INDEX OF SHEETS
SEE SHEET 2

RECORD PLANS

CONTRACTOR: F.W. WHITCOMB CONSTRUCTION CORP. – WALPOLE, NH

RESIDENT ENGINEER: TOM MANCINI

CONSTRUCTION BEGAN: AUGUST 14, 2011

CONSTRUCTION COMPLETE: JUNE 26, 2012

RECORD PLANS BY: TOM MANCINI & JENNA HYDE

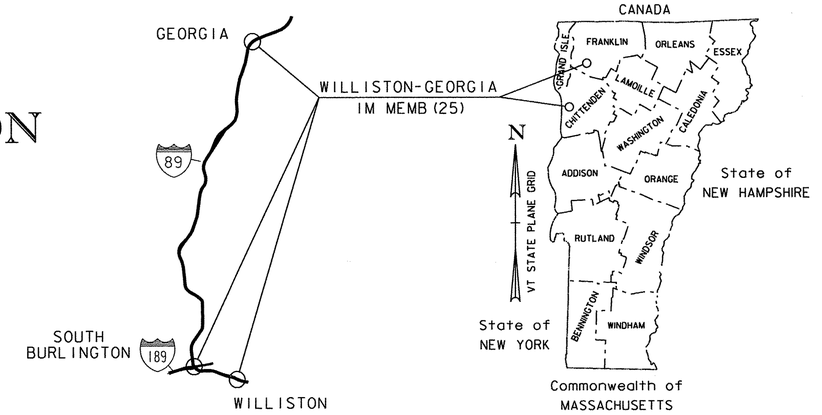
I HEREBY CERTIFY THAT ALL THE CONSTUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.

BY _____ RESIDENT ENGINEER

DATE 11/19/13

NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found at Central Files in the electronic archives.

STATE OF VERMONT
AGENCY OF TRANSPORTATION



LOCATION MAP
NOT TO SCALE

PROPOSED IMPROVEMENT
BRIDGE PROJECT

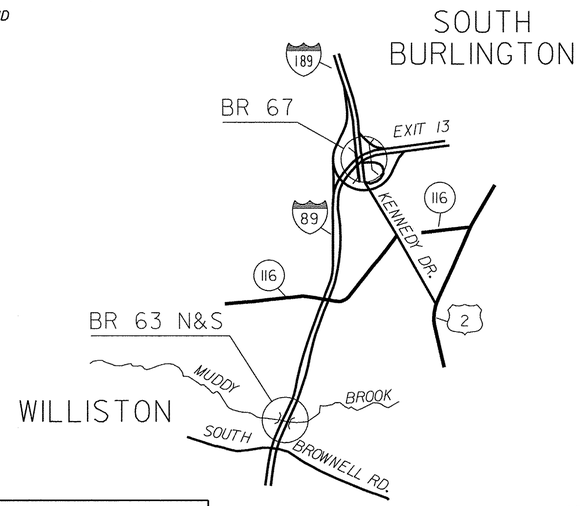
TOWNS OF WILLISTON, GEORGIA, AND CITY OF SOUTH BURLINGTON
COUNTIES OF CHITTENDEN AND FRANKLIN
BRIDGES NO. 63N&S ON I-89 (WILLISTON), NO. 67, I-89 (SOUTH BURLINGTON), NO. 84N&S ON I-89 (GEORGIA)

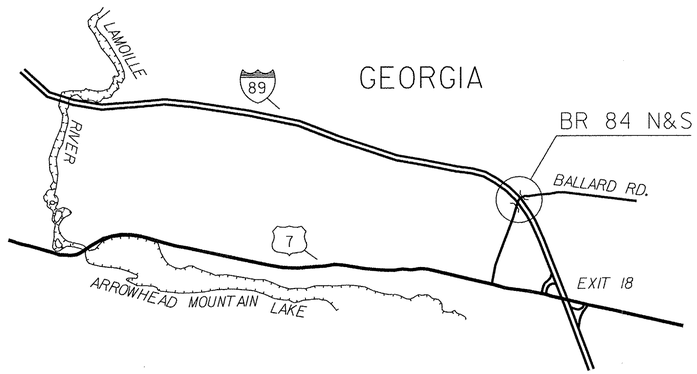
PROJECT LOCATIONS: BRIDGES NO. 63N&S ARE LOCATED ON I-89 (MM 84.991) OVER MUDDY BROOK ON THE TOWNLINE OF WILLISTON AND THE CITY OF SOUTH BURLINGTON
BRIDGE NO. 67 IS LOCATED OVER I-89 (MM 87.488) ON I-189 IN THE CITY OF SOUTH BURLINGTON
BRIDGES NO. 84N&S ARE LOCATED ON I-89 (MM 105.670) OVER T.H. 6 (BALLARD RD.) IN THE TOWN OF GEORGIA

PROJECT DESCRIPTION: THIS PROJECT INVOLVES REMOVING AND REPLACING THE BITUMINOUS CONCRETE WEARING SURFACE ON THE BRIDGES AND APPROACHES, REMOVING AND REPLACING THE MEMBRANE ON THE BRIDGE DECKS, AND MINOR ASSOCIATED APPROACH WORK.

LENGTH OF BRIDGES:		
	63N	64 FEET
	63S	64 FEET
	67	266 FEET
	84N	94 FEET
	84S	94 FEET
TOTAL LENGTH OF BRIDGES:		582 FEET
TOTAL LENGTH OF PROJECT:		582 FEET

N
VT STATE PLANE GRID





NOT TO SCALE

QUALITY ASSURANCE PROGRAM: LEVEL 1

CONVENTIONAL SYMBOLS

COUNTY LINE	COUNTY LINE
TOWN LINE	TOWN LINE
LIMITS OF ACCESS	
POINT OF ACCESS	X
FENCE LINE	
STONE WALL	
TRAVELED WAY	
GUARD RAIL	
RAILROAD	
SURVEY LINE	
CULVERT	
POWER POLE	
TELEPHONE POLE	
TREES	
CONTROL OF ACCESS	
PROPERTY LINE	
R.O.W. TAKING LINE	
SLOPE RIGHTS	SR SR SR
TOP OF CUT	
TOE OF SLOPE	

SURVEYED BY : N/A
SURVEYED DATE : N/A

DATUM
VERTICAL N/A
HORIZONTAL N/A

STATE OF VERMONT
MARK A. GOLDEN
NO. 8015
Structural
LICENSED
PROFESSIONAL ENGINEER
4-15-11

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROGRAM DEVELOPMENT.

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2006, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JUNE 15, 2006 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED _____ DATE 5/4/11

PROJECT MANAGER : SHERWARD G. FARNSWORTH

PROJECT NAME : WILLISTON-GEORGIA
PROJECT NUMBER : IM MEMB (25)

SHEET 1 OF 38 SHEETS

VHB Vanasse Hangen Brustlin, Inc.

VHB 57437

INDEX OF SHEETS

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E-102	CONSTRUCTION SIGN DETAILS	06/30/03
E-102A	CONSTRUCTION SIGN DETAILS	05/01/04
E-106	TRAFFIC CONTROL- MISCELLANEOUS DETAILS	03/01/04
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E-110	MAJOR MAINTENANCE OPERATION LANE CLOSURE	06/08/09
E-120	STANDARD SIGN PLACEMENT - EXPRESSWAY & FREEWAY	08/08/95 08/08/95
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E-164	SQUARE STEEL SIGN POST	05/01/04
E-191	PAVEMENT MARKING DETAILS	06/08/09
E-192	PAVEMENT MARKING DETAILS	02/01/99
E-193	PAVEMENT MARKING DETAILS	10/12/00 08/18/95

GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT, AGENCY OF TRANSPORTATION, 2006 STANDARD SPECIFICATIONS FOR CONSTRUCTION, AND ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, DATED 2010, AND ITS LATEST REVISIONS.

2. WATER REPELLENT, SILANE SHALL BE APPLIED TO THE CURBS AND FASCIAS AS SHOWN ON DETAIL A, SHEET 10, AND ALL OTHER EXPOSED CONCRETE SURFACES EXCEPT THE PIERS AND THE UNDERSIDE OF THE DECK. THIS WORK WILL BE PAID FOR UNDER ITEM 514.10, "WATER REPELLENT, SILANE".

3. ALL WORK AND ANY ASSOCIATED ACTIVITY ON THIS PROJECT SHALL BE PERFORMED WITHIN THE EXISTING RIGHT-OF-WAY LIMITS.

4. FOLLOWING THE COMPLETION OF ALL OTHER CONSTRUCTION ACTIVITIES, ALL FABRIC DRAIN TROUGHS, DOWNSPOUTS AND SCUPPERS WITHIN THE LIMITS OF CONSTRUCTION AS SHOWN ON THE BITUMINOUS CONCRETE REMOVAL PLAN, SHALL BE THOROUGHLY FLUSHED BY THE CONTRACTOR. COST FOR FLUSHING THE FABRIC DRAIN TROUGHS, DOWNSPOUTS AND SCUPPERS WILL BE INCIDENTAL TO ALL OTHER ITEMS IN THE CONTRACT.

5. TWO (2) W12-2 (LOW CLEARANCE) SIGNS WITH THE VERTICAL CLEARANCE DISTANCE OF 13'-11" DISPLAYED ON THEM SHALL BE LOCATED ON BALLARD ROAD (T.H. 6) EAST AND WEST OF BRIDGES 84N AND 84S. THE SIGNS SHALL BE 30" BY 30" AND MOUNTED ON 2" SQUARE STEEL SIGN POSTS. THE SIGN FOR THE WESTBOUND LANE OF BALLARD ROAD (T.H. 6) SHALL BE LOCATED 290 FEET EAST OF BRIDGE 84N. THE SIGN FOR THE EASTBOUND LANE OF BALLARD ROAD (T.H. 6) SHALL BE LOCATED 250 FEET WEST OF BRIDGE 84S.

TRAFFIC CONTROL NOTES

1. TEMPORARY TRAFFIC CONTROL DETAILS PROVIDED IN THE PLANS ARE INTENDED FOR DAYTIME USE ONLY. ANY COSTS ASSOCIATED WITH PROVIDING AN OVERNIGHT TRAFFIC CONTROL PACKAGE FOR BRIDGES 67, 84N AND 84S, IF PROPOSED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 641.10, "TRAFFIC CONTROL". SEE THE PROJECT SPECIAL PROVISIONS FOR TRAFFIC CONTROL REQUIREMENTS AND LIMITS ON LANE CLOSURES DURING DAYTIME AND NIGHTTIME HOURS FOR BRIDGES 63N AND 63S.

2. UNLESS COVERED UNDER INDIVIDUAL PAY ITEMS OR NOTED OTHERWISE, ALL COSTS FOR WORK SHOWN ON THE TRAFFIC CONTROL SHEETS, TEMPORARY DETOUR SHEETS AND FOR TEMPORARY TRAFFIC CONTROL DEVICES INCLUDING RETROREFLECTIVE DRUMS, SIGNS, AND SIGN POSTS SHALL BE CONSIDERED TO BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR ITEM 641.10, "TRAFFIC CONTROL".

3. TRAFFIC SHALL BE ALLOWED TO DRIVE ON THE BARE CONCRETE BRIDGE DECK AFTER THE REMOVAL OF THE BARRIER MEMBRANE, BUT PRIOR TO THE DECK BEING CLEANED AND PREPARED FOR THE NEW SHEET MEMBRANE. ONCE THE CONCRETE BRIDGE DECK IS PREPARED FOR THE NEW SHEET MEMBRANE, NO TRAFFIC SHALL BE ALLOWED ON THE DECK UNTIL THE FIRST LIFT OF BITUMINOUS CONCRETE PAVEMENT IS IN PLACE OVER THE ENTIRE LENGTH OF THE BRIDGE.

BRIDGE 67 TEMPORARY SIGNAL NOTES

1. SIGNAL TIMING/TIMING ADJUSTMENTS REQUESTED BY THE ENGINEER SHALL BE ACCOMPLISHED WITHIN 24 HOURS AFTER BEING REQUESTED BY THE ENGINEER. PAYMENT SHALL BE INCIDENTAL TO ITEM 678.40, "TEMPORARY TRAFFIC SIGNAL SYSTEM" THE CONTRACTOR, AT THE DIRECTION OF THE ENGINEER, SHALL MAKE SEVERAL TRIAL RUNS TO DETERMINE THE PROPER ALL-RED CLEARANCE INTERVAL. PAYMENT SHALL BE INCIDENTAL TO ITEM 678.40, "TEMPORARY TRAFFIC SIGNAL SYSTEM".

2. THE PORTABLE WIRELESS VEHICLE DETECTION SYSTEM OR A TEMPORARY VEHICLE DETECTOR SYSTEM SHALL BE USED TO PREVENT TRAFFIC FROM BACKING UP ON RAMP C. THE CONTRACTOR SHALL ADJUST THE LOCATION OF THE PORTABLE WIRELESS VEHICLE DETECTION SYSTEM OR TEMPORARY VEHICLE DETECTOR SYSTEM, AS DIRECTED BY THE ENGINEER, TO ALLOW VEHICLES EXITING I-89 PROPER SIGHT DISTANCE TO STOPPED VEHICLES ON RAMP C. THE PORTABLE WIRELESS VEHICLE DETECTION SYSTEM OR TEMPORARY DETECTOR SYSTEM SHALL BE ABLE TO COMMUNICATE WITH BOTH PORTABLE TRAFFIC SIGNALS. THE PORTABLE WIRELESS VEHICLE DETECTION SYSTEM OR TEMPORARY VEHICLE DETECTOR SYSTEM SHALL BE INCIDENTAL TO ITEM 678.40, "TEMPORARY TRAFFIC SIGNAL SYSTEM". PAYMENT FOR ADJUSTING THE WIRELESS VEHICLE DETECTION SYSTEM OR TEMPORARY VEHICLE DETECTOR SYSTEM SHALL ALSO BE INCIDENTAL TO ITEM 678.40, "TEMPORARY TRAFFIC SIGNAL SYSTEM".

3. SIGNAL FACES SHALL BE L.E.D. AND CONSIST OF 12" LENSES (RED, AMBER, AND GREEN).

4. THE BOTTOM OF THE HOUSING OF A SIGNAL FACE SUSPENDED OVER A ROADWAY SHALL NOT BE LESS THAN 16.5 FEET NOR MORE THAN 19 FEET ABOVE THE PAVEMENT GRADE AT THE CENTER OF THE ROADWAY. THE BOTTOM OF A SIGNAL FACE NOT MOUNTED OVER A ROADWAY SHALL NOT BE LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE GROUND. CAUTION SHOULD BE USED TO INSURE COMPLIANCE WITH THE HEIGHT REQUIREMENTS IN THE EVENT THE NEW APPROACH GRADES DIFFER SIGNIFICANTLY FROM THE OLD ROAD GRADE.

5. SIGNAL FACES FOR ANY ONE APPROACH SHALL NOT BE LESS THAN 8 FEET APART MEASURED HORIZONTALLY BETWEEN CENTER FACES.

6. ONE SIGNAL HEAD SHALL BE SUPPORTED FROM A CANTILEVER MAST ARM, WHICH SHALL BE IN THE CONE OF VISION OF APPROACHING TRAFFIC AT ALL TIMES. THE SECOND SIGNAL HEAD SHALL BE MOUNTED TO THE POST OF THE CANTILEVER MAST ARM. THE PORTABLE TRAFFIC SIGNAL SHALL BE LOCATED SO AS TO PLACE THE POST MOUNTED SIGNAL HEAD AT A DISTANCE OF NO GREATER THAN 14.5 FEET FROM THE CENTER OF THE APPROACH LANE WHEN THE STOP BAR IS 40 FEET FROM THE SIGNAL HEAD. CONSULT THE M.U.T.C.D. 2009 EDITION FOR ADDITIONAL INFORMATION CONCERNING SIGNAL PLACEMENT.

7. SIGNAL HEAD LOCATION SHALL BE ADJUSTED TO REFLECT LANE LOCATION CHANGES. PAYMENT FOR SIGNAL HEAD ADJUSTMENT SHALL BE INCLUDED IN ITEM 678.40, "TEMPORARY TRAFFIC SIGNAL SYSTEM".

8. THE TEMPORARY TRAFFIC SIGNAL SYSTEM SHALL CONSIST OF A MINIMUM OF TWO (2) PORTABLE TRAFFIC SIGNALS, ONE (1) PORTABLE WIRELESS VEHICLE DETECTION SYSTEM, LUMINARIES, AND ASSOCIATED PAVEMENT MARKINGS.

9. ALL PORTABLE TRAFFIC SIGNALS, SIGNS, ETC., SHALL BELONG TO THE CONTRACTOR AT THE END OF THE PROJECT AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR REMOVAL INCLUDING ANY TEMPORARY PAVEMENT MARKINGS, PORTABLE WIRELESS VEHICLE DETECTION SYSTEMS, ETC.

10. PORTABLE LIGHT TOWERS WITH A MINIMUM OF A 250 WATT MER/150 WATT HPS LUMINAIRE MOUNTED ON A MAST AT A HEIGHT OF 30 FEET ABOVE THE ROADWAY CENTERLINE SHALL BE PROVIDED AS SHOWN ON TRAFFIC CONTROL PLAN (4 OF 4), SHEET 8. THE INTENT IS TO LIGHT UP THE AREA AROUND THE SIGNAL HEADS, STOP BAR AND START OF THE TEMPORARY TRAFFIC BARRIER FOR INCREASED VISIBILITY. THE ENGINEER SHALL DETERMINE THE ADEQUACY OF THE LIGHTING AND DIRECT CHANGES IF THE LIGHTING IS INSUFFICIENT. LIGHTING SHALL BE PAID INCIDENTAL TO ITEM 678.40, "TEMPORARY TRAFFIC SIGNAL SYSTEM".

11. TEMPORARY STOP BARS SHALL BE LOCATED A MINIMUM OF 40' AND A MAXIMUM OF 120' FROM THE NEAREST SIGNAL HEAD. TEMPORARY STOP BARS SHALL BE PAID INCIDENTAL TO ITEM 678.40, "TEMPORARY TRAFFIC SIGNAL SYSTEM".

12. SEE STD. E-140 FOR "STOP HERE ON RED" SIGN DETAIL AND E-101 FOR "SIGNAL AHEAD" SYMBOL SIGN. SEE STD. E-121 FOR SIGN PLACEMENT.

13. ALL STOP SIGNS AND ANY OTHER TRAFFIC SIGNS MADE IRRELEVANT DUE TO THE TEMPORARY SIGNAL SHALL BE COVERED DURING OPERATION OF THE TEMPORARY SIGNAL OR AT THE DISCRETION OF THE ENGINEER. THE COSTS OF COVERING AND UNCOVERING THESE SIGNS SHALL BE PAID INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL (I-89 - BRIDGE NO. 67)".

14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING SIGNAL PHASING. THE CONTRACTOR SHALL SUBMIT A PHASING DIAGRAM TO THE ENGINEER FOR APPROVAL. THE CONTRACTOR SHALL MAKE SIGNALS OPERATIONAL ONLY AFTER RECEIVING APPROVAL OF THE PHASING DIAGRAM BY THE ENGINEER. DEVELOPMENT OF THE PHASING DIAGRAM SHALL BE PAID INCIDENTAL TO ITEM 678.40, "TEMPORARY TRAFFIC SIGNAL SYSTEM".

15. ALL WORK DESCRIBED HEREIN FOR TEMPORARY TRAFFIC SIGNAL SYSTEM, AND NOT SPECIFIED FOR PAYMENT UNDER A SEPARATE CONTRACT ITEM, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 678.40, "TEMPORARY TRAFFIC SIGNAL SYSTEM".

PAVEMENT REMOVAL NOTES

1. THE FINAL ONE HALF INCH OF PAVEMENT ON THE CONCRETE BRIDGE DECK AND APPROACH SLABS SHALL BE REMOVED BY LOADER, GRADER OR EQUIPMENT APPROVED BY THE ENGINEER. COLD PLANING TO REMOVE BRIDGE PAVEMENT WILL BE INCIDENTAL TO ITEM 529.10, "REMOVAL OF BRIDGE PAVEMENT". COLD PLANING TO REMOVE PAVEMENT OVER APPROACH SLAB WILL BE INCIDENTAL TO ITEM 210.10, "COLD PLANING, BITUMINOUS PAVEMENT".

2. DURING BRIDGE AND APPROACH SLAB PAVEMENT REMOVAL, THE CONTRACTOR SHALL EXERCISE CARE TO INSURE THAT NO DAMAGE OCCURS TO THE EXISTING CONCRETE BRIDGE DECK AND THE EXISTING APPROACH SLABS. ANY DAMAGE TO THE CONCRETE BRIDGE DECK OR APPROACH SLABS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. REPAIRS SHALL BE MADE IN ACCORDANCE WITH SECTION 580.

3. CARE SHALL BE TAKEN TO PROTECT ANY SCUPPERS OR DROP INLETS AT ALL STAGES OF CONSTRUCTION. ANY DAMAGE TO THESE STRUCTURES SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AND AT THE CONTRACTOR'S EXPENSE.

4. AFTER THE REMOVAL OF THE BRIDGE PAVEMENT, THE BARRIER MEMBRANE SHALL BE REMOVED AND THE CONCRETE BRIDGE DECK SHALL BE CLEANED IN ACCORDANCE WITH SUBSECTION 580.04 AND TO THE SATISFACTION OF THE ENGINEER. REMOVAL OF THE BARRIER MEMBRANE AND THE CLEANING OF THE CONCRETE BRIDGE DECK WILL BE PAID FOR UNDER ITEM 580.16, "SURFACE PREPARATION FOR MEMBRANE".

5. ONCE THE BARRIER MEMBRANE IS REMOVED, ANY AREAS ON THE CONCRETE BRIDGE DECK THAT ARE FOUND TO BE UNSOUND SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. THE METHOD FOR DETERMINING AREAS OF UNSOUND CONCRETE SHALL BE APPROVED BY THE ENGINEER. THE ENGINEER SHALL MAKE A DETERMINATION AS TO HOW TO REPAIR THE DETERIORATED PORTION OF THE CONCRETE BRIDGE DECK AND THE LIMITS OF THE REPAIR. PAYMENT FOR REPAIR OF THE CONCRETE SUPERSTRUCTURE SURFACE SHALL BE UNDER ITEMS 580.10, "REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS I", 580.11, "REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS II", AND 580.12, "REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS III". QUANTITIES FOR ITEMS 580.10, 580.11, AND 580.12 AS SHOWN ON THE QUANTITY SHEET ARE ESTIMATED.

6. UPON THE ENGINEER'S APPROVAL OF THE CONCRETE BRIDGE DECK'S CONDITION, ITEM 519.20, "SHEET MEMBRANE WATERPROOFING, TORCH APPLIED" SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 519. SHEET MEMBRANE WATERPROOFING SHALL NOT BE APPLIED WHEN THE DECK CONCRETE AND/OR DECK PATCH AREA'S MOISTURE CONTENT IS ABOVE THE SECTION 519 SPECIFICATIONS OR THE MANUFACTURER'S SPECIFICATIONS, WHICHEVER IS LESS.

7. ANY TIME THE RUMBLE STRIPS ARE TO BE TEMPORARILY FILLED WITH BITUMINOUS CONCRETE PAVEMENT, THE COST FOR TEMPORARILY FILLING AND UNFILLING THE RUMBLE STRIPS WITH BITUMINOUS CONCRETE PAVEMENT SHALL BE INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL".

PAVEMENT NOTES

1. FOLLOWING THE INSTALLATION OF THE NEW SHEET MEMBRANE WATERPROOFING ON THE CONCRETE BRIDGE DECK, THE CONCRETE BRIDGE DECK AND THE AT-GRADE APPROACH SLABS SHALL BE PAVED WITH ITEM 406.27, "MEDIUM DUTY BITUMINOUS CONCRETE PAVEMENT" IN TWO 1¼" LIFTS (SEE TYPICAL APPROACH SECTION ON BITUMINOUS CONCRETE DETAIL SHEET, SHEET 10). THE PAVEMENT SHALL BE TYPE IV FOR BOTH LIFTS, NO EXCEPTIONS. EMULSIFIED ASPHALT SHALL BE APPLIED TO ALL COLD PLANED SURFACES AND BETWEEN PAVEMENT LIFTS.

2. CARE SHALL BE EXERCISED TO SMOOTHLY TRANSITION THE NEW BRIDGE PAVEMENT INTO THE EXISTING PAVEMENT. ANY COLD PLANING NECESSARY FOR SHAPING BRIDGE APPROACHES SHALL BE PAID FOR UNDER ITEM 210.10, "COLD PLANING, BITUMINOUS PAVEMENT".

3. TESTING FOR PAVEMENT DENSITY WILL REQUIRE CORES OF THE PAVEMENT ON THE BRIDGE. THE COST FOR THIS WORK WILL BE INCIDENTAL TO ITEM 406.27, "MEDIUM DUTY BITUMINOUS CONCRETE PAVEMENT". ANY DAMAGE TO THE NEW SHEET MEMBRANE CAUSED BY CORING THE PAVEMENT SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AND AT THE CONTRACTOR'S EXPENSE.

4. FOR PG BINDER GRADE SEE SECTION 406 OF THE GENERAL SPECIAL PROVISIONS AND SPECIAL PROVISIONS.

5. IF COLD PLANING OF THE RIGHT ROADWAY SHOULDERS ALONG BRIDGE APPROACHES EXPOSES GRAVEL SUBBASE DUE TO AN EXISTING PAVEMENT DEPTH THAT IS LESS THAN THE COLD PLANING DEPTH, THEN A 2" BASE OF TYPE III PAVEMENT SHALL BE PLACED ALONG THE SHOULDERS IN ADDITION TO THE 2½" PAVEMENT TO BE PLACED IN ALL OTHER LOCATIONS. PAYMENT FOR THE ADDITIONAL 2" OF BASE (TYPE III) PAVEMENT WILL BE MADE UNDER ITEM 406.27, "MEDIUM DUTY BITUMINOUS CONCRETE PAVEMENT", ITEM 608.25, "ALL PURPOSE EXCAVATOR RENTAL, TYPE I", AND ITEM 608.37, "TRUCK RENTAL".

6. THE CONTRACTOR SHALL INSTALL TEMPORARY PAVEMENT MARKINGS ON ALL PAVED SURFACES THAT WILL NOT HAVE THE PERMANENT MARKINGS APPLIED WITHIN 14 CALENDAR DAYS OF THE FINAL PAVING OPERATIONS AS DIRECTED BY THE ENGINEER.

PROJECT NAME: WILLISTON-GEORGIA
PROJECT NUMBER: IM MEMB(25)

FILE NAME: z10al84notes.dgn
PROJECT LEADER: M.A. COLGAN
DESIGNED BY: J.W. GOLEK
INDEX OF SHEETS AND GENERAL NOTES

PLOT DATE: 5/9/2011
DRAWN BY: J.W. GOLEK
CHECKED BY: S.E. BURBANK
SHEET 2 OF 38

VHB Vanasse Hangen Brustlin, Inc.

VHB 57437

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES								TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
ROADWAY	BRIDGE 63N	BRIDGE 67	BRIDGE 84N	FULL C.E. ITEMS	BRIDGE 63S	BRIDGE 84S	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
1							1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22				
	520	600	530		520	530	2700		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10				
	2	4	3		2	3	14		CWT	EMULSIFIED ASPHALT	404.65				
	110	210	130		110	130	690		TON	MEDIUM DUTY BITUMINOUS CONCRETE PAVEMENT	406.27				
	1	1	1		1	1	5		LU	MAT DENSITY PAY ADJUSTMENT (N.A.B.I.)	406.29				
1							1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
	7	15	13		7	13	55		GAL	WATER REPELLENT, SILANE	514.10				
	76	65	80		76	76	373		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
	280	890	390		280	390	2230		SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20				
	76	60	75		76	75	362		LF	JOINT SEALER, HOT POURED	524.11				
	280	890	390		280	390	2230		SY	REMOVAL OF BRIDGE PAVEMENT	529.10				
	15	45	20		15	20	115		SY	REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS I	580.10	EST.			
	30	90	40		30	40	230		SY	REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS II	580.11	EST.			
	2	14	2		2	2	22		CY	REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS III	580.12	EST.			
	2440	7980	3510		2440	3510	19880		SF	SURFACE PREPARATION FOR MEMBRANE	580.16				
	45	40	45		45	45	220		CF	RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE	580.20	EST.			
	10	10	10		10	10	50		HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25	EST.			
	10	10	10		10	10	50		HR	TRUCK RENTAL	608.37	EST.			
	160	320	160		160	160	960		HR	TRUCK-MOUNTED ATTENUATOR	608.45	EST.			
	2	3	2		2	2	11		EACH	ENERGY ABSORPTION ATTENUATOR	621.56				
	570	680	610		570	610	3040		LF	TEMPORARY TRAFFIC BARRIER	621.90				
	570	660	610		570	610	3020		LF	REMOVE AND RESET TEMPORARY TRAFFIC BARRIER	621.95				
	240	480	240		240	240	1440		HR	UNIFORMED TRAFFIC OFFICERS	630.10	EST.			
				1			1		LS	TESTING EQUIPMENT, CONCRETE	631.16				
				1			1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
1							1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
	1						1		LS	TRAFFIC CONTROL (I-89 - BRIDGE NO. 63N)	641.10				
					1		1		LS	TRAFFIC CONTROL (I-89 - BRIDGE NO. 63S)	641.10				
		1					1		LS	TRAFFIC CONTROL (I-89 - BRIDGE NO. 67)	641.10				
			1				1		LS	TRAFFIC CONTROL (I-89 - BRIDGE NO. 84N)	641.10				
						1	1		LS	TRAFFIC CONTROL (I-89 - BRIDGE NO. 84S)	641.10				
1							1		LS	PUBLIC RELATIONS OFFICER	641.12				
	1	3	1		1	1	7		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15				
	1		1		1	1	4		EACH	PORTABLE ARROW BOARD	641.16				
	280	490	320		280	320	1690		LF	6 INCH WHITE LINE	646.214				
	230	430	260		230	260	1410		LF	6 INCH YELLOW LINE	646.215				
		330					330		LF	12 INCH WHITE LINE	646.24				
	225	430	255		225	255	1390		LF	TEMPORARY 6 INCH WHITE LINE	646.620				
	3120	1260	3180		3120	3180	13860		LF	TEMPORARY 6 INCH WHITE LINE, TYPE II TAPE	646.621				
	225	430	255		225	255	1390		LF	TEMPORARY 6 INCH YELLOW LINE	646.630				

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME: WILLISTON-GEORGIA
PROJECT NUMBER: IM MEMB(25)

FILE NAME: z10a184qsl.dgn
PROJECT LEADER: M.A. COLGAN
DESIGNED BY: J.W. GOLEK
QUANTITY SHEET 1

PLOT DATE: 5/4/2011
DRAWN BY: J.W. GOLEK
CHECKED BY: D.J. STEIN
SHEET 3 OF 38

VHB 57437

STATE OF VERMONT
AGENCY OF TRANSPORTATION

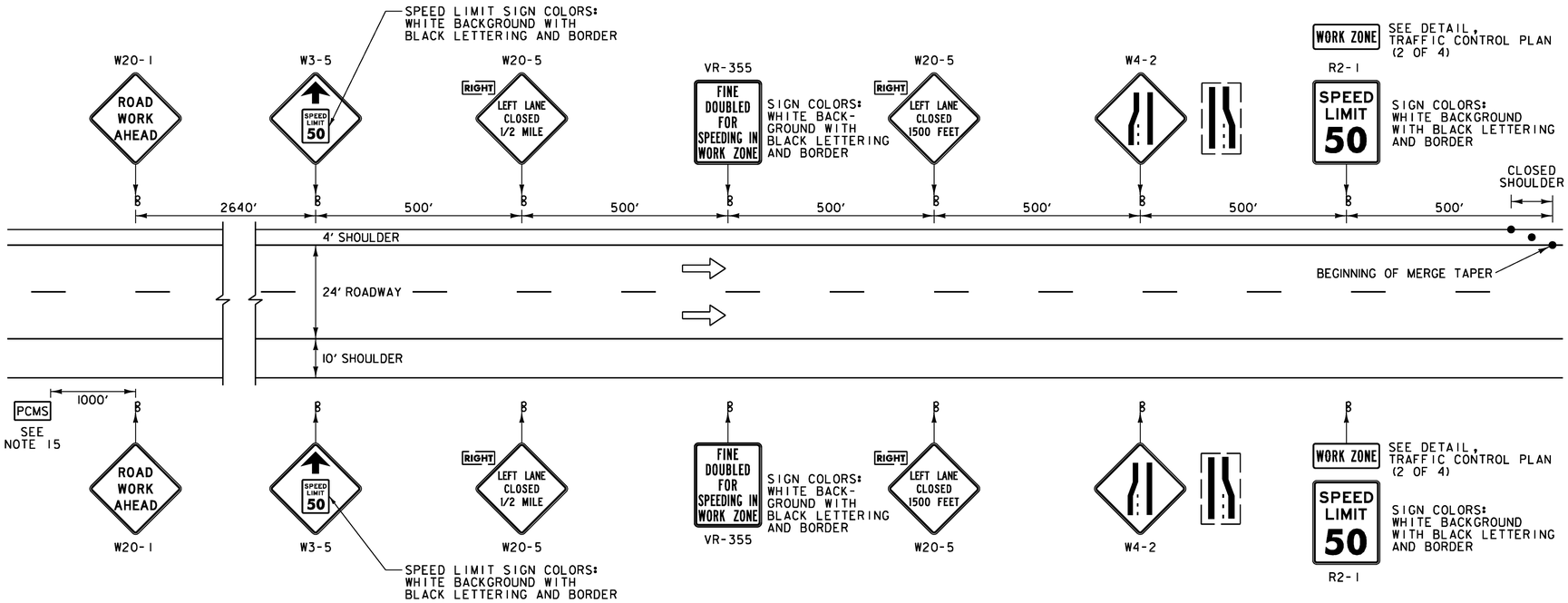
QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES									TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
			ROADWAY	BRIDGE 63N	BRIDGE 67	BRIDGE 84N	FULL C.E. ITEMS	BRIDGE 63S	BRIDGE 84S	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
				2820	1260	2880		2820	2880	12660		LF	TEMPORARY 6 INCH YELLOW LINE, TYPE II TAPE	646.631				
				300	130	310		300	310	1350		EACH	RAISED PAVEMENT MARKERS, TYPE II	646.75				
				1300	550	1310		1300	1310	5770		SF	PAVEMENT MARKING MASK	646.86				
						7			7	14		SF	TRAFFIC SIGNS, TYPE A	675.20				
						40			40	80		LB	TUBULAR STEEL SIGN POST	675.33				
					1					1		EACH	TEMPORARY TRAFFIC SIGNAL SYSTEM	678.40				
			1							1		LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50				
				8	32	12		8	12	72		GAL	SPECIAL PROVISION (REPOINTING GRANITE CURB)	900.625	EST.			

Vanasse Hangen Brustlin, Inc.

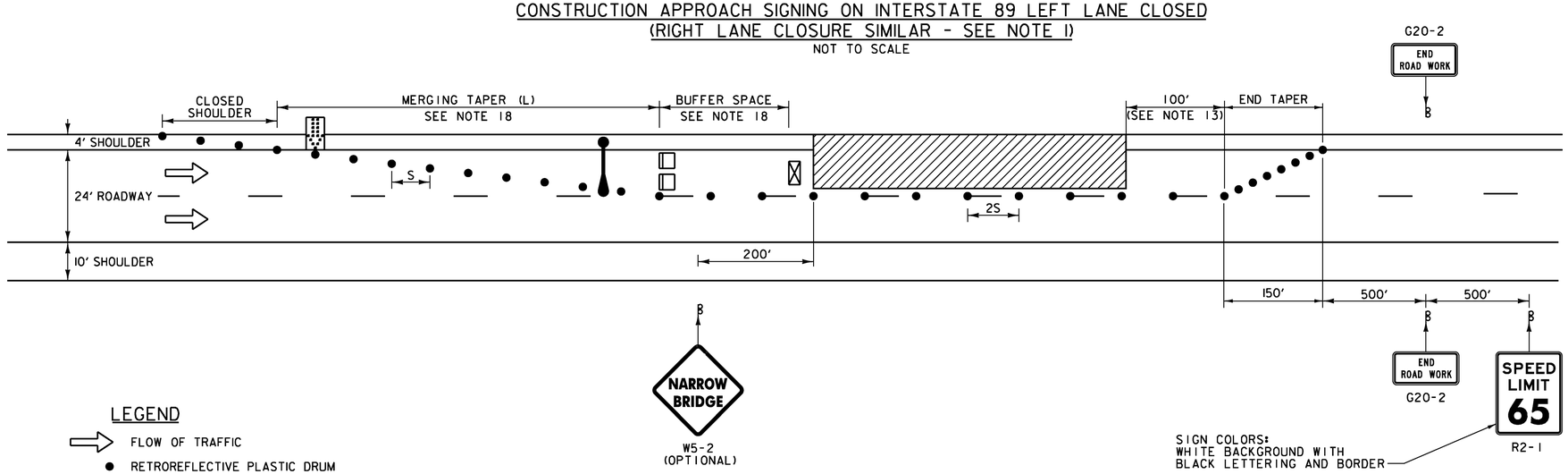
PROJECT NAME:	WILLISTON-GEORGIA
PROJECT NUMBER:	IM MEMB(25)
FILE NAME: z10a184qs2.dgn	PLOT DATE: 5/4/2011
PROJECT LEADER: M.A. COLGAN	DRAWN BY: J.W. GOLEK
DESIGNED BY: J.W. GOLEK	CHECKED BY: D.J. STEIN
QUANTITY SHEET 2	SHEET 4 OF 38

VHB 57437



CONSTRUCTION APPROACH SIGNING ON INTERSTATE 89 LEFT LANE CLOSED (RIGHT LANE CLOSURE SIMILAR - SEE NOTE 1)

NOT TO SCALE



LEGEND

- FLOW OF TRAFFIC
- RETROREFLECTIVE PLASTIC DRUM
- PORTABLE ARROW BOARD
- TYPE III BARRICADE
- WORK AREA
- ENERGY ABSORPTION ATTENUATOR
- TRUCK-MOUNTED ATTENUATOR
- PCMS — PORTABLE CHANGEABLE MESSAGE SIGN (SEE NOTE 15)
- PORTABLE LUMINARIE (LIGHT TOWER) FOR NIGHTTIME WORK ONLY (SEE NOTE 19)

TRAFFIC CONTROL ON INTERSTATE 89 LEFT LANE CLOSED (RIGHT LANE CLOSURE SIMILAR - SEE NOTE 1)

NOT TO SCALE

POSTED SPEED (MPH)	TAPER LENGTHS (FT)		TANGENT W=12 FT (L/2)	BARRIER FLARE RATE (MINIMUM)	MINIMUM BUFFER SPACE LENGTH (FT)	MAXIMUM CHANNELIZING DEVICE SPACING (FT)	
	SHOULDER W=10 FT (L/3)	MERGING 12 FT LANE (L)				TAPER (S)	TANGENT (2S)
≤40	90	320	160	1:9	305	40	80
45	150	540	270	1:9	360	45	90
50	170	600	300	1:11	425	50	100
55	185	660	330	1:13	495	55	110
60	200	720	360	1:13	570	60	120
65	215	780	390	1:13	645	65	130

TAPER RATES ARE DETERMINED USING THE FOLLOWING EQUATION:
L = WS FOR POSTED SPEEDS OF 45 MPH OR GREATER
L = WS²/60 FOR POSTED SPEEDS OF 40 MPH OR LESS

L = MINIMUM LENGTH OF TAPER
W = WIDTH OF OFFSET IN FEET. (TYPICAL)
S = POSTED SPEED IN MPH

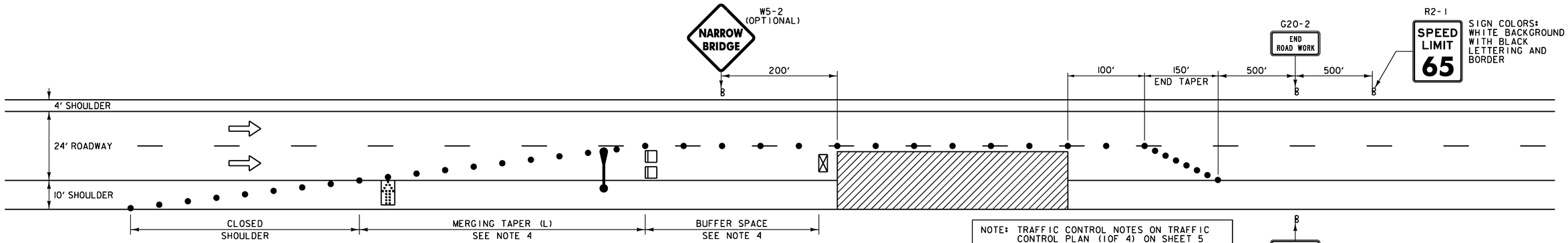
TRAFFIC CONTROL NOTES:

1. THE LEFT LANE CLOSURE IS SHOWN. THE RIGHT LANE APPROACH SIGNING IS SIMILAR. THE RIGHT LANE CLOSURE PLAN IS SHOWN ON TRAFFIC CONTROL PLAN (2 OF 4), SEE SHEET 6.
2. THE EXISTING SPEED LIMIT IS 65 MPH. THE SPEED LIMIT WILL BE REDUCED TO 50 MPH IN THE WORK ZONE FOR THIS PROJECT. ANY EXISTING SPEED LIMIT SIGNS WITHIN THE SPEED REDUCTION AREA SHALL BE COMPLETELY COVERED.
3. SIGNS SHALL BE INSTALLED SO AS NOT TO OBSTRUCT EXISTING SIGNS.
4. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND THE "STANDARD HIGHWAY SIGNS" BOOK (SHS) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION (FHWA).
5. SOLID SUBSTRATE CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING "AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) TYPE VII, VIII OR IX REQUIREMENTS, UNLESS OTHERWISE NOTED. SOLID SUBSTRATE REGULATORY SIGNS (WHITE BACKGROUND) SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING ASTM TYPE III.
6. ROLL UP SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING ASTM TYPE VI.
7. SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES, DURING PERIODS OF INACTIVITY OR UPON COMPLETION OF THE WORK. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER. SIGNS SHALL BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER.
8. FIXED SIGNS SHALL BE SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST SEVEN FEET ABOVE THE EDGE OF PAVEMENT. THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST SIX FEET OUTSIDE THE SHOULDER POINT OR FOUR FEET OUTSIDE GUARDRAIL.
9. PORTABLE SIGNS SHALL BE PLACED ON THE EDGE OF ROADWAY AND A ONE FOOT MINIMUM ABOVE TRAVELED WAY. ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACE SHALL BE ABOVE THE TOP OF THE GUARDRAIL.
10. WHERE SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARDRAIL OR OTHER APPROVED TRAFFIC BARRIERS, ALL SIGN STANDS AND POST INSTALLATIONS SHALL BE "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 COMPLIANT. NO SIGN POSTS SHALL EXTEND OVER THE TOP OF THE SIGN INSTALLED ON SAID POST(S). WHEN ANCHORS ARE INSTALLED STUB SHALL NOT BE GREATER THAN FOUR INCHES ABOVE EXISTING GROUND.
11. THE CONTRACTOR SHALL HAVE SIGNS FOR CLOSURE OF RIGHT AND LEFT LANES ON PROJECT BEFORE WORK COMMENCES.
12. THE NUMBER OF CHANNELIZING DEVICES, TYPE III BARRICADE, AND OTHER TRAFFIC CONTROL DEVICES SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED ARE TO BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR, CURVE, ETC.). WARNING LIGHTS SHALL NOT BE USED ON CHANNELIZING DEVICES.
13. PLACE LAST CHANNELIZING DEVICE 100 FEET BEYOND THE ANTICIPATED WORK ZONE TERMINAL POINT EACH DAY AND THEN START THE END TAPER. THE END TAPER SHALL BE CONSTRUCTED OF 8 ADDITIONAL RETROREFLECTIVE DRUMS SPACED AT A MAXIMUM OF 20 FEET ON CENTER.
14. THE ARROW BOARD SHALL BE PLACED ON THE SHOULDER OF THE ROADWAY, OR IF PRACTICAL FURTHER FROM THE TRAVELED LANE AT THE END OF THE SHOULDER TAPER.
15. THE PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) SHALL BE USED IN ACCORDANCE WITH SECTION 6F.60 OF THE MUTCD. THE PCMS SHALL READ 'LEFT (OR RIGHT) LANE CLOSED AHEAD, PLEASE MERGE EARLY'.
16. TRAVEL LANE SHALL BE A MINIMUM OF 12 FEET WIDE.
17. DURING NON-WORK PERIODS, ALL EQUIPMENT SHALL BE MOVED TO A LOCATION OFF PAVED SHOULDERS AND OUTSIDE THE CLEAR ZONE, OR PROTECTED BY TRAFFIC BARRIER OR GUARDRAIL.
18. AT THE DISCRETION OF THE ENGINEER, MERGING TAPER AND BUFFER SPACE LENGTHS MAY BE EXTENDED BEYOND MINIMUM VALUES, ESPECIALLY IN CLOSE PROXIMITY TO INTERCHANGE RAMPS, CURVES OR OTHER INFLUENCING FACTORS.
19. SEE THE PROJECT SPECIAL PROVISIONS FOR TRAFFIC CONTROL REQUIREMENTS AND LIMITS ON LANE CLOSURES DURING DAYTIME AND NIGHTTIME HOURS FOR BRIDGES 63N AND 63S.

