STATE OF VERMONT
AGENCY OF TRANSPORTATION

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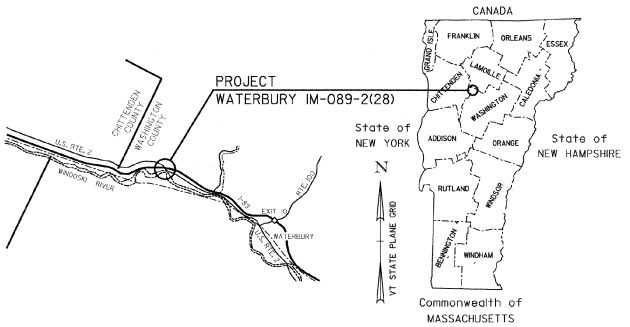
PROPOSED IMPROVEMENT

TOWN OF WATERBURY
COUNTY OF WASHINGTON
PROJECT NO: IM – 089 – 2(28)

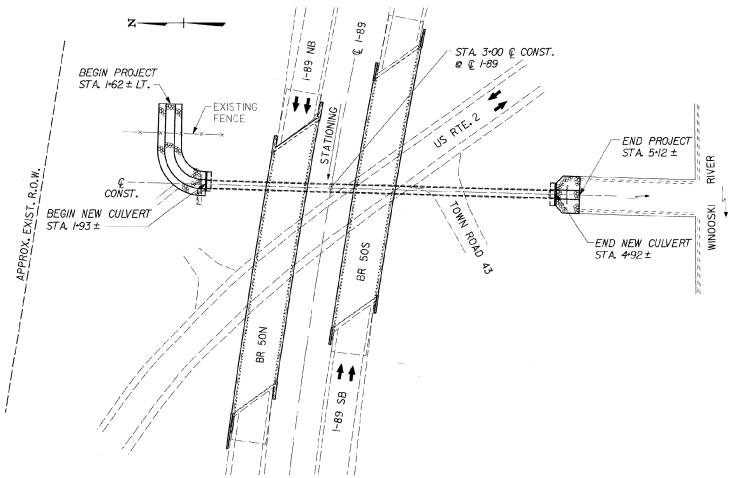
ROUTE NO: US RTE. 2



PROJECT
WATERBURY IM-089-2(28)

LOCATION MAP
N.T.S.

PROJECT LOCATION:	US RTE. 2 BRIDGE NO. 41
PROJECT DESCRIPTION:	LINING AN EXISTING 96" PIPE WITH NEW 78" PIPE AND CONSTRUCTION OF NEW HEADWALLS WITH RELATED CHANNEL AND SLOPE WORK.
LENGTH OF STRUCTURE:	302.00 FEET
LENGTH OF ROADWAY:	0.00 FEET
LENGTH OF PROJECT:	350.00 FEET



PLAN

50 0 50
SCALE IN FEET

SURVEY NOTES:

1. A TOPOGRAPHIC SURVEY HAS NOT BEEN COMPLETED FOR THIS PROJECT. STATIONING AND DIMENSIONS HAVE BEEN TAKEN FROM EXISTING PLANS FOR I-89-2(7), DATED 1958. THE CONTRACTOR SHALL FIELD VERIFY ALL GEOMETRY SHOWN ON THESE PLANS PRIOR TO BEGINNING ANY WORK.
2. THE LOCATION OF THE NEAREST CONFIRMED BENCHMARK HAS BEEN IDENTIFIED AS 675'± RT. FROM THE END OF THE NORTHWEST WINGWALL OF BRIDGE 50N. THE BENCHMARK IS IDENTIFIED AS A VTGS SURVEY DISK STAMPED "PAPPY AZ MK 1997", WITH COORDINATES N 78677.9634, E 60239.8260, AND ELEV. 510.70.

RECORD PLANS

CONTRACTOR:	MORRIL CONSTRUCTION – NO. HAVERILL, NH
RESIDENT ENGINEER:	V. DWIRE
CONSTRUCTION BEGAN:	NOVEMBER 20, 1998
CONSTRUCTION COMPLETE:	MAY 7, 1999
RECORD PLANS BY:	V. DWIRE

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

BY MM FOR V. DWIRE RESIDENT ENGINEER

DATE 8-6-03

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

PROJECT BUILT AS DESIGNED.

CONVENTIONAL SIGNS

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

DATUM
VERTICAL N/A
HORIZONTAL N/A

- NOTICE -

SPECIAL ENVIRONMENTAL RESTRICTION:

THE PRESENCE OF WETLANDS AT BOTH ENDS OF THIS STRUCTURE NECESSITATES STRICT LIMITATIONS TO ACCESS AND WORK AREAS AT THIS SITE. NO WORK, INCLUDING THE CONSTRUCTION OF HAUL ROADS, MAY BE PERFORMED OUTSIDE THE TOE OF SLOPES FOR THE EXISTING ROADWAY EMBANKMENTS. THE ONLY EXCEPTIONS TO THIS RESTRICTION ARE USE OF THE SNOWMOBILE TRAIL AT THE SOUTHEAST QUADRANT OF THE PROJECT SITE FOR ACCESS TO THE CULVERT OUTLET, AND WORK WITHIN AREAS OF STONE FILL SHOWN ON THE PLANS. TOE OF SLOPES BELOW HAUL ROADS, AND SNOWMOBILE TRAIL LIMITS SHALL BE DELINEATED BY INSTALLATION OF SILT FENCE PRIOR TO THE START OF ANY EARTH WORKS. SILT FENCE SHALL BE PAID FOR UNDER ITEM 649.51.

