INDEX OF SHEETS

SEE SHEET 2

RECORD PLANS

CONTRACTOR: COLD RIVER BRIDGES, LLC– KEENE, NH

RESIDENT ENGINEER: TIM POCKETT

CONSTRUCTION BEGAN: JUNE 17, 2014

CONSTRUCTION COMPLETE: OCTOBER 7, 2014

RECORD PLANS BY: TIM POCKETT & CRAIG PIERCE

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

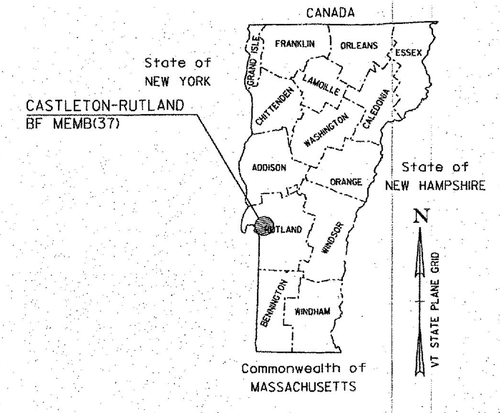
BY _____ RESIDENT ENGINEER

DATE 02-24-16

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 CASTLETON & RUTLAND
COUNTY OF RUTLAND
PROJECT BF MEMB(37)



ROUTE NO.: T.H. NO. 5 (NORTH ROAD)
CASTLETON STATE HIGHWAY (EAST HUBBARDTON ROAD)
T.H. NO. 22 (QUARTERLINE ROAD)

BRIDGE NO.: DII, 2, DI8

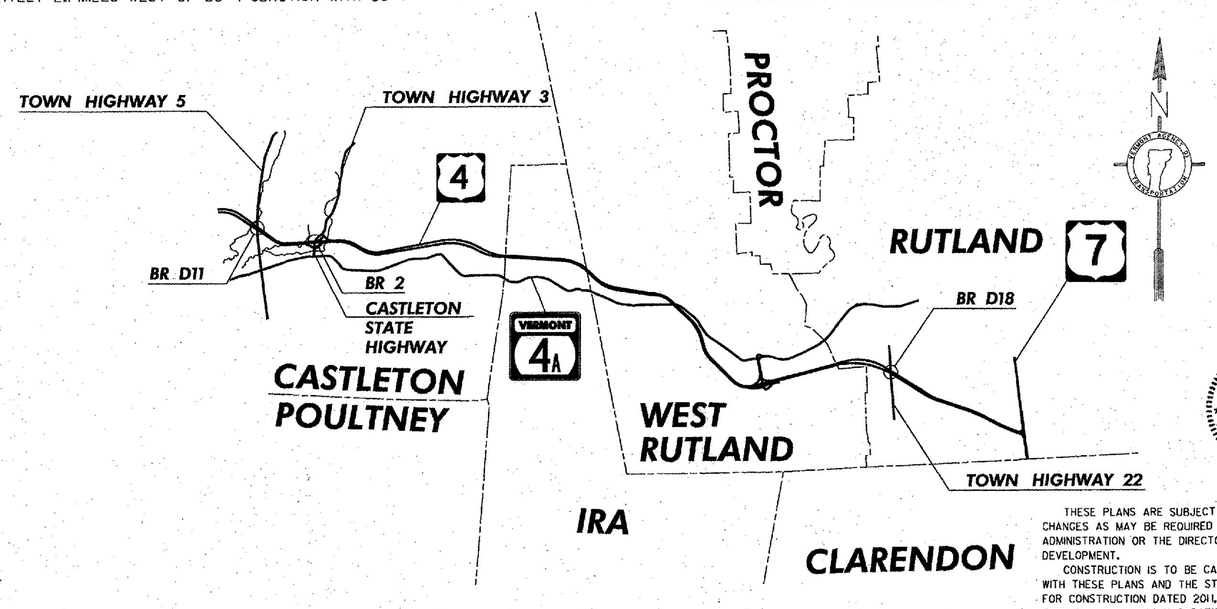
PROJECT LOCATIONS: CASTLETON - BR DII OVER US 4 (MM 35.00) (T.H. NO. 5 - NORTH ROAD)
CASTLETON - BR 2 OVER US 4 (MM 2.02) (CASTLETON STATE HIGHWAY - EAST HUBBARDTON ROAD)
RUTLAND TOWN - BR DI8 OVER US 4 (TH NO. 22 - QUARTERLINE ROAD)
APPROXIMATELY 2.1 MILES WEST OF US 4 JUNCTION WITH US 7

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 DII	408.14'
BR 2	261.11'
BR DI8	371.21'

TOTAL LENGTH OF STRUCTURES: 1040.46'



QUALITY ASSURANCE PROGRAM: LEVEL I

CLD CONSULTING ENGINEERS
540 Commercial Street, Manchester, NH 03101
(603) 668-8223 · Fax: (603) 668-8802
cld@cldengineers.com · www.cldengineers.com
Maine · New Hampshire · Vermont

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
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 2011, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011 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. BYATT · NO. 8470 · Structural · LICENSED PROFESSIONAL ENGINEER

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED _____ DATE 3-27-14

PROJECT MANAGER : DOUGLAS BONNEAU, P.E.

PROJECT NAME : CASTLETON-RUTLAND
PROJECT NUMBER: BF MEMB(37)

SHEET 1 OF 28 SHEETS

CLD 13-0203 MODEL: Cov01

INDEX OF SHEETS

VAOT STANDARD SHEETS

08/06/12	T-10	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNS
08/06/12	T-17	TRAFFIC CONTROL MISCELLANEOUS DETAILS
08/06/12	T-28	CONSTRUCTION SIGN DETAILS
08/06/12	T-29	CONSTRUCTION SIGN DETAILS
08/06/12	T-30	CONSTRUCTION SIGN DETAILS
08/06/12	T-31	CONSTRUCTION SIGN DETAILS
08/06/12	T-36	CONSTRUCTION ZONE LONGITUDINAL DROP OFFS FOR PAVING
08/08/95	E-121	STANDARD SIGN PLACEMENT CONVENTIONAL ROAD

PROJECT NOTES

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT, AGENCY OF TRANSPORTATION, 2011 STANDARD SPECIFICATIONS FOR CONSTRUCTION, AND ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, DATED 2012, 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 BEAM SEATS SHALL BE CLEANED OFF, ALL FABRIC DRAIN TROUGHS, FINGER JOINT 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. THE COST FOR CLEANING BEAM SEATS, FLUSHING THE FABRIC DRAIN TROUGHS, FINGER JOINT 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 AND 2 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 PLANS. NO WORK SHALL COMMENCE UNTIL THE CONTRACTOR HAS AN APPROVED TRAFFIC CONTROL PLAN FOR EACH BRIDGE.

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 RETROREFLECTIVE DRUMS, SIGNS, AND SIGN POSTS WILL BE CONSIDERED TO BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR ITEM 641.10, "TRAFFIC CONTROL". THE QUANTITY FOR ITEM 630.15, "FLAGGERS" AS SHOWN ON THE QUANTITY SUMMARY SHEETS WAS ESTIMATED FOR TRAFFIC CONTROL ON ROADS UNDERNEATH THE BRIDGES DURING APPLICATION OF ITEM 514.10, "WATER REPELLENT, SILANE". ANY ADDITIONAL TRAFFIC CONTROL NECESSARY FOR ROADS UNDERNEATH BRIDGES UNDER CONSTRUCTION SHALL BE INCIDENTAL TO 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, AND 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.

CONCRETE STRUCTURE AND JOINT REPAIR

9. REPAIRS TO DETERIORATED CONCRETE DECK ON BRIDGE NO. 2 AT THE SOUTHEAST BACKWALL JOINT SHALL BE PAID FOR UNDER ITEM 580.12, "REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS III". THE QUANTITY FOR ITEM 580.12 AS SHOWN ON THE QUANTITY SUMMARY SHEETS IS ESTIMATED.

10. THE BRIDGE NO. 2 PIER JOINTS SHALL REMAIN IN-PLACE. CONCRETE REPAIRS TO DETERIORATED AREAS ALONG THE JOINT ARE REQUIRED AND SHALL BE PAID FOR UNDER ITEM 580.12, "REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS III". THE QUANTITY FOR ITEM 580.12 AS SHOWN ON THE THE QUANTITY SUMMARY SHEETS IS ESTIMATED. REPAIRS TO DETERIORATED CLOSED CELL FOAM AT THE BACK OF THE BACKWALL ON BRIDGE NO. D18 SHALL BE INCIDENTAL TO ITEM 524.11, "JOINT SEALER, HOT POURED."

11. ALL DAMAGED CONCRETE CURB JOINTS ON BRIDGE NO. D18 SHALL BE REPAIRED, ANY DAMAGED POLYURETHANE JOINT SEALER SHALL BE REMOVED, AND THE CONCRETE SURFACE SHALL BE CLEANED. THIS WORK WILL BE PAID FOR UNDER ITEM 524.21, "JOINT SEALER, POLYURETHANE".

PAVEMENT REMOVAL AND DECK REPAIRS

12. THE FINAL ONE HALF INCH OF PAVEMENT ON THE CONCRETE BRIDGE DECK (AND AT-GRADE APPROACH SLABS IF APPLICABLE) 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".

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

14. 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.

15. AFTER THE REMOVAL OF THE BRIDGE PAVEMENT, THE BARRIER MEMBRANE SHALL BE REMOVED AND THE CONCRETE BRIDGE DECK (AND AT-GRADE 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".

16. ONCE THE BARRIER MEMBRANE IS REMOVED, ANY AREAS ON THE CONCRETE BRIDGE DECK (AND AT-GRADE 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 AT-GRADE APPROACH SLABS IF APPLICABLE) 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 SUMMARY SHEETS ARE ESTIMATED.

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

PAVEMENT AND MEMBRANE

18. 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. THE 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.

19. FOLLOWING THE INSTALLATION OF THE NEW SHEET MEMBRANE WATERPROOFING ON THE CONCRETE BRIDGE DECK, THE CONCRETE BRIDGE DECK (AND THE AT-GRADE APPROACH SLABS IF APPLICABLE) SHALL BE PAVED CURB TO CURB WITH ITEM 900.680, "SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY" IN TWO 1½" LIFTS. THE PAVEMENT SHALL BE TYPE IVS FOR BOTH LIFTS, NO EXCEPTIONS.

20. 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".

21. TESTING FOR PAVEMENT DENSITY WILL REQUIRE CORES OF THE PAVEMENT ON THE BRIDGE. THE COST FOR THIS WORK WILL BE INCIDENTAL TO ITEM 900.680, "SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY". 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.

22. FOR PG BINDER GRADE SEE THE SPECIAL PROVISIONS FOR PAY ITEM 900.680.

23. EMULSIFIED ASPHALT SHALL BE APPLIED AT A RATE OF 0.08 GAL/SY TO ALL COLD PLANED SURFACES AND AT A RATE OF 0.03 TO 0.04 GAL/SY BETWEEN PAVEMENT LIFTS. PAYMENT SHALL BE UNDER ITEM 404.65, "EMULSIFIED ASPHALT".

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

25. UPON COMPLETION OF ALL PAVING OPERATIONS, FINAL PAVEMENT MARKINGS SHALL BE INSTALLED TO REPLICATE THE EXISTING CONFIGURATION.

CONSULTING ENGINEERS
540 Commercial Street, Manchester, NH 03101
(603) 668-8223 • Fax: (603) 668-8802
cld@cldengineers.com • www.cldengineers.com
Maine • New Hampshire • Vermont

PROJECT NAME:	CASTLETON-RUTLAND
PROJECT NUMBER:	BF MEMB(37)
FILE NAME: z13b116-notes.dgn	PLOT DATE: 3/21/2014
PROJECT LEADER: JPB	DRAWN BY: MWS
DESIGNED BY: NDC	CHECKED BY: SRB
INDEX OF SHEETS AND PROJECT NOTES	SHEET 2 OF 28

CLD 13-0203 MODEL: Notes01

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET

SUMMARY OF ESTIMATED QUANTITIES					TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
ROADWAY	BRIDGE NO. D11	BRIDGE NO. 2	BRIDGE NO. D18	FULL C.E. ITEMS	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				
	119	134	238		491		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10				
	13	11	13		37		CWT	EMULSIFIED ASPHALT	404.65				
1					1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
	28	25	34		87		GAL	WATER REPELLENT, SILANE	514.10				
	1210	871	1101		3182		SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20				
		64	66		130		LF	JOINT SEALER, HOT POURED	524.11				
			176		176		LF	JOINT SEALER, POLYURETHANE	524.21				
	1210	1004	1101		3315		SY	REMOVAL OF BRIDGE PAVEMENT	529.10				
	61	44	56		161		SY	REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS I	580.10				
	182	131	166		479		SY	REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS II	580.11				
	15	25	12		52		CY	REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS III	580.12				
	10886	7834	9901		28621		SF	SURFACE PREPARATION FOR MEMBRANE	580.16				
	10	10	10		30		CF	RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE	580.20				
	33	21			54		GAL	REPOINTING GRANITE BRIDGE CURB	616.225				
	3	2	2		7		EACH	ENERGY ABSORPTION ATTENUATOR	621.56				
	188	194	188		570		LF	TEMPORARY TRAFFIC BARRIER	621.90				
	188	194	188		570		LF	REMOVE AND RESET TEMPORARY TRAFFIC BARRIER	621.95				
	91	66	83		240		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
	150	150	150		450		HR	FLAGGERS	630.15				
				1	1		LS	FIELD OFFICE, ENGINEERS	631.10				
				1	1		LS	TESTING EQUIPMENT, CONCRETE	631.16				
				1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
				3000	3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26				
1					1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
		1			1		LS	TRAFFIC CONTROL (CSH OVER US 4 - BRIDGE NO. 2)	641.10				
			1		1		LS	TRAFFIC CONTROL (TH 22 OVER US 4 - BRIDGE NO. D18)	641.10				
	1				1		LS	TRAFFIC CONTROL (TH 5 OVER US 4 - BRIDGE NO. D11)	641.10				
	2	2	2		6		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15				
		683			683		LF	4 INCH WHITE LINE	646.20				
	897	683			1580		LF	4 INCH YELLOW LINE	646.21				
		1700			1700		LF	TEMPORARY 4 INCH WHITE LINE, TEMPORARY PAVEMENT MARKING TAPE	646.6011				
	48	48	48		144		LF	TEMPORARY 24 INCH STOP BAR, TEMPORARY PAVEMENT MARKING TAPE	646.6811				
		85			85		EACH	RAISED PAVEMENT MARKERS, TYPE II	646.75				
	300	600			900		SF	PAVEMENT MARKING MASK	646.86				
1					1		LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50				
	1	1	1		3		EACH	SPECIAL PROVISION (TEMPORARY TRAFFIC SIGNAL SYSTEM, PORTABLE)	900.620				
	1	1	1		3		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY) (N.A.B.I)	900.650				
	1	1	1		3		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT) (N.A.B.I)	900.650				
	224	199	232		655		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

PROJECT NAME: CASTLETON-RUTLAND
PROJECT NUMBER: BF MEMB(37)

FILE NAME: z13b116-qss.dgn
PROJECT LEADER: JPB
DESIGNED BY: NDC
QUANTITY SHEET

PLOT DATE: 3/21/2014
DRAWN BY: NDC
CHECKED BY: SRB
SHEET 3 OF 28

TRAFFIC CONTROL NOTES:

1. THE EXISTING SPEED LIMIT IS 35 MPH FOR BRIDGE NOS. DII AND DI8. THE SPEED LIMIT WILL BE REDUCED TO 25 MPH IN THE WORK ZONE FOR THESE BRIDGES. THE EXISTING SPEED LIMIT IS 50 MPH FOR BRIDGE NO. 2. THE SPEED LIMIT WILL BE REDUCED TO 40 MPH IN THE WORK ZONE. ANY EXISTING SPEED LIMIT SIGNS WITHIN THE SPEED REDUCTION AREA SHALL BE COMPLETELY COVERED.

2. TRAFFIC CONTROL PLANS SUBMITTED BY THE CONTRACTOR PER NOTE 6 ON SHEET 2 SHALL INCLUDE DRIVE ENTRANCE LOCATIONS ADJACENT TO BRIDGE NOS. DII AND DI8. IF A TEMPORARY STOP BAR OCCURS BEYOND A DRIVE ENTRANCE PER THE TRAFFIC CONTROL DETAILS ON THE TRAFFIC CONTROL SHEETS, THE DIMENSIONS SHALL BE REVISED TO ENSURE ALL DRIVE ENTRANCES OCCUR OUTSIDE TEMPORARY STOP BAR LOCATIONS. ACCESS TO DRIVES ON BOTH SIDES OF BRIDGE NOS. DII AND DI8 SHALL BE MAINTAINED AT ALL TIMES.

3. THE CONTRACTOR SHALL HAVE SIGNS FOR CLOSURE OF ALL LANES ON THE PROJECT BEFORE WORK COMMENCES.

4. CONSTRUCTION SIGNS SHALL BE INSTALLED SO AS NOT TO OBSTRUCT EXISTING SIGNS.

5. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND THE "STANDARD HIGHWAY SIGNS AND MARKINGS" BOOK (SHSM) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION (FHWA).

6. SOLID SUBSTRATE CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING "AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM D 4956) TYPE VII, VIII OR IX REQUIREMENTS, UNLESS OTHERWISE NOTED. BLACK AND WHITE REGULATORY SIGNS SHALL BE A MINIMUM OF TYPE III, UNLESS OTHERWISE NOTED.

7. ROLL UP SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING ASTM D 4956 TYPE VI.

8. CONSTRUCTION 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.

9. 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.

10. PORTABLE SIGNS SHALL BE PLACED ON THE EDGE OF ROADWAY AND ONE FOOT MINIMUM ABOVE TRAVELLED WAY. ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED AT THE CONTRACTOR'S EXPENSE. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACE SHALL BE ABOVE THE TOP OF THE GUARDRAIL.

11. THE PORTABLE CHANGEABLE MESSAGE SIGN (PCMS) SHALL BE USED AT THE DISCRETION OF THE ENGINEER. THE PCMS SHALL BE IN ACCORDANCE WITH SECTION 6F.60 OF THE MUTCD. THE PCMS SHALL READ "SIGNAL AHEAD, PREPARE TO STOP".

12. 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.

13. DUE TO THE NARROW TRAVELWAY AND SHOULDERS ON THE BRIDGES, CHANNELIZING DEVICES SHALL BE USED IN LIEU OF CONCRETE BARRIER WITHIN THE WORK ZONES.

14. THE NUMBER OF CHANNELIZING DEVICES 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.

15. TRAVEL LANE SHALL BE A MINIMUM OF 12 FEET WIDE FOR BRIDGE NO. 2 AND A MINIMUM OF 11 FEET WIDE FOR BRIDGE NO. DII AND BRIDGE NO. DI8.

16. 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.

17. PROVIDE A 1:9 BARRIER TAPER RATE AS SHOWN ON THE PLANS.

18. IF THE LANE CLOSURE IS TO LAST LONGER THAN 3 DAYS, THE CONTRACTOR SHALL USE TEMPORARY TRAFFIC BARRIER AS SHOWN ON TRAFFIC CONTROL SHEET 2 AND SHALL BE PAID FOR AS ITEM 621.90, "TEMPORARY TRAFFIC BARRIER". 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".

19. 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 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 10.

20. THE QUANTITIES INCLUDE TWO ENERGY ABSORPTION ATTENUATORS PER BRIDGE AND ONE BACKUP ATTENUATOR FOR THE PROJECT (INCLUDED IN QUANTITY FOR BRIDGE NO. DII) 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". THE COST FOR ENERGY ABSORPTION ATTENUATORS USED FOR ANY OTHER TRAFFIC CONTROL SETUP SHALL BE INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL".

21. THE RAISED PAVEMENT MAKERS (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".

TEMPORARY PORTABLE SIGNAL NOTES:

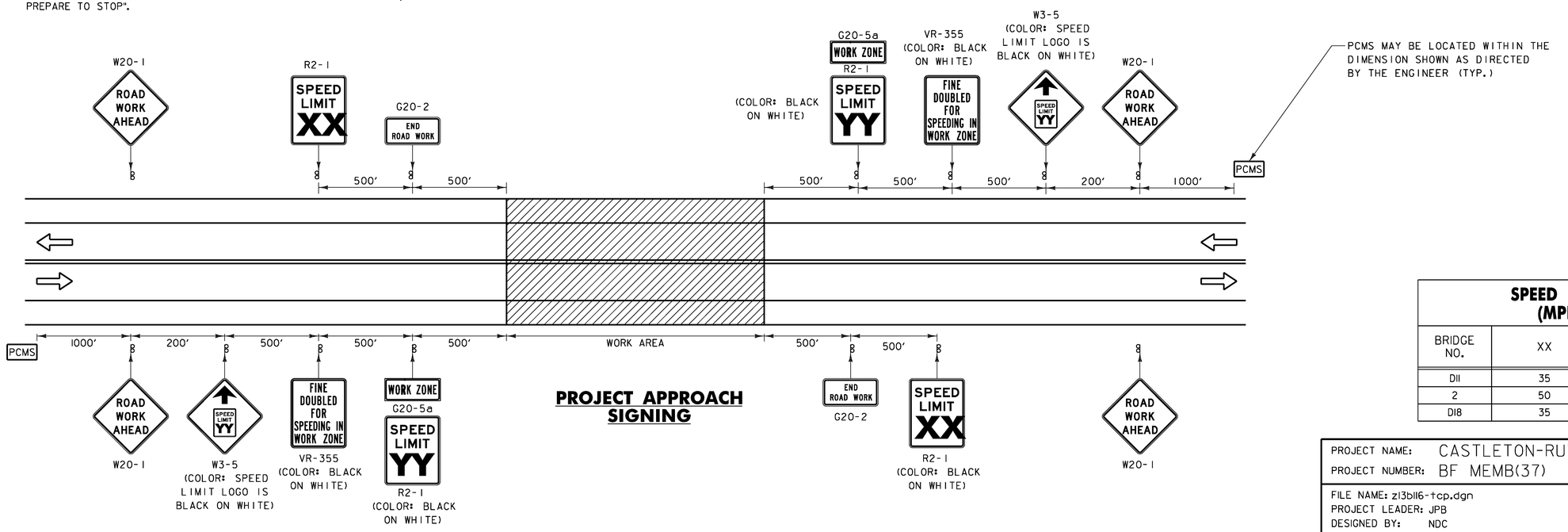
1. TEMPORARY TRAFFIC CONTROL (TTC) SIGNALS SHALL BE INSTALLED AND OPERATED IN ACCORDANCE WITH THE PROVISIONS OF PART 4 OF THE MUTCD. TTC SIGNALS SHALL MEET THE PHYSICAL DISPLAY AND OPERATIONAL REQUIREMENTS OF CONVENTIONAL TRAFFIC CONTROL SIGNALS.

2. TTC SIGNAL TIMING SHALL BE ESTABLISHED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. DURATIONS OF RED CLEARANCE INTERVALS SHALL BE ADEQUATE TO CLEAR THE ONE-LANE SECTION OF CONFLICTING VEHICLES.

3. STOP BARS SHALL BE INSTALLED WITH TTC SIGNALS. EXISTING CONFLICTING PAVEMENT MARKINGS AND RAISED PAVEMENT MARKER REFLECTORS BETWEEN THE ACTIVITY AREA AND THE STOP BAR SHALL BE REMOVED. AFTER THE TTC SIGNAL IS REMOVED, THE STOP BARS AND OTHER TEMPORARY PAVEMENT MARKINGS (IF APPLICABLE) SHALL BE REMOVED AND THE PERMANENT PAVEMENT MARKINGS RESTORED.

4. 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.

5. PAYMENT FOR TTC SIGNALS WILL BE MADE UNDER CONTRACT ITEM 900.620, "SPECIAL PROVISION (TEMPORARY TRAFFIC SIGNAL SYSTEM, PORTABLE). SEE THE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.



PROJECT APPROACH SIGNING

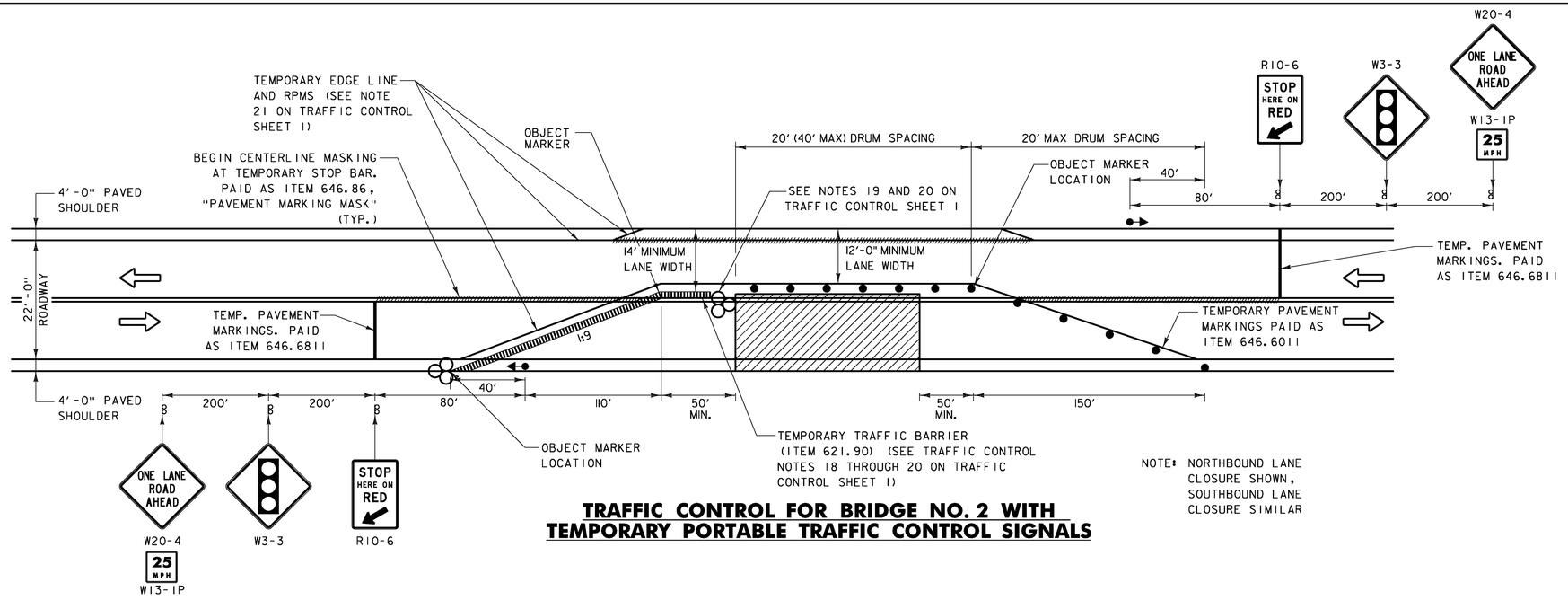
SPEED LIMIT (MPH)		
BRIDGE NO.	XX	YY
DII	35	25
2	50	40
DI8	35	25

PROJECT NAME: CASTLETON-RUTLAND
PROJECT NUMBER: BF MEMB(37)

FILE NAME: zl3bll6-tcp.dgn
PROJECT LEADER: JPB
DESIGNED BY: NDC
TRAFFIC CONTROL SHEET 1

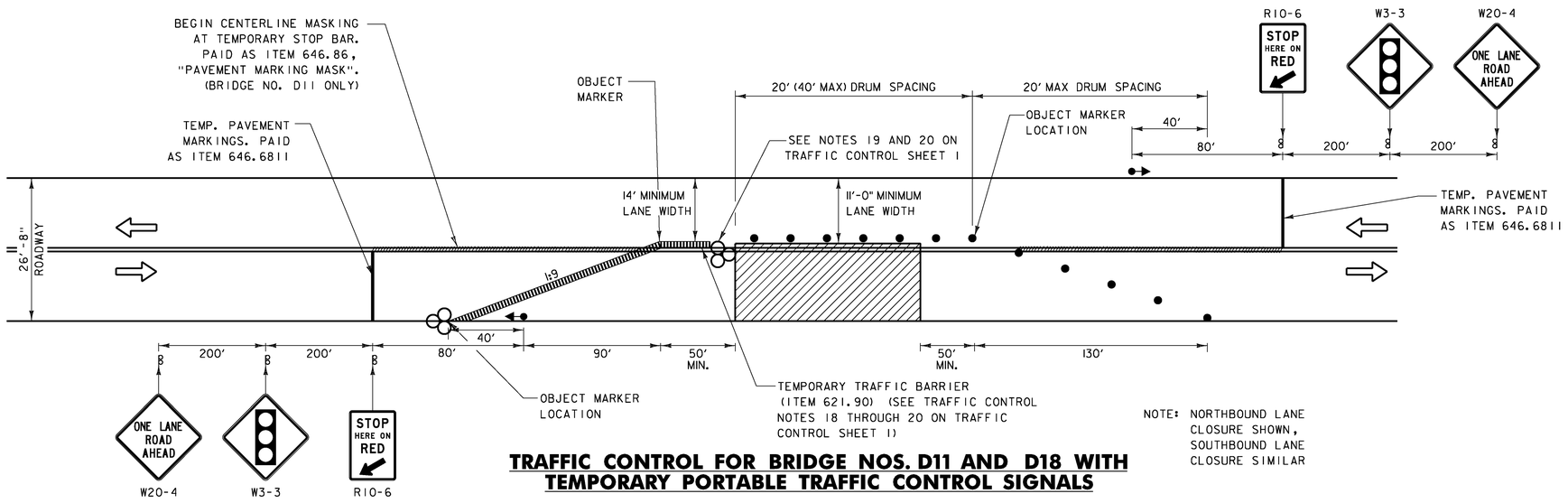
PLOT DATE: 3/21/2014
DRAWN BY: MWS
CHECKED BY: SRB
SHEET 4 OF 28

CLD XX-XXXX MODEL: TCP01



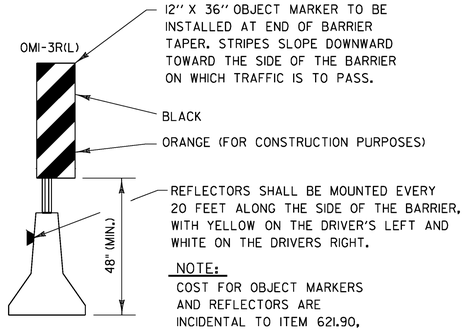
NOTE: NORTHBOUND LANE CLOSURE SHOWN, SOUTHBOUND LANE CLOSURE SIMILAR

TRAFFIC CONTROL FOR BRIDGE NO. 2 WITH TEMPORARY PORTABLE TRAFFIC CONTROL SIGNALS



NOTE: NORTHBOUND LANE CLOSURE SHOWN, SOUTHBOUND LANE CLOSURE SIMILAR

TRAFFIC CONTROL FOR BRIDGE NOS. D11 AND D18 WITH TEMPORARY PORTABLE TRAFFIC CONTROL SIGNALS



NOTE:
COST FOR OBJECT MARKERS AND REFLECTORS ARE INCIDENTAL TO ITEM 621.90, "TEMPORARY TRAFFIC BARRIER".

