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LIST OF STANDARDS

E-100	01-06-97
E-101	03-10-97
E-102	08-08-95
E-102A	08-08-95
E-103	08-08-95
E-104	12-31-96
E-104A	12-27-96
E-107	08-08-95
G-18	06-01-94
T-1	06-01-94
T-2	06-01-94

STATE OF VERMONT AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT

TOWN OF HARTLAND

COUNTY OF WINDSOR

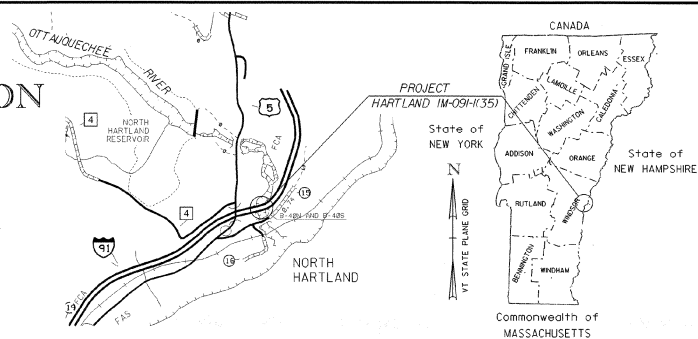
ROUTE NO : I-91 BRIDGE NOS : 40N & 40S

PROJECT LOCATION : ON I-91 OVER THE OTTAUQUECHEE RIVER APPROXIMATELY 3.5 MILES SOUTH OF THE INTERSECTION OF I-89 AND I-91.

PROJECT DESCRIPTION : RETROFIT OF THE EXISTING DECK AND SUPERSTRUCTURE.

LENGTH OF STRUCTURES : BR 40N 316.00 FEET
 BR 40S 316.00 FEET

TOTAL LENGTH OF STRUCTURES : 632.00 FEET



LOCATION MAP
(NOT TO SCALE)

CONVENTIONAL SIGNS

COUNTY LINE	---
TOWN LINE	----
LIMITS OF ACCESS	—○—○—○—
POINT OF ACCESS	X
FENCE LINE	-x-x-
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	SR
SLOPE RIGHTS	○—○—○—
TOP OF CUT	△—△—△—
TOE OF SLOPE	○—○—○—

DATUM	_____
VERTICAL	N/A
HORIZONTAL	N/A

RECORD PLANS

CONTRACTOR: James A. McDonald Inc., Lyndon Center, VT
 RESIDENT ENGINEER: Leon Tessier - Willis Stoddard
 CONSTRUCTION BEGAN: July 7, 1997
 CONSTRUCTION COMPLETED: Oct 17, 1997
 RECORD PLANS BY: J. Cota - CADD

I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.
 BY Amir R. Khan RESIDENT ENGINEER
 DATE 12-30-97

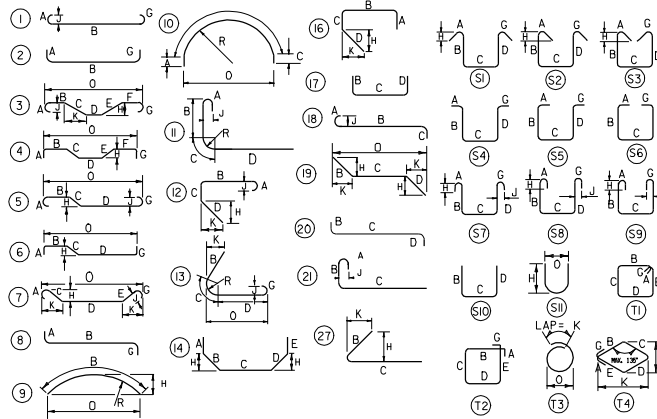
NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found on microfiche in Central Files.

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

APPROVED: <u>[Signature]</u> DATE <u>9/9/97</u> DIRECTOR OF ENGINEERING	DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION
APPROVED: <u>[Signature]</u> DATE <u>6-9-97</u> DIVISION ADMINISTRATOR	
PROJECT HARTLAND IM-09-I(35)	
SHEET 1 OF 17 SHEETS	

BRIDGE QUANTITY SHEET

NO.	ITEM	UNIT					GRAND
			BR 40N	BR 40S	TOTAL		
210.10	COLD PLANING - BITUMINOUS PAVEMENT	SY	1780	2755	4535	4535	
404.65	EMULSIFIED ASPHALT	CWT	3	3	6	6	
406.25	BITUMINOUS CONCRETE PAVEMENT (PG 58-28)	TON	541	541	1082	1082	
501.22	CONCRETE, CLASS A (MODIFIED)	CY	26	26	52	52	
502.11	SHORING SUPERSTRUCTURE BEARINGS	EA	2	2	4	4	
506.50	STRUCTURAL STEEL (ROLLED BEAM)	LB	7126	7126	14252	14252	
507.15	REINFORCING STEEL	LB	6800	6800	13600	13600	
513.25	STRUCTURAL PAINTING, SHOP APPLIED (7.13 TONS)	LS	0.5	0.5	1	1	
513.30	STRUCTURAL PAINTING, FIELD APPLIED (2 TONS - ESTIMATED)	LS	0.5	0.5	1	1	
513.36	CONTAINMENT & ENVIRONMENTAL PROTECTION	LS	0.5	0.5	1	1	
513.40	SURFACE PREPARATION, SHOP (7.13 TONS)	LS	0.5	0.5	1	1	
513.41	SURFACE PREPARATION, FIELD (2 TONS - EST)	LS	0.5	0.5	1	1	
514.10	WATER REPELLENT	GAL	3	3	6	6	
516.10	BRIDGE EXPANSION JOINT (MODIFIED)	LF	32	32	64	64	
519.20	SHEET MEMBRANE WATERPROOFING	SY	1055	94	1149	1149	
525.10	REMOVAL OF EXISTING RAILING (ESTIMATED)	LF	160	160	320	320	
525.11	RESETTING RAILING (ESTIMATED QUANTITY)	LF	160	160	320	320	
529.10	REMOVAL OF BRIDGE PAVEMENT	SY	1055	94	1149	1149	
529.20	PARTIAL REMOVAL OF STRUCTURE	EA	1	1	2	2	
529.26	REMOVAL OF CONCRETE AND MASONRY	SY	95	95	190	190	
555.20	ACCESS TO BRIDGE	EA		2	2	2	
616.41	REMOVAL OF EXISTING CURB	LF	48	48	96	96	
621.90	TEMPORARY TRAFFIC BARRIER (ESTIMATED)	LF	1190	4830	6020	6020	
630.10	UNIFORMED TRAFFIC OFFICERS (ESTIMATED)	HRS	100	100	200	200	
630.15	FLAGGERS (ESTIMATED)	HRS	200	200	400	400	
631.10	FIELD OFFICE - ENGINEERS (MODIFIED)	LS	0.5	0.5	1	1	
631.16	TESTING EQUIPMENT - CONCRETE	LS	0.5	0.5	1	1	
631.17	TESTING EQUIPMENT - BITUMINOUS	LS	0.5	0.5	1	1	
631.18	TESTING EQUIPMENT - PROTECTIVE COATING	LS	0.5	0.5	1	1	
635.10	MOBILIZATION	LS	0.5	0.5	1	1	
641.10	TRAFFIC CONTROL	LS	0.5	0.5	1	1	
646.20	4" WHITE LINE (ESTIMATED)	LF	2450	2450	4900	4900	
646.21	4" YELLOW LINE (ESTIMATED)	LF	1750	1750	3500	3500	
646.40	DURABLE 4" WHITE LINE	LF	535	535	1070	1070	
646.41	DURABLE 4" YELLOW LINE	LF	428	428	856	856	
646.60	TEMPORARY 4" WHITE LINE	LF	535	535	1070	1070	
646.61	TEMPORARY 4" YELLOW LINE	LF	428	428	856	856	
646.86	BLACK PAVEMENT MARKING MASKING TAPE (EST)	SF	500	500	1000	1000	
675.21	TRAFFIC SIGNS, TYPE B (MOD) (ESTIMATED)	SF	150	150	300	300	



NOTES

- UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE 'SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT', AASHTO M 31/ASTM A 615-S1. ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
- FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER 'D' OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE 'MANUAL OF STANDARD PRACTICE'.
- BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
- ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT 'A' AND 'O' ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
- 'J' DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
- 'H' DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
- WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS 'H' AND 'K' MUST BE SHOWN.
- ▲ DENOTES BARS TO BE CUT IN FIELD.
- * DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
- △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
- 'E' IN PREFIX DENOTES EPOXY COATED REINFORCING STEEL.