VHB Vanasse Hangen Brustlin, Inc.

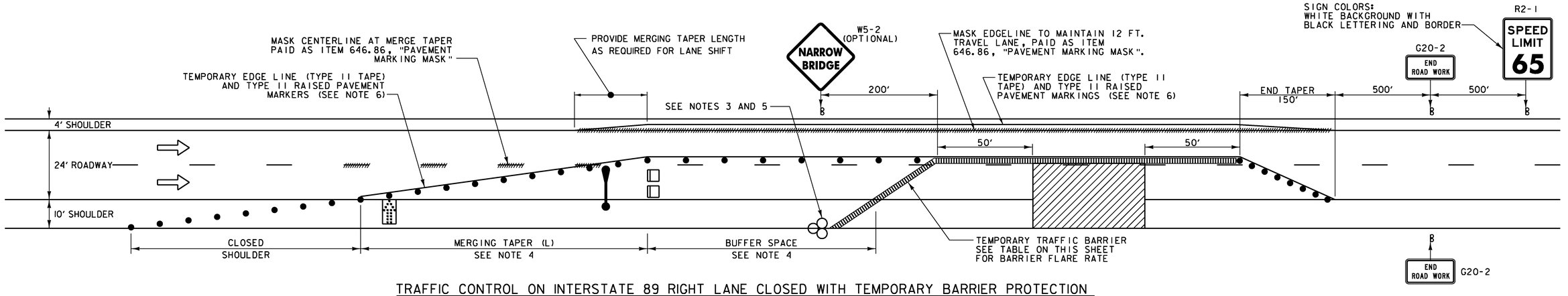
PROJECT NAME:	WILLISTON-GEORGIA
PROJECT NUMBER:	IM MEMB(25)
FILE NAME: z10a184tcpl.dgn	PLOT DATE: 5/4/2011
PROJECT LEADER: M.A. COLGAN	DRAWN BY: J.W. GOLEK
DESIGNED BY: J.W. GOLEK	CHECKED BY: S.E. BURBANK
TRAFFIC CONTROL PLAN (1 OF 4)	SHEET 5 OF 38

VHB 57437



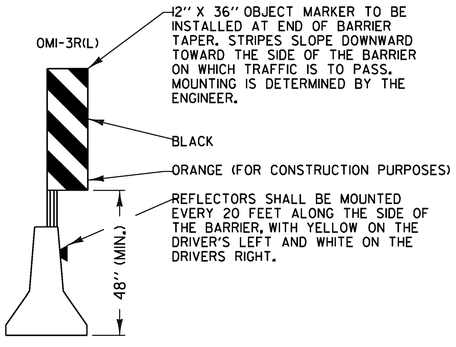
TRAFFIC CONTROL ON INTERSTATE 89 RIGHT LANE CLOSED

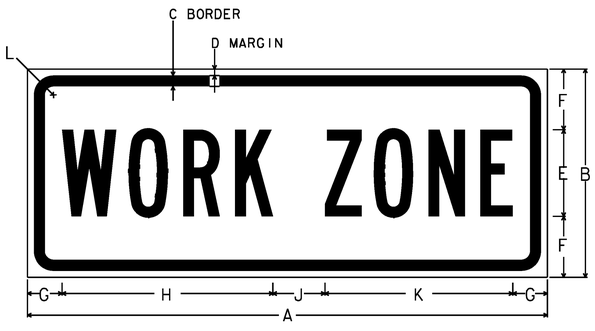
NOT TO SCALE



TRAFFIC CONTROL ON INTERSTATE 89 RIGHT LANE CLOSED WITH TEMPORARY BARRIER PROTECTION
(SEE NOTE 2) (LEFT LANE CLOSED SIMILAR)

NOT TO SCALE





DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L
MIN.	24	8	0.375	0.375	4B	2	2	9.5	2	8.5	1.5
SPEC.	30	12	0.375	0.625	5B	3.5	2	12.2	3	8.5	1.5
EXPWY.	36	12	0.50	0.75	6B	3	2.5	14.8	3	8.5	1.875
FWY.	48	18	0.625	0.875	8B	4	3.5	19.1	4	8.5	2.25

NOTE: THE SIGN IS TO HAVE A BLACK LEGEND ON AN ORANGE RETROREFLECTIVE BACKGROUND THAT IS ASTM TYPE VII MINIMUM.

WORK ZONE SIGN DETAIL

NOT TO SCALE

LEGEND

- FLOW OF TRAFFIC
- RETROREFLECTIVE PLASTIC DRUM
- PORTABLE ARROW BOARD
- TYPE III BARRICADE
- WORK AREA
- ENERGY ABSORPTION ATTENUATOR
- TRUCK-MOUNTED ATTENUATOR
- PORTABLE LUMINAIRE (LIGHT TOWER) FOR NIGHTTIME WORK ONLY (SEE NOTE 7)

POSTED SPEED (MPH)	TAPER LENGTHS (FT)		TANGENT W=12 FT (L/2)	BARRIER FLARE RATE (MINIMUM)	MINIMUM BUFFER SPACE LENGTH (FT)	MAXIMUM CHANNELIZING DEVICE SPACING (FT)	
	SHOULDER W=10 FT (L/3)	MERGING 12 FT LANE (L)				TAPER (S)	TANGENT (2S)
≤40	90	320	160	1:9	305	40	80
45	150	540	270	1:9	360	45	90
50	170	600	300	1:11	425	50	100
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60	200	720	360	1:13	570	60	120
65	215	780	390	1:13	645	65	130

TAPER RATES ARE DETERMINED USING THE FOLLOWING EQUATION:
L = WS FOR POSTED SPEEDS OF 45 MPH OR GREATER
L = WS²/60 FOR POSTED SPEEDS OF 40 MPH OR LESS

L = MINIMUM LENGTH OF TAPER
W = WIDTH OF OFFSET IN FEET. (TYPICAL)
S = POSTED SPEED IN MPH

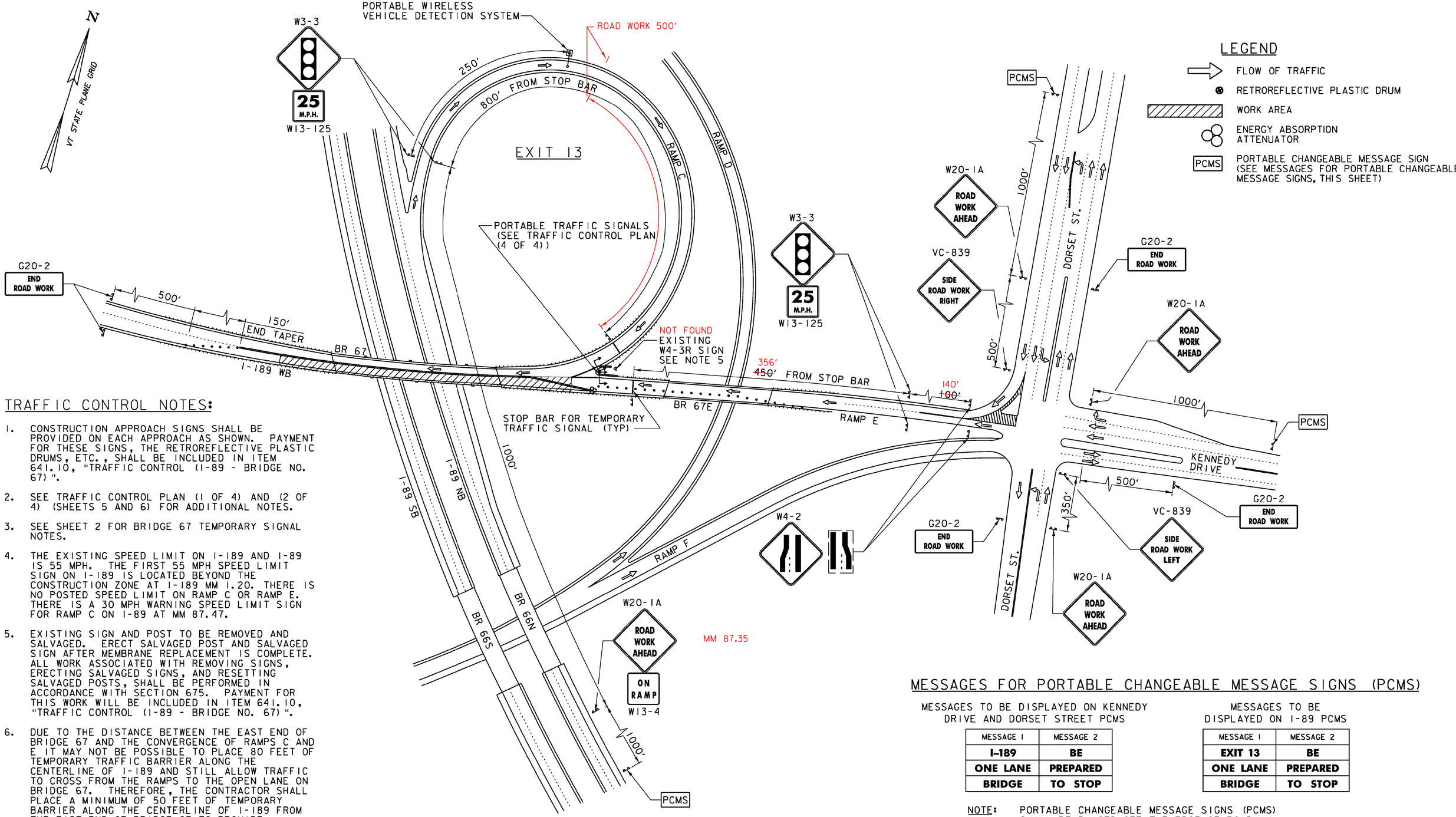
TRAFFIC CONTROL NOTES:

1. SEE TRAFFIC CONTROL PLAN (1 OF 4), SHEET 5 FOR ADDITIONAL NOTES AND APPROACH SIGNING NOT SHOWN.
2. IF THE LANE CLOSURE IS TO LAST LONGER THAN 3 DAYS, THE CONTRACTOR SHALL USE TEMPORARY TRAFFIC BARRIER AS SHOWN ON THIS SHEET AND PAID AS 621.90, "TEMPORARY TRAFFIC BARRIER", TEMPORARY TRAFFIC BARRIER SHALL BE A CONCRETE MEDIAN BARRIER (CMB) TYPE. STEEL BEAM GUARDRAIL WILL NOT BE ALLOWED FOR USE AS A TEMPORARY TRAFFIC BARRIER. WHEN ONE SIDE OF THE BRIDGE IS COMPLETE, MOVING THE BARRIER TO CLOSE THE OTHER SIDE TO TRAFFIC SHALL BE INCLUDED IN ITEM 621.95, "REMOVE AND RESET TEMPORARY TRAFFIC BARRIER".
3. AN ENERGY ABSORPTION ATTENUATOR PAID AS ITEM 621.56, "ENERGY ABSORPTION ATTENUATOR", SHALL BE LOCATED AT THE END OF THE BARRIER.
4. AT THE DISCRETION OF THE ENGINEER, MERGING TAPER AND BUFFER SPACE LENGTHS MAY BE EXTENDED BEYOND MINIMUM VALUES, ESPECIALLY IN CLOSE PROXIMITY TO INTERCHANGE RAMPS, CURVES OR OTHER INFLUENCING FACTORS.
5. QUANTITIES INCLUDE TWO ENERGY ABSORPTION ATTENUATORS PER BRIDGE FOR EACH LANE CLOSURE, AND ONE BACKUP ATTENUATOR FOR THE PROJECT (INCLUDED IN QUANTITY FOR BR 67) TO BE USED IN THE EVENT AN IN-SERVICE ATTENUATOR IS DAMAGED AND NEEDS TO BE REPLACED. COST TO MOVE ATTENUATORS FOR SHIFTING LANE CLOSURES SHALL BE INCLUDED IN ITEM 621.56, "ENERGY ABSORPTION ATTENUATOR".
6. THE TYPE II RAISED PAVEMENT MARKERS SHALL BE PLACED TO THE OUTSIDE OF THE TEMPORARY TAPE PAVEMENT MARKINGS. THE TYPE II RAISED PAVEMENT MARKERS SHALL BE SPACED AT 20 FEET.
7. SEE SPECIAL PROVISIONS FOR TRAFFIC CONTROL REQUIREMENTS AND LIMITS ON LANE CLOSURES DURING DAYTIME AND NIGHTTIME HOURS ON BRIDGES 63N AND 63S.

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	WILLISTON-GEORGIA
PROJECT NUMBER:	IM MEMB(25)
FILE NAME: z10a184tcp2.dgn	PLOT DATE: 5/4/2011
PROJECT LEADER: M.A. COLGAN	DRAWN BY: J.W. GOLEK
DESIGNED BY: J.W. GOLEK	CHECKED BY: S.E. BURBANK
TRAFFIC CONTROL PLAN (2 OF 4)	SHEET 6 OF 38

VHB 57437



TRAFFIC CONTROL NOTES:

1. CONSTRUCTION APPROACH SIGNS SHALL BE PROVIDED ON EACH APPROACH AS SHOWN. PAYMENT FOR THESE SIGNS, THE RETROREFLECTIVE PLASTIC DRUMS, ETC., SHALL BE INCLUDED IN ITEM 641.10, "TRAFFIC CONTROL (I-89 - BRIDGE NO. 67)".
2. SEE TRAFFIC CONTROL PLAN (1 OF 4) AND (2 OF 4) (SHEETS 5 AND 6) FOR ADDITIONAL NOTES.
3. SEE SHEET 2 FOR BRIDGE 67 TEMPORARY SIGNAL NOTES.
4. THE EXISTING SPEED LIMIT ON I-189 AND I-89 IS 55 MPH. THE FIRST 55 MPH SPEED LIMIT SIGN ON I-189 IS LOCATED BEYOND THE CONSTRUCTION ZONE AT I-189 MM 1.20. THERE IS NO POSTED SPEED LIMIT ON RAMP C OR RAMP E. THERE IS A 30 MPH WARNING SPEED LIMIT SIGN FOR RAMP C ON I-89 AT MM 87.47.
5. EXISTING SIGN AND POST TO BE REMOVED AND SALVAGED. ERECT SALVAGED POST AND SALVAGED SIGN AFTER MEMBRANE REPLACEMENT IS COMPLETE. ALL WORK ASSOCIATED WITH REMOVING SIGNS, ERECTING SALVAGED SIGNS, AND RESETTING SALVAGED POSTS, SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 675. PAYMENT FOR THIS WORK WILL BE INCLUDED IN ITEM 641.10, "TRAFFIC CONTROL (I-89 - BRIDGE NO. 67)".
6. DUE TO THE DISTANCE BETWEEN THE EAST END OF BRIDGE 67 AND THE CONVERGENCE OF RAMPS C AND E IT MAY NOT BE POSSIBLE TO PLACE 80 FEET OF TEMPORARY TRAFFIC BARRIER ALONG THE CENTERLINE OF I-189 AND STILL ALLOW TRAFFIC TO CROSS FROM THE RAMPS TO THE OPEN LANE ON BRIDGE 67. THEREFORE, THE CONTRACTOR SHALL PLACE A MINIMUM OF 50 FEET OF TEMPORARY BARRIER ALONG THE CENTERLINE OF I-189 FROM THE EAST END OF BRIDGE 67 TO PROVIDE PROTECTION FOR THE WORK CREW WHILE WORKING ON THE BRIDGE DECK. COLD PLANING AND PAVING OF THE APPROACHES SHALL BE ACCOMPLISHED DURING NON-PEAK HOURS (BEFORE 7:00 AM, 9:00 AM TO 4:00 PM AND AFTER 6:00 PM) USING RETROREFLECTIVE PLASTIC DRUMS FOR CHANNELIZING DEVICES AND A TRUCK-MOUNTED ATTENUATOR FOR WORK CREW PROTECTION.

MESSAGES FOR PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS)

MESSAGES TO BE DISPLAYED ON KENNEDY DRIVE AND DORSET STREET PCMS

MESSAGE 1	MESSAGE 2
I-189	BE
ONE LANE	PREPARED
BRIDGE	TO STOP

MESSAGES TO BE DISPLAYED ON I-89 PCMS

MESSAGE 1	MESSAGE 2
EXIT 13	BE
ONE LANE	PREPARED
BRIDGE	TO STOP

NOTE: PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) SHALL BE PLACED OFF THE EDGE OF ROADWAY, OUTSIDE THE CLEAR ZONE, BUT SHALL BE VISIBLE FROM THE ROADWAY.

CONSTRUCTION APPROACH SIGNING ON INTERSTATE 89 AND INTERSTATE 189 ENTRANCE (BRIDGE NO. 67)

NOT TO SCALE

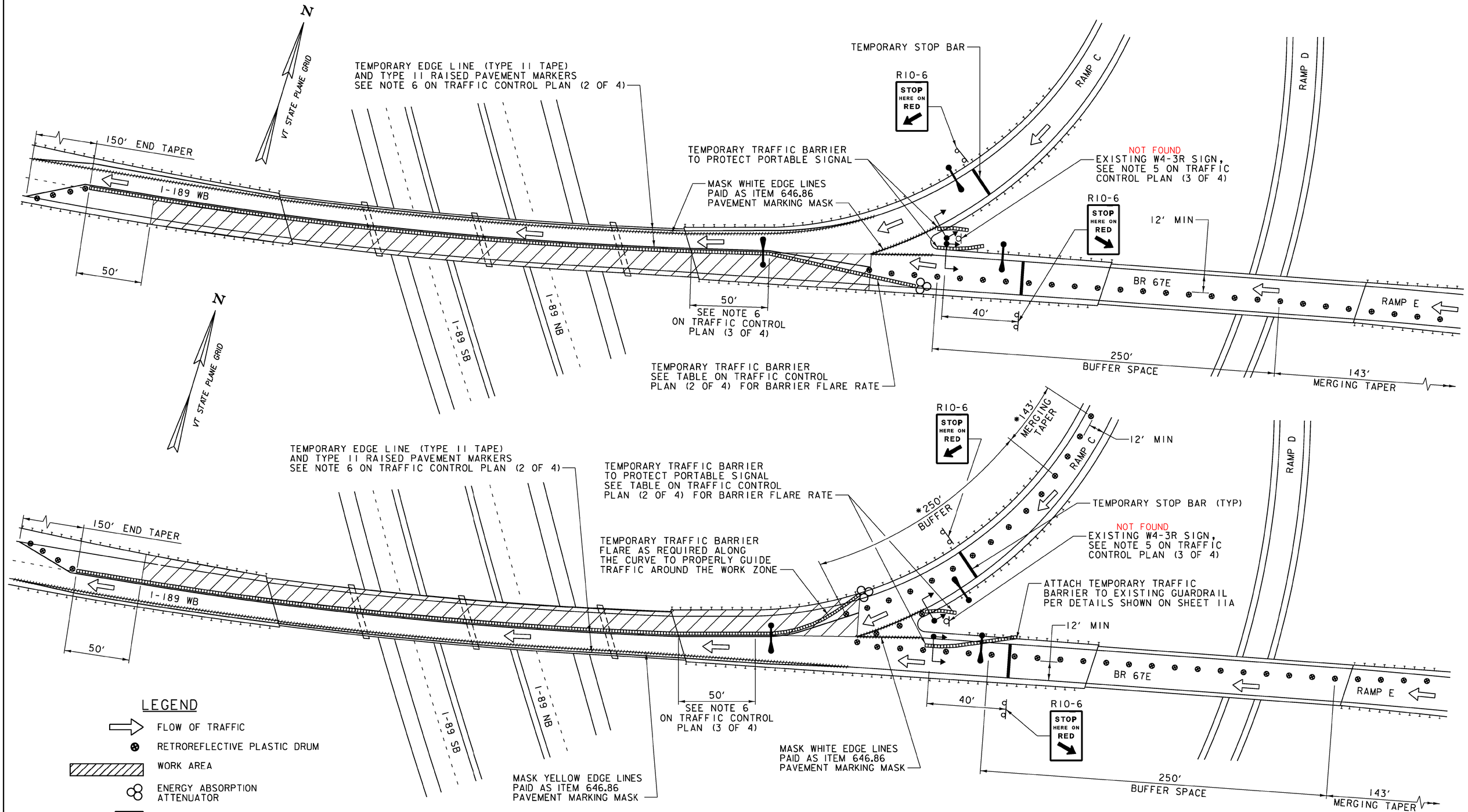
Vanasse Hangen Brustlin, Inc.

PROJECT NAME: WILLISTON-GEORGIA
PROJECT NUMBER: IM MEMB(25)

FILE NAME: z10a184tcp3.dgn
PROJECT LEADER: M.A. COLGAN
DESIGNED BY: S.E. BURBANK
TRAFFIC CONTROL PLAN (3 OF 4)

PLOT DATE: 5/4/2011
DRAWN BY: J.W. GOLEK
CHECKED BY: A.P. GUYETTE
SHEET 7 OF 38

VHB 57437



LEGEND

- FLOW OF TRAFFIC
- RETROREFLECTIVE PLASTIC DRUM
- WORK AREA
- ENERGY ABSORPTION ATTENUATOR
- PCMS — PORTABLE CHANGEABLE MESSAGE SIGN
- PORTABLE TRAFFIC SIGNAL
- PORTABLE LUMINAIRE (LIGHT TOWER)

* - LENGTHS OF BUFFER AND MERGE TAPER SHALL BE ADJUSTED AS REQUIRED IN THE FIELD TO PROVIDE ACCURATE LANE WIDTH FOR WB-62 (5 AXLE SEMI) TURNING RADIUS OR AS DIRECTED BY THE ENGINEER.

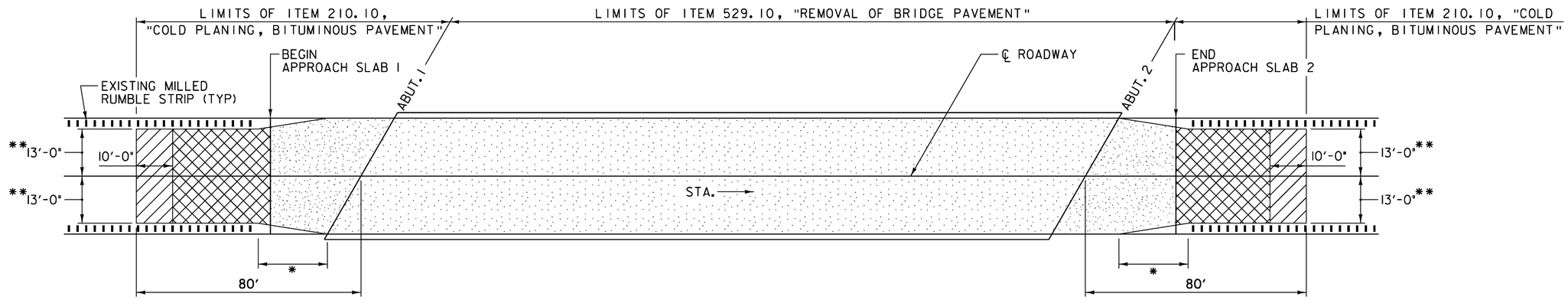
TRAFFIC CONTROL ON INTERSTATE 189 RIGHT AND LEFT LANE CLOSED

NOT TO SCALE

Vanasse Hangen Brustlin, Inc.

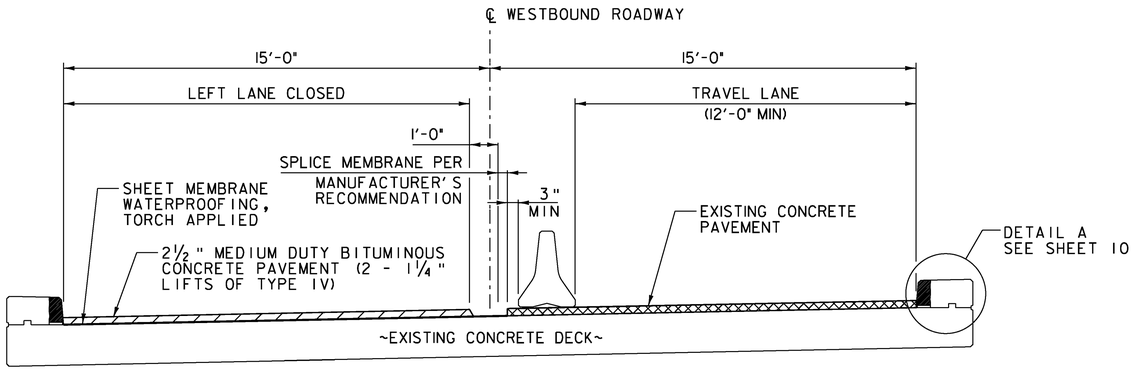
PROJECT NAME: WILLISTON-GEORGIA	
PROJECT NUMBER: IM MEMB(25)	
FILE NAME: z10a184tcp4.dgn	PLOT DATE: 5/4/2011
PROJECT LEADER: M.A. COLGAN	DRAWN BY: J.W. GOLEK
DESIGNED BY: J.W. GOLEK	CHECKED BY: S.E. BURBANK
TRAFFIC CONTROL PLAN (4 OF 4)	SHEET 8 OF 38

VHB 57437



BITUMINOUS CONCRETE REMOVAL PLAN

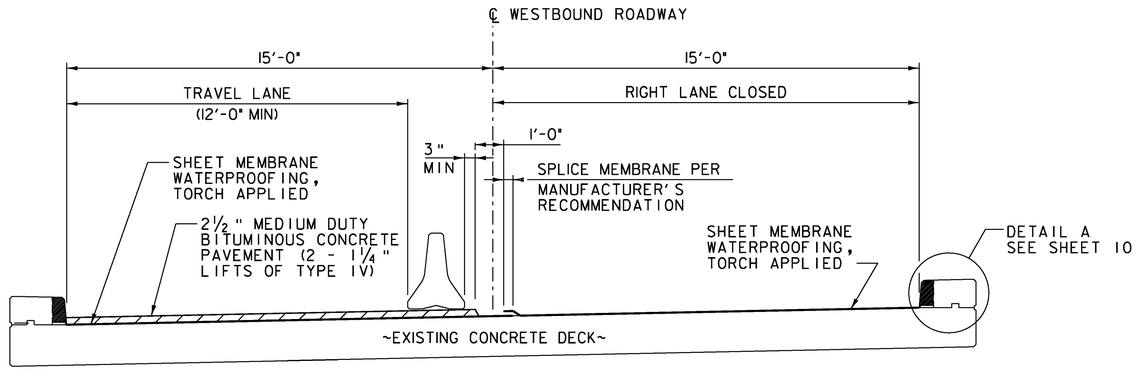
NOT TO SCALE



NOTE: PLACEMENT OF THE MEMBRANE SHALL START AT THE LOW SIDE OF THE BRIDGE. THE SPLICE SHALL BE AS SHOWN ABOVE, WITH THE HIGH SIDE OVERLAPPING THE LOW SIDE.

BRIDGE 67 - PHASE I CONSTRUCTION

NOT TO SCALE



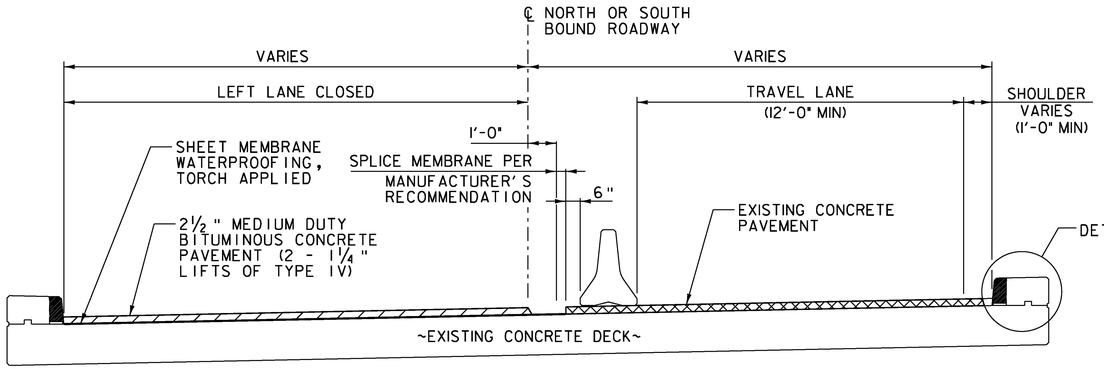
NOTE: PLACEMENT OF THE MEMBRANE SHALL START AT THE LOW SIDE OF THE BRIDGE. THE SPLICE SHALL BE AS SHOWN ABOVE, WITH THE HIGH SIDE OVERLAPPING THE LOW SIDE.

BRIDGE 67 - PHASE II CONSTRUCTION

NOT TO SCALE

VHB *Vanasse Hangen Brustlin, Inc.*

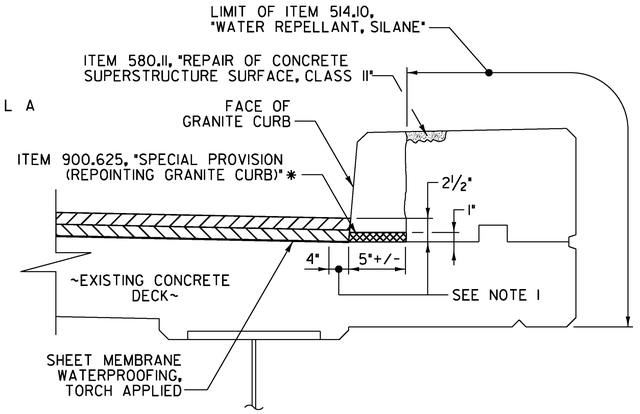
PROJECT NAME: WILLISTON-GEORGIA	
PROJECT NUMBER: IM MEMB(25)	
FILE NAME: z10a184bitremov.dgn	PLOT DATE: 5/4/2011
PROJECT LEADER: M.A. COLGAN	DRAWN BY: J.W. GOLEK
DESIGNED BY: J.W. GOLEK	CHECKED BY: S.E. BURBANK
BITUMINOUS CONCRETE REMOVAL PLAN	SHEET 9 OF 38



NOTE: PLACEMENT OF THE MEMBRANE SHALL START AT THE LOW SIDE OF THE BRIDGE. SEE BELOW FOR SPLICE.

TYPICAL SECTION - PHASE I CONSTRUCTION

NOT TO SCALE



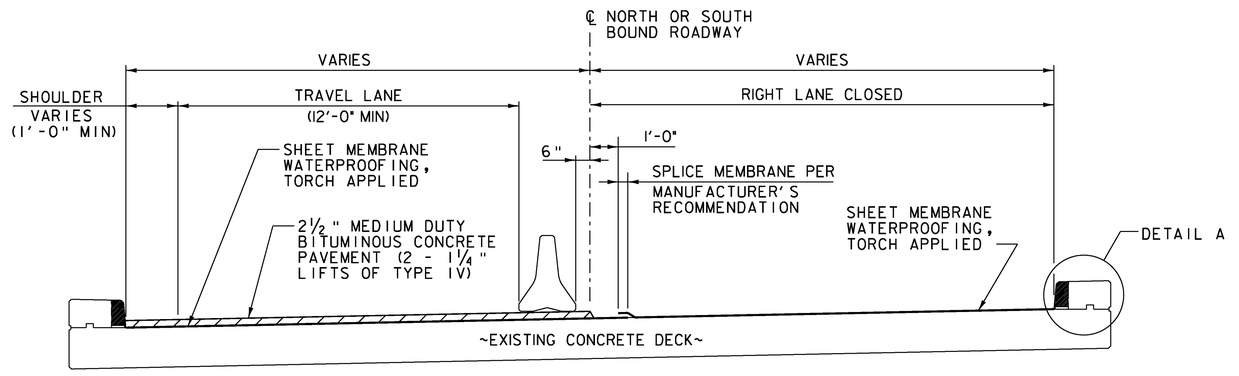
DETAIL A

NOT TO SCALE

DETAIL A NOTES:

1. THE DIMENSIONS SHOWN IN DETAIL A INDICATES AREA ALONG DECK AND UP FACE OF CURB FOR PLACEMENT OF TWO COATS OF POLYURETHANE MEMBRANE.
2. POLYURETHANE MEMBRANE AND BLAST CLEANING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 519.20, "SHEET MEMBRANE WATERPROOFING, TORCH APPLIED".
3. SHEET MEMBRANE WATERPROOFING SHALL EXTEND TO FACE OF CURB AS SHOWN.
4. IN ADDITION TO THE REQUIREMENTS OF SUBSECTION 519.04, BLAST CLEAN 2½" UP THE FACE OF CURB PRIOR TO PLACING THE MEMBRANE, INCIDENTAL TO ITEM 519.20, "SHEET MEMBRANE WATERPROOFING, TORCH APPLIED".

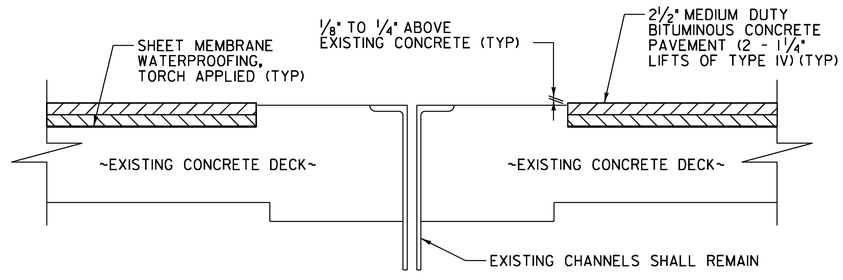
*EXISTING MORTAR BED AND VERTICAL CURB JOINTS TO BE REPOINTED AS DIRECTED BY THE RESIDENT ENGINEER. FOR QUANTITY ESTIMATE IT WAS ASSUMED THAT 20% OF THE BRIDGE CURB REQUIRES REPOINTING. A 1" HIGH BY 5" DEEP MORTAR BED AND VERTICAL JOINTS EQUATES TO 3.0 GAL/10 LF OF CURB.



NOTE: PLACEMENT OF THE MEMBRANE SHALL START AT THE LOW SIDE OF THE BRIDGE. THE SPLICE SHALL BE AS SHOWN ABOVE, WITH THE HIGH SIDE OVERLAPPING THE LOW SIDE.

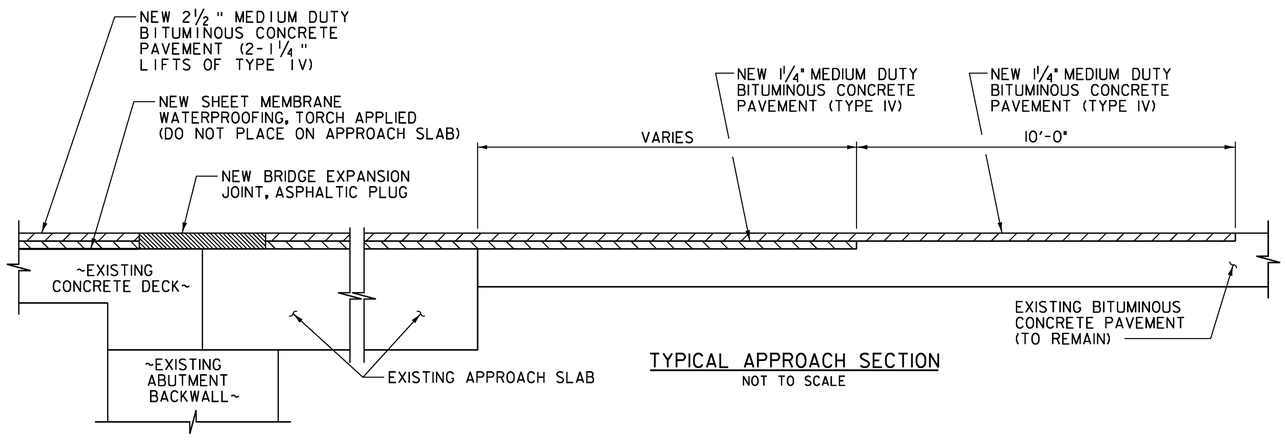
TYPICAL SECTION - PHASE II CONSTRUCTION

NOT TO SCALE



TYPICAL VT JOINT AT PIERS ON BR. 67

NOT TO SCALE



TYPICAL APPROACH SECTION

NOT TO SCALE

BRIDGE LENGTH AND WIDTH (CURB TO CURB)		
BRIDGE NO.	WIDTH (CURB TO CURB) (FEET)	LENGTH (FEET)
63N	38.0	64.0
63S	38.0	64.0
67	30.0	266.0
84N	37.25	94.0
84S	37.25	94.0

ASPHALTIC PLUG JOINT REPLACEMENT SCHEDULE		
BRIDGE NO.	ABUT. 1	ABUT. 2
63N	38.0 LF	38.0 LF
63S	38.0 LF	38.0 LF
67	32.0 LF	33.0 LF
84N	40.0 LF	40.0 LF
84S	38.0 LF	38.0 LF

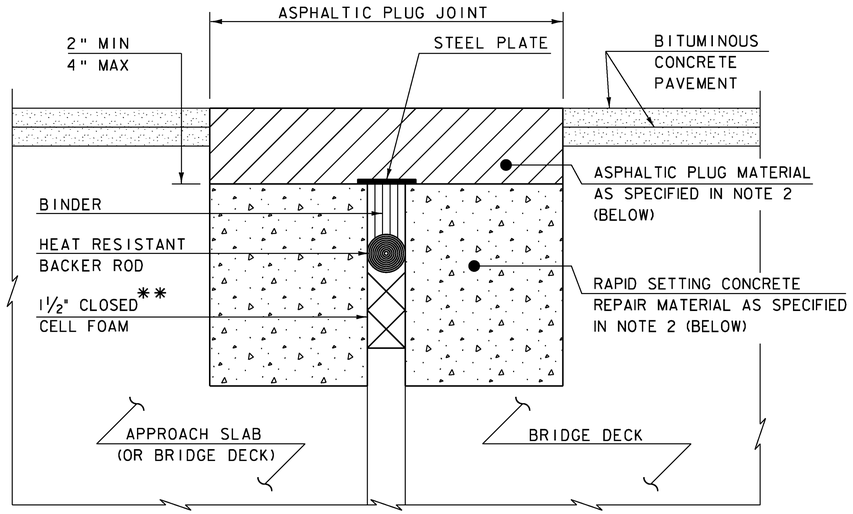
VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME: WILLISTON-GEORGIA
PROJECT NUMBER: IM MEMB(25)

FILE NAME: z10a184dtbitconc.dgn
PROJECT LEADER: M.A. COLGAN
DESIGNED BY: J.W. GOLEK
BITUMINOUS CONCRETE DETAIL SHEET

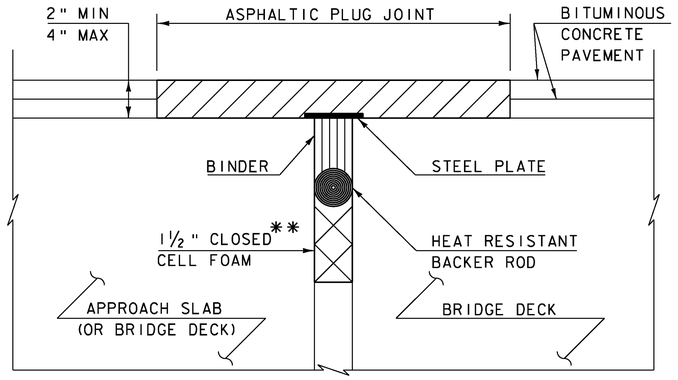
PLOT DATE: 5/4/2011
DRAWN BY: J.W. GOLEK
CHECKED BY: S.E. BURBANK
SHEET 10 OF 38

VHB 57437



ASPHALTIC PLUG-TYPE JOINT DETAIL - REHAB

(NOT TO SCALE)



ASPHALTIC PLUG-TYPE JOINT DETAIL - NEW

(NOT TO SCALE)

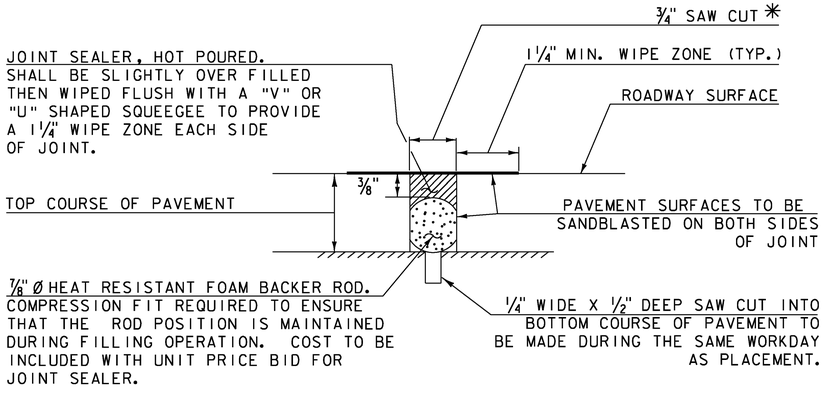
** - IF CLOSED CELL FOAM (EXPANSION MATERIAL) IS PRESENT IN THE EXISTING JOINT, REMOVE AS REQUIRED FOR PLACEMENT OF THE HEAT RESISTANT BACKER ROD. SEE INSTALLATION NOTE 5 FOR LOCATION OF HEAT RESISTANT BACKER ROD.

REHAB NOTES:

1. THE CONTRACTOR SHALL REMOVE ALL ASPHALTIC PLUG JOINT MATERIAL AND DETERIORATED CONCRETE AS DIRECTED BY THE ENGINEER. REMOVAL OF THE FIRST 4 INCHES OF MATERIAL SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 516.10 BRIDGE EXPANSION JOINT, ASPHALTIC PLUG. ANY REMOVAL OF MATERIAL GREATER THAN 4 INCHES SHALL BE INCLUDED IN THE BID PRICE OF ITEM 580.20 RAPID SETTING CONCRETE REPAIR MATERIAL WITH COURSE AGGREGATE.

2. THE CONTRACTOR SHALL REPLACE REMOVED MATERIAL THAT IS LESS THAN 4" FROM FINISHED GRADE WITH ASPHALTIC PLUG JOINT MATERIAL MEETING THE REQUIREMENTS OF SUBSECTION 707.15. ALL REMOVED MATERIAL THAT IS GREATER THAN 4 INCHES FROM FINISHED GRADE SHALL BE REPLACED WITH RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE MEETING THE REQUIREMENTS OF SUBSECTION 780.04.

3. REINFORCING STEEL NOT SHOWN FOR CLARITY.



NOTE: PLACE JOINT SEALER, HOT POURED AT THE BEGINNING/END OF APPROACH SLABS.