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

STATE OF VERMONT
J. PRESTON HALSTEAD
No. 18 0006 0754
REGISTERED PROFESSIONAL ENGINEER

TVGA ENGINEERING, SURVEYING, P.C.

APPROVED _____ DATE 9/9/98
DIRECTOR OF PROJECT DEVELOPMENT

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____ DATE 9/9/98
DIVISION ADMINISTRATOR

PROJECT WATERBURY
IM - 089 - 2(28)
SHEET 1 OF 7 SHEETS

QUANTITIES

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY BREAKDOWN			TOTAL	FINAL
			INLET	PIPE	OUTLET		
201.10	CLEARING AND GRUBBING INCLUDING INDIVIDUAL TREES	LS	0.5		0.5	1	
203.27	UNCLASSIFIED CHANNEL EXCAVATION	CY	270		90	360	
204.25	STRUCTURE EXCAVATION	CY	90		150	240	
204.30	GRANULAR BACKFILL FOR STRUCTURES	CY	65		70	135	
501.25	CONCRETE, CLASS B	CY	20		25	45	
501.30	CONCRETE, CLASS C	CY		5		5	
507.15	REINFORCING STEEL	LB	165		120	285	
514.10	WATER REPELLENT	GAL	1		1	2	
529.25	REMOVAL OF CONCRETE OR MASONRY	CY	1		1	2	
575.20	CULVERT LINING	LS		1		1	
608.25	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	HR	4		4	8	
613.11	STONE FILL, TYPE II	CY	15		30	45	
613.13	STONE FILL, TYPE IV	CY	280		95	375	
620.50	REMOVING AND RESETTING FENCE	LF	40			40	
621.75	REMOVING AND RESETTING GUARD RAIL	LF	50			50	
630.10	UNIFORM TRAFFIC OFFICERS	HR	20		20	40	
630.15	FLAGGERS	HR	20		20	40	
631.16	TESTING EQUIPMENT - CONCRETE	LS		1		1	
635.10	MOBILIZATION	LS		1		1	
641.10	TRAFFIC CONTROL	LS	0.5		0.5	1	
649.31	GEOTEXTILE UNDER STONE FILL	SY	245		125	370	
649.51	GEOTEXTILE FOR SILT FENCE	SY	105		50	155	
651.15	SEED	LB	10		10	20	
651.18	FERTILIZER	LB	50		50	100	
651.20	AGRICULTURAL LIMESTONE	TON	0.5		0.5	1	
651.25	HAY MULCH	TON	0.5		0.5	1	
651.26	HAY BALES FOR EROSION CONTROL	EA	2		18	20	
651.40	GRUBBING MATERIAL	SY	20		50	70	

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of WATERBURY	Bridge No. 41
Highway No. US RTE. 2	Log Sta. / Surv. Sta.

QUANTITIES

Designed By A.J. MINSER	Drawn By R.A. BOTZENHART
Checked By P.W. SZUSTAK Date 8-98	Bridge Design Supervisor J.P. HALSTEAD Date 8-98
PROJECT WATERBURY	PROJECT NO. IM-089-2(28)
TVGA CAD Drawing No. gennote.dgn	Date 8-14-98
Bridge Sheet No.	Sheet 2 of 7

TVGA ENGINEERING, SURVEYING, P.C.

GENERAL NOTES:

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 1990 AND ITS LATEST REVISIONS, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DATED 1996 AND ITS LATEST REVISIONS.

2. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES F, UNLESS OTHERWISE NOTED.

3. NO BORINGS WERE TAKEN ON THIS PROJECT. BEDROCK AND/OR BOULDERS MAY BE ENCOUNTERED. IF SO, THE LIMITS OF CONSTRUCTION SHALL BE MODIFIED AS DIRECTED BY THE RESIDENT ENGINEER.

4. THE CONTRACTOR SHALL BE ALLOWED TO TEMPORARILY CLOSE ONE LANE OF US ROUTE 2 DURING CONSTRUCTION, AS SHOWN IN THE REFERENCED STANDARD SHEETS, TO FACILITATE THE DELIVERY AND REMOVAL OF MATERIALS AND EQUIPMENT. LANE CLOSURE MAY NOT BE ALLOWED DURING PEAK TRAFFIC HOURS (INCLUDING HOLIDAYS), AS DETERMINED AND DIRECTED BY THE RESIDENT ENGINEER.

5. THE DOWNSTREAM HAY BALES AND SILT FENCE SHALL BE INSTALLED PRIOR TO PERFORMING ANY WORK IN THE EXISTING CULVERT. ADDITIONAL HAY BALES OR SILT FENCE TO PREVENT SILTATION OF THE STREAM SHALL BE PLACED AS SHOWN ON THE PLANS AND AS DIRECTED BY THE RESIDENT ENGINEER.

6. THE EXISTING PIPE SHALL BE CUT AND END SECTIONS REMOVED AS SHOWN ON SHEET 5. THE STRUCTURE SHALL THEN BE CLEANED OF ALL MATERIALS INCLUDING GRAVEL, BRUSH, LOOSE PIECES OF DETERIORATED PLATES, ETC., BEFORE THE INSTALLATION OF THE NEW PIPE. ALL COSTS SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 575.20, "CULVERT LINING".

7. THE EXISTING CONCRETE TOEWALLS ARE TO BE REMOVED IN THEIR ENTIRETY. TOEWALL REMOVAL AT THE INLET MUST NOT DISTURB THE FOUNDATION OF THE EXISTING HEADWALL FOR THE 30" DIAMETER REINFORCED CONCRETE PIPE (RCP). IF THE TOEWALL IS FOUND TO BE PARTIALLY UNDER (OR OTHERWISE CONNECTED TO) THE EXISTING HEADWALL, THE TOEWALL SHALL BE SAWCUT NEAR THE FACE OF THE HEADWALL AND THE PORTION NOT UNDER THE HEADWALL REMOVED (COSTS SHALL BE SUBSIDIARY TO ITEM 204.25, "STRUCTURE EXCAVATION").