ASTM STANDARD REINFORCING BARS

BAR SIZE DESIGNATION	WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS ROUND SECTION DIAMETER INCHES	CROSS SECTIONAL AREA SQ. INCHES	PERMETER INCHES
#3	.376	.375	.11	1.178
#4	.668	.500	.20	1.571
#5	1.043	.625	.31	1.963
#6	1.502	.750	.44	2.356
#7	2.044	.875	.60	2.749
#8	2.670	1.000	.79	3.142
#9	3.400	1.128	1.00	3.544
#10	4.303	1.270	1.27	3.990
#11	5.313	1.410	1.56	4.430
#14	7.65	1.693	2.25	5.32
#18	13.60	2.257	4.00	7.09

BRIDGE REINFORCING STEEL SCHEDULE														
ITEM	No. Pieces	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J
BRIDGE 40N														
1														
2	96	5	34'-10"	S501	STR									
3	193	5	12'-00"	S502	STR									
4	36	5	7'-10"	S503	SS	1-6	1-4	2-2	1-4				1-6	
5	33	6	12'-00"	S605	STR									
6														
7														
8														
9														
10														
BRIDGE 40N														
11														
12	96	5	34'-10"	S501	STR									
13	193	5	12'-00"	S502	STR									
14	36	5	7'-10"	S503	SS	1-6	1-4	2-2	1-4				1-6	
15	33	6	12'-00"	S605	STR									

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STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of HARTLAND Bridge No. 40N/40S
 Highway No. 1-91 Log Sta. MM 66.350
1-91 OVER THE OTTAUQUECHEE RIVER
 SURV. STA. _____

QUANTITIES & REINFORCING STEEL SCHEDULE

Designed By P.M. THURBER Drawn By G.M. HIGGINS
 Checked By _____ Date _____ Bridge Design Supervisor
P.M. THURBER 5/97 J.B. MCCARTHY Date 5/97

PROJECT HARTLAND PROJECT NO. IM-091-1(35)
 I.G.C. Info. IP_PWDms05240cc056002.dgn sd056002.dgn
 Bridge Sheet No. _____ Sheet 2 of 7

General Notes:

1. All materials and construction shall conform to State of Vermont, Agency of Transportation's standard specifications for construction, dated 1990, and its latest revisions, and the AASHTO standard specifications for highway bridges, sixteenth edition dated 1996, and its latest revisions.
2. These plans were prepared based on original plans. The resident engineer may be required to make minor changes to the dimension and / or quantities shown on the plans to fit actual field conditions.
3. The contractor shall contact George Spilak, DTA District 4 (White River 802-295-8888) immediately upon notice of contract award to set a date when the District should remove the existing State traffic control signs and concrete barrier. The District will need a five day notice of when the contractor wants the State material removed and a two day time frame for removal. The District will remove all existing materials. The contractor shall have the cross over fully operational before the District removes the existing materials.
4. Bridge 40N shall be done first. A crossover will be used to move all northbound traffic onto the southbound bridge during construction. A similar traffic control sequence will be used for the repair of bridge 40S. The bridge under repair shall remain closed to through traffic during construction.
5. Prior to crossing over any traffic, the Contractor shall have in place, on the southbound structure, temporary accesses to allow for under deck beam inspection. The contractor shall submit details to provide the under deck beam inspection to the Structure Engineer for review and approval. To ensure that these accesses meet the necessary requirements, it is strongly recommended that the contractor have direct communication with the bridge inspection team prior to and during construction of these units. Only once the bridge inspection team is satisfied with the accesses will traffic be allowed to be crossed over. These accesses shall be located at each deflection joint on the southbound bridge. See reference sheet 9 for location. Payment shall be made under item 555.20 "Access to Bridge".
6. Extreme precautions shall be taken by the contractor to prevent any material and pollutants of any kind from falling into the Ottauquechee River and causing subsequent damage to the hydro-electric plant located downstream. The contractor is warned that the water level may change quickly as flow is dam controlled.
7. Any falsework or temporary shoring details shall be submitted to the engineer for review and approval prior to use on the project.
8. The following table of allowable stresses and weights apply to these plans for retrofit purposes

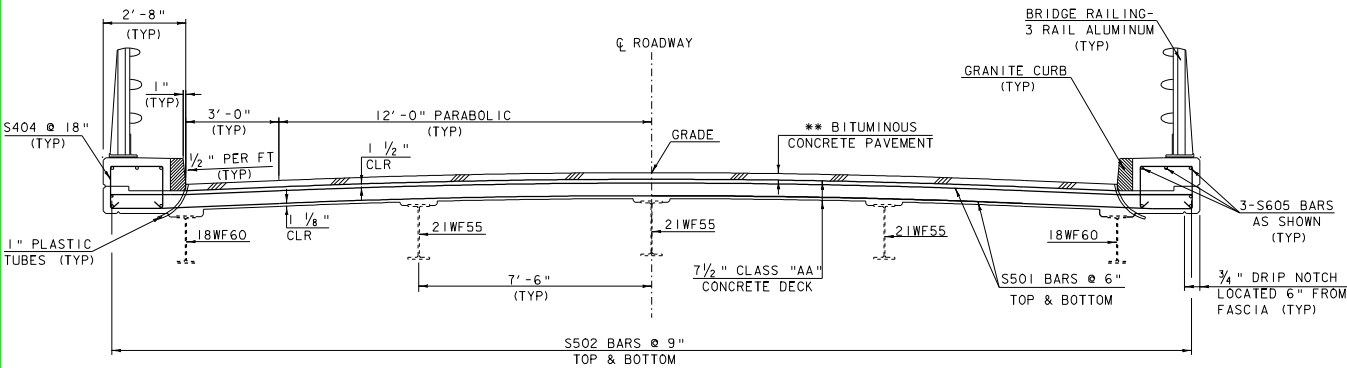
structural steel, AASHTO M270 Grade 36	Fy = 36 ksi
concrete, class A f'c = 4,000 psi	Fc = 1,600 psi
reinforcing steel : ft = 24,000 psi	grade 60
9. The existing bridge pavement and concrete deck shall initially be saw cut 1" deep along the cut lines shown on these plans.
10. The contractor shall exercise caution during removal and resetting of the bridge rail in order to prevent any damage. Any damage shall be repaired by the contractor at no cost to the State.
11. Item 525.11 "Resetting Railing" shall include a new post anchor assembly 1/8" pad and new splice bars, if necessary, as shown on sheet 7.
12. Payment for the removal of the existing bituminous concrete pavement on the bridge shall be made under the item 529.10 "Removal of Bridge Pavement". The material shall become the property of the contractor and shall be disposed of properly at an offsite location.
13. Item 529.20 "Partial Removal of Structure" shall consist of cutting the stringers four feet (4') on either side of the deflection joint, supporting that portion of stringer and deck remaining and removal of the detached piece of the stringer.
14. Item 529.26 "Removal of Concrete or Masonry" shall consist of the removal of the existing concrete deck along with cutting and cleaning of the existing reinforcing steel as detailed on sheet 5.
15. The existing granite curb to be removed shall become the property of the contractor and properly disposed of at an off-site location. Granite curb, where removed, shall be replaced with Concrete, Class A.
16. The abutment expansion bearings on both bridges shall be reset to their vertical position as detailed on reference sheets 13 & 14. Payment for this work shall be made under item 502.11 "Shoring Superstructure Bearings" and shall include the jacking of the superstructure, resetting the abutment bearings and drilling of new holes in the bottom flange of the main girder for the 1" high strength bolts. The jacks shall be distributed in such a manner that the superstructure shall be lifted, one end at a time, as a unit. All jacks shall work in unison. Each bearing supports approximately 260 Kips of dead load weight. All portions of the bearings to remain in place shall be cleaned, inspected, painted and greased. Any further work to the bearings as deemed necessary by the engineer shall be paid for as extra work.

