INDEX OF SHEETS

SEE SHEET 2

RECORD PLANS

CONTRACTOR: COLD RIVER BRIDGES, LLC- KEENE, NH

RESIDENT ENGINEER: CHAD GREENWOOD

CONSTRUCTION BEGAN: APRIL 15, 2011

CONSTRUCTION COMPLETE: APRIL 27, 2012

RECORD PLANS BY: CHAD GREENWOOD & JENNA HYDE

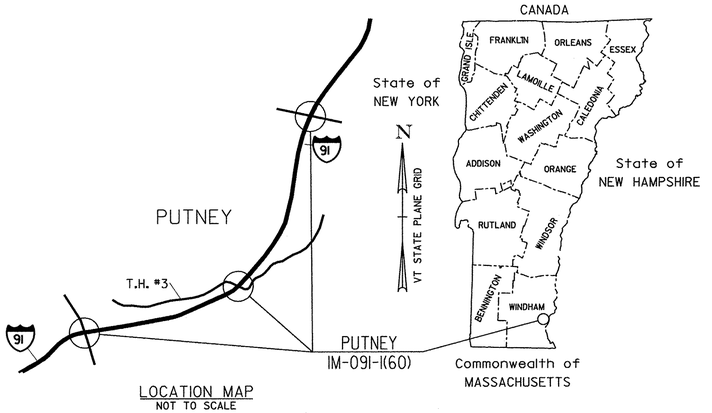
I HEREBY CERTIFY THAT ALL THE CONSTUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.

BY _____ RESIDENT ENGINEER

DATE 9/30/13

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
TOWN OF PUTNEY
COUNTY OF WINDHAM
BRIDGES NO. 14N&S, 15N&S, 16N&S ON INTERSTATE 91

PROJECT LOCATIONS: BRIDGES 14N&S ARE LOCATED ON I-91 (M.M 18.46) OVER SACKETTS BROOK IN THE TOWN OF PUTNEY.

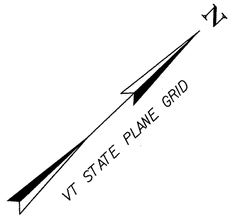
BRIDGES 15N&S ARE LOCATED ON I-91 (M.M. 19.69) OVER T.H. NO. 3 IN THE TOWN OF PUTNEY.

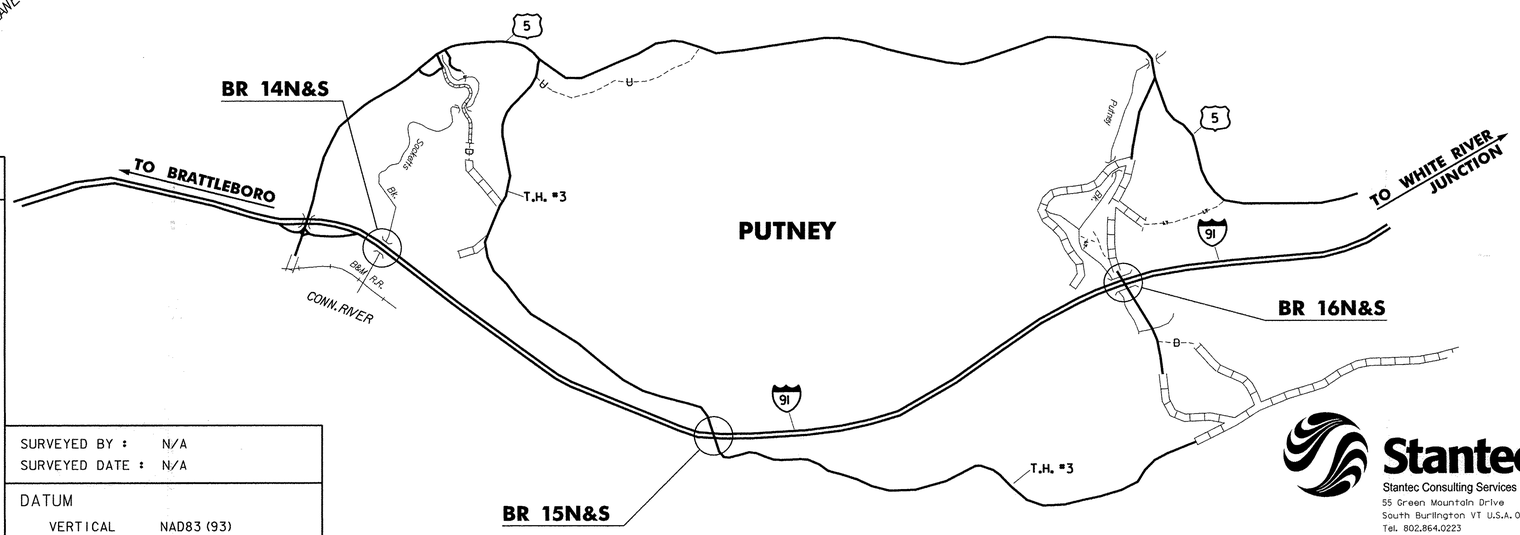
BRIDGES 16N&S ARE LOCATED ON I-91 (M.M. 21.30) OVER T.H. NO. 50 AND PUTNEY BROOK IN THE TOWN OF PUTNEY.

PROJECT DESCRIPTION: REMOVAL AND REPLACEMENT OF BITUMINOUS CONCRETE WEARING SURFACE AND MEMBRANE ON BRIDGES 14N&S, 15N&S, 16N&S, REPLACING PIER DIAPHRAGMS ON BRIDGES 14N&S AND BRIDGES 16N&S AND CONSTRUCTION OF LINK SLABS ON BRIDGES 16N&S AND MINOR ASSOCIATED WORK.

LENGTH OF BRIDGES:

14N	243′
14S	244′
15N	299′
15S	157′
16N	354′
16S	350′
TOTAL LENGTH OF BRIDGES:	1647′





NOT TO SCALE

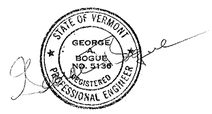
QUALITY ASSURANCE PROGRAM: LEVEL I

CONVENTIONAL SYMBOLS

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 SR SR SR
TOP OF CUT
TOE OF SLOPE

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

DATUM
VERTICAL NAD83 (93)
HORIZONTAL NAVD88 (03)



8/1/10

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.

Stantec
Stantec Consulting Services Inc.
55 Green Mountain Drive
South Burlington VT U.S.A. 05403
Tel. 802.864.0223
Fax. 802.864.0165
www.stantec.com

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED _____ DATE 8-2-10

PROJECT MANAGER : SHERWARD G. FARNSWORTH

PROJECT NAME : PUTNEY
PROJECT NUMBER : IM 091-1 (60)

SHEET 1 OF 45 SHEETS

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5-6	TRAFFIC CONTROL SHEETS
7	BITUMINOUS CONCRETE REMOVAL PLAN
8-9	BITUMINOUS CONCRETE DETAIL SHEETS
10	PAVEMENT JOINT DETAILS
11	BR 14 N&S DECK & DIAPHRAGM DETAILS
12	BR 16 N&S DECK & DIAPHRAGM DETAILS
13	BR 16 N&S LINK SLAB DETAILS
14	REINFORCING STEEL SCHEDULE SHEET
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VAOT STANDARD SHEETS

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E-107A	BREAKAWAY BARRICADE DETAILS	06/08/09
E-108	CONSTRUCTION ZONE LONGITUDINAL DROP OFFS	06/08/09
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E-123	GUIDE SIGN PLACEMENT - MISCELLANEOUS DETAILS	03/16/04
E-191	PAVEMENT MARKING DETAILS	02/01/99
E-192	PAVEMENT MARKING DETAILS	10/12/00
E-193	PAVEMENT MARKING DETAILS	08/18/95

PROJECT NOTES

GENERAL

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 STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DATED 2002, AND ITS LATEST REVISIONS.
2. WATER REPELLENT, SILANE SHALL BE APPLIED TO ALL 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.

TRAFFIC CONTROL

5. TEMPORARY TRAFFIC CONTROL DETAILS PROVIDED IN THE PLANS ARE INTENDED FOR DAYTIME USE ONLY. ANY COSTS ASSOCIATED WITH PROVIDING AN OVERNIGHT TRAFFIC CONTROL PACKAGE, IF PROPOSED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER, WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 641.10.
6. 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 TRAFFIC BARRIERS, RETROREFLECTIVE DRUMS, SIGNS, AND SIGN POSTS WILL BE CONSIDERED TO BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR TRAFFIC CONTROL, ITEM 641.10.
7. 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.

PAVEMENT REMOVAL NOTES

8. 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".
9. 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.
10. 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.
11. AFTER THE REMOVAL OF THE BRIDGE PAVEMENT, THE BARRIER MEMBRANE SHALL BE REMOVED AND THE CONCRETE BRIDGE DECK SHALL BE CLEANED AND PREPARED IN ACCORDANCE WITH SUBSECTION 580.04 AND TO THE SATISFACTION OF THE ENGINEER. REMOVAL OF THE BARRIER MEMBRANE AND THE CLEANING AND PREPARATION OF THE CONCRETE BRIDGE DECK WILL BE PAID FOR UNDER ITEM 580.16, "SURFACE PREPARATION FOR MEMBRANE".
12. 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.
13. 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.

PAVEMENT NOTES

14. 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 DETAILS 1). 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.
15. 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".
16. 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.
17. FOR PG BINDER GRADE SEE SECTION 406 OF THE GENERAL SPECIAL PROVISIONS.
18. IF COLD PLANING OF THE RIGHT ROADWAY SHOULDERS ALONG BRIDGE APPROACHES EXPOSES GRAVEL SUBBASE, 2" BASE PAVEMENT SHALL BE PLACED ALONG THE SHOULDERS IN ADDITION TO THE 2 ½" PAVEMENT TO BE PLACED IN ALL OTHER LOCATIONS.

Stantec

PROJECT NAME: PUTNEY
PROJECT NUMBER: IM 091-1(60)

FILE NAME: ...\drawing\z05a288notes.dgn | PLOT DATE: 7/30/2010
PROJECT LEADER: G. BOGUE | DRAWN BY: J. SOTER
DESIGNED BY: T. KNIGHT | CHECKED BY: G. BOGUE
INDEX OF SHEETS AND PROJECT NOTES | SHEET 2 OF 45

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES								TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
ROADWAY	BRIDGE 14 N	BRIDGE 15 N	BRIDGE 16 N	FULL C.E. ITEMS	BRIDGE 14 S	BRIDGE 15 S	BRIDGE 16 S	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				
	430	370	460		430	370	460	2520		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10				
	6	7	8		6	5	8	40		CWT	EMULSIFIED ASPHALT	404.65				
	210	235	260		210	170	260	1345		TON	MEDIUM DUTY BITUMINOUS CONCRETE PAVEMENT	406.27				
	1	1	1		1	1	1	6		LU	MAT DENSITY PAY ADJUSTMENT (N.A.B.I.)	406.29				
1								1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
	13		40		13		40	106		CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33				
	6308		8704		6308		8704	30024		LB	STRUCTURAL STEEL	506.60				
	1360		9720		1360		9720	22160		LB	REINFORCING STEEL	507.15				
	16		144		16		144	320		EACH	MECHANICAL BAR CONNECTOR (#5)	507.19				
	25	35	30		25	25	30	170		GAL	WATER REPELLENT, SILANE	514.10				
	128	252	60		128	168	60	796		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
	808.4	997	1181		814.3	522.4	1166	5489.1		SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20				
	60	60	60		60	60	60	360		LF	JOINT SEALER, HOT POURED	524.11				
	160		240		160		240	800		LF	REMOVAL OF EXISTING RAILING	525.10				
	160		240		160		240	800		LF	RESETTING RAILING	525.11				
	982	1237	1318		988	762	1303	6590		SY	REMOVAL OF BRIDGE PAVEMENT	529.10				
	1		1		1		1	4		EACH	PARTIAL REMOVAL OF STRUCTURE	529.20				
	50	60	70		50	30	60	320		SY	REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS I	580.10	EST.			
	130	150	180		130	80	180	850		SY	REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS II	580.11	EST.			
	5	6	7		5	5	7	35		CY	REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS III	580.12	EST.			
	7280	8980	10630		7330	4710	10500	49430		SF	SURFACE PREPARATION FOR MEMBRANE	580.16				
	90	180	50		90	120	50	580		CF	RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE	580.20	EST.			
	10	10	10		10	10	10	60		HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25	EST.			
	10	10	10		10	10	10	60		HR	TRUCK RENTAL	608.37	EST.			
	240	240	240		240	240	240	1440		HR	TRUCK-MOUNTED ATTENUATOR	608.45				
	1	1	2		1	1	1	7		EACH	ENERGY ABSORPTION ATTENUATOR	621.56				
	900	900	1000		900	800	1000	5500		LF	TEMPORARY TRAFFIC BARRIER	621.90				
	900	900	1000		900	800	1000	5500		LF	REMOVE AND RESET TEMPORARY TRAFFIC BARRIER	621.95				
	400	400	400		400	400	400	2400		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
				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-91 - BRIDGE NO. 14N)	641.10				
					1			1		LS	TRAFFIC CONTROL (I-91 - BRIDGE NO. 14S)	641.10				
		1						1		LS	TRAFFIC CONTROL (I-91 - BRIDGE NO. 15N)	641.10				
						1		1		LS	TRAFFIC CONTROL (I-91 - BRIDGE NO. 15S)	641.10				
			1					1		LS	TRAFFIC CONTROL (I-91 - BRIDGE NO. 16N)	641.10				
							1	1		LS	TRAFFIC CONTROL (I-91 - BRIDGE NO. 16S)	641.10				
	2	1	1		1	1	1	7		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15				

Stantec

PROJECT NAME: PUTNEY
PROJECT NUMBER: IM 091-1(60)

FILE NAME: ...\drawing\z05a288qty.dgn
PROJECT LEADER: G. BOGUE
DESIGNED BY: T. KNIGHT
QUANTITY SHEET 1

PLOT DATE: 8/12/2010
DRAWN BY: J. SOTER
CHECKED BY: G. BOGUE

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES

ROADWAY	BRIDGE 14 N	BRIDGE 15 N	BRIDGE 16 N	FULL C.E. ITEMS	BRIDGE 14 S	BRIDGE 15 S	BRIDGE 16 S	GRAND TOTAL	FINAL
	2	2	2		2	2	2	12	
	554	624	693		556	446	688	3561	
	443	500	555		445	357	550	2850	
	2940	3140	3330		2950	2640	1380	16380	
	2720	2890	3050		2720	2460	3040	16880	
	34	38	42		34	27	42	217	
	150	150	150		150	150	150	900	
1								1	
	37	54	52		37	33	48	261	

TOTALS

DESCRIPTIONS

UNIT	ITEMS	ITEM NUMBER	ROUND
EACH	PORTABLE ARROW BOARD	641.16	
LF	6 INCH WHITE LINE	646.214	
LF	6 INCH YELLOW LINE	646.215	
LF	TEMPORARY 6 INCH WHITE LINE	646.620	
LF	TEMPORARY 6 INCH YELLOW LINE	646.630	
EACH	LINE STRIPING TARGETS	646.76	
SF	PAVEMENT MARKING MASK	646.86	
LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50	
GAL	SPECIAL PROVISION (REPOINTING GRANITE CURB)	900.625	

DETAILED SUMMARY OF QUANTITIES

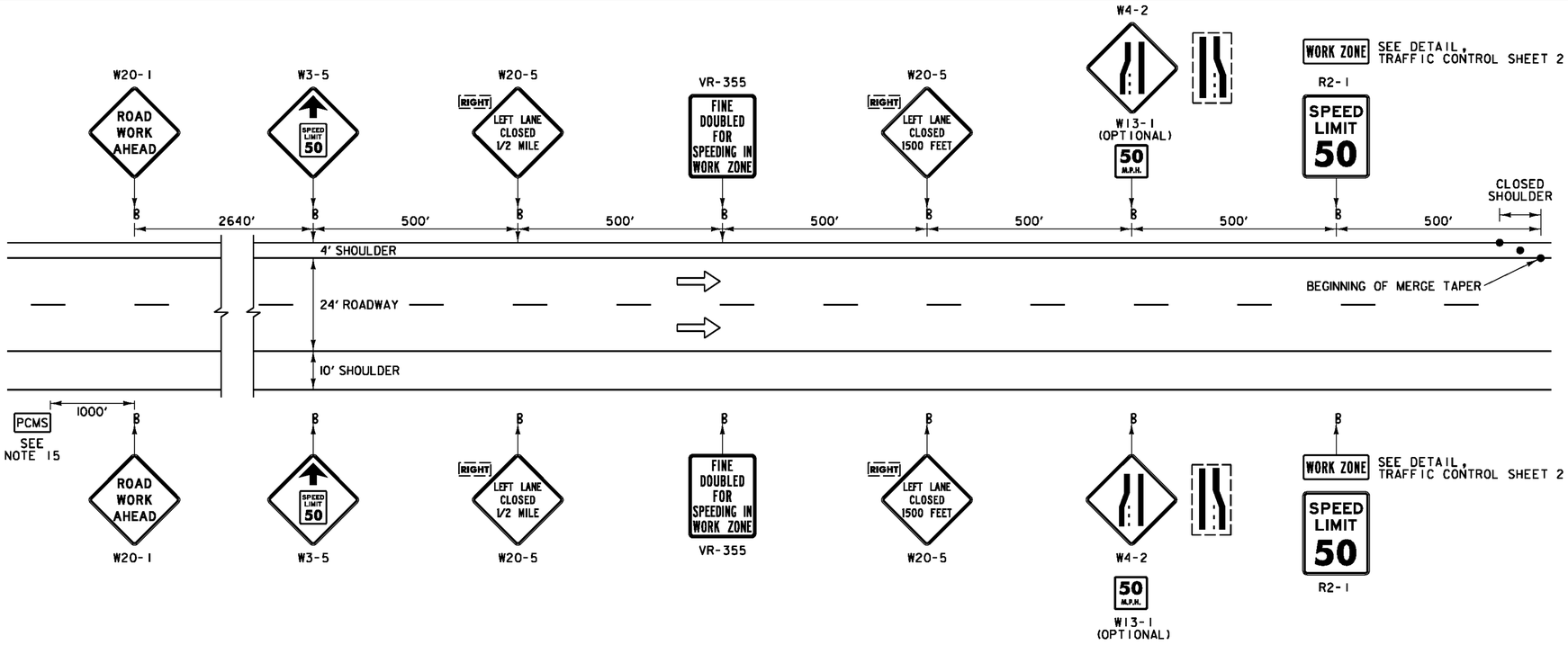
QUANTITIES	UNIT	ITEMS

Stantec

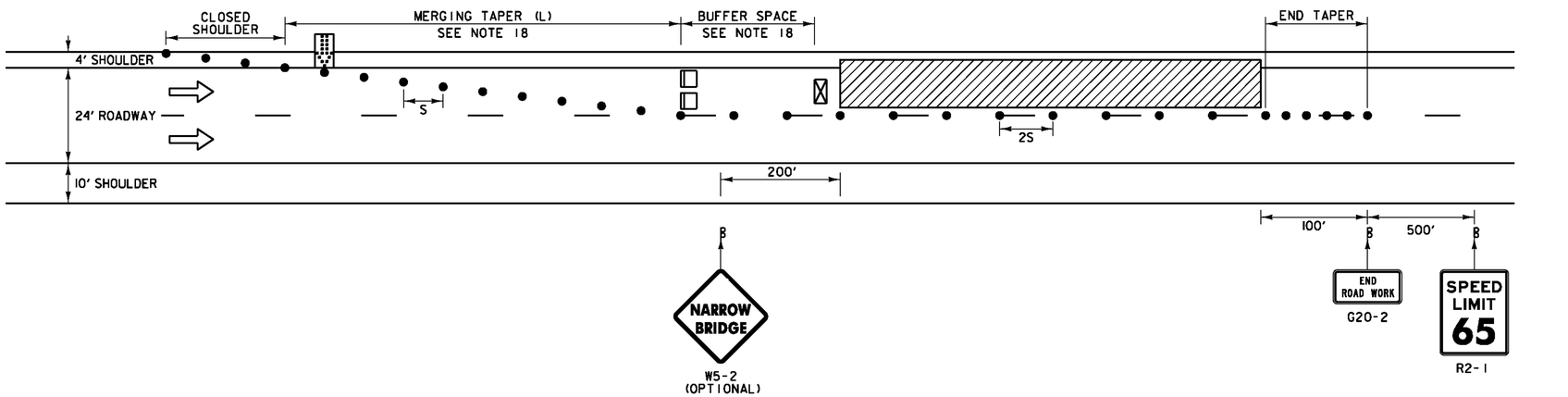
PROJECT NAME: PUTNEY
PROJECT NUMBER: IM 091-1(60)

FILE NAME: ...\drawing\z05a288qty.dgn
PROJECT LEADER: G. BOGUE
DESIGNED BY: T. KNIGHT
QUANTITY SHEET 2

PLOT DATE: 8/12/2010
DRAWN BY: J. SOTER
CHECKED BY: G. BOGUE
SHEET 4 OF 45



CONSTRUCTION APPROACH SIGNING ON INTERSTATE 91 LEFT LANE CLOSED (RIGHT LANE CLOSURE SIMILAR – SEE NOTE 1)



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)

TRAFFIC CONTROL ON INTERSTATE 91 LEFT LANE CLOSED (RIGHT LANE CLOSURE SIMILAR – SEE NOTE 1)

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 = WS² FOR POSTED SPEEDS OF 45 MPH OR GREATER
L = WS/60 FOR POSTED SPEEDS OF 40 MPH OR LESS

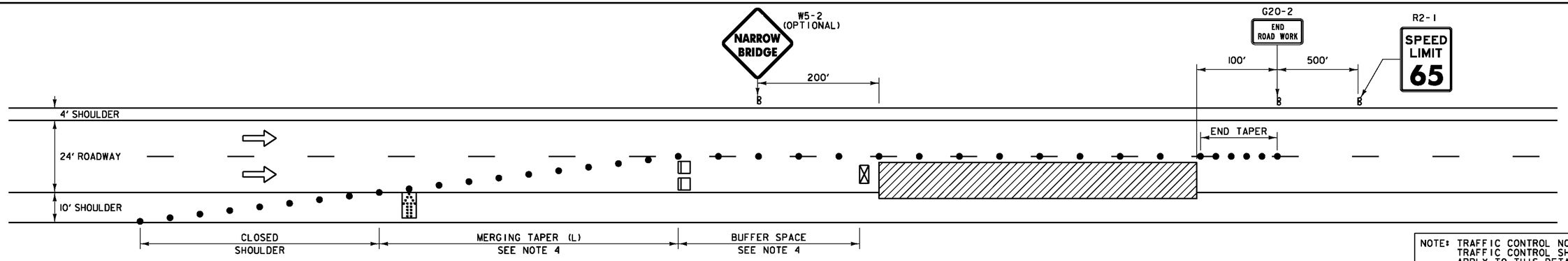
L = MINIMUM LENGTH OF TAPER
W = WIDTH OF OFFSET IN FEET. (TYPICAL)
S = POSTED SPEED IN MPH

TRAFFIC CONTROL NOTES:

1. THE LEFT LANE CLOSURE IS SHOWN. THE RIGHT LANE APPROACH SIGNING IS SIMILAR. THE RIGHT LANE CLOSURE IS SHOWN ON TRAFFIC CONTROL SHEET 2.
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.
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 THREE 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 5 ADDITIONAL RETROREFLECTIVE DRUMS SPACED AT 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.55 OF THE MUTCD. THE PCMS SHALL READ "LEFT (OR RIGHT) LANE CLOSED AHEAD, PLEASE MERGE EARLY".
16. TRAVEL LANE SHALL BE 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.
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. LANE CLOSURE FOR BRIDGE 14N SHALL BEGIN SOUTH OF EXIT 4 ON TANGENT SECTION OF INTERSTATE 91 TO PROVIDE ADEQUATE SIGHT DISTANCE OF MERGING CONDITION. TRAFFIC CONTROL PACKAGE FOR EXIT 4 ENTRANCE AND EXIT RAMPS SHALL BE INSTALLED IN ACCORDANCE WITH VTRANS STD. E-106.

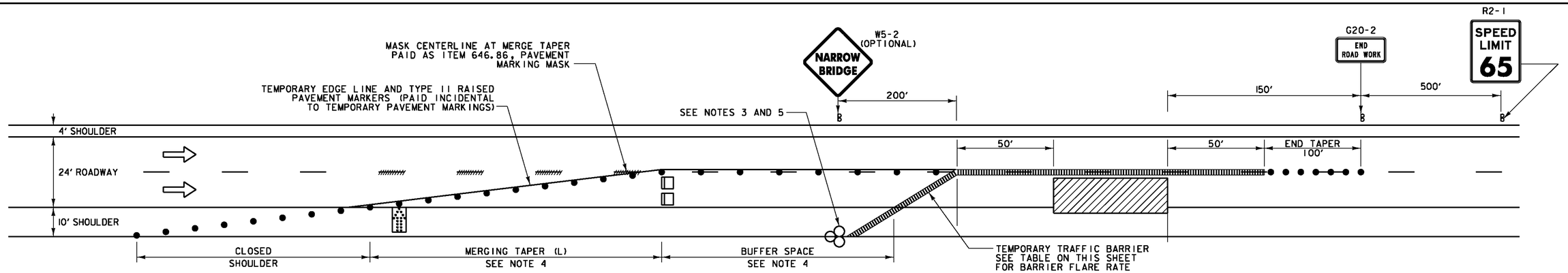
Stantec

PROJECT NAME:	PUTNEY
PROJECT NUMBER:	IM 091-1(60)
FILE NAME: ...\drawing\z05a288tcs.dgn	PLOT DATE: 7/30/2010
PROJECT LEADER: G. BOGUE	DRAWN BY: J. SOTER
DESIGNED BY: T. KNIGHT	CHECKED BY: G. GOYETTE
TRAFFIC CONTROL SHEET 1	SHEET 5 OF 45

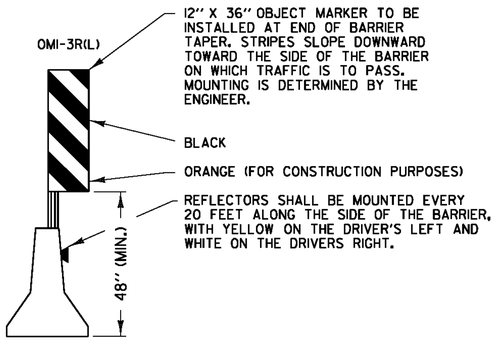


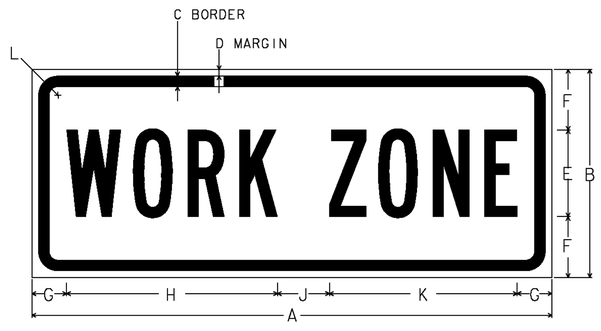
NOTE: TRAFFIC CONTROL NOTES ON TRAFFIC CONTROL SHEET 1 APPLY TO THIS DETAIL.

TRAFFIC CONTROL ON INTERSTATE 91 RIGHT LANE CLOSED



TRAFFIC CONTROL ON INTERSTATE 91 RIGHT LANE CLOSED WITH TEMPORARY BARRIER PROTECTION (SEE NOTE 2)
(LEFT LANE CLOSED SIMILAR)





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
- PCMS — PORTABLE CHANGEABLE MESSAGE SIGN (SEE NOTE 15 ON TRAFFIC CONTROL SHEET 1)

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
$L = WS^2/60$ 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 SHEET 1 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. WHEN ONE SIDE OF THE BRIDGE IS COMPLETE, MOVING THE BARRIER TO CLOSE THE OTHER SIDE TO TRAFFIC WILL BE PAID AS 621.95 REMOVE AND RESET TEMPORARY TRAFFIC BARRIER.
3. LOCATE THE END OF THE TEMPORARY TRAFFIC BARRIER SO THAT THE EXISTING STEEL BEAM GUARDRAIL CAN BE BOLTED TO THE END OF THE BARRIER. IF IT IS NOT POSSIBLE TO FASTEN THE BARRIER TO THE EXISTING ROADWAY GUARDRAIL, AN ENERGY ABSORPTION ATTENUATOR PAID AS ITEM 621.56, ENERGY ABSORPTION ATTENUATOR, SHALL BE LOCATED AT THE END OF THE BARRIER. COST OF ATTACHING TEMPORARY TRAFFIC BARRIER TO THE STEEL BEAM GUARDRAIL AND COSTS FOR DISMANTLING BARRIER CONNECTION AND RESTORING EXISTING BARRIER TO ORIGINAL CONFIGURATION WILL BE INCIDENTAL TO ITEM 621.90. ANY DAMAGED EXISTING STEEL BEAM GUARDRAIL CAUSED BY CONNECTING IT TO THE BARRIER SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
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 ONE ENERGY ABSORPTION ATTENUATOR PER BRIDGE AND ONE BACKUP ATTENUATOR FOR THE PROJECT (INCLUDED IN QUANTITY FOR BR 16N) 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 TO BE INCLUDED IN ITEM 621.56 ENERGY ABSORPTION ATTENUATOR.

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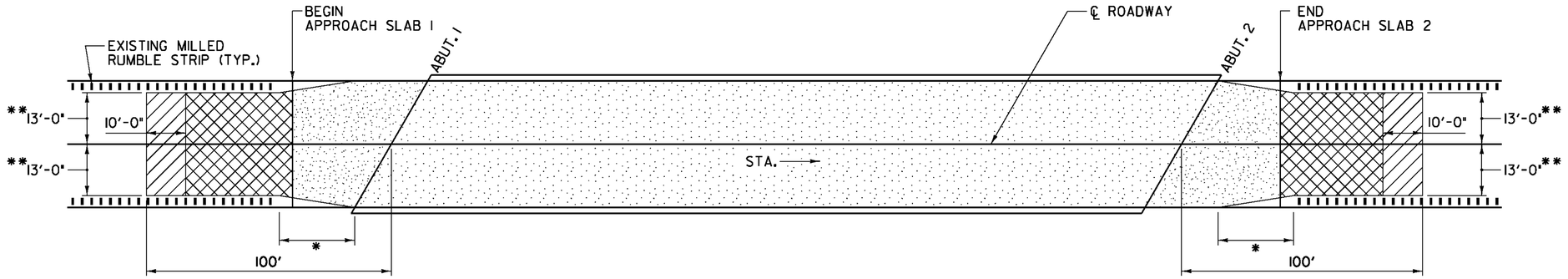
PROJECT NAME: PUTNEY
PROJECT NUMBER: IM 091-1(60)

FILE NAME: ...\drawing\z05a288tcs.dgn
PROJECT LEADER: G. BOGUE
DESIGNED BY: T. KNIGHT
PLOT DATE: 7/30/2010
DRAWN BY: J. SOTER
CHECKED BY: G. GOYETTE
TRAFFIC CONTROL SHEET 2
SHEET 6 OF 45



* - ADJUST LENGTH OF TAPER AS NECESSARY TO AVOID REMOVING THE MILLED RUMBLE STRIPS.

** - REDUCE DIMENSION TO 12'-6" AS NECESSARY TO AVOID REMOVING THE MILLED RUMBLE STRIP.

COLD PLANE - 1¼"

COLD PLANE - 2½"

PAVEMENT REMOVAL - REMOVE THE PAVEMENT TO THE TOP OF CONCRETE BRIDGE DECK.
- REMOVE THE PAVEMENT TO THE TOP OF CONCRETE APPROACH SLAB OR 2½". - WHICHEVER IS LESS.
- REMOVE BARRIER MEMBRANE ON THE BRIDGE DECK.
- REMOVE BARRIER MEMBRANE ON THE APPROACH SLAB IF THE MEMBRANE HAS BEEN EXPOSED.

BITUMINOUS CONCRETE REMOVAL PLAN

NOT TO SCALE

NOTE:

ON SOME BRIDGES THE APPROACH SLAB SLOPES DOWN FROM THE ABUTMENTS. IN THE EVENT THIS OCCURS, ONLY REMOVE THE TOP 2½" OF PAVEMENT.

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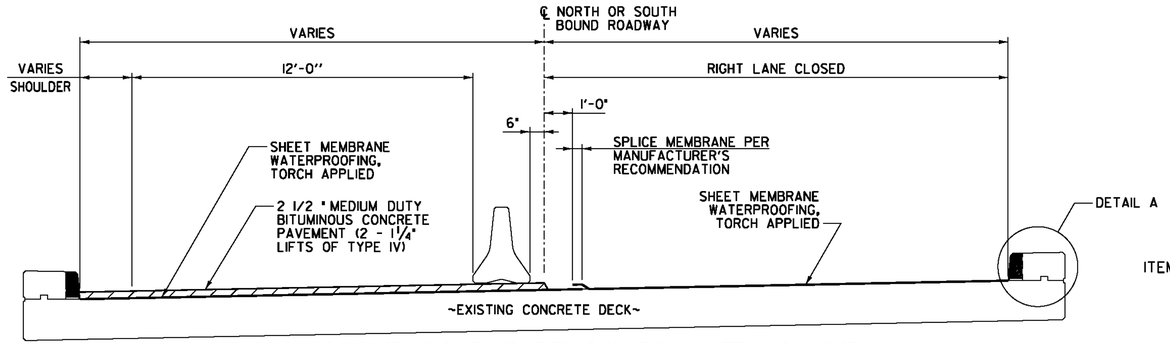
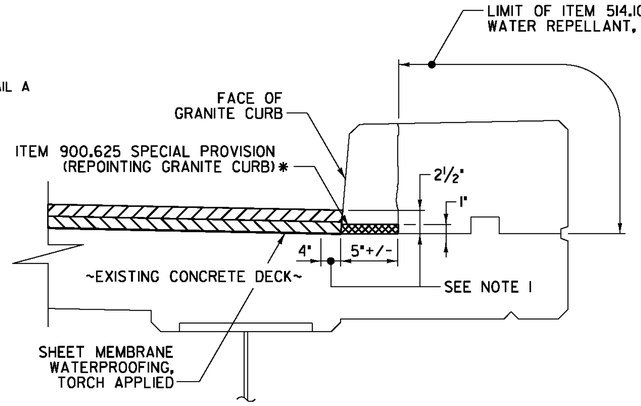
PROJECT NAME:	PUTNEY
PROJECT NUMBER:	IM 091-1(60)
FILE NAME: ...\drawing\z05a288bitremov.dgn	PLOT DATE: 8/12/2010
PROJECT LEADER: G. BOGUE	DRAWN BY: J. SOTER
DESIGNED BY: G. BOGUE	CHECKED BY: T. KNIGHT
BITUMINOUS CONCRETE REMOVAL PLAN	SHEET 7 OF 45



NOTE: RIGHT LANE CLOSURE AND RIGHT SIDE MEMBRANE SPLICE SHOWN. LEFT LANE CLOSURE AND LEFT SIDE MEMBRANE SPLICE SIMILAR. 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.

MEMBRANE SPLICE DETAIL – SUPERELEVATED ROADWAY

NOT TO SCALE



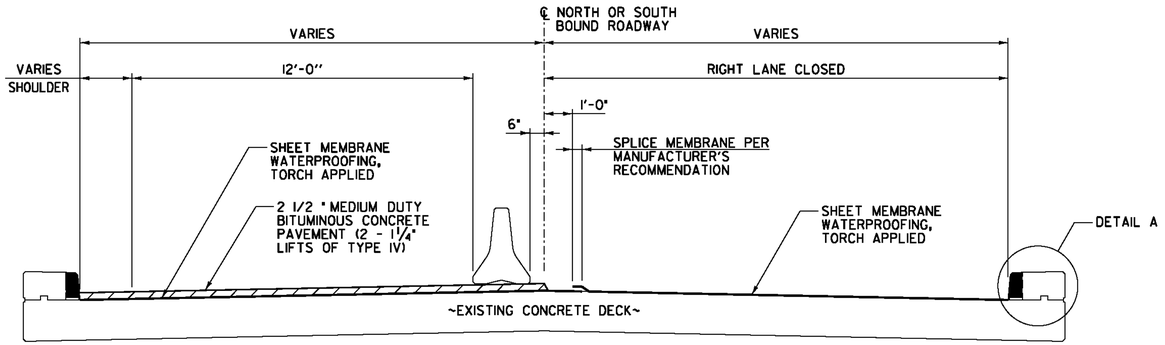
DETAIL A

NOT TO SCALE

DETAIL A NOTES:

1. 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.

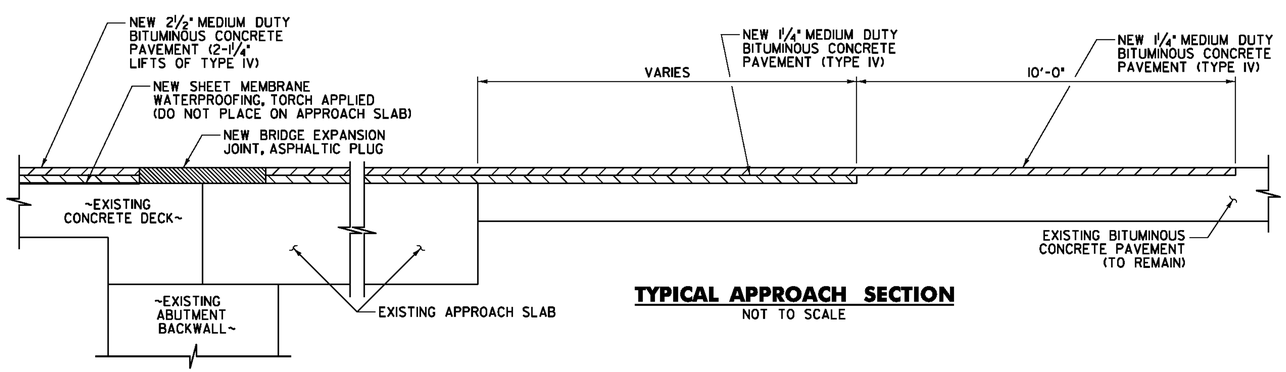
*EXISTING MORTAR BED AND VERTICAL CURB JOINTS TO BE REPOINTED AS DIRECTED BY THE RESIDENT ENGINEER. FOR QUANTITY ESTIMATE IT WAS ASSUMED THAT 20% OF THE BRIDGE CURB REQUIRES REPOINTING. A 1" HIGH BY 5" DEEP MORTAR BED AND VERTICAL JOINTS EQUATES TO 3.0 GAL/10 LF OF CURB.



NOTE: RIGHT LANE CLOSURE AND RIGHT SIDE MEMBRANE SPLICE SHOWN. LEFT LANE CLOSURE AND LEFT SIDE MEMBRANE SPLICE SIMILAR. CONTRACTOR TO DETERMINE WHICH LANE THE MEMBRANE SPLICE SHALL OCCUR IN UNLESS THE BRIDGE IS SUPERELEVATED. BRIDGES WITH SUPERELEVATION SHALL HAVE THE MEMBRANE PLACED AS SHOWN ON THE SUPERELEVATED DETAIL.

MEMBRANE SPLICE DETAIL – NORMAL CROWN ROADWAY

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)
14N	30.0	243.0
14S	30.0	244.0
15N	30.0	299.0
15S	30.0	157.0
16N	30.0	354.0
16S	30.0	350.0

ASPHALTIC PLUG JOINT REPLACEMENT SCHEDULE

BRIDGE NO.	ABUT. 1	PIER 1	PIER 2	PIER 3	PIER 4	ABUT. 2
14N	32.0 LF	32.0 LF	32.0 LF			32.0 LF
14S	32.0 LF	32.0 LF	32.0 LF			32.0 LF
15N	42.0 LF	42.0 LF	42.0 LF	42.0 LF	42.0 LF	42.0 LF
15S	42.0 LF	42.0 LF	42.0 LF			42.0 LF
16N	30.0 LF					30.0 LF
16S	30.0 LF					30.0 LF

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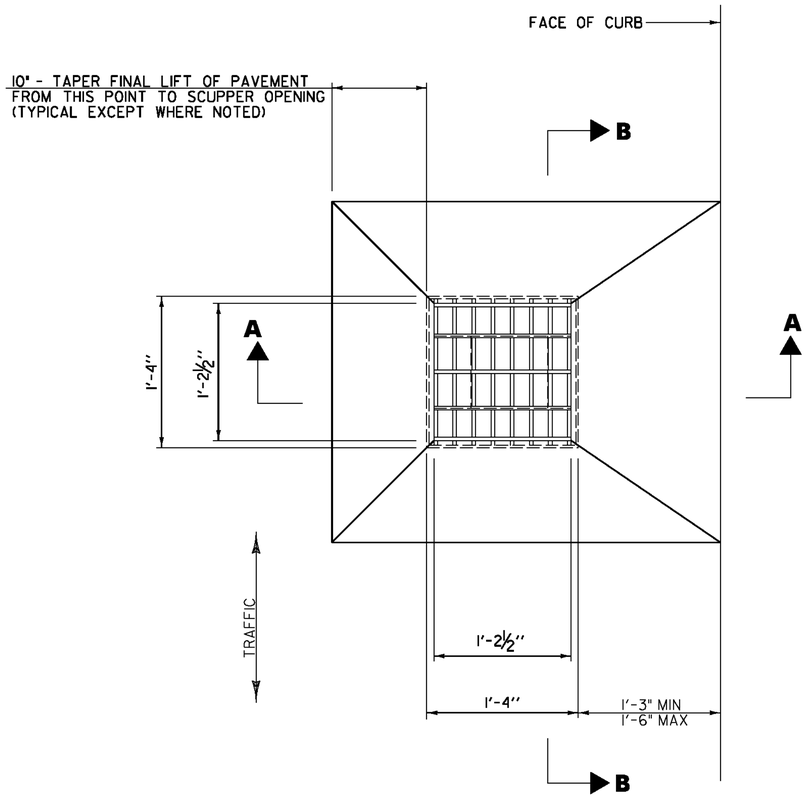
PROJECT NAME: PUTNEY
PROJECT NUMBER: IM 091-1(60)

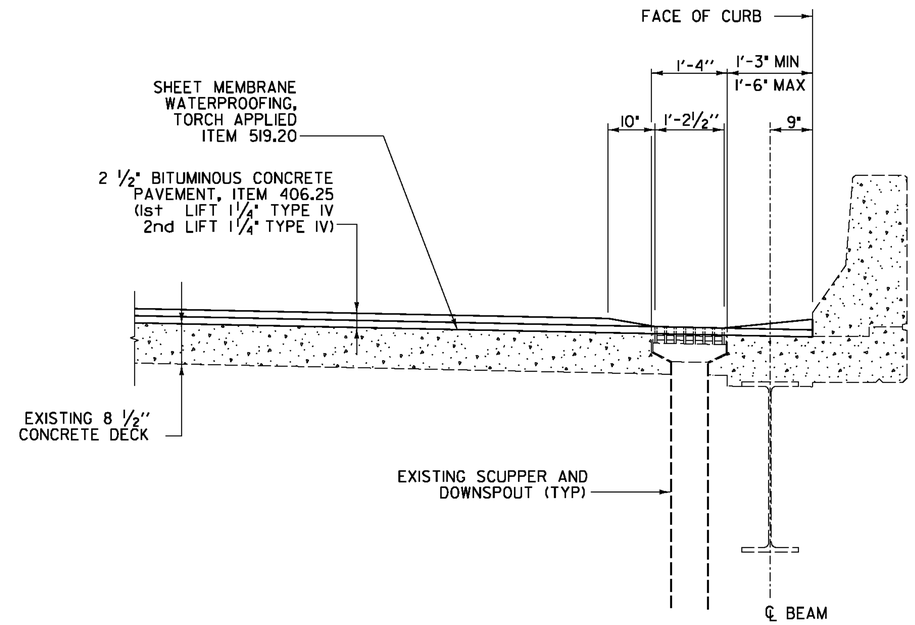
FILE NAME: ...\drawing\z05a288bitconc.dgn
PROJECT LEADER: G. BOGUE
DESIGNED BY: T. KNIGHT
PLOT DATE: 7/30/2010
DRAWN BY: J. SOTER
CHECKED BY: G. GOYETTE

BITUMINOUS CONCRETE DETAILS 1



PLAN

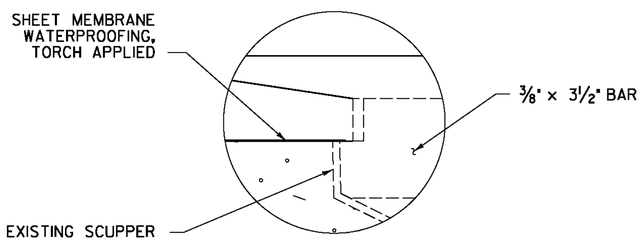
SCALE: 1½" = 1'-0



SECTION A–A

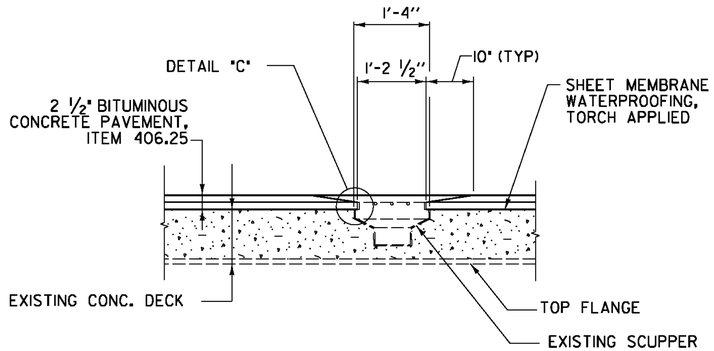
1 0 1 2

SCALE ¾" = 1'-0



DETAIL "C"

NTS



SECTION B–B

1 0 1 2

SCALE ¾" = 1'-0

PROJECT NAME:	PUTNEY
PROJECT NUMBER:	IM 091-1(60)
FILE NAME: ...\drawing\z05a288bitconc.dgn	PLOT DATE: 7/30/2010
PROJECT LEADER: G. BOGUE	DRAWN BY: J. SOTER
DESIGNED BY: T. KNIGHT	CHECKED BY: G. GOYETTE
BITUMINOUS CONCRETE DETAILS 2	SHEET 9 OF 45

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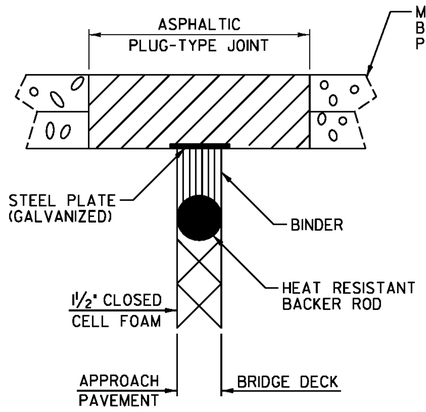


ASPHALTIC PLUG-TYPE JOINT DETAIL

NOTES:

1. THE JOINT SHALL BE LOCATED CENTRALLY OVER THE DECK EXPANSION GAP OR FIXED JOINT MARKED OUT TO THE MANUFACTURER'S RECOMMENDED WIDTH.
2. THE JOINT SHALL BE EXCAVATED AS SHOWN ON THE PLANS BY USE OF SAWS AND PNEUMATIC HAMMER OR A HAMMER AND CHISEL.
3. THE JOINT AREA SHALL BE BLAST CLEANED OF DEBRIS AND ASPHALT. THE JOINT AREA SHALL BE THOROUGHLY DRIED USING HOT COMPRESSED AIR PRIOR TO APPLYING BINDER MATERIAL.
4. SPALLED AND DEFECTIVE CONCRETE SHALL BE REPAIRED WITH AN APPROVED MATERIAL AS AGREED UPON BY THE RESIDENT ENGINEER.
5. PROPERLY SIZED HEAT RESISTANT BACKER ROD SHALL BE PLACED IN THE MOVEMENT GAP ALLOWING FOR 1INCH +/- OF BINDER ABOVE THE ROD.
6. THE BINDER MATERIAL SHALL BE HEATED AND PLACED AS RECOMMENDED BY THE MANUFACTURER.
7. PLACE 1/4 INCH THICK BY 8 INCH WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRESTAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER.
   A. THE STEEL PLATES MAY BE OMITTED WHERE THE APPROACH SLAB IS COVERED WITH A STONE BASE OR BITUMINOUS PAVEMENT AND VERTICAL MOVEMENT OF THE PLATES MIGHT OCCUR.
8. THE BINDER MATERIAL AND AGGREGATE SHALL BE HEATED AND MIXED AS RECOMMENDED BY THE MANUFACTURER.
9. THE INSTALLATION OF MATERIAL, COMPACTION, AND TOPCOATING SHALL BE AS RECOMMENDED BY THE MANUFACTURER.
10. IMMEDIATELY AFTER TOPCOATING, AN ANTI-SKID MATERIAL SHALL BE CAST OVER THE JOINT TO REDUCE THE RISK OF TRACKING.
11. JOINT SHALL BE PROTECTED FROM TRAFFIC UNTIL THE MATERIAL HAS COOLED TO 125°F±.