8. ANY PORTION OF THE TOEWALLS FOUND TO BE OUTSIDE THE LIMITS OF STRUCTURE EXCAVATION SHALL BE REMOVED (TO BE PAID FOR UNDER ITEM 529.25, "REMOVAL OF CONCRETE OR MASONRY").

9. A QUANTITY OF CONCRETE CLASS C HAS BEEN ESTIMATED FOR THE PURPOSE OF FILLING VOIDS IMMEDIATELY OUTSIDE THE EXISTING PIPE PLATES AND ALONG THE INVERT. THE CONTRACTOR SHALL PROVIDE STRUTTING AND BRACING TO ENSURE THE STABILITY OF THE EXISTING CULVERT DURING THIS OPERATION. ALL VOIDS SHALL BE ADEQUATELY FILLED TO PREVENT THE LEAKAGE OF THE NON-SHRINK GROUT. THE FILLING OF THESE VOIDS SHALL NOT BE DONE IN OR THROUGH FLOWING WATER. A MEANS OF PIPING THE FLOW PAST THE WORK AREA SHALL BE DEVELOPED BY THE CONTRACTOR AND APPROVED BY THE RESIDENT ENGINEER PRIOR TO STARTING THE WORK. THE COSTS OF ALL WORK AND MATERIALS ASSOCIATED WITH FILLING THE VOIDS SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 501.30, "CONCRETE, CLASS C". CONCRETE CLASS C SHALL HAVE A MAXIMUM COARSE AGGREGATE SIZE OF 3/4" MEETING REQUIREMENTS OF SUBSECTION 704.02b OF THE STANDARD SPECIFICATIONS.

10. THE NEW 78 INCH DIAMETER, 0.150 INCHES THICK CORRUGATED ALUMINUM ALLOY PLATE PIPE (CAAPP) SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH THE SPECIAL PROVISIONS AND SECTION 511 OF THE SPECIFICATIONS. THE PLATE PIPE SHALL BE TRUE ROUND, AND SHALL NOT BE VERTICALLY ELONGATED. THE MANUFACTURER SHALL BE RESPONSIBLE FOR PROVIDING A COATING ON THE EXTERIOR OF THE PIPE WHICH WILL PROTECT THE ALUMINUM FROM ANY REACTION WITH THE CEMENTITIOUS GROUT. THE CONTRACTOR SHALL PROVIDE THE RESIDENT ENGINEER WITH INFORMATION AND CERTIFICATION FROM THE MANUFACTURER ON THE PROPOSED COATING, PRIOR TO PLACEMENT OF PIPE, THE CONTRACTOR SHALL REPAIR ANY DAMAGE TO THE COATING. DURING PIPE PLACEMENT, CARE MUST BE TAKEN NOT TO DAMAGE THE COATING ON THE EXTERIOR OF THE PIPE. ANY DAMAGE TO THE COATING SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. ALL COSTS FOR THE NEW PIPE SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 575.20, "CULVERT LINING".

11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPOSING A MEANS OF MAINTAINING THE DESIRED SPACING BETWEEN THE EXISTING AND PROPOSED CULVERTS. THE PROPOSED METHOD OF SPACING SHALL ALLOW FOR ANY ADJUSTMENT REQUIRED TO ENSURE PROPER ALIGNMENT OF ADJACENT SECTIONS OF PLATE PIPE. THE PROPOSED METHOD OF SPACING SHALL BE SUBMITTED TO THE STRUCTURES ENGINEER FOR APPROVAL. ANY COSTS FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 575.20, "CULVERT LINING".

12. THE GUIDE RAIL SYSTEM SHOWN ON THE PLANS IS INTENDED AS A MEANS OF SKIDDING SECTIONS OF THE NEW PIPE INTO THEIR DESIRED LOCATIONS WITHOUT DAMAGING THE COATING ON THE NEW PIPE. IT IS ALSO MEANT TO SERVE AS A SPACER TO ENSURE A UNIFORM VOID ALONG THE INVERT BETWEEN OLD AND NEW PIPES. THE LEADING EDGE OF THE ALUMINUM GUIDE RAILS SHALL BE BEVELED TO PREVENT "SNAGGING" OR DAMAGING THE EXISTING CMPP. THE RAILS SHALL BE STAGGERED ALONG THE ENTIRE LENGTH OF THE EXISTING CULVERT AND SPACED SUCH THAT GROUT WILL FLOW FREELY BENEATH THE ENTIRE INSERTED PIPE. THE RAILS SHALL NOT EXTEND BEYOND THE ENDS OF THE EXISTING PIPE. THE GUIDE RAILS SHALL BE ATTACHED TO THE NEW PIPE PRIOR TO THE APPLICATION OF THE PROTECTIVE COATING. THE METHOD OF ATTACHMENT OF GUIDE RAILS TO THE NEW PIPE SHALL BE SUBMITTED FOR APPROVAL OF THE RESIDENT ENGINEER.

13. THE CONTRACTOR SHALL HAVE THE OPTION OF PROPOSING A DIFFERENT METHOD OF PLACING THE NEW PIPE. ANY OPTION PROPOSED SHALL ADDRESS THE MEANS OF MAINTAINING THE UNIFORM SPACING AND PRESERVING THE INTEGRITY OF THE PROTECTIVE COATING. ANY OPTION PROPOSED SHALL BE SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL.

