INDEX OF SHEETS

SEE SHEET 2

RECORD PLANS

CONTRACTOR: COLD RIVER BRIDGES, LLC– KEENE, NH

RESIDENT ENGINEER: GERALD "BUTCH" COLBY

CONSTRUCTION BEGAN: APRIL 2, 2012

CONSTRUCTION COMPLETE: SEPTEMBER 10, 2012

RECORD PLANS BY: GERALD BUTCH COLBY & JENNA HYDE

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

BY _____ RESIDENT ENGINEER

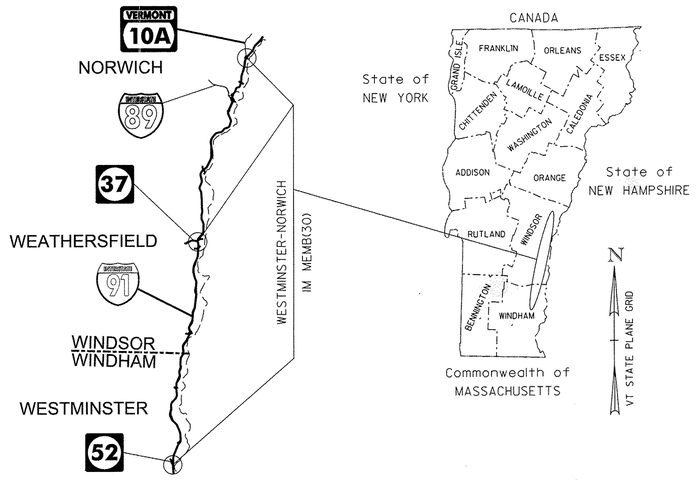
DATE 8/8/13

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

PROPOSED IMPROVEMENT
BRIDGE PROJECT

TOWNS OF WESTMINSTER, WEATHERSFIELD, & NORWICH
COUNTIES OF WINDHAM & WINDSOR
PROJECT IM MEMB(30)



LOCATION MAP
NOT TO SCALE

ROUTE NO.: WESTMINSTER - INTERSTATE I-91
WEATHERSFIELD - TH NO. 37 (THRASHER ROAD)
NORWICH - INTERSTATE I-91

BRIDGE NO.: 18N&S, 31, 48N&S

PROJECT LOCATION: WESTMINSTER - BR 18N&S OVER TH NO. 52 (PIGGERY ROAD)(MM 25.621)
WEATHERSFIELD - BR 31 OVER I-91 (MM 52.172)
NORWICH - BR 48N&S OVER VT 10A (WEST WHEELOCK STREET)(MM 74.834)

PROJECT DESCRIPTION: THIS PROJECT INVOLVES REMOVING AND REPLACING THE SHEET MEMBRANE WATERPROOFING AND BITUMINOUS CONCRETE PAVEMENT ON THE BRIDGE AND ITS APPROACHES ALONG WITH MINOR RELATED WORK.

LENGTH OF STRUCTURES:

BR 18N	132.72'
BR 18S	135.26'
BR 31	251.00'
BR 48N	225.13'
BR 48S	225.34'

TOTAL LENGTH OF STRUCTURES: 969.45'

VT STATE PLANE GRID

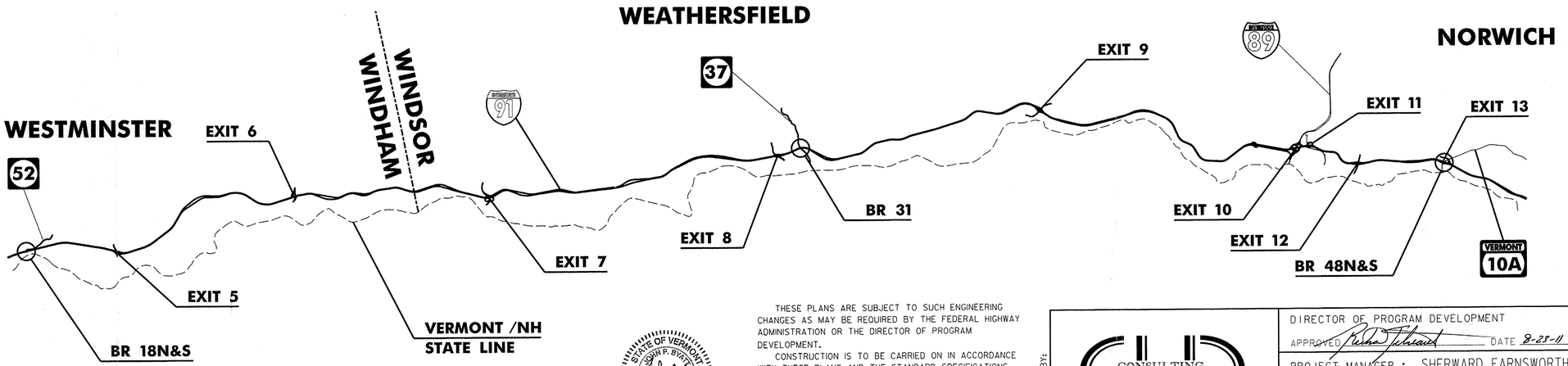
QUALITY ASSURANCE PROGRAM: LEVEL I

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

DATUM
VERTICAL N/A
HORIZONTAL N/A

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



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.

STATE OF VERMONT
JOHN P. BYRNE
NO. 6122
LICENSED
STRUCTURAL
PROFESSIONAL ENGINEER
6/22/11

PLANS PREPARED BY:

CONSULTING ENGINEERS Inc.
540 Commercial Street • Manchester, NH 03101
(603) 668-8223 • Fax:(603) 668-8002
email: cldengineers.com • www.cldengineers.com
Maine • New Hampshire • Vermont

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED _____ DATE 8-23-11

PROJECT MANAGER : SHERWARD FARNSWORTH

PROJECT NAME : **WESTMINSTER – NORWICH**
PROJECT NUMBER : IM MEMB(30)

SHEET 1 OF 38 SHEETS

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E-107A	06/08/09
E-110	08/08/95
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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 LRFD BRIDGE DESIGN SPECIFICATIONS, DATED 2010, AND ITS LATEST REVISIONS.

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

3. ALL COSTS ASSOCIATED WITH PROTECTION OF TRAFFIC DURING REMOVAL OF THE BRIDGE PAVEMENT WILL BE INCIDENTAL TO ITEM 529.10, "REMOVAL OF BRIDGE PAVEMENT".

4. 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".

5. 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

6. THE TRAFFIC CONTROL PLANS SHOWN ON TRAFFIC CONTROL SHEETS 1, 2, AND 3 ARE SCHEMATICS ONLY AND SHOULD BE USED AS REFERENCES. THE CONTRACTOR SHALL SUBMIT TRAFFIC CONTROL PLANS DEPICTING EACH PHASE OF THE PLANNED WORK. PLANS SHALL BE SUBMITTED IN ACCORDANCE WITH SUBSECTION 105.03 AND SHALL BE STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN AN APPROPRIATE DISCIPLINE IN THE STATE OF VERMONT. PAYMENT FOR PREPARING AND SUBMITTING THE TRAFFIC CONTROL PLAN AND MAKING ANY NECESSARY REVISIONS TO THE PLAN WILL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 641.10, "TRAFFIC CONTROL". THE CONTRACTOR SHALL ALLOW TWO WEEKS FOR APPROVAL OF THE TRAFFIC CONTROL PLAN. NO WORK SHALL COMMENCE UNTIL THE CONTRACTOR HAS AN APPROVED TRAFFIC CONTROL PLAN.

7. UNLESS COVERED UNDER INDIVIDUAL PAY ITEMS OR NOTED OTHERWISE, ALL COSTS FOR WORK SHOWN ON TRAFFIC CONTROL 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 ITEM 641.10, "TRAFFIC CONTROL".

8. TRAFFIC WILL 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 WILL BE ALLOWED ON THE NEW MEMBRANE UNTIL THE SECOND LIFT OF BITUMINOUS CONCRETE PAVEMENT IS IN PLACE.

PAVEMENT REMOVAL

9. 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".

10. 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.

11. 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.

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

13. ONCE THE BARRIER MEMBRANE IS REMOVED, ANY AREAS ON THE CONCRETE BRIDGE DECK AND APPROACH SLABS (IF APPLICABLE) 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 APPROACH SLABS AND THE LIMITS OF THE REPAIR. THE REPAIRS SHALL BE PAID FOR UNDER ITEM 580.10, "REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS I", ITEM 580.11, "REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS II", OR ITEM 580.12, "REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS III". QUANTITIES FOR ITEMS 580.10, 580.11, AND 580.12 AS SHOWN ON THE QUANTITY SHEET ARE ESTIMATED.

14. ANY REPAIR WORK REQUIRING THE USE OF ITEM 580.20, "RAPID SETTING CONCRETE REPAIR MATERIAL WITH COURSE AGGREGATE" SHALL BE APPROVED BY THE ENGINEER.

15. 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. CONTRACTOR SHALL NOT INSTALL ITEM 519.20, "SHEET MEMBRANE WATERPROOFING, TORCH APPLIED" WHEN THE DECK CONCRETE AND/OR DECK PATCH AREAS' MOISTURE CONTENT IS ABOVE SECTION 519 SPECIFICATIONS OR MANUFACTURER'S SPECIFICATIONS, WHICHEVER IS LESS.

PAVEMENT

16. 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 CURB TO CURB WITH ITEM 406.27, "MEDIUM DUTY BITUMINOUS CONCRETE PAVEMENT" IN TWO 1¼" LIFTS. THE PAVEMENT SHALL BE TYPE IV FOR BOTH LIFTS, NO EXCEPTIONS.

17. 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".

18. 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.

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

20. EMULSIFIED ASPHALT SHALL BE APPLIED TO ALL COLD PLANED SURFACES AND BETWEEN PAVEMENT LIFTS. PAYMENT SHALL BE UNDER ITEM 404.65, "EMULSIFIED ASPHALT".

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

PROJECT NAME: WESTMINSTER-NORWICH
PROJECT NUMBER: IM MEMB(30)

FILE NAME: slla012notes.dgn
PROJECT LEADER: JPB
DESIGNED BY: SRB
PLOT DATE: 8/22/2011
DRAWN BY: MWS
CHECKED BY: JPB

INDEX OF SHEETS AND PROJECT NOTES

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
			ROADWAY	BRIDGE NO. 18N	BRIDGE NO. 31	BRIDGE NO. 48N	FULL C.E. ITEMS	BRIDGE NO. 18S	BRIDGE NO. 48S	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				
				934	534	828		934	934	4164		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10				
				3.3	2.5	3.7		3.3	4.2	17		CWT	EMULSIFIED ASPHALT	404.65				
				289	187	305		290	310	1381		TON	MEDIUM DUTY BITUMINOUS CONCRETE PAVEMENT	406.27				
				1	1	1		1	1	5		LU	MAT DENSITY PAY ADJUSTMENT (N.A.B.I.)	406.29				
			1							1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
				12	22	20		14	22	90		GAL	WATER REPELLENT, SILANE	514.10				
				184	135	41		204	49	613		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
				620	670	932		632	~~1052~~ 0	3906		SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20				NO MEMBRANE ON BR. 48S
				84		75		84	84	327		LF	JOINT SEALER, HOT POURED	524.11				
				900	670	1181		912	1332	4995		SY	REMOVAL OF BRIDGE PAVEMENT	529.10				
				31	34	47		32	53	197		SY	REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS I	580.10				
				93	101	140		95	158	587		SY	REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS II	580.11				
				9	12	17		9	27	74		CY	REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS III	580.12				
				5575	6024	8387		5681	9465	35132		SF	SURFACE PREPARATION FOR MEMBRANE (1)	580.16				
				10	10	10		10	10	50		CF	RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE	580.20				
				5		5		5		15		HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25				
				5		5		5		15		HR	TRUCK RENTAL	608.37				
				285	309	430		291	485	1800		HR	TRUCK-MOUNTED ATTENUATOR	608.45				
				2	2	1		1	1	7		EACH	ENERGY ABSORPTION ATTENUATOR	621.56				
				703	210	765		705	812	3195		LF	TEMPORARY TRAFFIC BARRIER	621.90				
				637	210	707		639	702	2895		LF	REMOVE AND RESET TEMPORARY TRAFFIC BARRIER	621.95				
				571	154	860		582	970	3137		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
				150	300	150		150	150	900		HR	FLAGGERS	630.15				
							1			~~1~~ 0		LS	FIELD OFFICE, ENGINEERS	631.10				NO FIELD OFFICE
							1			1		LS	TESTING EQUIPMENT, CONCRETE	631.16				
							1			1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
							3000			~~3000~~ 0		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26				NO TELEPHONE
			1							1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
				1						1		LS	TRAFFIC CONTROL (I-91 - BRIDGE NO. 18N)	641.10				
								1		1		LS	TRAFFIC CONTROL (I-91 - BRIDGE NO. 18S)	641.10				
						1				1		LS	TRAFFIC CONTROL (I-91 - BRIDGE NO. 48N)	641.10				
									1	1		LS	TRAFFIC CONTROL (I-91 - BRIDGE NO. 48S)	641.10				
					1					1		LS	TRAFFIC CONTROL (T.H. 37 OVER I-91 - BRIDGE NO. 31)	641.10				
				1	2	1		1	1	6		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15				
				1		1		1	1	4		EACH	PORTABLE ARROW BOARD	641.16				
				416		532		420	639	2007		LF	6 INCH WHITE LINE	646.214				
				333	451	426		336	426	1972		LF	6 INCH YELLOW LINE	646.215				
				3241		3426		3246	3281	13194		LF	TEMPORARY 6 INCH WHITE LINE, TYPE II TAPE	646.621				
				3241		3426		3246	4413	14326		LF	TEMPORARY 6 INCH YELLOW LINE, TYPE II TAPE	646.631				

REVISION	BY	DATE
(1)	SRB	10/17/11

REVISION NO. 1 REVISED THE FOLLOWING ITEM:
ITEM 580.16 SURFACE PREPARATION FOR MEMBRANE

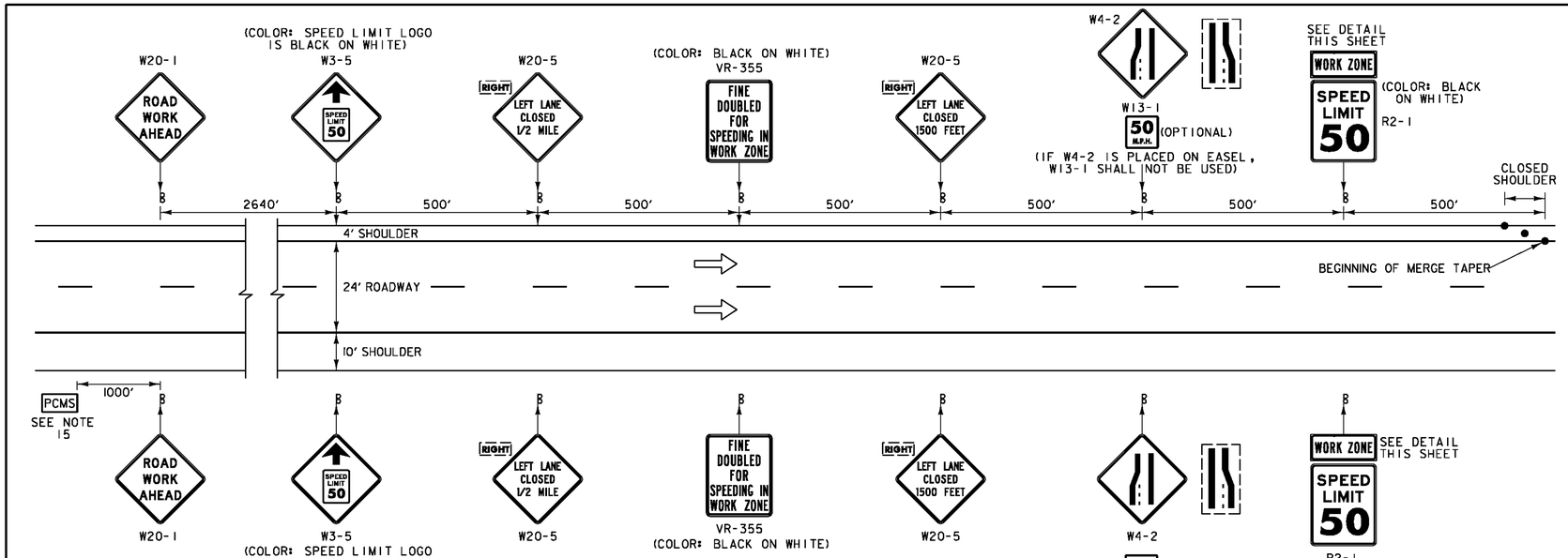
PROJECT NAME: Westminster - Norwich
PROJECT NUMBER: IM MEMB(30)
FILE NAME: s11A012qss.dgn PLOT DATE: 10/17/2011
PROJECT LEADER: SHERWARD FARNSWORTH DRAWN BY: SRB
DESIGNED BY: SRB CHECKED BY: JPB
QUANTITY SHEET #1 SHEET 3 OF 38

STATE OF VERMONT
AGENCY OF TRANSPORTATION

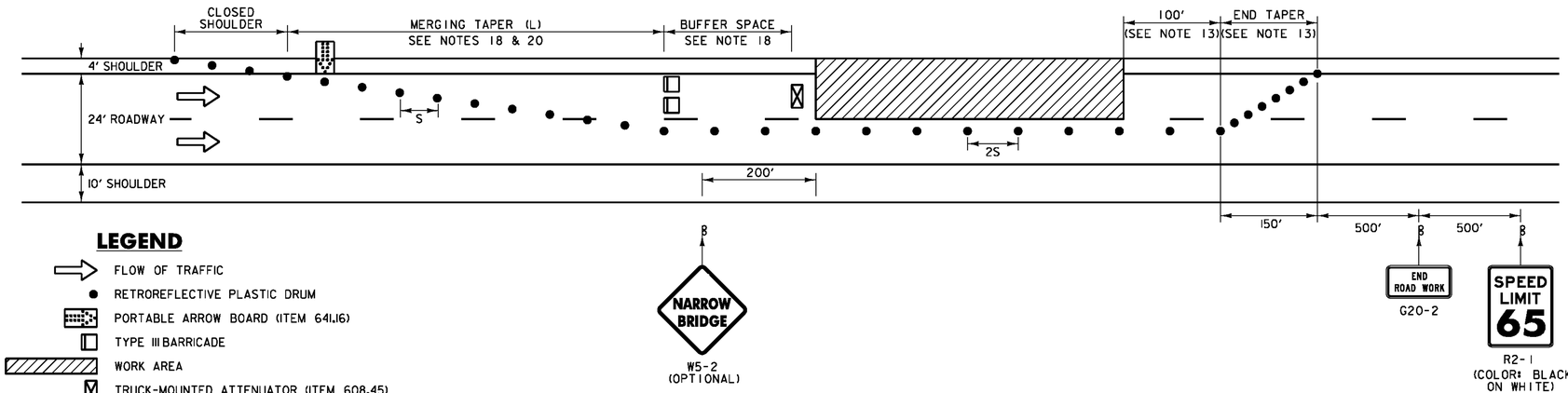
QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
			ROADWAY	BRIDGE NO. 18N	BRIDGE NO. 31	BRIDGE NO. 48N	FULL C.E. ITEMS	BRIDGE NO. 18S	BRIDGE NO. 48S	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
									2500	2500		LF	TEMPORARY 12 INCH WHITE LINE, TYPE II TAPE	646.661				
					48					48		LF	TEMPORARY 24 INCH STOP BAR, TYPE II TAPE	646.681				
				163		172		163	255	753		EACH	RAISED PAVEMENT MARKERS, TYPE II	646.75				
				1251		1297		1253	2591	6392		SF	PAVEMENT MARKING MASK	646.86				
			1							1		LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50				
					1					1		EACH	SPECIAL PROVISION (TEMPORARY TRAFFIC SIGNAL SYSTEM, PORTABLE)	900.620				
					135					135		LF	SPECIAL PROVISION (PARTIAL REMOVAL AND MODIFICATION OF PIER JOINT)	900.640				

PROJECT NAME:	Westminster - Norwich
PROJECT NUMBER:	IM MEMB(30)
FILE NAME: s11A012qss.dgn	PLOT DATE: 08/22/2011
PROJECT LEADER: SHERWARD FARNSWORTH	DRAWN BY: SRB
DESIGNED BY: SRB	CHECKED BY: JPB
QUANTITY SHEET #2	SHEET 4 OF 38



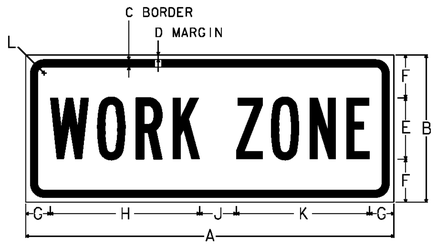
CONSTRUCTION APPROACH SIGNING ON INTERSTATE 91 LEFT LANE CLOSED



LEGEND

- FLOW OF TRAFFIC
- RETROREFLECTIVE PLASTIC DRUM
- PORTABLE ARROW BOARD (ITEM 641.16)
- TYPE III BARRICADE
- WORK AREA
- TRUCK-MOUNTED ATTENUATOR (ITEM 608.45)
- PCMS — PORTABLE CHANGEABLE MESSAGE SIGN (ITEM 641.15) (SEE NOTE 15)

TRAFFIC CONTROL ON INTERSTATE 91 LEFT LANE CLOSED



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 7, 8 OR 9. THE TEXT IS TO BE 'B-TYPE'.

WORK ZONE SIGN DETAIL

NOT TO SCALE

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

* SEE NOTE 20.

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

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

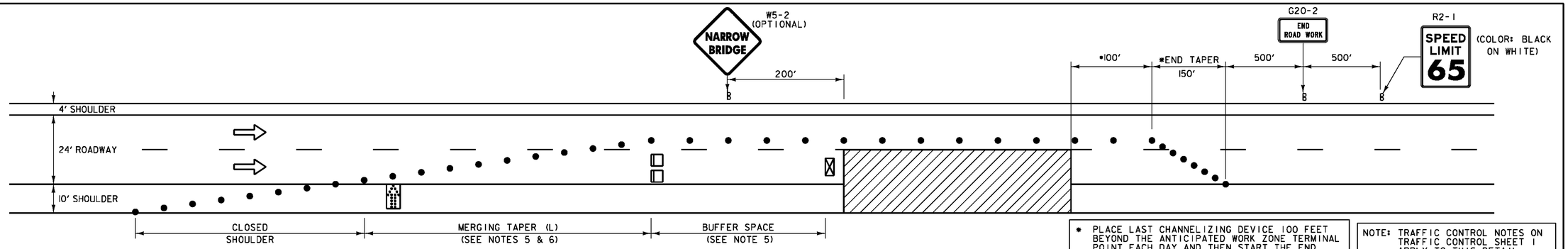
TRAFFIC CONTROL NOTES:

1. THE LEFT LANE CLOSURE IS SHOWN. THE RIGHT LANE APPROACH SIGNING IS SIMILAR. THE RIGHT LANE CLOSURE 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 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 8 ADDITIONAL RETROREFLECTIVE DRUMS SPACED AT 20 FEET MAX. 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 AT THE DISCRETION OF THE ENGINEER, THE PCMS SHALL BE USED IN ACCORDANCE WITH SECTION 6F.60 OF THE MUTCD. THE PCMS SHALL READ 'LEFT (OR RIGHT) LANE CLOSED AHEAD, PLEASE MERGE EARLY'.
16. TRAVEL LANE SHALL BE A MINIMUM OF 12 FEET WIDE EXCEPT FOR BRIDGE NO. 31 WITH A MINIMUM OF 11 FEET WIDE.
17. THE CONTRACTOR SHALL REDUCE TRAFFIC TO ONE LANE DURING WORKING HOURS IN ACCORDANCE WITH THIS SHEET. ALL EQUIPMENT SHALL BE MOVED TO A LOCATION OFF PAVED SHOULDERS AND OUTSIDE THE CLEAR ZONE (MINIMUM 30 FEET) DURING NON-WORK PERIODS AND PROTECTED BY BARRELS OR CONES, UNLESS PROTECTED BY TRAFFIC BARRIER OR GUARDRAIL.
18. AT THE DISCRETION OF THE ENGINEER, MERGING TAPER AND BUFFER SPACE LENGTHS MAY BE EXTENDED BEYOND MINIMUM VALUES, ESPECIALLY IN CLOSE PROXIMITY TO INTERCHANGE RAMPS, CURVES, OR OTHER INFLUENCING FACTORS.
19. FOR BRIDGE 48S, TRAFFIC CONTROL SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD E-106, 'MAINLINE LANE CLOSURE AT AN ENTRANCE RAMP'. ALL TAPER LENGTHS SHALL BE ADJUSTED FOR AN ADDITIONAL LANE. PHASING SHALL OCCUR PER THE APPROPRIATE MEMBRANE SPLICE DETAILS ON THE BITUMINOUS CONCRETE DETAILS SHEET 2.
20. EXTEND MERGING TAPER TO ACCOUNT FOR REQUIRED LANE SHIFT OFFSET.

PROJECT NAME: WESTMINSTER-NORWICH
PROJECT NUMBER: IM MEMB(30)

FILE NAME: sllo012ts_1.dgn
PROJECT LEADER: JPB
DESIGNED BY: SRB
TRAFFIC CONTROL SHEET 1

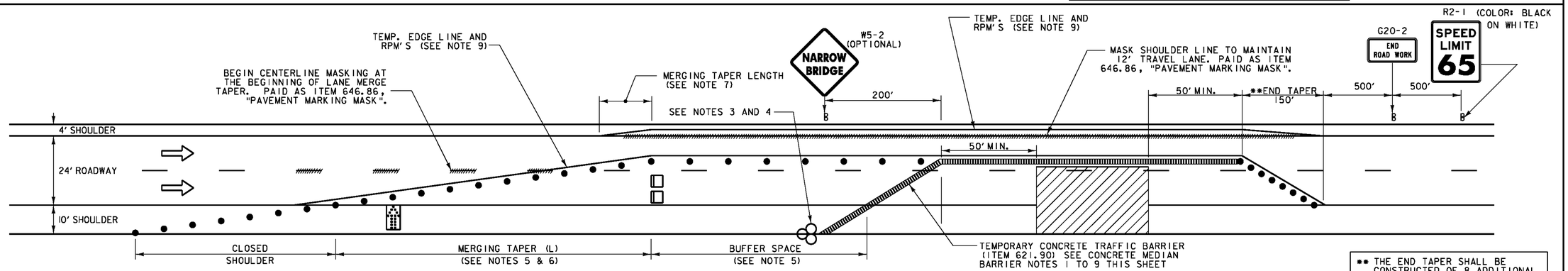
PLOT DATE: 8/22/2011
DRAWN BY: MWS
CHECKED BY: JPB
SHEET 5 OF 38



* PLACE LAST CHANNELIZING DEVICE 100 FEET BEYOND THE ANTICIPATED WORK ZONE TERMINAL POINT EACH DAY AND THEN START THE END TAPER. THE END TAPER SHALL BE CONSTRUCTED OF 8 ADDITIONAL RETROREFLECTIVE DRUMS SPACED AT 20 FEET MAX. ON CENTER.

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

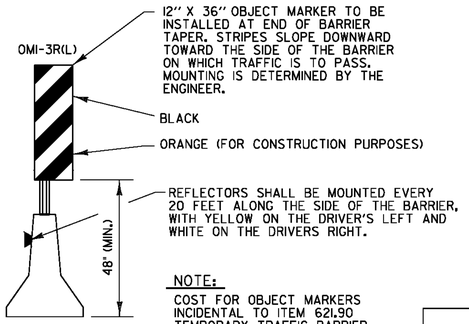
TRAFFIC CONTROL ON INTERSTATE 91 RIGHT LANE CLOSED



** THE END TAPER SHALL BE CONSTRUCTED OF 8 ADDITIONAL RETROREFLECTIVE DRUMS SPACED AT 20 FEET MAX. ON CENTER.

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

(RIGHT LANE CLOSURE SHOWN, LEFT LANE CLOSURE MIRRORED)



NOTE:
COST FOR OBJECT MARKERS INCIDENTAL TO ITEM 621.90 TEMPORARY TRAFFIC BARRIER.