17. All deck and bridge curb concrete shall be "Concrete, Class A".
18. A thin coating of neat cement or mortar shall be placed on the edge surface of the existing concrete immediately prior to the placement of the abutting fresh concrete as detailed per section 501.13 (b). Payment shall be considered subsidiary to item 501.22 "Concrete, Class A".
19. All reinforcing shall be detailed and fabricated using procedures and tolerances in accordance with applicable publications of the Concrete Reinforcing Steel Institute (CRSI).
20. Reinforcing placement tolerances shall be spacing +/- 1" clearance +/- 1/4"
21. No traffic shall be allowed on the deck until the cure period is up and the 28 day design strength is attained as evidenced by test cylinders cured under field conditions.
22. All exposed edges of concrete shall be chamfered 1" by 1".
23. Joints and score marks in concrete shall be constructed as indicated on the plans or as directed by the engineer in the field.
24. Water repellent shall be applied to all exposed concrete surfaces except the underside of the deck between drip beads.
25. All structural steel shall be detailed and fabricated using procedures and tolerances in accordance with applicable publications of the American Institute of Steel Construction (AISC).
26. All new structural steel elements subject to tension shall be Charpy V-notch tested. These members are designated by (CVN) in the applicable details. See section 714 of the standard specifications.
27. The existing stringers must be cut in such a manner that a gap of 1/8" maximum exists between the new steel and the old steel on either spliced end. Mechanical or flame cutting of the existing stringers is allowed. All cut edges shall be ground flush, cleaned and painted prior to splicing on the new portion of stringer. Areas of steel to be painted shall not receive paint until after installation. Refer to standard specification 506.19(b). **METAL SURFACES IN CONTACT WILL NOT BE PAINTED.**
28. Any damage to the existing structural steel that is to remain in place or to the existing paint system shall be repaired to the satisfaction of the engineer at no cost to the State.
29. The existing steel that is to be replaced is painted with a material that may contain lead. As instructed by the resident engineer, a four foot section of each stringer size per structure shall be saved and delivered to the District 4 office for possible future testing. All remaining steel shall become the property of the contractor and the contractor may dispose of it or retain it for future use. The contractor shall inform the engineer of his or her plans for the disposal or retainage of the steel prior to its removal.
30. The work performed and paid for under item 513.36 "Containment & Environmental Protection, Field" shall consist of containing all loose paint for the cutting and splicing of the existing stringers, any required bearing work and any additional work that may loosen or damage the existing paint system.
31. All structural steel shall be painted as described under item 513.25 "Structural Painting - Shop Applied". The final coat color shall be green (color chip #14062). See supplemental specification 513 for details. If the shop applied paint system is damaged during the shipment and/or placement of the beams, the damaged areas shall be properly repaired and painted. This work shall be considered subsidiary to item 513.25.
32. The paint system used in the field and the shop applied paint system shall be compatible and provided from the same manufacturer.
33. All field connections shall be made with 7/8" diameter type I bolts meeting AASHTO M164 (ASTM designation A-325) coated in accordance with AASHTO M298, type I, class 50. Holes shall be 15/16" diameter unless otherwise noted. After installation, bolts shall be field painted to include intermediate and final coating systems.
34. Bolts shall not be paid for separately but shall be considered subsidiary to item 506.50 "Structural Steel (Rolled Beam)".
35. Any connections that are not detailed on the plans shall be detailed by the fabricator and submitted to the Structures Engineer for approval.
36. Connections at the new stringer field splices shall have all holes filled with high strength bolts and fully tightened prior to removal of external support system.
37. Any bolt holes in the web of the fascia stringers not otherwise filled shall be filled with buton head or hex head bolts. The bolts shall be tightened in accordance with subsection 506.19.
38. All structural steel paid for under the item 506.50 "Structural Steel (Rolled Beam)" shall conform to AASHTO M-270 grade 36 steel.

39. The traffic control crossovers shall be constructed in accordance with standard E-104 beginning at the point of curvature of the roadway at milemarker 65.90 and extend for 1.56 miles to milemarker 67.46. The crossovers shall be located in such a manner to ensure that all approach work on the bridge be done without traffic interference. The enforceable speed limit for this traffic control shall be 55 mph.
40. Two (2) portable, changeable message boards and two (2) arrow boards will be required. Payment for these items shall be considered subsidiary to item 641.10 "Traffic Control".
41. Upon removal of the temporary detour, all vegetated areas disrupted shall be mulched and seeded to the satisfaction of the resident engineer. Payment for this work shall be considered subsidiary to item 641.10 "Traffic Control".
42. The bridge rail may be removed in one of two methods. The first being cutting the existing splice bars at first splice location outside the work area and removing that section in its entirety. This method will require the contractor to install new barrier and hand rail splice bars. The second method consists of removing only the posts and leaving the rails in place during construction. The contractor shall be careful not to damage or dirty (ie: concrete splash) the existing rail.
43. The granite curbing shall be cut and removed as detailed on sheet 5. Should that cut fall in close proximity to an existing curb joint, that remaining portion of curb length may require some mortar and/or epoxy to secure it in place. Payment for this shall be considered subsidiary to item 529.26 "Removal of Concrete or Masonry".
44. The contractor shall carefully remove the existing concrete so as retain a 2'-9" length of existing reinforcing as shown on sheet 5. The retained reinforcing shall not be bent or damaged during the installation of the new stringers and splices.
45. Use of stay in-place forms is prohibited.
46. Use of mechanical connectors or a similar Hilti product will not be allowed.
47. The pavement and insulation board on bridge 40N shall be removed in its entirety and paid for under item 529.10 "Removal of Bridge Pavement". Bridge 40N shall be fully membraned and paved. Bridge 40S shall be cold planed and repaved. Sheet membrane will be required on the new sections of concrete only as this structure should have an existing membrane in place.
48. The scope of this retrofit project shall include the construction of the temporary crossover detours, removal of the existing deflections joints (2 joints per bridge) making the deck and all stringers continuous, retrofit of the abutment expansion bearings and membraning and paving as detailed in general note 47.
49. Field fabrication of the structural steel will not be allowed. Shop drawings shall be submitted to the Structure Section for approval prior to any fabrication.

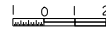


STATE OF VERMONT AGENCY OF TRANSPORTATION			
Town Of	<u>HARTLAND</u>	Bridge No.	<u>40N/40S</u>
Highway No.	<u>1-91</u>	Trg. Sta.	<u>NW 66-350</u>
<u>1-91 OVER THE OTTAUQUECHEE RIVER</u>		Surv. Sta.	
GENERAL NOTES			
Designed By	<u>P.M. THURBER</u>	Drawn By	<u>K.M. HIGGINS</u>
Checked By	<u>P.M. THURBER</u>	Bridge Design Supervisor	<u>J.B. MCCARTHY</u>
Date	<u>5/97</u>	Date	<u>5/97</u>
PROJECT	<u>HARTLAND</u>	PROJECT NO.	<u>IM-091-(135)</u>
I.G.C. Info.	<u>IP_PWPdms05240cc056003.dgn</u>	ed056003.d	
Bridge Sheet No.	<u>3</u>	of	<u>7</u>

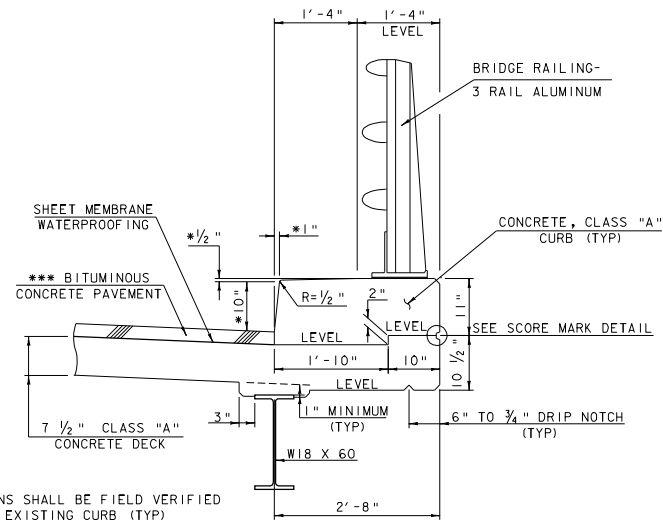


EXISTING BRIDGE TYPICAL SECTION

SCALE 1/2" = 1'-0"



**THICKNESS OF BITUMINOUS CONCRETE PAVEMENT TO BE DETERMINED IN FIELD (RECORD PLANS INDICATE 1 1/2" DEPTH)

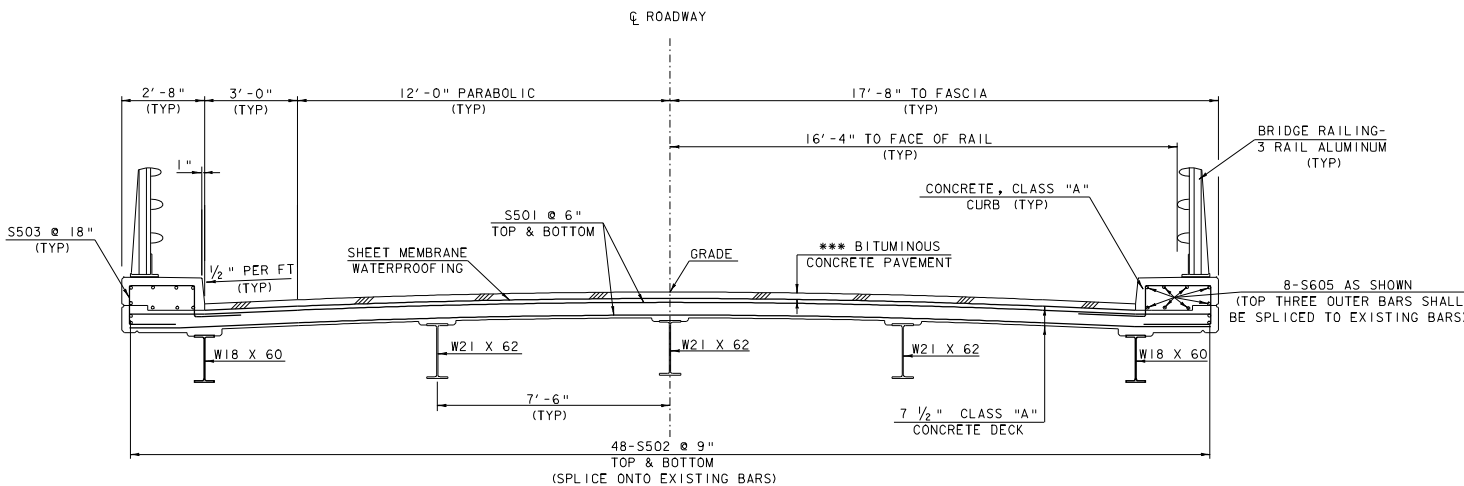


"NEW" CURB DETAIL WITHOUT GRANITE

SCALE 1" = 1'-0"