SAWED PAVEMENT JOINT DETAIL

NOT TO SCALE

ASPHALTIC PLUG JOINT NOTES

INSTALLATION:

1. LOCATE THE JOINT CENTRALLY OVER THE DECK OVERLAY EXPANSION GAP OR FIXED JOINT, MARKED OUT TO THE MANUFACTURER'S RECOMMENDED WIDTH.
2. REMOVE THE BITUMINOUS CONCRETE PAVEMENT FULL DEPTH AS SHOWN ON THE PLANS. THE PAVEMENT SHALL BE DRY AND SAW CUT TO THE LIMITS REQUIRED TO PLACE THE JOINT. A PNEUMATIC HAMMER AND CHISEL MAY BE USED ADJACENT TO THE CURB ONLY WHEN SAW CUTTING IS NOT POSSIBLE.
3. BLAST CLEAN THE JOINT AREA OF DEBRIS, ASPHALT AND SHEET MEMBRANE. THOROUGHLY DRY THE JOINT AREA WITH COMPRESSED AIR PRIOR TO APPLYING BINDER MATERIAL.
4. SPALLED AND DEFECTIVE CONCRETE SHALL BE REPAIRED WITH APPROVED MATERIAL AS AGREED UPON BY THE ENGINEER.
5. PLACE PROPERLY SIZED HEAT RESISTANT BACKER ROD IN THE MOVEMENT GAP ALLOWING FOR 1" +/- OF BINDER ABOVE THE ROD.
6. HEAT AND PLACE THE BINDER MATERIAL AS RECOMMENDED BY THE MANUFACTURER.
7. PLACE 1/4" THICK BY 8" WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE THE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRE-STAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER. THE STEEL PLATES MAY BE OMITTED WHERE THE ENGINEER DETERMINES THAT THE APPROACH SLAB OR BRIDGE DECK WILL PROVIDE INADEQUATE SUPPORT AND WHERE VERTICAL MOVEMENT OF THE PLATES MIGHT OCCUR.
8. HEAT AND MIX THE BINDER MATERIAL AND AGGREGATE AS RECOMMENDED BY THE MANUFACTURER.
9. INSTALLATION OF MATERIAL, COMPACTION, AND TOP COATING SHALL BE AS RECOMMENDED BY THE MANUFACTURER.
10. IMMEDIATELY AFTER TOP COATING, CAST AN ANTI-SKID MATERIAL OVER THE JOINT TO REDUCE THE RISK OF TRACKING.
11. ONCE THE JOINT REACHES 82 DEG C (180 DEG F) +/-, WATER MAY BE USED TO EXPEDITE THE COOLING PROCESS.
12. PROTECT JOINT FROM TRAFFIC UNTIL THE MATERIAL HAS COOLED TO 51 DEG C (125 DEG F) +/-.

WEATHER LIMITATIONS

APPLY BINDER MATERIAL ONLY WHEN THE FOLLOWING CONDITIONS PREVAIL OR AS RECOMMENDED BY THE MANUFACTURER:

1. THE AMBIENT AIR TEMPERATURE IS AT LEAST 10 DEG C (50 DEG F) AND RISING.
2. THE ROAD SURFACE IS DRY.
3. WEATHER CONDITIONS OR OTHER CONDITIONS ARE FAVORABLE AND ARE EXPECTED TO REMAIN SO FOR THE PERFORMANCE OF SATISFACTORY WORK.

* JOINT IS TO BE LOCATED ACCURATELY BY STRING LINING, OR OTHER MEANS, PRIOR TO PAVING, SO THAT THE SAW CUTS WILL BE MADE DIRECTLY OVER THE BEGINNING/END OF THE AT-GRADE APPROACH SLABS. JOINT SHALL BE CUT DRY IN A SINGLE PASS AND BE SEALED WITHIN 24 HOURS OR PRIOR TO EXPOSURE TO TRAFFIC. JOINT SHALL BE CLEANED PRIOR TO APPLYING THE JOINT SEALER.

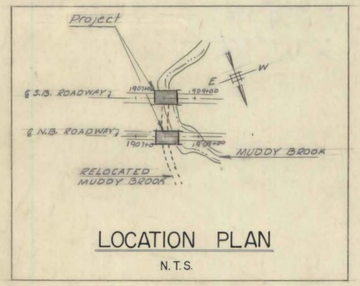
Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	WILLISTON-GEORGIA
PROJECT NUMBER:	IM MEMB(25)
FILE NAME: z10a184pavjoint.dgn	PLOT DATE: 5/4/2011
PROJECT LEADER: M.A. COLGAN	DRAWN BY: VTRANS
DESIGNED BY: VTRANS	CHECKED BY: S.E. BURBANK
PAVEMENT JOINT DETAILS	SHEET 11 OF 38

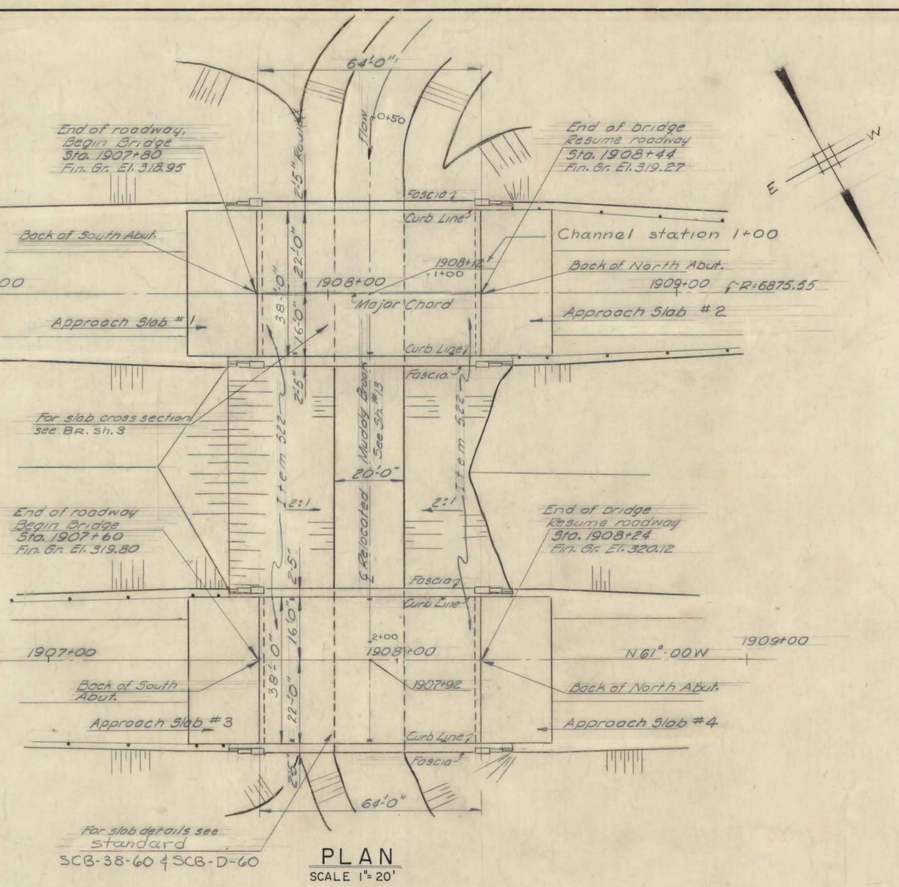
VHB 57437

FED. ROAD DIV. No.	STATE	FEDERAL PROJECT No.	SHEET	TOTAL SHEETS
	VERMONT	I-89-3(14)	91	115

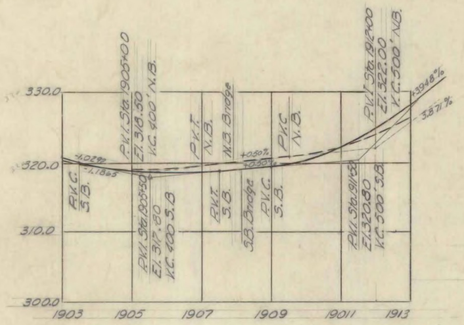
Curve Data (S.B. Roadway)
R = 6875.55
D = 0° 50' 00" (Chord def.)
Δ = 21° 00' 00" Rt.
T = 1274.10'
L = 117.10
Bank 1/4" per foot



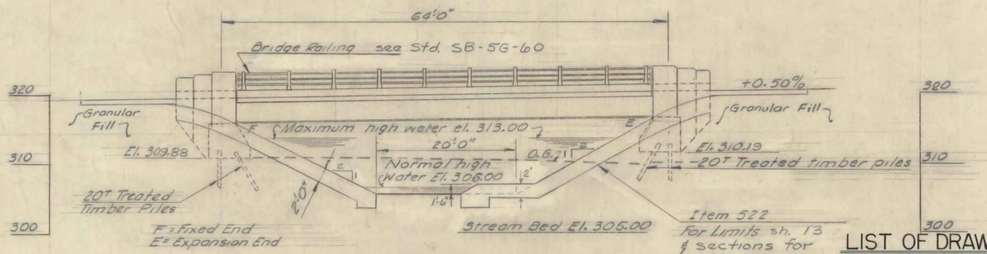
LOCATION PLAN
N.T.S.



PLAN
SCALE 1"=20'



N.B. & S.B. INTERSTATE PROFILES
SCALE HORZ. 1"=200'
VERT. 1"=10'



ELEVATION
SCALE 1"=10'
(NORTHBOUND)

Final Quantities

N. Bnd.	S. Bnd.	ITEM #	ITEM	UNIT	NORTHBOUND NEAT	NORTHBOUND OVERRUN	NORTHBOUND TOTAL	SOUTHBOUND NEAT	SOUTHBOUND OVERRUN	SOUTHBOUND TOTAL
			ESTIMATED QUANTITIES							
30	30	107	Structure Excavation	C.Y.	~~28~~	~~4~~	~~32~~	~~28~~	~~4~~	~~32~~
*	*	361B	Bit. Conc. Pvmt. (Incl. App. Slab) Mod.	Ton	48	9	57	48	9	57
253	253	401B	Conc. Class B Mod. (Incl. App. Slab)	C.Y.	~~247~~	~~13~~	~~260~~	~~249~~	~~13~~	~~262~~
31,495	31,571	402	Reinforcing Steel (Incl. App. Slab)	lbs	~~31,495~~	—	~~31,460~~	~~31,560~~	—	~~31,560~~
½	½	403	Spiral Reinforcement 2350° N.B. 2350° S.B.	L.S.	Required			Required		
69,082	69,082	404A	Structural Steel	lbs	~~69,553~~	~~1,397~~	~~70,950~~	~~69,253~~	~~1,386~~	~~70,639~~
9	9	407	Asphaltic Asbestos Coating	S.Y.	~~10~~	—	~~10~~	~~10~~	—	~~10~~
Required	Required	501	Furnishing Equipment for Driving Piles	L.S.	Required			Required		
1,959	1,913	502B	Treated Timber Piling	L.F.	~~1980~~	—	~~1980~~	~~1980~~	—	~~1980~~
159	159	556C	Granite Br. Curb Mod. (Incl. App. Slab)	L.F.	159 ✓	—	159 ✓	159 ✓	—	159 ✓
119	119	572	Bridge Railing	L.F.	119 ✓	—	119 ✓	119 ✓	—	119 ✓
0	0	222	Gravel Backfill	C.Y.	~~38~~	~~4~~	~~42~~	~~38~~	~~4~~	~~42~~
450	472	522	Stone Fill for Slope Protection	C.Y.	450 ✓	~~45~~	~~495~~	~~450~~	~~45~~	~~495~~
*	*	318	Tar Emulsion for Bridge Floors	Gal.	176	—	176	176	—	176
450	472	10GA	Channel Excavation in Earth	C.Y.	450 ✓	~~45~~	~~495~~	~~450~~	~~45~~	~~495~~
*	*	372	Joint Sealer Hot Poured Elastic Type	L.F.	76		76	76		76

*These items to be included in the roadway estimate

GENERAL NOTES

1. All materials and construction shall conform to the state of Vermont, Department of Highways, Standard Specifications for Road and Bridge Construction dated Jan. 1956 and the A.A.S.H.O. Standard Specifications dated 1957 Designed for H20-S16-44 loading modified for National System of Interstate Highways applied in accordance with the provision of the A.A.S.H.O. Standard Specifications, Article 1, 2, 3.
2. Cross slope of approach slab to conform with the cross slope of Bridge
3. Final coat of field paint shall be green, unless otherwise directed by the Engineer
4. The top surface of abutments shall be sloped ¼" per foot from the front edge of backwall. These sloping surfaces shall be coated with asphaltic asbestos coating ⅛" thick as per item 407 of Specifications.
5. All dimensions given are measured horizontally or vertically unless otherwise noted
6. All dimensions given at 68° F
7. All reinforcing to have a clear cover of 3", unless otherwise noted
8. All exposed edges of concrete shall be chamfered 1"x1" unless otherwise noted
9. Borings indicated on the drawings have been made for design purposes only and are not warranted to show actual subsurface conditions.
10. Elevation Datum Sea Level based on Bench Line U.S.C.&S. Survey Level Line Vermont 25 (Second Order)
11. Unless otherwise called for all beams shall be rolled to a true circular camber the middle ordinate being that shown in A.I.S.C. handbook as being the minimum camber likely to remain permanent
12. Where piles are driven in fill, the material shall be such as to have no stones large enough to interfere with the driving of piles.

LIST OF DRAWINGS

REFERENCE DRAWINGS

Plan	Sh. # 13
Profile	Sh. # 18
Cross Sections	Sh. # 32, 33, 45, 46, 47

WILLISTON - GEORGIA
IM MEMB(25)
SHEET 12 OF 38
BRIDGES 63 N AND S
FOR REFERENCE ONLY

BR 1 OF 10

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

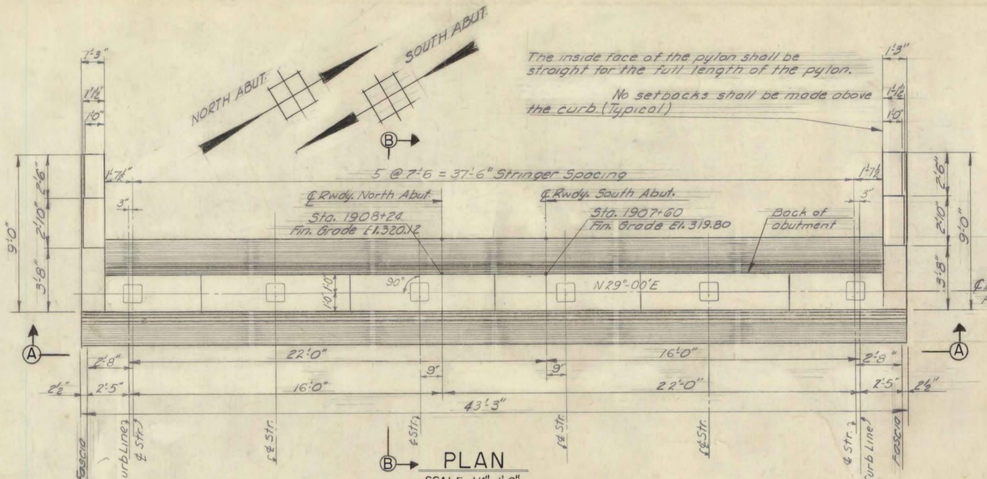
INTERSTATE PROJECT IN THE TOWNS OF WILLISTON, SOUTH BURLINGTON.

OVERPASS STA. 1907+70
MUDDY BROOK
GENERAL PLAN & ELEVATION

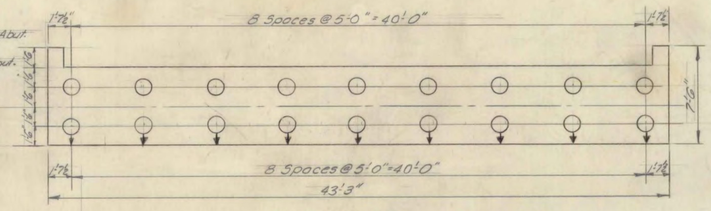
BOSWELL ENGINEERING CO. RIDGEFIELD PARK, N.J.

DRAWN BY R.H.E.	IN CHARGE A.J.I.	SCALE As Shown
CHECKED BY A.J.I.	DATE	
PROJECT NO. I-89-3(14)	SHEET 91 OF 115	

FED. ROAD DIV. No.	STATE	FEDERAL PROJECT No.	SHEET	TOTAL SHEETS
	VERMONT	I-89-3 (14)	92	115

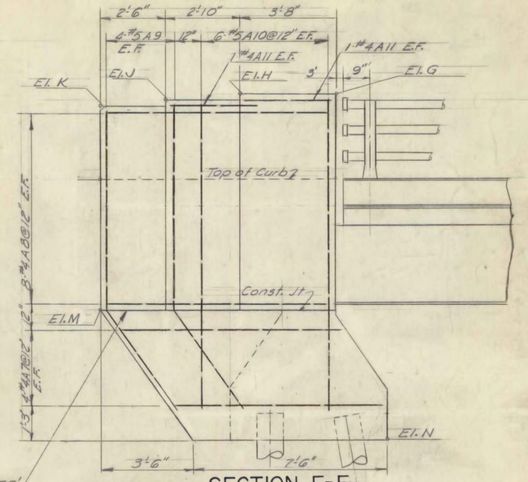


ELEV	NORTH ABUTMENT		SOUTH ABUTMENT	
	RIGHT PYLON	LEFT PYLON	RIGHT PYLON	LEFT PYLON
G	323.70	324.01	323.46	323.71
H	323.18	324.03	323.45	323.70
J	323.55	323.80	323.18	323.43
K	323.31	323.56	322.92	323.17
L				
M	315.23	315.48	314.92	315.17
N	310.23	310.23	309.92	309.92



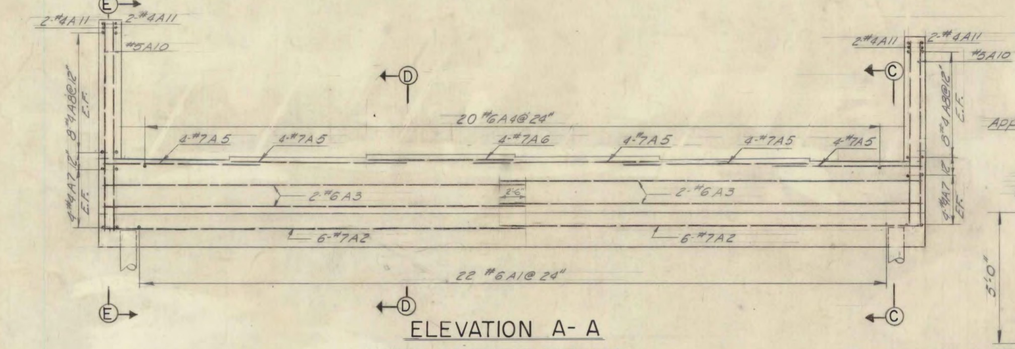
PILE PLAN
SCALE 3/16" = 1'-0"

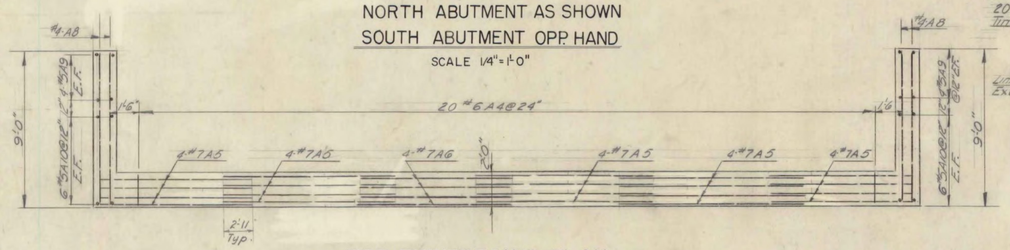
9 Piles battered 6:1
9 Piles vertical
18 Piles total
Estimated average pile length 55'
↓ indicates piles battered

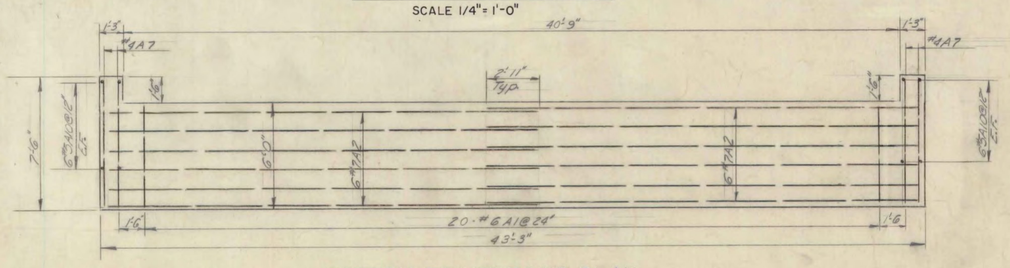


SECTION E-E
SCALE 3/8" = 1'-0"

Outside face of pylon shall be straight up to construction joint at elev. M and the setbacks shall be made above the joint.

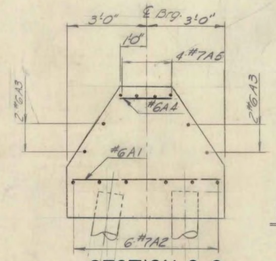






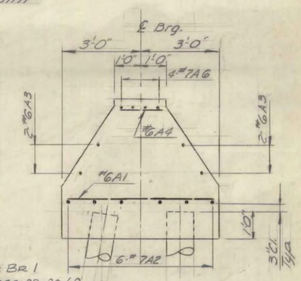
For Joint detail see SCB-D-60

Fill will be brought to this elevation before piles are driven. After piles are driven excavate to the bottom of footing elevation



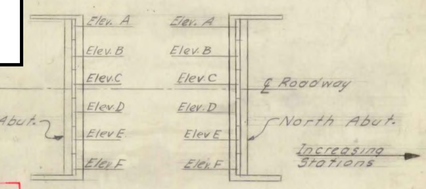
NOTE

1. For General Notes see Sh. Br. 1
2. For additional details see SB-20-60
3. Left & Right are determined by looking toward increasing Stations



WILLISTON - GEORGIA
IM MEMB(25)
SHEET 13 OF 38
BRIDGES 63 N AND S
FOR REFERENCE ONLY

BEARING ELEVATIONS						
	A	B	C	D	E	F
NORTH ABUTMENT	315.48	315.77	315.88	315.81	315.54	315.23
SOUTH ABUTMENT	315.17	315.46	315.57	315.50	315.23	314.92



BR 2 OF 10

ESTIMATED QUANTITIES									As Final Quantities	
ITEM #	ITEM	UNIT	NORTHBOUND NORTH ABUTMENT NEAT	OVERRUN	TOTAL	SOUTH ABUTMENT NEAT	OVERRUN	TOTAL	N. Abut.	S. Abut.
107	Structure Excavation	C.Y.	14	2	16	14	2	16	18	12
401B	Concrete Class B (Modified)	C.Y.	47	2	49	47	2	49	48	48
402	Reinforcing Steel	LB	See Bar Schedule Sheet Br 9							
407	Asphaltic Asbestos Coating	S.Y.	5	—	5	5	—	5	4.5	4.5
502B	Treated Timber Piling	L.F.	990	—	990	990	—	990	1,020	939
222	Gravel Backfill	C.Y.	19	2	21	19	2	21	0	0

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

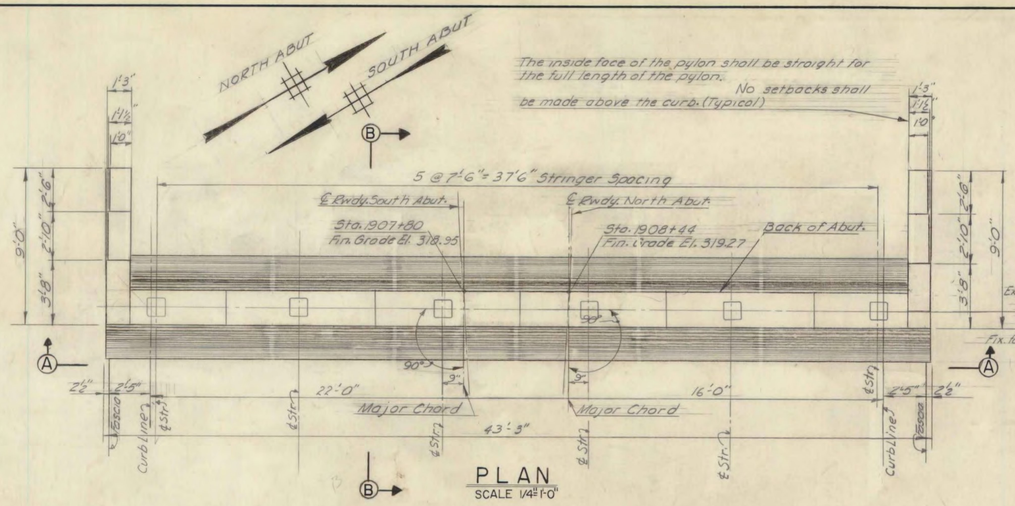
INTERSTATE PROJECT IN THE TOWNS OF WILLISTON, SOUTH BURLINGTON.

OVERPASS STA. 1907+70
MUDDY BROOK
NORTHBOUND ABUT. DETAILS

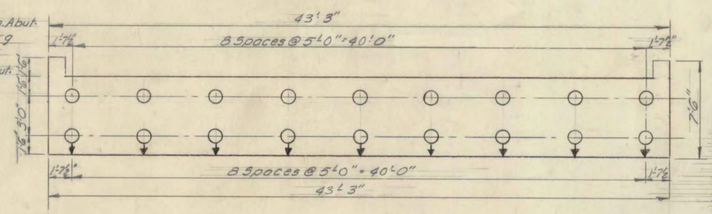
BOSWELL ENGINEERING CO. RIDGEFIELD PARK, N.J.

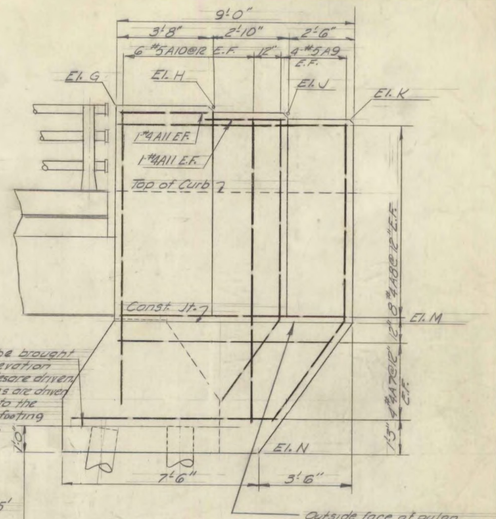
DRAWN BY RHE. CHECKED BY A.J.I.	IN CHARGE A.J.I. DATE	SCALE As Shown
PROJECT NO. I 89-3(14)	SHEET 92 OF 115	

FED. ROAD DIV. No.	STATE	FEDERAL PROJECT No.	SHEET	TOTAL SHEETS
	VERMONT	I-89-3 (14)	93	115

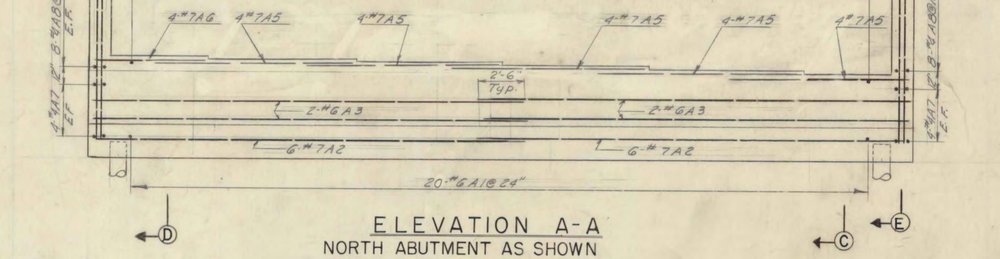


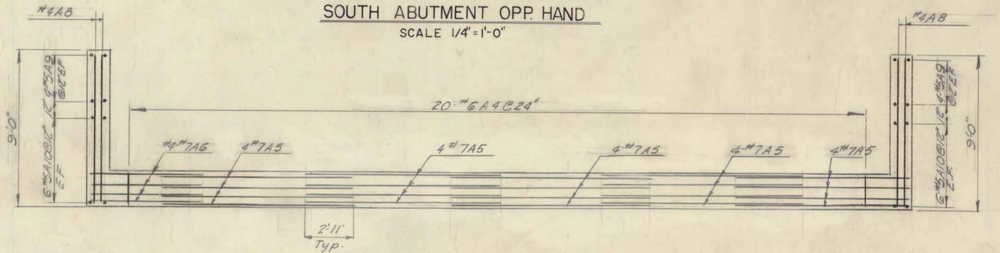
ELEV.	NORTH ABUTMENT		SOUTH ABUTMENT	
	RIGHT PYLON	LEFT PYLON	RIGHT PYLON	LEFT PYLON
G	323.25	324.04	322.94	323.74
H	323.27	324.06	322.93	323.72
J	323.03	323.82	322.67	323.46
K	322.79	323.58	322.40	323.19
L				
M	314.71	315.49	314.40	315.18
N	309.71	309.71	309.40	309.40

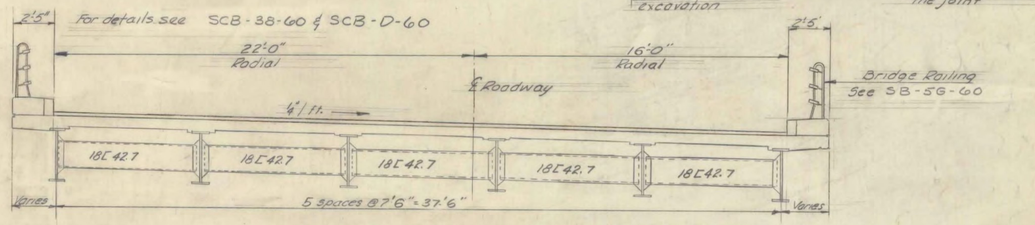




SECTION E-E
SCALE 3/8" = 1'-0"





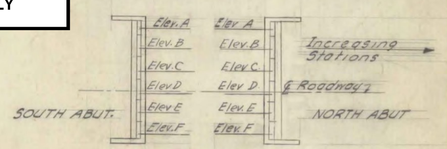


WILLISTON - GEORGIA
IM MEMB(25)
SHEET 14 OF 38
BRIDGES 63 N AND S
FOR REFERENCE ONLY

NOTES

1. For General Notes see sh. BR 1
2. For sections B-B, C-C & DD see sh. BR 2
3. For additional details see SB-20-60
4. Left & Right are determined by looking toward increasing stations

BEARING ELEVATIONS						
	A	B	C	D	E	F
NORTH ABUTMENT	315.49	315.33	315.18	315.02	314.86	314.71
SOUTH ABUTMENT	315.18	315.02	314.87	314.71	314.55	314.40



BEARING ELEVATION
N. T. S.

BR 3 OF 10

ESTIMATED QUANTITIES

ITEM #	ITEM	UNIT	SOUTHBOUND NORTH ABUTMENT NEAT	NORTH ABUTMENT OVERRUN	NORTH ABUTMENT TOTAL	SOUTH ABUTMENT NEAT	SOUTH ABUTMENT OVERRUN	SOUTH ABUTMENT TOTAL	NB Final Quant. N. Abut.	NB Final Quant. S. Abut.
107	Structure Excavation	C.Y.	~~16~~	~~4~~	~~16~~	~~74~~	~~2~~	~~76~~	18	12
4018	Concrete Class B (Mod.)	C.Y.	48	2	50	48	2	50	48	48
402	Reinforcing Steel	LB	See Bar Schedule Sheet BR 9							
407	Asphaltic Asbestos Coating	S.Y.	~~5~~	—	~~5~~	~~5~~	—	~~5~~	4.5	4.5
5028	Treated Timber Piling	L.F.	~~990~~	—	~~990~~	~~990~~	—	~~990~~	978	935
222	Gravel Backfill	C.Y.	~~19~~	~~2~~	~~21~~	~~19~~	~~2~~	~~21~~	0	0

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

INTERSTATE PROJECT IN THE TOWNS OF WILLISTON, SOUTH BURLINGTON.

OVERPASS STA. 1907+70

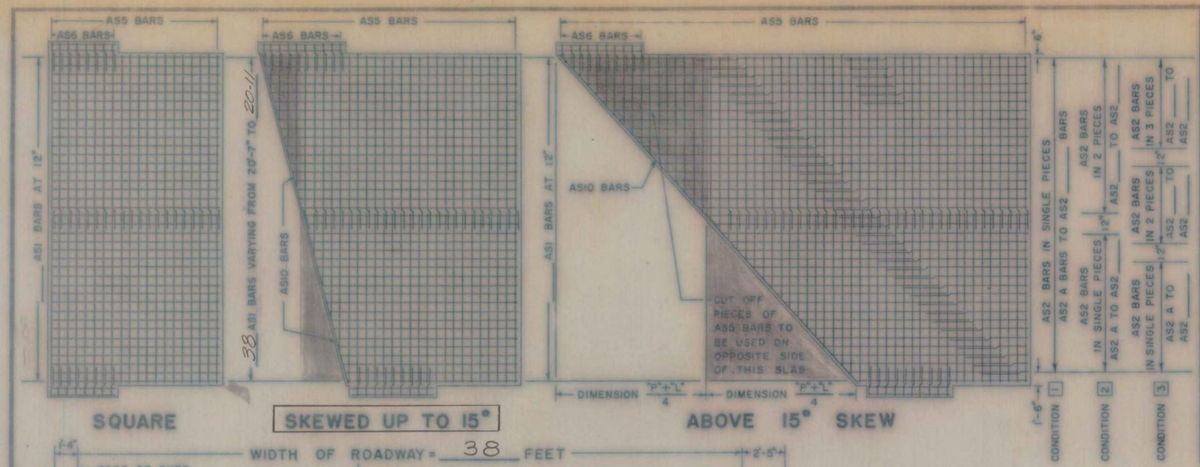
MUDDY BROOK

S.B.-TYP SECT. & ABUT. DETAILS

BOSWELL ENGINEERING CO. RIDGEFIELD PARK, N.J.

DRAWN BY R.H.E.	IN CHARGE A.J.J.	SCALE As Shown
CHECKED BY A.J.J.	DATE	

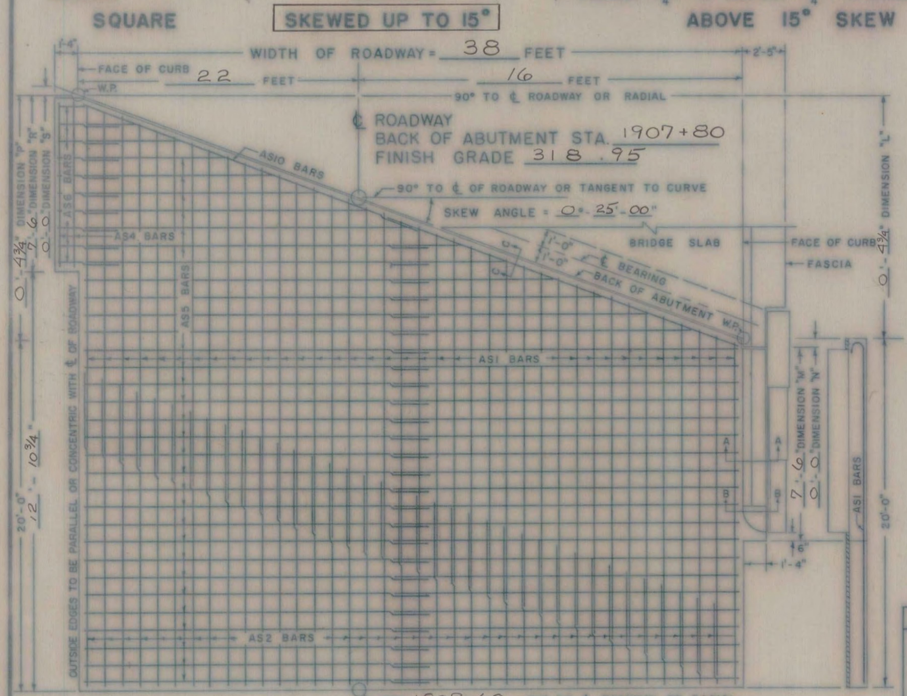
PROJECT NO. 1-89-3 (14) | SHEET 93 OF 115

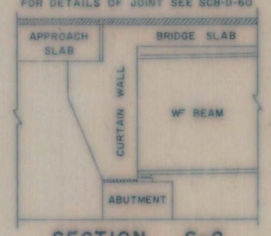


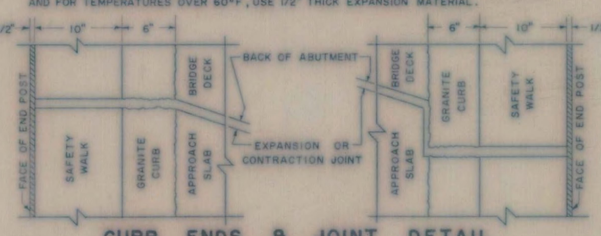
30' ROADWAY						38' ROADWAY						42' ROADWAY						44' ROADWAY						___ ROADWAY					
NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS	NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS	NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS	NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS	NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS
SQUARE OR SKEWED						SQUARE OR SKEWED						SQUARE OR SKEWED						SQUARE OR SKEWED						SQUARE OR SKEWED					
2	10		AS3	STR.		2	10	7'-0"	AS3	STR.		2	10		AS3	STR.		2	10		AS3	STR.		2	10		AS3	STR.	
2	10		AS4	STR.		2	10	7'-0"	AS4	STR.		2	10		AS4	STR.		2	10		AS4	STR.		2	10		AS4	STR.	
	5	3'-6"	AS6	STR.		14	5	3'-6"	AS6	STR.			5	3'-6"	AS6	STR.			5	3'-6"	AS6	STR.			5	3'-6"	AS6	STR.	
	5	5'-0"	AS7	S6		8	5	5'-0"	AS7	S6			5	5'-0"	AS7	S6			5	5'-0"	AS7	S6			5	5'-0"	AS7	S6	
2	5		AS8	STR.		2	5	5'-4"	AS8	STR.		2	5		AS8	STR.		2	5		AS8	STR.		2	5		AS8	STR.	
2	5		AS9	STR.		2	5	5'-4"	AS9	STR.		2	5		AS9	STR.		2	5		AS9	STR.		2	5		AS9	STR.	
SQUARE						SQUARE						SQUARE						SQUARE						SQUARE					
30	10	20'-7"	AS1	1		38	10	20'-7"	AS1	1		42	10	20'-7"	AS1	1		44	10	20'-7"	AS1	1			10	20'-7"	AS1	1	
20	5	29'-6"	AS5	STR.		40	5	19'-9"	AS5	STR.		40	5	21'-9"	AS5	STR.		40	5	22'-9"	AS5	STR.			5		AS5	STR.	
SKEWED UP TO 15°						SKEWED UP TO 15°						SKEWED UP TO 15°						SKEWED UP TO 15°						SKEWED UP TO 15°					
30	10	AVE.	AS1	1	1.	38	10	20-9 AVE.	AS1	1	1.	42	10	AVE.	AS1	1	1.	44	10	AVE.	AS1	1	1.		10	AVE.	AS1	1	1.
	5	29'-6"	AS5	STR.	2.	40	5	19'-9"	AS5	STR.	3.		5	21'-9"	AS5	STR.	3.		5	22'-9"	AS5	STR.	3.		5		AS5	STR.	2-3.
ALL SKEWED SPANS						ALL SKEWED SPANS						ALL SKEWED SPANS						ALL SKEWED SPANS						ALL SKEWED SPANS					
2	5		AS10	STR.		2	5	20'-1"	AS10	STR.			5		AS10	STR.			5		AS10	STR.			5		AS10	STR.	
ABOVE 15° SKEW						ABOVE 15° SKEW						ABOVE 15° SKEW						ABOVE 15° SKEW						ABOVE 15° SKEW					
30	10	20'-7"	AS1	1		38	10	20'-7"	AS1	1		42	10	20'-7"	AS1	1		44	10	20'-7"	AS1	1			10	20'-7"	AS1	1	
29	10	AVE.	AS2	STR.	4.	37	10	AVE.	AS2	STR.	4.	41	10	AVE.	AS2	STR.	4.	43	10	AVE.	AS2	STR.	4.		10	AVE.	AS2	STR.	4.
	5	29'-6"	AS5	STR.	2.		5	19'-9"	AS5	STR.	3.		5	21'-9"	AS5	STR.	3.		5	22'-9"	AS5	STR.	3.		5		AS5	STR.	2-3

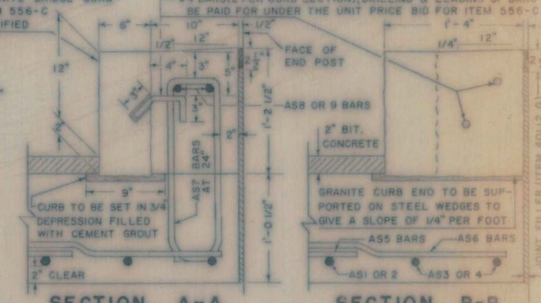
REMARKS: (1) ASI BAR "B" DIMENSION VARIES FROM 19'-6" TO 20'-0" (2) 20 + DIMENSION ("P"+"L") ÷ 4 (IN FEET) + NUMBER OF PIECES. CUT BARS IN THE FIELD USING CUT OFF PIECES ON OPPOSITE HALF OF SLAB. (3) 40 + DIMENSION ("P"+"L") ÷ 2 (IN FEET) + NUMBER OF PIECES. CUT BARS IN THE FIELD USING CUT OFF PIECES ON OPPOSITE HALF OF SLAB. (4) THE LENGTH OF AS2 BARS VARIES FROM ____ TO ____. THE AS2 BARS MAY BE DIVIDED INTO TWO OR MORE PIECES, AS MAY BE NECESSARY, TO LIMIT THE MAXIMUM BAR LENGTH TO 30 FEET. THE LOCATION OF SPLICES IS LEFT TO THE OPTION OF THE DESIGNER. THE NO. PIECES SHOWN ARE FOR CONDITION 1. (FOR CONDITION 2. & 3. SEE REINF. SCHEDULE.)

GENERAL NOTES: ALL REINFORCING STEEL SHALL BE DETAILED ON THE REINFORCING STEEL SCHEDULE. WHEN A BAR LENGTH VARIES IN INCREMENTS EACH BAR MUST BE DETAILED. SPLICES SHALL BE 2'-1" FOR NUMBER 5 BARS, AND 4'-3" FOR NUMBER 10 BARS. ALL WORK AND MATERIALS SHALL CONFORM TO THE STATE OF VERMONT, DEPARTMENT OF HIGHWAYS, STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION DATED JANUARY 1956, AND THE A.A.S.H.O. SPECIFICATIONS DATED 1957. DESIGNED FOR H20-S16-44.