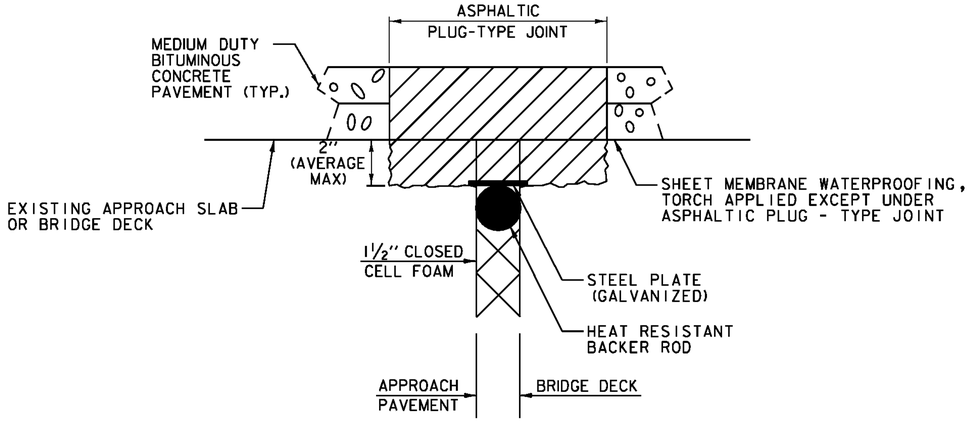
WEATHER LIMITATIONS

BINDER MATERIAL SHALL BE APPLIED ONLY WHEN THE FOLLOWING CONDITIONS PREVAIL:

A. THE AMBIENT AIR TEMPERATURE IS AT LEAST 50° F AND RISING.

B. THE ROAD SURFACE IS SUFFICIENTLY DRY.

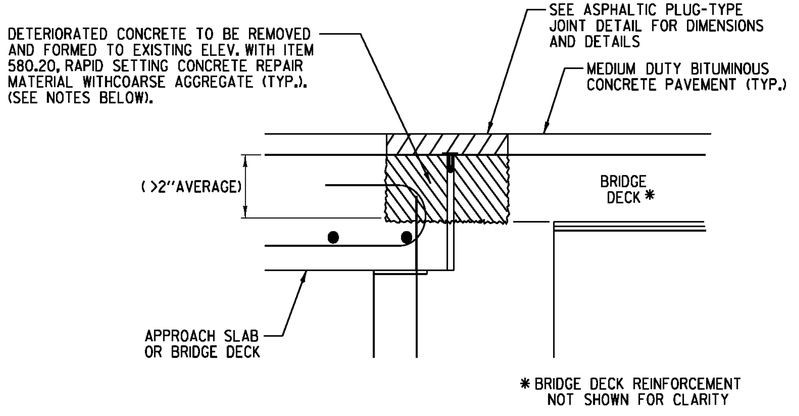
C. WEATHER CONDITIONS OR OTHER CONDITIONS ARE FAVORABLE AND ARE EXPECTED TO REMAIN SO FOR THE PERFORMANCE OF SATISFACTORY WORK.



ASPHALTIC PLUG-TYPE JOINT DETAIL REMOVAL OF UP TO 2" DETERIORATED CONCRETE

NOTES:

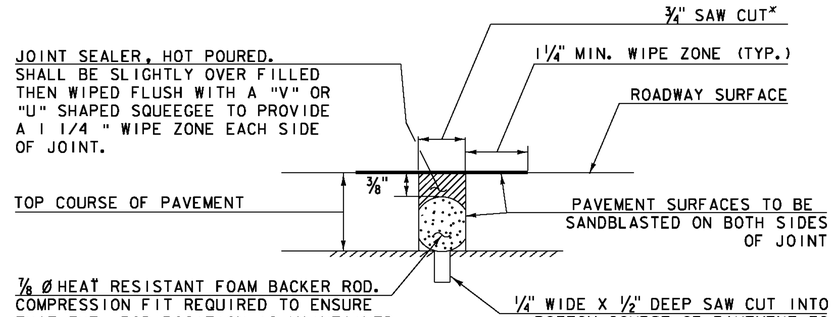
1. UPON ENCOUNTERING UP TO 2" AVERAGE OF DETERIORATED CONCRETE, THE CONTRACTOR SHALL REMOVE THE DETERIORATED MATERIAL AND REPLACE IT WITH THE ASPHALTIC PLUG JOINT MATERIAL AS DIRECTED BY THE RESIDENT ENGINEER.
2. REMOVAL OF THE DETERIORATED CONCRETE WILL NOT BE PAID SEPARATELY BUT WILL BE CONSIDERED INCIDENTAL TO THE UNIT BID PRICE FOR ITEM 516.10. THE ADDITIONAL PLUG JOINT MATERIAL BELOW THE DESIGN DEPTH REQUIRED TO REPLACE THE DETERIORATED CONCRETE WILL BE CONSIDERED INCIDENTAL TO THE UNIT BID PRICE FOR THE ITEM 516.10.
3. THE STEEL PLATE IN THE ASPHALTIC PLUG JOINT MAY BE OMITTED ONLY IF THE REPAIRED SURFACE IS SO IRREGULAR IT WILL CAUSE VERTICAL MOVEMENT AND OMISSION IS APPROVED BY THE RESIDENT ENGINEER.



ASPHALTIC PLUG-TYPE JOINT DETAIL REMOVAL OF >2" DETERIORATED CONCRETE

NOTES:

1. UPON ENCOUNTERING GREATER THAN 2" AVERAGE OF DETERIORATED CONCRETE, THE CONTRACTOR SHALL REMOVE THE DETERIORATED MATERIAL AND REPLACE IT WITH RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE.
2. REMOVAL OF THE DETERIORATED CONCRETE WILL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 580.20 RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE.
3. THE STEEL PLATE IN THE ASPHALTIC PLUG JOINT MAY BE OMITTED ONLY IF THE REPAIRED SURFACE IS SO IRREGULAR IT WILL CAUSE VERTICAL MOVEMENT AND OMISSION IS APPROVED BY THE RESIDENT ENGINEER.



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

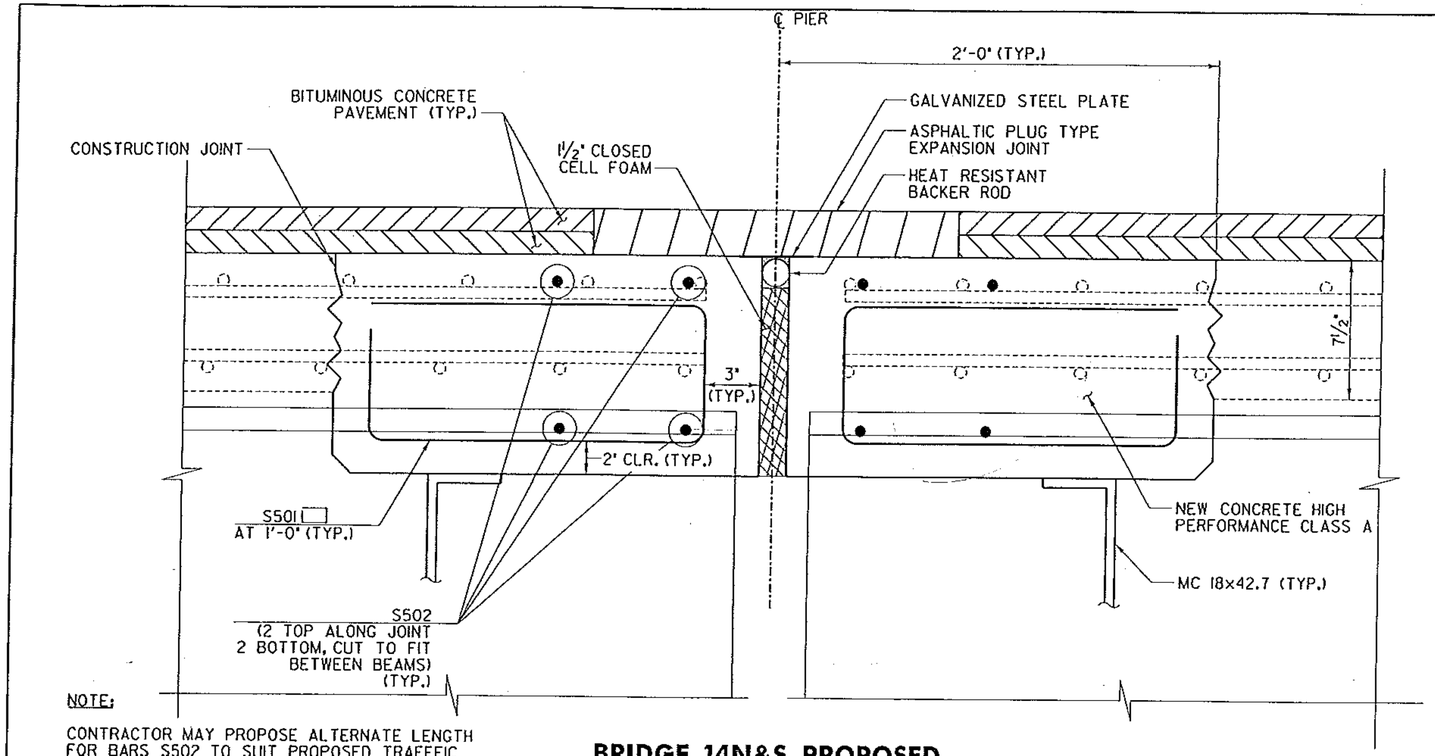
SAWED PAVEMENT JOINT DETAIL

N. T. S.

*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 END OF CONCRETE DECK. 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.

Stantec

PROJECT NAME: PUTNEY	
PROJECT NUMBER: IM 091-1(60)	
FILE NAME: ...\drawing\z05a288pvmtjt.dgn	PLOT DATE: 7/30/2010
PROJECT LEADER: G. BOGUE	DRAWN BY: J. SOTER
DESIGNED BY: G. BOGUE	CHECKED BY: T. KNIGHT
PAVEMENT JOINT DETAILS	SHEET 10 OF 45



NOTE:

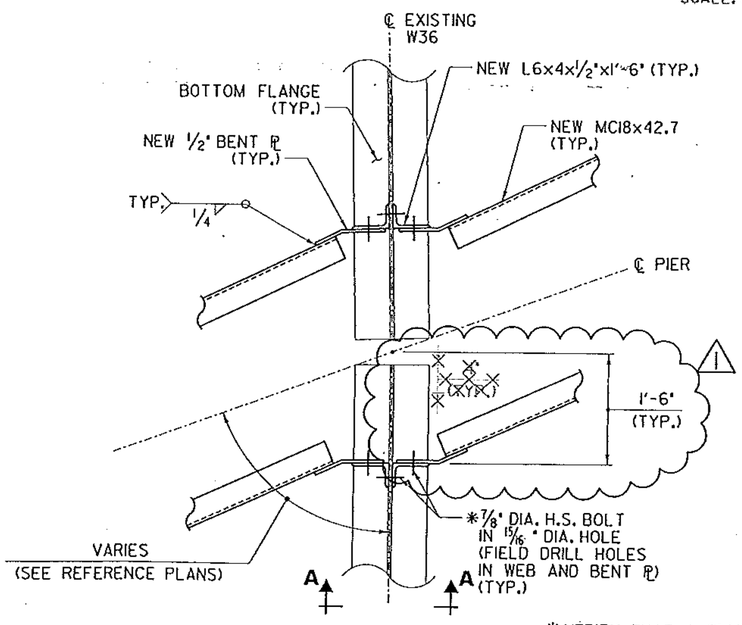
CONTRACTOR MAY PROPOSE ALTERNATE LENGTH FOR BARS S502 TO SUIT PROPOSED TRAFFIC CONTROL SCHEME. USE MECHANICAL CONNECTOR WITH 2'-0" MINIMUM LAP LENGTH BETWEEN PHASES.

BRIDGE 14N&S PROPOSED SECTION BETWEEN GIRDERS AT PIERS 1&2

SCALE: 3" = 1'-0"

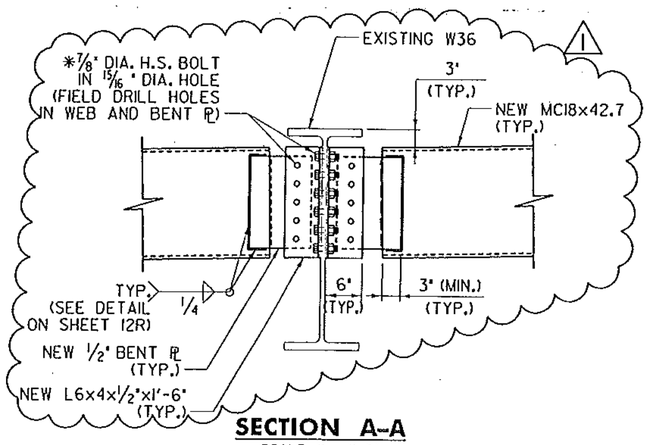
BRIDGE 14N&S PARTIAL REMOVAL SECTION AT PIERS 1&2

SCALE: 1" = 1'-0"



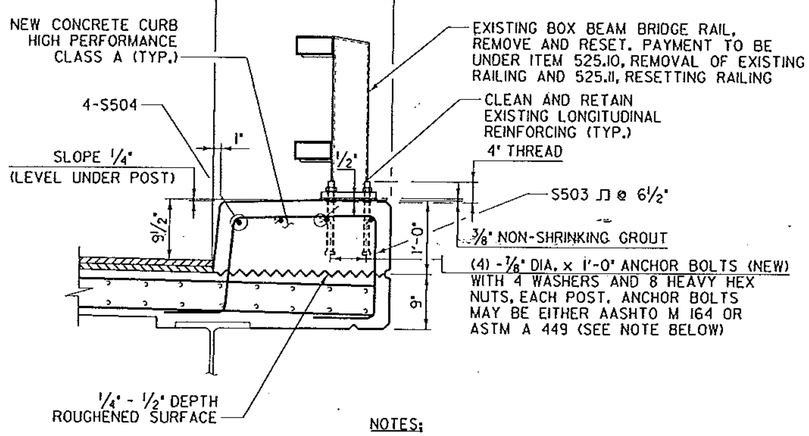
BRIDGE 14N&S PARTIAL PLAN PIER DIAPHRAGM

SCALE: 1" = 1'-0"



SECTION A-A

SCALE: 1" = 1'-0"



CURB SECTION

SCALE: 1" = 1'-0"

1 9 6 3 0 1 2

NOTES:

1. ALL POSTS SHALL BE SET TO NORMAL GRADE. NUTS PLACED IN CONCRETE ARE TO BE ROTATED WITHIN 24 HOURS AFTER CONCRETE IS PLACED TO BREAK BOND BETWEEN NUT AND CONCRETE. NUTS SHALL THEN BE USED TO ALIGN THE POSTS BOTH HORIZONTALLY AND VERTICALLY. AFTER FINAL POSITION HAS BEEN APPROVED, ALL VOIDS BETWEEN THE BASE PLATE AND CONCRETE SURFACE SHALL BE GROUTED WITH NON-SHRINK GROUT CONFORMING WITH SUBSECTION 707.03, MORTAR, TYPE IV.
2. IF THE CONTRACTOR CHOOSES TO ONLY REMOVE INDIVIDUAL POSTS, THE CONTRACTOR WILL BE PAID FOR 10 LF (FOR EVERY POST REMOVED AND RESET) FOR EACH ITEM 525.10, REMOVAL OF EXISTING RAILING AND ITEM 525.11, RESETTING RAILING. PAYMENT FOR NEW BRIDGE RAIL ANCHOR BOLTS WILL BE INCIDENTAL TO ITEM 525.11, RESETTING RAILING.

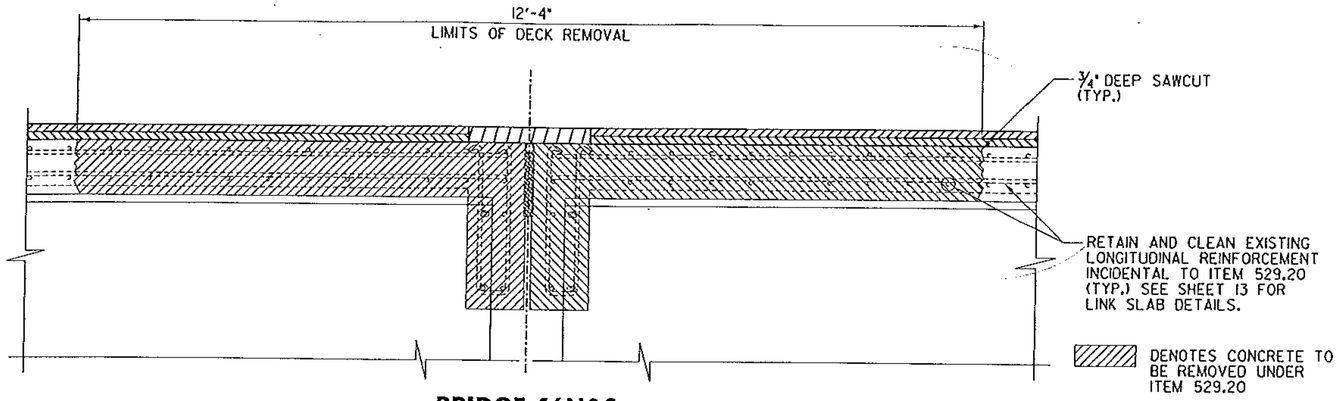
*VERIFY THAT A 2" MIN. EDGE DISTANCE IS PROVIDED BETWEEN NEW HOLES AND EXISTING HOLES IN THE BEAM WEB. NOTIFY ENGINEER IF ADEQUATE EDGE DISTANCE IS NOT PROVIDED WITH PROPOSED DIAPHRAGM CONFIGURATION.

REVISION	DATE	DESCRIPTION
1	02/01/11	LOCATION OF PROPOSED DIAPHRAGM RELOCATED AWAY FROM EXISTING CONCRETE DIAPHRAGM IN ORDER TO FACILITATE INSTALLATION.

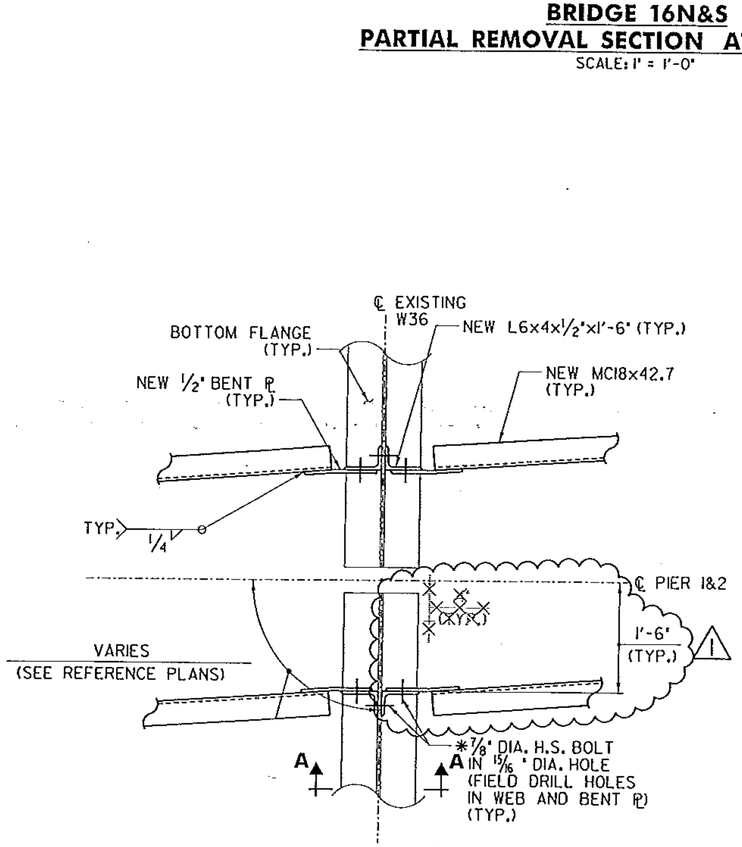
Stantec

PROJECT NAME: PUTNEY
PROJECT NUMBER: IM 091-1(60)

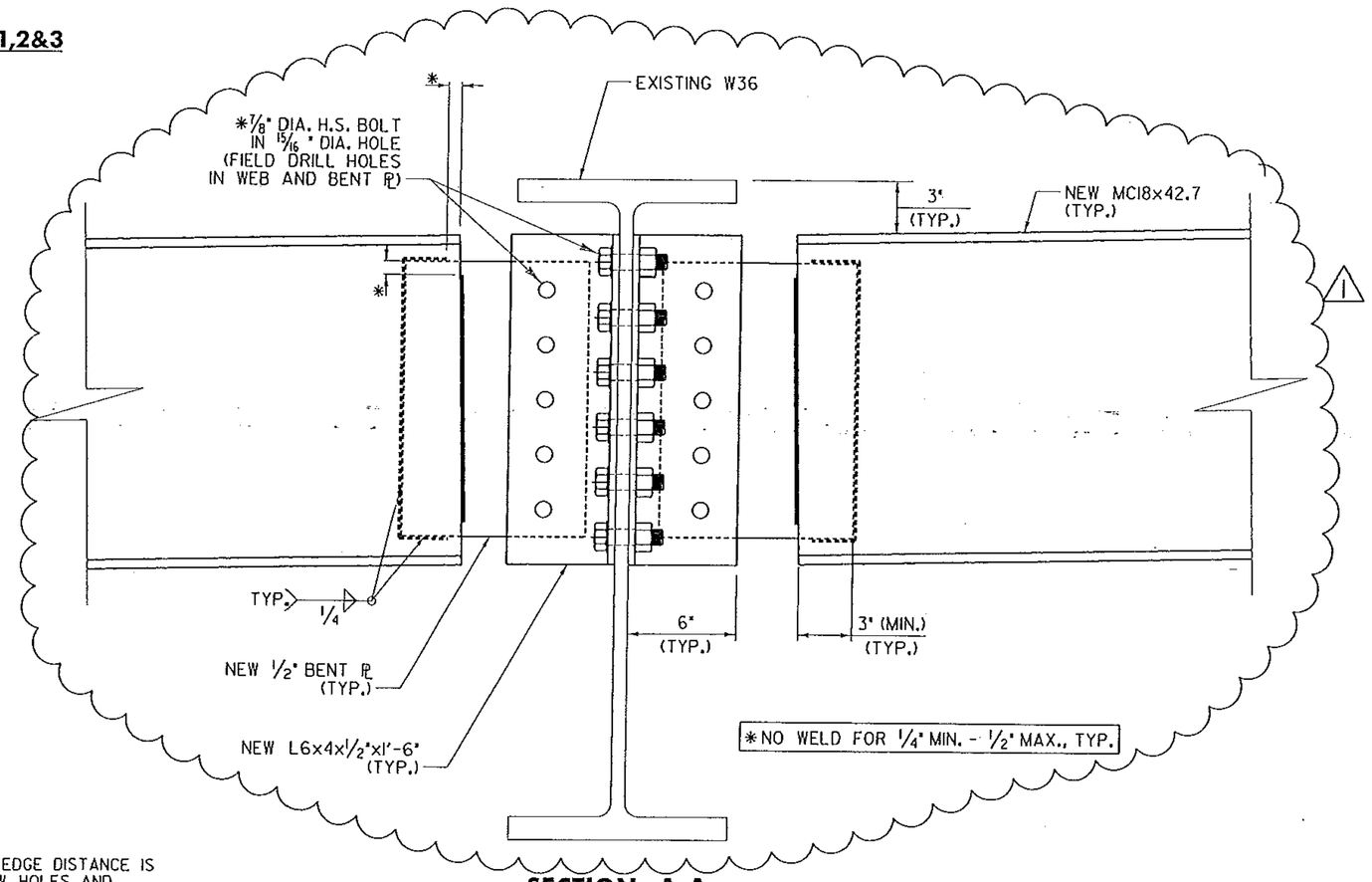
FILE NAME: ...\z05a288br14deckdta_REV.dgn
PROJECT LEADER: G. BOGUE
DESIGNED BY: G. BOGUE
PLOT DATE: 2/4/2011
DRAWN BY: J. SOTER
CHECKED BY: T. KNIGHT
BR 14 N&S DECK & DIAPHRAGM DETAILS
SHEET 11R OF 45



BRIDGE 16N&S
PARTIAL REMOVAL SECTION AT PIERS 1,2&3
SCALE: 1" = 1'-0"



BRIDGE 16N&S PARTIAL PLAN PIER DIAPHRAGM
SCALE: 1" = 1'-0"



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

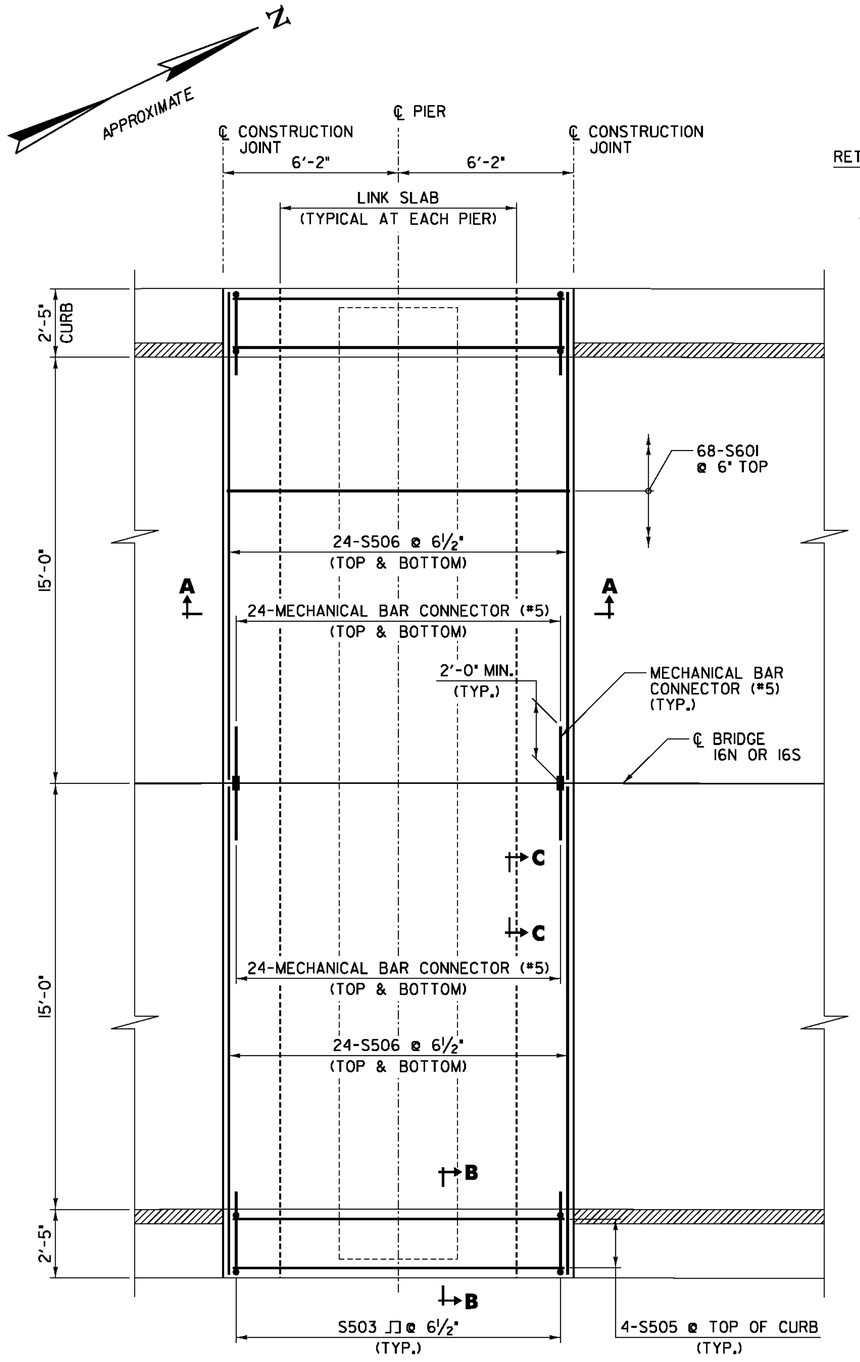
*VERIFY THAT A 2" MIN. EDGE DISTANCE IS PROVIDED BETWEEN NEW HOLES AND EXISTING HOLES IN THE BEAM WEB, NOTIFY ENGINEER IF ADEQUATE EDGE DISTANCE IS NOT PROVIDED WITH PROPOSED DIAPHRAGM CONFIGURATION.

REVISION	DATE	DESCRIPTION
1	02/01/11	LOCATION OF PROPOSED DIAPHRAGM RELOCATED AWAY FROM EXISTING CONCRETE DIAPHRAGM IN ORDER TO FACILITATE INSTALLATION.

Stantec

PROJECT NAME: PUTNEY
PROJECT NUMBER: IM 091-1(60)

FILE NAME: ...\z05o288br16deckdia_REV.dgn
PROJECT LEADER: G. BOGUE
DESIGNED BY: G. BOGUE
PLOT DATE: 2/4/2011
DRAWN BY: J. SOTER
CHECKED BY: T. KNIGHT
BR 16 N&S DECK & DIAPHRAGM DETAILS
SHEET 12R OF 45



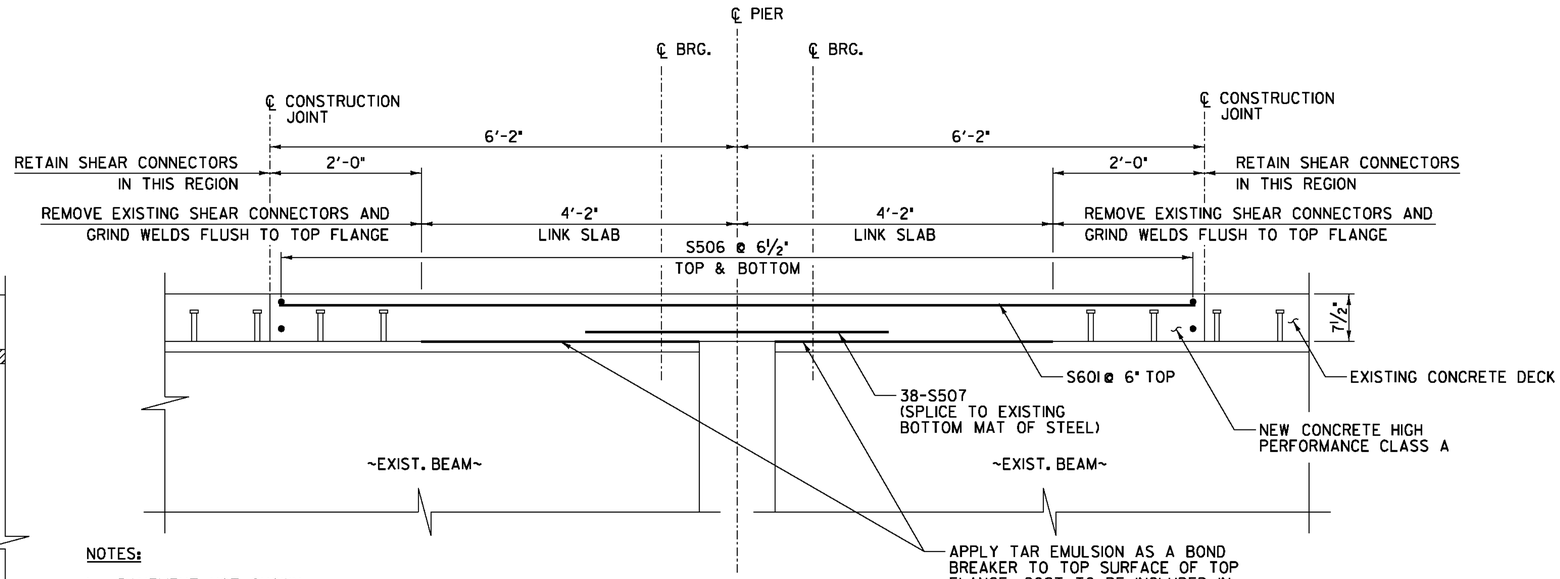
LINK SLAB PLAN VIEW

(TYPICAL AT ALL PIERS ON BRIDGE 16 N&S)
SCALE: ⅜" = 1'-0"

0 1 2 3 4

NOTE:

EXISTING LONGITUDINAL REINFORCING STEEL SHALL BE CLEANED AND RETAINED.



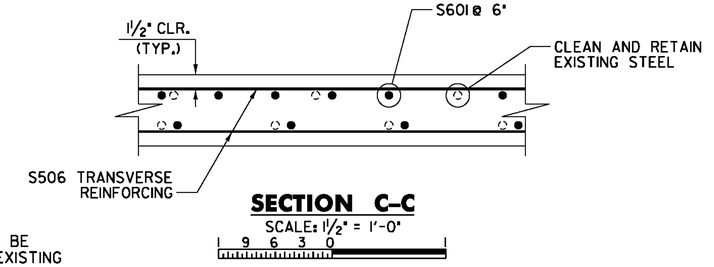
SECTION A–A

SCALE: 1" = 1'-0"

1 9 6 3 0 2

NOTES:

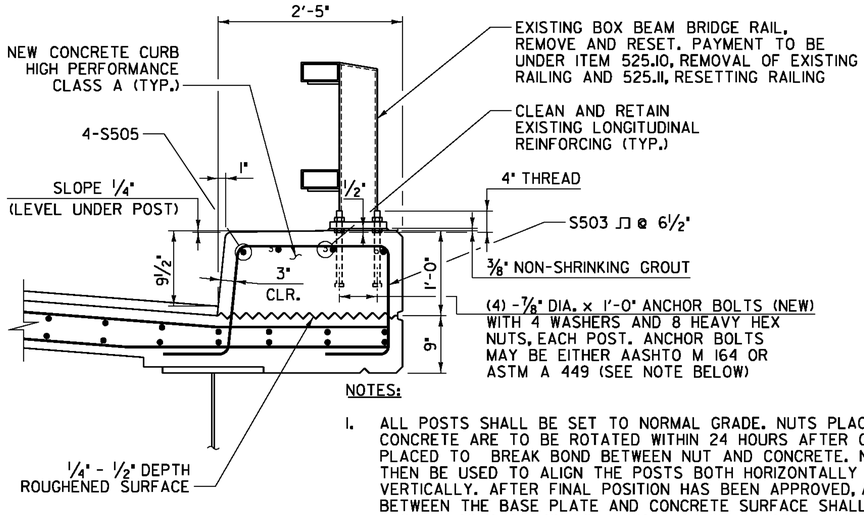
1. PAVEMENT NOT SHOWN.
2. EXISTING LONGITUDINAL REINFORCING TO BE CLEANED AND RETAINED (NOT SHOWN FOR CLARITY).
3. INSTALL MECHANICAL BAR CONNECTORS AT CONSTRUCTION JOINT FOR ALL TRANSVERSE BARS.
4. THE TYPE OF EXISTING SHEAR CONNECTOR IS UNKNOWN. SHEAR STUDS ARE SHOWN HOWEVER SPIRALS MAY HAVE BEEN USED.
5. REMOVAL OF EXISTING SHEAR CONNECTORS AND GRINDING WELDS FLUSH TO BE INCLUDED IN ITEM 529.20, PARTIAL REMOVAL OF STRUCTURE.



SECTION C–C

SCALE: 1½" = 1'-0"

1 9 6 3 0



NOTE: EXISTING LONGITUDINAL STEEL NOT SHOWN FOR CLARITY.

SECTION B–B

SCALE: 1" = 1'-0"

1 9 6 3 0 2

NOTES:

1. ALL POSTS SHALL BE SET TO NORMAL GRADE. NUTS PLACED IN CONCRETE ARE TO BE ROTATED WITHIN 24 HOURS AFTER CONCRETE IS PLACED TO BREAK BOND BETWEEN NUT AND CONCRETE. NUTS SHALL THEN BE USED TO ALIGN THE POSTS BOTH HORIZONTALLY AND VERTICALLY. AFTER FINAL POSITION HAS BEEN APPROVED, ALL VOIDS BETWEEN THE BASE PLATE AND CONCRETE SURFACE SHALL BE GROUTED WITH NON-SHRINK GROUT CONFORMING WITH SUBSECTION 707.03, MORTAR, TYPE IV.
2. IF THE CONTRACTOR CHOOSES TO ONLY REMOVE INDIVIDUAL POSTS, THE CONTRACTOR WILL BE PAID FOR 10 LF (FOR EVERY POST REMOVED AND RESET) FOR EACH ITEM 525.10, REMOVAL OF EXISTING RAILING AND ITEM 525.11, RESETTING RAILING. PAYMENT FOR NEW BRIDGE RAIL ANCHOR BOLTS WILL BE INCIDENTAL TO ITEM 525.11, RESETTING RAILING.

LEGEND

● = NEW REINFORCEMENT
◌ = EXISTING REINFORCEMENT

Stantec

PROJECT NAME: PUTNEY
PROJECT NUMBER: IM 091-1(60)

FILE NAME: ...\drawing\z05a288br16link.dgn
PROJECT LEADER: G. BOGUE
DESIGNED BY: G. BOGUE
BRIDGE 16 N&S LINK SLAB DETAILS

PLOT DATE: 8/12/2010
DRAWN BY: J. SOTER
CHECKED BY: T. KNIGHT
SHEET 13 OF 45

STATE OF VERMONT
AGENCY OF TRANSPORTATION

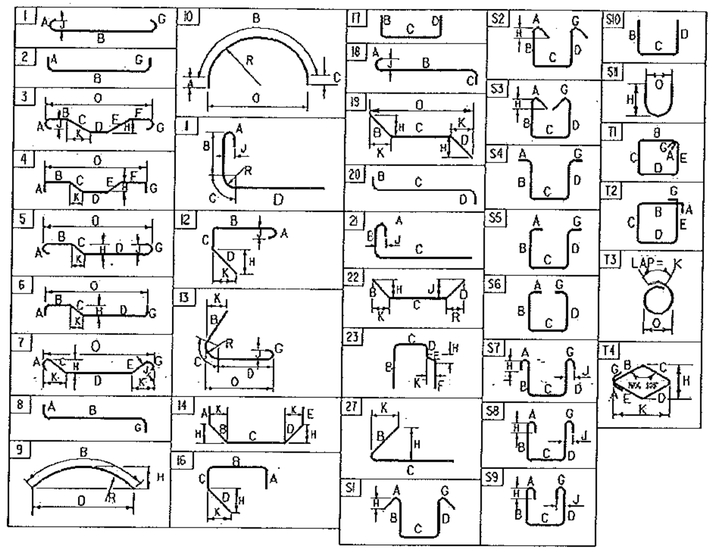
REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
BRIDGE 14N & BRIDGE 14S																	
	224	5	3'- 8"	S501	S5	0'- 10"	0'- 8"	0'- 10"	0'- 5"			0'- 10"					
	224	5	3'- 3"	S501	S5	0'- 6"	1'- 4"	0'- 7"	1'- 4"			---					
*	64	5	20'- 0"	S502	STR												
	128	5	6'- 1"	S503	S5	0'- 10"	1'- 3"	1'- 11"	1'- 3"			0'- 10"					
	64	5	1'- 6"	S504	STR												
BRIDGE 16N & BRIDGE 16S																	
	48	5	12'- 0"	S505	STR												
	576	5	17'- 0"	S506	STR												
	228	5	6'- 0"	S507	STR												
	276	5	8'- 1"	S508	S5	0'- 10"	1'- 3"	1'- 11"	1'- 3"								
	408	6	12'- 0"	S601	STR												

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O

~ NOTES ~

1. UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M31 (ASTM A 615-91). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
2. FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
3. BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
4. ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
5. "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
6. "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
7. WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
8. ▲ DENOTES BARS TO BE CUT IN FIELD.
9. * DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
10. △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
11. E IN BAR MARK PREFIX DENOTES EPOXY COATED REINFORCING STEEL.



ASTM STANDARD REINFORCING BARS

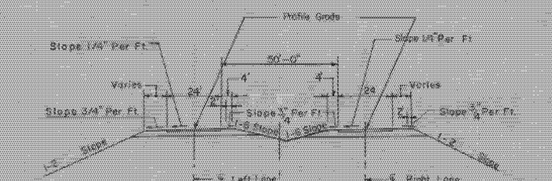
BAR SIZE DESIGNATION	WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS ROUND SECTION DIAMETER INCHES	AREA INCHES²	PERIMETER INCHES
#3	0.376	0.375	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.044	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.142
#9	3.400	1.128	1.00	3.544
#10	4.303	1.270	1.27	3.990
#11	5.313	1.410	1.56	4.430
#14	7.65	1.693	2.25	5.32
#18	13.60	2.257	4.00	7.09

REVISION	DATE	DESCRIPTION
1	02/01/11	LOCATION OF PROPOSED DIAPHRAGM RELOCATED AWAY FROM EXISTING CONCRETE DIAPHRAGM IN ORDER TO FACILITATE INSTALLATION.