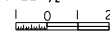


* DIMENSIONS SHALL BE FIELD VERIFIED TO MATCH EXISTING CURB (TYP)



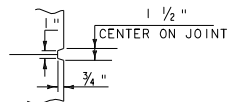
BRIDGE REPAIR TYPICAL SECTION

SCALE 1/2" = 1'-0"



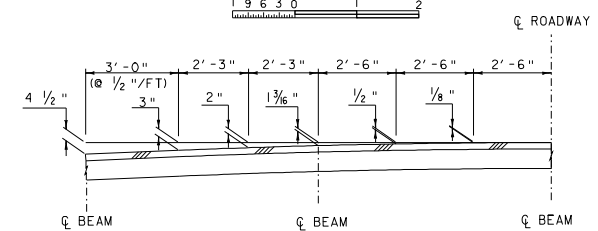
*** 1 1/2" +/- TYPE IV BIT. CONC. PVMT TO MATCH EXISTING PAVEMENT

ALL PAVING IS TYPE IV ONE LIFT PAM THURBER 26 AUG. 1997 LPT



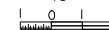
SCORE MARK DETAIL

NTS



PARABOLIC CROWN DETAIL

SCALE 1/2" = 1'-0"

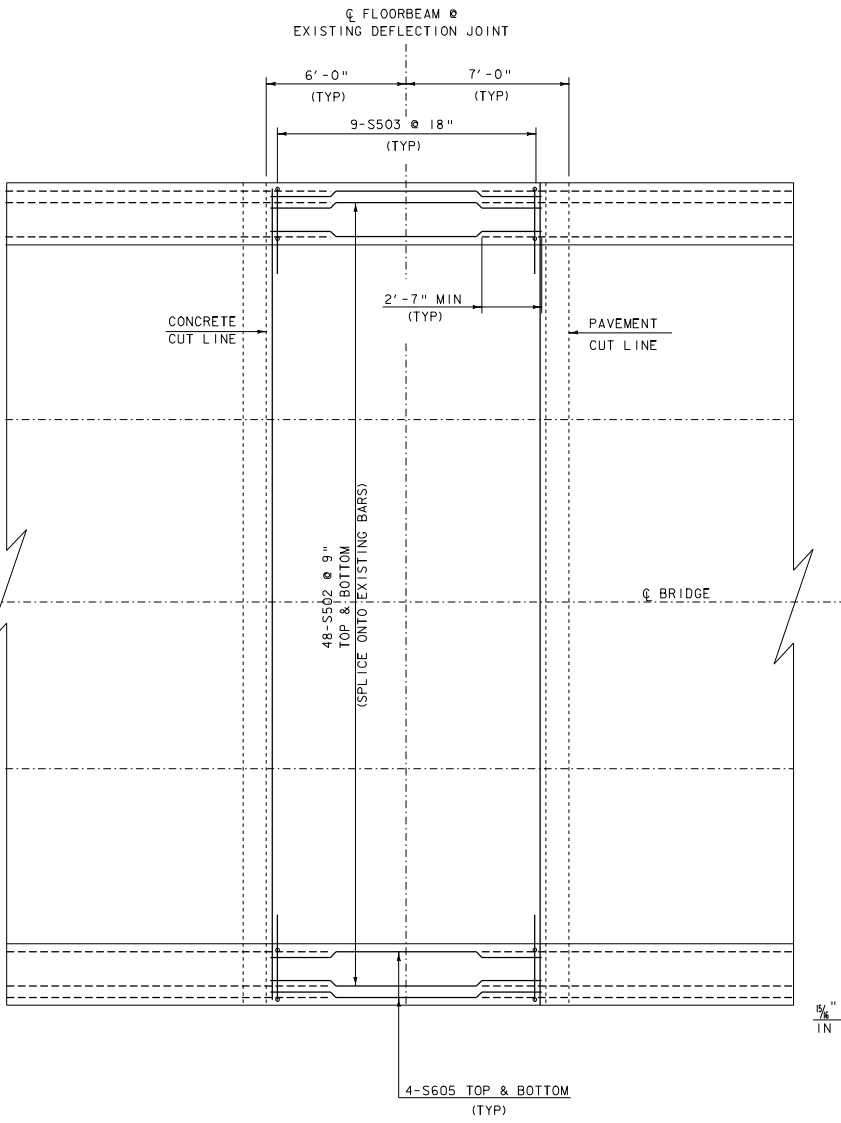


STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of	HARTLAND	Bridge No.	40N/40S
Highway No.	1-91	Eng. Sta.	MM 66.350
1-91 OVER THE OTTAWAQUECHEE RIVER			
TYPICAL SECTION & REINFORCING DETAIL			
Designed By	P.M. THURBER	Drawn By	K.M. HIGGINS
Checked By	P.M. THURBER	Bridge Design Supervisor	J.B. MCCARTHY
Date	5/97	Date	5/97
PROJECT	HARTLAND	PROJECT NO.	IM-09-1(35)
I.G.C. Info.	IP_PWP\dms05240\cd056004.dgn	Sheet No.	4 of 7

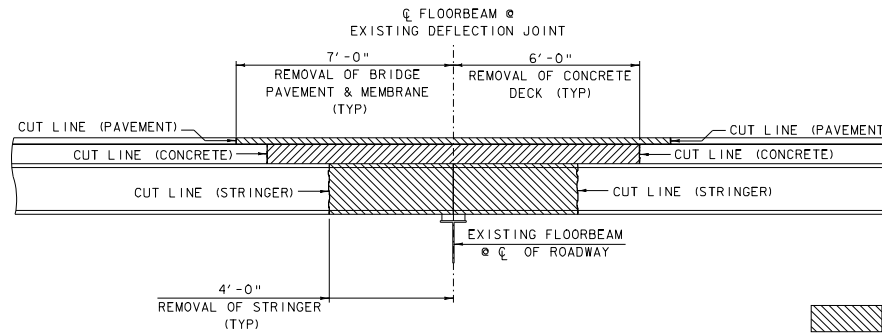
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ON CADD

REVISD JUNE 13, 1997



DECK REINFORCING PLAN

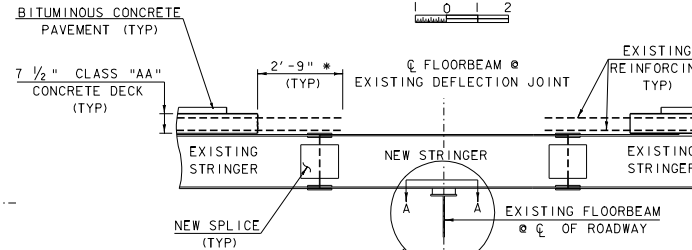
SCALE $\frac{3}{8}$ " = 1'-0"



DETAIL FOR MATERIAL REMOVAL

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

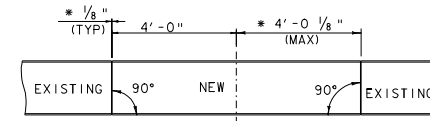
= AREA TO BE REMOVED



EXISTING REINFORCING STEEL DETAIL

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

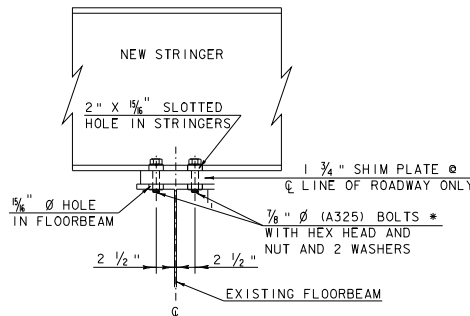
* RETAIN EXISTING REINFORCING STEEL 2'-9" BEYOND CONCRETE CUT LINE.