LEGEND

- FLOW OF TRAFFIC
- RETROREFLECTIVE PLASTIC DRUM
- PORTABLE ARROW BOARD (ITEM 641.16)
- TYPE III BARRICADE
- WORK AREA
- TRUCK-MOUNTED ATTENUATOR (ITEM 608.45)
- PCMS — PORTABLE CHANGEABLE MESSAGE SIGN (ITEM 641.15) (SEE NOTE 15 ON TRAFFIC CONTROL SHEET 1)
- ENERGY ABSORPTION ATTENUATOR (ITEM 621.56)

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

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

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

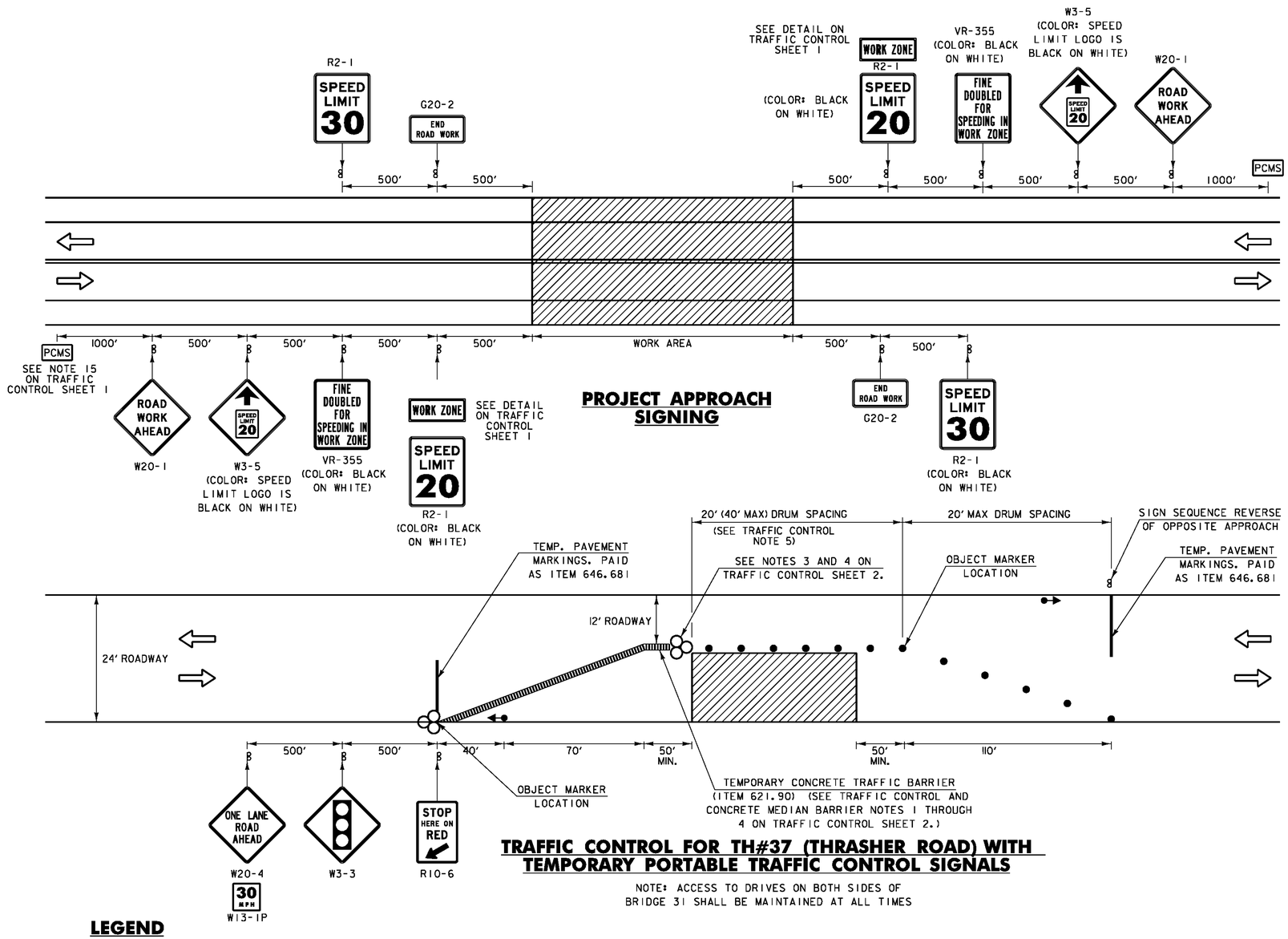
TRAFFIC CONTROL AND CONCRETE MEDIAN BARRIER NOTES:

1. SEE THE TRAFFIC CONTROL NOTES ON THE PREVIOUS SHEET (TRAFFIC CONTROL SHEET 1) FOR ADDITIONAL NOTES AND APPROACH SIGNING FOR THE RIGHT LANE CLOSURE.
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 FOR AS ITEM 621.90, "TEMPORARY TRAFFIC BARRIER". TEMPORARY TRAFFIC BARRIER SHALL BE A CONCRETE MEDIAN BARRIER (CMB) TYPE. STEEL BEAM GUARDRAIL WILL NOT BE ALLOWED FOR USE AS A TEMPORARY TRAFFIC BARRIER. WHEN ONE SIDE OF THE BRIDGE IS COMPLETE, MOVING THE BARRIER TO CLOSE THE OTHER SIDE TO TRAFFIC WILL BE PAID FOR AS ITEM 621.95, "REMOVE AND RESET TEMPORARY TRAFFIC BARRIER".
3. THE END OF THE BARRIER FACING APPROACHING TRAFFIC SHALL MEET THE FOLLOWING REQUIREMENTS.
   A. WHEN NO GUARDRAIL IS PRESENT, A 30' OFFSET SHALL BE USED FROM THE EDGE OF TRAVELLED WAY. IF A 30' OFFSET IS NOT ATTAINABLE, THEN AN ENERGY ABSORPTION ATTENUATOR SHALL BE LOCATED AT THE END OF THE BARRIER.
   B. IF GUARDRAIL IS PRESENT, THEN TEMPORARY CONCRETE TRAFFIC BARRIER SHALL BE CONNECTED TO EXISTING GUARDRAIL (COST INCIDENTAL TO ITEM 621.90, "TEMPORARY TRAFFIC BARRIER".) (COSTS FOR DISMANTLING BARRIER CONNECTION AND RESTORING EXISTING BARRIER TO ORIGINAL CONFIGURATION SHALL BE INCIDENTAL TO ITEM 621.90, "TEMPORARY TRAFFIC BARRIER".) SEE BARRIER RAIL DETAILS ON SHEET 12. AN ENERGY ABSPORTION ATTENUATOR SHALL BE LOCATED AT THE END OF THE BARRIER.
4. THE QUANTITIES INCLUDE ONE ENERGY ABSORPTION ATTENUATOR PER BRIDGE EXCEPT FOR BRIDGE NO. 31 WHICH SHALL HAVE TWO, AND ONE BACKUP ATTENUATOR FOR THE PROJECT (INCLUDED IN QUANTITY FOR BRIDGE NO. 18N) TO BE USED IN THE EVENT AN IN-SERVICE ATTENUATOR IS DAMAGED AND NEEDS TO BE REPLACED. THE COST FOR THE ATTENUATORS AND TO MOVE ATTENUATORS FOR SHIFTING LANE CLOSURES SHALL BE PAID FOR AS ITEM 621.56, "ENERGY ABSORPTION ATTENUATOR".
5. 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.
6. EXTEND MERGING TAPER TO ACCOUNT FOR REQUIRED LANE SHIFT OFFSET.
7. PROVIDE MERGING TAPER LENGTH AS REQUIRED FOR LANE SHIFT.
8. TEMPORARY TAPE EDGELINES SHALL BE APPLIED AND SHALL MAINTAIN A ONE FOOT MINIMUM DISTANCE FROM THE BARRIER WITH TWO FEET BEING DESIRABLE.
9. THE RAISED PAVEMENT MARKERS (RPM'S), TYPE II SHALL BE PLACED TO THE OUTSIDE OF THE TEMPORARY TAPE PAVEMENT MARKINGS. THE RPM'S SHALL BE SPACED AT 20 FEET AND SHALL BE PAID FOR UNDER ITEM 646.75, "RAISED PAVEMENT MARKERS, TYPE II".

PROJECT NAME: WESTMINSTER-NORWICH
PROJECT NUMBER: IM MEMB(30)

FILE NAME: sllc012ts_2.dgn
PROJECT LEADER: JPB
DESIGNED BY: SRB
PLOT DATE: 8/22/2011
DRAWN BY: MWS
CHECKED BY: JPB

TRAFFIC CONTROL SHEET 2



PROJECT APPROACH SIGNING

TRAFFIC CONTROL FOR TH#37 (THRASHER ROAD) WITH TEMPORARY PORTABLE TRAFFIC CONTROL SIGNALS

NOTE: ACCESS TO DRIVES ON BOTH SIDES OF BRIDGE 31 SHALL BE MAINTAINED AT ALL TIMES

LEGEND

- FLOW OF TRAFFIC
- RETROREFLECTIVE PLASTIC DRUM
- WORK AREA
- ENERGY ABSORPTION ATTENUATOR (ITEM 621.56)
- PCMS — PORTABLE CHANGEABLE MESSAGE SIGN (ITEM 641.15) (SEE NOTE 12 ON TRAFFIC CONTROL SHEET 1)
- TEMPORARY PORTABLE TRAFFIC CONTROL SIGNAL (SEE NOTES THIS SHEET)

TRAFFIC CONTROL NOTES:

1. THE EXISTING TOWN HIGHWAY 37 SPEED LIMIT IS 30 MPH. THE SPEED LIMIT WILL BE REDUCED TO 20 MPH IN THE WORK ZONE FOR THIS PROJECT. ANY EXISTING SPEED LIMIT SIGNS WITHIN THE SPEED REDUCTION AREA SHALL BE COMPLETELY COVERED.
2. SEE THE TRAFFIC CONTROL NOTES 3 THROUGH 10 AND NOTE 17 ON TRAFFIC CONTROL SHEET 1 FOR ADDITIONAL NOTES.
3. THE CONTRACTOR SHALL HAVE SIGNS FOR CLOSURE OF EASTBOUND OR WESTBOUND LANES ON PROJECT BEFORE WORK COMMENCES.
4. SEE THE TRAFFIC CONTROL AND CONCRETE MEDIAN BARRIER NOTES 2 THROUGH 7 ON TRAFFIC CONTROL SHEET 2 FOR ADDITIONAL NOTES.
5. DUE TO THE NARROW TRAVELWAY AND SHOULDERS ON BRIDGE NO. 31, CHANNELIZING DEVICES SHALL BE USED IN LIEU OF CONCRETE BARRIER WITHIN THE WORK ZONE.

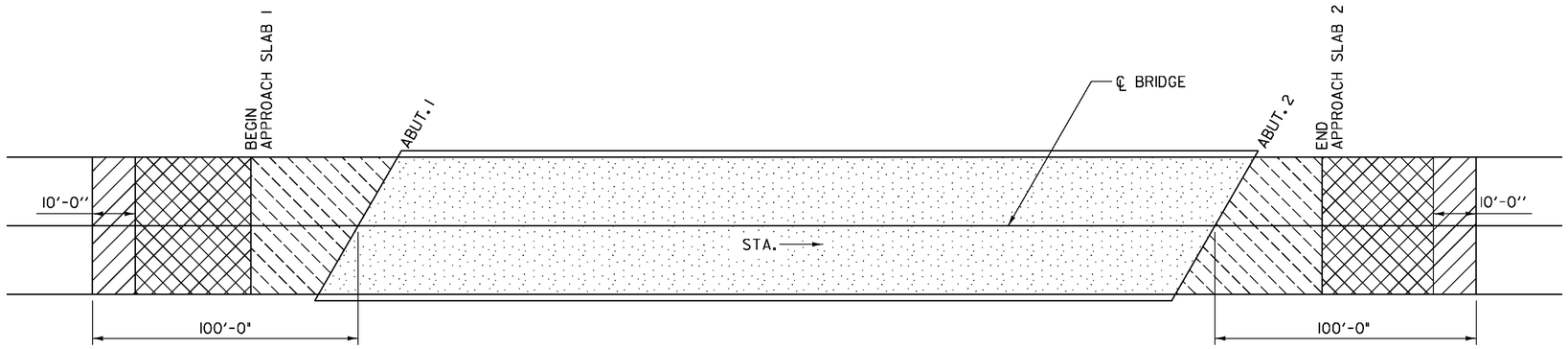
TEMPORARY PORTABLE SIGNAL NOTES:

1. TEMPORARY TRAFFIC CONTROL (TTC) SIGNALS SHALL BE INSTALLED AND OPERATED IN ACCORDANCE WITH THE PROVISIONS OF PART 4 OF THE MUTCD. TTC SIGNALS SHALL MEET THE PHYSICAL DISPLAY AND OPERATIONAL REQUIREMENTS OF CONVENTIONAL TRAFFIC CONTROL SIGNALS.
2. TTC SIGNAL TIMING SHALL BE ESTABLISHED BY AUTHORIZED OFFICIALS. DURATIONS OF RED CLEARANCE INTERVALS SHALL BE ADEQUATE TO CLEAR THE ONE-LANE SECTION OF CONFLICTING VEHICLES.
3. WHEN THE TTC SIGNAL IS CHANGED TO FLASHING MODE, EITHER MANUALLY OR AUTOMATICALLY, RED SIGNAL INDICATIONS SHALL BE FLASHED TO BOTH APPROACHES.
4. STOP LINES SHALL BE INSTALLED WITH TTC SIGNALS. EXISTING CONFLICTING PAVEMENT MARKINGS AND RAISED PAVEMENT MARKER REFLECTORS BETWEEN THE ACTIVITY AREA AND THE STOP LINE SHALL BE REMOVED. AFTER THE TTC SIGNAL IS REMOVED, THE STOP LINES AND OTHER TEMPORARY PAVEMENT MARKINGS SHALL BE REMOVED AND THE PERMANENT PAVEMENT MARKINGS RESTORED.
5. ADJUSTMENTS IN LOCATION OF THE ADVANCE WARNING SIGNS SHOULD BE MADE AS NEEDED AND AT THE DISCRETION OF THE ENGINEER TO ACCOMMODATE THE HORIZONTAL OR VERTICAL ALIGNMENT OF THE ROADWAY, RECOGNIZING THAT THE DISTANCES SHOWN FOR SIGN SPACINGS ARE MINIMUMS.
6. SEE THE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

PROJECT NAME: WESTMINSTER-NORWICH
PROJECT NUMBER: IM MEMB(30)

FILE NAME: s11a012ts_3.dgn
PROJECT LEADER: JPB
DESIGNED BY: SRB
TRAFFIC CONTROL SHEET 3

PLOT DATE: 8/22/2011
DRAWN BY: MWS
CHECKED BY: JF
SHEET 7 OF 38



COLD PLANE - 1¼"

COLD PLANE - 2½"

COLD PLANE - 2½" ON BRIDGE 31 WITH NO APPROACH SLABS - PAID UNDER ITEM 210.10.
REMOVE BIT. CONC. PAV'T - TO TOP OF AT-GRADE APPROACH SLABS - BRIDGES 18N, 18S, 48N, AND 48S. PAID UNDER ITEM 529.10. SEE NOTE 5 BELOW.

REMOVE BIT. CONC. PAV'T - TO THE TOP OF THE CONCRETE BRIDGE DECK AND REMOVE THE BARRIER MEMBRANE.

NOTE:

1. COLD PLANING WILL BE PAID FOR UNDER ITEM 210.10 EXCEPT AS OTHERWISE SPECIFIED IN NOTE 9 ON SHEET 2.
2. REMOVAL OF THE BIT. CONC. PAV'T. WILL BE PAID FOR UNDER ITEM 529.10.
3. REMOVAL OF THE BARRIER MEMBRANE WILL BE PAID FOR UNDER ITEM 580.16.
4. IN THE EVENT THAT COLD PLANING OF THE RIGHT ROADWAY SHOULDERS ALONG BRIDGE APPROACHES EXPOSES GRAVEL SUBBASE, THE CONTRACTOR SHALL REMOVE 2" OF GRAVEL SUBBASE, PREPARE THE AREA AS DIRECTED BY THE ENGINEER, AND PROVIDE 2" BASE PAVEMENT, IN ADDITION TO THE 2½" PAVEMENT TO BE PLACED IN ALL OTHER LOCATIONS PER TYPICAL APPROACH SECTION ON BITUMINOUS CONCRETE DETAILS SHEET 1. FOR BRIDGES 18N&S AND 48N, 85 ADDITIONAL TONS HAVE BEEN INCLUDED IN THE ESTIMATED QUANTITY FOR ITEM 406.27 TO ADDRESS THIS WORK. WHERE DIRECTED BY THE ENGINEER, PAYMENT FOR BASE PREPARATION WILL BE PAID FOR UNDER EQUIPMENT RENTAL ITEMS.
5. FOR AT-GRADE APPROACH SLABS, NO MORE THAN 4" OF PAVEMENT SHALL BE REMOVED.

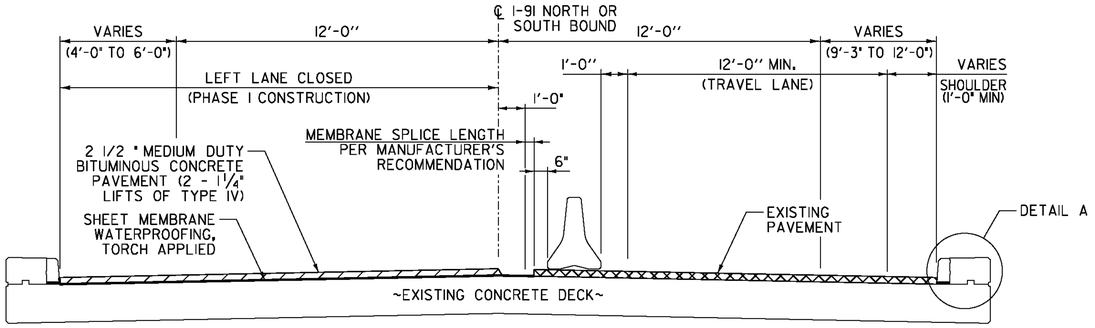
BITUMINOUS CONCRETE REMOVAL & REPLACEMENT PLAN

NOT TO SCALE

PROJECT NAME: WESTMINSTER-NORWICH
PROJECT NUMBER: IM MEMB(30)

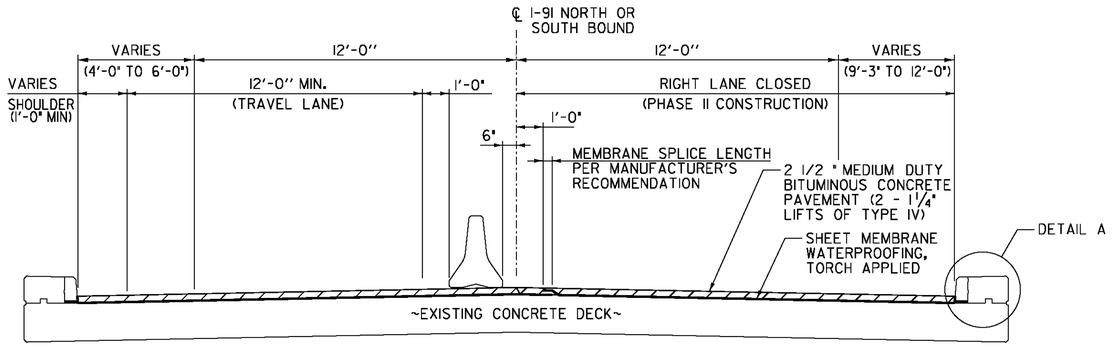
FILE NAME: s11o012removal.dgn
PROJECT LEADER: JPB
DESIGNED BY: SRB
BITUMINOUS CONCRETE REMOVAL PLAN

PLOT DATE: 8/22/2011
DRAWN BY: MWS
CHECKED BY: JPB
SHEET 8 OF 38



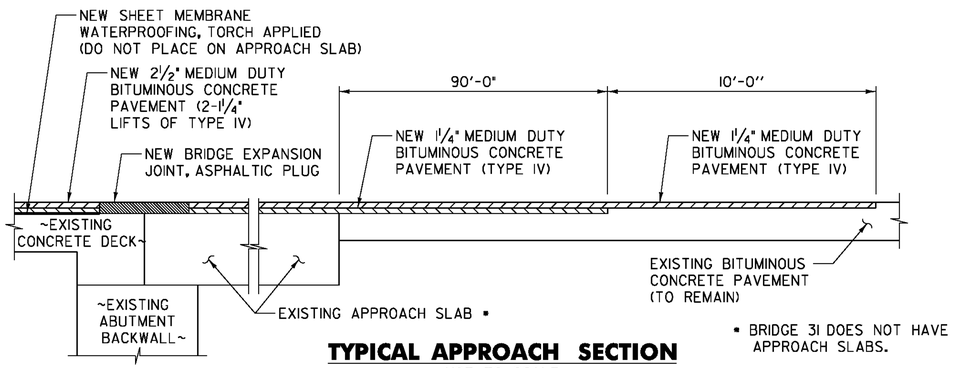
TYPICAL SECTION - PHASE I CONSTRUCTION

(BR. 18N, 18S, & 48N)
NOT TO SCALE



TYPICAL SECTION - PHASE II CONSTRUCTION

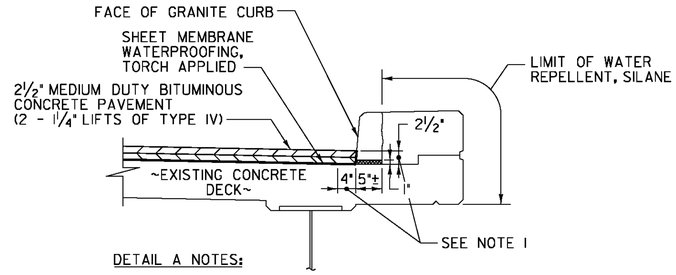
(BR. 18N, 18S, AND 48N)
NOT TO SCALE



TYPICAL APPROACH SECTION

NOT TO SCALE

* BRIDGE 31 DOES NOT HAVE APPROACH SLABS.



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 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.

DETAIL A

NOT TO SCALE

BRIDGE LENGTH AND WIDTH (CURB TO CURB)

BRIDGE NO.	WIDTH (CURB TO CURB) (FEET)	LENGTH (FEET)
18N	42.00	132.72
18S	42.00	135.26
31	24.00	251.00
48N	37.25	225.13
48S	42.00	225.34

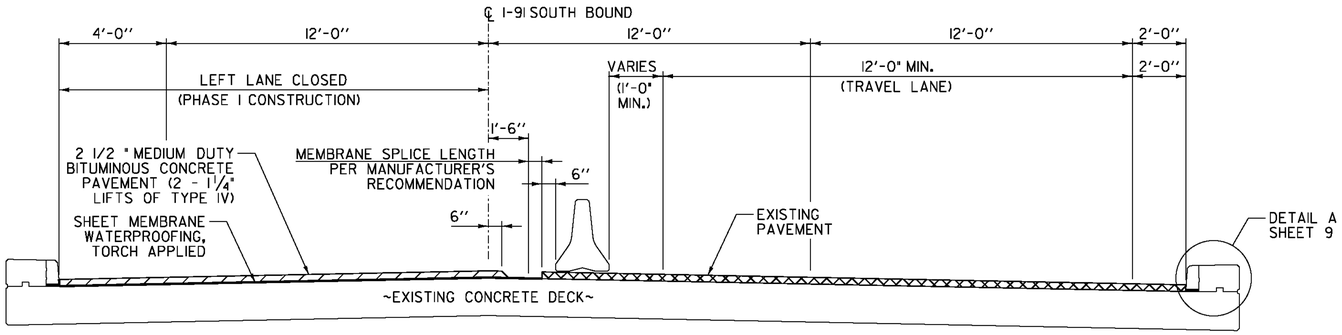
ASPHALTIC PLUG JOINT REPLACEMENT SCHEDULE

BRIDGE NO.	ABUT. 1	PIER 1	PIER 2	PIER 3	ABUT. 2
18N	46 LF	46 LF	46 LF	-	46 LF
18S	51 LF	51 LF	51 LF	-	51 LF
31	27 LF	27 LF	27 LF	27 LF	27 LF
48N	-	-	-	-	41 LF
48S	-	-	-	-	49 LF

PROJECT NAME: WESTMINSTER-NORWICH
PROJECT NUMBER: IM MEMB(30)

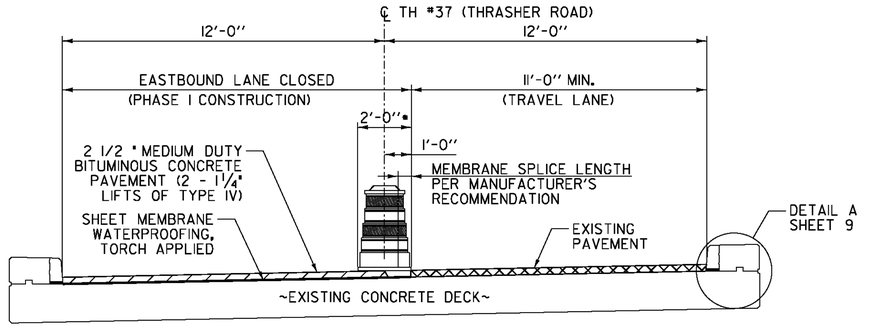
FILE NAME: sila012conc_details.dgn
PROJECT LEADER: JPB
DESIGNED BY: SRB
PLOT DATE: 8/22/2011
DRAWN BY: MWS
CHECKED BY: JF

BITUMINOUS CONCRETE DETAILS SHEET 1



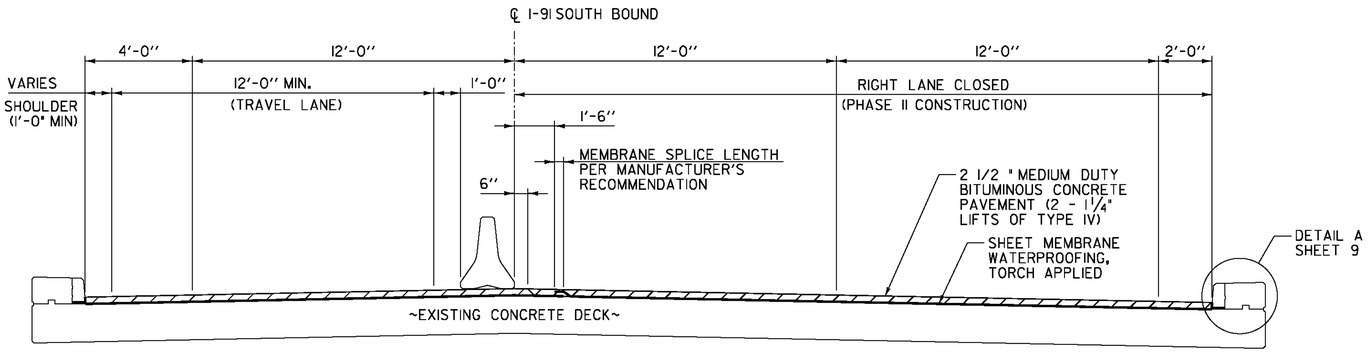
BRIDGE 48S TYPICAL SECTION – PHASE I CONSTRUCTION

NOT TO SCALE



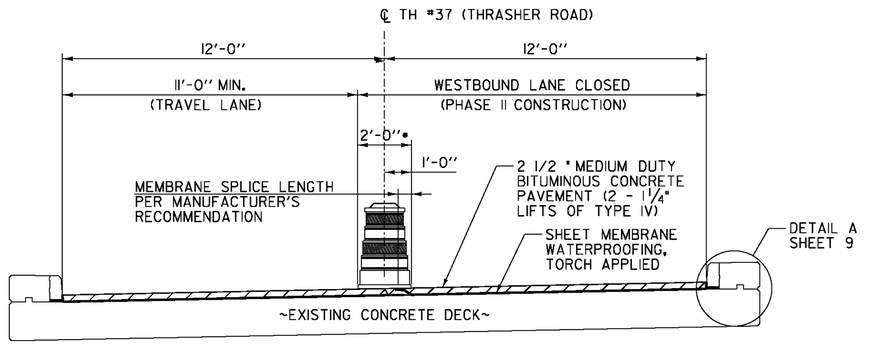
BRIDGE 31 TYPICAL SECTION – PHASE I CONSTRUCTION

NOT TO SCALE



BRIDGE 48S TYPICAL SECTION – PHASE II CONSTRUCTION

NOT TO SCALE

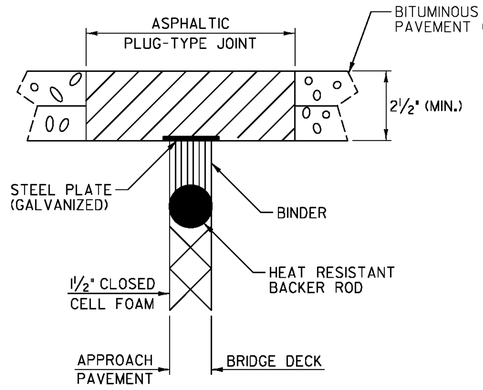


BRIDGE 31 TYPICAL SECTION – PHASE II CONSTRUCTION

NOT TO SCALE

- TEMPORARY BARRELS SHALL BE MOVED AND REPLACED AS NECESSARY TO ACCOMMODATE OVERSIZED VEHICLES AND CONSTRUCTION ACTIVITIES. PAYMENT SHALL BE INCIDENTAL TO ITEM 641.10.

PROJECT NAME: WESTMINSTER-NORWICH	
PROJECT NUMBER: IM MEMB(30)	
FILE NAME: s11a012conc_details.dgn	PLOT DATE: 8/22/2011
PROJECT LEADER: JPB	DRAWN BY: MWS
DESIGNED BY: SRB	CHECKED BY: JF
BITUMINOUS CONCRETE DETAILS SHEET 2	SHEET 10 OF 38



ASPHALTIC PLUG-TYPE JOINT DETAIL
(NOT TO SCALE)

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±.