DETAILS OF REINFORCING BARS

TYPE I
A = 1'-1" J = 0'-9"
B = 19'-6" OR VARIES

TYPE S6
A = 0'-6"
B = 1'-9"
C = 0'-6"
D = 1'-9"
G = 0'-6"

ITEM NO.	ITEM	UNIT	NET	OVERRUN	TOTAL	FINAL
318	TAR EMULSION FOR BRIDGE FLOORS	GAL.	34	—	34	
361-B	BITUMINOUS CONCRETE PAVEMENT (MOD.)	TONS	9	2	11	
401-B	CONCRETE CLASS B (MOD.)	CY.	31	2	33	
402	REINFORCING STEEL	LB.	4495	—	4495	
556-C	GRANITE BRIDGE CURB (MOD.)	LF.	16	—	16	

REINFORCING STEEL

BAR NO.	A NO. PIECES	B LENGTH	C WEIGHT PER FT.	A x B x C WEIGHT IN LBS.
AS1	38	20.75	4.303	3392.9
AS2	—	—	4.303	—
AS3	2	7.0	4.303	60.2
AS4	2	7.0	4.303	60.2
AS5	40	19.75	1.043	824.0
AS6	14	3'-6"	1.043	51.1
AS7	8	5'-0"	1.043	41.7
AS8	2	5.33	1.043	11.1
AS9	2	5.33	1.043	11.1
AS10	2	20.08	1.043	41.9
TOTAL WEIGHT =				4494.2

QUANTITY COMPUTATION

W = WIDTH OF ROADWAY Z = 20 + DIMENSION ("P"+"L")/4 T = DIMENSION ("M"+"R")/2

W = 38 Z = 20.2 T = 7.5

BITUMINOUS CONCRETE = W x Z x 0.0123 = TONS 38 x 20.2 x 0.0123 = 9.4 TONS

TAR EMULSION = W x Z x 0.0444 = GALLONS 38 x 20.2 x 0.0444 = 34 GALLONS

CONCRETE CLASS B = W x Z x 0.0386 + T x 0.1029 + (T - 1.8333) x 0.0733 = CUBIC YARDS

[38 x 20.2 x 0.0386] + [7.5 x 0.1029] + [(7.5 - 1.8333) x 0.0733] = 31 CUBIC YARDS

GRANITE BRIDGE CURB = 2(T + 0'-3") = LINEAR FEET 2(7.5 + 0.25) = 15.5 LINEAR FEET

ADD AN OVERRUN OF 15% TO BIT. CONCRETE, AND AN OVERRUN OF 5% TO CONCRETE CLASS B

BAR LENGTHS: AS3 BARS = DIMENSION "M" - 0'-6"
AS4 BARS = DIMENSION "R" - 0'-6"
AS6 BARS = 3'-6"
AS7 BARS = 5'-0"
AS8 BARS = DIMENSION "M" - 2'-2"
AS9 BARS = DIMENSION "R" - 2'-2"

REVISIONS AND CORRECTIONS

APPROVED

DRAWN BY: R.S. HAUPT NOV. 1960

TRACED BY: R.S. HAUPT NOV. 1960

CHECKED BY: A.H. SMALLEY NOV. 1960

CORRECT: Nov 21 1960 BRIDGE ENGINEER

APPROVED: Nov 22 1960 CHIEF ENGINEER

DETAILS OF APPROACH SLAB FOR 38 (WIDTH) FOOT BRIDGE

TO BE USED FOR BRIDGE AT STATION 1907+70

LOCATION INTERSTATE OVER MUDDY BROOK (SOUTHBOUND ROADWAY)

APPROACH SLAB NO. 1

WILLISTON - GEORGIA
IM MEMB(25)
SHEET 15 OF 38
BRIDGES 63 N AND S
FOR REFERENCE ONLY

SB-AS-60

TOWN OF WILLISTON - S. BURLINGTON

ROUTE NO. I 89

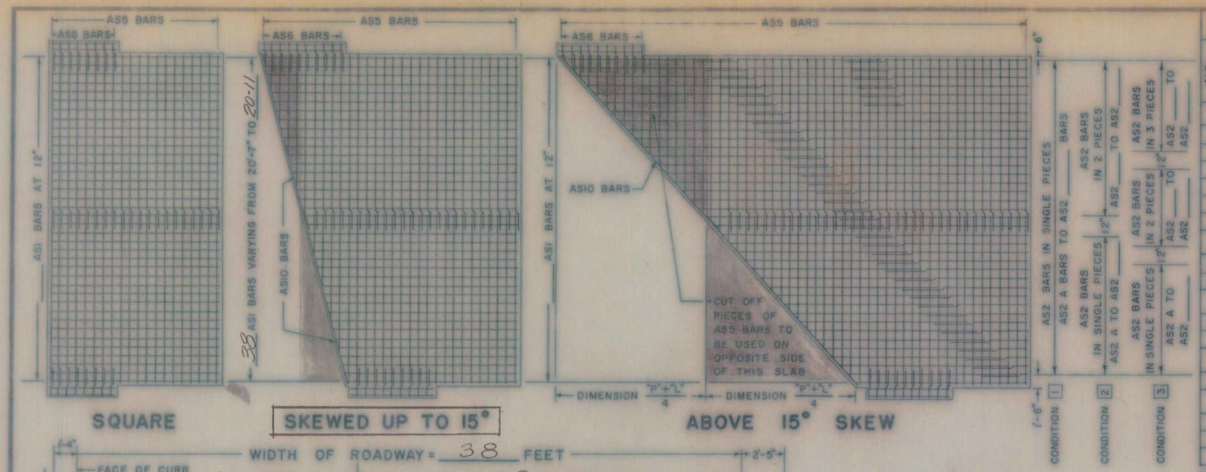
LOG STA. ____

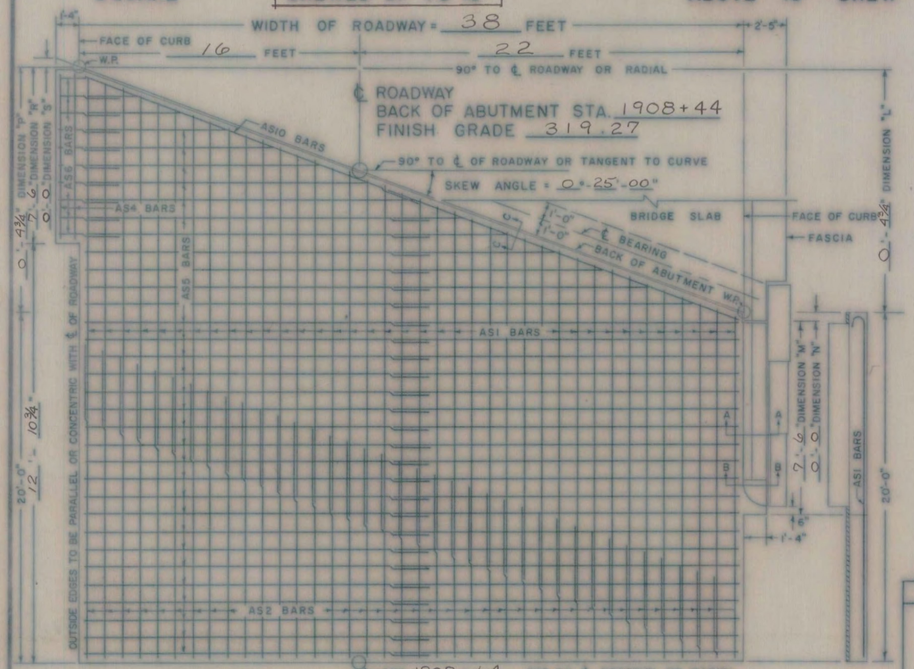
SCALE AS NOTED

DESIGNED BY RSH CHECKED BY AHS

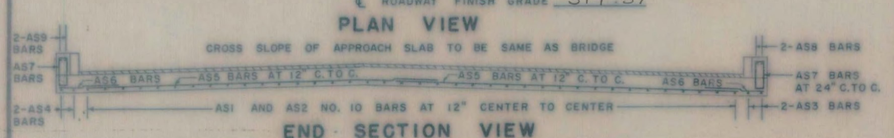
PROJECT NO. I-89-3(19) Cont. # 1

BR. 5 OF 10 SHEET 95 OF 115





PLAN VIEW

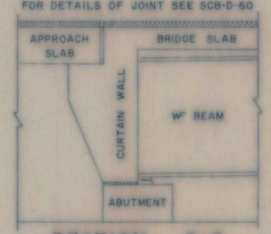


END SECTION VIEW

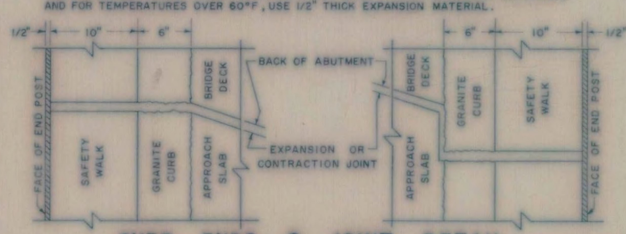
30' ROADWAY						38' ROADWAY						42' ROADWAY						44' ROADWAY						ROADWAY					
NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS	NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS	NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS	NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS	NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS
SQUARE OR SKEWED						SQUARE OR SKEWED						SQUARE OR SKEWED						SQUARE OR SKEWED						SQUARE OR SKEWED					
2	10		AS3	STR.		2	10	7'-0"	AS3	STR.		2	10		AS3	STR.		2	10		AS3	STR.							
2	10		AS4	STR.		2	10	7'-0"	AS4	STR.		2	10		AS4	STR.		2	10		AS4	STR.		2	10		AS4	STR.	
	5	3'-6"	AS6	STR.		14	5	3'-6"	AS6	STR.			5	3'-6"	AS6	STR.			5	3'-6"	AS6	STR.			5	3'-6"	AS6	STR.	
	5	5'-0"	AS7	S6		8	5	5'-0"	AS7	S6			5	5'-0"	AS7	S6			5	5'-0"	AS7	S6			5	5'-0"	AS7	S6	
2	5		AS8	STR.		2	5	5'-4"	AS8	STR.		2	5		AS8	STR.		2	5		AS8	STR.		2	5		AS8	STR.	
2	5		AS9	STR.		2	5	5'-4"	AS9	STR.		2	5		AS9	STR.		2	5		AS9	STR.		2	5		AS9	STR.	
SQUARE						SQUARE						SQUARE						SQUARE						SQUARE					
30	10	20'-7"	AS1	1		38	10	20'-7"	AS1	1		42	10	20'-7"	AS1	1		44	10	20'-7"	AS1	1			10	20'-7"	AS1	1	
20	5	29'-6"	AS5	STR.		40	5	19'-9"	AS5	STR.		40	5	21'-9"	AS5	STR.		40	5	22'-9"	AS5	STR.			5		AS5	STR.	2-3
SKEWED UP TO 15°						SKEWED UP TO 15°						SKEWED UP TO 15°						SKEWED UP TO 15°						SKEWED UP TO 15°					
30	10	AVE.	AS1	1	1.	38	10	20'-9" AVE.	AS1	1	1.	42	10	AVE.	AS1	1	1.	44	10	AVE.	AS1	1	1.		10	AVE.	AS1	1	1.
	5	29'-6"	AS5	STR.	2.	40	5	19'-9"	AS5	STR.	3.		5	21'-9"	AS5	STR.	3.		5	22'-9"	AS5	STR.	3.		5		AS5	STR.	2-3
ALL SKEWED SPANS						ALL SKEWED SPANS						ALL SKEWED SPANS						ALL SKEWED SPANS						ALL SKEWED SPANS					
2	5		AS1O	STR.		2	5	20'-1"	AS1O	STR.			5		AS1O	STR.			5		AS1O	STR.			5		AS1O	STR.	
ABOVE 15° SKEW						ABOVE 15° SKEW						ABOVE 15° SKEW						ABOVE 15° SKEW						ABOVE 15° SKEW					
30	10	20'-7"	AS1	1		38	10	20'-7"	AS1	1		42	10	20'-7"	AS1	1		44	10	20'-7"	AS1	1			10	20'-7"	AS1	1	
29	10	AVE.	AS2	STR.	4.	37	10	AVE.	AS2	STR.	4.	41	10	AVE.	AS2	STR.	4.	43	10	AVE.	AS2	STR.	4.		10	AVE.	AS2	STR.	4.
	5	29'-6"	AS5	STR.	2.		5	19'-9"	AS5	STR.	3.		5	21'-9"	AS5	STR.	3.		5	22'-9"	AS5	STR.	3.		5		AS5	STR.	2-3

REMARKS: (1) ASI BAR "B" DIMENSION VARIES FROM 19'-6" TO 20'-0" (2) 20 + DIMENSION ("P"+"L") ÷ 4 (IN FEET) + NUMBER OF PIECES. CUT BARS IN THE FIELD USING CUT OFF PIECES ON OPPOSITE HALF OF SLAB. (3) 40 + DIMENSION ("P"+"L") ÷ 2 (IN FEET) + NUMBER OF PIECES. CUT BARS IN THE FIELD USING CUT OFF PIECES ON OPPOSITE HALF OF SLAB. (4) THE LENGTH OF AS2 BARS VARIES FROM ____ TO ____. THE AS2 BARS MAY BE DIVIDED INTO TWO OR MORE PIECES, AS MAY BE NECESSARY, TO LIMIT THE MAXIMUM BAR LENGTH TO 30 FEET. THE LOCATION OF SPLICES IS LEFT TO THE OPTION OF THE DESIGNER. THE NO. PIECES SHOWN ARE FOR CONDITION 1. (FOR CONDITION 2. & 3. SEE REINF. SCHEDULE.)

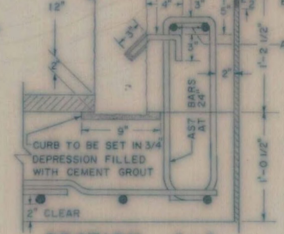
GENERAL NOTES: ALL REINFORCING STEEL SHALL BE DETAILED ON THE REINFORCING STEEL SCHEDULE. WHEN A BAR LENGTH VARIES IN INCREMENTS EACH BAR MUST BE DETAILED. SPLICES SHALL BE 2'-1" FOR NUMBER 5 BARS, AND 4'-3" FOR NUMBER 10 BARS. ALL WORK AND MATERIALS SHALL CONFORM TO THE STATE OF VERMONT, DEPARTMENT OF HIGHWAYS, STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION DATED JANUARY 1956, AND THE A.A.S.H.O. SPECIFICATIONS DATED 1957. DESIGNED FOR H20-S16-44.



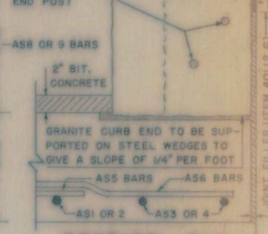
SECTION C-C
SCALE 1/2" = 1'-0"



CURB ENDS & JOINT DETAIL
SCALE 1 1/2" = 1'-0"



SECTION A-A
SCALE 1 1/2" = 1'-0"

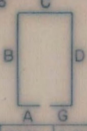


SECTION B-B
SCALE 1 1/2" = 1'-0"

DETAILS OF REINFORCING BARS

TYPE I
A = 1'-1" J = 0'-9"
B = 19'-6" OR VARIES

TYPE S6
A = 0'-6"
B = 1'-9"
C = 0'-6"
D = 1'-9"
G = 0'-6"



ITEM NO.	ITEM	UNIT	NET	OVERRUN	TOTAL	FINAL
318	TAR EMULSION FOR BRIDGE FLOORS	GAL.	34	—	34	
361-B	BITUMINOUS CONCRETE PAVEMENT (MOD.)	TONS	9	2	11	
401-B	CONCRETE CLASS B (MOD.)	CY.	31	2	33	
402	REINFORCING STEEL	LB.	4495	—	4495	
556-C	GRANITE BRIDGE CURB (MOD.)	LF.	16	—	16	

REINFORCING STEEL

BAR NO.	A NO. PIECES	B LENGTH	C WEIGHT PER FT.	A x B x C WEIGHT IN LBS.
AS1	38	20.75	4.303	3392.9
AS2	—	—	4.303	—
AS3	2	7.0	4.303	60.2
AS4	2	7.0	4.303	60.2
AS5	40	19.95	1.043	824.0
AS6	14	3'-6"	1.043	51.1
AS7	8	5'-0"	1.043	41.7
AS8	2	5.33	1.043	11.1
AS9	2	5.33	1.043	11.1
AS10	2	2008	1.043	41.9
TOTAL WEIGHT =				4494.2

QUANTITY COMPUTATION

W = WIDTH OF ROADWAY Z = 20 + DIMENSION ("P"+"L")/4 T = DIMENSION ("M"+"R")/2

W = 38 Z = 20.2 T = 7.5

BITUMINOUS CONCRETE = W x Z x 0.0123 = TONS 38 x 20.2 x 0.0123 = 9.4 TONS

TAR EMULSION = W x Z x 0.0444 = GALLONS 38 x 20.2 x 0.0444 = 34 GALLONS

CONCRETE CLASS B = W x Z x 0.0386 + T x 0.1029 + (T - 1.8333) x 0.0733 = CUBIC YARDS

[38 x 20.2 x 0.0386] + [7.5 x 0.1029] + [(7.5 - 1.8333) x 0.0733] = 31 CUBIC YARDS

GRANITE BRIDGE CURB = 2(T + 0'-3") = LINEAR FEET 2(7.5 + 0.25) = 15.5 LINEAR FEET

ADD AN OVERRUN OF 15% TO BIT. CONCRETE, AND AN OVERRUN OF 5% TO CONCRETE CLASS B

BAR LENGTHS: AS3 BARS = DIMENSION "M" - 0'-6"
AS4 BARS = DIMENSION "R" - 0'-6"
AS6 BARS = 3'-6"
AS7 BARS = 5'-0"
AS8 BARS = DIMENSION "M" - 2'-2"
AS9 BARS = DIMENSION "R" - 2'-2"

REVISIONS AND CORRECTIONS

APPROVED

DRAWN BY: R.S. HAUPT NOV. 1960

TRACED BY: R.S. HAUPT NOV. 1960

CHECKED BY: A.H. SMALLEY NOV. 1960

CORRECT: Nov 21, 1960 [signature] BRIDGE ENGINEER

APPROVED: Nov 22, 1960 [signature] CHIEF ENGINEER

DETAILS OF APPROACH SLAB FOR 38 (WIDTH) FOOT BRIDGE

TO BE USED FOR BRIDGE AT STATION 1907+70

LOCATION INTERSTATE OVER MUDDY BROOK (SOUTHBOUND ROADYAY)

APPROACH SLAB NO 2

DEPARTMENT OF HIGHWAYS

SB-AS-60

WILLISTON - GEORGIA
IM MEMB(25)
SHEET 16 OF 38
BRIDGES 63 N AND S
FOR REFERENCE ONLY

TOWN OF WILLISTON - S. BURLINGTON

ROUTE NO. I 89

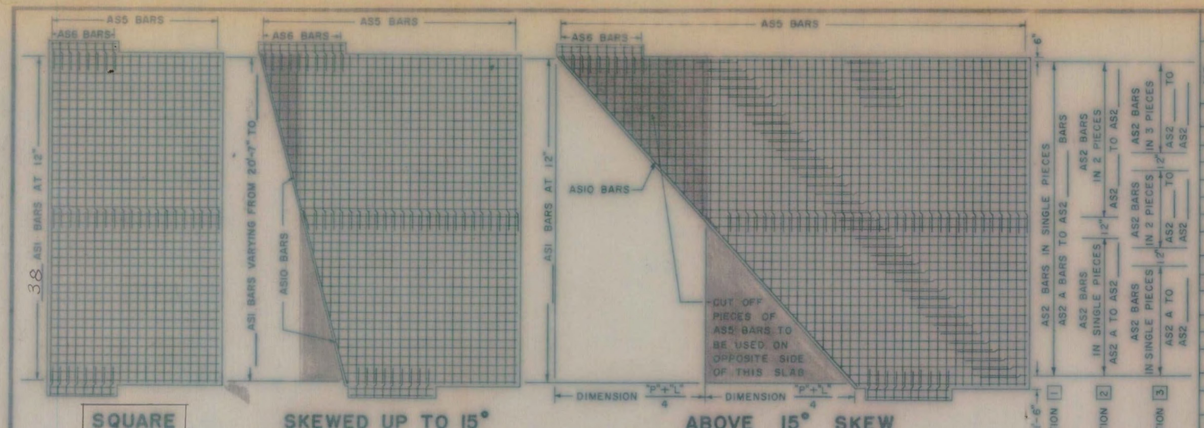
LOG STA.

SCALE AS NOTED

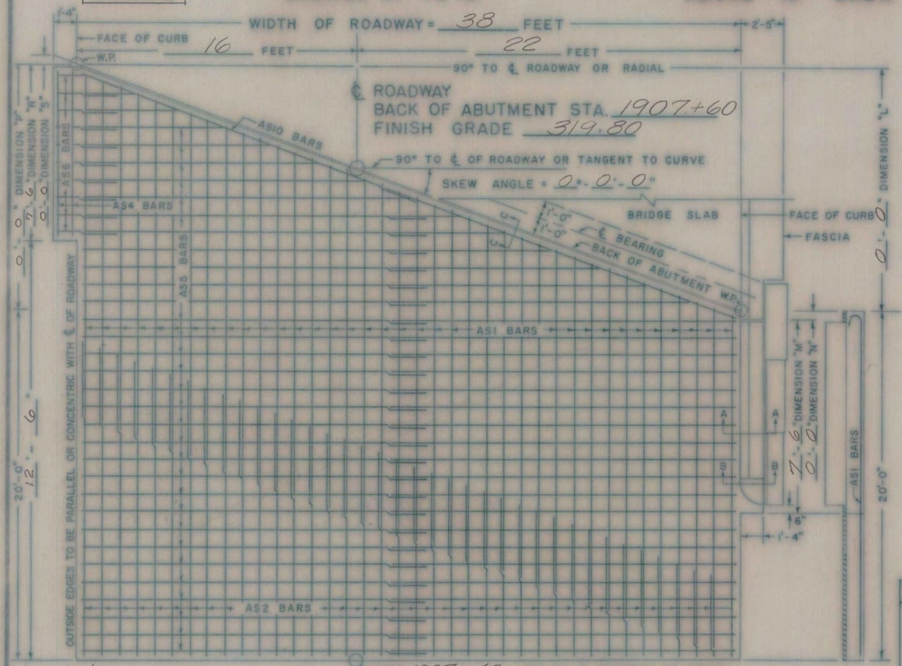
DESIGNED BY RSH CHECKED BY AHS

PROJECT NO. I-89-3(19) Cont. #1

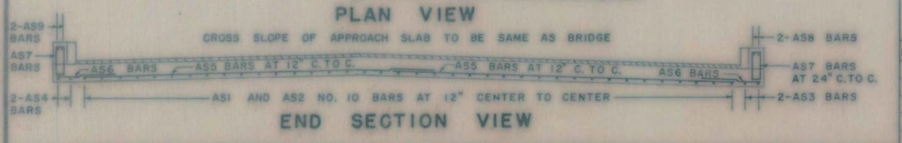
BR. 6 OF 10 SHEET 96 OF 115



SQUARE — SKEWED UP TO 15° — ABOVE 15° SKEW



PLAN VIEW

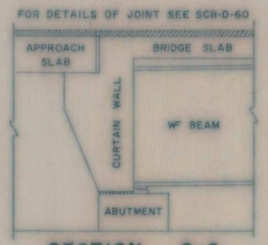


END SECTION VIEW

30' ROADWAY						38' ROADWAY						42' ROADWAY						44' ROADWAY						____ ROADWAY					
NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS	NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS	NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS	NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS	NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS
SQUARE OR SKEWED						SQUARE OR SKEWED						SQUARE OR SKEWED						SQUARE OR SKEWED						SQUARE OR SKEWED					
2	10		AS3	STR.		2	10	7'-0"	AS3	STR.		2	10		AS3	STR.		2	10		AS3	STR.		2	10		AS3	STR.	
2	10		AS4	STR.		2	10	7'-0"	AS4	STR.		2	10		AS4	STR.		2	10		AS4	STR.		2	10		AS4	STR.	
	5	3'-6"	AS6	STR.		14	5	3'-6"	AS6	STR.			5	3'-6"	AS6	STR.			5	3'-6"	AS6	STR.			5	3'-6"	AS6	STR.	
	5	5'-0"	AS7	S6		8	5	5'-0"	AS7	S6			5	5'-0"	AS7	S6			5	5'-0"	AS7	S6			5	5'-0"	AS7	S6	
2	5		AS8	STR.		2	5	5'-4"	AS8	STR.		2	5		AS8	STR.		2	5		AS8	STR.		2	5		AS8	STR.	
2	5		AS9	STR.		2	5	5'-4"	AS9	STR.		2	5		AS9	STR.		2	5		AS9	STR.		2	5		AS9	STR.	
SQUARE						SQUARE						SQUARE						SQUARE						SQUARE					
30	10	20'-7"	ASI	I		38	10	20'-7"	ASI	I		42	10	20'-7"	ASI	I		44	10	20'-7"	ASI	I			10	20'-7"	ASI	I	
20	5	29'-6"	AS5	STR.		40	5	19'-9"	AS5	STR.		40	5	21'-9"	AS5	STR.		40	5	22'-9"	AS5	STR.			5		AS5	STR.	
SKEWED UP TO 15°						SKEWED UP TO 15°						SKEWED UP TO 15°						SKEWED UP TO 15°						SKEWED UP TO 15°					
30	10	AVE.	ASI	I	1.	38	10	AVE.	ASI	I	1.	42	10	AVE.	ASI	I	1.	44	10	AVE.	ASI	I	1.		10	AVE.	ASI	I	1.
	5	29'-6"	AS5	STR.	2.		5	19'-9"	AS5	STR.	3.		5	21'-9"	AS5	STR.	3.		5	22'-9"	AS5	STR.	3.		5		AS5	STR.	2.-3.
ALL SKEWED SPANS						ALL SKEWED SPANS						ALL SKEWED SPANS						ALL SKEWED SPANS						ALL SKEWED SPANS					
2	5		ASIO	STR.			5		ASIO	STR.			5		ASIO	STR.			5		ASIO	STR.			5		ASIO	STR.	
ABOVE 15° SKEW						ABOVE 15° SKEW						ABOVE 15° SKEW						ABOVE 15° SKEW						ABOVE 15° SKEW					
30	10	20'-7"	ASI	I		38	10	20'-7"	ASI	I		42	10	20'-7"	ASI	I		44	10	20'-7"	ASI	I			10	20'-7"	ASI	I	
29	10	AVE.	AS2	STR.	4.	37	10	AVE.	AS2	STR.	4.	41	10	AVE.	AS2	STR.	4.	43	10	AVE.	AS2	STR.	4.		10	AVE.	AS2	STR.	4.
	5	29'-6"	AS5	STR.	2.		5	19'-9"	AS5	STR.	3.		5	21'-9"	AS5	STR.	3.		5	22'-9"	AS5	STR.	3.		5		AS5	STR.	2.-3.

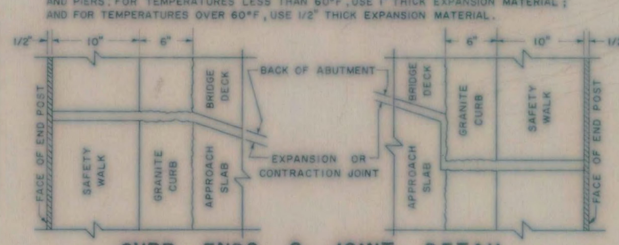
REMARKS: (1) ASI BAR "B" DIMENSION VARIES FROM 19'-6" TO _____. (2) 20 + DIMENSION ("P"+"L") ÷ 4 (IN FEET) × NUMBER OF PIECES. CUT BARS IN THE FIELD USING CUT OFF PIECES ON OPPOSITE HALF OF SLAB. (3) 40 + DIMENSION ("P"+"L") ÷ 2 (IN FEET) × NUMBER OF PIECES. CUT BARS IN THE FIELD USING CUT OFF PIECES ON OPPOSITE HALF OF SLAB. (4) THE LENGTH OF AS2 BARS VARIES FROM _____ TO _____. THE AS2 BARS MAY BE DIVIDED INTO TWO OR MORE PIECES, AS MAY BE NECESSARY, TO LIMIT THE MAXIMUM BAR LENGTH TO 30 FEET. THE LOCATION OF SPLICES IS LEFT TO THE OPTION OF THE DESIGNER. THE NO. PIECES SHOWN ARE FOR CONDITION 1. (FOR CONDITION 2. & 3. SEE REINF. SCHEDULE.)

GENERAL NOTES: ALL REINFORCING STEEL SHALL BE DETAILED ON THE REINFORCING STEEL SCHEDULE. WHEN A BAR LENGTH VARIES IN INCREMENTS EACH BAR MUST BE DETAILED. SPLICES SHALL BE 2'-1" FOR NUMBER 5 BARS, AND 4'-3" FOR NUMBER 10 BARS. ALL WORK AND MATERIALS SHALL CONFORM TO THE STATE OF VERMONT, DEPARTMENT OF HIGHWAYS, STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION DATED JANUARY 1956, AND THE A.A.S.H.O. SPECIFICATIONS DATED 1957. DESIGNED FOR H20-S16-44.



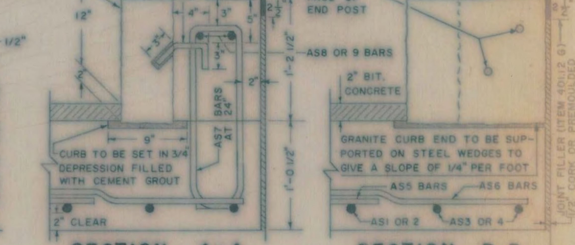
SECTION C-C
SCALE 1 1/2" = 1'-0"

ABUTMENTS (FIXED END) USE 1/2" EXPANSION MATERIAL. ABUTMENTS (EXPANSION END) AND PIERS: FOR TEMPERATURES LESS THAN 60°F, USE 1" THICK EXPANSION MATERIAL; AND FOR TEMPERATURES OVER 60°F, USE 1/2" THICK EXPANSION MATERIAL.



CURB ENDS & JOINT DETAIL
SCALE 1 1/2" = 1'-0"

GRANITE BRIDGE CURB ITEM 556-C MODIFIED



SECTION A-A
SCALE 1 1/2" = 1'-0"

SECTION B-B
SCALE 1 1/2" = 1'-0"

DETAILS OF REINFORCING BARS

TYPE I
A = 1'-1" J = 0'-9"
B = 19'-6" OR VARIES

TYPE S6
A = 0'-6"
B = 1'-9"
C = 0'-6"
D = 1'-9"
G = 0'-6"

ITEM NO.	ITEM	UNIT	NET	OVERRUN	TOTAL	FINAL
318	TAR EMULSION FOR BRIDGE FLOORS	GAL.	34	—	34	
361-B	BITUMINOUS CONCRETE PAVEMENT (MOD.)	TONS	9	2	11	
401-B	CONCRETE CLASS B (MOD.)	CY.	31	2	33	
402	REINFORCING STEEL	LB.	4425	—	4425	
556-C	GRANITE BRIDGE CURB (MOD.)	LF.	16	—	16	

REINFORCING STEEL

BAR NO.	NO. PIECES	A LENGTH	B WEIGHT PER FT.	C WEIGHT IN LBS.	A X B X C
ASI	38	20-7	4.303	3365.6	
AS2	—	—	4.303	—	
AS3	2	7-0	4.303	60.2	
AS4	2	7-0	4.303	60.2	
AS5	40	19-9	1.043	824.0	
AS6	14	3'-6"	1.043	51.1	
AS7	8	5'-0"	1.043	41.7	
AS8	2	5-4	1.043	11.1	
AS9	2	5-4	1.043	11.1	
ASIO	—	—	1.043	—	
		TOTAL WEIGHT =		4425.0	

QUANTITY COMPUTATION

W = WIDTH OF ROADWAY = 38'-0" Z = 20 + DIMENSION ("P"+"L")/4 = 20'-0" T = DIMENSION ("M"+"R")/2 = 7'-6"

BITUMINOUS CONCRETE = W x Z x 0.0123 = TONS 38 x 20 x 0.0123 = 9.35 TONS

TAR EMULSION = W x Z x 0.0444 = GALLONS 38 x 20 x 0.0444 = 33.7 GALLONS

CONCRETE CLASS B = W x Z x 0.0386 + T x 0.1029 + (T − 1.8333) x 0.0733 = CUBIC YARDS

[38 x 20 x 0.0386] + [7.5 x 0.1029] + [(7.5 − 1.8333) x 0.0733] = 30.5 CUBIC YARDS

GRANITE BRIDGE CURB = 2(T + 0'-3") = LINEAR FEET 2(7.5 + 0.25) = 15.5 LINEAR FEET

ADD AN OVERRUN OF 15% TO BIT. CONCRETE, AND AN OVERRUN OF 5% TO CONCRETE CLASS B

BAR LENGTHS: AS3 BARS = DIMENSION "M" − 0'-6"
AS4 BARS = DIMENSION "R" − 0'-6"
AS6 BARS = 3'-6"
AS7 BARS = 5'-0"
AS8 BARS = DIMENSION "M" − 2'-2"
AS9 BARS = DIMENSION "R" − 2'-2"

REVISIONS AND CORRECTIONS

APPROVED

DRAWN BY: R.S. HAUPT NOV. 1960

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CORRECT: Nov. 21, 1960 — BRIDGE ENGINEER

APPROVED: Nov. 22, 1960 — CHIEF ENGINEER

DETAILS OF APPROACH SLAB FOR 38 (WIDTH) FOOT BRIDGE

TO BE USED FOR BRIDGE AT STATION 1907+70

LOCATION INTERSTATE OVER MUDDY BROOK (NORTHBOUND ROADWAY)

APPROACH SLAB NO. 3

WILLISTON - GEORGIA
IM MEMB(25)
SHEET 17 OF 38
BRIDGES 63 N AND S
FOR REFERENCE ONLY

SB-AS-60

TOWN OF WILLISTON - S. BURLINGTON

ROUTE NO. I 89

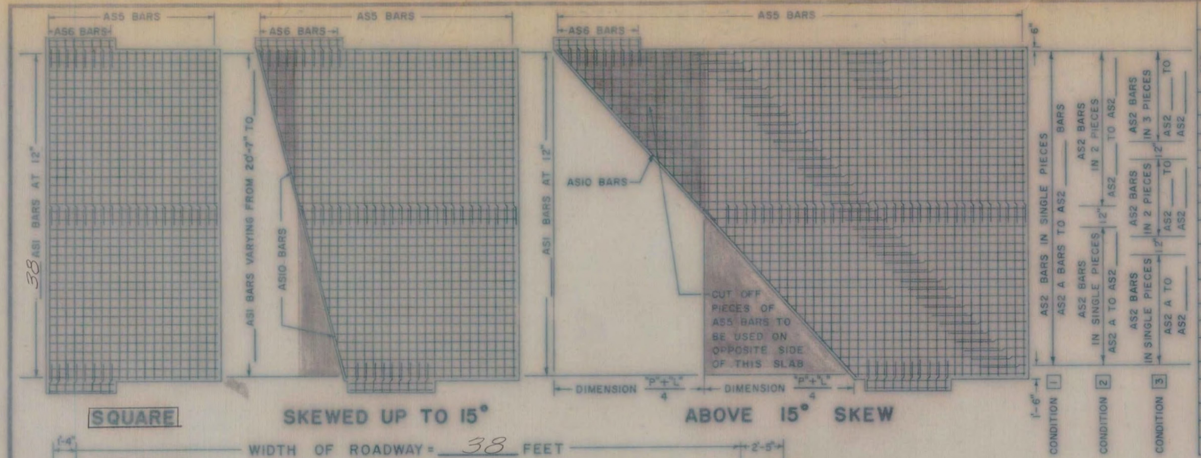
LOG STA. 1907+70

SCALE AS NOTED

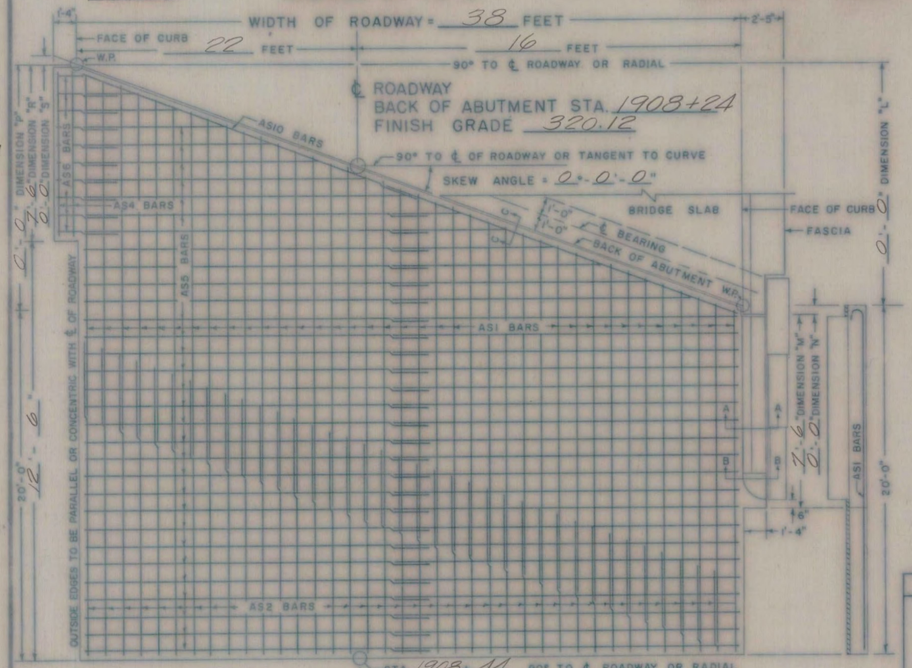
DESIGNED BY RSH CHECKED BY AHS

PROJECT NO. I-89-3(14) Cont. #1

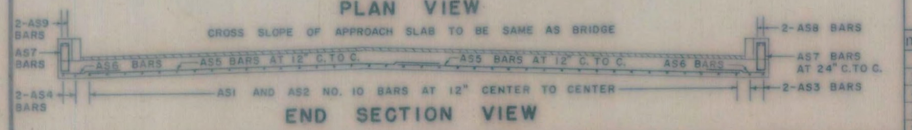
BR. 7 OF 10 SHEET 76A OF 115



SQUARE | SKEWED UP TO 15° | ABOVE 15° SKEW



PLAN VIEW



END SECTION VIEW

30' ROADWAY						38' ROADWAY						42' ROADWAY						44' ROADWAY						___ ROADWAY					
NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS	NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS	NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS	NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS	NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS
SQUARE OR SKEWED						SQUARE OR SKEWED						SQUARE OR SKEWED						SQUARE OR SKEWED						SQUARE OR SKEWED					
2	10		AS3	STR.		2	10	7'-0	AS3	STR.		2	10		AS3	STR.		2	10		AS3	STR.		2	10		AS3	STR.	
2	10		AS4	STR.		2	10	7'-0	AS4	STR.		2	10		AS4	STR.		2	10		AS4	STR.		2	10		AS4	STR.	
5	3'-6"		AS6	STR.		14	5	3'-6"	AS6	STR.		5	3'-6"		AS6	STR.		5	3'-6"		AS6	STR.		5	3'-6"		AS6	STR.	
5	5'-0"		AS7	S6		8	5	5'-0"	AS7	S6		5	5'-0"		AS7	S6		5	5'-0"		AS7	S6		5	5'-0"		AS7	S6	
2	5		AS8	STR.		2	5	5'-4	AS8	STR.		2	5		AS8	STR.		2	5		AS8	STR.		2	5		AS8	STR.	
2	5		AS9	STR.		2	5	5'-4	AS9	STR.		2	5		AS9	STR.		2	5		AS9	STR.		2	5		AS9	STR.	
SQUARE						SQUARE						SQUARE						SQUARE						SQUARE					
30	10	20'-7"	ASI	I		38	10	20'-7"	ASI	I		42	10	20'-7"	ASI	I		44	10	20'-7"	ASI	I		10	20'-7"		ASI	I	
20	5	29'-6"	AS5	STR.		40	5	19'-9"	AS5	STR.		40	5	21'-9"	AS5	STR.		40	5	22'-9"	AS5	STR.		5			AS5	STR.	
SKEWED UP TO 15°						SKEWED UP TO 15°						SKEWED UP TO 15°						SKEWED UP TO 15°						SKEWED UP TO 15°					
30	10	AVE.	ASI	I	1.	38	10	AVE.	ASI	I	1.	42	10	AVE.	ASI	I	1.	44	10	AVE.	ASI	I	1.	10	AVE.		ASI	I	1.
5	29'-6"		AS5	STR.	2.	5	19'-9"		AS5	STR.	3.	5	21'-9"		AS5	STR.	3.	5	22'-9"		AS5	STR.	3.	5			AS5	STR.	2.-3.
ALL SKEWED SPANS						ALL SKEWED SPANS						ALL SKEWED SPANS						ALL SKEWED SPANS						ALL SKEWED SPANS					
2	5		ASIO	STR.		5			ASIO	STR.		5			ASIO	STR.		5			ASIO	STR.		5			ASIO	STR.	
ABOVE 15° SKEW						ABOVE 15° SKEW						ABOVE 15° SKEW						ABOVE 15° SKEW						ABOVE 15° SKEW					
30	10	20'-7"	ASI	I		38	10	20'-7"	ASI	I		42	10	20'-7"	ASI	I		44	10	20'-7"	ASI	I		10	20'-7"		ASI	I	
29	10	AVE.	AS2	STR.	4.	37	10	AVE.	AS2	STR.	4.	41	10	AVE.	AS2	STR.	4.	43	10	AVE.	AS2	STR.	4.	10	AVE.		AS2	STR.	4.
5	29'-6"		AS5	STR.	2.	5	19'-9"		AS5	STR.	3.	5	21'-9"		AS5	STR.	3.	5	22'-9"		AS5	STR.	3.	5			AS5	STR.	2.-3.

REMARKS: (1) ASI BAR "B" DIMENSION VARIES FROM 19'-6" TO ____. (2) 20 + DIMENSION ("P"+"L") ÷ 4 (IN FEET) = NUMBER OF PIECES. CUT BARS IN THE FIELD USING CUT OFF PIECES ON OPPOSITE HALF OF SLAB. (3) 40 + DIMENSION ("P"+"L") ÷ 2 (IN FEET) = NUMBER OF PIECES. CUT BARS IN THE FIELD USING CUT OFF PIECES ON OPPOSITE HALF OF SLAB. (4) THE LENGTH OF AS2 BARS VARIES FROM ____ TO ____. THE AS2 BARS MAY BE DIVIDED INTO TWO OR MORE PIECES, AS MAY BE NECESSARY, TO LIMIT THE MAXIMUM BAR LENGTH TO 30 FEET. THE LOCATION OF SPLICES IS LEFT TO THE OPTION OF THE DESIGNER. THE NO. PIECES SHOWN ARE FOR CONDITION 1. (FOR CONDITION 2. & 3. SEE REINF. SCHEDULE.)

