

# STATE OF OHIO DEPARTMENT OF TRANSPORTATION

ATB-193-20.17

BRS-571(4)

## ATB-193-20.17

SHEFFIELD TOWNSHIP  
ASHTABULA COUNTY

### BRS-571(4)

### BRIDGE REPLACEMENT PROJECT

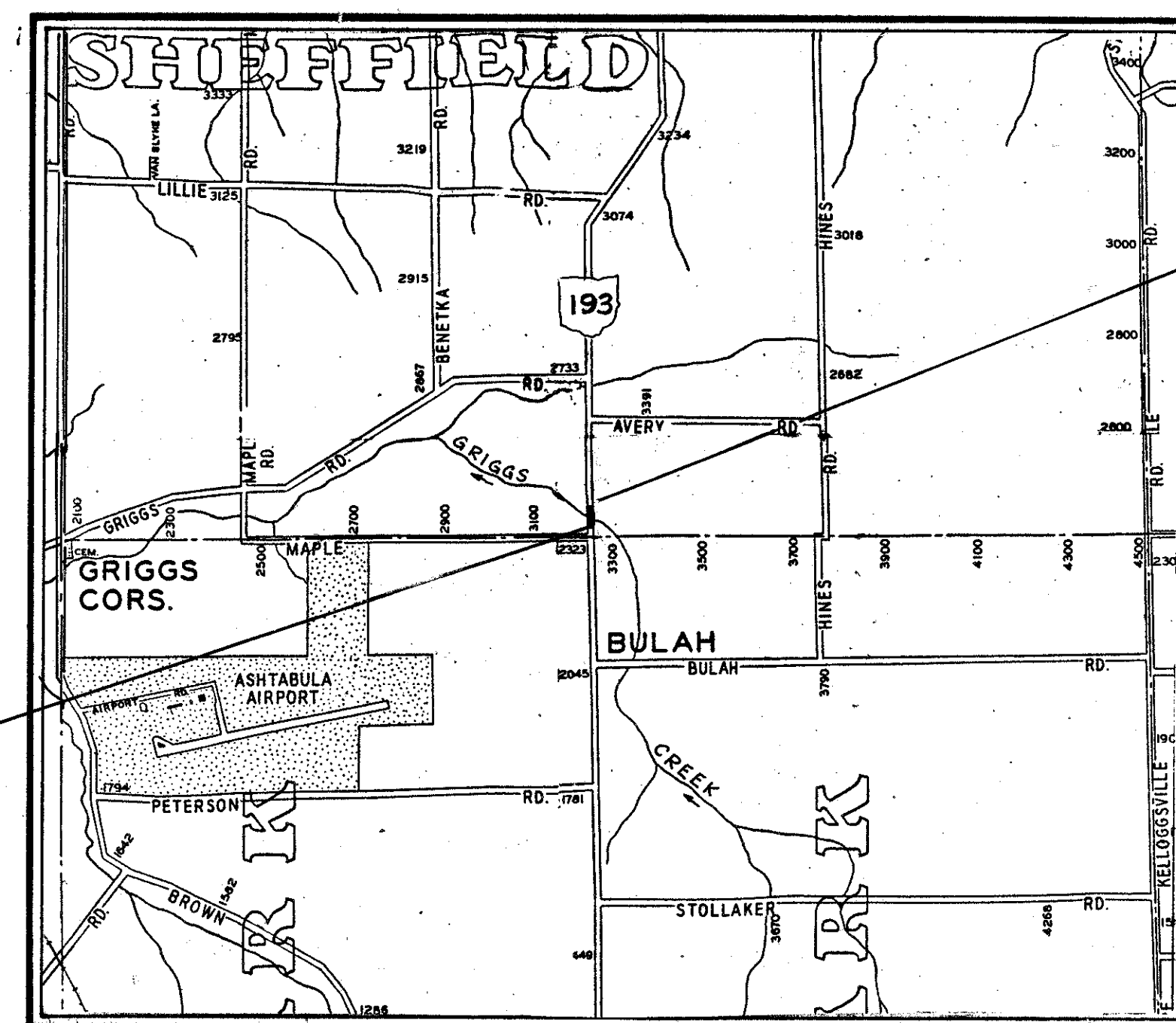
DESIGN	DESIGNATION
CURRENT ADT (1989)	= 1250
DESIGN YEAR ADT (2009)	= 1750
D.H.V.	= 175
D	= 55 %
T	= 6 %
V	= 55 mph
LEGAL SPEED	= 55 mph
FUNCTION	= MAJOR COLLECTOR
DESIGN EXCEPTION	= NONE

#### CONVENTIONAL SIGNS

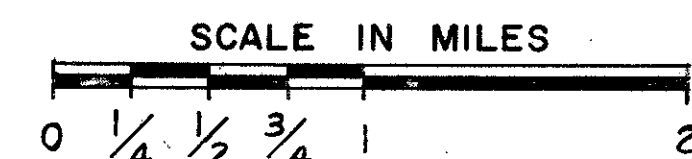
County Line -----	Limited Access (only) ----- LA -----
Township Line -----	Right of Way (only) ----- RW -----
Section Line -----	Limited Access & Right of Way ----- LA & RW -----
Corporation Line ----- or -----	Existing Right of Way -----
Fence Line (existing) -x-x- (proposed) -x-x-	Property Line ----- (in existing fence) -x-x-
Center Line ----- 352 ----- 353 -----	Railroad ----- or -----
Trees (to be removed) -----	Guardrail (existing) ----- (proposed) -----
Utility Poles: Telephone φ, Power φ, Light φ	

#### INDEX OF SHEETS

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LOCATION MAP



#### LINE DATA

#### PROJECT LIMITS

Begin Project = Sta 1063 + 50.00  
End Project = Sta 1066 + 75.00  
Length of Project = 325.00 L.F. = 0.062 Miles

#### WORK LIMITS

Begin Work = Sta. 1063 + 00.00  
End Work = Sta. 1068 + 84.50  
Length of Work = 584.50 L.F. = 0.111 Miles

UNDERGROUND UTILITIES

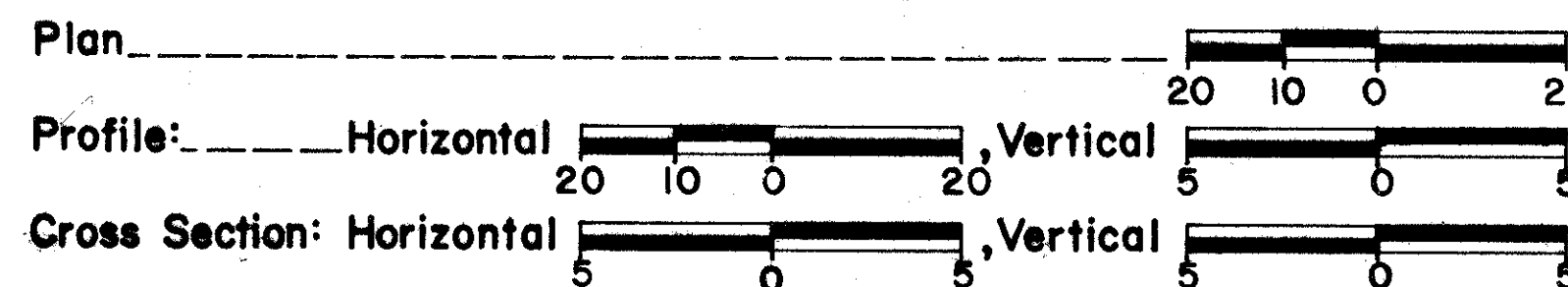
TWO WORKING DAYS  
**BEFORE YOU DIG**

Call 800-362-2764 (Toll free)  
OHIO UTILITIES PROTECTION SERVICE

NON-MEMBERS  
MUST BE CALLED DIRECTLY

Portion to be improved -----  
State & Federal Routes -----  
Other Roads -----

#### SCALES



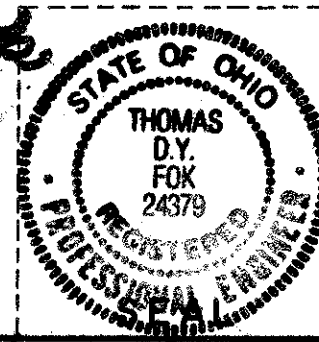
SUPPLEMENTAL SPECIFICATIONS	
836	11/12/85
849	12/24/85
949	9/26/86
802	4/13/90
847	10/17/83
947	10/17/83
841	5-16-84
843	7-29-88

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS			
BP-5	10/1/87	MC-4	7/26/76
BP-6	10/1/87	MC-11	8/1/78
		MC-10	5/1/76
GR-1	1/11/85		
GR-2B	2/5/82		
GR-3	1/21/85	AS-1-81	11/27/81
GR-4	2/5/82	DBR-2-73	4/10/73
LA-1	6/1/79	PSBD-1-81	6/20/89
		EXJ-3-82	8/1/84
HW-4B	4/1/80		
		MT-99.10	11/14/86

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

Plan Prepared By *Ch. S. Fok*

THOMAS FOK & ASSOC. LTD.  
3896 MAHONING AVENUE  
YOUNGSTOWN, OHIO



#### 1989 SPECIFICATIONS

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

I hereby approve these plans and declare that the making of this improvement will require the closing to traffic of the highway and that detours will be provided as indicated on the plans.

Approved *William Bunkley*  
Date 9-8-89 District Deputy Director of Transportation

Approved *B. D. Hankinami / wtc*  
Date 10/16/89 Engineer, Bureau of Bridges and Structural Design

Approved *Chadwick J. Still*  
Date 5/7/90 Chief Engineer, Planning & Design

Approved *Samuel B. Hurst*  
Date 5/14/90 Director, Department of Transportation

DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

APPROVED: \_\_\_\_\_  
DIVISION ADMINISTRATOR DATE

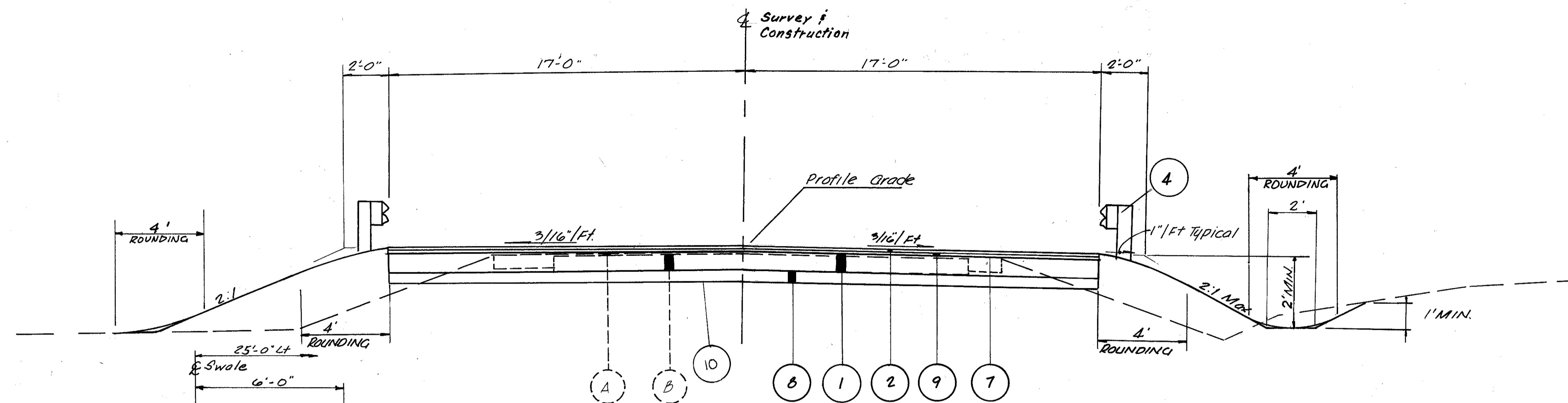
FHWA REGION	STATE	PROJECT
5	OHIO	BRS-571(4)

2  
22

ASHTABULA COUNTY  
ATB 193-20.17

# TYPICAL SECTIONS

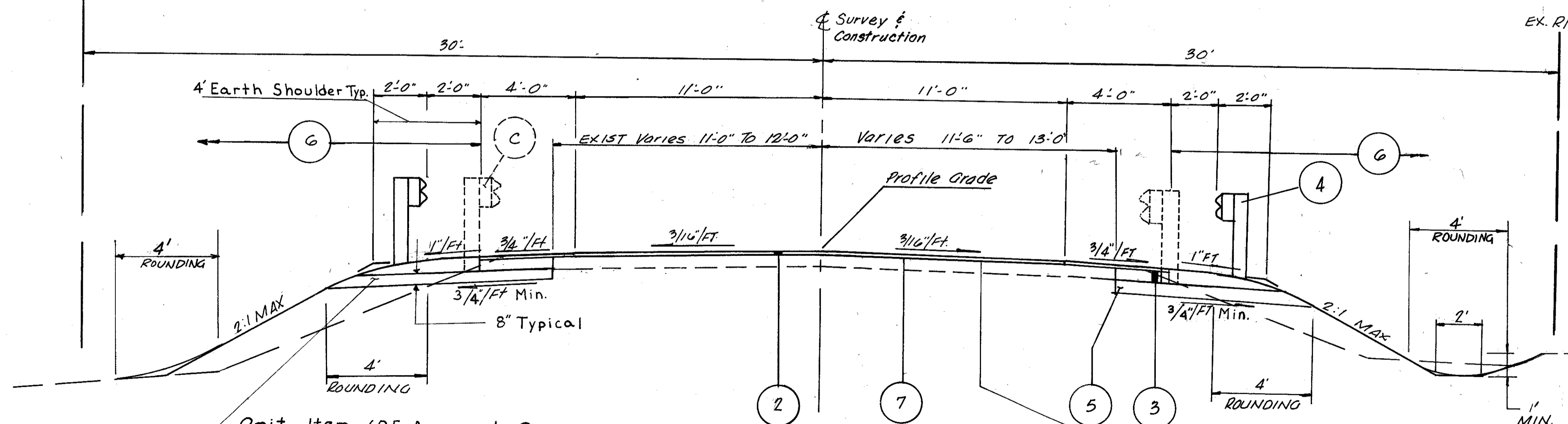
## TYPE 404



### NORMAL SECTION - APPROACH SLAB

Sta. 1064+48.05 to Sta. 1064+68.05 = 20.0 L.F.  
Sta. 1065+31.95 to Sta. 1065+51.95 = 20.0 L.F.  
Total = 40.00 L.F.

Ex. R/W Typical Yard Swale  
Sta. 1063+40 to Sta. 1064+30 Lt.



### NORMAL SECTION

Sta. 1063+50 to Sta. 1064+48.05 = 98.05 L.F.  
Sta. 1065+51.95 to Sta. 1066+75 = 123.05 L.F.  
Total = 221.10 L.F.

Shoulder & Roadside Work Only  
Sta. 1066+75 to Sta. 1068+84.50 LT. = 209.50 L.F.

### LEGEND

- (A) 2" ASPHALT SURFACE COURSE
- (B) 7" ASPHALT BASE
- (C) EXISTING GUARD RAIL
- (1) Item 611 Reinforced Concrete App. Slab (T-13)
- (2) Item 404 1 1/4" Asphalt Concrete Ac-20
- (3) Item 301 4" Bituminous Aggregate Base
- (4) Item 606 Guard Rail, Type 5
- (5) Item 605 Aggregate Drains
- (6) Item 659 Seeding and Mulching
- (7) Item 407 Tack Coat
- (8) Item 310 6" Subbase, Grading A
- (9) Item 403 1 1/2" Asphalt Concrete
- (10) Item 203 Subgrade Compaction
- (11) Item 254 Pavement Planing, Bituminous (0'-2 7/8')

# GENERAL NOTES

FHWA REGION	STATE	PROJECT	
5	OHIO	BRS-571 (4)	

**ASHTABULA COUNTY**  
**ATB-193-20.17**

**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 619.02. 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:

THE WESTERN RESERVE TELEPHONE CO. 4616 PARK AVENUE ASHTABULA, OHIO 44004 PH (216) 993-5151	THE CLEVELAND ILLUMINATING CO. P.O. BOX 668 ASHTABULA, OHIO 44004 PH (216) 997-3131
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**CONTINGENCY QUANTITIES:** THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK LISTED IN THE GENERAL SUMMARY FOR ITEMS DESIGNATED BY PLAN NOTE TO BE USED "AS DIRECTED BY THE ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER. THE ACTUAL WORK LOCATIONS AND QUANTITIES USED AT THE ENGINEER'S DISCRETION SHALL BE MADE A MATTER OF RECORD BY INCORPORATION INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT.

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

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

SIZES	NO. TREES	NO. STUMPS	TOTAL
18"	2	0	2
30"	1	0	1
48"	--	--	--
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, CLEARING AND GRUBBING.

**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.

**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 STRAW OR HAY BALES      100 EACH

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

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

**CONDUIT END TREATMENT:** IMMEDIATELY AFTER PLACEMENT OF ANY CONDUITS, THE CONTRACTOR SHALL CONSTRUCT THE END TREATMENTS REQUIRED BY THE PLANS AT BOTH THE OUTLET AND INLET ENDS. THIS SHALL INCLUDE HEADWALLS, CONCRETE RIPRAP, ROCK CHANNEL PROTECTION, SODDING, ETC.

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

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

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

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

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

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

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

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

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

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

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

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

PROVIDE, ERECT, AND MAINTAIN STANDARD 60" X 30" SIZE **R-76A** SIGNS, SIGN SUPPORTS, AND LIGHTS AT THE FOLLOWING LOCATIONS DURING PERIODS IN WHICH THE AFFECTED ROADS ARE CLOSED TO TRAFFIC:

1. INTERSECTION OF S.R. 193 AND S.R. 167
2. INTERSECTION OF S.R. 193 AND S.R. 84

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

**MAINTENANCE OF TRAFFIC:** THE INSTALLATION, MAINTENANCE AND OPERATION OF ALL TRAFFIC CONTROLS AND TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE REQUIREMENTS OF THE "OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS".

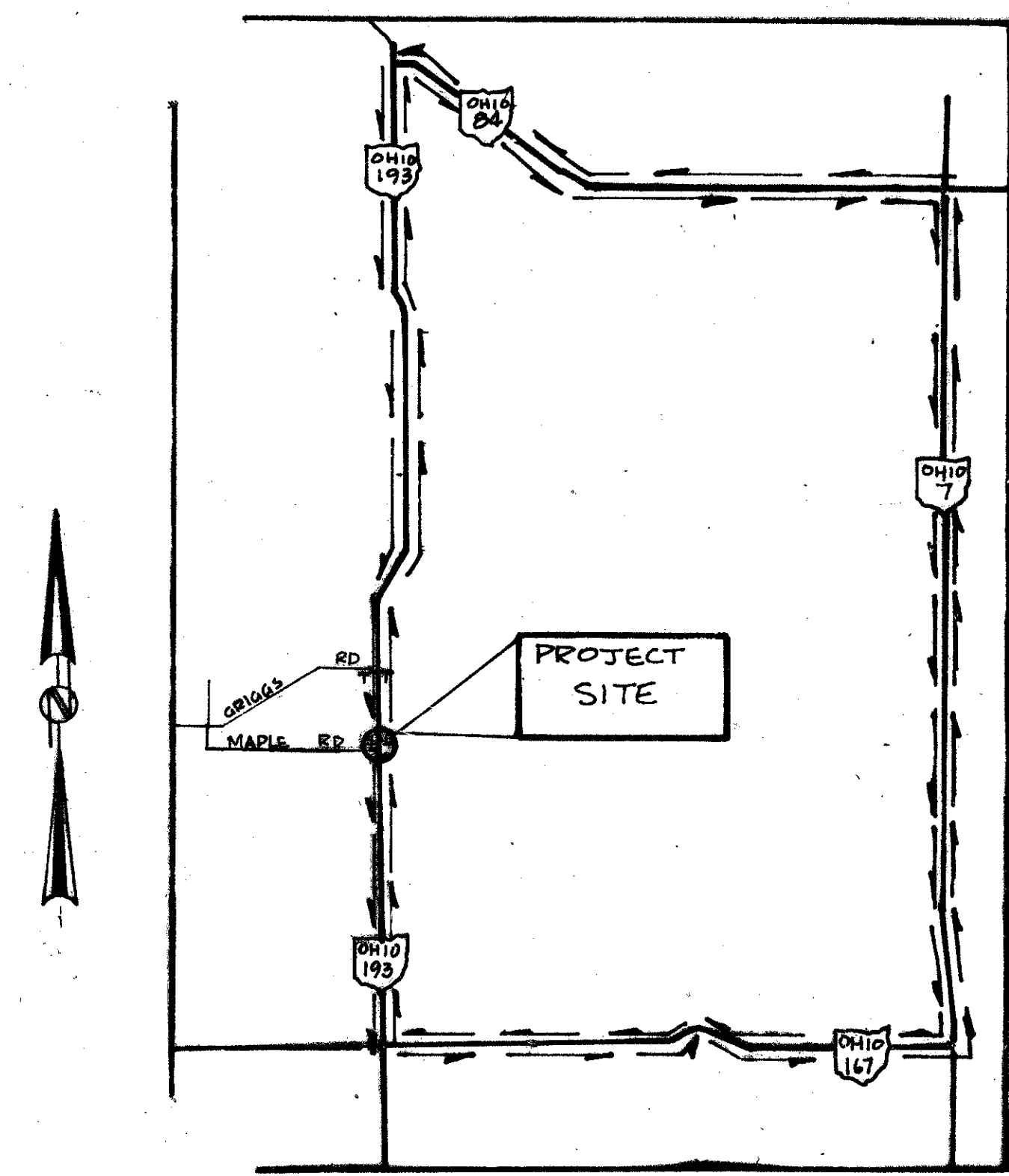
THE COST OF MAINTAINING ANY LOCAL TRAFFIC SHALL BE INCLUDED IN ITEM 614. ALL THROUGH TRAFFIC SHALL BE DETOURED AS SHOWN ON THE MAP ON THIS SHEET.