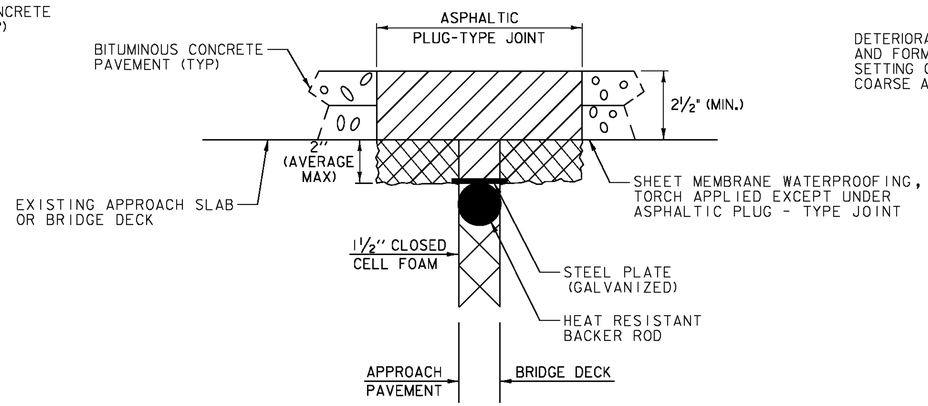
WEATHER LIMITATIONS

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.

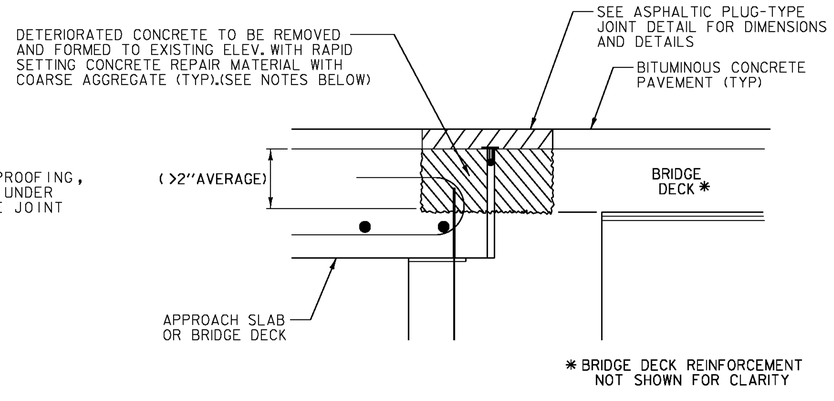
C. WEATHER CONDITIONS OR OTHER CONDITIONS ARE FAVORABLE AND ARE EXPECTED TO REMAIN SO FOR THE PERFORMANCE OF SATISFACTORY WORK.



ASPHALTIC PLUG-TYPE JOINT DETAIL
REMOVAL OF UP TO
2" DETERIORATED CONCRETE
(NOT TO SCALE)

NOTES:

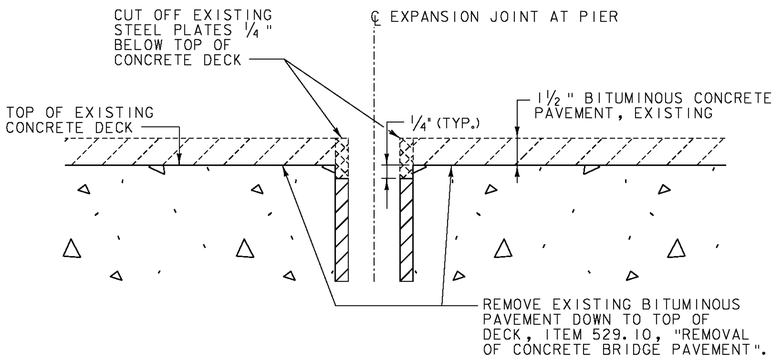
1. UPON ENCOUNTERING UP TO 2" AVERAGE OF DETERIORATED CONCRETE, THE CONTRACTOR SHALL REMOVE THE DETERIORATED MATERIAL AND REPLACE IT WITH THE ASPHALTIC PLUG JOINT MATERIAL AS DIRECTED BY THE RESIDENT ENGINEER.
2. REMOVAL OF THE DETERIORATED CONCRETE WILL NOT BE PAID SEPARATELY BUT WILL BE CONSIDERED 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 IT IS DIRECTED BY THE RESIDENT ENGINEER.



ASPHALTIC PLUG-TYPE JOINT DETAIL
REMOVAL OF >2"
DETERIORATED CONCRETE
(NOT TO SCALE)

NOTES:

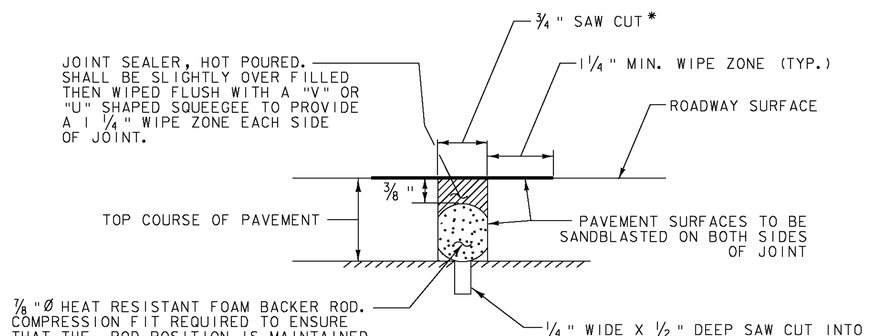
1. UPON ENCOUNTERING GREATER THAN 2" AVERAGE OF DETERIORATED CONCRETE, THE CONTRACTOR SHALL REMOVE THE DETERIORATED MATERIAL AND REPLACE IT WITH RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE.
2. REMOVAL OF THE DETERIORATED CONCRETE WILL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 580.20 "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 IT IS DIRECTED BY THE RESIDENT ENGINEER.



PIER JOINT MODIFICATION DETAIL BR 31
(NOT TO SCALE)

NOTES:

1. DETAIL TYPICAL FOR JOINTS OVER PIERS AT BRIDGE 31.
2. STEEL PLATE WORK WILL BE PAID FOR UNDER ITEM 900.640, "SPECIAL PROVISION (PARTIAL REMOVAL AND MODIFICATION OF PIER JOINT)".
3. INSTALL NEW BRIDGE EXPANSION JOINT, ASPHALTIC PLUG TYPE, AT MODIFIED JOINT LOCATIONS PER DETAILS THIS SHEET. INSTALLATION SHALL BE PAID FOR UNDER ITEM 516.10 "BRIDGE EXPANSION JOINT, ASPHALTIC PLUG".

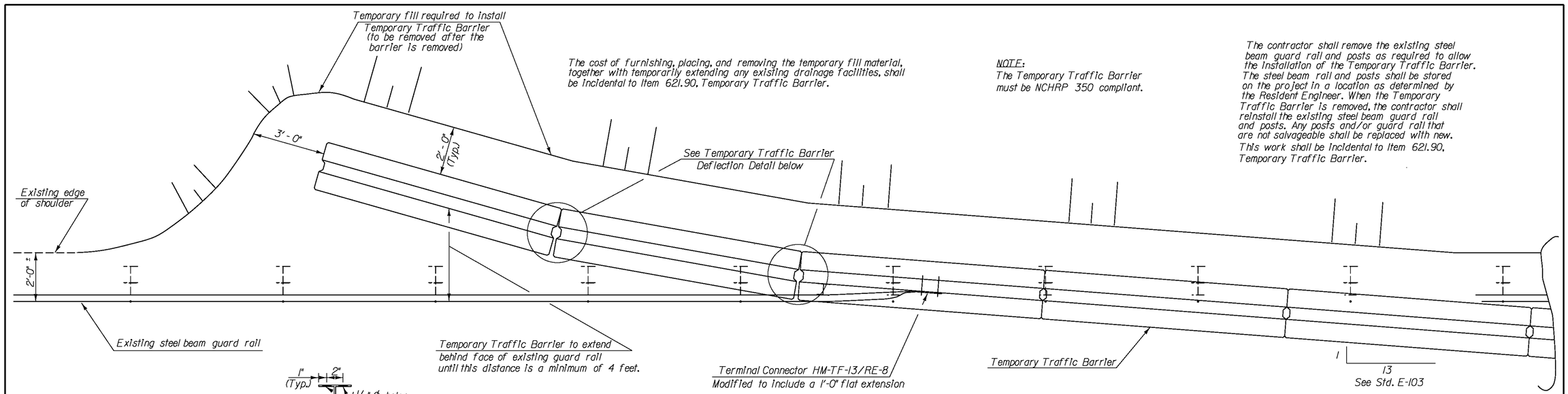


NOTE: PLACE JOINT SEALER, HOT POURED AT THE BEGINNING OF APPROACH SLABS.

SAWED PAVEMENT JOINT DETAIL
(NOT TO SCALE)

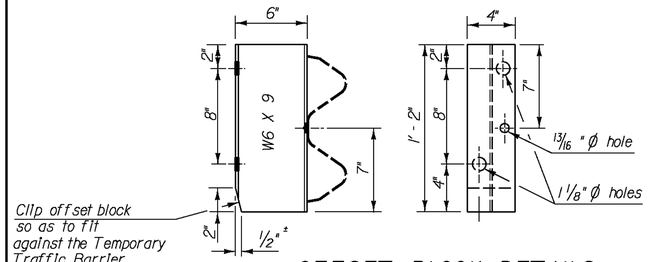
*JOINT IS TO BE LOCATED ACCURATELY BY STRING LINING, OR OTHER MEANS, PRIOR TO PAVING, SO THAT THE SAW CUTS WILL BE MADE DIRECTLY OVER THE END OF CONCRETE DECK. JOINT SHALL BE CUT DRY IN A SINGLE PASS AND BE SEALED WITHIN 24 HOURS OR PRIOR TO EXPOSURE TO TRAFFIC. JOINT SHALL BE CLEANED PRIOR TO APPLYING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

PROJECT NAME: WESTMINSTER-NORWICH	
PROJECT NUMBER: IM MEMB(30)	
FILE NAME: sila012jnt_detail.dgn	PLOT DATE: 8/22/2011
PROJECT LEADER: JPB	DRAWN BY: MWS
DESIGNED BY: SRB	CHECKED BY: JPB
PAVEMENT JOINT DETAILS	SHEET 11 OF 38



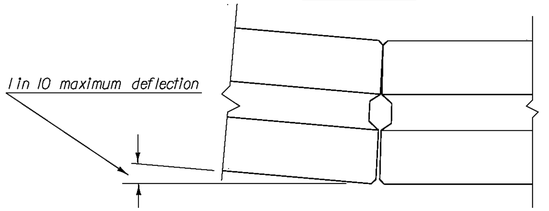
PLAN VIEW SHOWING POSITIVE CONNECTION BETWEEN TEMPORARY TRAFFIC BARRIER AND EXISTING GUARD RAIL

1/2" = 1'-0"



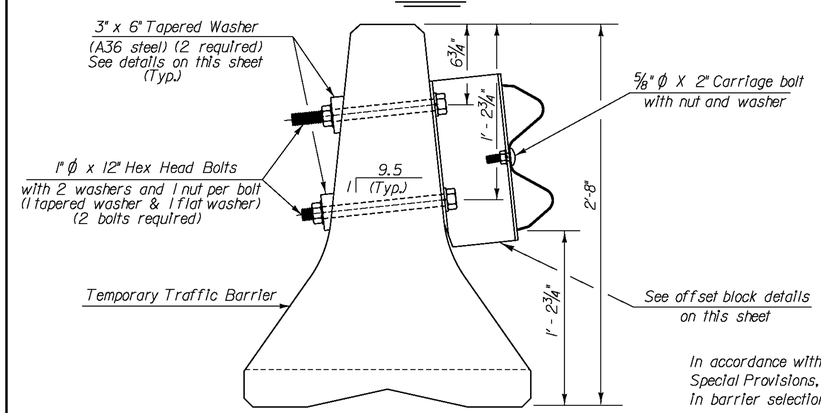
OFFSET BLOCK DETAILS

1" = 6"



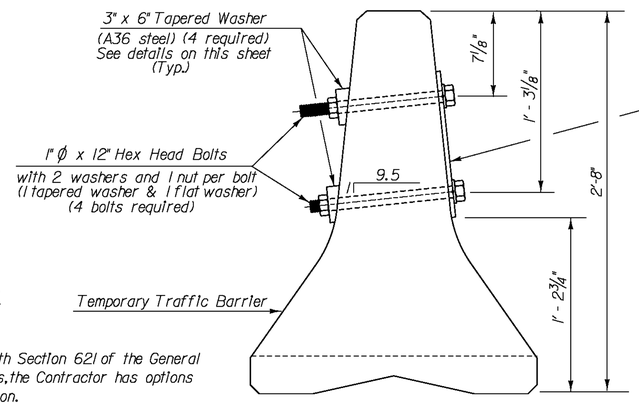
TEMPORARY TRAFFIC BARRIER DEFLECTION DETAIL

NTS



SECTION B-B

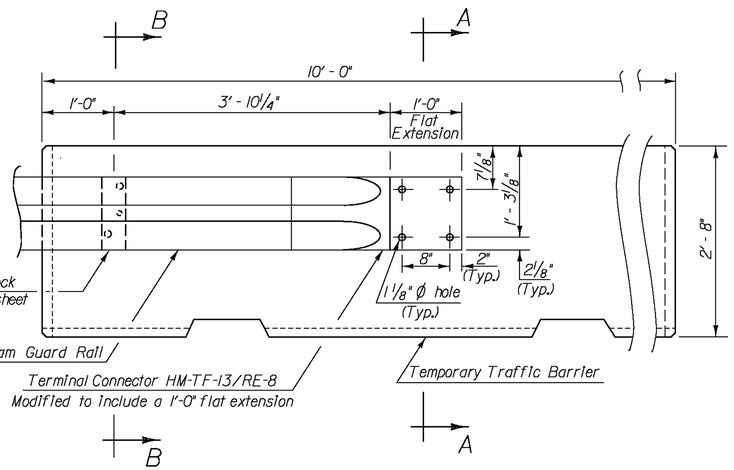
1" = 6"



SECTION A-A

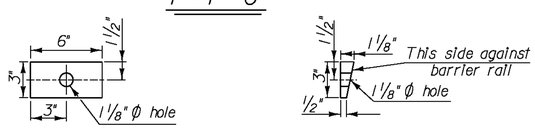
In accordance with Section 621 of the General Special Provisions, the Contractor has options in barrier selection.

1" = 6"



ELEVATION VIEW SHOWING POSITIVE CONNECTION BETWEEN TEMPORARY TRAFFIC BARRIER AND EXISTING GUARD RAIL

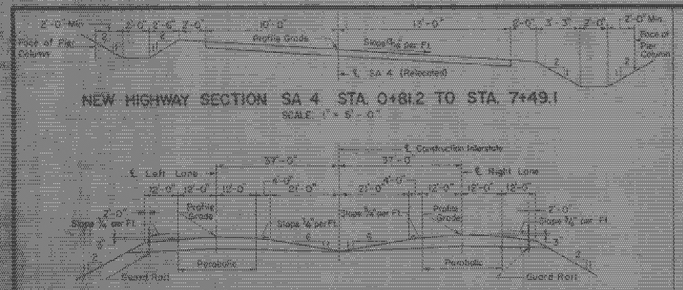
1" = 1'-0"



TAPERED WASHER DETAILS

1" = 6"

PROJECT NAME:	WESTMINSTER-NORWICH
PROJECT NUMBER:	IM MEMB(30)
FILE NAME:	s11a012rail.dgn
PROJECT LEADER:	JPB
DESIGNED BY:	VTRANS
BARRIER RAIL DETAILS	
PLOT DATE:	8/22/2011
DRAWN BY:	VTRANS
CHECKED BY:	VTRANS
SHEET	12 OF 38

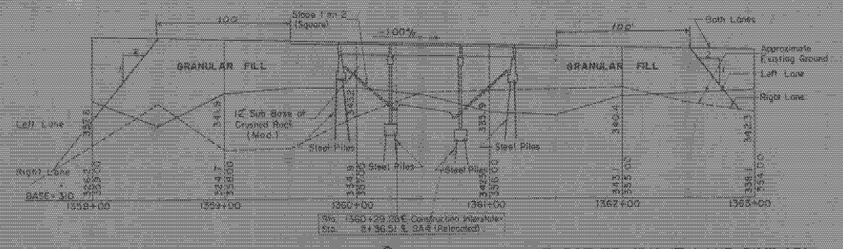


NEW HIGHWAY SECTION SA 4 STA. 0+81.2 TO STA. 7+49.1

SCALE 1" = 5'-0"

NEW HIGHWAY SECTION STA. 1358+00 TO STA. 1362+00

SCALE 1" = 20'-0"



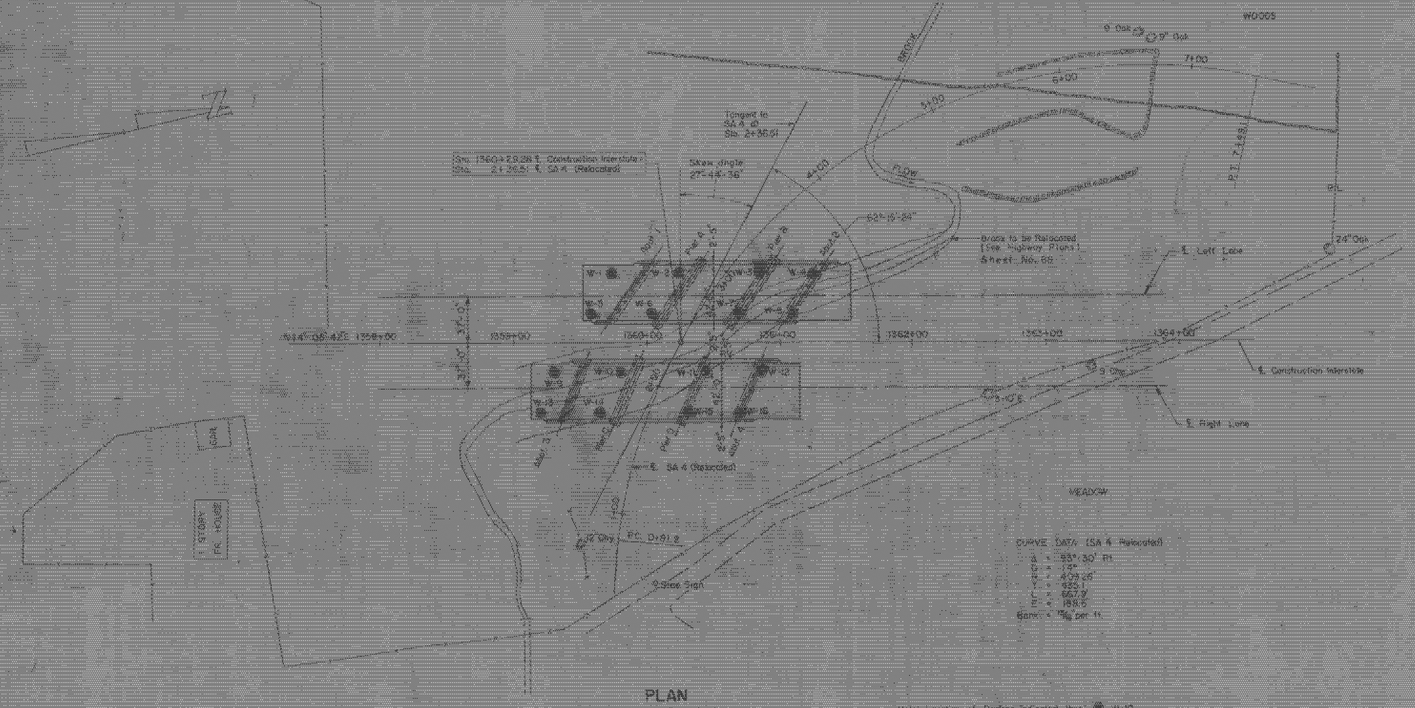
NEW HIGHWAY PROFILE ALONG ℄ LEFT LANE INTERSTATE (RIGHT LANE SIMILAR)

SCALE Hor. 1" = 50'-0"
Vert. 1" = 20'-0"

HIGHWAY NO. 91 NAME OF HIGHWAY INTERSTATE 91

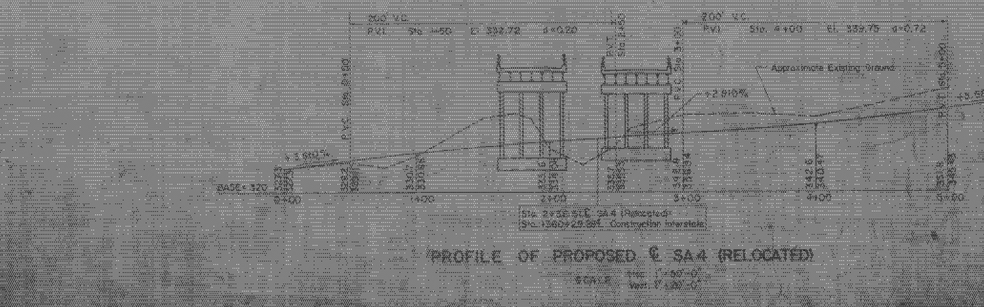
STRUCTURE NO. _____ COUNTY Windham TOWN Westminster

PROJECT NO F 91-1(11) LOCATION Sta. 1360+29.28



PLAN

SCALE 1" = 50'-0"



PROFILE OF PROPOSED ℄ SA 4 (RELOCATED)

SCALE Hor. 1" = 50'-0"
Vert. 1" = 20'-0"

SUMMARY OF QUANTITIES

ITEM NO	DESCRIPTION	UNIT	NET	OVER-RUN	TOTAL	FINAL
107	Structure Excavation	C.Y.	~~410~~	~~405~~	~~815~~	756
204	Sub-base of Crushed Rock (Mod.)	C.Y.	~~931~~	~~59~~	~~990~~	594
222	Gravel Backfill	C.Y.	~~210~~	~~69~~	~~279~~	180
401.5	Bituminous Concrete Pavement	Tons	~~208~~	~~33~~	~~241~~	227
401.8	Concrete Class B (Mod.)	C.Y.	~~1206~~	~~59~~	~~1264~~	1215
602	Reinforcing Steel	Lbs.	~~182250~~	-	~~182250~~	182250
603	Spiral Reinforcement (@270 LB)	L.S.	~~1~~	-	~~1~~	1
604	Structural Steel	Lbs.	~~204250~~	~~5090~~	~~209340~~	25434
607	Asphaltic-Asbestos Coating	S.Y.	~~414~~	-	~~414~~	113
504	Steel Piling	L.F.	~~4668~~	-	~~4668~~	4032
556	Composite Bridge Curb (Type I)	L.F.	~~696~~	-	~~696~~	696
572	Bridge Railing	L.F.	~~4068~~	-	~~4068~~	518
601	Providing Facilities for Drawing Steps		Required			1
503	Piling for Steel Piling	Each	~~25~~	-	~~25~~	16
518	DRY SYSTEM FOR SS PLR	S.S.	~~738~~	-	~~738~~	535

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" NO. (S)

GENERAL NOTES

DESIGN SPECIFICATIONS:

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. (0.45 f'c = 3,900 p.s.i.)

CLEARANCE:

Horizontal as shown on drawings
Vertical: 14'-8" (Left Lane Interstate)

SUPERSTRUCTURE:

Separate structure for each lane
42' Roadway, (1-6" Safety Walk, as per SCD 62-36)
3 Simple span, rolled beams, composite design, as per SCD 58-57 (1 @ 27'(Left Lane 35' 5⅜"-38' Right Lane 33'-4⅜" c-c)
Aluminum bridge railing is generated by slope (changing grade) bridge curb as per SB-63-57 (1 @ 42')
Bearing and diaphragm provisions as per SB-80-56
Approach slabs as per SB-462-30° SKEW-57'

SUBSTRUCTURE:

Piers: Round columns, Left Lane spaced 14'-0" o/c, Right Lane spaced 12'-4 ½"
Stub abutments

FOUNDATIONS:

Stub abutments: Steel piles 33 Ton Design Load
Piers: Combination footings, Steel piles 33 Ton Design Load

IR-DECK(26)
BR18N&S
THIS SHEET FOR INFORMATION ONLY

WESTMINSTER - NORWICH
IM MEMB(30)
SHEET 13 OF 38
FOR REFERENCE ONLY

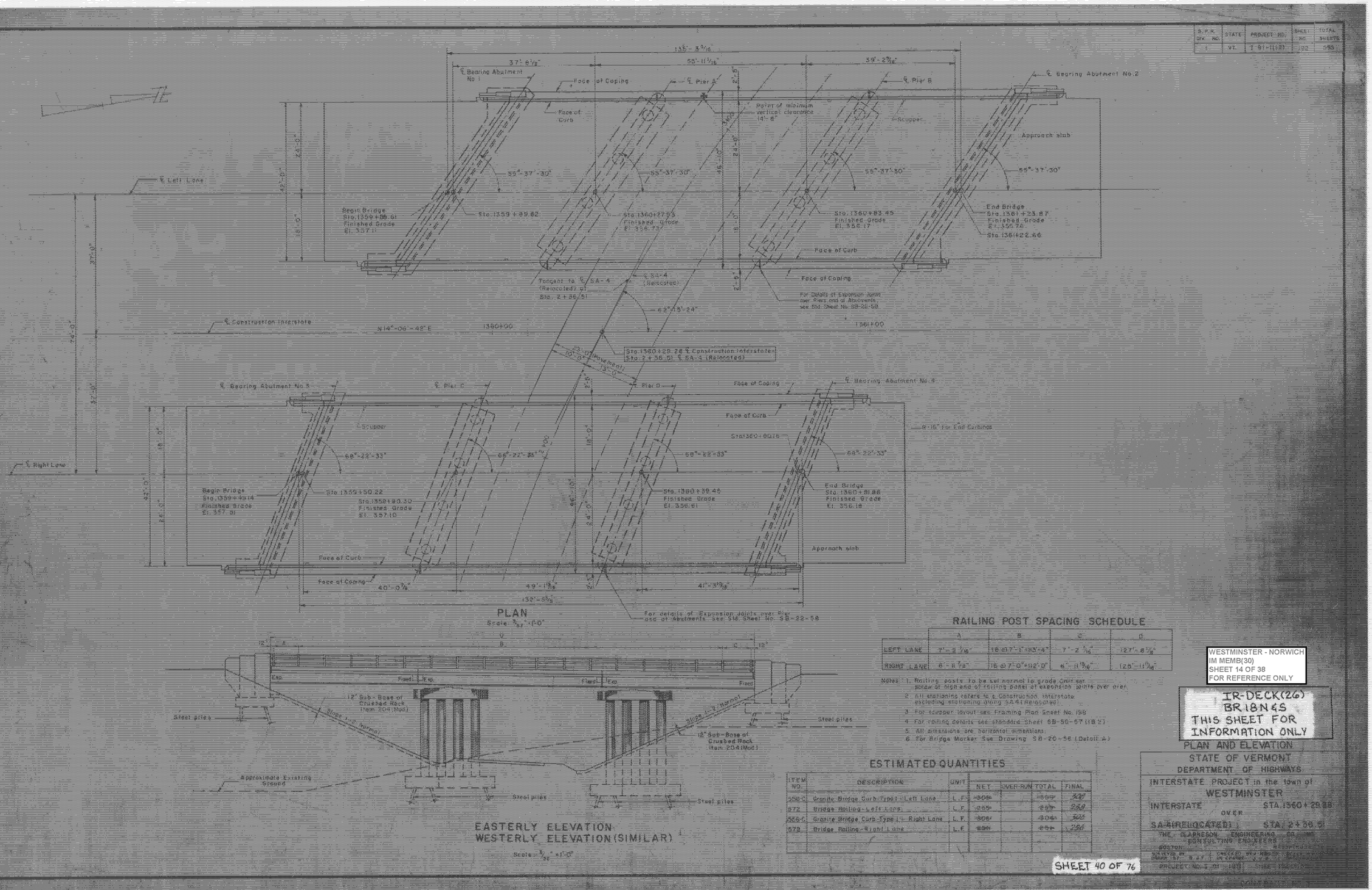
LIST OF SHEETS

SHEET NO.	DESCRIPTION
190	GENERAL PLAN
191	BORINGS
192	PLAN AND ELEVATION
193	ABUTMENT NO. 1 AND NO. 4
194	ABUTMENT NO. 1 AND NO. 4
195	APPROACH SLABS
196	PIERS #2 & #3 AND #5
197	PIER DETAILS
198	STRUCTURAL STEEL PLAN
199	STRUCTURAL STEEL DETAILS
200	REINFORCING SCHEDULE
201	REINFORCING SCHEDULE
202	REINFORCING SCHEDULE
88 & 89	INTERSTATE PLAN & PROFILE
329 - 331	INTERSTATE CROSS SECTIONS
440 - 446	SA-4 (RELOCATED) CROSS SECTIONS
135	90-AS-30° SKEW 57'
135 & 136	58-30-57 (1 @ 27')
140	58-10-57
134	90-22-58
133 & 133A	SCB-42-54 (1 @ 27')

THE CORRESPONDENCE ENGINEERING CO.