14. JOINTS BETWEEN ADJACENT SECTIONS OF PLATE PIPE SHALL BE SEALED AS RECOMMENDED BY THE MANUFACTURER AND SHALL BE REINFORCED USING INTERNAL BANDS. THE CONTRACTOR SHALL PROVIDE THE RESIDENT ENGINEER WITH DETAILS OF THE SEAL AND THE INTERNAL BANDS TO BE USED, FOR APPROVAL.

15. THE ANCHOR BOLTS, GROUT PLUGS, AND ALL OTHER CONNECTIONS SHALL BE GALVANIZED STEEL, STAINLESS STEEL, OR OTHER SUITABLE MATERIAL PER THE PIPE MANUFACTURER'S RECOMMENDATIONS, AND SUBJECT TO THE APPROVAL OF THE RESIDENT ENGINEER. THE COSTS OF MATERIALS, FABRICATION, AND INSTALLATION OF THE GUIDE RAILS, GROUT PLUGS, AND ALL OTHER COMPONENTS OF THE PIPE SYSTEM SHALL BE SUBSIDIARY TO ITEM 575.20, "CULVERT LINING".

16. AFTER THE NEW PIPE IS COMPLETELY INSTALLED, THE UPSTREAM OPENING BETWEEN THE EXISTING PIPE AND THE NEW PIPE SHALL BE ADEQUATELY PLUGGED TO PREVENT THE LEAKAGE OF GROUT. THE STREAM FLOW SHALL BE DIRECTED INTO THE NEW PIPE AND A CHECK MADE TO ENSURE THAT THE STREAM FLOW IS CONTAINED IN THE NEW PIPE BEFORE THE OUTLET OPENING BETWEEN THE EXISTING AND NEW PIPE IS BLOCKED OFF. IF LEAKAGE IS OCCURRING, ADDITIONAL TIGHTENING OR CAULKING SHALL BE PERFORMED. IF CAULKING IS REQUIRED, THE CAULK MATERIAL SHALL BE APPROVED BY THE RESIDENT ENGINEER. WHEN THE FLOW BETWEEN THE PIPES HAS BEEN ELIMINATED, THE OTHER END SHALL BE BLOCKED OFF. THE COSTS FOR ANY WORK REQUIRED TO STOP THIS LEAKAGE SHALL BE SUBSIDIARY TO ITEM 575.20, "CULVERT LINING".

17. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR PLANNING THE GROUTING OF THE ANNULAR VOID BETWEEN THE OLD AND NEW PIPES. THE PLACEMENT METHODOLOGY SHALL BE PROPOSED AND SUPERVISED BY THE CONTRACTOR, AS APPROVED BY THE STRUCTURES ENGINEER. THIS METHODOLOGY SHALL INCLUDE THE INTERNAL BRACING OF THE JOINTS BETWEEN SECTIONS OF PLATE PIPE DURING THE GROUTING OPERATION. ANY SECTION OF THE NEW PIPE DAMAGED BY THE GROUTING OPERATION SHALL BE REPAIRED AND/OR REPLACED TO THE SATISFACTION OF THE RESIDENT ENGINEER AT THE CONTRACTOR'S EXPENSE.

18. THE FOLLOWING COMMENTS ARE OFFERED FOR THE CONTRACTOR'S CONSIDERATION IN THE DEVELOPMENT OF THE GROUTING PLAN. THE COSTS FOR ALL MEASURES TAKEN TO INSTALL THE NEW PIPE AND COMPLETE THE GROUTING OPERATION INCLUDING MATERIALS AND LABOR SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 575.20, "CULVERT LINING".

    THE GROUT SHALL PROVIDE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 P.S.I.

    THE CONTRACTOR SHALL SUBMIT THE GROUT MIX DESIGN WITH TEST SPECIMENS TO THE RESIDENT ENGINEER FOR APPROVAL.

    A SIGNIFICANT BUOYANT FORCE WILL BE PRODUCED BY THE GROUTING OPERATION.

    THE RATE OF GROUT FLOW AND LOCATION OF ENTRY MUST BE CONSTANTLY MONITORED AND/OR CHANGED TO PREVENT LOCAL DEFORMATION OF THE NEW PIPE AND TO ENSURE A UNIFORM FILLING OF THE VOID.

    GROUTING SHALL NOT BE DONE IN STANDING OR FLOWING WATER.

    INTERNAL BRACING MAY BE NECESSARY.

    EXTRA GASKETS OR CAULKING MAY ALSO BE NECESSARY TO CONTAIN THE GROUT.

    APPROXIMATELY 175 CY OF GROUT WILL BE REQUIRED TO FILL VOID BETWEEN PIPES.

19. NO WORK WHICH WILL DISTURB THE PIPES SHALL BE PERFORMED FOR A MINIMUM OF 72 HOURS AFTER THE COMPLETION OF THE GROUTING OPERATION. THE STREAM FLOW MAY BE DIRECTED THROUGH THE PIPE DURING THIS 72 HOUR PERIOD.

20. THE RESIDENT ENGINEER SHALL SOUND AND/OR REQUIRE THE DRILLING OF RANDOM HOLES IN THE NEW PIPE TO CHECK FOR VOIDS IN THE GROUT. IF VOIDS ARE FOUND WITH A DIMENSION OF 12 INCHES IN ANY DIRECTION, THE CONTRACTOR SHALL INSERT A GROUT PLUG AND RELIEF MECHANISM AND FILL THE VOID. ALL COSTS FOR LABOR AND MATERIALS USED IN THE DETECTION AND FILLING OF THESE VOIDS SHALL BE SUBSIDIARY TO ITEM 575.20, "CULVERT LINING".

