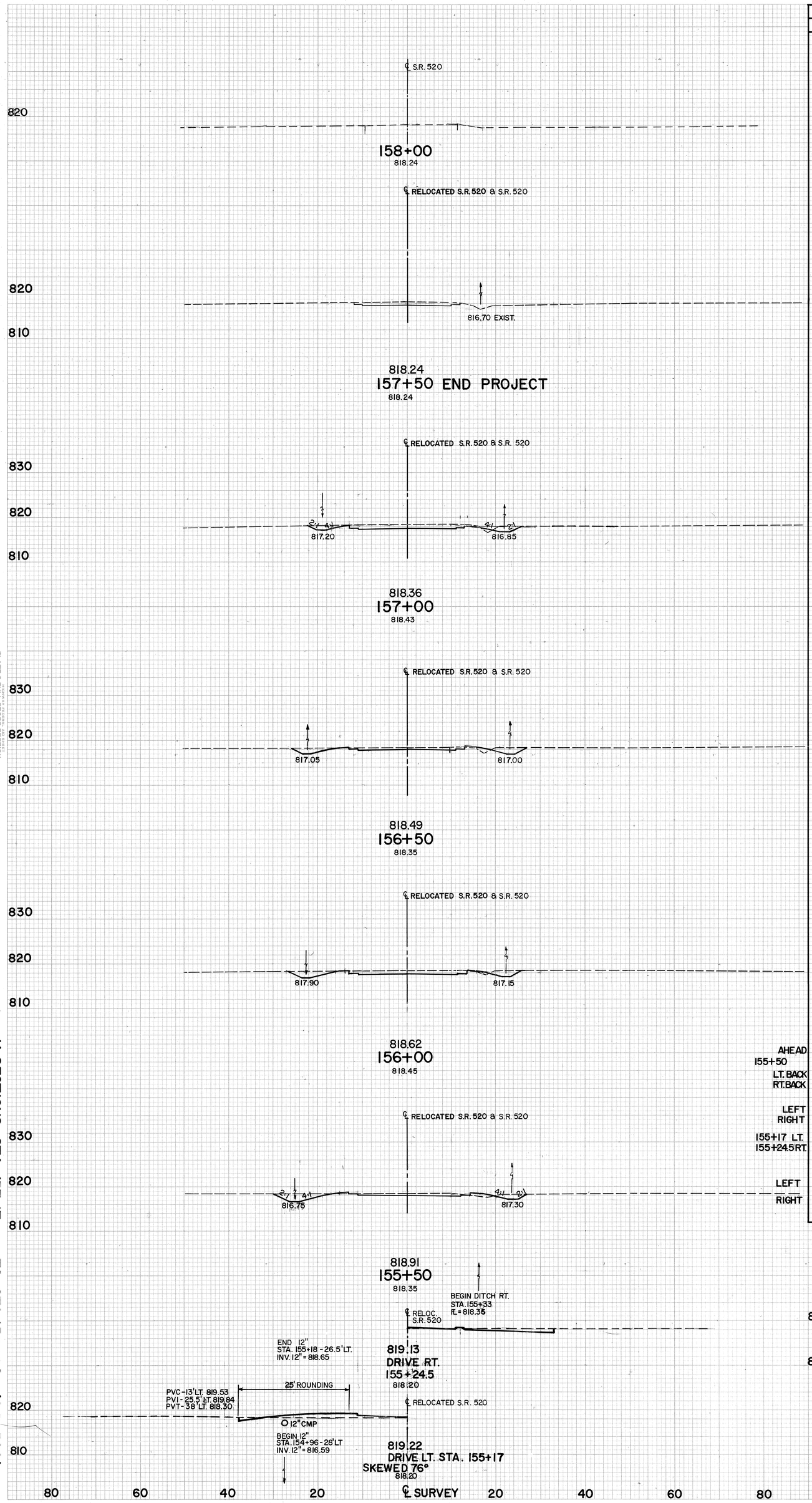
CALC. BY Mrs DATE 11-9-86
CHK'D. LWP DATE 12-9-86

HOL. 520-9.57

FHWA REGION 5 — OHIO — 13 / 36

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

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



	SEEDING E.W.	SEEDING S.Y.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	0		18	0		
		119			56	1
	43		42	1		
		267			68	3
	53		31	2		
		281			66	2
	48		40	1		
		219			67	4
AHEAD	31		32	3		
155+50						
LT. BACK	18		22	1		
RT. BACK	13		11	3		
LEFT		33			15	8
RIGHT		18			10	2
155+17 LT.	0		3	13		
155+24.5 RT.	0		10	1		
LEFT		79			39	30
RIGHT		93			34	68

PLATE 3-FULL CROSS SECTION-FULL LINE

X-SECTIONS STA. 157+17 TO STA. 158+00 (S.R. 520)

CALC. BY AMS DATE 11/12/96
CHK'D BY LCC DATE 12/5/96

HOL. 520-9.57

OHIO
FHWA REGION 5

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CALC BY LCH DATE 12-86
CHKD BY LBO DATE 2-87

OHIO
FHWA REGION 5

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NORTH

BLACK CREEK

DEAN & DORIS BOYD

PROPOSED STRUCTURE HOL-520-0967

℄ RELOC. S.R. 520

EXIST. STRUCTURE BRIDGE No. HOL-520-0967

CONSTRUCTION LIMITS

℄ 10' FIELD DRIVE STA 48+75

EXIST. STONE FOUNDATION

EXIST. BRICK FOUNDATION

RAPID WIPE RETAINING WALL

50' PVMT. TAPER

EXIST. 22" CMP

TWP. RD. 54 60' R/W

N 82° 31' 39" E

N 76° 59' 05" E

S 82° 31' 39" W 51.00

RELOCATED ℄ TWP. RD. 54

BUTT JOINT

℄ EXIST. T.R. 54 & ℄ SURVEY

PORCH

2-STORY FRAME DWELLING FIRST FLR. 846.99

SEPTIC TANK

WILLIAM B. & MARY L. WISE

DEAN & DORIS BOYD

℄ TWP. RD 54 STA 53+06.01 = ℄ RELOC. TWP. RD. ℄ STA 53+06.01

PVT STA 50+50.20

P.I. STA 50+85.80

EL. STA 50+53.02

PROP. P.C. STA. 149+83.94

EXIST. S.R. 520 ℄ SURVEY

S 73° 17' E

CONSTRUCTION LIMITS

℄ RELOCATED S.R. 520

EXIST. T.R. 54 & SURVEY

7.0' 7.0'

EXIST. GRAVEL

TYPICAL SECTION OF ADJOINING PVMT.

T.B.M. #1
TOP OF RAILROAD SPIKE SET IN NORTH SIDE TELEPHONE POLE 2' UP FROM GROUND, 62' RT. OF ℄ SURVEY STA. 150+11.
ELEV. 821.31

END WORK STA 53+06.01

BEGIN WORK STA. 50+12.65

PIPE PROFILE FOR D-2 SEE SHEET No. 17
PIPE PROFILE FOR D-3 SEE SHEET No. 18
FOR RELOCATED S.R. 520 PLAN & PROFILE SEE SHEET No. 8&9
FOR INTERSECTION DETAIL SEE SHEET No. 7
FOR RELOCATED BLACK CREEK PLAN & PROFILE SEE SHEET No. 13

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	601 ROCK CHANNEL PROTECTION TYPE C WITH FILTER 18" THICK CY.	604 CATCH BASIN, STANDARD TYPE B EACH	603 18" CONDUIT TYPE B LF.	603 15" CONDUIT TYPE B LF.	802 CONCRETE MASONRY CY.	304 AGG. RE-GRADE BASE (5" THICK) CY.	SEE SHEET NO.
B-1	D-4 TO D-1	LT		1	124				2
B-2	51+15 TO 51+45	RT		1		45			19
B-3	52+14 TO 52+40	RT					0.31		0.56
								19	
D-1	50+19	30'	LT						
D-2	D-1 TO D-3		LT & RT						
D-3	51+10 TO 51+60	75'	RT						
D-4	52+35	10.5'	LT				0.25		
D-5	D-4 TO D-6		LT & RT						
D-6	53+19.34	16.45'	RT						
P-1	51+25		RT						
TOTALS			14	2	124	45	0.56	19	

ITEM 203 - EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION 2186 CY.
ITEM 203 - EMBANKMENT 3802 CY.
ITEM 659 - SEEDING AND MULCHING 1312 SY.

RELOCATED (Twp. Rd. 54) PLAN & PROFILE STA. 50 + 00 TO STA. 53 + 06.01

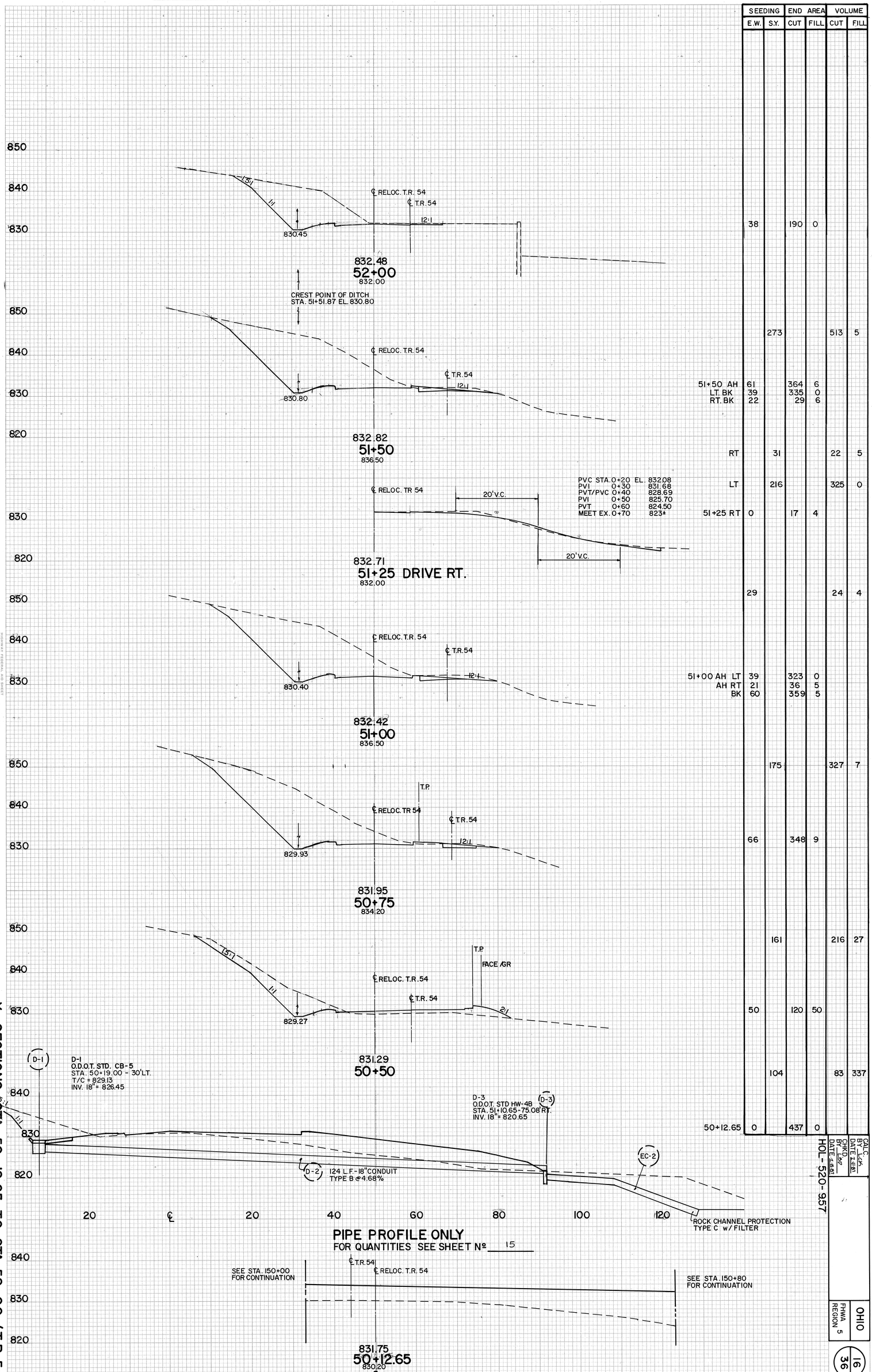
HIGHWAY FEDERAL AID SHEET
PLATE 4-SINGLE PLAN AND CROSS SECTION-FULL LINE
3M TILDEVE
PRINTED IN U.S.A.

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

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

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

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



	SEEDING E.W.	SEEDING S.Y.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	38		190	0		
		273			513	5
51+50 AH	61		364	6		
LT. BK	39		335	0		
RT. BK	22		29	6		
RT		31			22	5
LT		216			325	0
51+25 RT	0		17	4		
	29				24	4
51+00 AH LT	39		323	0		
AH RT	21		36	5		
BK	60		359	5		
		175			327	7
	66		348	9		
		161			216	27
	50		120	50		
		104			83	337
50+12.65	0		437	0		

CALC. BY L.C.H. DATE 2.28.85
CK. BY J.K.D. DATE 4.8.85

HOL-520-957

OHIO

FHWA REGION 5

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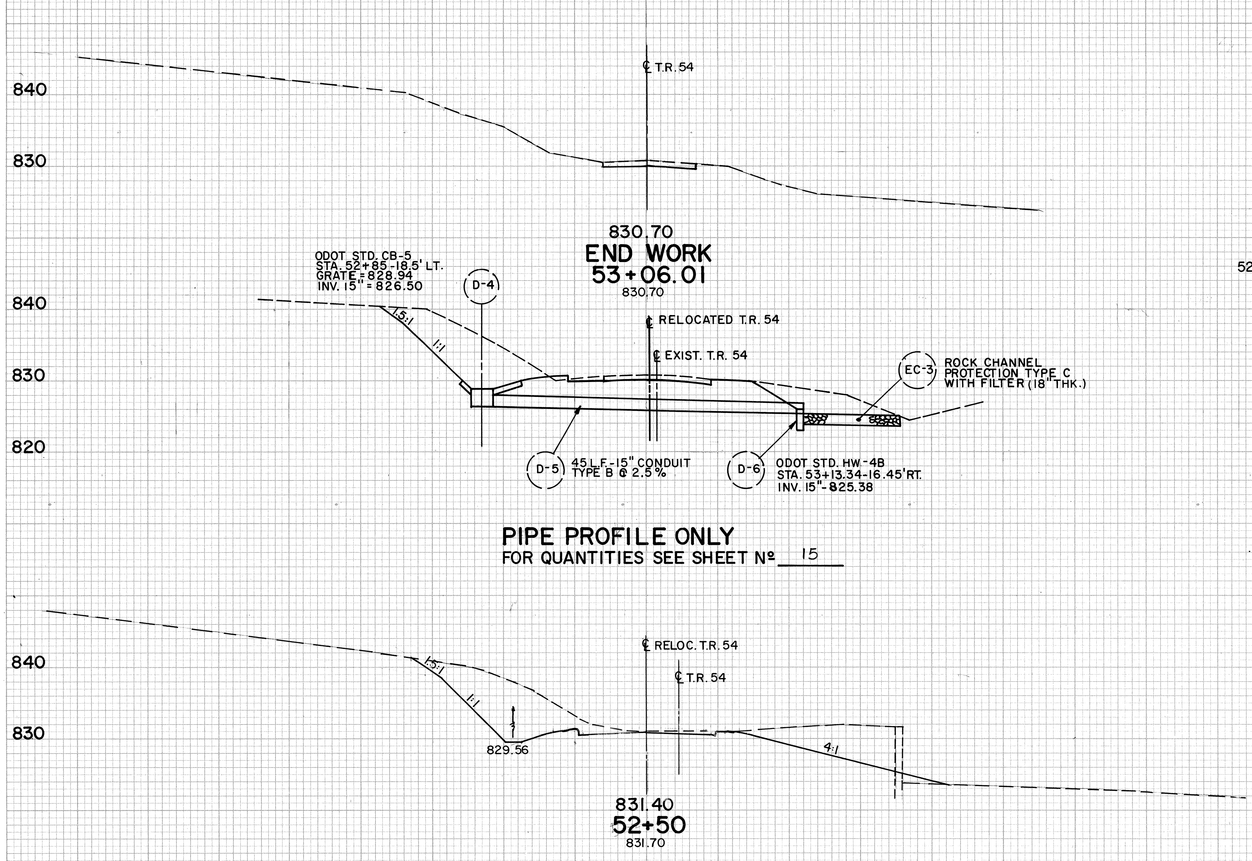
PLATE 3-FULL CROSS SECTION-FULL LINE

X-SECTIONS STA. 50+12.65 TO STA. 52+00 (T.R. 54)

ORIGINAL SURVEY — NOTEBOOK NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

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

	SEEDING		END AREA		VOLUME	
	E.W.	S.Y.	CUT	FILL	CUT	FILL
	0		9	0		
		41			242	7
52+50	63		224	6		
		281			383	6



PIPE PROFILE ONLY
FOR QUANTITIES SEE SHEET Nº 15

X - SECTIONS STA. 52+50 TO STA. 53+06.01 (T.R. 54)