SHEET 39 OF 76

B.P.R. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	VT.	I 91-1(13)	32	353



RAILING POST SPACING SCHEDULE

	A	B	C	D
LEFT LANE	7'-2 3/16"	18 @ 7'-1"=127'-6"	7'-2 3/16"	127'-8 3/16"
RIGHT LANE	6'-8 7/8"	18 @ 7'-0"=126'-0"	6'-11 5/16"	125'-11 5/16"

Notes: 1. Railing posts to be set normal to grade. Omit set screw at high end of railing panel at expansion joints over pier.
2. All stationing refers to ℄ Construction Interstate excepting stationing along SA-4 (Relocated).
3. For Scupper layout see Framing Plan Sheet No. 156
4. For railing details see standard Sheet SB-20-57 (18.2)
5. All dimensions are horizontal dimensions.
6. For Bridge Marker See Drawing SB-20-56 (Detail A)

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	NET	OVER-RUN	TOTAL	FINAL
526 C	Granite Bridge Curb Type I - Left Lane	L.F.	305		305	307
572	Bridge Railing - Left Lane	L.F.	255		255	254
526 C	Granite Bridge Curb Type I - Right Lane	L.F.	305		305	305
572	Bridge Railing - Right Lane	L.F.	254		254	256

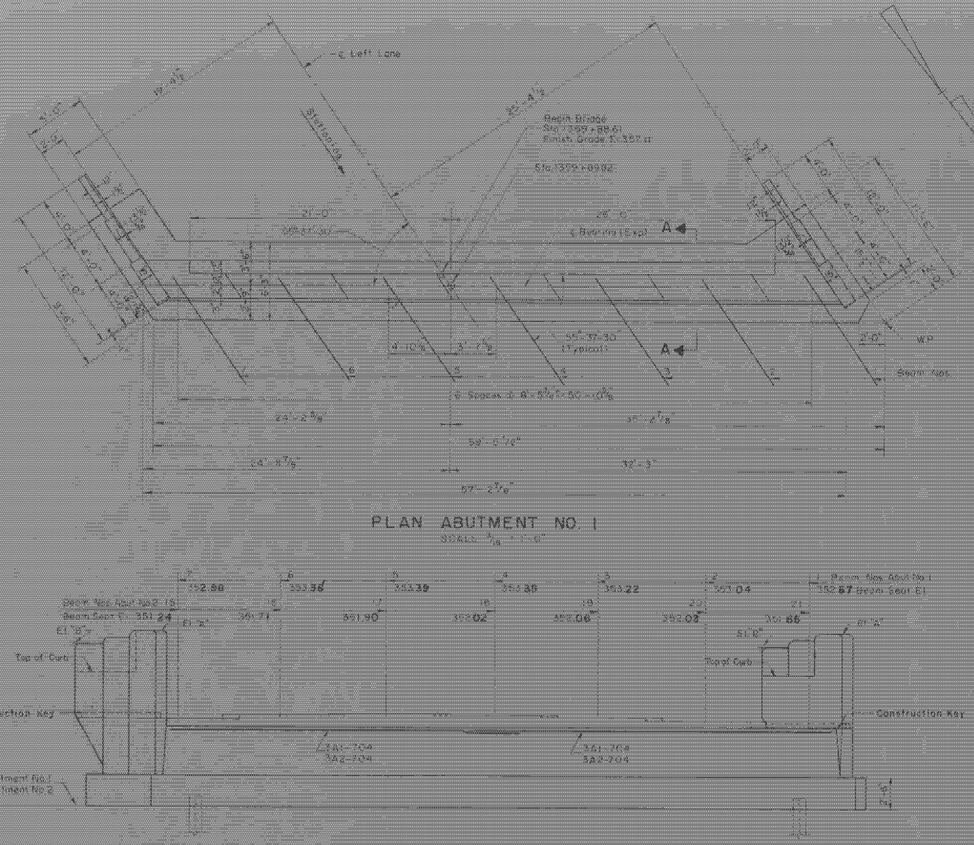
WESTMINSTER - NORWICH
IM MEMB(30)
SHEET 14 OF 38
FOR REFERENCE ONLY

IR-DECK(26)
BRIDGES
THIS SHEET FOR INFORMATION ONLY

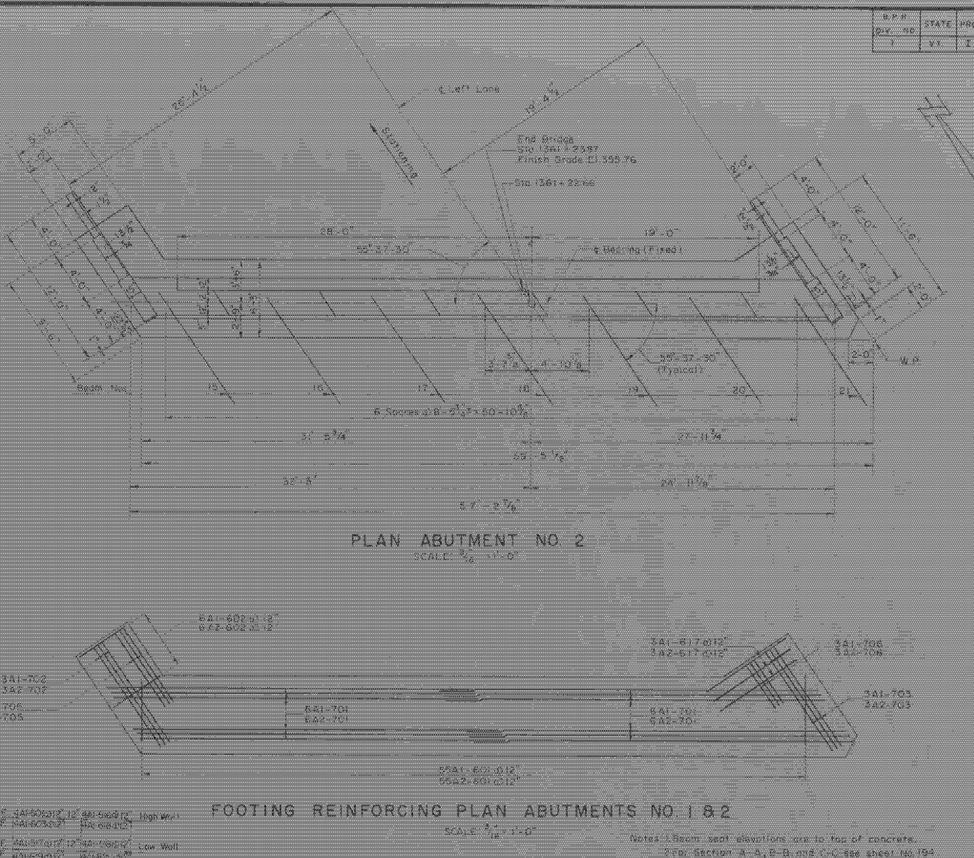
PLAN AND ELEVATION
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS
INTERSTATE PROJECT in the town of
WESTMINSTER
INTERSTATE STA.1360+28.28
OVER
SA-2(RELOCATED) STA. 2+36.51
THE CLARKESON ENGINEERING CO., INC.
CONSULTING ENGINEERS
BOSTON, MASS.
SCALES AS SHOWN
DRAWN BY R.A.F. CHECKED BY R.B.G.
PROJECT NO. I 91-1(13) DATE JANUARY 1960

SHEET 40 OF 76

B.P.R. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	VT	I 91-1(11)	193	655



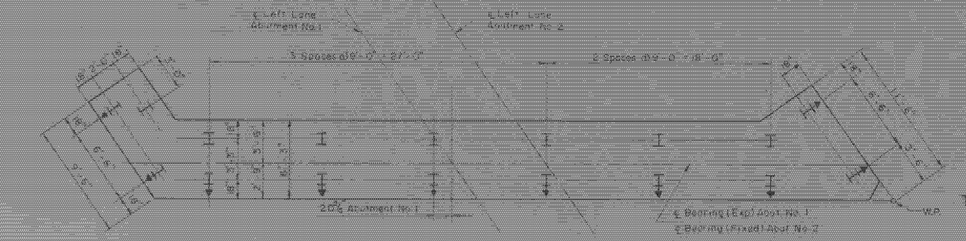
PLAN ABUTMENT NO. 1
SCALE 3/16" = 1'-0"



PLAN ABUTMENT NO 2
SCALE 3/16" = 1'-0"

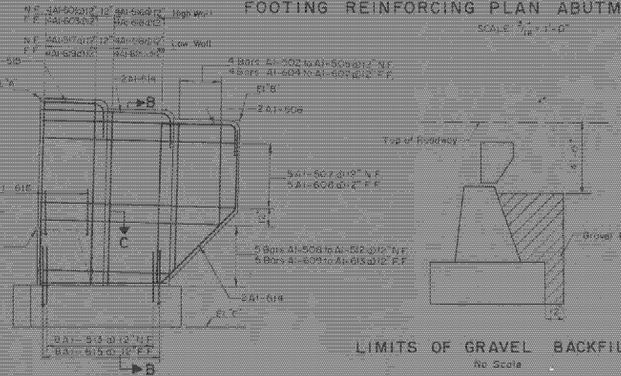
ELEVATION ABUTMENT NO. 1
ELEVATION ABUTMENT NO. 2 (SIMILAR UNLESS NOTED OTHERWISE)
SCALE 3/16"=1'-0"

FOOTING REINFORCING PLAN ABUTMENTS NO. 1 & 2
SCALE 3/16"=1'-0"



PILE PLAN ABUTMENTS NO. 1 & 2
SCALE 3/16" = 1'-0"

ABUTMENT NO.1	Elev. A	Elev. B	Elev. C
East Wingwall	361.06	350.18	346.65
West Wingwall	360.62	359.74	346.65
ABUTMENT NO.2	Elev."A"	Elev."B"	Elev."C"
East Wingwall	359.76	358.64	345.32
West Wingwall	359.32	358.20	345.32



TYPICAL WINGWALL REINFORCING
SCALE 3/16"=1'-0"

LIMITS OF GRAVEL BACKFILL
No Scale

ESTIMATED QUANTITIES

ITEM NO	DESCRIPTION	UNIT	ABUTMENT NO. 1 NET	OVER-RUN	TOTAL	FINAL	ABUTMENT NO. 2 NET	OVER-RUN	TOTAL	FINAL
107	Structure Excavation	C.Y.	211	-4%	23+	21	21+	-2+	43+	21
204	Sub-base of Crushed Rock (Mod.)	C.Y.	756	3P	86+	67	80+	+2+	92+	70
233	Gravel Backfill	C.Y.	80+	-8+	38+	43	39+	-8+	38+	24
401-B	Concrete Class B (Mod.)	C.Y.	69	-2+	70+	68	67+	-2+	70+	68
402	Reinforcing Steel	Lbs	See Reinforcing Schedule Sheet No. 202							
407	Asphaltic-Asbestos Coating	S.Y.	42+		42+	6	42+		42+	6
304	Steel Piling	L.F.	792+		792+	432	792+		792+	1062

SHEET 41 OF 76

IR-DECK(26)
BR 18 N & S
THIS SHEET FOR
INFORMATION ONLY

ABUTMENTS NO. 1 AND 2

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS
INTERSTATE PROJECT
WESTMINSTER
INTERSTATE 91 STA. 1360 + 29.28
OVER
SA-4(RELOCATED) STA. 2 + 36.51

THE CLARKESON ENGINEERING CO. INC.
BOSTON CONSULTING ENGINEERS MASSACHUSETTS

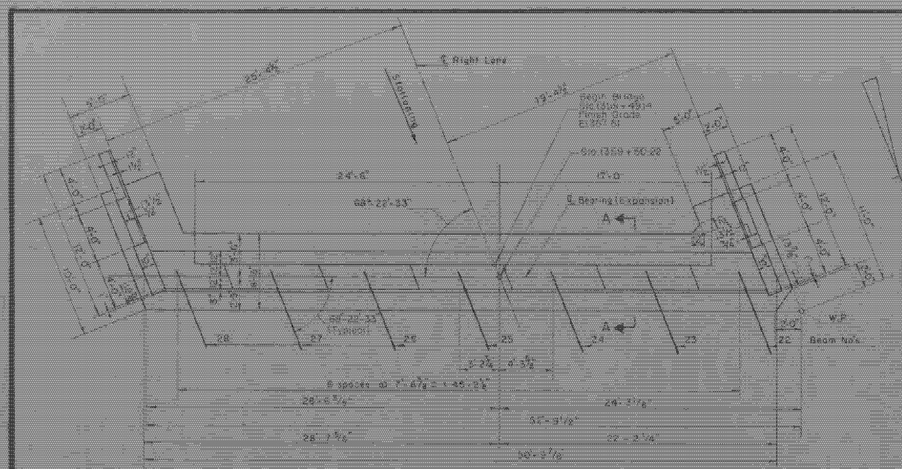
SURVEYED BY	CHECKED BY	SCALE AS NOTED
DRAWN BY V.B.	IN CHARGE V.V.B.	DATE 11-27-57

PROJECT NO. I 91-1(11) SHEET 193 OF 655

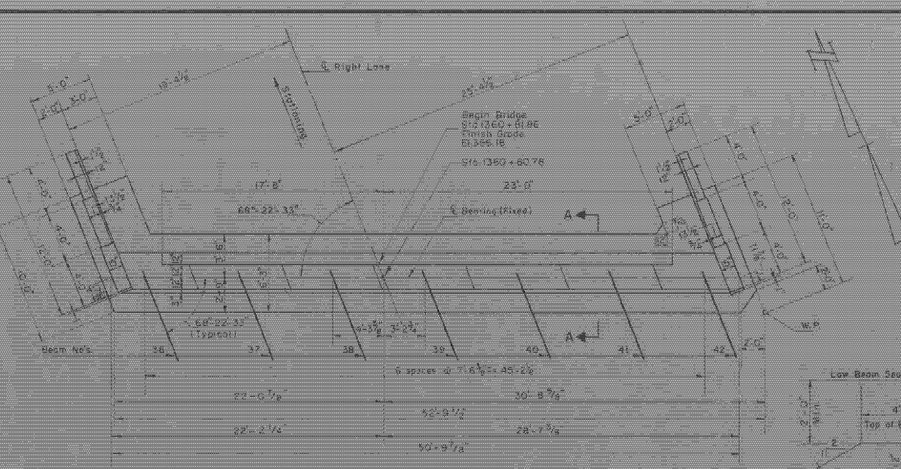
CONTRACT NO.

WESTMINSTER - NORWICH
IM MEMB(30)
SHEET 15 OF 38
FOR REFERENCE ONLY

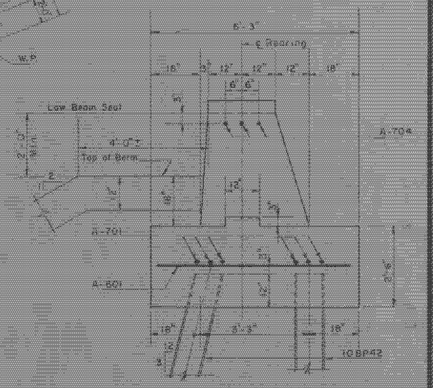
F.A.P. RTE. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
I	WY.	I 91-1(11)	194	555



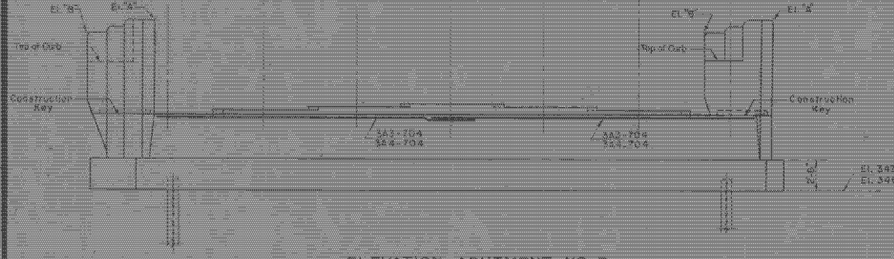
PLAN ABUTMENT NO. 3
SCALE $\frac{3}{16}$" = 1'-0"



PLAN ABUTMENT NO. 4
SCALE $\frac{3}{16}$" = 1'-0"

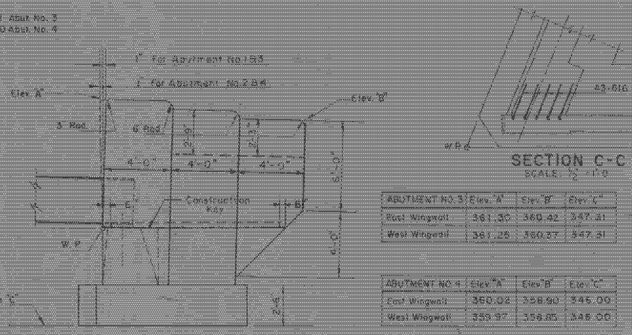


SECTION A-A
SCALE $\frac{1}{4}$" = 1'-0"

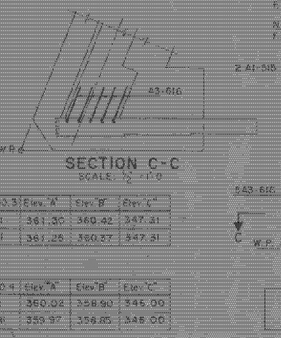


ELEVATION ABUTMENT NO. 3
ELEVATION ABUTMENT NO. 4 (SIMILAR UNLESS NOTED OTHERWISE)
SCALE $\frac{3}{16}$" = 1'-0"

FOOTING REINFORCING PLAN ABUTMENTS NO. 3 & 4
SCALE: $\frac{3}{16}$" = 1'-0"



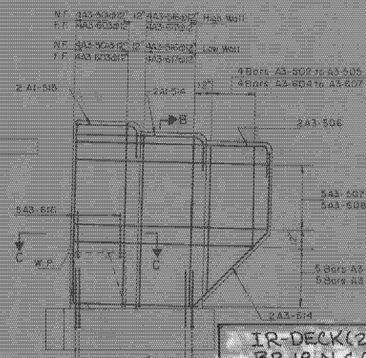
TYPICAL ELEVATION OF WINGWALL
SCALE $\frac{1}{4}$" = 1'-0"



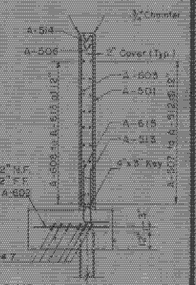
SECTION C-C
SCALE $\frac{1}{2}$" = 1'-0"

ABUTMENT NO. 3	Elev. "A"	Elev. "B"	Elev. "C"
East Wingwall	361.30	360.42	347.31
West Wingwall	361.25	360.37	347.51

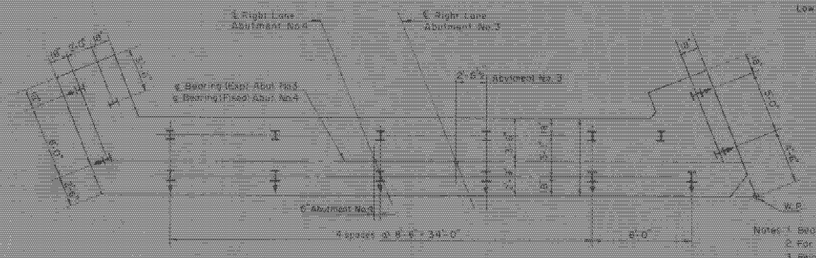
ABUTMENT NO. 4	Elev. "A"	Elev. "B"	Elev. "C"
East Wingwall	360.02	358.90	345.00
West Wingwall	359.97	358.85	345.00



ELEVATION



REINFORCING SECTION B-B



PILE PLAN ABUTMENTS NO. 3 & 4
SCALE $\frac{3}{16}$" = 1'-0"

Notes: 1. Beam seat elevations are to top of concrete.
2. For limits of Gravel Backfill see Sheet No.193.
3. Reinforcing for Abutment No.4 to be reversed &4.
4. For additional abutment notes, see Sheet No.193.

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	ABUTMENT NO. 3 NET	OVER-RUN	TOTAL	FINAL	ABUTMENT NO. 4 NET	OVER-RUN	TOTAL	FINAL
107	Structure Excavation	C.Y.	13 [illegible]	-0-	13 [illegible]	13	13 [illegible]	-0-	13 [illegible]	13
204	Sub-base of Crushed Rock (Mod.)	C.Y.	88 [illegible]	+3 [illegible]	91 [illegible]	91	88 [illegible]	+3 [illegible]	91 [illegible]	91
222	Gravel Backfill	C.Y.	28 [illegible]	-0-	36 [illegible]	36	28 [illegible]	-0-	36 [illegible]	57
601-B	Concrete Class B (Mod.)	C.Y.	61 [illegible]	-3 [illegible]	64 [illegible]	61	61 [illegible]	-3 [illegible]	64 [illegible]	61
602	Reinforcing Steel	Lbs.	See Reinforcing Schedule Sheet No.202							
607	Asphaltic-Asbestos Coating	S.Y.	4 [illegible]		4 [illegible]	5	4 [illegible]		4 [illegible]	0
504	Steel Piling	L.F.	799 [illegible]		799 [illegible]	819	799 [illegible]		799 [illegible]	1027

IR-DECK(26)
BR 18 N & S
THIS SHEET FOR INFORMATION ONLY

ABUTMENTS NO. 3 AND 4
STATE OF WYOMING
DEPARTMENT OF TRANSPORTATION
INTERSTATE PROJECT
WESTMINSTER
INTERSTATE STA. 1360 + 29.28
OVER
SA-4(RELOCATED) STA. 2 + 36.51

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

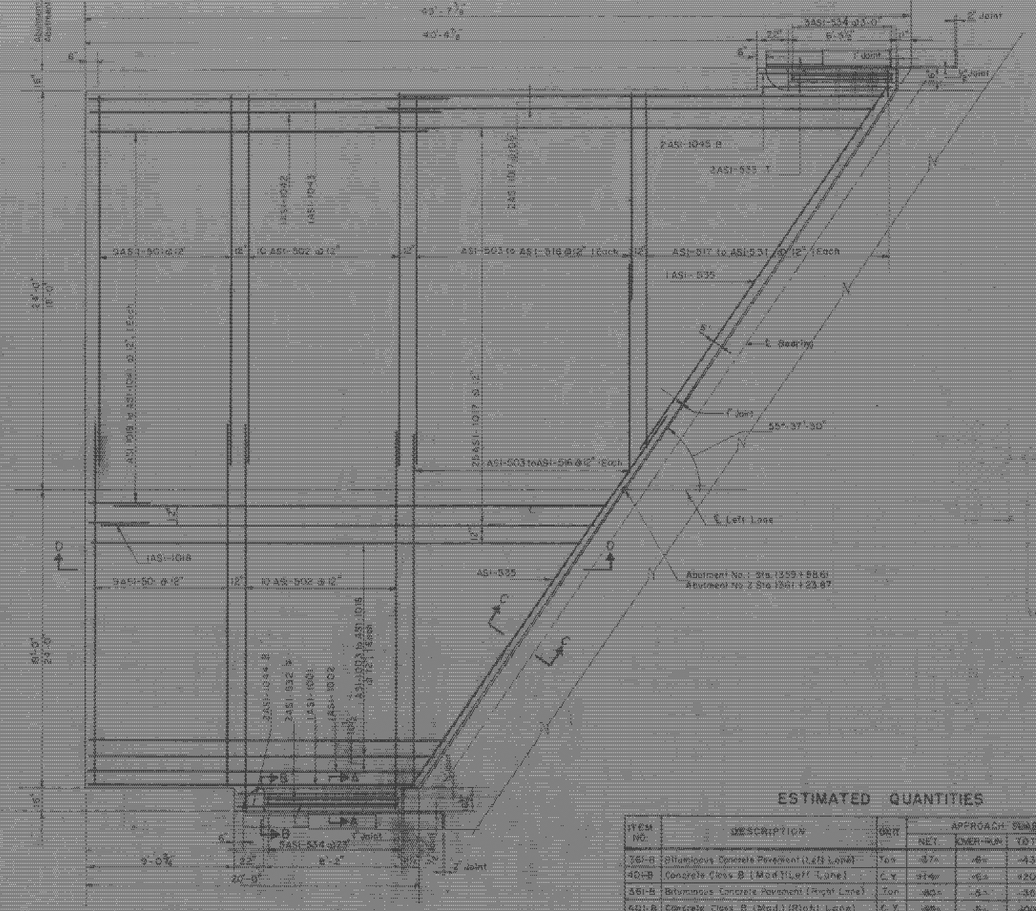
SURVEYED BY	CHECKED BY	SCALE AS NOTED
DRAWN BY D.E.S	IN CHARGE J.V.B.	DATE 11-27-57
PROJECT NO. I 91-1(11)1	SHEET 194 OF 555	

WESTMINSTER - NORWICH
IM MEMB(30)
SHEET 16 OF 38
FOR REFERENCE ONLY

SHEET 42 OF 76

CONTRACT NO. 3

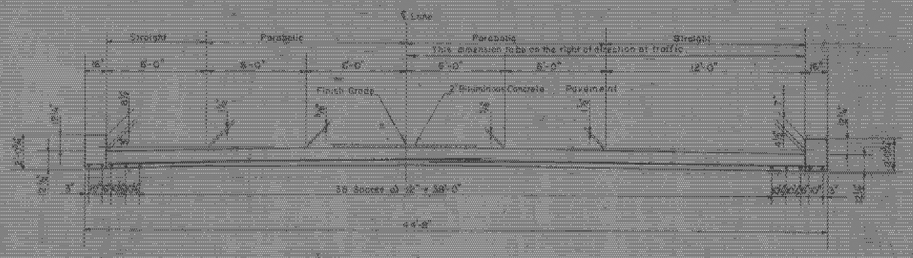
B.F.R. REV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	VT	I 91-1(18)	195	505



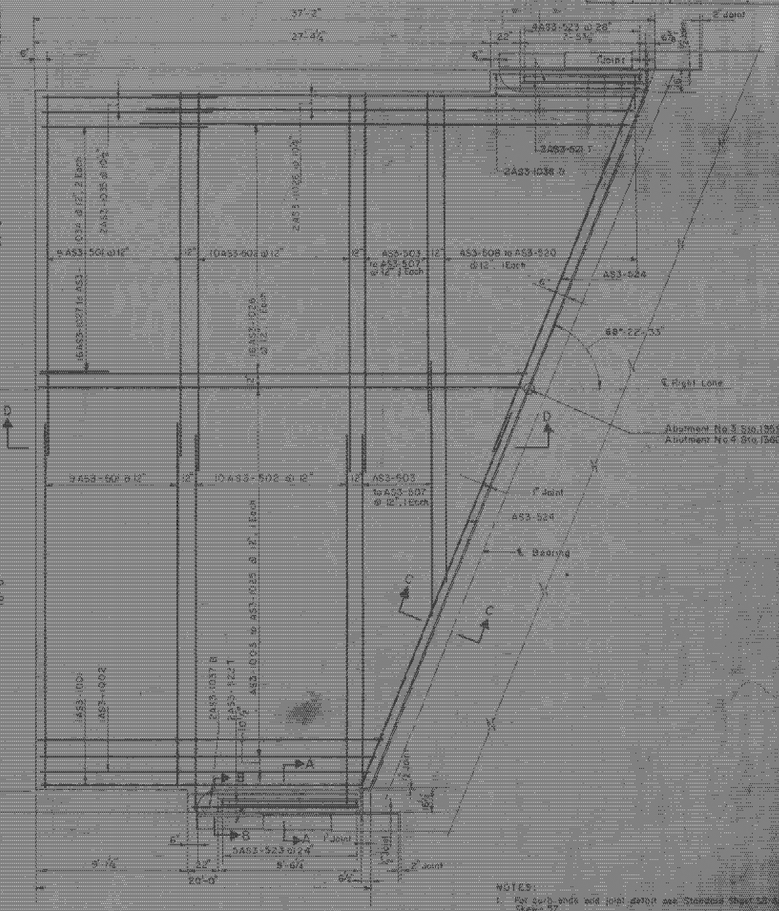
APPROACH SLAB - ABUTMENT NO. 1
APPROACH SLAB-ABUTMENT NO. 2 (SIMILAR UNLESS NOTED OTHERWISE)
SCALE: 1/4" = 1'-0"

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	APPROACH SLABS			
			NET	OVER-RUN	TOTAL	FINAL
161-B	Bituminous Concrete Pavement (Left Lane)	Ton	437	68	473	46
401-B	Concrete Class B (Mod.) (Left Lane)	C.Y.	914	63	820	117
161-B	Bituminous Concrete Pavement (Right Lane)	Ton	403	53	456	59
401-B	Concrete Class B (Mod.) (Right Lane)	C.Y.	695	15	400	70
402	Reinforcing Steel	Lbs	See Reinforcing Schedule Sh. No. 201			
658-C	Granite Bridge Curb (Type I)	L.F.	See Sheet No. 192			



TYPICAL APPROACH SLAB CROSS SECTION
SCALE: 1/2" = 1'-0"



APPROACH SLAB - ABUTMENT NO 3
APPROACH SLAB-ABUTMENT NO. 4 (SIMILAR UNLESS NOTED OTHERWISE)
SCALE: 1/2" = 1'-0"

NOTES:
1. For curb ends and joint detail see Standard Sheet SB-AS 30° Sheet 57.
2. For Sections A-A, B-B, C-C, and D-D, see Standard Sheet SB-AS 30° Sheet 57.
3. All cover to be 2" unless noted otherwise.
4. Approach Slab - Abutment No. 2 Reinforcing same as Approach Slab - Abutment No. 1 except where otherwise noted.
5. Approach Slab - Abutment No. 4 Reinforcing same as Approach Slab - Abutment No. 3 except where otherwise noted.