STRINGER CUT DETAIL

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

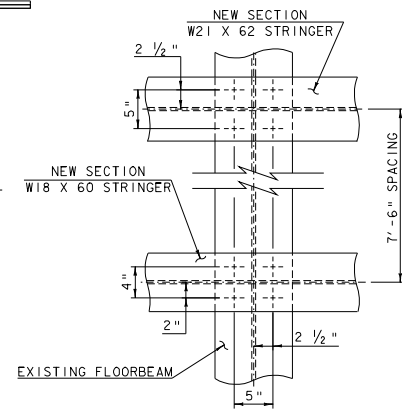
NOTE: NO CAMBER IN STRINGERS
 * REFER TO GENERAL NOTE #27



DETAIL "B"

* LENGTH OF BOLTS UNDER HEAD SHALL BE 5" WITH $3\frac{1}{2}$ " OF THREAD. PAYMENT FOR THESE BOLTS SHALL BE SUBSIDIARY TO ITEM 506.50 "STRUCTURAL STEEL (ROLLED BEAM)"

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

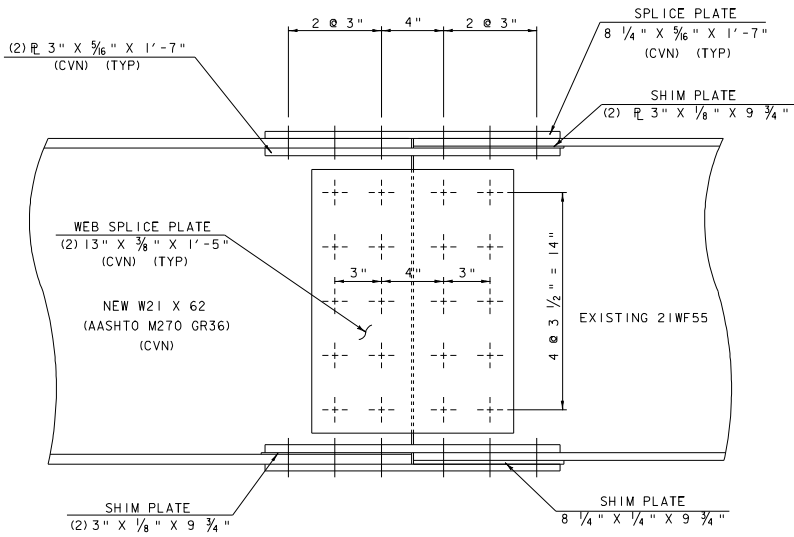


SECTION A-A

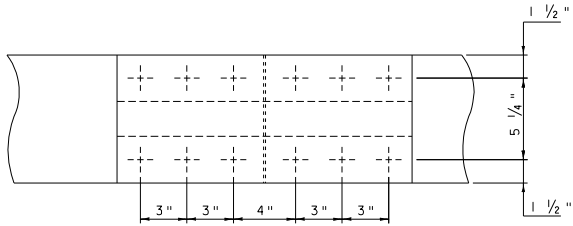
**ARCHIVED
ON CADD**

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

Town Of	HARTLAND	Bridge No.	40N/40S
Highway No.	1-91	Eng. Sta.	MM 66.350
1-91 OVER THE OTTAUQUECHEE RIVER			
REMOVAL & REINFORCING DETAILS			
Designed By	P.M. THURBER	Drawn By	K.M. HIGGINS
Checked By	P.M. THURBER	Date	5/97
		Bridge Design Supervisor	J.B. MCCARTHY
		Date	5/97
PROJECT	HARTLAND	PROJECT NO.	IM-09-I(35)
I.G.C. Info.	IP_PWP\dms05240\c056005.dgn	Sheet	5 of 7
Bridge Sheet No.		Sheet	5 of 7

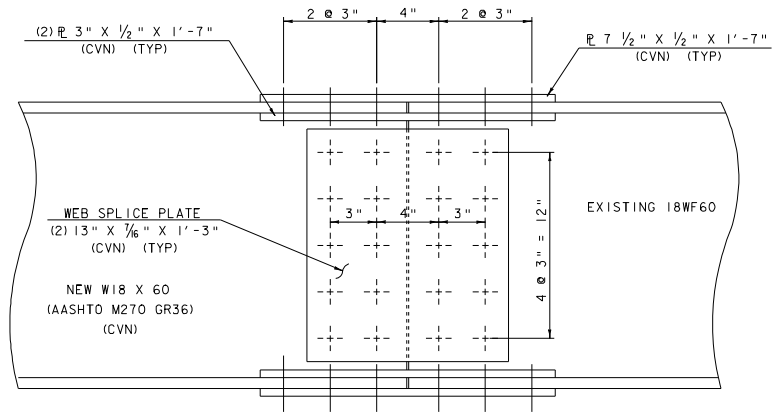
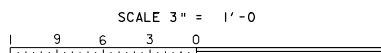


ELEVATION

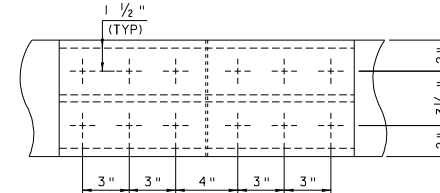


PLAN

INTERIOR STRINGER SPLICE
(W21 X 62 TO 21WF55)

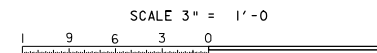


ELEVATION



PLAN

EXTERIOR STRINGER SPLICE
(W18 X 60)

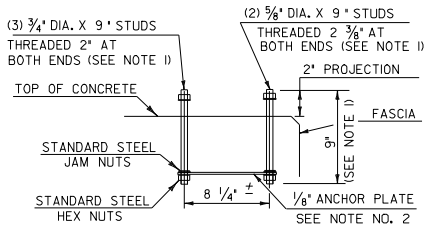


NOTE : ALL BOLTS IN SPLICE CONNECTION SHALL BE 7/8" DIAMETER A-325, TYPE 1 BOLTS IN 5/16" DIAMETER HOLES. SEE GENERAL NOTE 33.

NOTE: ALL MEMBERS AND PLATES (AND ONLY THOSE MEMBERS AND PLATES) IDENTIFIED WITH THE NOTATION (CVN) MUST MEET THE REQUIREMENTS FOR MAIN MEMBERS AS INDICATED IN SECTION 714 OF THE VERMONT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

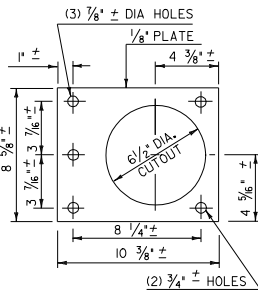
**ARCHIVED
ON CADD**

STATE OF VERMONT AGENCY OF TRANSPORTATION			
Town Of	<u>HARTLAND</u>	Bridge No.	<u>40N/40S</u>
Highway No.	<u>1-91</u>	Proj. Sta.	<u>NM 66-350</u>
<u>1-91 OVER THE OTTAWAQUECHEE RIVER</u>		Surv. Sta.	
<u>SPLICE DETAIL</u>			
Designed By	<u>P.M. THURBER</u>	Drawn By	<u>K.M. HIGGINS</u>
Checked By	<u>P.M. THURBER</u>	Date	<u>5/97</u>
		Bridge Design Supervisor	<u>J.B. MCCARTHY</u>
		Date	<u>5/97</u>
PROJECT	<u>HARTLAND</u>	PROJECT NO.	<u>IM-09-I(35)</u>
I.G.C. Info.		<u>IP_PWPdms05240.cad056006.dgn</u>	<u>sd026es3.l</u>
Bridge Sheet No.	<u>6</u>	of	<u>7</u>



POST ANCHOR ASSEMBLY

NOTE:
ALL DIMENSIONS TO BOLT HOLES
SHALL BE VERIFIED IN THE FIELD TO
MATCH THE EXISTING POSTS.