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

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

**BENCHMARKS:** NEW BENCHMARK DISKS SHALL BE PROVIDED BY O.D.O.T. AND SET IN PLACE ON A HORIZONTAL SURFACE OF THE ABUTMENT OR WINGWALL BY THE CONTRACTOR. THE PLACEMENT OF THE DISK SHALL BE SUCH THAT ACCESS TO THE DISK WILL NOT BE IMPEDED BY GUARDRAIL, BRIDGE RAILING, OR ANY PORTION OF THE STRUCTURE. THE DISK SHALL NOT BE PLACED IN AN AREA THAT IS SUBJECT TO ROADWAY TRAFFIC, ROADWAY DRAINAGE, OR FUTURE RESURFACING. AFTER COMPLETION OF THE PROJECT, O.D.O.T. SHALL RE-ESTABLISH THE ELEVATION. ALL COSTS FOR THE ABOVE DESCRIBED WORK SHALL BE INCIDENTAL TO, AND INCLUDED IN, THE UNIT PRICE BID FOR ITEM 511 CONCRETE, CLASS "S".

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



**DETOUR LIMITATION:** THE DETOUR SHOWN ABOVE SHALL NOT BE PLACED INTO EFFECT PRIOR TO APRIL 1, UNLESS OTHERWISE APPROVED BY THE DIRECTOR. UNTIL THE DETOUR IS PLACED INTO EFFECT, TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES. THE HIGHWAY CLOSURE SHALL NOT EXTEND BEYOND 90 CONSECUTIVE CALENDAR DAYS AND THE CLOSURE NOT EXTEND BEYOND NOVEMBER 1. LIQUIDATED DAMAGES SHALL BE ASSESSED IN ACCORDANCE WITH SECTION 108.07 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS FOR EACH CALENDAR DAY THAT THE ROADWAY REMAINS CLOSED TO TRAFFIC BEYOND THE SPECIFIED LIMIT. THE CONTRACTOR SHALL PROVIDE AT LEAST TWO WEEKS NOTICE TO THE DISTRICT TRAFFIC ENGINEER PRIOR TO THE CLOSURE.

**ITEM 601 ROCK CHANNEL PROTECTION**  
AN ESTIMATED QUANTITY OF 13 C.Y. OF ITEM 601 ROCK CHANNEL PROTECTION, TYPE C WITHOUT FILTER HAS BEEN PROVIDED FOR USE AS DIRECTED BY THE ENGINEER TO PROVIDE EROSION PROTECTION AT THE ABUTMENT TURN BACKS. THE MATERIAL SHALL BE PLACED TWO FOOT THICK AT THE LOCATIONS DIRECTED BY THE ENGINEER. FOR APPROXIMATE LOCATIONS SEE SHEET NOS. 6 & 12.

AN ESTIMATED QUANTITY OF 5 C.Y. OF ITEM 601 ROCK CHANNEL PROTECTION, TYPE D WITHOUT FILTER HAS BEEN PROVIDED FOR USE AS DIRECTED BY THE ENGINEER TO FILL A SCOUR HOLE TO ELEVATION 904.5. THE APPROXIMATE LOCATION OF THE SCOUR HOLE IS SHOWN ON SHEETS 6 & 12. THE LOCATION OF THE PLACEMENT OF THE MATERIAL SHALL BE AS DIRECTED BY THE ENGINEER.

# CALCULATIONS AND GENERAL SUMMARY

ASHTABULA COUNTY  
 ATB-193-20.17

## CALCULATIONS

### Item 254 Pavement Planing Bituminous

Sta. 1063+50 - Sta. 1064+48.05  
 $90.05' \times 23.75' \times \frac{1}{4} = 238.82 \text{ sy.}$   
 Sta. 1065+51.95 - 1066+75  
 $[(43.05+15) \times 23.75] + (65' \times 11.5) \times \frac{1}{4} = 236.24 \text{ sy.}$   
**Total = 475.06 sy USE 475 sy.**

### Item 301-4" BITUMINOUS AGGREGATE BASE

Sta. 1063+02 - Sta. 1064+48.05 (LT)  
 $[2 \times (15^2 - \frac{1}{4} \pi 15^2) + (40' \times 1') + (15' \times 10') + (90' \times 2') + (16.05' \times 3.5')] \times \frac{1}{4} \times \frac{4}{12} \times \frac{1}{3} = 5.65 \text{ c.y.}$   
 Sta. 1063+50 - 1064+48.05 (RT)  
 $98.05 \times [4 - (\frac{11.5+13-11}{2})] \times \frac{4}{12} \times \frac{1}{27} = 3.33 \text{ c.y.}$   
 Sta. 1065+51.95 - Sta. 1066+84.25 (LT)  
 $332.3 \times [4 - (\frac{11+12-11}{2})] \times \frac{4}{12} \times \frac{1}{27} = 14.35 \text{ c.y.}$   
 Sta. 1065+51.95 - Sta. 1066+75 (RT)  
 $[(93.05' \times 2.75) + (30' \times 2.25')] \times \frac{1}{4} \times \frac{4}{12} \times \frac{1}{3} = 3.99 \text{ c.y.}$   
**27.32 c.y. USE 28 c.y.**

### Item 310 - 6" Subbase; Grading A

Sta. 1064+48.05 - Sta. 1064+68.05  
 Sta. 1065+31.95 - Sta. 1065+51.95  
 $40' \times 34' \times \frac{6}{12} \times \frac{1}{27} = 25.19 \text{ cy USE 26 cy}$

### Item 403 - 1/4" Asphalt Concrete; AC-20

Sta. 1064+48.05 - Sta. 1064+68.05  
 Sta. 1065+31.95 - Sta. 1065+51.95  
 $40' \times 34' \times \frac{1}{4} \times \frac{1}{27} = 5.25 \text{ cy USE 6 cy}$

### Item 404 - 1/4" Asphalt Concrete; AC-20

Sta. 1063+42 - Sta. 1064+48.05  
 $[(90' \times 2.5') + (82' \times 26') + (16.05' \times 30')] \times \frac{1}{4} \times \frac{1}{4} \times \frac{1}{12} \times \frac{1}{3} = 11.07 \text{ c.y.}$   
 Sta. 1064+48.05 - Sta. 1064+68.05; Sta. 1065+31.95 - Sta. 1065+51.95  
 $(20' + 20') \times 34' \times \frac{1}{4} \times \frac{1}{12} \times \frac{1}{3} = 5.25 \text{ c.y.}$   
 Sta. 1065+51.95 - Sta. 1066+84.25  
 $[(93.05' \times 30) + (30' \times 26) + (30' \times 3.5) + (209.25' \times 4')] \times \frac{1}{4} \times \frac{1}{4} \times \frac{1}{12} \times \frac{1}{3} = 17.41 \text{ c.y.}$   
 Sta. 1063+02 - Sta. 1063+42  
 $[2 \times (15^2 - \frac{1}{4} \pi 15^2) + (40' \times 1') + (15' \times 10')] \times \frac{1}{4} \times \frac{1}{4} \times \frac{1}{12} \times \frac{1}{3} = .68 \text{ c.y.}$   
**34.41 c.y. USE 35 c.y.**

### Item 407 Tack Coat

Sta. 1063+50 - Sta. 1064+48.05  
 $98.05 \times 23.75 \times \frac{1}{4} = 258.74 \text{ sy}$   
 Sta. 1064+48.05 - 1064+68.05  
 $20 \times 34 \times \frac{1}{4} = 75.56 \text{ sy}$   
 Sta. 1065+31.95 - Sta. 1065+51.95  
 $20 \times 34 \times \frac{1}{4} = 75.56 \text{ sy}$   
 Sta. 1065+51.95 - Sta. 1066+75  
 $123.05 \times 23.75 \times \frac{1}{4} = 374.72 \text{ sy}$   
 $734.56 \text{ sy} \times 0.10 \frac{\text{gal}}{\text{sy}} = 73.46 \text{ gal USE 74 gal}$

### Item 611 Reinforced Concrete Approach Slabs (T=13)

Sta. 1064+48.05 - Sta. 1064+68.05  
 $20' \times 34' \times \frac{1}{4} = 75.56 \text{ sy}$   
 Sta. 1065+31.95 - Sta. 1065+51.95  
 $20' \times 34' \times \frac{1}{4} = 75.56 \text{ sy}$   
**151.12 sy USE 152 sy**

### Item 659 Seeding And Mulching = 1567 sy

Commercial Fertilizer  
 $1567 \text{ sy} \times 9 \div 1000 \times 20 + 2000 = 0.15 \text{ TONS}$   
 Agricultural Liming  
 $1567 \text{ sy} \times 9 \div 1000 \times 100 + 2000 = 0.71 \text{ TONS}$

### Item 605 - Aggregate Drains

$13 \times 10' = 130 \text{ L.F.}$

### Item 659 Water

$1567 \text{ sy} \times 9 \div 1000 \times 240 \div 1000 = 3 \text{ Mgal}$

### Item 203 - Subgrade Compaction

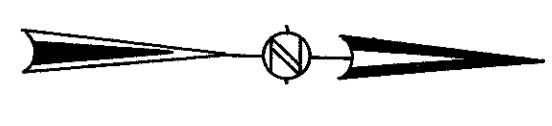
Sta. 1064+48.05 - 1064+68.05  
 $20 \times 34 \times \frac{1}{4} = 75.56 \text{ s.y.}$   
 Sta. 1065+31.95 - 1065+51.95  
 $20 \times 34 \times \frac{1}{4} = 75.56 \text{ s.y.}$   
**151.11 sy USE 152 sy**

21  
 391 84  
 106 11  
 306 57  
 152  
 465.50 159.50  
 3 1  
 4

Use 28 c.y.

TOTAL FROM SHEET NO.					GENERAL SUMMARY				DESCRIPTION
ITEM	3	4	6	7	ITEM	ITEM EXT.	QUAN-TITY	UNIT	
									ROADWAY
					201	11000	LUMP		CLEARING AND GRUBBING
					202	35100	21	Lin. Ft.	PIPE REMOVED, 24" AND UNDER
					202	38000	475	Lin. Ft.	GUARDRAIL REMOVED
					203	12000	117	Cu. Yd.	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION
					203	20000	363	Cu. Yd.	EMBANKMENT
					203	50000	152	Sq. Yd.	SUBGRADE COMPACTION
					606	13000	625	Lin. Ft.	GUARDRAIL, TYPE E
					606	25000	4	Ea.	ANCHOR ASSEMBLY, TYPE A
					606	30500	4	Ea.	BRIDGE TERMINAL ASSEMBLY, TYPE B
									EROSION CONTROL
	100				207	70000	100	Ea.	STRAW OR HAY BALES
					601	32200	25	Cu. Yd.	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER
					659	35000	3	Mgal	WATER
					659	10000	1428	Sq. Yd.	SEEDING AND MULCHING
					659	20000	0.15	TON	COMMERCIAL FERTILIZER
					659	30000	0.71	TON	AGRICULTURAL LIMING
					670	40000	96	Sq. Yd.	DITCH EROSION PROTECTION
	13				601	34200	13	Cu. Yd.	ROCK CHANNEL PROTECTION, TYPE C WITHOUT FILTER
	5				601	34300	5	Cu. Yd.	ROCK CHANNEL PROTECTION, TYPE D WITHOUT FILTER
									DRAINAGE
					603	10900	121	Lin. Ft.	24" CONDUIT, TYPE D
					605	31100	130	Lin. Ft.	AGGREGATE DRAINS
	50				603	01500	50	Lin. Ft.	6" CONDUIT, TYPE F
									PAVEMENT
					254	01000	475	Sq. Yd.	PAVEMENT PLANING, BITUMINOUS
					301	10002	28	Cu. Yd.	BITUMINOUS AGGREGATE BASE, AC-20
					310	12000	26	Cu. Yd.	SUBBASE, TYPE I, GRADING A
					403	20000	6	Cu. Yd.	ASPHALT CONCRETE, AC-20
					404	20000	34	Cu. Yd.	ASPHALT CONCRETE, AC-20
					407	10000	74	GAL.	TACK COAT
					611	15000	152	Sq. Yd.	REINFORCED CONCRETE APPROACH SLAB (T=13")
					404	25000	1	Cu. Yd.	ASPHALT CONCRETE, AC-20 (DRIVEWAYS)
									TRAFFIC CONTROL
					802	00100	12	Ea.	BARRIER REFLECTOR, TYPE A
					621	00100	0.17	Mi.	EDGE LINES
					621	20100	0.06	Mi.	CENTER LINES
					614	21400	0.12	Mi.	TEMPORARY CENTERLINES, CLASS II
					614	12460	4	Ea.	WORK ZONE MARKING SIGNS
									STRUCTURE 20' AND OVER (SEE SHEET 14/22)
					614	11000	LUMP		MAINTAINING TRAFFIC
					619	10007	LUMP		FIELD OFFICE
					623	10003	LUMP		CONSTRUCTION LAYOUT STAKES
					624	10008	LUMP		MOBILIZATION





Area Of Pavement Planing, Bituminous

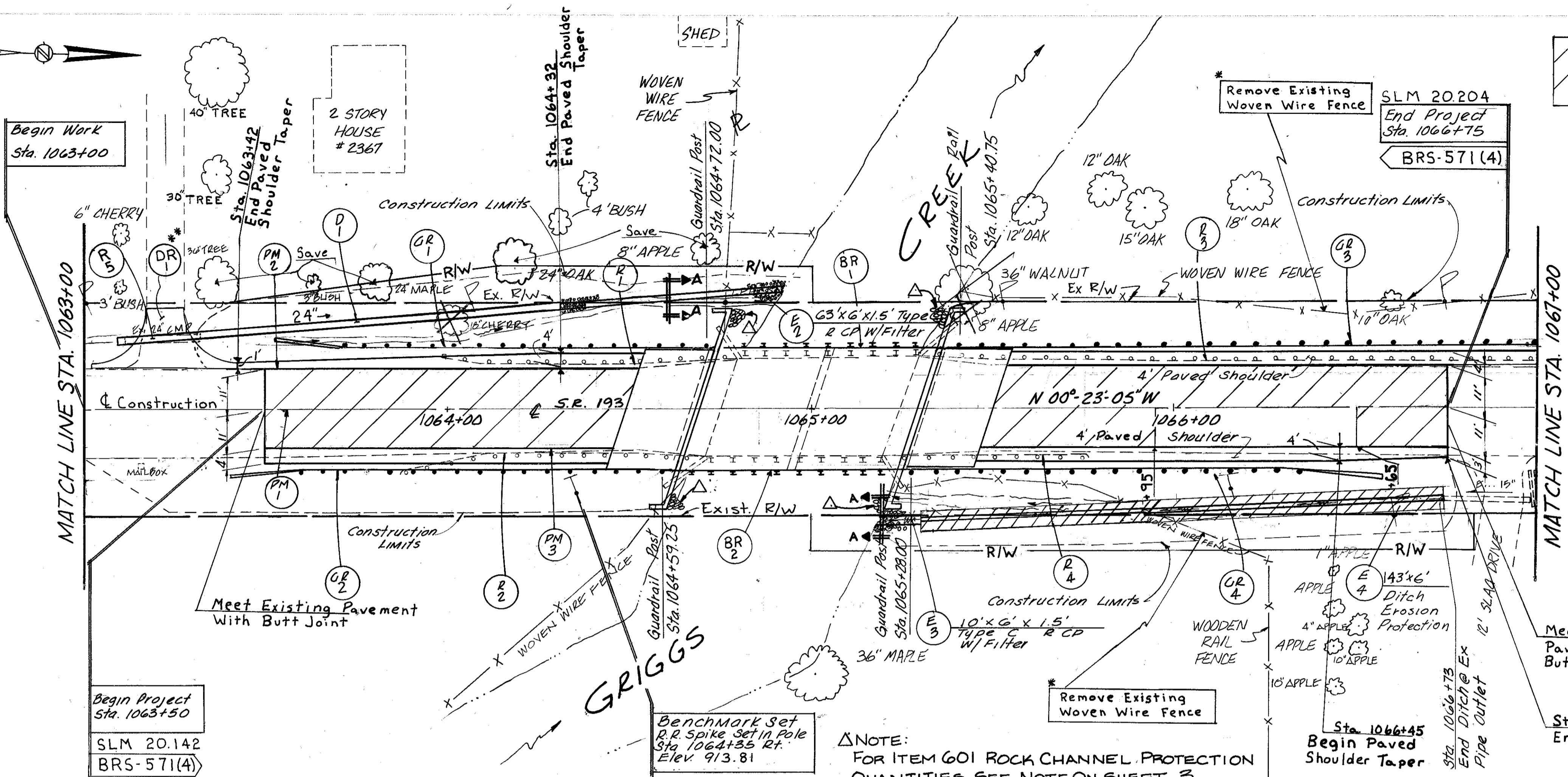
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	J.D.	3/89

REGION	STATE	PROJECT
5	OHIO	BRS-571(4)