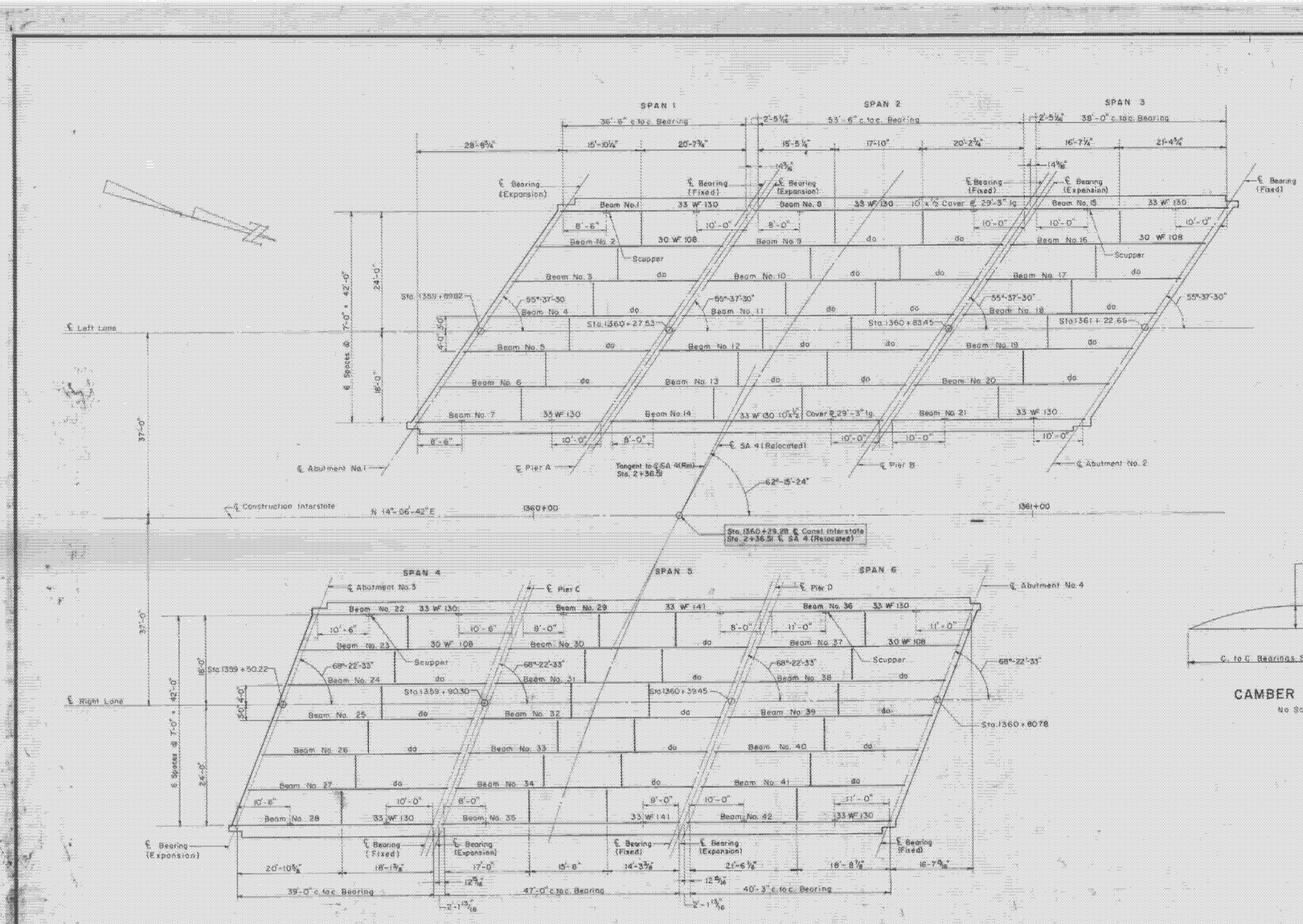
IR-DECK(26)
BRIBN&S
THIS SHEET FOR INFORMATION ONLY

WESTMINSTER - NORWICH
IM MEMB(30)
SHEET 17 OF 38
FOR REFERENCE ONLY

STATE OF V
DEPARTMENT OF
INTERSTATE PROJE
WESTMIN
INTERSTATE
BA-1(11)
THE
Approved
Approved
PROJECT NO. I 91-1(18)

SHEET 43 OF 76

B.P.R. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	VT.	I 91-1(11)	198	555



FRAMING PLAN

SCALE 3/32" = 1'-0"

CAMBER DIAGRAM

No Scale

Notes.
1. Diaphragms to be 18 ℄ 42.7 for Spans 2 & 5, 18 ℄ 33.9 for Spans 1, 3, 4, & 6.
2. For Superstructure Sections and Details, see Sheet No. 199.
3. All beams shall be rolled to true circular camber with the middle ordinate as shown on this sheet.
4. For Bearing Details, see Standard Sheet No. SB-20-56.
5. Cut flanges as per Standard Sheet No. SB-22-56.
6. All stationing refers to ℄ Construction Interstate excluding stationing along SA-4 (Relocated).
7. All Beams and cover plates shall conform to A.S.T.M. Designation A373. All other structural steel shall conform to Designation A7 or A373.

IR-DECK (26)
BR 18 N & S
THIS SHEET FOR INFORMATION ONLY

SHEET 46 OF 76

STRUCTURAL STEEL PLAN

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS
INTERSTATE PROJECT

WESTMINSTER

INTERSTATE STA. 1360 + 29.28
OVER
SA-4 (RELOCATED) STA. 2 + 36.51

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

SURVEYED BY	CHECKED BY	SCALE AS NOTED
DRAWN BY R.F.	IN CHARGE J.D.A.	DATE 12-27-57

PROJECT NO. I 91-1(11) | SHEET 198 OF 555

CONTRACT NO.

WESTMINSTER - NORWICH
IM MEMB(30)
SHEET 18 OF 38
FOR REFERENCE ONLY

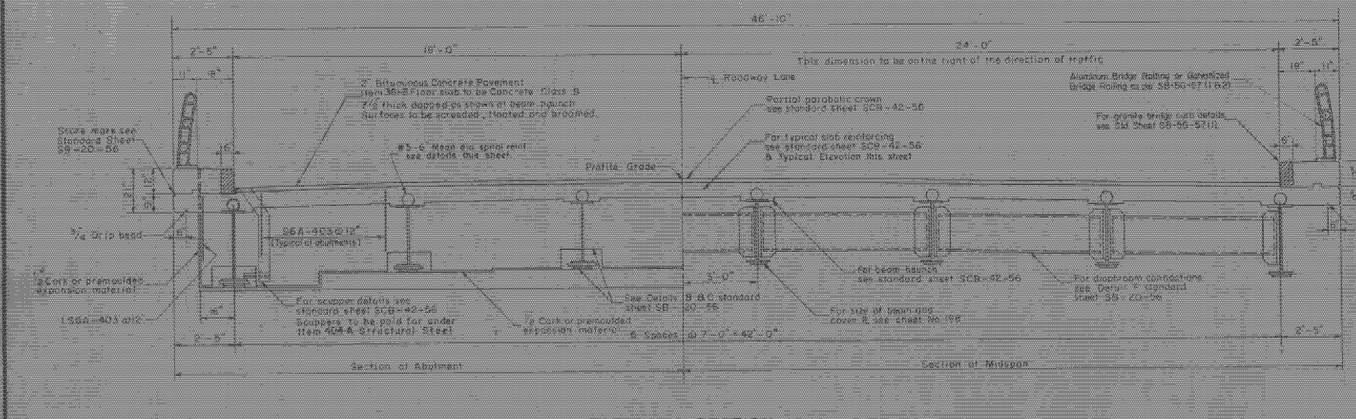
B.P.R. DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	VT	I 91-1(11)	199	559

BEAM SCHEDULE

BEAM NO.	A	B	C	D
1 & 7	9"	11½"	36'-6"	35'-2½"
2 - 6	9"	9"	36'-6"	38'-0"
8 & 14	11½"	11½"	53'-6"	56'-6"
9 - 13	9"	9"	53'-6"	56'-0"
15 & 21	11½"	9"	38'-0"	39'-8½"
16 - 20	9"	9"	38'-0"	39'-5"
22 & 28	9"	9⅞"	39'-0"	40'-6⅝"
23 - 27	9"	9"	39'-0"	40'-6"
29 & 35	9⅞"	9⅞"	41'-0"	42'-7⅝"
30 - 34	9"	9"	41'-0"	42'-6"
36 & 42	9⅞"	9"	40'-3"	41'-9⅝"
37 - 41	9"	9"	40'-3"	41'-3"

SPIRAL SCHEDULE

LENGTH OF SPAN	33'	44'	49'	55'
SPIRAL PITCH 0'-10' FROM ENDS	DOUBLE @ 6"	DOUBLE @ 5"	DOUBLE @ 5"	DOUBLE @ 5"
" " 10'-20' OR ℄ SPAN	4"	4"	DOUBLE @ 7½"	DOUBLE @ 6½"
" " 20'-30' OR ℄ SPAN	—	7½"	6"	5"

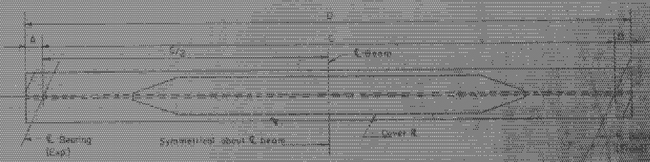


TYPICAL SECTION

Scale ⅜" = 1'-0"

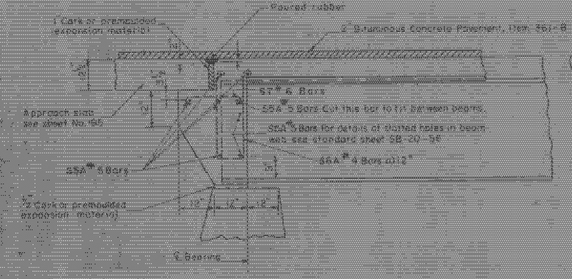
ELEVATION OF BEAM

No Scale

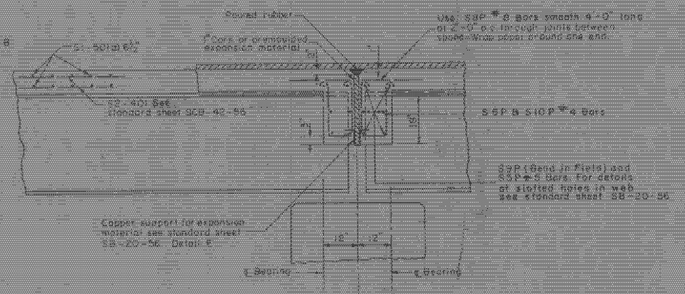


PLAN OF BEAM

No Scale



ELEVATION AT ABUTMENTS

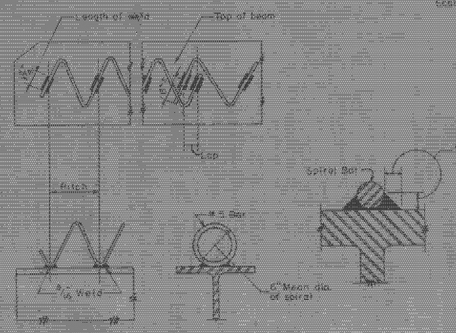


TYPICAL ELEVATION OF BEAM (SQUARE)

Scale ½" = 1'-0"

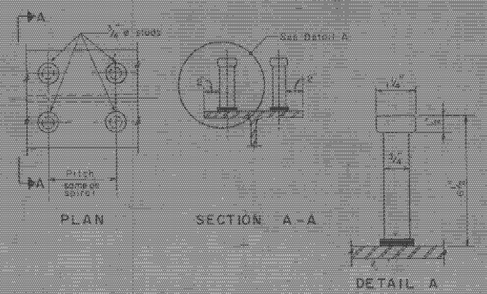
ELEVATION AT PIERS

NOTE. WHERE A DOUBLE SPIRAL IS CALLED FOR IN THE SCHEDULE (4) FOUR 6 1/2" LONG STUDS ARE REQUIRED PER PITCH.



SPIRAL WELDING DETAILS

No Scale



ALTERNATE SHEAR CONNECTOR

No Scale

Notes. 1. For beam and cover ℄ sizes, see Framing Plan Sheet No. 198
2. For cover ℄ details see Standard Sheet SCB-42-56.
3. For bearing details see Standard Sheet SB-20-56.
4. For sidewalk reinforcing see Standard Sheet SCB-42-56.

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	99	11	91	77	77	11	88	77
401-B	Concrete Class B (Mod.)	C.Y.	175	10	205	202	199	10	209	208
402	Reinforcing Steel	Lbs.	See Reinforcing Steel Schedule Sheet No. 200							
403	Spiral Reinforcement (12,270 Lb.)	L.S.	1		1	1	1		1	1
404-A	Structural Steel	Lbs.	125750	2510	128260	See Est.	128900	2360	131260	See Est.

IR-DECK(26)
BR 18N&S
THIS SHEET FOR INFORMATION ONLY

STRUCTURAL STEEL DETAILS

STATE OF	DEPARTMENT
INTERSTATE PROJE	WESTMINSTER
INTERSTATE	STA 1360 - 23 [illegible]
SA 4 (RELOCATED)	STA. 2 [illegible]

THE CLARKESON - BROWNLING CO. INC. CONSULTING ENGINEERS
BOSTON

DRAWN BY	DESIGNED BY	STRUCTURE NO.
CHECKED BY	IN CHARGE	
PROJECT NO. I 91-1(11)		SHEET NO.

SHEET 47 OF 76

WESTMINSTER - NORWICH
IM MEMB(30)
SHEET 19 OF 38
FOR REFERENCE ONLY

206

SHEET NO.	
1	Title Page
2	Alignment Sheet
3-7	Typical Sections (2" Bituminous Concrete Pavement, Item 361-8 Mod.)
8-11	Quantity Sheets, Items
11-12	Quantity Sheets, Drainage
13-18	Earthwork and Grade Sheets
19-19A&20	Right of Way Detail Sheets
21	Utility Assessment Details
22-41	Plan & Profile
42-43	Details of 96" CSP Plate Pipe #2760+43
44-53	Ex. Rd. #37 Sta. 2767+50± RR 200 Series
54-62	SCB-01-62 through SCB-09-62 (9 sheets)
63	SCB-24-62
64	SCB-25-62
65	SB-56-62 Sheet #1
66	SB-56-62 Sheet #2
67	Blank
68-80	S.A. Rd. #2 Sta. 2852± RR 200 series
81-82	Details of 66" CSP Plate Pipe 2766+72±
83-84	Details of 72" CSP Plate Pipe 2852+34±
85	A-41 Slopes in Solid Rock
86	B-1 Ranking Terms
87	B-5 Typical Slope Grading
88	B-8 Muck Excavation
89	D-2 Culverts
90	D-3 Gutters and Jute Matting
91	D-4 Metal End Sections
92	D-8 Drop Inlets
93	Blank
94	D-11 Drop Inlet Grates
95	D-13 Concrete Catch Basin
96	D-16 Prec. Rein. Conc. Sure Drop Inlet
97	D-17 ACCMP Perforat Riser
98	E-1 Barricades, Signs and Lights
99	E-31 Construction Identifications Signs
100	F-1 Property Line Fence
101	G-1 Steel Guard Rail
102	G-2a Two Cable Rail
103	G-5 Marker Posts
104	J-1 Markers
105-165	Cross Sections - Main Line
166-173	Cross Sections - Town Road #37
174-178	Cross Sections - S.A. #2
179-180	Channel Sections

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

PROPOSED IMPROVEMENT

INTERSTATE PROJECT

TOWNS OF WEATHERSFIELD–WINDSOR–HARTLAND
COUNTY OF WINDSOR
INTERSTATE ROUTE 91
BRATTLEBORO–WHITE RIVER JCT. ROAD

CONTRACT #1

BEGINNING AT A POINT 1.700 MILES SOUTHERLY OF THE WEATHERSFIELD–WINDSOR TOWN LINE AND EXTENDING NORTHERLY 2.218 MILES.

LENGTH OF CONTRACT 11,711.92 FEET = 2.218 MILES.

Dated DECEMBER 21, 1964

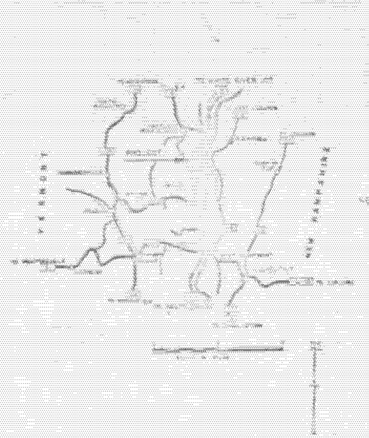
Perini Corporation

Louis L. Capone

Louis L. Capone, Vice Pres.
Contractor

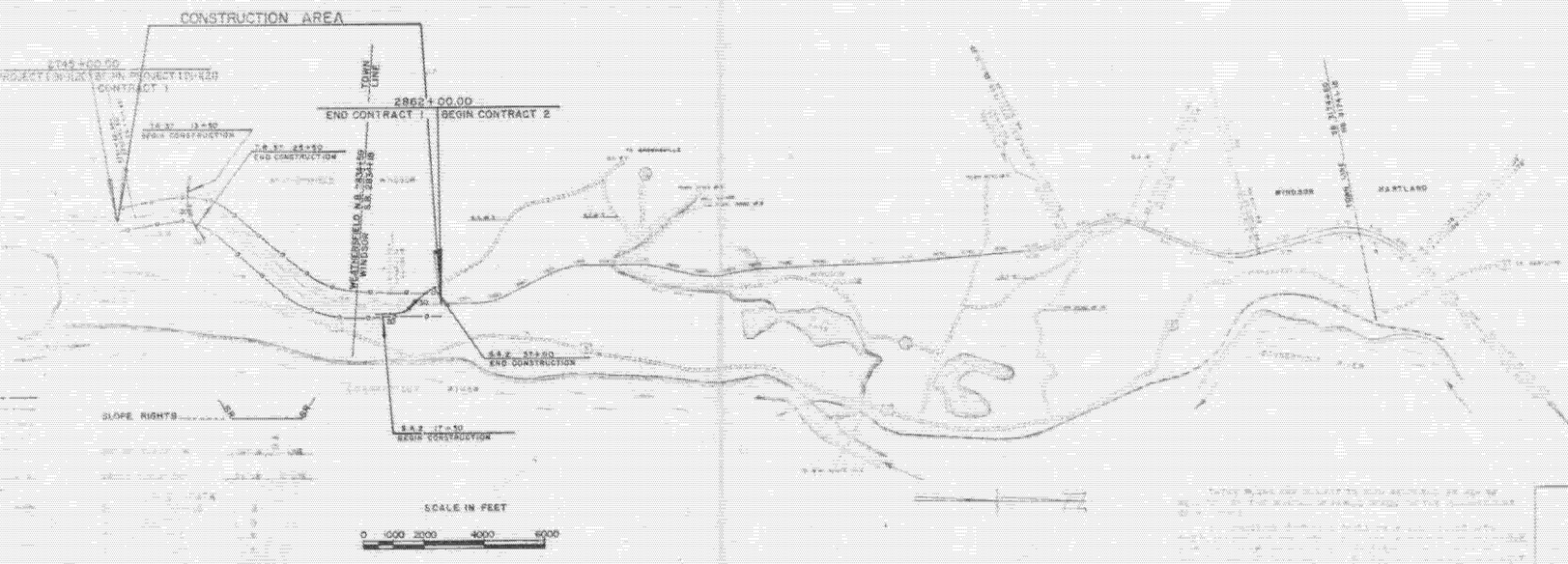
Russell A. Hayden
Commissioner of Highways

ADT	(1984)	3000
ADT	(1994)	7200
DHV	(1994)	585
D		55%
T		7%
V		65 MPH



THESE PLANS HAVE BEEN REDUCED PHOTOGRAPHICALLY TO APPROXIMATELY 1/2 SCALE

VERMONT DEPARTMENT OF HIGHWAYS
CONTRACT PLANS
DEC 21 1964
SIGNED



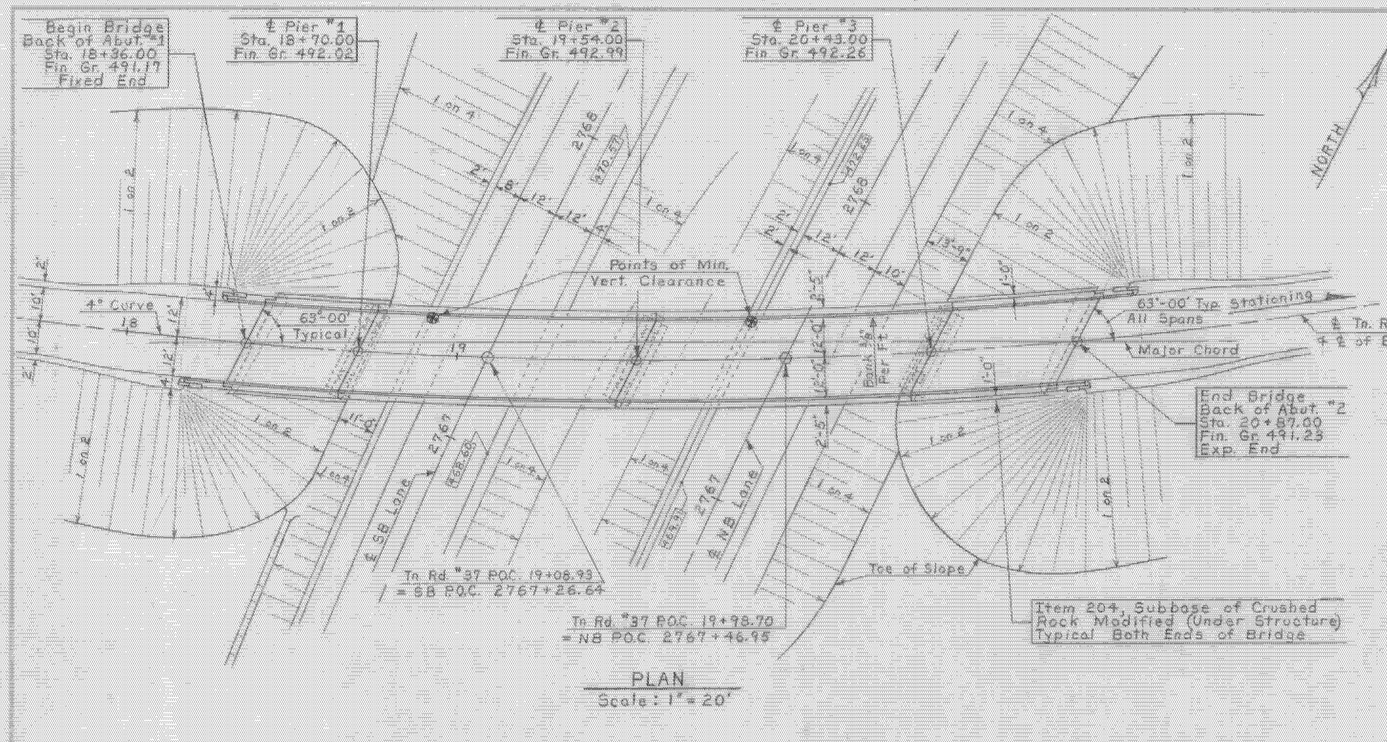
APPROVED Kb Campbell, ASST. CHIEF ENGR.	APPROVED E W Hickey, ASST. CHIEF ENGR.	APPROVED Lon Gyer, STATE MAT. ENGR.	APPROVED F S Chase, CHIEF ENGINEER	APPROVED G M Love, FED. AID COORD.	APPROVED A B Bishop, DIR. OF PROJECTS
DATE 9/23/64	DATE 12/10/64	DATE 12/29/64	DATE 12/30/64	DATE 12/30/64	DATE 12/19/64

SHEET 1 180

LIMITED ACCESS

WESTMINSTER - NORWICH
IM MEMB(30)
SHEET 20 OF 38
FOR REFERENCE ONLY

206



LIST OF BRIDGE SHEETS

BR-100	GENERAL PLAN & ELEVATION
BR-101	BRIDGE QUANTITY SHEET
BR-102	PRELIMINARY INFORMATION SHEET
BR-103	BORING LOGS
BR-104	FRAMING PLAN, RAILING & GRANITE CURB LAYOUT
BR-105	ABUTMENT #1 DETAILS
BR-106	" " " " #2 " " "
BR-107	PIER LAYOUT DETAILS
BR-108	PIER REINFORCING DETAILS
BR-109	REINFORCING SCHEDULE

BRIDGE STANDARDS

STD. DWGS. - SCB-24-62, SCB-D1-62 through SCB-D9-62, (9 Sheets), and SB-56-62, Sheets #1 & #2.

REFERENCE SHEETS

REFER. - INTERSTATE PLAN (Scale: 1"=50')

PROFILE OF INTERSTATE, NB & SB, STA. 2756+00 to 2772+00.

PLAN & PROFILE OF TOWN ROAD NO 37.

INTERSTATE SECTIONS (2 Sheets) - SB STA. 2761+50 to 2771+50.

INTERSTATE SECTIONS (1 Sheet) - NB STA. 2767+00 to 2772+00.

TOWN ROAD NO. 37 (Sideline) SECTIONS, (1 Sheet) - STA. 16+00 to 21+00.

NOTES

1. For General Notes see Std. Dwg. SCB-D1-62.
2. The Superstructure is of Composite W^e Beam - Simple Span Design for a 24'-0" Roadway as per Std. Dwg. SCB-24-62.
3. The Granite Bridge Curb Layout and Details are shown on the Framing Plan, Railing & Granite Curb Layout, Sheet BR-104, and Std. Dwg. SCB-D6-62, Det. A.
4. For Bridge Railing Layout and Details see Sheet BR-104 and Std. Dwg. SB-56-62, Sheets #1 & 2.
5. Bridge Seat Elevations shown on these plans are for the centerline of bearings.
6. For Summary of Estimated Bridge Quantities see Bridge Quantity Sheet, BR-101.
7. Quantity Items marked with an Asterik (*) are to be included in Roadway Quantities only.
8. Preformed Neoprene Rubber Joint Material, Item 372-C, Shall Be Used Wherever Item 373 is indicated in the Standards.

ESTIMATED SUPERSTRUCTURE QUANTITIES

NO.	ITEM	UNIT		TOTAL	FINAL
* 318	Tar Emulsion For Bridge Floors	Gal.		270	
*361-B	Bituminous Concrete Pavement, Mod (Dense Graded Top Course)	Ton		66	
372-C	Joint Sealer, Preformed	L.F.		42	38
401-AA	Concrete Class AA, Mod.	C.Y.		234	235
402	Reinforcing Steel	Lb.		52590	52568
403	Spiral Reinforcement (3650#)	L.S.		1	1
404-A	Structural Steel	Lb.		25/300	29/30
556-C	Granite Bridge Curb, Mod.	L.F.		504	504
572	Bridge Railing	L.F.		522	522

WESTMINSTER - NORWICH
IM MEMB(30)
SHEET 21 OF 38
FOR REFERENCE ONLY

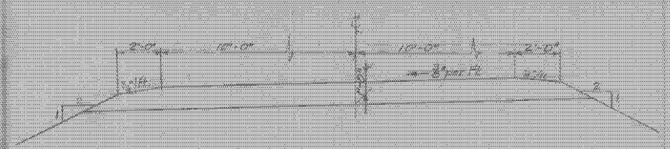
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF WEATHERSFIELD - WINDSOR - HARTLAND
ROUTE NO. I 91 LOG STA.