PLATE 3-FULL CROSS SECTION-FULL LINE

CALC. BY LGG DATE 2-18-93
CHKD. BY LBR2 DATE 2-18-93

HOL-520-9.57

OHIO
FHWA REGION 5

17
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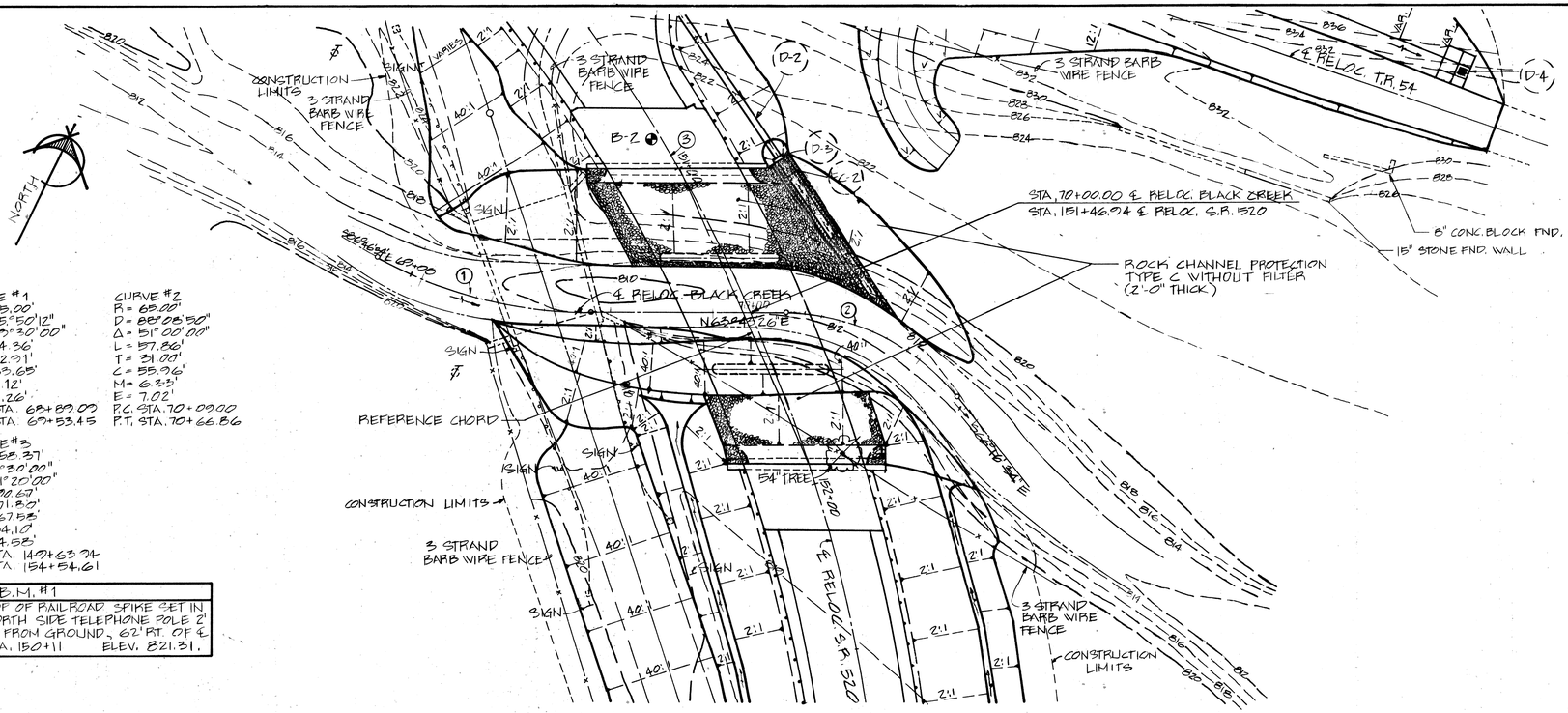
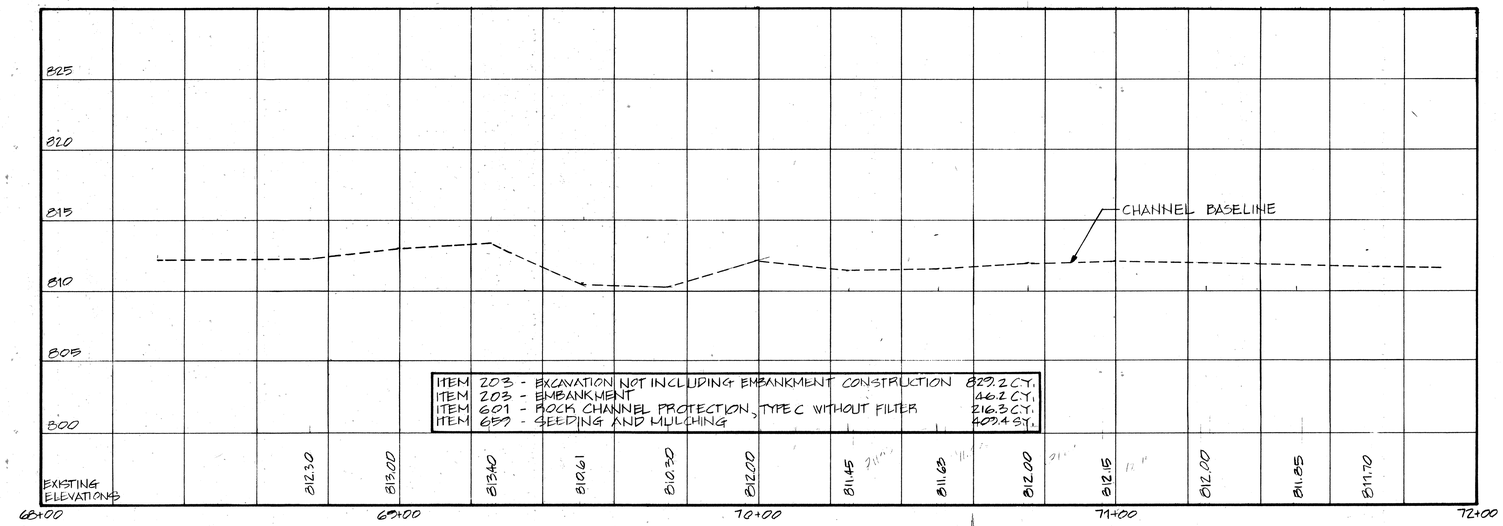


CURVE #1
R = 129.00'
D = 45°50'12"
Δ = 27°30'00"
L = 64.36'
T = 32.91'
C = 63.65'
M = 4.12'
E = 4.26'
P.C. STA. 68+89.09
P.T. STA. 69+53.45

CURVE #2
R = 65.00'
D = 88°08'50"
Δ = 51°00'00"
L = 57.86'
T = 31.00'
C = 55.96'
M = 6.35'
E = 7.02'
P.C. STA. 70+09.00
P.T. STA. 70+66.86

CURVE #3
R = 458.37'
D = 12°30'00"
Δ = 61°20'00"
L = 490.67'
T = 271.85'
C = 467.55'
M = 64.10'
E = 74.55'
P.C. STA. 149+63.74
P.T. STA. 154+54.61

T.B.M. #1
TOP OF RAILROAD SPIKE SET IN NORTH SIDE TELEPHONE POLE 2' UP FROM GROUND, 62' RT. OF ℄ STA. 150+11 ELEV. 821.31.



ITEM		
203	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	829.2 C.Y.
203	EMBANKMENT	46.2 C.Y.
601	ROCK CHANNEL PROTECTION, TYPE C WITHOUT FILTER	216.3 C.Y.
659	SEEDING AND MULCHING	407.4 S.Y.

CALC. BY LCK DATE 2-5-87
CHKD. BY LBD DATE 2-10-87

OHIO
FHWA REGION 5

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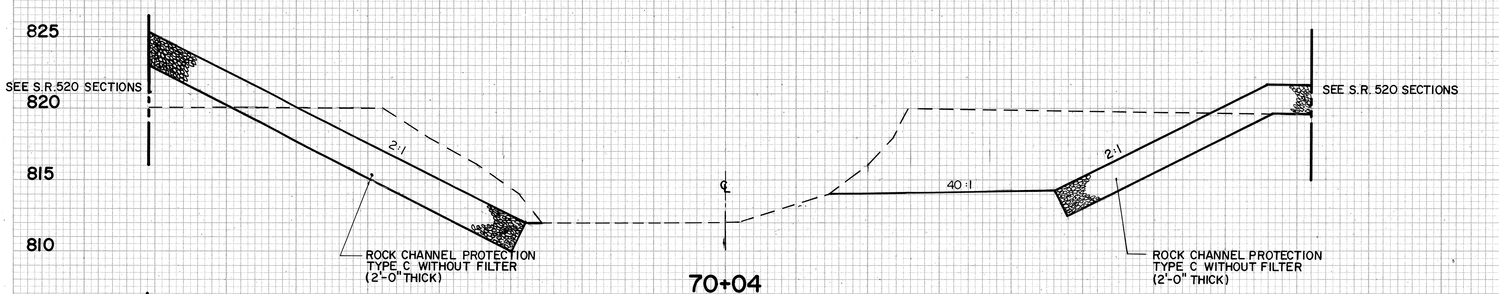
HOL-520-9.57

FOR RELOCATED S.R. 520 PLAN AND PROFILE SEE SHEET NO 8 & 9
FOR PROPOSED STRUCTURE PLAN & DETAILS SEE SHEET NO 22-30
FOR STORM SEWER QUANTITIES SEE T.R. 54 PLAN & PROFILE, SHEET NO 16

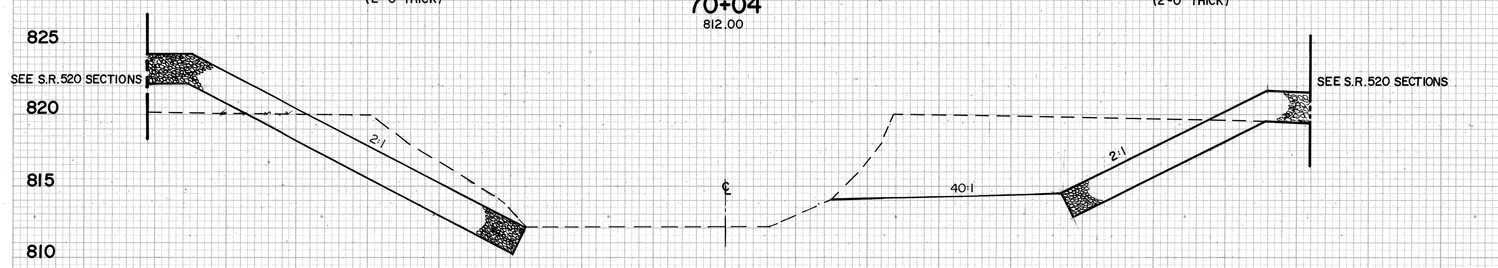
RELOCATED BLACK CREEK PLAN AND PROFILE STA. 69+00 TO STA. 71+00

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

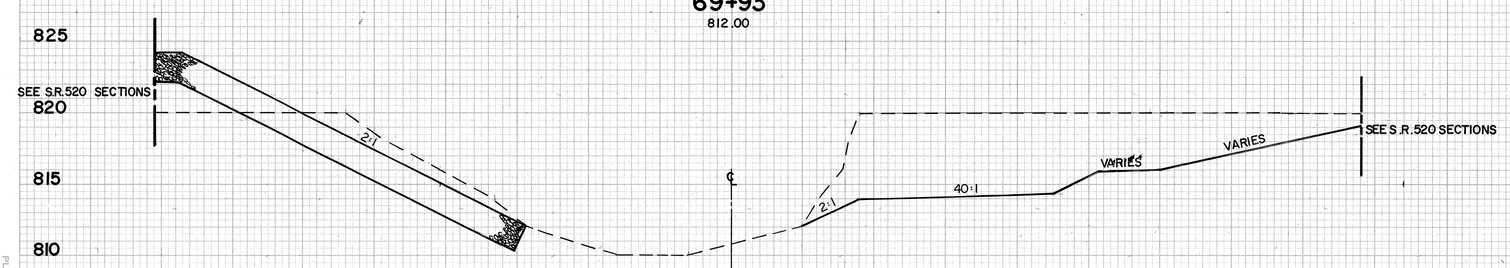
FINAL SURVEY — NOTE BOOK NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE



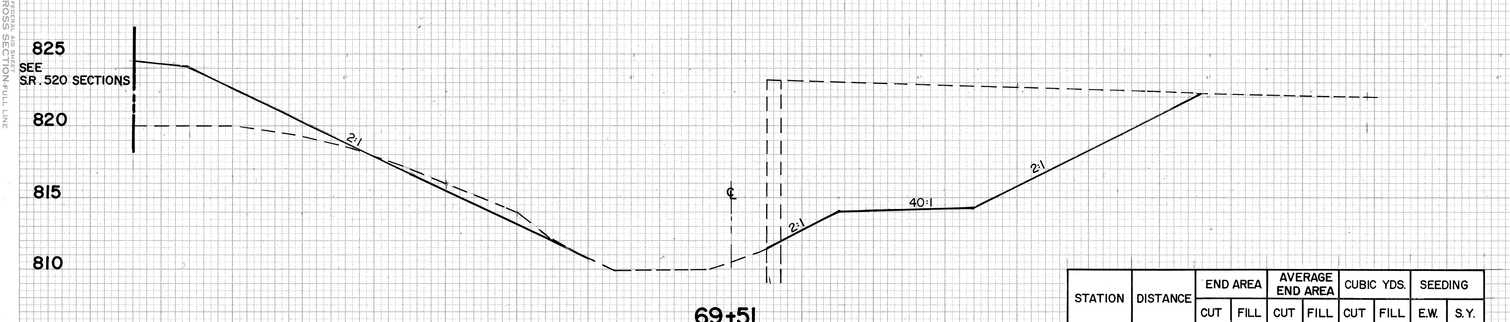
70+04
812.00



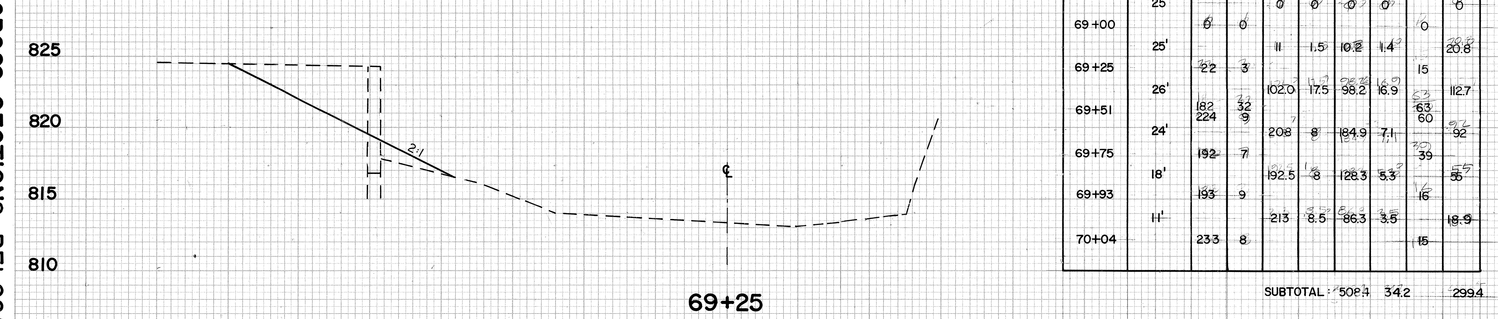
69+93
812.00



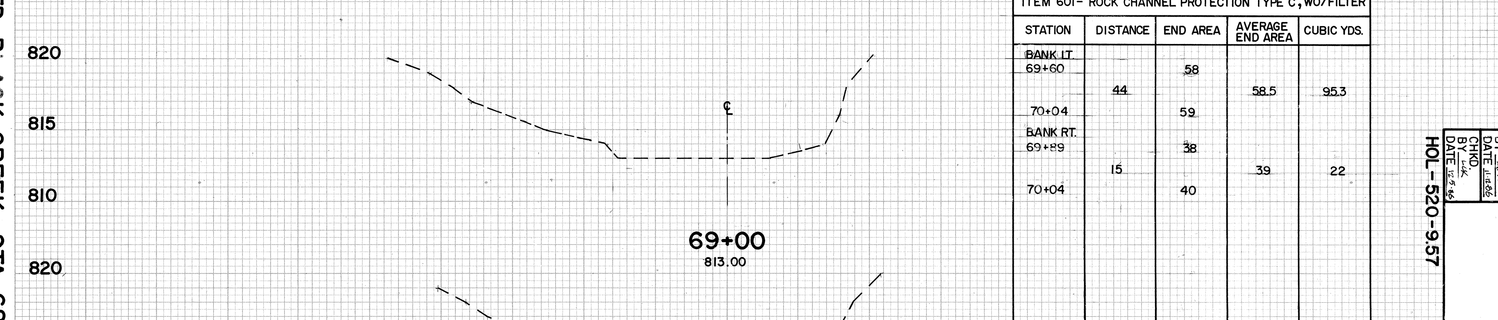
69+75
810.30



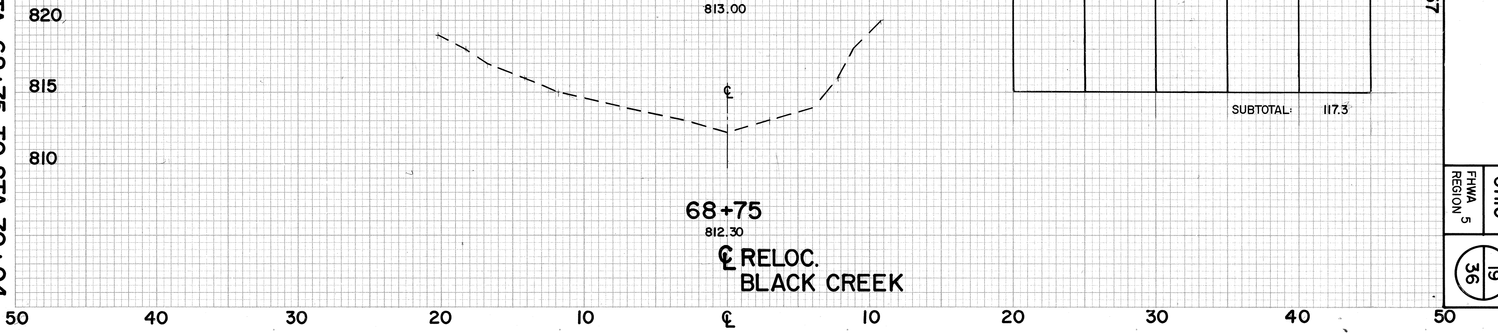
69+51
810.60



69+25
813.40



69+00
813.00



68+75
812.30

℄ RELOC. BLACK CREEK

STATION	DISTANCE	END AREA CUT	END AREA FILL	AVERAGE END AREA CUT	AVERAGE END AREA FILL	CUBIC YDS. CUT	CUBIC YDS. FILL	SEEDING E.W.	SEEDING S.Y.
68+75		0	0					0	0
	25'			0	0	0	0		0
69+00		0	0					0	
	25'			11	1.5	10.2	1.4		20.8
69+25		22	3					15	
	26'			102.0	17.5	98.2	16.9		112.7
69+51		182	32					63	
	24'	224	9	208	8	184.9	7.1	60	92
69+75		192	7					39	
	18'			192.5	8	128.3	5.3		55
69+93		193	9					16	
	11'			213	8.5	86.3	3.5		18.9
70+04		233	8					15	
							SUBTOTAL:	508.1	34.2	299.4

ITEM 601- ROCK CHANNEL PROTECTION TYPE C, WO/FILTER				
STATION	DISTANCE	END AREA	AVERAGE END AREA	CUBIC YDS.
BANK LT. 69+60		58		
	44		58.5	95.3
70+04		59		
BANK RT. 69+89		38		
	15		39	22
70+04		40		
			SUBTOTAL:	117.3

CROSS SECTIONS RELOCATED BLACK CREEK STA. 68+75 TO STA. 70+04

50 40 30 20 10 ℄ 10 20 30 40 50

PLATE 3-FULL CROSS SECTION-FULL LINE

CALC. BY Asco DATE 11/85
CHKD. BY [illegible] DATE 11-8-86

OHIO
FHWA REGION 5
19
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HOL-520-9.57

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

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

STATION	DISTANCE	END AREA		AVERAGE END AREA		CUBIC YDS.		SEEDING	
		CUT	FILL	CUT	FILL	CUT	FILL	E.W.	S.Y.
70+04		233	8					15	
	21'			210	4	163	0		32
70+25		186.5	0					12	
	25'			113	6	105	6		28
70+50		39	11.5					8	
	25'			31	6	29	6		24
70+75		23	0					9	
	18			36	0	24	0		26
70+93		49	0					17	

FHWA REGION	STATE	PROJECT	
5	OHIO		

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HOL.-520-9.57

T.B.M. #1
TOP OF RAILROAD SPIKE SET IN NORTH SIDE TELEPHONE POLE 2' UP FROM GROUND, 62' RT. OF ℄ SURVEY STA. 150+11. ELEV.=821.31

NORTH

MICROFILMED
FEB 1 1991

RELOCATED TWP RD 54

℄ TWP RD 54

GUARDRAIL POST
STA. 151+05.09

PROP. P.I.
STA. 152+35.74

GUARDRAIL POST
STA. 152+01.91

BEGIN APPROACH SLAB
STA. 151+93.91

SKEW ANGLE
24° 07' 22"

REFERENCE CHORD

℄ SURVEY (PROPOSED)

℄ RELOCATED S.R. 520

S 11° 57' 00" E

℄ S.R. 520 60' R/W

PROP. P.I.
STA. 154+54.61

VENT. RISER

417' 10' FIELD TILE

+24.5 10' GRAVEL DRIVE

℄ POWER LINE (OVERHEAD)

B-2

END APPROACH SLAB
STA. 151+00

PROP. P.C.
STA. 149+63.74

GUARDRAIL POST ℄
STA. 150+83.13

℄ TEMPORARY ROAD

BLACK CREEK

EXIST. STRUCTURE
(TO BE REMOVED)

GUARDRAIL POST
STA. 151+93.72

3-STRAND BARB WIRE FENCE

EXIST. CONC. SPRING HOUSE FOUNDATION

CURVE DATA:
P.I. STA. 152+35.74
Δ = 61° 20' 00"
R = 458.37'
T = 271.80'
L = 490.67'
CH = 467.57'
D = 12° 30' 00"
E = 74.53'

R = 458.37'

33'-0" F/F GUARDRAIL

℄ SURVEY (PROPOSED) & ℄ RELOCATED S.R. 520

0.083/FT. PROFILE GRADE

DEEP BEAM GUARDRAIL w/TUBULAR BACKUP & TYPE 2 POSTS

16" THICK REINFORCED CONCRETE BRIDGE DECK w/MONOLITHIC WEARING SURFACE

TRANSVERSE SECTION

20.00' APPROACH SLAB 1.44' | 93.91' BRIDGE LIMITS | 20.00' APPROACH SLAB 1.32'

28.95' | 34.98' | 27.22'

16 SPA @ 6'-3" = 100'-0" (LEFT)
17 SPA. @ 6'-5" = 106'-5" (RIGHT)

℄ SPAN

DEEP BEAM GUARDRAIL w/TUBULAR BACKUP & TYPE 2 POSTS

824.17
TOP BENCH ELEV.

PROPOSED PVM'T. PROFILE

821.41
TOP BENCH ELEV.

821.17
BOT. FOOTING ELEV.

818.41
BOT. FOOTING ELEV.

25 YR. HIGH WATER ELEV. 821.5

100 YR. HIGH WATER ELEV. 822.5

ROCK CHANNEL PROTECTION, TYPE "C" WITHOUT FILTER (2'-0" THICK)

NORMAL (ORDINARY) WATER ELEV. 814.4

14"ϕ CAST-IN-PLACE REINF. CONC. PILES ESTIMATED PAY LENGTH = 40' (TYP. BOTH PIERS)

14"ϕ CAST-IN-PLACE REINF. CONC. PILES ESTIMATED PAY LENGTH = 50' (TYP. BOTH ABUTS.)