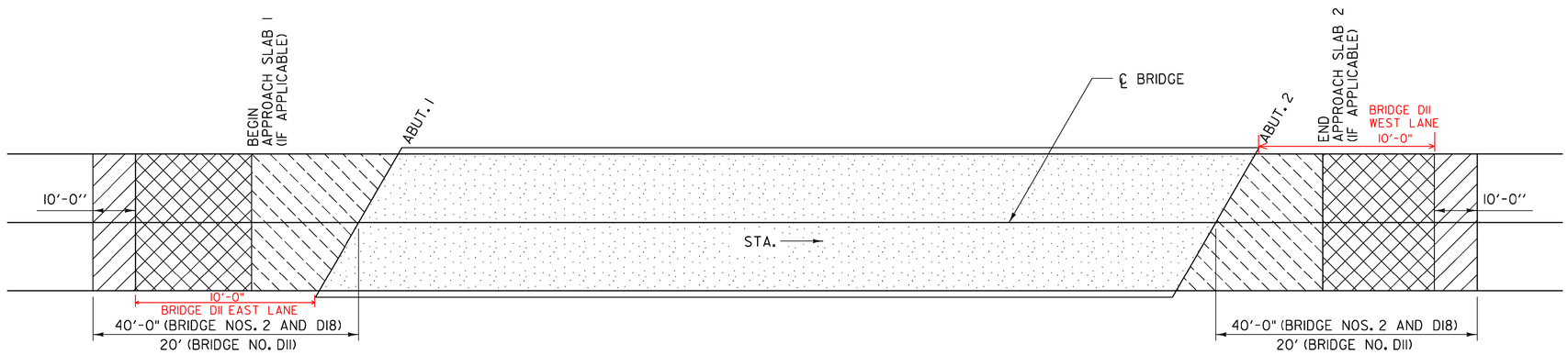
OBJECT MARKER

LEGEND

- FLOW OF TRAFFIC
- RETROREFLECTIVE PLASTIC DRUM
- WORK AREA
- ENERGY ABSORPTION ATTENUATOR (ITEM 621.56)
- TEMPORARY PORTABLE TRAFFIC CONTROL SIGNAL (SEE NOTES ON TRAFFIC CONTROL SHEET 1)
- TEMPORARY TRAFFIC BARRIER (ITEM 621.90)
- PCMS — PORTABLE CHANGEABLE MESSAGE SIGN

CLD XX-XXXX MODEL: TCP02

PROJECT NAME: CASTLETON-RUTLAND	
PROJECT NUMBER: BF MEMB(37)	
FILE NAME: z13b116-tcp.dgn	PLOT DATE: 3/21/2014
PROJECT LEADER: JPB	DRAWN BY: MWS
DESIGNED BY: NDC	CHECKED BY: SRB
TRAFFIC CONTROL SHEET 2	SHEET 5 OF 28



COLD PLANE - 1½"

COLD PLANE - 3"

COLD PLANE - 3" ON BRIDGE NOS. DII AND DI8.
REMOVE BITUMINOUS CONCRETE PAVEMENT - TO THE TOP OF APPROACH SLAB FOR BRIDGE NO. 2.

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 12 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.

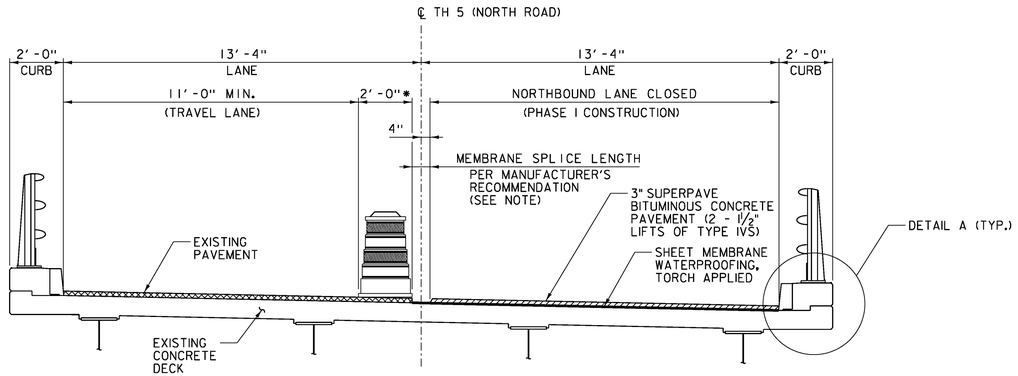
BITUMINOUS CONCRETE REMOVAL & REPLACEMENT PLAN

NOT TO SCALE

PROJECT NAME: CASTLETON-RUTLAND
PROJECT NUMBER: BF MEMB(37)

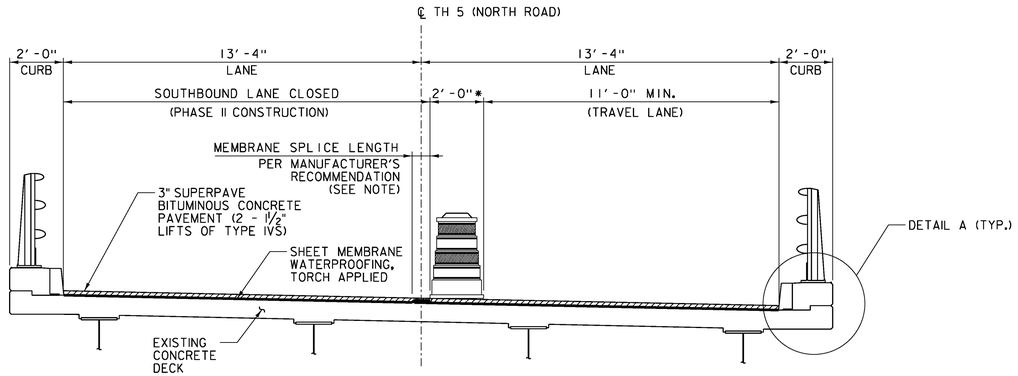
FILE NAME: z13b116-removal.dgn	PLOT DATE: 3/21/2014
PROJECT LEADER: JPB	DRAWN BY: MWS
DESIGNED BY: NDC	CHECKED BY: SRB
BITUMINOUS CONCRETE REMOVAL PLAN	SHEET 6 OF 28

MODEL: Rmv101



TYPICAL SECTION – PHASE I CONSTRUCTION – BRIDGE NO. D11

NOT TO SCALE

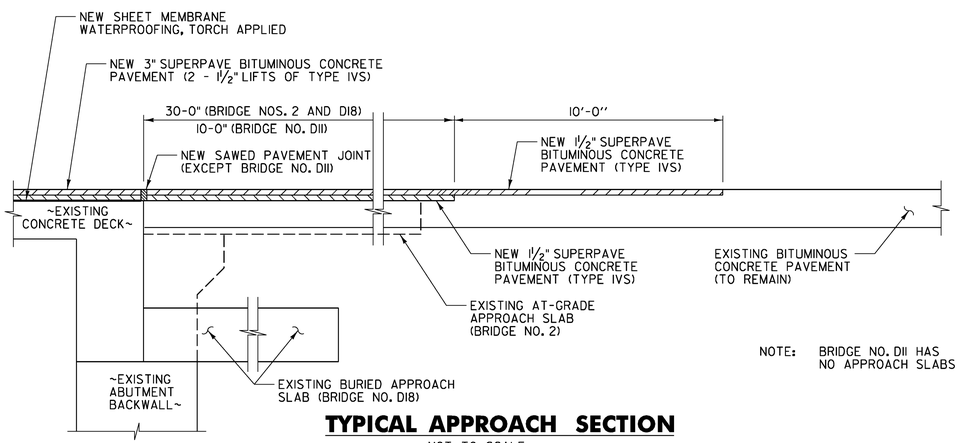


TYPICAL SECTION – PHASE II CONSTRUCTION – BRIDGE NO. D11

NOT TO SCALE

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

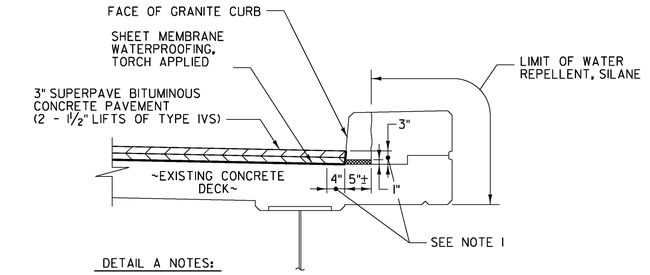
- TEMPORARY BARRELS SHALL BE MOVED AND REPLACED AS NECESSARY TO ACCOMMODATE OVERSIZED VEHICLES AND CONSTRUCTION ACTIVITIES. PAVEMENT SHALL BE INCIDENTAL TO ITEM 641.10.



NOTE: BRIDGE NO. DII HAS NO APPROACH SLABS

TYPICAL APPROACH SECTION

NOT TO SCALE



DETAIL A NOTES:

1. INDICATES AREA ALONG DECK AND UP FACE OF CURB FOR PLACEMENT OF TWO COATS OF POLYURETHANE MEMBRANE.
2. POLYURETHANE MEMBRANE AND BLAST CLEANING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR 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 2 ½" UP THE FACE OF CURB PRIOR TO PLACING THE MEMBRANE.
5. REPOINTING OF THE GRANITE CURB SHALL BE REQUIRED AND PAID FOR UNDER ITEM 616.225, "REPOINTING GRANITE BRIDGE CURB". THE QUANTITY FOR THIS ITEM AS SHOWN ON THE QUANTITY SHEET IS ESTIMATED.

DETAIL A

NOT TO SCALE

MATERIAL TOLERANCES

(IF USED ON PROJECT)

SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- ¼"
- AGGREGATE SURFACE COURSE	+/- ½"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"

BRIDGE LENGTH AND WIDTH (CURB TO CURB)

BRIDGE NO.	WIDTH (CURB TO CURB) (FEET)	LENGTH (FEET)
DII	26.67	408.41
2	30.00	261.11
DI8	26.67	371.21

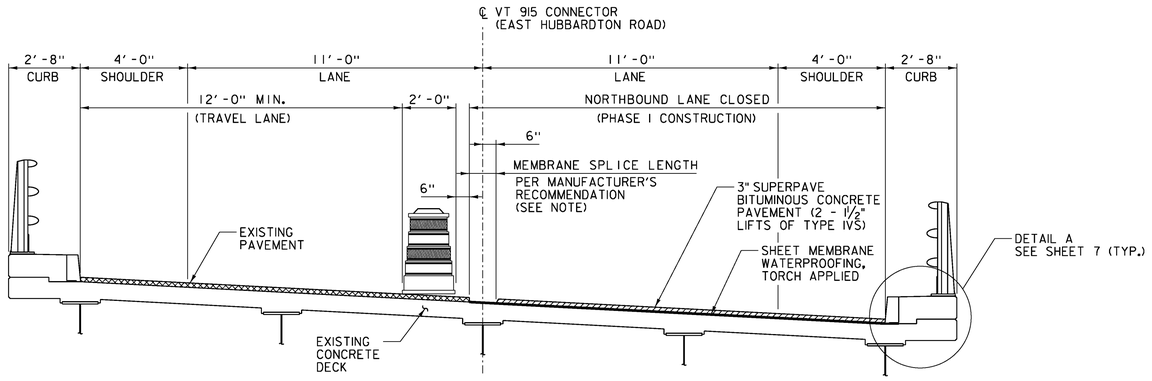
SAWED PAVEMENT JOINT REPLACEMENT SCHEDULE

BRIDGE NO.	ABUT. 1	PIER 1	PIER 2	PIER 3	PIER 4	ABUT. 2
DII	-	-	-	-	-	-
2	32 LF	-	-	-	-	32 LF
DI8	33 LF	-	-	-	-	33 LF

PROJECT NAME: CASTLETON-RUTLAND
PROJECT NUMBER: BF MEMB(37)

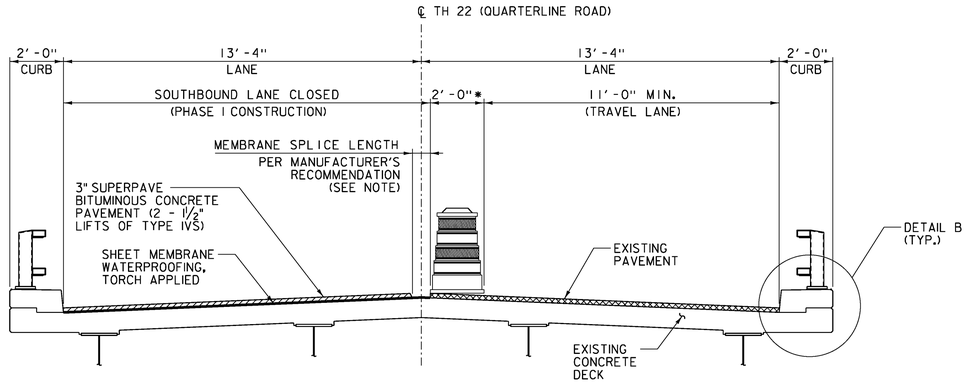
FILE NAME: z13b116-sect.dgn
PROJECT LEADER: JPB
DESIGNED BY: NDC
BITUMINOUS CONCRETE DETAILS SHEET 1

PLOT DATE: 3/21/2014
DRAWN BY: MWS
CHECKED BY: SRB
SHEET 7 OF 28



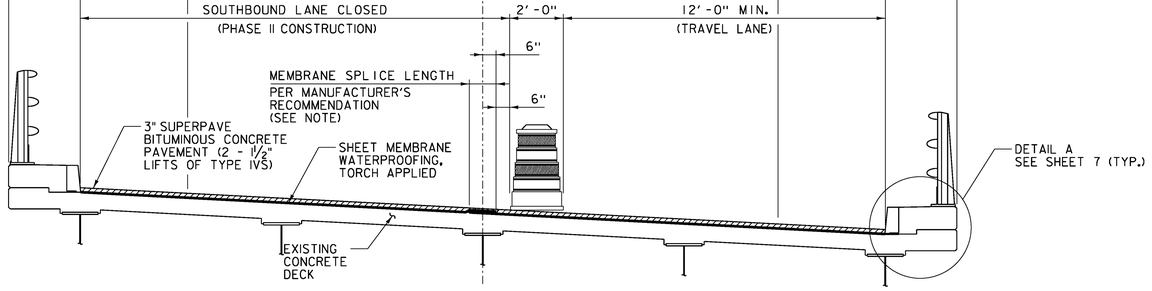
TYPICAL SECTION – PHASE I CONSTRUCTION – BRIDGE NO. 2

NOT TO SCALE



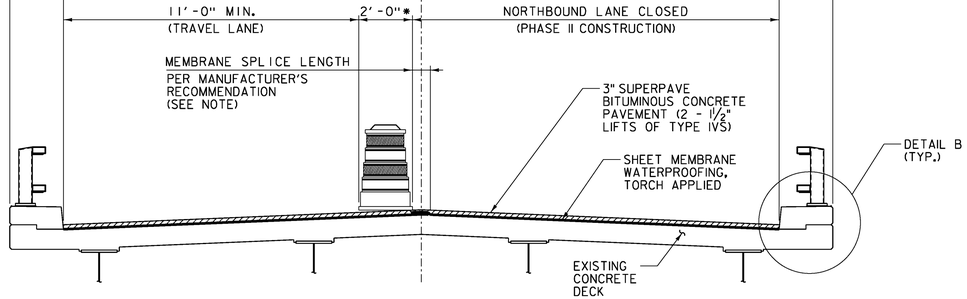
TYPICAL SECTION – PHASE I CONSTRUCTION – BRIDGE NO. D18

NOT TO SCALE



TYPICAL SECTION – PHASE II CONSTRUCTION – BRIDGE NO. 2

NOT TO SCALE

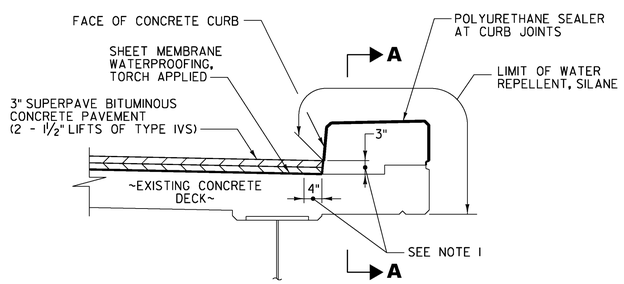


TYPICAL SECTION – PHASE II CONSTRUCTION – BRIDGE NO. D18

NOT TO SCALE

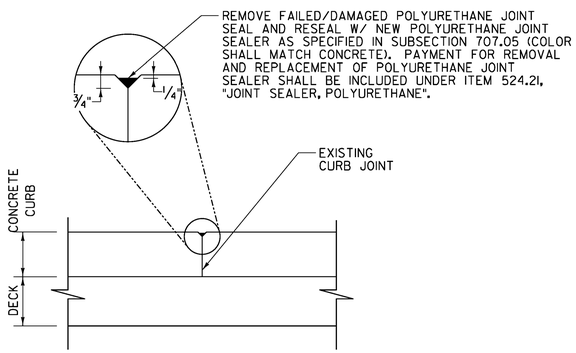
NOTE: PLACEMENT OF THE MEMBRANE SHALL START AT THE LOW SIDE OF THE BRIDGE. THE MEMBRANE SPLICE SHALL BE AS SHOWN ABOVE, WITH THE HIGH SIDE OVERLAPPING THE LOW SIDE.

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



DETAIL B

NOT TO SCALE



SECTION A–A

NOT TO SCALE

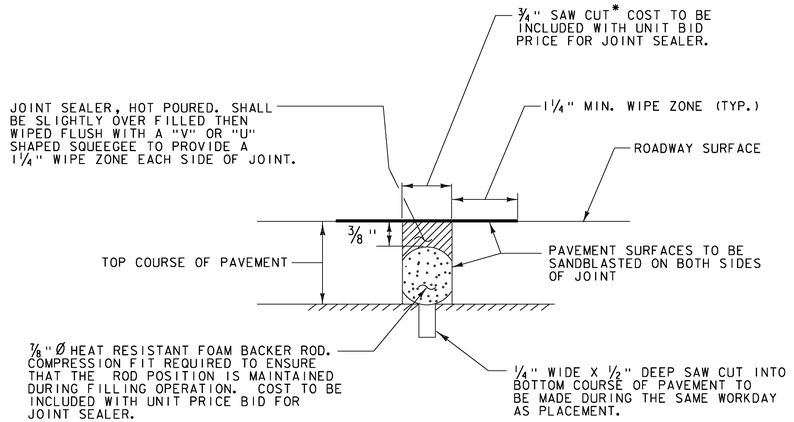
DETAIL B NOTES:

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.
5. REPAIRS TO THE CONCRETE CURB MAY BE REQUIRED AND SHALL BE PAID UNDER ITEM 580.10, ITEM 580.11, OR ITEM 580.12 AS APPLICABLE.

PROJECT NAME: CASTLETON-RUTLAND
PROJECT NUMBER: BF MEMB(37)

FILE NAME: z13b116-sect.dgn	PLOT DATE: 3/21/2014
PROJECT LEADER: JPB	DRAWN BY: MWS
DESIGNED BY: NDC	CHECKED BY: SRB
BITUMINOUS CONCRETE DETAILS SHEET 2	SHEET 8 OF 28

CLD XX-XXXX MODEL: Sect02



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. ALL WORK SHALL BE PAID UNDER ITEM 524.11, "JOINT SEALER, HOT POURED".

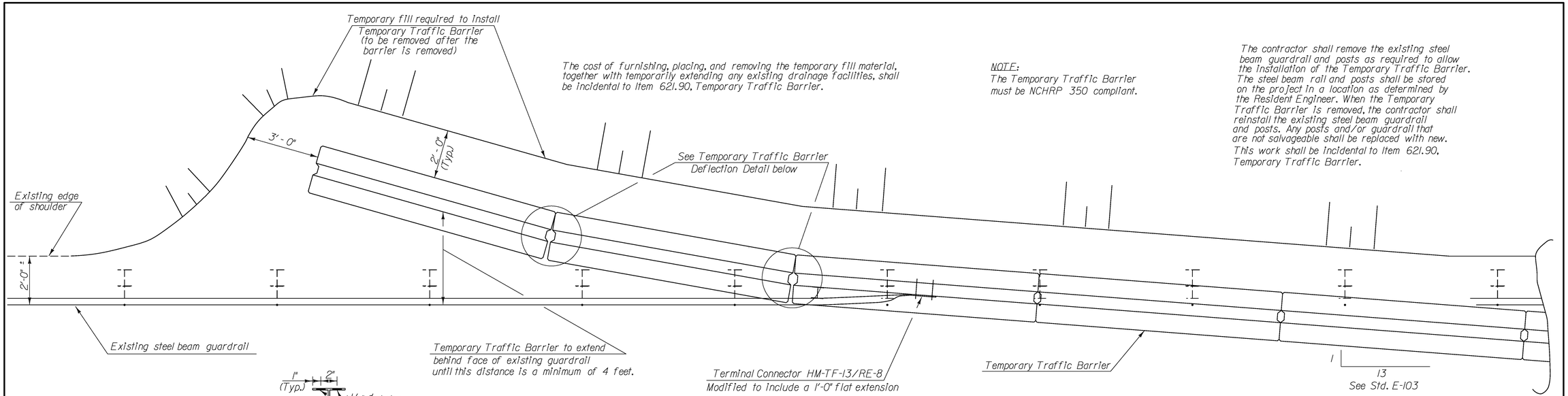
CLD 13-0203 MODEL: Jnts01

CONSULTING ENGINEERS
540 Commercial Street, Manchester, NH 03101
(603) 668-8223 • Fax: (603) 668-8802
cld@cldengineers.com • www.cldengineers.com
Maine • New Hampshire • Vermont

PROJECT NAME: CASTLETON-RUTLAND
PROJECT NUMBER: BF MEMB(37)

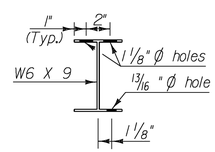
FILE NAME: z13bll6-jnts.dgn
PROJECT LEADER: JPB
DESIGNED BY: NDC
PAVEMENT JOINT DETAILS

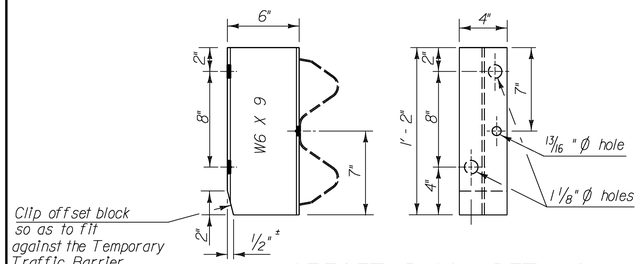
PLOT DATE: 3/21/2014
DRAWN BY: MWS
CHECKED BY: JPB
SHEET 9 OF 28



PLAN VIEW SHOWING POSITIVE CONNECTION BETWEEN TEMPORARY TRAFFIC BARRIER AND EXISTING GUARDRAIL

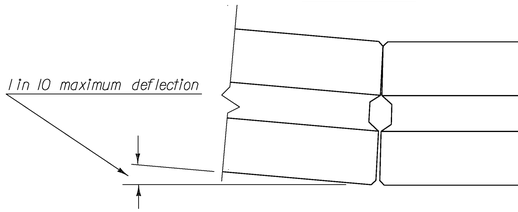
1/2" = 1' - 0"





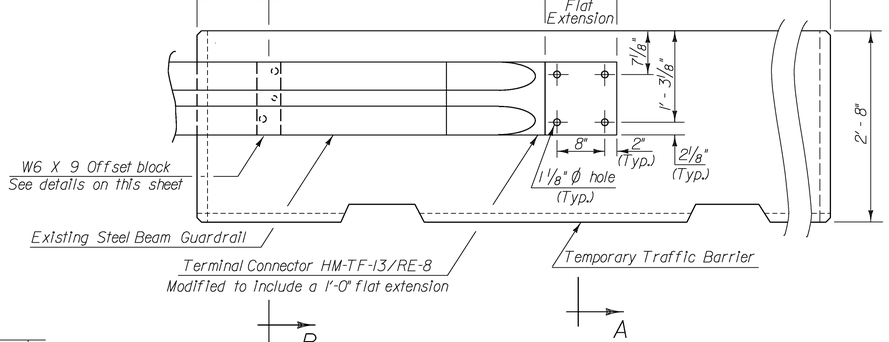
OFFSET BLOCK DETAILS

1" = 6"



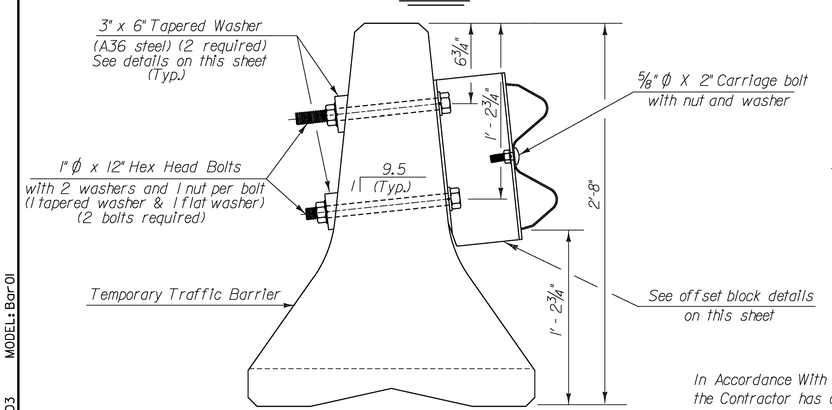
TEMPORARY TRAFFIC BARRIER DEFLECTION DETAIL

NTS

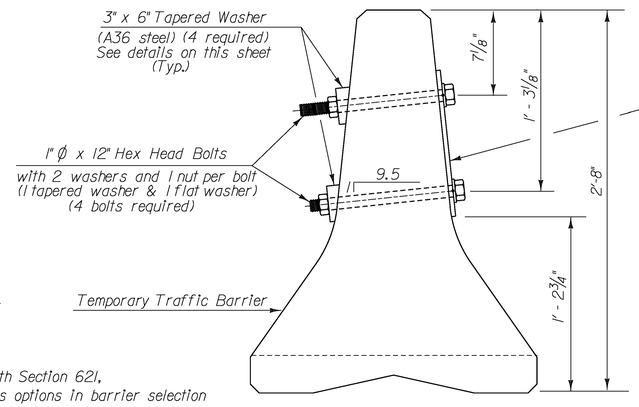


ELEVATION VIEW SHOWING POSITIVE CONNECTION BETWEEN TEMPORARY TRAFFIC BARRIER AND EXISTING GUARDRAIL

1" = 1' - 0"



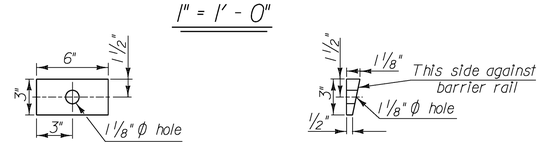
SECTION B-B



SECTION A-A

In Accordance With Section 621, the Contractor has options in barrier selection

1" = 6"

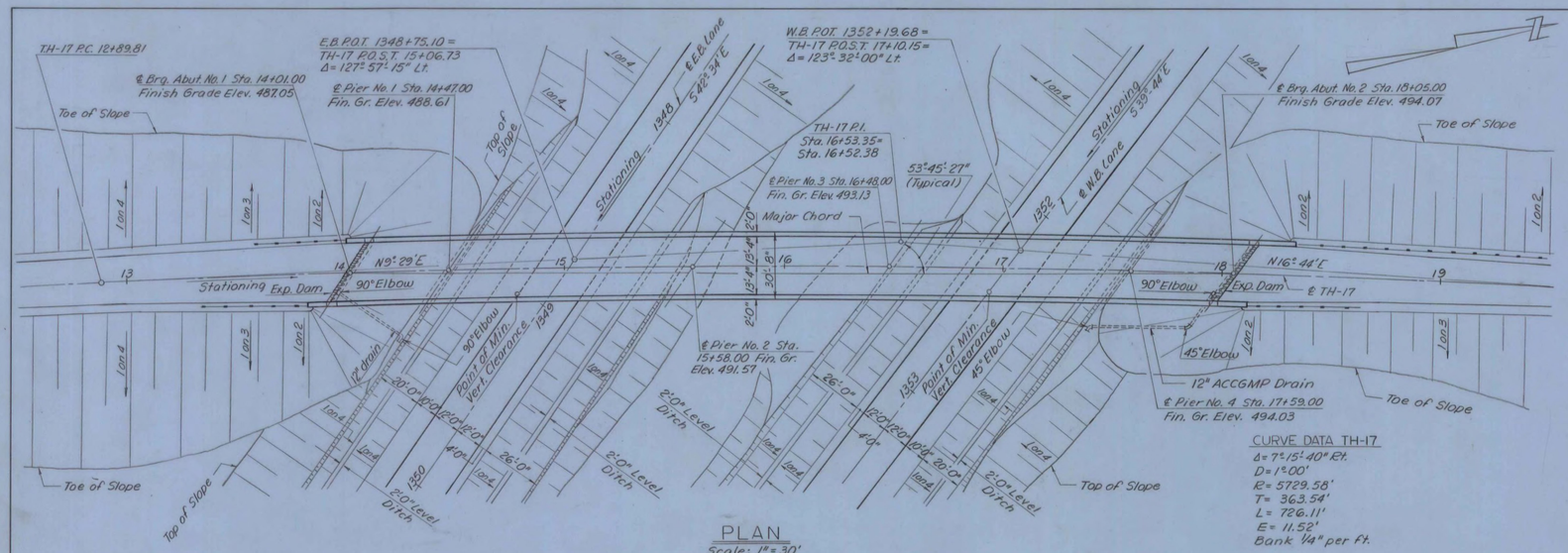


TAPERED WASHER DETAILS

1" = 6"

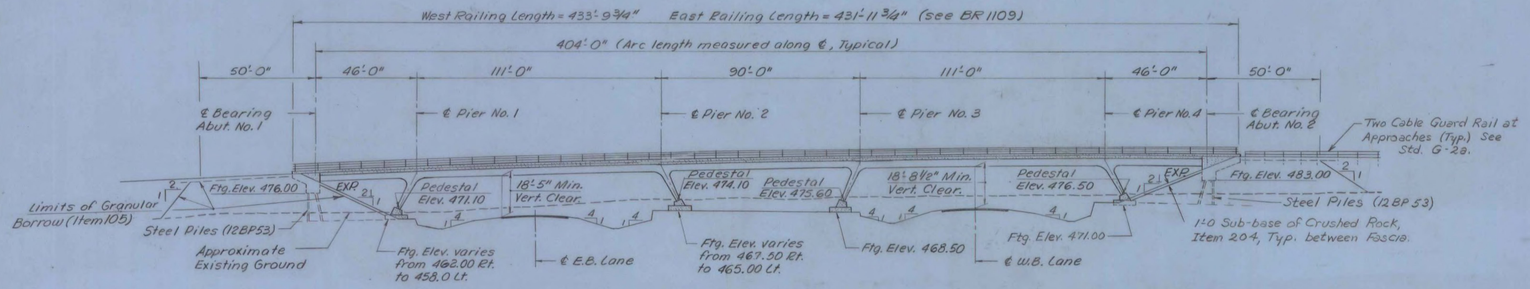
PROJECT NAME:	CASTLETON-RUTLAND
PROJECT NUMBER:	BF MEMB(37)
FILE NAME: z13b116-barrier.dgn	PLOT DATE: 3/21/2014
PROJECT LEADER: JPB	DRAWN BY: MWS
DESIGNED BY: NDC	CHECKED BY: SRB
TRAFFIC CONTROL BARRIER SHEET	SHEET 10 OF 28

CLD 13-0203 MODEL: Bar01



PLAN
Scale: 1" = 30'

CURVE DATA TH-17
Δ = 7° 15' 40" Rt.
D = 1° 00'
R = 5729.58'
T = 363.54'
L = 726.11'
E = 11.52'
Bank 1/4" per ft.