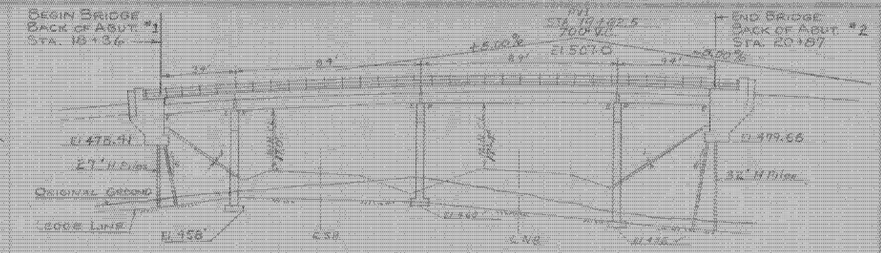
GENERAL PLAN & ELEVATION
TOWN RD. "37 over I 91

SCALE As Noted
SURVEYED BY Martin
DRAWN BY E.W.B. CHECKED BY J.J.C.
4/18/63
PROJECT NO. I 91-1(21) Contr "1
SHEET 44 OF 180

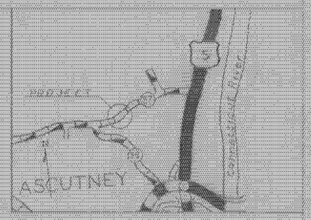
BR-100

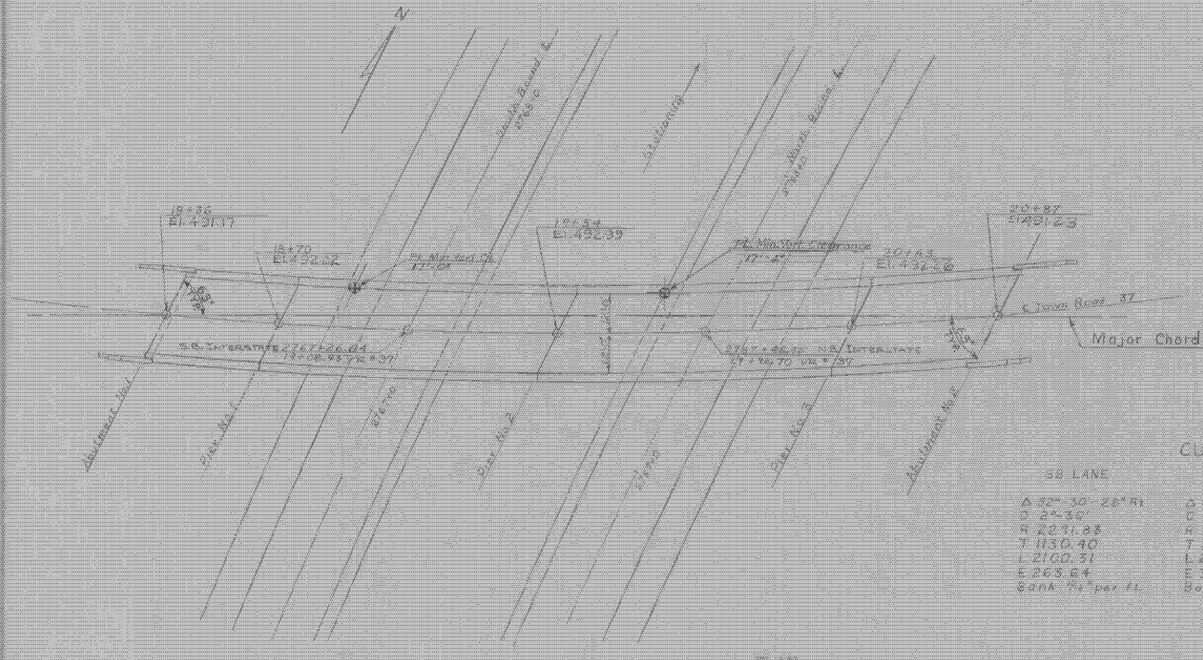


TOWN ROAD No. 37
NEW HIGHWAY SECT. STA. 15+00 TO STA. 23+00
Scale 1"=1'



NEW HIGHWAY PROFILE ALONG ℄ TOWN ROAD NO. 37
Scale 1"= 50' Hor.
1"= 25' Vert.

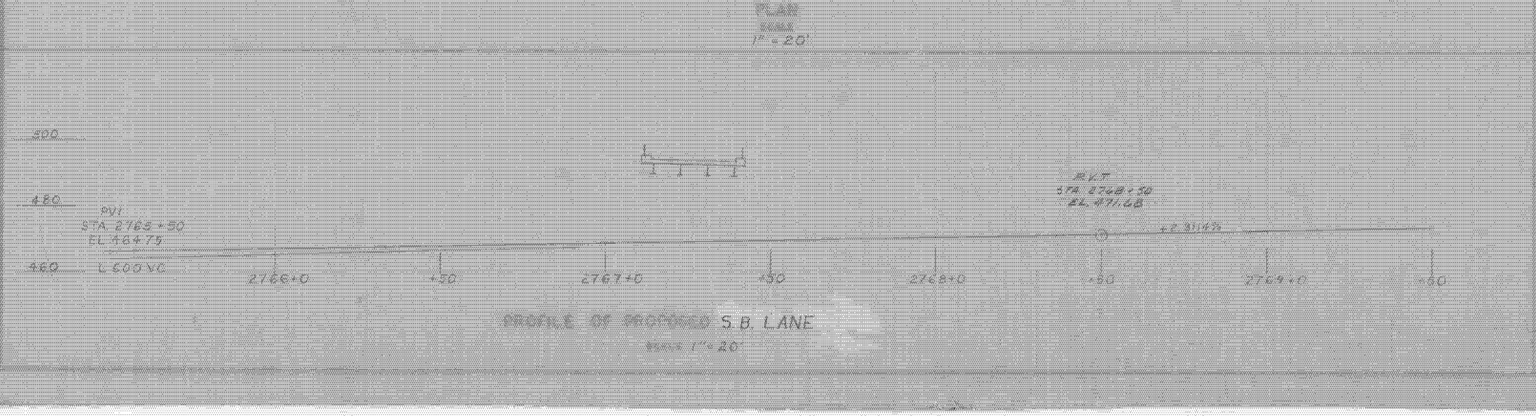




PLAN
Scale
1" = 20'

CURVE DATA

S.B. LANE	N.B. LANE	TOWN ROAD 37 (Revised Curve)
Δ 52° 30' 28" Rt.	Δ 52°17' 55" Rt.	Δ = 13°-00' Lt.
D 2°-30'	D 2°-30'	D = 4°-0"
R 2231.83	R 2291.83	R = 1432.40'
T 1130.40	T 1251.96	T = 163.20'
L 2100.31	L 2291.72	L = 325.00'
E 263.64	E 319.67	E = 9.27'
Bank 1/16" per ft.	Bank 3/16" per ft.	Bank 3/8" per ft.

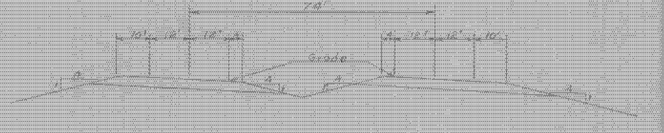


PROFILE OF PROPOSED S.B. LANE
Scale 1"=20'

EXISTING STRUCTURE

Highway No.	I-91
Structure No.	
Town	WINDSOR to WEATHERSFIELD
Project No.	I-91-1(21)
Location	
Type of Superstructure	4 SPAN W. BEAM COMPOSITE (SCB-24-62)
Length of Spans	24'-09'-48' SIMPLE SPANS
Width	2-51'-4" ROAD 100'-2"
Skew	
Wearing Surface	4 1/2" MIN. BITUMINOUS CONCRETE
Curbs	None
Railing	
Sidewalks	
Drainage	
Clearance	
Remarks	

BRIDGE SECTION
Scale 1"=6'



INTERSTATE SECT. STA. 2762+0 TO STA. 2783+50
Scale 1"=20'

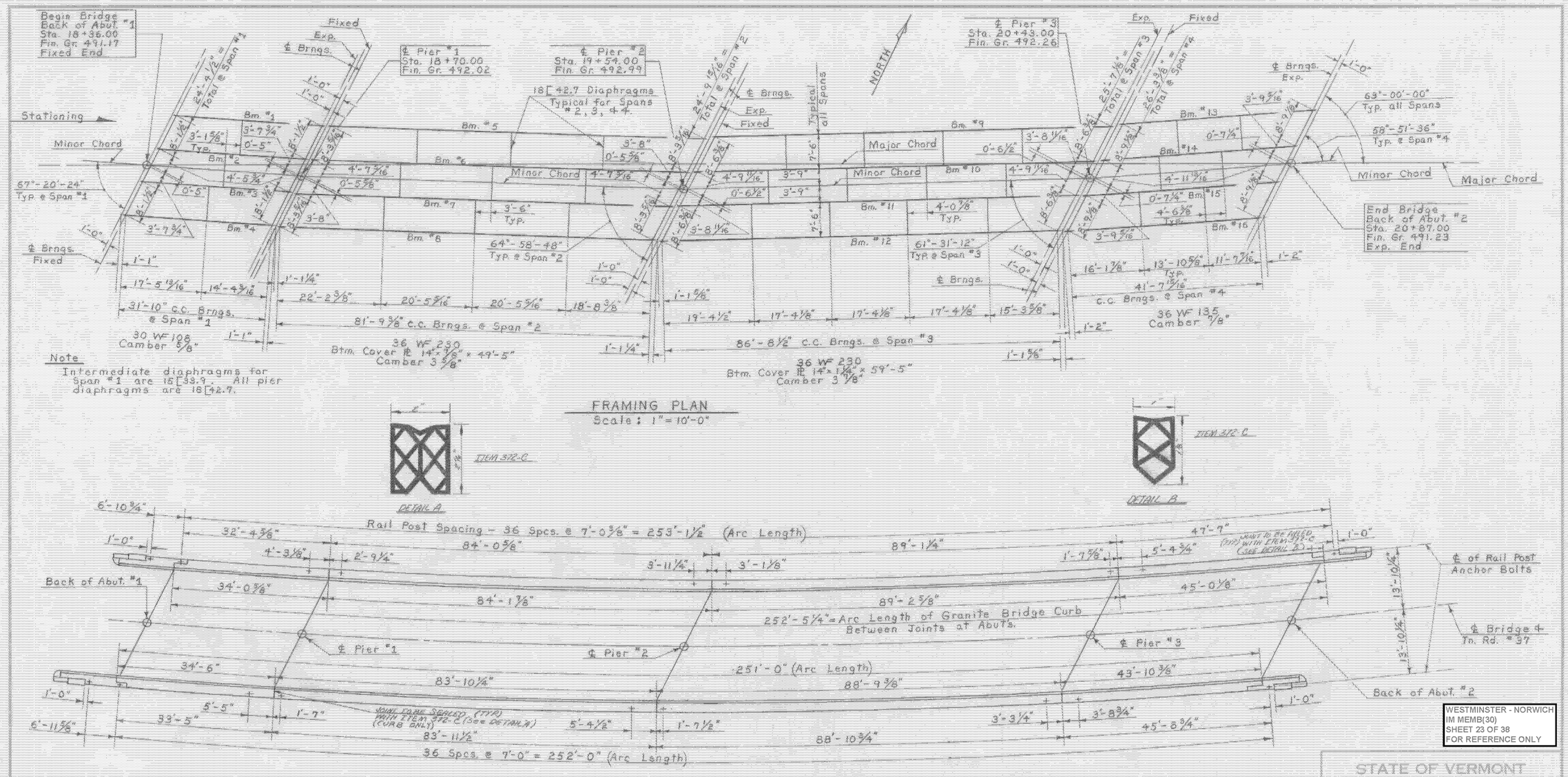
WESTMINSTER - NORWICH
IM MEMB(30)
SHEET 22 OF 38
FOR REFERENCE ONLY

STATE OF VERMONT
AGENCY OF TRANSPORTATION

WEATHERSFIELD - WINDSOR - HARTLAND
ROUTE No. I-91
TOWN ROAD #37 OVER THE INTERSTATE

8/2/62 Lindgren
2/10/62 Chris Sinclair

BR-102



NOTES

① For General Notes see Std. Dwg. SCB-D1-62.
② For Details not shown on the Typical Section see Std. Dwg. SCB-24-62.
③ For Curb Details refer to Std. Dwg. SCB-D6-62, Det. A
④ For Structural Steel Details not shown see Std. Dwgs. SCB-D2-62, SCB-D3-62, SCB-D7-62, and SCB-D8-62, and SCB-D9-62, Det. A.
⑤ For Bridge Railing Details see Std. Dwgs. SB-56-62, Sheets 1 and 2.
⑥ Bridge Railing on this Sheet is detailed for Aluminum. If Steel Railing is substituted in lieu of Aluminum, post spacing must be detailed not to exceed 10'-0" in accordance with Std. Dwg. SB-56-62, Sheet "1.
⑦ The beams are parallel to the minor chords of their respective spans. The abutments and piers are parallel to each other.
⑧ No scuppers are to be used on this bridge.
⑨ Struct. Stl. is designed for 20000 psi. (ASTM-A36-62T).

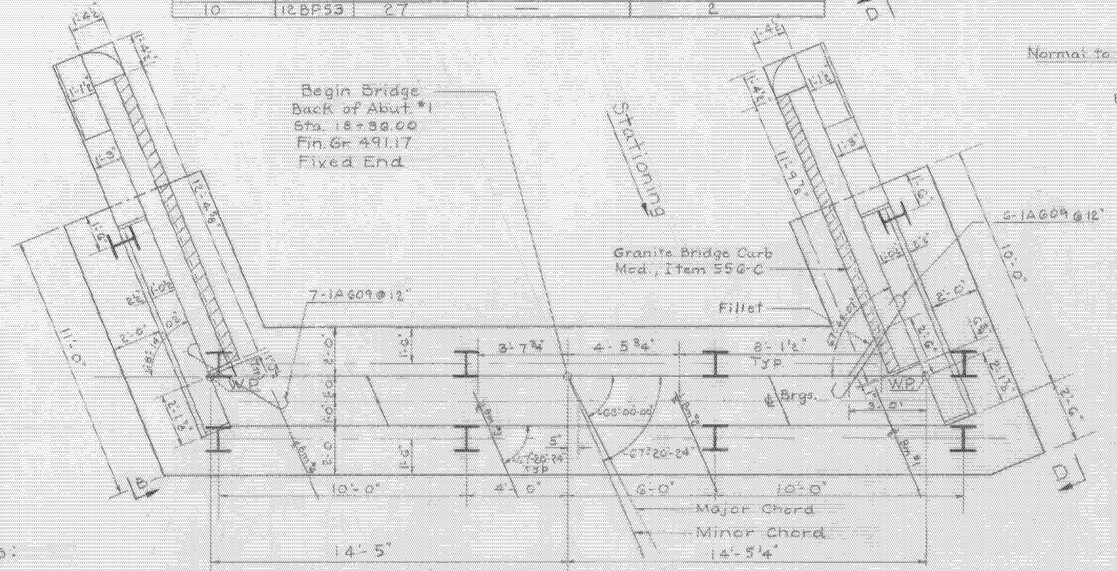
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF WEATHERSFIELD - WINDSOR - HARTLAND
ROUTE NO. I 91 LOG STA.
FRAMING PLAN, RAILING & GRANITE CURB LAYOUT
TOWN RD. "37 over I 91
SCALE As Noted
SURVEYED BY Martin
DRAWN BY EWB CHECKED BY J.J.C.
3/15/63
PROJECT NO. I 91-1(21) Contr. "1
SHEET 48 OF 180

BR-104

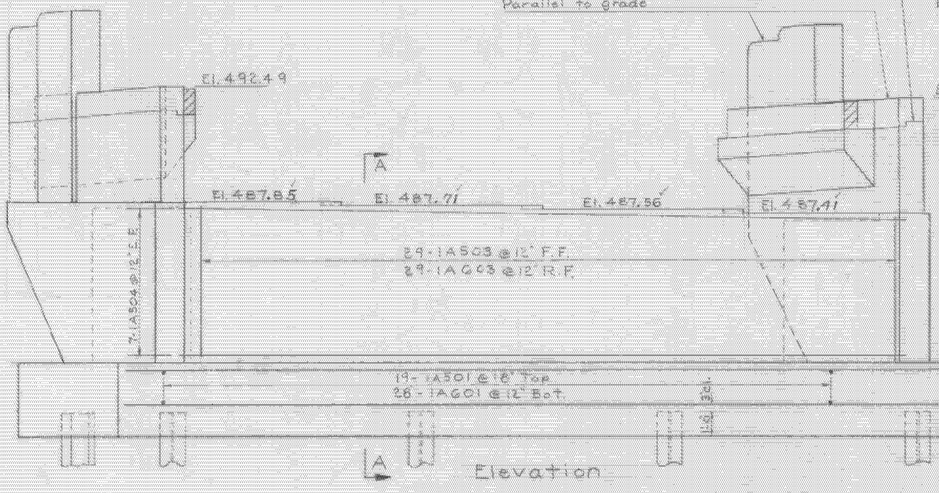
WESTMINSTER - NORWICH
IM MEMB(30)
SHEET 23 OF 38
FOR REFERENCE ONLY

No. Piles	Size	Est Length of Piles	Splices Allowed for Piles not exceeding Plan Length (to be paid for only if used.)	Splices Estimated for Piles exceeding Plan Length (to be paid for only if used)
10	12 BP 53	27	—	2

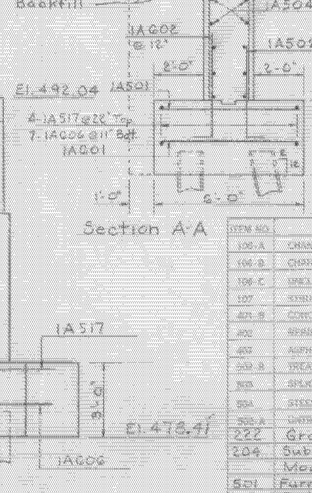


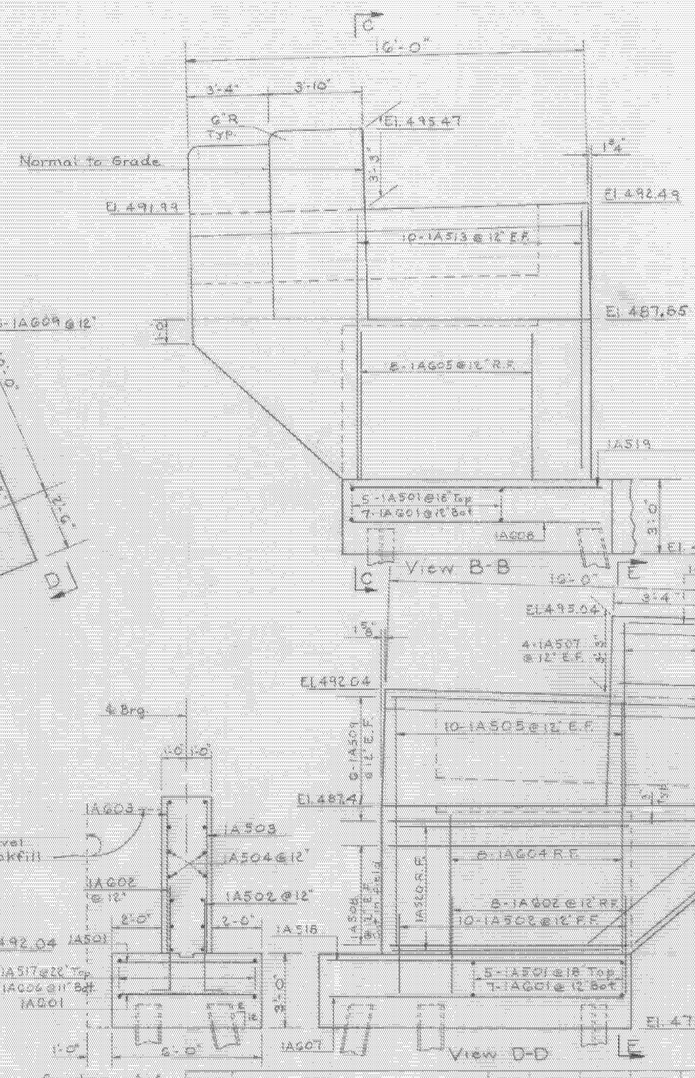
Notes:

1. All reinforcing steel to have a min. clear cover of 2" except in the footing where cover is to be 3". F.F. = Front Face, R.F. = Rear Face, E.F. = Each Face.
2. Top of curb and end post to be parallel to grade.
3. Step bridge seats midway between beams as shown.
4. For additional notes see sheet BR-100.
5. Reinforcing steel not shown in View B-B and Section C-C is the same as shown in View D-D and Section E-E.
6. Piles are to be driven to ledge.



Note:
Do not construct above this joint until structural steel is in place and final grade is determined. (Typical both end posts)





ITEM NO.	ITEM	UNIT	NET	OVERRUN	TOTAL	FINAL
106-A	CHAN. EXCAV. OF EARTH	C.Y.				
106-B	CHAN. EXCAV. OF ROCK	C.Y.				
106-C	UNCLASS. CHAN. EXCAV.	C.Y.				
107	STRUCT. EXCAV.	C.Y.			15	15
401-B	CONC. CLASS B (MOD.)	C.Y.			~~65~~	62
402	REINF. STEEL	LBS.			~~5160~~	5152
403	ASPHALTIC ADM. COATING	S.Y.			3	3
508-A	TREATED TIMBER PILING	L.F.				
509	SPLICES FOR STEEL PILING	EA.			~~2~~	0
554	STEEL PILING	L.F.			~~270~~	218
508-A	UNTREATED TIMBER PILING Cut-offs	L.F.			~~60~~	52
222	Gravel Backfill	C.Y.			~~25~~	27
204	Sub base of Crushed Rock Mod. (Under Structure)	C.Y.			~~45~~	43
501	Furnishing Equipment for Driving Piles	L.S. (See Bridge Quantity Sheet)				
556-C	Granite Bridge Curb Mod.	L.F.			29	29

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Weathersfield - Windsor - Hartland
TOWN OF
ROUTE NO. I 91 LOC STA.
Abutment #1 Details
Town Rd. #37 over I 91
SCALE 3/8" = 1'-0"
SURVEYED BY Martin
DRAWN BY A.J.C. CHECKED BY F.W.B.
PROJECT NO. I 91-1(21) Contr. #1
SHEET 49 OF 180

WESTMINSTER - NORWICH
IM MEMB(30)
SHEET 24 OF 38
FOR REFERENCE ONLY

BR-105

No. Piles	Size	Est Length of Piles	Splices Allowed for Piles not exceeding Plan Length (to be paid for only if used.)	Splices Estimated for Piles exceeding Plan Length (to be paid for only if used.)
10	12BP53	32'		2

End Bridge
Back of Abut. #2
Sta 20+87.00
Fin. Gr. 491.23
Exp. End

Plan

Note:
Do not construct above this joint until structural steel is in place and final grade is determined. (Typical both end posts.)

Elevation

Notes
1. Top of Curb and end post to be parallel to grade.
2. All reinforcing steel to have a min. clear cover of 2" except in the footing where cover is to be 3". F.F.= Front Face, R.F.= Rear Face, E.F.= Each Face. Reinforcing steel not shown in View D-D and Section E-E is the same as shown in View B-B and Section C-C.
3. Step bridge seats midway between beams as shown.
4. For additional notes see sheet BR-100.
5. Piles to be driven to ledge.

View B-B

Section C-C

Section A-A

View D-D

Section E-E

ITEM NO.	ITEM	UNIT	NET	OVERRUN	TOTAL	FINAL
106-5	CHAN. EXCAV. OF EARTH	C.Y.				
120-5	CHAN. EXCAV. OF ROCK	C.Y.				
120-6	UNCLASS. CHAN. EXCAV.	C.Y.				
157	STRUCT. EXCAV.	C.Y.			~~14~~	13
401-8	CONC. CLASS B (BRDG.)	C.Y.			~~57~~	52
508	REINF. STEEL	LBS.			~~3990~~	3618
827	ASPHALTIC A&B COATING	S.Y.			4	4
913-8	TREATED TIMBER PILING	L.F.				
919	SPLICES FOR STEEL PILING	EA.			~~2~~	0
924	STEEL PILING	L.F.			~~320~~	289
955-A	UNTREATED TIMBER PILING Cut-off	L.F.			~~0~~	31
204	Sub-base of Crushed Rock Mod. (Under Structure)	C.Y.			55	60
222	Gravel Backfill	C.Y.			~~23~~	21
556-C	Granite Bridge Curb, Mod.	L.F.			22	22
501	Furnishing Equipment for Driving Piles	L.S. (See Bridge Quantity Sheet)				

STATE OF
DEPARTMENT

WESTMINSTER - NORWICH
IM MEMB(30)
SHEET 25 OF 38
FOR REFERENCE ONLY

Weathersfield -
TOWN OF Windsor - Hartland
ROUTE No. I-91 LOG STA.
Abutment #2 Details
Town Rd. #37 over I 91
SCALE 3/8" = 1'-0"
SURVEYED BY Martin
DRAWN BY A.J.C. CHECKED BY F.W.B.
PROJECT NO. I 91-1(21) Cont #1
SHEET 50 OF 180

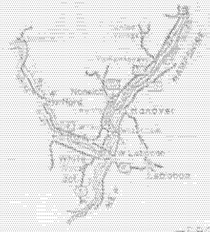
BR-106

180

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF NORWICH
COUNTY OF WINDSOR
INTERSTATE ROUTE 91
WINDSOR-NORWICH ROAD

VERMONT DEPARTMENT OF HIGHWAYS
CONTRACT PLANS
APR 12 1967
SIGNED



PROJ. F 041-3(3)
BEGINNING AT A POINT 0.465 MILE NORTH OF THE HARTFORD-NORWICH TOWN LINE AND EXTENDING NORTHERLY 0.480 MILES

LENGTH OF ROADWAY 2,470.00 FEET= 0.480 MILES
LENGTH OF BRIDGES 0.00 FEET= 0.000 MILES
LENGTH OF PROJECT 2,470.00 FEET= 0.480 MILES

ADT 1963 450
ADT 1983 950
DHV 1983 150
T 5%
D 60/40
S 50 MPH

Dated 11 April 67

PERINI CORPORATION

Louis L. Capone

Louis L. Capone, Vice Pres.
Contractor

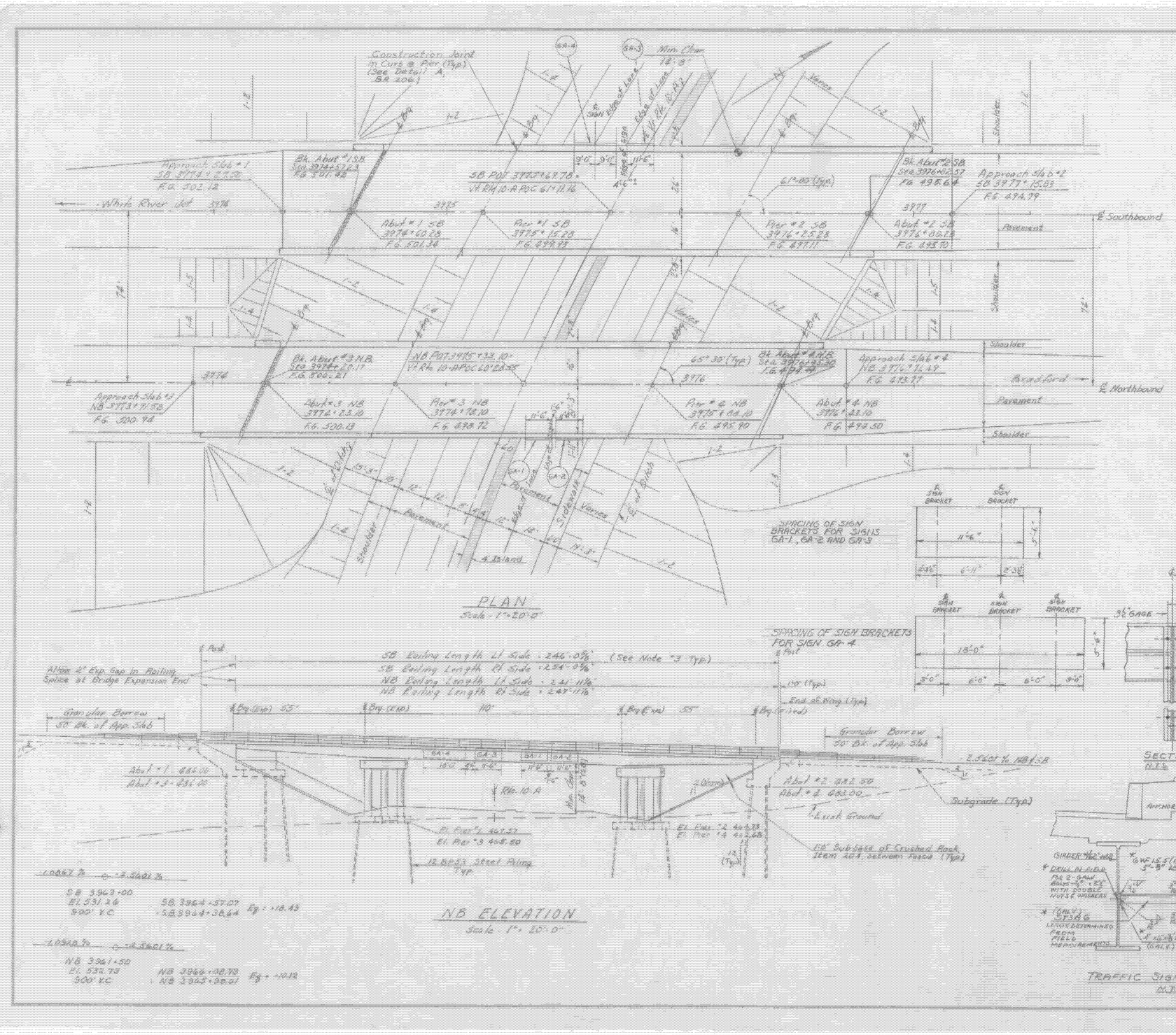
Russell A. Haeden
Commissioner of Highways

WESTMINSTER - NORWICH
IM MEMB(30)
SHEET 26 OF 38
FOR REFERENCE ONLY

THESE PLANS HAVE BEEN REDUCED PHOTOGRAPHICALLY TO APPROXIMATELY ½ SCALE

R.H. Cuttle 2/28/63	E.P. Shelby 2/28/63	Lyn Jones 2/28/63	J.F. Corliss 2/28/63	C.M. Lane 4/24/63	A.D.T. Schell 4/24/63		91-D(47) 041-3(3) C170(1)

180



General Notes

1. Elevation datum is sea level based on nearest U.S. Government vertical control.
2. For additional General Notes see Standard SCB-DI-65
3. For Railing details see Standards SB-RJ-64 sh. 1 & 2 of 2, and SB-RJ-65. Space railing not to exceed maximum spacing shown on Standards, with 2 Posts 1'-0" minimum from Curb joints at Piers and Abutments.
4. Where Bottom of Footing Elevations are above Old ground, Fill is to be placed 0.6' above Bottom of Footing before Piles are driven. Excavation of this material to Bottom of Footing Elevation after Piles are driven shall be paid for as Structure Excavation, Item 109.
5. Approach Slabs shall be constructed as part of Stage 1 construction.
6. Shop drawings for Item 556-C, Granite Bridge Curb, shall be submitted in triplicate to the State of Vermont, Department of Highways for approval before fabrication.