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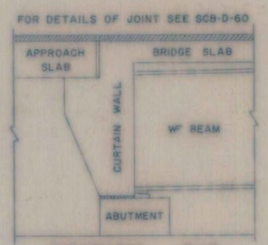
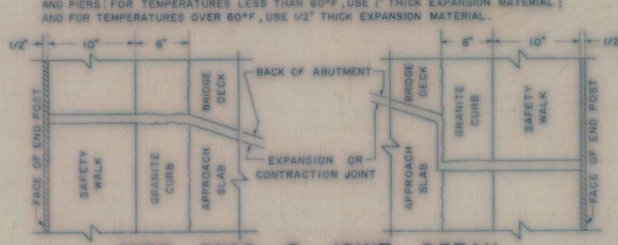
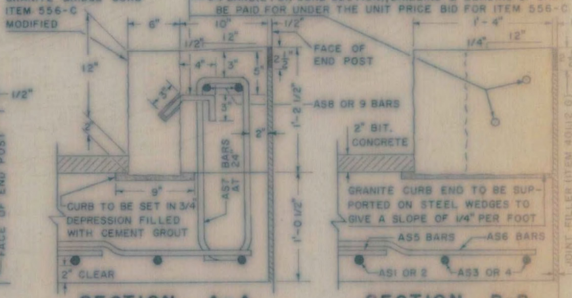


SECTION C-C
SCALE 1/2" = 1'-0"



CURB ENDS & JOINT DETAIL
SCALE 1 1/2" = 1'-0"



SECTION A-A
SCALE 1 1/2" = 1'-0"

SECTION B-B
SCALE 1 1/2" = 1'-0"

DETAILS OF REINFORCING BARS

TYPE I
A = 1'-1" J = 0'-9"
B = 19'-6" OR VARIES

TYPE S6
A = 0'-6"
B = 1'-9"
C = 0'-6"
D = 1'-9"
G = 0'-6"

ITEM NO.	ITEM	UNIT	NET	OVERRUN	TOTAL	FINAL
318	TAR EMULSION FOR BRIDGE FLOORS	GAL.	34	—	34	
361-B	BITUMINOUS CONCRETE PAVEMENT (MOD.)	TONS	9	2	11	
401-B	CONCRETE CLASS B (MOD.)	CY.	31	2	33	
402	REINFORCING STEEL	LB.	4425	—	4425	
556-C	GRANITE BRIDGE CURB (MOD.)	LF.	16	—	16	

REINFORCING STEEL

BAR NO.	NO. PIECES	A B LENGTH	C	WEIGHT PER FT.	A X B X C WEIGHT IN LBS.
AS1	38	20-7		4.303	3365.6
AS2	—	—		4.303	—
AS3	2	7'-0		4.303	60.2
AS4	2	7'-0		4.303	60.2
AS5	40	19'-9		1.043	824.0
AS6	14	3'-6"		1.043	51.1
AS7	8	5'-0"		1.043	41.7
AS8	2	5'-4		1.043	11.1
AS9	2	5'-4		1.043	11.1
ASIO	—	—		1.043	—
TOTAL WEIGHT =					4425.0

QUANTITY COMPUTATION

W = WIDTH OF ROADWAY Z = 20 + DIMENSION ("P"+"L")/4 T = DIMENSION ("M"+"N")/2

W = 38'-0" Z = 20'-0" T = 7'-6"

BITUMINOUS CONCRETE = W x Z x 0.0123 = TONS 38 x 20 x 0.0123 = 9.35 TONS

TAR EMULSION = W x Z x 0.0444 = GALLONS 38 x 20 x 0.0444 = 33.7 GALLONS

CONCRETE CLASS B = W x Z x 0.0386 + T x 0.1029 + (T − 1.8333) x 0.0733 = CUBIC YARDS

[38 x 20 x 0.0386] + [7.5 x 0.1029] + [(7.5 − 1.8333) x 0.0733] = 30.5 CUBIC YARDS

GRANITE BRIDGE CURB = 2(T + 0'-3") = LINEAR FEET 2(7.5 + 0.25) = 15.5 LINEAR FEET

ADD AN OVERRUN OF 15% TO BIT. CONCRETE, AND AN OVERRUN OF 5% TO CONCRETE CLASS B

BAR LENGTHS: AS3 BARS = DIMENSION "M" = 0'-6"
AS4 BARS = DIMENSION "N" = 0'-6"
AS6 BARS = 3'-6"
AS7 BARS = 5'-0"
AS8 BARS = DIMENSION "M" = 2'-2"
AS9 BARS = DIMENSION "N" = 2'-2"

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TO BE USED FOR BRIDGE AT STATION 1907+70

LOCATION INTERSTATE OVER MUDDY BROOK (NORTHBOUND ROADWAY)

APPROACH SLAB NO. 4

WILLISTON - GEORGIA
IM MEMB(25)
SHEET 18 OF 38
BRIDGES 63 N AND S
FOR REFERENCE ONLY

SB-AS-60

TOWN OF WILLISTON-S. BURLINGTON

ROUTE NO. I 89

LOG STA. 1907+70

SCALE AS NOTED

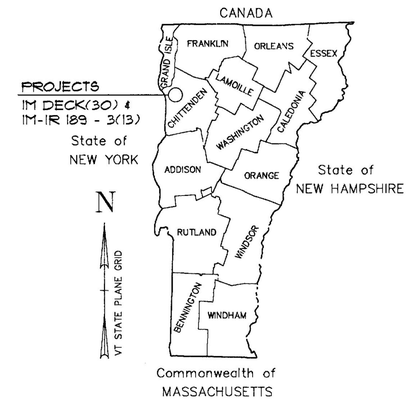
DESIGNED BY RSH CHECKED BY AHS

PROJECT NO. I-89-3(14) Cont. #1

BR. 8 OF 10 SHEET 96B OF 115

SOUTH BURLINGTON IM DECK(30)
IMIR 189-3(13) I-189
BRIDGE REHAB #64 thru 66
1996

STATE OF VERMONT
AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT

CITY OF SOUTH BURLINGTON
COUNTY OF CHITTENDEN

PROJECT
IM – DECK(30)

ROUTE NO : I-89
PROJECT LOCATION : BR 64, VT 116 OVER I-89, BR 65N&S, I-89 OVER DORSET ST, BR 66N&S, I-89 OVER I-189 EB, BR 67, I-189 WB OVER I-89, BR 67E, RAMP E OVER RAMP D, BR 69, PATCHEN RD OVER I-89
BRIDGE NO. : 64, 65N&S, 66N&S, 67, 67E, & 69

PROJECT DESCRIPTION : INSTALL TRAFFIC CONTROL, REHABILITATE STRUCTURES, REMOVE TRAFFIC CONTROL

LENGTH OF STRUCTURES :

BR 64	236.00'	BR 67	266.00'
BR 65N	169.74'	BR 67E	167.00'
BR 65S	164.33'	BR 69	256.00'
BR 66N	174.82'		
BR 66S	169.26'		

TOTAL LENGTH OF STRUCTURES : 1603.15 FEET

PROJECT
IM–IR 189 – 3(13)

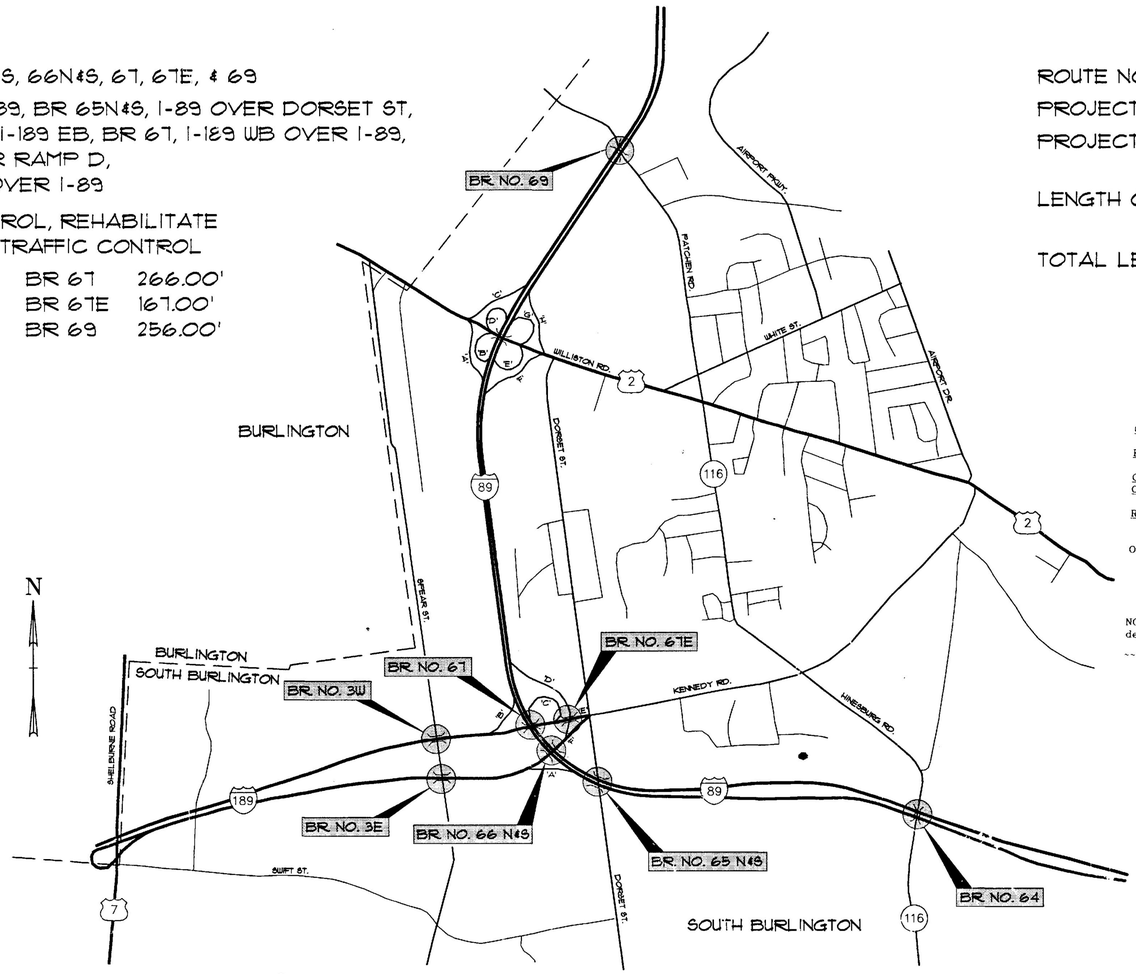
ROUTE NO : I-189
PROJECT LOCATION : BR 3E&W, I-189 OVER SPEAR ST
BRIDGE NO. : 3E&W

PROJECT DESCRIPTION : INSTALL TRAFFIC CONTROL, REHABILITATE STRUCTURES, REMOVE TRAFFIC CONTROL

LENGTH OF STRUCTURES :

BR 3E	127.00'
BR 3W	127.00'

TOTAL LENGTH OF STRUCTURES : 254.00 FEET



CONVENTIONAL SIGNS

COUNTY LINE
TOWN LINE
LIMITS OF ACCESS
POINT OF ACCESS
FENCE LINE
STONE WALL
TRAVELED WAY
GUARD RAIL
RAILROAD
SURVEY LINE
CULVERT
POWER POLE
TELEPHONE POLE
TREES
CONTROL OF ACCESS
PROPERTY LINE
R.O.W. TAKING LINE
SLOPE RIGHTS
TOP OF CUT
TOE OF SLOPE

DATUM
VERTICAL N/A
HORIZONTAL N/A

RECORD PLANS

CONTRACTOR: Bridge corp Const.
RESIDENT ENGINEER: Leon Dunn
CONSTRUCTION BEGAN: Feb 14, 1995
CONSTRUCTION COMPLETED: Nov 15, 1996
RECORD PLANS BY: Fred Donald

I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.

BY William B Flanders RESIDENT ENGINEER
DATE 02/09/98

NOTE: Any further information concerning final quantities, and details relative to this project may be found on microfilm in Ce

STATE OF VERMONT
J. PRESTON HALSTEAD
No. 18-0006479
PROFESSIONAL ENGINEER

WILLISTON - GEORGIA
IM MEMB(25)
SHEET 19 OF 38
BRIDGE 67
FOR REFERENCE ONLY

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE CHIEF ENGINEER. CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 1990, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON MARCH 15, 1990 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

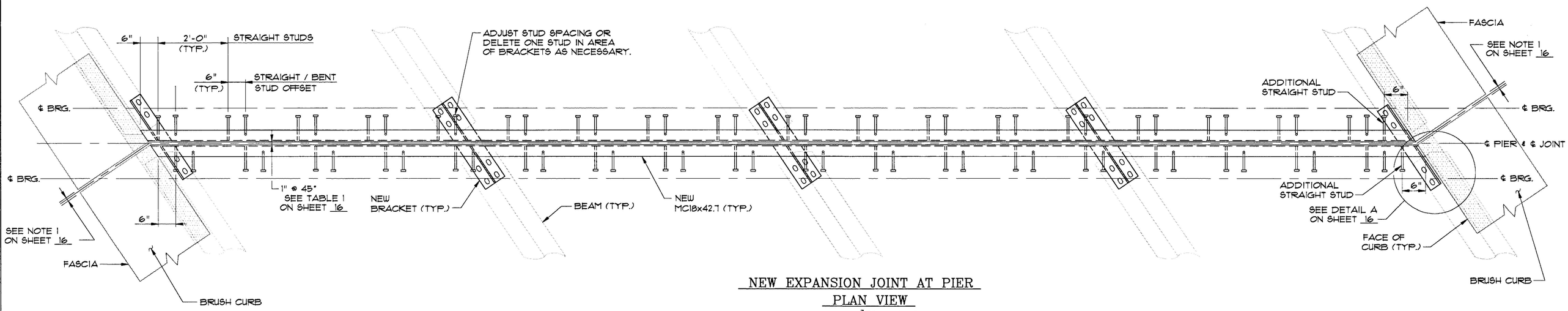
APPROVED _____ DATE _____
DIRECTOR OF ENGINEERING

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

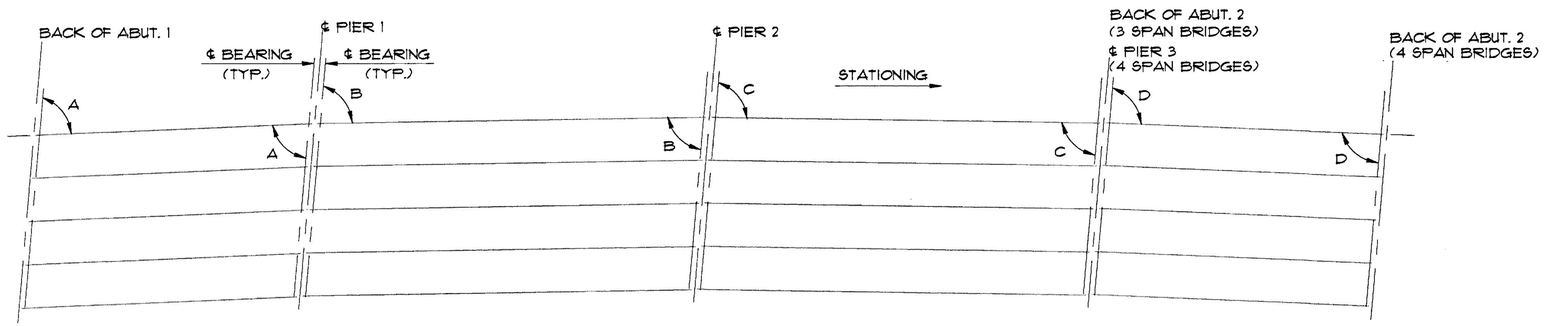
APPROVED _____ DATE 9/27/94
DIVISION ADMINISTRATOR

VANASSE HANGEN BRUSTLIN, INC.

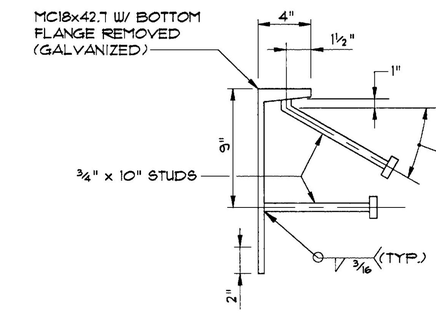
PROJECT SOUTH BURLINGTON IM DECK(30)
SOUTH BURLINGTON IM-IR 189-3(13)
SHEET 1 OF 195 SHEETS



NEW EXPANSION JOINT AT PIER
PLAN VIEW
SCALE: 3/4" = 1'-0"



BEAM LAYOUT
NTS



STUD DETAIL
NTS

TABLE 1
EXISTING GEOMETRIC INFORMATION

BRIDGE NO.	PIER NO.	SPAN NO.	BEAM SPACING	NO. OF BEAMS	SKEW ANGLE		CURB TO CURB WIDTH (FT.)	BANKING	LENGTH OF JOINT (FT.)
3E	1	1	7'-6"	6	A	95°00'00"	38'-0"	PARABOLIC	38'-1¾"
		2	7'-6"	6	B	95°00'00"	38'-0"	PARABOLIC	
3E	2	2	7'-6"	6	B	95°00'00"	38'-0"	PARABOLIC	38'-1¾"
		3	7'-6"	6	C	95°00'00"	38'-0"	PARABOLIC	
3W	1	1	7'-6"	6	A	84°07'12"	38'-0"	-11/16" / FT. RT.	38'-2⅛"
		2	7'-6"	6	B	85°00'00"	38'-0"	-11/16" / FT. RT.	
3W	2	2	7'-6"	6	B	85°00'00"	38'-0"	-11/16" / FT. RT.	38'-2⅛"
		3	7'-6"	6	C	84°07'12"	38'-0"	-11/16" / FT. RT.	
66N	1	1	7'-6"	5	A	88°18'37"	30'-0"	-13/16" / FT. RT.	30'-0⅛"
		2	7'-6"	5	B	89°56'11"	30'-0"	-13/16" / FT. RT.	
66N	2	2	7'-6"	5	B	89°56'11"	30'-0"	-13/16" / FT. RT.	30'-0⅛"
		3	7'-6"	5	C	91°37'35"	30'-0"	-13/16" / FT. RT.	
66S	1	1	7'-6"	5	A	88°21'50"	30'-0"	-13/16" / FT. RT.	30'-0⅛"
		2	7'-6"	5	B	89°56'19"	30'-0"	-13/16" / FT. RT.	
66S	2	2	7'-6"	5	B	89°56'19"	30'-0"	-13/16" / FT. RT.	30'-0⅛"
		3	7'-6"	5	C	91°34'29"	30'-0"	-13/16" / FT. RT.	

TABLE 1 (CON'T.)

BRIDGE NO.	PIER NO.	SPAN NO.	BEAM SPACING	NO. OF BEAMS	SKEW ANGLE		CURB TO CURB WIDTH (FT.)	BANKING	LENGTH OF JOINT (FT.)
67	1	1	7'-6"	5	A	113°01'12"	30'-0"	-9/16" / FT. LT.	32'-5⅜"
		2	7'-6"	5	B	111°44'24"	30'-0"	-9/16" / FT. LT.	
67	2	2	7'-6"	5	B	111°44'24"	30'-0"	-9/16" / FT. LT.	32'-1⅜"
		3	7'-6"	5	C	110°12'36"	30'-0"	-9/16" / FT. LT.	
67	3	3	7'-6"	5	C	110°12'36"	30'-0"	-9/16" / FT. LT.	31'-10"
		4	7'-6"	5	D	108°49'48"	30'-0"	-9/16" / FT. LT.	
67E	1	1	7'-4"	4	A	76°00'00"	22'-0"	PARABOLIC	22'-8⅛"
		2	7'-4"	4	B	76°00'00"	22'-0"	PARABOLIC	
67E	2	2	7'-4"	4	B	76°00'00"	22'-0"	PARABOLIC	22'-8⅛"
		3	7'-4"	4	C	76°00'00"	22'-0"	PARABOLIC	
69	1	1	7'-6"	6	A	104°15'36"	30'-0"	-1/4" / FT. LT.	30'-10⅞"
		2	7'-6"	6	B	103°35'42"	30'-0"	-1/4" / FT. LT.	
69	2	2	7'-6"	6	B	103°35'42"	30'-0"	-1/4" / FT. LT.	30'-9¾"
		3	7'-6"	6	C	102°48'18"	30'-0"	-1/4" / FT. LT.	
69	3	3	7'-6"	6	C	102°48'18"	30'-0"	-1/4" / FT. LT.	30'-8¾"
		4	7'-6"	6	D	102°11'24"	30'-0"	-1/4" / FT. LT.	

NOTES:

1. FOR DETAILS OF PARABOLIC BANKING, SEE REFERENCE STANDARDS SCB-30-60, SCB-38-60, AND SCB-42-60, EXCEPT SEE EXISTING PLANS FOR BRIDGE NO. 67E.
2. SEE SHEET 15 FOR TYPICAL PIER EXPANSION JOINT SECTIONS.

WILLISTON - GEORGIA
IM MEMB(25)
SHEET 20 OF 38
BRIDGE 67
FOR REFERENCE ONLY

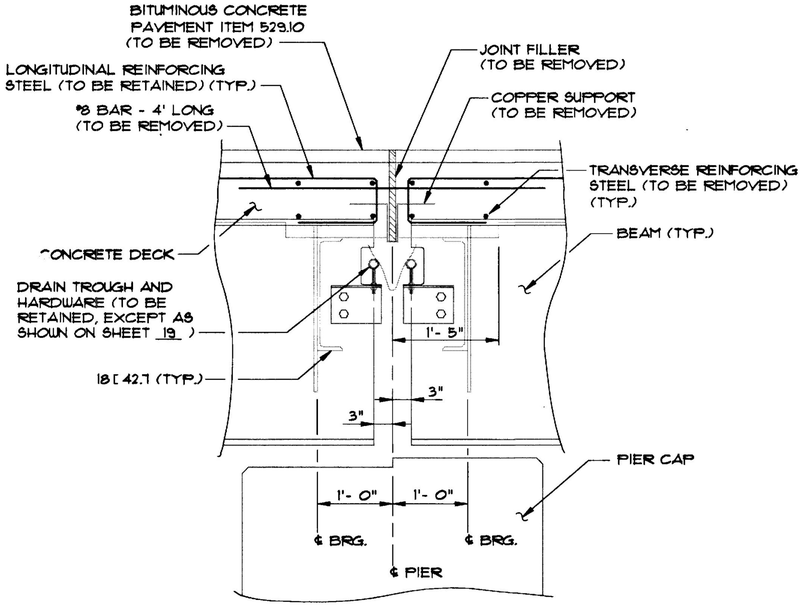
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of SOUTH BURLINGTON	Bridge No.
	Log Sta.
Highway No. I-189 & I-89	Surv. Sta.

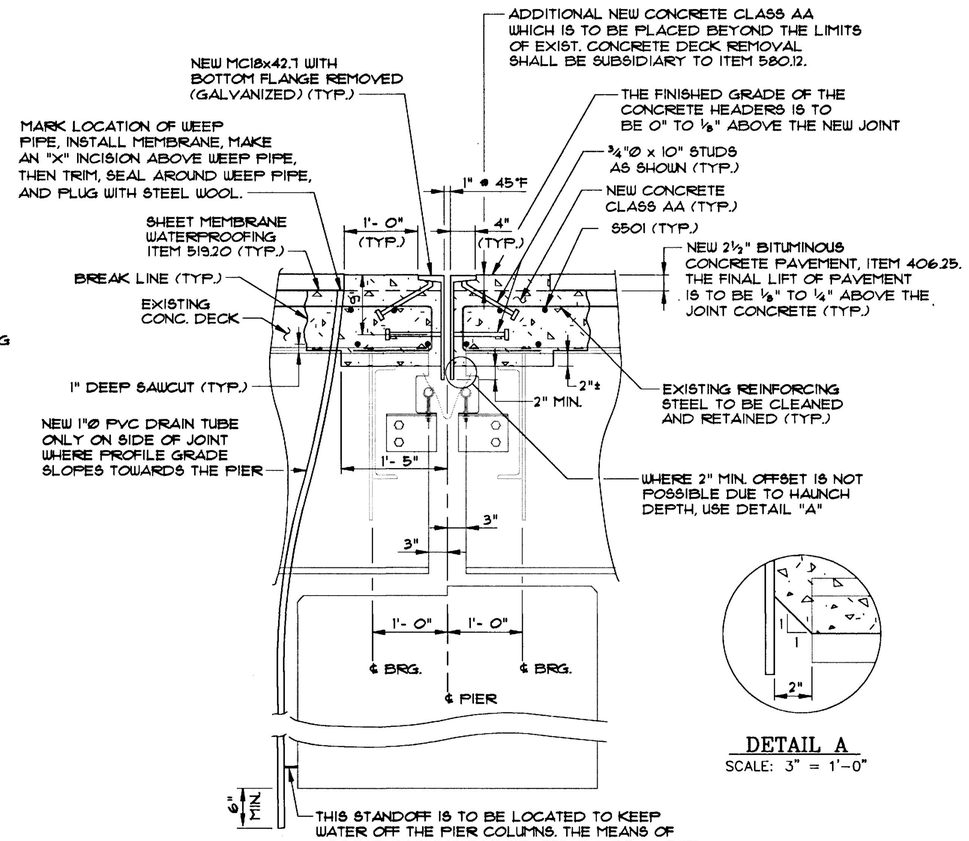
PIER EXPANSION JOINT REPAIR PLAN
(ARMORED JOINT)

Designed By B.J. MASSE	Drawn By B.J. MASSE
Checked By J.P. HALSTEAD 1/94 Date	Bridge Design Supervisor J.P. HALSTEAD Date 1/94
PROJECT SOUTH BURLINGTON	PROJECT NO. IR 189-3(13)&IM DECK(30)
VHB Cad Drawing No. 50363S57	Date 7-21-93
Bridge Sheet No.	Sheet 14 of 195

VANASSE HANGEN BRUSTLIN, INC.

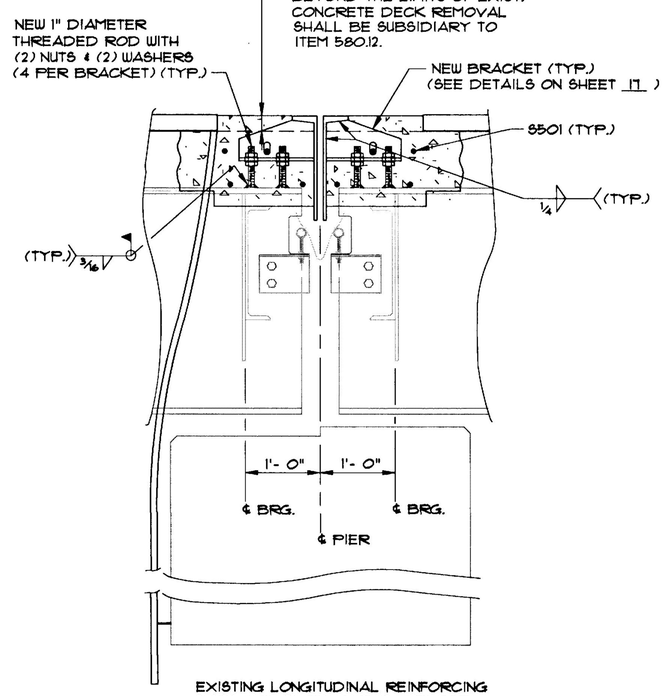


SECTION OF
EXISTING EXPANSION JOINT AT PIER
SCALE: 1" = 1'-0"



NEW EXPANSION JOINT AT PIER
SECTION BETWEEN BEAMS
SCALE: 1" = 1'-0"

DETAIL A
SCALE: 3" = 1'-0"



EXISTING LONGITUDINAL REINFORCING STEEL NOT SHOWN IN THIS VIEW FOR CLARITY.

NEW EXPANSION JOINT AT PIER
SECTION AT BEAMS
SCALE: 1" = 1'-0"

NOTES:

1. EXISTING CONCRETE AND RELATED JOINT HARDWARE WILL BE REMOVED BACK TO THE BREAK LINE AS SHOWN AND WILL BE PAID FOR UNDER ITEM 580.12, "REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS II".
2. SEE SHEET 16 FOR NOTES AND ADDITIONAL DETAILS.

WILLISTON - GEORGIA
IM MEMB(25)
SHEET 21 OF 38
BRIDGE 67
FOR REFERENCE ONLY

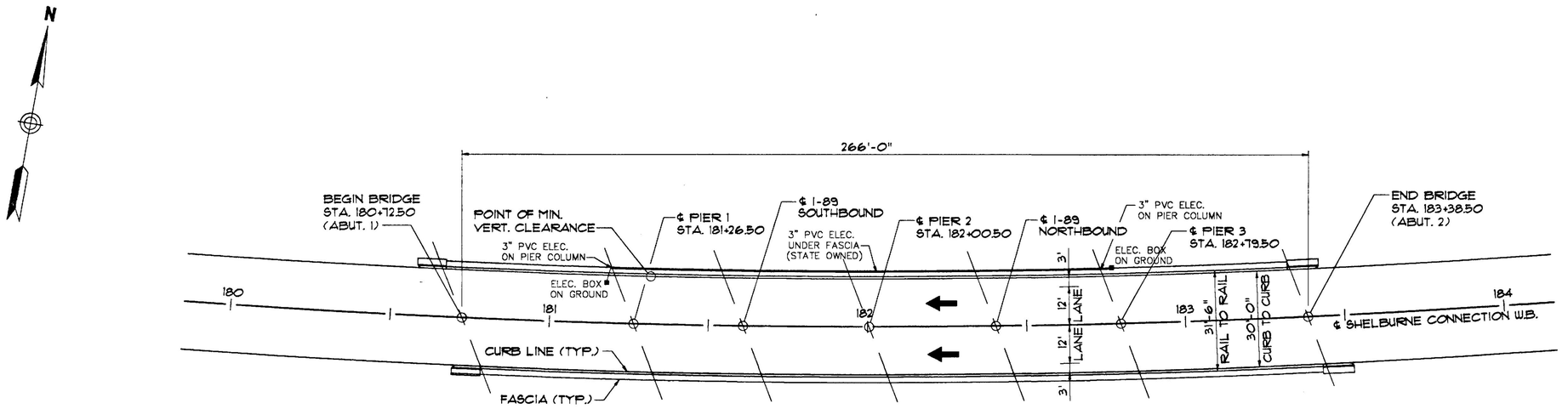
VANASSE HANGEN BRUSTLIN, INC.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of SOUTH BURLINGTON	Bridge No.
	Log Sta.
Highway No. I-189 & I-89	Surv. Sta.

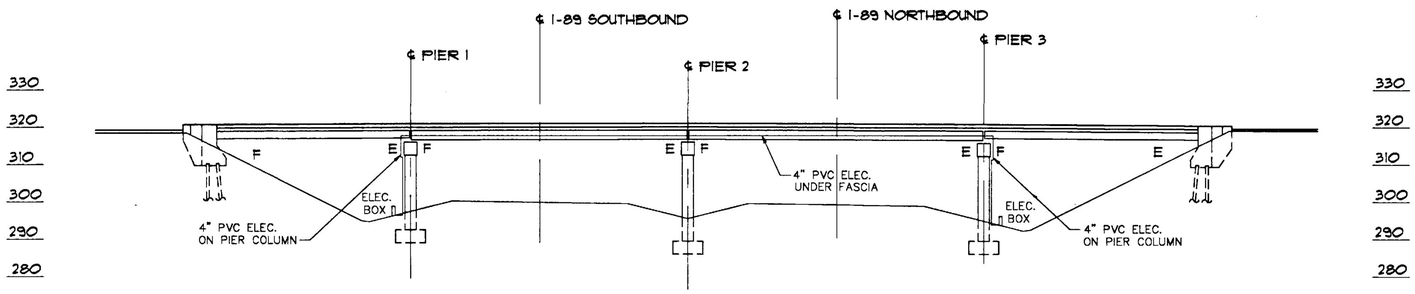
PIER EXPANSION JOINT REPAIR SECTIONS (ARMORED JOINT)

Designed By T.S. BRYANT	Drawn By B.J. MASSE
Checked By J.P. HALSTEAD 1/94 Date	Bridge Design Supervisor J.P. HALSTEAD Date 1/94
PROJECT SOUTH BURLINGTON	PROJECT NO. IR 189-3(13)&IM DECK(30)
VHB Cad Drawing No. 50363646	Date 1-14-94
Bridge Sheet No.	Sheet 15 of 195



PLAN – BRIDGE NO. 67

SCALE: 1"=20'



ELEVATION – BRIDGE NO. 67

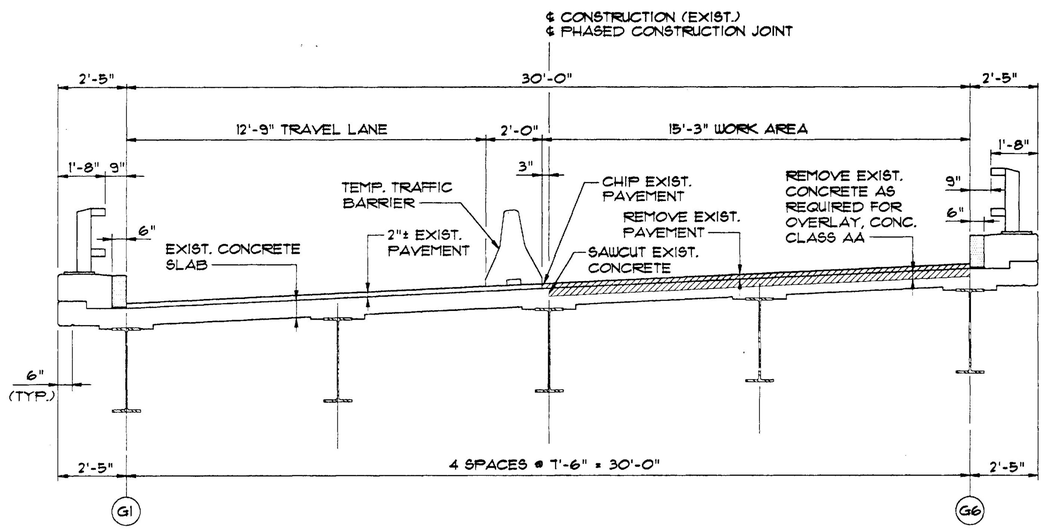
SCALE: 1"=20'

WILLISTON - GEORGIA
IM MEMB(25)
SHEET 22 OF 38
BRIDGE 67
FOR REFERENCE ONLY

VANASSE HANGEN BRUSTLIN, INC.

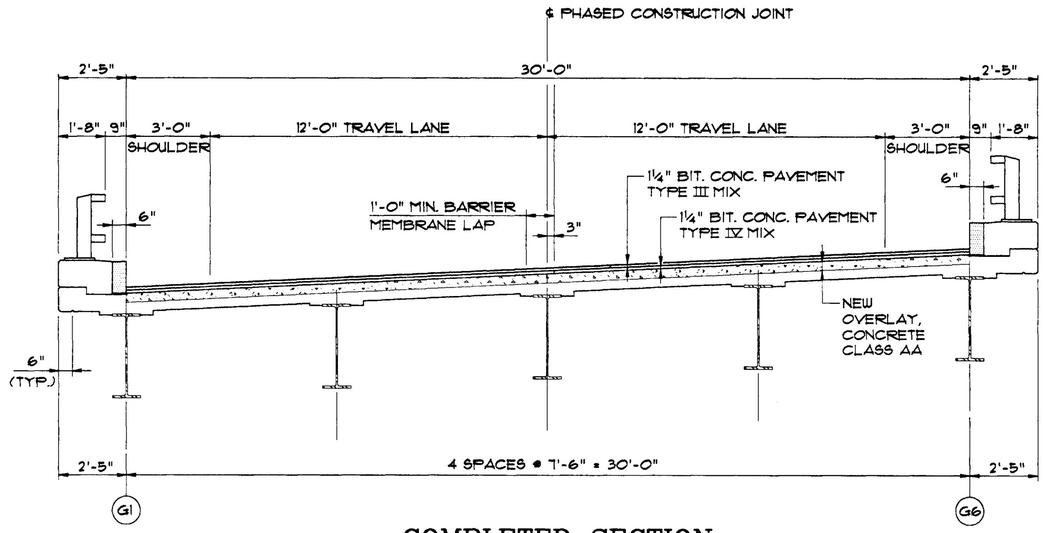
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of SOUTH BURLINGTON	Bridge No. 67
	Log Sta.
Highway No. I–189	Surv. Sta.
I–189 W.B. OVER I–89	
PLAN & ELEVATION	
Designed By T.S. BRYANT	Drawn By B.J. MASSE
Checked By J.P. HALSTEAD Date 1/94	Bridge Design Supervisor J.P. HALSTEAD Date 1/94
PROJECT SOUTH BURLINGTON	PROJECT NO. IM DECK(30)
VHB Cad Drawing No. 50363340	Date 2-24-94
Bridge Sheet No.	Sheet 59 of 195



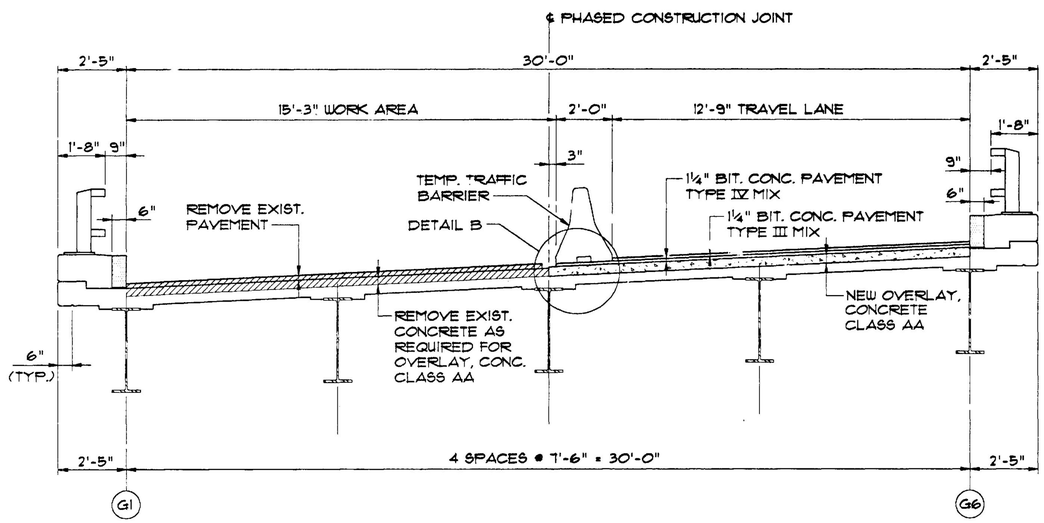
PHASE 1A SECTION

SCALE: $\frac{3}{8}$"=1'-0"



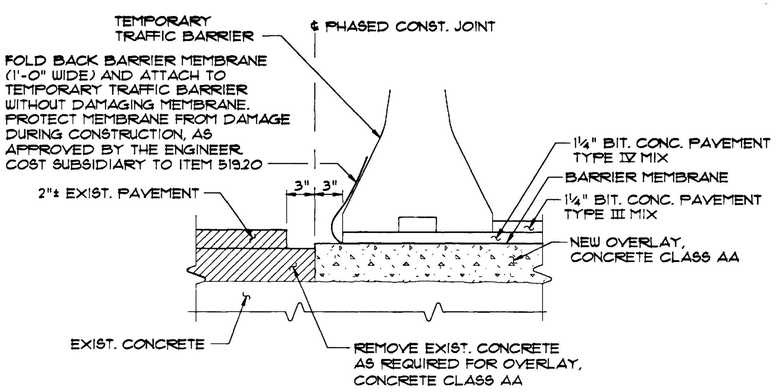
COMPLETED SECTION

SCALE: $\frac{3}{8}$"=1'-0"



PHASE 1B SECTION

SCALE: $\frac{3}{8}$"=1'-0"



DETAIL B

SCALE: $1\frac{1}{2}$"=1'-0"

DENOTES LIMIT OF REMOVAL

DENOTES LIMIT OF NEW CONCRETE

NOTES:

1. SEE TRAFFIC CONTROL PLANS FOR DIRECTIONS OF TRAFFIC.
2. MECHANICAL CONNECTORS SHALL BE USED WHERE REINFORCING IS TO BE REPLACED AT A PHASED CONSTRUCTION JOINT.

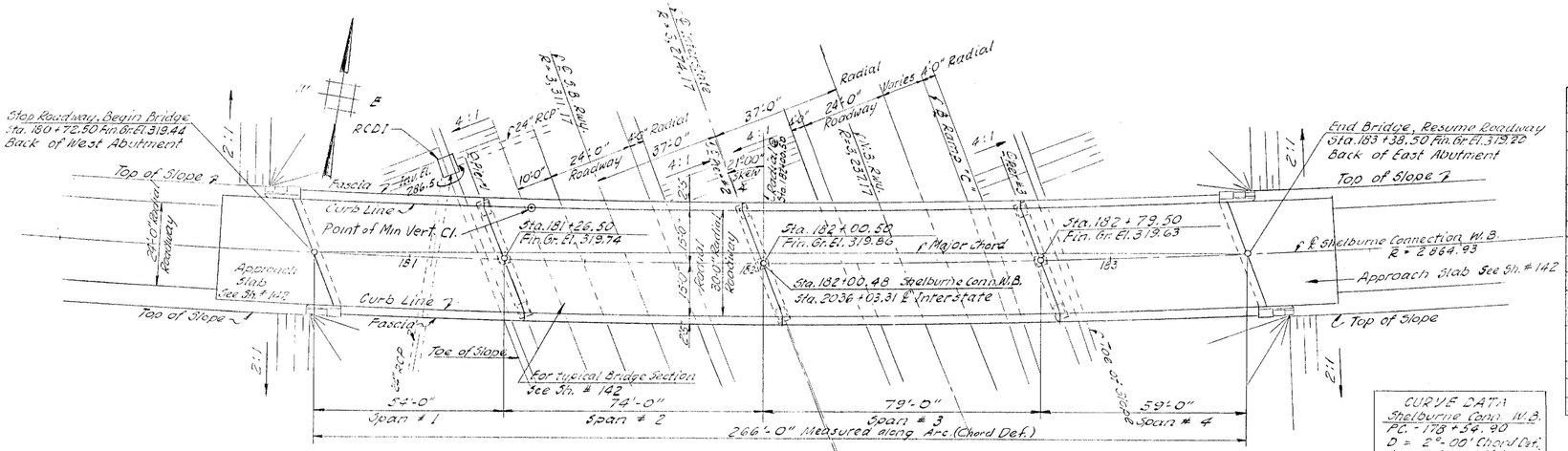
WILLISTON - GEORGIA
IM MEMB(25)
SHEET 23 OF 38
BRIDGE 67
FOR REFERENCE ONLY

STATE OF VERMONT
AGENCY OF TRANSPORTATION

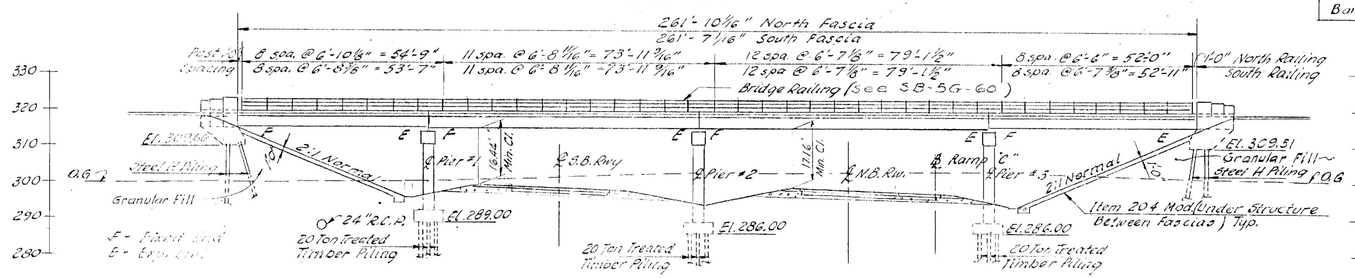
Town Of SOUTH BURLINGTON	Bridge No. 67
	Log Sta.
Highway No. I-189 W.B.	Surv. Sta.
I-189 OVER I-89 N.B. & S.B.	
BR. NO. 67 CONSTRUCTION PHASING	
Designed By T.S. BRYANT	Drawn By B.J. MASSE
Checked By J.P. HALSTEAD Date 1/94	Bridge Design Supervisor J.P. HALSTEAD Date 1/94
PROJECT SOUTH BURLINGTON	PROJECT NO. IM DECK(30)
VHB Cad Drawing No. 50363S08	Date 2-25-94
Bridge Sheet No.	Sheet 80 of 195

VANASSE HANGEN BRUSTLIN, INC.

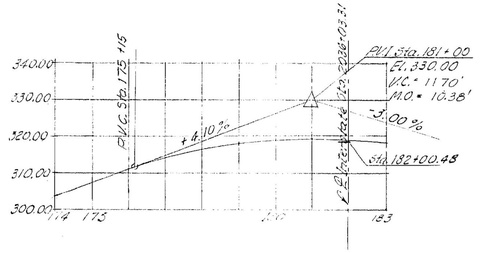
FED. ROAD DIV. No.	STATE	FEDERAL PROJECT No.	SHEET	TOTAL SHEETS
	VERMONT	I 89-3 (14)	38	201



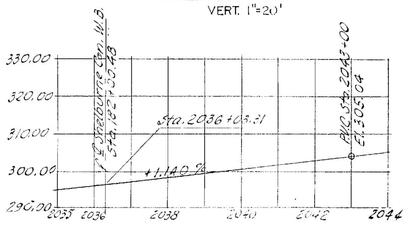
PLAN
SCALE: 1" = 20'-0"



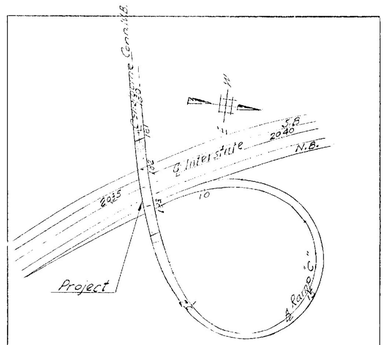
ELEVATION
SCALE: 1" = 20'-0"



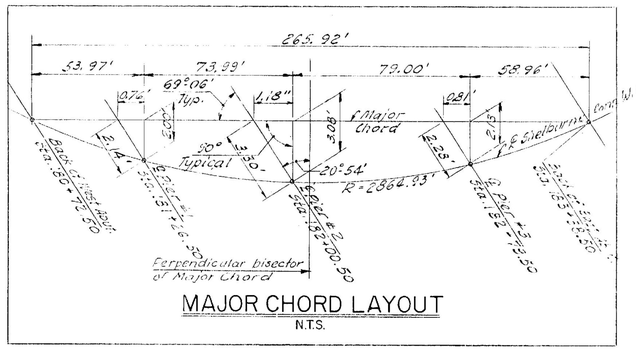
SHELBURNE CONN. W.B. PROFILE
SCALE: HOR. 1" = 200'
VERT. 1" = 20'



INTERSTATE PROFILE
SCALE: HOR. 1" = 200'
VERT. 1" = 20'



LOCATION PLAN
N.T.S.