PROJECT NAME: PUTNEY
PROJECT NUMBER: IM 091-1(60)

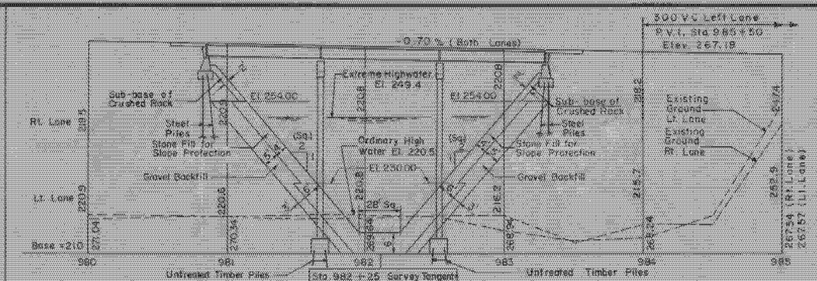
FILE NAME:
PROJECT MANAGER: G. BOGUE
DESIGNED BY: T. KNIGHT
REINFORCING STEEL SCHEDULE SHEET

PLOT DATE: 6/7/2010
DRAWN BY: J. SOTER
CHECKED BY: G. BOGUE
SHEET 14R OF 45



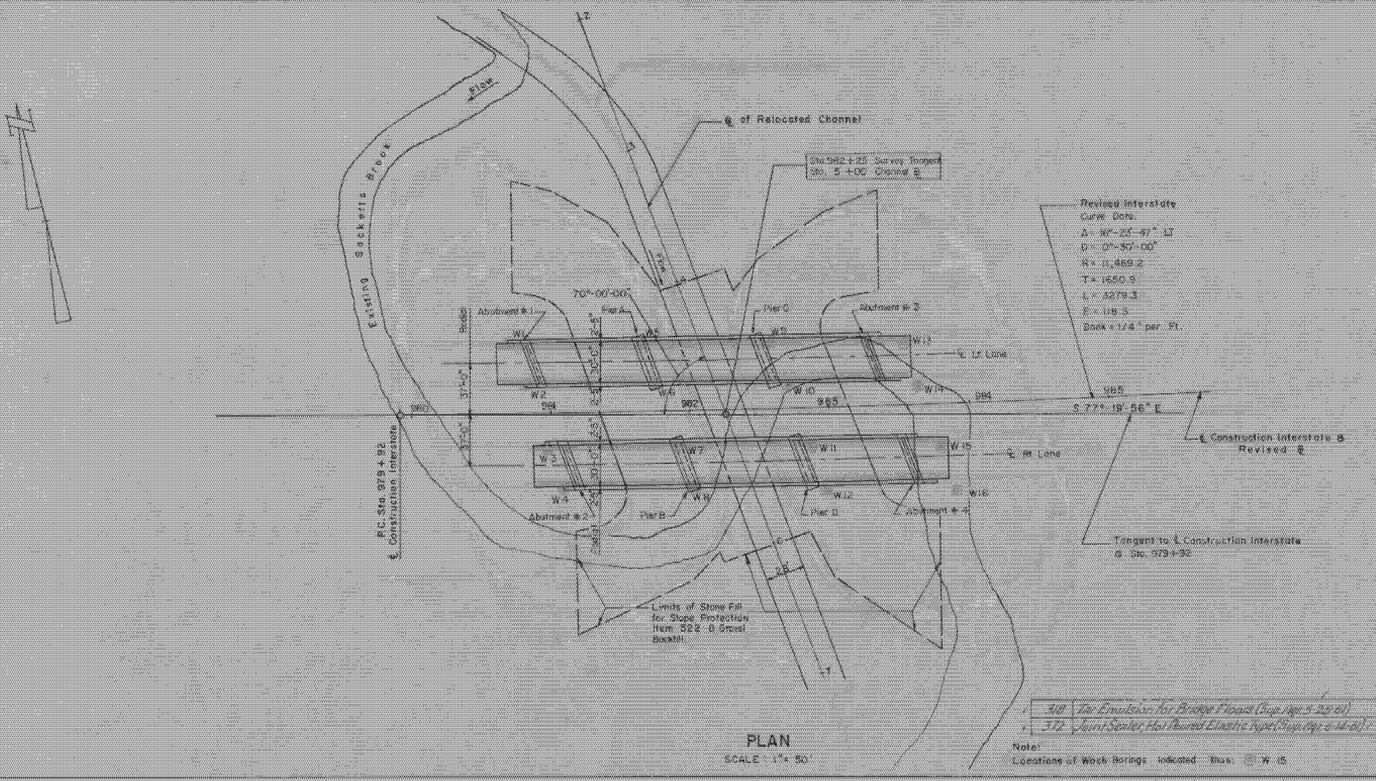
NEW HIGHWAY SECT. STA. 979+92 TO STA. 985+00

SCALE 1" = 30'



NEW HIGHWAY PROFILE ALONG INTERSTATE

SCALE Hor. 1" = 50'
Vert. 1" = 20'

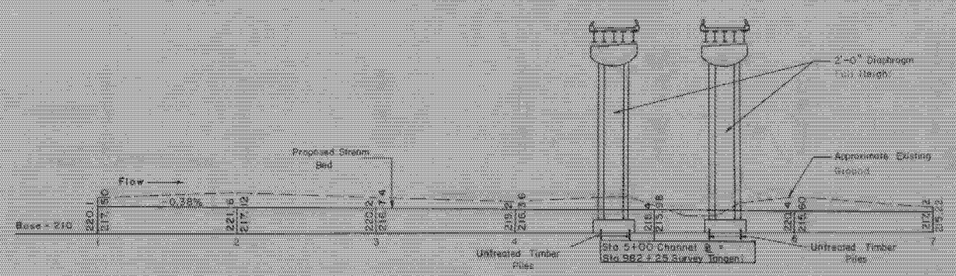


PLAN

SCALE 1" = 50'

518	Pit Emulsion for Bridge Floors (Supp. Spec. 5-22-61)	7 Appl.	✓
512	Joint Sealer, Hot Poured Elastic Type (Supp. Spec. 6-14-61)	10	✓

Note:
Locations of Wash Borings Indicated Thus: ⊙ W 15



PROFILE OF PROPOSED STREAM CHANNEL

SCALE Hor. 1" = 50'
Vert. 1" = 20'

NOTE: HOLD ELEV. 214.3 AT STA. 84+43 (INVERT OF EXISTING CULVERT)

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	NET	OVER RUN	TOTAL	FINAL	
107	Structure Excavation	C.Y.	~~1,084~~	~~206~~	+926	1017	✓
204	Sub-base of Crushed Rock (Mod.)	C.Y.	~~274~~	~~42~~	~~316~~	347	✓
232	Gravel Backfill	C.Y.	~~6,364~~	~~2,170~~	10,526	10,676	✓
391-B	Bituminous Concrete Pavement Type B	Tons	~~223~~	~~34~~	~~257~~	323	✓
601-B	Conc. Class B (Mod.)	C.Y.	~~1,714~~	~~84~~	1,798	1,749	✓
602	Reinforcing Steel	Lbs.	233,657	-	233,657	232,821	✓
603	Spiral Reinforcement	L.S.	1/1	-	1/1		✓
604-A	Structural Steel	Lbs.	~~605,280~~	~~32,528~~	638,808	633,104	✓
607	Asphaltic-Asbestos Coating	S.Y.	~~112~~	-	112	112	✓
502-A	Untreated Timber Piling	L.F.	~~9,360~~	-	~~9,360~~	12,070	✓
504	Steel Piling	L.F.	~~4,520~~	-	~~3,520~~	3,450	✓
522	Stone Fill for Slope Protection	C.Y.	~~10,280~~	~~540~~	~~11,820~~	12,902	✓
556 (	Granite Bridge Curb (Type I)	L.F.	~~1,052~~	-	~~1,052~~	1,057	✓
572	Bridge Railing Steel Supp. Spec. 7-22-60	L.F.	~~954~~	-	~~954~~	953	✓
501	Painting Ends for Drive Piles		Required		1	1	✓
503	SPLICES FOR STEEL PILING	EA			0	2	✓
402	Borehole		~~24662~~	2338	27000		✓

HIGHWAY NO. Rt 1 Sec 1	NAME OF HIGHWAY Interstate	B.P.R. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
STRUCTURE NO.	COUNTY Windham TOWN Putney	1	VT.	I 91-1(10)	77	329

PROJECT NO. I 91-1(10) LOCATION Sta. 982+25

EXISTING STRUCTURE

1. RATED LOADING OF EXISTING STRUCTURE NONE
2. TYPE OF EXISTING STRUCTURE NONE
3. UNDERCLEARANCE ELEVATION OF EXISTING STRUCTURE NONE
4. WHAT DISPOSITION SHOULD BE MADE OF EXISTING STRUCTURE COST OF REMOVAL NONE
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 25'x13' Stone Arch 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 3 Span Composite Steel Stringer Bridge
2. RECOMMENDED CLEAR SPAN OR SPANS
   MEASURED PARALLEL TO ℄ NEW HIGHWAY 79'-8½"-79'-8½"
   MEASURED AT RIGHT ANGLES TO ℄ STREAM
3. ARE THERE OBJECTIONS TO A PIER IN THE STREAM ANSWER YES OR NO YES
4. ORDINARY HIGH WATER ELEVATION AT NEW STRUCTURE 220.5
5. EXTREME HIGH WATER ELEVATION AT NEW STRUCTURE 249.4 SOURCE OF INFORMATION
6. IS ALL WATER INTENDED TO PASS THROUGH NEW STRUCTURE YES
7. DOES STREAM REACH ITS MAXIMUM HIGHWATER ELEVATION RAPIDLY No IS ORDINARY RISE RAPID No
8. LOW WATER ELEVATION AT NEW STRUCTURE 217.0
9. DRAINAGE AREA IN ACRES ABOVE STRUCTURE CHARACTER OF TERRAIN
10. IS STREAM EVER DRY No
11. VELOCITY OF STREAM AT HIGH WATER STAGE 5.9 fps ESTIMATED DISCHARGE
12. AREA FULL OPENING AREA BELOW ORDINARY H.W. 500 S.F.
13. CHARACTER OF SCOUR DRIFT Light ICE Light
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 2" Bit. Conc. Pavement
18. TRAFFIC TO BE MAINTAINED UNDER ITEM NO. None 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 SHOULD PILES BE USED Yes EST. LGTH.

FOUNDATION INFORMATION

OBTAINED FOR DESIGN PURPOSES ONLY. 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. FOR BORING LOGS, SEE SHEET 78

GENERAL NOTES

DESIGN SPECIFICATIONS:

AASHO 1957 Edition and as modified by Vermont Dept. of Highways.

LIVE LOAD:

H20-S6-44 and Military Loading

DESIGN STRESSES:

Structural Steel - fs = 18,000 p.s.i.
Reinforcing Steel - fs = 20,000 p.s.i.
Concrete - fc = 1,200 p.s.i. for f'c = 3,000 p.s.i.

SUPERSTRUCTURE:

Separate structure for each lane.
30' Roadway, 1'-6" Safety Walks, as per SCB-30-56
3 Simple Spans, rolled beams, composite designs, as per SCB-30-56 (79'-84'-79' Mod.)
Aluminum bridge railing, or galvanized bridge railing, and granite bridge curb as per SB-56-57 (1&2)
Bearings and diaphragm connections as per SB-20-56 (Mod.)
Approach Slabs as per SB-AS-15° Skew-57

SUBSTRUCTURE:

Piers: Square columns spaced 20'-0" c. to c.
2'-0" Diaphragm wall as shown, continuous footings.
Stub abutments.

FOUNDATION:

Piers - Untreated Timber Piles (20 Ton Design Load)
Stub Abutments - Steel Piles (35 Ton Design Load)

PUTNEY
IM 091-1(60)

SHEET 15 OF 45
BRIDGE 14
FOR REFERENCE ONLY

84	PIERS C AND D
85	STRUCTURAL STEEL PLAN
86	STRUCTURAL DETAILS
87	REINFORCING SCHEDULE
88	REINFORCING SCHEDULE
20 & 21	HIGHWAY PLAN AND PROFILES
52A & 52B	SCB-30-56 (1&2)
92	SB-20-56
53	SB-22-56
54 & 54A	SB-56-57 (1&2)
56	SB-AS-15° Skew-57

GENERAL PLAN
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

INTERSTATE PROJECT in the town of PUTNEY

INTERSTATE STA. 982+25
OVER
SACKETTS BROOK STA. 5+00

APPROVED BY [signature] DATE 7/24/63

THE CLARKESON ENGINEERING CO. INC.
CONSULTING ENGINEERS
BOSTON MASSACHUSETTS

SURVEYED BY	CHECKED BY G.S.S.H.W.	SCALE AS NOTED
DRAWN BY J.K.	IN CHARGE J.V.B.	DATE 10-25-57

PROJECT NO. I 91-1(10) SHEET 79 OF 326

CONTRACT NO. I

B.P.R. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	VT.	I 91 -1(10)	79	328

℄ Bearing Abutment No. 1
℄ Bearing Abutment No. 2
℄ Bearing Abutment No. 3
℄ Bearing Abutment No. 4
℄ Pier A Sta. 981+69.61 Fin. Grade El. 269.85
℄ Pier B Sta. 981+95.16 Fin. Grade El. 269.67
℄ Pier C Sta. 982+53.32 Fin. Grade El. 269.27
℄ Pier D Sta. 982+78.27 Fin. Grade El. 269.09
Sta. 980+88.70
Begin Bridge Sta. 980+87.63 Finished Grade El. 270.43
Begin Bridge Sta. 981+13.78 Finished Grade El. 270.24
Sta. 981+01.81
Sta. 981+14.83
Sta. 981+82.43
Sta. 982+25 Survey Tangent = Sta. 5+00 ℄ Channel
Sta. 982+65.83
Sta. 983+30.86
End of Bridge Sta. 983+31.92 Finished Grade El. 268.72
Sta. 983+43.10
Sta. 983+55.25
End of Bridge Sta. 983+56.30 Finished Grade El. 268.55
Span # 1-L
Span # 2-L
Span # 3-L
Span # 1-R
Span # 2-R
Span # 3-R
Face of Coping
Face of Curb
Scupper
℄ Relocated Channel
58'-0" Channel
℄ Left Lane
℄ Right Lane
℄ Construction Interstate & Revised ℄
Tangent to ℄ Construction Interstate at Sta. 979+92
Measured along ℄ Left Lane
Measured along ℄ Right Lane
1/2 Expansion Material (Typical at all End Posts)
For details of Expansion Joint over Piers and at Abutments, see Standard Sheet SB-22-58.

Revised Interstate Curve Data
Δ = 16° 23' 47" Lt.
D = 0° 30'
R = 11,459.2'
L = 3279.3'
T = 1650.9'
E = 118.3'
Bank = 1/8" per ft.

PLAN
Scale: 3/32" = 1'-0"

30 Spaces @ 7'-0" = 210'-0"
30 Spaces @ 6-11½" = 208'-9"
30 Spaces @ 7'-0" = 210'-0"
30 Spaces @ 6'-11½" = 208'-9"

Left Side of Left Lane 2@ 8'-8⅝"
Right Side of Left Lane 2@ 7'-0"
Left Side of Right Lane 2@ 8'-8⅝"
Right Side of Right Lane 2@ 6'-11⅜" (12" Typical)

2@ 6'-8½"
2@ 7'-0⅝"
2@ 6'-7⅞"
2@ 6'-11⅜" (12" Typical)

Note:
1. Railing posts to be set normal to grade.
2. Omit set screws at high end of railing panels at expansion joints over piers.
3. All Stations refer to ℄ Construction Interstate excluding channel station
4. For scupper layout, see Framing Plan Sheet 85.
5. For details of railing, see Standard Sheet SB-50-57.
6. For Quantity Estimate see Sheet 86.
7. All dimensions are horizontal dimensions.
8. For chord layout see Sheet 85.

2'-0" Sub-base of Crushed Rock (Modified) Item 204
El. 254.00
Steel Piles
Gravel Backfill (For Limits See Plan, Sheet 77)
Stone Fill for Slope Protection (For Limits See Plan, Sheet 77)
Slope 1-2 (Normal)
Approximate Existing Ground
Extreme High Water El. 248.4
℄ Channel
El. 230.00
Ordinary High Water El. 220.5
Untreated Timber Piles
1" Cork or Premoulded Expansion Material (Typical at Piers)

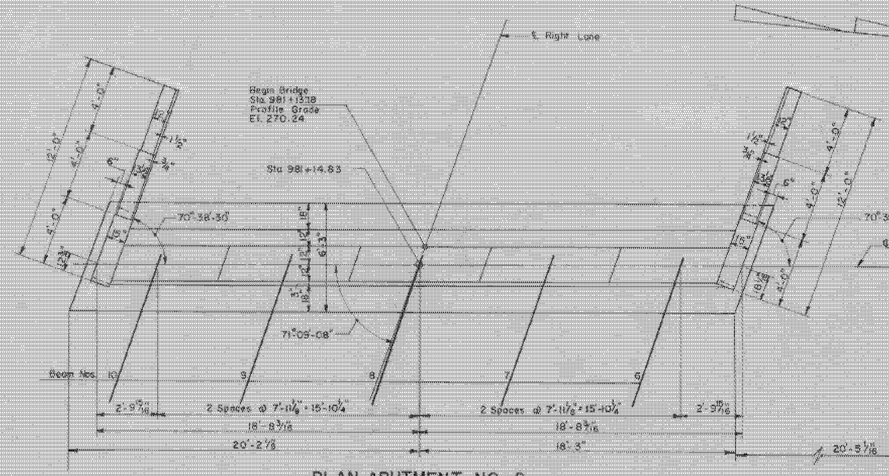
SOUTHERLY ELEVATION (RIGHT LANE)
NORTHERLY ELEVATION (SIMILAR)
Scale: 3/32" = 1'-0"

BRIDGE 14 N&S
PLAN AND ELEVATION
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS
INTERSTATE PROJECT in the town of
PUTNEY
INTERSTATE STA. 982+25
OVER
SACKETTS BROOK STA. 5+00
THE CLARKESON ENGINEERING CO., INC.
CONSULTING ENGINEERS
BOSTON MASSACHUSETTS
SURVEYED BY — DRAWN BY A.L. | CHECKED BY H.W.N.Jr. IN CHARGE J.V.B. | SCALE AS NOTED DATE 10-25-57
PROJECT NO. I 91 -1(10) | SHEET 81 OF 328
CONTRACT NO. 1

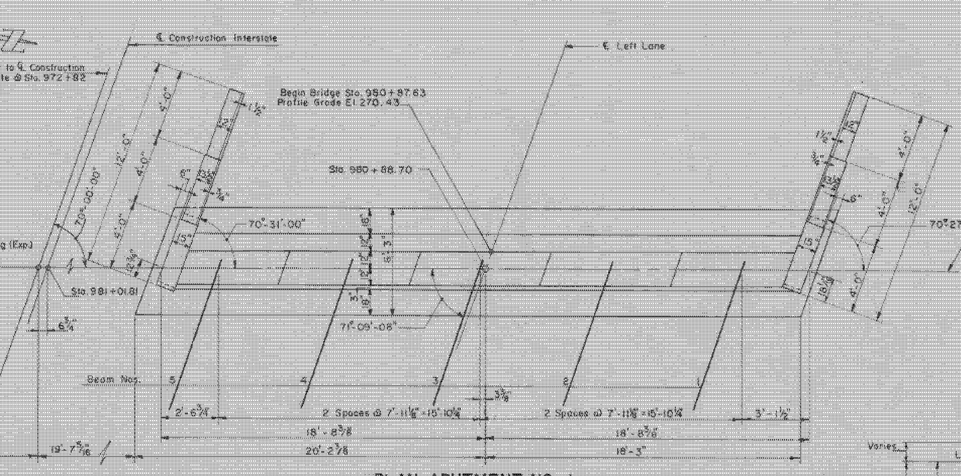
PUTNEY
IM 091-1(60)

SHEET 16 OF 45
BRIDGE 14
FOR REFERENCE ONLY

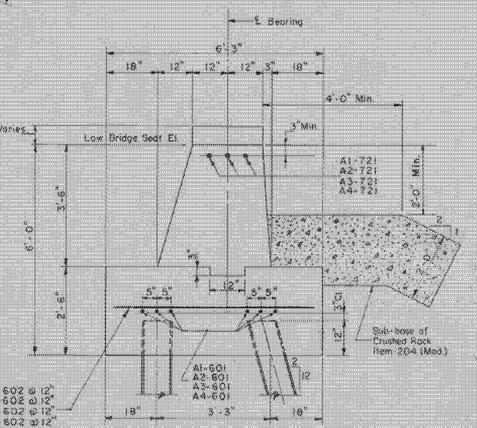
B.P.R. DOC. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	VT.	I 91-1(10)	80	328



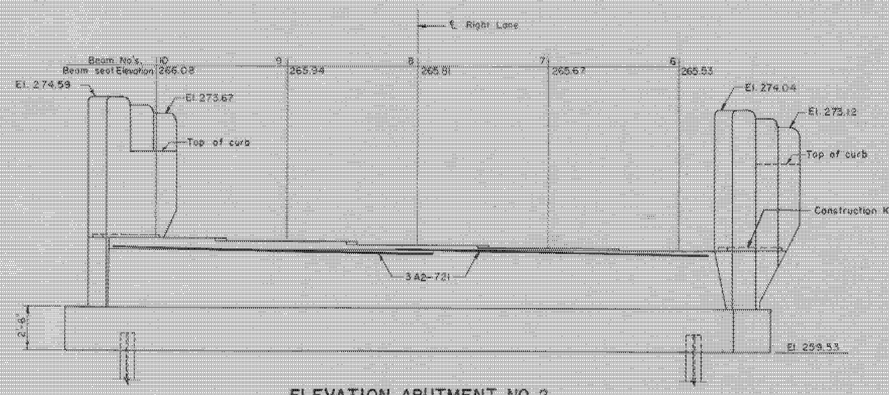
PLAN ABUTMENT NO. 2
Scale: ¼"=1'-0"



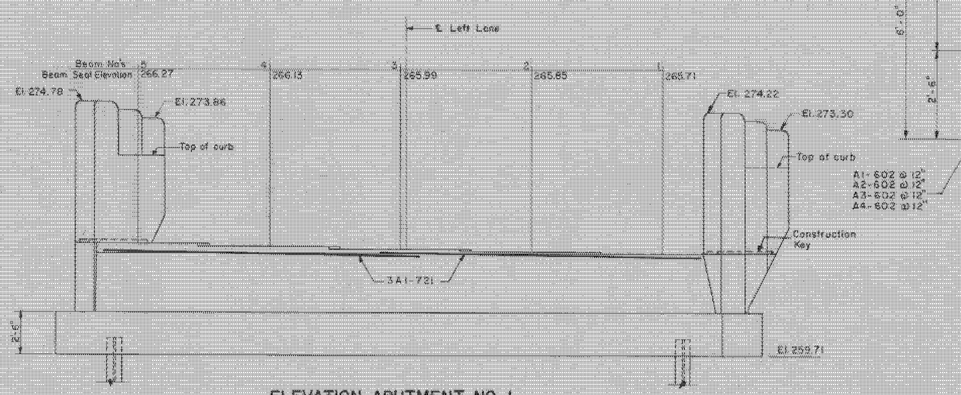
PLAN ABUTMENT NO. 1
Scale: ¼"=1'-0"



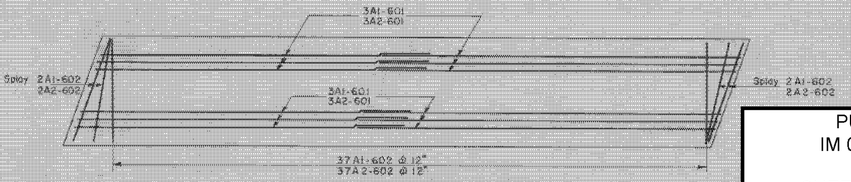
TYPICAL ABUTMENT SECTION
Scale: ½"=1'-0"



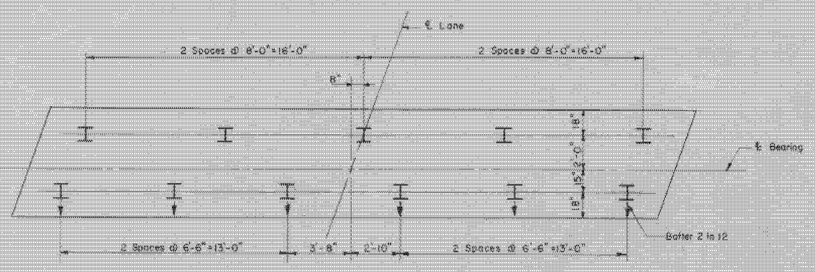
ELEVATION ABUTMENT NO. 2
Scale: ¼"=1'-0"



ELEVATION ABUTMENT NO. 1
Scale: ¼"=1'-0"



STEEL REINFORCING PLAN
ABUTMENTS NO. 1 & 2
Scale: ⅛"=1'-0"
NOTE: Bars in Abutment No. 1 to be marked A1
Bars in Abutment No. 2 to be marked A2



TYPICAL PILE PLAN
Scale: ¼"=1'-0"

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	ABUTMENT NUMBER 1 NET	OVER-RUN	TOTAL	FINAL	ABUTMENT NUMBER 2 NET	OVER-RUN	TOTAL	FINAL	
107	Structure Excavation	C.Y.	12	+1=	13	12	12	+1=	13	12	✓
204	Sub-base of Crushed Rock (Mod.)	C.Y.	75	+11=	86	30	75	+11=	86	62	✓
222	Gravel Backfill	C.Y.	19	+5=	24	20	19	+5=	24	20	✓
401-B	Concrete Class B (Mod.)	C.Y.	44	+2=	46	45	44	+2=	46	45	✓
402	Reinforcing Steel	LBS.	See Reinforcing Steel Schedule Sheet 87								
407	Asphaltic-Asbestos Coating	S.Y.	8	——	8	0	8	——	8	0	✓
504	Steel Piling	L.F.	880	——	880	800	880	——	880	800	✓
508	Splices for Steel Piling	Ea.	3	—	3	0	2	—	2	0	✓

NOTES:
1. See Sheet No. 81 for limits of Gravel backfill of Abutments.
2. Steel Piles to be 10BP42, 35 Ton Design Load, indicated thus Vertical ‡, Battered ‡
3. For estimating purposes the length of Steel Piles is assumed to be 80'.
4. Slope all bridge seats ¼" per ft.
5. Entire exposed top surface of the bridge seats to be covered with ½" Asphaltic-Asbestos coating after superstructure is in place.
6. Prior to driving the piles, rock-free fill shall be placed under the abutment area to approximately the level of the pile cutoff elevation and with a surface area at least (2) two feet outside the abutment. After piles are driven the fill is to be excavated to the elevation of the bottom of footing.
7. A layer of Sub-base of Crushed Rock (Mod.) Item 204.2 (Two) feet thick shall be placed on the embankments for 26 in front of abutments 1 & 2 and 25'± in front of abutments 3 & 4. The edges of the area to be in line with the outside of the End Posts and parallel to the centerline of the roadway.
8. For Limits of Stone Fill for Slope Protection Item 522, and Gravel Backfill on Slope, see Plan, Sheet No. 77.
9. See Sheet No. 82 for additional wing wall details.
10. All beam seat elevations shown are to top of masonry shelf.

PUTNEY
IM 091-1(60)

SHEET 17 OF 45
BRIDGE 14
FOR REFERENCE ONLY

ABUTMENTS NO. 1 AND 2

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

INTERSTATE PROJECT in the town of PUTNEY

INTERSTATE STA. 982+25
OVER
SACKETTS BROOK STA. 5+00

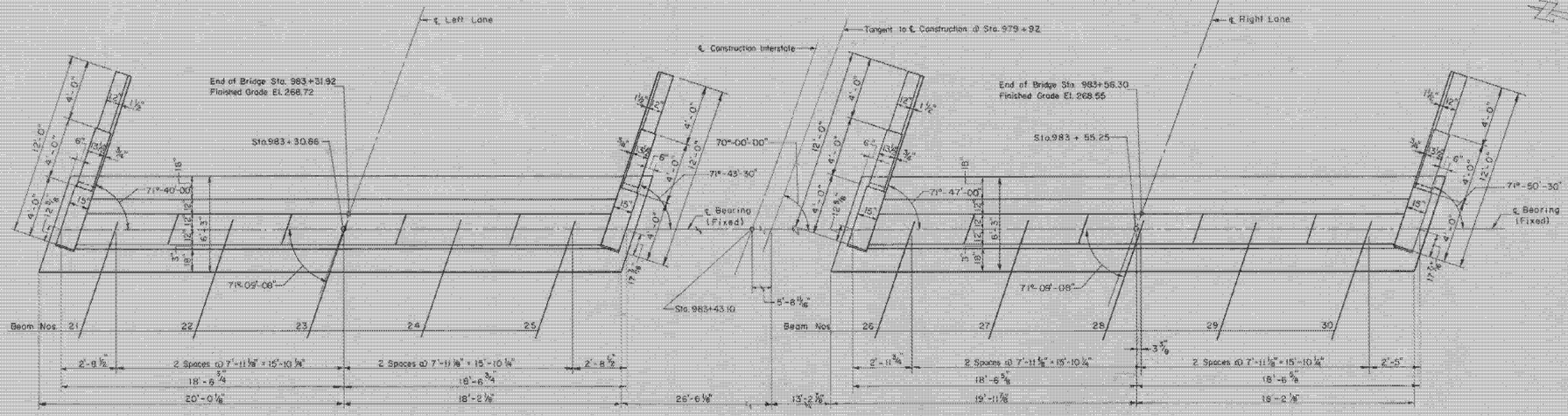
THE CLARKESON ENGINEERING CO., INC.
CONSULTING ENGINEERS
BOSTON MASSACHUSETTS

SURVEYED BY	CHECKED BY H.M., G.B.	SCALE AS NOTED
DRAWN BY S.A.L., P.W.S.	IN CHARGE V.V.S.	DATE 10/25/67

PROJECT NO. I 91-1(10) SHEET # 82 OF 328

CONTRACT NO. 1

D. P. R. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	VT.	I 91-1(10)	81	328

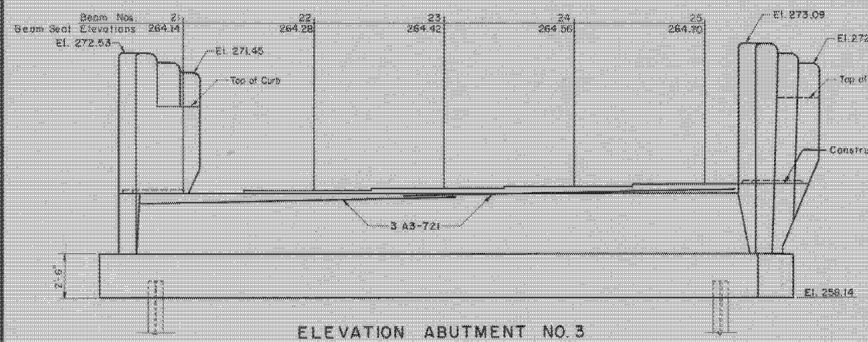


PLAN ABUTMENT NO. 3

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

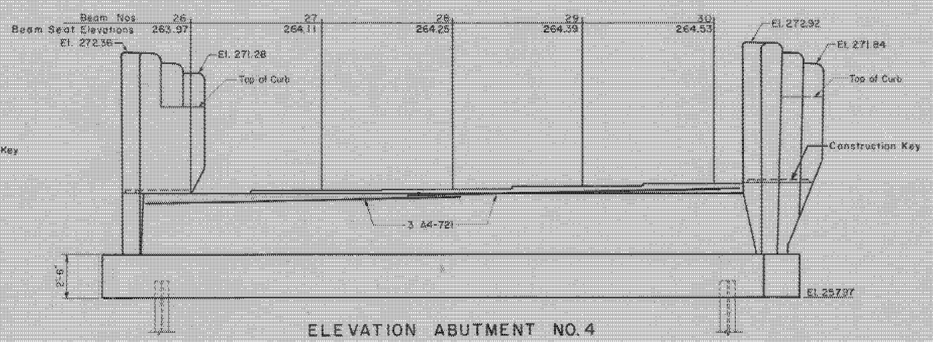
PLAN ABUTMENT NO. 4

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



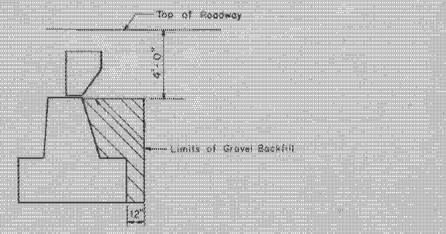
ELEVATION ABUTMENT NO. 3

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



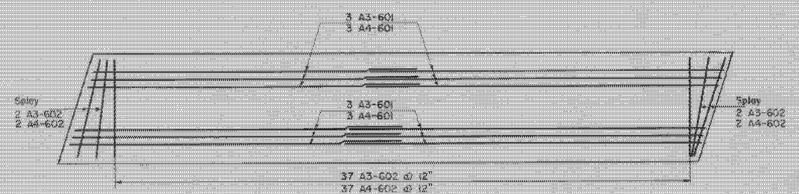
ELEVATION ABUTMENT NO. 4

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



LIMITS OF GRAVEL BACKFILL

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



STEEL REINFORCING PLAN
ABUTMENTS NO. 3 & 4

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

NOTE: Bars in Abutment No. 3 to be marked A3.
Bars in Abutment No. 4 to be marked A4.

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	ABUTMENT NUMBER 3 NET	OVER-RUN	TOTAL	FINAL	ABUTMENT NUMBER 4 NET	OVER-RUN	TOTAL	FINAL
107	Structure Excavation	C.Y.	12	~~1~~	~~13~~	12	12	~~1~~	~~13~~	12
204	Sub-base of Crushed Rock (Mod.)	C.Y.	64	~~10~~	~~74~~	64	64	~~10~~	~~74~~	64
222	Gravel Backfill	C.Y.	~~18~~	~~5~~	~~23~~	20	~~18~~	~~6~~	~~23~~	20
401-8	Concrete Class B (Mod.)	C.Y.	~~34~~	~~12~~	~~46~~	45	~~34~~	~~12~~	~~46~~	45
402	Reinforcing Steel	LBS.	See Reinforcing Steel Schedule Sheet 87							
407	Asphaltic-Asbestos Coating	S.Y.	8	———	8	8	8	———	8	8
504	Steel Piling	L.F.	~~880~~	———	~~880~~	840	~~880~~	———	~~880~~	840
505	Splices for Steel Piling	Ea.	~~42~~	—	~~42~~	0	2	—	2	2

NOTE: For General notes See Sheet No. 80
For Additional Abutment information, See Sheet No. 80

PUTNEY
IM 091-1(60)

SHEET 18 OF 45
BRIDGE 14
FOR REFERENCE ONLY

ABUTMENTS NO. 3 AND 4

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

INTERSTATE PROJECT in the town of
PUTNEY

INTERSTATE STA. 982+25
OVER
SACKETTS BROOK STA. 5+00

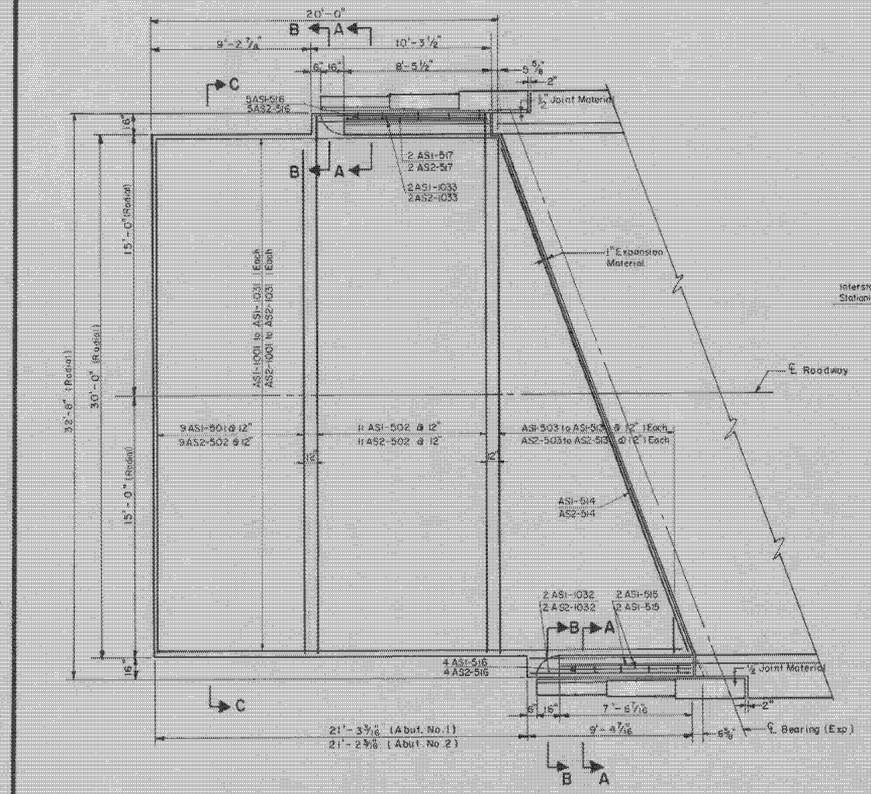
THE CLARKESON ENGINEERING CO., INC.
CONSULTING ENGINEERS
BOSTON MASSACHUSETTS

SURVEYED BY	CHECKED BY H.M.S.S.	SCALE AS NOTED
DRAWN BY S.S.L.	IN CHARGE J.V.B.	DATE 10-25-57

PROJECT NO. I 91-1(10) SHEET 83 OF 328

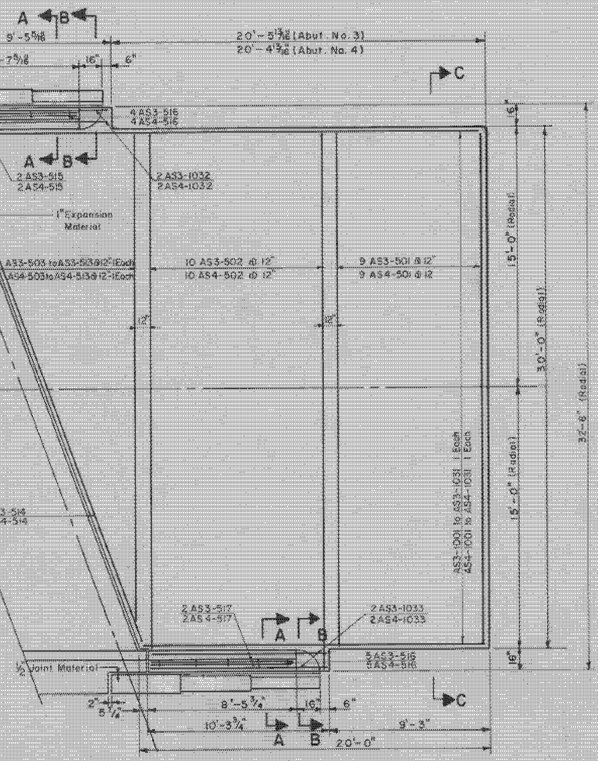
CONTRACT NO. 1

B.P.R. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
I	VT.	I 91 -1(10)	82	328



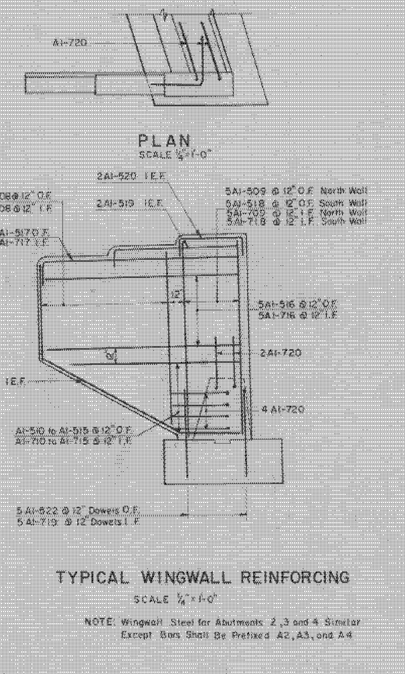
APPROACH SLAB ABUTMENT NO. 1
APPROACH SLAB ABUTMENT NO. 2 (SIMILAR EXCEPT AS NOTED)

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



APPROACH SLAB ABUTMENT NO. 3
APPROACH SLAB ABUTMENT NO. 4 (SIMILAR EXCEPT AS NOTED)

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

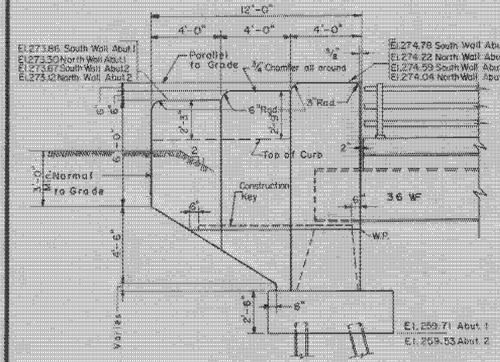


TYPICAL WINGWALL REINFORCING

SCALE 1/4" = 1'-0"

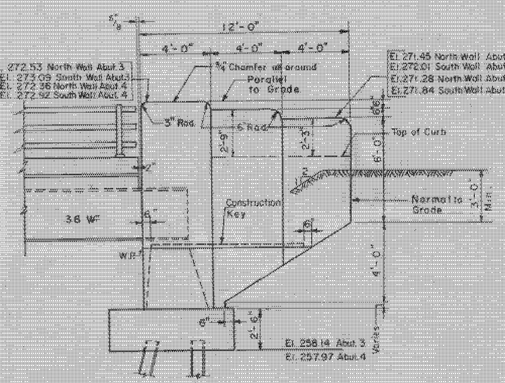
NOTE: Wingwall Steel for Abutments 2, 3 and 4 Similar Except Bars Shall Be Prefixed A2, A3, and A4

NOTE: For Section A-A B-B See Standard Detail Sheet SB-AS-15° Skew-57.



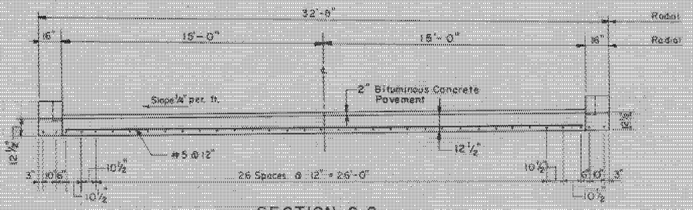
WINGWALL ABUTMENTS 1 & 2

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



WINGWALL ABUTMENTS 3 & 4

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



SECTION C-C

SCALE 1/4" = 1'-0"

ESTIMATED QUANTITIES

ITEM NO.	ITEM	UNIT	APPROACH SLABS (4 SLABS) NET	OVER-RUN	TOTAL	FINAL
361-B	Bituminous Concrete Pavement	Ton	39	+6=	=45=	84
401-B	Concrete, Class B (Mod.)	C.Y.	122	+6=	=128=	122
402	Reinforcing Steel	Lbs.	See Reinforcing Steel Schedule			
556-C	Granite Bridge Curb (Type I)	L.F.	See Sheet No. 86			

PUTNEY
IM 091-1(60)

SHEET 19 OF 45
BRIDGE 14
FOR REFERENCE ONLY

APPROACH SLABS
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

INTERSTATE PROJECT in the town of PUTNEY

INTERSTATE STA. 982+25
OVER
SACKETTS BROOK STA. 5+00

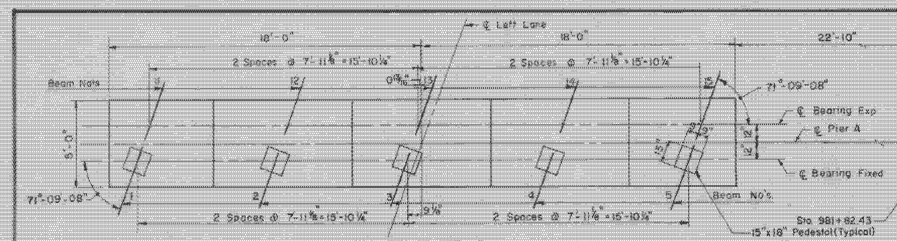
THE CLARKESON ENGINEERING CO., INC.
CONSULTING ENGINEERS
BOSTON MASSACHUSETTS

SURVEYED BY
DRAWN BY R.J.F.
CHECKED BY H.W.B.G.P.
IN CHARGE V.V.B.
SCALE AS NOTED
DATE 10/29/97

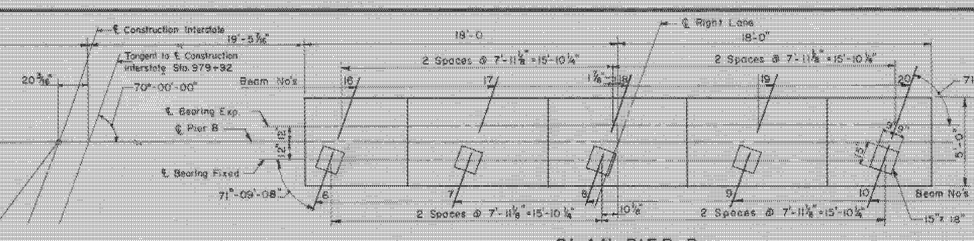
PROJECT NO. I 91-1(10)
SHEET 84 OF 328

CONTRACT NO. 1

B.P.R. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	VT.	I 91 -1(10)	83	328



PLAN PIER A

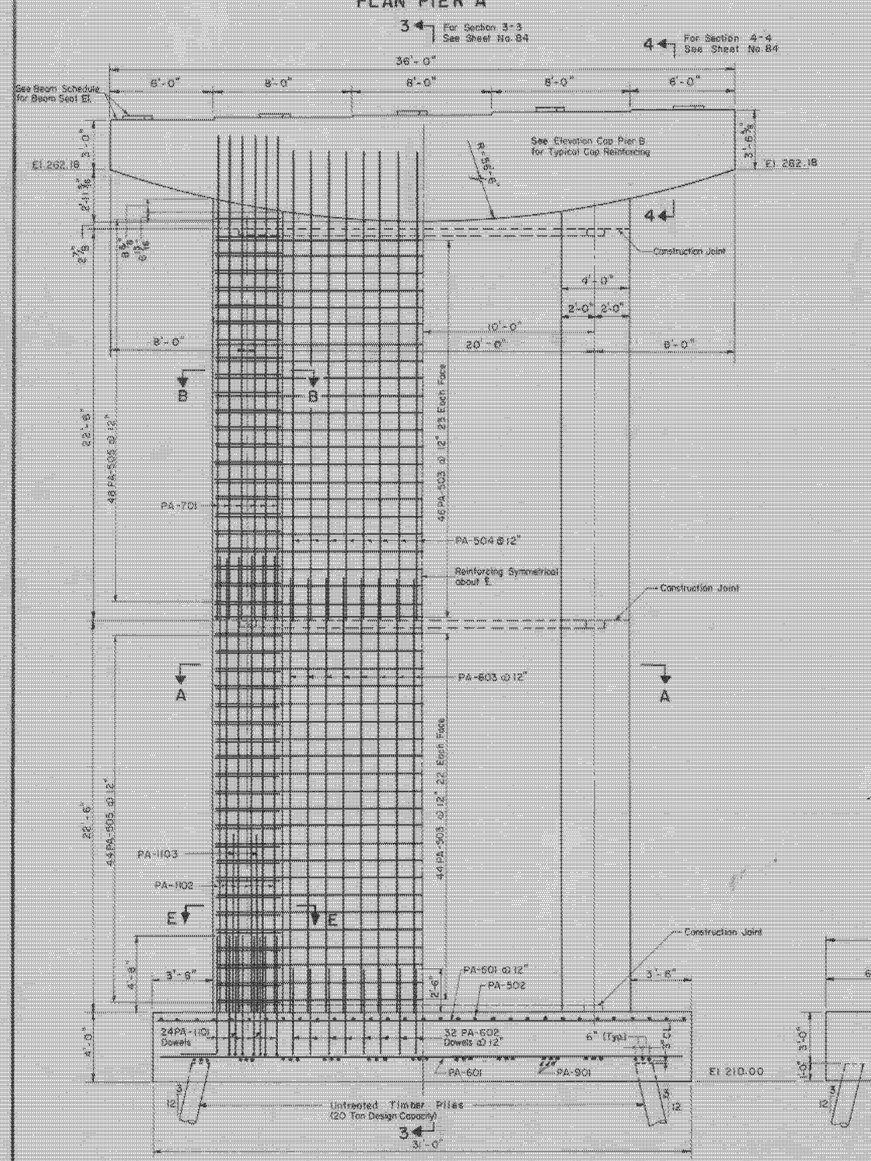


PLAN PIER B

BEAM SCHEDULE

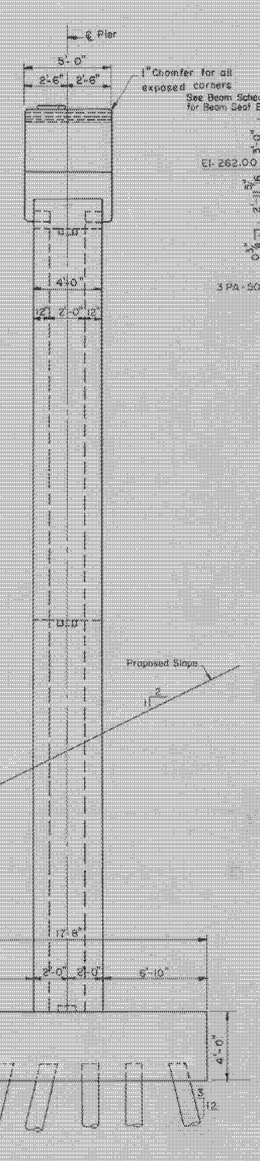
PIER A	
Beam No.	Beam Seat El.
1	265.28
2	265.42
3	265.56
4	265.69
5	265.83
11	265.18
12	265.32
13	265.45
14	265.59
15	265.73

PIER B	
Beam No.	Beam Seat El.
6	265.10
7	265.24
8	265.38
9	265.51
10	265.65
16	265.00
17	265.14
18	265.27
19	265.41
20	265.55

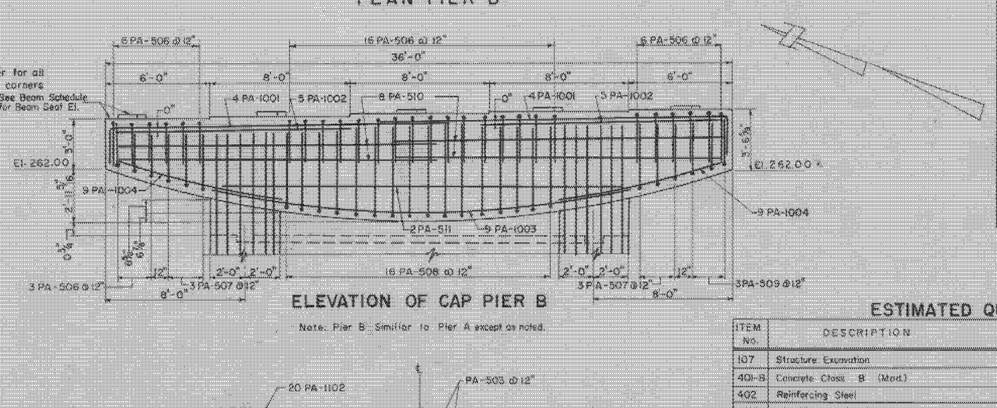


ELEVATION PIER A

Note: See Sheet No. 84 for Pile Plan & Numbered sections
2" All reinforcing cover shall be 2"

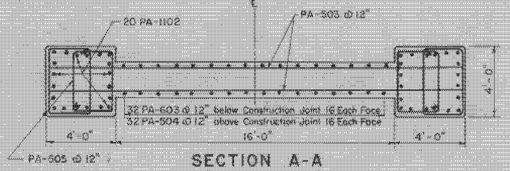


END ELEVATION PIER A

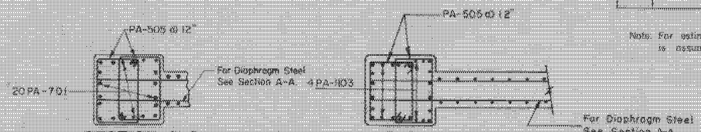


ELEVATION OF CAP PIER B

Note: Pier B Similar to Pier A except as noted.