List of Bridge Sheets

Br	200	Plan and Elevation, General Notes
	201	Quantity Sheet
	202	Preliminary Information Sheet
	203, 204	Borings
	205	Framing Plans
	206	S.B. Section and Girder Details
	207	N.B. Section and Girder Details
	208	Bearing Devices
	209, 210	Expansion Dam Details
	211 - 214	Approach Slabs
	215 - 218	Abutments
	219, 220	Piers
Br	221, 223	Reinforcing Steel Schedules

Standard Sheets

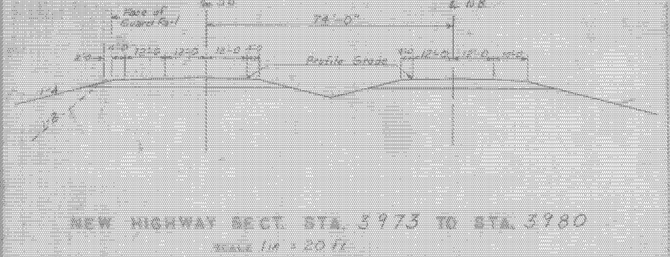
SCB-DI-65	Drains	2-14-66 R
SCB-D4-65	Curb Details	2-4-65 R
SCB-DG-63	Details A&B	3-7-66 R
SB-RJ-64	Sh. 1 of 2	12-5-66 R
SB-RJ-64	Sh. 2 of 2	11-8-66 R
SB-R2-65		11-8-66 R

*Note: Traffic Sign Support Material with the exception of bolts cast in bridge fascia is to be furnished and paid for under Item 701 Traffic Signs.

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

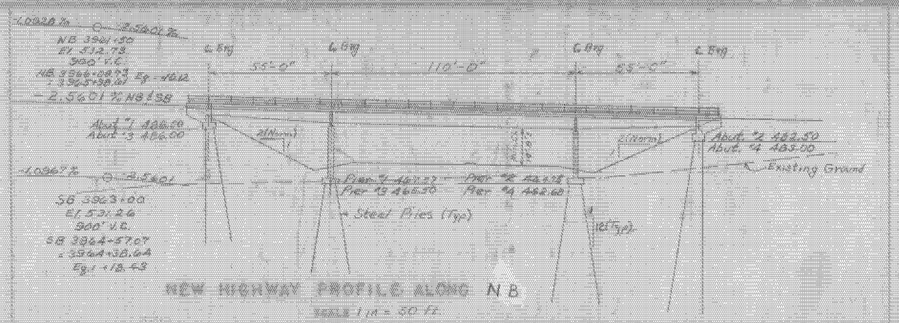
PROJECT - NORWICH
TOWN OF NORWICH BR 48
ROUTE NO. I 91 STA 3975+50'
I 91 over VT. 10-A
PLAN & ELEVATION, GENERAL NOTES
SCALE AS NOTED
IN CHARGE E. Oatley
DRAWN BY Oatley & CHECKED BY W. MacClennan 12-8-67
PROJECT NO. I 91-2(62)
SHEET 23 OF 223 BR 200

WESTMINSTER - NORWICH
IM MEMB(30)
SHEET 27 OF 38
FOR REFERENCE ONLY



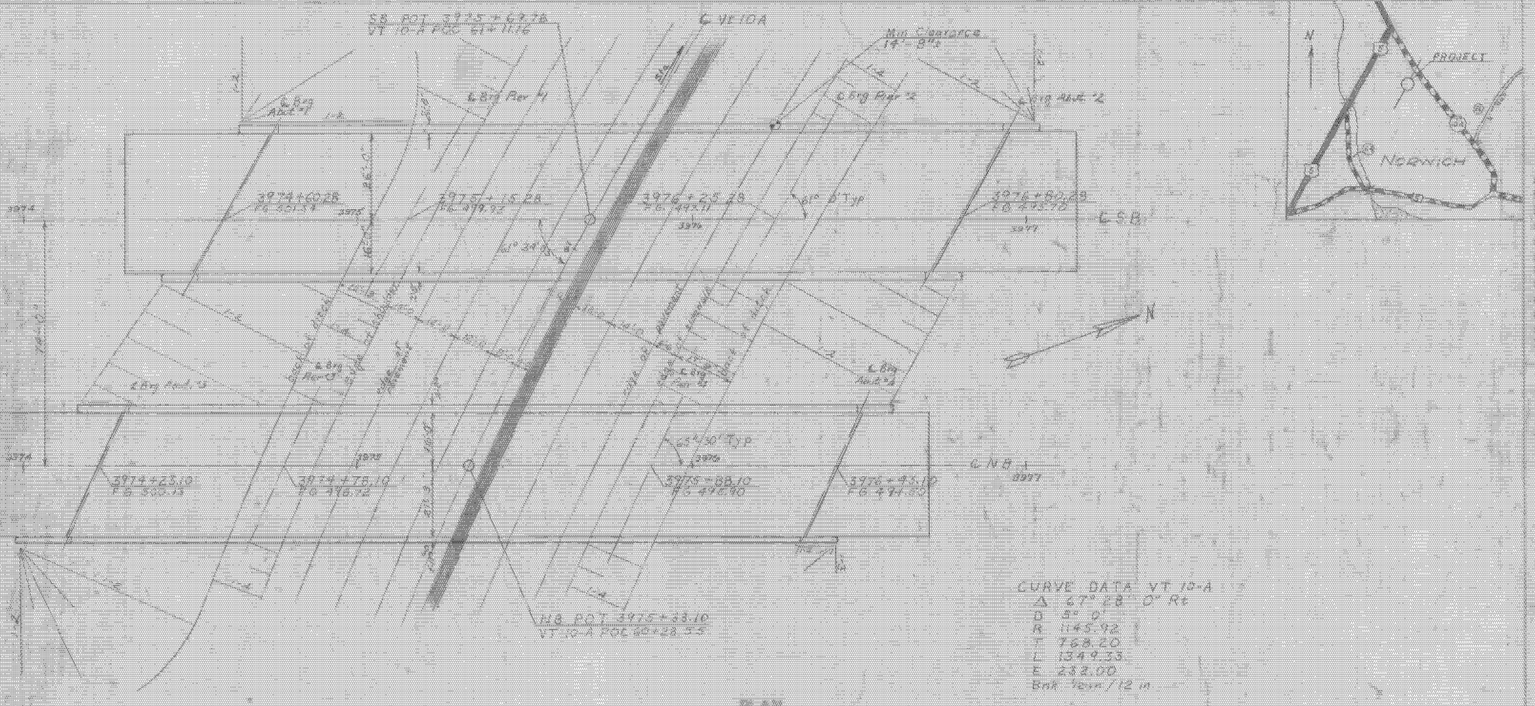
NEW HIGHWAY SECT. STA. 3973 TO STA. 3980

SCALE 1 IN = 20 FT.



NEW HIGHWAY PROFILE ALONG NB

SCALE 1 IN = 50 FT.



PLAN

SCALE 1 in = 20 ft

CURVE DATA VT 10-A
Δ 67° 28' 0" Rt
D 5° 0'
R 1145.92'
T 768.20'
L 1349.33'
E 232.00'
Bnk 1cm / 12 in

PROFILE OF PROPOSED VT 10-A

SCALE 1 in = 20 ft

HIGHWAY NO. I 91 NAME OF HIGHWAY INTERSTATE
STRUCTURE NO. — COUNTY WINDSOR TOWN NORWICH
PROJECT NO. I-91-2(5) LOCATION I-91 OVER VT 10-A

EXISTING STRUCTURE

1. DATES LOADING OF EXISTING STRUCTURE —
2. TYPE OF EXISTING STRUCTURE —
3. UNDERCLEARANCE - ELEVATION OF EXISTING STRUCTURE —
4. WHAT DISPOSITION SHOULD BE MADE OF EXISTING STRUCTURE — COST OF REMOVAL —
5. SHOULD EXISTING STRUCTURE BE USED TO MAINTAIN TRAFFIC DURING CONSTRUCTION OF NEW STRUCTURE —
6. SHOULD NEW TEMPORARY STRUCTURE BE BUILT —
7. ORDINARY HIGH WATER SURFACE ELEV. AT EXISTING STRUCTURE — WATERWAY TO OPENING RATIO
8. EXTREME HIGH WATER AT EXISTING STRUCTURE —
9. TYPES OF EXISTING BRIDGE SUPERSTRUCTURE — MATERIAL — CONDITION —
10. SPAN OF EXISTING BRIDGE SUBSTRUCTURE — WATERWAY TO OPENING RATIO
11. TYPE OF FOUNDATION UNDER EXISTING ABUTMENTS —
12. DOES ALL OR ANY PART OF FLOOD ELEVATION RISE THROUGH EXISTING STRUCTURE —
13. IS ANY OR WHAT ELEVATION OF RELIEF APPARENT —
14. ADDITIONAL WATERWAY AREA PROVIDED —

NEW STRUCTURE

1. RECOMMENDED TYPE OF STRUCTURE 3 SPAN CONTINUOUS WELDED GIRDER (Non Comp)
2. RECOMMENDED CLEAR SPAN OR SPANS 55 - 110 - 55
3. RECOMMENDED TRAVELED WAY & NEW ROADWAY 33 - 110 - 55
4. RECOMMENDED AT WHAT ANGLE TO ℄ STREAM N.A.
5. ARE THERE OBSTRUCTIONS TO A FLOW IN THE STREAM, WHETHER NOW OR NOT N.A.
6. ORDINARY HIGH WATER ELEVATION AT NEW STRUCTURE N.A.
7. EXTREME HIGH WATER ELEVATION AT NEW STRUCTURE N.A. SOURCE OF INFORMATION —
8. IS ALL WATER INTENDED TO PASS THROUGH NEW STRUCTURE? N.A.
9. DOES STREAM REACH ITS MAXIMUM HIGH WATER ELEVATION SEASONALLY N.A. OR ORDINARY H.W. ELEV.
10. LOW WATER ELEVATION AT NEW STRUCTURE N.A.
11. DRAINAGE AREA IN SQUARE MILES ABOVE STRUCTURE N.A. CHARACTER OF TOPOGRAPHY —
12. IS STREAM EVER DRY? N.A.
13. VELOCITY OF STREAM AT HIGH WATER STAGE N.A. ESTIMATED DISCHARGE —
14. AREA FREE OPENING N.A. AREA BELOW ORDINARY H.W. —
15. CHARACTER OF BOTTOM N.A. SAND? —
16. ESTIMATED DRAINAGE AREA ABOVE NATURAL OR ARTIFICIAL RESTRICTIONS N.A.
17. VERTICAL CLEARANCE ABOVE FLOOD ELEVATION N.A.
18. ARE RESTRICTIONS PERMISSIBLE, IF SO TO WHAT EXTENT NO
19. APPROXIMATE TYPE OF ROADWAY 2" BITUMINUS CONCRETE, 7½" CONCRETE
20. TRAFFIC TO BE MAINTAINED UNDER THIS NO. N.A. AND BY WHAT MEANS —
21. APPROXIMATE COST OF CLEARING AND GRUBBING APPROACHES, CHANNEL AT STRUCTURE, ETC. N.A.
22. SHOULD PROVISIONS BE MADE FOR PUBLIC UTILITIES? NO
23. ESTIMATED ALLOWABLE LOAD ON FOUNDATIONS 40 T/sq.ft. SHOULD PILES BE USED? YES *

FOUNDATION INFORMATION

*

Location	Est. Pile Length
N.B. Abut #3	80'
N.B. Pier #3	40'
N.B. Pier #4	60'
N.B. Abut #4	75'
S.B. Abut #1	50'
S.B. Pier #1	25'
S.B. Pier #2	30'
S.B. Abut #2	50'

Recommended for Approval — Lin Bjorn — 7/6/64
Recommended for Approval — R.H. Conde — 7/10/64
Approved by — A.D. Bishop — 7/12/64

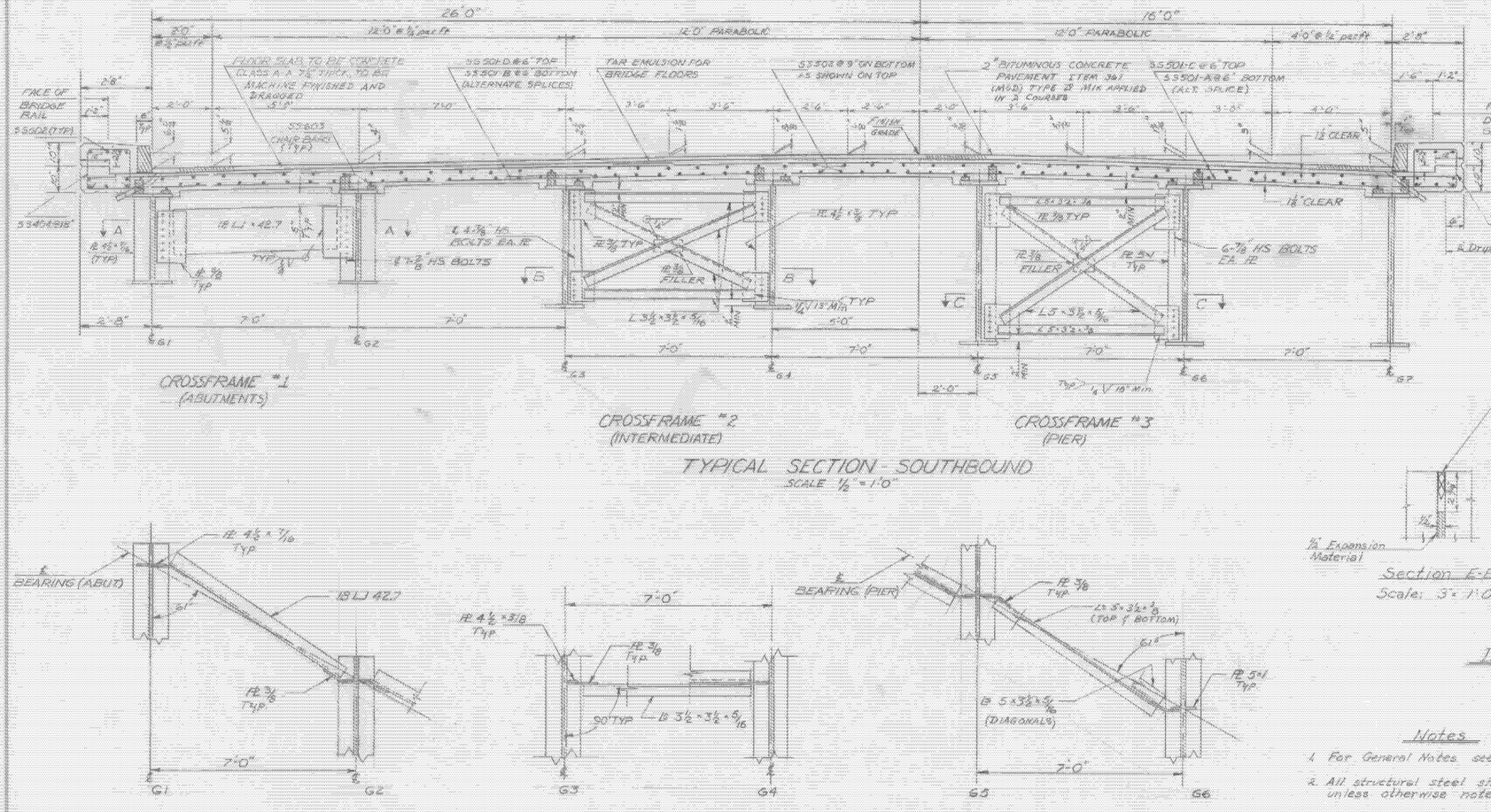
STATE OF VERMONT
AGENCY OF TRANSPORTATION
DEPARTMENT OF PUBLIC WORKS

PROJECT NORWICH BR 46
TOWN OF NORWICH STA. 3975+50
ROUTE NO. I 91
I-91 OVER VT 10-A

DESIGNED BY B. LEACH — DRAWN BY — TRACED BY — CHECKED BY —
PROJECT NO. I91-2(40) SHEET NO. 28 OF 38 SHEETS

PR 202

WESTMINSTER - NORWICH
IM MEMB(30)
SHEET 28 OF 38
FOR REFERENCE ONLY

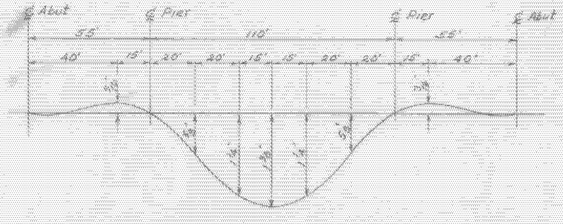


TYPICAL SECTION - SOUTHBOUND
SCALE ½" = 1'-0"

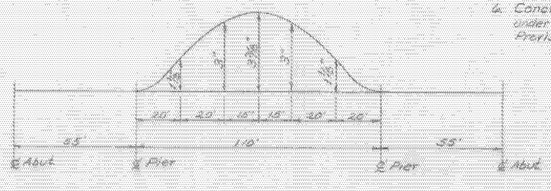
SECTION A-A
SCALE ½"=1'-0"

SECTION B-B
SCALE ½"=1'-0"

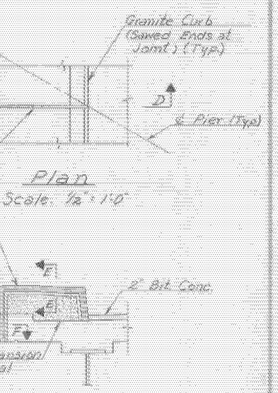
SECTION C-C
SCALE ½"=1'-0"



Dead load Deflection Diagram
(Includes Wt. of Girder and Deck)
Not to Scale



Camber Diagram
Not to Scale



Plan
Scale: ½" = 1'-0"

Section E-E
Scale: 3" = 1'-0"

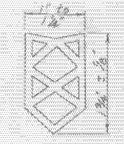
Section F-F
Scale: 3" = 1'-0"

Section D-D
Scale: ½" = 1'-0"

Detail A - Curb Joint at Piers

Notes

1. For General Notes see Bn. 200
2. All structural steel shall be ASTM A 36-62T unless otherwise noted on the plans.
3. All field connections shall be made with ⅞" ø High Strength bolts in 15/16" ø holes unless otherwise noted on the plans.
4. All girders shall be cambered as indicated in Camber Diagram below.
5. For limits of Water Repellent, Item 440, see Bn. 207.
6. Concrete Floor Slab is to be Finished as specified under Item 401.05 Subarticle I, of the Special Provisions.



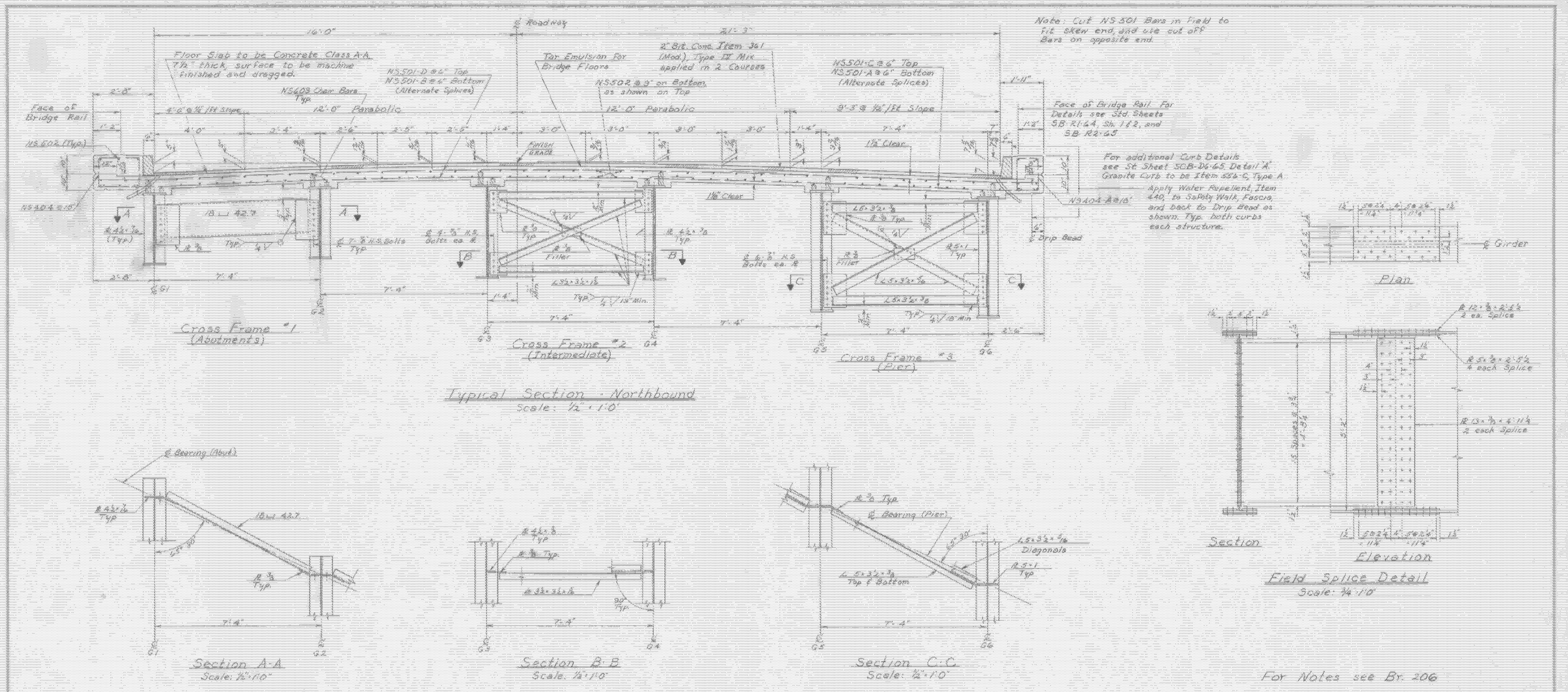
Detail of Item 372-C Joint Sealer - Preformed Type B
Material to be Premolded Neoprene Rubber

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

PROJECT NORWICH
TOWN OF NORWICH GR 46
ROUTE NO. I-91 STA. 397.5+50.1
I-91 over VT 10-A
SB SECTION AND GIRDER DETAILS
SCALE AS NOTED
IN CHARGE R. Corley
DRAWN BY JRGR CHECKED BY A. Sargent
PROJECT NO. I 91-2(18)
SHEET NO. 74 OF NO. 328 BR 204

41 129

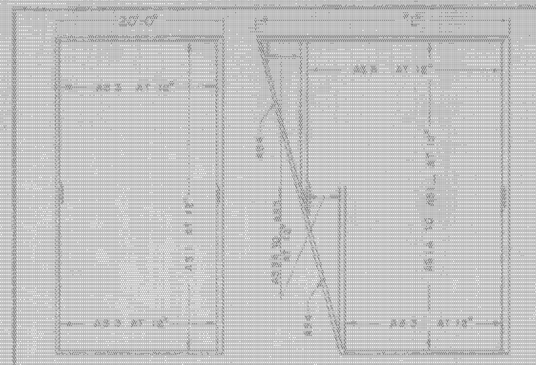
WESTMINSTER - NORWICH
IM MEMB(30)
SHEET 29 OF 38
FOR REFERENCE ONLY

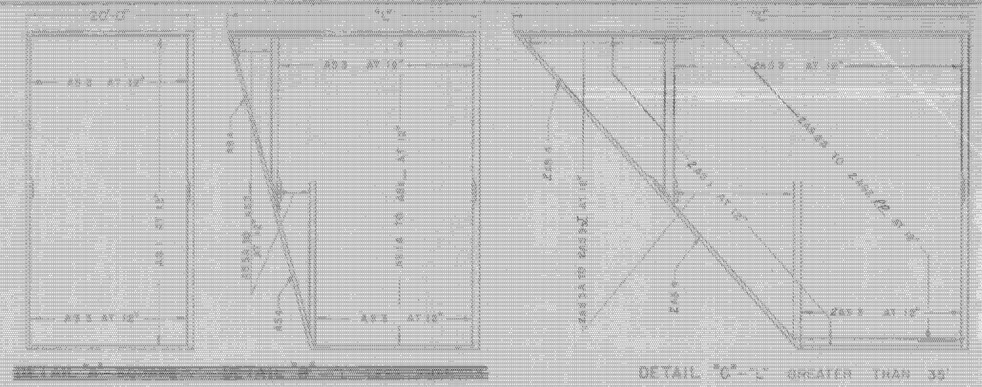


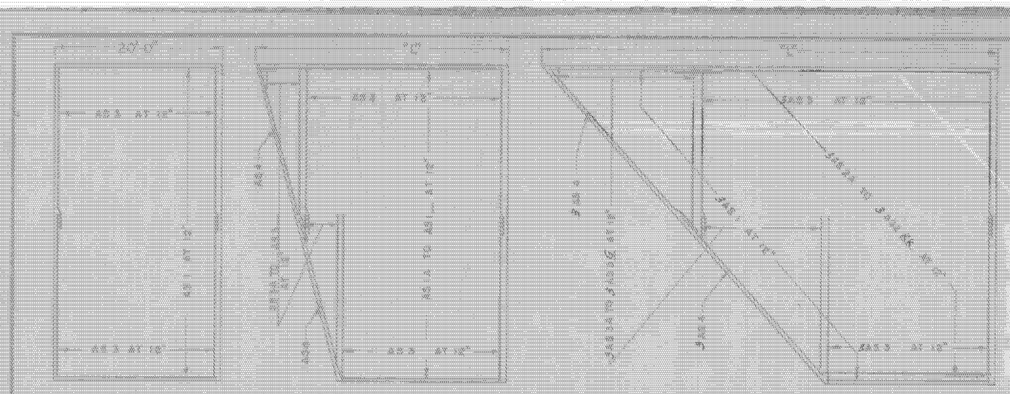
WESTMINSTER - NORWICH
IM MEMB(30)
SHEET 30 OF 38
FOR REFERENCE ONLY

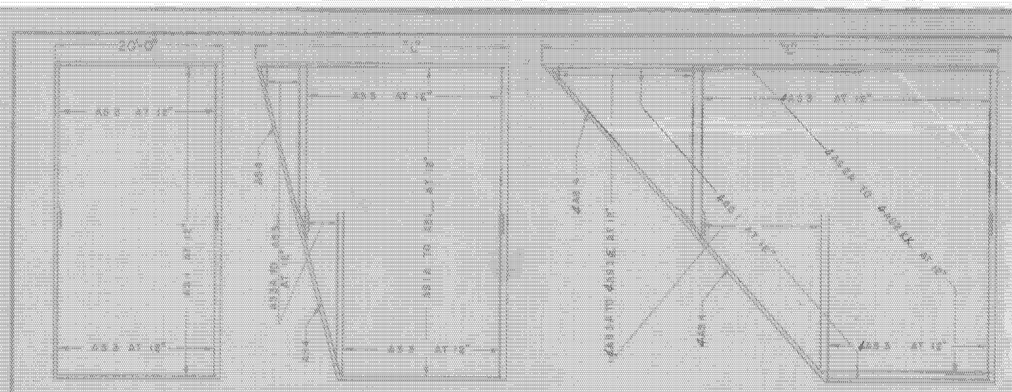
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