MAJOR CHORD LAYOUT
N.T.S.

REFERENCE DRAWINGS

Plan Interstate	Sh. # 12
Profile Interstate	Sh. # 18
Cross Sections Interstate	Sh. # 36, Sh. # 37 & Sh. # 38
Profile Shelburne Conn W.B.	Sh. # 20
Cross Sections Shelburne Conn. W.B.	Sh. # 67, Sh. # 68 & Sh. # 74
Plan Shelburne Conn W.B.	Sh. # 11, Sh. # 12, & Sh. # 16

ESTIMATED QUANTITIES

FINAL	ITEM #	ITEM	UNIT	NEAT	OVERRUN	TOTAL
333	107	Structure Excavation	C.Y.	~~667~~	~~38~~	~~705~~
145	204	Subbase of Crushed Rock Mod. (Under Structure)	C.Y.	~~748~~	~~27~~	~~775~~
* 0	361-B	Bit. Conc. Pav't. (Incl. Appr. Slab) Mod.	Ton	~~118~~	~~18~~	~~136~~
717	401-B	Conc. Class B Mod. (Incl. Appr. Slab)	C.Y.	~~687~~	~~35~~	~~722~~
110,504	402	Reinforcing Steel (Incl. Appr. Slab)	Lb.	~~110803~~	—	110,803
1	403	Spiral Reinforcement (7"15")	L.S.	1-LS	—	1-LS
284,339	404-A	Structural Steel	Lb.	~~283,231~~	~~556~~	~~283,787~~
54	407	Asphaltic Asbestos Coating	S.Y.	~~50~~	—	50
1/2	501	Furnishing Equipment for Driving Piles	L.S.	EQUIRED		
3,764	502-B	Treated Timber Piling	L.F.	~~3,425~~	—	3,425
1	503	Splices for Steel Piling	Each	~~25~~	—	25
1,116	504	Steel H Piling (12BP53)	L.F.	~~1,200~~	—	1,200
564	556-C	Granite Bridge Curb (Incl. Appr. Slab.) Mod.	L.F.	~~564~~	—	564
523	572	Bridge Railing	L.F.	~~524~~	—	524
* 0	622	Gravel Backfill	C.Y.	~~32~~	~~4~~	36
* 0	318	Tar Emulsion for Bridge Floors	Gal.	~~423~~	—	423
* 0	372	Joint Sealer Hot Poured Elastic Type	L.F.	~~161~~	—	161

* Included in Roadway Quantity

CURVE DATA Shelburne Conn. W.B.
P.C. = 178+54.90
D = 2°-00' Chord Def.
Δ = 10°-22'-52"
R = 2,864.93'
L = 519.10'
T = 260.28'
Bank 0% per ft.

CURVE DATA Interstate Baseline
Δ = 32°-24'-05.92"
D = 1°-45' (Chord)
R = 3274.17'
L = 1851.52'
T = 951.29'
Bank = 0% per ft.

GENERAL NOTES

1. All materials and construction shall conform to the State of Vermont, Department of Highways, Standard Specifications for Road and Bridge Construction dated Jan. 1956 and the A.A.S.H.O. Standard Specifications dated 1957 Designed for H20-S16-44 loading modified for National System of Interstate Highways applied in accordance with the provision of the A.A.S.H.O Standard Specifications, Article 3.2.8.
2. Unless otherwise called for all beams shall be rolled to a true circular camber the middle ordinate being that shown in the A.I.S.C. handbook as being the minimum camber likely to remain permanent.
3. Final coat of field paint shall be Green unless otherwise directed by the Engineer.
4. All dimensions given are measured horizontally or vertically unless, otherwise noted.
5. All dimensions given at 68°F.
6. All reinforcing to have a clear cover of 3" unless, otherwise noted.
7. All exposed edges of concrete shall be chamfered 1"x1" unless, otherwise noted.
8. Borings indicated on the drawings have been made for design purposes only and are not warranted to show actual subsurface conditions.
9. Elevation Datum Sea Level based on Bench Line U.S.C.&G.S. Survey Level Line Vermont 25 (Second Order.)
10. Steel Bearing Piles shall be driven to ledge Rock unless otherwise approved by the Engineer. When Piles are driven in fill, the material should be such as to have no stones large enough to interfere with the driving of piles.
11. Cross slope of Approach Slab to conform with the Cross Slope of Bridge.
12. The top surfaces of all piers and abutments shall be sloped 1/4" per foot from back edge of abutments or centerlines of piers, except for bearing pads projecting 1" or more above the general area, which surfaces shall be level. The entire exposed top surface of the Piers & Abutments shall be Coated with Asphaltic Asbestos Coating 1/2" thick as per Item 40 of Specifications.

LIST OF DRAWINGS

WILLISTON - GEORGIA
IM MEMB(25)
SHEET 24 OF 38
BRIDGE 67
FOR REFERENCE ONLY

FOR REFERENCE ONLY
BRIDGE # 67

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

INTERSTATE PROJECT IN THE TOWN OF SOUTH BURLINGTON

UNDERPASS STA. 2036+03.31
SHELBURNE INTERCHANGE W.B.
GENERAL PLAN & ELEVATION

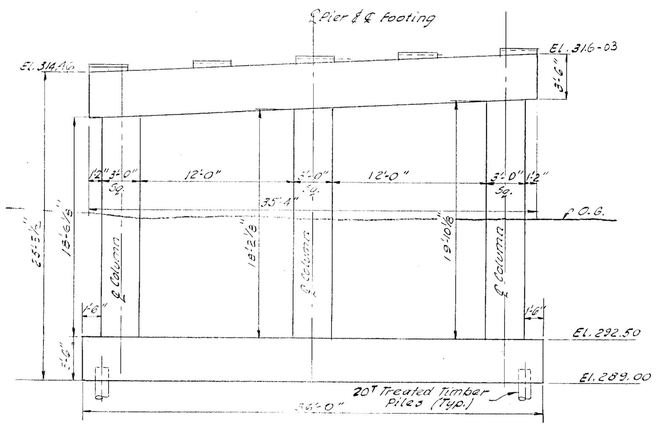
BOSWELL ENGINEERING CO. RIDGEFIELD PARK, N.J.

DRAWN BY A.M. | IN CHARGE A.J.I. | SCALE AS SHOWN
CHECKED BY A.J.I. | DATE

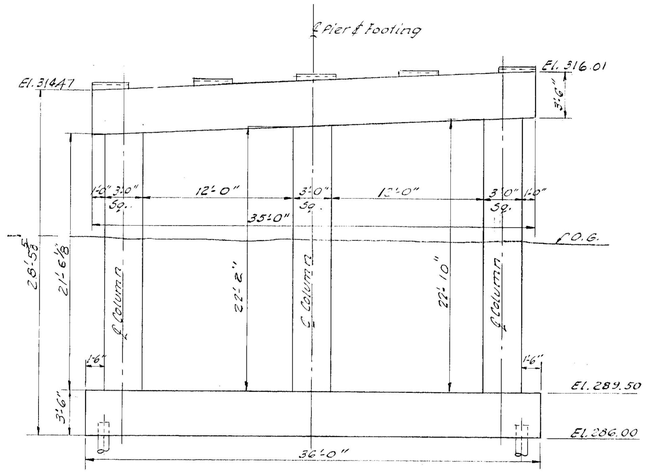
PROJECT NO. I 89-3(14) | SHEET 170 OF 195

K+E PHOENIX N186 TRACING CLOTH 8812A

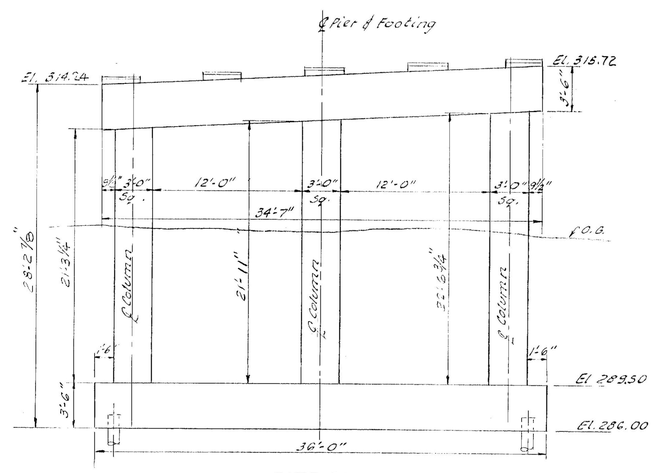
FED. ROAD DIV. No.	STATE	FEDERAL PROJECT No.	SHEET	TOTAL SHEETS
	VERMONT	I 89-3 (14)	139	195



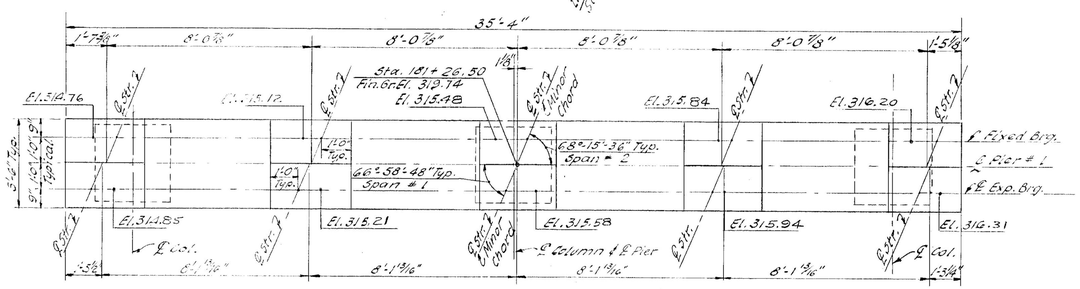
PIER # 1
SCALE: 3/16"=1'-0"



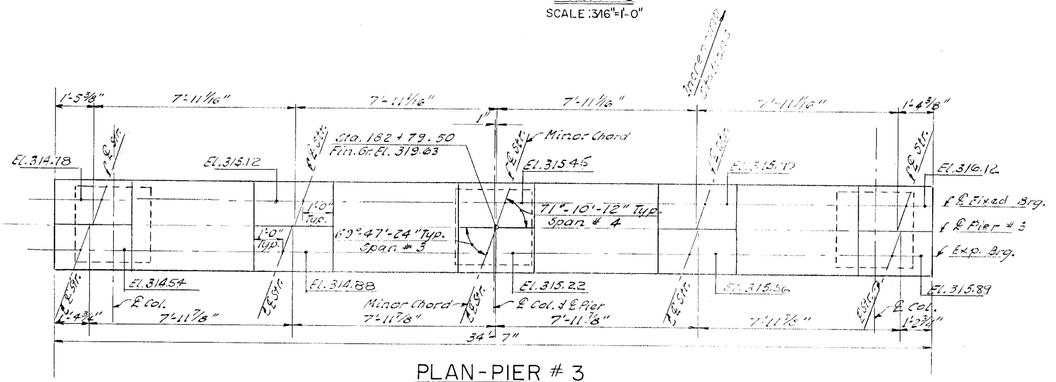
PIER # 2
SCALE: 3/16"=1'-0"



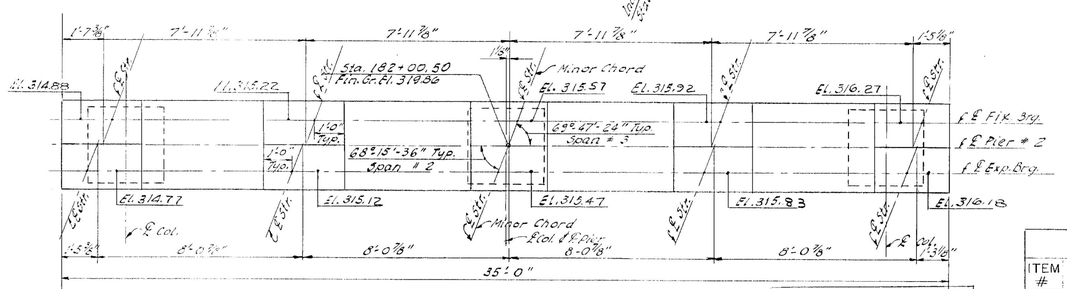
PIER # 3
SCALE: 3/16"=1'-0"



PLAN-PIER # 1
SCALE: 3/8"=1'-0"



PLAN-PIER # 3
SCALE: 3/8"=1'-0"



PLAN-PIER # 2
SCALE: 3/8"=1'-0"

FINAL		
PIER #1	PIER #2	PIER #3
113	113	107
84	87	86
—	—	—
15	15	15
1,210	1,374	1,180

NOTES:

1. For General Notes see Sh. # Br. 1
2. For put details see Sh. # BR. 3
3. For pile plan see Sh. # BR. 3
4. All elevations looking toward increasing Stations.

WILLISTON - GEORGIA
IM MEMB(25)
SHEET 25 OF 38
BRIDGE 67
FOR REFERENCE ONLY

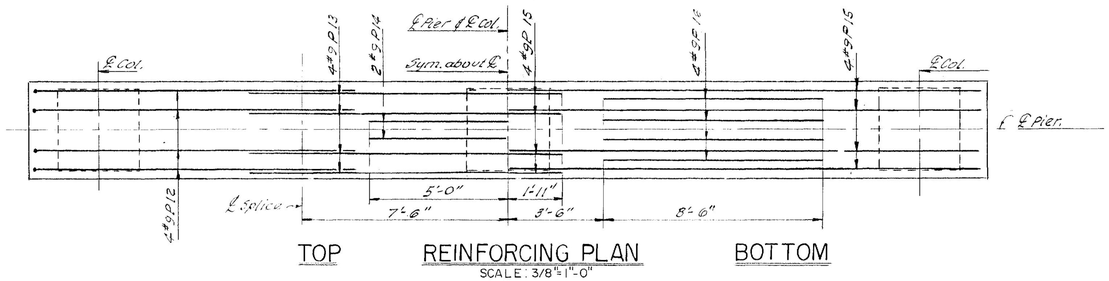
FOR REFERENCE ONLY
BRIDGE #67

ESTIMATED QUANTITIES

ITEM #	ITEM	UNIT	PIER # 1 NEAT	PIER # 1 OVERRUN	PIER # 1 TOTAL	PIER # 2 NEAT	PIER # 2 OVERRUN	PIER # 2 TOTAL	PIER # 3 NEAT	PIER # 3 OVERRUN	PIER # 3 TOTAL
107	Structure Excavation	C.Y.	1185	125	1310	1015	115	1130	1115	115	1230
401-B	Concrete Class B Mod.	C.Y.	82	6	88	85	4	89	85	4	89
402	Reinforcing Steel	Lb.	See Bar Schedule			Br 9					
407	Asphaltic Asbestos Coating	S.Y.	145	—	145	124	—	124	124	—	124
502-B	Treated Timber Piling	L.F.	4265	—	4265	4,080	—	4,080	4,080	—	4,080

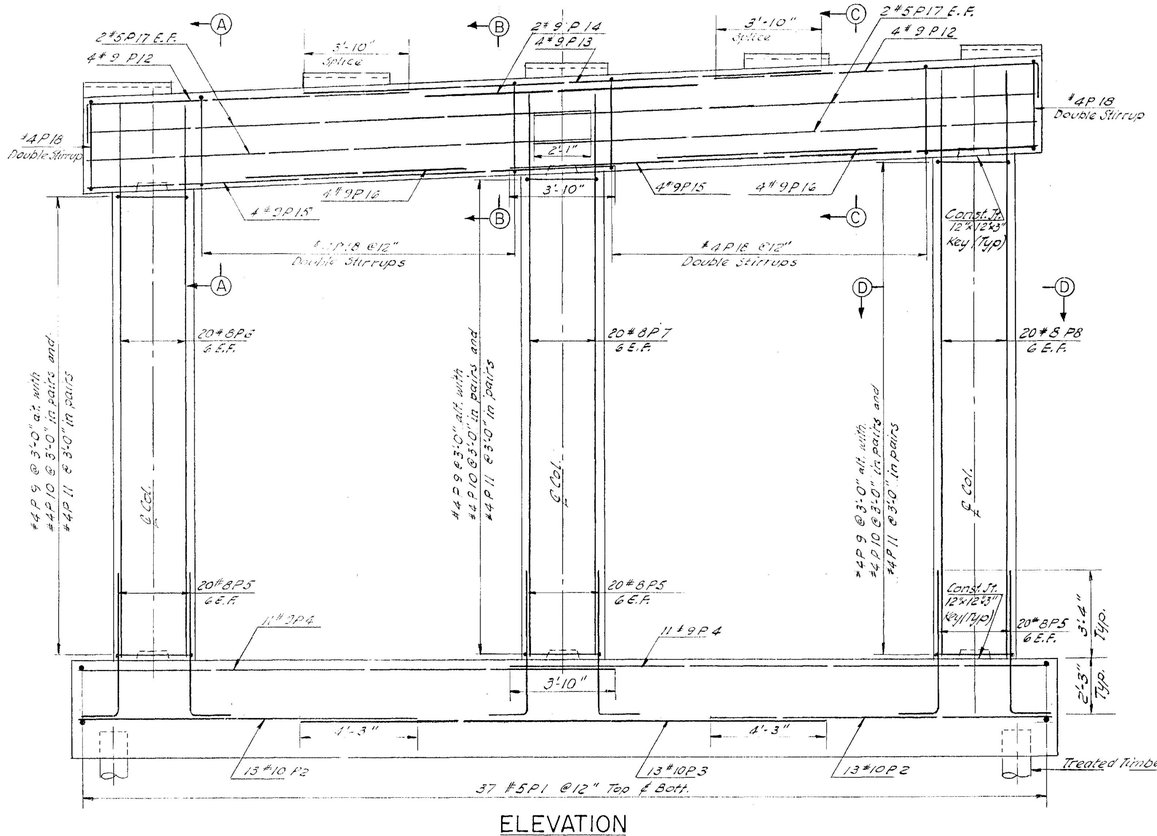
STATE OF VERMONT DEPARTMENT OF HIGHWAYS	
INTERSTATE PROJECT IN THE TOWN OF SOUTH BURLINGTON	
UNDERPASS STA. 2036+03.31 SHELBURNE INTERCHANGE W.B. PIERS - PLANS & ELEVATIONS	
BOSWELL ENGINEERING CO. RIDGEFIELD PARK, N.J.	
DRAWN BY A.M. CHECKED BY M.J.C.	IN CHARGE A.J.I. DATE SCALE AS SHOWN
PROJECT NO. I 89-3 (14)	SHEET 171 OF 195

FED. ROAD DIV. No.	STATE	FEDERAL PROJECT No.	SHEET	TOTAL SHEETS
	VERMONT	I 89-3(14)	140	167



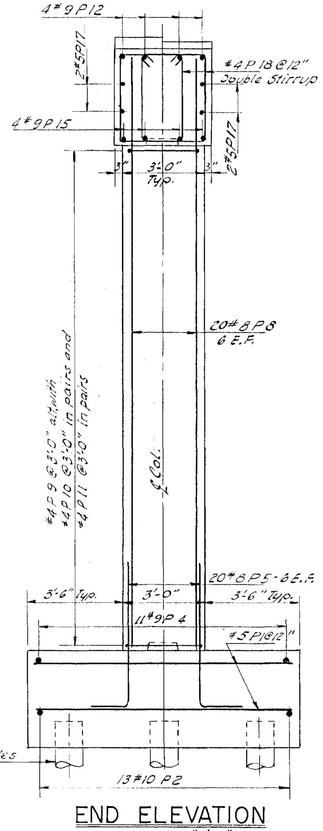
TOP REINFORCING PLAN

SCALE: 3/8"=1'-0"



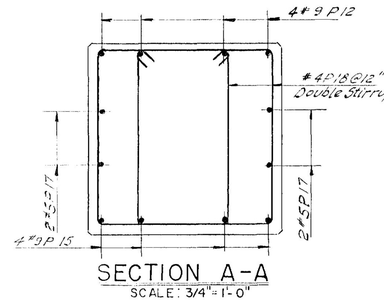
ELEVATION

SCALE: 3/8"=1'-0"



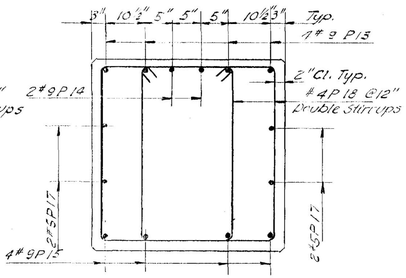
END ELEVATION

SCALE: 3/8"=1'-0"



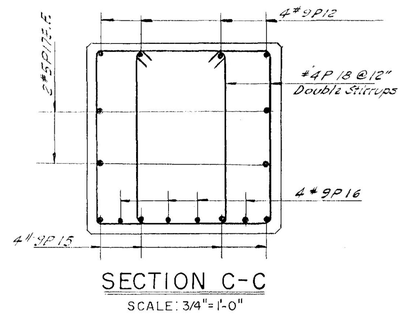
SECTION A-A

SCALE: 3/4"=1'-0"



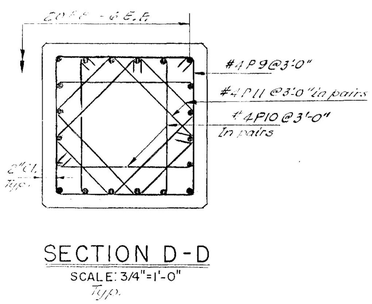
SECTION B-B

SCALE: 3/4"=1'-0"



SECTION C-C

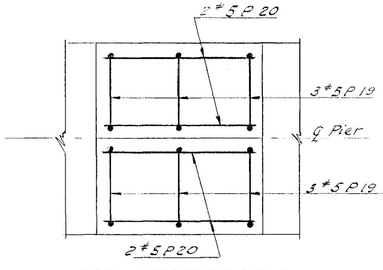
SCALE: 3/4"=1'-0"



SECTION D-D

SCALE: 3/4"=1'-0"

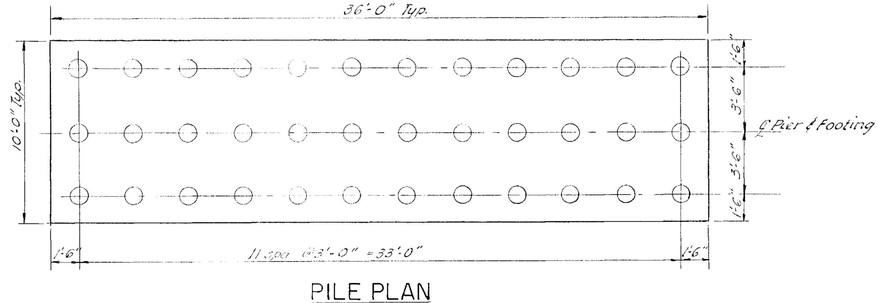
Typ.



PAD REINFORCING

SCALE: 3/4"=1'-0"

For pads exceeding 3" in height



PILE PLAN

SCALE: 1/4"=1'-0"

36 Treated Timber Piles each Pier
Estimated avg Pile length - Pier #1 = 35 ft.
Pier #2 = 30 ft.
Pier #3 = 30 ft.

NOTES

1. For General Notes see Sh. # BR. 1
2. For pier plans & elevations see Sh. # BR. 2
3. For estimate of quantities see Sh. # BR. 2

FOR REFERENCE ONLY
BRIDGE #67

WILLISTON - GEORGIA
IM MEMB(25)
SHEET 26 OF 38
BRIDGE 67
FOR REFERENCE ONLY

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

INTERSTATE PROJECT IN THE TOWN OF SOUTH BURLINGTON

UNDERPASS STA. 2036+03.31
SHELBURNE INTERCHANGE W.B.
TYPICAL PIER DETAILS

BOSWELL ENGINEERING CO. RIDGEFIELD PARK, N.J.

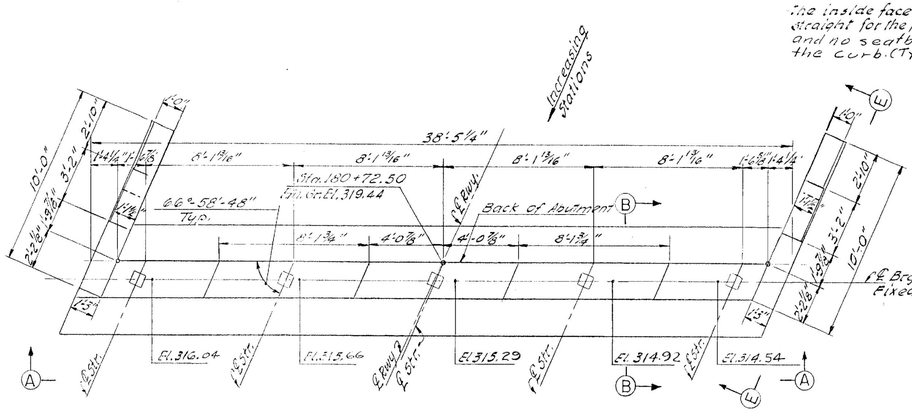
DRAWN BY A.M.	IN CHARGE A.J.J.	SCALE AS SHOWN
CHECKED BY M.J.C.	DATE	

PROJECT NO. I 89-3(14) SHEET 172 OF 195

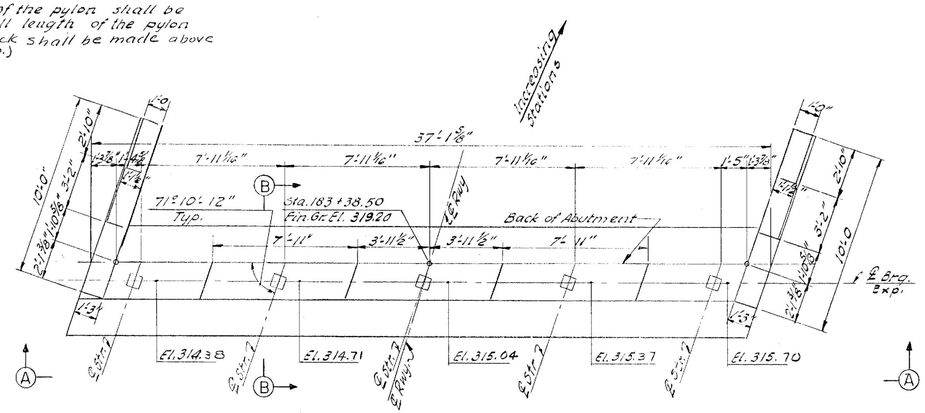
K&E PHOENIX N186 50124

FED. ROAD DIV. No.	STATE	FEDERAL PROJECT No.	SHEET	TOTAL SHEETS
	VERMONT	I 89-3 (14)	141	195

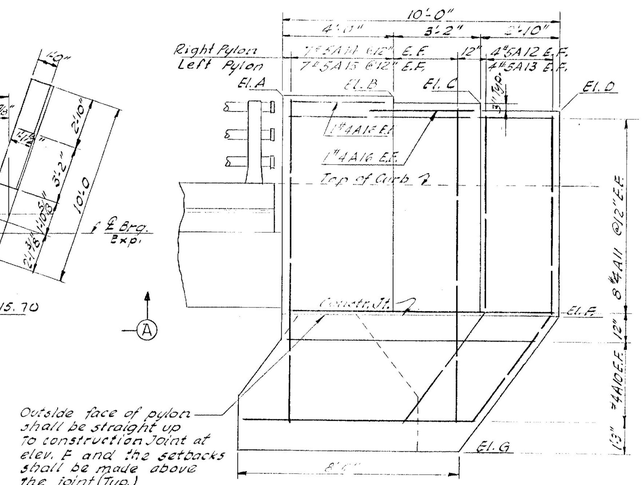
The inside face of the pylon shall be straight for the full length of the pylon and no setback shall be made above the curb. (Typ.)



WEST ABUTMENT PLAN
SCALE: 1/4"=1'-0"

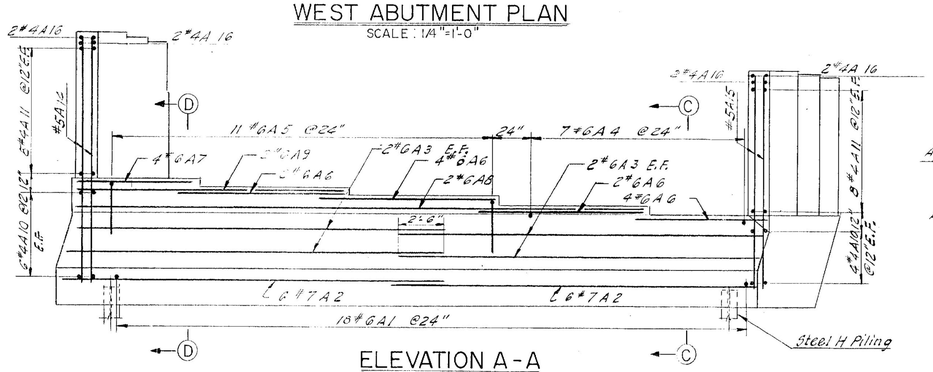


EAST ABUTMENT PLAN
SCALE: 1/4"=1'-0"

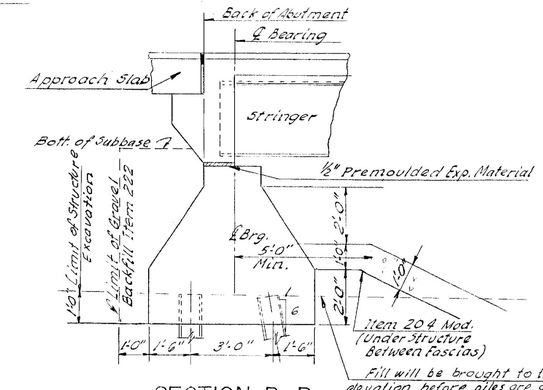


Outside face of pylon shall be straight up to construction joint at elev. F and the setbacks shall be made above the joint (Typ.)

SECTION E-E
SCALE: 3/8"=1'-0"

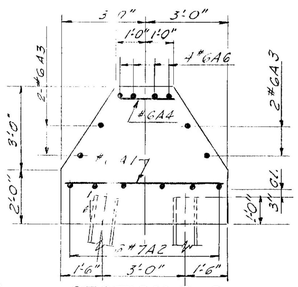


ELEVATION A-A
WEST ABUTMENT AS SHOWN
EAST ABUTMENT OPP. HAND
SCALE: 1/4"=1'-0"

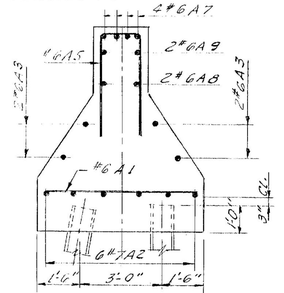


SECTION B-B
SCALE: 3/8"=1'-0"

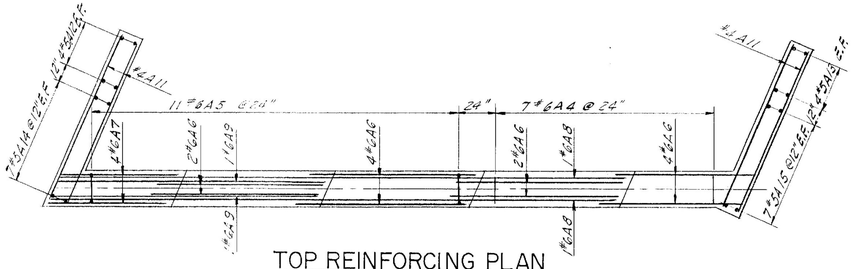
Fill will be brought to this elevation before piles are driven. After piles are driven, excavate to the bottom of footing elevation.



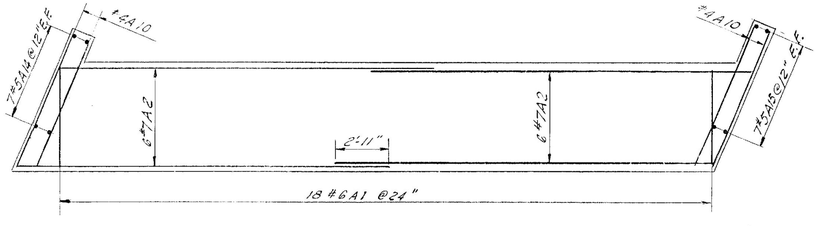
SECTION C-C
SCALE: 3/8"=1'-0"



SECTION D-D
SCALE: 3/8"=1'-0"



TOP REINFORCING PLAN
SCALE: 1/4"=1'-0"



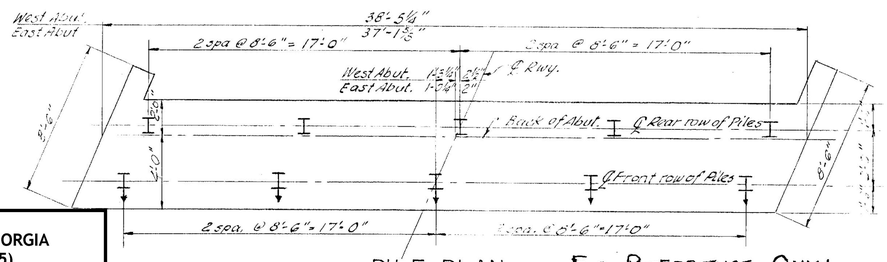
BOTTOM REINFORCING PLAN
SCALE: 1/4"=1'-0"

ELEV.	WEST ABUTMENT		EAST ABUTMENT	
	LEFT PYLON	RIGHT PYLON	LEFT PYLON	RIGHT PYLON
A	323.02	324.52	322.90	324.20
B	322.99	324.50	322.86	324.15
C	322.72	324.24	322.59	323.87
D	322.64	323.97	322.31	323.59
.	.	.	.	.
F	314.54	316.04	314.38	315.70
G	309.54	309.54	309.38	309.38

NOTES:

1. For General Notes see Sh. # Br. 1
2. For additional details see Sh. S.18-20-60
3. For pile splice detail see Sh. # S.18-20-60
4. Left and Right are determined by looking toward increasing stations.

WILLISTON - GEORGIA
IM MEMB(25)
SHEET 27 OF 38
BRIDGE 67
FOR REFERENCE ONLY



PILE PLAN
SCALE: 1/4"=1'-0"

FOR REFERENCE ONLY

5 Piles battered 6:1 each Abut.
5 Piles vertical each Abut.
10 Piles Total each Abut.
Estimated avg Pile length - West abut. 55
East abut. 65

I Indicates piles battered

BRIDGE # 67

FINAL		ESTIMATED QUANTITIES			WEST ABUTMENT			EAST ABUTMENT		
WEST ABUT.	EAST ABUT.	ITEM #	ITEM	UNIT	NEAT	OVERRUN	TOTAL	NEAT	OVERRUN	TOTAL
0	0	107	Structure Excavation	C.Y.	~~32~~	~~—~~	~~32~~	~~72~~	~~—~~	~~72~~
0	0	222	Gravel Backfill	C.Y.	~~76~~	~~—~~	~~76~~	~~72~~	~~—~~	~~72~~
46	44	401-B	Concrete Class B Mod.	C.Y.	~~46~~	~~—~~	~~46~~	~~44~~	~~—~~	~~44~~
–	–	402	Reinforcing Steel	Lb.	See Bar Schedule Br. 9					
5	4	407	Asphaltic-Asbestos Coating	S.Y.	~~4~~	—	~~4~~	4	—	4
1	0	503	Splices for Steel Piling	Ea.	~~2~~	—	~~2~~	~~2~~	—	~~2~~
536	580	504	Steel H Piling (12B53)	L.F.	550	—	~~550~~	~~650~~	—	~~650~~

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

INTERSTATE PROJECT IN THE TOWN OF SOUTH BURLINGTON

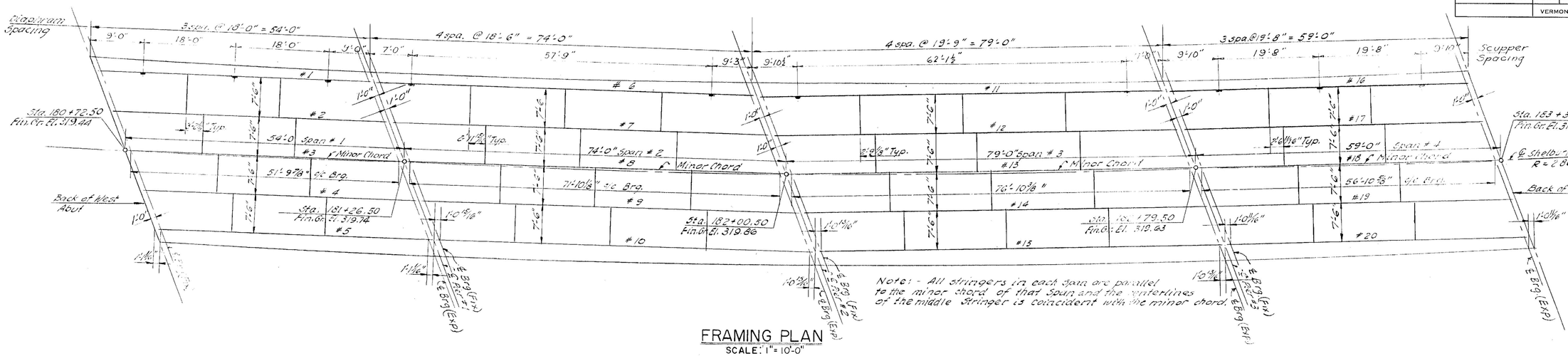
UNDERPASS STA. 2036+03.31
SHELBURNE INTERCHANGE W.B.
ABUTMENT DETAILS

BOSWELL ENGINEERING CO. RIDGEFIELD PARK, N.J.

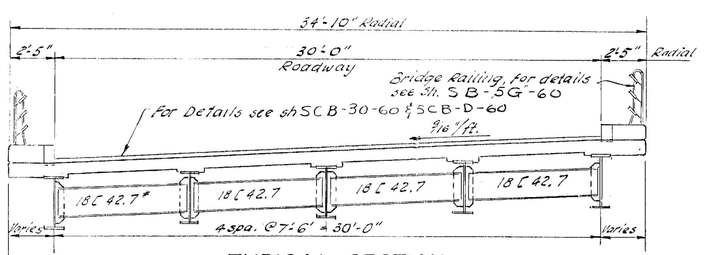
DRAWN BY A.M. | IN CHARGE A.J.I. | SCALE AS SHOWN
CHECKED BY A.J.I. | DATE

PROJECT NO. I 89-3(14) | SHEET 173 OF 195

FED. ROAD DIV. No.	STATE	FEDERAL PROJECT No.	SHEET	TOTAL SHEETS
	VERMONT	I 89 - 3 (14)	142	180



FRAMING PLAN
SCALE: 1" = 10'-0"



TYPICAL SECTION
SCALE: 1/4" = 1'-0"
(Looking toward increasing stations)

ESTIMATED QUANTITIES

ITEM #	ITEM	UNIT	NEAT	OVERRUN	TOTAL	FINAL
	FRAMING PLAN					I
403	Spiral Reinforcing (7750#)	L.S.	I L S	—	I L S	
404-A	Structural Steel	L.B.	2832:7	5664	288881	284,339

WILLISTON - GEORGIA
IM MEMB(25)
SHEET 28 OF 38
BRIDGE 67
FOR REFERENCE ONLY

NOTES
1. For General Notes see Sh # BR-1
2. For additional details see SB-20-60 & SB-22-60
3. For superstructure details see SCB-30-60 & SCB-D-60

FOR REFERENCE ONLY
BRIDGE #67

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

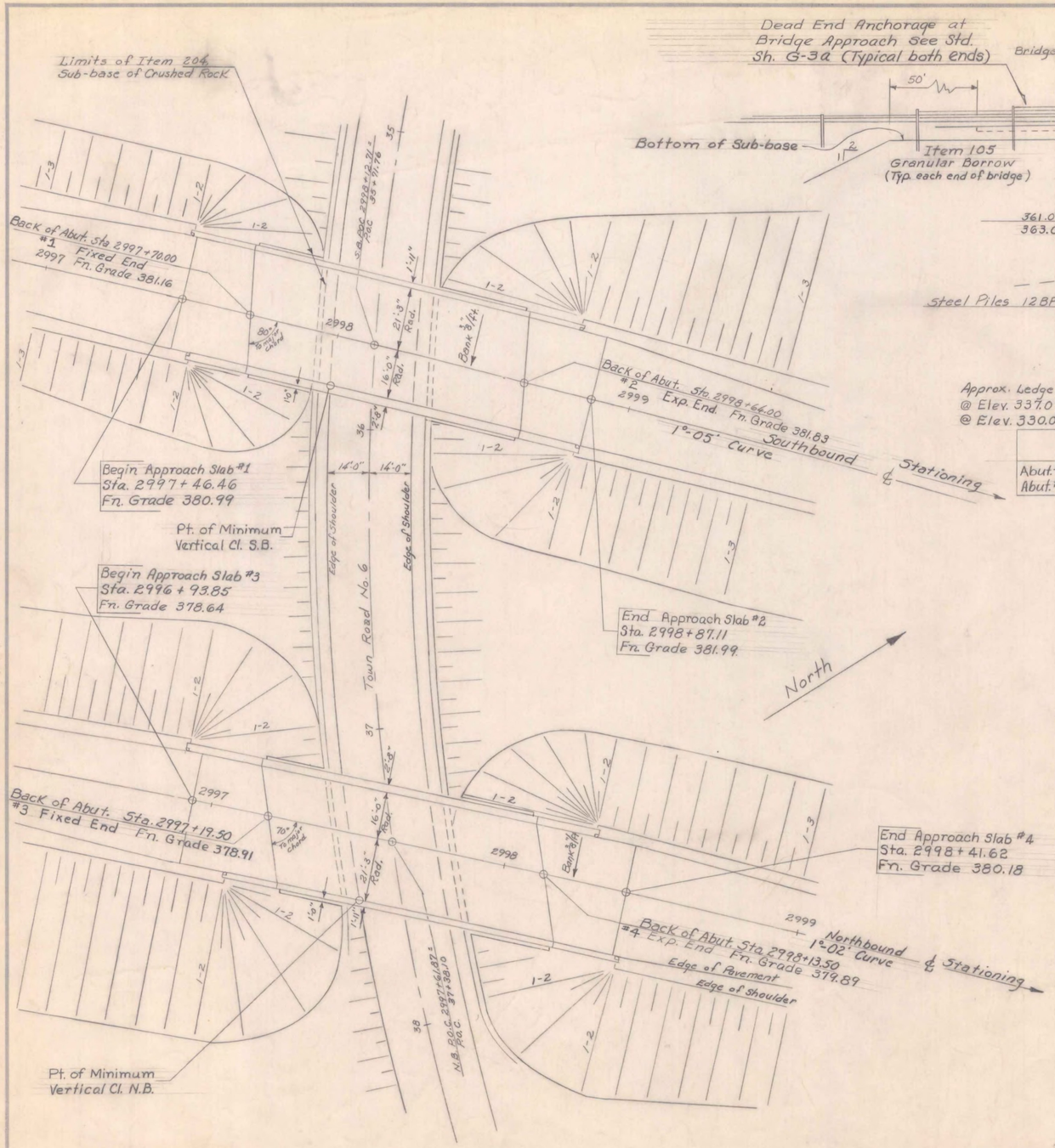
INTERSTATE PROJECT IN THE TOWN OF SOUTH BURLINGTON.

UNDERPASS STA. 2036+03.31
SHELBURNE INTERCHANGE W.B.
FRAMING PLAN

BOSWELL ENGINEERING CO. RIDGEFIELD PARK, N.J.