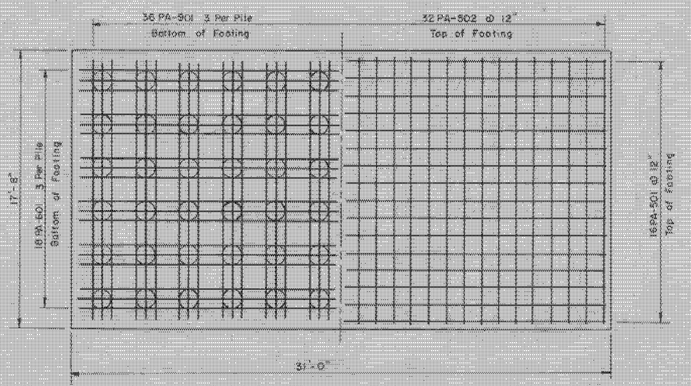


SECTION A-A
SECTION 1-1



SECTION B-B
SECTION 2-2

SECTION E-E



FOOTING REINFORCING (TYPICAL)

ESTIMATED QUANTITIES

ITEM No.	DESCRIPTION	UNIT	PIER A NET	OVER-RUN	TOTAL	FINAL
107	Structure Excavation	C.Y.	~~259~~	~~26~~	~~285~~	242
401-B	Concrete Class B (Mod.)	C.Y.	~~227~~	~~11~~	~~238~~	224
402	Reinforcing Steel	LBS.	See Reinforcing Steel Schedule Sheet 87			
407	Asphaltic-Asbestos Coating	S.Y.	20	-	20	20
502-A	Untreated Timber Piling	L.F.	~~1800~~	-	~~1800~~	2990

ITEM No.	DESCRIPTION	UNIT	PIER B NET	OVER-RUN	TOTAL	FINAL
107	Structure Excavation	C.Y.	~~259~~	~~26~~	~~285~~	242
401-B	Concrete Class B (Mod.)	C.Y.	~~227~~	~~11~~	~~238~~	224
402	Reinforcing Steel	LBS.	See Reinforcing Steel Schedule Sheet 87			
407	Asphaltic-Asbestos Coating	S.Y.	20	-	20	20
502-A	Untreated Timber Piling	L.F.	~~1800~~	-	~~1800~~	2987

Note: For estimating purposes the length of untreated timber piles is assumed to be 25'

PUTNEY
IM 091-1(60)

SHEET 20 OF 45
BRIDGE 14
FOR REFERENCE ONLY

PIERS A AND B

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS
INTERSTATE PROJECT in the town of PUTNEY
INTERSTATE STA. 982+25
OVER
SACKETTS BROOK STA. 5+00

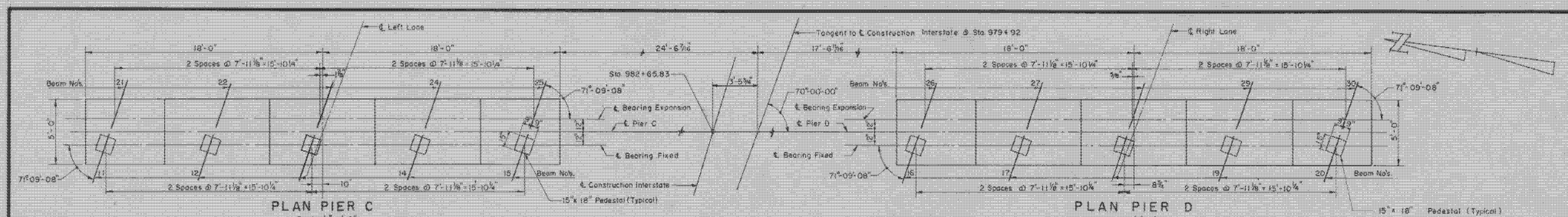
THE CLARKESON ENGINEERING CO., INC.
CONSULTING ENGINEERS
BOSTON MASSACHUSETTS

SURVEYED BY	DRAWN BY A.M.	CHECKED BY G.B.S.H.M. IN CHARGE J.Y.B.	SCALE 1/8"=1'-0" DATE 10/25/57

PROJECT NO. I 91-1(10) | SHEET 85 OF 328

CONTRACT NO 1

B.P.R. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
(	VT	I 91-1(10)	84	328

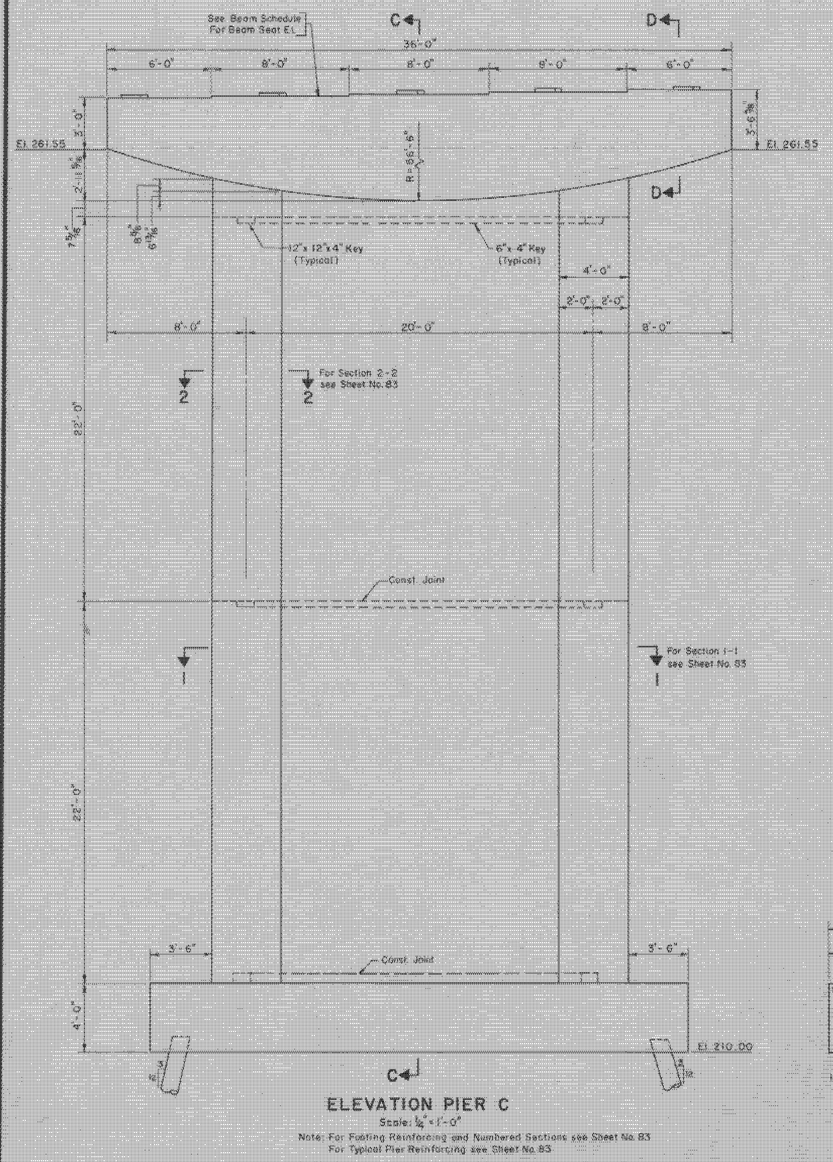


PLAN PIER C
Scale: ⅛" = 1'-0"

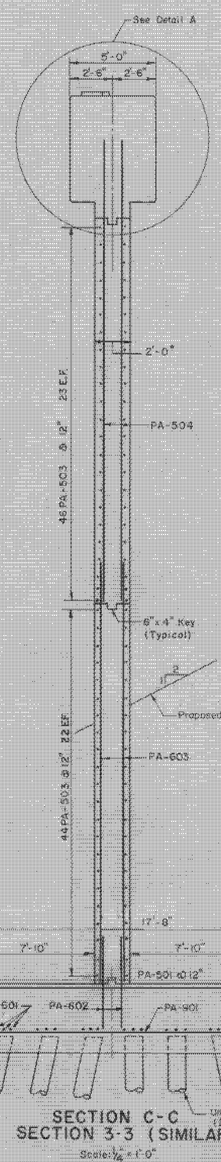
PLAN PIER D
Scale: ⅛" = 1'-0"

BEAM SCHEDULE

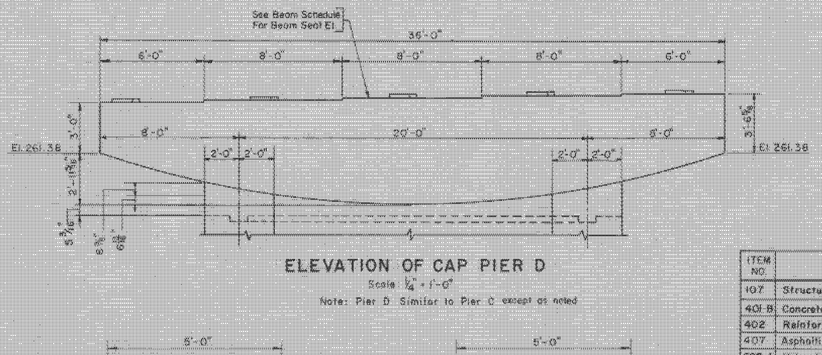
PIER C	
Beam No	Beam Seat El.
11	264.73
12	264.87
13	265.01
14	265.15
15	265.28
21	264.55
22	264.69
23	264.83
24	264.97
25	265.10
PIER D	
Beam No.	Beam Seat El.
16	264.56
17	264.70
18	264.83
19	264.97
20	265.11
26	264.38
27	264.52
28	264.65
29	264.79
30	264.93



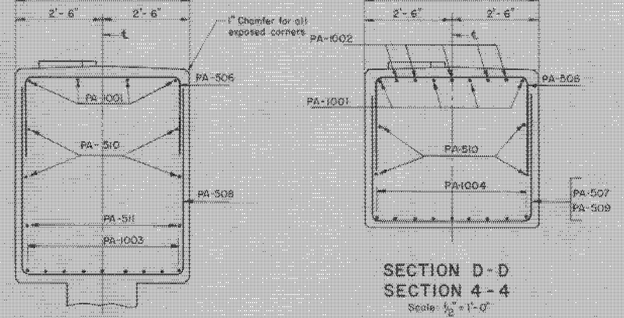
ELEVATION PIER C
Scale: ⅛" = 1'-0"
Note: For Footing Reinforcing and Numbered Sections see Sheet No. 83
For Typical Pier Reinforcing see Sheet No. 83



SECTION C-C
SECTION 3-3 (SIMILAR)
Scale: ⅛" = 1'-0"



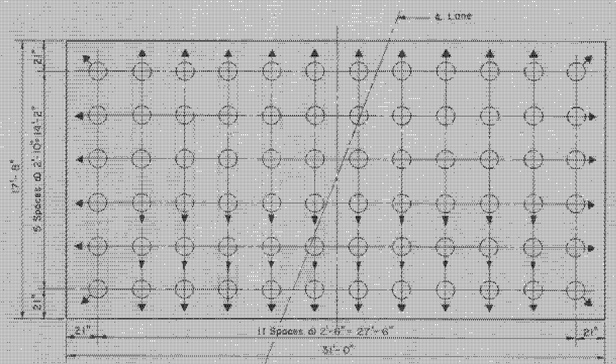
ELEVATION OF CAP PIER D
Scale: ¼" = 1'-0"
Note: Pier D Similar to Pier C except as noted



SECTION D-D
SECTION 4-4
Scale: ½" = 1'-0"

DETAIL A
Scale: ½" = 1'-0"

Note: Bridge Seats to be sloped ⅛" per ft. from ℄ Piers between bearing ⌀'s., and coated with ½" of Asphaltic Asbestos Coating after Superstructure is in place.



PILE PLAN FOR PIERS (TYPICAL)
Scale: ⅛" = 1'-0"
Note: Battered Piles indicated thus: ◯ Vertical Piles thus: ◯

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	PIER C NET	OVER-RUN	TOTAL	FINAL
107	Structure Excavation	C.Y.	~~259~~	~~26~~	~~285~~	221
401-B	Concrete Class B (Mod)	C.Y.	~~226~~	~~11~~	~~237~~	223
402	Reinforcing Steel	LBS.	See Reinforcing Steel Schedule Sheet 87			
407	Asphaltic-Asbestos Coating	S.Y.	20	–	20	20
602-A	Untreated Timber Piling	L.F.	~~2880~~	–	~~2880~~	2,362

ITEM NO.	DESCRIPTION	UNIT	PIER D NET	OVER-RUN	TOTAL	FINAL
107	Structure Excavation	C.Y.	~~259~~	~~26~~	~~285~~	262
401-B	Concrete Class B (Mod)	C.Y.	~~226~~	~~11~~	~~237~~	233
402	Reinforcing Steel	LBS.	See Reinforcing Steel Schedule Sheet 87			
407	Asphaltic-Asbestos Coating	S.Y.	20	–	20	20
502-A	Untreated Timber Piling	L.F.	~~2880~~	–	~~2880~~	3,281

Note: For estimating purposes the length of Untreated Timber Piles is assumed to be 40'.

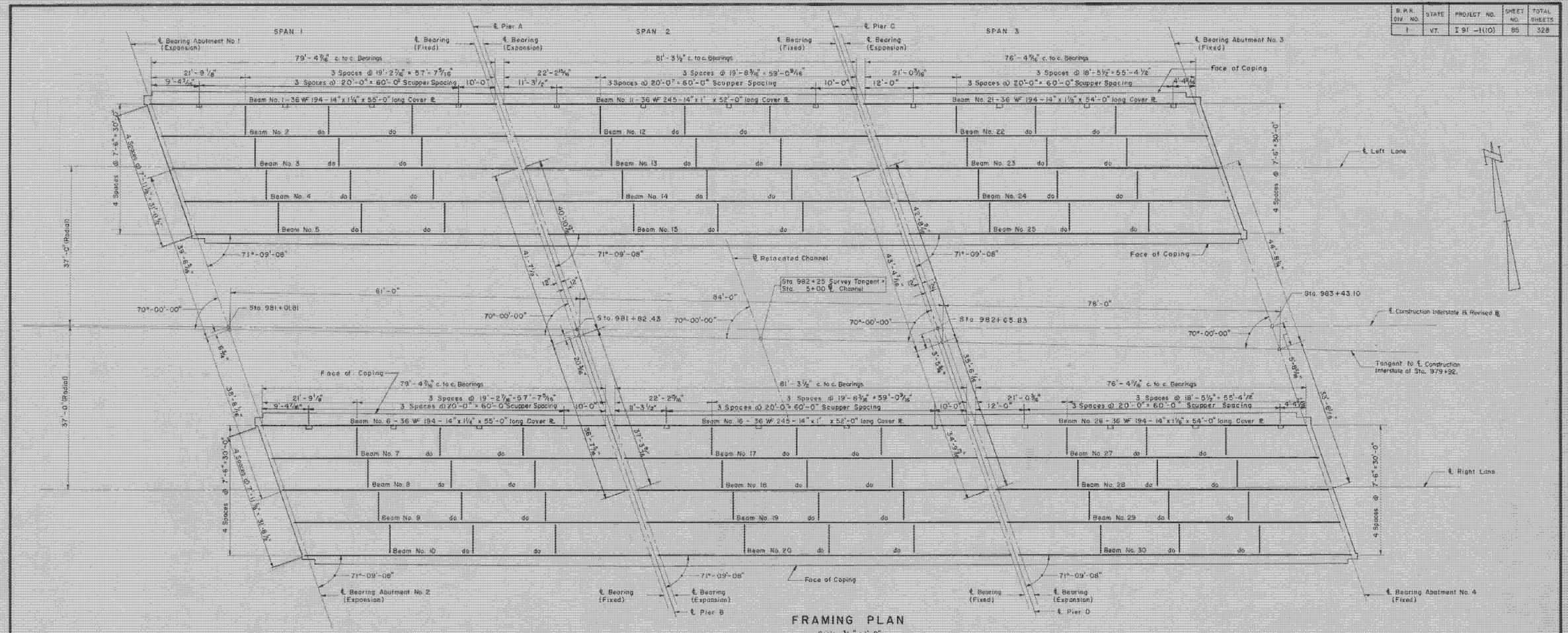
PUTNEY
IM 091-1(60)

SHEET 21 OF 45
BRIDGE 14
FOR REFERENCE ONLY

PIERS C AND D
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS
INTERSTATE PROJECT in the town of
PUTNEY
INTERSTATE STA. 982+25
OVER
SACKETTS BROOK STA. 5+00
THE CLARKESON ENGINEERING CO., INC.
CONSULTING ENGINEERS
BOSTON MASSACHUSETTS
SURVEYED BY | CHECKED BY HM & AB | SCALE AS NOTED
DRAWN BY H.S.G. | IN CHARGE JVB | DATE 10/28/57
PROJECT NO I 91-1(10) | SHEET 86 OF 328

CONTRACT NO 1

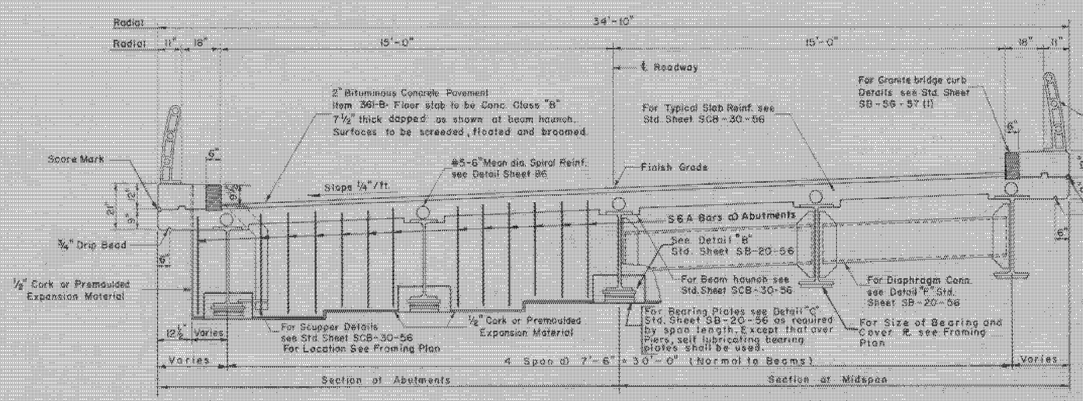
B.P.R. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	VT.	I 91-1(10)	85	328



FRAMING PLAN

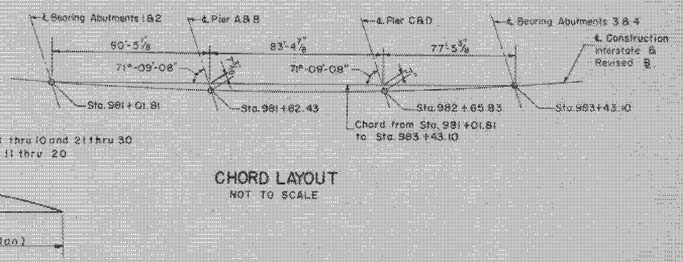
Scale 3/32" = 1'-0"

NOTES: 1. All dimensions are horizontal dimensions.
2. All diaphragms are 18 C 42.7.
3. All beams shall be rolled to a true circular chamber with the middle ordinate as shown on this sheet.
4. For Steel Detail See Sheet No. 85.
5. Scuppers to be paid for under Item 404-A Structural Steel.



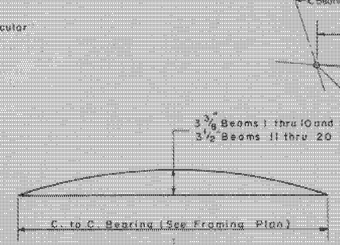
TYPICAL CROSS SECTION

Scale 3/8" = 1'-0"



CHORD LAYOUT

NOT TO SCALE



CAMBER DIAGRAM

NO SCALE

PUTNEY
IM 091-1(60)

SHEET 22 OF 45
BRIDGE 14
FOR REFERENCE ONLY

STRUCTURAL STEEL PLAN

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

INTERSTATE PROJECT in the town of

INTERSTATE STA. 982+25
OVER
SACKETTS BROOK STA. 5+00

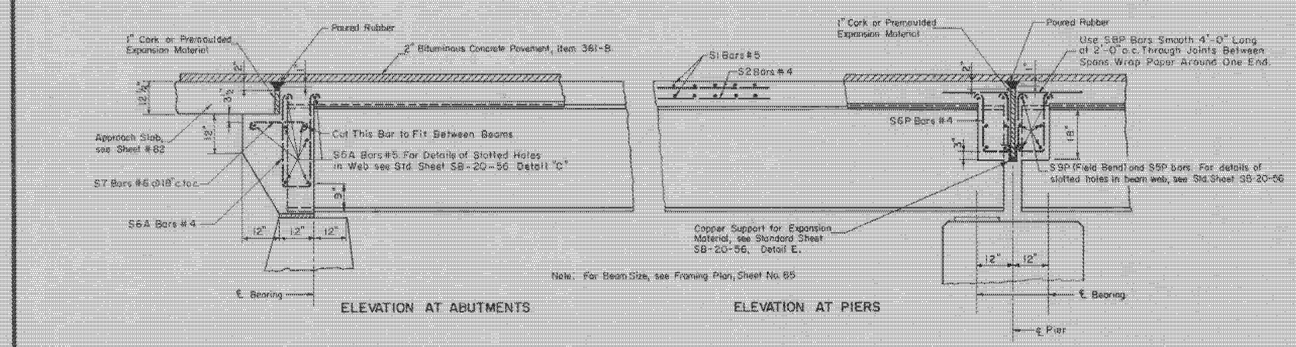
THE CLARKESON ENGINEERING CO. INC.
CONSULTING ENGINEERS
BOSTON MASSACHUSETTS

SURVEYED BY	CHECKED BY HM, B.S.S.	SCALE AS NOTED
DRAWN BY A.L.	IN CHARGE J.V.S.	DATE 10/25/57

PROJECT NO. I 91-1(10) SHEET 87 OF 328

CONTRACT NO. 1

B. P. R. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	VT.	I 91-1(10)	86	328



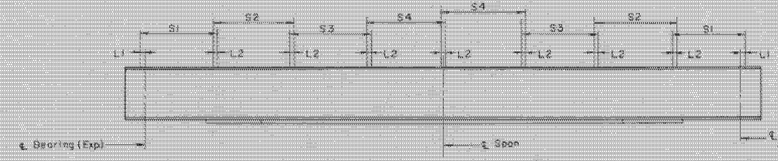
ELEVATION AT ABUTMENTS

ELEVATION AT PIERS

Note: For Beam Size, see Framing Plan, Sheet No. 85

TYPICAL ELEVATION OF BEAM (SQUARE)

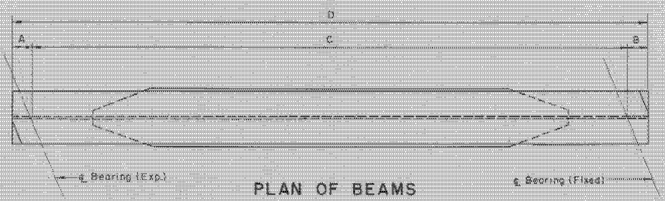
Scale: $\frac{1}{2}$" = 1'-0"



ELEVATION OF BEAMS

No Scale

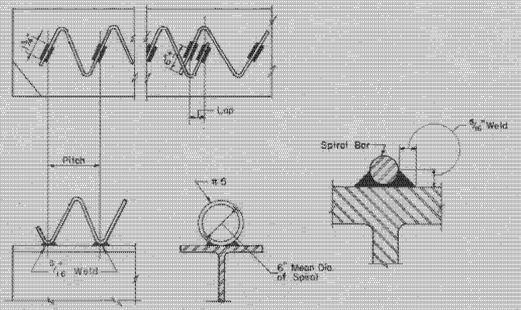
Note: For Spiral Spacing see Spiral Schedule



PLAN OF BEAMS

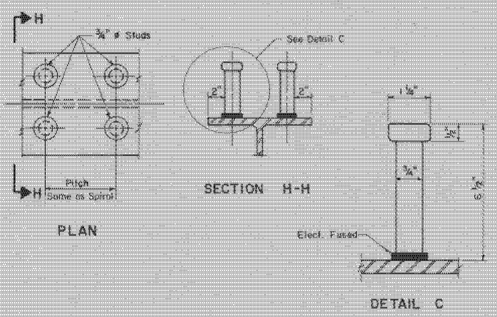
No Scale

Notes: 1. For Beam Size and Cover R Size see Framing Plan, Sheet No. 85.
2. For Cover R Details see Std. Sheet SCB-30-56.
3. Cut Flanges at ℄ Bearings as per Std. Sheet SB-22-58.
4. All beams and cover plates shall conform to A.S.T.M. Designation A 373. All other structural steel shall conform to Designation A7 or A373.



TYPICAL SHEAR CONNECTOR DETAILS

No Scale



PLAN

SECTION H-H

DETAIL C

ALTERNATE SHEAR CONNECTOR

No Scale

BEAM SCHEDULE					SPIRAL SCHEDULE						NO. of UNITS
BEAM NO.	A	B	C	D	S1	S2	S3	S4	L1	L2	
1,8,6	9"	11"	79'-4 7/16"	81'-0 7/16"	27 @ 4" = 9'-0"	24 @ 5" = 10'-0"	16 @ 7½" = 10'-0"	12 @ 11½" = 11'-6"	2¾"	2"	8
2,3,4,7,8,8 9	do	9"	do	80'-10 7/16"	do	do	do	do	do	do	do
5,8,10	do	9½"	do	80'-10 9/16"	do	do	do	do	do	do	do
11,8,16	8"	11"	81'-3½"	82'-11½"	30 @ 4" = 10'-0"	24 @ 5" = 10'-0"	18 @ 7" = 10'-6"	13 @ 10" = 10'-10"	1¼"	do	do
12,13,14,17,18,8 19	9"	9"	do	82'-9 1/16"	do	do	do	do	do	do	do
15,8,20	9½"	9½"	do	82'-10½"	do	do	do	do	do	do	do
21,8,26	8"	9"	76'-4 1/16"	77'-9 9/16"	27 @ 4" = 9'-0"	21 @ 5" = 8'-9"	16 @ 7½" = 10'-0"	12 @ 11½" = 11'-6"	5⅝"	do	do
22,23,24,27,28,8,29	9"	do	do	77'-10 1/16"	do	do	do	do	do	do	do
25,8,30	9½"	do	do	77'-11 3/16"	do	do	do	do	do	do	do

ESTIMATED QUANTITIES

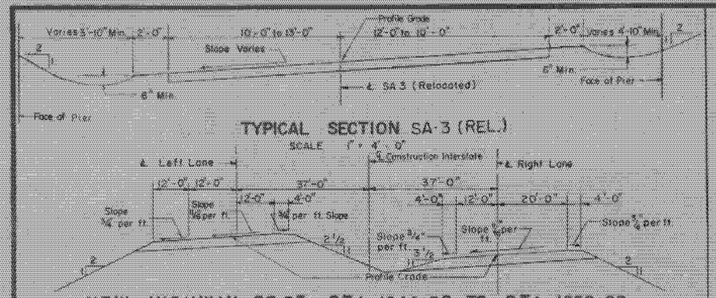
ITEM NO.	DESCRIPTION	UNIT	RIGHT LANE NET	RIGHT LANE OVER-RUN	RIGHT LANE TOTAL	RIGHT LANE FINAL	LEFT LANE NET	LEFT LANE OVER-RUN	LEFT LANE TOTAL	LEFT LANE FINAL
361-B	Bituminous Concrete Pavement	Tons	92	+14=	+106=	92	92	+14=	+106=	92
401-B	Concrete Class B (Mod.)	C.Y.	+255=	+13=	+268=	377	+255=	+13=	+268=	370
402	Reinforcing Steel	Lbs.	See Reinforcing Steel Schedule							
403	Spiral Reinforcement	L.S.	One	-	4148 lbs.	½	One	-	4148 lbs.	½
404-A	Structural Steel	Lbs.	313,143=	+6263=	319,406=	310,555	313,143=	+6263=	319,406=	310,555
556-C	Granite Curb (Type 1)	L.F.	+526=	-	+526=	529	+526=	-	+526=	529
572	Bridge Railing	L.F.	+477=	-	+477=	478	+477=	-	+477=	477
222	Gravel Backfill (Along Slopes)	C.Y.	8,280	2,150	10,430	(Both Lanes)				
522	Stone Fill For Slope Protection	C.Y.	10,280	1,540	11,820	(Both Lanes)				

PUTNEY
IM 091-1(60)

SHEET 23 OF 45
BRIDGE 14
FOR REFERENCE ONLY

STRUCTURAL DETAILS
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS
INTERSTATE PROJECT in the town of
PUTNEY
INTERSTATE STA. 982+25
OVER
SACKETTS BROOK STA. 5+00
THE CLARKESON ENGINEERING CO., INC.
CONSULTING ENGINEERS
BOSTON MASSACHUSETTS
SURVEYED BY | DRAWN BY R.L.T. | CHECKED BY H.M.M.G.H. | IN CHARGE J.V.B. | SCALE AS NOTED | DATE 10-25-57
PROJECT NO. I 91-1(10) | SHEET 38 OF 328
CONTRACT NO. I

HIGHWAY NO. RT 31 Sec. 1	NAME OF HIGHWAY Interstate	B.P.R. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
STRUCTURE NO.	COUNTY Windham TOWN Putney	1	V.T.	I 91-1(110)	95	328
PROJECT NO. I-91-1(110)	LOCATION Sta. 1047+03.76					

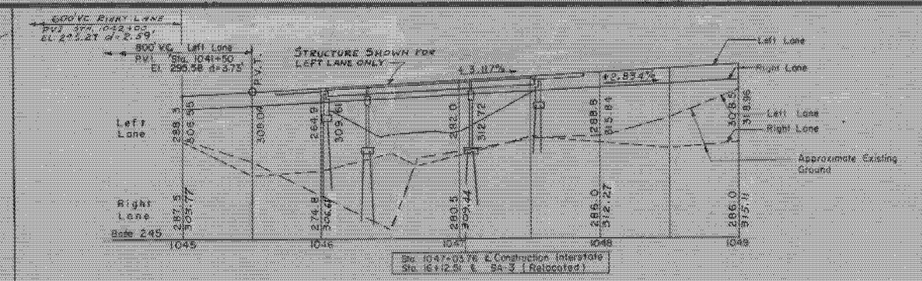


TYPICAL SECTION SA-3 (REL.)

SCALE 1" = 4'-0"

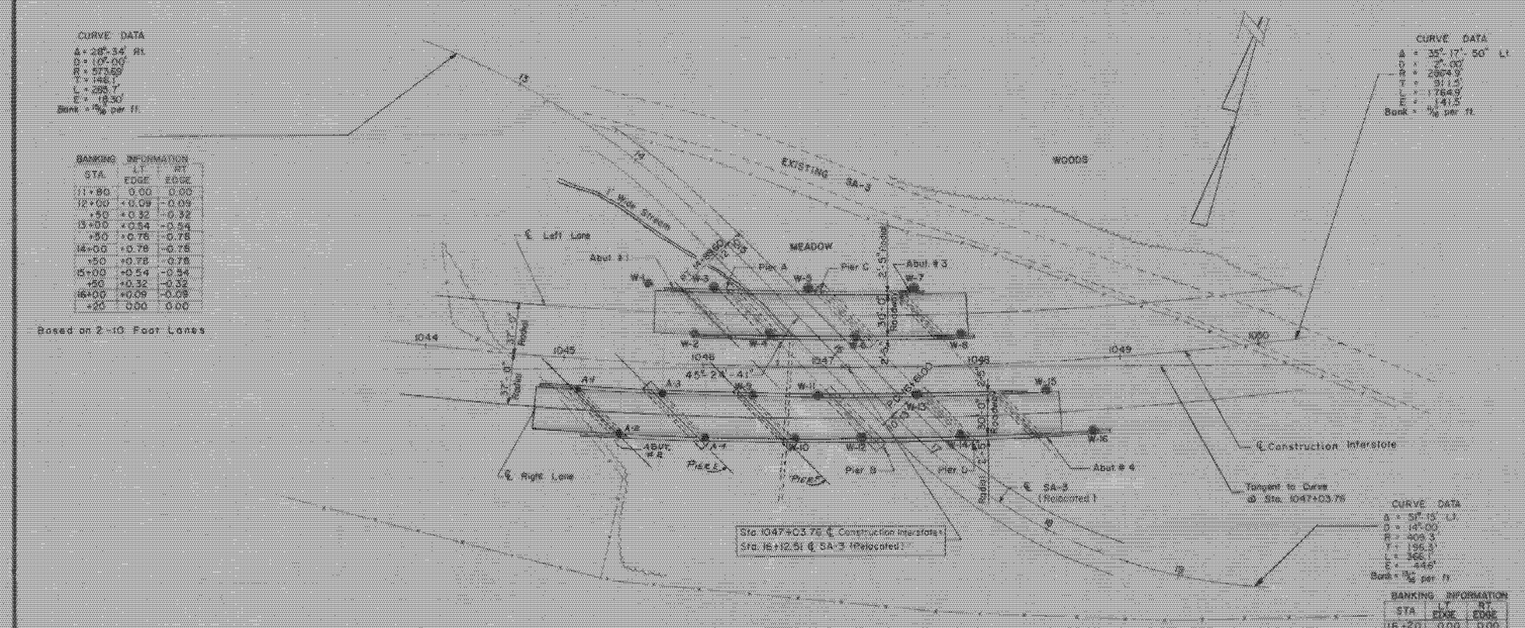
NEW HIGHWAY SECT. STA. 1044+00 TO STA. 1050+00

SCALE 1" = 20'-0"



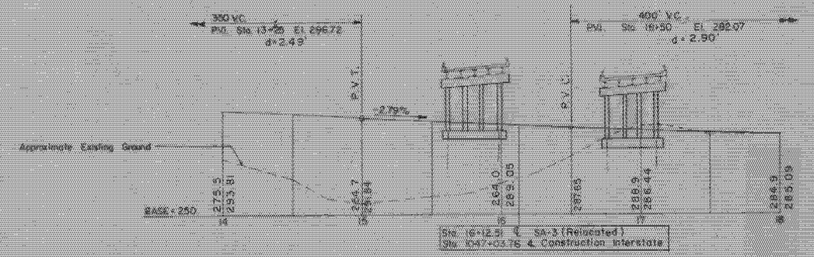
NEW HIGHWAY PROFILE ALONG ℄ INTERSTATE

SCALE Hor. 1" = 50'-0"
Vert. 1" = 30'-0"



PLAN

SCALE 1" = 50'-0"



PROFILE OF PROPOSED SA-3 (RELOCATED)

SCALE Hor. 1" = 50'-0"
Vert. 1" = 30'-0"

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	NET	OVER-RUN	TOTAL	FINAL
107	Structure Excavation	C.Y.	1027	101	1128	956
204	Sub-base of Crushed Rock (Mod.)	C.Y.	496	29	525	580
222	Gravel Backfill	C.Y.	389	40	496	384
361-B	Bituminous Concrete Pavement	Tons	226	34	260	230
401-B	Concrete Class B (Mod.)	C.Y.	1838	92	1924	1904
402	Reinforcing Steel	Lbs.	257,100	—	257,100	256,670
403	Spiral Reinforcement (est. wt. Total)	L.S.	1	—	1	1
404-A	Structural Steel	Lbs.	397,839	7750	405,796	390,013
407	Asphaltic-Asbestos Coating	S.Y.	164	—	164	164
504	Steel Piling	L.F.	1891	—	1891	1663
556-C	Granite Bridge Curb (Type I)	L.F.	1042	—	1042	1048
572	Bridge Railing (Type 1 and 2)	L.F.	887	—	887	897
601	Furnishing Equip. for Driving Piles		Required			1
505	Splices for Steel Piling	Ea.	54	—	54	24
578	Fur. Equip. for Bridge Drain (Spec. No. 578(M))				0	170
593	Dust Shield for Expansion Joint (Spec. No. 593(M))				0	0
595	Grimes and Under Railroad Fence (Spec. Dwg. 595-1)				0	96

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. FOR BORING LOGS, SEE SHEET 96

GENERAL NOTES

DESIGN SPECIFICATION:

AASHO 1953 Edition and as modified by Vermont Dept. of Highways.

LIVE LOAD:

H20-S16-44 and Military Loading.

DESIGN STRESSES:

Structural steel fs = 18,000 p.s.i.
Reinforcing steel fs = 20,000 p.s.i.
Concrete fc = 1,200 p.s.i. for fc = 3,000 p.s.i.

MINIMUM CLEARANCE

Vertical, 16'-6"
Horizontal, as shown on plans.

SUPERSTRUCTURE:

Separate structure for each lane.
30' Roadway, 1'-6" Safety Walks, as per SCB-30-56.
Simple spans, rolled beams, composite design as per SCB-30-56.
Aluminum bridge railing, or galvanize bridge railing, and granite bridge Curb as per SB-30-57 (142)
Bearing and diaphragm connections as per SB-20-56
Approach slabs as per SB-45-45 A-1-a

SUBSTRUCTURE:

4 Cantilever abutments.
Open piers, round columns spaced 12' o.c. on continuous footings.

FOUNDATIONS:

Abutment - Steel piles.
Piers: - Steel piles.

101	WINGWALLS	
102	APPROACH SLABS	
103	PIERS A AND B	
104 & 104A	PIERS C AND D, E AND F	
105 & 105A	STRUCTURAL PLAN	
106	STRUCTURAL DETAILS	
107	REINFORCING SCHEDULE	
108	REINFORCING SCHEDULE	
109	REINFORCING SCHEDULE	
26 and 27	HIGHWAYS PLAN AND PROFILES	
52A & 52B	SCB-30-56(B2)	
52	SB-20-56	
93	SB-22-56	
54A & 54B	SB-50-57 (182)	
87	SB-45-45* mod.	

PUTNEY
IM 091-1(60)

SHEET 24 OF 45
BRIDGE 15
FOR REFERENCE ONLY

GENERAL PLAN

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

INTERSTATE PROJECT in the town of PUTNEY

INTERSTATE OVER SA-3 (RELOCATED)

STA. 1047+03.76
STA. 16+12.51

APPROVED BY [signature] DATE 2/24/59

THE CLARKESON ENGINEERING CO. INC.
CONSULTING ENGINEERS
BOSTON MASSACHUSETTS

SURVEYED BY	CHECKED BY E.R.	SCALE AS NOTED
DRAWN BY R.J.F.	IN CHARGE J.V.B.	DATE 11-5-57

PROJECT NO. I 91-1 (110) SHEET 24 OF 328

CONTRACT NO. 1

B. P. R. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	VT.	I 91-1(10)	97	328

PLAN
Scale: 1"=10'-0"

SOUTHERLY ELEVATION, LEFT LANE
NORTHERLY ELEVATION (SIMILAR)
Scale: 1" = 10'-0"

CHORD LAYOUT
NOT TO SCALE

Note: 1. Railing Posts to be set normal to grade.
2. Omit set screws at upgrade end of railing panels at expansion joints over piers.
3. All stations refer to ℄ Construction Interstate.
4. All dimensions are horizontal dimensions.
5. For Scupper layout, see Framing Plan Sheet No 105 & 105A

RAILING SCHEDULE

		A	B	C
LEFT LANE	NORTH	7'-1"	19@7'-0"=133'-0"	147'-2"
	SOUTH	6'-11¾"	19@6'-11"=131'-5"	145'-4"
RIGHT LANE	NORTH	7'-0½"	40@7'-0½"=281'-8"	295'-9"
	SOUTH	6'-11⅝"	40@6'-11⅝"=278'-9"	292'-7½"

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	NET	OVERRUN	TOTAL	FINAL
556-C	Granite Bridge Curb (Type I)	L.F.	1042		1042	1042 ✓
572	Bridge Railing	L.F.	587		587	587 ✓
503	Splices for Steel Piling	Ea.	51		51	26 ✓

PUTNEY
IM 091-1(60)

SHEET 25 OF 45
BRIDGE 15
FOR REFERENCE ONLY

BRIDGE 15 N.S.
PLAN AND ELEVATION

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

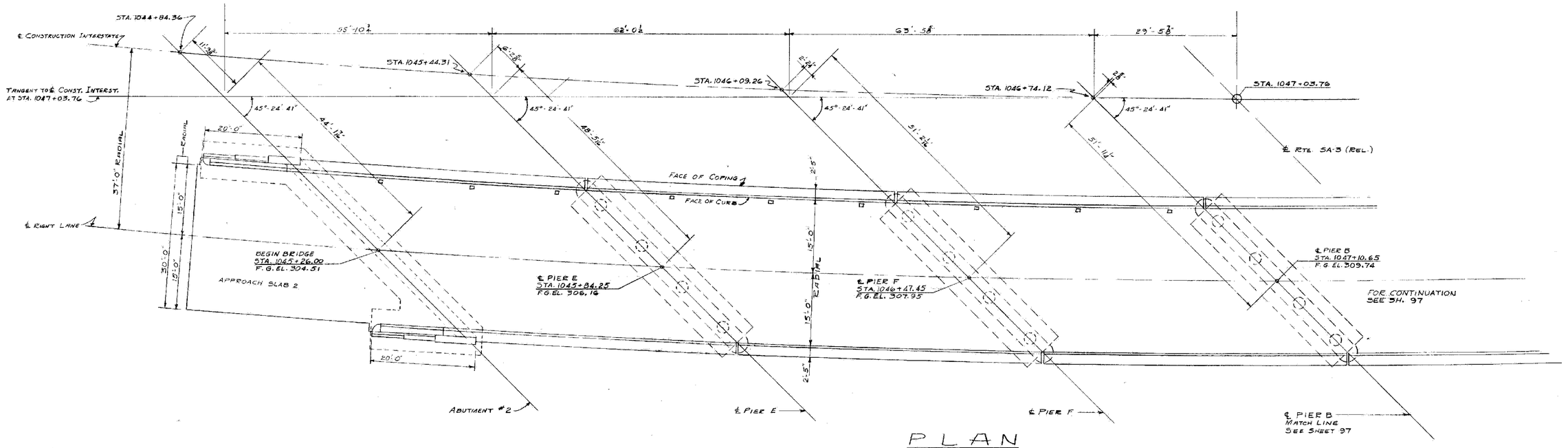
INTERSTATE PROJECT in the town of PUTNEY
INTERSTATE STA. 1047+03.76 OVER STA. 16+12.51 (REL.)

THE CLARKESON ENGINEERING CO., INC.
CONSULTING ENGINEERS
BOSTON MASSACHUSETTS

SURVEYED BY
DRAWN BY C.E.S.,B.B.S.
CHECKED BY R.J.K
IN CHARGE A.V.D.
SCALE AS NOTED
DATE 11-2-37

PROJECT NO. I 91-1(10) SHEET 97 OF 328

CONTRACT NO. I



PLAN

PUTNEY
IM 091-1(60)

SHEET 26 OF 45
BRIDGE 15
FOR REFERENCE ONLY

PLAN

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF PUTNEY

ROUTE NO. 91 LOG STA. 1047+03.76

PLAN NORTHBOUND LANE

INTERSTATE OVER 5A-3 (REL.)

SCALE 1" = 10'-0"

SURVEYED BY

DRAWN BY RENADCO CHECKED BY WMS

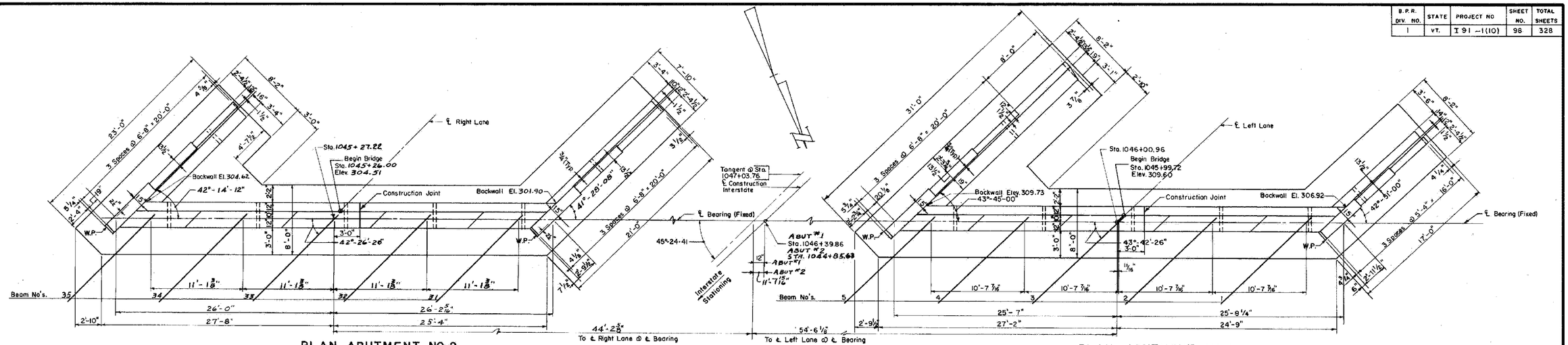
PROJECT NO. I-91-1(10)

SHEET 97A OF 328

CONTRACT NO. 1

H&E PROVIDENCE R.I.&B. B. L. M. INC. 02918

B.P.R. DIV. NO.	STATE	PROJECT NO	SHEET NO.	TOTAL SHEETS
1	VT.	I 91 -1(10)	98	328

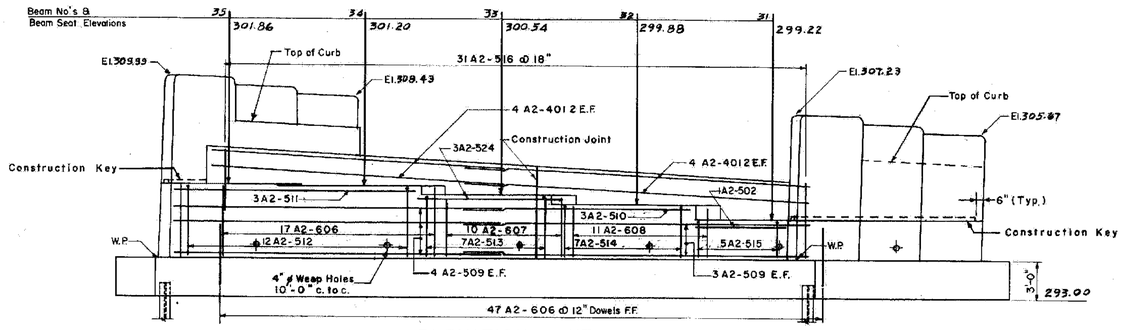


PLAN ABUTMENT NO. 2

Scale: None.