150+00 | 151+00 | 152+00 | 153+00

NOTE:
EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES CONFORM TO PLAN CROSS SECTION.

DESIGN DISCHARGE			
FREQUENCY	DISCHARGE	HIGH WATER ELEVATION	
	C.F.S.	EXIST. BRIDGE	PROP. BRIDGE
25 YR.	3,556	821.25	821.5
100 Y.R.	5,073	824.5	822.5

CLEARS 100 YR., HIGH WATER BY = -0.95'
DRAINAGE AREA = 32.06 SQ. MILES
STREAM VELOCITY = V_{100} = 7.5 F.P.S. ; V_{25} = 6.7 F.P.S.

EXISTING STRUCTURE
TYPE: CONCRETE TRUSS
SPAN: 38'-0"
ROADWAY: 22'-0" F/F PARAPET
ALIGNMENT: TANGENT
SKEW: NONE
DECK: REINFORCED CONCRETE SLAB
WEARING SURFACE: ASPHALT
APPROACH SLABS: NONE

TRAFFIC COUNT	
CURRENT ADT (1986)	750
DESIGN YR ADT (2006)	1248
TRUCKS	1%

PROPOSED STRUCTURE
TYPE: THREE-SPAN REINF. CONC. SLAB.
SPAN: 28'-0", 33'-0", 28'-0" (CLEAR)
ROADWAY: 33' F/F GUARDRAIL
ALIGNMENT: 12° 30' 00" CURVE TO RIGHT
SKEW: 24°07'22" LEFT FORWARD OF REFERENCE CHORD
WEARING SURFACE: MONOLITHIC CONCRETE
APPROACH SLABS: AS-1-81, 20'-0" LONG
SUPERELEVATION: 0.083 FT/FT.
LOADING: H520-44 AND THE ALTERNATE MILITARY LOADING

REVIEWED BY BURGESS & NIPLE, LTD.
J.L.G. 3/10/87

KARL R. ROHRER ASSOC., INC.
3810 RIDGEWOOD ROAD
AKRON, OHIO

1/9

SITE PLAN

BRIDGE NO. HOL.-520-0967
OVER
BLACK CREEK

HOLMES COUNTY

STA. 151+00
STA. 151+93.91

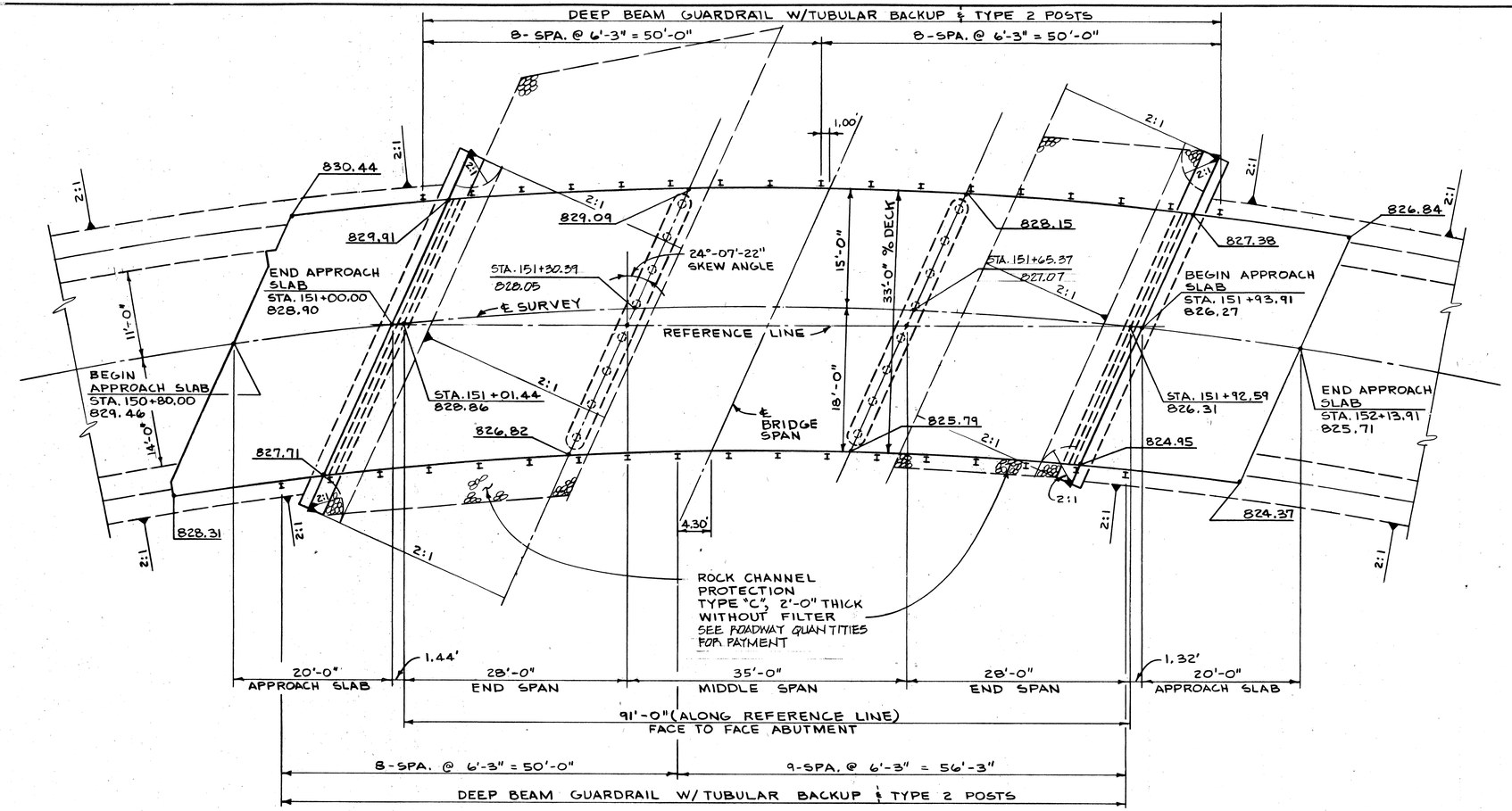
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
L.B.D.	A.M.S.		JF	G.S.	10-23-86	

MICROFILMED
FEB 1 1991

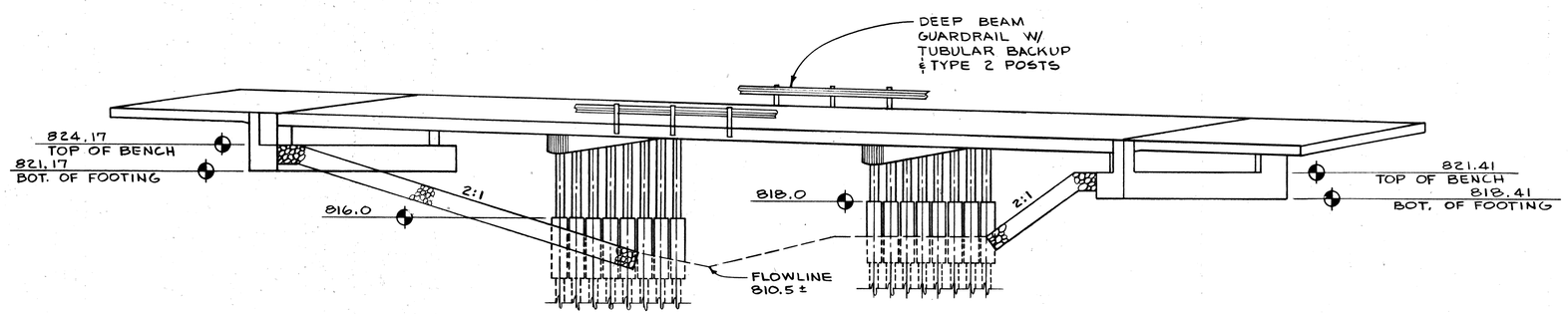
FHWA REGION	STATE	PROJECT		
5	OHIO			

22/36

HOL-520-9.57



GENERAL PLAN



ELEVATION

KARL R. ROHRER ASSOC., INC.
3810 RIDGEWOOD ROAD
AKRON, OHIO

2/9

GENERAL PLAN & ELEVATION

BRIDGE No. HOL-520-0967
OVER
BLACK CREEK

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
L.B.D.	J.H.M.		F	GS	3/2/87	

MICROFILMED
FEB 1 1991

FHWA REGION	STATE	PROJECT	
5	OHIO		

HOL-520-9.57

GENERAL NOTES

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

DBR-2-73	DATED 4-10-73
AS-1-81	DATED 11-27-81
CPP-2-73	DATED 4-10-73

AND TO SUPPLEMENTAL SPECIFICATIONS:

836	DATED 11-12-85
824	DATED 10-8-82

DESIGN SPECIFICATIONS:

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

DESIGN DATA:

DESIGN LOADING - HS20-44 AND THE ALTERNATE MILITARY LOADING.

CONCRETE CLASS S - UNIT STRESS 1500 PSI FOR SUPERSTRUCTURE (THE SLAB DESIGN IS BASED ON CLASS C CONCRETE)

CONCRETE CLASS C - UNIT STRESS 1333 PSI FOR SUBSTRUCTURE.

REINFORCING STEEL - ASTM A615, A616, A617 - GRADE 60 UNIT STRESS 24,000 PSI. (THE SLAB DESIGN IS BASED ON A UNIT STRESS OF 20,000 PSI.

ABUTMENT PILING:

ABUTMENT PILING BENDING STRESS MAY APPROACH, REACH OR EXCEED YIELD STRESS.

DECK PROTECTION METHOD:

EPOXY COATED REINFORCING STEEL, TOP AND BOTTOM MATS.
PILES: THE DESIGN LOAD IS 26 TONS PER PILE FOR THE ABUTMENT PILES, AND 34 TONS PER PILE FOR THE PIER PILES.
PILES: 14" CAST-IN-PLACE REINFORCED CONCRETE PILES (FOR ABUTMENT AND PIERS)

UTILITY LINES:

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

REMOVAL OF EXISTING STRUCTURE:

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

ITEM SPECIAL, SEALING OF CONCRETE SURFACES:

A CONCRETE SEALER SHALL BE APPLIED TO THE FOLLOWING SURFACES: THE VERTICAL AND HORIZONTAL SURFACES OF THE WINGWALLS, PIER CAPS, AND DECK SLAB AS DESIGNATED ON PLANS. SEE THE PROPOSAL NOTE FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION NOTES, MATERIALS REQUIREMENTS, AND APPLICATION REQUIREMENTS.

EMBANKMENT CONSTRUCTION:

THE EMBANKMENTS SHALL BE CONSTRUCTED TO THE LEVEL OF THE SUBGRADE FOR A MINIMUM DISTANCE OF 200 FEET BACK OF THE ABUTMENTS. EXCAVATION MAY THEN BE MADE FOR THE ABUTMENTS.

CALC. BY: L.B.D. DATE 3-1-87
CHKD. BY: JE DATE 3-2-87

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GEN'L.		
202	LUMP		STRUCTURES REMOVED				LUMP		
503	106	CU.YDS.	UNCLASSIFIED EXCAVATION	106					
505	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION				LUMP		
507	1440	LIN. FT.	14" CAST-IN-PLACE REINFORCED CONCRETE PILES	800	640				
509	7903	LB.	REINFORCING STEEL, GRADE 60	6217	1686				
511	55	CU. YD.	CLASS C CONCRETE, ABUT. (SEE PROPOSAL NOTE)	55					
511	13	CU. YD.	CLASS C CONCRETE, PIERS (SEE PROPOSAL NOTE)		13				
511	173	CU. YD.	CLASS S CONCRETE, SUPER. (SEE PROPOSAL NOTE)			173			
512	21	SQ. YD.	TYPE A WATERPROOFING	21					
516	8	SQ. FT.	1" PREFORMED EXPANSION JOINT FILLER	8					
517	206.25	LIN. FT.	RAILING: (DEEP BEAM RAIL WITH TUBULAR BACK-UP AND TYPE 2 STEEL POSTS & BOLTS)			206.25			
518	17	CU. YD.	POROUS BACKFILL, AS PER PLAN	17					
824	37246	LB.	EPOXY COATED REINFORCING STEEL, GRADE 60		1343	35903			
SPECIAL	106	SQ. YD.	SEALING OF CONCRETE SURFACES (SEE PROPOSAL NOTES)	18	5	83			

KARL R. ROHRER ASSOC., INC.
3810 RIDGEWOOD ROAD
AKRON, OHIO

GENERAL NOTES & ESTIMATED QUANTITIES

BRIDGE No. HOL-520-0967
OVER
BLACK CREEK

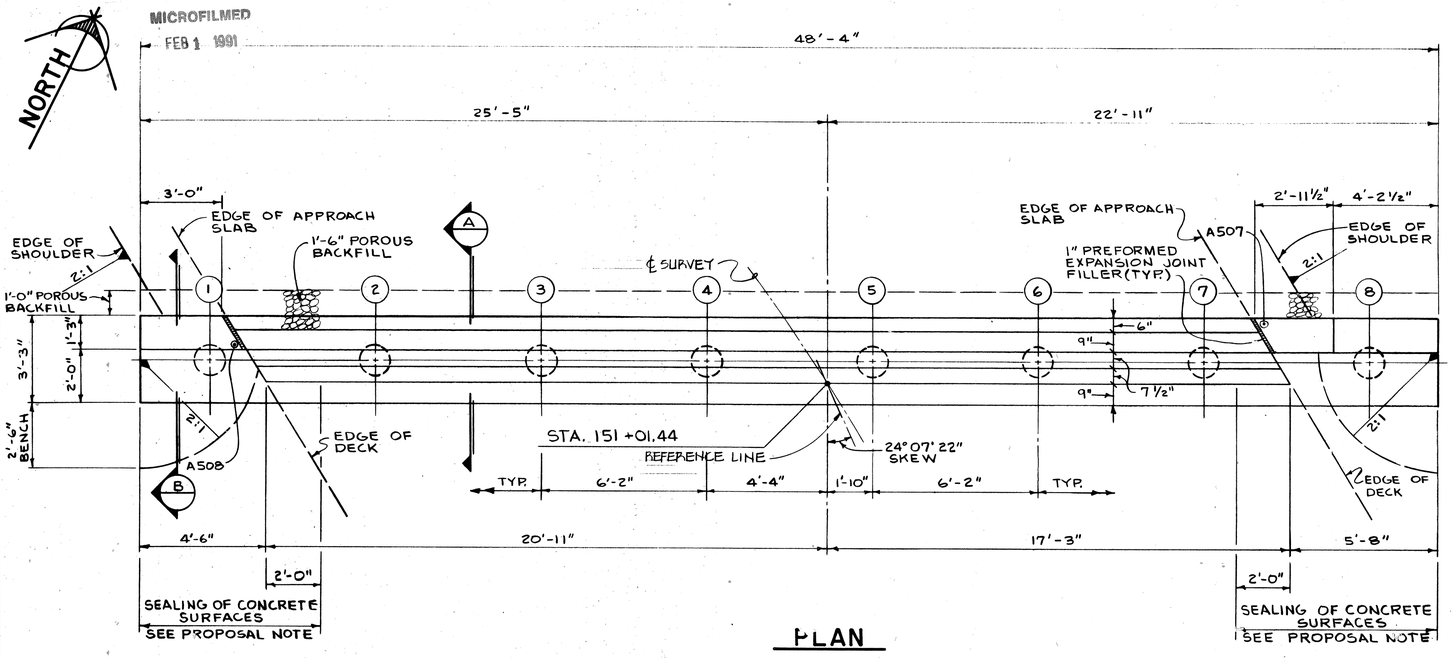
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
L.B.D.	J.H.M.		JE	GS	3/2/87	

MICROFILMED
FEB 1 1991

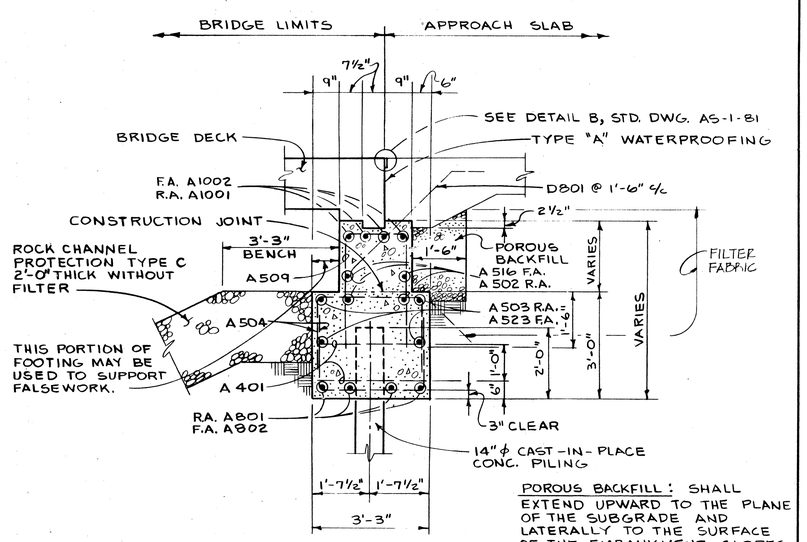
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