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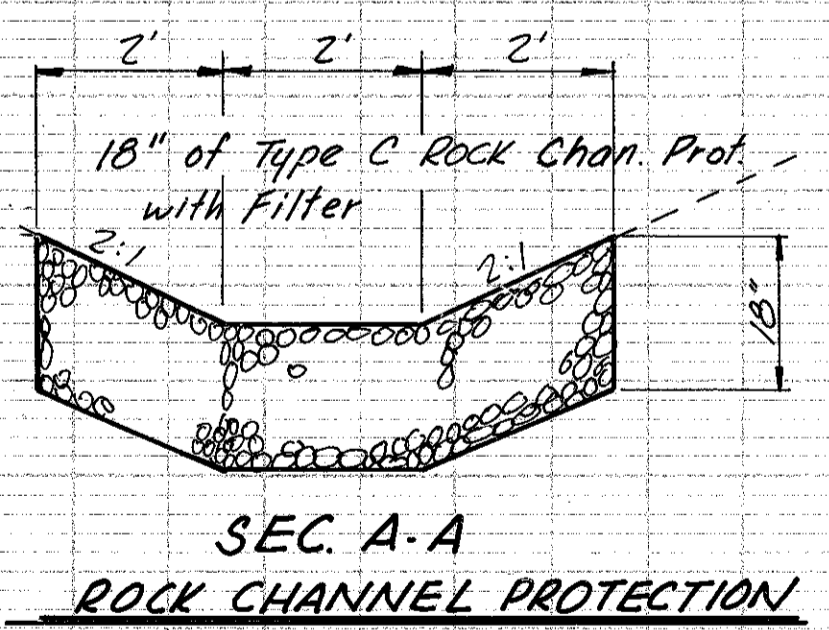
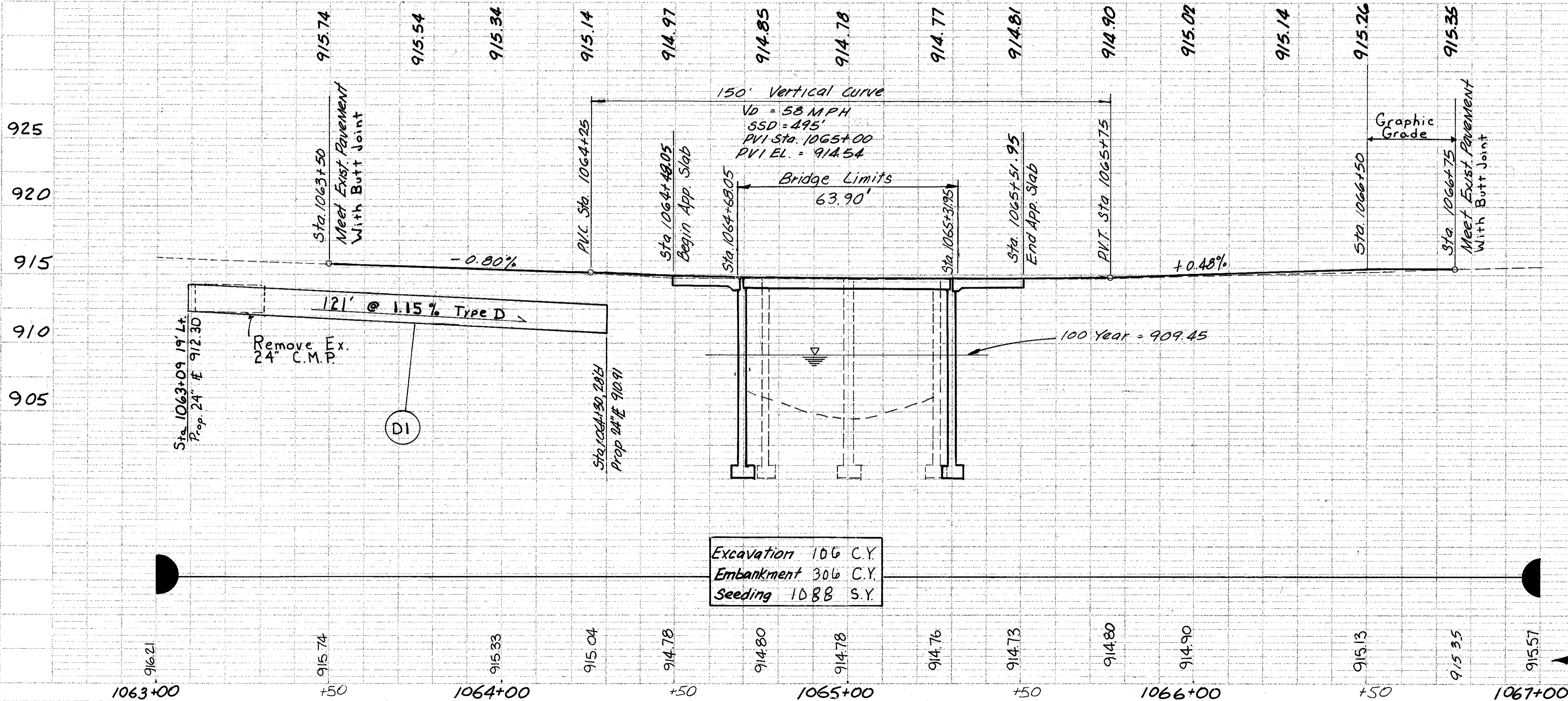
ASHTABULA COUNTY  
ATB-193-20.17

PLAN  
REVISIONS  
NOTES  
DATE  
BY  
CHECKED  
DATE  
BY



Reference No.	Station To Station	Side	202	670	601	202	603	606	606	621	621	802	
			Guardrail Removed	Ditch Erosion Protection	Rock Chan. Prot. With Filter	Pipe Under	24" And Under	24" Conduit	Guardrail Type D	Anchor Assem. Type 5	Bridge Terminal 18" x 18" Edge Lines (White)	Center Lines	Barrier (Recept. Type)
			L.F.	S.Y.	C.Y.	L.F.	L.F.	EA.	EA.	MI	MI	EA.	
R-1	1063+97 to 1064+80	Lt.	83										
R-2	1063+88 to 1064+71	Rt.	83										
R-3	1065+30 to 1067+00	Lt.	170										
R-4	1065+20 to 1065+75	Rt.	55										
R-5	1063+11 to 1063+32	Lt.				21							
BR-1	1063+47 to 1068+84.5	Lt.										7	
BR-2	1063+34.25 to 1066+59.25	Rt.										5	
GR-1	1063+47 to 1064+72	Lt.					100	1	1				
GR-2	1063+34.25 to 1064+59.25	Rt.					100	1	1				
GR-3	1065+40.75 to 1067+00	Lt.					159.25		1				
GR-4	1065+28 to 1066+59.25	Rt.					106.25	1	1				
D-1	1063+09 to 1064+30	Lt.					121						
E-2	1064+30 to 1064+93	Lt.				21							
E-3	1065+20 to 1065+30	Rt.				4							
E-4	1065+30 to 1066+73	Rt.				96							
PM-1	1063+50 to 1066+75	±									0.06		
PM-2	1063+27.5 to 1067+00	Lt.									0.07		
PM-3	1063+50 to 1066+75	Rt.									0.06		
<b>TOTALS</b>			391	96	25	21	121	465.33	3	4	0.13	0.06	12

\* Removal Of Woven Wire Fence To Be Included With Item 203 Excavation  
\*\* DR-1 Driveway Details Shown On Sheet 7



EXISTING STRUCTURE	
TYPE :	TWO SPAN CONTINUOUS SLAB BRIDGE ON
SPAN :	
ROADWAY :	27' ± FF GUARDRAIL
SKEW :	20° L.F.
ALIGNMENT :	
DATE BUILT :	JULY, 1930
PROPOSED STRUCTURE	
TYPE :	SINGLE SPAN PRESTRESSED CONC. BOX BEAM BRIDGE WITH HIGH WALL ABUTMENTS
SPANS :	60'-0" c/c BEARING
ROADWAY :	34'-0" 1/2 GUARDRAIL
SKEW :	20° L.F.
ALIGNMENT :	Tangent
DESIGN LOADING :	Hs 20-44 and Alternate Military Loading
APPROACH SLAB :	20'-0" Long (AS-1.81)
SUPERELEVATION :	None
WEARING SURFACE :	2 1/2 Min. Asphalt Concrete
AVG. DAILY TRAFFIC :	1989: 1250 Design 2009: 1750

PLAN & PROFILE STA. 1063+00 TO STA. 1067+00

PLATE 1-SINGLE PLAN AND PROFILE-FULL LINE  
PRINTED IN U.S.A.

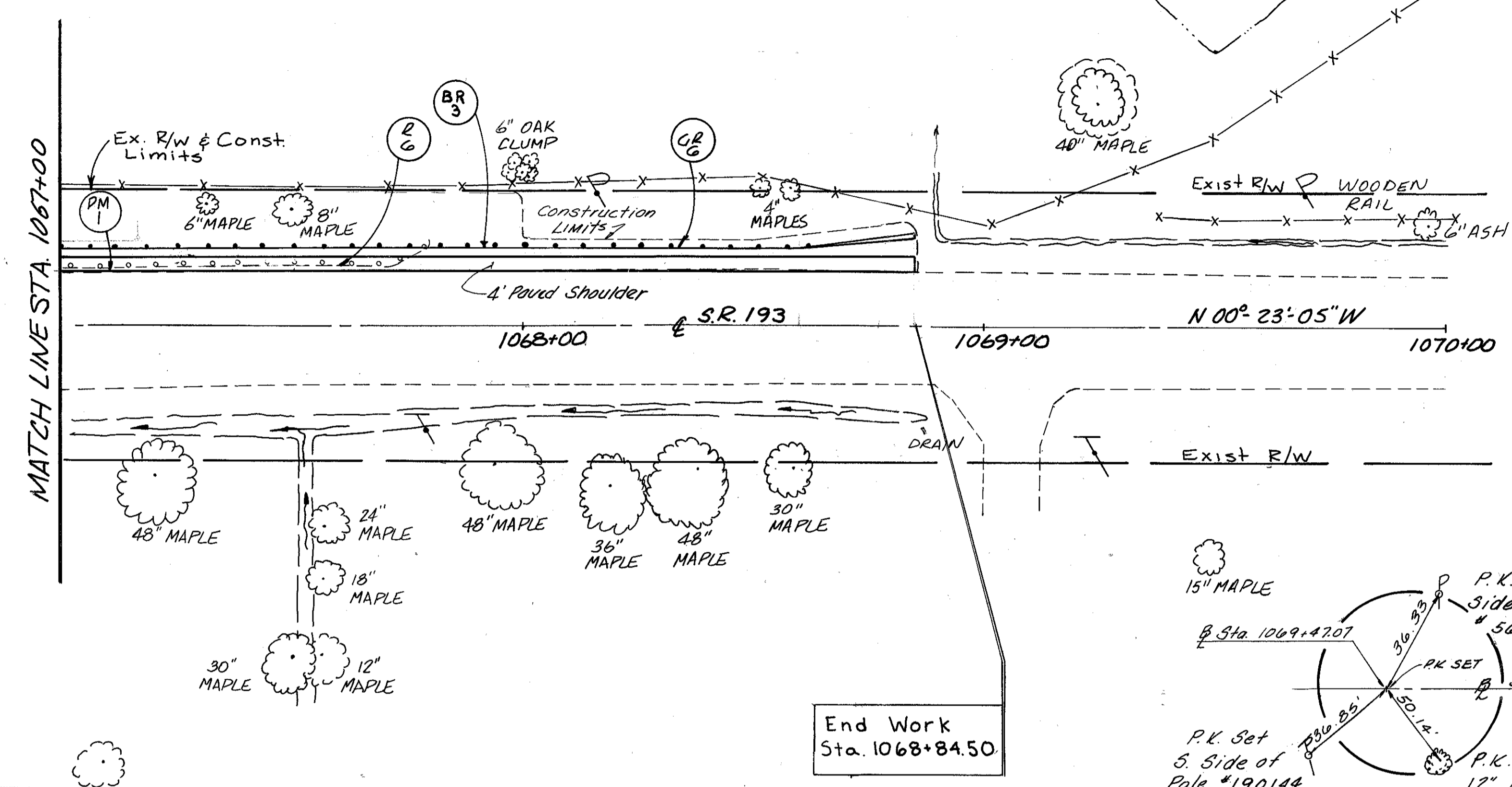


calculated	BY DATE	REGION	STATE	PROJECT
checked	J.C. 1-89	5	OHIO	BRS-571(4)
	J.D. 3-89			

7  
22

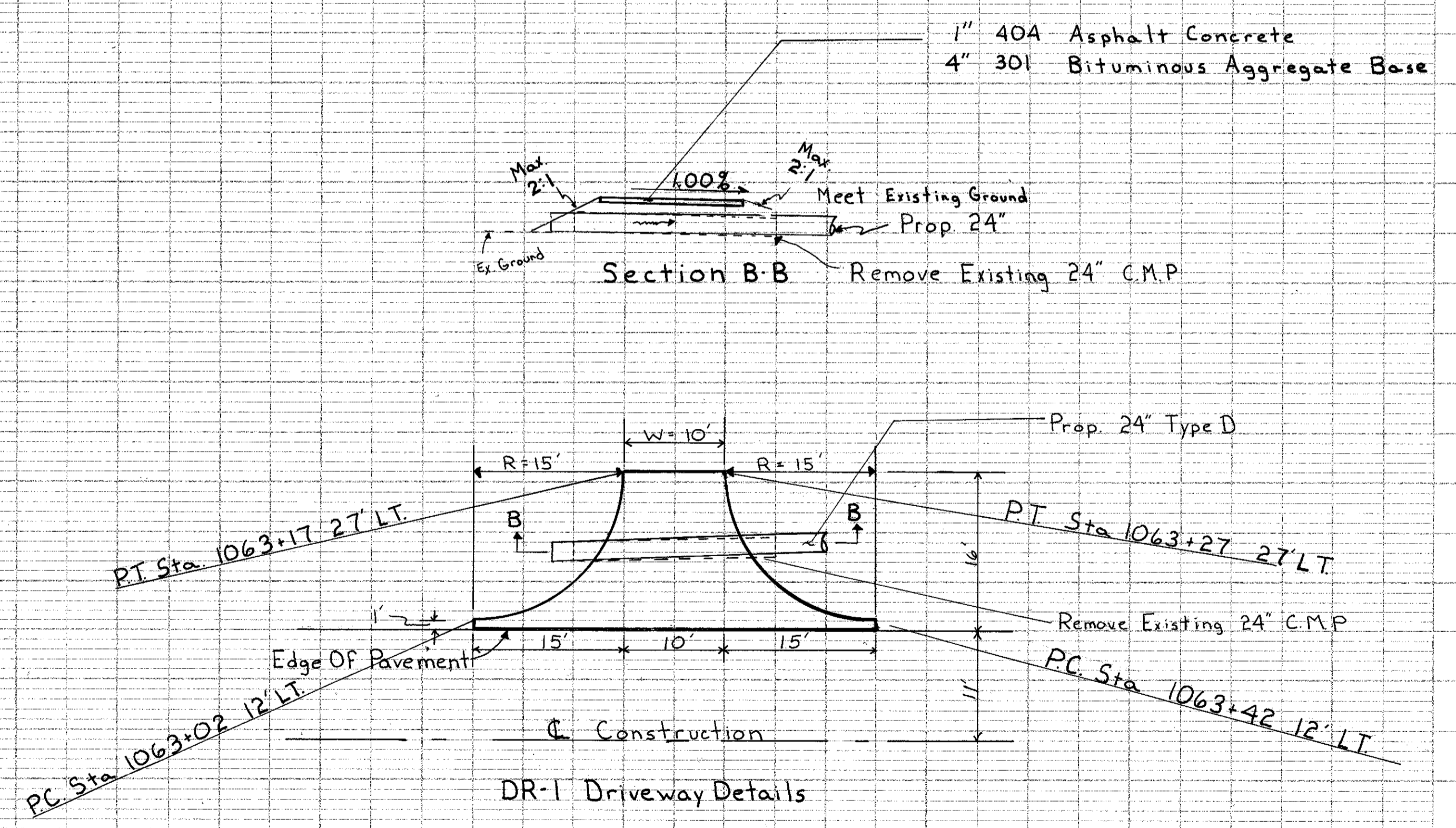
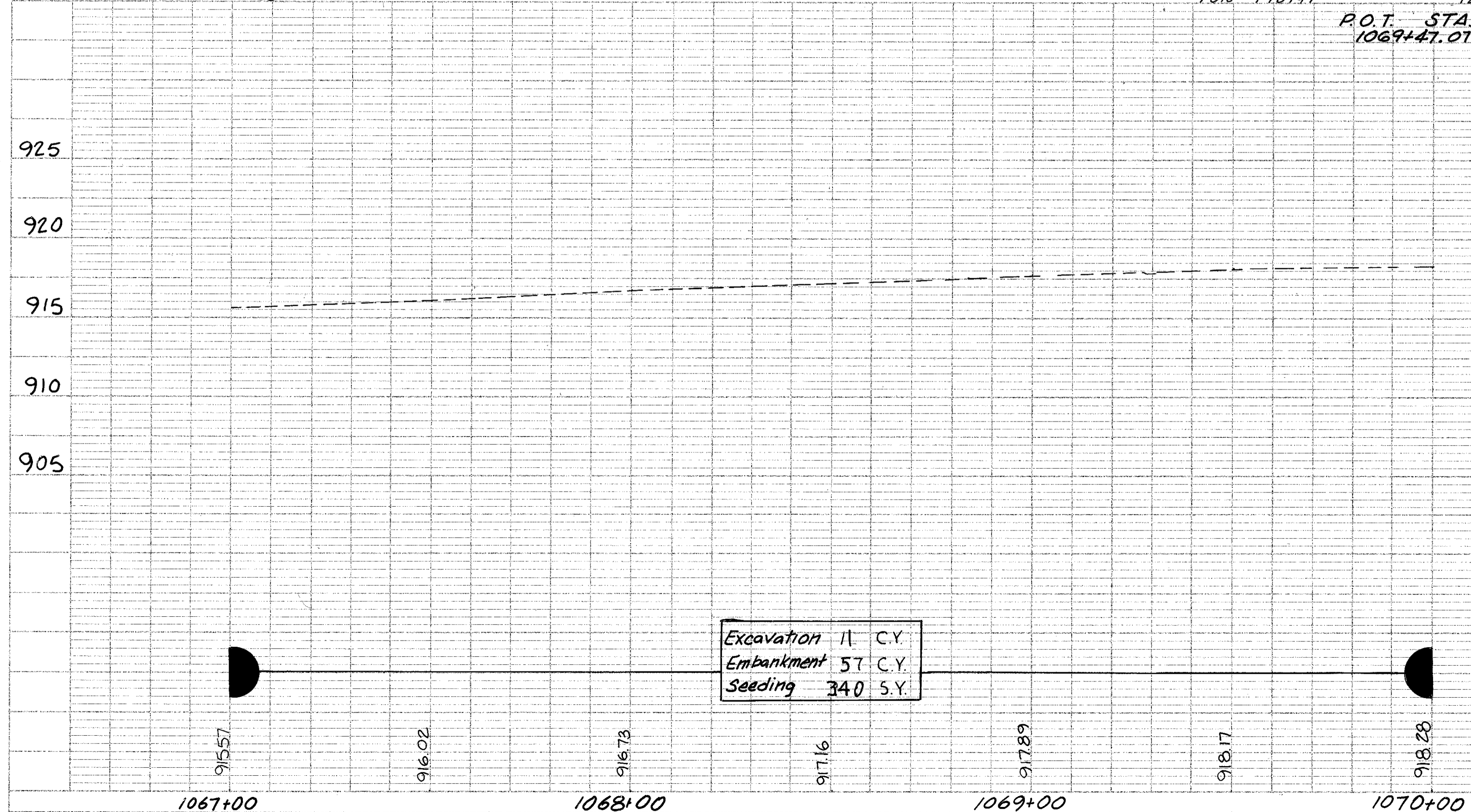
ASHTABULA COUNTY  
ATB-193-20.17

PLAN  
SURVEYED BY: [blank]  
NOTED BY: [blank]  
DATE: [blank]



Reference No.	Station To Station	side	202	606	606	621	802
			Guardrail Removed	Guardrail Type 5	Guardrail Anchor Assem.	Edge (White) Lines	Barrier Reflector, Type
			L.F.	L.F.	EA.	MI	EA.
R-G	1067+00 TO 1067+84	Lt.	84				
GR-G	1067+00 TO 1068+84.50	Lt.		159.50	1		
PM-1	1067+00 TO 1068+84.50	Lt.				0.04	
TOTALS			84	159.50	1	0.04	

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NOTED BY: [blank]  
DATE: [blank]