PLAN ABUTMENT NO. 1

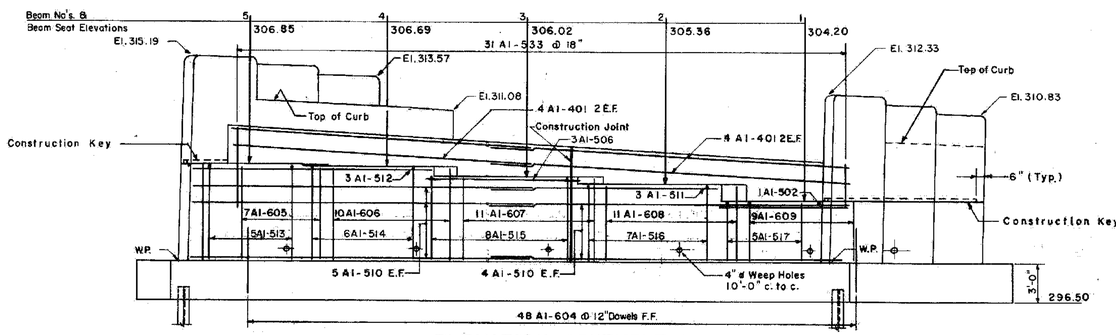
Scale: 3/16" = 1'-0"



ELEVATION ABUTMENT NO. 2

Scale: 3/16" = 1'-0"

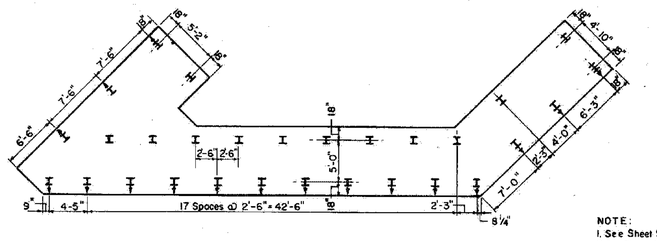
Note: Bars No. A2-512 Thru A2-515 @ 18" N.F.
Bars No. A2-606 Thru A2-608 @ 12" F.F.



ELEVATION ABUTMENT NO. 1

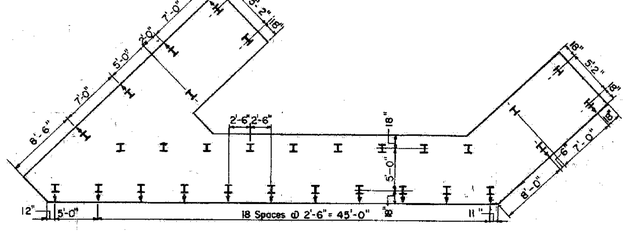
Scale: 3/16" = 1'-0"

Note: Bars No. A1-513 Thru A1-517 @ 18" N.F.
Bars No. A1-605 Thru A1-609 @ 12" F.F.



PILE PLAN ABUTMENT NO. 2

Scale: 1/8" = 1'-0"



PILE PLAN ABUTMENT NO. 1

Scale: 1/8" = 1'-0"

NOTE:
1. See Sheet 99 for Limits of Gravel Backfill.
2. See Sheet 101 for Wingwall Reinforcing & Typical Sections
3. See Sheet 100 for Footing Reinforcing.
4. See Sheet 101 for Quantity Estimates
5. All Beam Seat Elevations Shown are Top of Masonry Shelf.
6. All Piles 10BP42 35 Ton Design Load Indicated Thus: I Vertical, ⊥ Battered
7. For Estimating Purposes Piles are assumed to be 58' Long Abutment No. 1, 111' Long Abutment No. 2, 40' Long Abutment No. 3, & 33' Long Abutment No. 4.

PUTNEY
IM 091-1(60)

SHEET 27 OF 45
BRIDGE 15
FOR REFERENCE ONLY

ABUTMENT NO. 1 AND NO. 2

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

INTERSTATE PROJECT in the town of PUTNEY

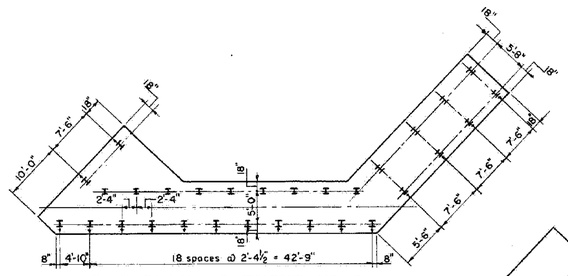
INTERSTATE SA-3 (REL.) OVER STA. 1047+03.76 STA. 16+12.51

THE CLARKESON ENGINEERING CO. INC.
CONSULTING ENGINEERS
BOSTON MASSACHUSETTS

SURVEYED BY DRAWN BY F.P.D.	CHECKED BY B.J.K. IN CHARGE J.V.B.	SCALE AS NOTED DATE 10/8/87
PROJECT NO. I 91-1(10)	SHEET 98 OF 328	

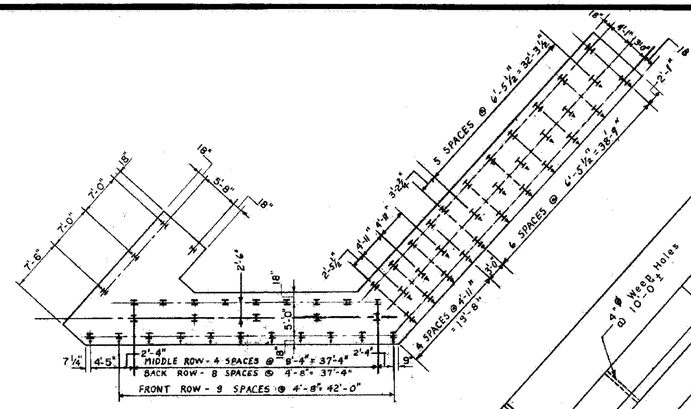
CONTRACT NO. 1

B.P.R. DIV. NO.	STATE	PROJECT NO	SHEET NO.	TOTAL SHEETS
1	VT.	I 91-1(10)	99	328



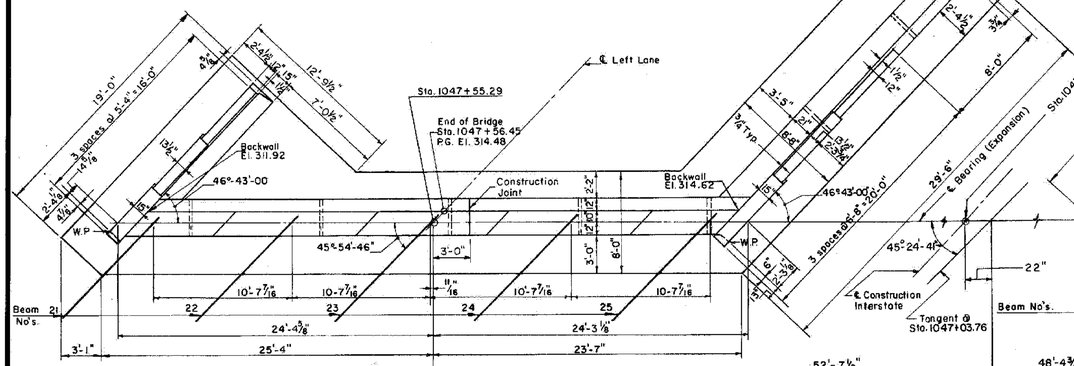
PILE PLAN ABUTMENT NO. 3

No Scale



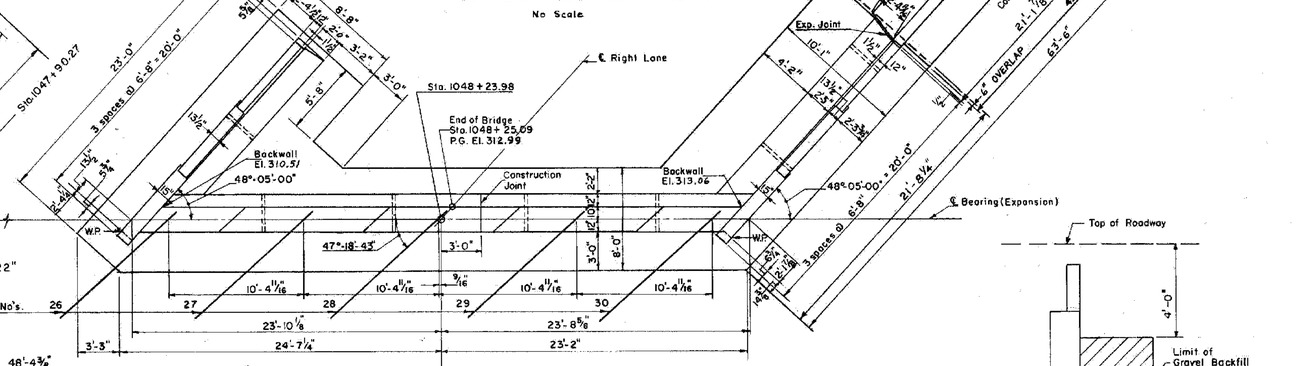
PILE PLAN ABUTMENT NO 4

No Scale



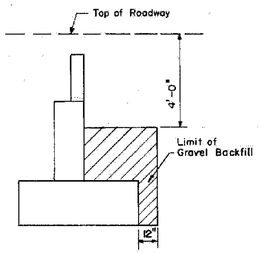
PLAN ABUTMENT NO. 3

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



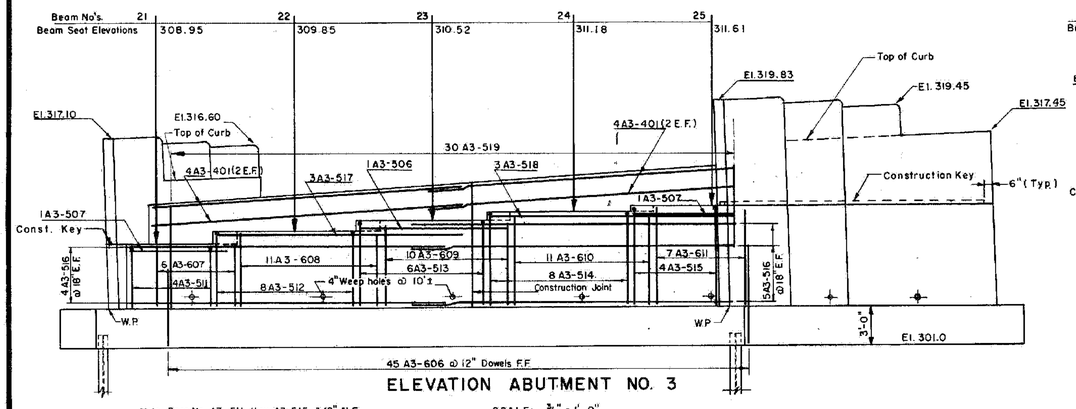
PLAN ABUTMENT NO. 4

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



LIMITS OF GRAVEL BACKFILL

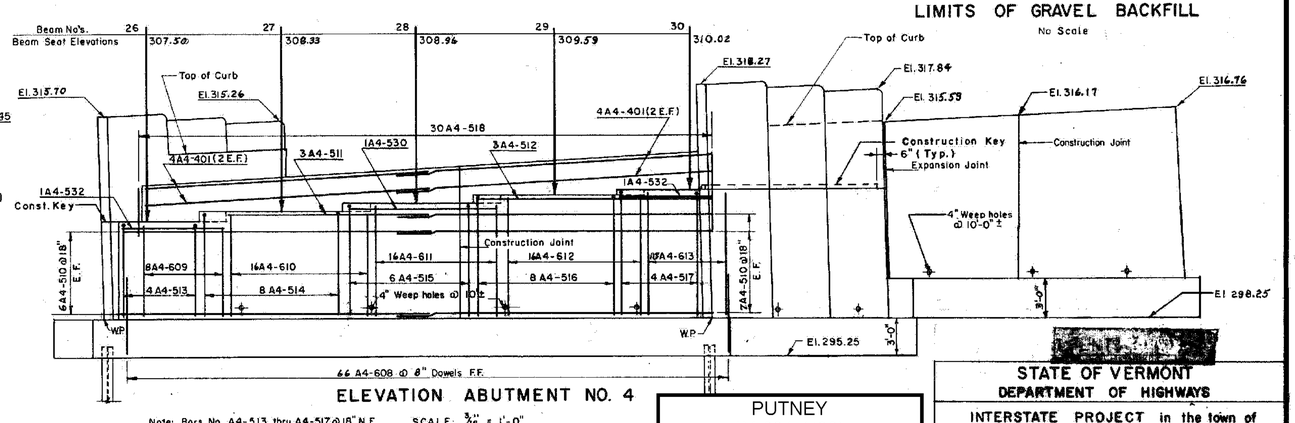
No Scale



ELEVATION ABUTMENT NO. 3

Note: Bars No. A3-511 thru A3-515 @ 18" N.F.
Bars No. A3-607 thru A3-611 @ 12" E.F.

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



ELEVATION ABUTMENT NO. 4

Note: Bars No. A4-513 thru A4-517 @ 18" N.F.
Bars No. A4-609 thru A4-613 @ 8" E.F.

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

NOTE: See Sheet 98 for General Notes

PUTNEY
IM 091-1(60)

SHEET 28 OF 45
BRIDGE 15
FOR REFERENCE ONLY

ABUTMENTS NO. 3 AND NO. 4

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

INTERSTATE PROJECT in the town of PUTNEY

INTERSTATE SA-3 (REL.) OVER STA. 1047+03.76 STA. 16+12.51

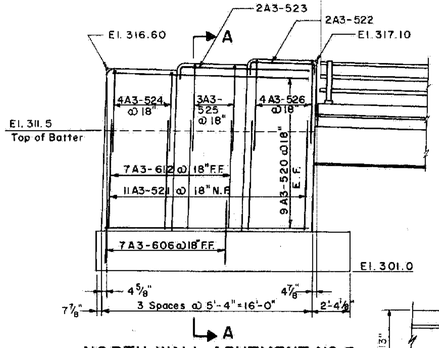
THE CLARKESON CONSULTING ENGINEERS CO., INC.
BOSTON MASSACHUSETTS

SURVEYED BY	DRAWN BY F.P.D.	CHECKED BY B.J.K.	IN CHARGE J.V.S.	SCALE AS NOTED	DATE 11/8/87

PROJECT NO. I 91-1(10) SHEET 99 OF 328

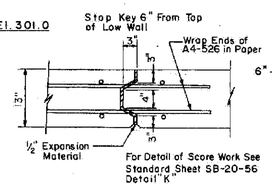
CONTRACT NO.1

B.P.R. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	VT.	I 91-1(10)	101	328



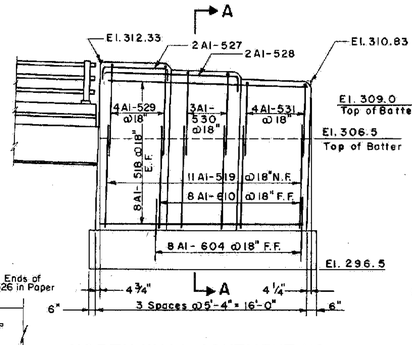
NORTH WALL ABUTMENT NO.3

Scale: 3/16" = 1'-0"



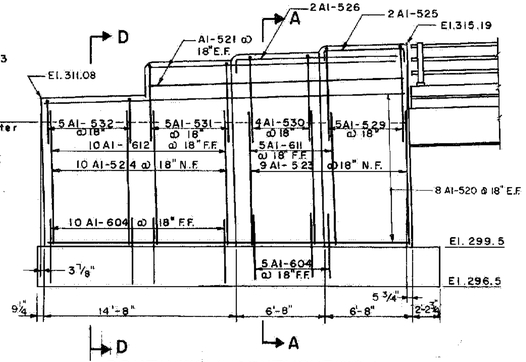
DETAIL "A"

Scale: 1" = 1'-0"



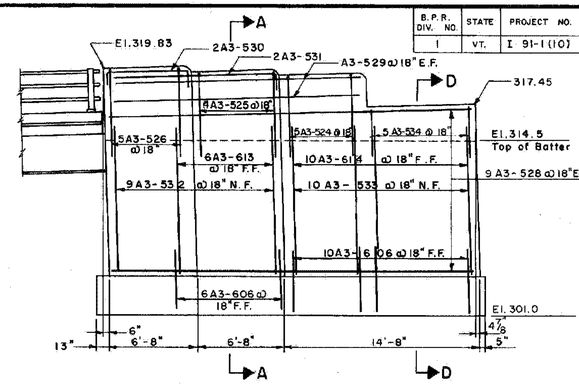
NORTH WALL ABUTMENT NO.1

Scale: 3/16" = 1'-0"

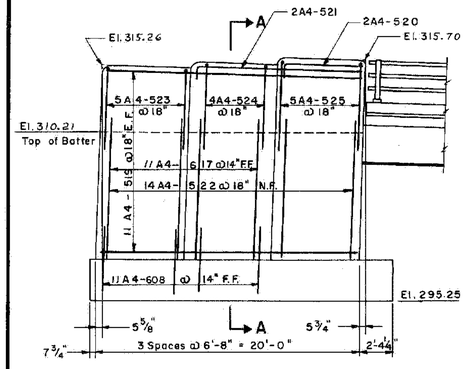


SOUTH WALL ABUTMENT NO.1

Scale: 3/16" = 1'-0"

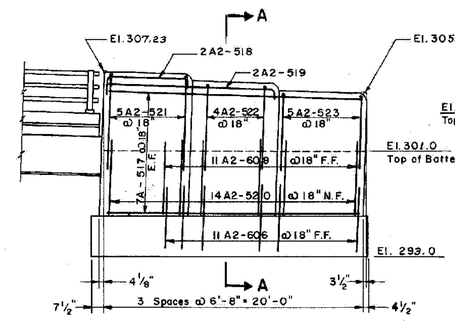


SOUTH WALL ABUTMENT NO.3



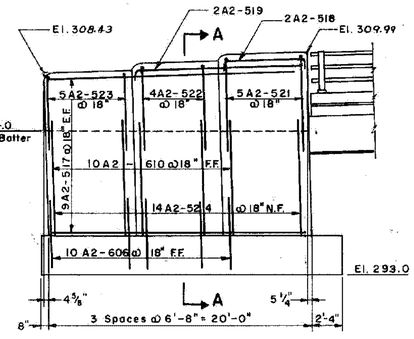
NORTH WALL ABUTMENT NO.4

Scale: 3/16" = 1'-0"



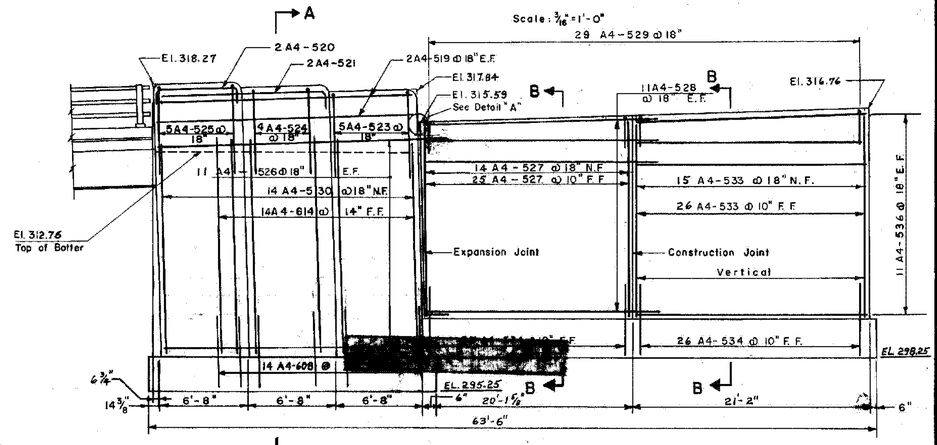
NORTH WALL ABUTMENT NO.2

Scale: 3/16" = 1'-0"



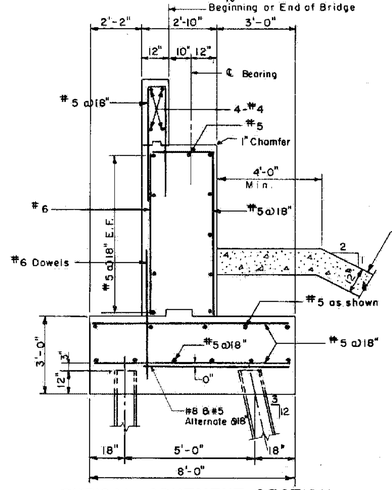
SOUTH WALL ABUTMENT NO. 2

Scale: 3/16" = 1'-0"



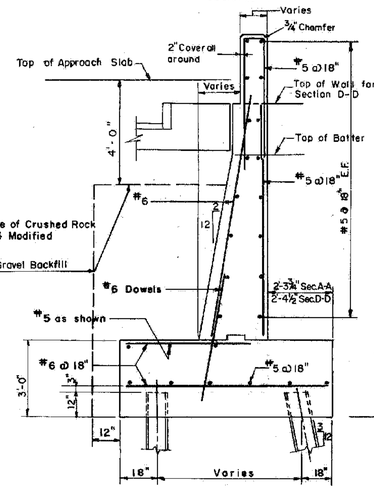
SOUTH WALL ABUTMENT NO.4

Scale: 3/16" = 1'-0"



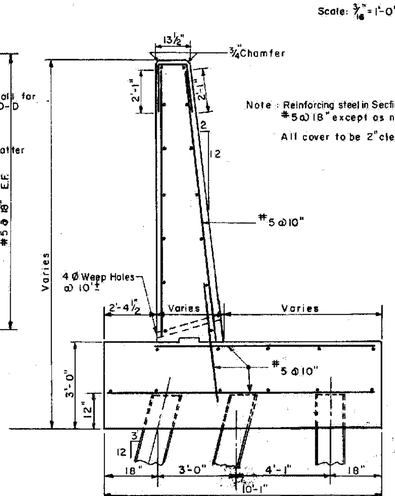
TYPICAL ABUTMENT SECTION

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



TYPICAL WINGWALL SECTION A-A
SECTION D-D (SIMILAR EXCEPT AS NOTED)

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



SECTION B-B

Not to Scale

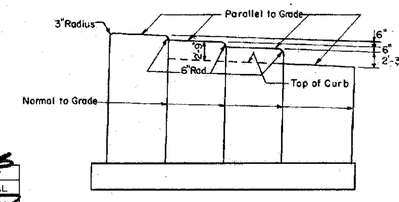
NOTES:

1. For Pile Plan See Sheet No. 98 & 99
2. Slope all Bridge Seats 1/4" Per Ft.
3. Bridge Seats are to be Covered with 1/2" Asphaltic-Asbestos Coating after Superstructure is in Place.
4. Prior to driving the Piles, rock-free fill Shall be Placed Under the Abutment area to Approximately the Level of the Pile Cutoff Elevation and with a Surface Area at Least (2) Two Feet Outside the Abutment. After Piles are Driven the Fill is to be Excavated to the Elevation of the Bottom of Footing.
5. A Layer of Sub-base of Crushed Rock (Mod) Item 204, One Foot Thick, 27' Ft. Long on Slope of Abutment No. 1, 31 Ft. Long Abutment No. 2, 48 Ft. Long Abutment No. 3, and 45 Ft. Long Abutment No. 4 Shall be Placed in Front of the Abutments, the Elevation is Indicated on the Plans. The Edge of the Area to be in Line with the End Posts and Parallel to the Centerline of the Roadway.

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	ABUT. 1 NET	ABUT. 1 OVER-RUN	ABUT. 1 TOTAL	ABUT. 1 FINAL	ABUT. 2 NET	ABUT. 2 OVER-RUN	ABUT. 2 TOTAL	ABUT. 2 FINAL
107	Structure Excavation	C.Y.	~~33~~	~~3~~	~~36~~	32 ✓	~~31~~	~~3~~	~~34~~	32 ✓
204	Sub-Base of Crushed Rock (Mod.)	C.Y.	~~35~~	~~5~~	~~40~~	67 ✓	~~41~~	~~6~~	~~47~~	322 ✓
222	Gravel Backfill	C.Y.	~~72~~ ✓	~~18~~	~~90~~	72 ✓	50 ✓	~~15~~	~~65~~	50 ✓
401-B	Concrete Class B (Mod.)	C.Y.	147 ✓	~~8~~	~~155~~	147 ✓	~~122~~	~~8~~	~~130~~	130 ✓
402	Reinforcing Steel	Lbs.	See Reinforcing Schedule Sheet 107				See Reinforcing Schedule Sheet 107			
407	Asphaltic-Asbestos Coating	S.Y.	10 ✓	–	10 ✓	10	10 ✓	–	10 ✓	10
504	Steel Piling	L.F.	~~7740~~	–	~~7740~~	2,167	~~3237~~	–	~~3237~~	3237
503	Splices for Steel Piling	EO.	~~7~~	–	~~7~~	0	~~2~~	–	~~2~~	1

ITEM	DESCRIPTION	UNIT	ABUT. 3 NET	ABUT. 3 OVER-RUN	ABUT. 3 TOTAL	ABUT. 3 FINAL	ABUT. 4 NET	ABUT. 4 OVER-RUN	ABUT. 4 TOTAL	ABUT. 4 FINAL
107	Structure Excavation	C.Y.	~~32~~	~~3~~	~~35~~	33	~~49~~	~~5~~	~~54~~	60
204	Sub-Base of Crushed Rock (Mod.)	C.Y.	~~62~~	~~9~~	~~71~~	4				
222	Gravel Backfill	C.Y.	79 ✓	~~21~~	~~100~~	7				
401-B	Concrete Class B (Mod.)	C.Y.	~~147~~	~~8~~	~~155~~	15				
402	Reinforcing Steel	Lbs.	See Reinforcing Schedule Sheet 10							
407	Asphaltic-Asbestos Coating	S.Y.	9 ✓	–	9 ✓					
504	Steel Piling	L.F.	~~1200~~	–	~~1200~~	166				
503	Splices for Steel Piling		~~2~~	–	~~2~~					



TYPICAL WINGWALL DETAIL

Not To Scale

WINGWALLS

PUTNEY
IM 091-1(60)

SHEET 29 OF 45
BRIDGE 15
FOR REFERENCE ONLY

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

INTERSTATE PROJECT in the town of PUTNEY

INTERSTATE STA. 1047+03.76
OVER
SA-3 (REL) STA. 16+12.51

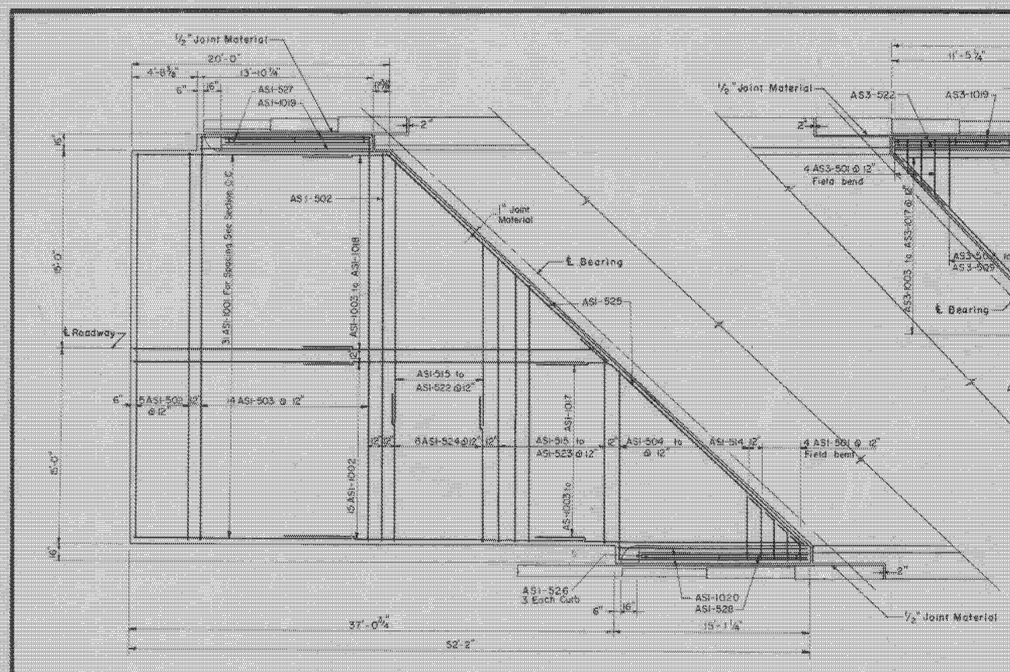
THE CLARKESON ENGINEERING CO., INC.
CONSULTING ENGINEERS
BOSTON MASSACHUSETTS

SURVEYED BY	DRAWN BY S.A.L. R.J.F.	CHECKED BY D.S.A. & J.K.	IN CHARGE J.V.B.	SCALE AS NOTED	DATE

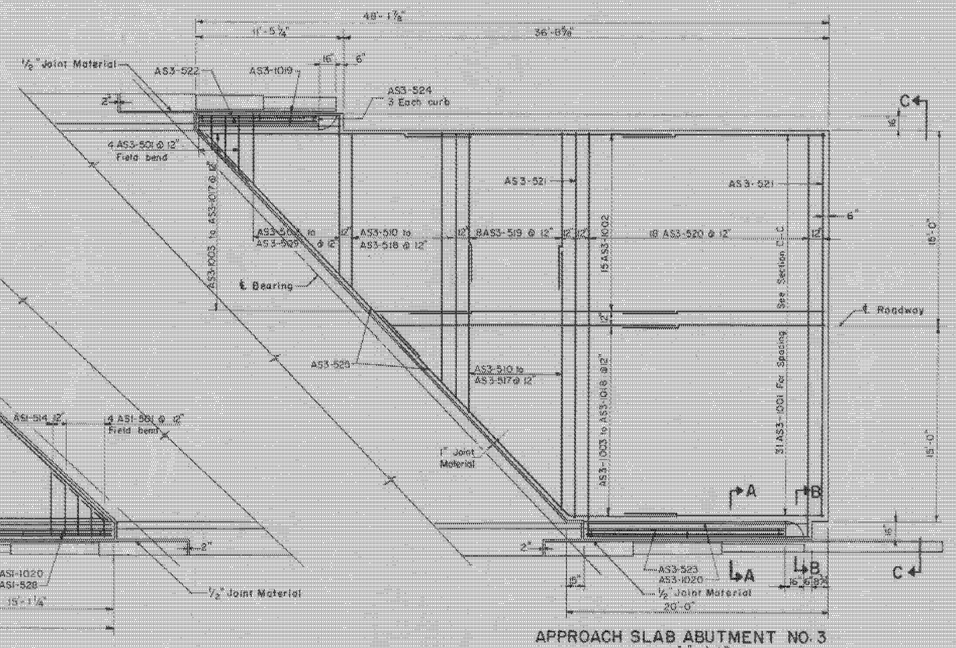
PROJECT NO. I 91-1(10) SHEET 101 OF 328

CONTRACT NO.1

B.P.R. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	VT.	F 91-1(10)	102	328

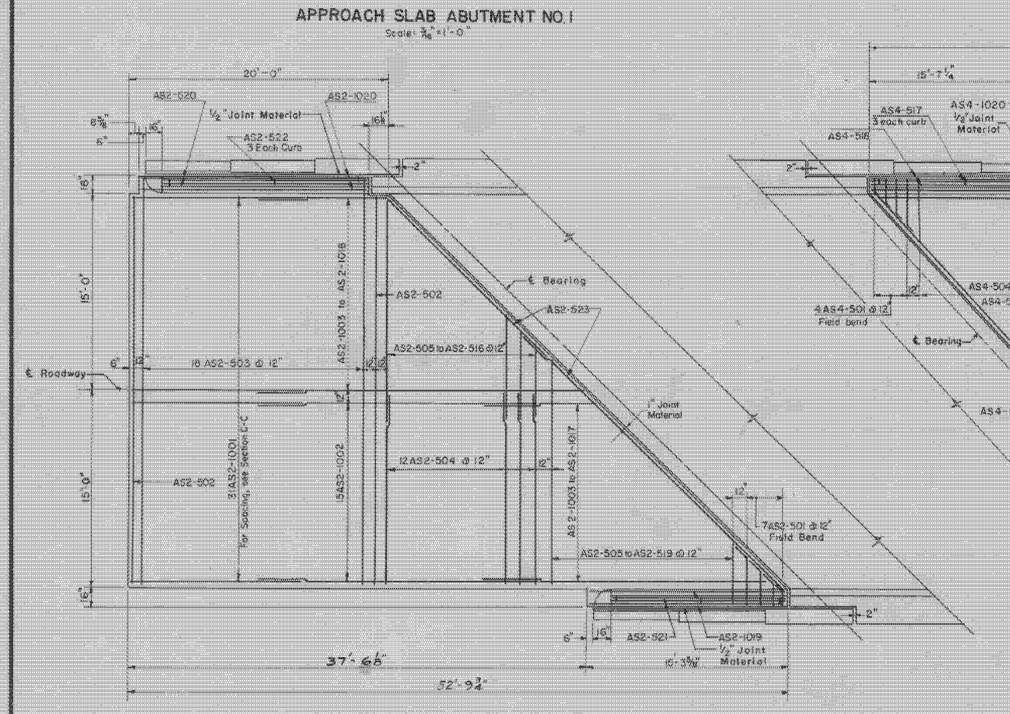


APPROACH SLAB ABUTMENT NO. 1
Scale: ¾"=1'-0"

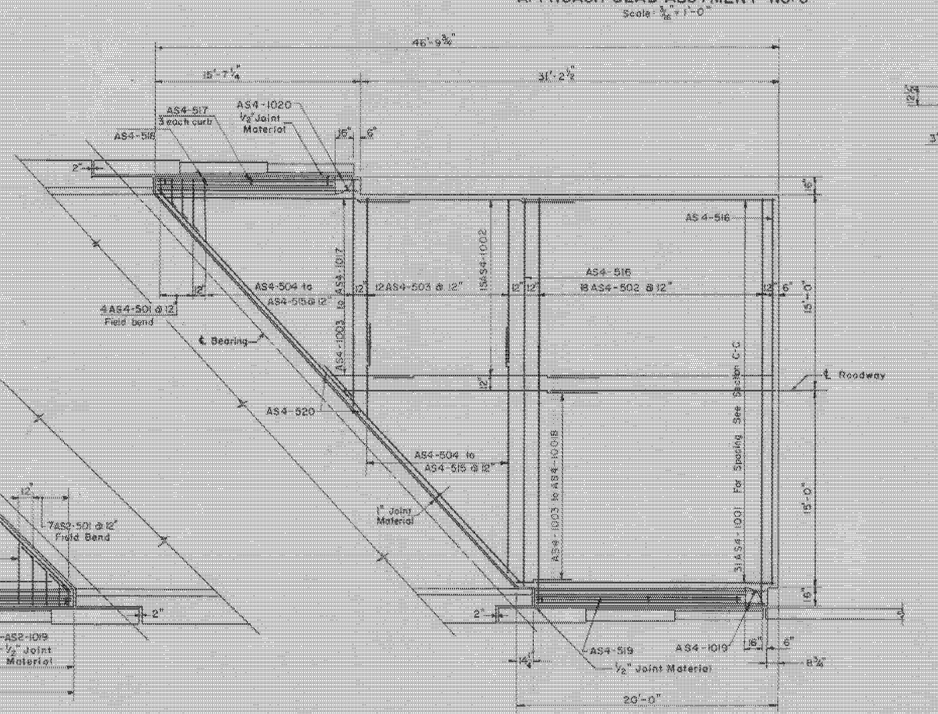


APPROACH SLAB ABUTMENT NO. 3
Scale: ¾"=1'-0"

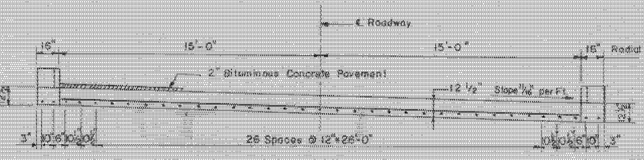
Note: For Sections A-A & B-B See Standard Sheet SB-AS 45° Skew 97.



APPROACH SLAB ABUTMENT NO. 2
Scale: ¾"=1'-0"



APPROACH SLAB ABUTMENT NO. 4
Scale: ¾"=1'-0"



SECTION C-C
Scale: ⅛"=1'-0"

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	APPROACH SLAB - (4 SLABS) NET	OVER-RUN	TOTAL	FINAL
361-B	Bituminous Concrete Pavement	TONS	54	8%	62	58
401-B	Concrete Class B (Mod.)	C.Y.	172	9%	186	172
402	Reinforcing Steel	LBS.	See Reinforcing Steel Schedule Sh. 109			
556-C	Granite Bridge Curb (Type 1)	L.F.	See Sheet 97			

PUTNEY
IM 091-1(60)

SHEET 30 OF 45
BRIDGE 15
FOR REFERENCE ONLY

APPROACH SLABS

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

INTERSTATE PROJECT in the town of PUTNEY
INTERSTATE STA. 1047+03.76
OVER
SA-3 (REL.) STA. 16+12.51

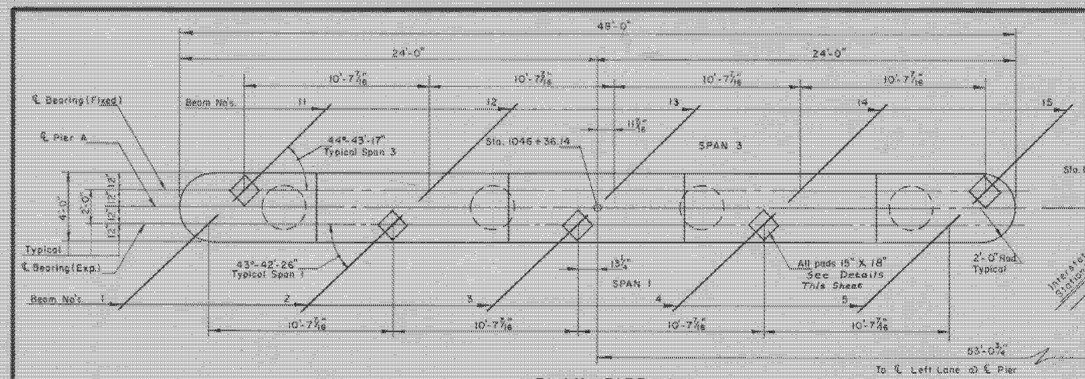
THE CLARKESON ENGINEERING CO., INC.
CONSULTING ENGINEERS
BOSTON MASSACHUSETTS

SURVEYED BY	CHECKED BY D.S.B. & A.M.	SCALE AS NOTED
DRAWN BY A.E.M.	IN CHARGE J.V.S.	DATE 11/25/27

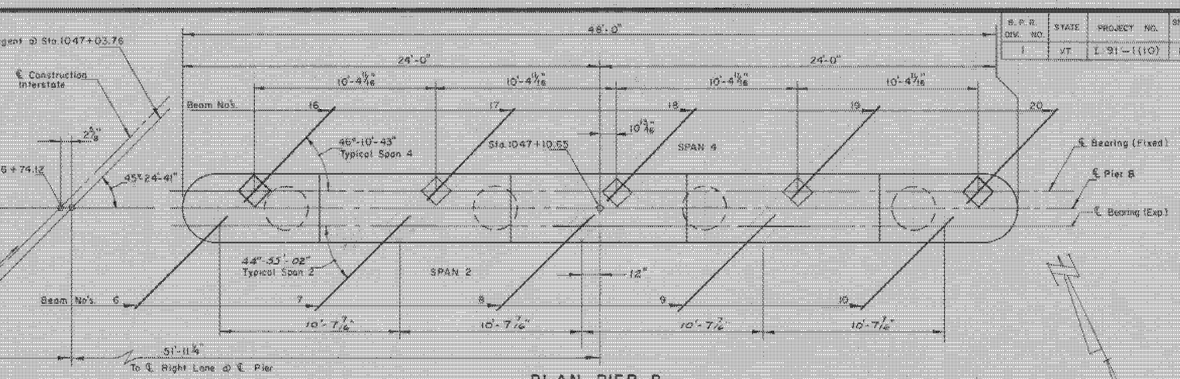
PROJECT NO. F 91-1(10) SHEET 102 OF 328

CONTRACT NO. 1

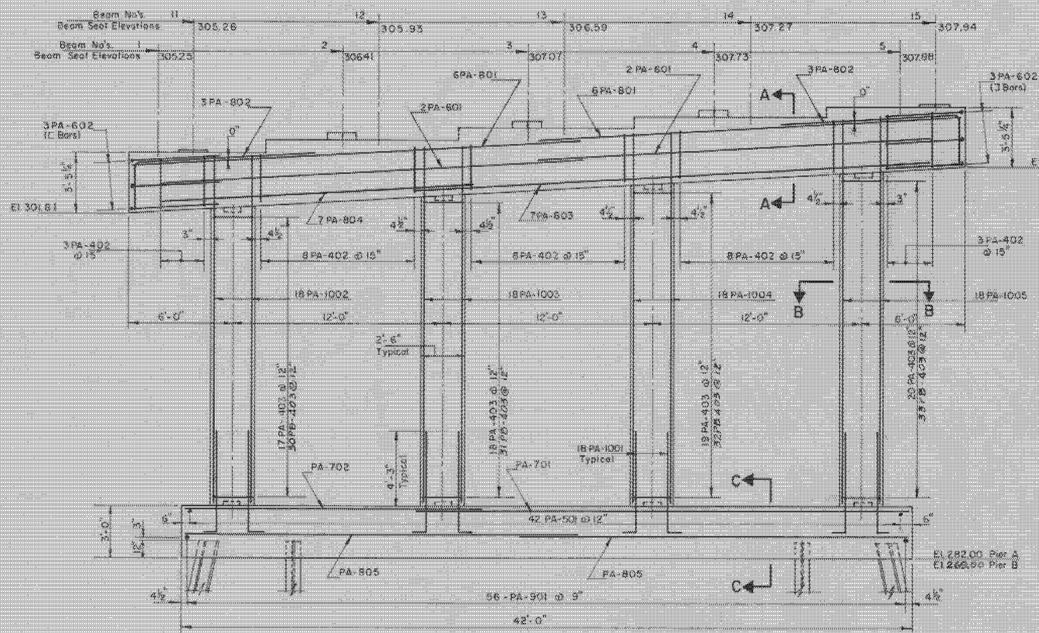
B. P. R. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	VT.	I-91-1(110)	103	328



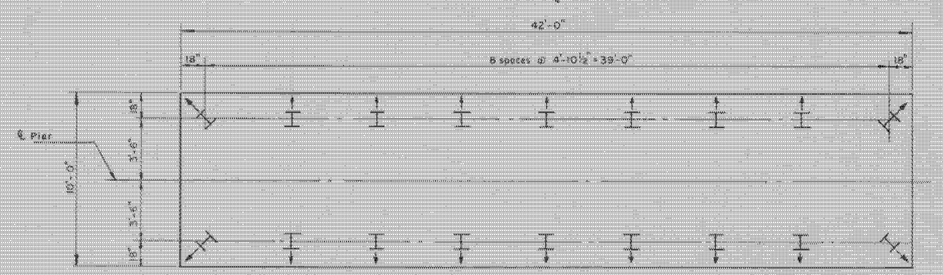
PLAN PIER A
SCALE: 1/4" = 1'-0"



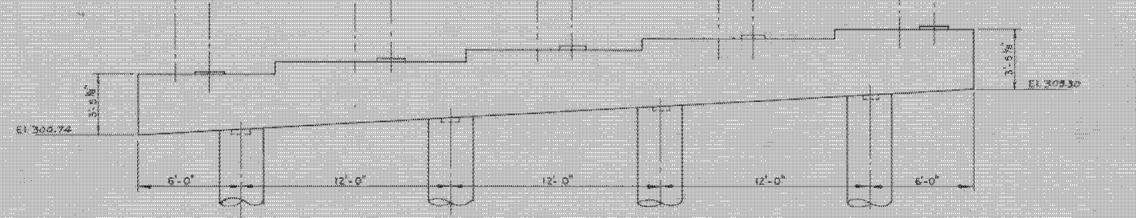
PLAN PIER B
SCALE: 1/4" = 1'-0"



ELEVATION PIER A
SCALE: 1/4" = 1'-0"

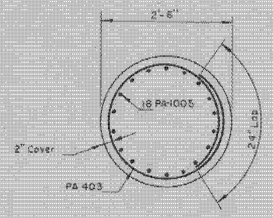


PILE PLAN
SCALE: 1/4" = 1'-0"



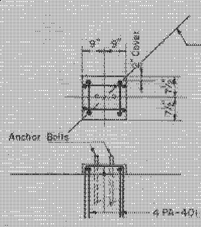
NOTE: Reinforcing layout similar to Pier A except bars prefixed "PB" in reinforcement schedule.

ELEVATION PIER B
SCALE: 1/4" = 1'-0"

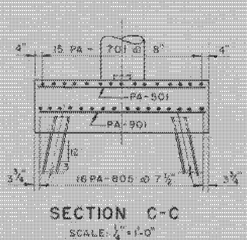


SECTION B-B
SCALE: 3/4" = 1'-0"

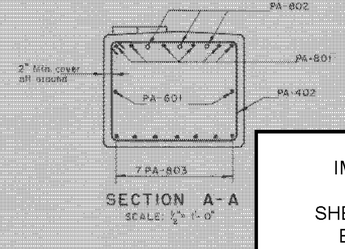
Note: Area between bridge seats to be sloped 1/4" per ft from ℄ Pier. Bridge seats to be covered with 1/2" of Asphaltic Asbestos coating after superstructure is in place, to be paid for under Item 407.
2. All exposed corners to have a 1" chamfer.



PEDESTAL REINFORCING
SCALE: 1/2" = 1'-0"
Note: If pedestal is less than 3", omit reinforcing.



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



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

NOTE:
1. All piles 10BP42 35 ton design load, Indicated thus I Vertical, / Battered. 36' long (A)
2. For estimating purposes Pier piles are assumed to be 48' long (A)
3. Prior to driving the piles, rock-free fill shall be placed under the Pier area to approximately the level of the pile cut off elevation and with a surface area at least two (2) feet outside the pier footings. After the piles have been driven, the fill is to be excavated to the elevations of the footings.