21. IF THE FOUNDATION OF THE HEADWALL FOR THE EXISTING 30" RCP IS ENCOUNTERED DURING EXCAVATION AND INSTALLATION OF THE PROPOSED INLET HEADWALL, THE CONTRACTOR SHALL ADJUST THE END OF THE PROPOSED HEADWALL TO ACCOMMODATE THE EXISTING GEOMETRY AS DIRECTED BY THE RESIDENT ENGINEER AT NO ADDITIONAL COST.

22. JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE RESIDENT ENGINEER.

23. THE "KEY" IN CONCRETE CONSTRUCTION JOINTS SHALL BE MONOLITHIC AND CONTINUOUS FOR THE FULL LENGTH OF THE JOINT.

24. REINFORCING PLACEMENT TOLERANCES SHALL BE:

    SPACING: 1 INCH ±

    CLEARANCE: 1/4 INCH ±

25. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1 INCH X 1 INCH.

26. MINIMUM COVER FOR REINFORCING STEEL SHALL BE 3 INCHES EXCEPT AS SHOWN OTHERWISE ON THE PLANS.

27. WATER REPELLENT SHALL BE APPLIED TO ALL EXPOSED CAST-IN-PLACE CONCRETE SURFACES IN ACCORDANCE WITH SECTION 514 OF THE SPECIFICATIONS.

28. THE 6" UNDERDRAIN SHALL CONFORM TO SUBSECTION 711.01 OF THE SPECIFICATIONS. ALL COSTS FOR MATERIALS AND INSTALLATION OF THE UNDERDRAIN SHALL BE SUBSIDIARY TO ITEM 575.20, "CULVERT LINING".

29. THE COSTS FOR ALL CONSTRUCTION SIGNS, BARRICADES, AND DELINEATORS SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 641.10, "TRAFFIC CONTROL", IF REQUIRED.

30. THE CONTRACTOR SHALL MAKE ANY SUBMITTAL REQUIRING REVIEW OR APPROVAL BY THE VAOT AT A MINIMUM OF TWO (2) WEEKS IN ADVANCE OF THE WORK BEING PERFORMED.

TEMPORARY EROSION AND SEDIMENT CONTROL NOTES:

31. INSTALL SILT FENCE ALONG EXISTING TOE OF SLOPES BELOW AREAS OF CONSTRUCTION ACCESS, AND AS DIRECTED BY THE RESIDENT ENGINEER. NO WORK SHALL BE PERFORMED BELOW THESE LIMITS, EXCEPT WITHIN THE LIMITS OF NEW STONE FILL AND FOR CONSTRUCTION ACCESS ON THE SNOWMOBILE TRAIL AT THE SOUTHEAST QUADRANT OF THE PROJECT SITE.

SEEDING FORMULA
RURAL AREAS

% WT.	LBS./A.	NAME	PUR%	GERM%
37.5	22.5	CREEPING RED FESCUE	98	85
37.5	22.5	TALL FESCUE	95	90
5.0	3.0	RED TOP	95	90
15.0	9.0	BIRDSFOOT TREFOIL	98	85
5.0	3.0	ANNUAL RYEGRASS	95	85
100.0	60.0			

SEED MIXTURE: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.

SEED: TO BE APPLIED PER SEEDING FORMULAS OR 60 LB/ACRE OR AS DIRECTED BY THE RESIDENT ENGINEER.

FERTILIZER FORMULA: 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 500 LBS./ACRE. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).

AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE RESIDENT ENGINEER.

HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE RESIDENT ENGINEER.

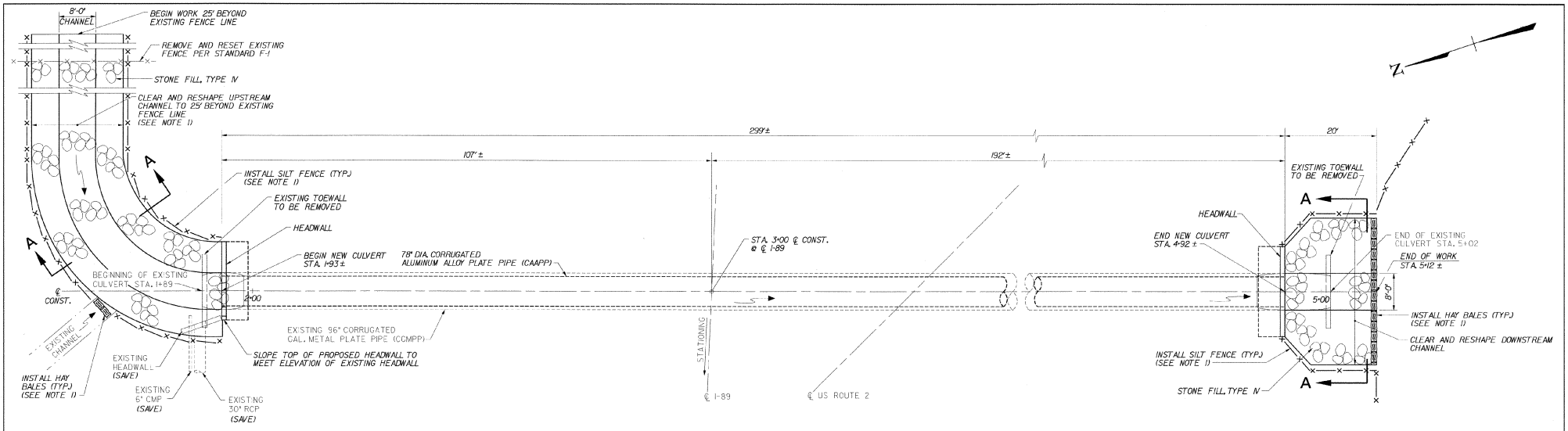
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of WATERBURY	Bridge No. 41
Highway No. US RTE. 2	Log Sta. / Surv. Sta.