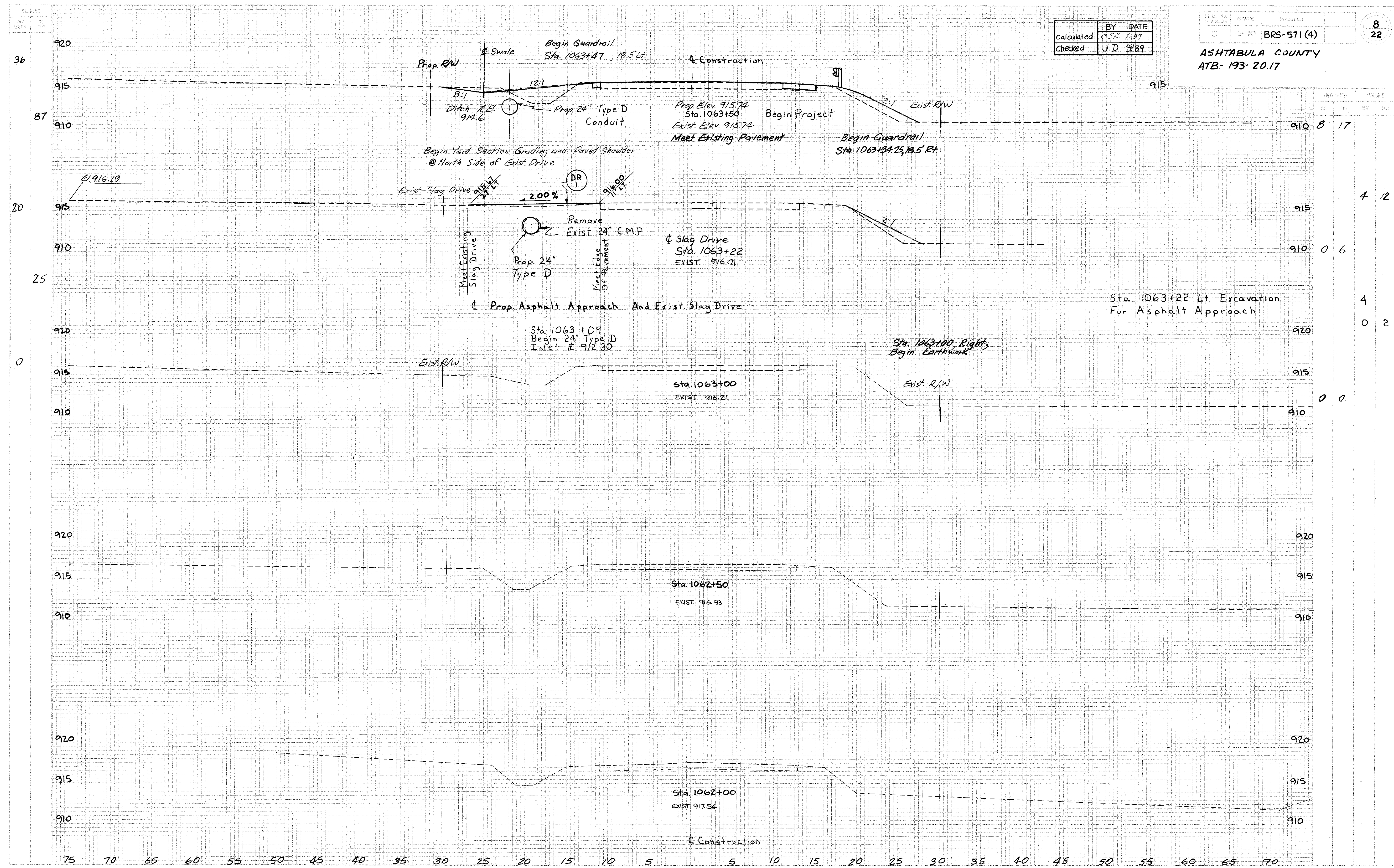


Calculated	BY	DATE
Checked	J.D.	3/89

PROJECT NO.	DATE	PROJECT
5	0-100	BRS-571(4)

8  
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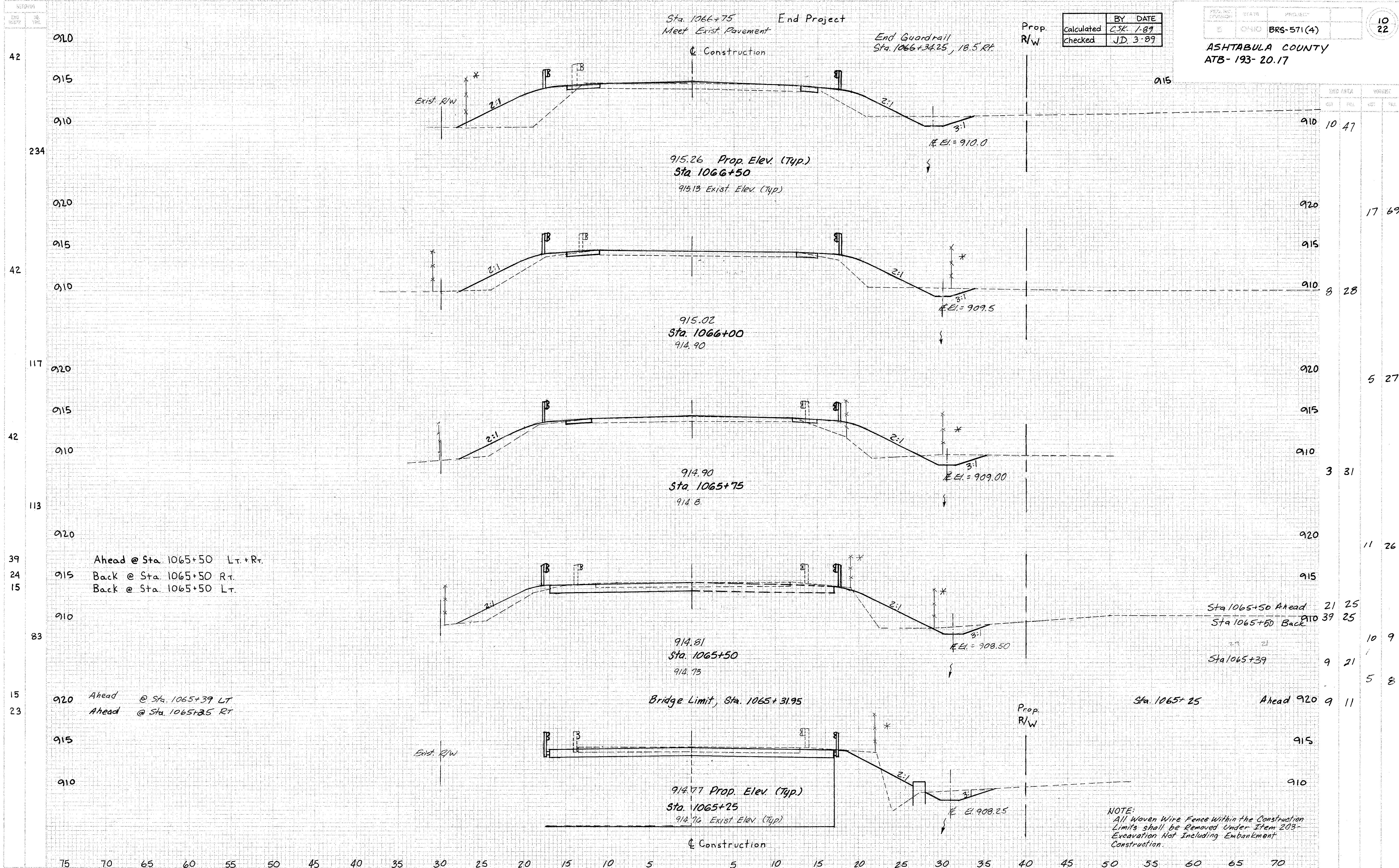
ASHTABULA COUNTY  
ATB-193-20.17



STA. 1062+00 to STA. 1063+50







	BY	DATE
Calculated	C.S.K.	1-89
Checked	J.D.	3-89

PROJECT: BRS-571(4)  
 STATE: OHIO  
 COUNTY: ASHTABULA COUNTY  
 PROJECT: ATB-193-20.17  
 10 22

Ahead @ Sta. 1065+50 Lt.+Rt.  
 Back @ Sta. 1065+50 Rt.  
 Back @ Sta. 1065+50 Lt.

Ahead @ Sta. 1065+39 LT  
 Ahead @ Sta. 1065+25 RT

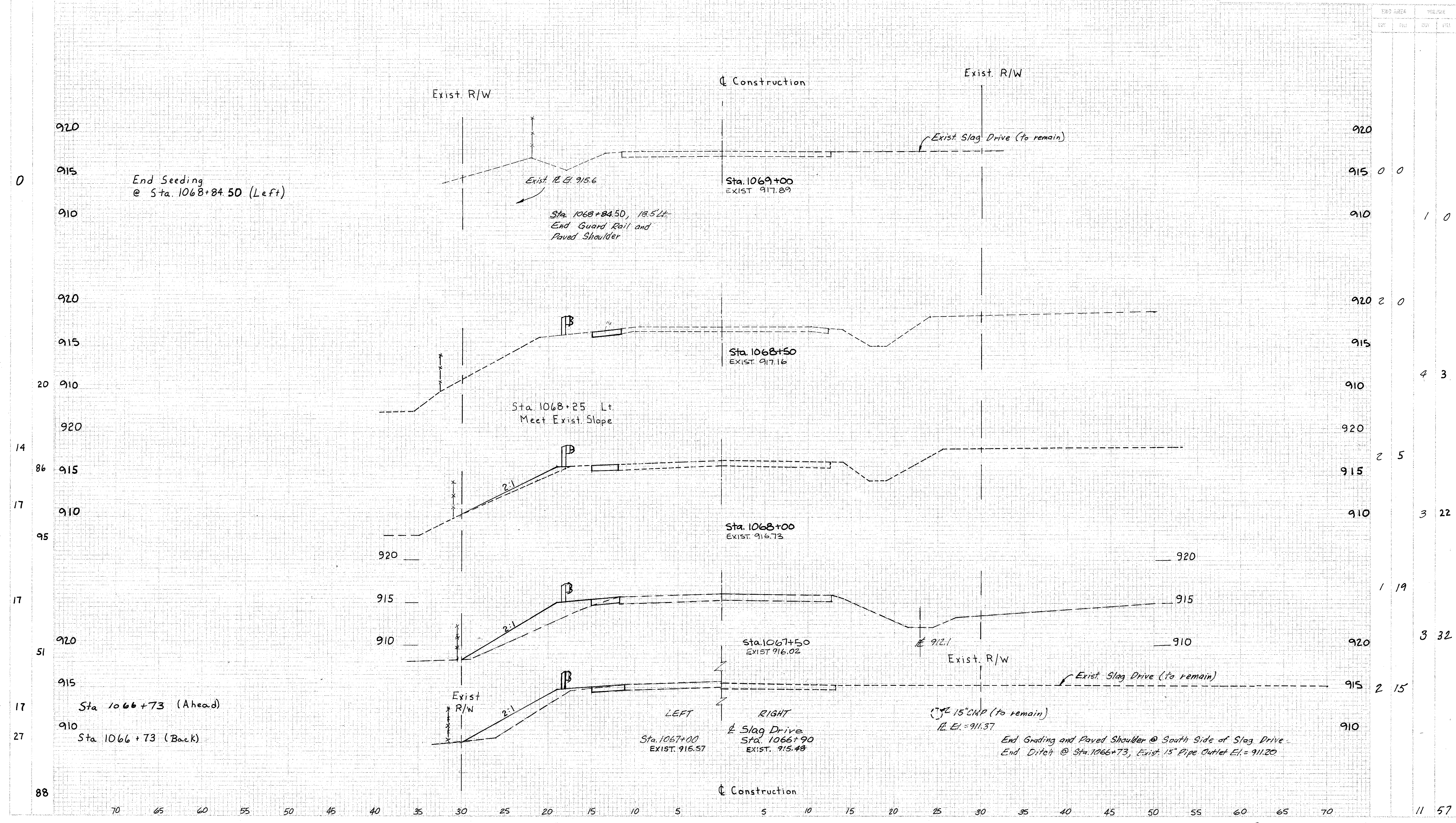
NOTE:  
 All Wavy Wire Fence Within the Construction Limits shall be Removed Under Item 203-Excavation Not Including Embankment Construction.

STA.1065+25 to STA.1066+50

Calculated	BY	DATE
Checked	R.J.Z.	1-89

PROJECT	BRS-571 (4)
DATE	11/22

ASHTABULA COUNTY  
ATB-193-20.17



STATION	EXIST. AREA		NEW AREA	
	FT <sup>2</sup>	YD <sup>3</sup>	FT <sup>2</sup>	YD <sup>3</sup>
0	0	0	1	0
20	2	0	4	3
14	2	5	3	22
17	1	19	3	32
51	2	15		
17				
27				
88			11	57

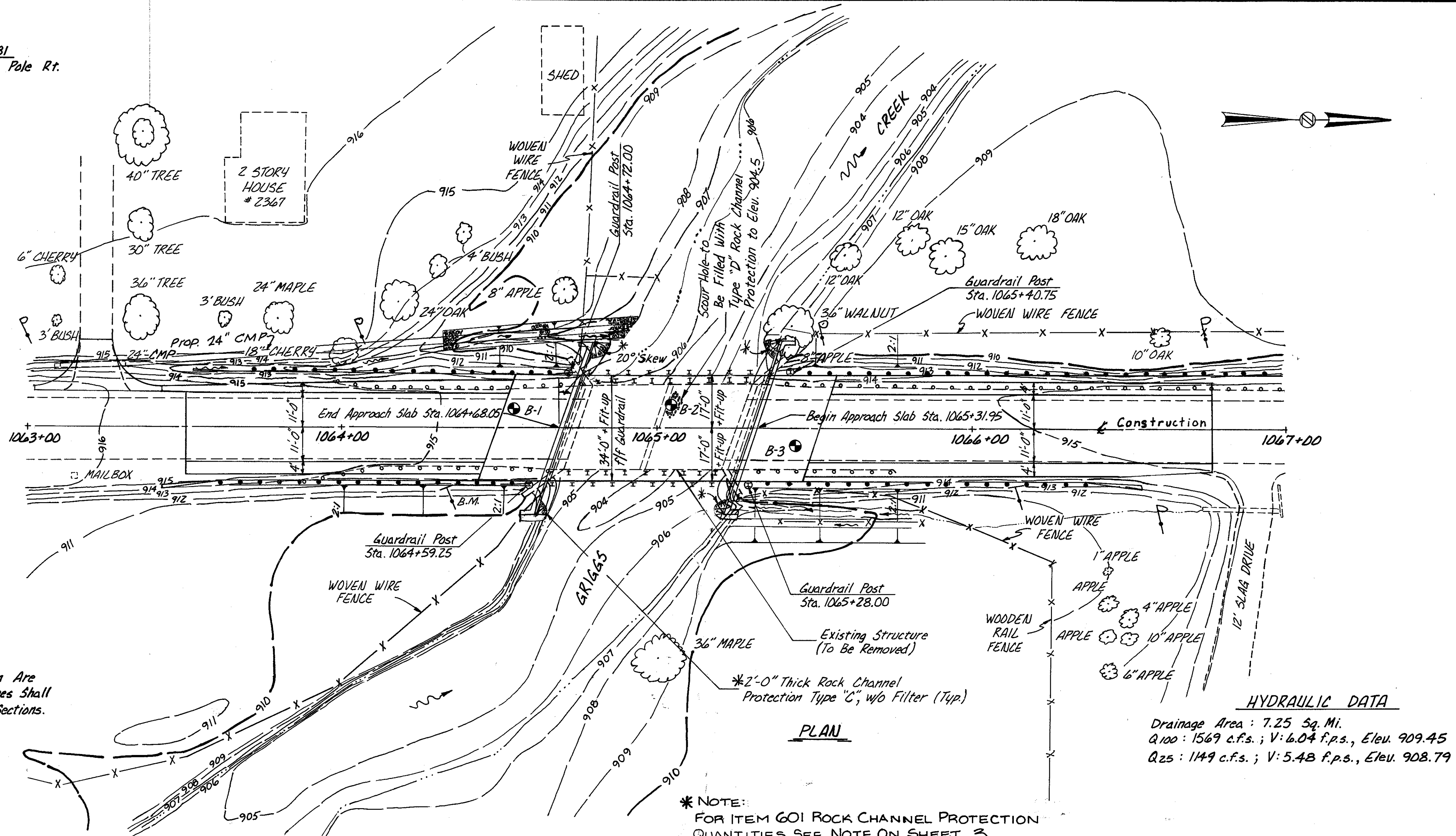
STA. 1066+90 to STA. 1069+00

Benchmark Elev. 913.81  
R.R. Spike in Telephone Pole Rt.  
Sta. 1064+35

REGION	STATE	PROJECT
5	OHIO	BRS-571(4)

ASHTABULA COUNTY  
ATB-193-20.17

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Station	Elevation	Notes	Proposed & Profile Elevations
1063+00	916.21		
+50	915.74	Sta. 1063+50 Meet Exis. Pavement	
1064+00	915.34		
+50	915.14	P.V.C. Sta. 1064+25.00	
1064+00	914.97	25 Year Flood El. 908.79	
+50	914.85	150' Vertical Curve P.V.I. Sta. 1065+00 P.V.I. El. = 914.54	
1065+00	914.77	Bridge Limits = 63.90'	
+50	914.81	Normal Water El. 905'	
1065+00	914.90	100 Year Flood El. 909.45	
+50	915.02	Bottom of footing El. 901.00 (Typ.)	
1066+00	915.26	Bottom Channel El. 904.5	
+50	915.35	Approx. Top of Bedrock El. 902.5 Rear Abut. El. 902.3 For. Abut.	
1067+00	915.57	Bottom of footing El. 901.00 (Typ.)	
			EXISTING & PROFILE ELEVATIONS

PROFILE ALONG & SURVEY

<b>EXISTING STRUCTURE</b>
TYPE: Two Span Continuous Slab Bridge on Highwall Concrete Abutments
SPANS: 24'-0", 24'-0" Clear
ROADWAY: 24' ± f/f Guardrail
SKREW: 20° L.F.
ALIGNMENT: Tangent
STRUCTURE FILE No. 0405612
<b>PROPOSED STRUCTURE</b>
TYPE: Single-Span Prestressed Concrete Box Beam Bridge with Wall Type Abutments
SPAN: 60'-0" c/c Bearing
ROADWAY: 34'-0" f/f Guardrail
SKREW: 20° L.F.
DESIGN LOADING: HS 20-44 and Alternate Military Loading
APPROACH SLAB: 20'-0" (AS-1-B)
ALIGNMENT: Tangent
SUPERELEVATION: None
WEARING SURFACE: 2 1/2" Min. Asp. Conc.
AVG. DAILY TRAFFIC: 1989: 1250 (Design) 2009: 1750

**THOMAS FOK & ASSOCIATES, LIMITED**  
CONSULTING ENGINEER, SURVEYOR & PLANNER  
3896 MAHONING AVE. YOUNGSTOWN, OHIO

**SITE PLAN**  
BRIDGE NO. ATB-193-20.17  
OVER  
GR1665 CREEK Sta. 1064+68.05  
ASHTABULA COUNTY Sta. 1065+31.95

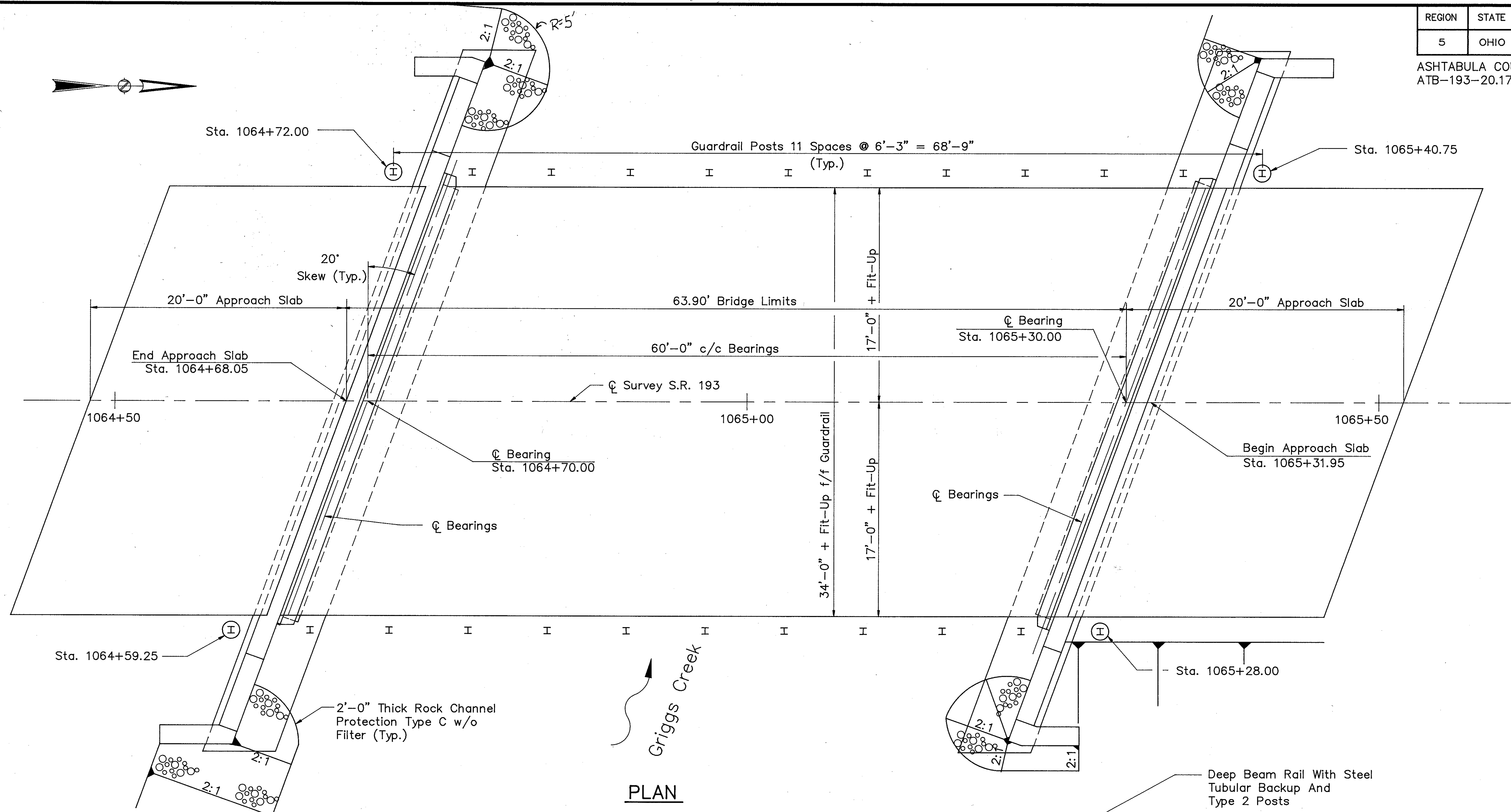
PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
K.R.M.	J.V.	K.R.M.	A.L.	J.F.	J.F.
2/88	11/88	11/88	1/89	1/89	1/89