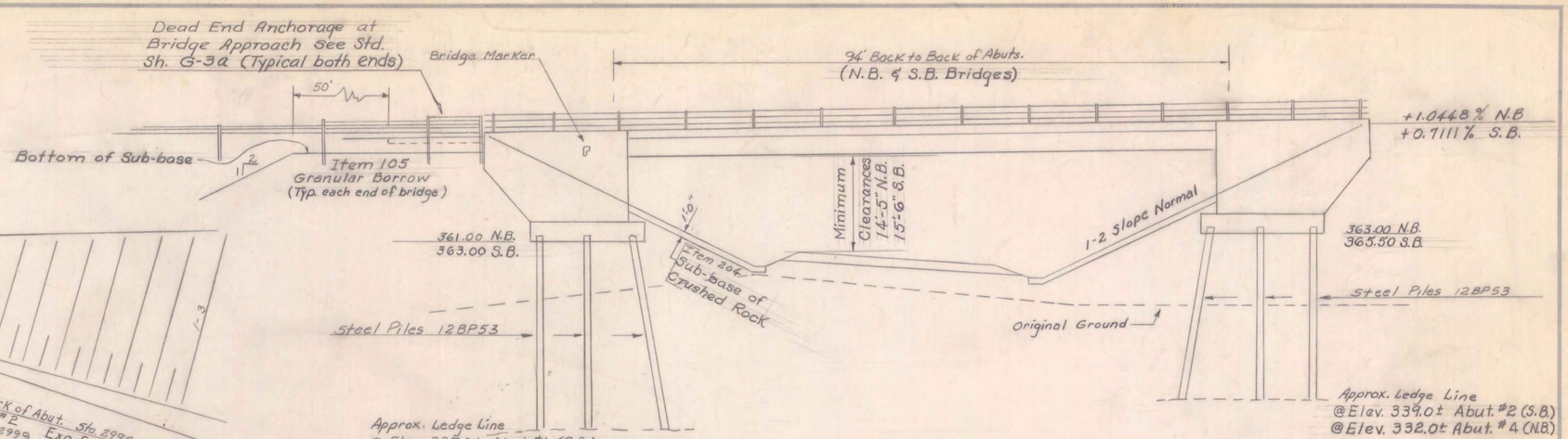
DRAWN BY A.M. CHECKED BY A.G.M. IN CHARGE A.J.I. DATE SCALE AS SHOWN

PROJECT NO. I 89 - 3 (14) SHEET 174 OF 175



PLAN

SCALE: 1" = 20'



ELEVATION

Northbound Facia

Scale 1" = 10'

	Est. Pile Lengths
Abut. #1 (S.B.)	30'
Abut. #3 (N.B.)	35'

	Est. Pile Lengths
Abut. #2 (S.B.)	30'
Abut. #4 (N.B.)	35'

List of Bridge Sheets

Standard Sheets

SCB-D1-65; SCB-D2-65, Det. A, B, C; SCB-D6-65, Det. A, B & F; SCB-D7-65, Det. C, D & E; SCB-D8-65, Det A & B; SCB-D9-65, Det. A; SCB-37.25-65; SB-R1-64, 1 & 2; SB-R2-65; G-3a; SCB-D4-65.

Reference Sheets

Plan I89 (Scale 1"=50') Sta. 2988 - Sta. 3044
Profile I89 Sta. 2988 - Sta. 3044
Cross Sections I89 Sta. 2993+73 - 3001+50 (N.B.)
Cross Sections I89 Sta. 2998+00 - 3000+00 (S.B.)
Profile Town Road 6 Sta. 26+00 - 48+00
Cross Sections Town Road 6 Sta. 35+00 - 38+50

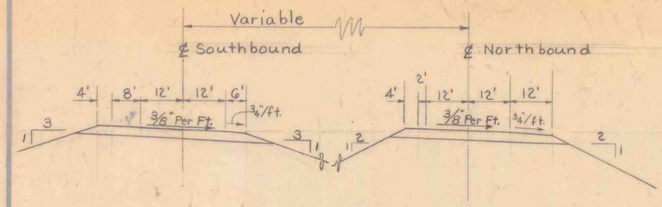
Notes:

1. For General Notes see Std. Sh. SCB-D1-65
2. For Superstructure Typical see Std. Sh. SCB-37.25-65
3. Bench Marks are to be located on top of Wall above Bridge Markers
4. For details of Dead End Anchorage at bridge approach see Std. Sh. G-3A.
5. Steel piling (12 BP53) shall be driven to point bearing on ledge unless the designed bearing capacity of 45 tons per pile is attained above ledge elevation.
6. Item 505, Pile Loading Tests, shall be used for each substructure when called for by the Engineer.
7. Estimated allowable design load is 45 tons/pile.
8. Item 440 Water Repellent shall consist of furnishing and applying water repellent on exterior Concrete Surfaces including top of Safety Walks, fascia and back to the drip bead under the slab and exposed areas of abutments not otherwise treated.

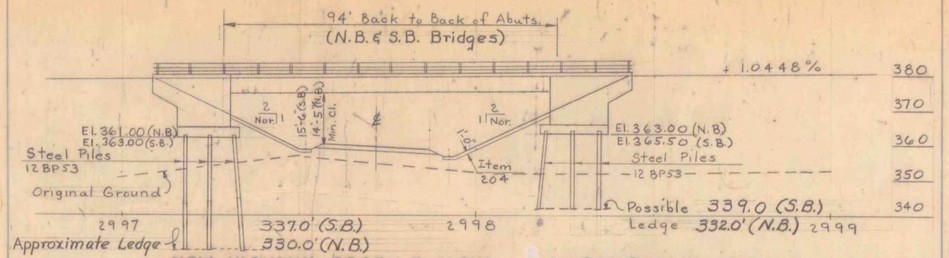
WILLISTON - GEORGIA
IM MEMB(25)
SHEET 29 OF 38
BRIDGES 84 N AND S
FOR REFERENCE ONLY

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF Milton-Georgia
ROUTE NO. I89 LOG STA.
I89 over TOWN ROAD #6
ELEVATION & PLAN
SCALE AS NOTED
SURVEYED BY
DRAWN BY J.W. CHECKED BY A.J.C.
PROJECT NO. [redacted]
SHEET 53 OF 223 53-88



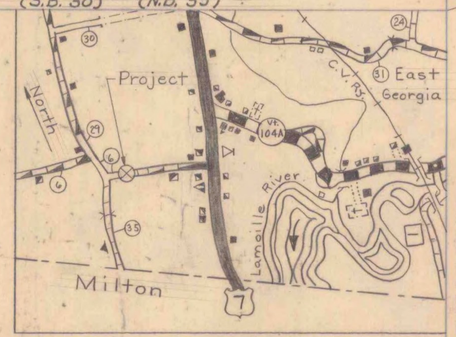
NEW HIGHWAY SECT. I 89 @ NB Sta. 2996+10
SCALE 1" = 20' @ SB Sta. 2997+00



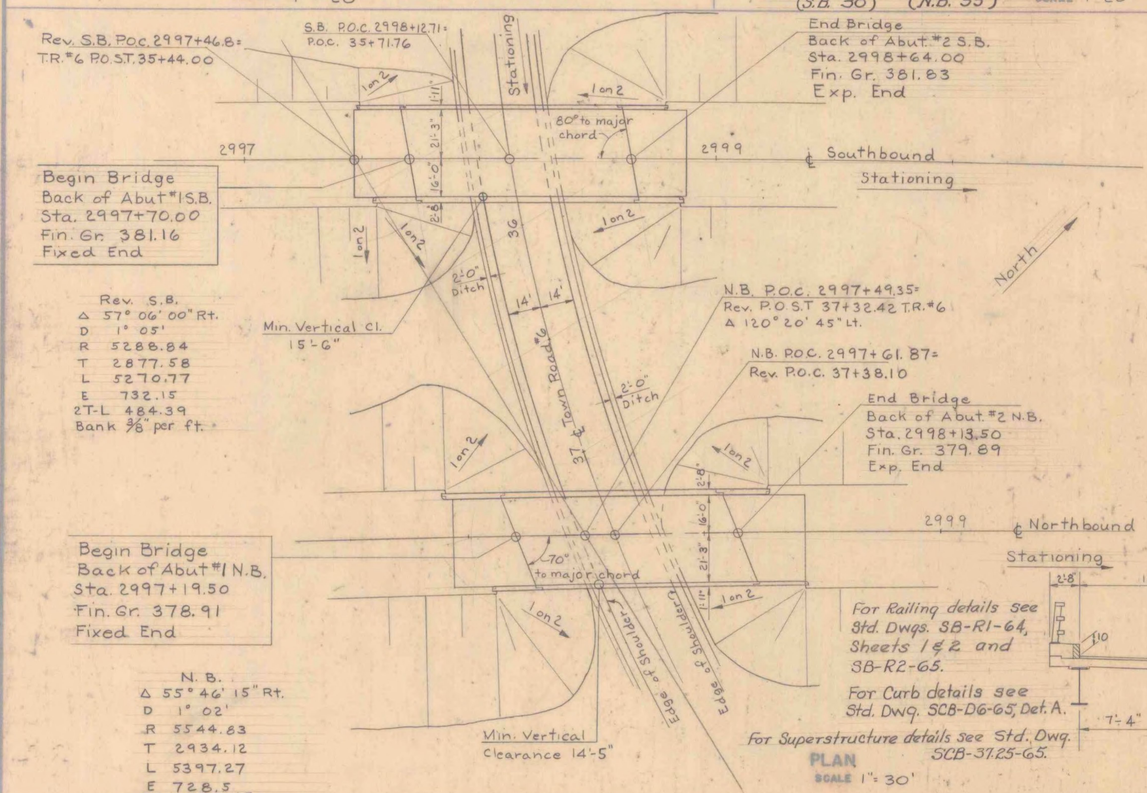
NEW HIGHWAY PROFILE ALONG NORTHBOUND FASCIA
SCALE 1"=20'

Est. length of Piles (S.B. 30') (N.B. 35')

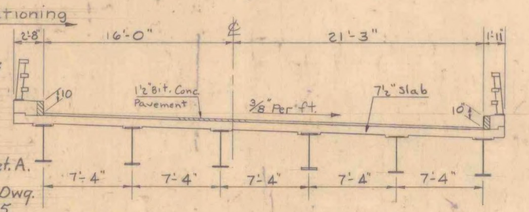
Est. length of Piles (S.B. 30') (N.B. 35')



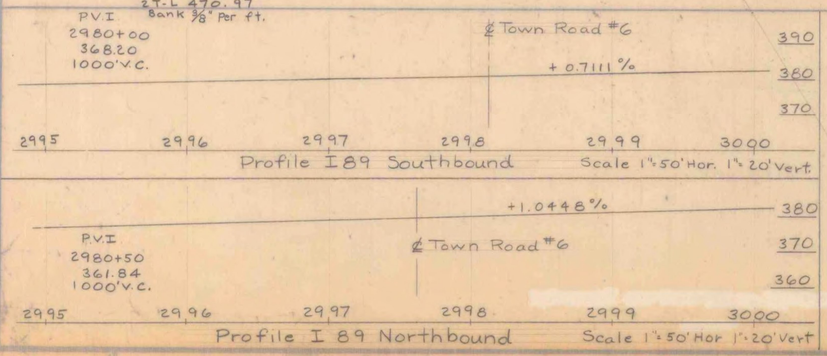
Town Road #6
Revised Curve
Δ 69° 41' 30" Lt.
D 7° 30'
R 763.94
T 531.87
L 929.22
E 166.91
Bank 3/4" per ft.



PLAN
SCALE 1"=30'

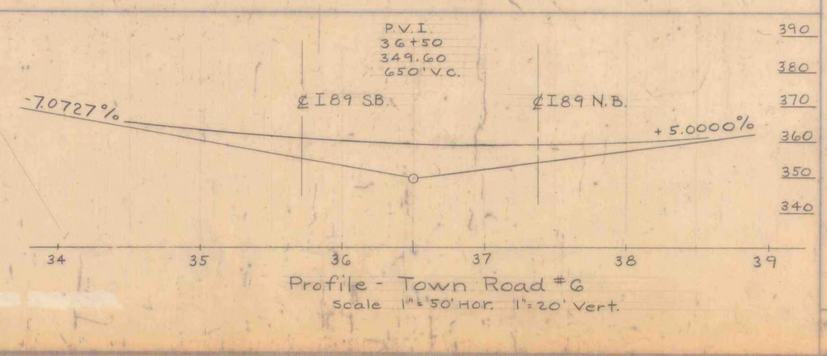


Typical Northbound Bridge Section
Scale 1"=6'



Profile I 89 Southbound Scale 1"=50' Hor. 1"=20' Vert.

Profile I 89 Northbound Scale 1"=50' Hor 1"=20' Vert



Profile - Town Road #6
Scale 1"=50' Hor. 1"=20' Vert.

HIGHWAY NO I 89 NAME OF HIGHWAY Interstate
STRUCTURE NO S3-88 COUNTY Franklin TOWN Georgia
PROJECT NO I 89-3(39) LOCATION Town Road #6
Milton - Georgia

EXISTING STRUCTURE

1 RATED LOADING OF EXISTING STRUCTURE
2 TYPE OF EXISTING STRUCTURE
3 UNDERCLEARANCE ELEVATION OF EXISTING STRUCTURE
4 WHAT DISPOSITION SHOULD BE MADE OF EXISTING STRUCTURE COST OF REMOVAL
5 SHOULD EXISTING STRUCTURE BE USED TO MAINTAIN TRAFFIC DURING CONSTRUCTION OF NEW STRUCTURE
6 SHOULD NEW TEMPORARY STRUCTURE BE BUILT
7 ORDINARY HIGH WATER SURFACE ELEV. AT EXISTING STRUCTURE WATERWAY TO ORDINARY H.W.
8 EXTREME HIGH WATER AT EXISTING STRUCTURE
9 SPAN OF EXISTING BRIDGE UPSTREAM WATERWAY TO EXTREME H.W.
SPAN OF EXISTING BRIDGE DOWNSTREAM WATERWAY TO EXTREME H.W.
10 TYPE OF FOUNDATION UNDER EXISTING ABUTMENTS
11 DOES ALL WATER AT FLOOD ELEVATION PASS THROUGH EXISTING STRUCTURE
12 IF NOT AT WHAT ELEVATION IS RELIEF AFFORDED
13 ADDITIONAL WATERWAY AREA PROVIDED

NEW STRUCTURE

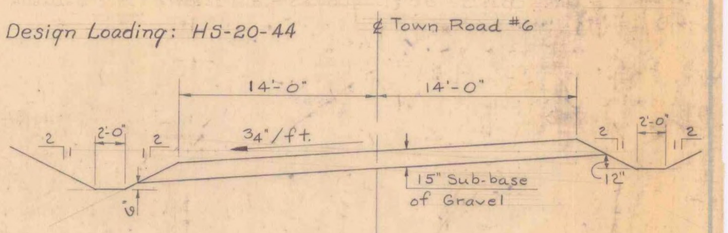
1 RECOMMENDED TYPE OF STRUCTURE Std. Composite Beam Bridges (N.B. & S.B.)
2 RECOMMENDED CLEAR SPAN OR SPANS One Span 94' (N.B.), One Span @ 94' (S.B.)
MEASURED PARALLEL TO ℄ NEW HIGHWAY
MEASURED AT RIGHT ANGLES TO ℄ STREAM
3 ARE THERE OBJECTIONS TO A PIER IN THE STREAM, ANSWER YES OR NO
4 ORDINARY HIGH WATER ELEVATION AT NEW STRUCTURE
5 EXTREME HIGH WATER ELEVATION AT NEW STRUCTURE SOURCE OF INFORMATION
6 IS ALL WATER INTENDED TO PASS THROUGH NEW STRUCTURE?
7 DOES STREAM REACH ITS MAXIMUM HIGH WATER ELEVATION RAPIDLY? IS ORDINARY RISE RAPID?
8 LOW WATER ELEVATION AT NEW STRUCTURE
9 DRAINAGE AREA IN ACRES ABOVE STRUCTURE CHARACTER OF TERRAINE
10 IS STREAM EVER DRY?
11 VELOCITY OF STREAM AT HIGH WATER STAGE ESTIMATED DISCHARGE
12 AREA FULL OPENING AREA BELOW ORDINARY H.W.
13 CHARACTER OF SCOUR DRIFT ICE
14 ESTIMATED DRAINAGE AREA ABOVE NATURAL OR ARTIFICIAL STORAGE
15 VERTICAL CLEARANCE ABOVE FLOOD ELEVATION
16 ARE SIDEWALKS REQUIRED, IF SO ON WHAT SIDE No BOTH SIDES
17 RECOMMENDED TYPE OF PAVEMENT 1'2" Bituminous Concrete
18 TRAFFIC TO BE MAINTAINED UNDER ITEM NO. ONE OR TWO WAYS PROBABLE COST
19 PROBABLE COST OF CLEARING AND GRUBBING STREAM CHANNEL AT STRUCTURE SITE
20 SHOULD PROVISIONS BE MADE FOR PUBLIC UTILITIES? No
21 ESTIMATED ALLOWABLE LOAD ON FOUNDATIONS 45 Tons per pile (Std. Piles - 12 BP53) SHOULD PILES BE USED? Yes EST. LGTH. 35' Max.

FOUNDATION INFORMATION

OBTAINED FOR DESIGN PURPOSES ONLY, AND THE STATE ASSUMES NO RESPONSIBILITY WHATSOEVER FOR THE SUFFICIENCY OR ACCURACY OF THE INFORMATION SHOWN. BOULDERS MAY BE ENCOUNTERED AT ANY PIER OR ABUTMENT LOCATION.

Note: Structural steel for beams is to be A.S.T.M. A 36

Design Loading: HS-20-44



Typical Section - Town Road #6
Scale 1"=5'

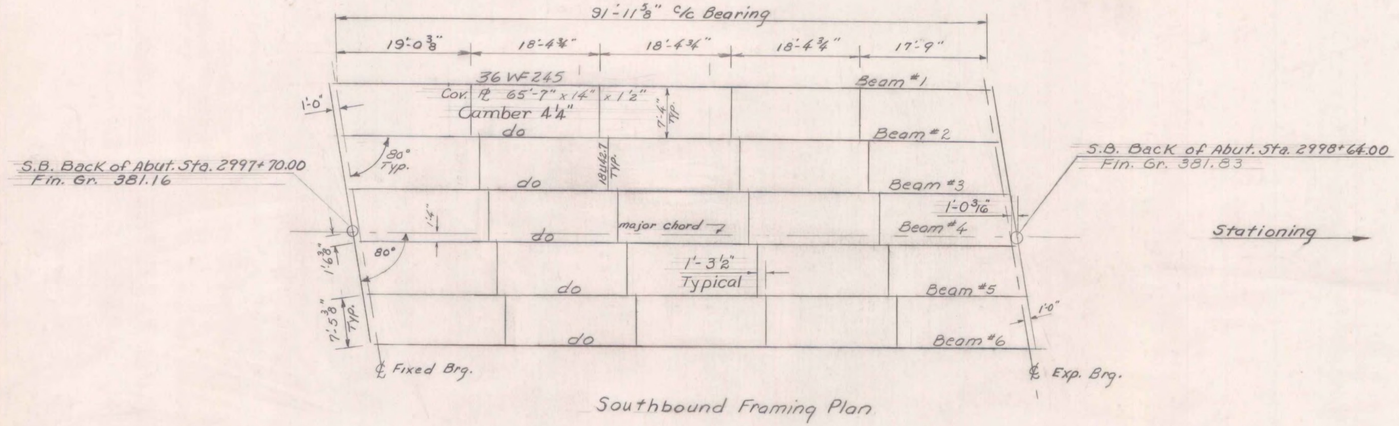
Design Stresses:
A 36 Structural Steel f_s = 20,000 p.s.i.
Reinforcing Steel f_s = 20,000 p.s.i.
Concrete f'_c = 3,000 p.s.i. N=10

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS
Interstate IN THE TOWNS OF
Milton - Georgia
ROUTE NO I 89 LOG STA
I 89 over Town Road #6

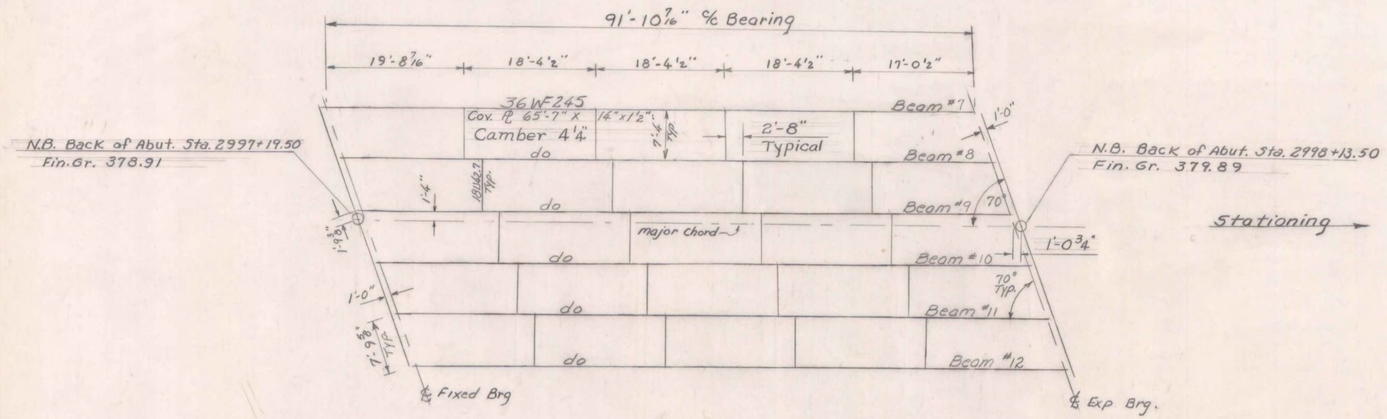
SURVEYED BY A.J.C. | CHECKED BY L.F.S. IN CHARGE F.W.B. | SCALE As Noted DATE 5/26/64
PROJECT NO I 89-3(39) SHEET 30 OF 38

WILLISTON - GEORGIA
IM MEMB(25)
SHEET 30 OF 38
BRIDGES 84 N AND S
FOR REFERENCE ONLY

BR-102
Sheet 132 of 177 Sheets



Southbound Framing Plan



Northbound Framing Plan

Notes:

1. For General Notes & Design Stresses See Std. Sheet SCB-D1-65, Bridge Sheets BR-100 & BR-102.
2. For details of shear connectors see Std. Sh. SCB-D2-65, Detail B & General Notes Std. Sh. SCB-D1-65.
3. For cover plate details see Std. Sh. SCB-D7-65 Detail C.
4. For diaphragm details see Std. Sh. SCB-D7-65 Details D & E.
5. For bearing details see Std. Sh. SCB-D8-65 Details A & B, and SCB-D9-65, Detail A.
6. For Details of beam haunch See Std. Sh. SCB-D2-65, Detail C.

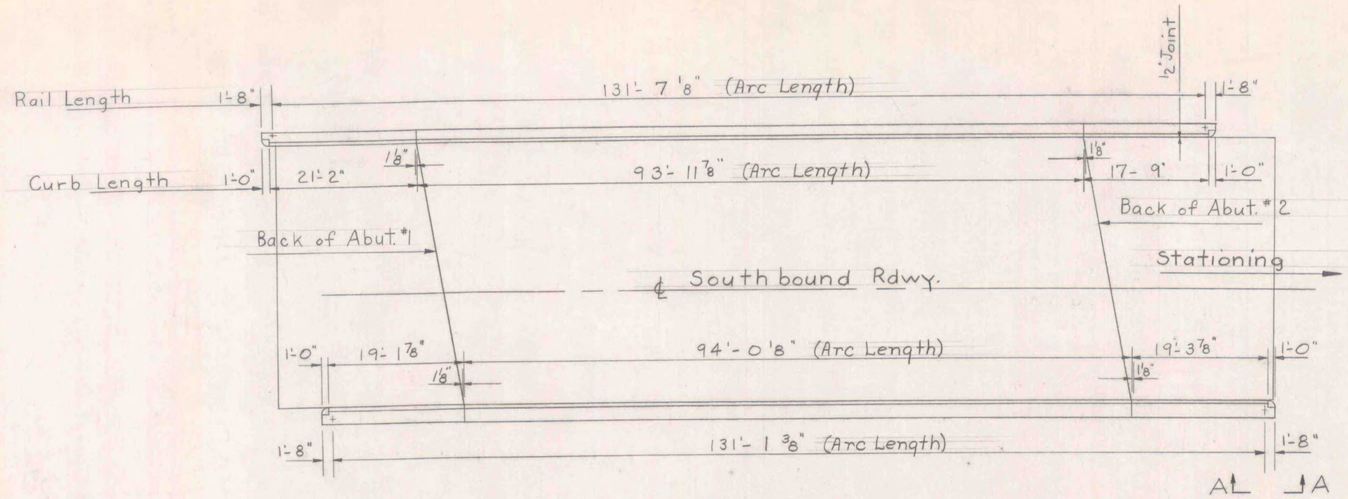
WILLISTON - GEORGIA
IM MEMB(25)
SHEET 31 OF 38
BRIDGES 84 N AND S
FOR REFERENCE ONLY

ITEM NO.	ITEM	UNIT	NET		TOTAL	FINAL
	CHAN. EXCAV. OF EARTH	C. Y.				
	CHAN. EXCAV. OF ROCK	C. Y.				
	UNCLASS. CHAN. EXCAV.	C. Y.				
	STRUCT. EXCAV.	C. Y.				
	CONC. CLASS AA (MOD.)	C. Y.				
	CONC. CLASS B (MOD.)	C. Y.				
	REINF. STEEL	LBS.				
	ASPHALTIC-ASB. COATING	S. Y.				
	TREATED TIMBER PILING	L. F.				
	SPLICES FOR STEEL PILING	EA.				
	STEEL PILING	L. F.				
	UNTREATED TIMBER PILING	L. F.				

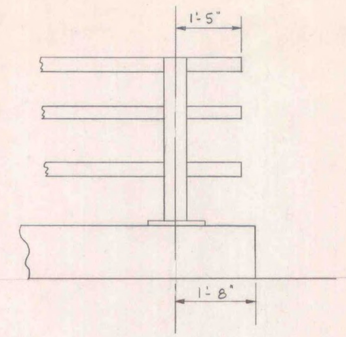
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF Milton-Georgia
ROUTE NO. I-89 LOG STA.
I 89 over Town Road #6
Framing Plan
SCALE 1" = 10'
SURVEYED BY
DRAWN BY J.W. CHECKED BY A.J.C.
PROJECT NO. I 89-3(39)
SHEET 62 OF 278

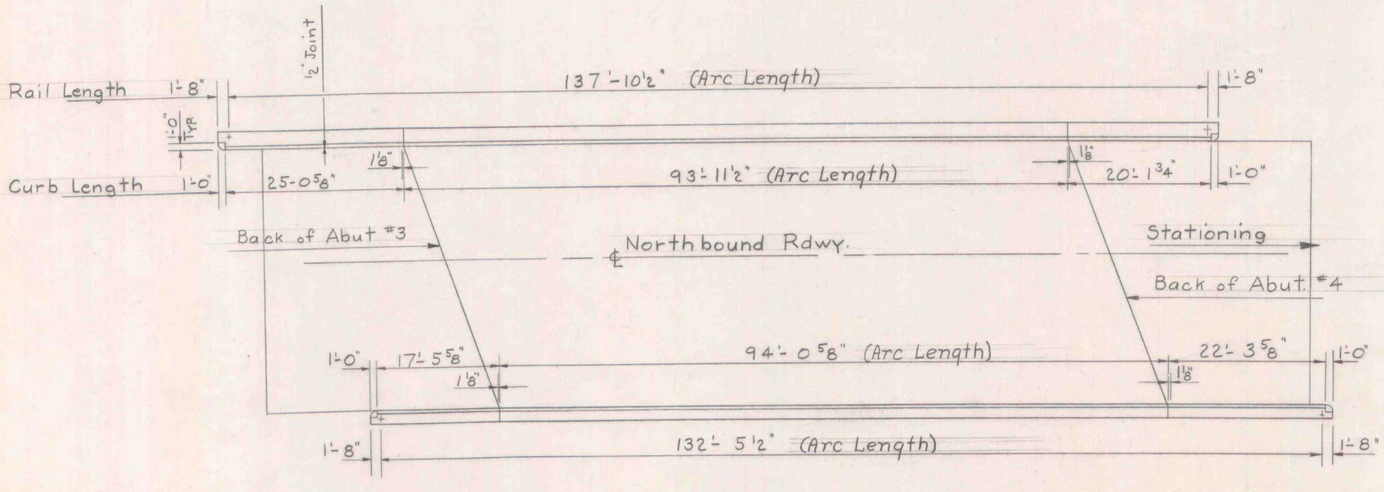
BR-104



Curb and Rail Plan
Scale 1" = 10'-0"



View A-A (Typical each end)
Scale 3/4" = 1'-0"



Notes:

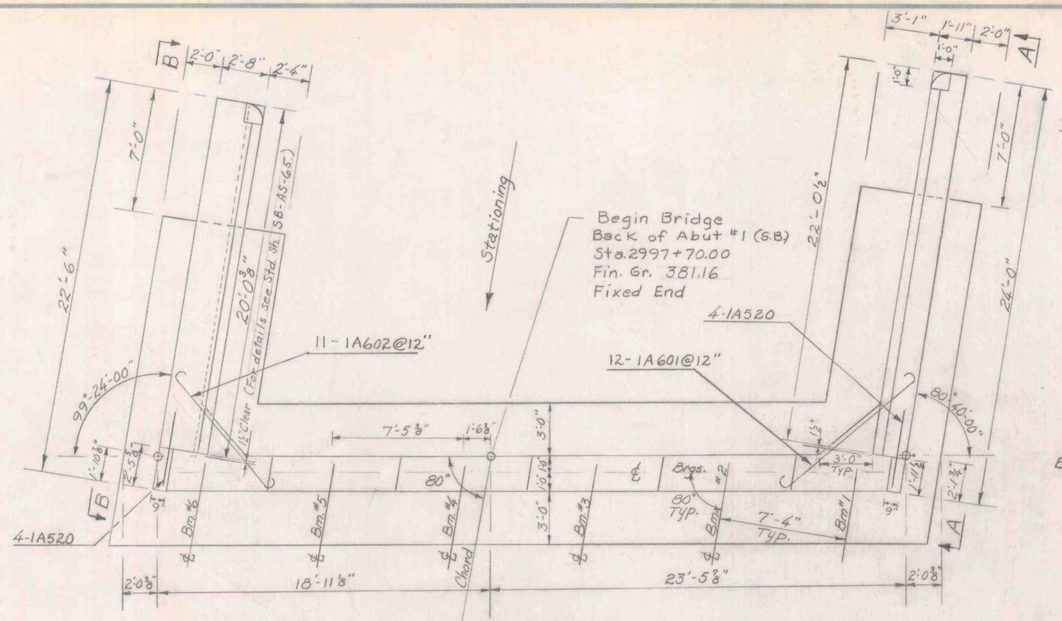
1. For curb details not shown see std. shs. SCB-D6-65 Detail A, and SCB-37.25-65.
2. For joint details see App. Slabs #1 & #2 Bridge Sh. BR-110.
3. For railing details not shown see Std. Sh. SB-R1-64, sheet #1 & #2 and SB-R2-65.
4. For details of Construction Joints & Score Marks See Std. Sheet SCB-D6-65, Detail B.

ITEM NO.	ITEM	UNIT	NET		TOTAL	FINAL
	CHAN. EXCAV. OF EARTH	C.Y.				
	CHAN. EXCAV. OF ROCK	C.Y.				
	UNCLASS. CHAN. EXCAV.	C.Y.				
	STRUCT. EXCAV.	C.Y.				
	CONC. CLASS AA (MOD.)	C.Y.				
	CONC. CLASS B (MOD.)	C.Y.				
	REINF. STEEL	LBS.				
	ASPHALTIC-ASB. COATING	S.Y.				
	TREATED TIMBER PILING	L.F.				
	SPLICES FOR STEEL PILING	EA.				
	STEEL PILING	L.F.				
	UNTREATED TIMBER PILING	L.F.				

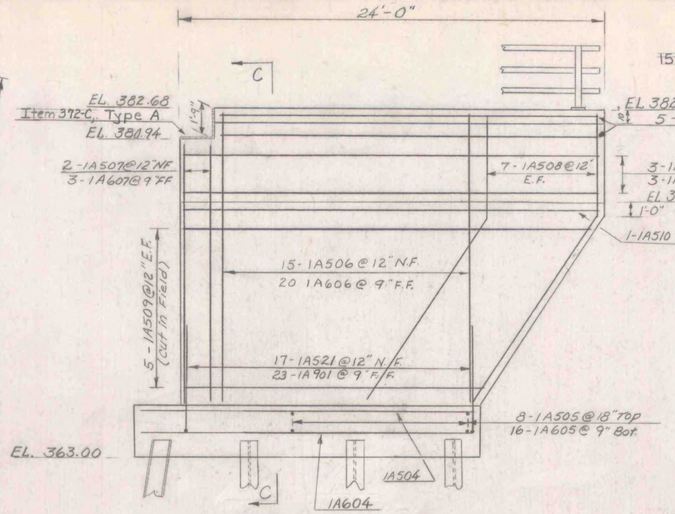
WILLISTON - GEORGIA
IM MEMB(25)
SHEET 32 OF 38
BRIDGES 84 N AND S
FOR REFERENCE ONLY

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

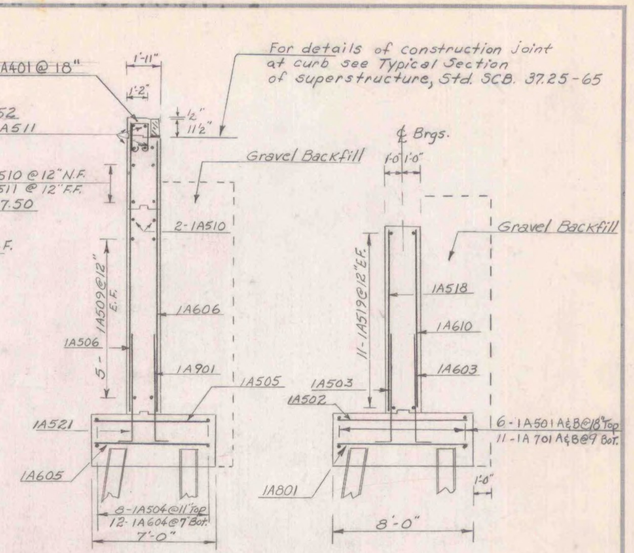
TOWN OF Milton-Georgia
ROUTE NO. I 89 LOG STA.
I 89 over Town Road #6
Curb and Rail Plan
SCALE As Noted
SURVEYED BY
DRAWN BY A.J.C. CHECKED BY J.W.
PROJECT NO. I 89-3(69)
SHEET 32 OF 224



PLAN



VIEW A-A

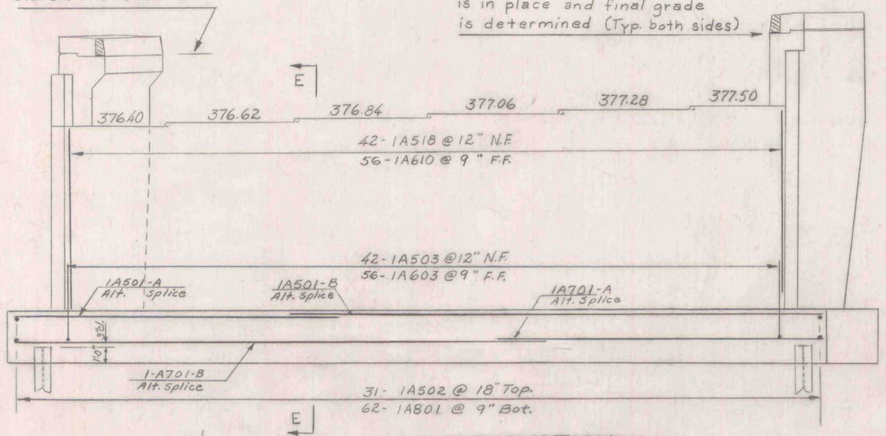


SECTION C-C

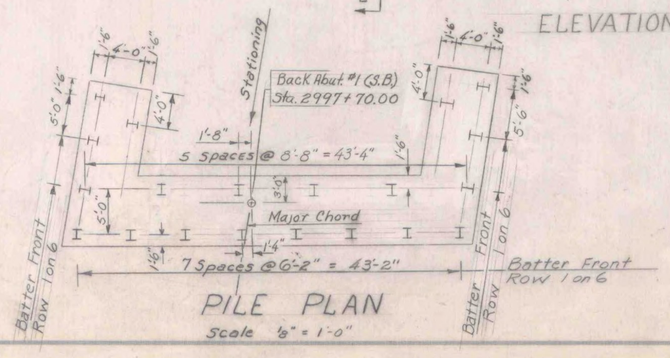
SECTION E-E

For details of construction joint at curb see Typical Section of superstructure, Std. Sh. SCB-37.25-65.

Do not construct above this joint until structural steel is in place and final grade is determined (Typ. both sides)



ELEVATION

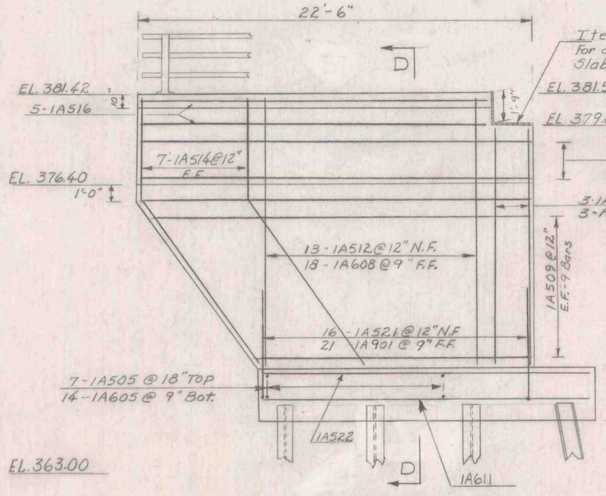


PILE PLAN

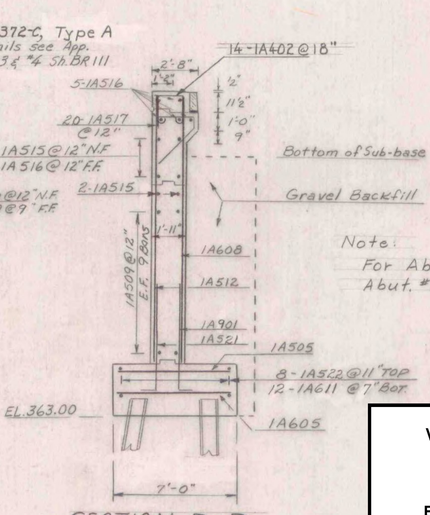
Scale ⅛" = 1'-0"

No. of Piles	Size	Estimated Length of Piles	Splices Allowed for Piles not Exceeding Plan Length (to be paid for only if used.)	Splices Estimated for Piles Exceeding Plan Length (to be paid for only if used.)
20	12BP53	30		4

Note:
Steel Piles (12BP53) shall be driven to point bearing on ledge unless the designed bearing capacity of 45 tons per pile attained above ledge elevation. (Typical all abutments)



VIEW B-B



SECTION D-D

E.F. Each Face
F.F. Far Face
N.F. Near Face

Note:
For Abutment Notes see Abut. #2 (S.B.) Sh. BR-107.

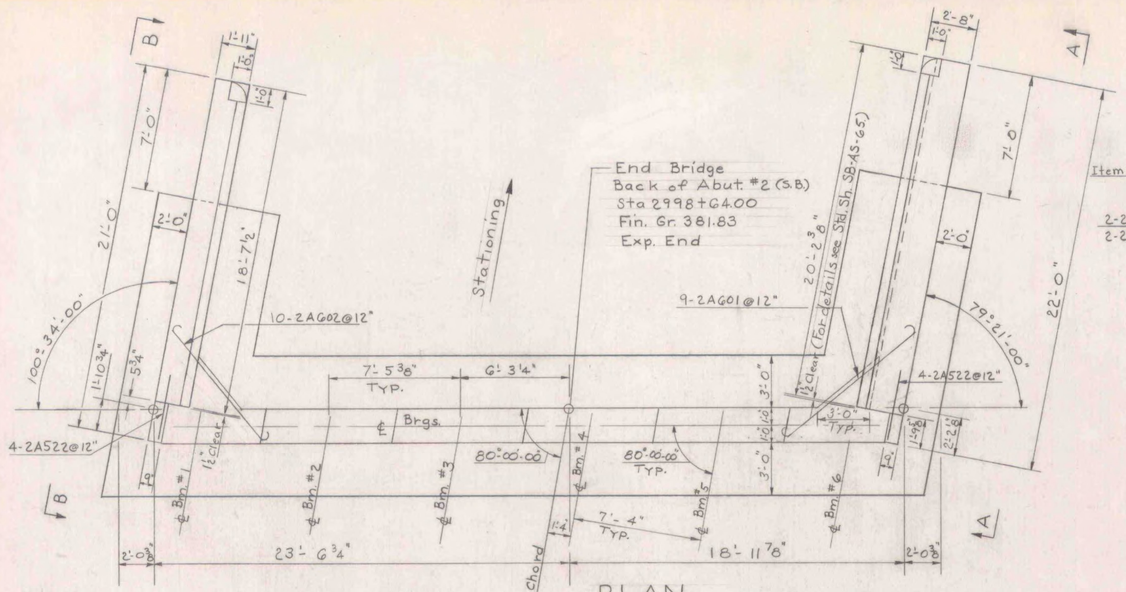
WILLISTON - GEORGIA
IM MEMB(25)
SHEET 33 OF 38
BRIDGES 84 N AND S
FOR REFERENCE ONLY

ITEM NO.	ITEM	UNIT	NET		TOTAL	FINAL
	CHAN. EXCAV. OF EARTH	C.Y.				
	CHAN. EXCAV. OF ROCK	C.Y.				
	UNCLASS. CHAN. EXCAV.	C.Y.				
	STRUCT. EXCAV.	C.Y.				
	CONC. CLASS AA (MOD.)	C.Y.				
	CONC. CLASS B (MOD.)	C.Y.				
	REINF. STEEL	LBS.				
	ASPHALTIC-ASB. COATING	S.Y.				
	TREATED TIMBER PILING	L.F.				
	SPLICES FOR STEEL PILING	EA.				
	STEEL PILING	L.F.				
	UNTREATED TIMBER PILING	L.F.				