PUTNEY
IM 091-1(60)

SHEET 31 OF 45
BRIDGE 15
FOR REFERENCE ONLY

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	PIER A NET	PIER A OVER-RUN	PIER A TOTAL	PIER A FINAL	PIER B NET	PIER B OVER-RUN	PIER B TOTAL	PIER B FINAL
107	Structure Excavation	C.Y.	20	~~2~~	~~22~~	20	~~118~~	~~12~~	~~130~~	83
401-8	Concrete Class B (Mod)	C.Y.	84	~~4~~	~~88~~	84	93	~~4~~	~~97~~	93
402	Reinforcing Steel	LBS.	See Reinforcing Steel Schedule Sheet 108							
407	Asphaltic-Asbestos Coating	S.Y.	21	–	21	21	21	–	21	21
504	Steel Piling	L.F.	~~864~~	–	~~864~~	1,150	~~648~~	–	~~648~~	909
903	Spliced Ex. Steel Piling		~~8~~	–	~~8~~	0	~~3~~	–	~~8~~	1

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PIERS A AND B

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

INTERSTATE PROJECT in the town of PUTNEY

INTERSTATE STA. 1047+03.76
OVER
SA-3 (REL) STA. 16+12.51

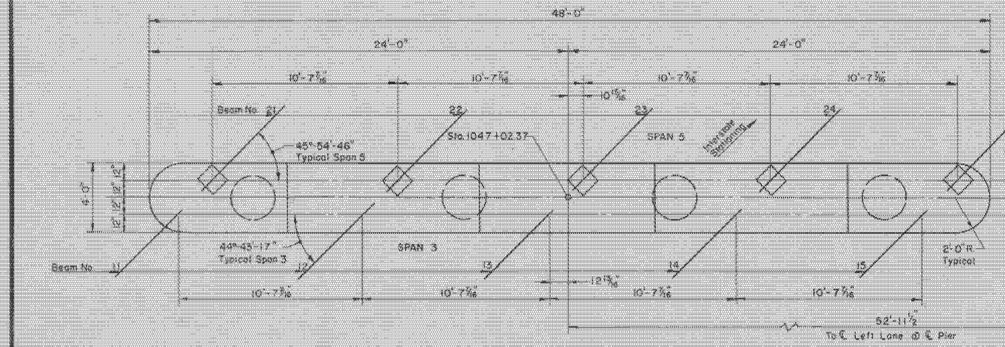
THE CLARKESON ENGINEERING CO., INC.
CONSULTING ENGINEERS
BOSTON MASSACHUSETTS

SURVEYED BY	CHECKED BY D.S.B.	SCALE AS NOTED
DRAWN BY D.E.S.	IN CHARGE J.V.S.	DATE 11/5/57

PROJECT NO. I 91-1(110) SHEET 103 OF 328

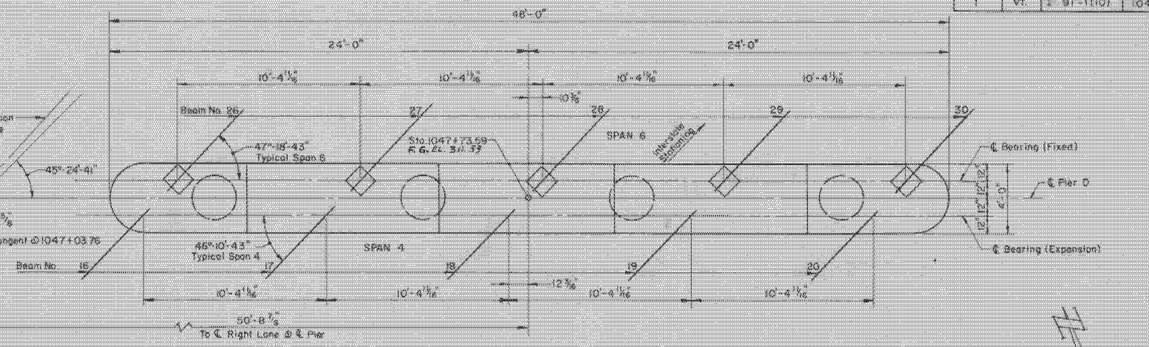
CONTRACT NO. 1

S.P.R. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	VT.	F 91-1(10)	104	328



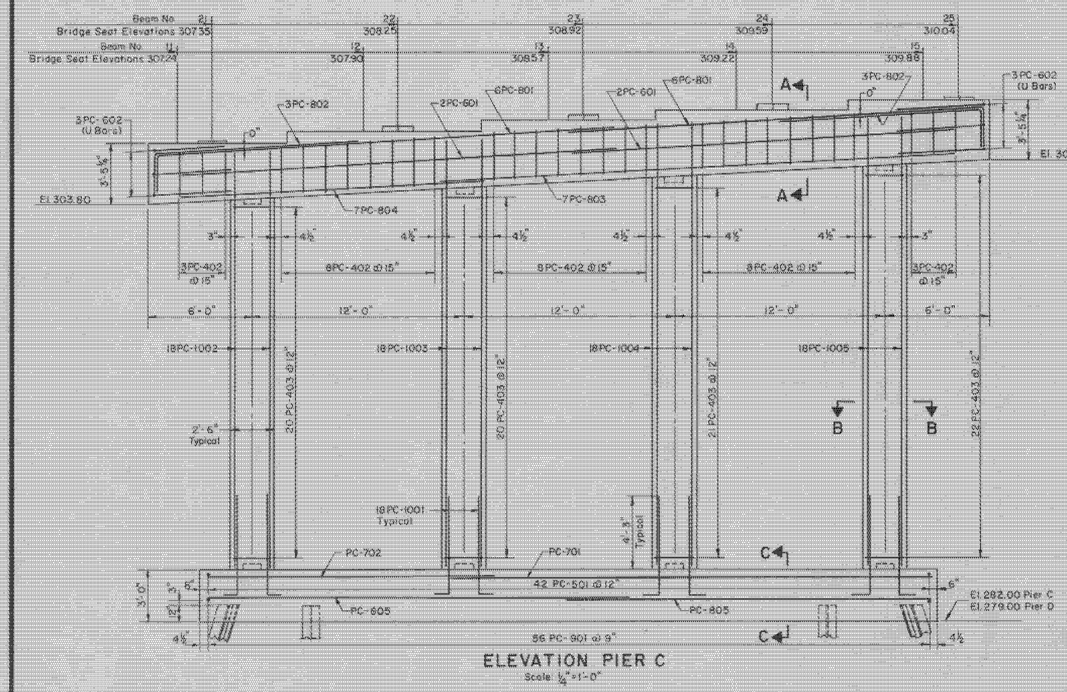
PLAN PIER C

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



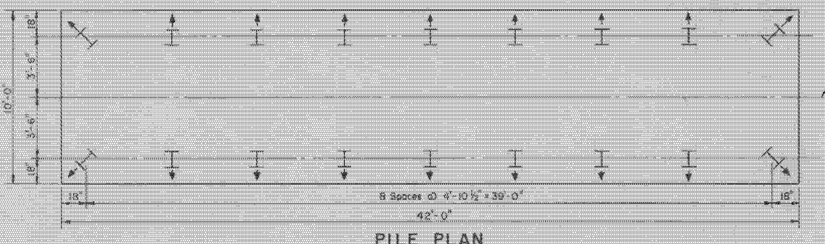
PLAN PIER D

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



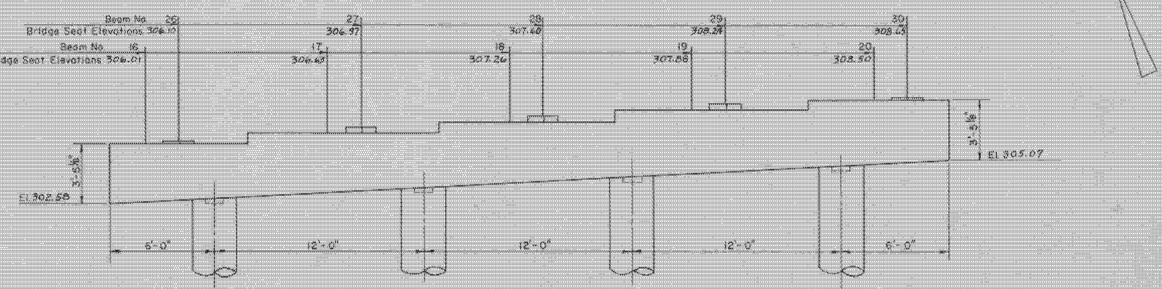
ELEVATION PIER C

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



PILE PLAN

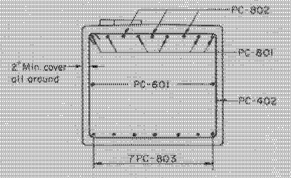
Scale: 1/8"=1'-0"



ELEVATION PIER D

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

Note: Reinforcing layout similar to Pier C except bars prefixed "PD" in Reinforcement Schedule.

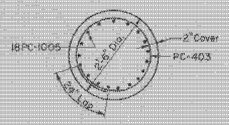


SECTION A-A

Scale: 1/2"=1'-0"

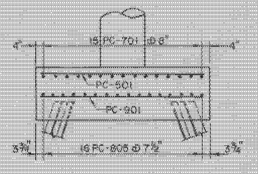
Note: 1. Area between bridge seats to be sloped 1/4"/ft. from ℄ of Pier. Bridge seats to be covered with 1/2" of Asphaltic-Asbestos coating after superstructure is in place; to be paid for under item 407.

2. All exposed corners to have a 1" chamfer.



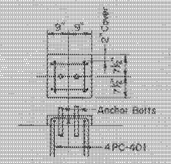
SECTION B-B

Scale: 1/2"=1'-0"



SECTION C-C

Scale: 1/2"=1'-0"



PEDESTAL REINFORCING

Scale: 1/2"=1'-0"

Note: If pedestal is less than 3", omit reinforcing.

NOTES:

1. All piles 10BP42, 35 ton design load, indicated thus, ↧ Vertical, ↓ Battered.
2. For estimating purposes, Pier piles are assumed to be 41' long Pier C, & 32' long Pier D.
3. Prior to driving the piles, rock free fill shall be placed under the Pier area to approximately the level of the pile cut off elevation and with a surface area at least two (2) feet just outside the pier footings. After the piles have been driven, the fill is to be excavated to the elevations of the footings.

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	PIER C NET	PIER C OVER-RUN	PIER C TOTAL	PIER C FINAL	PIER D NET	PIER D OVERRUN	PIER D TOTAL	PIER D FINAL
107	Structure Excavation	C.Y.	20	2	22	41	174	16	190	143
401B	Concrete Class B (Mod.)	C.Y.	86	4	90	88	88	4	92	88
402	Reinforcing Steel	Lbs	See Reinforcing Steel Schedule Sheet 108							
407	Asphaltic-Asbestos Coating	S.Y.	21	–	21	21	21	–	21	21
504	Steel Piling	L.F.	738	–	738	2214	576	–	576	1728
503	Splices for Steel Piling	Ea.	3	–	3	0	3	–	3	0

PUTNEY
IM 091-1(60)

SHEET 32 OF 45
BRIDGE 15
FOR REFERENCE ONLY

PIERS C AND D

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

INTERSTATE PROJECT in the town of
PUTNEY

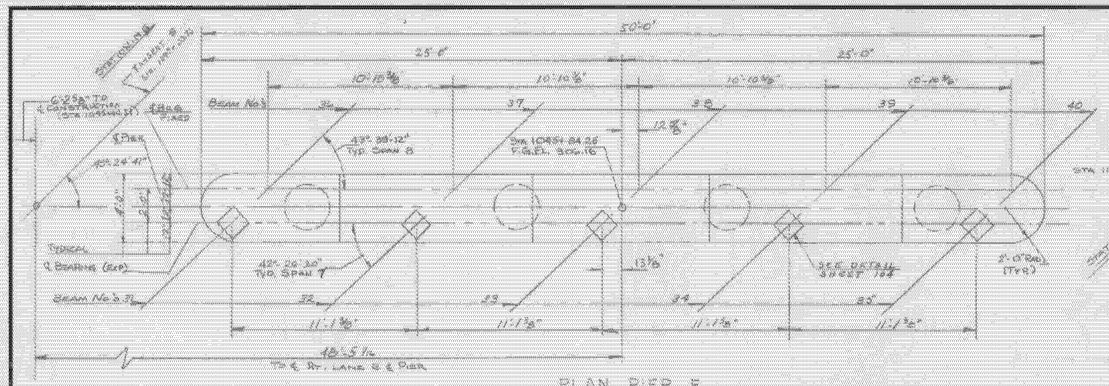
INTERSTATE STA. 1047+03.76
OVER
SA-3(REL.) STA. 16+12.51

THE CLARKESON ENGINEERING CO., INC.
CONSULTING ENGINEERS
BOSTON MASSACHUSETTS

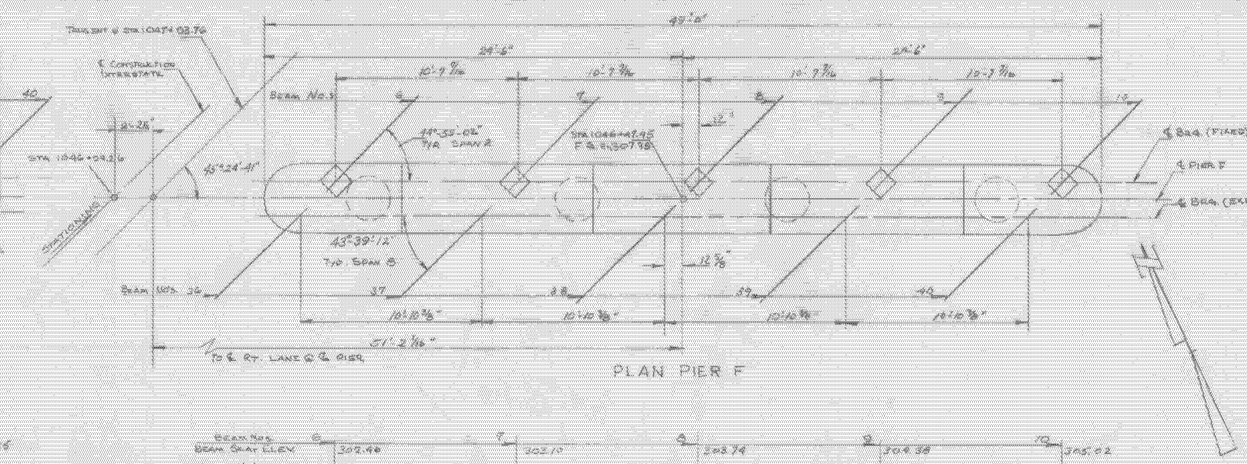
SURVEYED BY	CHECKED BY D.S.	SCALE AS NOTED
DRAWN BY H.B.C.	IN CHARGE J.V.B.	DATE 11-3-57

PROJECT NO. F 91-1(10) | SHEET 104 OF 328

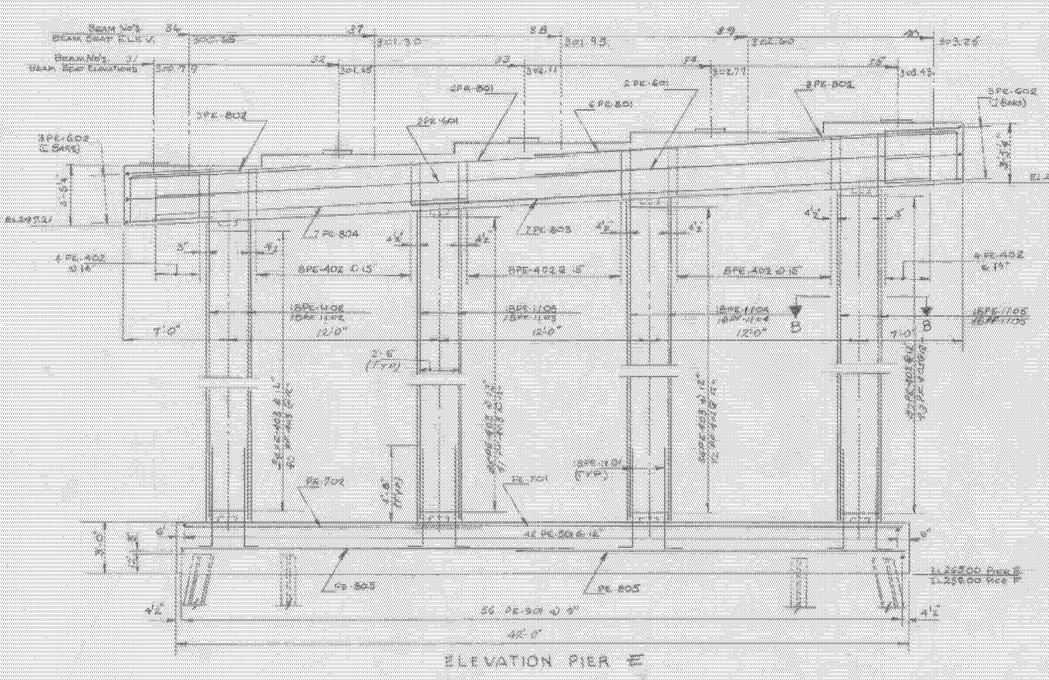
CONTRACT NO.



PLAN PIER E

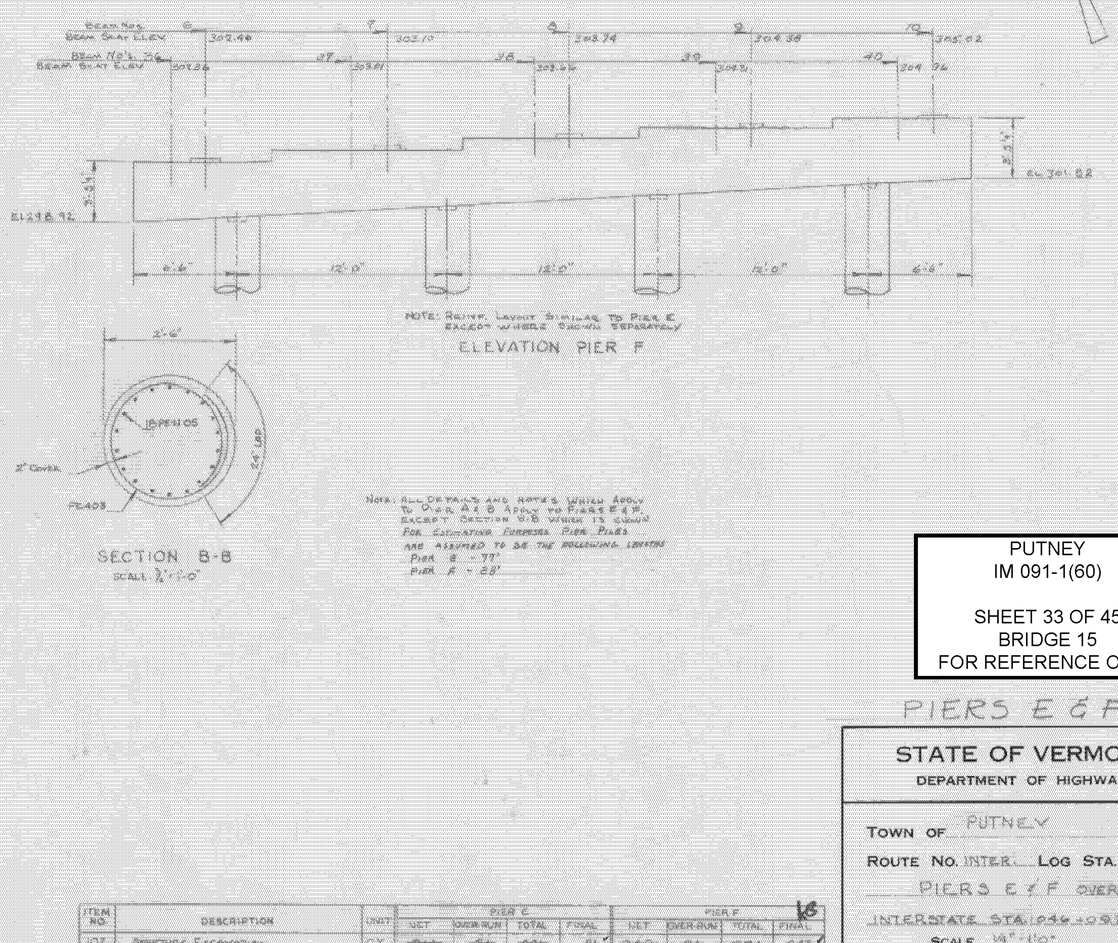


PLAN PIER F



ELEVATION PIER E

PILE PLAN



NOTE: REINF. LAYOUT SIMILAR TO PIER E EXCEPT WHERE SHOWN SEPARATELY

ELEVATION PIER F

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

NOTE: ALL DETAILS AND NOTES WHICH APPLY TO PIER E ALSO APPLY TO PIER F EXCEPT SECTION B-B WHICH IS GIVEN FOR ESTIMATING PURPOSES. PIER PILES ARE ASSUMED TO BE THE FOLLOWING LENGTHS
PIER E - 77'
PIER F - 28'

ITEM NO.	DESCRIPTION	UNIT	PIER E NET	PIER E OVER-RUN	PIER E TOTAL	PIER E FINAL	PIER F NET	PIER F OVER-RUN	PIER F TOTAL	PIER F FINAL
107	Structure Excavation	C.Y.	~~210~~	~~21~~	~~483~~	31 ✓	~~340~~	~~34~~	~~374~~	243 ✓
401-B	Concrete Class B (Misc)	C.Y.	93 ✓	~~9~~	~~102~~	93 ✓	98 ✓	~~9~~	~~107~~	98 ✓
402	Reinforcing Steel	LBS.	See Reinforcing Steel Schedule							
407	Asphaltic Asbestos Coating	S.Y.	21 ✓	–	21 ✓	21 ✓	21 ✓	–	21 ✓	21 ✓
504	Steel Piling	L.F.	~~1386~~	–	~~1386~~	0 ✓	~~1162~~	–	~~1162~~	1162 ✓
508	Splices For Steel Piling	E.A.	~~24~~	–	~~48~~	0 ✓	~~8~~	–	~~8~~	7 ✓

PUTNEY
IM 091-1(60)

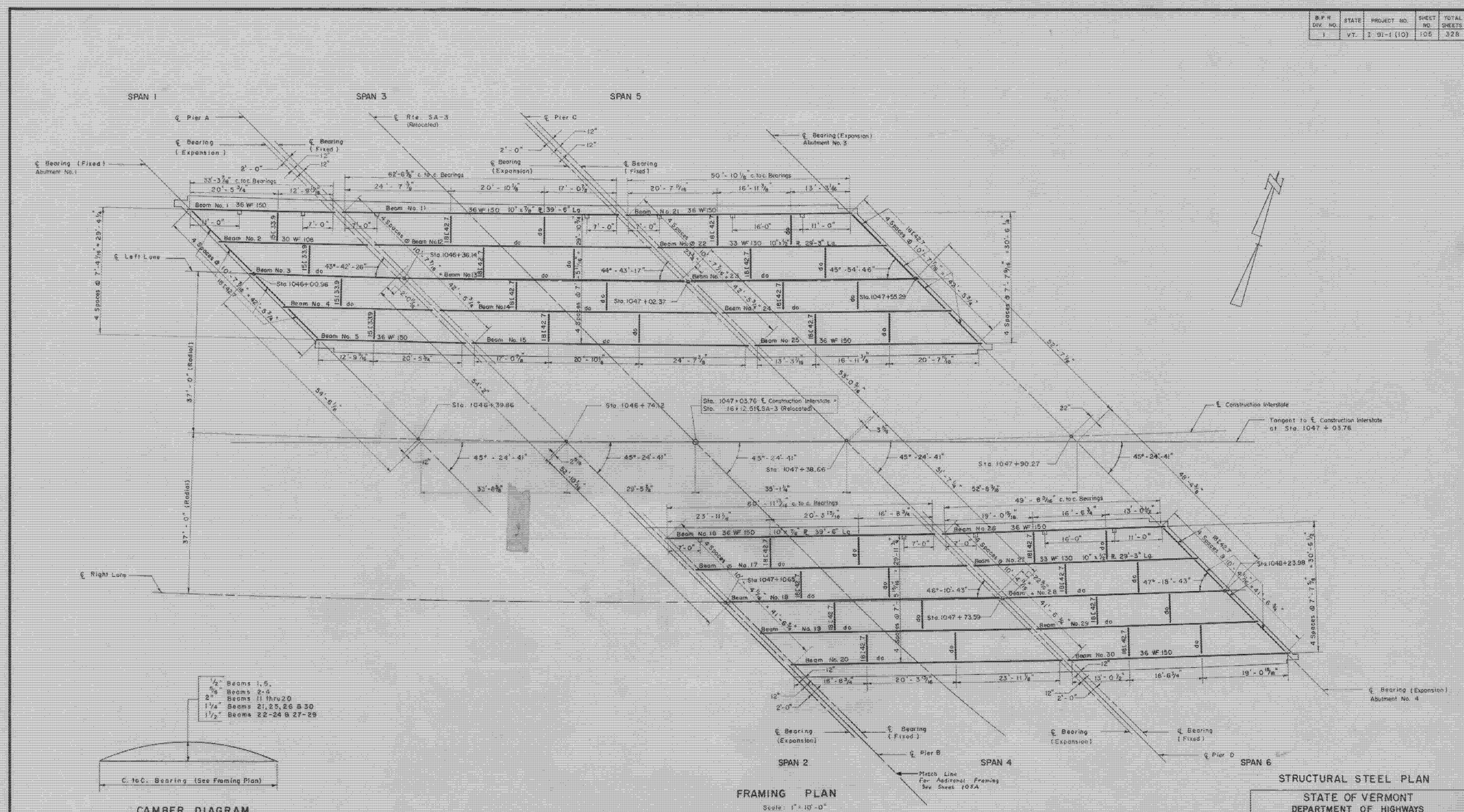
SHEET 33 OF 45
BRIDGE 15
FOR REFERENCE ONLY

PIERS E & F

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF PUTNEY
ROUTE NO. INTER. LOG STA.
PIERS E & F OVER SA 3 (REL)
INTERSTATE STA. 1046+09.76 (1045-11.5)
SCALE 1/4"=1'-0"
SURVEYED BY
DRAWN BY E.A.S. CHECKED BY W.M.S.
PROJECT NO. I 91-1(10)
SHEET 104A OF 328
CONTRACT NO. 1

B.P.R. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	VT.	I 91-1 (10)	105	328



1/2" Beams 1, 5,
5/8" Beams 2-4
2" Beams 11 thru 20
1 1/4" Beams 21, 25, 26 & 30
1 1/2" Beams 22-24 & 27-29

C. to C. Bearing (See Framing Plan)

CAMBER DIAGRAM

NO SCALE

FRAMING PLAN

Scale: 1" = 10'-0"

Note:
1. All dimensions are horizontal dimensions.
2. All beams shall be rolled to a true circular camber with the middle ordinate as shown on this sheet.
3. For Steel Details, see Sheet 106
4. Cut flanges of ℄ Bearings as per Std. Sheet SB-22-58.
5. All beams and cover plates shall conform to A.S.T.M. Designation A 373. All other structural steel shall conform to Designation A7 or A 373.

PUTNEY
IM 091-1(60)

SHEET 34 OF 45
BRIDGE 15
FOR REFERENCE ONLY

STRUCTURAL STEEL PLAN

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

INTERSTATE PROJECT in the town of PUTNEY

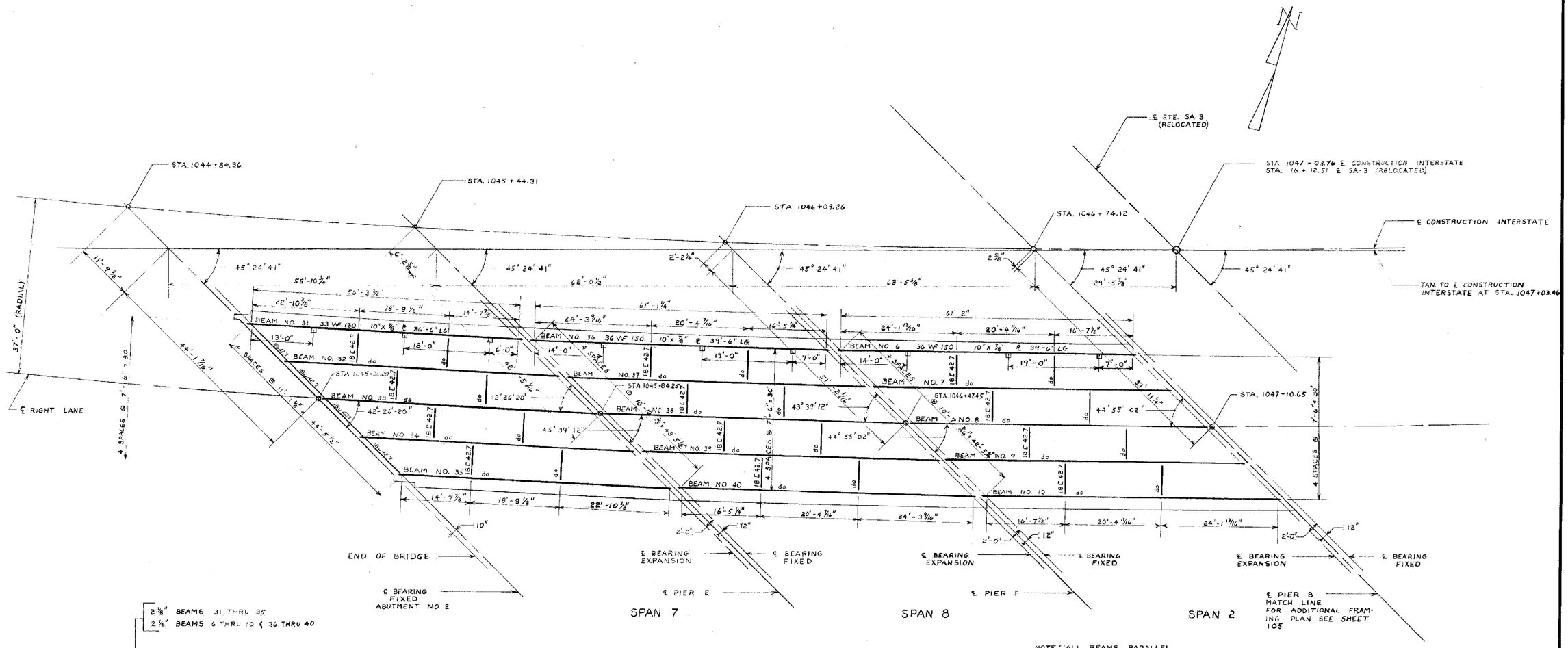
INTERSTATE STA. 1047+03.76 OVER SA-3 (REL.) STA. 16+12.51

THE CLARKESON ENGINEERING CO., INC.
CONSULTING ENGINEERS
BOSTON MASSACHUSETTS

SURVEYED BY		CHECKED BY B.S.C. & D.M.	SCALE AS NOTED
DRAWN BY	B.S.E.	IN CHARGE J.V.S.	DATE 11/9/57

PROJECT NO. I-91-1 (10) SHEET 105 OF 328

CONTRACT NO. 1



NOTE: ALL BEAMS PARALLEL TO CENTER BEAM WHICH IS A MINOR CHORD

FRAMING PLAN
SCALE - 1" = 10'-0"
NOTES - SEE SHEET 105

2 1/8" BEAMS 31 THRU 35
2 1/4" BEAMS 6 THRU 10 & 36 THRU 40

C. TO C. BEARING (SEE FRAMING PLAN)

CAMBER DIAGRAM
NO SCALE

STRUCTURAL STEEL PLAN

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

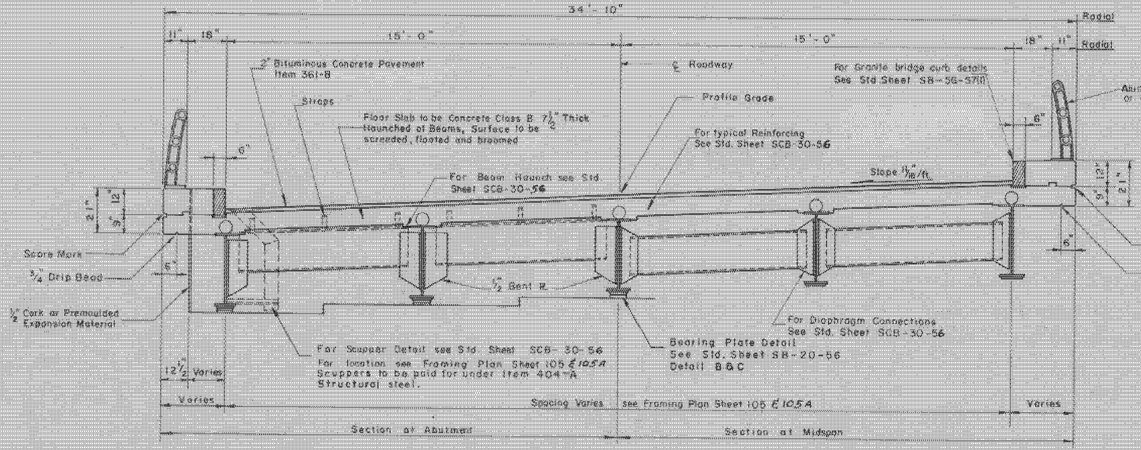
TOWN OF PUTNEY
ROUTE NO. INTERSTATE LOG STA. 1047+03.76
INTERSTATE OVER SA-3
SA-3 (REL) STA. 16+12.51
SCALE 1" = 10'-0"
SURVEYED BY
DRAWN BY CURRIER CHECKED BY W.M.S.
PROJECT NO. I-91-1(10)
SHEET 105-A OF 328

CONTRACT NO. 1

PUTNEY
IM 091-1(60)

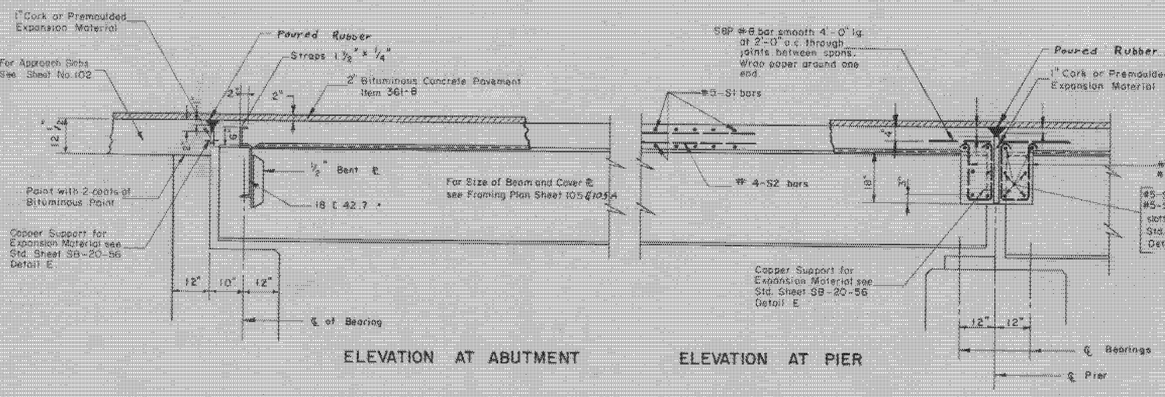
SHEET 35 OF 45
BRIDGE 15
FOR REFERENCE ONLY

D.P.S. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	VT.	I 91-1(10)	106	328



TYPICAL CROSS SECTION

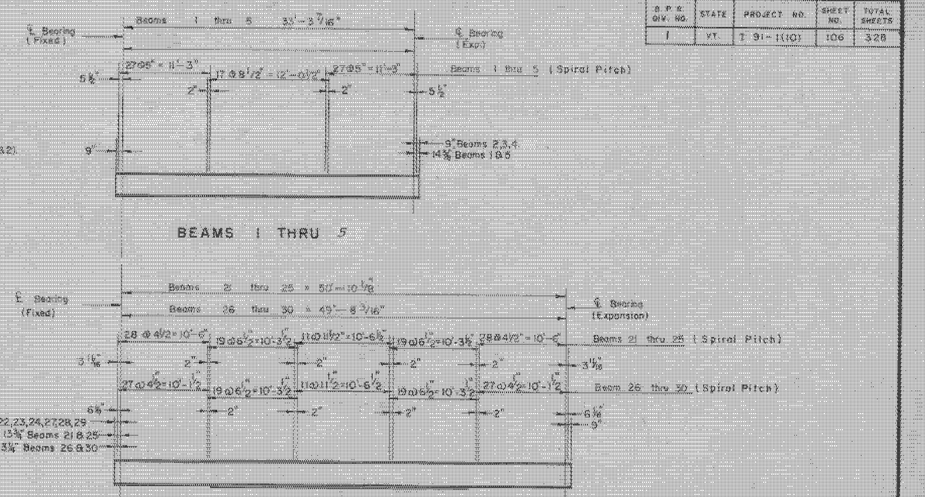
SCALE: 3/8" = 1'-0"

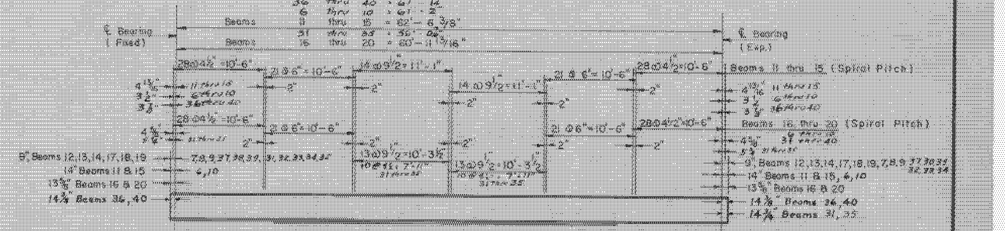


ELEVATION AT ABUTMENT ELEVATION AT PIER

TYPICAL ELEVATION OF BEAM (SQUARE)

SCALE: 1/2" = 1'-0"



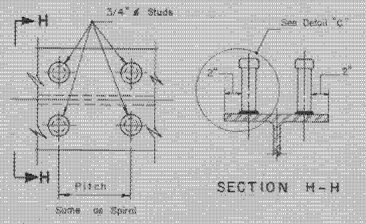


ELEVATION OF BEAMS

NOT TO SCALE

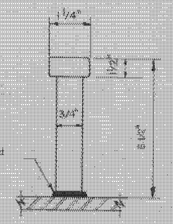
PUTNEY
IM 091-1(60)

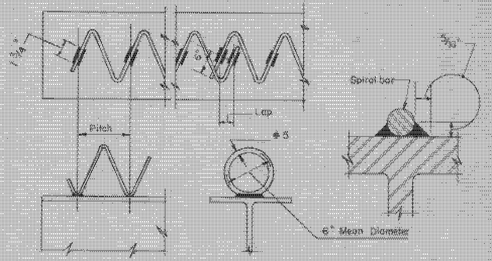
SHEET 36 OF 45
BRIDGE 15
FOR REFERENCE ONLY



STUD SHEAR CONNECTORS (ALT.)

NOT TO SCALE





SPIRAL WELDING DETAILS

NOT TO SCALE

ESTIMATED QUANTITIES

RIGHT LANE

ITEM NO.	DESCRIPTION	UNIT	NET	OVERRUN	TOTAL	FINAL
401-B	Concrete Class B (Mod.)	C.Y.	297	15	312	328
402	Reinforcing Steel	LBS.	See Reinforcing Steel Schedule Sheet 108			
403	Spiral Reinforcement (Approx. Wt. 5280#)	L.S.	1	—	1	Satisfied
404-A	Structural Steel	LBS.	268,645	5,373	274,018	282,239
361-B	Bituminous Concrete Pavement	Tons	113	17	130	113

LEFT LANE

ITEM NO.	DESCRIPTION	UNIT	NET	OVERRUN	TOTAL	FINAL
401-B	Concrete Class B (Mod.)	C.Y.	146	7	153	167
402	Reinforcing Steel	LBS.	See Reinforcing Steel Schedule Sheet 108			
403	Spiral Reinforcement (Approx. Wt. 2380#)	L.S.	1		1	Satisfied
404-A	Structural Steel	LBS.	129,194	2584	131,778	127,318
361-B	Bituminous Concrete Pavement	Tons	59	9	68	59

STRUCTURAL DETAILS

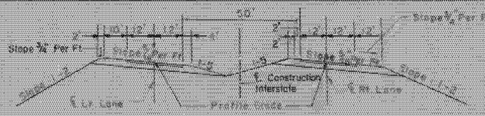
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

INTERSTATE PROJECT in the town of PUTNEY
INTERSTATE STA. 1047+03.76
OVER
SA-3(REL.) STA. 16+12.51

THE CLARKESON ENGINEERING CO. INC.
CONSULTING ENGINEERS
BOSTON MASSACHUSETTS

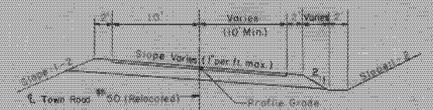
SURVEYED BY	CHECKED BY O.S. BK	SCALE AS NOTED
DRAWN BY L.E.S.	IN CHARGE J.V.B.	DATE 11/5/57
PROJECT NO. I-91-1(10)	SHEET 106 OF 328	

CONTRACT NO.



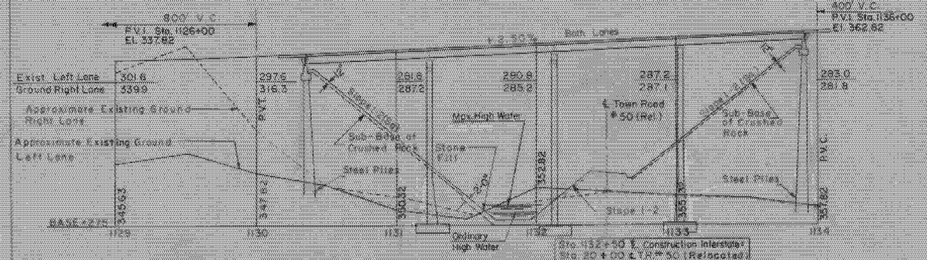
NEW HIGHWAY SECT. STA. 1130+00 TO STA. 1135+00

SCALE 1" = 30'



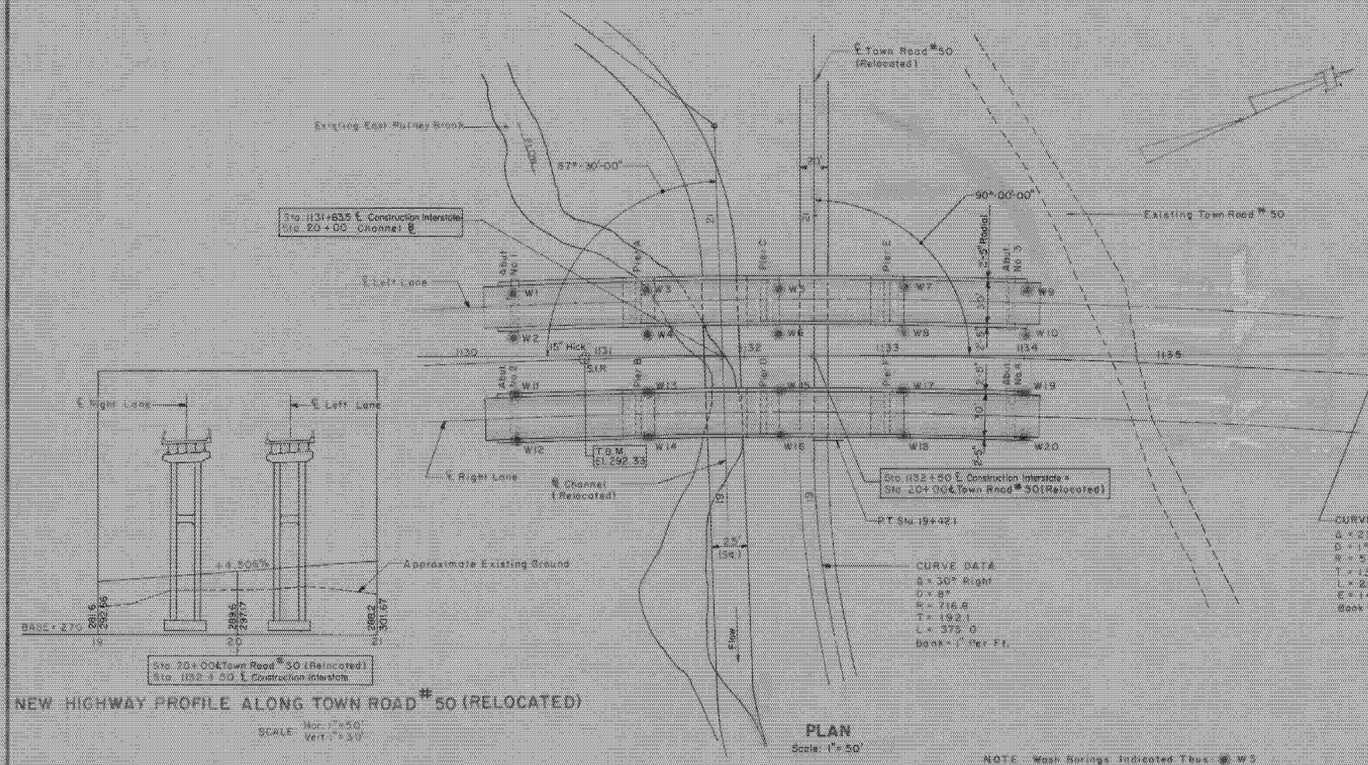
NEW HIGHWAY SECT. STA. 19+00 TO STA. 21+00

SCALE ⅛" = 1'-0"



NEW HIGHWAY PROFILE ALONG INTERSTATE

SCALE Hor. 1" = 50'
Vert. 1" = 30'



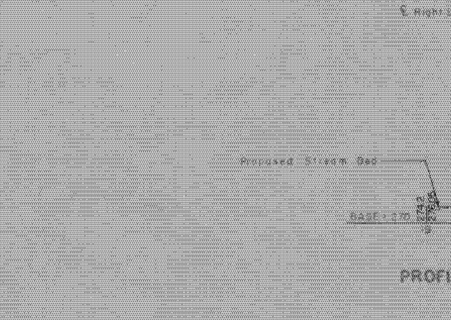
PLAN

Scale: 1" = 50'

NOTE Wash Borings Indicated Thus: ⊕ W3

NEW HIGHWAY PROFILE ALONG TOWN ROAD #50 (RELOCATED)

SCALE Hor. 1" = 50'
Vert. 1" = 30'



PROFILE OF PROPOSED STREAM CHANNEL

SCALE Hor. 1" = 50'
Vert. 1" = 30'

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	NET	OVER-RUN	TOTAL	FINAL
107	Structural Excavation	C.Y.	~~2398~~	~~240~~	~~2638~~	1,986
204	Sub-base of Crushed Rock (Mod.)	C.Y.	~~729~~	~~+85~~	~~814~~	1,097
222	Gravel Backfill	C.Y.	~~88~~	~~22~~	~~110~~	10
361-B	Bit. Conc. Pavement	Tons	~~302~~	~~43~~	~~345~~	345
401-B	Concrete Class B (Mod.)	C.Y.	~~2353~~	~~116~~	~~2469~~	2,438
402	Reinforcing Steel	Lbs.	~~370,139~~		~~370,139~~	374,996
403	Spiral Reinforcement (12,080)	L.S.	1.0	–	1.0	1
404A	Structural Steel	Lbs.	~~210,000~~	24,200	~~234,200~~	207,788
407	Asphaltic Asbestos Coating	S.Y.	~~324~~	–	~~324~~	121
504	Steel Piling	L.F.	~~4680~~	–	~~4680~~	4,688
522	Stone Fill for Slope Protection	C.Y.	~~542~~	~~81~~	~~623~~	1,583
526 C	Granite Bridge Curb (Type II)	L.F.	~~1450~~	–	~~1450~~	1,495
572	Bridge Railing (Type SB-57-2 mod.)	L.F.	~~1382~~	–	~~1382~~	1391
501	Furnishing Equip. for Driving Piles	Required				143
503	Splices for Steel Piling	Ea.	~~76~~	–	~~76~~	0
318	Tar Emulsion for Bridge Floors (Sup. Spec. 5.2.61)	880 sq.yd.				
372	Joint Sealer, Hot Poured Elastic Type (Sup. Spec. 8.4.60)	300 L.F.				