REVIEWED BY BURGESS & NIPLE, LTD  
M.P.B. 6-1-89

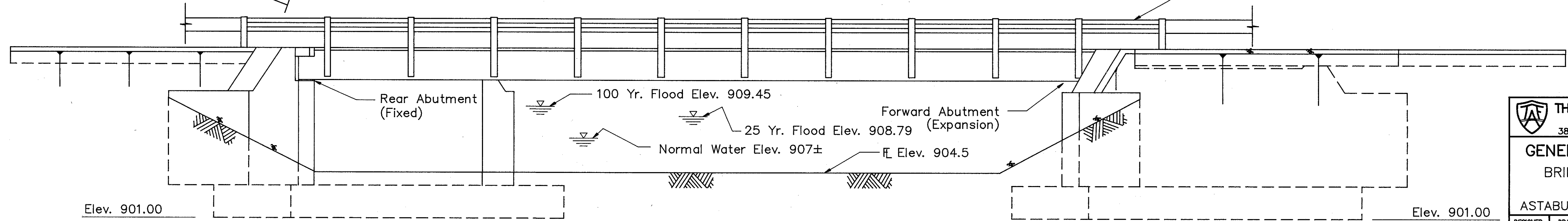
REGION	STATE	PROJECT
5	OHIO	BRS-571(4)

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ASHTABULA COUNTY  
ATB-193-20.17



PLAN



ELEVATION

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**THOMAS FOK & ASSOCIATES, LTD.**  
CONSULTING ENGINEERS, SURVEYORS & PLANNERS  
3896 MAHONING AVE. YOUNGSTOWN, OHIO

**GENERAL PLAN & ELEVATION**  
BRIDGE NO. ATB-193-2017  
OVER GRIGGS CREEK  
ASTABULA COUNTY OHIO

DESIGNED K.R.M. 3/89	DRAWN K.R.M. 3/89	TRACED	CHECKED J.F. 3/89	REVIEWED J.F. 3/89	REVISED
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REGION	STATE	PROJECT
5	OHIO	BRS-571(4)

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ASHTABULA COUNTY  
ATB-193-20.17

### GENERAL NOTES

**DESIGN SPECIFICATION** This structure conforms to "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway and Transportation Officials, 1983 including the 1984, 1985, 1986, 1987, & 1988 interim Specifications, and the Ohio "Supplement" to these specifications.

**REFERENCE** shall be made to standard Drawing(s):

- AS-1-81 Dated 11/27/81
- DBR-2-73 Dated 4/10/73
- PSBD-1-81 Dated 9/18/81
- EXJ-3-82 Revised 8/1/84
- and to Supplemental Specification
- 836 Dated 11/12/85
- 849 Dated 12/24/85
- 949 Dated 9/26/86

**DESIGN LOADING:**

HS20-44 and the alternate military loading

**DESIGN STRESSES:**

Concrete class C - Compressive strength 4000 p.s.i.  
Reinforcing steel - ASTM A615, A616, or A617 - grade 60 minimum yield strength 60,000 p.s.i.  
Prestressed strand ASTM A416 f's = 270,000 p.s.i. Initial Stress = 0.70f's  
Prestressed beam reinforcing steel - ASTM A615, A616, A617 minimum yield strength 40,000 p.s.i.  
Concrete for prestressed beams - unit stress 2,200 p.s.i. compression, 444 p.s.i. tension.

**DECK PROTECTION METHOD** Type "D" waterproofing, asphalt concrete overlay, sealing of concrete surfaces, and steel drip strip.

**UTILITY LINES** All expenses 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.

**ITEM SPECIAL, SEALING OF CONCRETE SURFACES:**

A concrete sealer shall be applied to the following concrete surfaces and as shown on the plans. The exposed vertical surface and the first 6 inches of the bottom horizontal surface of the fascia box beams see sheet 6/9. For sealer limits on abutments, see sheet 5/9. See the proposal for surface preparation requirements, application rates, material requirements and application procedures.

**FOOTINGS** Shall extend a minimum of 3" into bedrock or to the elevation shown, whichever is lower.

**REMOVAL OF EXISTING STRUCTURES:**

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.

**FOUNDATION BEARING PRESSURE :**

Abutment Footings as designed, produce a maximum bearing pressure of 3.9 tons per square foot.

**TRAFFIC MAINTENANCE :**

Traffic maintenance can be found on project plan sheet 3/22.

CALC. BY <i>K.R.M.</i>		ESTIMATED QUANTITIES				CHK'D BY <i>J.D.V.</i>	
ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUT.	GEN'L
202	11002	Lump		Structures Removed			Lump
403	20000	12	Cu.Yd.	Asphalt Concrete, AC-20	12		
404	20000	8	Cu.Yd.	Asphalt Concrete, AC-20	8		
503	21100	Lump		Unclassified Excavation		Lump	
503	11100	Lump		Cofferdams, Cribbs & Sheeting			Lump
509	11500	7860	Lb.	Reinforcing Steel, Grade 60		7860	
509	15800	2531	Lb.	Epoxy Coated Reinforcing Steel, Grade 60	120	2411	
511	44500	121	Cu.Yd.	Class C Concrete, Abutment Above Footing		121	
511	46500	61	Cu.Yd.	Class C Concrete, Footing		61	
511	34002	3	Cu.Yd.	Class S Concrete, Superstructure, High Early Strength	3		
512	44400	7	Sq.Yd.	Type B Waterproofing		7	
512	55800	221	Sq.Yd.	Type D Waterproofing	221		
515	50900	2	Each	Prestressed Concrete Bridge Members (B27-36) (See Proposal Note)	2		
515	54100	7	Each	Prestressed Concrete Bridge Members (B27-48) (See Proposal Note)	7		
516	41200	14	Sq.Ft.	1/8" Preformed Bearing Pads, 711.21			14
516	11200	77	Lin.Ft.	Structural Expansion Joint (Including steel retainer and strip seal gland)	77		
516	43100	36	Each	1"x12"x9" Elastomeric Bearing Pads, (60 Durometer)	36		
517	72300	137.5	Lin.Ft.	Railing (Deep Beam Rail With Steel Tubular Backup, Type 2 Steel Posts & Bolts) (See Proposal Note)	137.5		
518	21101	42	Cu.Yd.	Porous Backfill, as per Plan		42	
Special	518 22200	92	Sq.Ft.	Steel Drip Strip	92		
Special	67560	37	Sq.Yd.	Sealing of Concrete Surfaces (See Proposal Note)	37		
Special	512 67502	23	Sq.Yd.	Sealing of Concrete Surfaces (Epoxy) (See Proposal Note)		23	
503	31100	36	Cu.Yd.	Rock Excavation		36	

### BENCHMARKS

NEW BENCHMARK DISKS SHALL BE PROVIDED BY O.D.O.T. AND SET IN PLACE ON A HORIZONTAL SURFACE OF THE ABUTMENT OR WINGWALL BY THE CONTRACTOR. THE PLACEMENT OF THE DISK SHALL BE SUCH THAT ACCESS TO THE DISK WILL NOT BE IMPEDED BY GUARDRAIL, BRIDGE RAILING, OR ANY PORTION OF THE STRUCTURE. THE DISK SHALL NOT BE PLACED IN AN AREA THAT IS SUBJECT TO ROADWAY TRAFFIC, ROADWAY DRAINAGE, OR FUTURE RESURFACING. AFTER COMPLETION OF THE PROJECT, O.D.O.T. SHALL RE-ESTABLISH THE ELEVATION. ANY EXISTING BENCHMARK DISK THAT IS DISTURBED BY THE CONTRACTOR DURING DEMOLITION SHALL BE CAREFULLY REMOVED AND STORED FOR SALVAGE BY DISTRICT SURVEY CREWS. ALL COSTS FOR THE ABOVE DESCRIBED WORK SHALL BE INCIDENTAL TO, AND INCLUDED IN, THE UNIT PRICE BID FOR ITEM 511 CONCRETE, CLASS "S", SUPERSTRUCTURE, HIGH EARLY STRENGTH.

3/9

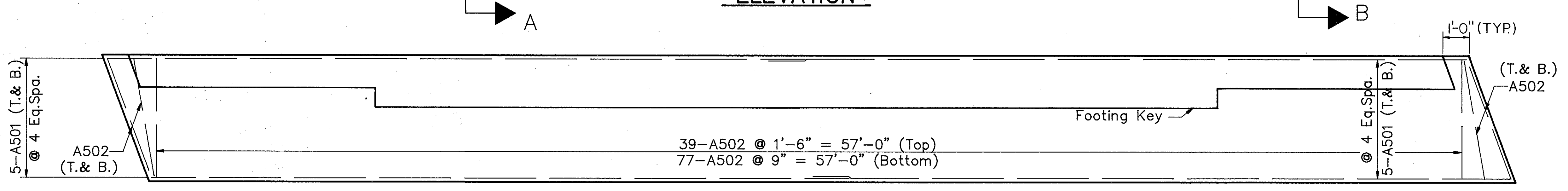
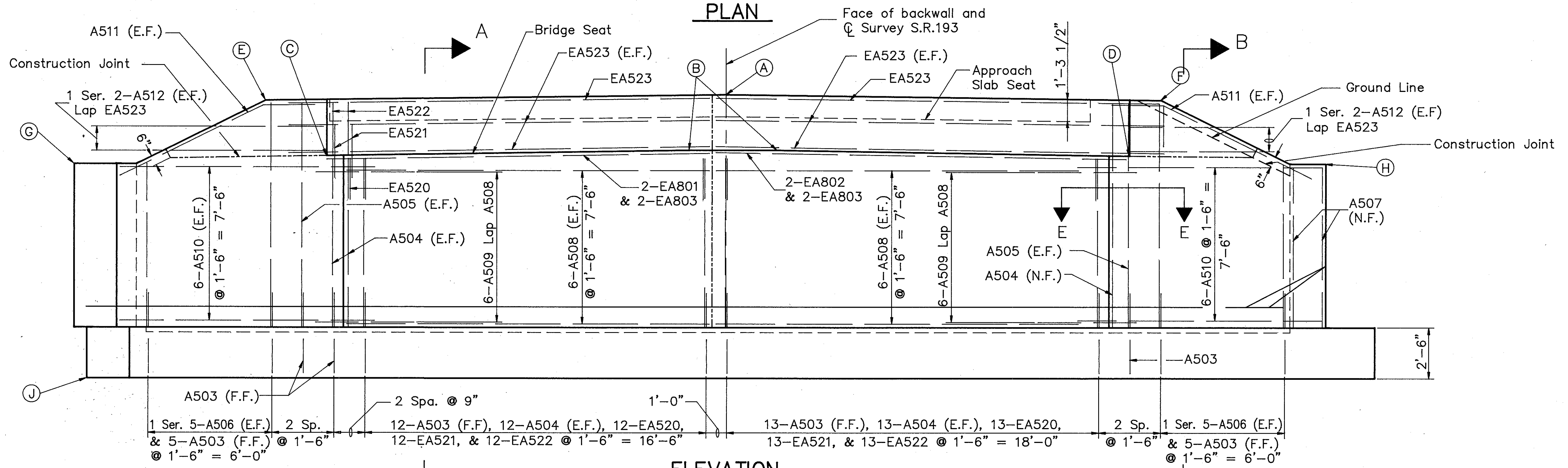
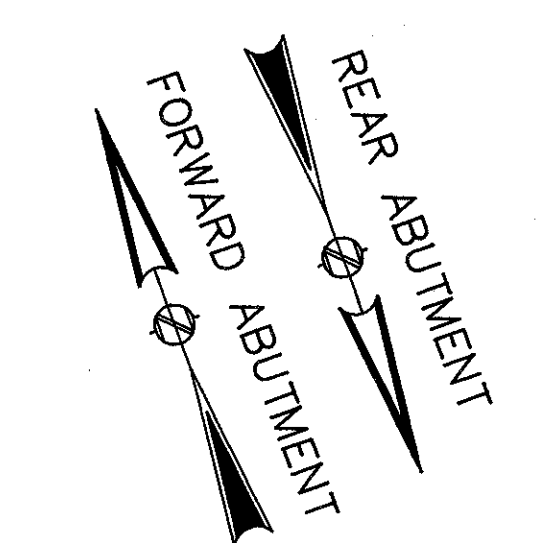
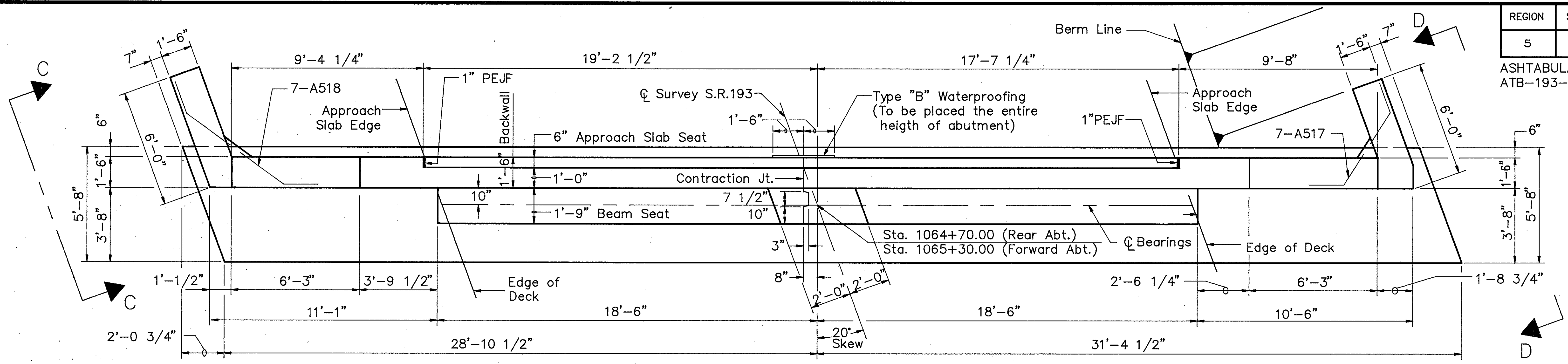
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CONSULTING ENGINEERS, SURVEYORS & PLANNERS  
3896 MAHONING AVE. YOUNGSTOWN, OHIO

**GENERAL NOTES &  
ESTIMATED QUANTITIES**  
BRIDGE NO. ATB-193-2017  
OVER GRIGGS CREEK

ASHTABULA COUNTY OHIO

DESIGNED <i>J.D.V.</i>	DRAWN <i>A.L.</i>	TRACED	CHECKED <i>A.L.</i>	REVIEWED <i>J.F.</i>	REVISED
3/89	3/89		3/89	3/89	

ASHTABULA COUNTY  
ATB-193-20.17



See sections A-A, B-B and E-E views C-C and D-D, and abutment notes on sheet 5/9.

		ELEVATIONS								
LOCATION		A	B	C	D	E	F	G	H	J
R. Abutment		914.87	912.17	911.95	911.83	914.56	914.52	911.50	911.50	901.00
F. Abutment		914.77	912.07	911.90	911.84	914.45	914.46	911.50	911.50	901.00

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3896 MAHONING AVE. YOUNGSTOWN, OHIO

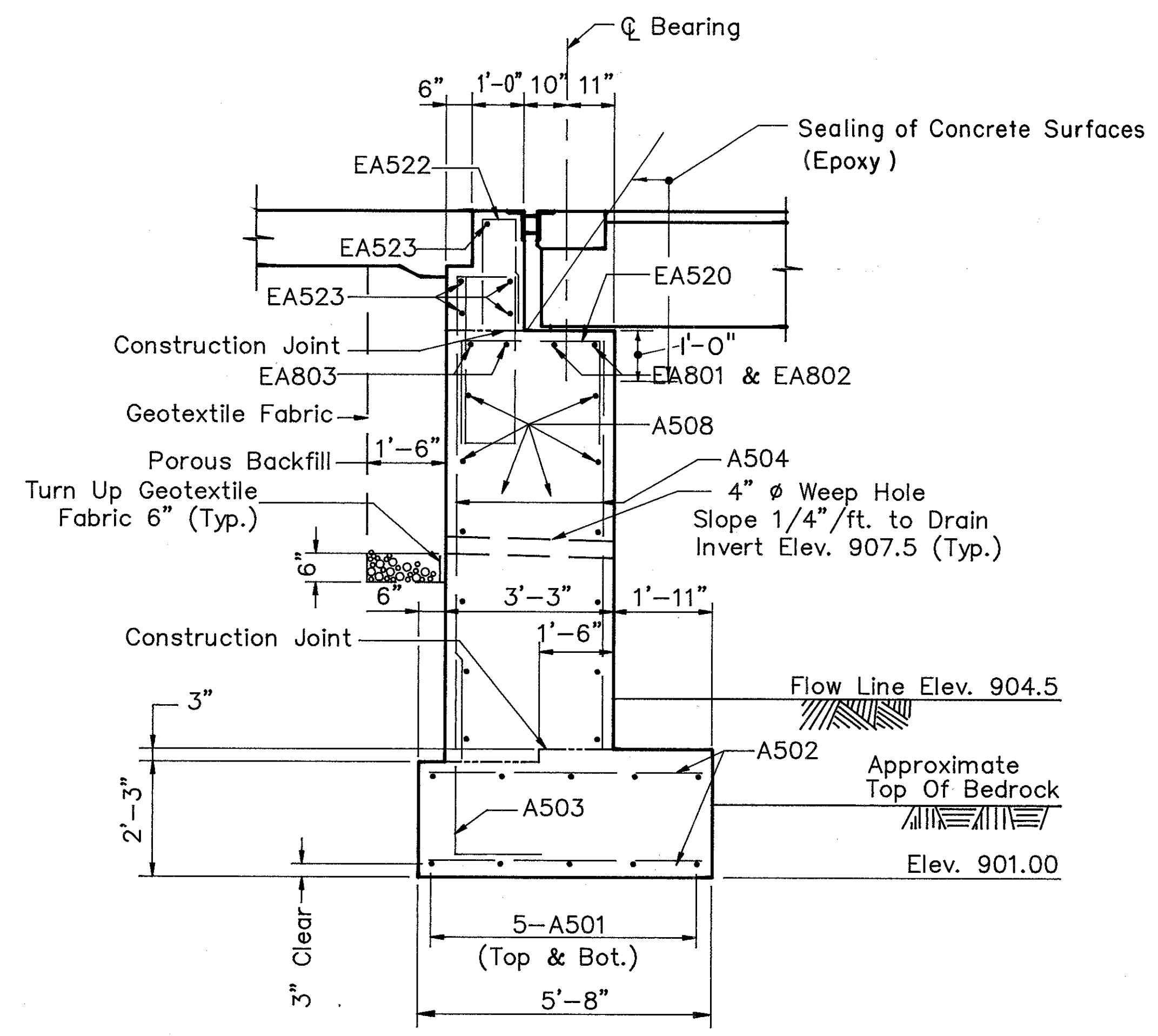
**ABUTMENT DETAILS**  
BRIDGE NO. ATB-193-2017  
OVER GRIGGS CREEK

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED
A.L.	A.L.		J.D.V.	J.F.	
3/89	3/89		3/89	3/89	