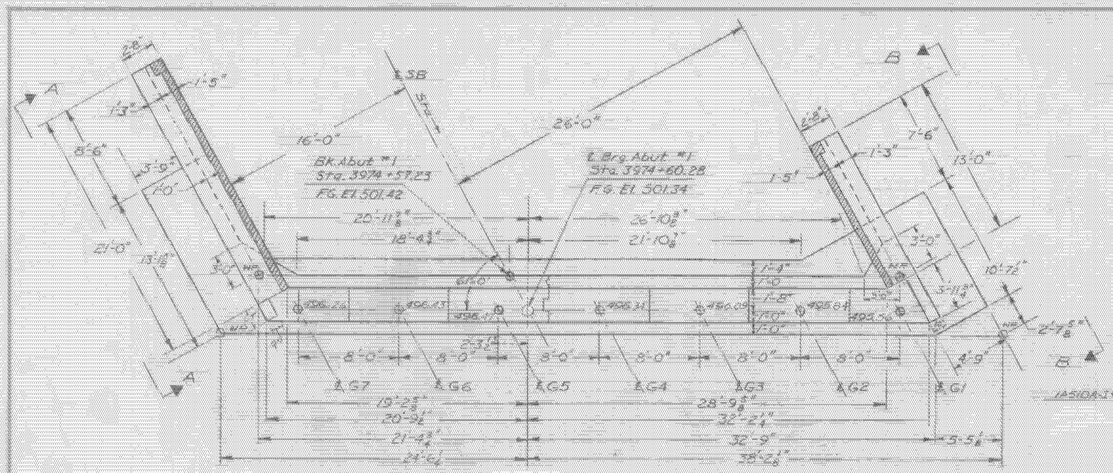
PROJECT NORWICH
TOWN OF NORWICH BF. 48
ROUTE NO. I 91 STA. 3975+50
I 91 OVER VT. 10-A
NB SECTION AND GIRDER DETAILS
SCALE AS NOTED
IN CHARGE R. Gotlop
DRAWN BY W. Thier CHECKED BY d. Sargent
PROJECT NO. I 91-2(55)
SHEET NO. 23 OF 42 GR 207
129


20'-0"
AS 3 AT 12"
AS 3 AT 18"
AS 3 AT 12"
AS 3 AT 18"
AS 3 AT 12"
AS 3 AT 18

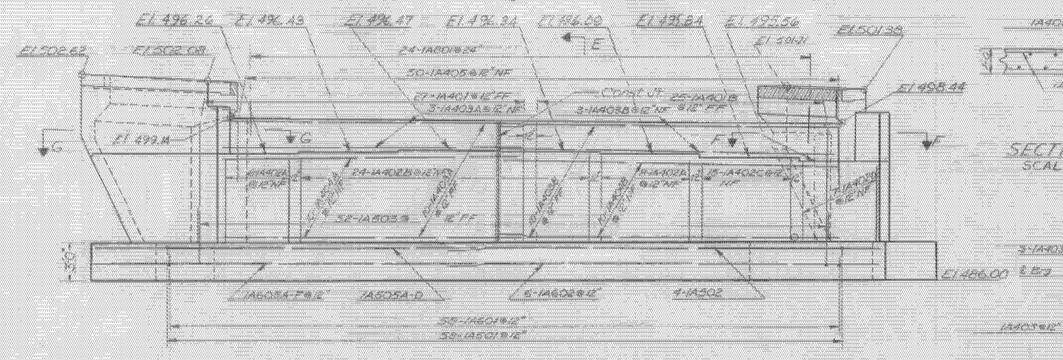

#5 BARS AT 12"
#5 BARS AT 10"
#5 BARS AT 18"
#5 BARS AT 12"
#5 BARS AT 18"
#5 BARS AT 10"
#5 BARS AT 18"
#5 BARS AT 10"
#5 BARS AT 18"
#5 BARS AT 12


#5 S AT 12"
#5 S AT 12"
#5 S AT 12"


20'-0"
AS 3 AT 18"
AS 4 AT 18"
AS 3 AT 12"
AS 4 NO 8 BAR
AS 3 AT 12" C TO C
AS 4 NO 8 BAR AT 12" C TO C
AS 3 AT 12" C TO C
AS 4 NO 8 BAR AT 12" C TO C
AS 3 AT 18"
AS 3 AT 12"
AS 4 NO 8 BAR AT 12" C TO C
AS 3 AT 12" C TO C
AS 4 NO 8 BAR AT 12" C TO C



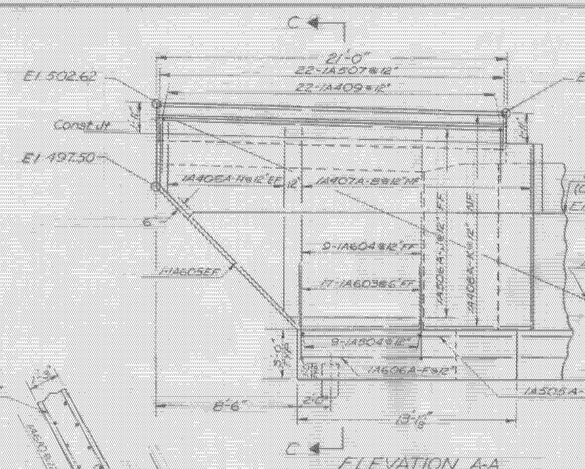
PLAN
SCALE 3/16" = 1'-0"



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

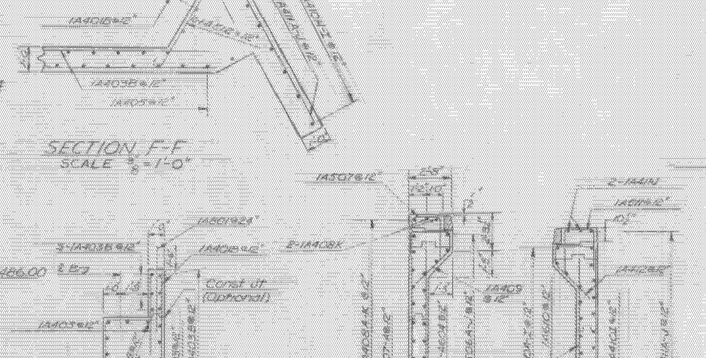
FOOTING & PILE PLAN
SCALE 3/16" = 1'-0"

Note: Estimated lengths of 12BP53 Steel H piles is 50 ft



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

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



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

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

SECTION D-D
SCALE 1/4" = 1'-0"

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

Notes:
1. For additional notes see Br-200
2. Maximum design pile load is 45 tons. All piles shall be driven to point bearing on ledge.
3. Approximate ledge elevation is given in pile table.
4. All concrete in abutments is to be class B.
5. See SCB-D6-65 detail B for details of construction joints.
6. No concrete is to be placed above the construction joint at the top of the backwall until the bridge curb is poured.
7. All reinforcing is to have a minimum cover of 2" except for 3" in footings.
8. The front face of the backwall above the bridge seats and the inside face of the abutments and the wings shall be coated with item 410, joint waterproofing.
9. Item 440, water repellant shall be used on exposed areas of abutments and wings not otherwise treated.
10. For details of curved granite curb end block see SCB-D4-65.

Notes:
11. Indicates the direction of 1 in 12 pile batter.
12. Expansion Dam. Anchor bolts are to be set into the backwalls at Abuts. #1 & as indicated on Br-209.
13. All anchor bolts on abutments are to be cast in place.

Location	No. of piles	Estimated length of piles	Splices allowed for piles not exceeding plan length (To be paid for only if used)	Splices estimated for piles exceeding plan length (To be paid for only if used)	Estimated elevation at bottom of piles
Abut No. 1	13	50 Ft	0	3	442.0
Abut No. 2	13	50 Ft	0	3	433.5
Abut No. 3	12	50 Ft	0	3	442.0
Abut No. 4	12	75 Ft	12	3	409.0

Stage I Construction

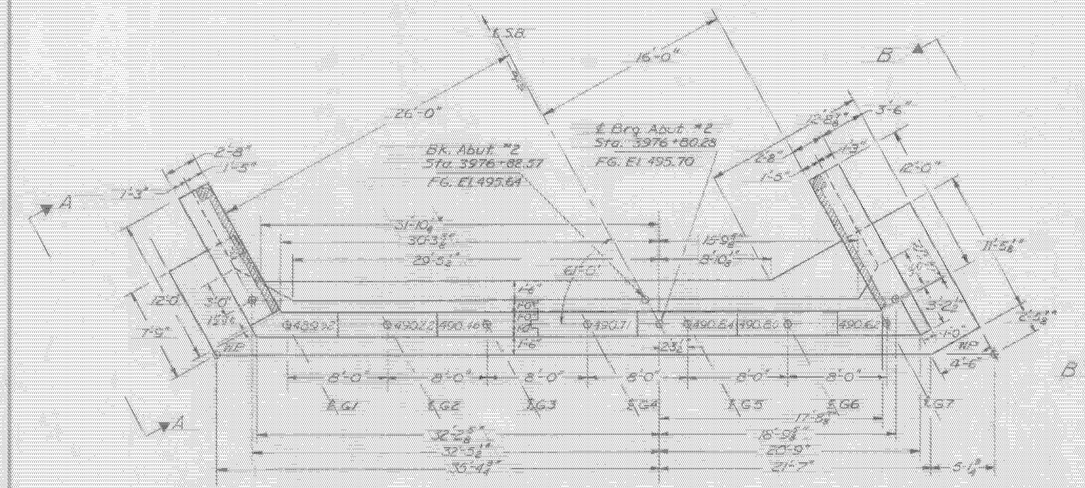
STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

WESTMINSTER - NORWICH
IM MEMB(30)
SHEET 35 OF 38
FOR REFERENCE ONLY

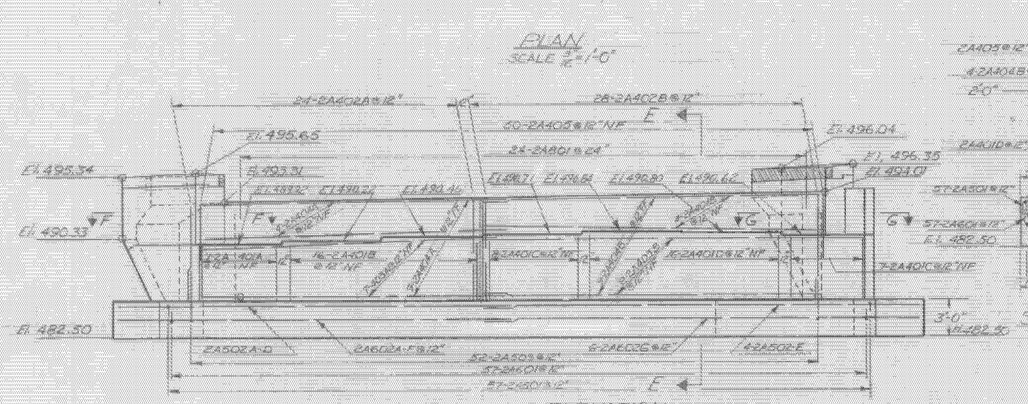
PROJECT Norwich
TOWN OF Norwich
ROUTE No. I-91 STA. 3975+50±
I-91 over Vt 10-A
DETAILS ABUT No. 1
SCALE AS NOTED
IN CHARGE R. Oatley
DRAWN BY EAS CHECKED BY [illegible]
PROJECT No. I91-2(40)
SHEET 35 OF 38 BR 215

84 328

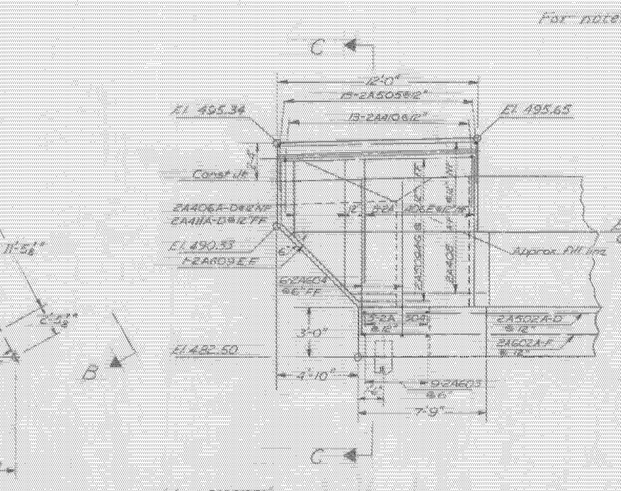
For notes concerning Abutments, see Br. 215



PLAN
SCALE 1/8"=1'-0"



Note: Estimated length of HP8x36 steel H piles is 50'-0"



ELEVATION A-A
SCALE 3/16"=1'-0"

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

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

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

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

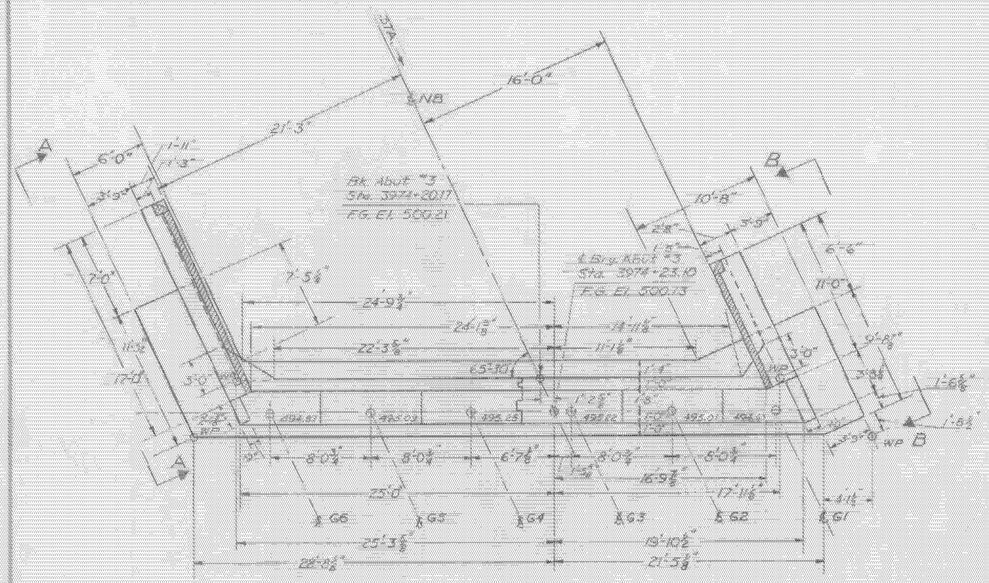
Stage I Construction

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

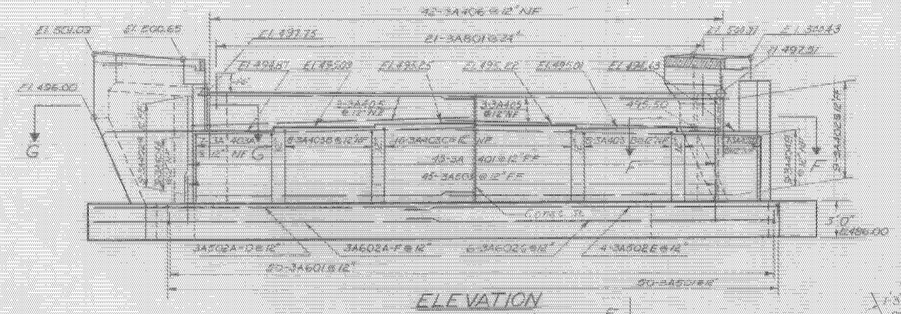
PROJECT NORWICH
TOWN OF NORWICH BR 4B
ROUTE No. I-91 STA. 3975+50±
I91 over Vr. 10A
DETAILS, ABUT. No. 2
SCALE AS NOTED
IN CHARGE R. Corley
DRAWN BY P. Williams CHECKED BY P. Smith
PROJECT No. I91-2(40)
SHEET 83 OF 828 BR 216

WESTMINSTER - NORWICH
IM MEMB(30)
SHEET 36 OF 38
FOR REFERENCE ONLY

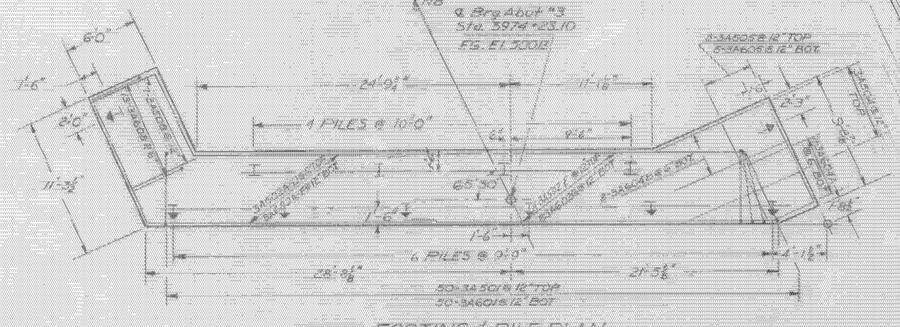
For notes concerning Abutments see Br. 215.



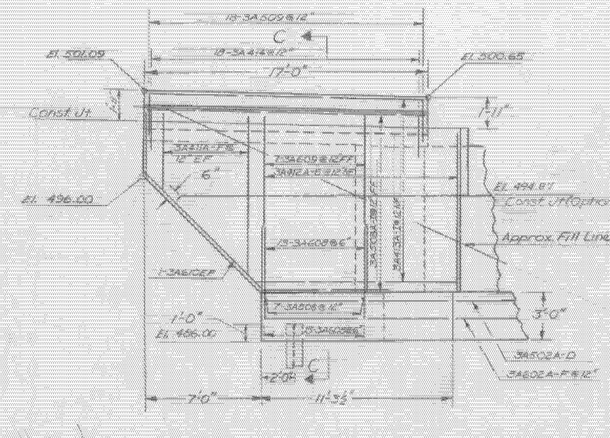
PLAN
SCALE 3/16"=1'-0"



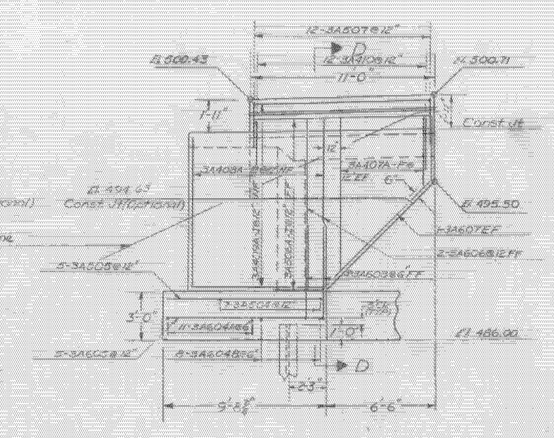
ELEVATION
SCALE 3/8"=1'-0"



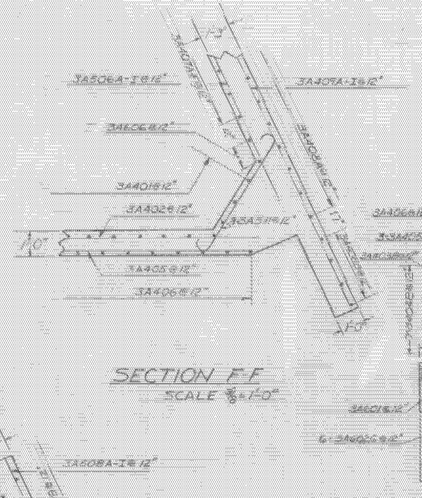
FOOTING & PILE PLAN
SCALE 3/16"=1'-0"



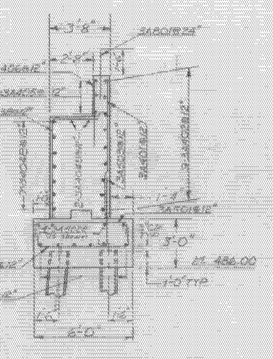
SECTION A-A
SCALE 1/4"=1'-0"



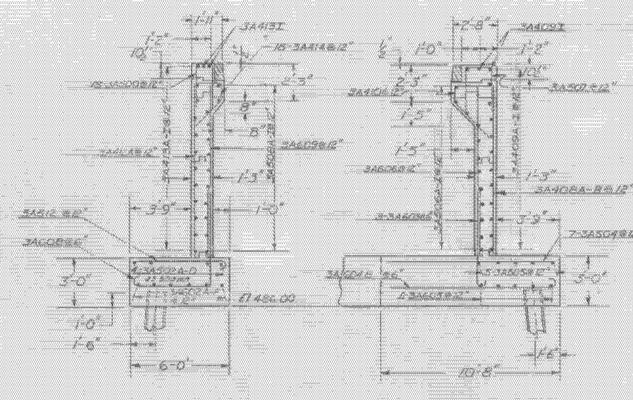
SECTION B-B
SCALE 1/4"=1'-0"



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



SECTION E-E
SCALE 1/4"=1'-0"



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

SECTION D-D
SCALE 1/4"=1'-0"

STAGE I CONSTRUCTION

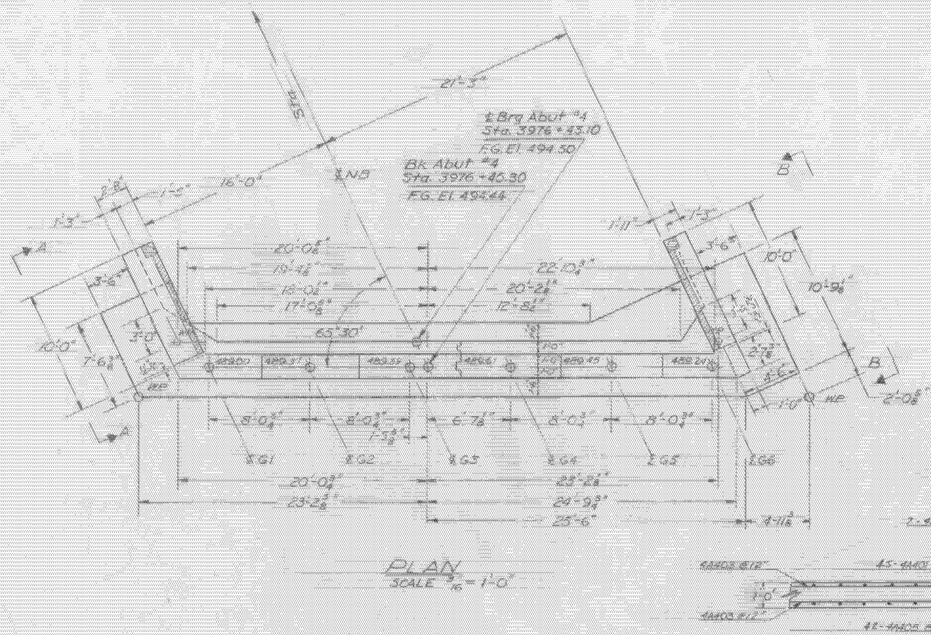
ITEM NO.	ITEM	UNIT	NET		TOTAL	FINAL
	CHAN. EXCAV. OF EARTH	C.Y.				
	CHAN. EXCAV. OF ROCK	C.Y.				
	UNCLASS. CHAN. EXCAV.	C.Y.				
	STRUCT. EXCAV.	C.Y.				
	CONC. CLASS AA (BRID.)	C.Y.				
	CONC. CLASS B (MISC.)	C.Y.				
	REINF. STEEL	LBS.				
	EPOXY PROTECTIVE COATING	S.Y.				
	TIMBER PILES 12" AVG.	L.F.				
	TIMBER FOR STRUC. BLDGS.	F.B.M.				
	STEEL PILING	L.F.				
	UNTREATED TIMBER PILING	L.F.				

Note: Estimated Length of 12BP53 Steel H piles is 70 ft

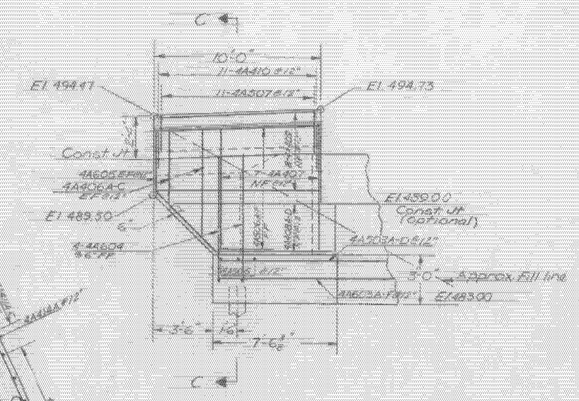
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

WESTMINSTER - NORWICH
IM MEMB(30)
SHEET 37 OF 38
FOR REFERENCE ONLY

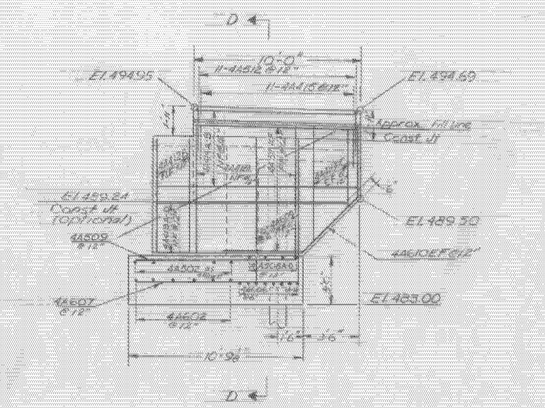
PROJECT NORWICH BR 46
TOWN OF NORWICH
ROUTE NO. I91 STA. 3975+50±
I-91 OVER VT. 10-A
DETAILS ABUT. NO. 3
SCALE 1/4" = 1'-0"
IN CHARGE R. Gatley
DRAWN BY C. Eastman CHECKED BY G. Sarge
PROJECT NO. I 91-2(40)
SHEET 36 OF 38 BR 217



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



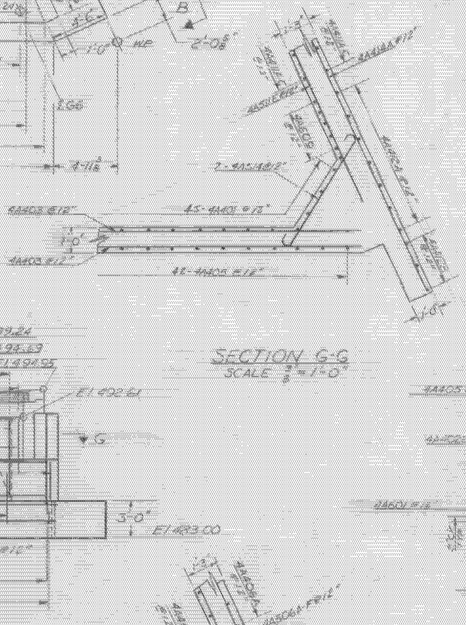
ELEVATION A-A
SCALE 1/4" = 1'-0"



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

ELEVATION
SCALE 1/8" = 1'-0"

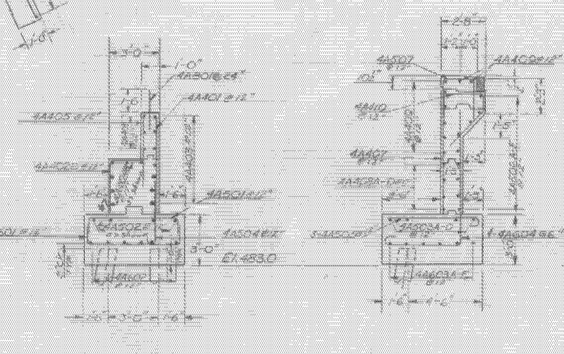
FOOTING & PILE PLAN
SCALE 1/16" = 1'-0"



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

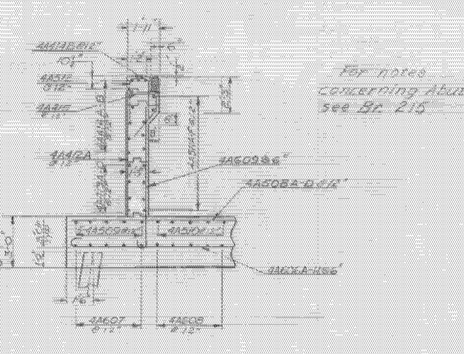
SECTION E-E
SCALE 3/8" = 1'-0"

Note: Estimated length of 12 BP53 Steel H plus 75 FF



SECTION E-E
SCALE 1/4" = 1'-0"

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



SECTION D-D
SCALE 1/4" = 1'-0"

For notes concerning Abutments see Sh. 215

ITEM	UNIT	NET		TOTAL	FINAL
CHAN. EXCAV. OF EARTH	C.Y.				
CHAN. EXCAV. OF ROCK	C.Y.				
UNCLASS. CHAN. EXCAV.	C.Y.				
STRUCT. EXCAV.	C.Y.				
CONC. CLASS AA (MOD.)	C.Y.				
CONC. CLASS B (MOD.)	C.Y.				
REINF. STEEL	LBS.				
EPOXY-COATED COATING	S.Y.				
TREATED TIMBER PILING	L.F.				
SPLICES FOR STEEL PILING	EA.				
42"ø RB-545	L.F.				
UNTREATED TIMBER PILING	L.F.				

Stage I Construction

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

WESTMINSTER - NORWICH
IM MEMB(30)
SHEET 38 OF 38
FOR REFERENCE ONLY

PROJECT Norwich
TOWN OF Norwich BR 48
ROUTE NO. I-91 STA. 3975+50
I 91 over Vt 10-A
DETAILS ABUT. No. 4
SCALE As noted
IN CHARGE E. Catley
DRAWN BY C. Cowles CHECKED BY D. Smith
PROJECT NO. I 91-2(40)
SHEET NO. 87 OF 388 BR 218