HIGHWAY NO. Rt. 1 Sec. 1 NAME OF HIGHWAY Interstate

STRUCTURE NO. COUNTY Windham TOWN Putney

PROJECT NO. I 91-1(10) LOCATION Sta. 1132+50

B.P.R. SW. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	VT.	I 91-1(10)	110	328

EXISTING STRUCTURE

1 RATED LOADING OF EXISTING STRUCTURE None
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 4 Span Composite Steel Stringer Bridge
2 RECOMMENDED CLEAR SPAN OR SPANS 86'-0" - 86'-0" - 86'-0"
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 Yes
4 ORDINARY HIGH WATER ELEVATION AT NEW STRUCTURE 4' Above Bottom
5 EXTREME HIGH WATER ELEVATION AT NEW STRUCTURE 6' Above Bottom SOURCE OF INFORMATION
6 IS ALL WATER INTENDED TO PASS THROUGH NEW STRUCTURE?
7 DOES STREAM REACH ITS MAXIMUM HIGH WATER ELEVATION RAPIDLY? No IS ORDINARY RISE RAPID?
8 LOW WATER ELEVATION AT NEW STRUCTURE 0.5' Above Bottom
9 DRAINAGE AREA IN ACRES ABOVE STRUCTURE 8,390 CHARACTER OF TERRAINE
10 IS STREAM EVER DRY? No
11 VELOCITY OF STREAM AT HIGH WATER STAGE 10.3 F.P.S. ESTIMATED DISCHARGE
12 AREA FULL OPENING AREA BELOW ORDINARY H.W. 234
13 CHARACTER OF SCOUR DRIFT Light ICE Light
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 2" Bituminous Conc. Pavement For Bridge Floors
18 TRAFFIC TO BE MAINTAINED UNDER ITEM NO. None 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 SHOULD PILES BE USED? EST. LGTH

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. For Boring Logs, see sheet 111

GENERAL NOTES

DESIGN SPECIFICATIONS:
AASHO 1957 Edition and as modified by Vermont Dept. of Highways

LIVE LOAD
H 20-S16-44 and Military Loading

DESIGN STRESSES
Structural steel fs = 18,000 p.s.i.
Reinforcing steel fs = 20,000 p.s.i.
Concrete fc = 1,200 p.s.i. for fc' = 3,000 p.s.i.

CLEARANCES
Horizontal: as shown on drawings
Vertical: 50'-8" Clear Over Town Road #50

SUPERSTRUCTURE
Separate structure for each lane.
30' Roadway, 1'-6" Safety Walks as per SCB-30-56
4 simple span, rolled beams, composite design as per SCB-30-56 (4 @ 86)
Aluminum Bridge Railing, on Galvanized Bridge Railing, and Granite Bridge Curb as per SB-56-57 (1&2)
Bearing and diaphragm connections as per SB-20-56 Details C and F. Approach Slab SB-A5-square-57 as Modified.

SUBSTRUCTURE
Piers: Square columns spaced 18'-0" o.c. with strut as shown, continuous footings. Stub abutments.

FOUNDATION:
Piers: Spread Footings
Abutments: Steel Piles

SHEET	
110	
111	
112	
113	
114	
115	
116	PIERS C & D
117	PIERS E & F
118	STRUCTURAL STEEL PLAN
119	STRUCTURAL STEEL DETAILS
120	REINFORCING SCHEDULE
120A	REINFORCING SCHEDULE
3 Thru 39	HIGHWAYS PLAN AND PROFILES
52A & 52B	SCB-30-56 (1&2)
52	SB-20-56
53	SB-22-56
54 & 54A	SB-50-57 (1&2)
55	SB-A5 Square-57

PUTNEY
IM 091-1(60)

SHEET 37 OF 45
BRIDGE 16
FOR REFERENCE ONLY

BRIDGE NO. 16

GENERAL PLAN

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

INTERSTATE PROJECT in the town of
PUTNEY
INTERSTATE STA. 1132+50
OVER
TOWN ROAD #50 (REL.) STA. 20+00

APPROVED BY [signature] DATE 11/28/58

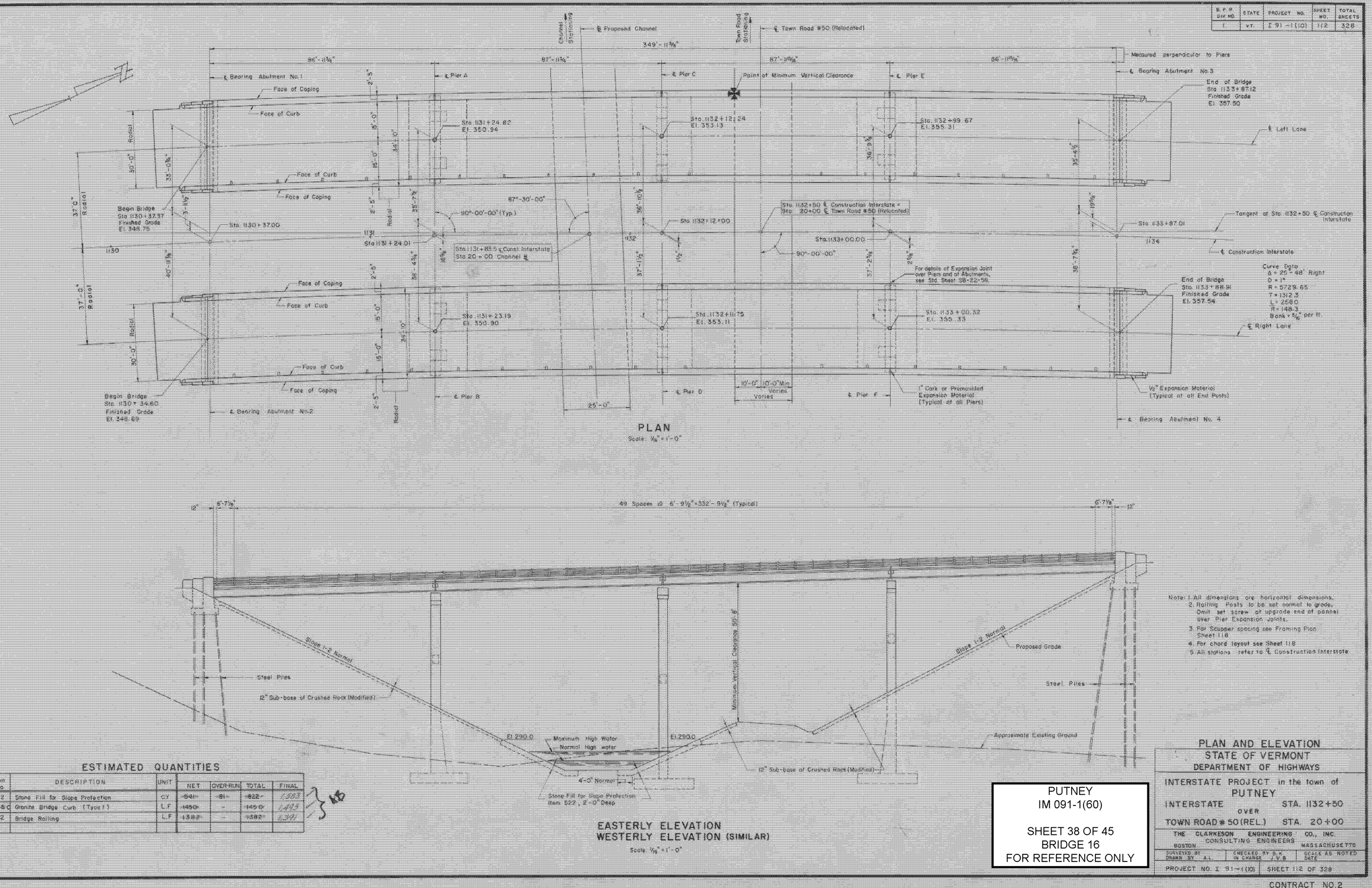
THE CLARKESON ENGINEERING CO. INC.
CONSULTING ENGINEERS
BOSTON MASSACHUSETTS

SURVEYED BY	CHECKED BY E.J.K.	SCALE AS NOTED
DRAWN BY	IN CHARGE J.V.H.	DATE 10-22-57

PROJECT NO. I 91-1(10) SHEET 110 OF 328

CONTRACT NO. 2

S. P. R. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	VT.	I 91-1(10)	112	328



PLAN
Scale: 1/16" = 1'-0"

EASTERLY ELEVATION
WESTERLY ELEVATION (SIMILAR)
Scale: 1/16" = 1'-0"

Note: 1. All dimensions are horizontal dimensions.
2. Railing Posts to be set normal to grade. Omit set screw at upgrade end of panel over Pier Expansion Joints.
3. For Scupper spacing see Framing Plan Sheet 118
4. For chord layout see Sheet 118
5. All stations refer to ℄ Construction Interstate

ESTIMATED QUANTITIES

Item No.	DESCRIPTION	UNIT	NET	OVER-RUN	TOTAL	FINAL
522	Stone Fill for Slope Protection	CY	541	81	622	583
556.0	Granite Bridge Curb (Type F)	L.F.	1450	-	1450	1495
572	Bridge Railing	L.F.	1382	-	1382	1391

KD

PUTNEY
IM 091-1(60)

SHEET 38 OF 45
BRIDGE 16
FOR REFERENCE ONLY

PLAN AND ELEVATION
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

INTERSTATE PROJECT in the town of PUTNEY
INTERSTATE STA. 1132+50
OVER
TOWN ROAD # 50 (REL.) STA. 20+00

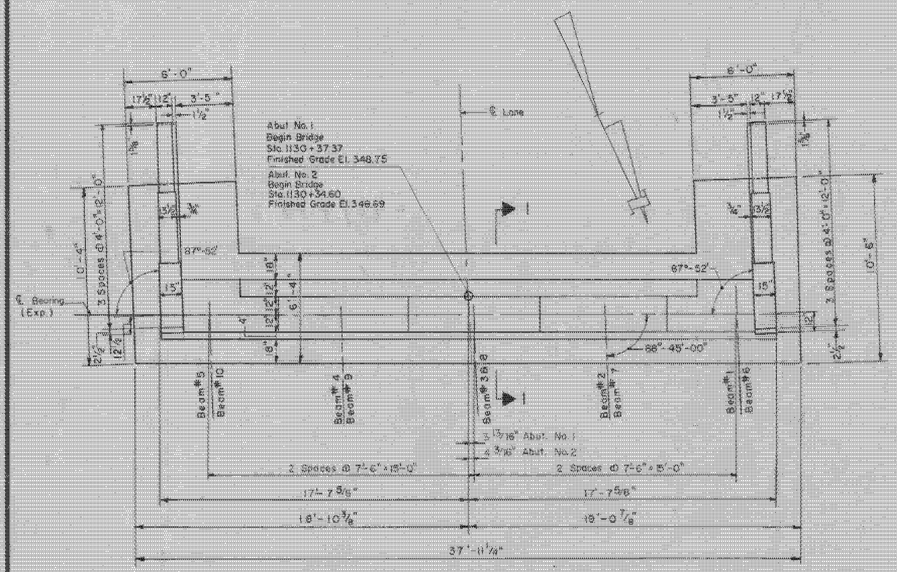
THE CLARKESON ENGINEERING CO., INC.
CONSULTING ENGINEERS
BOSTON MASSACHUSETTS

SURVEYED BY	CHECKED BY	SCALE AS NOTED
DRAWN BY A.L.	IN CHARGE J.V.B.	DATE

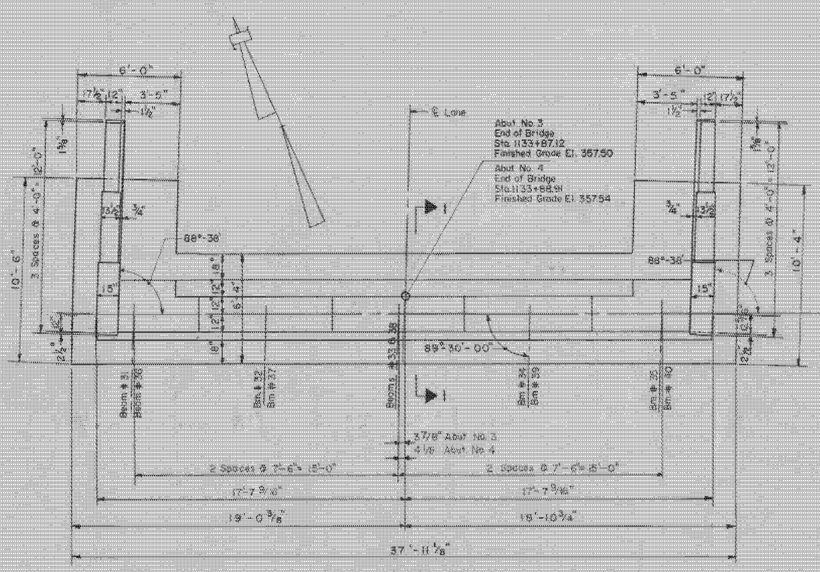
PROJECT NO. I 91-1(10) | SHEET 112 OF 328

CONTRACT NO. 2

B.P.R. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	VT.	I 91-1(10)	113	328



PLAN ABUTMENT NO. 1
PLAN ABUTMENT NO. 2 (SIMILAR EXCEPT AS NOTED)
SCALE: 1/4" = 1'-0"



PLAN ABUTMENT NO. 3
PLAN ABUTMENT NO. 4 (SIMILAR EXCEPT AS NOTED)
SCALE: 1/4" = 1'-0"

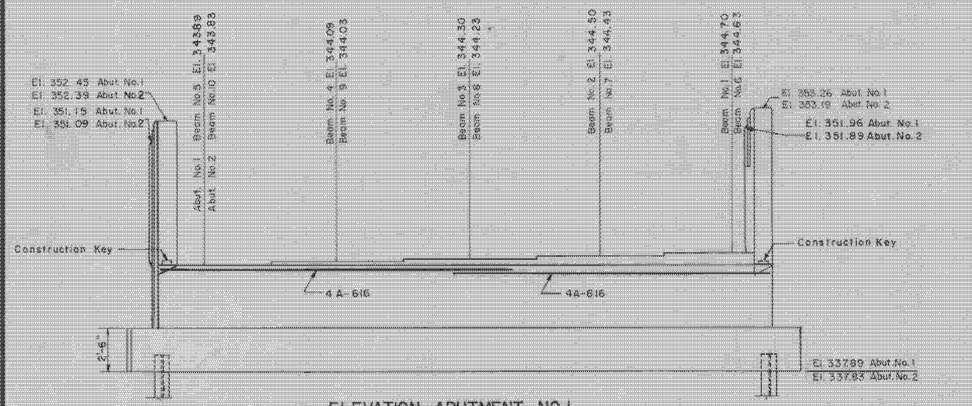
Note: For Section 1-1, see Sheet No. 114

ESTIMATED QUANTITIES

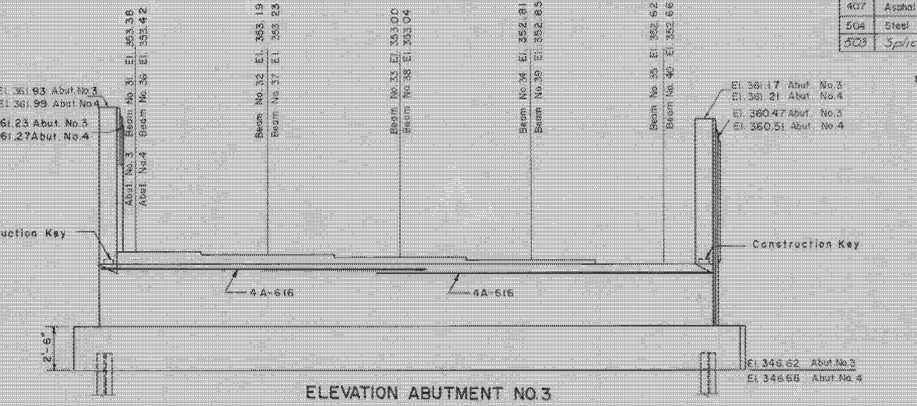
ITEM NO.	DESCRIPTION	UNIT	ABUTMENTS NO. 1 & NO. 2 NET	OVERRUN	TOTAL	FINAL
107	Structure Excavation	C.Y.	30	-3-	33	30
204	Sub-base of Crushed Rock (Mod.)	C.Y.	319	48	367	311
222	Gravel Backfill	C.Y.	44	11	55	35
401-B	Concrete, Class B (Mod.)	C.Y.	100	-5-	105	100
402	Reinforcing Steel	LBS.	See Reinforcing Schedule Sheet No. 120			
407	Asphaltic Asbestos Coating	S.Y.	44	-	44	8
504	Steel Piling	L.F.	2160	-	2160	2287
523	Splices for Steel Piling	Ea.	-0-	-	-0-	0

ITEM NO.	DESCRIPTION	UNIT	ABUTMENTS NO. 3 & NO. 4 NET	OVERRUN	TOTAL	FINAL
107	Structure Excavation	C.Y.	30	-3-	33	30
204	Sub-base of Crushed Rock (Mod.)	C.Y.	389	58	447	586
222	Gravel Backfill	C.Y.	44	11	55	35
401-B	Concrete, Class B (Mod.)	C.Y.	100	-5-	105	100
402	Reinforcing Steel	LBS.	See Reinforcing Schedule Sheet No. 120			
407	Asphaltic Asbestos Coating	S.Y.	44	-	44	8
504	Steel Piling	L.F.	2820	--	2820	2401
523	Splices for Steel Piling	Ea.	-0-	-	-0-	0

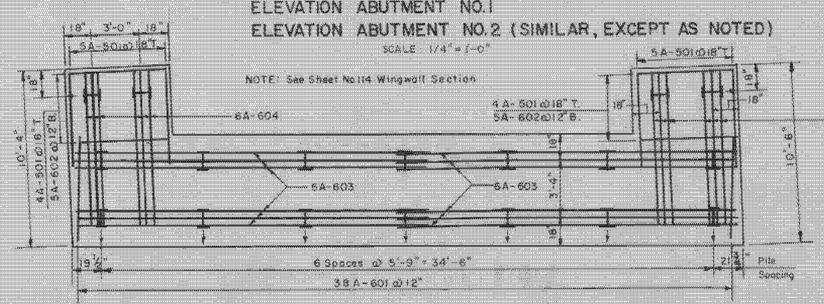
NOTES 1. Steel Piles to be 10 BP-42, 35 Ton Design Load, indicated thus: Vertical I, Battered I.
2. For Estimating Purposes, the Length of Steel Piles is assumed to be: Abutments 1 & 2 - 60', Abutment 3 & 4 - 70'.
3. Slope all bridge seats 1/4" per ft.
4. Entire exposed top surface of the bridge Seats are to be covered with Asphaltic-Asbestos Coating after Substructure is in place.
5. Prior to driving the piles, rock-free fill shall be placed under the Abutment area to approximate the level of the pile cut off elevation and with a surface area at least two (2) feet outside the abutment.
6. After the piles are driven, the fill is to be excavated to the elevation of the footing.
7. A layer of Sub-Base of Crushed Rock (Modified) Item 204 one (1) foot thick shall be placed 15' infront of Abutments 3 and 4 and 16' infront of Abutments 1 and 2. Stone Fill for Slope Protection Item 522, two (2) feet thick shall be placed 32' on the embankment from the stream bed toward the abutment. The elevation is indicated on the plans. The Edge of the area to be in line with the End Posts and parallel to the centerline of the roadway.



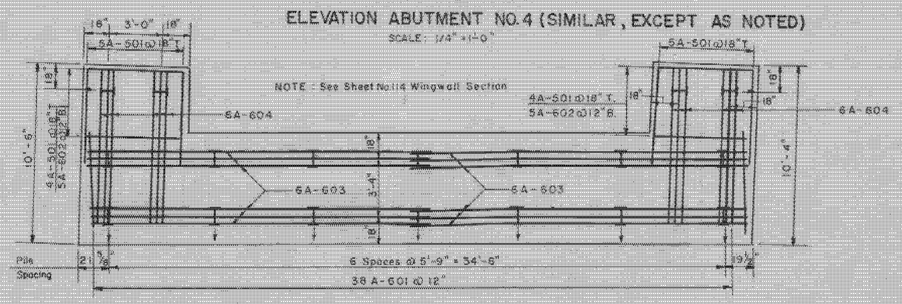
ELEVATION ABUTMENT NO. 1
ELEVATION ABUTMENT NO. 2 (SIMILAR, EXCEPT AS NOTED)
SCALE: 1/4" = 1'-0"



ELEVATION ABUTMENT NO. 3
ELEVATION ABUTMENT NO. 4 (SIMILAR, EXCEPT AS NOTED)
SCALE: 1/4" = 1'-0"



PILE PLAN ABUTMENT NO. 1 & NO. 2
SCALE: 1/4" = 1'-0"



PILE PLAN ABUTMENTS NO. 3 & NO. 4
SCALE: 1/4" = 1'-0"

PUTNEY
IM 091-1(60)

SHEET 39 OF 45
BRIDGE 16
FOR REFERENCE ONLY

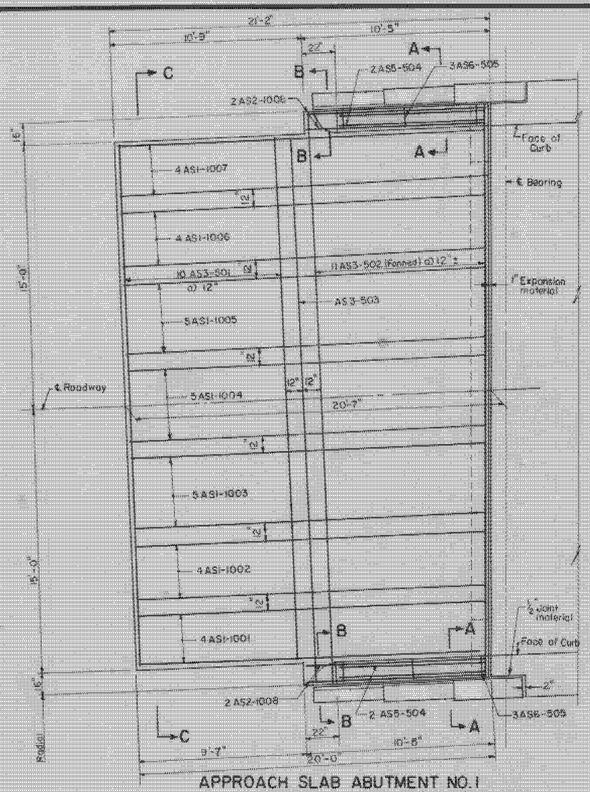
ABUTMENTS
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS
INTERSTATE PROJECT in the town of PUTNEY
INTERSTATE STA. 1132+50
OVER
TOWN ROAD #50 (REL.) STA. 20+00
THE CLARKESON ENGINEERING CO. INC.
CONSULTING ENGINEERS
BOSTON, MASSACHUSETTS

SURVEYED BY	DRAWN BY	CHECKED BY	SCALE AS NOTED	DATE
J.K.	J.K.	J.B. W. CLARKE J.V.B.		10/25/67

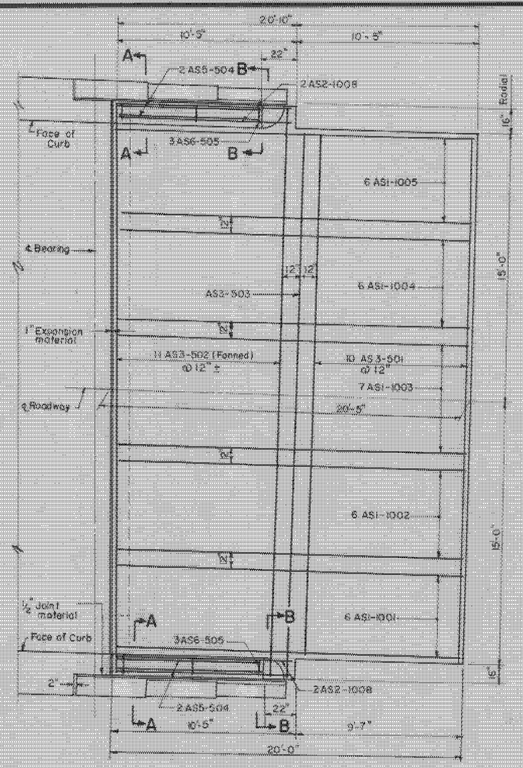
PROJECT NO. I 91-1(10) SHEET 113 OF 328

CONTRACT NO. 2

B.P.R. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	VT.	I 91-1(10)	114	328

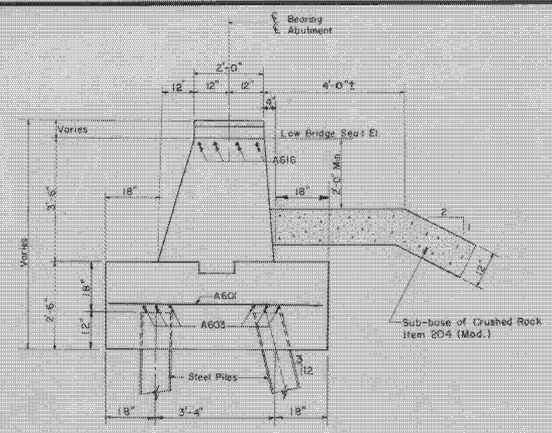


APPROACH SLAB ABUTMENT NO.1
APPROACH SLAB ABUTMENT NO.2 (SIMILAR)
SCALE ¼" = 1'-0"

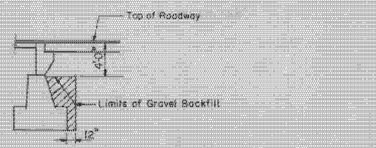


APPROACH SLAB ABUTMENT NO.3
APPROACH SLAB ABUTMENT NO.4 (SIMILAR)
SCALE ¼" = 1'-0"

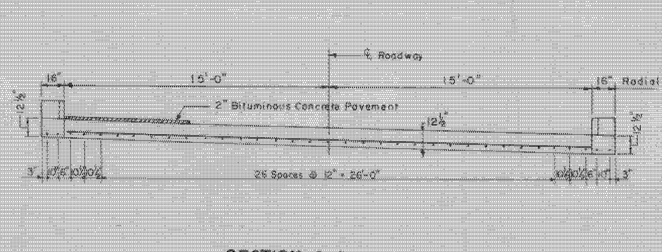
NOTE. For Section A-A & B-B See Standard Detail Sheet 58-AS-45° Skew-57



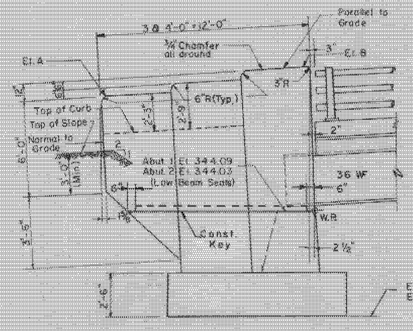
SECTION 1-1
SCALE ½" = 1'-0"



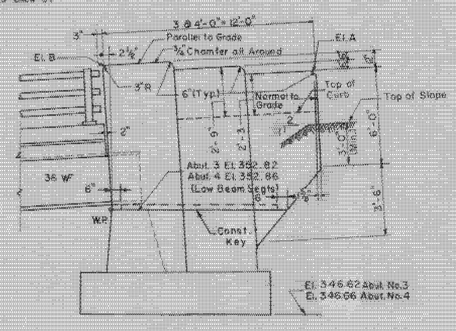
LIMITS OF GRAVEL BACKFILL
SCALE ⅛" = 1'-0"



SECTION C-C
SCALE ½" = 1'-0"



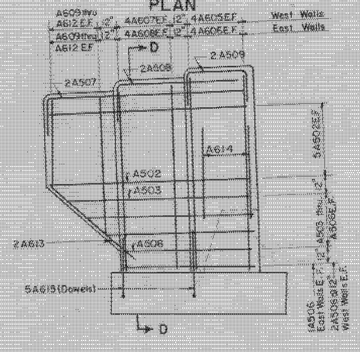
WINGWALL ABUTMENT NO. 1
WINGWALL ABUTMENT NO. 2 (SIMILAR EXCEPT AS NOTED)
SCALE ¼" = 1'-0"



WINGWALL ABUTMENT NO. 3
WINGWALL ABUTMENT NO. 4 (SIMILAR EXCEPT AS NOTED)
SCALE ¼" = 1'-0"

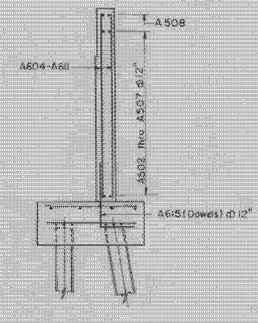
WINGWALL ELEVATION SCHEDULE

Wingwall	Abutment No.1		Abutment No.2		Abutment No.3		Abutment No.4	
	West	East	West	East	West	East	West	East
El. A	351.96	351.15	351.89	351.09	361.23	360.47	361.27	360.51
El. B	353.26	352.45	353.19	352.39	361.93	361.17	361.97	361.21



PLAN

TYPICAL WINGWALL REINFORCING
SCALE ¼" = 1'-0"



SECTION D-D
SCALE ¼" = 1'-0"

ESTIMATED QUANTITIES

ITEM NO	ITEM	UNIT	APPROACH SLAB-(4 SLABS) NET	OVER-RUN	TOTAL	FINAL
361-B	Bit. Conc. Pavement	Ton	432	5%	37	see Total 113
401-B	Concrete, Class B (Mod.)	C.Y.	103	5%	108	99
402	Reinforcing Steel	Lbs.	See Reinforcing Schedule Sheet No. 120			
536-C	Granite Bridge Curb (Type I)	L.F.	See General Plan & Elevation Sheet No. 112			

PUTNEY
IM 091-1(60)

SHEET 40 OF 45
BRIDGE 16
FOR REFERENCE ONLY

WINGWALLS AND APPROACH SLABS
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

INTERSTATE PROJECT in the town of PUTNEY
INTERSTATE OVER TOWN ROAD #50 (REL.) STA. 1132+50 STA. 20+00

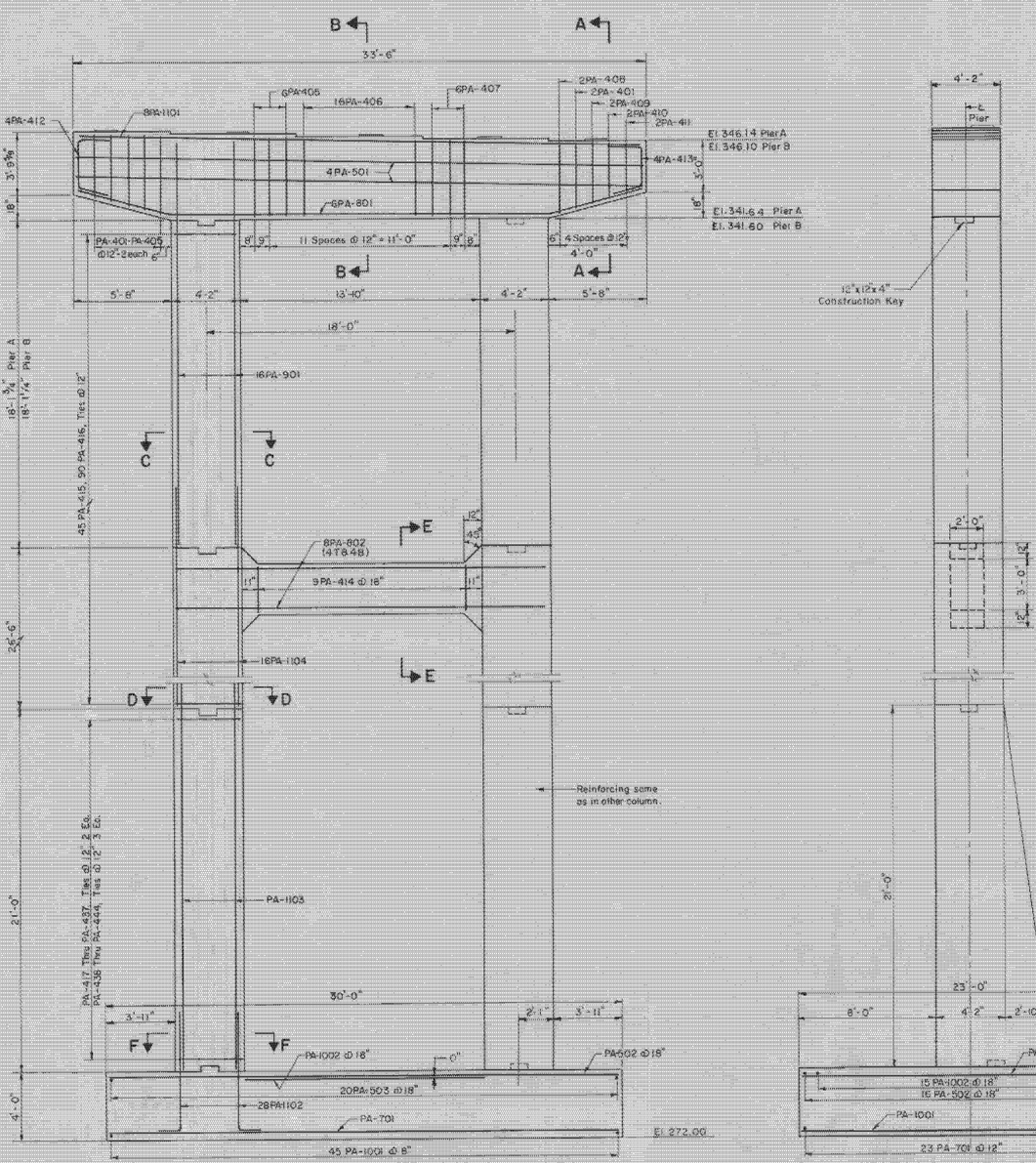
THE CLARKESON ENGINEERING CO., INC.
CONSULTING ENGINEERS
BOSTON MASSACHUSETTS

SURVEYED BY	CHECKED BY J.P.	SCALE AS NOTED
DRAWN BY R.J.F.	IN CHARGE J.V.B.	DATE 10/25/57

PROJECT NO. I 91-1(10) SHEET 114 OF 328

CONTRACT NO.2

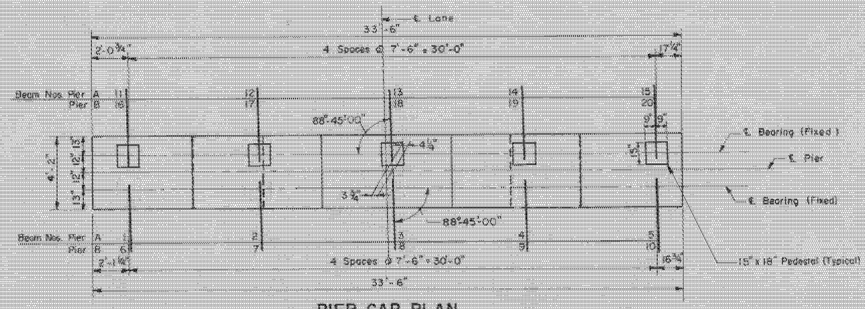
B.P.R. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	VT.	I 91-1(10)	115	328



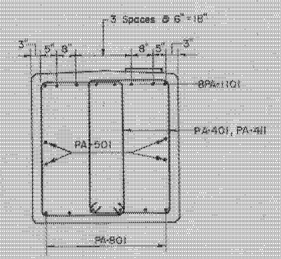
ELEVATION PIER A
ELEVATION PIER B (SIMILAR EXCEPT AS NOTED)
Scale: 1/4"=1'-0"

MAXIMUM SOIL PRESSURE 8500 LBS. PER SQ. FT.

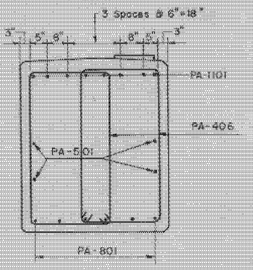
END VIEW PIER A
END VIEW PIER B (SIMILAR)
Scale: 1/4"=1'-0"



PIER CAP PLAN
Scale: 1/4"=1'-0"

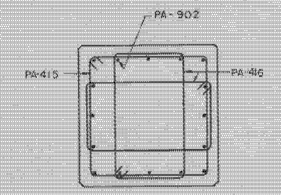


SECTION A-A
Scale: 1/2"=1'-0"

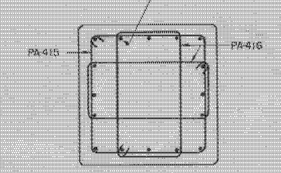


SECTION B-B
Scale: 1/2"=1'-0"

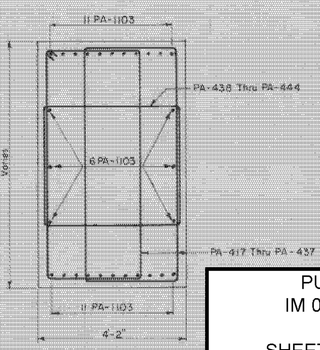
Note 1. Bridge seats to be sloped 1/4" per ft. from ℄ Pier between bearing plates. Bridge seats to be covered with 1/2" Asphaltic-Asbestos coating after superstructure is in place, and paid for under Item 407.
2. All exposed corners to have a 1" chamfer.
3. All Reinforcing Cover to be 2" except as noted.



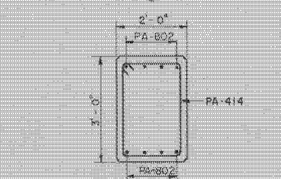
SECTION C-C
Scale: 1/2"=1'-0"



SECTION D-D
Scale: 1/2"=1'-0"



SECTION F-F
Scale: 1/2"=1'-0"



SECTION E-E
Scale: 1/2"=1'-0"

PUTNEY
IM 091-1(60)

SHEET 41 OF 45
BRIDGE 16
FOR REFERENCE ONLY

SCHEDULE OF MASONRY SHELF ELEVATIONS

BEAM NO.	Pier A		BEAM NO.	BEAM NO.	Pier B		BEAM NO.
1	346.94	346.99	11	6	346.90	346.95	16
2	346.74	346.79	12	7	346.70	346.75	17
3	346.54	346.60	13	8	346.50	346.55	18
4	346.34	346.40	14	9	346.30	346.36	19
5	346.14	346.20	15	10	346.10	346.16	20

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	PIER A NET	PIER A OVER-RUN	PIER A TOTAL	PIER A FINAL	PIER B NET	PIER B OVER-RUN	PIER B TOTAL	PIER B FINAL
107	Structure Excavation	C.Y.	~~222~~	~~22~~	~~244~~	223	~~226~~	~~23~~	~~251~~	227
401-B	Concrete Class B (Mod.)	C.Y.	~~187~~	~~9~~	~~196~~	225	~~187~~	~~9~~	~~196~~	223
402	Reinforcing Steel	Lbs.	See Reinforcing Steel Schedule Sheets 120 and 120A							
407	Asphaltic-Asbestos Coating	S.Y.	~~16~~	-	~~16~~	17	~~16~~	-	~~16~~	18

PIERS A AND B
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS
INTERSTATE PROJECT in the town of PUTNEY
INTERSTATE STA. 1132+50
OVER
TOWN ROAD #50 (REL.) STA. 20+00

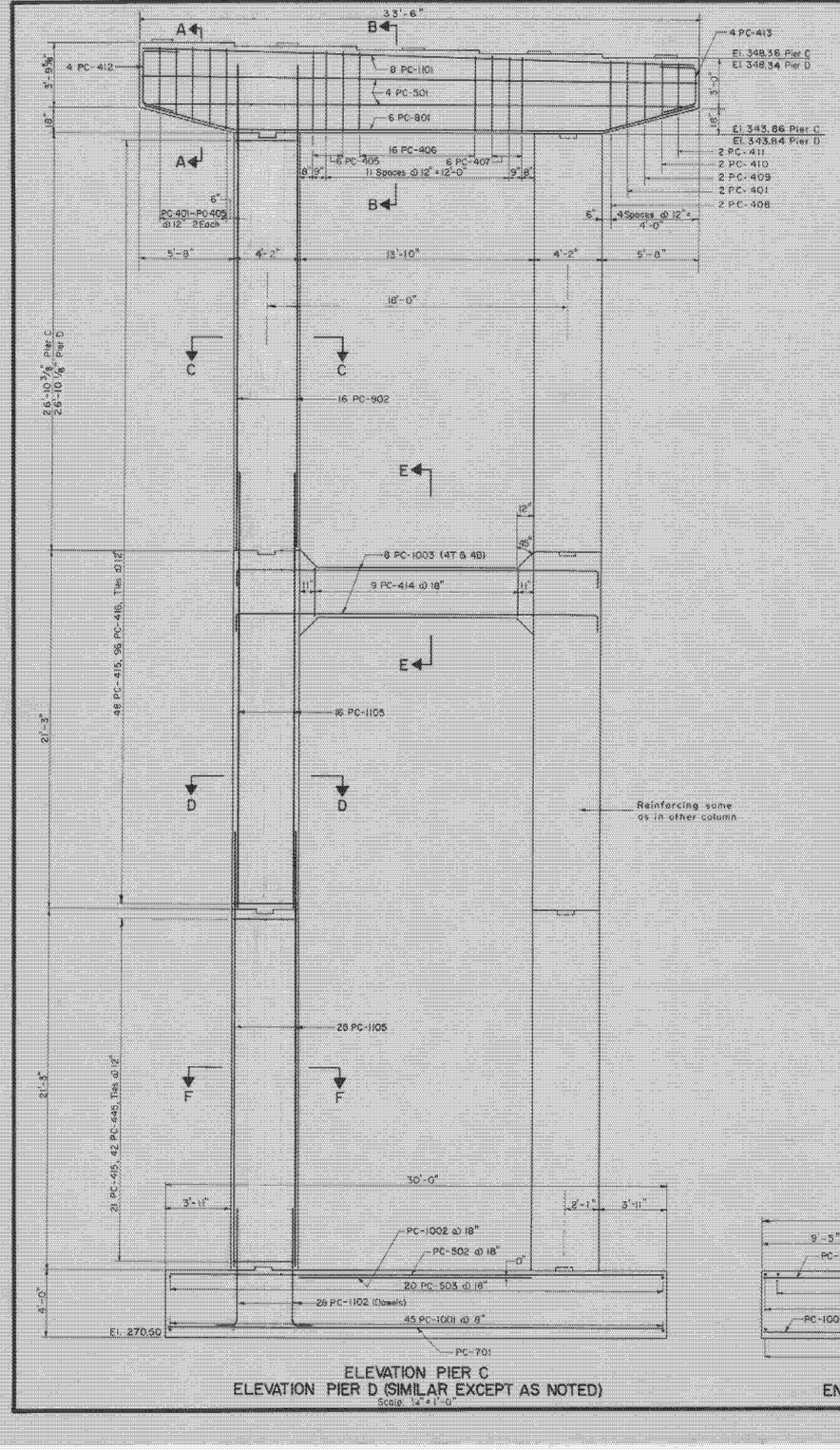
THE CLARKESON ENGINEERING CO., INC.
CONSULTING ENGINEERS
BOSTON MASSACHUSETTS

SURVEYED BY	CHECKED BY J.P.	SCALE AS NOTED
DRAWN BY S.A.L. PERS.	IN CHARGE JPS	DATE 10-25-57

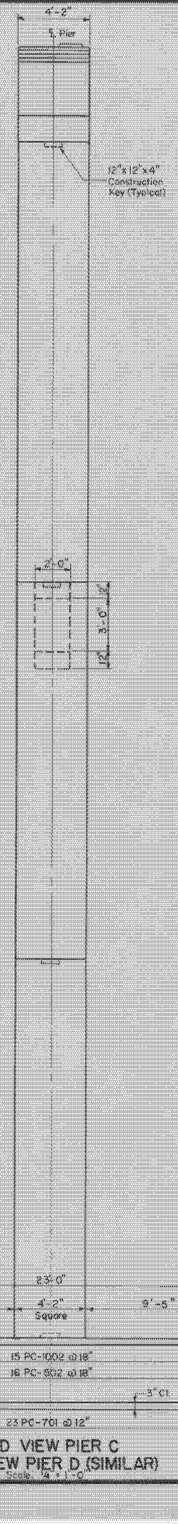
PROJECT NO. I 91-1(10) SHEET 115 OF 328

CONTRACT NO. 2

B.P.R. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	VT.	I 91-1(10)	116	328

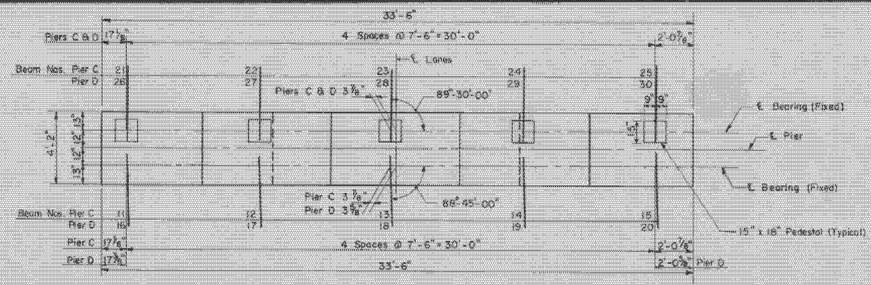


ELEVATION PIER C
ELEVATION PIER D (SIMILAR EXCEPT AS NOTED)
Scale: ¼"=1'-0"

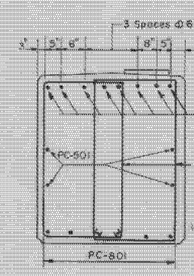


END VIEW PIER C
END VIEW PIER D (SIMILAR)
Scale: ¼"=1'-0"

MAXIMUM SOIL PRESSURE 5200 LBS. PER SQ. FT.

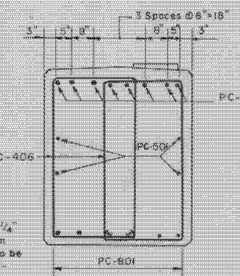


PIER CAP PLAN
Scale: ¼"=1'-0"

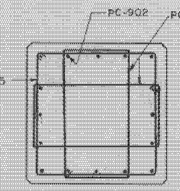


SECTION A-A
Scale: ½"=1'-0"

Note:
1. Bridge Seats to be sloped ¼" Per Ft. from ℄ Pier between bearing R.s. Bridge Seat to be Covered with ½" Asphaltic-Asbestos Coating after Superstructure is in place, and paid for under Item 407.
2. All exposed corners to have a 1" chamfer.
3. All reinforcing cover to be 2" except as noted.