GENERAL NOTES

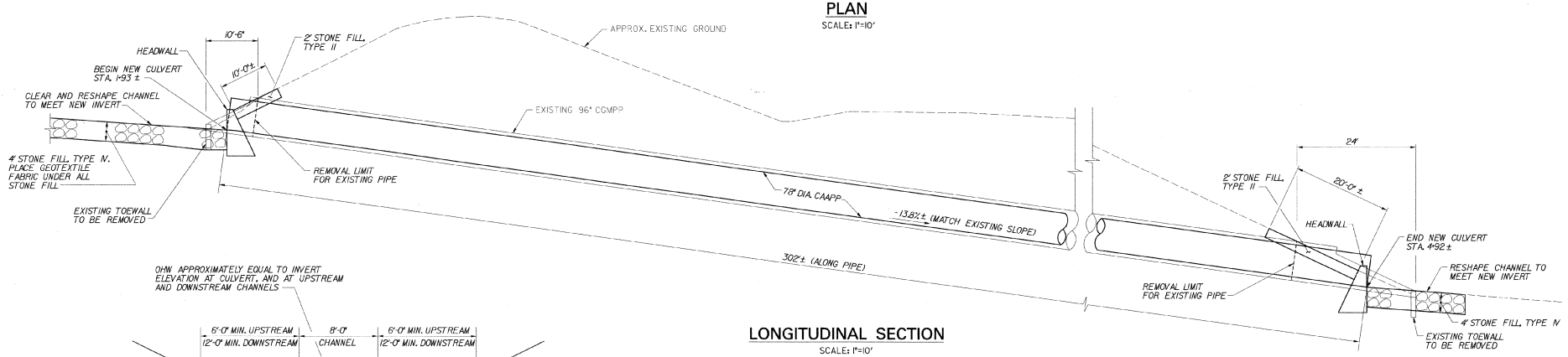
Designed By P.W. SZUSTAK	Drawn By R.A. BOTZENHART
Checked By J.P. HALSTEAD Date 8-98	Bridge Design Supervisor J.P. HALSTEAD Date 8-98
PROJECT WATERBURY	PROJECT NO. IM-089-2(28)
TVGA CAD Drawing No. gennote.dgn	Date 8-14-98
Bridge Sheet No.	Sheet 3 of 7

TVGA ENGINEERING, SURVEYING, P.C.



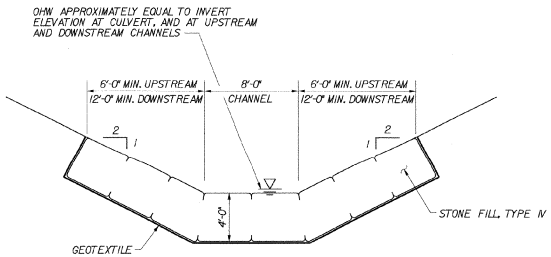
PLAN

SCALE: 1"=10'



LONGITUDINAL SECTION

SCALE: 1"=10'



SECTION A–A

SCALE: 1"=5'

10 0 10

SCALE IN FEET

NOTES:

1. SEE GENERAL NOTES, SHEET 3 FOR TEMPORARY EROSION AND SEDIMENT CONTROL NOTES.

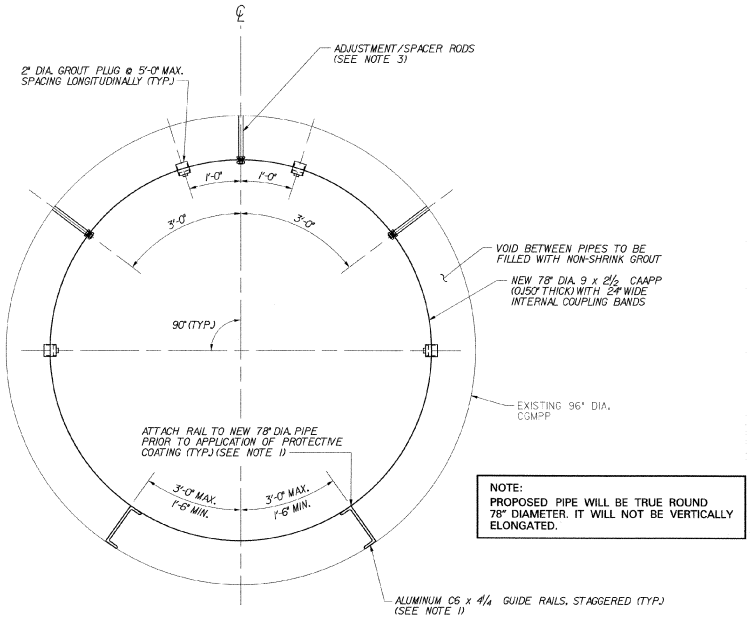
TVGA ENGINEERING, SURVEYING, P.C.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of WATERBURY	Bridge No. 41
Highway No. US RTE. 2	Log Sta. / Surv. Sta.