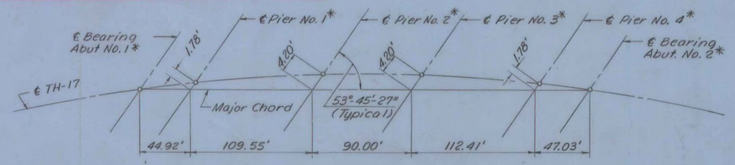


ELEVATION
Scale: 1" = 30'

INDEX OF DRAWINGS

CONTRACTOR	E.T. O'NEIL & SON	CONTRACT: DATED AUG. 19, 1970
RESIDENT ENGINEER	N.W. BITTNER	STARTED AUG. 20, 1970
INSPECTORS		COMPLETED AUG. 31, 1971
RECORD PLANS	R.L. WEICHERT	ACCEPTED SEPT. 15, 1971

MATERIALS
CONCRETE (AA & B) J. CARRARA
REINFORCING STEEL: BETHLEHEM STEEL
STRUCTURAL STEEL: VT. STRUCT. STEEL
BRIDGE RAILING: S.T. GRISWOLD



SUPERSTRUCTURE LAYOUT FROM MAJOR CHORD
No Scale
* WORKING POINTS ARE LOCATED AT TOP OF STEEL FRAME AS SHOWN ON BR. 1106. FOR SUBSTRUCTURE LAYOUT SEE BR. 1113

GENERAL NOTES

SPECIFICATIONS:
All materials and construction shall conform to the State of Vermont, Department of Highways, Standard Specifications for Highway and Bridge Construction, dated April, 1964 and the AASHO Standard Specifications dated 1969, as modified by current Interim Specifications.

LIVE LOAD:
Structure designed for HS-20-44 loading modified for National System of Interstate Highways applied in accordance with the provisions of the AASHO Standard Specifications Article 1.2.8.

CONCRETE:
All exposed edges of concrete shall be chamfered 1" x 1" unless otherwise noted. All construction joints to be made as shown on SCB-D6-67 details B and C unless otherwise noted.

REINFORCEMENT:
All reinforcement to have a clear cover of 2", unless otherwise noted.

DIMENSIONS:
All dimensions given are measured horizontally or vertically unless otherwise noted. Dimensions given are for 68°F, unless otherwise noted. Elevation datum sea level based on nearest U.S. Government vertical control.

STRUCTUEAL STEEL:
Item 404-A shall include all structural steel, copper, wrought iron, and any other materials indicated or required in the completed structure which are not otherwise classified.
Structural steel shall be structural carbon steel conforming to the requirements of the specifications for steel bridges and buildings A.S.T.M. Designations as noted on the project plans.
The contractor shall submit complete details of the structural steel to the State of Vermont, Department of Highways, and receive their written approval prior to start of fabrication. The steel details shall include provisions for cambering of beams for dead load deflection as well as erection diagrams and falsework details.
The final coat of field paint shall be green.

WATER REPELLENT:
The top surfaces of safety walks, fascia, bottom of deck slab back to the exterior frame and the exposed areas of the Piers and abutments not otherwise treated shall be covered with Water Repellent (Item 440)

FIELD BOLTING:
Field bolted connections shall be made with 7/8" ϕ A325 High Strength bolts. A490 bolts are not allowed.

ABUTMENTS AND PIERS:
The top surfaces of all abutments shall be sloped 1/4"/ft. from the front edge of abutment and curtainwalls except for bearing pads, which shall be level. Elevation of bridge seats given are for centerline of bearings.
The entire exposed top surface of abutments shall be coated with Asphaltic-Asbestos coating 1/8" thick as per Item 407 of the specifications. The application of this item shall be after all painting and incidental items are completed.

STEEL PILES:
Steel bearing piles shall be driven to ledge rock unless otherwise approved by the engineer. When piles are driven in fill the material shall be such as to have no stones large enough to interfere with the driving of the piles. All pile points shall be reinforced with steel plates as specified in Article 503.03, Subarticle C, Part 1 of the Special Provisions for Item 503-C, Steel Piling.

GENERAL:
All expansion material shall be premolded cork containing no bitumen or asphalt. Payments for waterstop sealing strips and all labor necessary to install same shall be included in the unit price bid for Concrete Class B, Item 401-B.

BITUMINOUS CONCRETE PAVEMENT
Bituminous Concrete Pavement, Item 361 (Modified) Type IV mix shall be applied in two courses.

STANDARD DRAWINGS

SCB-D1-67 BENCH MARK DETAILS & GENEREAL NOTES APRIL 28, 1970 R
SCB-D6-67 CURB DETAILS, PILE SPLICE DETAILS, & CONSTRUCTION JOINT DETAILS APRIL 28, 1970 R
SB-R2-65 STEEL RAILING DETAILS Nov. 8, 1966 R
SB-R1-64 (SHEETS 1 & 2) ALUMINUM RAILING DETAILS APRIL 28, 1970 R
SCB-D2-67 BEAM HAUNCH Jan. 24, 1968
SCB-D7-67 DIAPHRAGM DETAILS Jan. 24, 1968

NOTE: ANY FURTHER INFORMATION CONCERNING FINAL QUANTITIES, AMOUNTS OR OTHER DETAILS RELATIVE TO THIS PROJECT MAY BE FOUND IN EITHER THE FIELD BOOKS OR THE ESTIMATE FILE.

DESIGN STRESSES

CONCRETE: f'c = 3,000 p.s.i.
fc = 1,200 p.s.i.
STRUCTURAL STEEL: fs = 20,000 p.s.i. (A36, other steels as per AASHO Specifications)
REINFORCING STEEL: fs = 20,000 p.s.i. (tension)
fs = 16,000 p.s.i. (compression)
(intermediate grade)

VERMONT
STATE HIGHWAY DEPARTMENT
TOWN OF CASTLETON
U.S. ROUTE 4

TH-17 RELOC. OVER U.S. RTE 4 RELOC.

PLAN AND ELEVATION

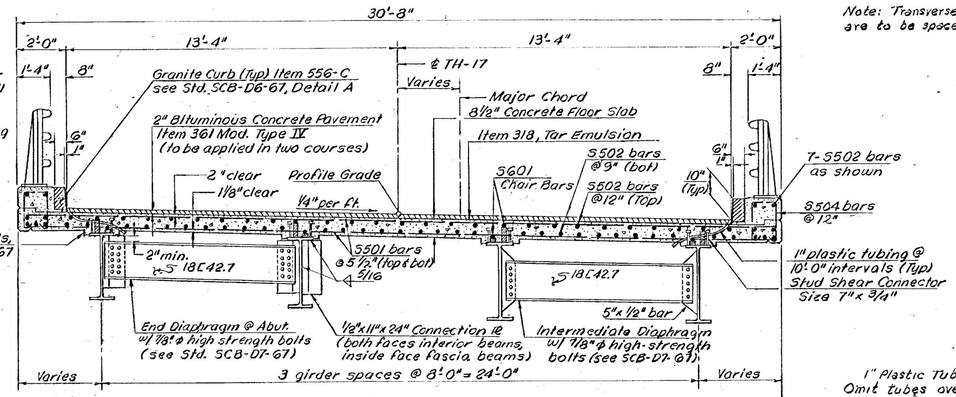
McFARLAND-JOHNSON
CONSULTING ENGINEERS
BINGHAMTON, NEW YORK

DESIGNED BRK	CHECKED REC	DATE 7-12-68	
DRAWN RMG	IN CHARGE HGC	SCALE AS SHOWN	

PROJECT NO. F020-1(7) SH 43 OF 206
CONTRACT NO. BR. 1101

CASTLETON-RUTLAND
BF MEMB (37)
SHEET 11 OF 28
BRIDGE NO. D11
FOR REFERENCE ONLY

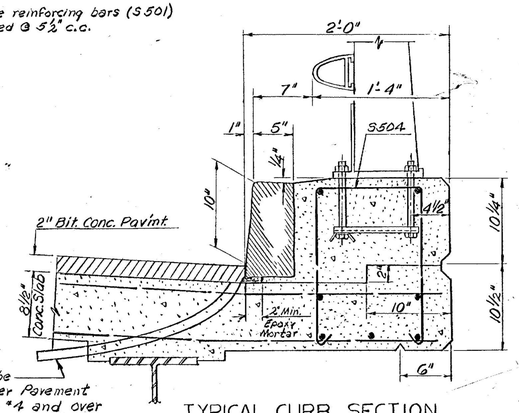
NOTE:
The concrete floor slab surface shall be finished with a self-propelled concrete finishing machine.



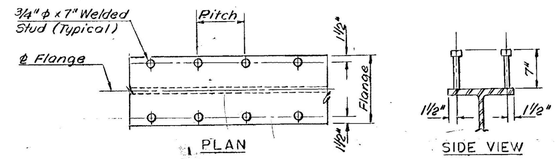
TYPICAL SECTION
Scale: 3/8" = 1'-0"

NOTE: For details of Pier Diaphragm, see BR 1108.

Note: Transverse reinforcing bars (S501) are to be spaced @ 5½" c.c.

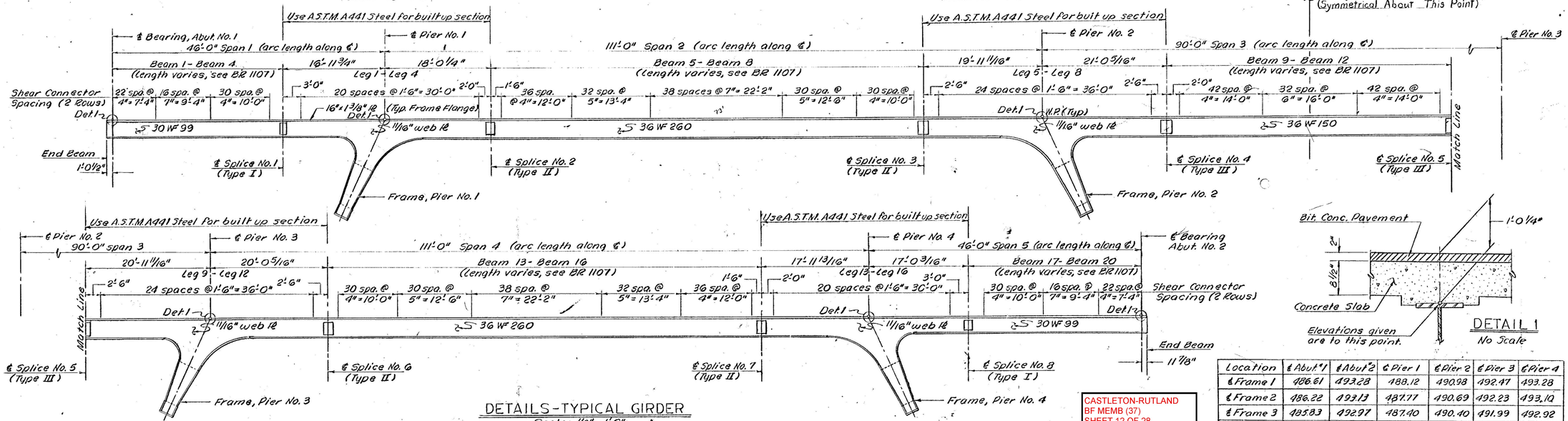


TYPICAL CURB SECTION
Scale: 1½" = 1'-0"

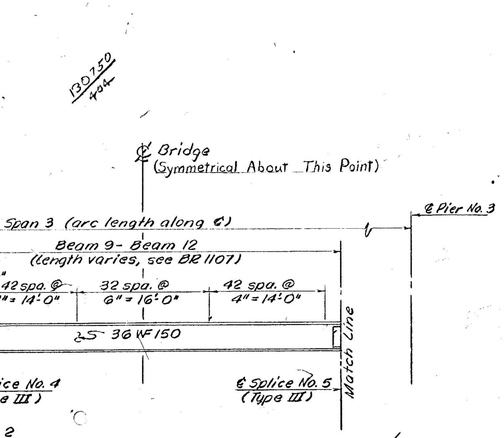


SHEAR CONNECTOR
No Scale

130750
404



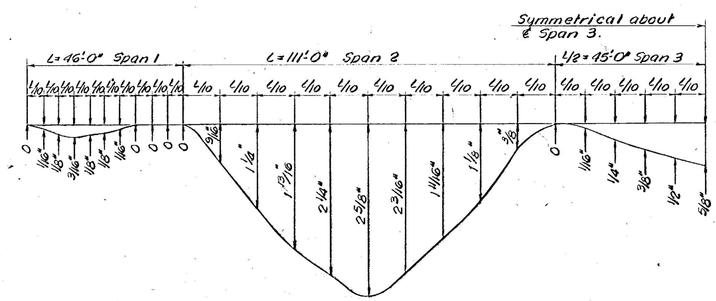
DETAILS - TYPICAL GIRDER
Scale: 1/8" = 1'-0"



DETAIL 1
No Scale

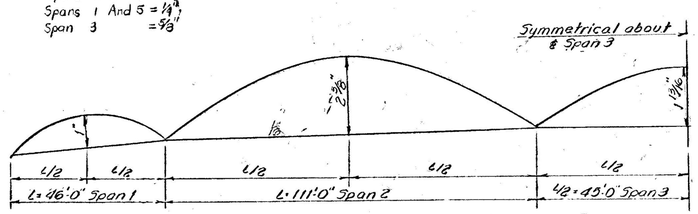
Location	℄ Abut #1	℄ Abut #2	℄ Pier 1	℄ Pier 2	℄ Pier 3	℄ Pier 4
℄ Frame 1	486.61	493.28	488.12	490.98	492.47	493.28
℄ Frame 2	486.22	493.13	487.77	490.69	492.23	493.10
℄ Frame 3	485.83	492.97	487.40	490.40	491.99	492.92
℄ Frame 4	485.43	492.81	487.03	490.10	491.74	492.73

ELEVATIONS - TOP OF FRAME



D.L. DEFLECTION DIAGRAM *
No Scale

Maximum Live Load Deflections:
Spans 2 And 4 = 1⅛"
Spans 1 And 5 = ¼"
Span 3 = ⅝"



CAMBER DIAGRAM
No Scale

NOTE: Final camber after dead load deflection.

* Includes weight of frame, slab, and superimposed dead load.

CASTLETON-RUTLAND
BF MEMB (37)
SHEET 12 OF 28
BRIDGE NO. D11
FOR REFERENCE ONLY

EXAMPLE

NOTES

1. For General Notes, see BR 1101.
2. For Joint Details, see BR 1109 & 1110.
3. For Beam Haunch Details, see SCB-D2-67.
4. For Splice Details, see BR 1106.
5. For Frame Details, see BR 1106.
6. All studs are to be ¾" ϕ x 7" welded studs. If ⅞" ϕ studs are used, increase the spacing shown for ¾" ϕ studs by 50%.
7. ℄ Pier is defined as the intersection of ℄ Leg and top of steel frame.
8. Frame leg web, flange, and stiffener PL's shall be ASTM-A 441. WF Beams, diaphragms, and all steel not otherwise designated shall be ASTM-A 36.
9. Deck concrete shall be placed during one working day according to the Placing Sequence shown on BR 1103

Revised Curb Stirrup Bars from #4 @ 18" to #5 @ 12", Added Note #9. W. Tripp 10-27-67

VERMONT
STATE HIGHWAY DEPARTMENT
TOWN OF CASTLETON
U.S. ROUTE 4

TH-17 RELOC. OVER U.S. RTE. 4 RELOC.

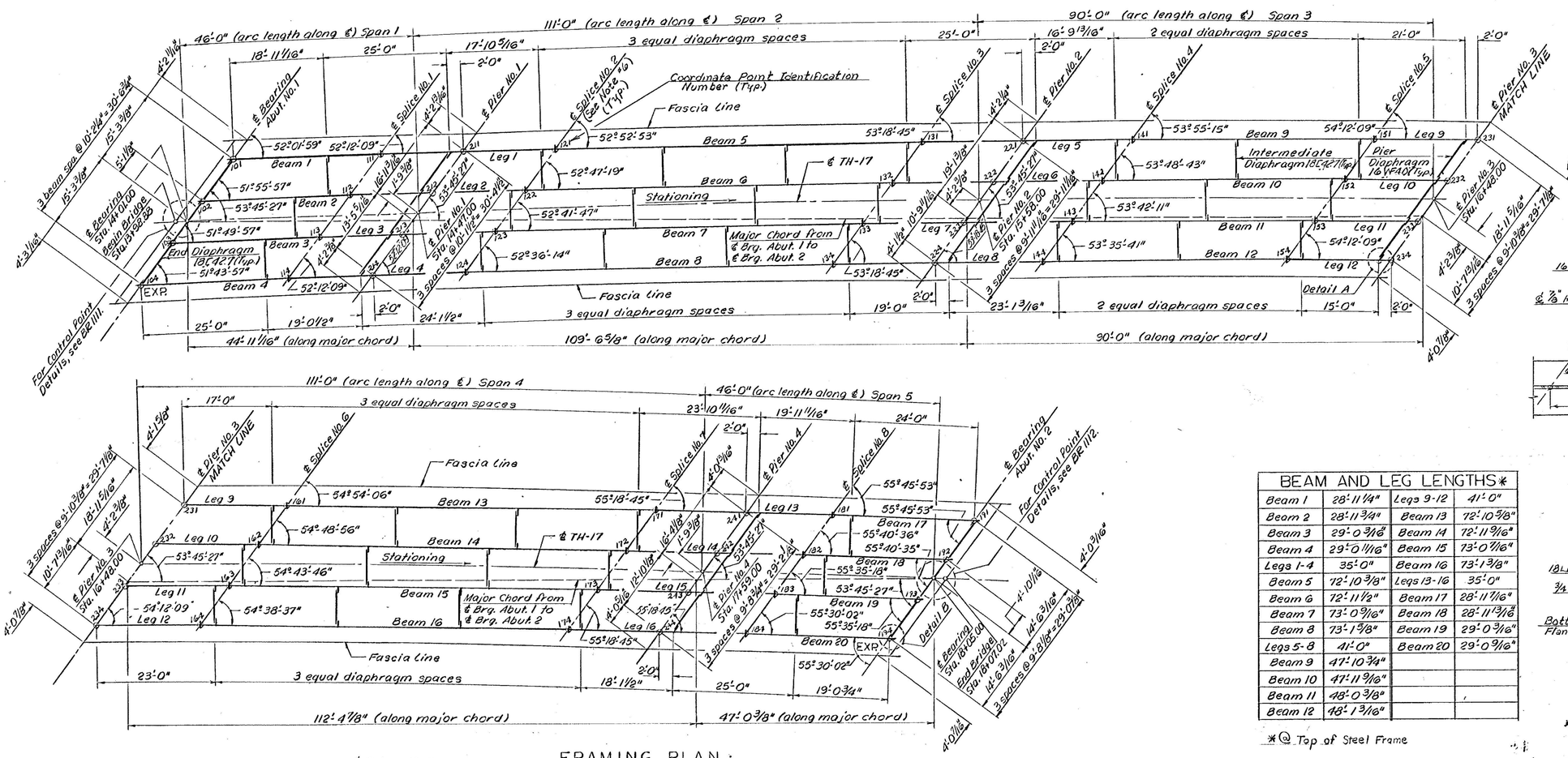
SUPERSTRUCTURE DETAILS

McFARLAND-JOHNSON
CONSULTING ENGINEERS
BINGHAMTON, NEW YORK

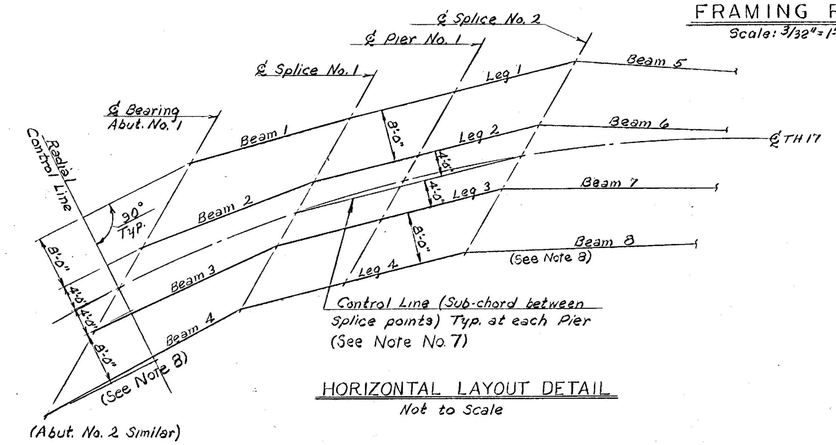
DESIGNED WDS	CHECKED REC	DATE 7-12-68
DRAWN RMG	IN CHARGE HGC	SCALE AS SHOWN

PROJECT NO. F020-1(7) SH 47 OF 206

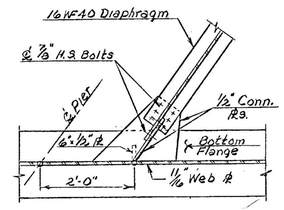
CONTRACT NO. BR 1105



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



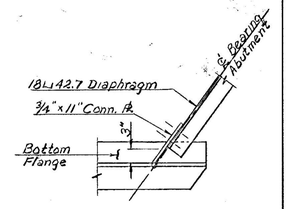
HORIZONTAL LAYOUT DETAIL
Not to Scale



DETAIL A
Scale: 3/4"=1'-0"

BEAM AND LEG LENGTHS*			
Beam 1	28'-11 1/4"	Legs 9-12	41'-0"
Beam 2	28'-11 3/4"	Beam 13	72'-10 5/8"
Beam 3	29'-0 3/16"	Beam 14	72'-11 9/16"
Beam 4	29'-0 11/16"	Beam 15	73'-0 11/16"
Legs 1-4	35'-0"	Beam 16	73'-1 3/8"
Beam 5	72'-10 3/8"	Legs 13-16	35'-0"
Beam 6	72'-11 1/2"	Beam 17	28'-11 11/16"
Beam 7	73'-0 9/16"	Beam 18	28'-11 13/16"
Beam 8	73'-1 5/8"	Beam 19	29'-0 9/16"
Legs 5-8	41'-0"	Beam 20	29'-0 9/16"
Beam 9	47'-10 3/4"		
Beam 10	47'-11 9/16"		
Beam 11	48'-0 3/8"		
Beam 12	48'-1 3/16"		

*@ Top of Steel Frame



DETAIL B
Scale: 3/4"=1'-0"

BEAM & LEG COORDINATES*					
Point	North	South	Point	North	South
101	3762.423	3949.430	151	3983.326	3935.676
102	3784.750	3956.133	152	3975.898	4002.165
103	3747.077	3962.837	153	3968.470	4008.654
104	3739.404	3969.540	154	3961.042	4015.144
111	3790.842	3954.898	231	4003.756	4000.415
112	3783.218	3961.559	232	3996.328	4006.904
113	3775.593	3968.220	233	3988.901	4013.394
114	3767.969	3974.881	234	3981.473	4019.884
211	3807.506	3958.155	161	4023.265	4004.941
212	3799.882	3964.816	162	4015.837	4011.430
213	3792.257	3971.477	163	4008.410	4017.919
214	3784.633	3978.138	164	4000.982	4024.409
121	3823.192	3961.612	171	4034.037	4022.276
122	3817.567	3968.273	172	4088.731	4028.671
123	3809.943	3974.934	173	4079.404	4035.078
124	3802.319	3981.595	174	4072.077	4041.479
131	3896.534	3976.437	241	4111.491	4026.677
132	3889.021	3983.001	242	4104.164	4033.079
133	3881.508	3989.565	243	4096.837	4039.480
134	3873.995	3996.128	244	4089.510	4045.881
221	3916.057	3980.648	181	4127.992	4030.844
222	3908.544	3987.212	182	4120.665	4037.245
223	3901.031	3993.775	183	4113.339	4043.646
224	3893.518	4000.339	184	4106.012	4050.047
141	3936.613	3985.081	191	4156.008	4036.153
142	3929.100	3991.645	192	4148.722	4044.519
143	3921.587	3998.208	193	4141.436	4050.884
144	3914.074	4004.772	194	4134.150	4057.250

NOTES

1. For General Notes, see BR 1101.
2. For Diaphragm Details, see Std. SCB-D7-67.
3. For Pier Diaphragm Details, see BR 1108.
4. All shop connections for diaphragms shall be 5/16" fillet welds. All field connections shall be 7/8" ϕ high-strength bolts.
5. ℄ Pier is defined as the intersection of ℄ Frame Leg and top of steel frame.
6. Frames are bent at each splice point.
7. Legs between splice points are of equal length and are parallel to each other.
8. Beams are of unequal lengths and are not parallel to each other.
9. Lengths of end beams are measured from ℄ bearing at abutments to ℄ splice.
10. Lengths of legs and intermediate beams are measured from ℄ splice to ℄ splice.
11. ℄ bearing lines at abutments, ℄ Pier lines and ℄ splice lines are parallel to each other. ℄ bearing lines at piers are not parallel to each other.

EXAMPLE SHEET

Added Horizontal Layout Detail and Beam & Leg Coordinates Table, Revised Detail A.
W. Tripp 10-29-69

VERMONT
STATE HIGHWAY DEPARTMENT
TOWN OF CASTLETON
U.S. ROUTE 4

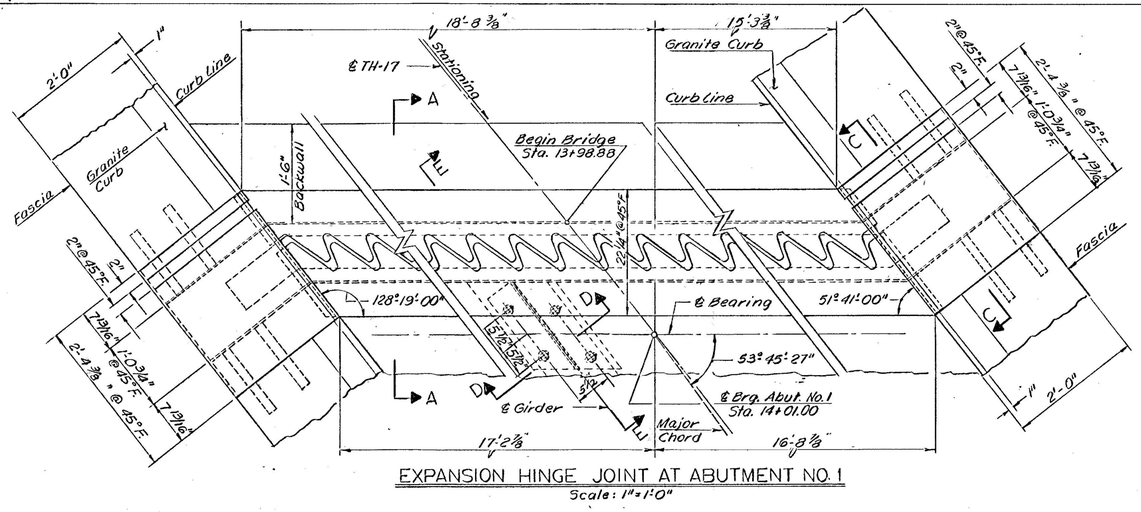
TH-17 RELOC. OVER U.S. RTE 4 RELOC.