24/36

HOL-520-9.57



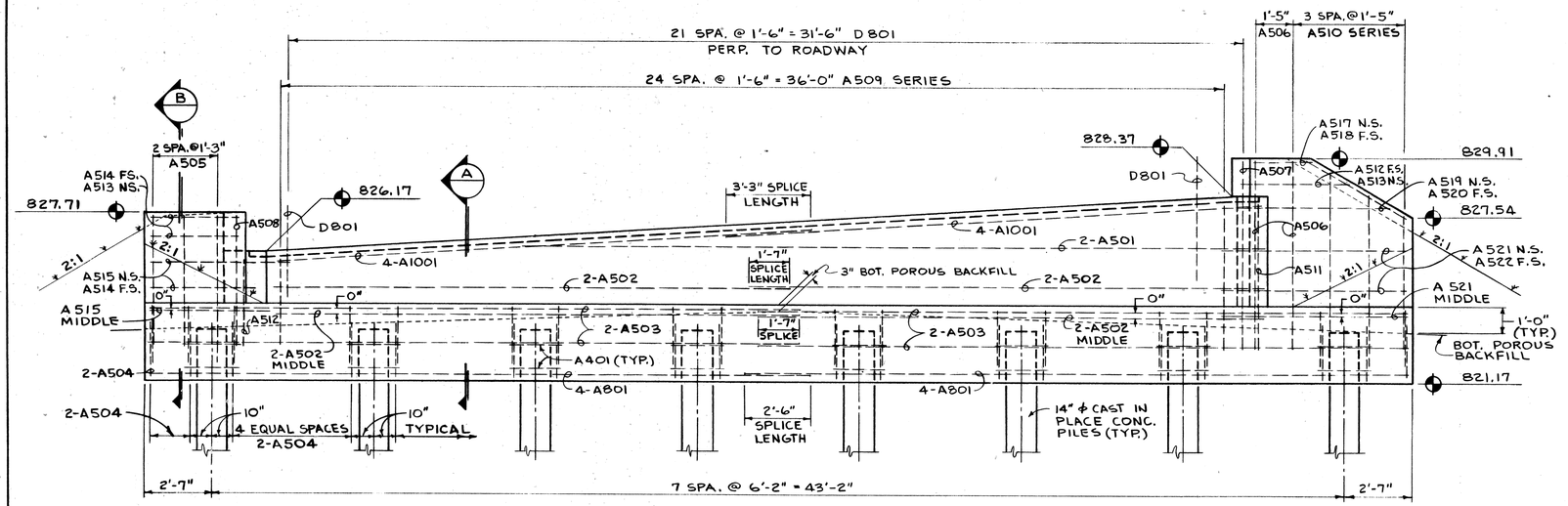
PLAN



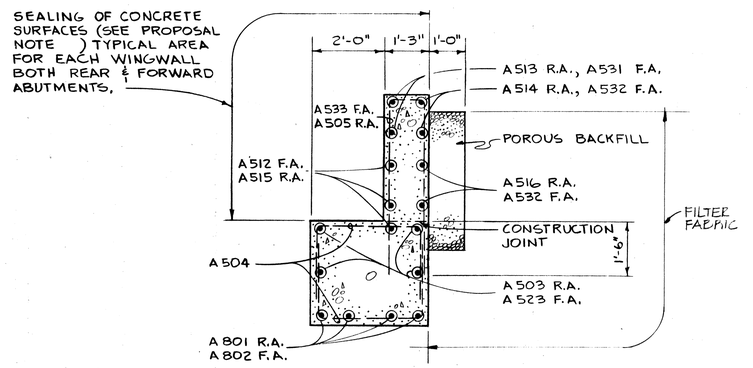
SECTION (A)

POROUS BACKFILL: SHALL EXTEND UPWARD TO THE PLANE OF THE SUBGRADE AND LATERALLY TO THE SURFACE OF THE EMBANKMENT SLOPES.

FILTER FABRIC SHALL CONFORM TO ITEM 712.09, TYPE A AND SHALL BE INCLUDED WITH POROUS BACKFILL FOR PAYMENT.



ELEVATION



SECTION (B)

LEGEND

N.S.	NEAR SIDE
F.S.	FAR SIDE
R.A.	REAR ABUTMENT
F.A.	FORWARD ABUTMENT
SPA.	SPACE
TYP.	TYPICAL
EA.	EACH
ELEV.	ELEVATION

KARL R. ROHRER ASSOC., INC.
3810 RIDGEWOOD ROAD
AKRON, OHIO

4/9

REAR ABUTMENT PLAN, ELEVATION & SECTIONS

BRIDGE No. HOL-520-0967
OVER
BLACK CREEK

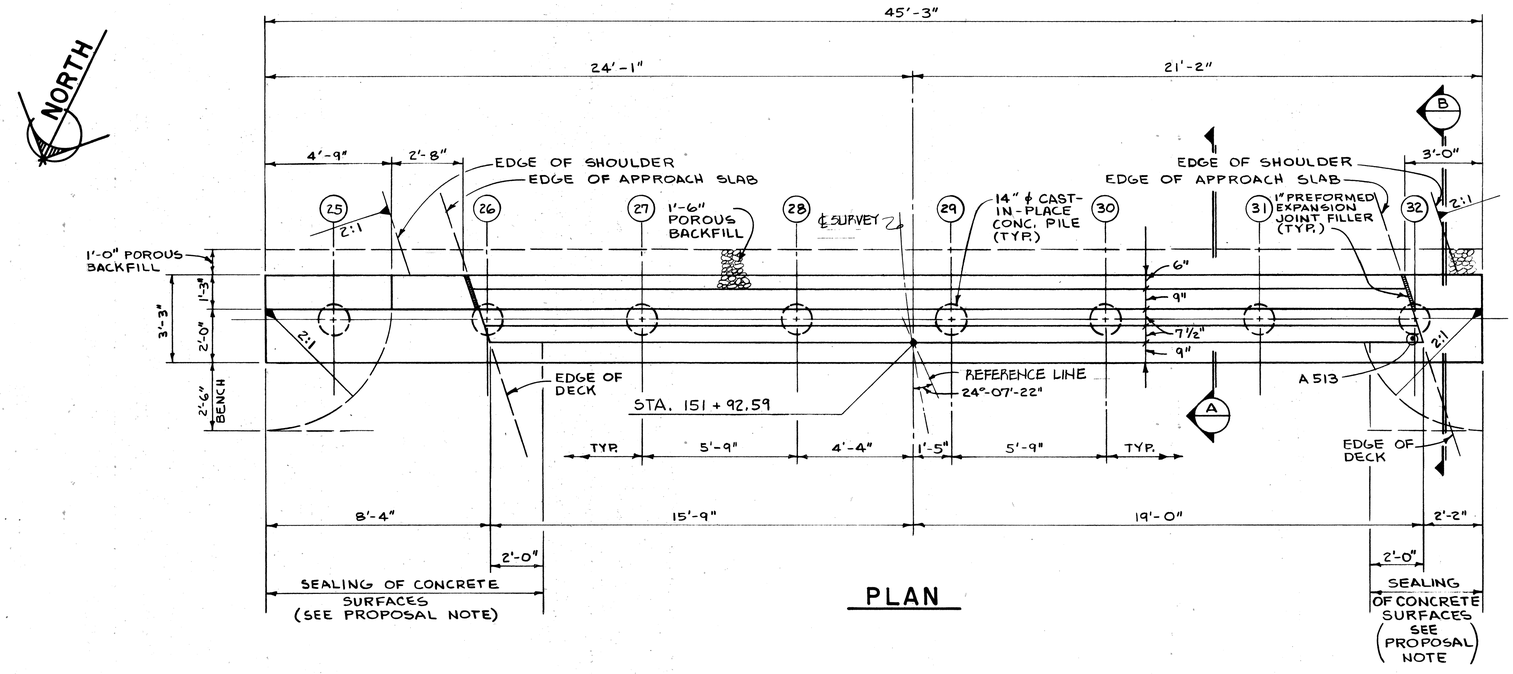
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
L.B.D.	J.H.M.		E	GS	3/2/87	

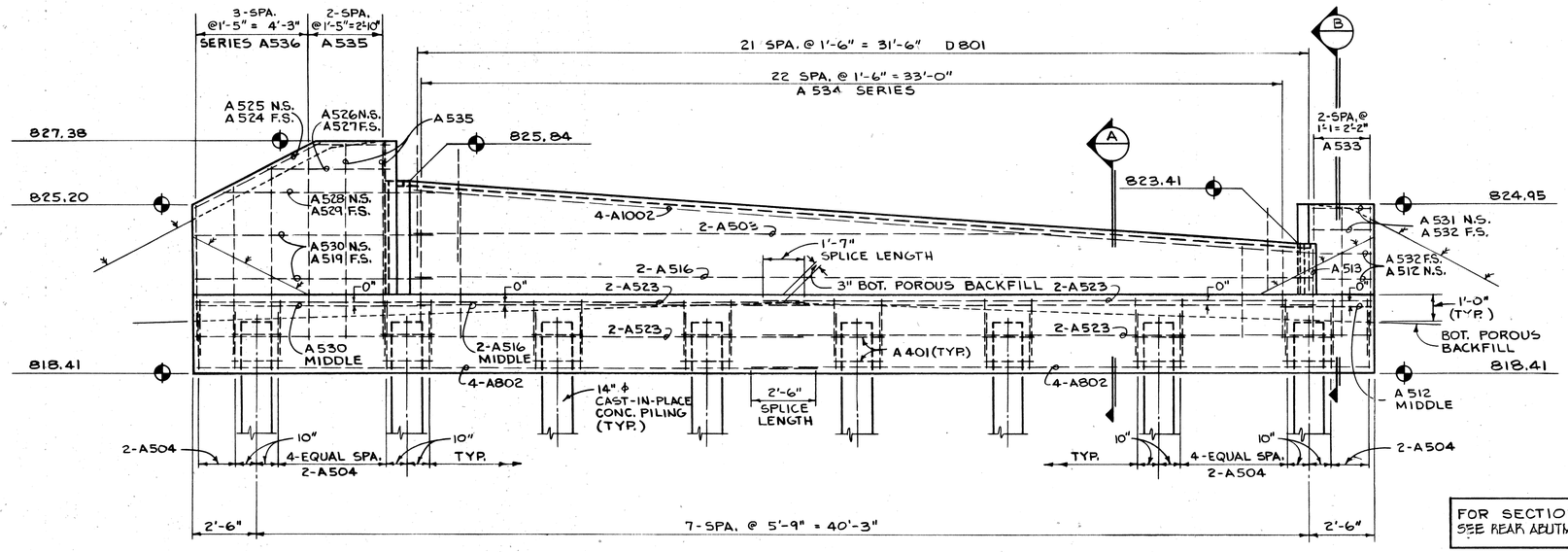
MICROFILMED
FEB 1 1991

FHWA REGION	STATE	PROJECT		
5	OHIO			

25/36

HOL-520-9.57





ELEVATION

FOR SECTIONS AND ADDITIONAL NOTES SEE REAR ABUTMENT DWG. 4 OF 9.

KARL R. ROHRER ASSOC., INC.
3810 RIDGEWOOD ROAD
AKRON, OHIO

5/9

FORWARD ABUTMENT PLAN & ELEVATION

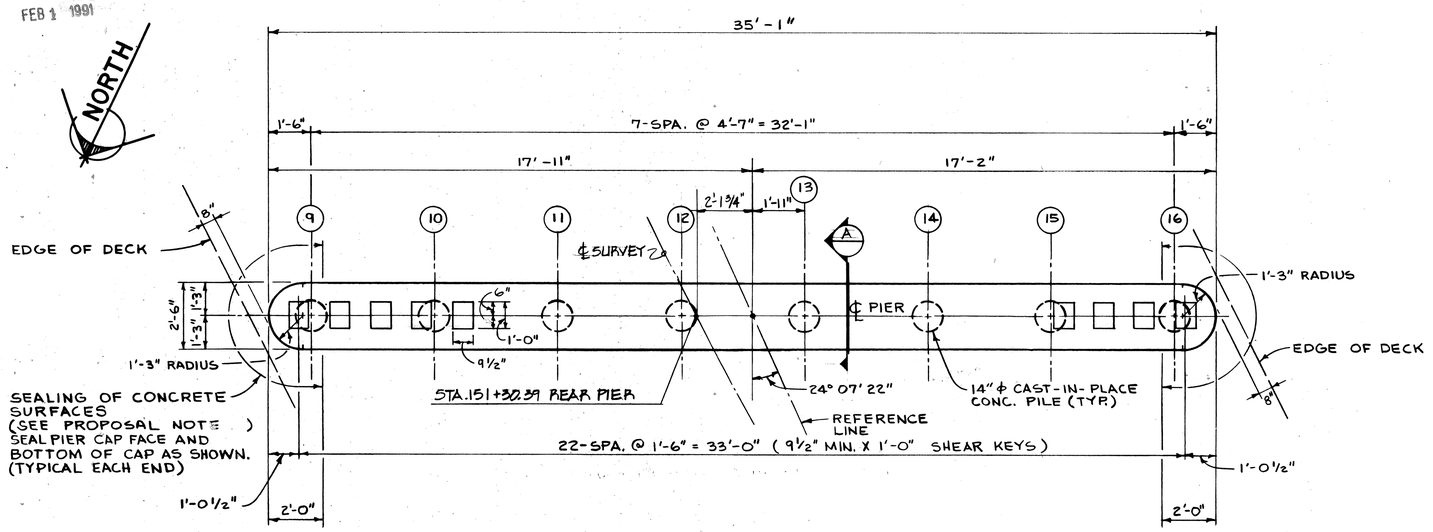
BRIDGE No. HOL-520-0967
OVER
BLACK CREEK

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
L.B.D.	J.H.M.		E	GS	3/2/87	

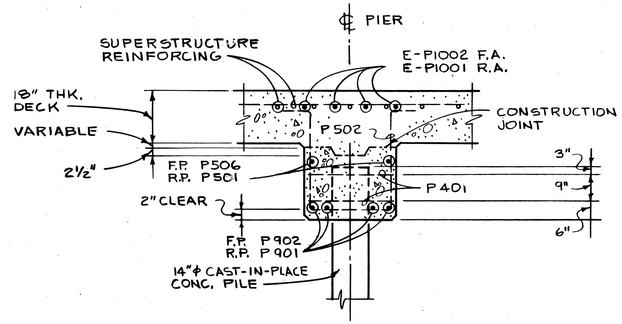
MICROFILMED
FEB 1 1991

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

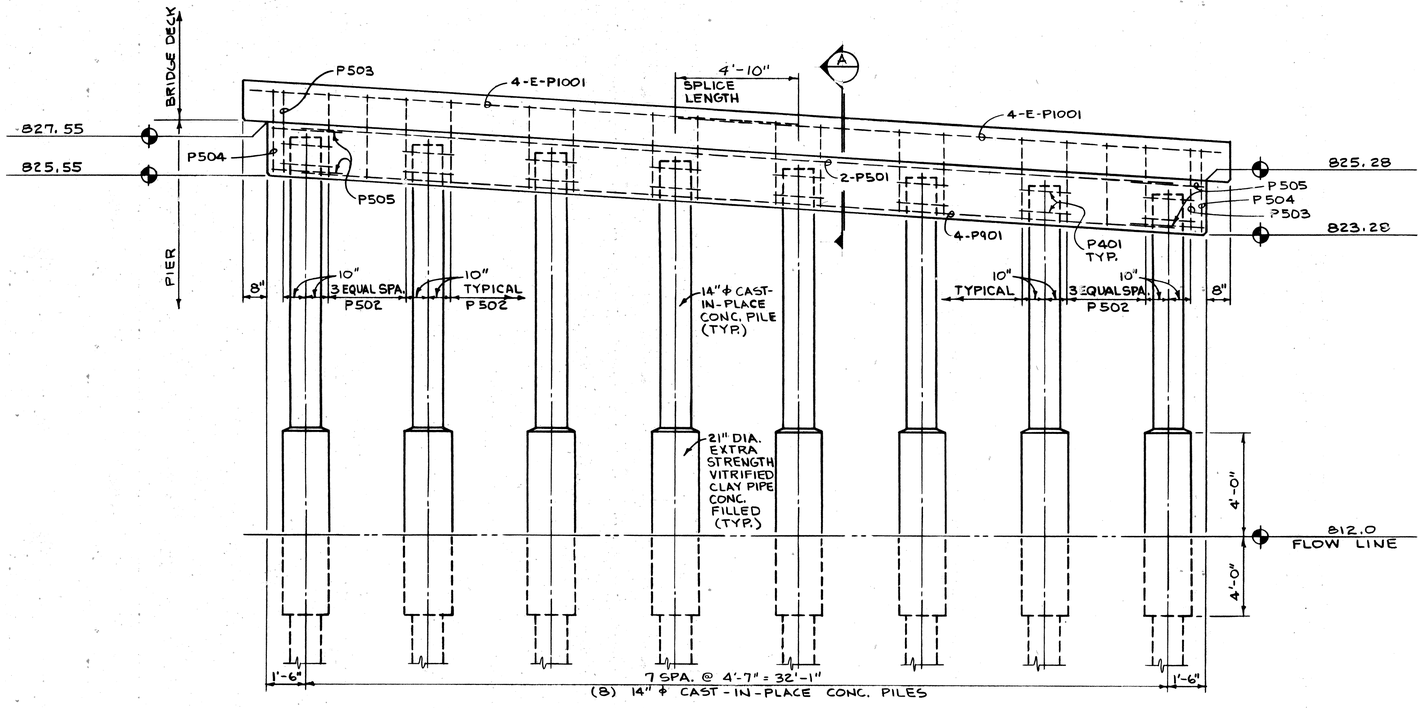
HOL-520-9.57



PLAN



SECTION A



ELEVATION

PILE ENCASEMENT: EXPOSED STEEL PILES AND PILE CASINGS IN CAPPED PILE PIERS SHALL HAVE PILE ENCASEMENT SIMILAR TO THAT SHOWN ON STANDARD DRAWING CPP-2-73. THE ENCASEMENT SHALL CONSIST OF CLASS C CONCRETE PLACED WITHIN A SHELL OF EXTRA-STRENGTH VITRIFIED CLAY PIPE, GALVANIZED CORRUGATED STEEL PIPE, OR PLAIN OR CORRUGATED PLASTIC PIPE ALL HAVING A MINIMUM INSIDE DIAMETER OF APPROXIMATELY 21 INCHES FOR 14" CAST-IN-PLACE CONCRETE PILES. ENCASEMENT SHALL EXTEND APPROXIMATELY 4 FEET ABOVE AND 4 FEET BELOW GROUND LINE.

COST OF ENCASEMENT SHALL BE INCLUDED WITH THE PILES FOR PAYMENT.

FALSEWORK SUPPORT: ATTACHMENT OF FALSEWORK SUPPORT MEMBERS TO PIER PILES BE PERMITTED, IF THE ATTACHMENT IS MADE TO THAT PORTION OF PILES ENCASED IN THE PIER CAP.