PLAN AND LONGITUDINAL SECTION

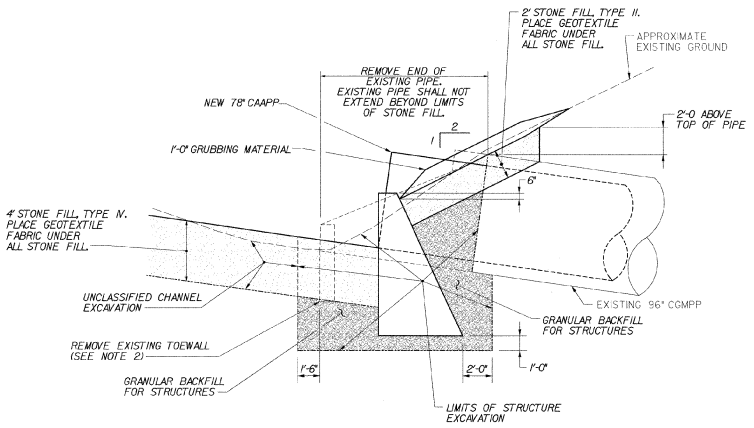
Designed By P.W. SZUSTAK	Drawn By P.A. MEREWETHER
Checked By J.P. HALSTEAD Date 8-98	Bridge Design Supervisor J.P. HALSTEAD Date 8-98
PROJECT WATERBURY	PROJECT NO. IM-089-2(28)
TVGA CAD Drawing No. culvplan.dgn	Date 8-14-98
Bridge Sheet No.	Sheet 4 of 7



NOTE:
PROPOSED PIPE WILL BE TRUE ROUND 78" DIAMETER. IT WILL NOT BE VERTICALLY ELONGATED.

PIPE SECTION

N.T.S.



EARTHWORK TYPICAL

1/4" = 1'-0"

NOTE: INLET HEADWALL SHOWN. OUTLET HEADWALL SIMILAR.

NOTES:

1. FOR SUGGESTED MEANS OF INSERTING NEW PIPE, SEE GENERAL NOTES 12-13, SHEET 3.
2. EXISTING TOEWALLS ARE TO BE REMOVED IN THEIR ENTIRETY. SEE GENERAL NOTES 7 AND 8, SHEET 3.
3. ADJUSTMENT/SPACER RODS SHOWN ARE SCHEMATIC. SEE GENERAL NOTE 11, SHEET 3.
4. INTERNAL BANDS AND BRACING NOT SHOWN. SEE GENERAL NOTES 14 AND 17, SHEET 3.

HYDRAULIC DATA

DRAINAGE AREA	0.32 sq.mi.	DESIGN FLOW Q 50		DESIGN OUTLET VELOCITY	16.9 fps
DESIGN TAILWATER DEPTH		1.18 ft.	ELEVATION	406.21	
ORDINARY HIGH WATER DEPTH		0 ft.			
Q 2.33	FLOW	60 cfs		HEADWATER ELEVATION	448.51
Q 10	FLOW	100 cfs		HEADWATER ELEVATION	449.42
Q 25	FLOW	125 cfs		HEADWATER ELEVATION	449.93
Q 50	FLOW	140 cfs		HEADWATER ELEVATION	450.23
Q 100	FLOW	160 cfs		HEADWATER ELEVATION	450.61

COMMENTS: ELEVATIONS ARE BASED ON THE INVERTS SHOWN IN THE ORIGINAL CONSTRUCTION PLANS.

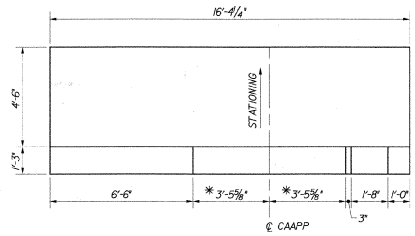
TVGA ENGINEERING, SURVEYING, P.C.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of WATERBURY	Bridge No. 41
Highway No. US RTE. 2	Log Sta. / Surv. Sta.

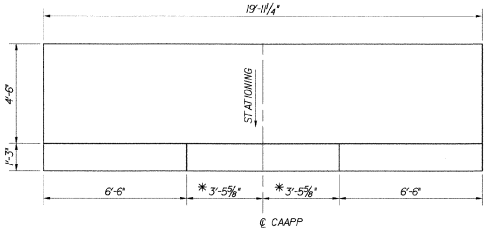
PIPE DETAILS & EARTHWORK

Designed By P.W. SZUSTAK	Drawn By P.A. MEREWETHER
Checked By J.P. HALSTEAD Date 8-98	Bridge Design Supervisor J.P. HALSTEAD Date 8-98
PROJECT WATERBURY	PROJECT NO. IM-089-2(28)
TVGA CAD Drawing No. pipedet.dgn	Date 8-14-98
Bridge Sheet No.	Sheet 5 of 7



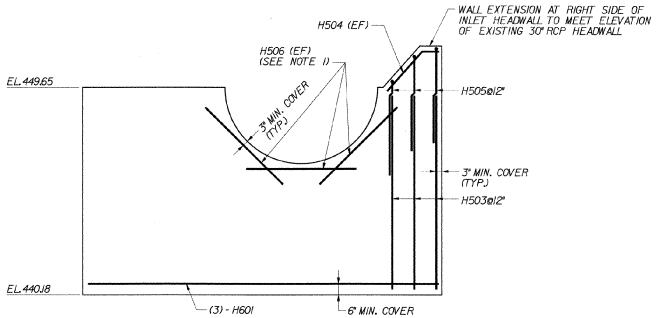
PLAN

* DIMENSION TO OUTSIDE FACE OF CORRUGATION OF NEW PIPE.