SUPERSTRUCTURE DETAILS

McFARLAND-JOHNSON
CONSULTING ENGINEERS
BINGHAMTON, NEW YORK

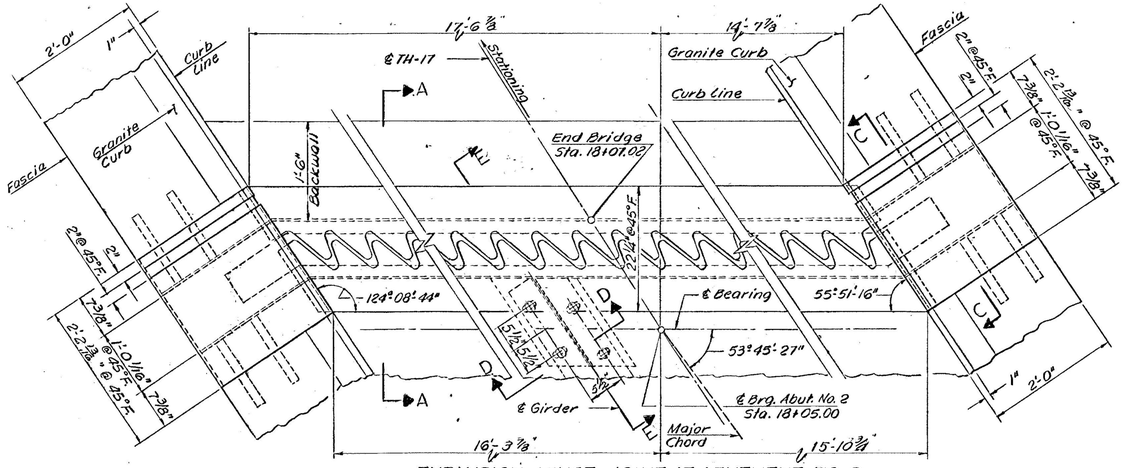
DESIGNED WDS	CHECKED REC	DATE 7-12-68
DRAWN RMG	IN CHARGE HGC	SCALE AS SHOWN

PROJECT NO. F020-1(7) SH 49 OF 206
CONTRACT NO. BR. 1107



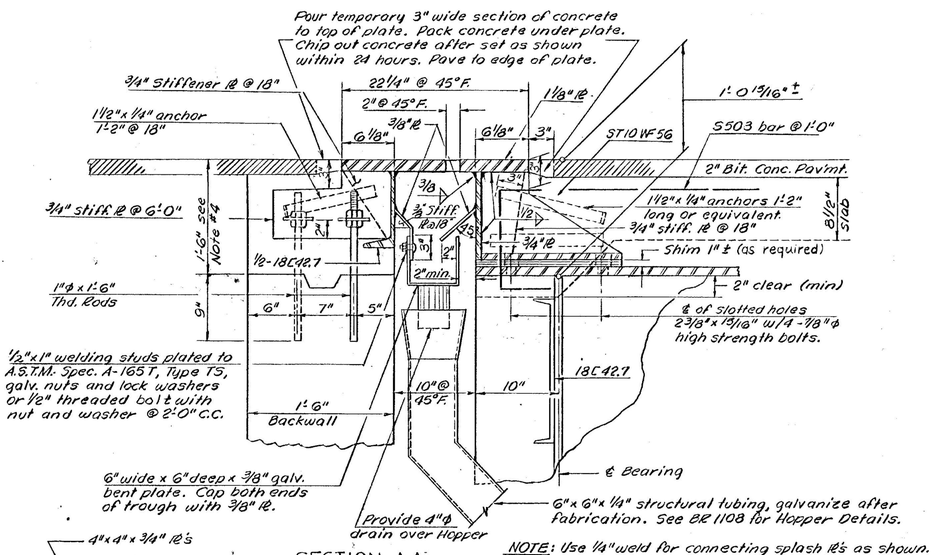
EXPANSION HINGE JOINT AT ABUTMENT NO. 1

Scale: 1"=1'-0"



EXPANSION HINGE JOINT AT ABUTMENT NO. 2

Scale: 1"=1'-0"



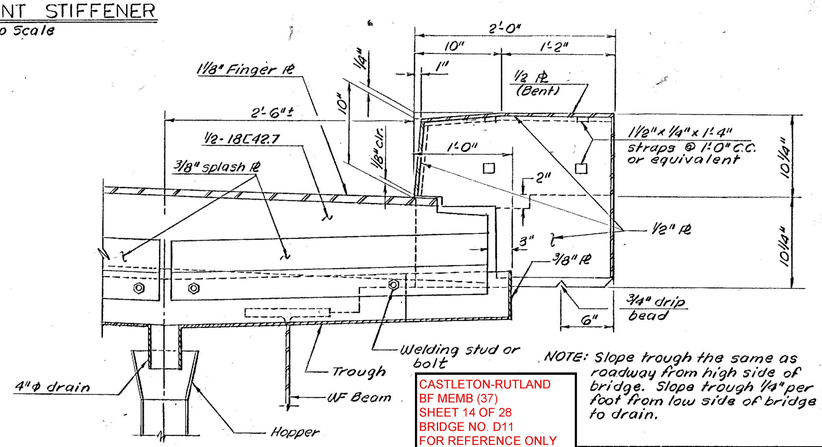
SECTION A-A

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

NOTE: Use 1/4" weld for connecting splash ℓ's as shown. There must be a 1" minimum left from the edge of the bolt hole to the edge of the plate where the trough is connected to the drip plate. All inaccessible areas exposed to the weather after installation shall be given 3 coats of paint prior to installation. Adjustment bolts to be used @ 6'-0" intervals.

ADJUSTMENT STIFFENER

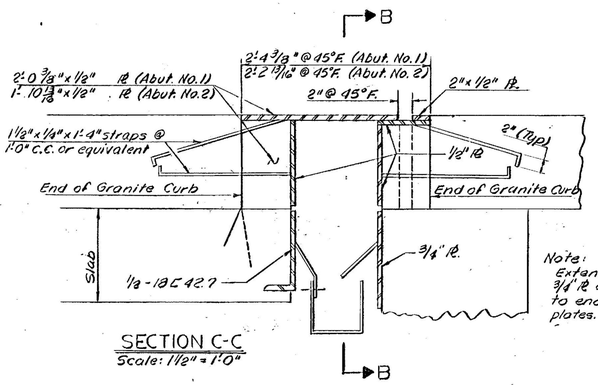
No Scale



SECTION B-B

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

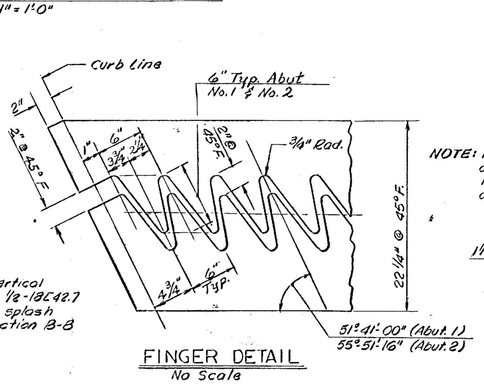
NOTE: Slope trough the same as roadway from high side of bridge. Slope trough 1/4" per foot from low side of bridge to drain.



SECTION C-C

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

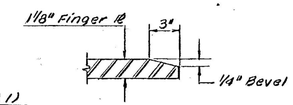
Note: Extend the vertical 3/4" ℓ and the 1/2-18C42.7 to end of the splash plates. See Section B-B



FINGER DETAIL

No Scale

NOTE: Fingers to be symmetrical about ℄ of plate. Flame-cut Finger ℓ from a 21" x 1 1/8" ℓ.



TOOTH DETAIL

No Scale

NOTES

1. For General Notes, see BR 1101.
2. For Sections D-D and E-E, see BR 1109
3. Expansion dam shall conform to roadway cross slope.
4. Three coats of paint shall be applied in accordance with Item 904.03 D to the interior surfaces of the expansion dam prior to construction.

Revised Finger ℓ Detail
W. Tripp 10-29-69

CASTLETON-RUTLAND
BF MEMB (37)
SHEET 14 OF 28
BRIDGE NO. D11
FOR REFERENCE ONLY

VERMONT
STATE HIGHWAY DEPARTMENT
TOWN OF CASTLETON .
U.S. ROUTE 4

TH-17 RELOC. OVER U.S. RTE. 4 RELOC.

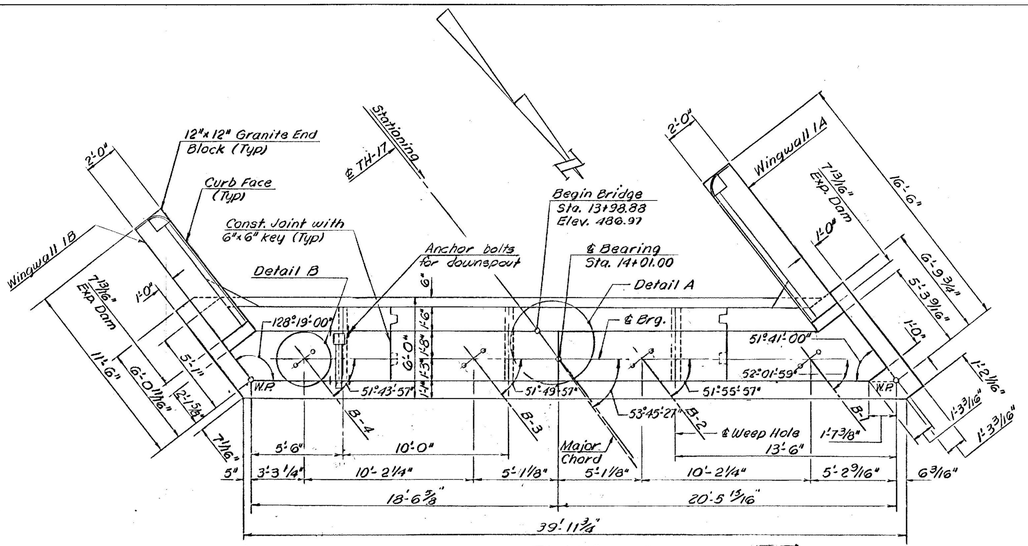
JOINT DETAILS

McFARLAND-JOHNSON
CONSULTING ENGINEERS
BINGHAMTON, NEW YORK

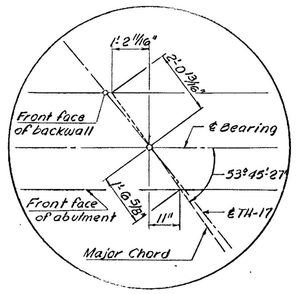
DESIGNED WDS	CHECKED REC	DATE 7-12-68
DRAWN RMG	IN CHARGE HGC	SCALE AS SHOWN

PROJECT NO. F020-1(7) SH. 52 OF 206

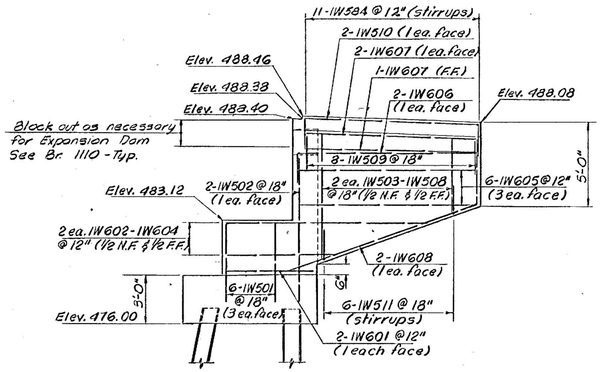
CONTRACT NO. BR 1110



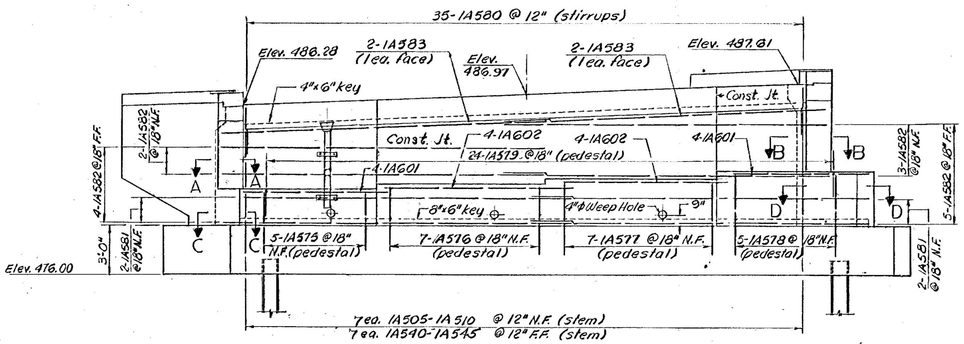
PLAN
Scale: 1/4"=1'-0"



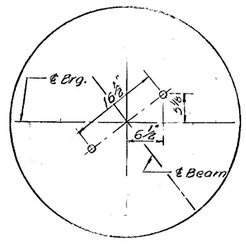
DETAIL A
No Scale



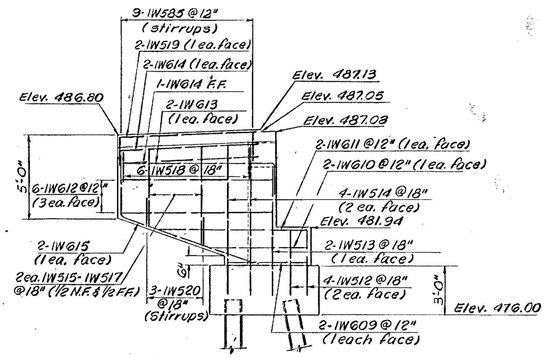
ELEVATION - WINGWALL 1A
Scale: 1/4"=1'-0"



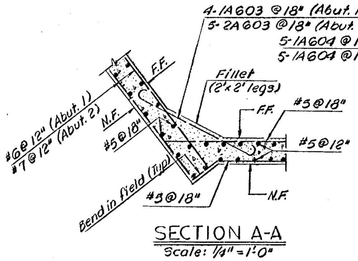
ELEVATION
Scale: 1/4"=1'-0"



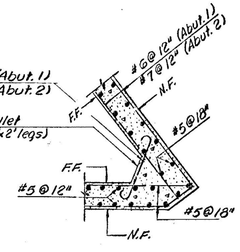
DETAIL B
ANCHOR BOLT LAYOUT
No Scale



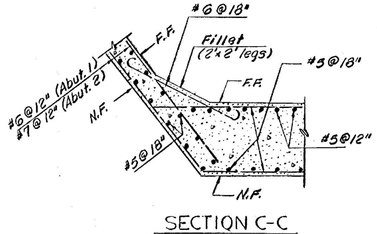
ELEVATION - WINGWALL 1B
Scale: 1/4"=1'-0"



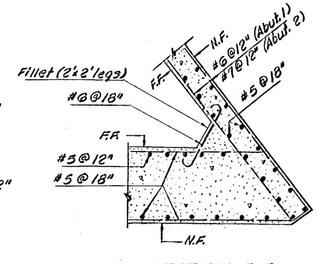
SECTION A-A
Scale: 1/4"=1'-0"



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



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



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

NOTES

1. For General Notes, see BR 1101.
2. For Typical Sections, see BR 1113.
3. For key Plan, see BR 1113.
4. For reinforcing details, see BR 1116 & BR 1117.
5. For Anchor Bolt details, see BR 1109.
6. For construction joint details, see standard sheet SCB-D6-67.
7. For Footing details, see BR 1113.
8. Finish grades and top of wall elevations may be adjusted by the engineer.
9. Maximum spacing between weep holes shall be 10'-0".
10. For Downspout details, see BR 1108

Revised Curb Stirrup Bars & Abut. Stem Bar Marks
W. Tripp 10-29-69

VERMONT
STATE HIGHWAY DEPARTMENT
TOWN OF CASTLETON
U.S. ROUTE 4

TH-17 RELOC. OVER U.S. RTE. 4 RELOC.

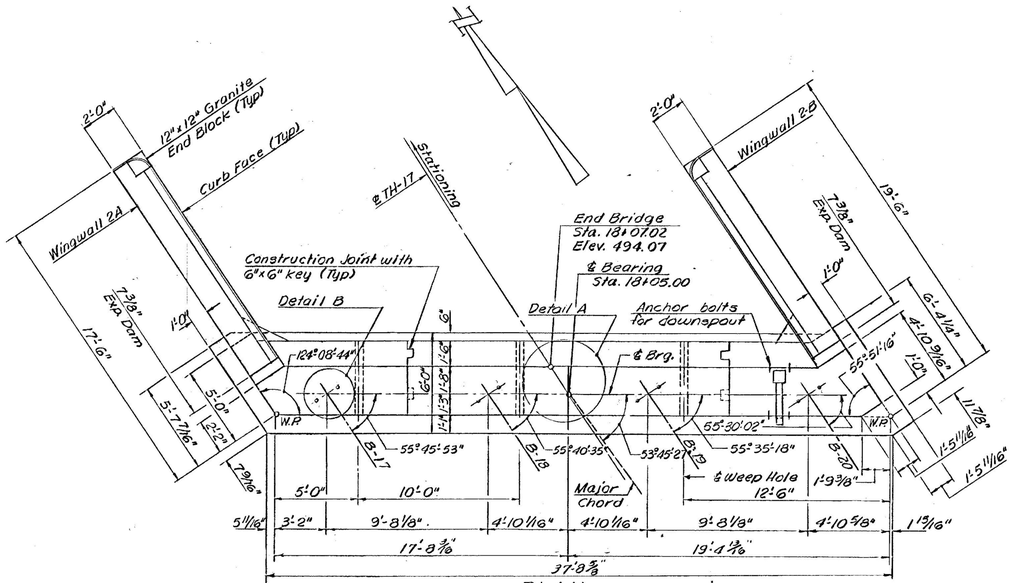
ABUTMENT NO. 1 DETAILS

McFARLAND-JOHNSON
CONSULTING ENGINEERS
BINGHAMTON, NEW YORK

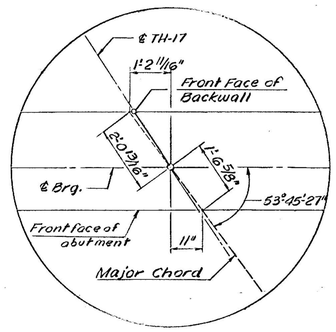
DESIGNED WDS	CHECKED REC	DATE 7-12-68	
DRAWN RMG	IN CHARGE HGC	SCALE AS SHOWN	

PROJECT NO. F020-1(7) SH. 53 OF 206
CONTRACT NO. BR 1111

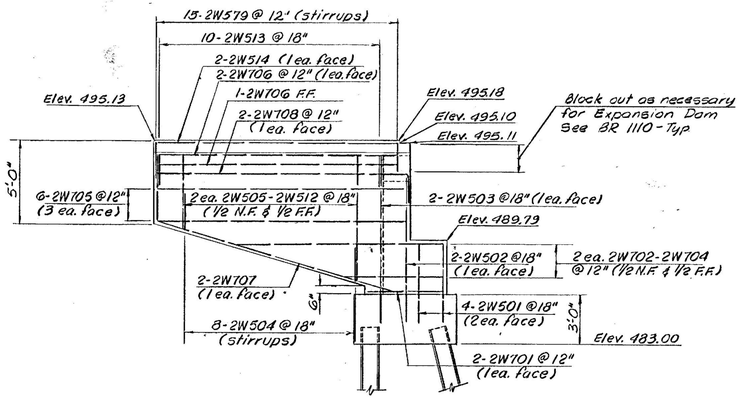
CASTLETON-RUTLAND
BF MEMB (37)
SHEET 15 OF 28
BRIDGE NO. D11
FOR REFERENCE ONLY



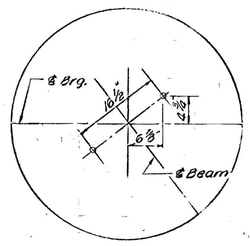
PLAN
Scale: 1/4"=1'-0"



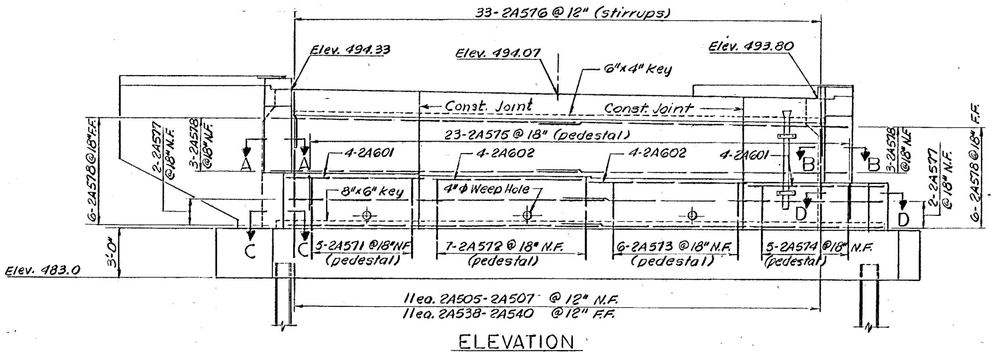
DETAIL A
No Scale



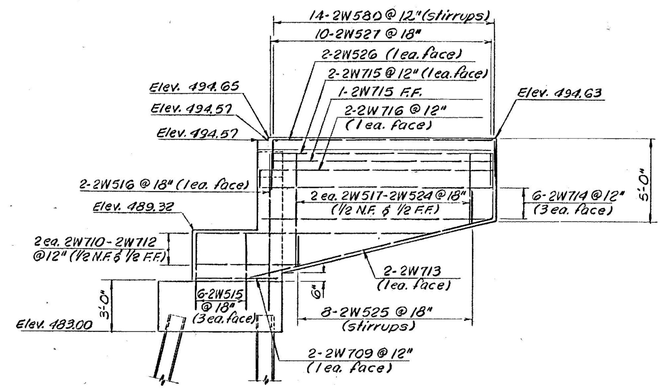
ELEVATION-WINGWALL 2A
Scale: 1/4"=1'-0"



DETAIL B
ANCHOR BOLT LAYOUT
No Scale



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



ELEVATION-WINGWALL 2B
Scale: 1/4"=1'-0"

NOTES
1. For General Notes, see BR 1101.
2. For Sections A-A thru D-D, see BR 1111.
3. For additional notes, see BR 1111.
4. For Downspout details, see BR 1108

Added Abutment Excavation and Backfill Detail. W. Tripp 1-20-70

Revised Curb Stirrup Bars & Abut. Stem Bar Marks W. Tripp 10-29-69

VERMONT
STATE HIGHWAY DEPARTMENT
TOWN OF CASTLETON
U.S. ROUTE 4

TH-17 RELOC. OVER U.S. RTE. 4 RELOC.

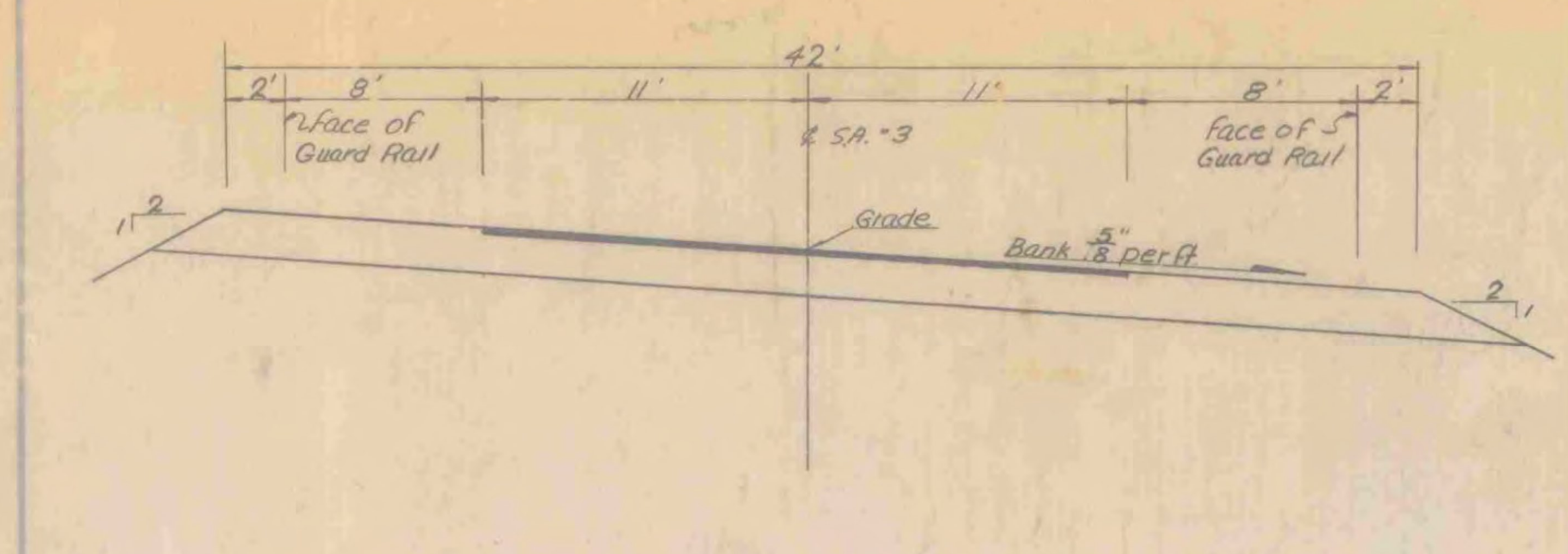
ABUTMENT NO. 2 DETAILS

McFARLAND-JOHNSON
CONSULTING ENGINEERS
BINGHAMTON, NEW YORK

DESIGNED WDS	CHECKED REC	DATE 7-12-68
DRAWN RMG	IN CHARGE HGC	SCALE AS SHOWN

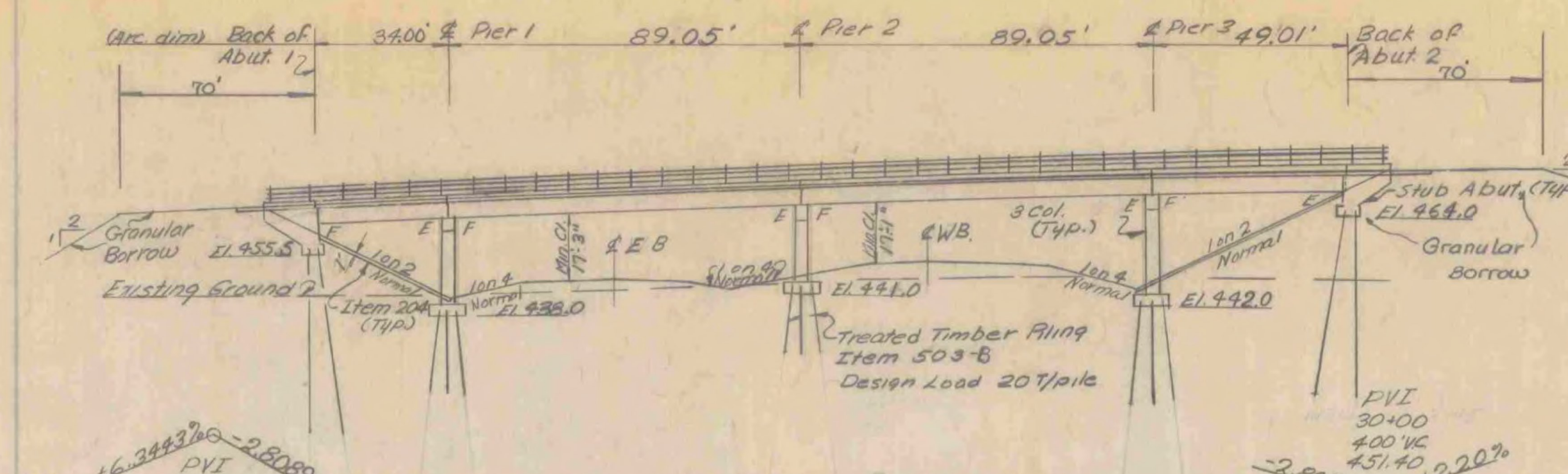
PROJECT NO. F020-1(7) SH 54 OF 28 SHTS

CONTRACT NO. BR 1112



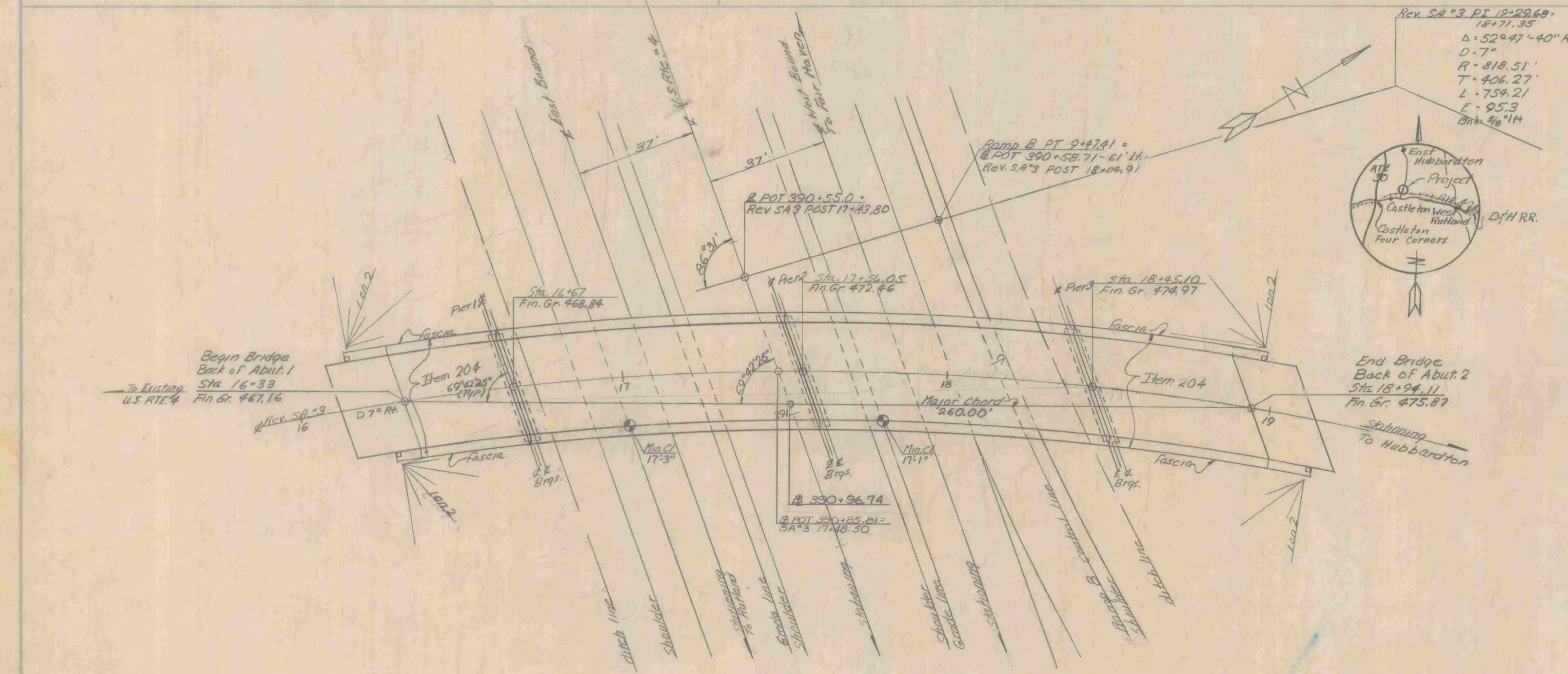
NEW HIGHWAY SECT. STA. 16+00

SCALE 1" = 5'