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

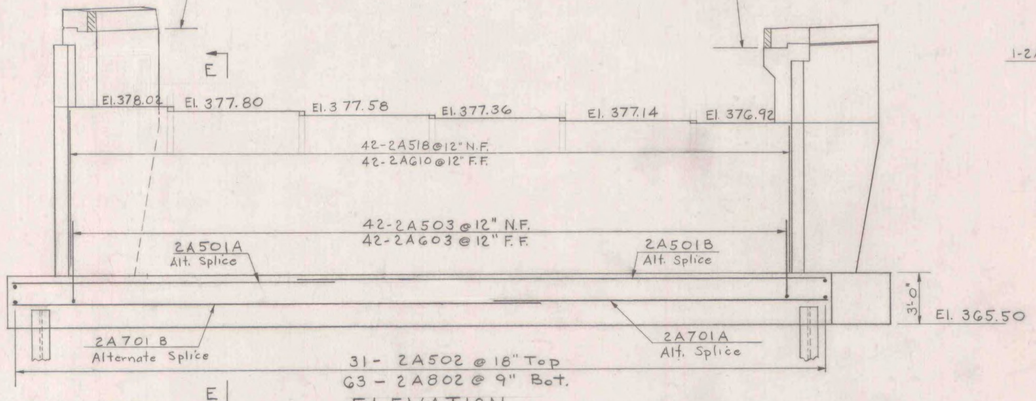
TOWN OF Milton-Georgia
ROUTE NO. I 89 LOG STA.
I 89 over Town Road #6
Abutment #1 (S.B.)
SCALE ¼"=1'-0" & as noted
SURVEYED BY
DRAWN BY J.W CHECKED BY A.J.C. 1/5/66
PROJECT NO. I 89-3(39)
SHEET 64 OF 278

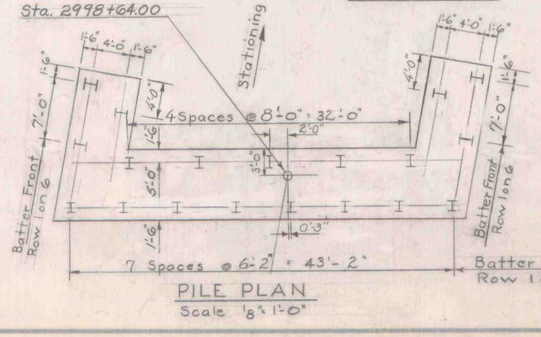
BR-106



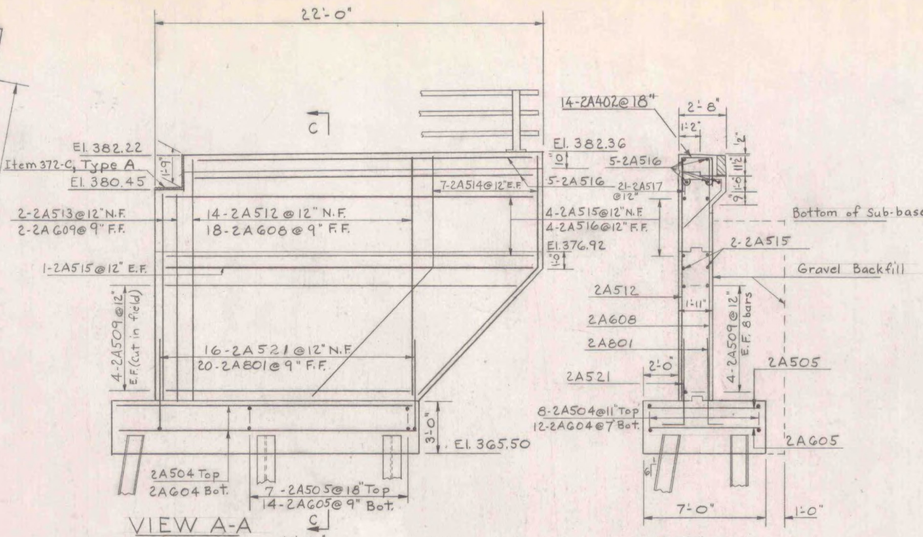
For details of construction joint at curb see Typical Section of Superstr, Std. Sh. SCB-37.25-65

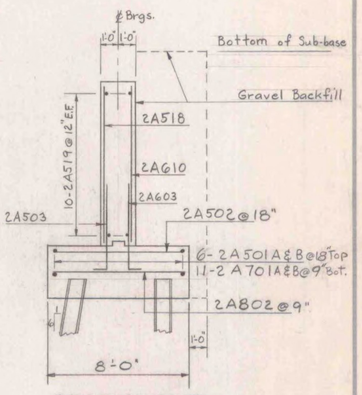
Do not construct above this joint until structural steel is in place and final grade is determined. (Typ. both sides)

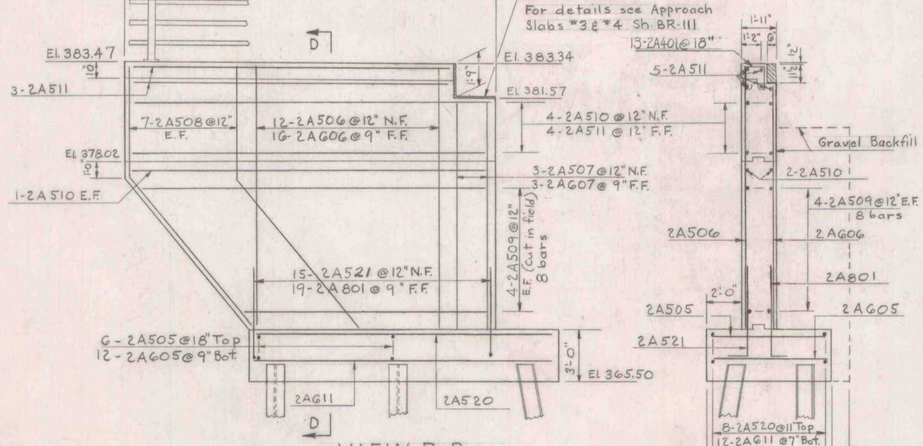




No. of Piles	Size	Estimated Length of Piles	Splices Allowed for Piles not Exceeding Plan Length (to be paid for only if used.)	Splices Estimated for Piles Exceeding Plan Length (to be paid for only if used.)
19	12BP53	30		4







E.F. Each Face
F.F. Far Face
N.F. Near Face

Notes:

1. For General Notes see Std. Sh. SCB-D1-65 and BR-100.
2. Reinforcing steel to have a min. clear cover of 2 in. except in the footing where cover is to be 3 in.
3. For details of dead end anchorage at bridge approach see Std. Sh. G-3a.
4. Reinforcing bars 518 and 610 are to be raised above top of footing as bridge seat elevs. increase.
5. Step bridge seats midway between beams.
6. Abutments are designed for a maximum pile bearing pressure of 4.5 Tons.
7. For details of Curtain Walls and Approach Slab brackets see Std. Dwgs. SCB-37.25-65 and SCB-D2-65, Detail A.

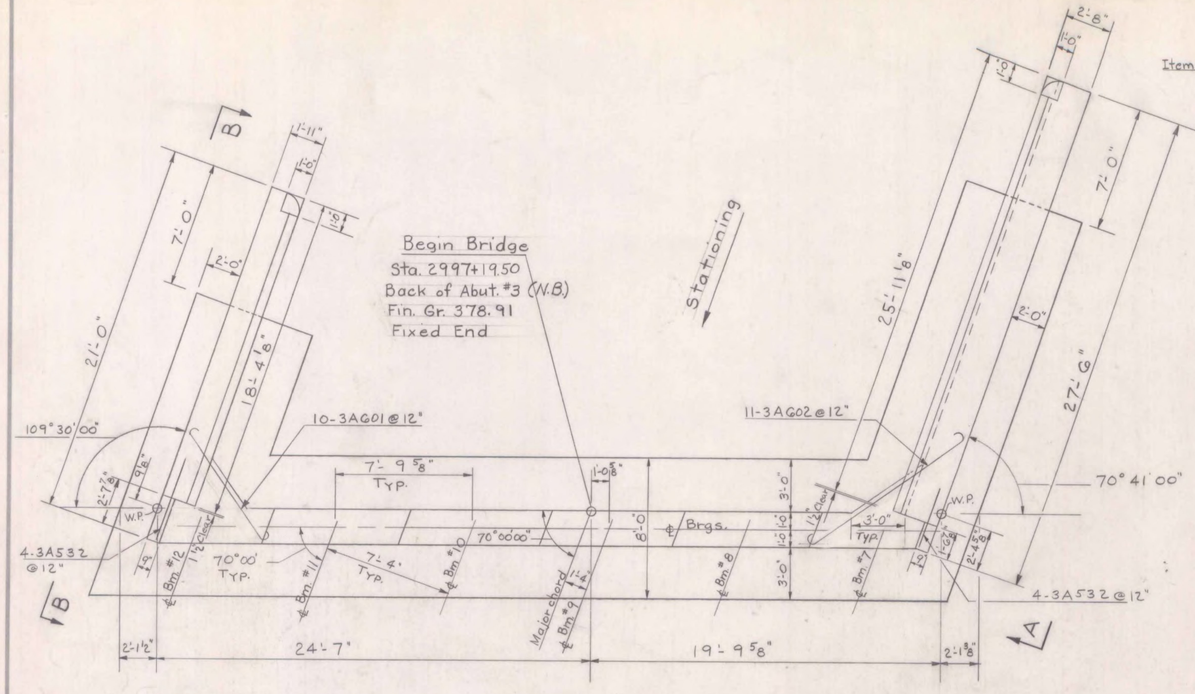
ITEM NO.	ITEM	UNIT	NET		TOTAL	FINAL
	CHAN. EXCAV. OF EARTH	C.Y.				
	CHAN. EXCAV. OF ROCK	C.Y.				
	UNCLASS. CHAN. EXCAV.	C.Y.				
	STRUCT. EXCAV.	C.Y.				
	CONC. CLASS AA (MOD.)	C.Y.				
	CONC. CLASS B (MOD.)	C.Y.				
	REINF. STEEL	LBS.				
	ASPHALTIC-ASB. COATING	S.Y.				
	TREATED TIMBER PILING	L.F.				
	SPLICES FOR STEEL PILING					
	STEEL PILING					
	UNTREATED TIMBER PILING					

WILLISTON - GEORGIA
IM MEMB(25)
SHEET 34 OF 38
BRIDGES 84 N AND S
FOR REFERENCE ONLY

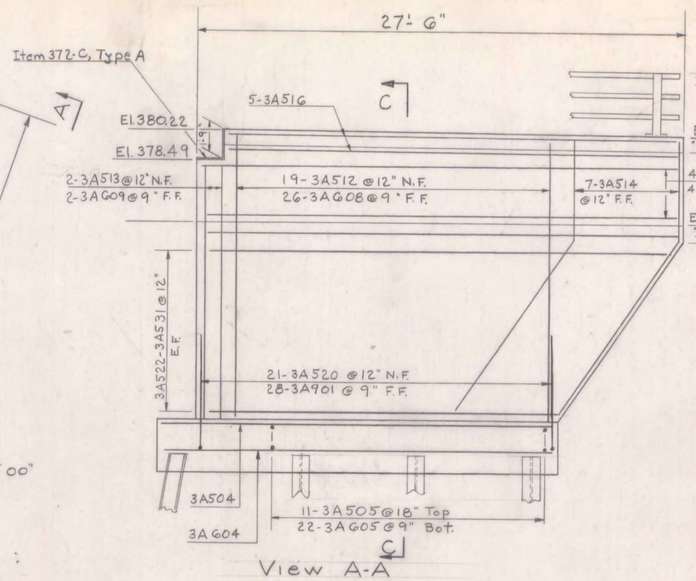
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF Milton-Georgia
ROUTE NO. I 89 LOG STA.
I 89 over Town Road #6
Abutment #2 (S.B.)
SCALE 1/4"=1'-0" & as noted
SURVEYED BY
DRAWN BY A.J.C. CHECKED BY J.W.
PROJECT NO. I 89-3(39)
SHEET 65 OF 278

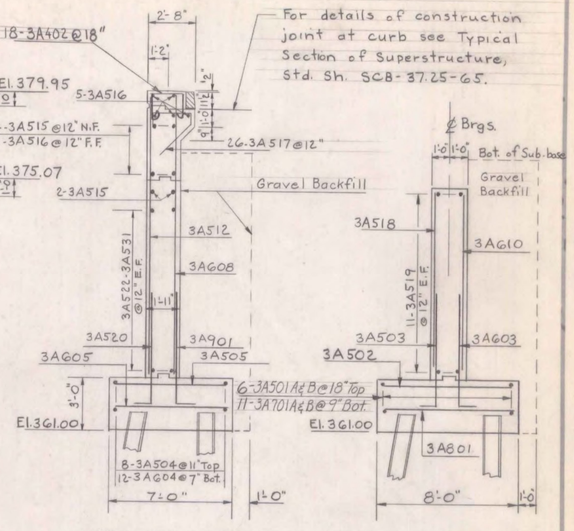
BR-107



Plan

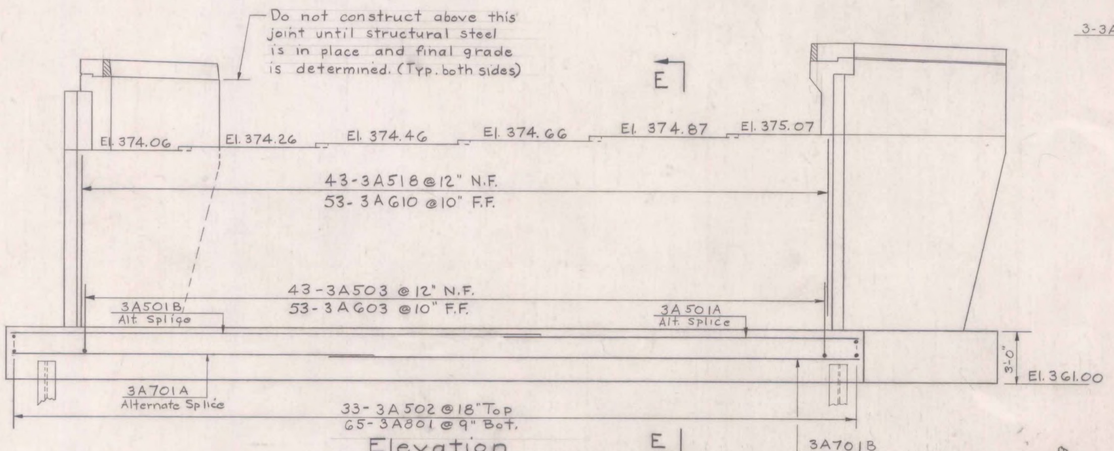


View A-A

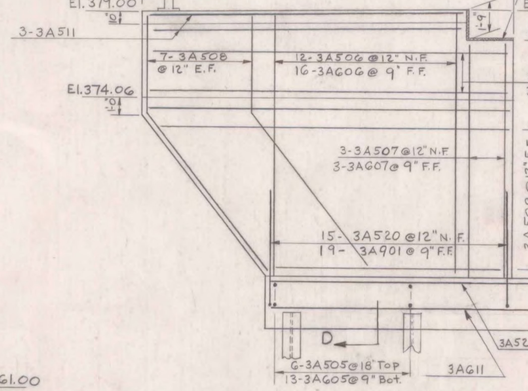


Section C-C

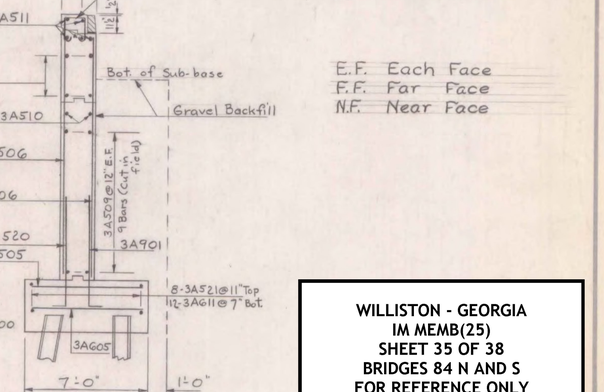
Section E-E



Elevation



View B-B

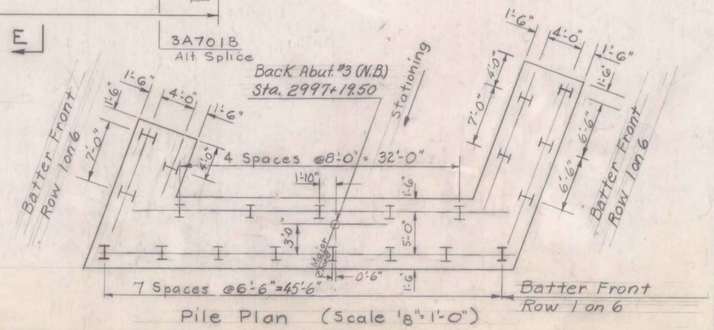


Section D-D

Note:
For Abutment Notes see Abut. #2 (S. B.) Sh. BR-107.

E.F. Each Face
F.F. Far Face
N.F. Near Face

No. of Piles	Size	Estimated Length of Piles	Splices Allowed for Piles not Exceeding Plan Length (to be paid for only if used.)	Splices Estimated for Piles Exceeding Plan Length (to be paid for only if used.)
21	12BP53	35		5



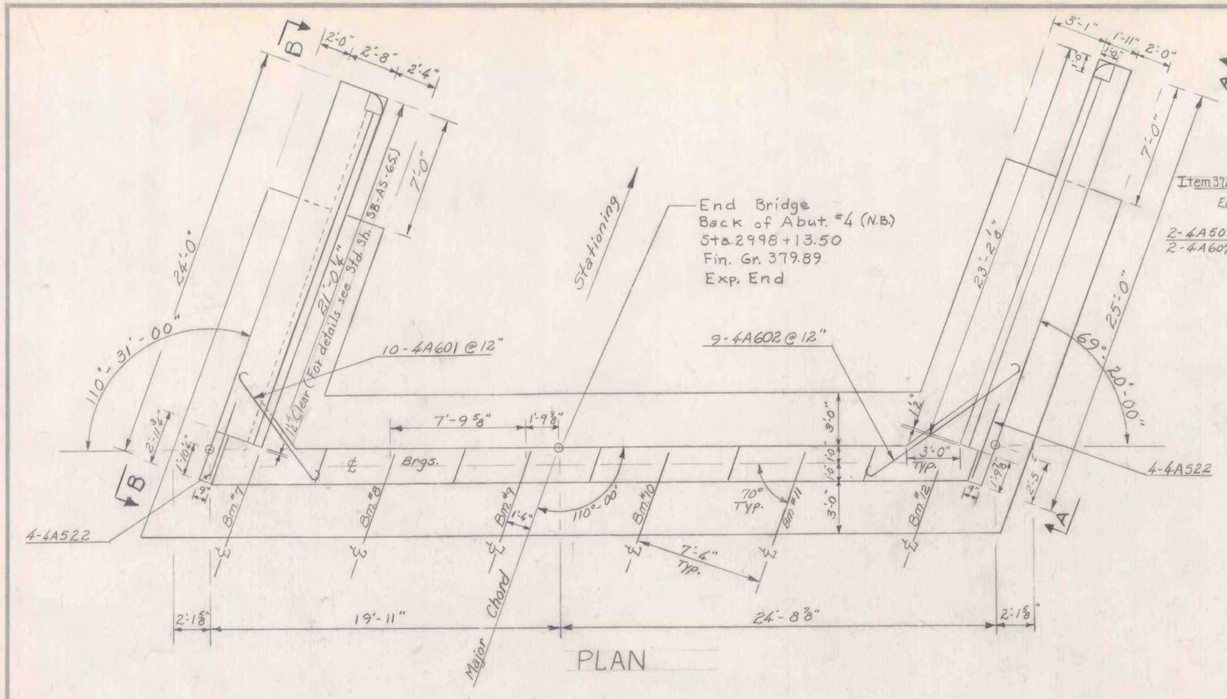
Pile Plan (Scale 1/8" = 1'-0")

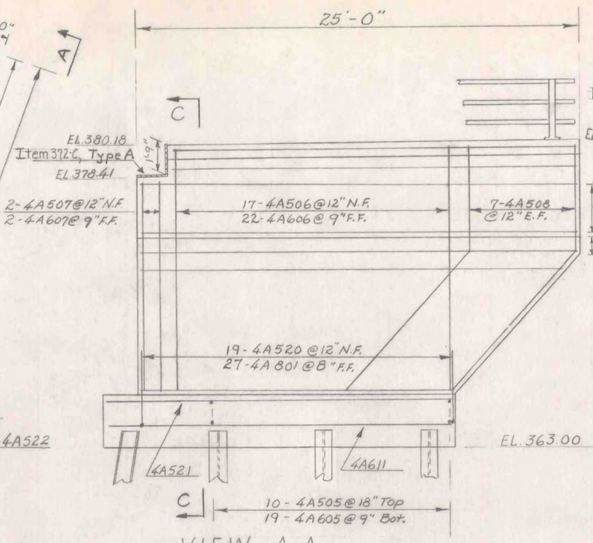
ITEM NO.	ITEM	UNIT	NET		TOTAL	FINAL
	CHAN. EXCAV. OF EARTH	C.Y.				
	CHAN. EXCAV. OF ROCK	C.Y.				
	UNCLASS. CHAN. EXCAV.	C.Y.				
	STRUCT. EXCAV.	C.Y.				
	CONC. CLASS AA (MOD.)	C.Y.				
	CONC. CLASS B (MOD.)	C.Y.				
	REINF. STEEL	LBS.				
	ASPHALTIC-ASB. COATING	S.Y.				
	TREATED TIMBER PILING	L.F.				
	SPLICES FOR STEEL PILING	EA.				
	STEEL PILING	L.F.				
	UNTREATED TIMBER PILING	L.F.				

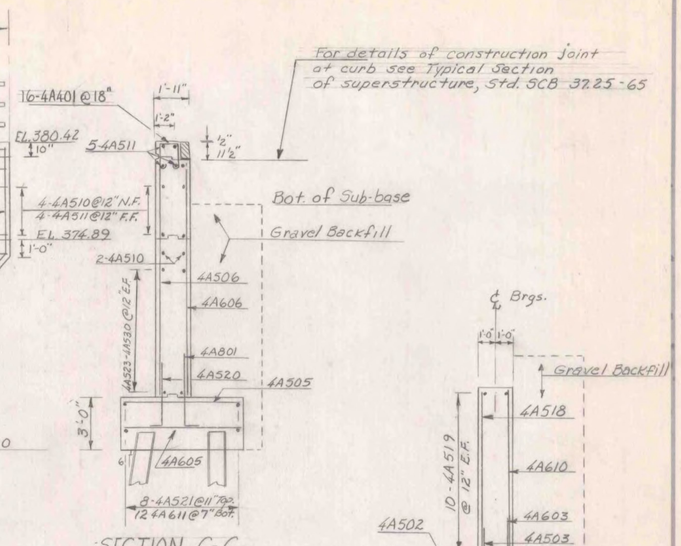
WILLISTON - GEORGIA
IM MEMB(25)
SHEET 35 OF 38
BRIDGES 84 N AND S
FOR REFERENCE ONLY

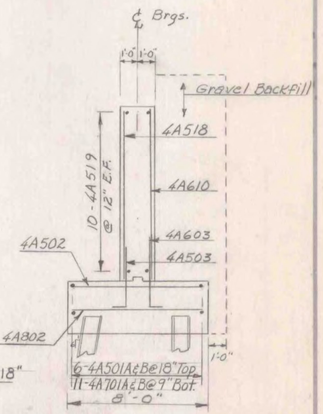
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

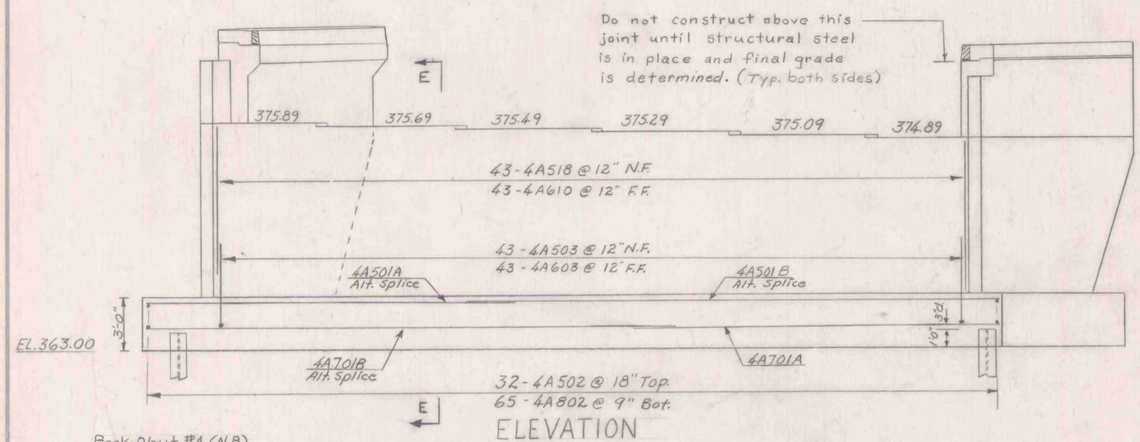
TOWN OF Milton-Georgia
ROUTE NO. I 89 LOG STA.
I 89 over Town Road #6
Abutment # 3 (N.B)
SCALE 1/4" = 1'-0" & as Noted
SURVEYED BY
DRAWN BY A.J.C. CHECKED BY J.W.
PROJECT NO. I 89-3(39)
SHEET 66 OF 278

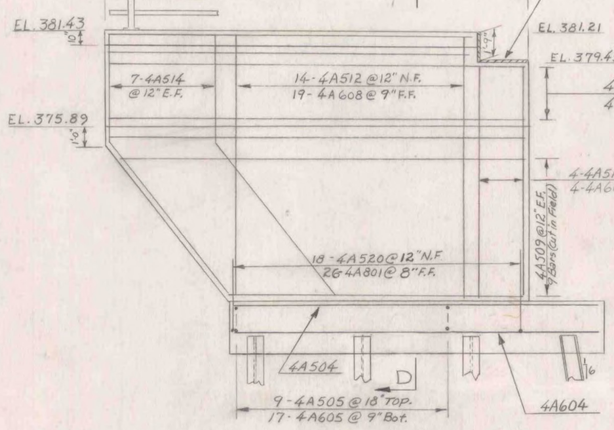


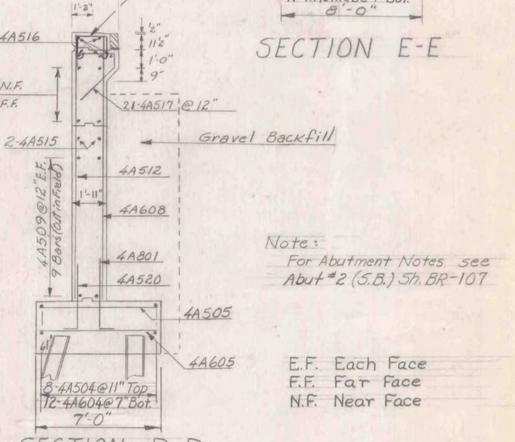






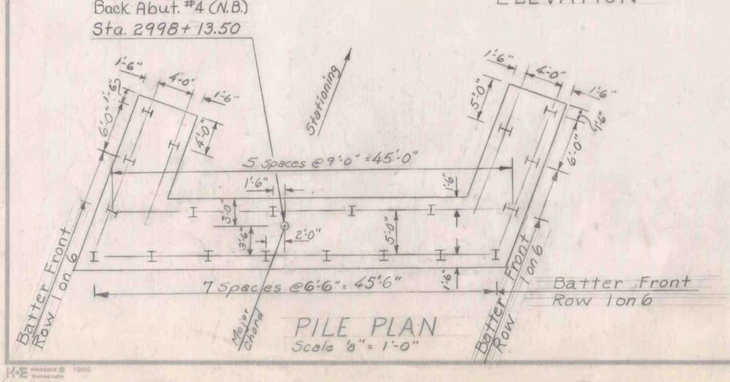






Note:
For Abutment Notes see Abut #2 (S.B.) Sh. BR-107

E.F. Each Face
F.F. Far Face
N.F. Near Face



No. of Piles	Size	Estimated Length of Piles	Splices Allowed for Piles not Exceeding Plan Length (to be paid for only if used.)	Splices Estimated for Piles Exceeding Plan Length (to be paid for only if used.)
20	12BP53	35	—	4

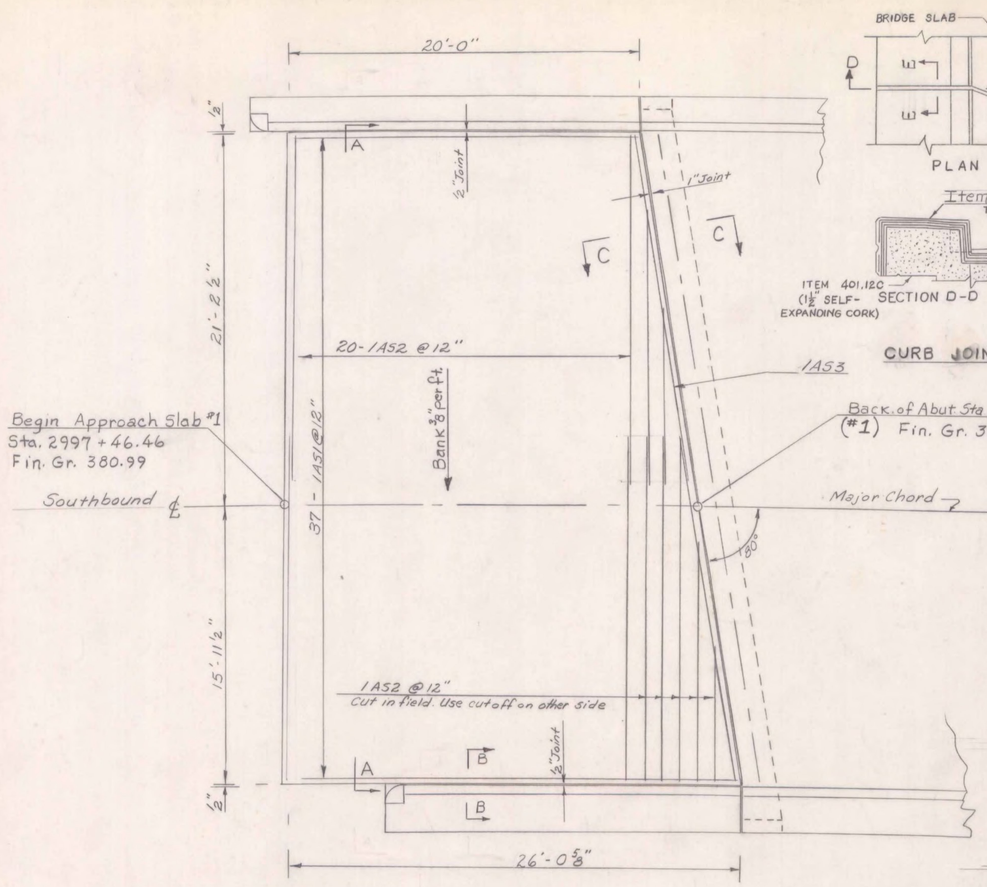
ITEM NO.	ITEM	UNIT	NET		TOTAL	FINAL
	CHAN. EXCAV. OF EARTH	C.Y.				
	CHAN. EXCAV. OF ROCK	C.Y.				
	UNCLASS. CHAN. EXCAV.	C.Y.				
	STRUCT. EXCAV.	C.Y.				
	CONC. CLASS AA (MOD.)	C.Y.				
	CONC. CLASS B (MOD.)	C.Y.				
	REINF. STEEL	LBS.				
	ASPHALTIC-ASB. COATING	S.Y.				
	TREATED TIMBER PILING	L.F.				
	SPLICES FOR STEEL PILING					
	STEEL PILING					
	UNTREATED TIMBER PILING					

WILLISTON - GEORGIA
IM MEMB(25)
SHEET 36 OF 38
BRIDGES 84 N AND S
FOR REFERENCE ONLY

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

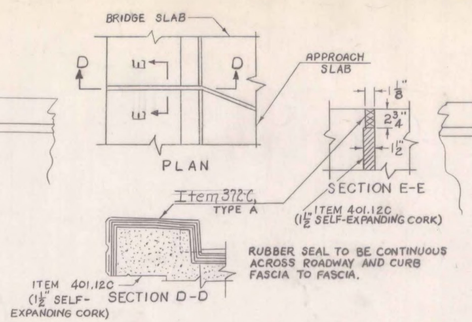
TOWN OF Milton-Georgia
ROUTE NO. I 89 LOG STA.
I 89 over Town Road #6
Abutment #4 (N.B.)
SCALE 1/4" = 1'-0" & as noted
SURVEYED BY
DRAWN BY J.W. CHECKED BY A.J.C. 2/11/65
PROJECT NO. I 89-3(39)
SHEET 67 OF 278

BR-109

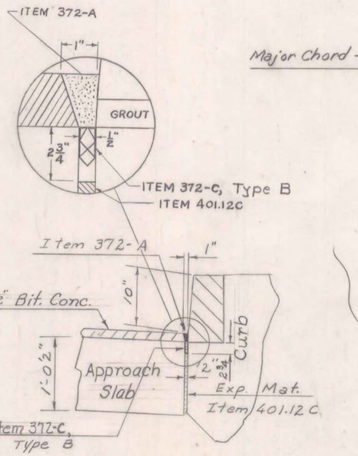


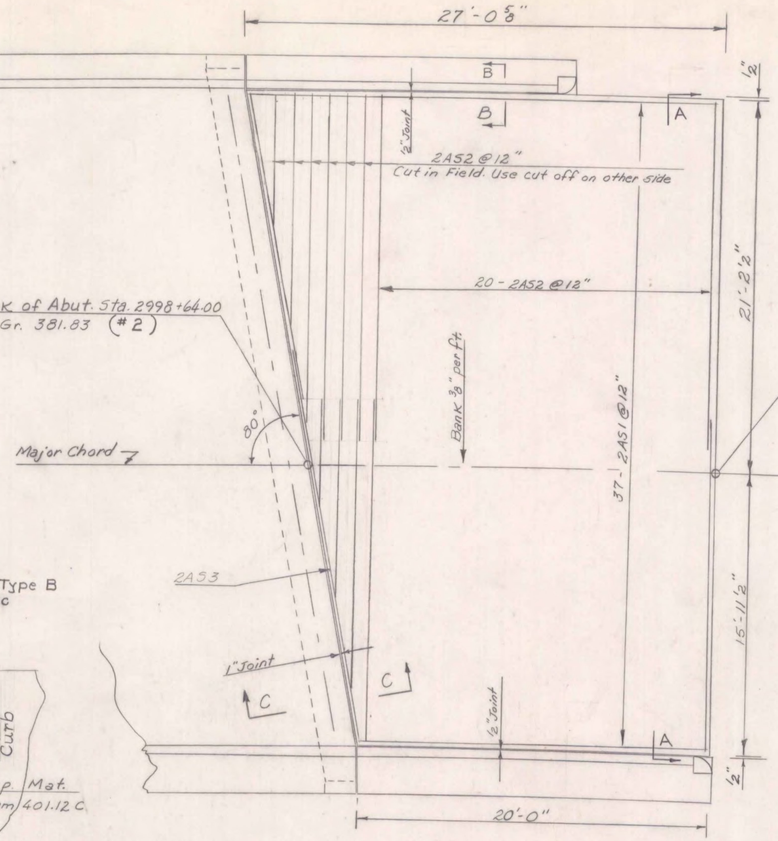
Plan - Approach Slab #1

Scale ¼" = 1'-0"



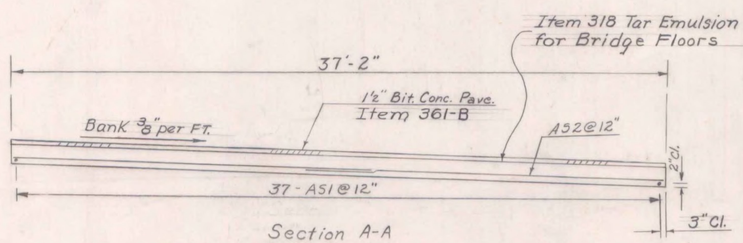
CURB JOINT DETAIL





Plan - Approach Slab #2

Scale ¼" = 1'-0"

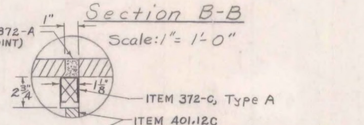


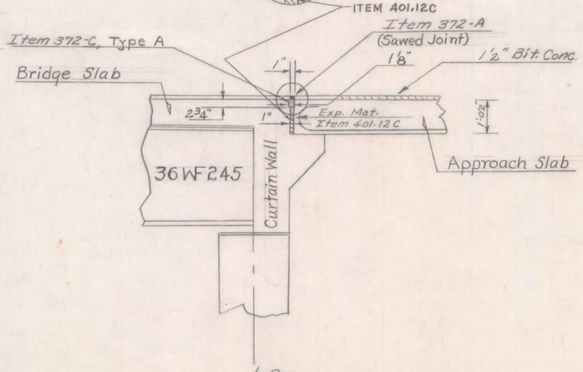
Section A-A

Scale ¼" = 1'-0"

Note:

Approach Slabs and Bridge to have same Cross Slope.





Section C-C

Scale ½" = 1'-0"

Notes:

1. For details of Item 372-C see Approach Slabs #3 & #4, Sh. BR111
2. For reinforcing steel details in section C-C and details of Approach Slab bracket, not shown, see Std. Sh. SCB-D2-65, Detail A.

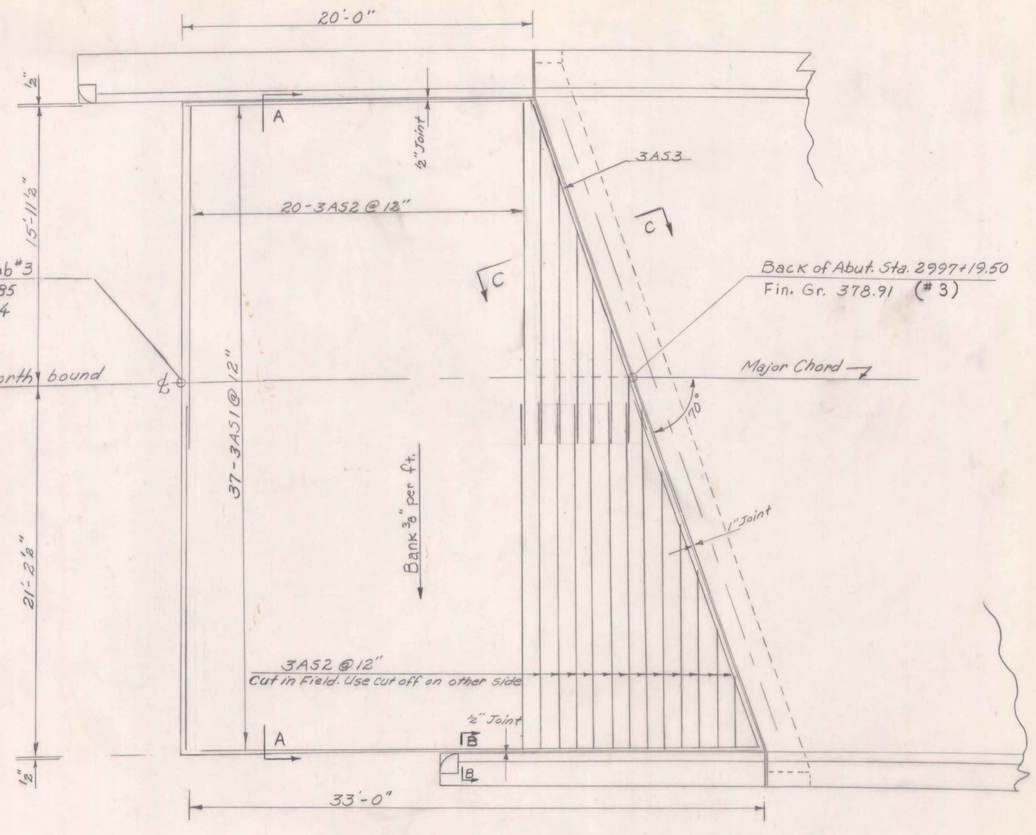
WILLISTON - GEORGIA
IM MEMB(25)
SHEET 37 OF 38
BRIDGES 84 N AND S
FOR REFERENCE ONLY

ITEM NO.	ITEM	UNIT	NET		TOTAL	FINAL
	CHAN. EXCAV. OF EARTH	C.Y.				
	CHAN. EXCAV. OF ROCK	C.Y.				
	UNCLASS. CHAN. EXCAV.	C.Y.				
	STRUCT. EXCAV.	C.Y.				
	CONC. CLASS AA (MOD.)	C.Y.				
	CONC. CLASS B (MOD.)	C.Y.				
	REINF. STEEL	LBS.				
	ASPHALTIC-ASB. COATING	S.Y.				
	TREATED TIMBER PILING	L.F.				
	SPLICES FOR STEEL PILING	EA.				
	STEEL PILING	L.F.				
	UNTREATED TIMBER PILING	L.F.				

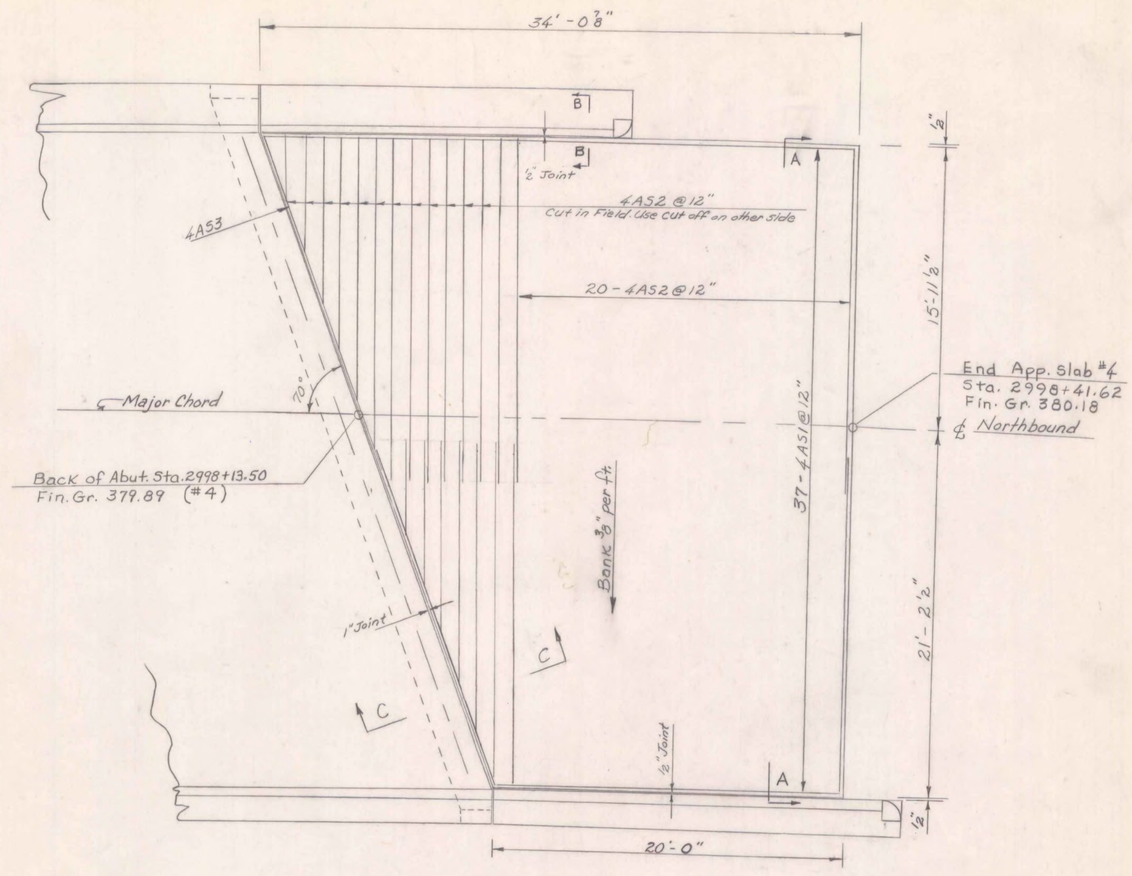
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF Milton-Georgia
ROUTE NO. I89 LOG STA.
I89 over Town Highway No. 6
Approach Slabs 1 & 2 (S.B.)
SCALE As Noted
SURVEYED BY
DRAWN BY J.W. CHECKED BY A.J.C.
PROJECT NO. I 89-3(129)
SHEET 68 OF 228

BR-110 Sheet 134 of 177 Sheets



Plan - Approach #3
Scale 1/4" = 1'-0"

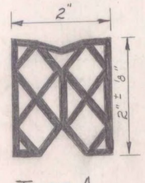


Plan - Approach #4
Scale 1/4" = 1'-0"

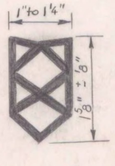
Note:

1. For Approach Slab Notes, Sections A-A, B-B, C-C and Curb Joint Details See Sh. BR-110.

ITEM 372-C,
Joint Sealer Preformed



Type A



Type B

Allow 1⅝" width and 2¾" depth for Installation of Type A
Allow ½" width and 2¾" depth for Installation of Type B
Joint Sealer to be Neoprene Rubber

WILLISTON - GEORGIA
IM MEMB(25)
SHEET 38 OF 38
BRIDGES 84 N AND S
FOR REFERENCE ONLY

ITEM NO.	ITEM	UNIT	NET		TOTAL	FINAL
	CHAN. EXCAV. OF EARTH	C.Y.				
	CHAN. EXCAV. OF ROCK	C.Y.				
	UNCLASS. CHAN. EXCAV.	C.Y.				
	STRUCT. EXCAV.	C.Y.				
	CONC. CLASS AA (MOD.)	C.Y.				
	CONC. CLASS B (MOD.)	C.Y.				
	REINF. STEEL	LBS.				
	ASPHALTIC-ASB. COATING	S.Y.				
	TREATED TIMBER PILING	L.F.				
	SPLICES FOR STEEL PILING	EA.				
	STEEL PILING	L.F.				
	UNTREATED TIMBER PILING	L.F.				

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF Milton-Georgia
ROUTE NO. I 89 LOG STA.
I 89 over Town Highway No. 6
Approach Slabs 354 (N.B.)
SCALE As Noted
SURVEYED BY
DRAWN BY J.W CHECKED BY A.J.C.
PROJECT NO. I 089-2(102)
SHEET 62 OF 177