PLAN

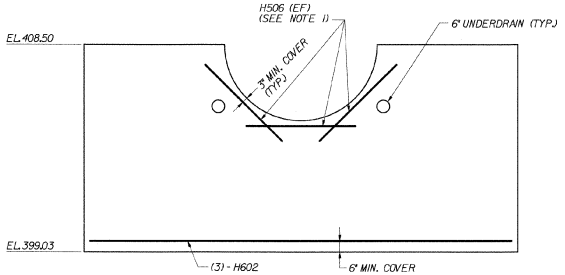
* DIMENSION TO OUTSIDE FACE OF CORRUGATION OF NEW PIPE.



ELEVATION

INLET HEADWALL

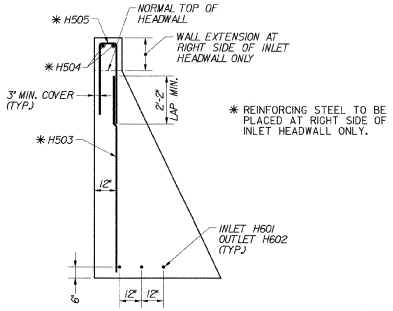
3/8" = 1'-0"



ELEVATION

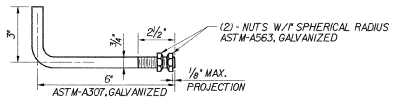
OUTLET HEADWALL

3/8" = 1'-0"



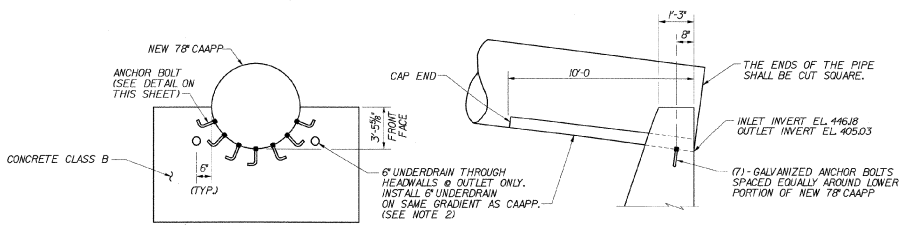
HEADWALL TYPICAL SECTION

3/8" = 1'-0"



ANCHOR BOLT DETAIL

N.T.S.



CRADLE HEADWALL DETAILS

N.T.S.

NOTE: OUTLET HEADWALL SHOWN, INLET HEADWALL SIMILAR.

NOTES:

1. TIE REINFORCING STEEL TO ANCHOR BOLTS FOR PLACEMENT.
2. FOR 6" UNDERDRAIN AND PAYMENT, SEE GENERAL NOTE 28, SHEET 3.

LEGEND:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of WATERBURY	Bridge No. 41
Highway No. US RTE. 2	Log Sta. / Surv. Sta.

HEADWALL DETAILS

Designed By A.J. MINSER	Drawn By P.A. MEREWETHER
Checked By P.W. SZUSTAK Date 8-98	Bridge Design Supervisor J.P. HALSTEAD Date 8-98
PROJECT WATERBURY	PROJECT NO. IM-089-2(28)
TVGA CAD Drawing No. headdet.dgn	Date 8-14-98
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TVGA ENGINEERING, SURVEYING, P.C.

ITEM	NO. PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
1	3	6	15'-9"	H601	STR												
2	3	6	19'-4"	H602	STR												
3	3	5	9'-0"	H503	STR												
4	2	5	3'-0"	H504	22		0'-8 1/2"	2'-3 1/2"	0'-0"								
5	3	5	9'-1"	H505	17		4'-2"	0'-9"	4'-2"								
6	12	5	5'-0"	H506	STR												
7																	
8																	
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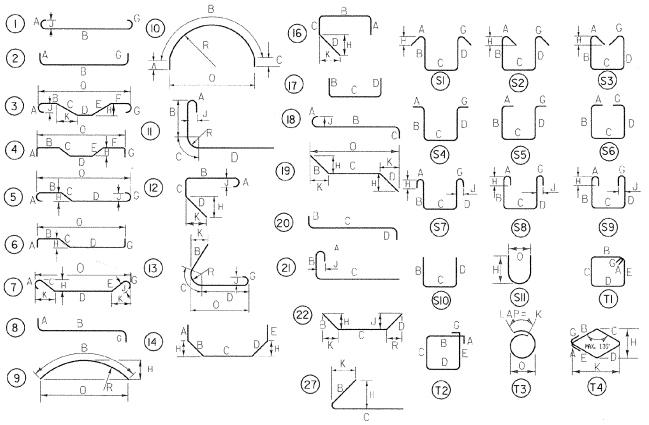
NOTES:

1. UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31(ASTM A 615-91). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
2. FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
3. BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
4. ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
5. "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
6. "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
7. WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
8. ▲ DENOTES BARS TO BE CUT IN THE FIELD.
9. ✳ DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
10. △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
11. "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)	PERIMETER (INCHES)
#3	0.376	0.375	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.044	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.142
#9	3.400	1.128	1.00	3.544
#10	4.303	1.270	1.27	3.990
#11	5.313	1.410	1.56	4.430
#14	7.65	1.693	2.25	5.32
#18	13.60	2.257	4.00	7.09

STATE OF VERMONT
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Town Of WATERBURY	Bridge No. 41
Highway No. US RTE. 2	Log Sta.
	Surv. Sta.

REINFORCING STEEL SCHEDULE

Designed By A.J. MINSER	Drawn By R.A. BOTZENHART
Checked By P.W. SZUSTAK Date 8-98	Bridge Design Supervisor J.P. HALSTEAD Date 8-98
PROJECT WATERBURY	PROJECT NO. IM-089-2(28)
TVGA CAD Drawing No. reinfsch.dgn	Date 8-14-98
Bridge Sheet No.	Sheet 7 of 7

TVGA ENGINEERING, SURVEYING, P.C.