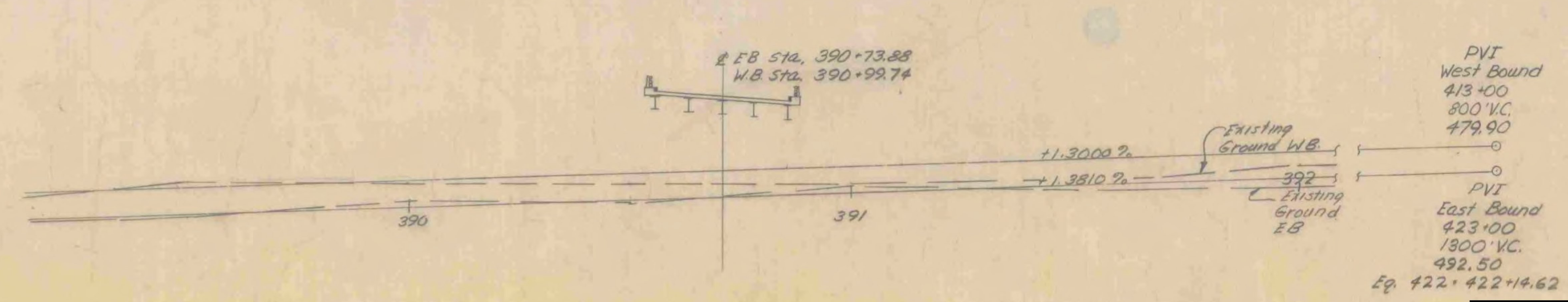
NEW HIGHWAY PROFILE ALONG ℄ SA #3

SCALE 1" = 30'



PLAN

SCALE 1" = 20'



PROFILE OF PROPOSED U.S. #4

SCALE N.T.S.

HIGHWAY NO. US #4 NAME OF HIGHWAY Fair Haven - Rutland Rd.

STRUCTURE NO. ______ COUNTY Rutland TOWN Castleton

PROJECT NO. F020-1(4)AP LOCATION Castleton - Ira SA #3 over U.S. #4

EXISTING STRUCTURE

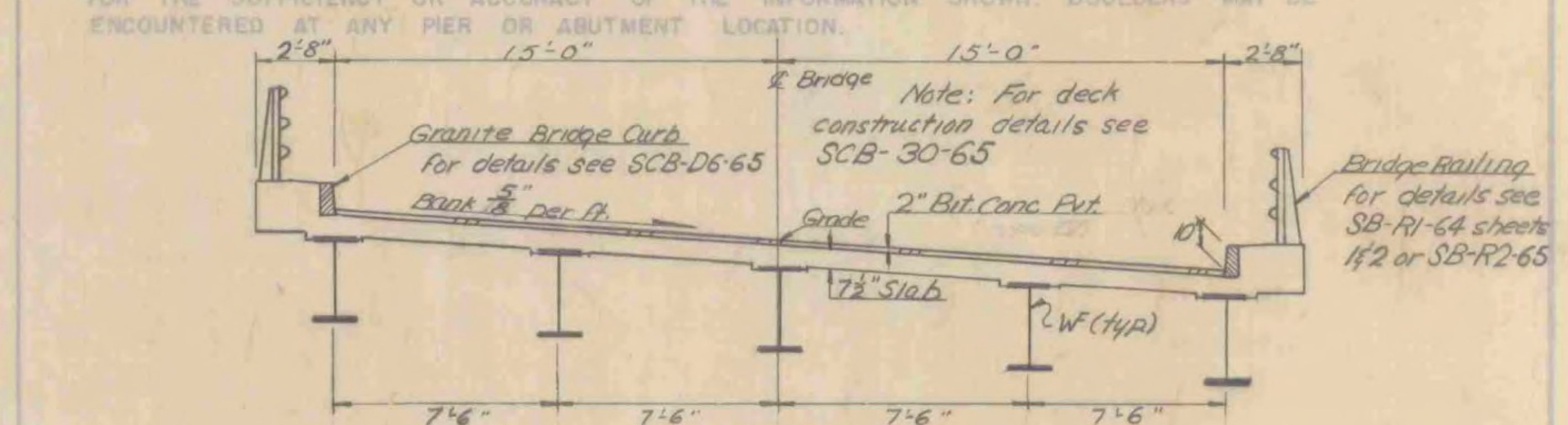
1 RATED LOADING OF EXISTING STRUCTURE
2 TYPE OF EXISTING STRUCTURE
3 UNDERCLEARANCE ELEVATION OF EXISTING STRUCTURE
4 WHAT DISPOSITION SHOULD BE MADE OF EXISTING STRUCTURE? ______ COST OF REMOVAL
5 SHOULD EXISTING STRUCTURE BE USED TO MAINTAIN TRAFFIC DURING CONSTRUCTION OF NEW STRUCTURE?
6 SHOULD NEW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

NEW STRUCTURE

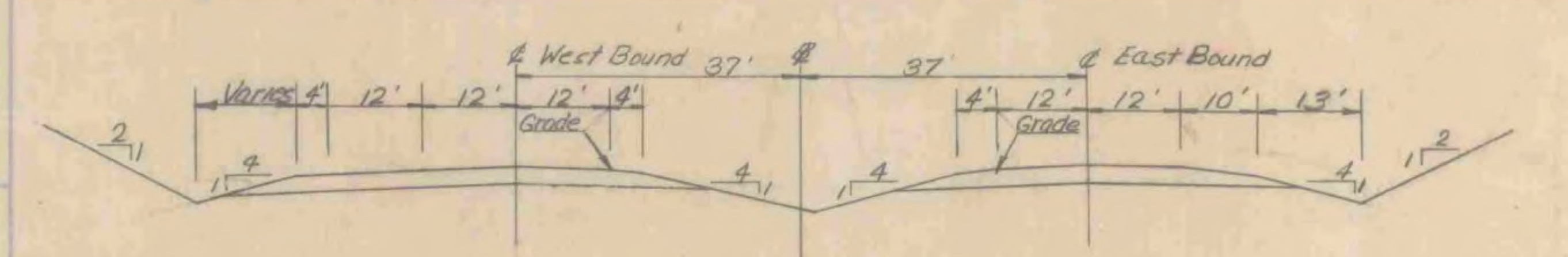
1 RECOMMENDED TYPE OF STRUCTURE 4-Simple Spans (3 composite)
2 RECOMMENDED CLEAR SPAN OR SPANS 34'-89'-89'-49'
MEASURED PARALLEL TO ℄ NEW HIGHWAY
MEASURED AT RIGHT ANGLES TO ℄ STREAM
3 ARE THERE OBJECTIONS TO A PIER IN THE STREAM? ANSWER YES OR NO NA
4 ORDINARY HIGH WATER ELEVATION AT NEW STRUCTURE NA
5 EXTREME HIGH WATER ELEVATION AT NEW STRUCTURE NA SOURCE OF INFORMATION NA
6 IS ALL WATER INTENDED TO PASS THROUGH NEW STRUCTURE? NA
7 DOES STREAM REACH ITS MAXIMUM HIGH WATER ELEVATION RAPIDLY? NA IS ORDINARY RISE RAPID? NA
8 LOW WATER ELEVATION AT NEW STRUCTURE NA
9 DRAINAGE AREA IN ACRES ABOVE STRUCTURE NA CHARACTER OF TERRAIN NA
10 IS STREAM EVER DRY NA
11 VELOCITY OF STREAM AT HIGH WATER STAGE NA ESTIMATED DISCHARGE NA
12 AREA FULL OPENING NA AREA BELOW ORDINARY H.W. NA
13 CHARACTER OF SCOUR NA DRIFT NA ICE NA
14 ESTIMATED DRAINAGE AREA ABOVE NATURAL OR ARTIFICIAL STORAGE NA
15 VERTICAL CLEARANCE ABOVE FLOOD ELEVATION NA
16 ARE SIDEWALKS REQUIRED? IF SO ON WHAT SIDE? No BOTH SIDES —
17 RECOMMENDED TYPE OF PAVEMENT 2" Bituminous Concrete Pavement
18 TRAFFIC TO BE MAINTAINED UNDER ITEM NO. NA ONE OR TWO WAYS NA PROBABLE COST NA
19 PROBABLE COST OF CLEARING AND GRUBBING STREAM CHANNEL AT STRUCTURE SITE NA
20 SHOULD PROVISIONS BE MADE FOR PUBLIC UTILITIES? NO
21 ESTIMATED ALLOWABLE LOAD ON FOUNDATIONS 20T/Pile SHOULD PILES BE USED? Yes EST. LGTH. See Boring Log

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.



BRIDGE TYPICAL SECTION



TYPICAL SECTION U.S. #4 UNDER BRIDGE

1" = 20'

RECOMMENDED FOR APPROVAL	R J Funk (CONST. ENGINEER)	9/12/66 (DATE)
RECOMMENDED FOR APPROVAL	[signature] (BRIDGE ENGINEER)	9/1/66 (DATE)
RECOMMENDED FOR APPROVAL	E. H. Stickney (ASST. CHIEF ENGINEER)	9/12/66 (DATE)
APPROVED BY	R H Arnold (CHIEF ENGINEER)	9/12/66 (DATE)

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

US #4 IN THE TOWNS OF CASTLETON - IRA

ROUTE NO. US #4 LOG STA. 391+00

S.A. #3 OVER U.S. #4

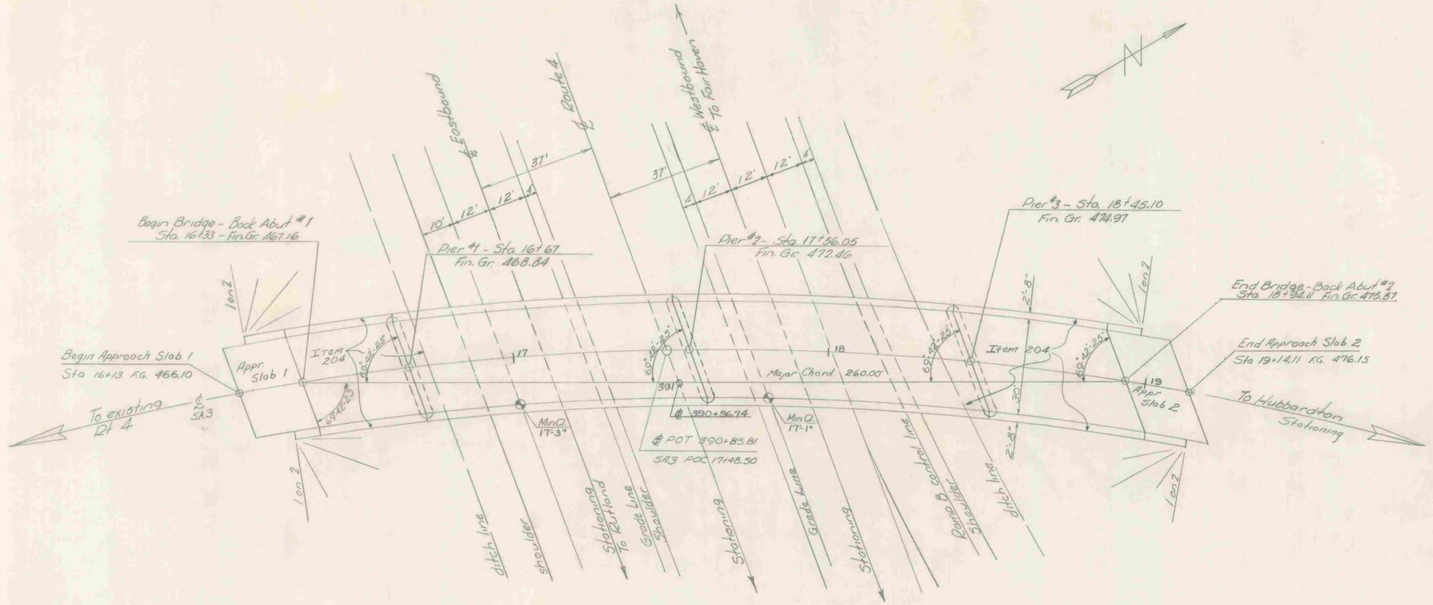
PRELIMINARY INFORMATION

SURVEYED BY BARNES DRAWN BY C.O. BRYAN CHECKED BY R. WATSON IN CHARGE R.L. MERCHANT SCALE AS NOTED DATE

PROJECT NO. AP-020-1(4) SHEET 57 OF 301

BR-100

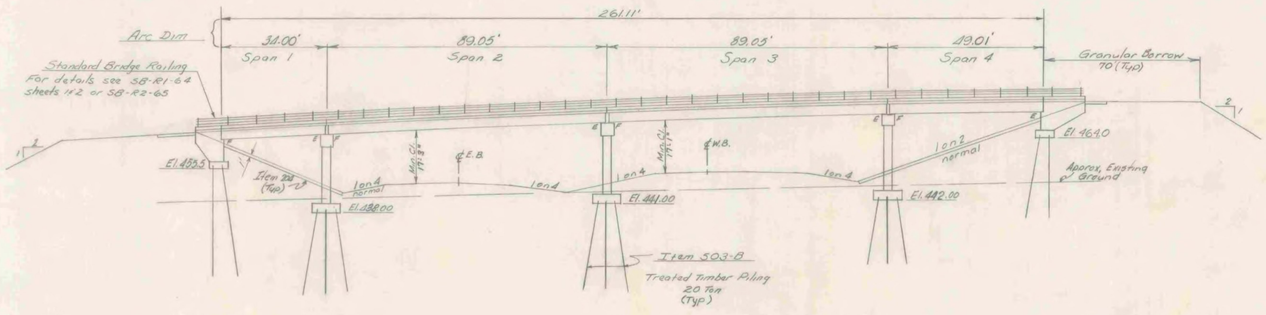
CASTLETON-RUTLAND
BF MEMB (37)
SHEET 17 OF 28
BRIDGE NO. 2
FOR REFERENCE ONLY



PLAN

+6.34%
-2.80%
PVI
18+75
630' VC
483.00

See framing plan sheet for curb and railing dimensions.



ELEVATION

General Notes

1. For General Notes see SCB-D1-65.
2. The Abutments and Piers are parallel to each other.
3. Superstructure details shall be as per SCB-30-65 except Span #1 where 36 WF 135 beams are used as fascia beams. Modify superstructure details to provide 5/8" per Foot superelevation.
4. No scuppers are to be used on this Bridge.
5. Dimensions given at beams are horizontal dimensions from ℄ bearing to ℄ bearing.
6. The three interior beams are parallel to each other.
7. Dimensions given for diaphrams are horizontal dimensions for ℄ beam to ℄ beam.
8. Water Repellent "Item 440 shall be applied to top of safety walks, fascia and back to drip notch under the slab and to all exposed areas of substructure not otherwise treated.
9. Construct embankment within area of abutments to 6" above footing elevation prior to driving piling. Excavation of this material is to be paid as Structure Excavation - Item 109.
10. For termination of cover Rs see SCB-D7-65 ©.
11. Embankment at abutments shall be predrilled to old ground for piling.
12. Minimum cover for reinforcement in footings shall be 3".
13. Item 525-A1e loading tests, shall be performed only if ordered by the Engineer.

Index of Sheets

List of Standards

	Date
SCB-30-65	2-24-66 R
SCB-D1-65	2-14-66 R
SCB-D2-65 (A)(B)(C)	2-4-65 R
SCB-D3-65 (A)(B)(C)(D)(E)	Do
SCB-D4-65	Do
SCB-D5-65	Do
SCB-D6-65 (A)(B)(C)	3-7-66 R
SCB-D7-65 (A)(B)(C)(D)	2-8-65 R
SCB-D8-65 (A)(B)	Do
SCB-D9-65 (A)(B)	Do
SB-R1-64 Sheet 1	12-5-66 R
SB-R1-64 Sheet 2	11-8-66 R
SB-R2-65	Do

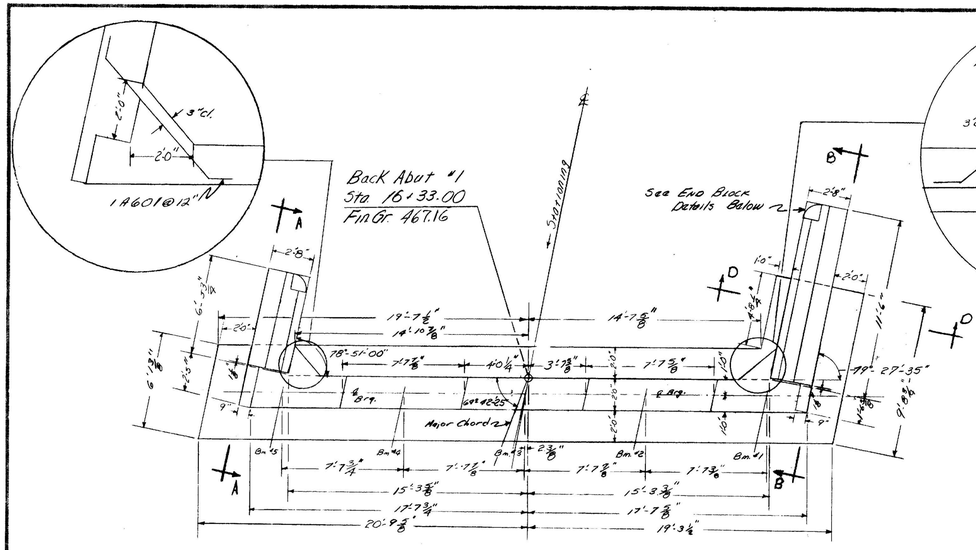
Reference Sheets

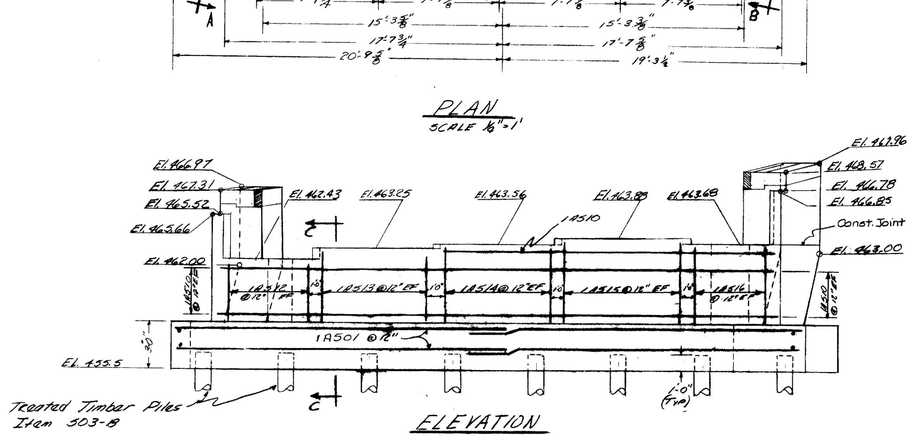
50 Scale layout & profile sheets:
U.S. #4 - Sta. 385+00 - 401+00
SA #3 - Sta. 4+50 - 32+00
Cross Sections:
U.S. #4 - Sta. 390+00 - 392+50
SA #3 - Sta. 14+00 - 21+50

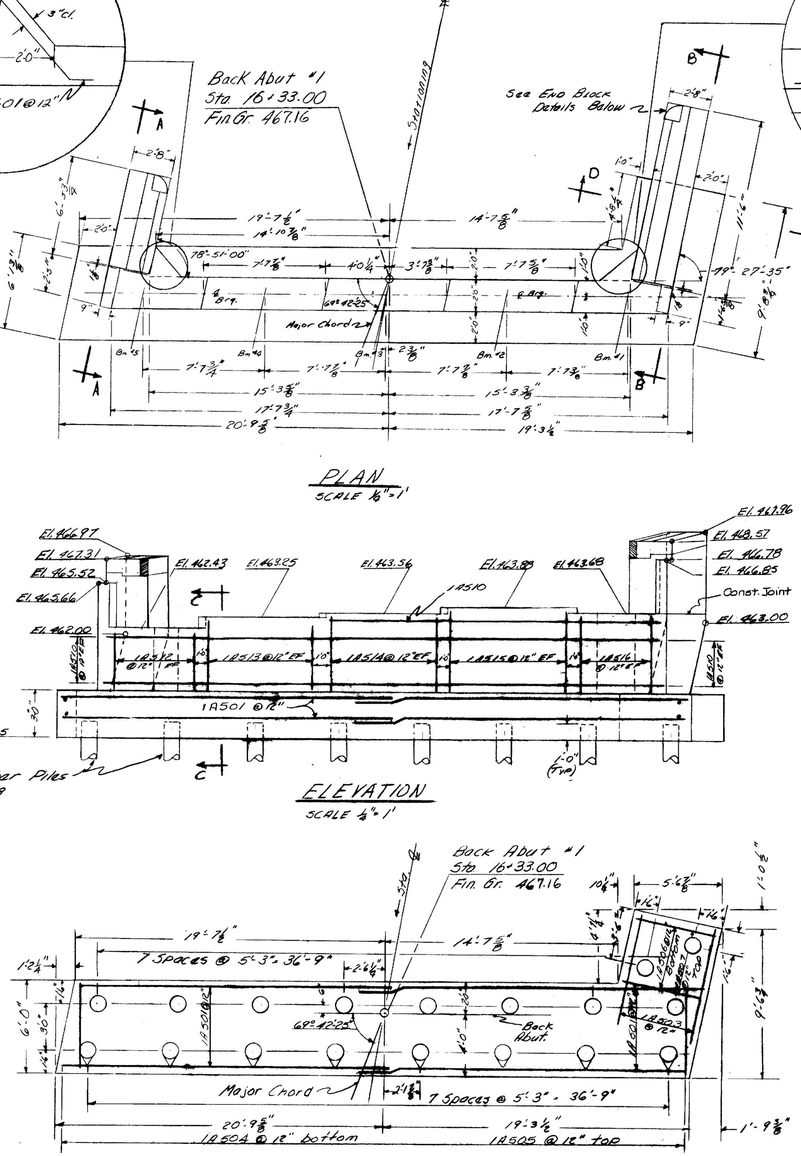
CASTLETON-RUTLAND
BF MEMB (37)
SHEET 18 OF 28
BRIDGE NO. 2
FOR REFERENCE ONLY

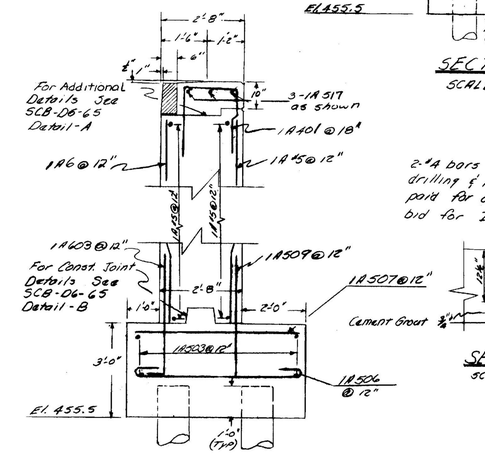
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

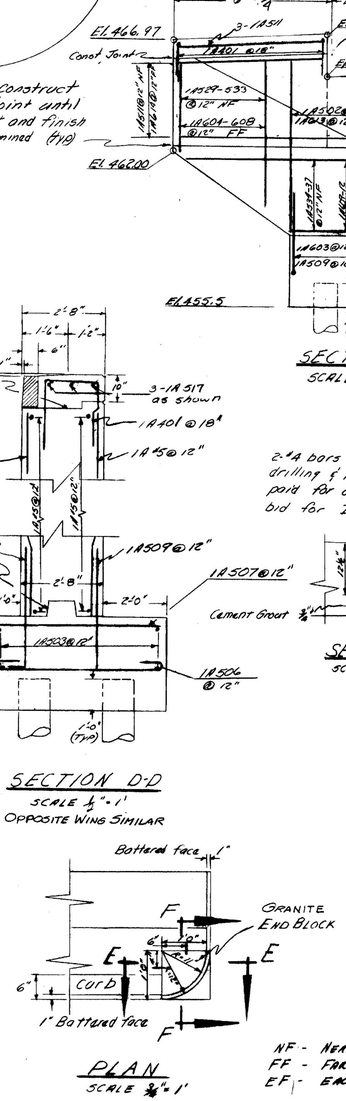
PROJECT CASTLETON - IBA
TOWN OF CASTLETON
ROUTE NO. U.S. 4 STA. 391+00
PLAN & ELEVATION
SA #3 OVER U.S. RTE. #4
SCALE 1" = 20'
IN CHARGE R. MERCHANT
DRAWN BY J. JENNINGS CHECKED BY C.O'BRYAN 2-67
PROJECT NO. AP-020-1(4)
SHEET 58 OF 301 BR 101

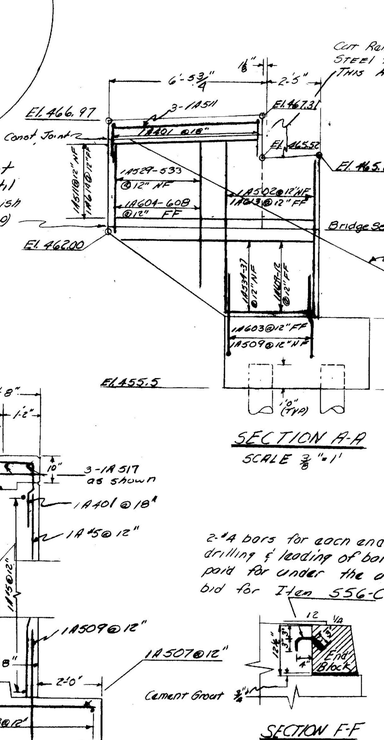












PLAN
SCALE 1/8" = 1'

SECTION A-A
SCALE 3/8" = 1'

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

ELEVATION
SCALE 1/8" = 1'

SECTION D-D
SCALE 1/2" = 1'
OPPOSITE WING SIMILAR

SECTION F-F
SCALE 3/4" = 1'

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

FOOTING & PILE LAYOUT
SCALE 1/8" = 1'

▽ INDICATES DIRECTION of 3"/FT BATTER
PILE DESIGN LOAD – 20 TONS
ESTIMATED PILE LENGTH = 45'

PLAN
SCALE 3/4" = 1'