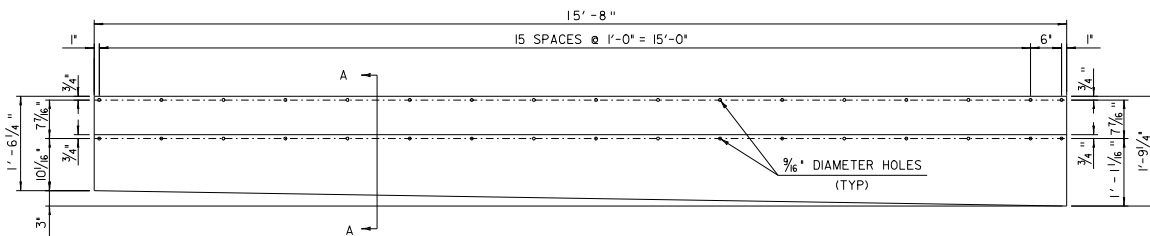
ANCHOR PLATE

NOTES FOR POST ANCHORAGE

- UNLESS OTHERWISE SPECIFIED, ANCHOR BOLTS SHALL BE CAST INTO THE CONCRETE AS DETAILED TO MATCH EXISTING POST PATTERN.
- THE ANCHOR PLATE FOR THE POST ANCHOR ASSEMBLY SHALL BE ASTM A36 STRUCTURAL STEEL. PAYMENT FOR THIS PLATE SHALL BE SUBSIDIARY TO ITEM 525.11 "RESETTING RAIL".
- SEE REFERENCE SHEET 17 FOR ADDITIONAL DETAILS

RAIL POSTS ANCHORAGE DETAIL

NTS

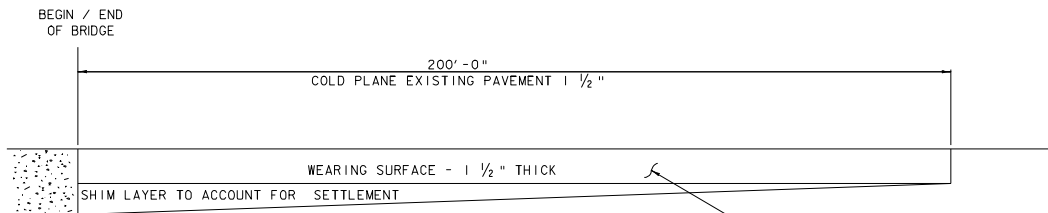


FABRIC DRAIN TROUGH

SCALE 1" = 1'-0"
1 2 3 0

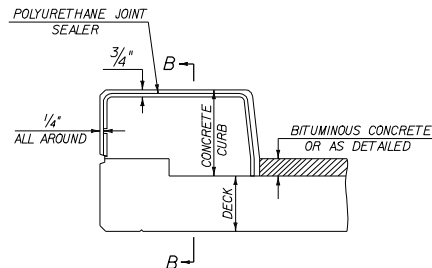
NOTES

- REPLACE EXISTING 41 1/4" X 20 OZ. COPPER DRAIN WITH FOUR (4) NEW SECTIONS OF 3 PLY PREFORMED FABRIC MATERIAL. EACH PIECE SHALL BE CONTINUOUS MEASURING 3/8" THICK X 41 1/4" WIDE X 15'-8" LONG AND CONFORM TO SUBSECTION 707.07.
- A DRIP BEAD OF 1/4" X 7" STRIP OF PREFORMED MATERIAL SHALL BE CEMENTED TO THE BOTTOM OF THE FABRIC TROUGH USING AN ADHESIVE APPROVED BY THE MANUFACTURER. THE DRIP BEAD SHALL BE APPLIED 1" FROM THE DOWNSPOUT END OF THE TROUGH.
- THE FABRIC TROUGH SHALL BE THOROUGHLY CLEANED AND FLUSHED AFTER PAVING OPERATION.

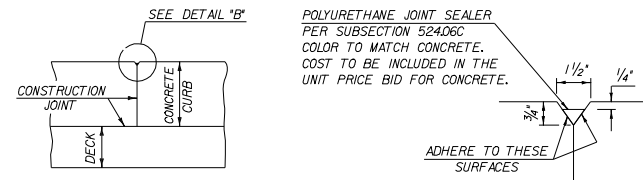


COLD PLANING @ APPROACHES

NTS



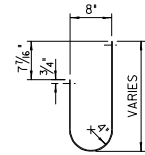
TYPICAL SECTION THROUGH
CONCRETE CURB CONSTRUCTION JOINT



SECTION B - B

DETAIL "B"

- NOTES:
- CONSTRUCTION JOINTS THROUGH CONCRETE CURBS SHALL BE SPACED MAXIMUM 15'-0" CENTER TO CENTER AND SHALL BE 1'-6" MINIMUM FROM THE CENTER OF THE NEAREST BRIDGE RAIL POST. CONCRETE SHALL BE PLACED IN ALTERNATING SECTIONS WITH A MINIMUM OF 48 HOURS DELAY BETWEEN ADJACENT POURS.
 - LONGITUDINAL REINFORCING SHALL PASS THROUGH CONCRETE CURB CONSTRUCTION JOINTS.
 - CONSTRUCTION JOINTS THROUGH SIDEWALKS SHALL BE SIMILAR TO CONCRETE CURB CONSTRUCTION JOINTS.



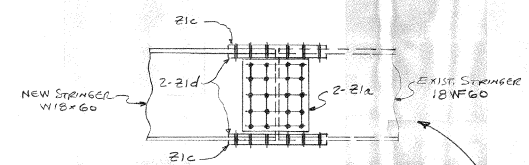
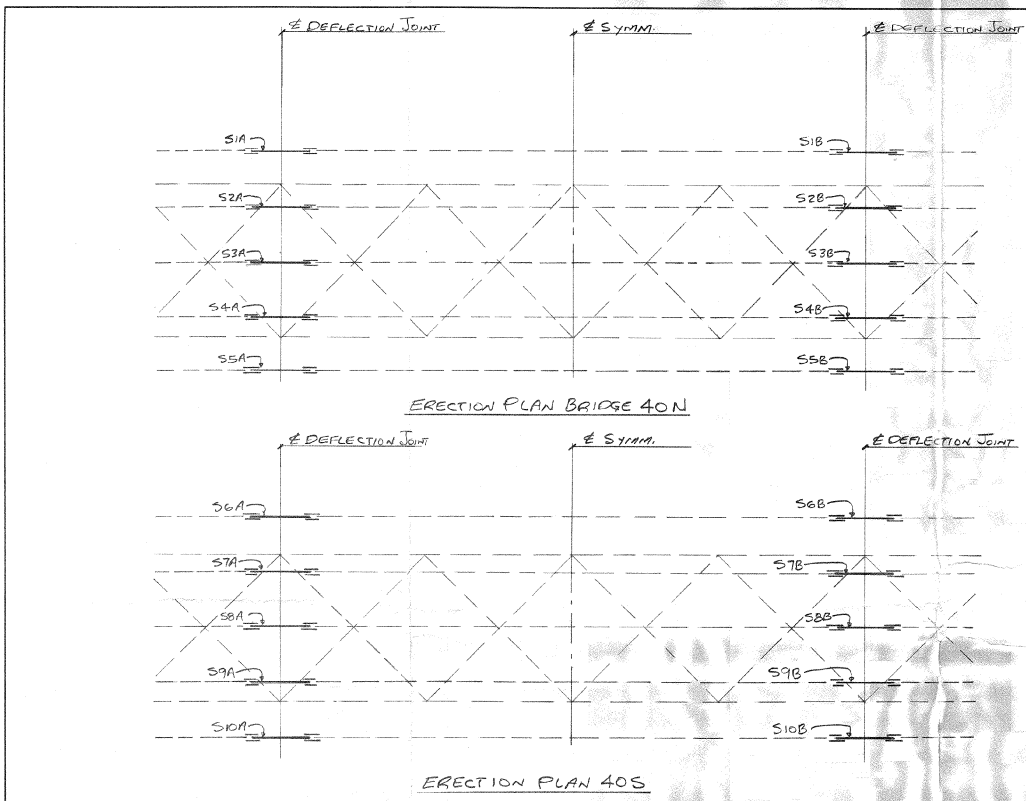
SECTION A - A

SCALE 1" = 1'-0"
1 2 3 0

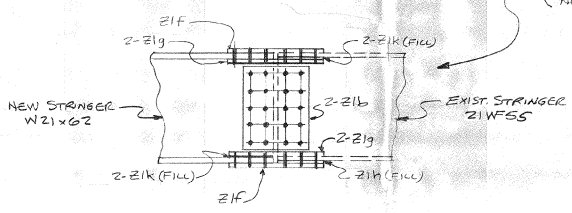
**ARCHIVED
ON CADD**

STATE OF VERMONT AGENCY OF TRANSPORTATION	
Town Of <u>HARTLAND</u>	Bridge No. <u>40N/40S</u>
Highway No. <u>1-91</u>	Trq. Sta. <u>NM 66.350</u>
<u>I-91 OVER THE OTTAUQUECHEE RIVER</u>	
<u>APPROACH & RAIL ANCHORAGE DETAILS</u>	
Designed By <u>P.M. THURBER</u>	Drawn By <u>K.M. HIGGINS</u>
Checked By <u>P.M. THURBER</u>	Bridge Design Supervisor <u>J.B. MCCARTHY</u>
Date <u>5/97</u>	Date <u>5/97</u>
PROJECT <u>HARTLAND</u>	PROJECT NO. <u>IM-09-I(35)</u>
I.G.C. Info. <u>IP_PWPdms05240.cad056007.dgn</u>	Sheet <u>7</u> of <u>7</u>
Bridge Sheet No. _____	Sheet <u>7</u> of <u>7</u>

REVISED JUNE 13, 1997



FIELD SPLICE DETAIL @ STRINGERS
S1A, S5A, S6A, S10A, S1B, S5B, S6B & S10B



FIELD SPLICE DETAIL @ STRINGERS
S2A-S5A, S7A, S8A, S9A, S2B, S3B, S4B, S7B, S8B & S9B

ERECTOR NOTE:
FIELD DRILL 1/8" HOLES IN WEB & FLANGES OF EXIST. STRINGERS USING NEW SPLICE PLATES AS TEMPLATE

ERECTOR NOTE: ALL BOLTS MUST BE LOCATED IN ACCORDANCE WITH THE LIST OF FIELD CONNECTIONS. HIGH STEEL STRUCTURES WILL NOT BE RESPONSIBLE FOR FURNISHING ADDITIONAL BOLTS OR FOR ANY OTHER RELATED COSTS OR DAMAGES RESULTING FROM IMPROPER LOCATION OF BOLTS.