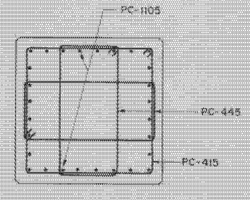
SECTION B-B
Scale: ½"=1'-0"



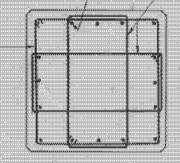
SECTION C-C
Scale: ½"=1'-0"

ESTIMATED QUANTITIES

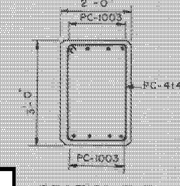
ITEM NO	DESCRIPTION	UNIT	PIER C NET	PIER C OVER-RUN	PIER C TOTAL	PIER C FINAL	PIER D NET	PIER D OVER-RUN	PIER D TOTAL	PIER D FINAL
107	Structure Excavation	C.Y.	593	63	656	326	435	44	479	262
401-B	Concrete Class B (Mod)	C.Y.	219	11	230	219	219	11	230	219
402	Reinforcing Steel	Lbs.	See Reinforcing Steel Schedule Sheets 120 and 120A							
407	Asphaltic-Asbestos Coating	S.Y.	16	–	16	17	16	–	16	18



SECTION F-F
Scale: ½"=1'-0"



SECTION D-D
Scale: ½"=1'-0"



SECTION E-E
Scale: ½"=1'-0"

SCHEDULE OF MASONRY SHELF ELEVATIONS

Beam No.	PIER C	Beam No.	Beam No.	PIER D	Beam No.
11	349.14	349.19	21	16	349.13	349.18	26
12	348.94	348.99	22	17	348.93	348.98	27
13	348.75	348.80	23	18	348.74	348.79	28
14	348.55	348.60	24	19	348.54	348.59	29
15	348.36	348.41	25	20	348.34	348.39	30

PUTNEY
IM 091-1(60)

SHEET 42 OF 45
BRIDGE 16
FOR REFERENCE ONLY

PIERS C AND D

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS
INTERSTATE PROJECT in the town of
PUTNEY
INTERSTATE STA. 1132+50
OVER
TOWN ROAD #50(REL.) STA. 20+00

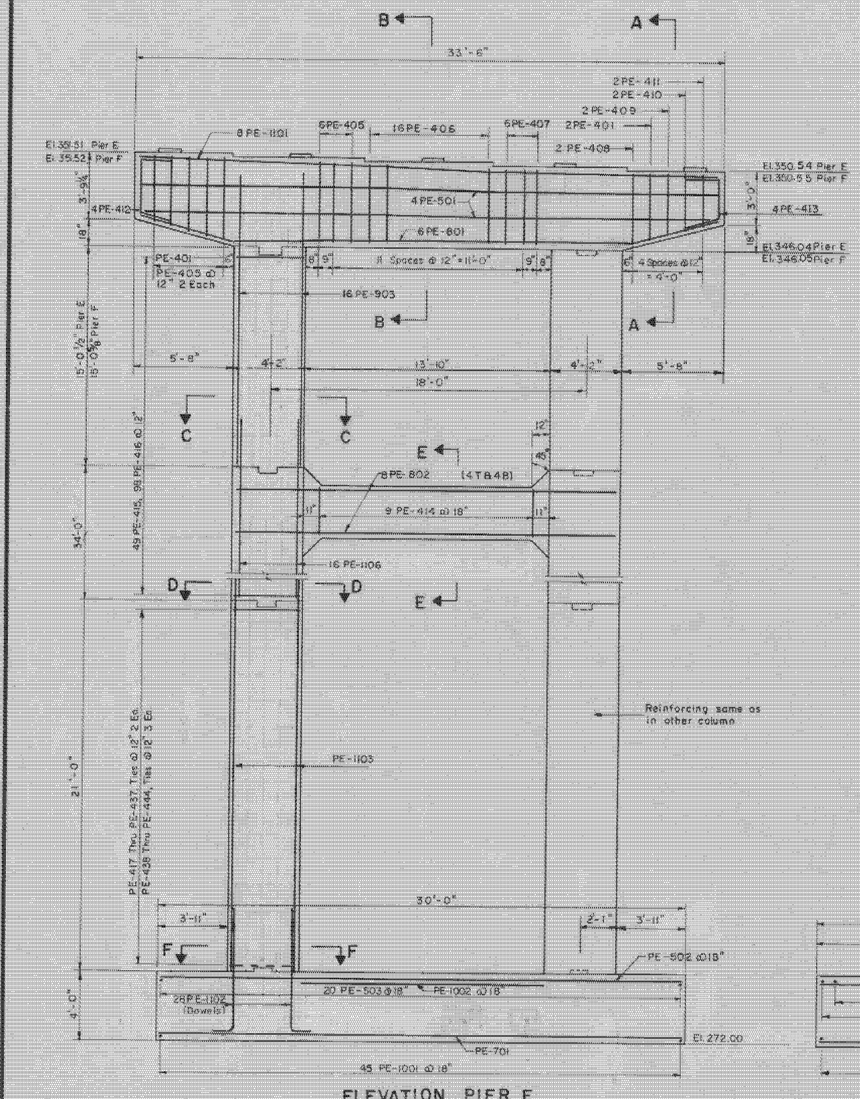
THE CLARKESON ENGINEERING CO., INC.
CONSULTING ENGINEERS
BOSTON MASSACHUSETTS

SURVEYED BY	CHECKED BY J.V.B.	SCALE AS NOTED
DRAWN BY S.A.L. P.W.S.	IN CHARGE J.V.B.	DATE 10/22/82

PROJECT NO. I 91-1(10) SHEET 116 OF 328

CONTRACT NO. 2

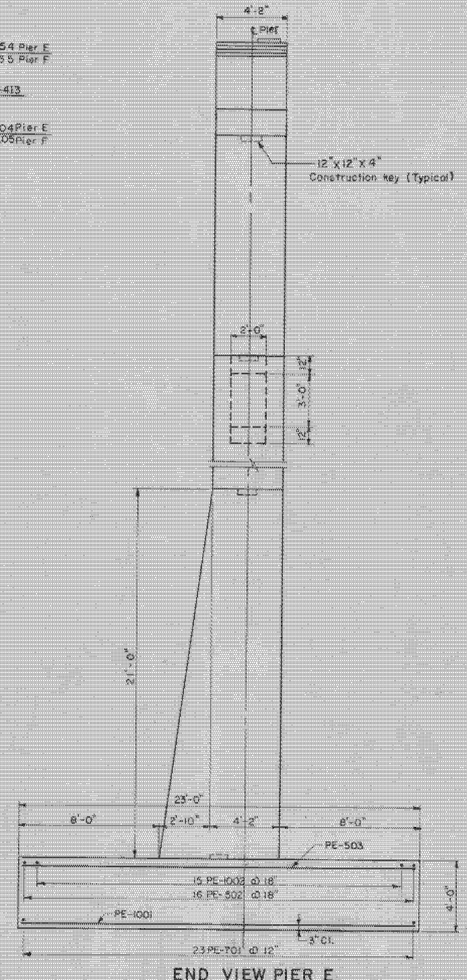
B.P.R. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
I	VT.	I 91-1(10)	117	328



ELEVATION PIER E
ELEVATION PIER F (SIMILAR EXCEPT AS NOTED)

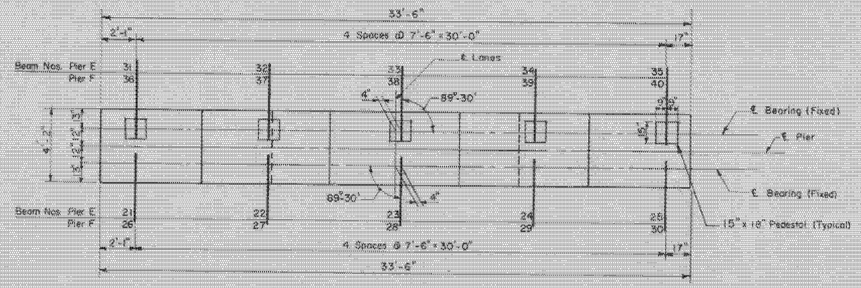
Scale: ¼"=1'-0"

MAXIMUM SOIL PRESSURE 8500 LBS. PER SQ. FT.



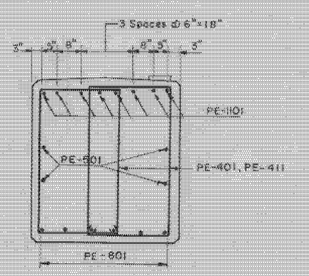
END VIEW PIER E
END VIEW PIER F (SIMILAR)

Scale: ¼"=1'-0"



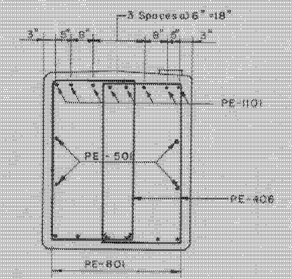
PIER CAP PLAN

Scale: ¼"=1'-0"



SECTION A-A

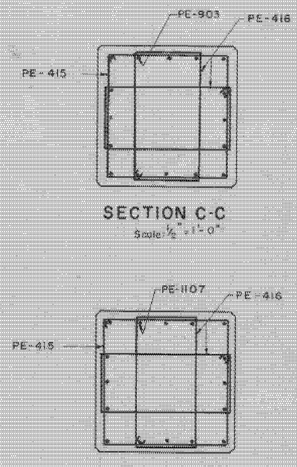
Scale: ½"=1'-0"



SECTION B-B

Scale: ½"=1'-0"

NOTE : 1. Bridge seats to be sloped ¼" per ft. from ℄ Pier between bearing #'s. Bridge seats to be covered with ½" Asphaltic-Asbestos coating after Superstructure is in place, and paid for under Item 407.
2. All exposed corners to have a 1" chamfer.
3. All Reinforcing Cover to be 2" except as noted.



SECTION C-C

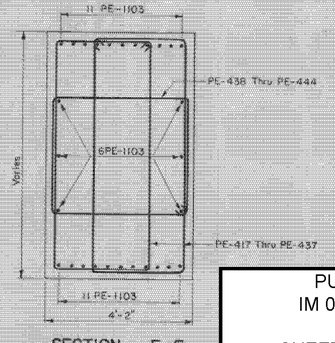
Scale: ½"=1'-0"

SECTION D-D

Scale: ½"=1'-0"

SECTION E-E

Scale: ½"=1'-0"



SECTION F-F

Scale: ⅛"=1'-0"

SCHEDULE OF MASONRY SHELF ELEVATIONS								
BEAM NO.	PIER E		BEAM NO.	BEAM NO.	PIER F		BEAM NO.
21	351.31	351.35	31	26	351.32	351.37	36
22	351.12	351.16	32	27	351.13	351.18	37
23	350.92	350.97	33	28	350.93	350.98	38
24	350.73	350.78	34	29	350.74	350.79	39
25	350.54	350.59	35	30	350.55	350.60	40

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	PIER E NET	PIER E OVER-RUN	PIER E TOTAL	PIER E FINAL	PIER F NET	PIER F OVER-RUN	PIER F TOTAL	PIER F FINAL
107	Structure Excavation	C.Y.	460	48	508	452	400	40	440	444
401-B	Concrete Class B (Mod.)	C.Y.	229	11	240	229	229	11	240	229
402	Reinforcing Steel	Lbs.	See Reinforcing Steel Schedule Sheets 120 and 120A							
407	Asphaltic-Asbestos Coating	S.Y.	16	–	16	17	16	–	16	18

PUTNEY
IM 091-1(60)

SHEET 43 OF 45
BRIDGE 16
FOR REFERENCE ONLY

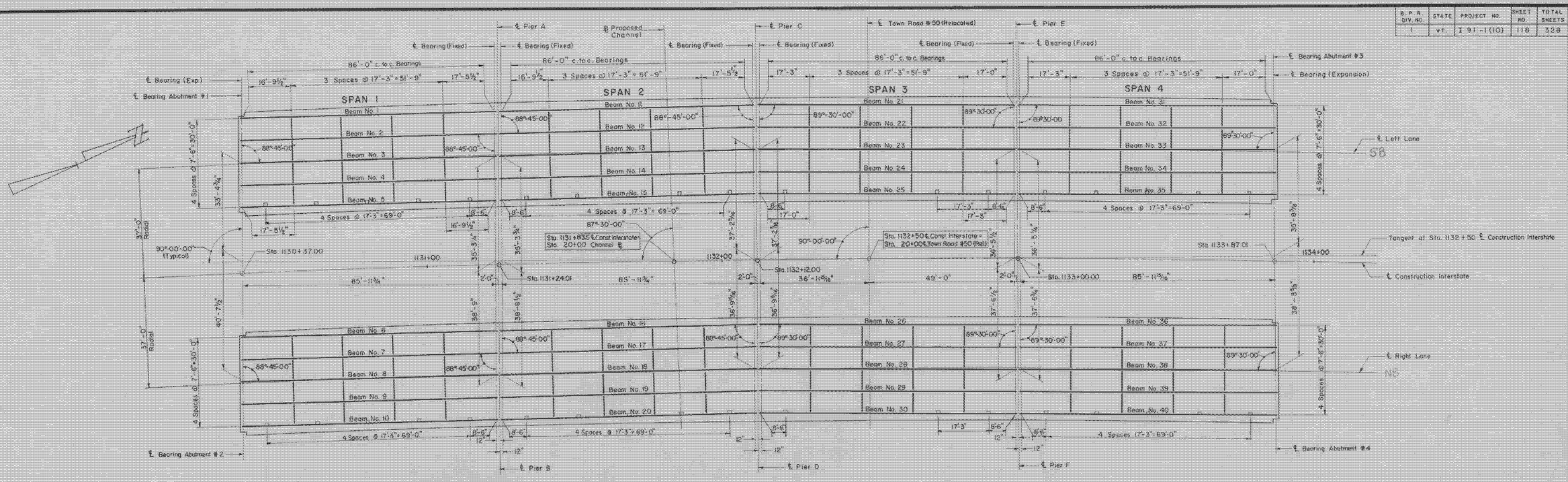
PIERS E AND F
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS
INTERSTATE PROJECT in the town of PUTNEY
INTERSTATE STA. 1132+50
OVER
TOWN ROAD #50 (REL.) STA. 20+00

THE CLARKESON ENGINEERING CO., INC.
CONSULTING ENGINEERS
BOSTON MASSACHUSETTS

SURVEYED BY	CHECKED BY J.B.	SCALE AS NOTED
DRAWN BY S.A.L. & P.M.C.	IN CHARGE J.V.B.	DATE 10/25/57
PROJECT NO. I 91-1(10)	SHEET 117 OF 328	

CONTRACT NO. 2

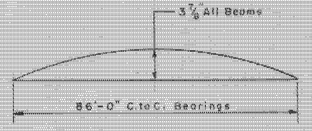
B. P. R. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	VT.	I 91-1(10)	118	328



FRAMING PLAN

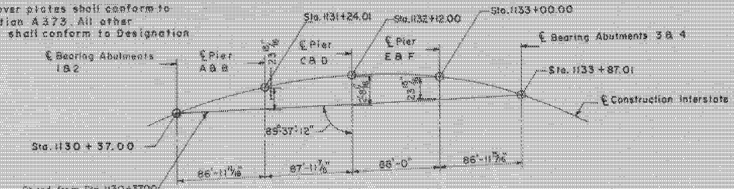
Scale: 1/8" = 1'-0"

NOTES:
1. All Beams to be 36 W 300 with 14"x1"x 52'-8" long Cover ℄.
2. All Diaphragms to be 18 C 42.7
3. All dimensions are horizontal dimensions.
4. All Beams shall be rolled to a true circular camber with the middle ordinate as show on this sheet.
5. Spans 1 & 2, both lanes (similar); Spans 3 & 4, both lanes (similar).
6. All Stations refer to ℄ Construction Interstate.
7. For Fixed and Expansion Bearings (According to Span Length) see Std. Sheet SB-20-56
9. All beams and cover plates shall conform to A.S.T.M. Designation A 373. All other Structural steel shall conform to Designation A7 or A 373.



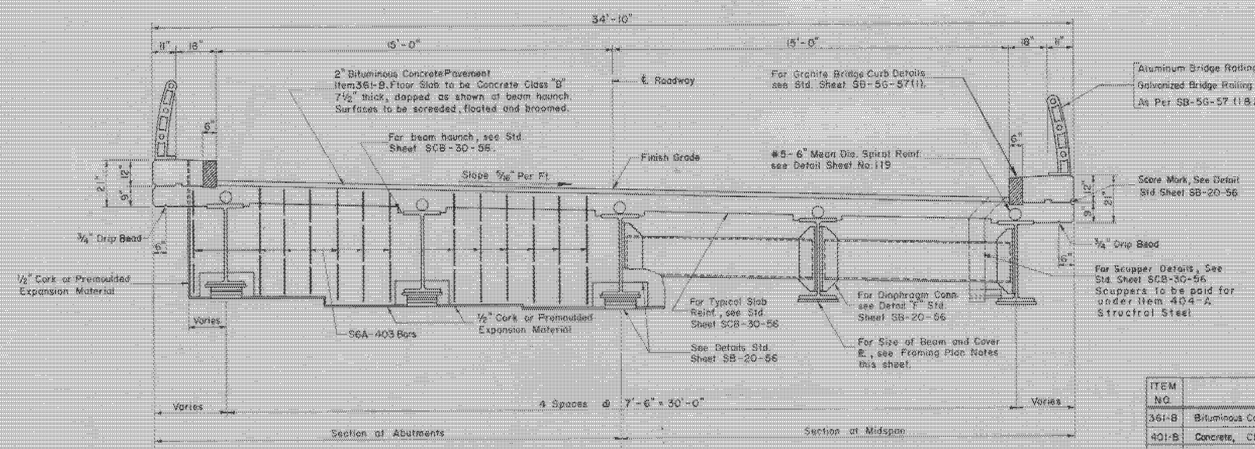
CAMBER DIAGRAM

NO SCALE



CHORD LAYOUT

NOT TO SCALE



TYPICAL SECTION

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

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	NET	OVER-RUN	TOTAL	FINAL
361-B	Bituminous Concrete Pavement	TONS	2700	41	3541	see Total
401-B	Concrete, Class B (Mod.)	C.Y.	780	39	819	794
402	Reinforcing Steel	LBS.	See Reinforcing Schedule Sheet 120			
403	Spiral Reinforcement (12,585)	L.S.	1	–	1	1
404-A	Structural Steel	LBS.	1,210,000	24,200	1,234,200	1,202,925

PUTNEY
IM 091-1(60)

SHEET 44 OF 45
BRIDGE 16
FOR REFERENCE ONLY

STRUCTURAL STEEL PLAN

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

INTERSTATE PROJECT in the town of PUTNEY

INTERSTATE STA. 1132+50
OVER
TOWN ROAD #50 (REL.) STA. 20+00

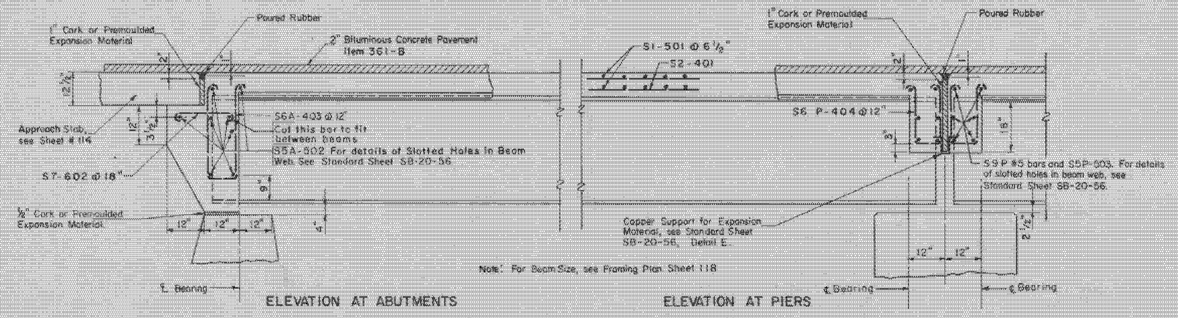
THE CLARKESON ENGINEERING CO., INC.
CONSULTING ENGINEERS
BOSTON MASSACHUSETTS

SURVEYED BY	CHECKED BY P.K.	SCALE AS NOTED
DRAWN BY A.L.	IN CHARGE J.V.B.	DATE 10/25/57

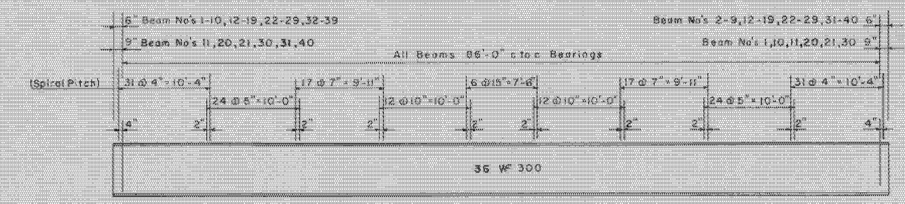
PROJECT NO. I 91-1(10) SHEET 118 OF 328

CONTRACT NO. 2

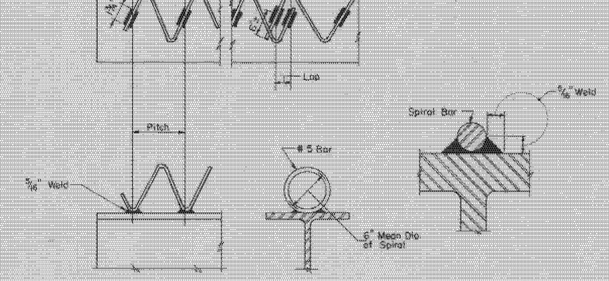
B.P.R. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	VT.	I 91-1(10)	119	328



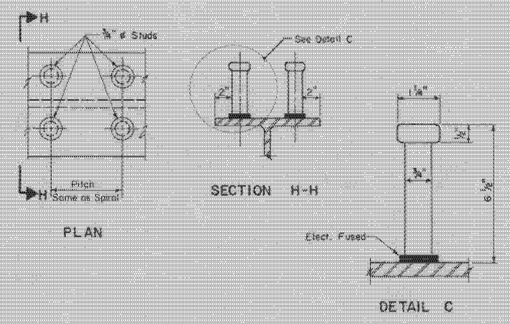
TYPICAL ELEVATION OF BEAM (SQUARE)
Scale: 1/2" = 1'-0"



ELEVATION OF BEAM
Not to Scale



TYPICAL SPIRAL REINFORCING DETAILS
No Scale



ALTERNATE SHEAR CONNECTOR
No Scale

PUTNEY
IM 091-1(60)

SHEET 45 OF 45
BRIDGE 16
FOR REFERENCE ONLY

STRUCTURAL STEEL DETAILS

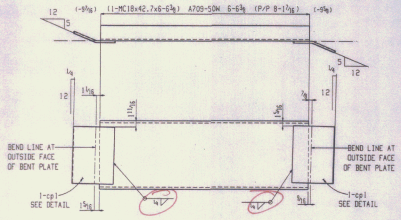
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

INTERSTATE PROJECT in the town of
PUTNEY
INTERSTATE STA. 1132+50
OVER
TOWN ROAD #50 (REL.) STA. 20+00

THE CLARKESON ENGINEERING CO., INC.
CONSULTING ENGINEERS
BOSTON, MASSACHUSETTS

SURVEYED BY DRAWN BY	CHECKED BY J.S IN CHARGE J.V.S.	SCALE AS NOTED DATE 10-25-57
PROJECT NO I 91-1(10)	SHEET 119 OF 328	

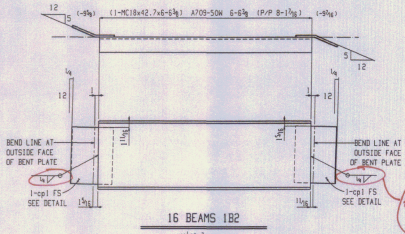
CONTRACT NO. 2



16 BEAMS 1B1

W	18x3/16
F	3 15/16 x 3/8
K	1 3/8 x 1

SHOP NOTE:
TOE DIRECTION FAR SIDE

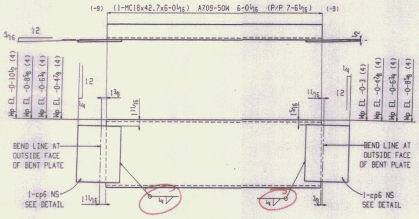


16 BEAMS 1B2

W	18x3/16
F	3 15/16 x 3/8
K	1 3/8 x 1

SHOP NOTE:
TOE DIRECTION NEAR SIDE

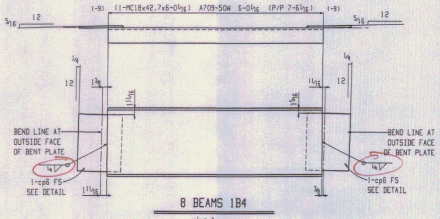
SEE DETAIL TYA



16 BEAMS 1B3

W	18x3/16
F	3 15/16 x 3/8
K	1 3/8 x 1

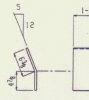
SHOP NOTE:
TOE DIRECTION FAR SIDE



8 BEAMS 1B4

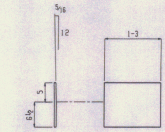
W	18x3/16
F	3 15/16 x 3/8
K	1 3/8 x 1

SHOP NOTE:
TOE DIRECTION NEAR SIDE



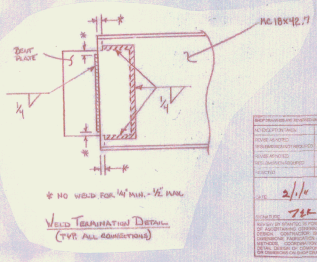
DETAIL OF cp1

GRADE: A709-50W



DETAIL OF cp6

GRADE: A709-50W



BILL OF MATERIAL

BLOCK QTY.	BLOCK NO.	MARK	NO. PCS.	SHAPE	LENGTH FT.	LENGTH IN.	C.S. NO.	CUT FROM NO.	CUT FROM FT. IN.	PROC. PG + LN	REMARKS	PAY ITEM
16	1	1B1	16	BEAM								
	2	1B1	16	MC18x42.7	5	6 3/8					A709-50W	
	3	cp1	32	BPL 9x11 3/8	1	3					BENT A709-50W	
	4											
	5											
	6											
	7											
	8											
16	9	1B2	16	BEAM								
	10	1B2	16	MC18x42.7	5	6 3/8					A709-50W	
	11	cp1	32	BPL 9x11 3/8	1	3					BENT A709-50W	
	12											
	13											
	14											
	15											
	16											
16	17	1B3	16	BEAM								
	18	1B3	16	MC18x42.7	5	0 1/2					A709-50W	
	19	cp6	32	BPL 9x11 3/8	1	3					BENT A709-50W	
	20											
	21											
	22											
	23											
	24											
8	25	1B4	8	BEAM								
	26	1B4	8	MC18x42.7	5	0 1/2					A709-50W	
	27	cp6	16	BPL 9x11 3/8	1	3					BENT A709-50W	
	28											
	29											
	30											
	31											
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	55											

OUT FOR APPROVAL	01-14	DJF	PD
OUT FOR APPROVAL			
ISSUED TO SHOP			
FIELD & OFFICE			

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.

NO.	DIA.	LGT	TYPE	WASHER

PROJECT NO. STATE PROJECT NO. IM 091-1(60)

MATERIAL : ASTM A709-GR50W | ELECTRODES : SEE PROC | HOLES : AS NOTED | SHOP BOLTS : ϕ

SURFACE PREPN & PAINT : NONE

DESCRIPTION : DIAPHRAM BEAMS & LOOSE ANGLES

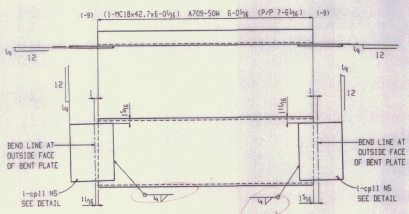
JOB : STATE OF VERMONT
AGENCY OF TRANSPORTATION
BRIDGES NO. 14N&S, 16N&S ON INTERSTATE 91

CUSTOMER : COLD RIVER BRIDGES, LLC / VT A.O.T.

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

DRAWN BY	DATE
DJF	JAN 2011
CHECKED BY	DATE
PD	JAN 2011
APPROVED BY	DATE
Q. A.	DATE
JOB NO.	DRG. NO.
484	1
Fab: PUTNEY_484 Job: PUTNEY_484	REV.

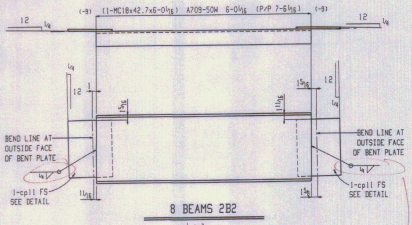
JOB NO.	DRG. NO.
484	1



16 BEAMS 2B1

W	18x7/16
F	31 5/16 x 5/8
K	14 3/8 x 1

SHOP NOTE:
TOE DIRECTION FAR SIDE

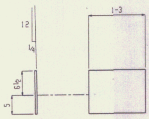


8 BEAMS 2B2

W	18x7/16
F	31 5/16 x 5/8
K	14 3/8 x 1

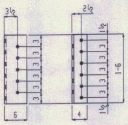
SHOP NOTE:
TOE DIRECTION NEAR SIDE

SEE DETAIL ON DRG No. 1



DETAIL OF cpl1

GRADE: A709-50W



160 ANGLES 2A1

BILL OF MATERIAL

BLOCK QTY.	BLOCK NO.		MARK	NO. PCS.	SHAPE	LENGTH FT.	LENGTH IN.	C.S. NO.	CUT ITEM NO.	CUT ITEM NO. FT. IN.	PROC. PG + LN	REMARKS	PAY ITEM
16	1	2	2B1	16	BEAM								
		2	2B1	16	MC18x42.7	6	0 1/16					A709-50W	
		3	cpl1	32	PL 9x11 1/16	1	3					BENT A709-50W	
		4											
		5											
		6											
		7											
		8											
8	1	9	2B2	8	BEAM								
		10	2B2	8	MC18x42.7	6	0 1/16					A709-50W	
		11	cpl1	16	PL 9x11 1/16	1	3					BENT A709-50W	
		12											
		13											
		14											
		15											
		16											
160	1	17	2A1	160	ANGLE								
		18	2A1	160	L 6x4x1/2	1	6					A709-50W	
		19											
		20			FIELD BOLTS								
		21	3/4" ø	216	3/4 Dia A325	0	3 1/2					Outside Bay	IHD WASH
		22	7/8" ø	144	7/8 Dia A325	0	4					Inside Bay	IHD WASH
		23	7/8" ø	144	7/8 Dia A325	0	2 1/2					Exterior Bay	IHD WASH
		24	7/8" ø	36	7/8 Dia A325	0	2 1/2					Exterior Diaphragm to angle	IHD WASH
		25		800	7/8 Dia A325	0	2 1/2						IHD WASH
		26											
		27											
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		55											

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	01-14	DJF	PD		
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

PROJECT NO. STATE PROJECT NO. IM 091-1(60)

MATERIAL : ASTM A709-GR50W | ELECTRODES : SEE PROC | HOLES : AS NOTED | SHOP BOLTS : ϕ

SURFACE PREPN & PAINT : NONE

DESCRIPTION : DIAPHRAM BEAMS & LOOSE ANGLES

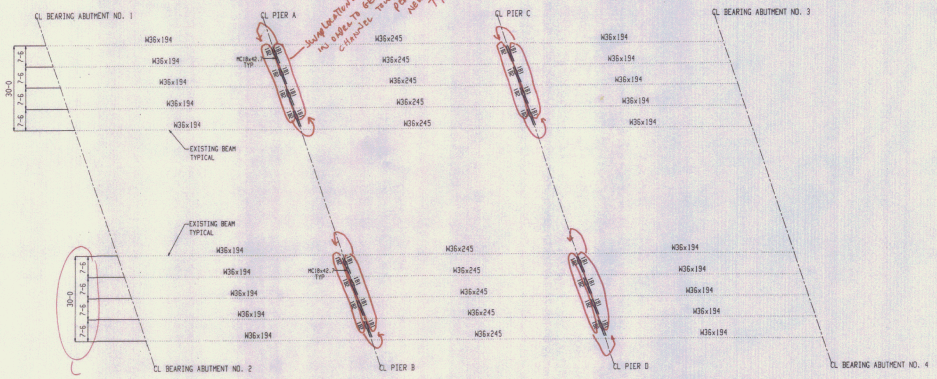
JOB : STATE OF VERMONT
AGENCY OF TRANSPORTATION
BRIDGES NO.14N&S, 16N&S ON INTERSTATE 91

CUSTOMER : COLD RIVER BRIDGES, LLC / VT A.O.T.

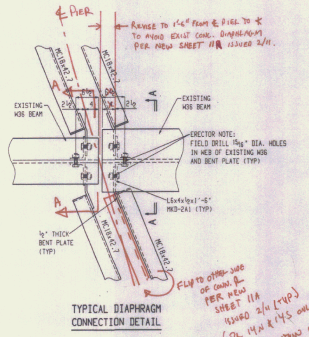
DRAWN BY	DATE
DJF	JAN 2011
CHECKED BY	DATE
PD	JAN 2011
APPROVED BY	DATE
D. A.	DATE
JOB NO.	DRG. NO.
484	2
Fab: PUTNEY_484 Job: PUTNEY_484	REV.

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

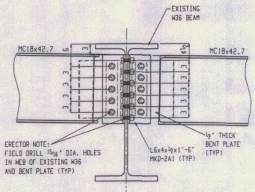
JOB NO.	DRG. NO.
484	2



BRIDGES NO. 14N&S



TYPICAL DIAPHRAGM CONNECTION DETAIL



SECTION A-A

REV.	REMARKS	DATE	DWN	CHK	APP	O.A.
	OUT FOR APPROVAL	01-14	DJF	PD		
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

PROJECT NO. PUTNEY — STATE PROJECT NO. IM 091-1(60)

MATERIAL : ASTM A709-GR50W | ELECTRODES : E70LH | HOLES : 15/16 ϕ UNO | SHOP BOLTS : 7/8 ϕ

SURFACE PREPN & PAINT : NONE

DESCRIPTION : PLAN AT BRIDGE NO. 14N&S

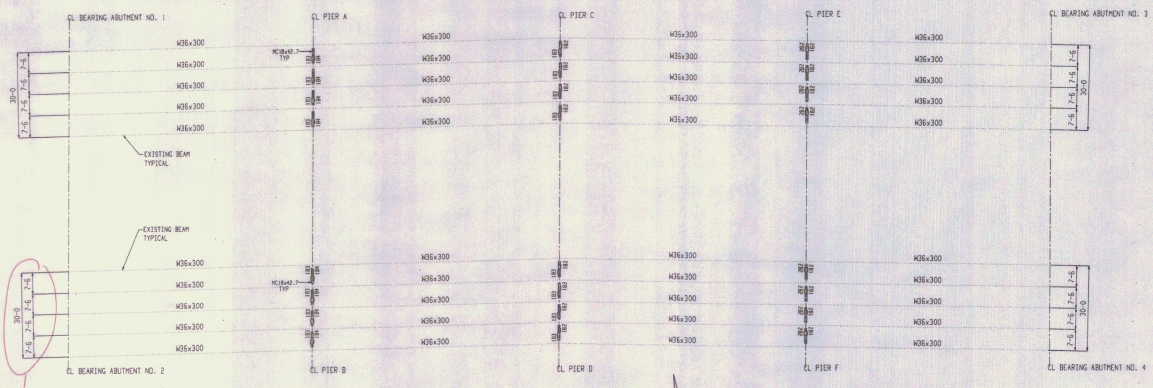
JOB : STATE OF VERMONT
AGENCY OF TRANSPORTATION
BRIDGES NO.14N&S, 16N&S ON INTERSTATE 91

CUSTOMER : COLD RIVER BRIDGES, LLC ✓ VT A.O.T.

DRAWN BY	DATE
DJF	JAN 2011
CHECKED BY	DATE
PD	JAN 2011
APPROVED BY	DATE
O. A.	DATE
JOB NO.	DRG. NO.
484	E1
Fab: PUTNEY_484 Job: PUTNEY_484	REV.

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
Jan 14 2011 11:02:28 AM

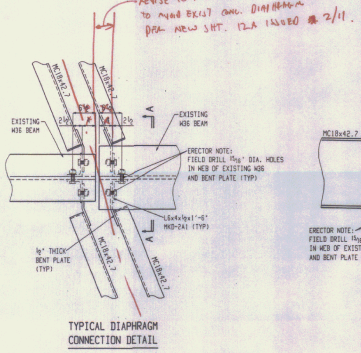
JOB NO.	DRG NO.
484	E1



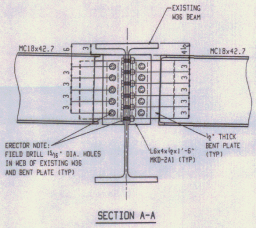
G.C. TO VERIFY IN FIELD (TYP.)

BRIDGES NO. 16N&S

REVISE TO 1'-6" FROM ℄ PIER TO ✱ TO MAKE EXIST. DIAPHRAGM DIAG. NEW SHT. 12A 1/16/20 ✱ 2/11.



TYPICAL DIAPHRAGM CONNECTION DETAIL



SECTION A-A

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	01-14	DJF	PD		
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

PROJECT NO. 484 STATE PROJECT NO. IM 091-1(60)

MATERIAL : ASTM A709-GR50W | ELECTRODES : E70LH | HOLES : 15/16 ϕ UNO | SHOP BOLTS : 7/8 ϕ

SURFACE PREPN & PAINT : NONE

DESCRIPTION : PLAN AT BRIDGE NO. 16N&S

JOB : STATE OF VERMONT
AGENCY OF TRANSPORTATION
BRIDGES NO.14N&S, 16N&S ON INTERSTATE 91

CUSTOMER : COLD RIVER BRIDGES, LLC / VT A.O.T.

DRAWN BY	DATE
DJF	JAN 2011
CHECKED BY	DATE
PD	JAN 2011
APPROVED BY	DATE
Q. A.	DATE

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

Jan 14 2011 11:08:24 AM

JOB NO.	DRG. NO.
484	E2
Fab: PUTNEY_484 Jan: PUTNEY_484	REV.

JOB NO.	DRG. NO.
484	E2

Stantec Consulting Services Inc.
55 Green Mountain Drive
South Burlington VT 05403
Tel: (802) 864-0223
Fax: (802) 864-0165

Stantec

February 03, 2011
File: 195310386

Casco Bay Steel Structures, Inc.
75 Spring Hill Road
Saco, ME 04072

Reference: **Putney IM 091-1(60)**

Structure Identification: **Bridges 14N&S and Bridges 16N&S**

The following Structural Steel Shop Drawings and welding procedures details for the above project (Vendor's Job # 484) transmitted by Cold River Bridges on 1/17/11 have been reviewed and are being returned herewith.

Sheets: E1, E2,1 & 2 ARE APPROVED AS NOTED AND Welding Procedures, 401,101 ST OF VT, ARE APPROVED.

Upon submitting extended weights for our approval, please make appropriate changes as indicated on these "as noted" or "approved" drawings and submit white prints for our use in the record plans for this project.

Welding procedure 103 ST OF VT is not approved for use on this job.

You must provide written notice to Vermont Agency of Transportation (VTRANS) Structures Section office as to the date fabrication represented by these drawings will begin. **That notice must be received at least seven days prior to that date, as per Specifications 506.03. Any material fabricated prior to the notification date is subject to rejection without further cause.**

Sincerely,

STANTEC CONSULTING SERVICES INC.

Tom Knight PE
Stantec
Ph: (802) 864-0223 Ext. 136
Fx: (802) 864-0165
tom.knight@stantec.com

c. VTrans Resident Engineer – Chad Greenwood, w/prints
Jim Holler – Cold River Bridges, w/prints
VTrans Construction Section - letter only (To Const. Eng. David Hoyne, ATT: Reg. Const. Eng. Ann Gammell, PE)
VTrans Consultant Project Manager - Sherward G. Farnsworth, w/prints
VTrans Materials & Research Section (C&IA Unit), letter only
VTrans Structures Section - Shop Inspector Jeff Clark, w/prints

Attachment: One set of prints (and welding procedures) & Revised sheet 11R, 12R and 14R

lrs \\us1286-f01\workgroup\1953\active\195310386\construction\cascobay_structuralsteeltransmittal.doc

5 Industry Road
South Portland, Maine 04106

hone: (207) 772-2533

Putney IM 091-1(60)
VTrans Structures' Section
Jan 26, 2011

WELDING PROCEDURE SPECIFICATION

Material specification ASTM 709-Gr 36-50-50W (250-345-345W)
Welding process Shielded Metal Arc welding (SMAW)
Manual or machine Manual
Position of welding Flat (1F), Horizontal (2F)
Filler metal specification ANSI/AWS A5.1 - A5.5
Filler metal classification E7018 - 8018 C1/C3 - 7028
Flux NA
Shielding gas NA Flow rate NA
Single or multiple pass Single and multiple
Single or multiple arc Single
Welding current AC/DC
Polarity STraight / Reverse
Welding progression
Root treatment Meet AWS SPECIFICATION
Preheat and Interpass temperature To 3/4(19) 50°(10°) 3/4"(19) TO 1 1/2(38) 70°(20°) 1 1/2(38) To 2 1/2(63.5) 150°(65°) over 2 1/2(63.5) 225°(110°)
Postheat temperature NA
Heat Input Min NA Max NA

VTRANS
JAN 26 2011
APPROVED
BY
DATE 02/01/11
ST. OF VT AOT
BY NO. 14 W/G-16 W/2
INTERSTATE 91
CBSS 484

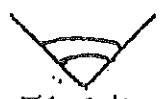
(METRIC)

WELDING PROCEDURE

Pass no.	Electrode size	Welding current: Amperes	Welding current: Volts	Travel speed
	7018			
	1/8 (3.2)	70-170	22-26	
	5/32 (3.9)	120-225	22-26	
AS	3/16 (4.8)	170-300	24-27	AS
REQ.	8018			REQ
	1/8 (3.2)	90-160	22-26	
	5/32 (3.9)	120-225	22-26	
	3/16 (4.8)	180-290	24-27	
	7028			
	5/32 (3.9)	170-290	22-26	
	3/16 (4.8)	210-330	24-27	

AWS D1.5 Joint detail Fillet

1F



3/16 To 3/8 (5 To 10) | 3/8 To 1/2 (10 To 13) | 1/2 To 5/8 (13 To 16)

2F

3/16 To 5/16 (5 To 8) | 3/8 (10) | 7/16 To 5/8 (11 To 16)

This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in applicable AWS codes or contract specifications

AWS QC 1 PAUL E. HOODALE 03160201 CWI

Procedure no. 401
Revision no.
Form III-2

Contractor Casco Bay Steel
Authorized By Paul E. Hoodale
Date 8/28/10

75 Spring Hill Road
Saco, Maine 04072
Phone: (207) 282-7360
Fax: (207) 282-117

WELDING PROCEDURE SPECIFICATION

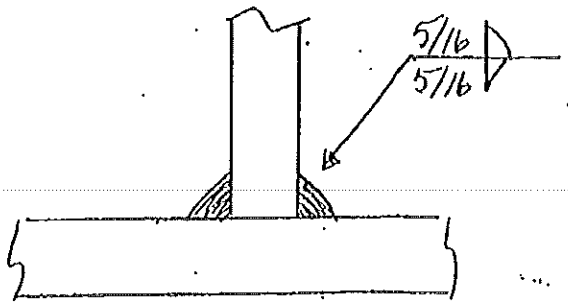
Material specification ASTM-709-Gr 36-50-50W / A709M Gr 250-345-345W
Welding process Flux Cored Arc welding (FCAW) VTRANS
Manual or machine Semi AUTO
Position of welding Flat - Horizontal
Filler metal specification AWS A5-29
Filler metal classification E81T1-Ni1-H4 ESAB
Flux n/A
Shielding gas 75% AR - 25% CO2 Flow rate 35 CFH +5 -4
Single or multiple pass Single / Multiple Elec Ex 5/32 ± 1/4
Single or multiple arc Single
Welding current DC
Polarity DCEP
Welding progression See detail
Root treatment wire brush - area To be Free of loose Scale, Slag, rust & Moisture
Preheat and interpass temperature To 20mm (3/4) 10(50), 20+ (3/4+) To 40 (1½) 20(70), 40+ (1½) To 60 (2½) 65 C 15 over 60 (2½) 110 (225)
Postheat temperature n/A
Heat Input Min 22.7 KJ/in Max 43.6 KJ/in PQR FCM #8 39.6 KJ/in

ST. OF VT ACT
BY NO. 11 5/16-16 N/S
INTERSTATE 91
CBSS 484

WELDING PROCEDURE

AWS 5-13
AWS D1-5 Joint detail Fillet

Pass / no.	Electrode size	Welding current Amperes	Welding current Volts	Travel speed
		287	29	13
	1/16	258 To 315	26.8 To 31	11.4 To 14



Putney IM 091-1(60)
VTrans Structures' Section
Jan 26, 2011

AWS QC1 PAUL T. GOODALE 98109201 CWI

This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in applicable A.W.S. codes or contract specifications

Procedure no. 101 ST OF VT
Revision no. _____
Form III-2

Contractor Casco Bay Steel
Authorized By Paul T. Goodale
Date 12-6-06

Casco Bay Steel Structures, Inc.

WELDING PROCEDURE SPECIFICATION

Material specification A S T M - A 709 G-r 50
Welding process Flux Cored Arc Welding
Manual or machine Semi AUTO
Position of welding Flat - Horizontal
Filler metal specification A 5 - 20
Filler metal classification E 71-1H8 - Lincoln UltraCore 71A75 Dual
Flux ~A
Shielding gas 75%AR. - 25% CO2 Flow rate 35 CFH +8, -4
Single or multiple pass BOTH
Single or multiple arc Single
Welding current DC
Polarity DC EP
Welding progression See Joint
Root treatment Area Tobe Free of Rust - Scale - Slag and Rust - Moisture
Preheat and interpass temperature See Table
Posfheat temperature ~A
Heat Input Min 29.1 KJ/in Max 41.5 KJ/in P.Q.R. FC #12 34.7 KJ/in

Minimum Preheat and Interpass Temperature, °C (°F)

Welding Process (Base Metal)	Thickness of Thickest Part at Point of Welding, mm (in)			
	To 20 mm [3/4 in] Incl.	Over 20 mm [3/4 in] to 40 mm [1-1/2 in] Incl.	Over 40 mm [1-1/2 in] to 65 mm [2-1/2 in] Incl.	Over 65 mm [2-1/2 in]
SAW; OMAW; FCAW; SMAW (M270M [M270] 345 [50],	10 [50]	20 [70]	65 [150]	110 [225]

ORIGINAL JAN 26 2011 RESUBMIT APPROVED BY DATE 02/01/11

ST. OF VT AOT
BY NO. 11 N/S - 16 N/S
INTERSTATE 91
CBSS 484

WELDING PROCEDURE

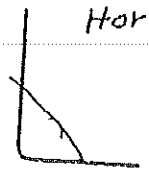
Pass no.	Electrode size	Welding current: Amperes	Welding current: Volts	Travel speed
		292	28	13
AS REQ	1/16	263 To 321	26 To 30	12 To 14

5-13
D1-5
Joint detail Fillet

Flat

5/16 To 3/8

Horizontal



5/16

VAR PER NOT USING

Max InterPass Temp. 450°F

This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in applicable A.W.S. codes or contract specifications

Procedure no. 103 ST OF VT Contractor Casco Bay Steel
Revision no. 1-8-3-10 Authorized By Paul E. Goodale
Date 6-28-10

PAUL E. GOODALE
CWI 83100201
QCI EXP. 10/01/10

Putney IM 091-1(60)
VTrans Structures' Section
Jan 26, 2011