NF - NEAR FACE
FF - FAR FACE
EF - EACH FACE

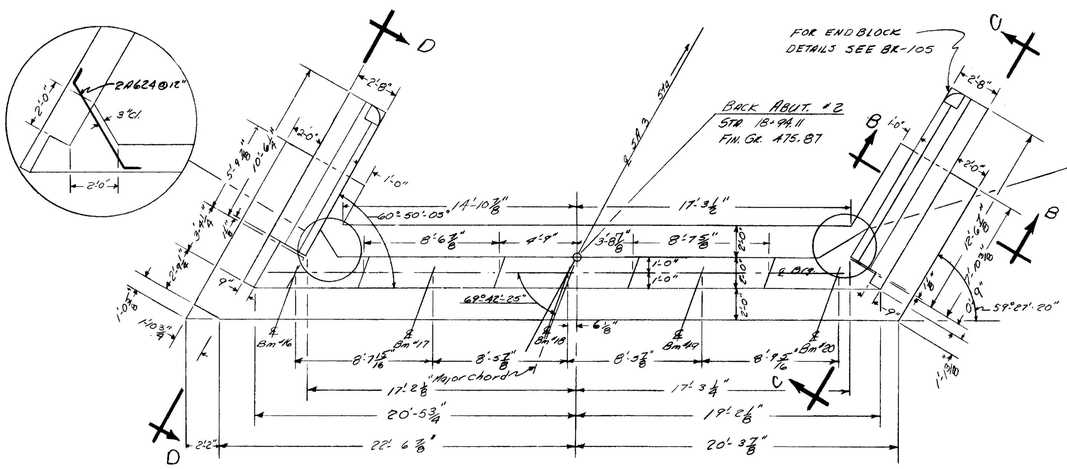
SECTION E-E
SCALE 3/4" = 1'

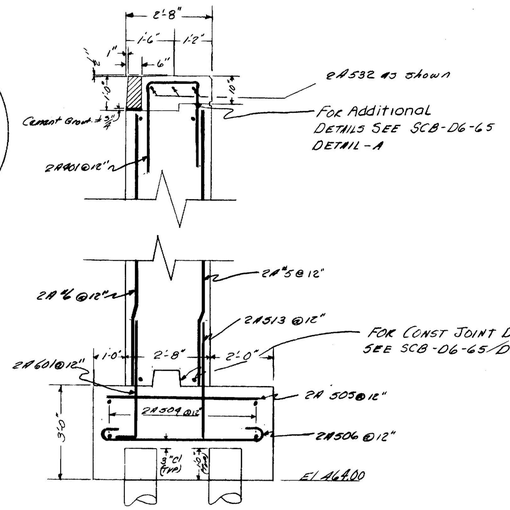
CASTLETON-RUTLAND
BF MEMB (37)
SHEET 19 OF 28
BRIDGE NO. 2
FOR REFERENCE ONLY

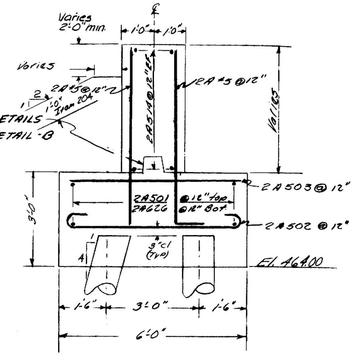
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

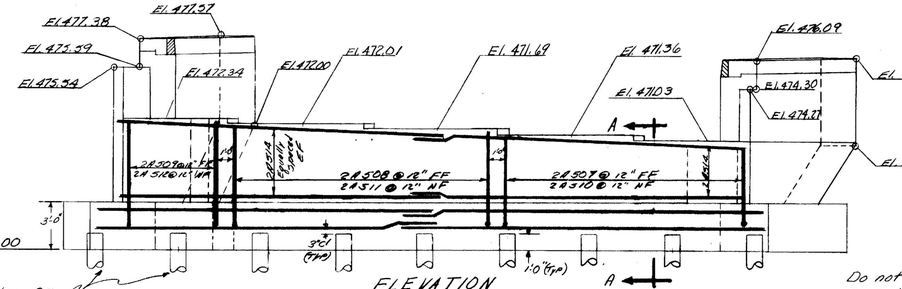
PROJECT CASTLETON - IRA
TOWN OF CASTLETON
ROUTE NO. U.S. 4 STA. 391+00
SA #3 OVER U.S. RTE. 4
ABUTMENT #1 DETAILS
SCALE AS NOTED
IN CHARGE R.L. MERCHANT
DRAWN BY P. FLANDERS CHECKED BY R. LADD 2-7-67
PROJECT NO. AP-020-1(4)
SHEET 62 OF 301 BR 105

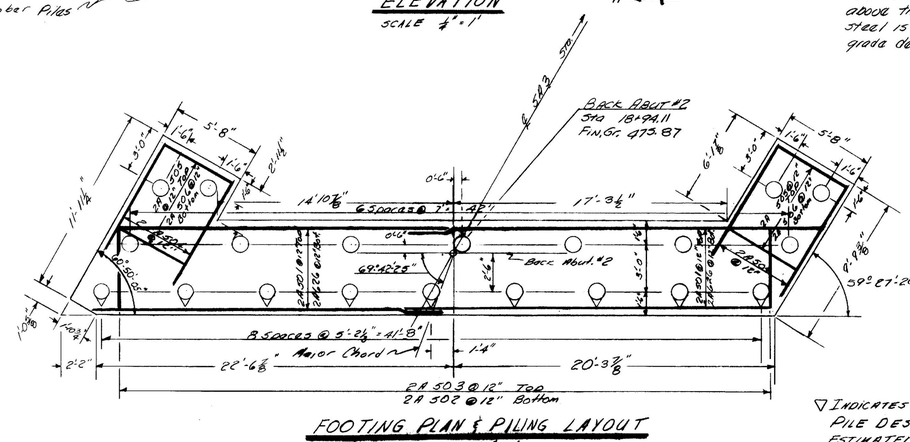
BR 8





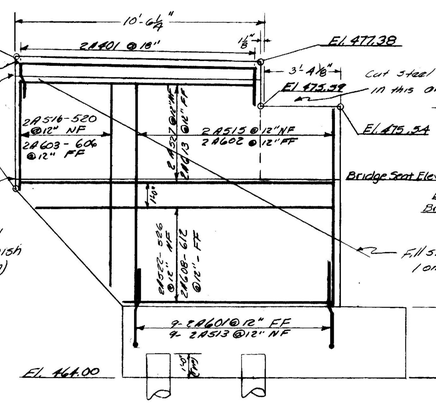


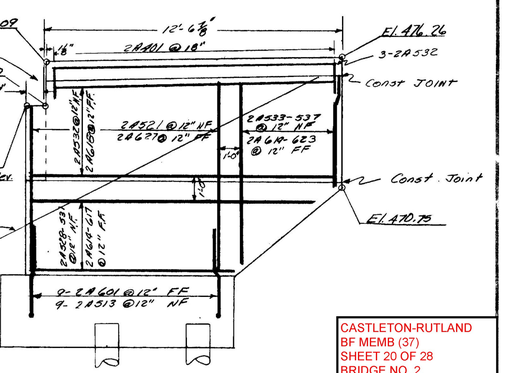




▽ Indicates Direction of 3/4 Batter
Pile Design Load - 20 Tons
Estimated Piling Length - 45'

NF - Near Face
EF - Each Face
FF - Far Face



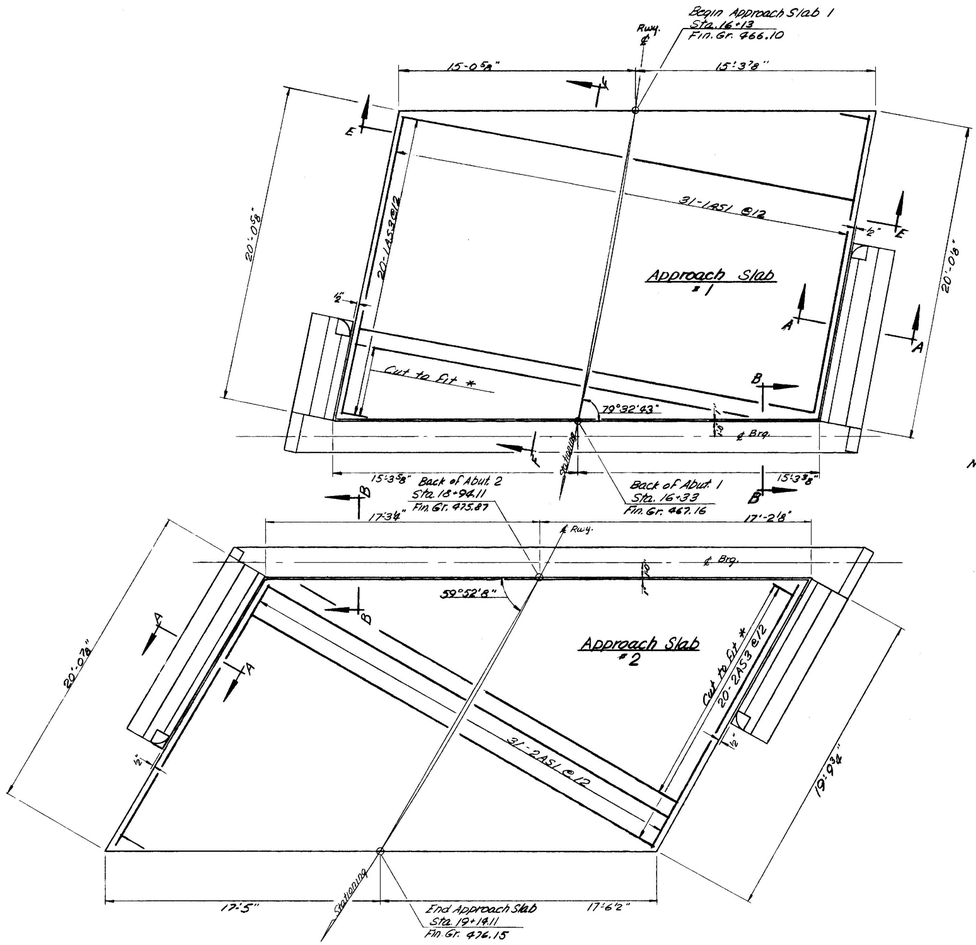


CASTLETON-RUTLAND
BF MEMB (37)
SHEET 20 OF 28
BRIDGE NO. 2
FOR REFERENCE ONLY

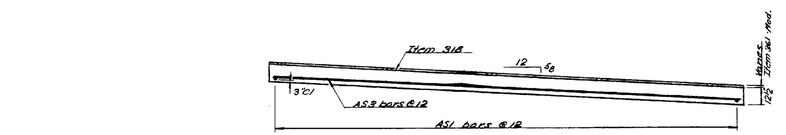
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

PROJECT Castleton - IRA
TOWN OF Castleton
ROUTE NO. US 4 STA. 391+00
SA #3 Over U.S. Rte 4
Abutment #2 Details
SCALE As Noted
IN CHARGE R.L. Merchant
DRAWN BY P.E.Flowers CHECKED BY R.Ladd 2-8-67
PROJECT NO. AP-020-4(4)
SHEET 63 OF 301
BR 106

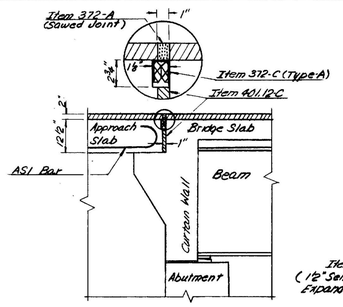
BP-8



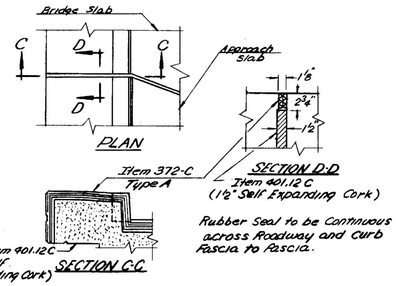
PLAN



SECTION E-E

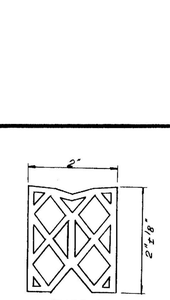


SECTION B-B

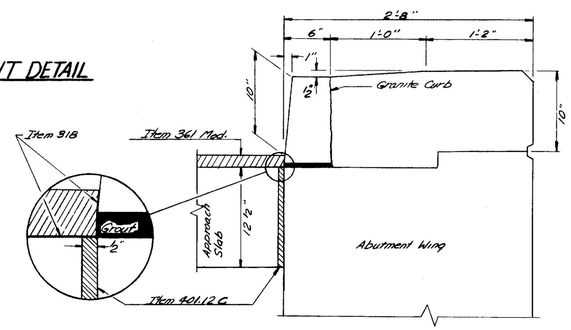


Rubber Seal to be Continuous across Roadway and Curb Fascia to Fascia.

CURB JOINT DETAIL



Details - Item 372-C Joint Sealer - Preformed Material to be Premolded Neoprene Rubber (Other Configurations that satisfy Specifications may be used.)



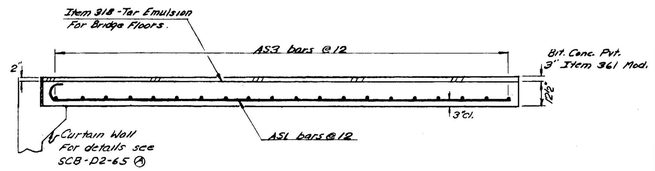
SECTION A-A

Note: For wing wall details see abutment details.

* indicates cut off portion of reinforcing to be used in the opposite end.

AS1 indicates #10 Bar.

AS3 indicates #5 Bar.



SECTION F-F

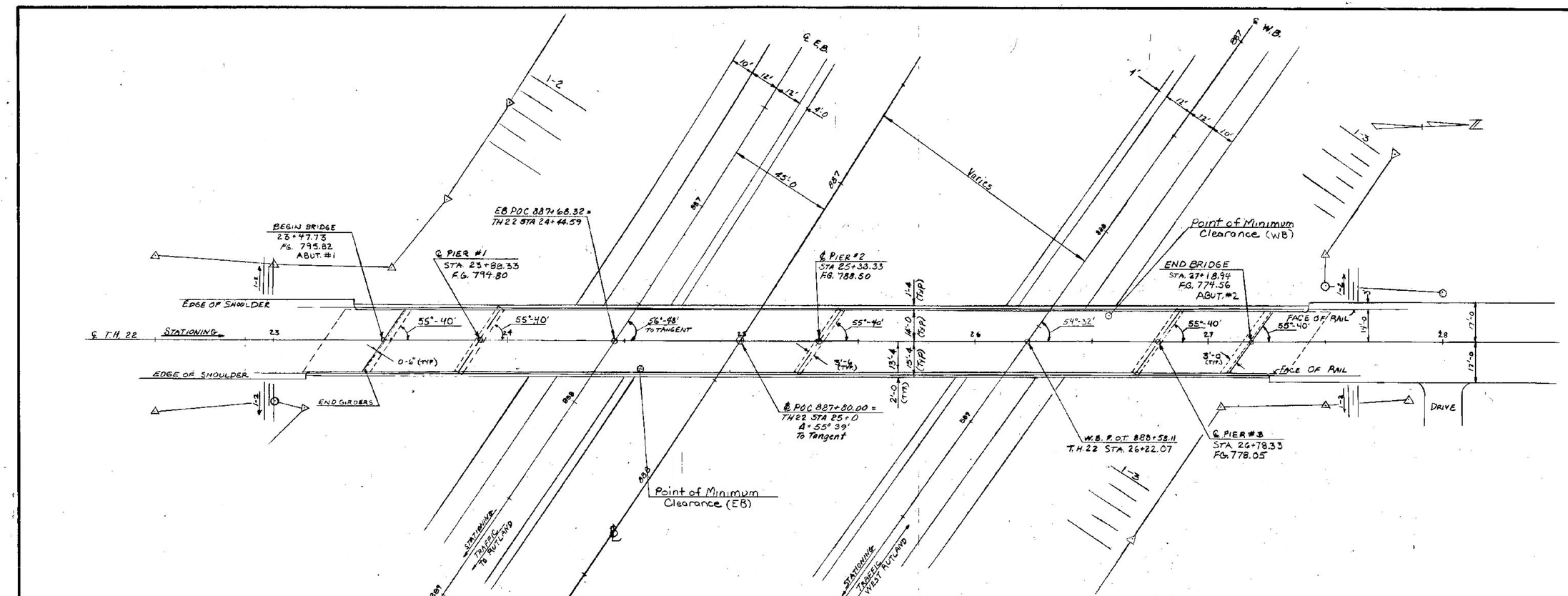
CASTLETON-RUTLAND
BF MEMB (37)
SHEET 21 OF 28
BRIDGE NO. 2
FOR REFERENCE ONLY

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

PROJECT CASTLETON-IRA
TOWN OF CASTLETON
ROUTE NO. U.S. #4 LOG STA. 391+00
APPROACH SLAB "E" #2 DETAILS
S.A. #3 OVER U.S. RTE. #4
SCALE NOT TO SCALE
IN CHARGE R.L. MERCHANT
DRAWN BY C.O'BRYAN CHECKED BY A.E. Patrick 2-67
PROJECT NO. AP 020-1(4)
SHEET 67 OF 301

BR 110

BR-8



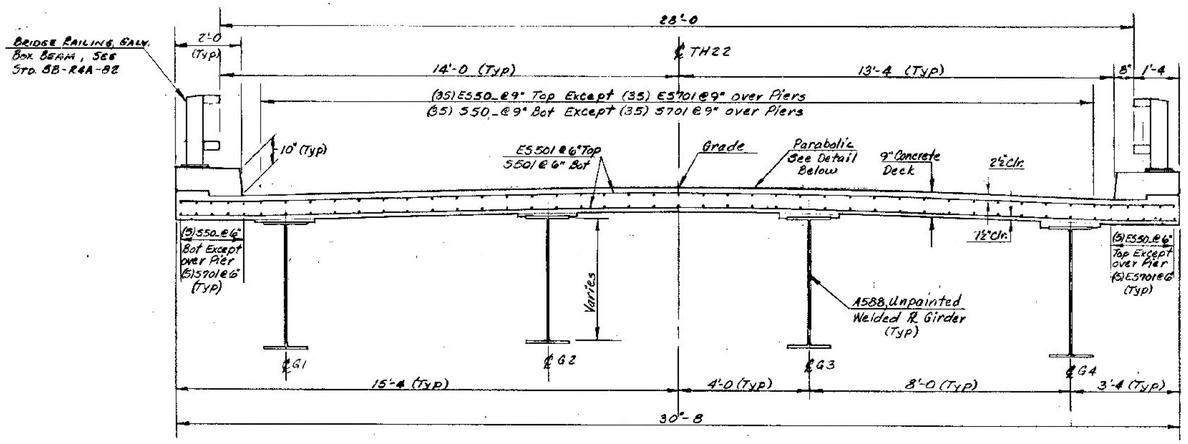
CASTLETON-RUTLAND
BF MEMB (37)
SHEET 22 OF 28
BRIDGE NO. D18
FOR REFERENCE ONLY

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TOWN OF RUTLAND	Bridge No. 4
HIGHWAY NO. TH.22	Log Sta.
	Surv. Sta. ℄ 887+80±
T.H. 22 OVER U.S. 4 E.B. & W.B.	
PLAN AND ELEVATION	
Designed by R. ALDRICH	Drawn by M. EVANS 5/83
Checked by R. Aldrich date 6/83	Bridge Design Supervisor R.L. Oatley date 7-83
PROJECT WEST RUTLAND - RUTLAND	PROJECT NO. F020-1(10)
Bridge Sheet No. BR402	Sheet 189 of 457

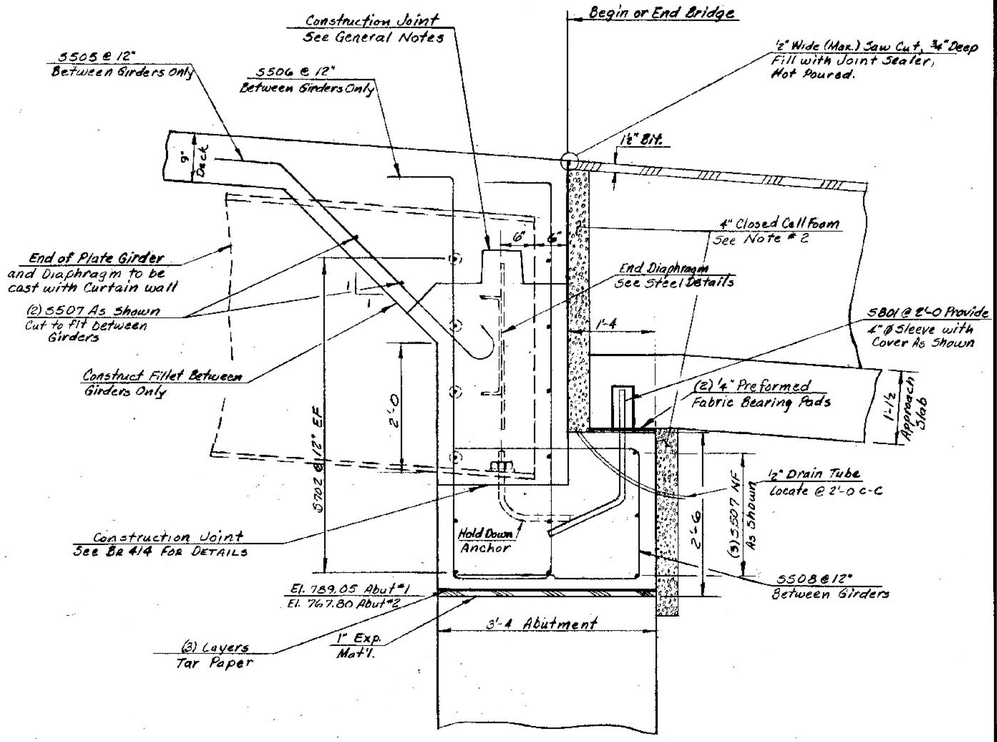
DRAWING 44151.40151

BR-6



~TYPICAL SECTION~

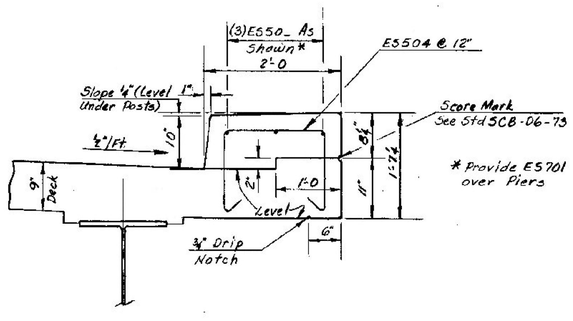
Scale ½"= 1'-0



~TYPICAL CURTAIN WALL DETAIL~

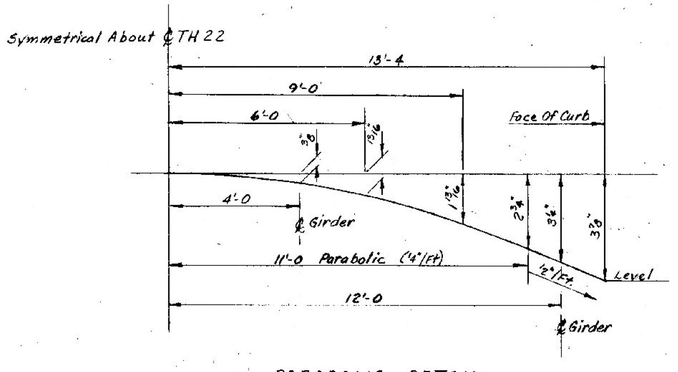
Scale 1"= 1'-0

Shown Normal To Abutment



~TYPICAL CURB SECTION~

Scale 1"=1'-0



~PARABOLIC DETAIL~

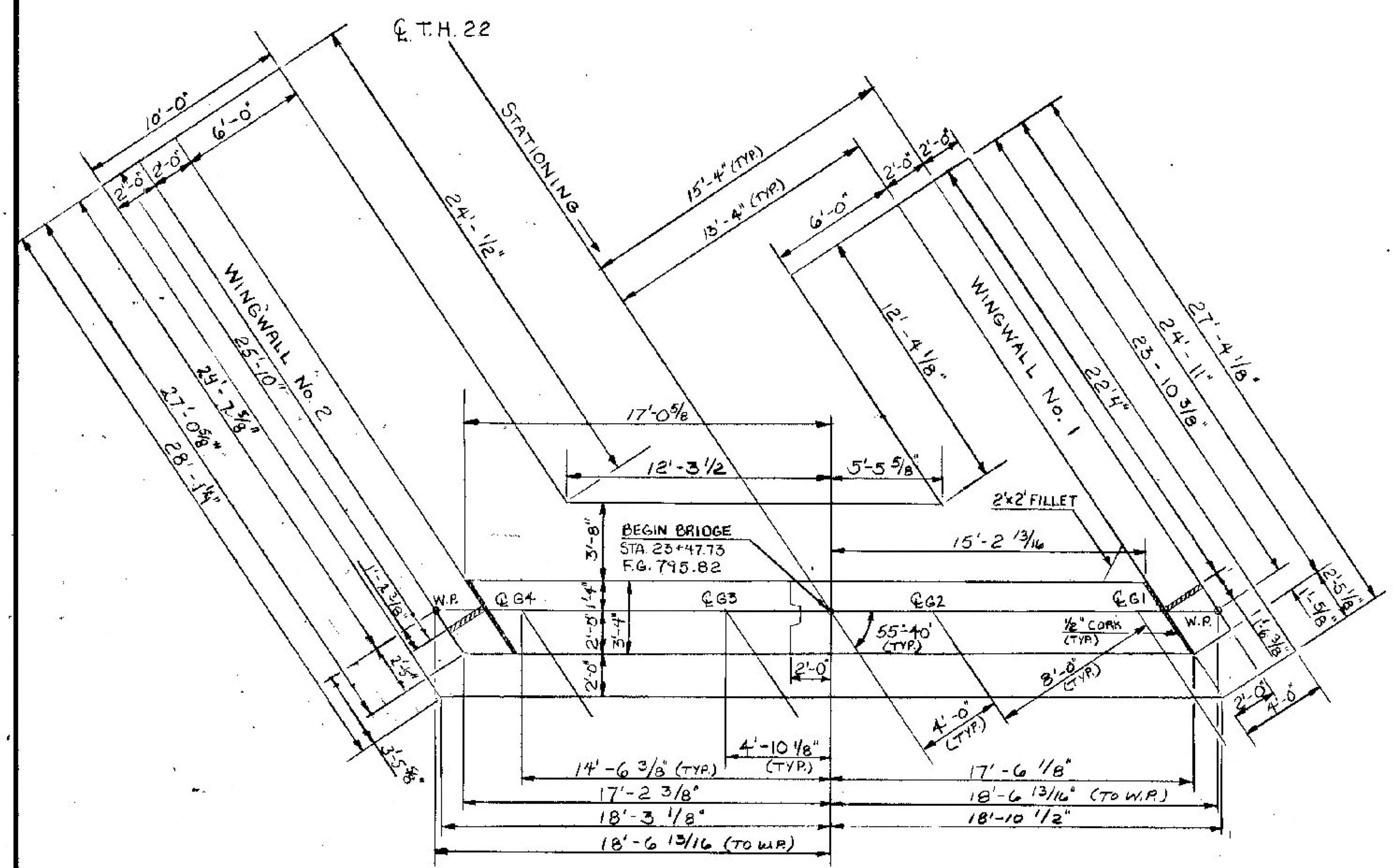
Scale = 1"= 2'-0 Horizontal
5"= 1'-0 Vertical

NOTES

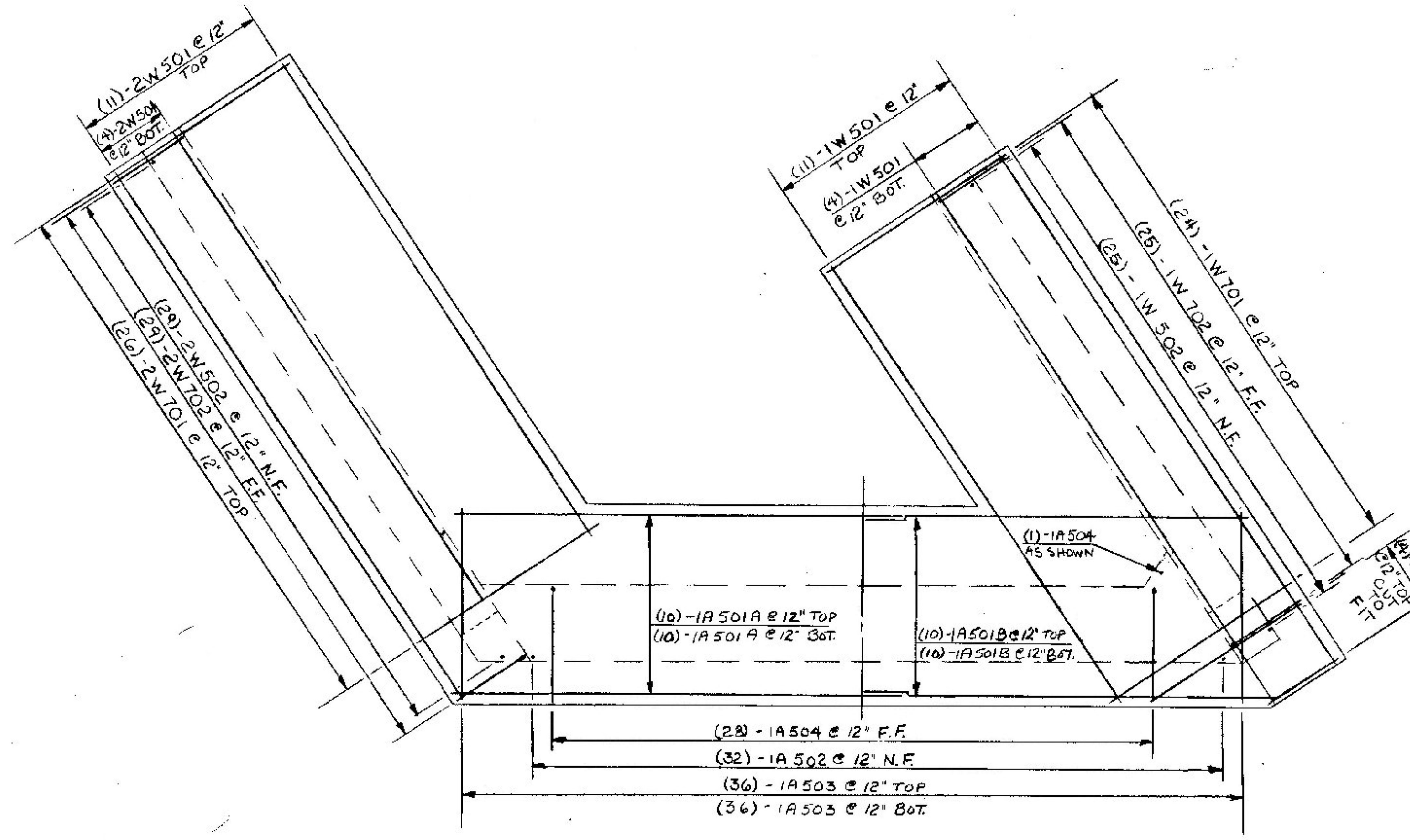
1. Cost For Expansion Material, Tar Paper, Preformed Fabric Pads, Closed Cell Foam And Drain Tubes To Be Included In The Unit Price Bid For Concrete, Class "B".
2. See General Special Provisions, Subsection 707.23 For Details Of Closed Cell Foam Expansion Material.
3. The Cost For 4"Ø Sleeves With Cover Shall Be Included With The Unit Price Bid For Reinforcing Steel.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TOWN OF RUTLAND	Bridge No. 4
	Log Sta.
HIGHWAY NO. CLASS 3, TH 22	Surv. Sta. 887+80 ±
TH 22 OVER ART. US 4, EB & WB	
TYPICAL SECTION	
Designed by R. ALDRICH	Drawn by M. CERUTTI
Checked by R. Aldrich date 7/83	Bridge Design Supervisor R. L. DoHey date 7-83
PROJECT WEST RUTLAND-RUTLAND	PROJECT NO. F020-1(10)
Bridge Sheet No. BR405	Sheet 192 of 457