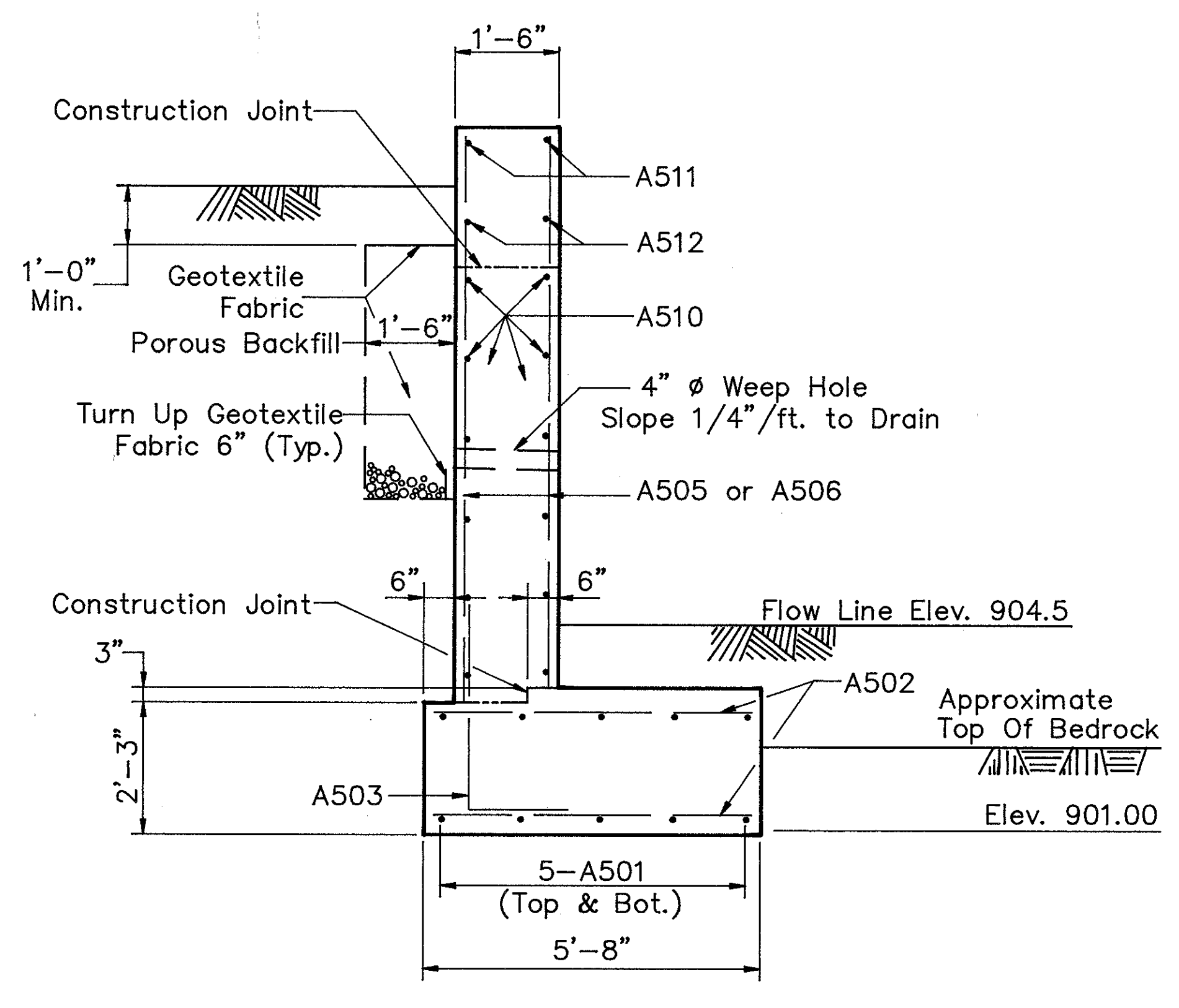
REGION	STATE	PROJECT
5	OHIO	BRS-571(4)

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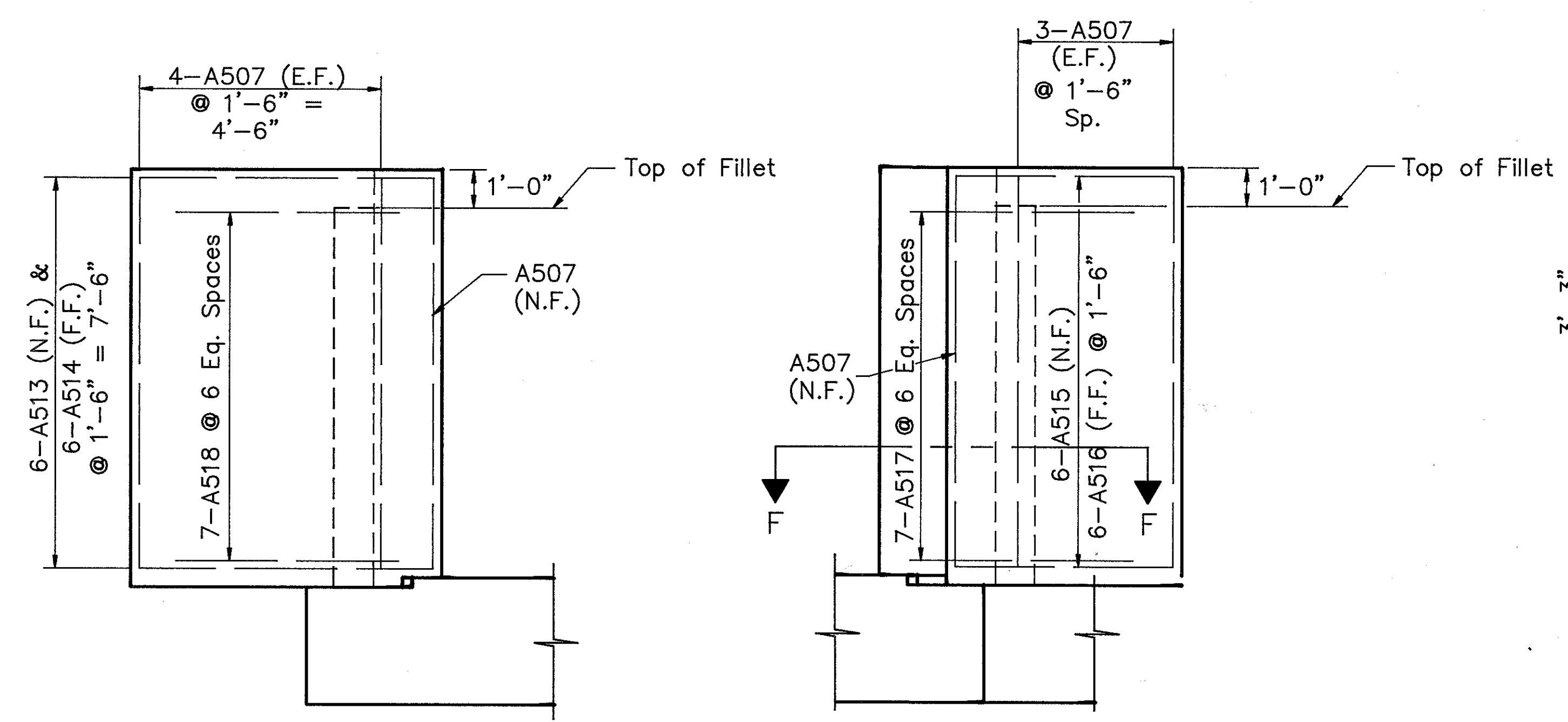
ASHTABULA COUNTY  
ATB-193-20.17



**SECTION A-A**

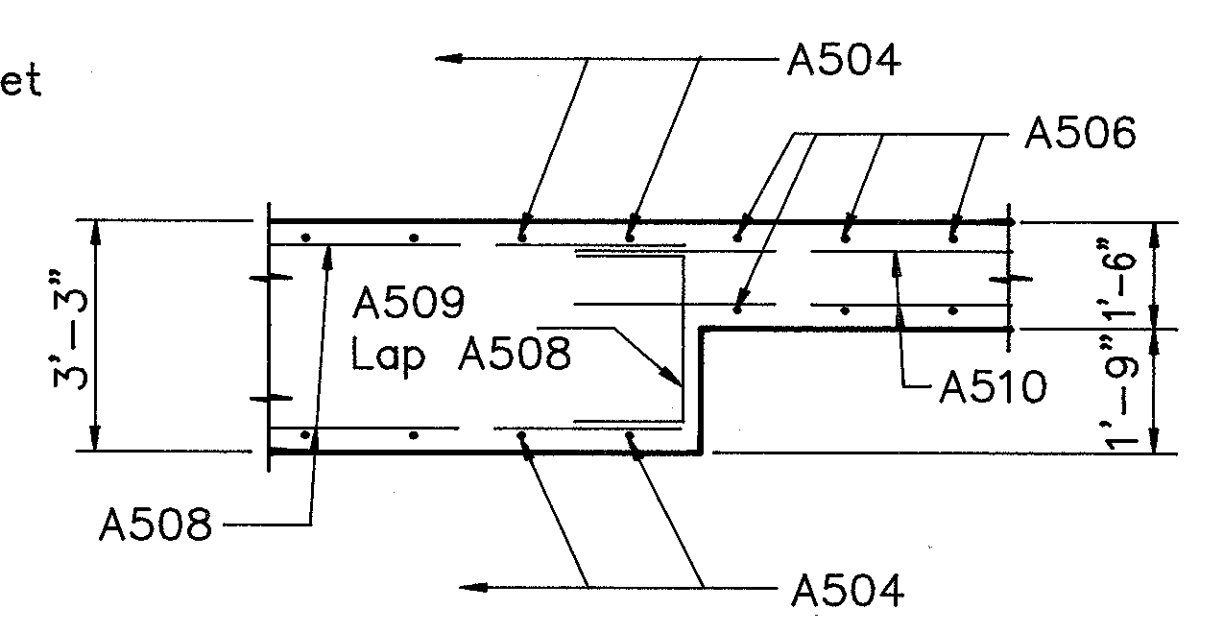


**SECTION B-B**

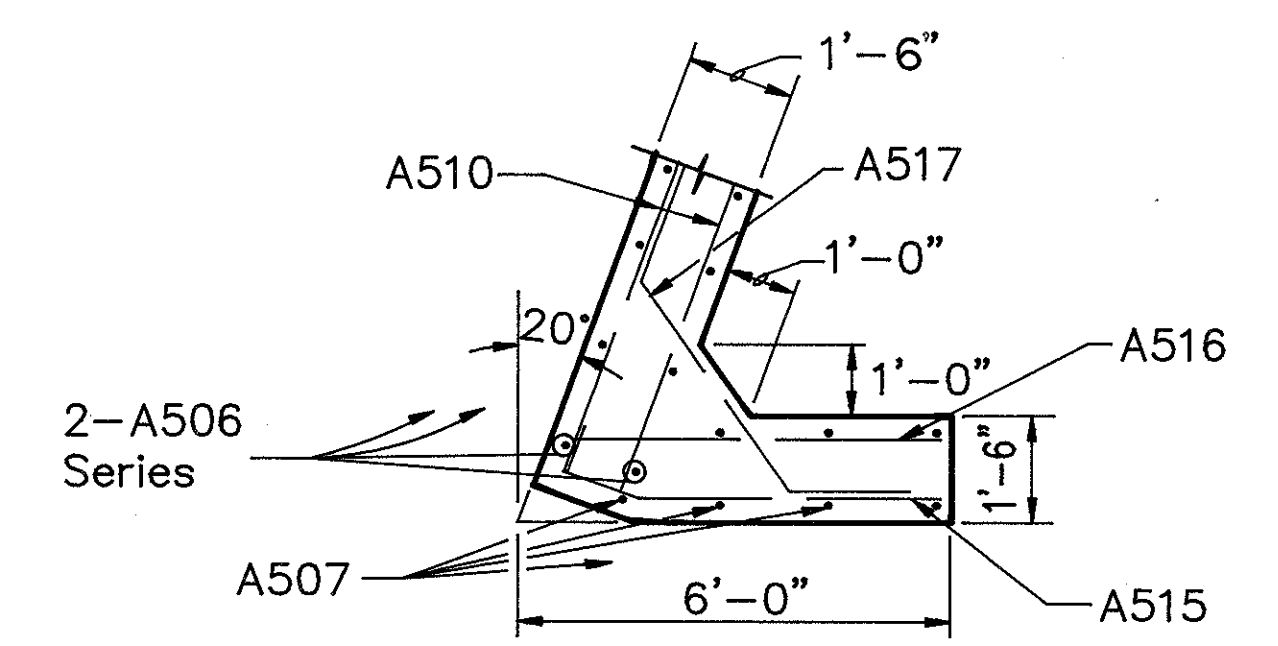


**VIEW C-C**

**VIEW D-D**



**SECTION E-E**



**SECTION F-F**

**ABUTMENT NOTES**

1. For reinforcing Bending Schedules see dwg 9/9.
2. Concrete shall be class "C" for the abutments.
3. Reinforcing splice lengths shall be 1'-8" minimum.
4. D801 bars shall be installed parallel with  $\phi$  roadway.

**CONCRETE** above the construction joint at the level of the bridge seat shall not be placed until the prestressed box beams have been set.

**POROUS BACKFILL**, 1'-6" thick shall extend upward to the plane of the subgrade, to 1'-0" below the embankment surface, and laterally to the end of the wingwalls. The porous backfill shall be encased with geotextile fabric, type A per 712.09 as per plan. Geotextile fabric to be included with item 518, Porous Backfill, for payment.

**BRIDGE SEAT REINFORCING**: Reinforcing steel in the vicinity of the bridge seat shall be accurately placed to avoid interference with the drilling of dowel holes.

**FOOTINGS** shall extend a minimum of 3 inches into bedrock or to the elevation shown whichever is lower.

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3896 MAHONING AVE. YOUNGSTOWN, OHIO

**ABUTMENT DETAIL & NOTES**  
BRIDGE NO. ATB-193-2017  
OVER GRIGGS CREEK  
ASHTABULA COUNTY OHIO

DESIGNED F. D. V.	DRAWN S. R. M.	TRACED	CHECKED F. F.	REVIEWED F. F.	REVISED
3/89	3/89		3/89	3/89	





REGION	STATE	PROJECT
5	OHIO	BRS-571(4)

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22

ASHTABULA COUNTY  
ATB-193-20.17

**NON-SHRINKING MORTAR:** Mortar or grout for keyways between prestressed concrete box beams, for tie rod recesses and for anchor dowel holes shall be a non-shrinking non-metallic mortar having a minimum compressive strength at 28 days of 5000 p.s.i. according to the Corps of Engineers specification CRD-C621-83 when prepared to a moderate fluidity (124-145% flow table flow). The mortar or grout shall also meet all other requirements of specification CRD-C621-83. The mortar shall be prepared, placed and cured in accordance with the manufacturer's recommendations, against surfaces as specified below.

**PREPARATION OF CONCRETE SURFACES IN CONTACT WITH NON-SHRINKING MORTAR:**

The keyway surfaces shall be given a medium sandblast at the plant within four days before the beams leave the plant. Before mortaring, the keyways shall be thoroughly clean of all dirt, dust and other foreign matter. The keyway surfaces shall be wetted, but no free water shall be allowed to remain in the keyways.

**ELASTOMERIC BEARING PADS** shall be 60 Durometer Hardness.

FABRICATOR is allowed to change the width of beams on bridge, if there is some advantage in doing so. However, the bridge width must remain the same, bearings will be redesigned by a professional engineer and there will be no additional cost to the State. The revised plans must be submitted for approval by the Director.

**FASCIA BEAMS:** To avoid interference with the anchors for the bridge railing posts, the longitudinal reinforcing bars near the fascia shall be shifted as necessary. Fabricator's shop drawings shall show complete details of the beam reinforcement. The keyway on exterior side of the fascia beams shall be omitted.

The following details from PSBD-1-81 apply to this project:

- Sheet 1 of 4: Beam lifting inserts, wall thickening at guardrail anchors, details and reinforcement of beam ends.
- Sheet 2 of 4: Typical plans of diaphragms and transverse tie rods, normal crown treatment at centerline of roadway, beam dimensional tolerances, and end details of transverse tie rod anchorage.
- Sheet 3 of 4: 36 & 48 inch wide noncomposite beams (B27-36 & B27-48)

The following notes from PSBD-1-81 apply to this project:

- Sheet 1 of 4: Transverse tie rods, galvanizing, anchor dowels, end of beams, and as required to supplement applicable details.
- Sheet 2 of 4: As required to supplement applicable details.
- Sheet 3 of 4: As required to supplement applicable details.

**PRESTRESSED CONCRETE BOX BEAM:** Beam manufacturer will take extra care in storing beams prior to shipment to site. They shall be stored in the position which shall correspond with their erected position.

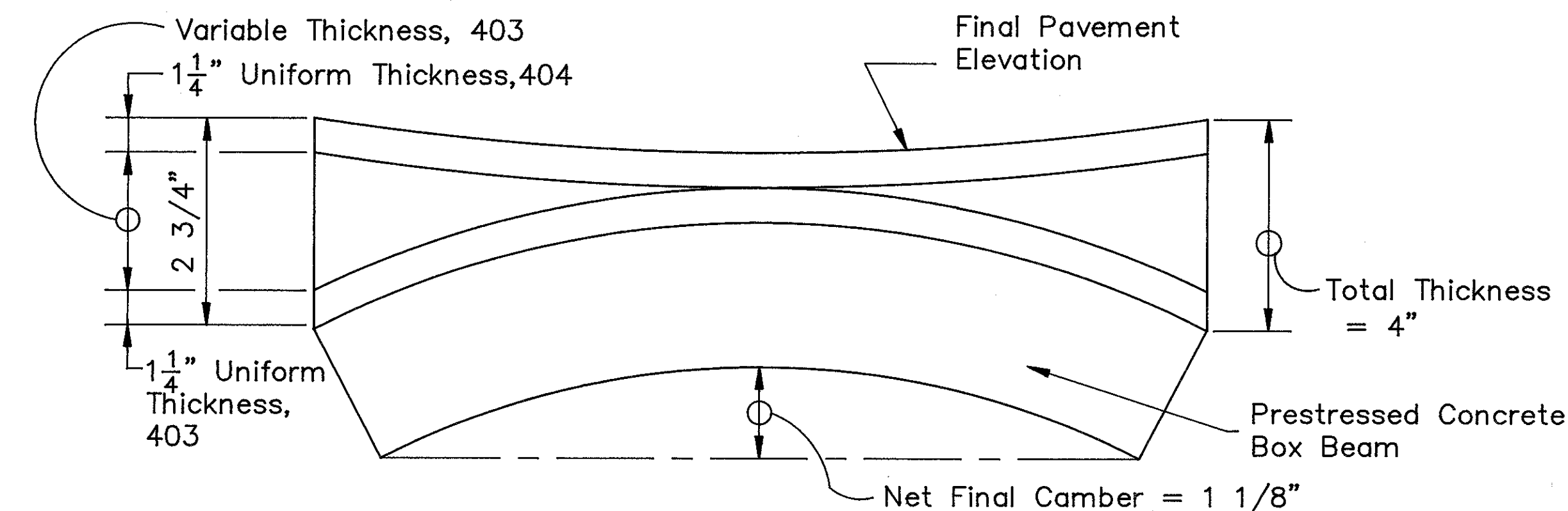
The fabricator's shop drawings shall show complete details of the beam reinforcement.

**BEARING PAD SHIMS:** Preformed bearing pads are provided for use as shims where needed for proper seating of the prestressed beams. Any unused pads shall become the property of the State.