LEGEND

R.R	REAR PIER
F.P.	FORWARD PIER
ELEV.	ELEVATION
TYP.	TYPICAL
SPA.	SPACE
E.	EPOXY COATED

KARL R. ROHRER ASSOC., INC.
3810 RIDGEWOOD ROAD
AKRON, OHIO

6/9

REAR PIER
PLAN, ELEVATION & SECTION

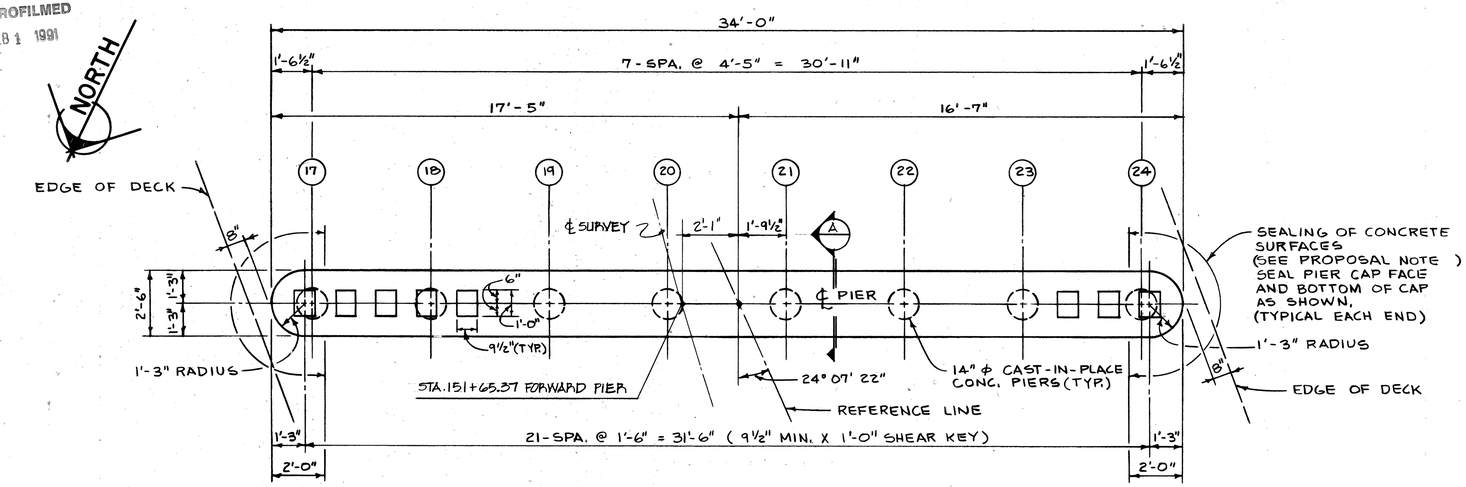
BRIDGE No. HOL-520-0967
OVER
BLACK CREEK

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
L.B.D.	J.H.M.		F	GS	3/2/87	

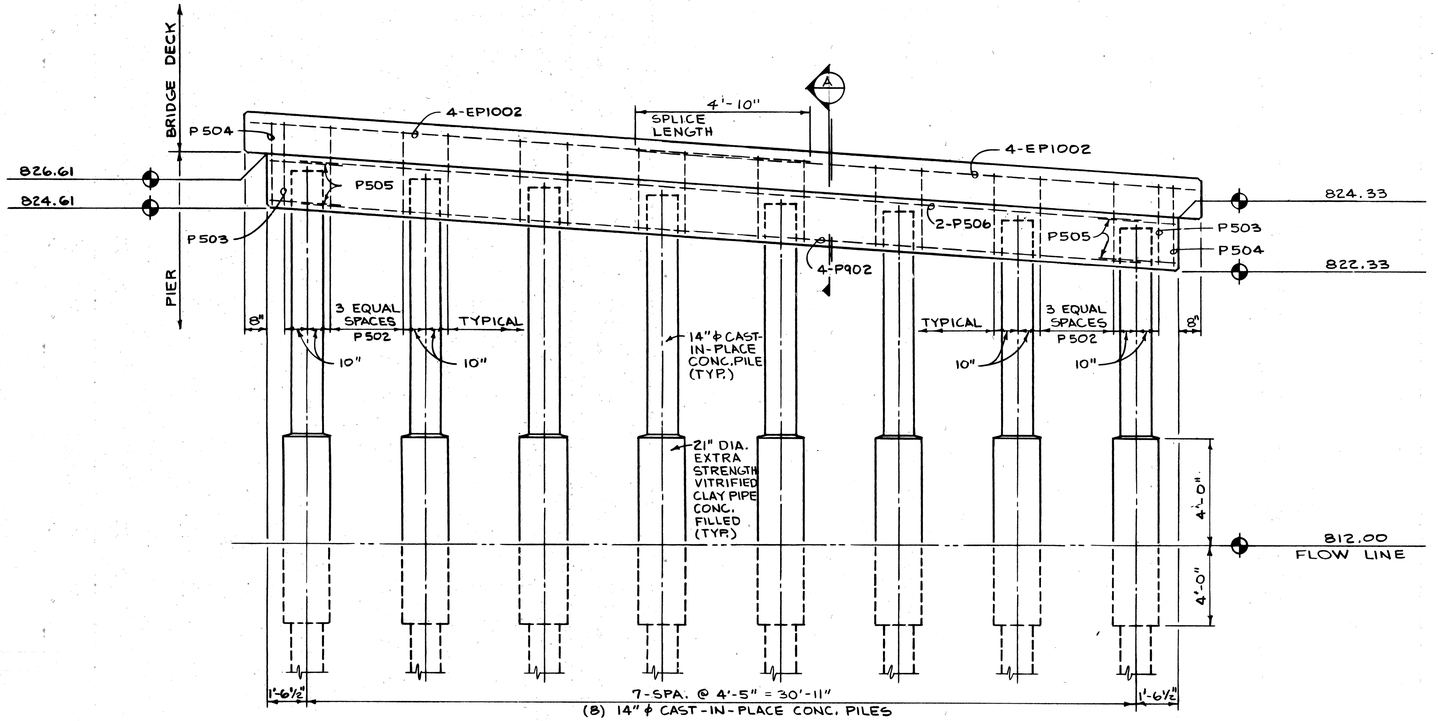
MICROFILMED
FEB 1 1991

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

HOL-520-9.57



PLAN



ELEVATION

FOR SECTION AND ADDITIONAL NOTES, SEE SHEET 6 OF 9

KARL R. ROHRER ASSOC., INC.
3810 RIDGEWOOD ROAD
AKRON, OHIO

FORWARD PIER
PLAN & ELEVATION

BRIDGE No. HOL-520-0967
OVER
BLACK CREEK

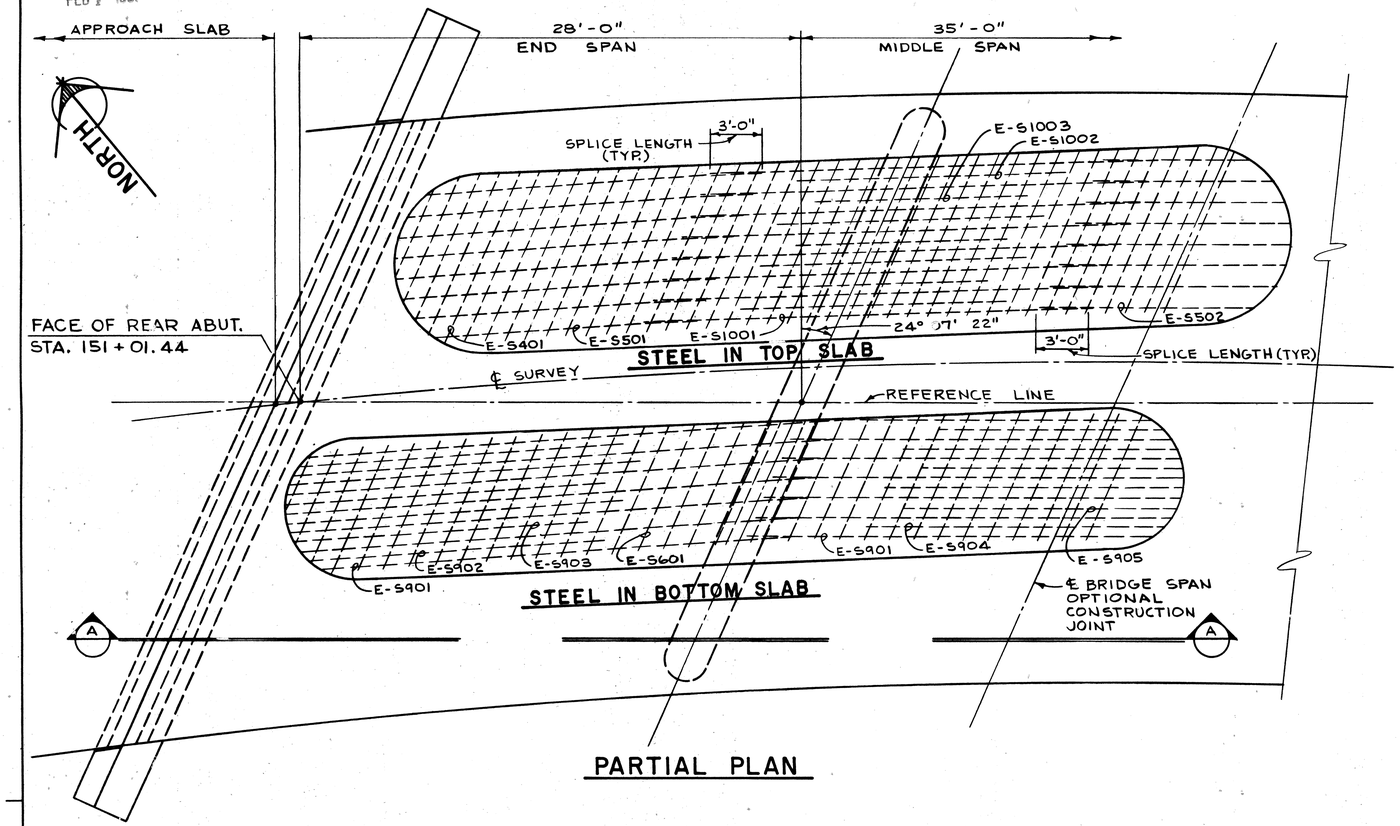
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
L.B.D.	J.H.M.		E	GS	3/2/87	

MICROFILMED
FEB 1 1991

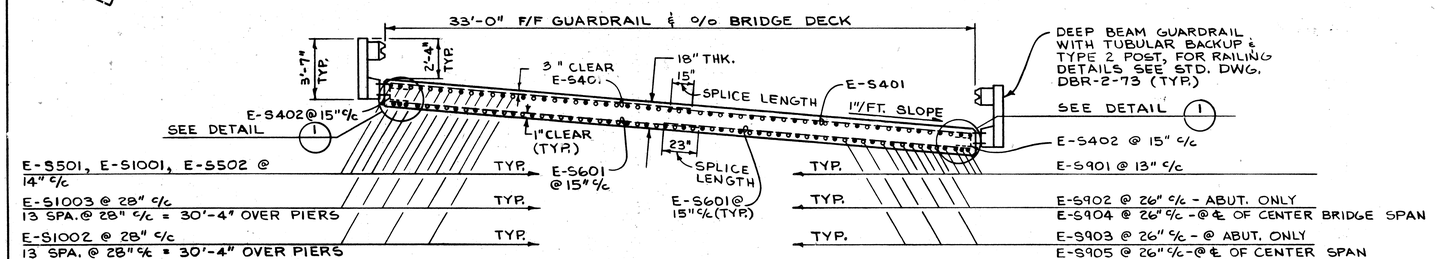
FHWA REGION	STATE	PROJECT	
5	OHIO		

28/36

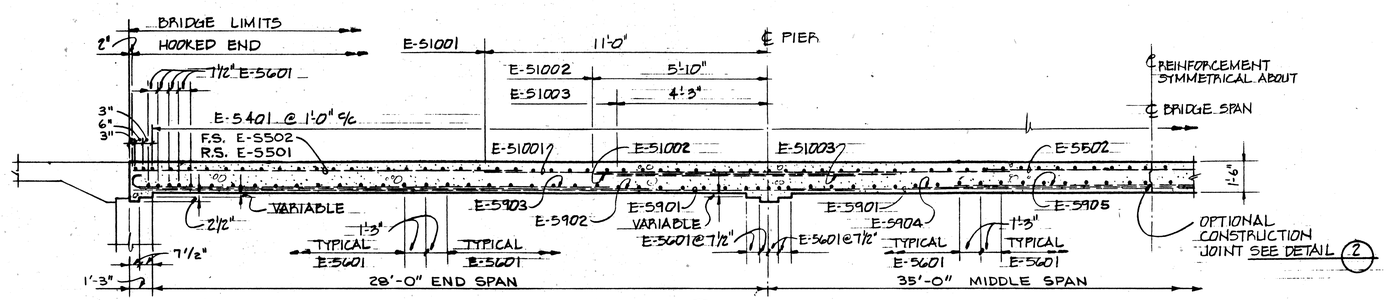
HOL-520-9.57



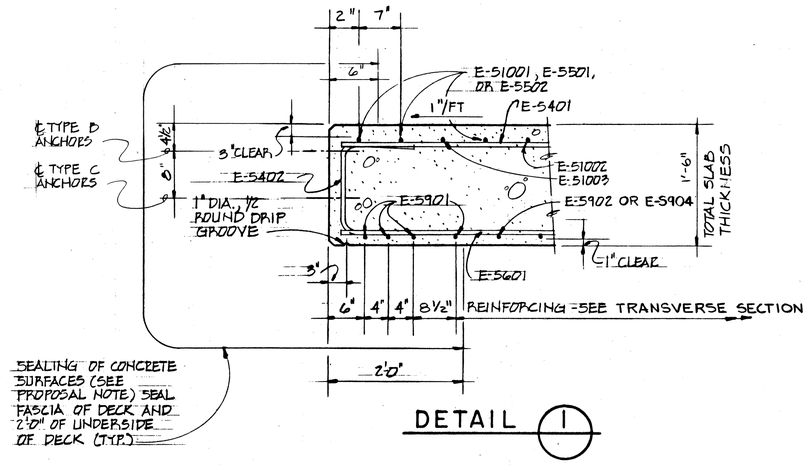
PARTIAL PLAN



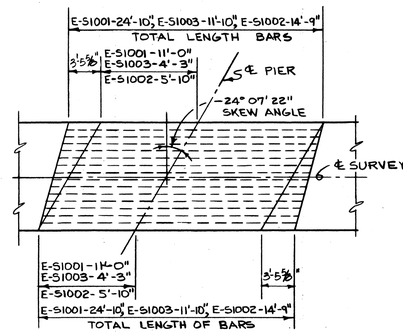
TRANSVERSE SECTION



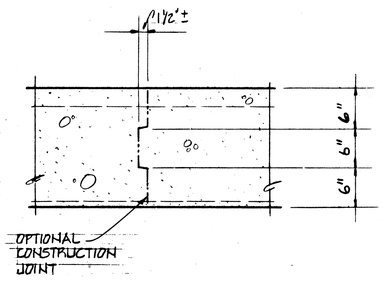
SECTION A



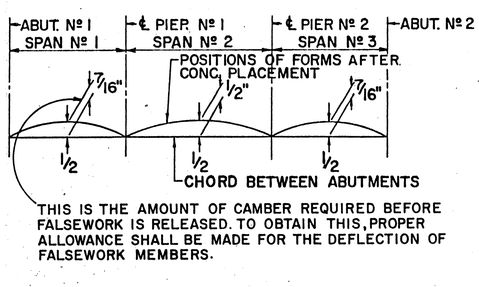
DETAIL 1



PLACEMENT DIAGRAM FOR E-S1001, E-S1002, E-S1003 BARS



DETAIL 2



THIS IS THE AMOUNT OF CAMBER REQUIRED BEFORE FALSEWORK IS RELEASED. TO OBTAIN THIS, PROPER ALLOWANCE SHALL BE MADE FOR THE DEFLECTION OF FALSEWORK MEMBERS.

CAMBER DIAGRAM

LEGEND

E - EPOXY COATED
R.S. - REAR SPAN
F.S. - FORWARD SPAN

KARL R. ROHRER ASSOC., INC.
3810 RIDGEWOOD ROAD
AKRON, OHIO

8/9

SUPERSTRUCTURE

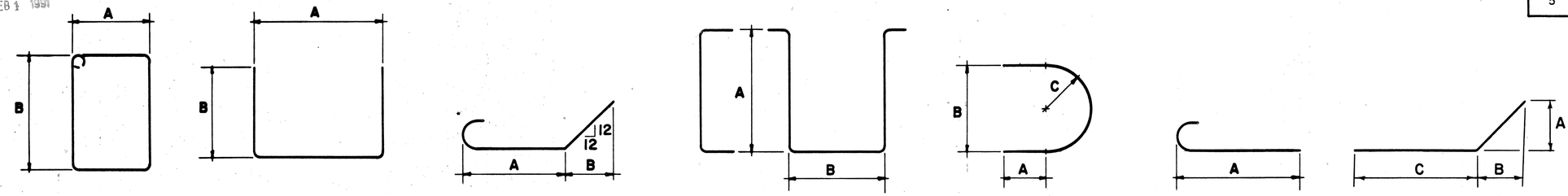
BRIDGE No. HOL-520-0967
OVER
BLACK CREEK

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
L.B.D.	J.K.M.		K	GS	3/2/87	

MICROFILMED
FEB 1 1991

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

HOL-520-9.57



CALC. BY: L.B.D. DATE 3-2-87
CHKD. BY: JE DATE 3-2-87

ABUTMENT REINFORCING

MARK	NO.	LENGTH	WEIGHT	TYPE	A	B	C	FWD.	REAR
A1001	8	20'-8"	712	S					8
A1002	4	34'-6"	594	S				4	
D801	44	6'-3"	734	3	4'-3"	1'-1"		22	22
A801	8	25'-3"	540	S					8
A802	8	23'-9"	508	S				8	
A501	2	28'-3"	59	S					2
A502	8	19'-10"	166	S					8
A503	10	24'-10"	259	S				2	8
A504	156	6'-10"	1112	2	2'-11"	2'-1"		78	78
A505	3	12'-6"	39	2	11"	5'-11"			3
A506	2	16'-10"	35	2	11"	8'-1"			2
A507	1	8'-1"	9	S					1
A508	1	5'-11"	6	S		3'-3"	5'-4"		1
A509	25	1-SERIES OF 25 EACH	262	2	1'-8"	FROM 3'-3" TO 5'-4" IN 1" INCRMTS.			25
A510	3	1-SERIES OF 3 EACH	37	2	11"	FROM 4'-9" TO 6'-5" IN 10" INCRMTS.			3
A511	1	5'-4"	6	S					1
A512	5	4'-1"	22	S				3	2
A513	4	3'-5"	14	S				1	3
A514	4	2'-8"	11	S					4
A515	3	5'-2"	17	S					3
A516	4	34'-5"	144	S				4	
A517	1	6'-7"	7	8	2'-3"	4'-0"	2'-0"		1
A518	1	7'-4"	8	8	2'-3"	4'-0"	2'-9"		1
A519	3	7'-0"	22	S				2	1
A520	1	5'-7"	6	S					1
A521	3	8'-0"	25	S					3
A522	2	6'-10"	15	S					2
A523	8	23'-3"	194	S				8	
A524	1	7'-7"	8	8	2'-2"	4'-7"	2'-6"	1	
A525	1	7'-10"	8	8	2'-2"	4'-7"	2'-9"	1	
A526	1	4'-8"	5	S				1	
A527	1	4'-3"	5	S				1	
A528	1	8'-4"	9	S				1	
A529	1	5'-11"	6	S				1	
A530	3	9'-1"	29	S				3	