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



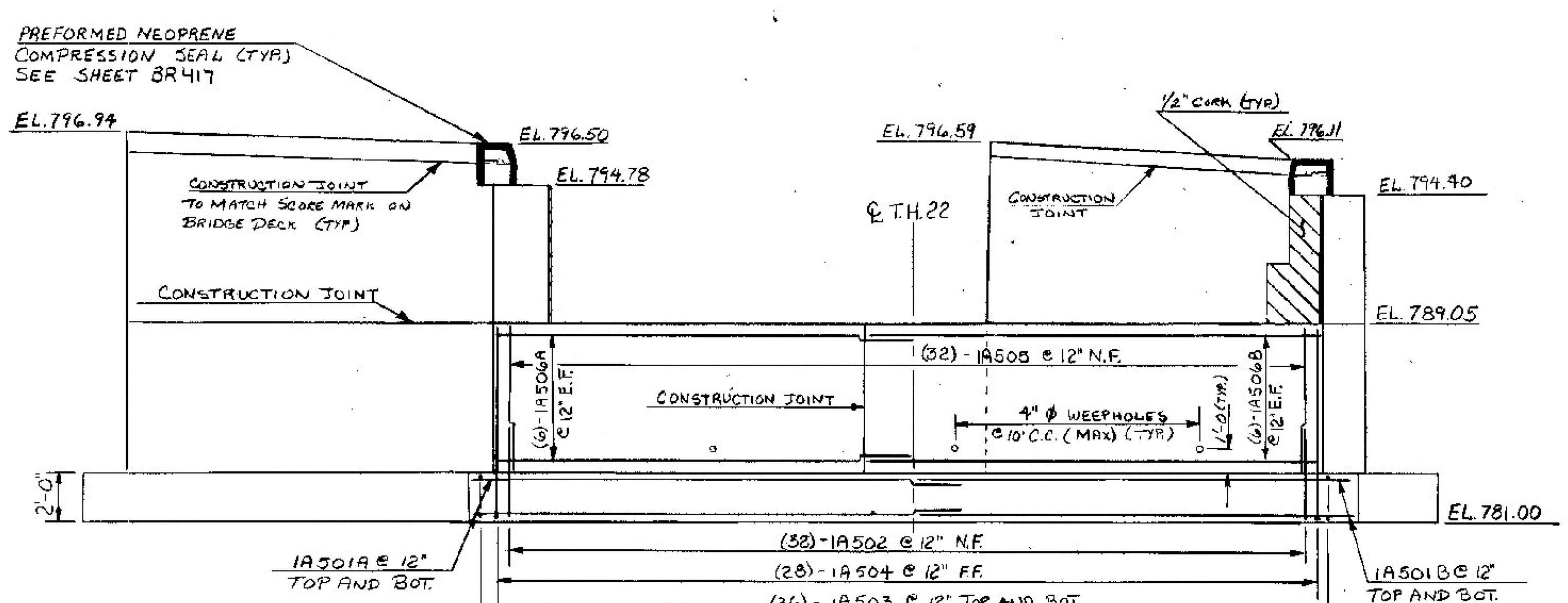
FOOTING REINFORCING PLAN
SCALE: 1/4" = 1'-0"

NOTES

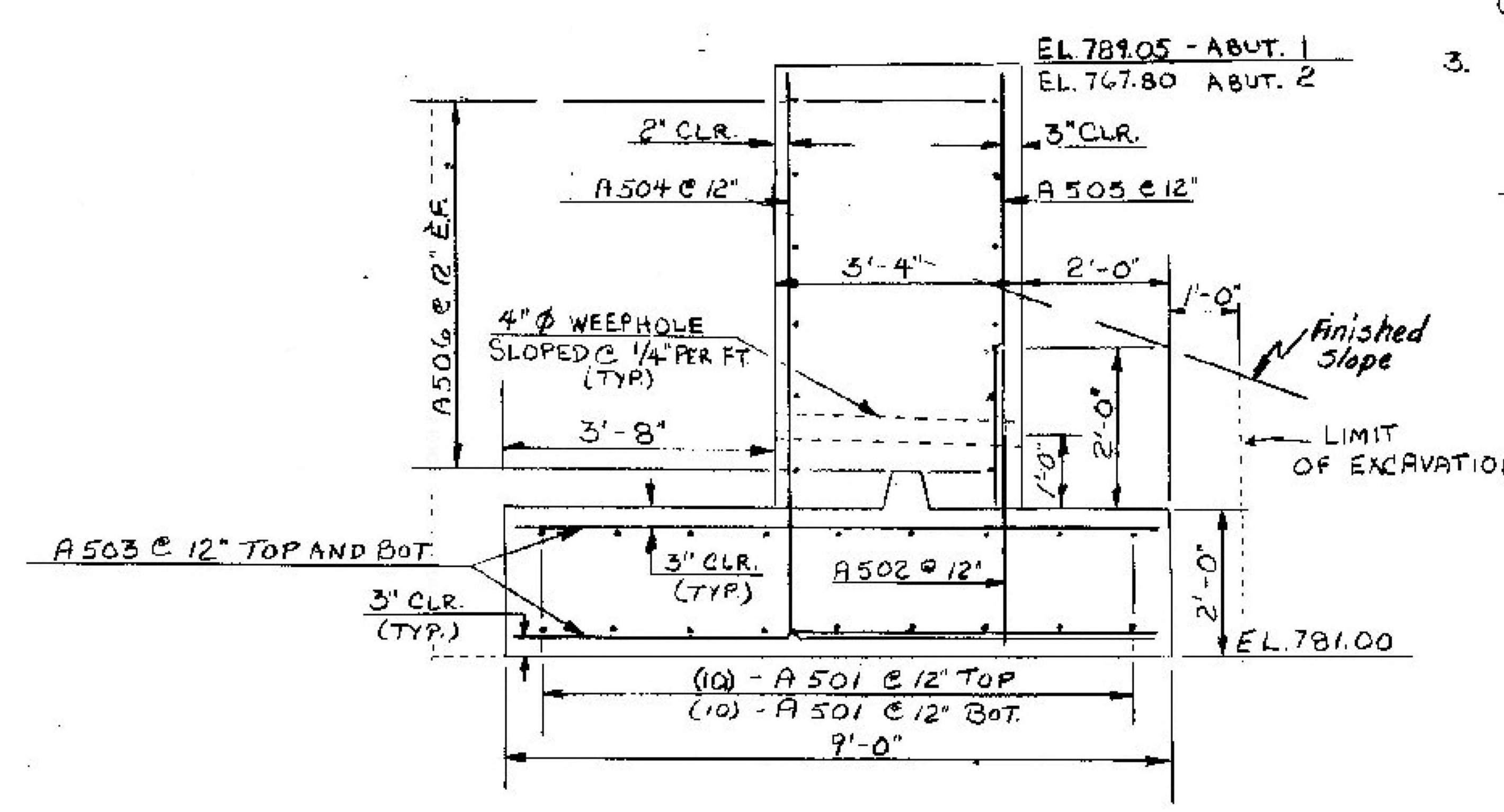
1. FOR WINGWALL No. 1 & No. 2 DETAILS SEE SHEET
2. 4" ϕ WEEPHOLES SHALL BE SPACED @ 10'-0 C.C. MAX. THEY SHALL BE PLACED 1'-0 ABOVE THE TOPS OF FOOTINGS AND SHALL SLOPE 1/4" PER FT. TO OUTSIDE OF ABUTMENT.
3. ALL CONCRETE IN ABUTMENTS TO BE CLASS B.

NOMENCLATURE

N.F. = NEAR FACE
F.F. = FAR FACE
E.F. = EACH FACE



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



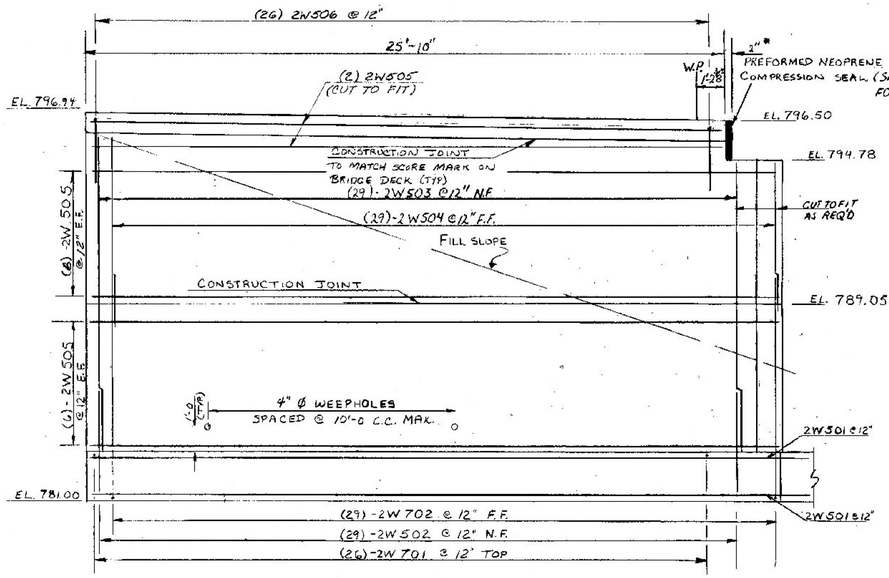
TYPICAL ABUTMENT SECTION
SCALE: 1/2" = 1'-0"

CASTLETON-RUTLAND
BF MEMB (37)
SHEET 24 OF 28
BRIDGE D18
FOR REFERENCE ONLY

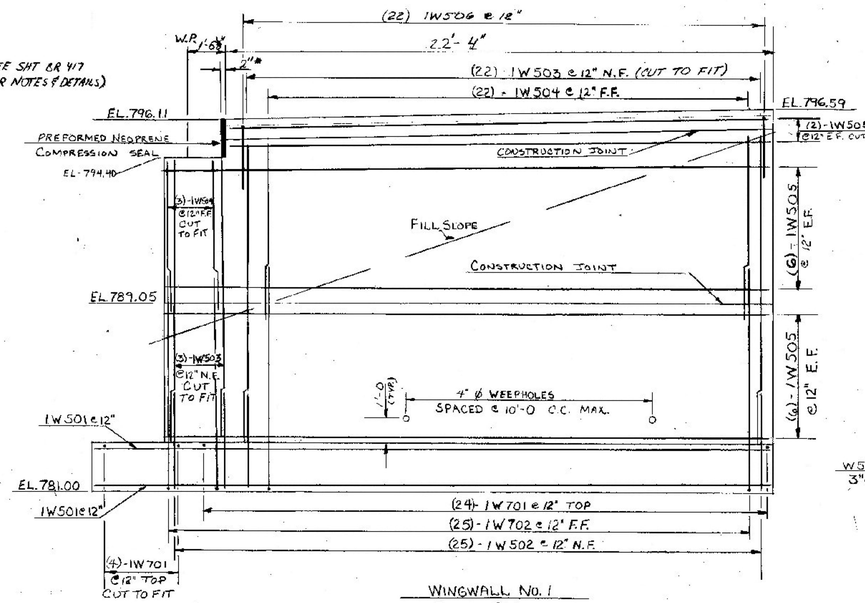
STATE OF VERMONT AGENCY OF TRANSPORTATION	
TOWN OF RUTLAND	Bridge No. 4
	Log Sta.
HIGHWAY NO. T.H. 22	Surv. Sta. 887+80±
T.H. 22 OVER U.S. 4, EB & WB	
ABUTMENT NO. 1 DETAILS	
Designed by D. BURLEY	Drawn by M. EVANS 6/83
Checked by D. BURLEY date 7-83	Bridge Design Supervisor R.L. Ootley date 7-83
PROJECT W. RUTLAND - RUTLAND	PROJECT NO. F020-1(10)
Bridge Sheet No. BR413	Sheet 200 of 457

BR-6-'83

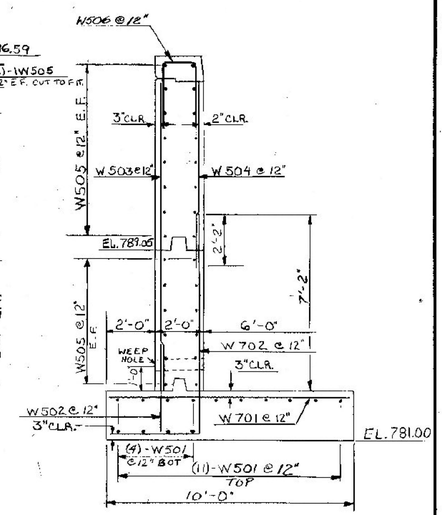
* INDICATES DIMENSION AT 68°F, SEE CHART ON SHEET BR 417 FOR TEMPERATURE ADJUSTMENT



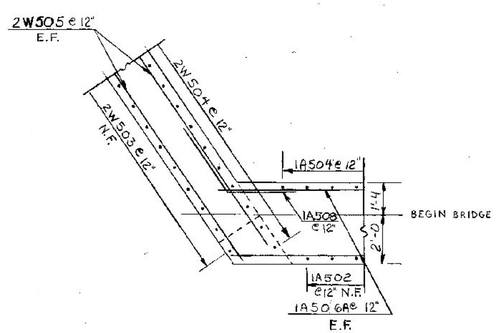
WINGWALL NO. 2
SCALE: 3/8" = 1'-0

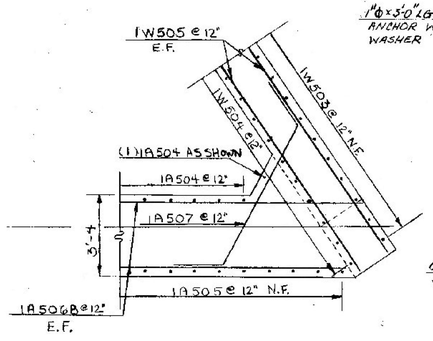


WINGWALL NO. 1
SCALE: 3/8" = 1'-0

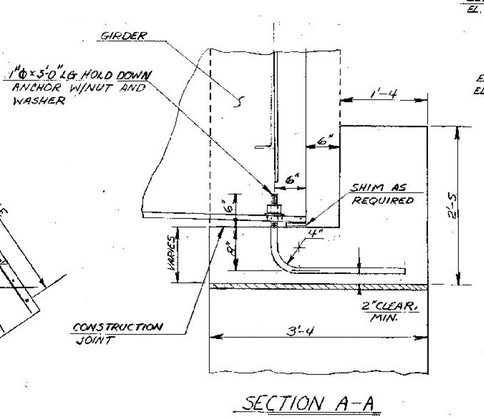


TYPICAL SECTION WINGWALLS No. 1 & No. 2
SCALE: 3/8" = 1'-0





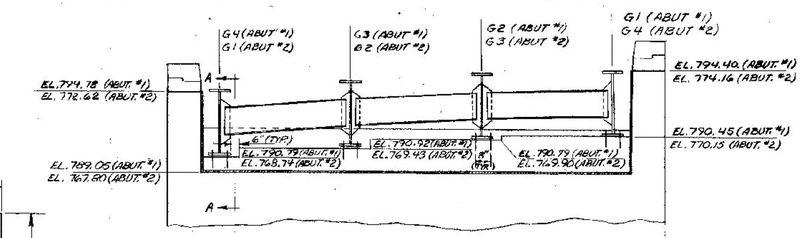
CORNER DETAILS
SCALE: 3/8" = 1'-0



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

NOTES

1. SEE SHT. BR409 FOR CONSTRUCTION SEQUENCE.
2. SEE SHT. BR405 FOR COMPLETE END OF BRIDGE DETAILS.



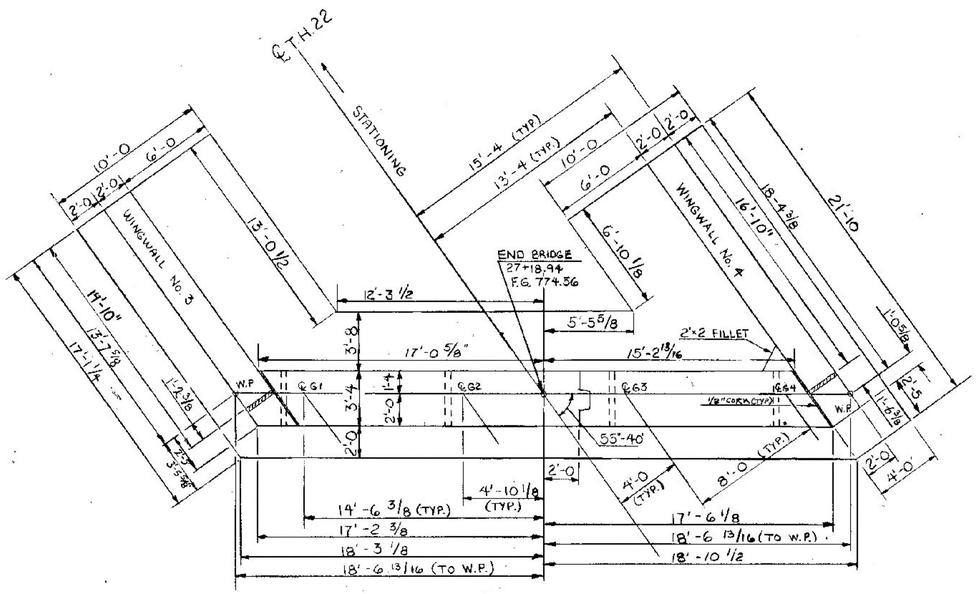
DETAIL AT END OF BEAMS, ABUT #2
(ABUT #1 ELEVATIONS SHOWN)
SCALE: 1" = 4'

CASTLETON-RUTLAND
BF MEMB (37)
SHEET 25 OF 28
BRIDGE NO. D18
FOR REFERENCE ONLY

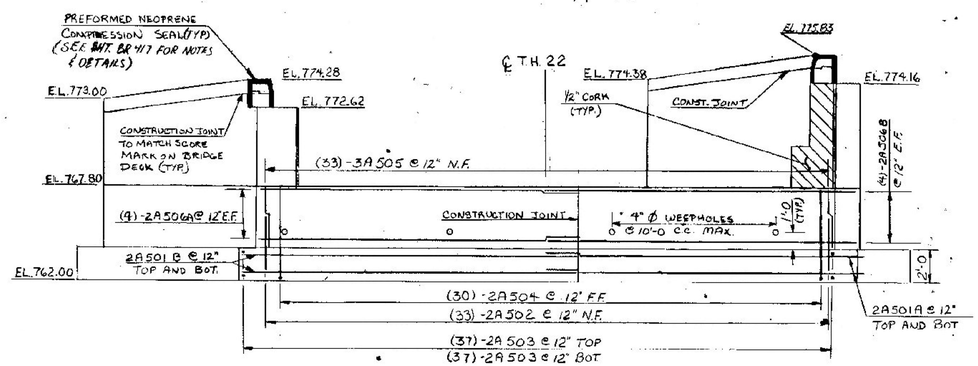
STATE OF VERMONT
AGENCY OF TRANSPORTATION

TOWN OF RUTLAND	Bridge No. 7
HIGHWAY NO. T.H. 22	Log Sta.
	Surv. Sta. @ 887+80±
T.H. 22 OVER U.S. 4, EB & WB	
WINGWALL 1 AND 2 DETAILS	
Designed by D. BURLEY	Drawn by M. EVANS 6/83
Checked by D. BURLEY date 7-83	Bridge Design Supervisor E.L. Oatley date 9-83
PROJECT W. RUTLAND - RUTLAND	PROJECT NO. F020-1(10)
Bridge Sheet No. BR 414	Sheet 201 of 457

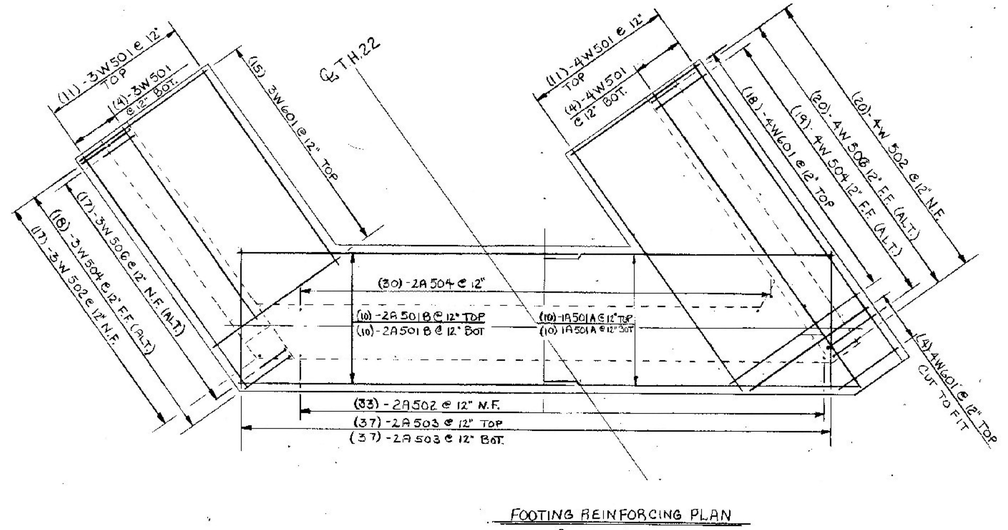
BRUNING 44-131-40151
BR-6



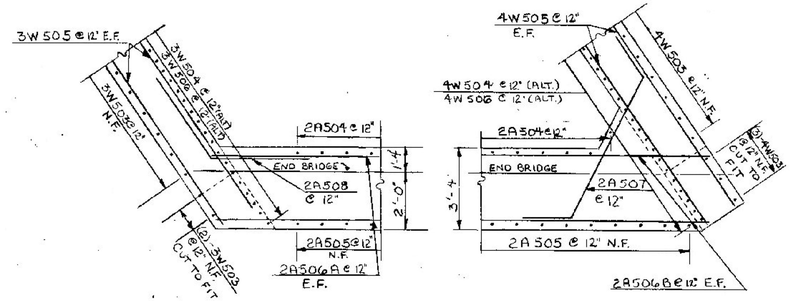
PLAN
SCALE : 1/4" = 1'-0



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



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



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

CASTLETON-RUTLAND
BF MEMB (37)
SHEET 26 OF 28
BRIDGE NO. D18
FOR REFERENCE ONLY

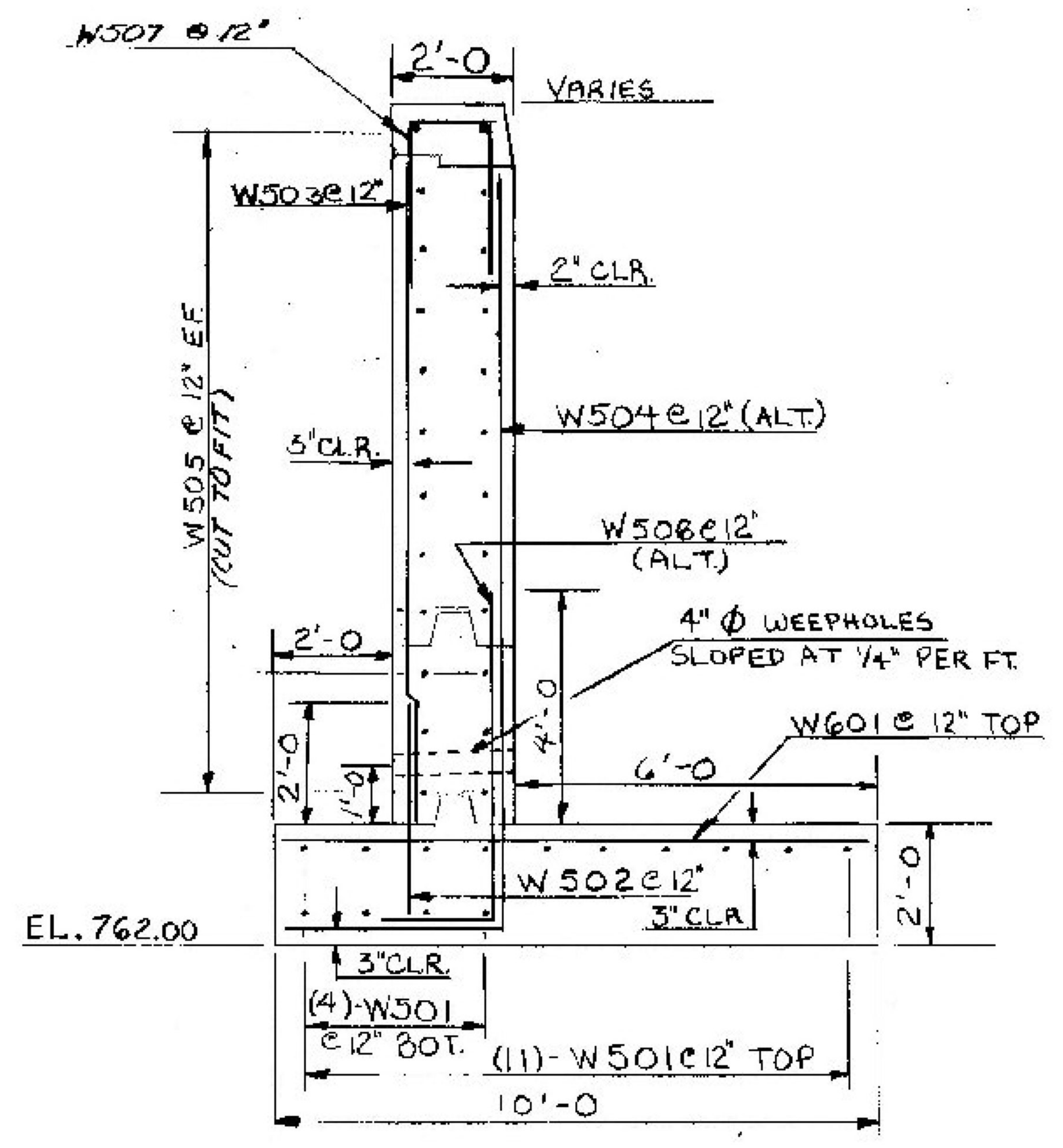
STATE OF VERMONT
AGENCY OF TRANSPORTATION

TOWN OF RUTLAND	Bridge No. BR 4
	Log Sta.
HIGHWAY NO. T.H. 22	Surv. Sta. ℄ 887+80±