LIST OF FIELD CONNECTIONS										ONE WASHER PER BOLT UNLESS NOTED OTHERWISE	
LINE NO.	ACTUAL NO. REBOLTS	BOLT DIA.	BOLT LENGTH	* OF CONN. JOINTS	GRP.	THICKNESS OF PLATE CONNECTED		PIECES CONNECTED AND REMARKS			
1	320	1 1/4"	2 1/2	20	16	1 1/2"	1 1/2"	WEB SPLICE @ W18x60			
2	480	1 1/4"	2 1/2	20	24	1 1/2"	1 1/2"	WEB SPLICE @ W21x62			
3											
4	384	3/8"	12	32	11 1/2	1/2"	1 1/2"	TOP & BOTT. FLG. SPLICE @ W18x60			
5	288	3/8"	12	24	14	1/2"	1 1/2"	TOP FLG. SPLICE @ W21x62			
6	288	3/8"	12	24	1 1/2	1/2"	1 1/2"	BOTT. FLG. SPLICE @ W21x62			
7											
8											
9											
10											
11											
12											
13											
14											
15											

Summary of Field Bolts

4% ADDITIONAL APPROX
ASTM A325 TYPE 1 1/4" HEX HEAD AND
ASTM A563 GR. DII HWY HEX NUT
399 - 3/8" HIGH STRENGTH BOLTS x0-3
632 - 3/8" x0-2 1/2" } RCT
799 - 3/8" x0-2 1/2" } RCT
1830 - HARD RD. FLAT WASHER F-36 FOR 3/8" BOLTS RCT

RCT Indicates Rotational Capacity Tested Bolts. Do Not Mix Nuts And Bolts From Different Containers Unless All Bolts And Nuts Have The Same Lot Number.

NOTES:

NO CREDIT WILL BE ALLOWED FOR WORK PERFORMED BY OTHERS IN REPLACING OR CORRECTING MATERIALS OR WORKMANSHIP COVERED BY THIS DRAWING UNLESS EXPRESSLY AUTHORIZED BY HIGH STEEL STRUCTURES, INC. ALL FIELD CONNECTIONS TO BE MADE WITH 1/4" HIGH STRENGTH A325, TYPE BOLTS.

NOTICE: WEIGHTS OF MEMBERS LISTED ON THESE DRAWINGS ARE ESTIMATED WEIGHTS AND ACTUAL WEIGHTS WILL VARY. HIGH STEEL STRUCTURES, INC. WILL NOT BE RESPONSIBLE FOR ANY ERECTION PROCEDURES, SHIPPING PROCEDURES, ETC. DEVELOPED USING ESTIMATED WEIGHTS AS SHOWN.

NOTICE TO ERECTOR & CONTRACTOR: THIS STRUCTURAL STEEL IS BEING DELIVERED WITH THE FINAL FINISH COAT APPLIED. YOUR SPECIAL ATTENTION REQUIRES EXTREME CARE AND APPROPRIATE EQUIPMENT FOR HANDLING DURING ERECTION AND SUBSEQUENT FIELD OPERATIONS. HIGH STEEL STRUCTURES, INC. WILL NOT BE RESPONSIBLE FOR ANY TOUCH-UP REQUIRED DUE TO YOUR FAILURE TO PROPERLY PROTECT FINISH PAINT.

ALL FIELD BOLTS THRU BOTTOM FLANGE ARE TO HAVE HEADS UP.
ALL FIELD BOLTS THRU WEB OF FASCIA GIRDERS ARE TO HAVE HEADS ON OUTSIDE OF WEB.

FEDERAL DISTRICT	STATE	FEDERAL PROJECT

RECEIVED
BY: PMT OK'D BY: KCM/HL
JUN 30 1997
REVISION: APPROVED: J. McDonald 7/1/97

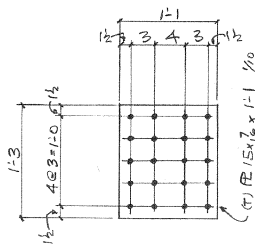
NO.	REVISION	DATE

1770 Interstate Road
Montpelier, VT 05602-0006
Phone: 774-270-9000

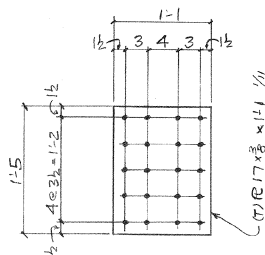
HIGH STEEL STRUCTURES, INC.

ERECTOR PLAN
REHAB BRIDGE 40N & 40S ON I-91
OVER CATTARAUGUS RIVER
HARTLAND, VERMONT
STATE OF VERMONT, AGENCY OF TRANSPORTATION
MONTPELIER, VERMONT

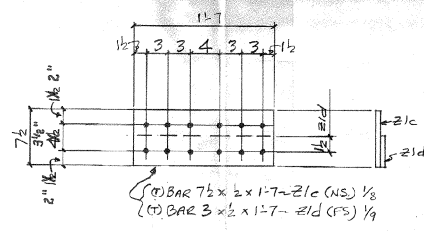
STATE CONTRACT NO. AND NO. IM-091-1(35)
CONTRACTOR J.A. McDONALD
IN CHARGE LANCOWICZ, MARK BY DWS CHK'D. RF DATE 6-26-97
CONTRACT NUMBER VT-97764-1 DRAWING NUMBER E1 OF E1



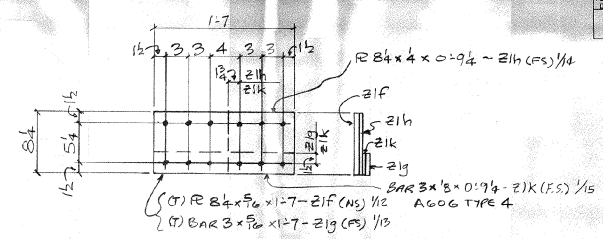
32-REQ'D-21a
SPICE RS



48-REQ'D-21b
SPICE RS



32-REQ'D-21c }
64-REQ'D-21d } SPICE RS



48-REQ'D-21f }
96-REQ'D-21g } SPICE RS
24-REQ'D-21h }
76-REQ'D-21k } FILL RS

FEDERAL	STATE	FEDERAL
NO. 1		NO. 1

RECEIVED
 CDD BY PMT DCD BY K.M.H.
 JUN 30 1997
 REQUEST APPROVED AS NOTED
 James R. Kelly 7/6/97

△		
△		
△		
NO.	REVISION	DATE

1775 Independence Road
 Lancaster, PA 17603-0008
 Phone 717-299-3221

HIGH STEEL STRUCTURES, INC.

STINGER JOE STANDARDS
 RENE BRIDGE AND FLOORS ON F-91 OVER
 OTTAUQUECHEE RIVER
 HARTLAND, VERMONT
 STATE OF VERMONT AGENCY OF TRANSPORTATION
 MONTPELIER, VERMONT

STATE CONTRACT NO. VTS-97-1(35)
 CONTRACTOR J.A.M. CONRAD
 IN CHARGE LANCE W.C. MADE BY DWG. DATE 6/16/97

CONTRACT NUMBER VT-97764-1 SHEET NUMBER 21 OF 21

SHOP NOTE
 HOLES: 15/16"
 BOLTS: NONE
 PAINT: NONE Prime coat only

ENGLISH

FEDERAL ROAD DISTRICT	STATE	FEDERAL PROJECT
1	VT	

GENERAL SHOP NOTES

SPECIFICATIONS:

ALL MATERIAL AND WORKMANSHIP TO BE IN ACCORDANCE WITH THE STATE OF VERMONT, AGENCY OF TRANSPORTATION, STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 1992, WITH CURRENT MODIFICATIONS AND ADDITIONS.

MATERIAL:

UNLESS NOTED OTHERWISE, ALL STEEL TO BE AASHTO M270 GRADE 36.
(T) INDICATES CHARPY V-NOTCH TESTING REQUIRED.