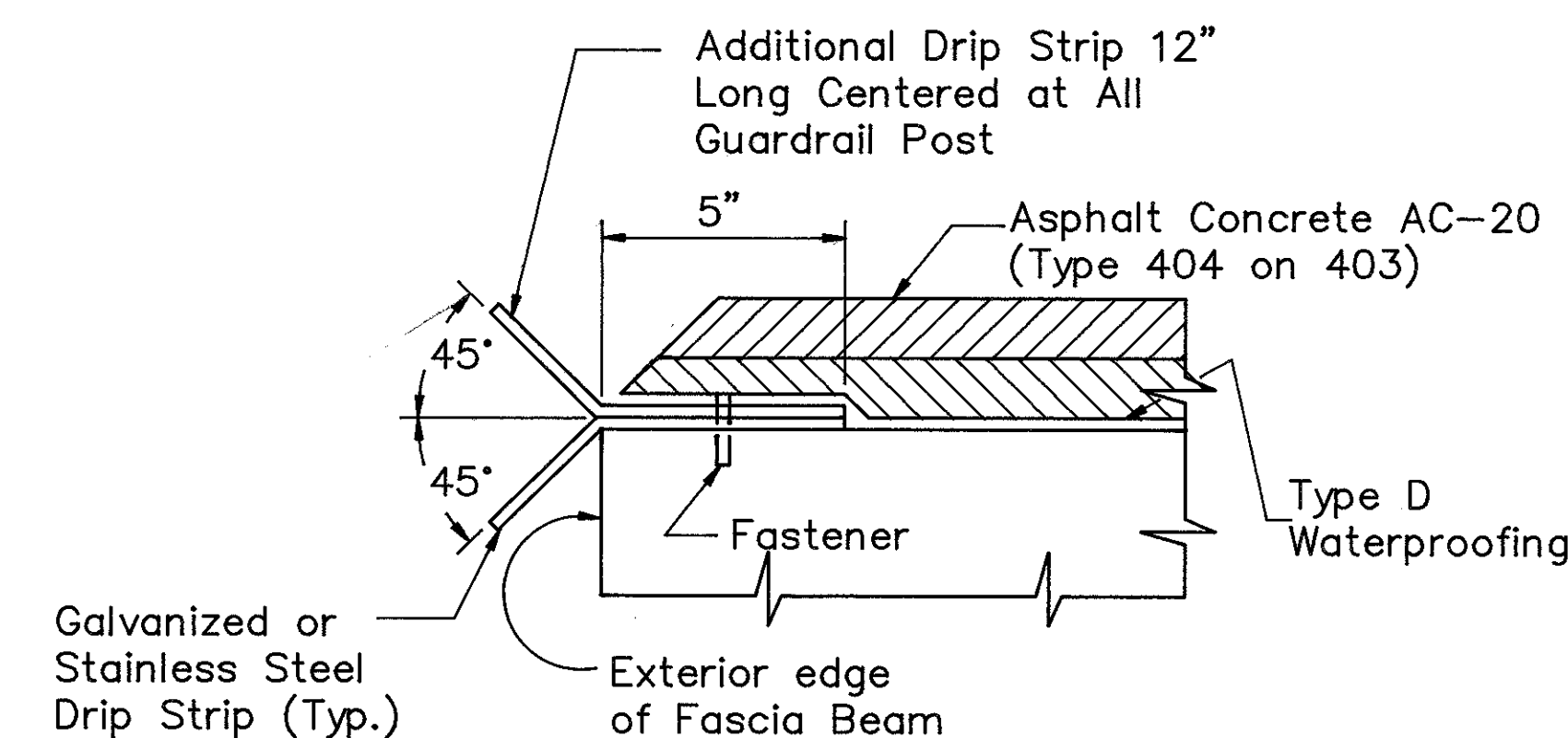
**CAMBER:** Calculated camber at time of paving, including allowance for camber growth due to creep, is 1 3/8". Calculated deflection due to weight of surface course and railing is 1/4". Net final camber of beams is 1 1/8". 3/8" is added to this amount to compensate for the sag vertical curve. This excess amount (1 1/2"), required to place the top of the beam parallel to profile grade, shall be compensated for by thickening the 403 leveling course from 1 1/4" at center of span to 2 3/4" at ends of spans.

**ASPHALT CONCRETE SURFACE COURSE** shall consist of a variable thickness of 403 and 1 1/4" thickness of 404. The 403 shall be placed in two operations. The first course shall be of 1 1/4" uniform thickness. The second course shall be feathered to place the surface parallel to and 1 1/4" below final pavement surface elevation.

**DRIP STRIP :** Prior to applying type D waterproofing, a bent drip strip shall be fastened at 1'-6" c/c maximum with 1 1/4" x 5/32" x 1/4" flat head drive pins and washers (length x shank dia. x head dia.) or no.10 galvanized screws and expansion anchors, subject to the approval of the engineer. The strips shall be placed the full length of deck, ending at the deck joint protrusion. Where splices are required a 3" (min.) lap shall be used with a fastener through the lap. Steel for galvanized strips shall be 8" x 0.105" and shall meet the requirements of ASTM A568. Galvanizing shall be in accordance with item 711.02. Stainless steel shall be 20 gauge ASTM A167, type 304, mill finish. Payment shall be at the contract price bid for item special, sq.ft., steel drip strip, which shall include all materials, labor, tools and incidentals necessary to complete the item.



ASPHALT THICKNESS DIAGRAM



TYPICAL DRIP STRIP DETAIL

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**SUPERSTRUCTURE DETAILS**  
BRIDGE NO. ATB-193-2017  
OVER GRIGGS CREEK

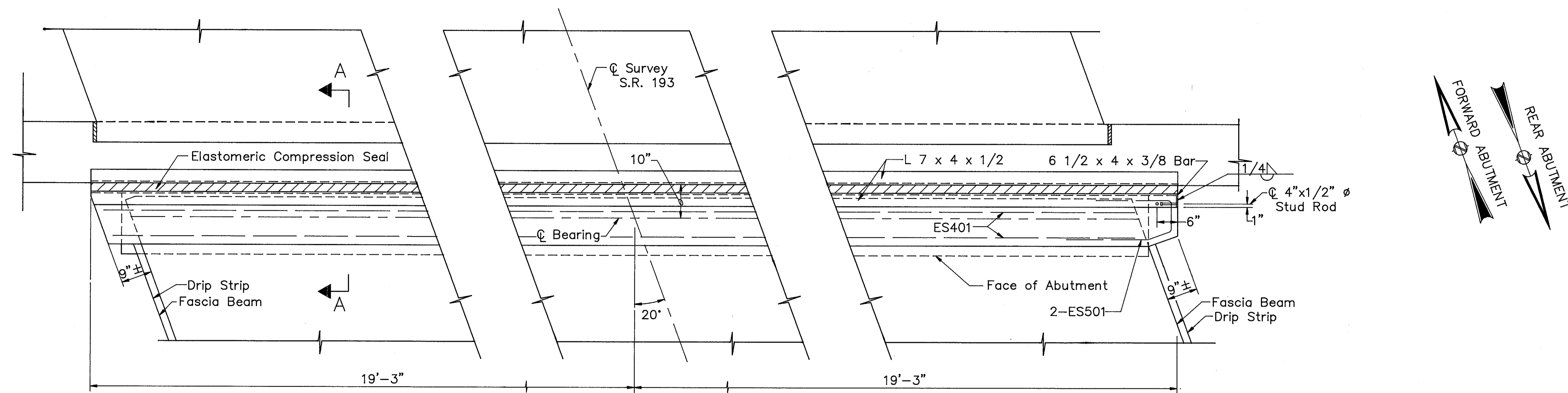
ASHTABULA COUNTY OHIO

DESIGNED A.L.	DRAWN A.L.	TRACED	CHECKED F.D.V.	REVIEWED J.F.	REVISION
3/89	3/89		3/89	3/89	

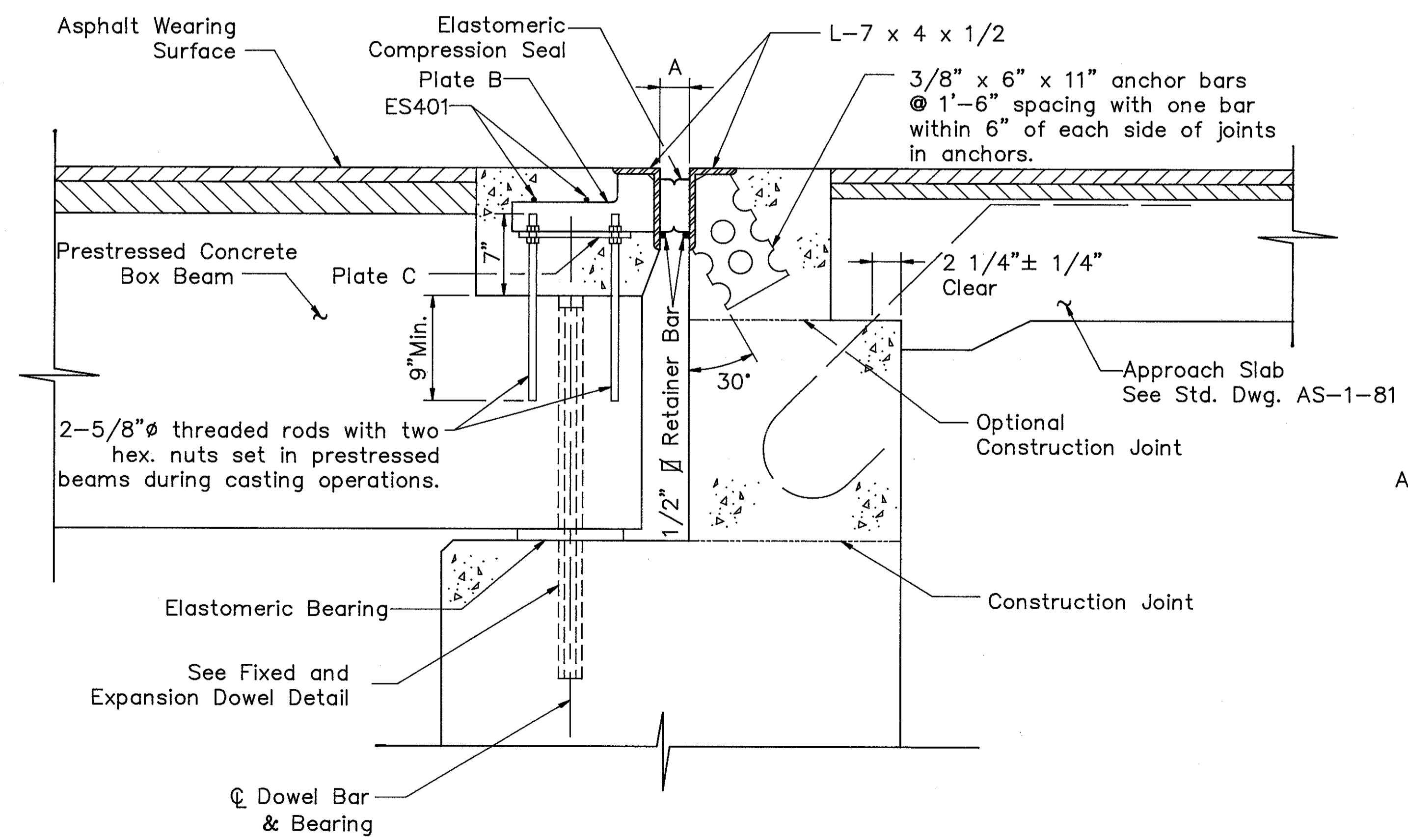
REGION	STATE	PROJECT
5	OHIO	BRS-571(4)

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22

ASHTABULA COUNTY  
ATB-193-20.17



**PLAN - STRUCTURAL DECK JOINT**

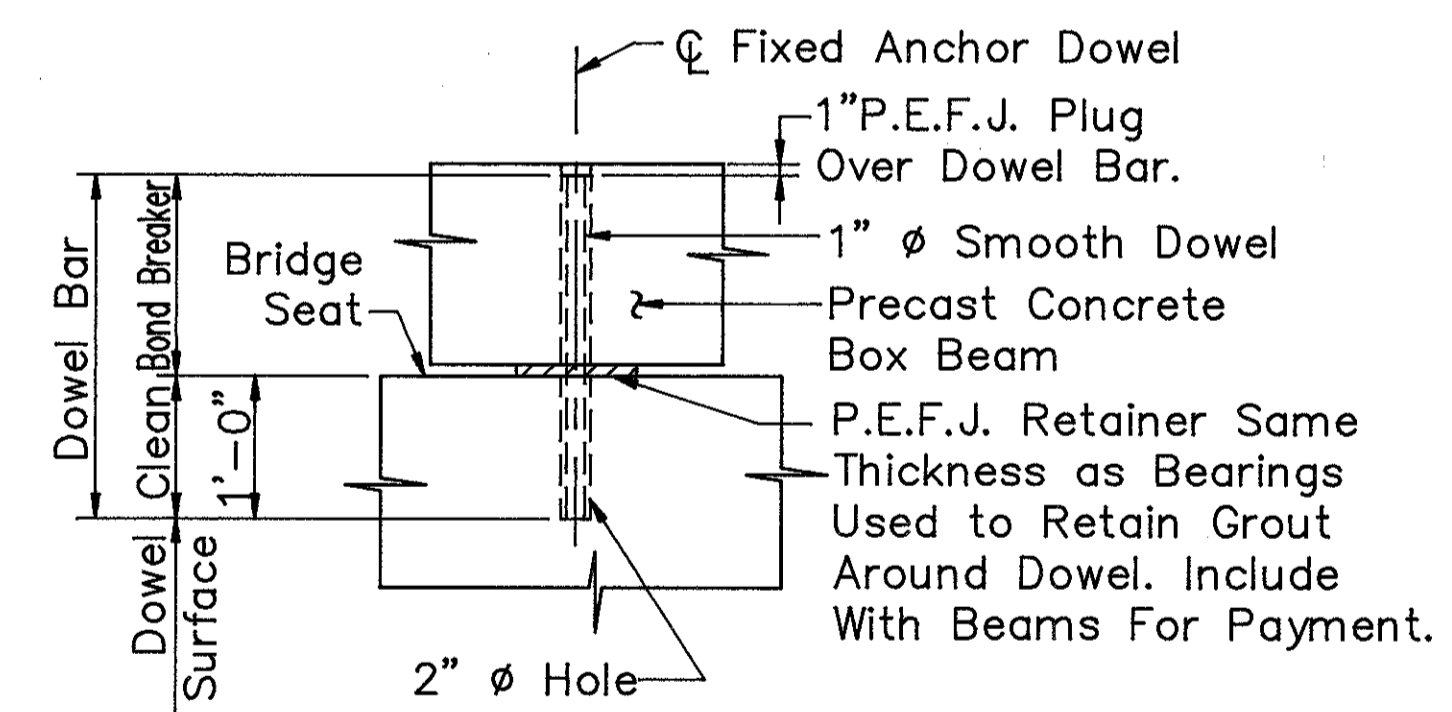


**SECTION A-A**

FOR DETAILS OF	SEE STD. DWG.
Construction Procedure	EXJ-3-82 Sheet 1 of 4
Joint Armor Adjustment Detail	Sheet 1 of 4
Compression Seal Detail	Sheet 2 of 4
Joint Plan - Superstructure Side	Sheet 3 of 4
Armor Anchor Plates	Sheet 3 of 4
Plate C Plan	Sheet 3 of 4
General Notes	Sheet 3 of 4

For an anticipated peak ambient temperature (F°)  
 Forward Abutment { A = 2 3/8" @ 40°  
 A = 2 1/4" @ 60°  
 A = 2 1/8" @ 80° } Rear Abutment { A = 2 1/4" }

Minimum reinforcing bar splice lap length for #4 bar is 1'-4".  
 For additional details not shown, see Std. Dwg. EXJ-3-82.



**FIXED ANCHOR DOWEL DETAIL**

PROCEDURE: Place P.E.J.F. grout retainer. Drill and clean dowel holes. Then place non-shrinking grout, dowel, and 1" minimum P.E.J.F. plug.

See standard drawing PSBD-1-81 sheet no. 1 of 4, for Expansion Anchor Dowel Detail.

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**SUPERSTRUCTURE DETAILS**  
 BRIDGE NO. ATB-193-2017  
 OVER GRIGGS CREEK