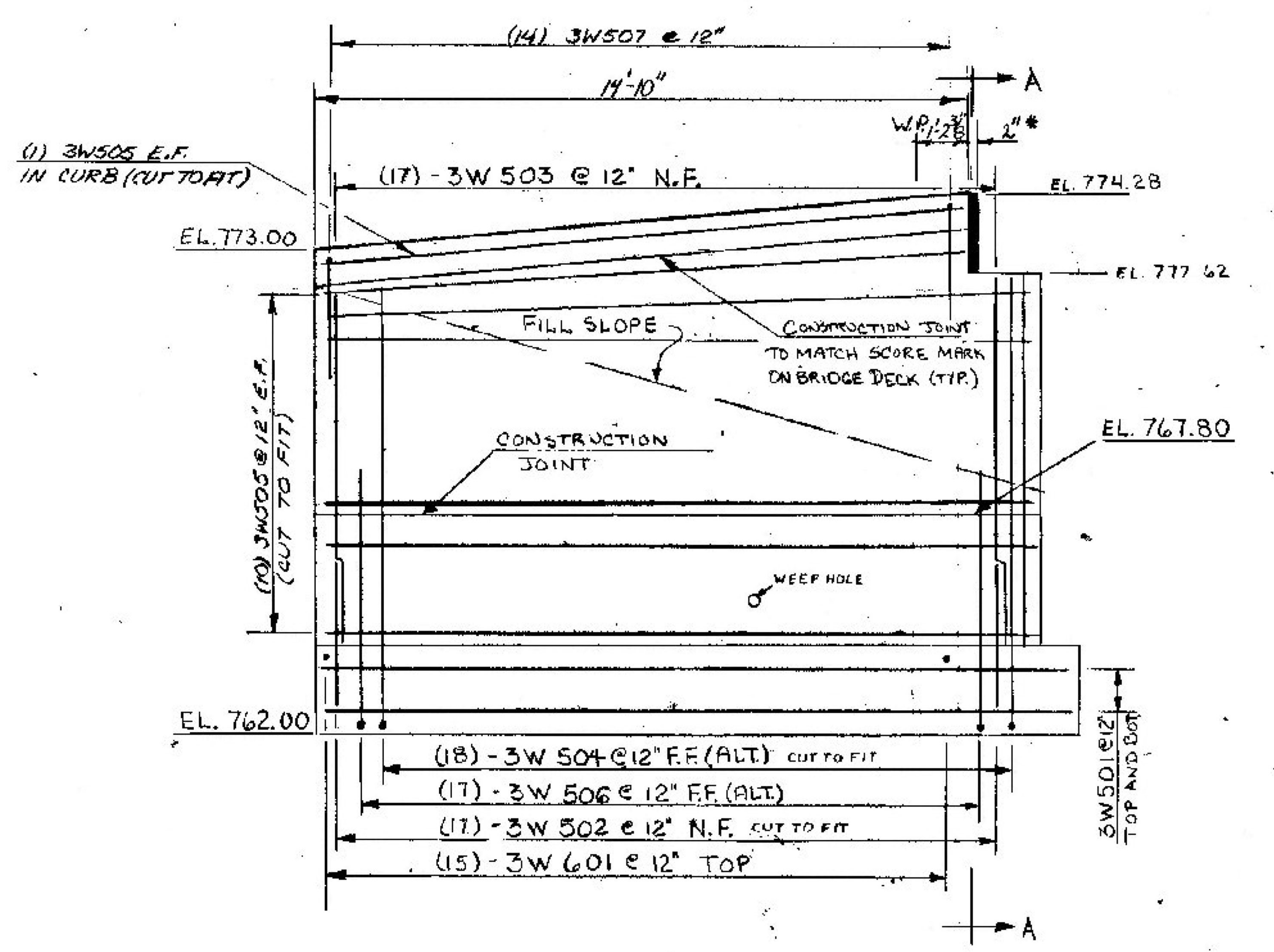
T. H. 22 OVER U.S. 4, EB & WB
ABUTMENT NO. 2 DETAILS

Designed by M. EVANS	Drawn by M. EVANS 6/83
Checked by D. BURLEY date 7-83	Bridge Design Supervisor R.L. Oatley date 7-83
PROJECT W. RUTLAND - RUTLAND	PROJECT NO. F020-1(10)
Bridge Sheet No. BR 416	Sheet 203 of 457

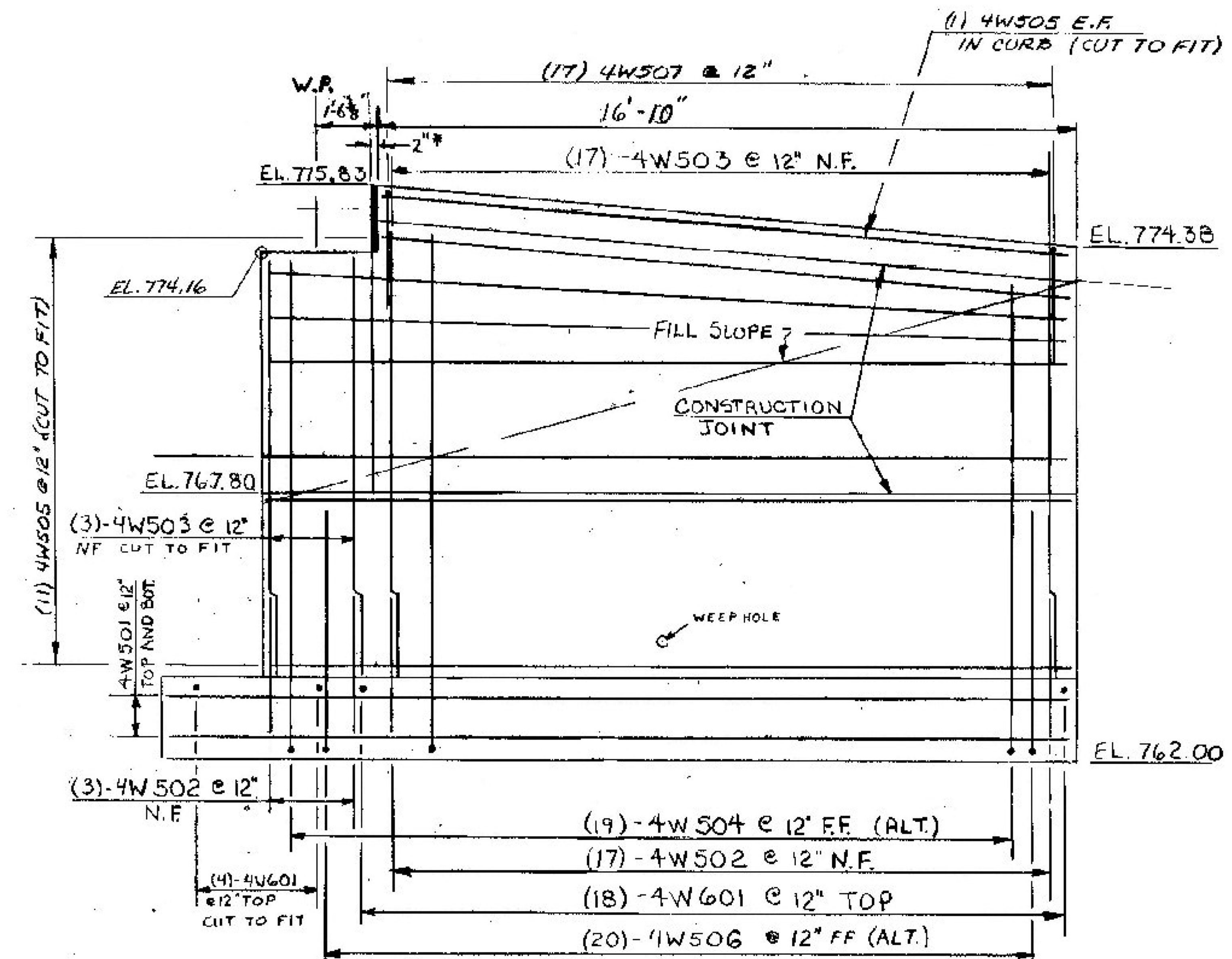
BR-6-'83



TYPICAL SECTION WINGWALLS 3 & 4
Scale: 3/8" = 1'-0



ELEVATION WINGWALL No. 3
Scale: 3/8" = 1'-0

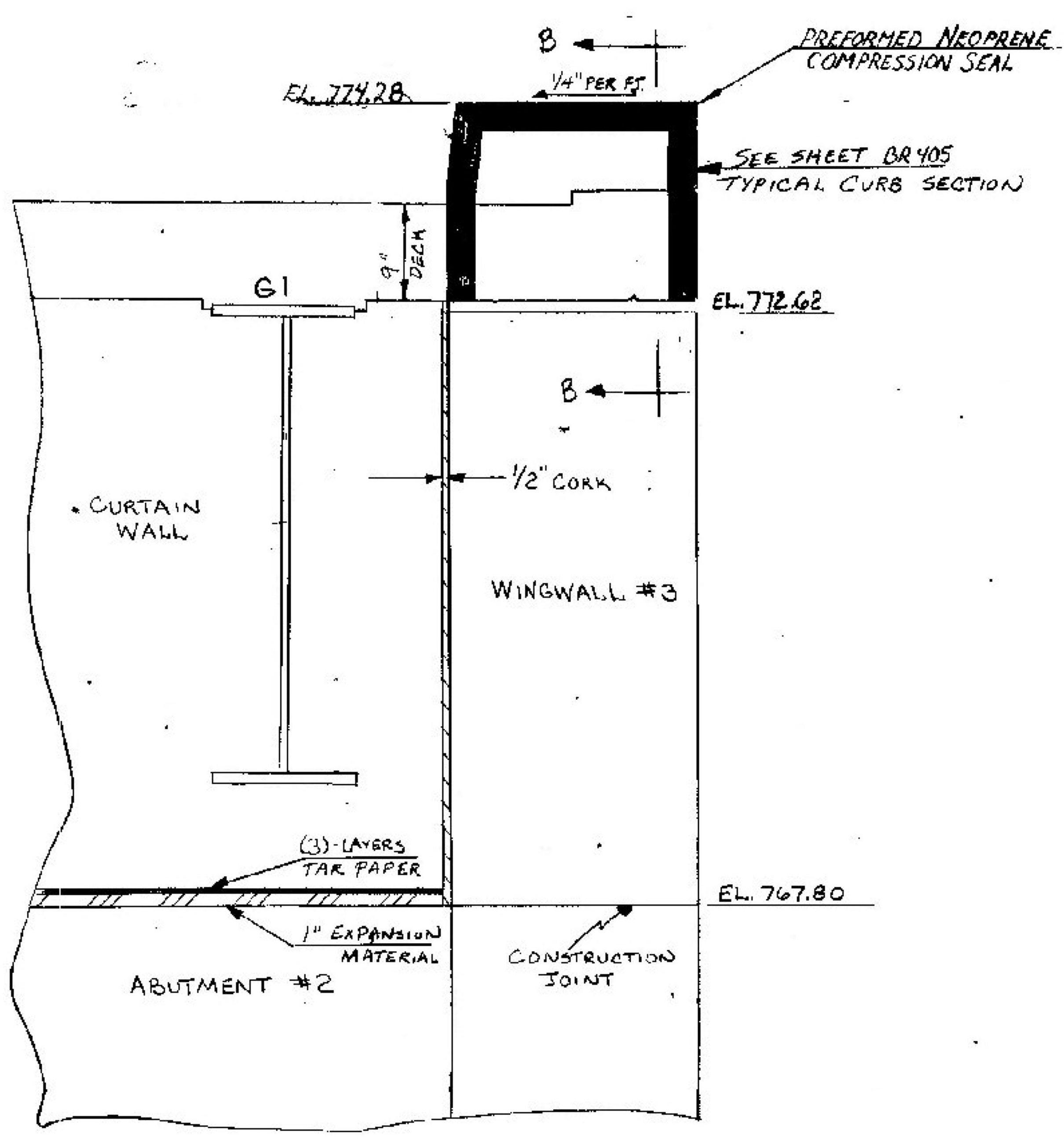


ELEVATION WINGWALL No. 4
Scale: 3/8" = 1'-0

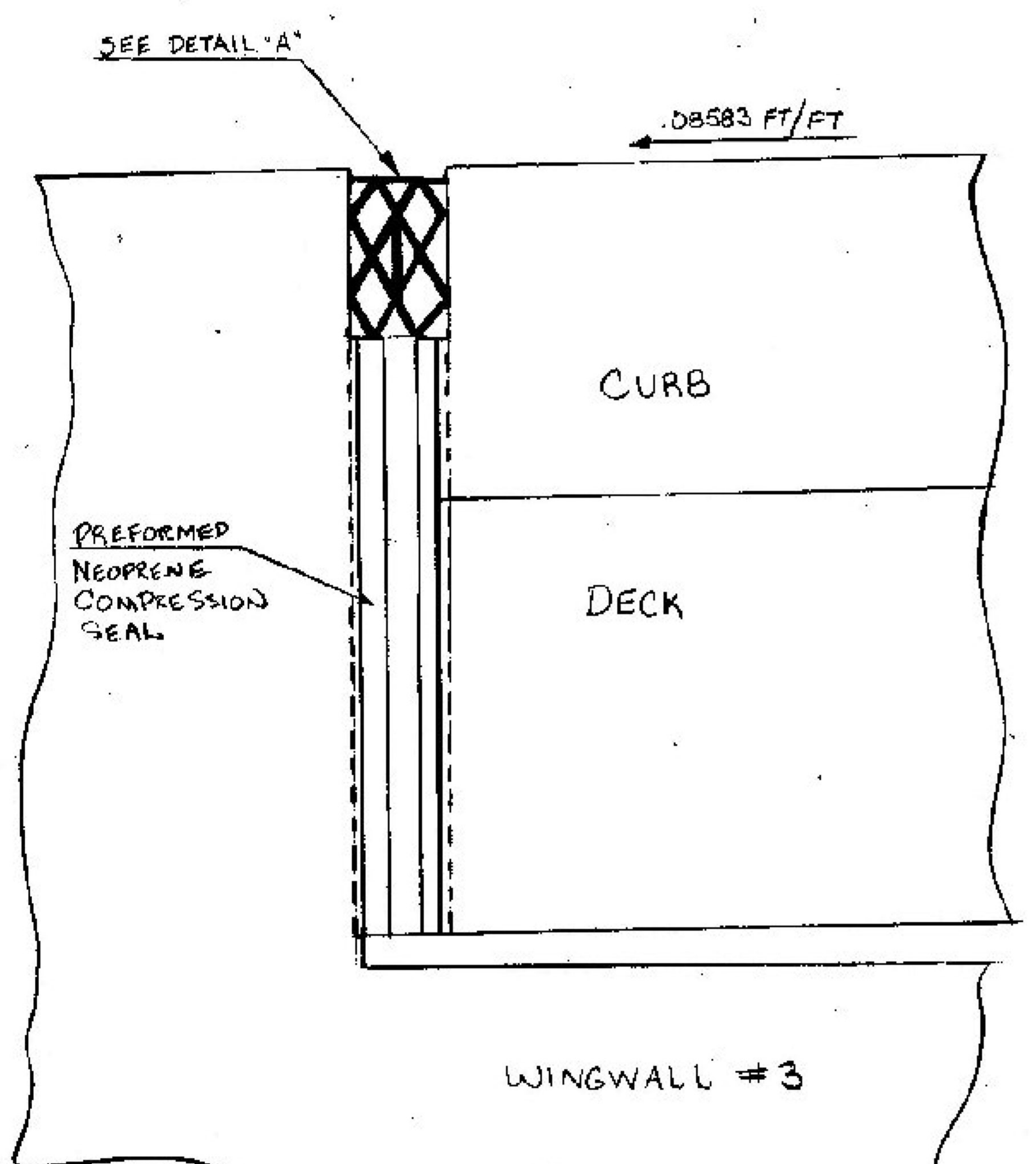
TEMPERATURE ADJUSTMENT CHART

38°	48°	58°	68°	78°	88°
+3/16"	+5/16"	+1/8"	0	-1/8"	-5/16"

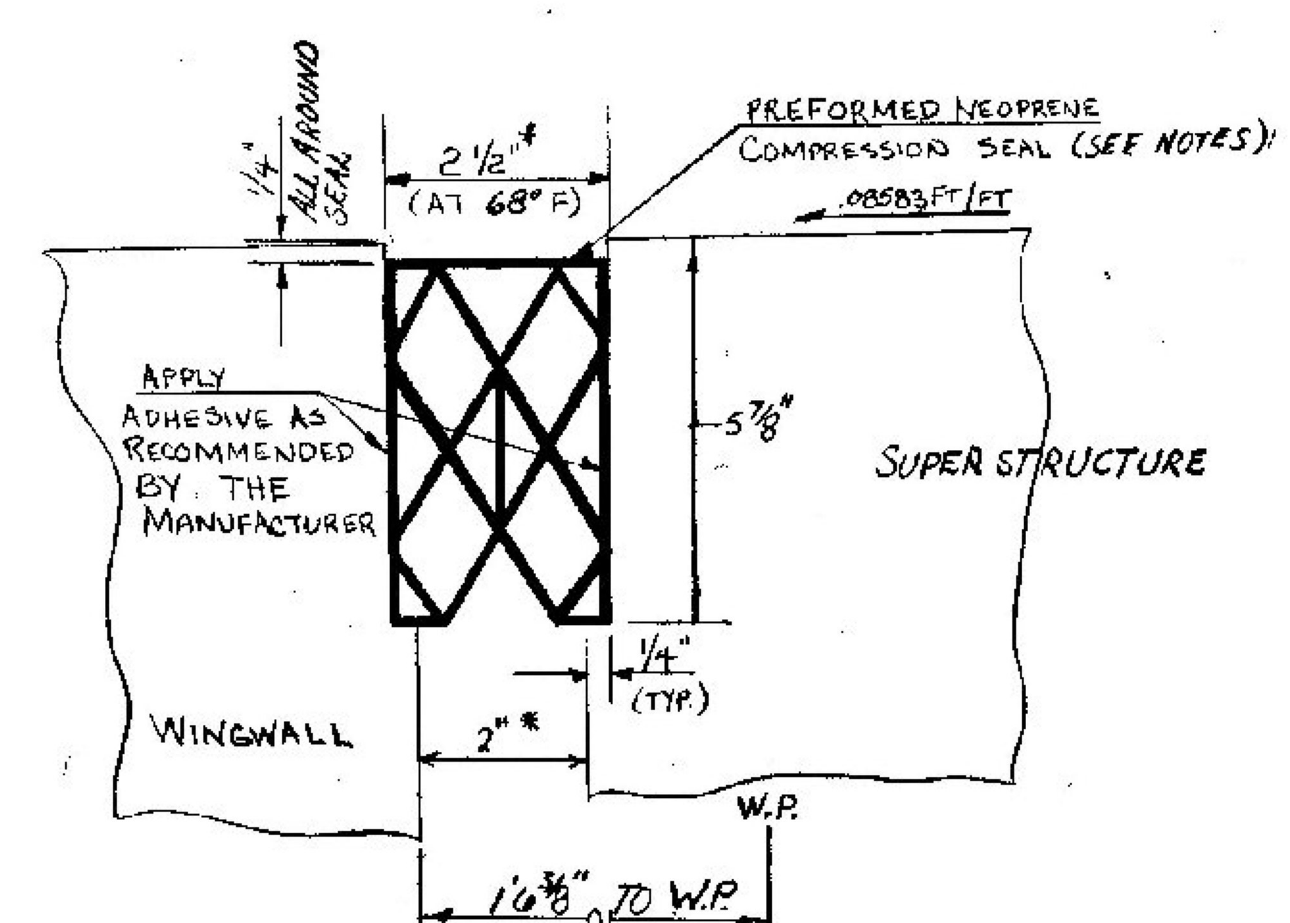
* INDICATES DIMENSION AT 68°F, SEE CHART FOR TEMPERATURE ADJUSTMENT



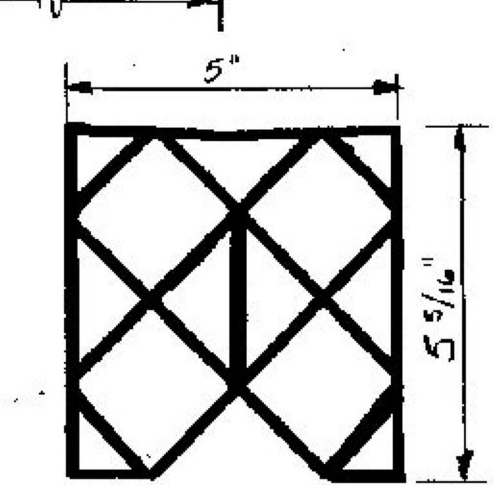
SECTION "A-A" (WINGWALL #3)
Scale: 1" = 1'-0
(OTHER WINGWALLS SIMILAR)



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



DETAIL "A"
SCALE: 1/2" = 1"



TYPICAL SECTION NEOPRENE SEAL (UNCOMPRESSED)
SCALE: 1/4" = 1"

PREFORMED NEOPRENE SEAL NOTES

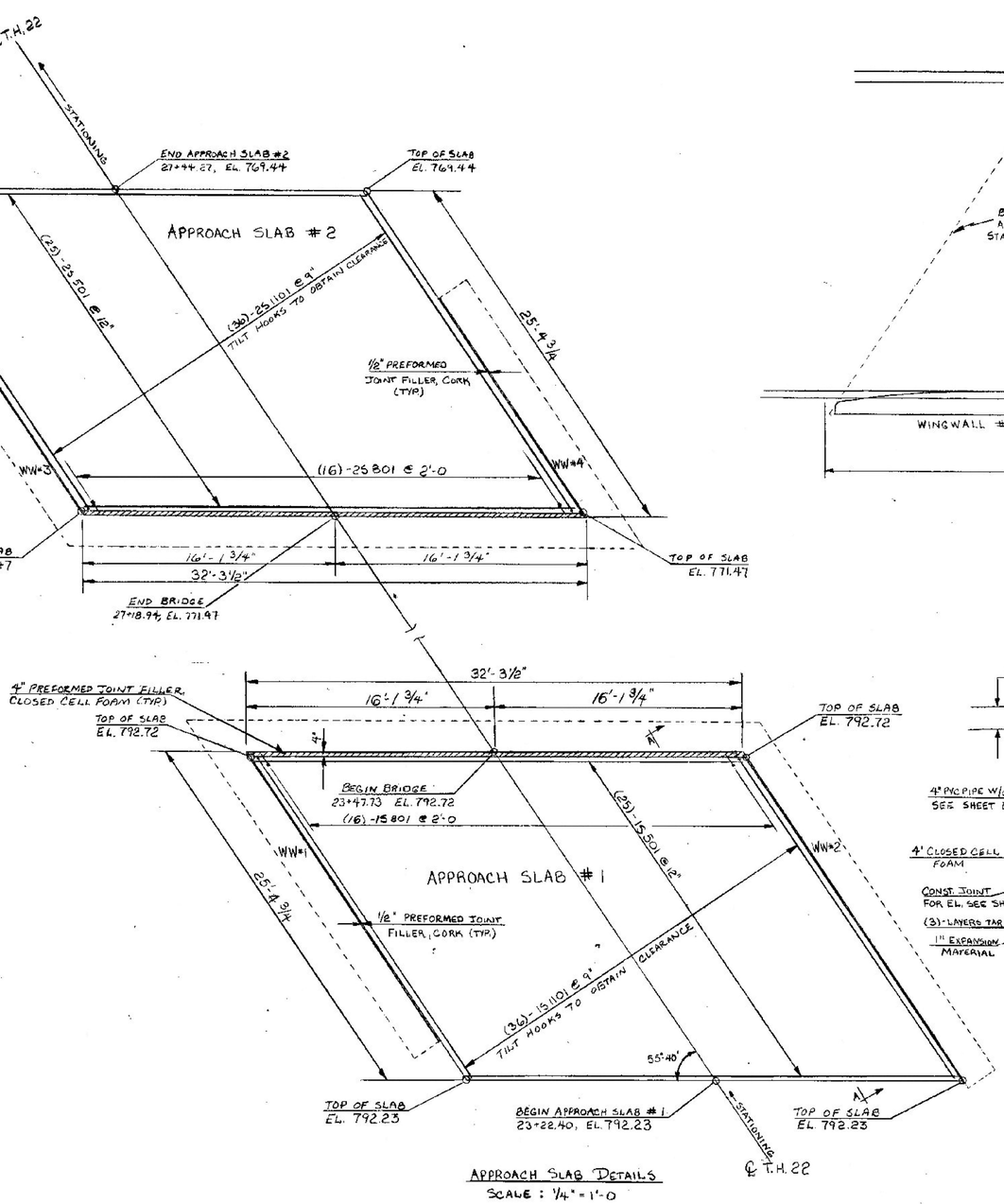
1. OTHER PREFORMED NEOPRENE COMPRESSION SEAL CONFIGURATIONS MAY BE SUBMITTED TO THE STRUCTURES ENGINEER FOR APPROVAL.
2. THE PNC SEAL SHALL HAVE A TOTAL MOVEMENT CAPABILITY OF 2.50".
3. THE PNC SEAL SHALL BE ONE CONTINUOUS STRIP, CUT AND VULCANIZED IN THE SHOP TO MATCH THE SHAPE SHOWN IN SECTION A-A, AND SHALL BE INSTALLED IN ACCORDANCE WITH VT. STD. SPEC. SECTION 614 AT THE LOCATIONS SHOWN IN THE DRAWINGS.
4. PAYMENT FOR PNC SEAL SHALL BE AT THE UNIT BID PRICE FOR ITEM 614.22 JOINT SEALER, PREFORMED NEOPRENE 5" WIDTH.

CASTLETON-RUTLAND
BF MEMB (37)
SHEET 27 OF 28
BRIDGE NO. D18
FOR REFERENCE ONLY

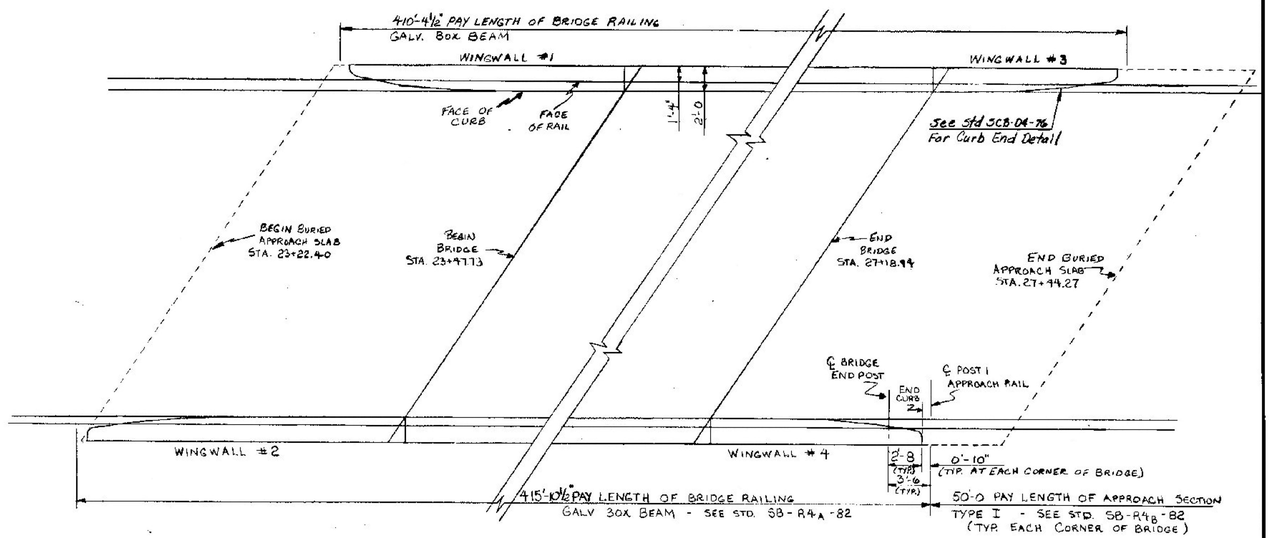
STATE OF VERMONT
AGENCY OF TRANSPORTATION

TOWN OF RUTLAND	Bridge No. 4
	Log Sta.
HIGHWAY NO. T.H. 22	Surv. Sta. ℄ 887+80 ±
T.H. 22 OVER U.S. 4, EB & WB	
WINGWALL 3 & 4 DETAILS	
Designed by M. EVANS	Drawn by M. EVANS 6-83
Checked by D. BURLEY date 7-83	Bridge Design Supervisor R. L. Ootley date 7-83
PROJECT W. RUTLAND-RUTLAND	PROJECT NO. F020-1 (10)
Bridge Sheet No. BR 417	Sheet 204 of 457

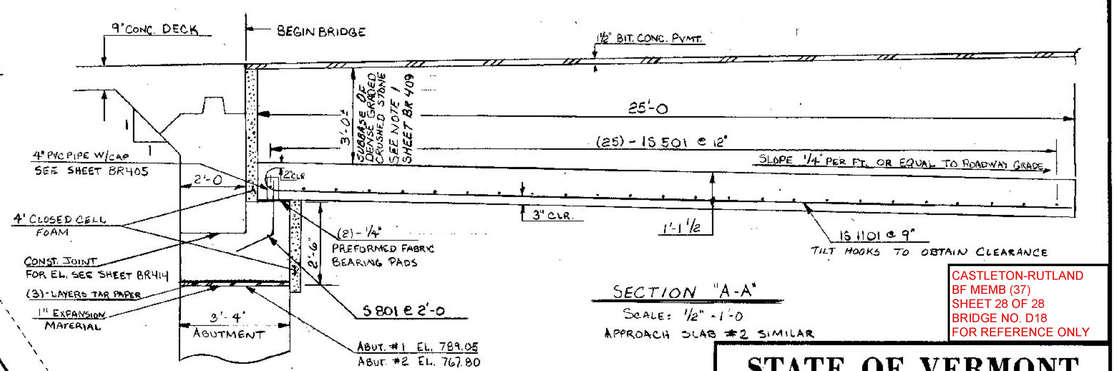
BR-6-'83



APPROACH SLAB DETAILS
SCALE : 1/4" = 1'-0



LAYOUT FOR BRIDGE CURB AND BRIDGE RAILING
SCALE : 3/16" = 1'-0



SECTION "A-A"
SCALE: 1/2" = 1'-0
APPROACH SLAB #2 SIMILAR

NOTE

1. FOR BRIDGE CURB SECTIONS AND JOINT DETAILS SEE STD. SCB-04-76 (DETAIL B). DISREGARD NOTES REFERRING TO THE GRANITE CURB.
2. FOR DETAILS ON RAILING SEE STD. SB-R4A-82 AND SB-R4B-82.

CASTLETON-RUTLAND
BF MEMB (37)
SHEET 28 OF 28
BRIDGE NO. D18
FOR REFERENCE ONLY

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TOWN OF RUTLAND	Bridge No. 4
HIGHWAY NO. T. H. 22	Log Sta.
	Surv. Sta. ℄ 887+80 ±
T.H. 22 OVER U.S. 4	
APPROACH SLABS AND CURB & RAILING LAYOUT	
Designed by D. BURLEY	Drawn by M. EVANS 7/83
Checked by R Aldrich date 7/83	Bridge Design Supervisor R.L. Oatley date 7-83
PROJECT W. RUTLAND-RUTLAND	PROJECT NO. F020-1(10)
Bridge Sheet No. BR 4/8	Sheet 205 of 457

DRAWING 44 131 25334

BR-6-'83