CLEANING:

BLAST CLEAN ALL STEEL TO SSPC-SP10 (NEAR WHITE).
BLAST CLEANING ANCHOR PROFILE TO BE FROM 1.5 TO 2.5 MILS DEEP.

PAINTING:

ALL STEEL, EXCEPT SPLICE PLATES, TO BE PAINTED (UNLESS NOTED) WITH A 3 COAT SYSTEM AS FOLLOWS:
PRIME COAT: CARBO ZINC 11 HS (INORGANIC ZINC) WITH ^{4.0} 2.0 TO ^{10.0} 6.0 MILS D.F.T.
INTER. COAT: CARBOLINE 893 (EPOXY) WITH ^{3.0} 3.0 TO ^{7.0} 7.0 MILS D.F.T. ^{5.0}
FINISH COAT: CARBOLINE 133 HB (POLYURETHANE) WITH 3.0 TO 7.0 MILS D.F.T.
FINISH COAT COLOR TO BE GREEN, FEDERAL STANDARD 595, COLOR #14962.
SPLICE PLATES TO BE PAINTED WITH ONE COAT OF CARBO ZINC 11 HS (INORGANIC ZINC) WITH 2.0 TO 6.0 MILS D.F.T.

PRIME COAT TO BE APPLIED WITHIN 8 HOURS AFTER BLAST CLEANING.
STRIPE COAT ALL EDGES OF STRINGERS PRIOR TO THE APPLICATION OF THE FULL PRIME COAT.

TOP FLANGE OF STRINGERS, AS SHOWN IN SECTION "A", SHALL RECEIVE A LIGHT RUST PREVENTIVE COAT OF PRIMER, NOT TO EXCEED 1.5 MILS D.F.T.

SHOP PROCEDURE:

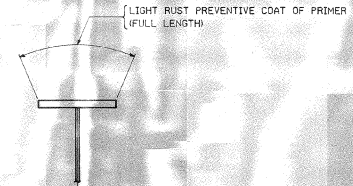
CAMBER TOLERANCE: N/A

INSPECTION:

SHOP INSPECTION BY E.L. CONWELL

DRAWING REFERENCES:

STRINGER JOB STANDARDS - PREFIXED "Z"



TYP. PAINT SECTION "A"

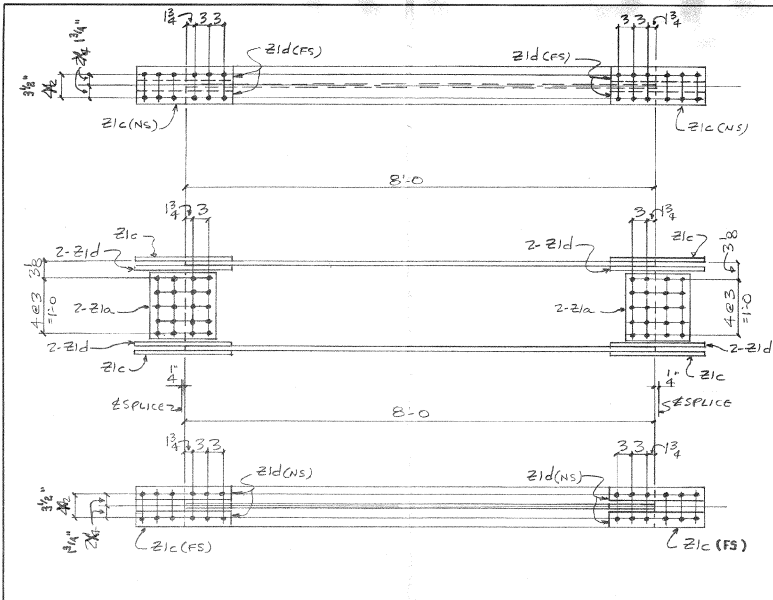
RECEIVED
 CRD BY: PMT G.A. B.K. & C.O.H.
 JUN 30 1997
 SUBMITTED BY: APPROVED: *AS NOTED*
7/1/97

△		
△		
△		
NO.	REVISION	DATE

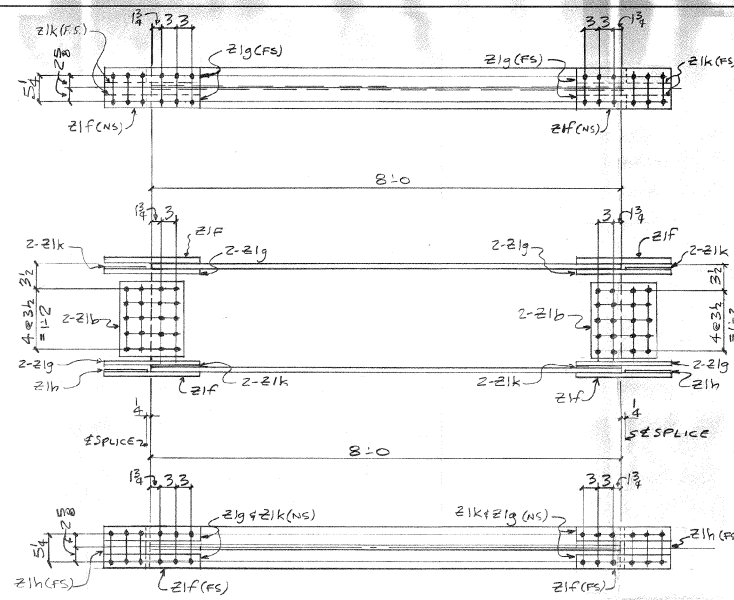
770 Hampshire Road
 Leicester, MA 01850-0008
HIGH STEEL STRUCTURES, INC.
 A Division of High Steel Structures

GENERAL SHOP NOTES
 REHAB. BRIDGE 48N & 48S ON I-91
 OVER OTTAUQUECHEE RIVER
 WARTLAND, VERMONT
 STATE OF VERMONT, AGENCY OF TRANSPORTATION
 MONTPELIER, VERMONT

STATE CONTRACT NO. RD. NO. IM-091-1(35)
 CONTRACTOR J. A. Mc DONALD
 IN CHARGE L. ANCO (MC) MADE BY ADD CHK'D BY RF DATE 5-24-97
 CONTRACT NUMBER VT-97764-1 DRAWING NUMBER NI OF NI



ONE EACH STRINGERS - S1A, S5A, S6A, S10A, S1B, S5B, S6B & S10B



ONE EACH STRINGERS S2A, S3A, S4A, S7A, S8A, S9A, S2B, S3B, S4B, S7B, S8B & S9B

PERIOD	STATE	PERIOD

BILL OF MATERIAL						
NO.	MARK	DESCRIPTION	LENGTH	REMARKS	QTY	UNIT
ONE	S1A	STRINGER				722
ONE	S5A					722
ONE	S6A					722
ONE	S10A					722
ONE	S1B					722
ONE	S5B					722
ONE	S6B					722
ONE	S10B					722
8		W18x60	80			1/8
32	21a	RE 15x7/8	17	(T)		1/8
32	21c	BAR 7/8x2	17	(T)		1/8
64	21d	BAR 3/4x2	17	(T)		1/8
ONE	S2A	STRINGER				705
ONE	S3A					705
ONE	S4A					705
ONE	S7A					705
ONE	S8A					705
ONE	S9A					705
ONE	S2B					705
ONE	S3B					705
ONE	S4B					705
ONE	S7B					705
ONE	S8B					705
ONE	S9B					705
12		W21x62	80			1/8
48	21b	RE 17x7/8	17	(T)		1/8
48	21f	RE 84x7/8	17	(T)		1/8
96	21h	BAR 3/4x4	17	(T)		1/8
24	21i	RE 84x4	0	94		1/8
96	21k	BAR 3/4x3	0	94	ACCS TYPE 4	1/8

RECEIVED
 CND BY: EMT
 JUN 30 1997
 APPROVED AS NOTED
 BY: J. A. McDonald
 DATE: 7/2/97

NO.	REVISION	DATE

775 Westford Road
 Lancaster, PA 17603-0008
 Phone 717/299-5225

HIGH STEEL STRUCTURES, INC.

STRINGERS S1A THRU S10A, S1B THRU S10B
 REMAR BRIDGE 40N & 40S ON I-91
 OVER OTTAUQUECHEE RIVER
 HARTLAND, VERMONT
 STATE OF VERMONT AGENCY OF TRANSPORTATION
 MONTPELIER, VERMONT
 STATE CONTRACT NO. 11M-091-1 (35)
 CONTRACTOR: J.A. McDONALD
 IN CHARGE: LANCE (MC) MADE BY: DWS CND: RE DATE: 6-21-97
 CONTRACT NUMBER: VT-97764-1 DRAWING NUMBER: 1 OF 1

SHOP NOTE
 HOLES: 15/16
 BOLTS: NONE
 PAINT: SEE DWS, N1
 CAMBER: NONE
 FOR GENERAL SHOP NOTES SEE DWS, N1

CODE: 50