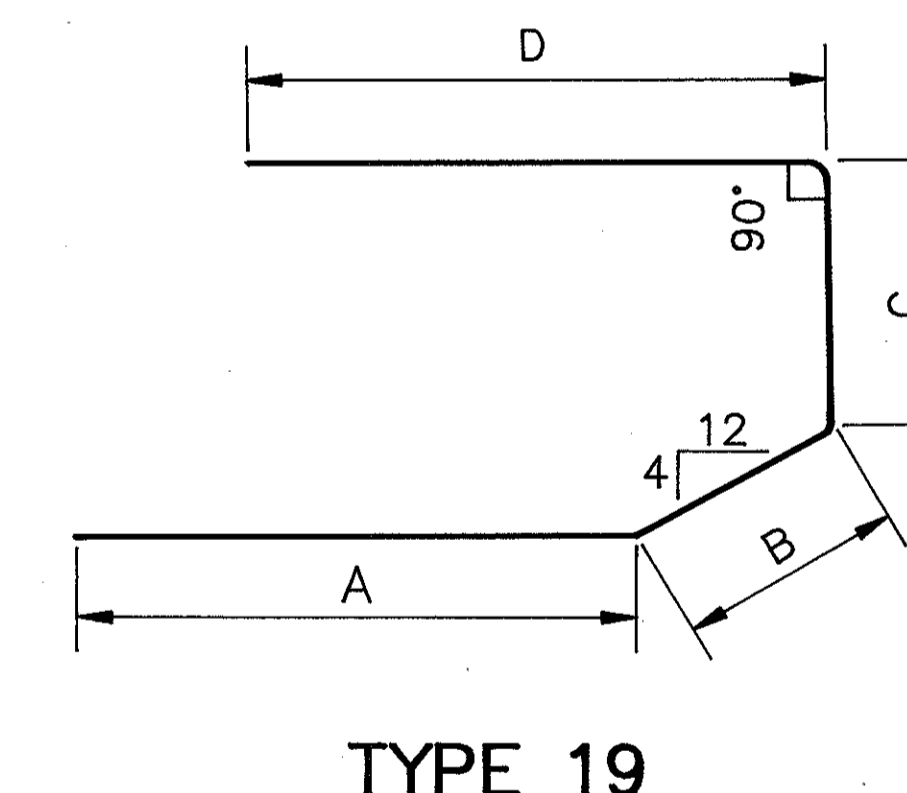
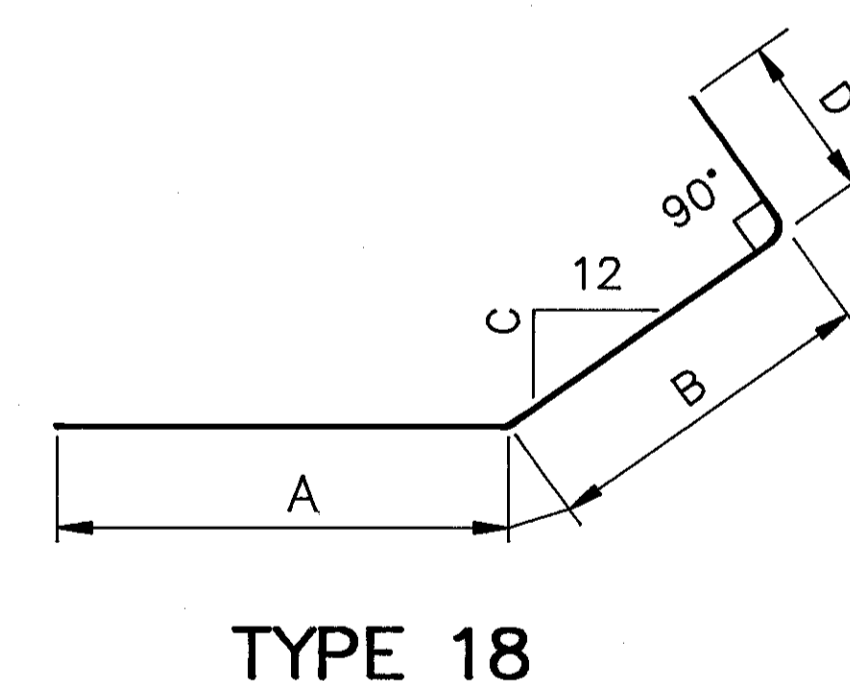
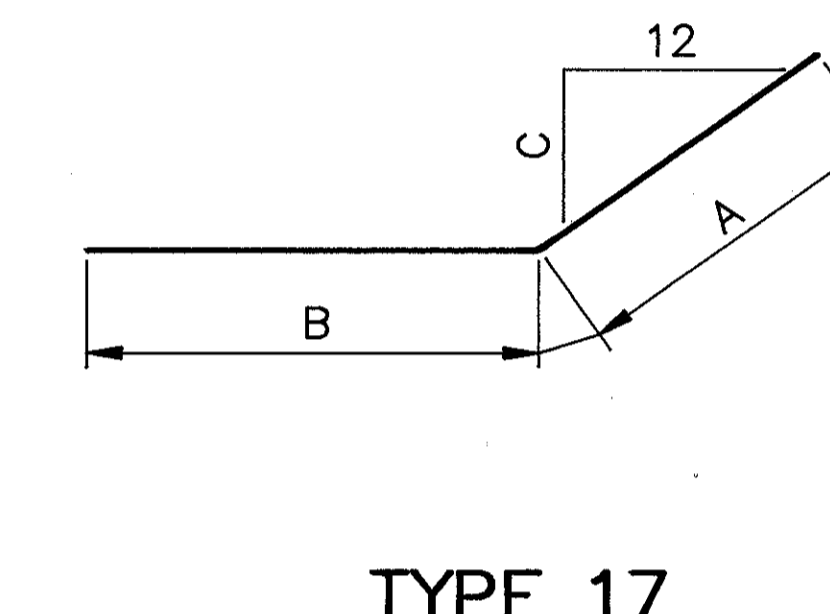
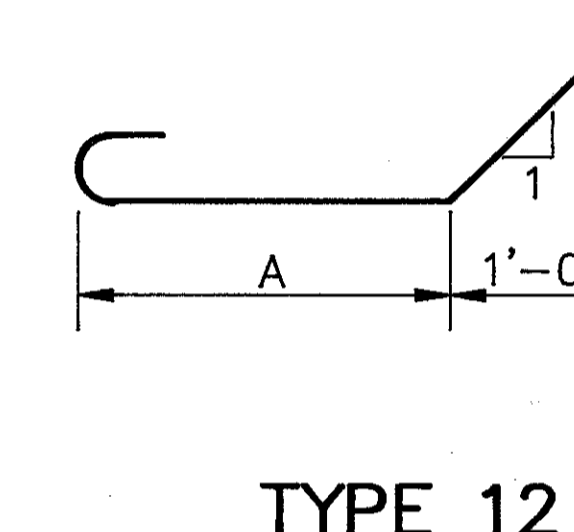
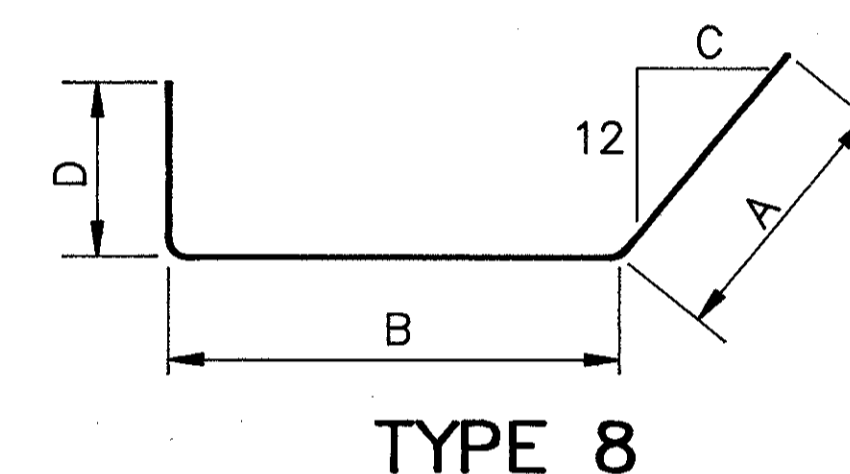
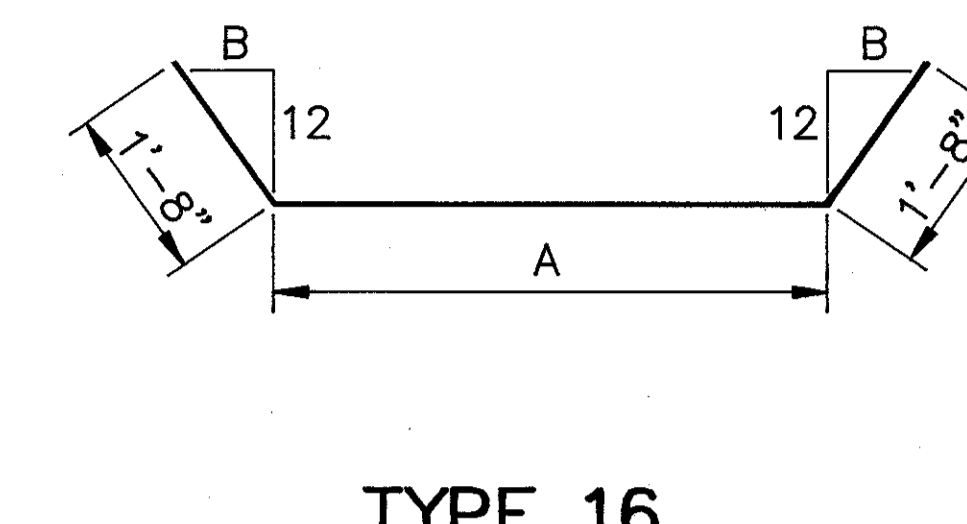
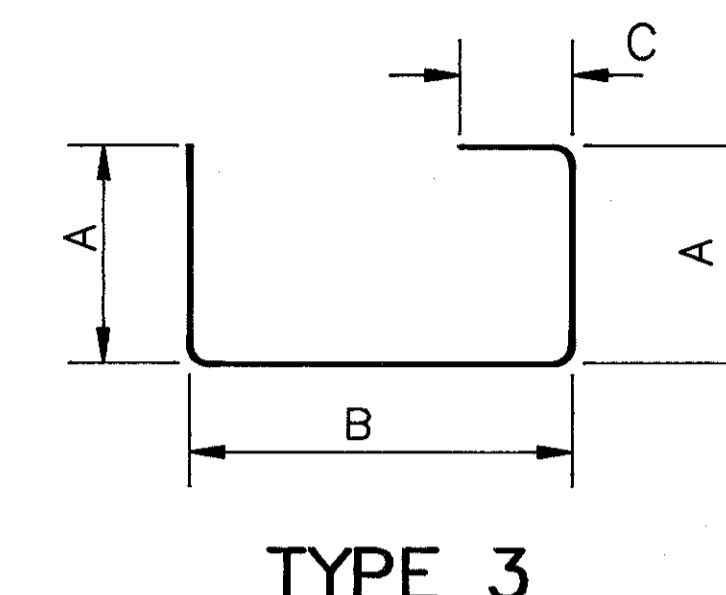
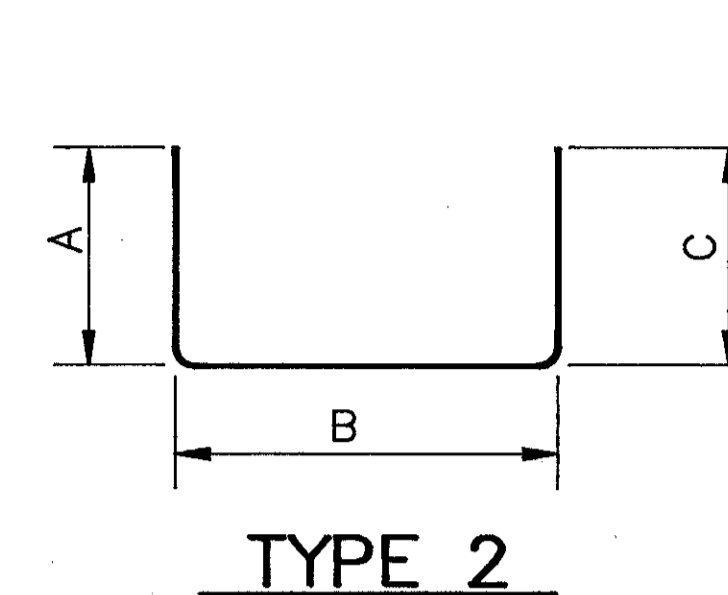
ASHTABULA COUNTY					OHIO
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED
A.L.	A.L.		J.D.V.	J.F.	
3/89	3/89		3/89	3/89	

REINFORCING STEEL											
MARK	LENGTH	TYPE	A	B	C	D	INCR.	REAR ABT.	FRWD. ABT.	SUPERSTRUCTURE	WEIGHT LBS.
								NO.	NO.	NO.	
A501	30'-10"	ST.						20	20		1286
A502	5'-4"	ST.						124	124		1379
A503	5'-6 1/2"	2	4'-2"	1'-6"	0			38	38		439
A504	8'-2"	ST.						55	55		937
A505	10'-10"	ST.						4	4		90
A506	7'-10" to 10'-10"	ST.					9"	4 Series of 5	4 Series of 5		389
A507	7'-7"	ST.						18	18		285
A508	17'-6"	ST.						24	24		876
A509	7'-4"	2	3'-3"	2'-10"	1'-6"			12	12		184
A510	12'-6"	ST.						24	24		626
A511	10'-6"	17	2'-6"	8'-0"	5 5/8"			4	4		88
A512	4'-10" to 7'-5"	ST.						4 Series of 2	4 Series of 2		102
A513	7'-3"	8	1'-6"	5'-9"	4 3/8"			6	6		91
A514	5'-9"	ST.						6	6		72
A515	6'-9"	18	4'-4"	1'-2"	4 3/8"	1'-6"		6	6		84
A516	5'-0"	ST.						6	6		63
A517	7'-7"	16	4'-3"	8 1/4"				7	7		111
A518	9'-3"	16	5'-11"	17"				7	7		135
D801	4'-8"	12	2'-4"					25	25		623
										TOTAL	7860
EPOXY COATED REINFORCING STEEL											
ES401	37'-0"	ST.								4	99
ES501	5'-0"	19	2'-0"	6"	9"	2'-0"				4	21
EA520	6'-8"	2	2'-0"	2'-11"	2'-0"			26	26		362
EA521	7'-0"	3	2'-8"	1'-2"	10"			27	27		394
EA522	5'-5"	2	2'-6"	8"	2'-6"			27	27		305
EA523	20'-6"	ST.						12	12		513
EA801	17'-6"	ST.						2	2		187
EA802	18'-10"	ST.						2	2		201
EA803	21'-0"	ST.						4	4		449
										TOTAL	2531

NOTES :

BAR SIZE : The bar size is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example: A506 is No. 5 size bar and P1101 is a No. 11 size bar.

Bars with the prefix E denote epoxy coated bars.  
ST. = Straight



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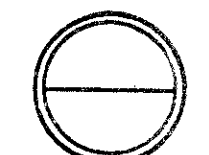
**REINFORCING STEEL LIST**  
BRIDGE NO. ATB-193-2017  
OVER GRIGGS CREEK

ASHTABULA COUNTY OHIO

DESIGNED F. D. V. 3/89	DRAWN A. L. 3/89	TRACED	CHECKED A. L. 3/89	REVIEWED T. F. 3/89	REVISED
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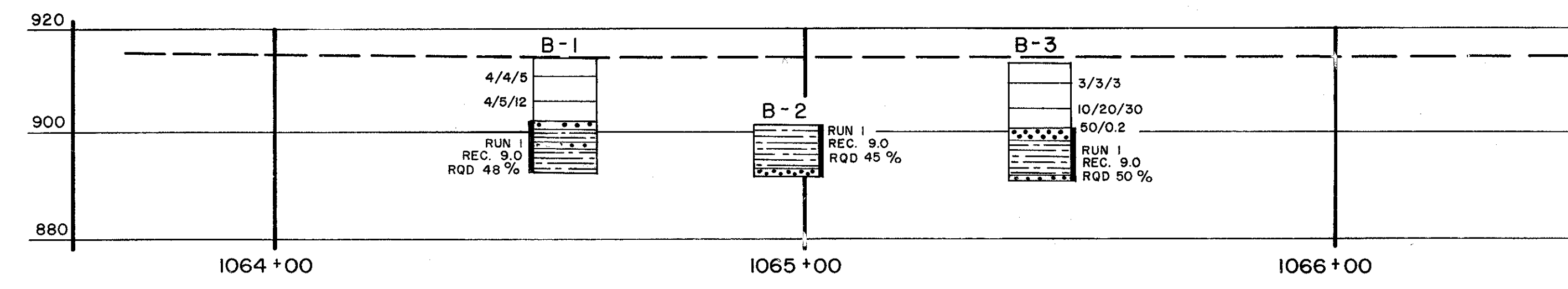
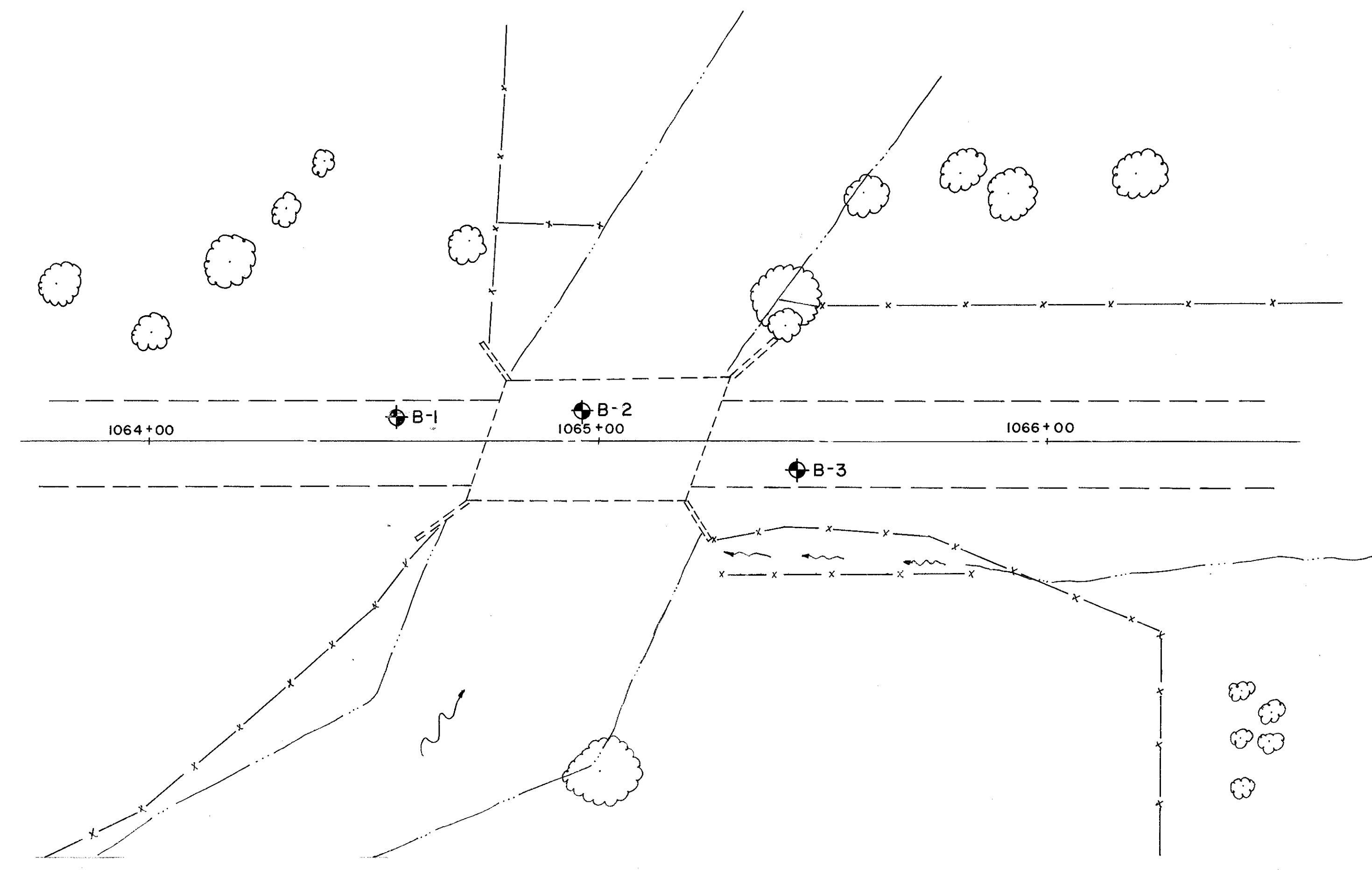


FHWA REGION	STATE	PROJECT
5	OHIO	BRS-571 (4)



2  
3

N  
SCALE 1"=20'



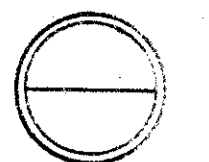
SUBSURFACE INVESTIGATION  
ATB-193-2017  
ASHTABULA COUNTY, OHIO



**R & R International, Inc.**

GEOTECHNICAL ENGINEERS - GEOLOGISTS

3675 COPLEY ROAD  
AKRON, OH 44321  
216-666-2200



LOG OF BORING

Date Started 3-7-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---  
 Date Completed 3-7-88 Casing Length -- Dia. ---  
 Boring No. B-1 Station & Offset Sta. 1064 + 55 6' LT.± Surface Elev. 915±

ELEV.	DEPTH	STD. PEN. (N)	REC. FT.	LOSS FT.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS											SHTL CLASS.		
								% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	LL	P.L.	P.I.	W.C.					
915.0	0				ASPHALT																
914.2					SAND AND GRAVEL ROADBASE																
913.6																					
	5	4-4-5	1.5			1	SS	15.2	7.7	3.5	*	73.6	--	--	--	21.1					A-4a
					Stiff to very stiff, gray SANDY SILT, little clay, trace gravel, moist.																
	10	4-5-12	1.5			2	SS	36.2	21.8	5.8	*	36.2	--	--	--	15.7					A-4a
903.0		RQD 48%	9.0	1.0	Gray SANDSTONE, slightly altered, hard, fine grained.	Run 1	NX														
901.5					Gray SILTY SHALE, moderately altered, firm, thin bedded.																
899.0					Gray SANDSTONE, slightly altered, hard, fine grained.																
897.5					Gray SILTY SHALE, moderately altered, firm, thin bedded with 0.4' sandstone interbed.																
	20				TERMINATION DEPTH 22.0 FEET																
893.0																					

LOG OF BORING

Date Started 3-8-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---  
 Date Completed 3-8-88 Casing Length -- Dia. ---  
 Boring No. B-2 Station & Offset Sta. 1065 + 04 7' LT.± Surface Elev. 914.7(±)

3/3

ELEV.	DEPTH	STD. PEN. (N)	REC. FT.	LOSS FT.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS											SHTL CLASS.			
								% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	LL	P.L.	P.I.	W.C.						
914.7	0				BRIDGE DECK																	
913.7																						
	5				AIR																	
906.5																						
	10				STREAM WATER																	
902.0					Soft, gray SILT, little sand, wet.																	
901.0																						
	15	RQD 45%	9.0	1.0	Gray SILTY SHALE, moderately altered, firm to hard, thin bedded.	Run 1	NX															
892.5					Gray SANDSTONE, unaltered, hard, fine grained.																	
891.0					TERMINATION DEPTH 10.0 FEET INTO BEDROCK																	
	25																					

ATB-193-20.17

LOG OF BORING

Date Started 3-7-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---  
 Date Completed 3-7-88 Casing Length -- Dia. ---  
 Boring No. B-3 Station & Offset Sta. 1065 + 44 6' RT.± Surface Elev. 914.7(±)

ELEV.	DEPTH	STD. PEN. (N)	REC. FT.	LOSS FT.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS											SHTL CLASS.			
								% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	LL	P.L.	P.I.	W.C.						
914.7	0				ASPHALT																	
913.9		1-3-4	1.5		LIMESTONE AGGREGATE ROADBASE																	
913.3		3-3-3	1.5			1	SS	4.7	10.8	11.2	*	73.3	--	--	--	21.6					A-4a	
	5				Medium stiff to hard, gray SANDY SILT, some clay, trace gravel, moist.																	
	10	10-20-30	1.5			2	SS	3.0	1.1	0.5	*	95.4	--	--	--	10.8					A-4a	
902.1		50/0.1	0.0		AUGER REFUSAL AT 12.6 FEET.																	
899.7		RQD 50%	9.0	1.0	Gray SANDSTONE, slightly altered, hard, fine grained.	Run 1	NX															
	15				Gray SILTY SHALE, slightly altered, hard, fine grained.																	
	20																					
893.1					Gray SANDSTONE, slightly altered, hard, fine grained.																	
892.1					TERMINATION DEPTH 22.6 FEET																	
	25																					

SUBSURFACE INVESTIGATION  
 ATB-193-20.17  
 ASHTABULA COUNTY, OHIO

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