ABUTMENT REINFORCING (CONTINUED)

MARK	NO.	LENGTH	WEIGHT	TYPE	A	B	C	FWD.	REAR
A531	2	2'-2"	5	S				2	
A532	4	2'-6"	11	S				4	
A533	3	10'-8"	34	2	11"	5'-0"		3	
A534	23	1 SERIES OF 23 EACH	248	2	1'-8"	FROM 3'-3" TO 5'-7" IN 1 3/8" INCRMTS.		23	
A535	2	15'-10"	33	2	11"	7'-7"		2	
A536	4	1 SERIES OF 4 EACH	57	2	11"	FROM 5'-5" TO 7'-5" IN 8" INCRMTS.		4	
A401	32	9'-2"	196	1	1'-9"	2'-7 3/4"		16	16
		SUB-TOTAL	6,217						

PIER REINFORCING

MARK	NO.	LENGTH	WEIGHT	TYPE	A	B	C	FWD.	REAR
P901	4	33'-1"	450	S					4
P902	4	31'-6"	429	S				4	
P501	2	33'-1"	69	S					2
P502	42	9'-0"	394	4	2'-11"	2'-2"		21"	21"
P503	4	8'-10"	37	4	2'-11"	2'-0"		2	2
P504	4	3'-11"	17	5	2'-11"			2	2
P505	8	6'-4"	53	6	1'-7"	2'-0 1/4"	11 1/2"	4	4
P506	2	31'-6"	66	S				2	
P401	32	8'-0"	171	1	1'-9"	2'-0 1/4"		16	16
		SUB-TOTAL	1,686						
		EPOXY	COATED	REINFORCING	STEEL				
E-P1001	8	19'-9"	680	S					8
E-P1002	8	19'-3"	663	S					
		SUB-TOTAL	1343						

SUPERSTRUCTURE REINFORCING

MARK	NO.	LENGTH	WEIGHT	TYPE	A	B	C
		EPOXY	COATED	REINFORCING		STEEL	
E-S1001	60	24'-10"	6411	S			
E-S1002	28	14'-9"	1777	S			
E-S1003	28	11'-10"	1426	S			
E-S901	96	33'-0"	10771	S			
E-S902	28	23'-9"	2261	7	22'-6"		
E-S903	28	22'-1"	2102	7	20'-10"		
E-S904	14	21'-6"	1024	S			
E-S905	14	18'-3"	869	S			
E-S601	162	19'-11"	4847	S			
E-S501	30	20'-10"	655	S			
E-S502	60	16' 2"	1012	S			
E-S401	188	19'-7"	2459	S			
E-S402	146	2'-11 1/2"	289	2	1'-1 1/2"	1'-0"	
		SUB-TOTAL	35,903				

REINFORCING STEEL SAMPLES: 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, SPLICE IN ACCORDANCE WITH 509.08.

KARL R. ROHRER ASSOC., INC.
3810 RIDGEWOOD ROAD
AKRON, OHIO

9/9

REINFORCING STEEL SCHEDULES

BRIDGE No. HOL-520-0967
OVER
BLACK CREEK

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
L.B.D.	J.H.M.		JE	GS	3/2/87	

CALC. BY L.B.D. DATE 12-16-87	HOL-520-9.57	OHIO	30/36
CHKD. BY G.S. DATE 12-16-87		FHWA REGION 5	

HOLMES COUNTY

CENTERLINE SURVEY PLAT

STATE ROUTE 520

HOLMES COUNTY, OHIO

KILLBUCK TOWNSHIP SECTION 3 & 8 TWP.-8N RANGE-8W

SCALE 0 25 50 100

R/W PLAN SHEET 1/7

NORTH

I HEREBY CERTIFY THAT THIS PLAT IS A TRUE DELINEATION OF A SURVEY MADE FOR THE DEPARTMENT OF HIGHWAYS, STATE OF OHIO.

DATE _____ JOSEPH H. MOINE, JR. REGISTERED SURVEYOR #6732

CERTIFICATE OF APPROVAL

APPROVED _____ HOLMES COUNTY ENGINEER _____ DATE

RECEIVED FOR RECORD _____

RECORDED _____ IN VOL. _____, PG. _____ OF THE HOLMES COUNTY RECORD OF PLATS.

_____ COUNTY RECORDER

P.C. STA. 142+00

CURVE "A"

EXIST. ℄ R/W P.I. STA. 143+79.14 (CURVE "A")

145+00

P.C.C. STA. 145+57.51

CURVE "B"

EXIST. ℄ R/W P.I. STA. 146+67.41 (CURVE "B")

P.T. STA. 147+77.20

℄ SURVEY & ℄ EXIST. S.R. 520

S 73° 17' 00" E

379.19'

BEGIN PROJECT STA. 145+50

BRZ-3802 (2)

N 53° 32' 54" E

SEC. 3 SEC. 3

SEC. 3

SECTION LINE

S 83° 14' 40" E

SEC. 8

S.W. CORNER OF THE S.E. QTR. SEC. 3, QTR. SECTION CORNER

QTR. SECTION LINE

EXIST. ℄ R/W P.I. STA. 149+64.29 (CURVE "C")

PROP. P.C. STA. 149+63.94

P.C. STA. 150+39.03

P.C. STA. 148+68.42

150+00

46° 20' 04" W

60° 22' 56"

CURVE "C"

CURVE "F"

PROP. P.I. STA. 50+65.50 (CURVE "F")

P.T. STA. 50+90.20

51+00

S 82° 31' 39" W

S 76° 59' 03" W

℄ EXISTING T.R. 54

℄ RELOCATED T.R. 54

53+00

S 82° 31' 39" W

℄ EXISTING T.R. 54 STA. 53+06.01

℄ RELOCATED T.R. 54 STA. 53+06.01

WILLIAM B. & MARY L. WISE

PROP. P.I. STA. 152+35.74 (CURVE "E")

CURVE "E"

℄ EXISTING S.R. 520 STA. 149+73.14

℄ EXISTING T.R. 54 STA. 49+66.84

P.T. STA. 150+56.08

S 44° 25' 12" E

℄ SURVEY & ℄ RELOCATED S.R. 520

STA. 153+15.03 ℄ SURVEY

SEC. 3 SEC. 8

℄ RELOCATED S.R. 520 STA. 150+13.00

℄ RELOCATED T.R. 54 STA. 50+00.00

P.O.T. STA. 149+53.94
P.K. NAIL SET IN EDGE PVMT.

PROP. P.C. STA. 149+63.94

℄ T.R. 54

PROP. ℄ S.R. 520

℄ S.R. 520

39.93'

80.19'

126.98'

CROSS CHISELED IN TOP CONC. PARAPET (NORTH PARAPET WEST END)

TACKED HUB SET

P.K. NAIL N.E. SIDE 7" UP

EXIST. BRIDGE

P.O.T. STA. 149+53.94

58.18'

81.68'

P.K. NAIL SOUTH SIDE 1" UP

P.K. NAIL SOUTH SIDE 18" UP

PROP. P.T. P.K. NAIL SET IN EDGE PVMT.

155+00

℄ SURVEY & ℄ S.R. 520

PROP. P.T. STA. 154+54.61

P.C. STA. 152+82.70

MATCH LINE STA. 158+00

S 11° 57' 00" E

CURVE "D"

PROP. P.T. STA. 154+54.61

EXIST. ℄ R/W P.I. STA. 154+03.86 (CURVE "D")

155+00

℄ SURVEY & ℄ EXIST. S.R. 520

EXISTING PT STA. 155+18.49
PROPOSED P.O.T. STA. 155+48.04

S 11° 57' 00" E

℄ SURVEY & ℄ EXIST. S.R. 520

160+00

P.O.T. P.K. NAIL SET IN PVMT.

℄ SURVEY & S.R. 520

P.K. NAIL SOUTH SIDE 3" UP

54.82'

56.95'

P.K. NAIL SOUTH SIDE 1" UP

P.O.T. STA. 160+32.25

END PROJECT STA. 157+50

BRZ-3802 (2)

MATCH LINE STA. 158+00

LEGEND

(CURVE " ") – EXISTING CURVE NUMBER

(CURVE " ") – PROPOSED CURVE NUMBER

℄ SURVEY – ALSO PROPOSED ℄ RIGHT-OF-WAY

CENTERLINE REFERENCE MONUMENTS TO BE SET DURING CONSTRUCTION AT THE FOLLOWING STATIONS AT A TOLERANCE OF ± 0.02 FEET.

℄ STATION		LT.	RT.
P.C.C.	STA. 145+57.51	13'	14'
P.T.	STA. 147+77.20	16'	18'
P.C.	STA. 149+63.94	16'	20'
P.T.	STA. 154+54.61	20'	20'
P.O.T.	STA. 157+50	30'	30'

MONUMENT SYMBOLS

• = PROPOSED CENTERLINE REFERENCE MONUMENT LOCATION

EXISTING CENTERLINE CURVE DATA

CURVE "A"	CURVE "B"	CURVE "C"	CURVE "D"
P.I. STA. 143+79.14	P.I. STA. 146+67.41	P.I. STA. 149+64.29	P.I. STA. 154+03.86
Δ= 9°-14'-08" LT.	Δ= 4°-23'-38" LT.	Δ = 28°51' 48" RT.	Δ = 32°28'12" RT.
R= 2,217.90'	R= 2,864.79'	R = 372.53'	R = 416.07'
T= 179.14'	T= 109.90'	T = 95.87'	T = 121.16'
L= 357.51'	L= 219.69'	L = 187.66'	L = 235.79'
C= 357.12'	C= 219.64'	C = 185.69'	C = 232.65'
D= 2°-35'-00"	D= 2°-00'-00"	D = 15° 22' 49"	D = 13°46' 14"
E= 7.22'	E= 2.11'	E = 12.14'	E = 17.28'

PROPOSED CENTERLINE CURVE DATA

CURVE "E"	CURVE "F"
P.I. STA. 152+35.74	P.I. STA. 50+65.50
Δ= 61°-20'-00" RT.	Δ = 36°-11'-35" RT.
R= 458.37'	R = 81.00'
T= 271.80'	T = 26.47'
L= 490.67'	L = 51.17'
C= 467.57'	C = 50.32'
D= 12°-30'-00"	D = 70°-44'-08"
E= 74.53'	E = 4.22'

REV.	DATE	DESCRIPTION
	2-25-88	COMPLETION DATE

PROPERTY AND UTILITY MAP

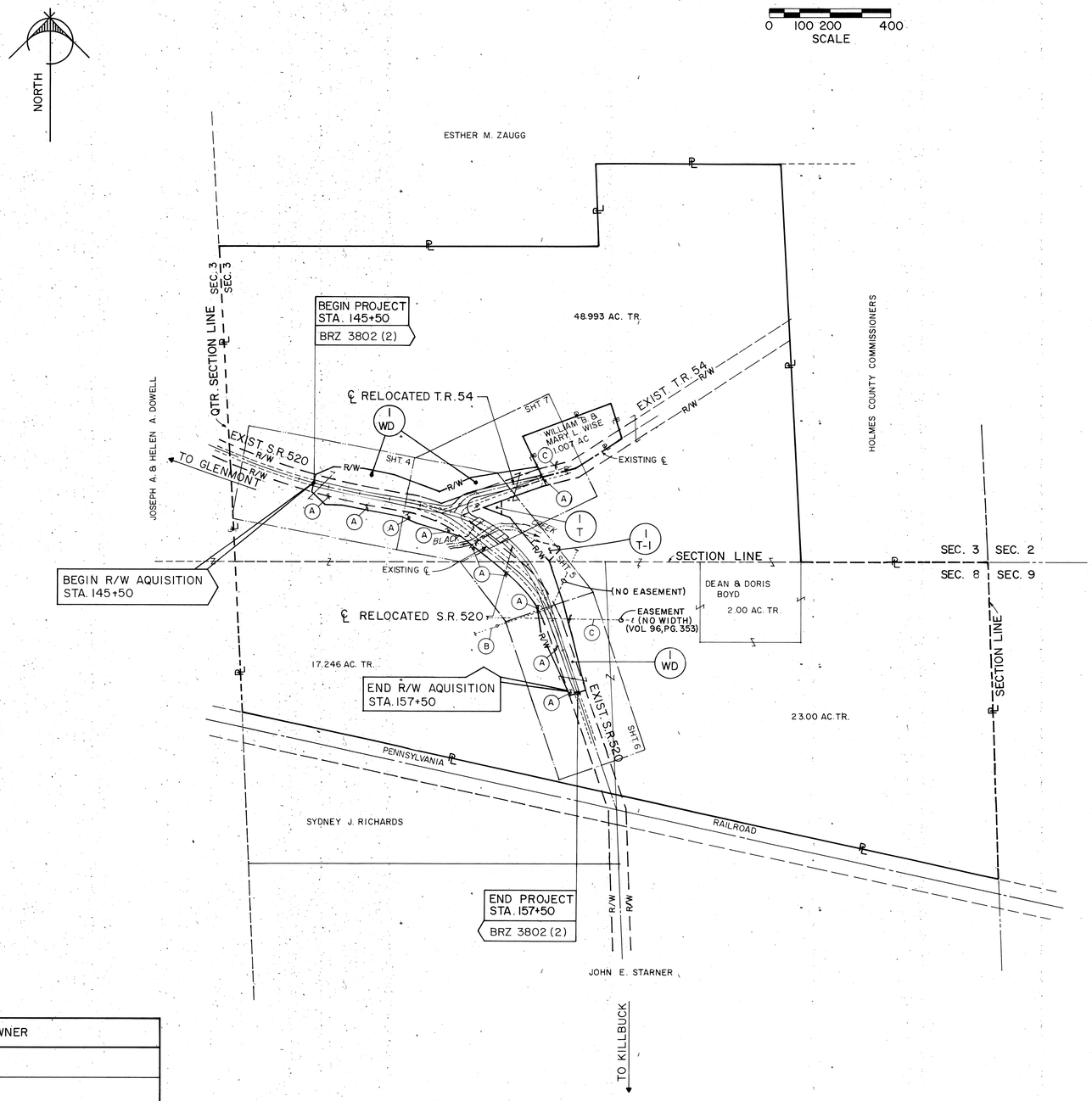
HOLMES COUNTY KILLBUCK TOWNSHIP
SECTION 3 & 8 TWP-8N RANGE-8W

0 100 200 400
SCALE

CALC. BY E.B.D. DATE 10-16-87	HOL-520-9.57	OHIO	31 / 36
CHKD. BY G.S. DATE 10-16-87		FHWA REGION 5	

HOLMES COUNTY

R/W PLAN SHEET 2 / 7



PCL. №	OWNER
1	DEAN & DORIS BOYD

UTILITY OWNERS		
IDENT.	TYPE	NAME & ADDRESS
(A)	TELEPHONE 216/262-0486	UNITED TELEPHONE 224 EAST LIBERTY STREET WOOSTER, OHIO 44691
(B)	OIL/GAS WELL 216/276-5361	HILL PRODUCING CO. P.O. BOX 307 KILLBUCK, OHIO 44637
(C)	ELECTRIC 216/438-7040	OHIO POWER COMPANY 301 CLEVELAND AVE. S.W. BOX 400 CANTON, OHIO 44701

NOTE: UNDERGROUND UTILITIES

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

REV.	DATE	DESCRIPTION
	2-25-88	COMPLETION DATE

PROPERTY AND UTILITY MAP

TOTAL NUMBER
1 OWNERSHIPS
0 TOTAL TAKES
0 OWNERSHIPS W/STRUCTURES
0 OWNERSHIP W/"P" ITEMS

NOTE: RECORD AREA AFTER OUTSALES MINUS TOTAL P.R.O. MINUS NET TAKE EQUALS NET RESIDUE.

CALC BY DJ DATE 8-4-87
CHKD BY JS DATE 10-16-87

HOL-520-9.57
STATE PROJECT NO. 11775 (0)

OHIO
FHWA REGION 5

32
36

HOLMES COUNTY

R/W PLAN SHEET 3/7

SUMMARY OF ADDITIONAL RIGHT OF WAY

Note: All areas in acres unless otherwise noted.

PARCEL	OWNER	SHEET NUMBER	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 PERSONALITY	AS REQUIRED BOOK	AS REQUIRED PAGE
1-WD	DEAN BOYD AND DORIS BOYD	4,5,6,7	187	124	48.993 AC.	2.901	2.743	1.802	0.941	———	41.661	3.49	STATE	TRACTS NO. 1 & NO. 2 Sec. 3		
					17.246 AC.	1.172	0.938	0.690	0.248	———	2.280	13.546	STATE	TRACT NO. 4 Sec. 8		
					23.000 AC.	0.014	———	———	———	———	22.986	———	STATE	TRACT NO. 3 Sec. 8		
					2.000 AC.	———	———	———	———	———	2.000	———	STATE	TRACT NO. 5 Sec. 8		
	TOTAL FOR PARCEL 1-WD				91.239 AC.	4.087	3.681	2.492	1.189	———	68.927	17.036	STATE			
1-T		5,7					0.026	0	0.026	———	———	———	STATE	TRACTS NO. 1 & NO. 2, TO CONSTRUCT FIELD DRIVE		
1-T-1		5					0.114	0	0.114	———	———	———	STATE	TRACTS NO. 1 & NO. 2 TO CONSTRUCT FIELD DRIVE		

REV.	DATE	DESCRIPTION
	2-25-88	COMPLETION DATE

HOLMES COUNTY KILLBUCK TOWNSHIP
SECTION 3 TWP-8N RANGE - 8W

CALC BY L.B.D. DATE 10-16-87	HOL-520-9.57	OHIO	33/36
CHKD BY G.S. DATE 10-16-87		FHWA REGION 5	

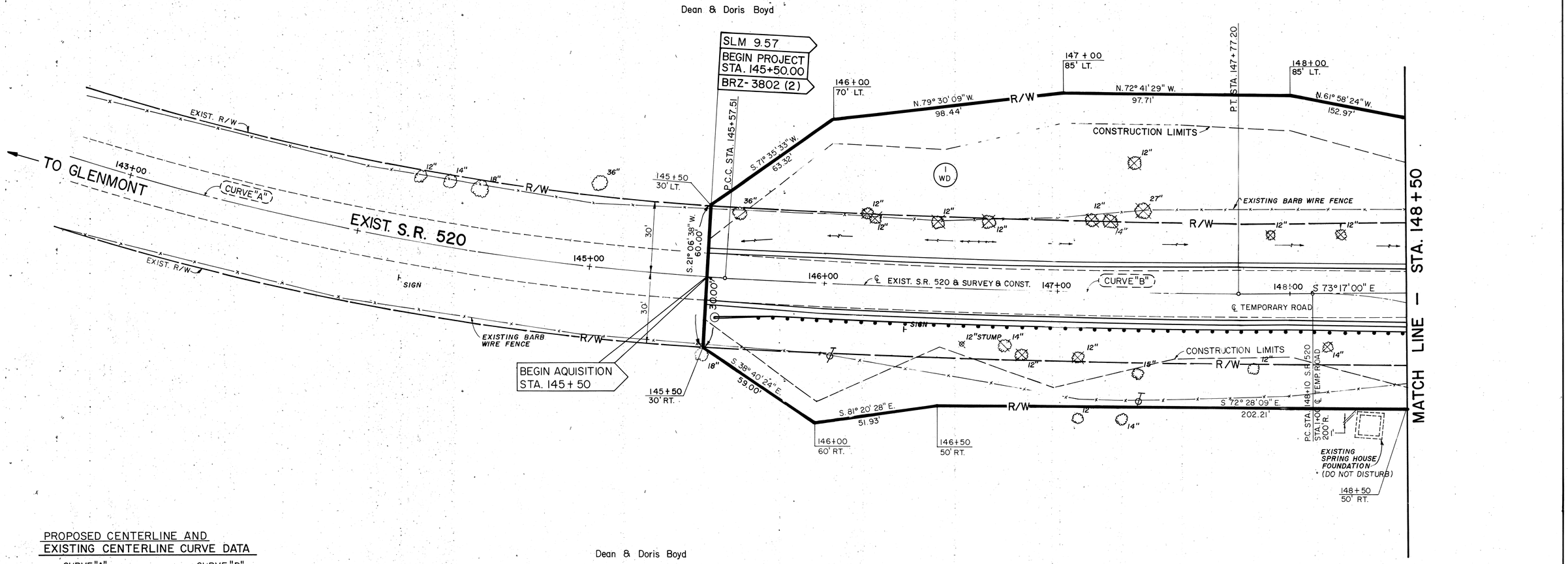
HOLMES COUNTY

R/W PLAN SHEET 4/7

NORTH

0 10 30 50

SCALE IN FEET



PROPOSED CENTERLINE AND EXISTING CENTERLINE CURVE DATA

CURVE "A"	CURVE "B"
P.I. STA. 143+79.14	P.I. STA. 146+67.41
Δ = 09° 14' 08" LT.	Δ = 04° 23' 38" LT.
R = 2,217.90'	R = 2,864.79'
T = 179.14'	T = 109.90'
L = 357.51'	L = 219.69'
CH = 357.12'	CH = 219.64'
D = 02° 35' 00"	D = 02° 00' 00"
E = 7.22'	E = 2.11'
P.C. STA. 142+00	P.C.C. STA. 145+57.51
P.C.C. STA. 145+57.51	P.T. STA. 147+77.20

Dean & Doris Boyd

REV.	DATE	DESCRIPTION
	2-25-88	COMPLETION DATE

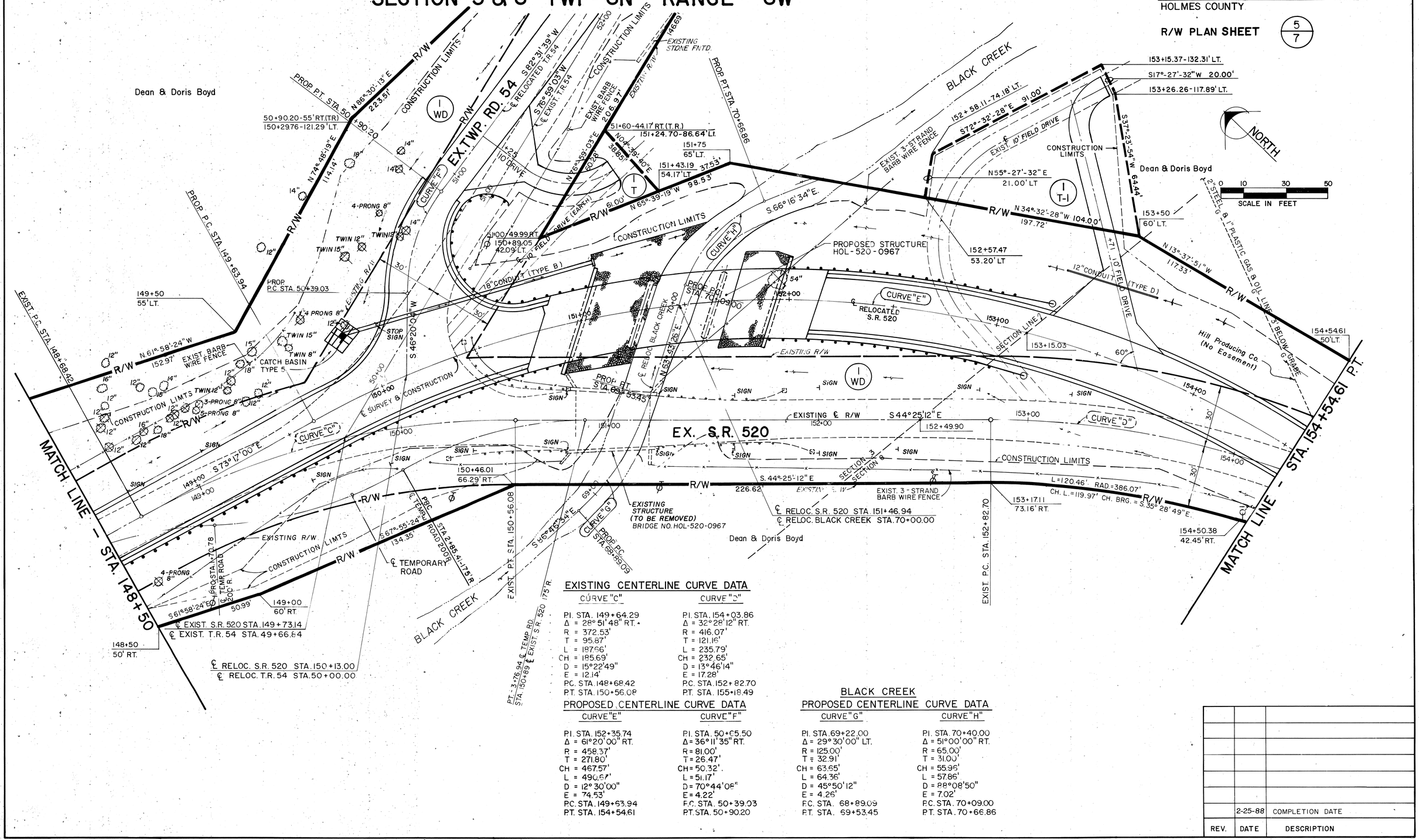
HOLMES COUNTY KILLBUCK TOWNSHIP
SECTION 3 & 8 TWP-8N RANGE - 8W

CALC BY L.B.P DATE 10-16-87	HOL-520-9.57	OHIO
CHKD BY G.S. DATE 12-14-87		FHWA REGION 5

34/36

HOLMES COUNTY

R/W PLAN SHEET 5/7



EXISTING CENTERLINE CURVE DATA

CURVE "C"	CURVE "D"
P.I. STA. 149+64.29	P.I. STA. 154+03.86
Δ = 28° 51' 48" RT.	Δ = 32° 28' 12" RT.
R = 372.53'	R = 416.07'
T = 95.87'	T = 121.16'
L = 187.66'	L = 235.79'
CH = 185.69'	CH = 232.65'
D = 15° 22' 49"	D = 13° 46' 14"
E = 12.14'	E = 17.28'
P.C. STA. 148+68.42	P.C. STA. 152+ 82.70
P.T. STA. 150+56.08	P.T. STA. 155+18.49

PROPOSED CENTERLINE CURVE DATA

CURVE "E"	CURVE "F"
P.I. STA. 152+35.74	P.I. STA. 50+C5.50
Δ = 61° 20' 00" RT.	Δ = 36° 11' 35" RT.
R = 458.37'	R = 81.00'
T = 271.80'	T = 26.47'
CH = 467.57'	CH = 50.32'.
L = 490.67'	L = 51.17'
D = 12° 30' 00"	D = 70° 44' 08"
E = 74.53'	E = 4.22'
P.C. STA. 149+63.94	P.C. STA. 50+39.03
P.T. STA. 154+54.61	P.T. STA. 50+90.20

BLACK CREEK PROPOSED CENTERLINE CURVE DATA

CURVE "G"	CURVE "H"
P.I. STA. 69+22.00	P.I. STA. 70+40.00
Δ = 29° 30' 00" LT.	Δ = 51° 00' 00" RT.
R = 125.00'	R = 65.00'
T = 32.91'	T = 31.00'
CH = 63.65'	CH = 55.95'
L = 64.36'	L = 57.86'
D = 45° 50' 12"	D = 88° 08' 50"
E = 4.26'	E = 7.02'
P.C. STA. 68+89.09	P.C. STA. 70+09.00
P.T. STA. 69+53.45	P.T. STA. 70+66.86

REV.	DATE	DESCRIPTION
	2-25-88	COMPLETION DATE

RIGHT OF WAY PLAN STA. 148+50 TO STA. 154+54.61 S.R. 520

HOLMES COUNTY KILLBUCK TOWNSHIP
SECTION 8 TWP-8N RANGE -8W

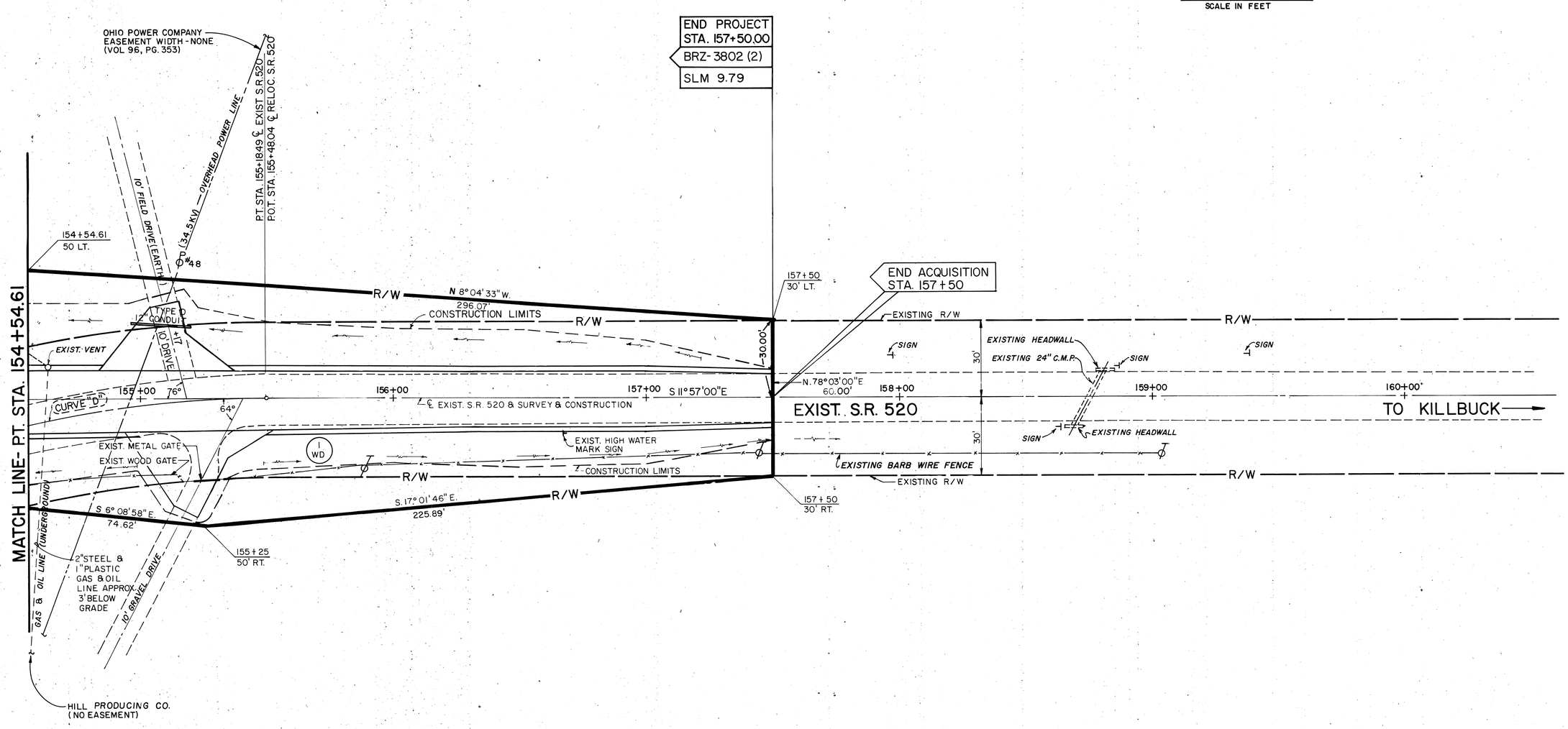
CALC BY LBD DATE 10-16-87	HOL-520-9.57	OHIO	35/36
CHKD BY GS DATE 10-16-87		FHWA REGION 5	

HOLMES COUNTY

R/W PLAN SHEET 6/7

NORTH

0 10 30 50
SCALE IN FEET



EXISTING CENTERLINE CURVE DATA

CURVE "D"

P.I. STA. 154+03.86
Δ = 32° 28' 12" RT.
R = 416.07'
T = 121.16'
L = 235.79'
CH = 232.65'
D = 13° 46' 14"
E = 17.28'
P.C. STA. 152+82.70
P.T. STA. 155+18.49
= P.O.T. RELOC. S.R. 520
STA. 155+48.04

REV.	DATE	DESCRIPTION
	2-25-88	COMPLETION DATE

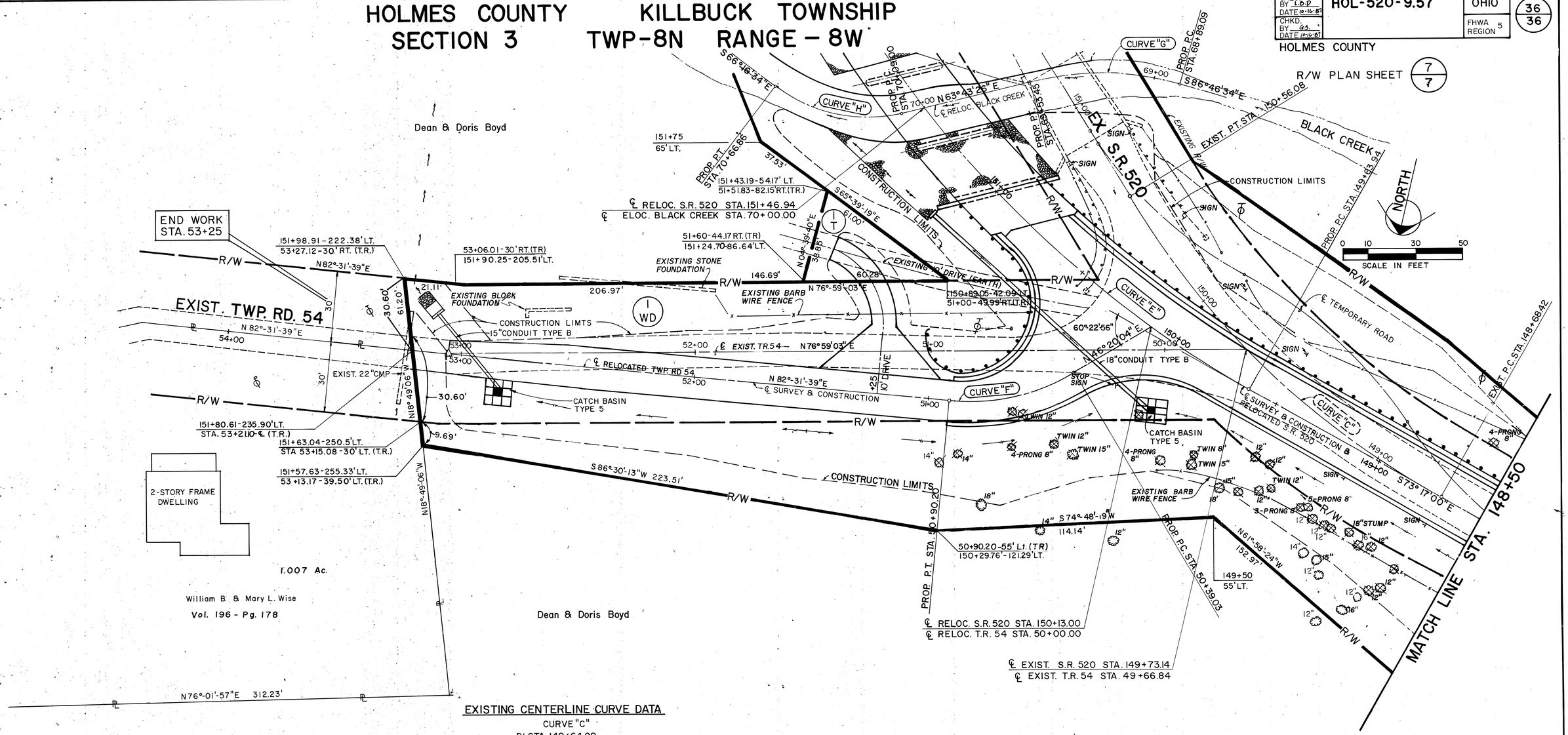
S.R. 520 RIGHT OF WAY PLAN STA. 154+54.61 TO STA. 157+50

HOLMES COUNTY KILLBUCK TOWNSHIP
SECTION 3 TWP-8N RANGE - 8W

CALC. BY L.D.D DATE 8-16-87	HOL-520-9.57	OHIO	36/36
CHKD. BY GS DATE 10-16-87		FHWA REGION 5	

HOLMES COUNTY

R/W PLAN SHEET 7/7



EXISTING CENTERLINE CURVE DATA

CURVE "C"

P.I. STA. 149+64.29
R = 372.53'
Δ = 28°51'48" RT.
T = 95.87'
L = 187.66'
CH = 185.69'
D = 15°22'49"
E = 12.14'
P.C. STA. 148+68.42
P.T. STA. 150+56.08

PROPOSED CENTERLINE CURVE DATA

CURVE "E"	CURVE "F"
P.I. STA. 152+35.74	P.I. STA. 50+65.50
R = 458.37'	R = 81.00'
Δ = 61°20'00" RT.	Δ = 36°11'35" RT.
T = 271.80'	T = 26.47'
CH = 467.57'	CH = 50.32'
L = 490.67'	L = 51.17'
D = 12°30'00"	D = 70°44'08"
E = 74.53'	E = 4.22'
P.C. STA. 149+63.94	P.C. STA. 50+39.03
P.T. STA. 154+54.61	P.T. STA. 50+90.20

REV.	DATE	DESCRIPTION
	2-25-88	COMPLETION DATE

(TWP. RD. 54) RIGHT OF WAY PLAN STA. 50.00 TO STA. 53+06.01

TE-118
6/80-6-73

MICROFILMED
FEB 1 1991

GEOLOGY OF THE SITE

THE STRUCTURE SITE IS LOCATED IN THE HIGHLY DISSECTED UNGLACIATED PORTION OF THE ALLEGHENY PLATEAU REGION, ON THE BROAD FLOODPLAIN OF AND OVER BLACK CREEK, IN AN AREA WHERE EXTREMELY DEEP VALLEY AND ALLUVIAL DEPOSITS OVERLIE BEDROCK OF MISSISSIPPIAN AGE.

EXPLORATION

THE EXPLORATION CONSISTED OF TWO DRIVE SAMPLE BORINGS MADE BY MEANS OF A MECHANICALLY-POWERED HOLLOW STEM ROTARY AUGER MOUNTED ON A MOBILE PLATFORM, PERFORMED ON SEPTEMBER 18 AND 19, 1985. ALSO INCLUDED IN THIS REPORT ARE THE RESULTS OF A TEST BORING MADE IN CONJUNCTION WITH THE ROADWAY INVESTIGATION IN THE VICINITY OF THE STRUCTURE SITE.

INVESTIGATIONAL FINDINGS AND OBSERVATIONS

THE TEST BORINGS ENCOUNTERED INTERVALS OF EXTREMELY LOOSE TO EXTREMELY DENSE UNSTRATIFIED BASIC SILTS, CLAYS, SAND AND GRAVEL MODIFIED WITH COAL BLOSSOM AND VARYING AMOUNTS OF EACH OTHER THAT GRADUALLY INCREASE (ERRATIC AT TIMES) IN DENSITY WITH INCREASE IN DEPTH. MATERIAL CONTAINING A TRACE OF ORGANIC WAS ENCOUNTERED IN TEST BORING B-2 AT 60.0-FOOT DEPTH, ELEVATION 764.7 FEET. TEST BORING NO. B-2 (MADE IN THE GENERAL VICINITY OF THE REAR ABUTMENT) PENETRATED TO A DEPTH OF 71.5 FEET, ELEVATION 753.2 FEET AND WAS TERMINATED AFTER PENETRATING IN EXCESS OF 11.5 FEET OF MATERIAL REQUIRING 28 OR MORE BLOWS PER FOOT IN THE STANDARD PENETRATION TEST IMMEDIATELY PRIOR TO TERMINATION. TEST BORING B-3 (MADE IN THE GENERAL VICINITY OF THE FORWARD ABUTMENT) PENETRATED TO A DEPTH OF 36.5 FEET, ELEVATION 782.5 FEET AND WAS TERMINATED AFTER PENETRATING IN EXCESS OF 6.5 FEET OF MATERIAL REQUIRING IN EXCESS OF 30 BLOWS PER FOOT IN THE STANDARD PENETRATION TEST IMMEDIATELY PRIOR TO TERMINATION.

BEDROCK SURFACE WAS NOT ENCOUNTERED IN EITHER OF THE TEST BORINGS PERFORMED.

NO FREE WATER OBSERVATIONS WERE MADE IN ANY OF THE TEST BORINGS PERFORMED, DURING OR AT THE CONCLUSION OF DRILLING OPERATIONS.

LEGEND

- Auger Boring Location - Plan View.
- Press and / or Drive Sample and / or Core Boring Location - Plan View.
- Drive Rod Penetration Resistance Sounding Location - Plan View.
- Capped Pile
- Footing
- Footing on Pile
- TR — Top of Rock

- Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
- X/Y/Z — Figures Beside the Boring Log in Profile Indicate the Number of Blows for Standard Penetration Test.
  - X = Number of Blows for First 6 inches.
  - Y = Number of Blows for Second 6 inches.
  - Z = Number of Blows for Third 6 inches.
- Drive Rod Penetration Resistance Sounding Log - Profile
- Casing
- Resistance "R" < 10,000 lbs.
- Resistance "R" > 10,000 lbs.
- Z — Indicates Final Measurement of Penetration, in Inches.
- W — Indicates Free Water Elevation.
- Indicates Static Water Elevation.

SYMBOLS OF ROCK TYPES

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

GENERAL INFORMATION

Drive Rod Penetration Sounding Tests

Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine the amount of penetration achieved in three hammer drops. This reading is converted to an empirical value for capacity "R", in thousands of pounds (which is a measure of both the point resistance and frictional resistance on the rod), by using charts prepared by the Ohio Department of Highways, Bureau of Bridges, on the basis of correlation study of rod penetration with past performance of pile driving. For interpretation, a graph is prepared by plotting the value "R" against the depth at which the reading was taken, and connecting the plotted points. The curve so obtained reflects the density of subsurface materials in a manner that can be readily compared with data from similar tests at other locations on the structure site. From this comparison, the overall uniformity of subsurface condition may be evaluated.

Drive Sample Borings - Drive-Press Sample Borings

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

Drive-press sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. drive sampler, and 3" O.D. thin-wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drill rig.

The boring log sheets show a graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the standard penetration tests in three 6-inch increments, depth of press samples, field sample number, sample description - based on laboratory tests and the Casagrande AC classification system-and gradation, plasticity, and moisture content determinations. Results of strength and consolidation testing, if performed, appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

Particle Size Definitions

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

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

NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

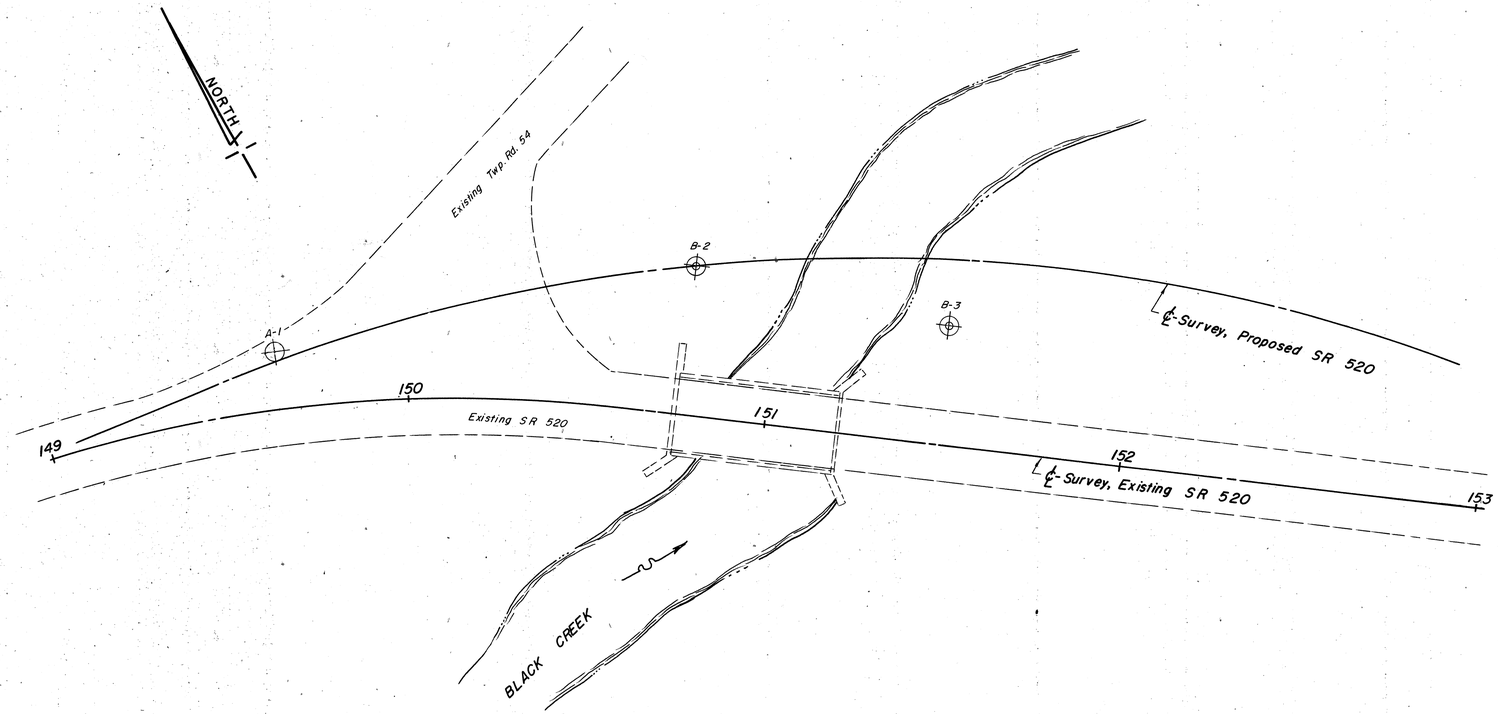
OHIO DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS — TESTING LABORATORY
1600 WEST BROAD STREET, COLUMBUS, OHIO 43223

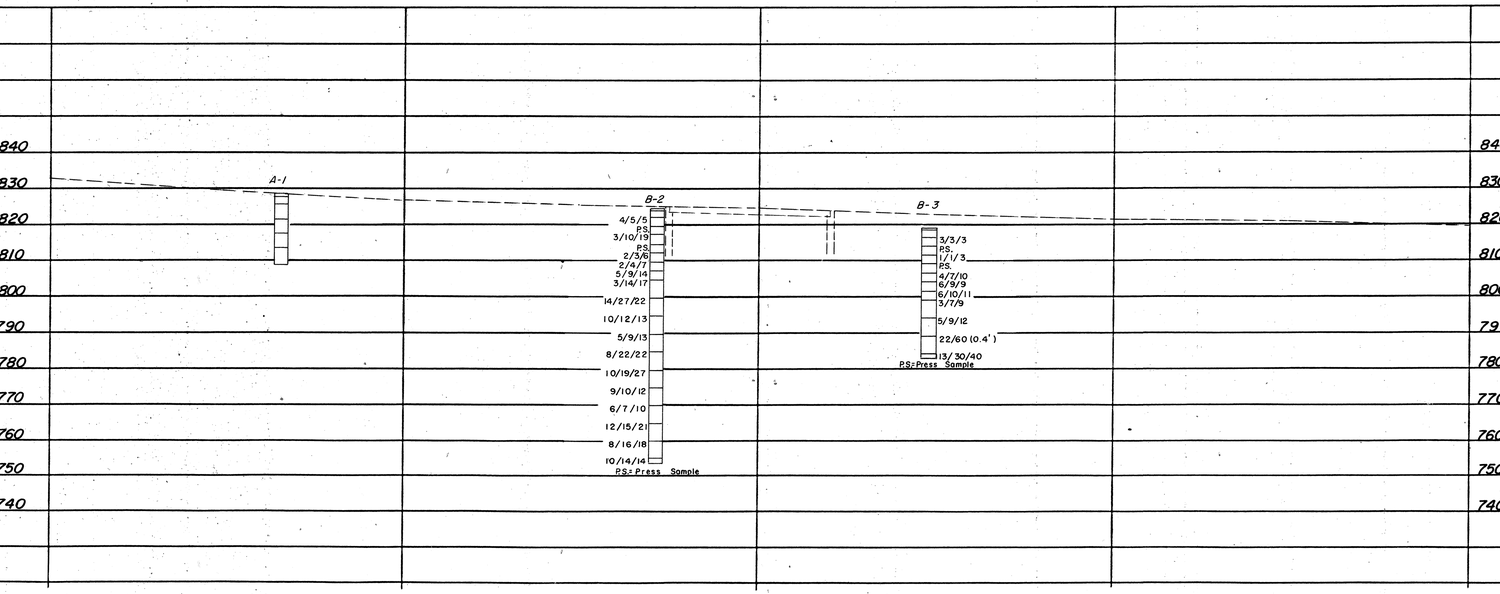
STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. HOL-520-0967
OVER BLACK CREEK
SEC. HOL-520-9.67

CHECKED BY	REVIEWED BY	DATE
L. N. L.	R. D. R.	12/30/85

1-182
-12-72

MICROFILMED
FEB 1 1991





SCALE: 1" = 20'

OHIO DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS - TESTING LABORATORY
1600 WEST BROAD STREET COLUMBUS, OHIO 43223

STRUCTURE FOUNDATION INVESTIGATION

BRIDGE NO. HOL-520-0967
OVER BLACK CREEK
SEC. HOL-520- 9.67

PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
A. F.	L. N. L.	R. D. R.	12/30/85

TE-122
400-12-72

MICROFILMED
FEB 1 1991

HOL-520-9.57 (3/3)

LOG OF BORING

Date Started 9/19/85 — Sampler Type EARTH AUGER — Dia. — — Water Elev. —
Date Completed 9/19/85 — Casing: Length — Dia. —
Boring No. A-1 — Station & Offset 149+65-16'LT. — Surface Elev. 828.6'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
828.6	0				BERM MATERIALS										
825.6	2	AUGERED			BROWN SILTY GRAVEL	1	59	5	5	19	12	NP	NP	8	A-2-4
	4														
821.6	6	AUGERED			BROWN SILTY GRAVEL	2	58	5	6	20	11	NP	NP	11	A-2-4
	8														
817.6	10	AUGERED			BROWN SILTY GRAVEL	3	60	5	4	17	14	30	10	12	A-2-4
	12														
813.6	14	AUGERED			BROWN CLAYEY GRAVEL	4	63	4	4	16	13	29	11	12	A-2-6
	16														
810.6	18	AUGERED			BROWN GRAVELLY SILT	5	48	4	8	22	18	29	9	14	A-4A
808.6	20	AUGERED			BROWN SILTY GRAVEL	6	55	2	10	18	15	28	9	15	A-2-4

BOTTOM OF BORING

State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

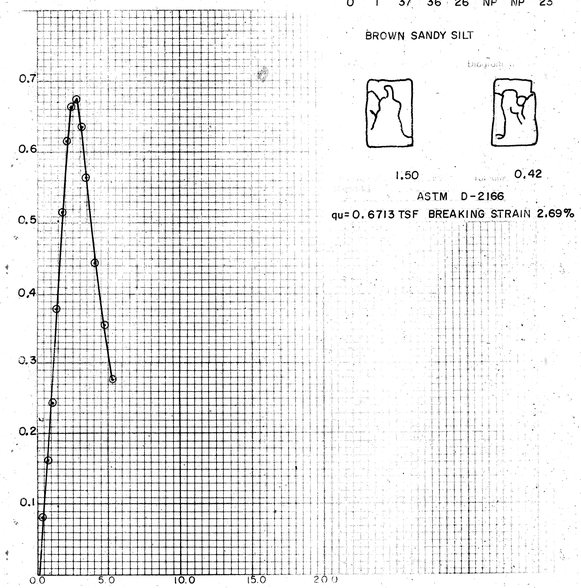
UNCONFINED COMPRESSION

HOL-520-0967

Boring No. — Station & Offset 150+76, 42'LT.
Field No. 2 — Lab No. 42180
Depth 5.3'—5.6'

Specimen Data
Diameter 1.40 in. — Wet Density 119.29 LB./CU.FT.
Length 2.97 in. — Dry Density 96.86 LB./CU.FT.
Specific Gravity —

Uncorrected Strength 0.6713 TSF



46

0 1 37 36 26 NP NP 23

BROWN SILTY SAND

Endpoints

1.50 — 0.42

ASTM D-2166

qu = 0.6713 TSF BREAKING STRAIN 2.69%

LOG OF BORING

Date Started 9/18/85 — Sampler Type SS — Dia. 1 3/8 — Water Elev. —
Date Completed 9/18/85 — Casing: Length — Dia. —
Boring No. B-2 — Station & Offset 150+76-42'LT(REAR ABUTMENT) — Surface Elev. 824.7'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
824.7	0	AUGERED			TOPSOIL										VISUAL
822.2	2														
	4	4/5/5			BROWN SANDY SILT	1	0	1	25	58	16	NP	NP	22	A-4B
819.7	6	PRESS			BROWN SANDY SILT	2	0	1	37	36	26	NP	NP	23	A-4A
817.2	8														
814.7	10	3/10/19			BROWN SILTY SANDY GRAVEL	3	40	6	14	30	10	NP	NP	14	A-4a
	12	PRESS			BROWN SILTY SANDY GRAVEL (GRADING ONLY)	4	56	7	9	16	12	NP	NP	19	VISUAL
812.2	14	2/3/6			GRAY SILT	5	12	2	6	66	14	NP	NP	21	A-4B
809.7	16	2/4/7			GRAY GRAVELLY SILT	6	13	2	6	62	17	NP	NP	25	A-4B
807.2	18	5/9/14			GRAY SILTY SANDY GRAVEL	7	44	7	10	30	9	NP	NP	13	A-4A
804.7	20	3/14/17			GRAY SILTY SANDY GRAVEL	8	43	8	13	28	8	NP	NP	14	A-4A
	22														
799.7	24														
	26	14/27/22			GRAY GRAVELLY SILT WITH COAL BLOSSOM	9	23	5	9	48	15	NP	NP	14	A-4A
794.7	28														
	30														
	32	10/12/13			BROWN SANDY GRAVELLY SILT	10	36	6	10	28	20	27	9	24	A-4A
789.7	34														
	36	5/9/13			GRAY GRAVELLY SILT	11	33	2	7	38	20	NP	NP	17	A-4A
784.7	38														
	40														
	42	8/22/22			GRAY SANDY GRAVELLY SILT	12	37	10	12	28	13	NP	NP	14	A-4A
779.7	44														
	46	10/19/27			GRAY CLAY	13	0	0	0	16	84	50	23	28	A-7-6
774.7	48														
	50	9/10/12			GRAY CLAY	14	0	0	1	19	80	51	27	28	A-7-6
769.7	52														
	54														
	56	6/7/10			GRAY CLAY	15	0	0	0	24	76	47	22	31	A-7-6
764.7	58														
	60														
	62	12/15/21			GRAY GRAVELLY SILT TRACE OF ORGANIC	16	21	4	6	51	18	NP	NP	20	A-4B
759.7	64														
	66	8/16/18			GRAY SILTY SANDY GRAVEL	17	44	6	12	26	12	NP	NP	18	A-4A
	68														
754.7	70														
753.2	72	10/14/14			GRAY SILTY SANDY GRAVEL	18	42	6	9	29	14	NP	NP	16	A-4A

BOTTOM OF BORING

LOG OF BORING

Date Started 9/19/85 — Sampler Type SS — Dia. 1 3/8" — Water Elev. —
Date Completed 9/19/85 — Casing: Length — Dia. —
Boring No. B-3 — Station & Offset 151+48-33'LT(FORWARD ABUTMENT) — Surface Elev. 819.0'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
819.0	0	AUGERED			SOD AND TOPSOIL										VISUAL
816.5	2														
	4	3/3/3			BROWN SANDY SILT	19	0	1	41	41	17	NP	NP	20	A-4A
814.0	6	PRESS			BROWN SANDY SILT (GRADING ONLY)	20	0	8	49	27	16	NP	NP	24	A-4A
811.5	8	1/1/3			GRAY SILTY GRAVELLY SAND	21	17	15	46	14	8	NP	NP	22	A-3A
809.0	10	PRESS			GRAY SILTY GRAVELLY SAND (GRADING ONLY)	22	26	20	35	12	7	NP	NP	25	A-3A
806.5	12	4/7/10			GRAY SILTY SANDY GRAVEL	23	44	15	22	13	6	NP	NP	16	A-1-B
804.0	14	6/9/9			GRAY SILTY SANDY GRAVEL	24	42	26	17	11	4	NP	NP	18	A-1-B
801.5	16	6/10/11			GRAY SILTY GRAVELLY SAND	25	40	24	20	11	5	NP	NP	16	A-1-B
799.0	18														
	20	3/7/9			BROWN SILTY SANDY GRAVEL	26	42	21	21	12	4	NP	NP	16	A-1-B
794.0	22														
	24														
	26	5/9/12			GRAY AND BROWN GRAVELLY SANDY SILT	27	19	9	17	46	9	NP	NP	22	A-4A
787.0	28														
	30														
	32	22/60 (0.4')			BROWN SILTY SANDY GRAVEL (HEAVED 1.0' IN FLIGHTS)	28	39	10	18	26	7	NP	NP	13	A-2-4
784.0	34														
782.5	36	13/30/40			GRAY CLAY	29	0	0	1	18	81	49	24	24	A-7-6

BOTTOM OF BORING

OHIO DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS · TESTING LABORATORY
1600 WEST BROAD STREET COLUMBUS, OHIO 43223

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. HOL-520-0967
OVER BLACK CREEK
SEC. HOL-520-9.67

BORING DATA

TYPED BY	CHECKED BY	REVIEWED BY	DATE
M. L. S.	L. N. L.	R. D. R.	12/30/85

520 052 JOH