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LIST OF STANDARDS

- | | | |
|--------|--|----------|
| C-1 | GRANITE SLOPE EDGING, VERTICAL GRANITE CURB, PRECAST REINFORCED CONCRETE CURB, CAST IN PLACE CONCRETE CURB, BITUMINOUS CONCRETE CURB, TREATED TIMBER CURB CEMENT CONCRETE SIDEWALK, CONCRETE CURB | 01-03-00 |
| C-2A | PORTLAND CEMENT CONCRETE SIDEWALK | 01-03-00 |
| C-3A | SIDEWALK RAMPS TYPES 1-5 AND DETECTABLE WARNING DETAILS | 09-01-04 |
| D-2 | C.R.M. HEADWALLS, UNDERDRAINS, C.R.M. HEADWALLS AND RETAINING WALLS, RIPRAP LIGHT TYPE, SLOPE HEADWALL, REINFORCED CONCRETE HEADWALL, UNDERDRAIN AND CARRIER PIPE CONSTRUCTION DETAILS | 06-01-94 |
| D-4 | FLUSHING BASINS, END SECTION, ELBOWS TYPICAL, WATERFALL FOR CULVERTS UP TO & INCLUDING 48" DIA EXTENSION SERVICE BOX & CURB STOP, CORRUGATED PIPE ELBOW, GRANULAR BORROW AT CORRUGATED STEEL PIPE ARCH END SECTION | 06-01-94 |
| D-8 | REINFORCED CONCRETE DROP INLET WITH PRECAST COVER AND GRATE (BOTTOM SECTION). SEE SHEETS D-9, 10, AND 11 FOR TOP SECTION | 01-03-00 |
| D-9 | REINFORCED CONCRETE DROP INLET TOPS VERTICAL CURB AND THROAT ADAPTER | 06-01-94 |
| D-15 | PRECAST REINFORCED CONCRETE MANHOLE GRATES (BICYCLE SAFE), CAST IRON GRATE WITH FRAME, TYPE D, CAST IRON GRATE WITH FRAME, TYPE E | 06-01-94 |
| E-100 | CONSTRUCTION APPROACH SIGNS | 01-02-04 |
| E-100A | SIDE ROAD CONSTRUCTION - APPROACH SIGNS | 01-02-04 |
| E-101 | CONSTRUCTION SIGN DETAILS | 05-30-03 |
| E-102 | CONSTRUCTION SIGN DETAILS | 06-30-03 |
| E-102A | CONSTRUCTION SIGN DETAILS | 05-01-04 |
| E-106 | TRAFFIC CONTROL - MISCELLANEOUS DETAILS | 03-01-04 |
| E-107 | DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS | 06-30-03 |
| E-107A | BREAKAWAY BARRICADE DETAILS | 08-08-95 |
| E-110 | MAJOR MAINTENANCE OPERATION LANE CLOSURE | 08-08-95 |
| E-120 | STANDARD SIGN PLACEMENT - EXPRESS WAY AND FREEWAY | 08-08-95 |
| E-121 | STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD | 08-08-95 |
| E-123 | GUIDE SIGN PLACEMENT - MISCELLANEOUS DETAILS | 03-16-04 |
| E-140 | REGULATORY SIGN DETAILS | 08-30-96 |
| E-143 | REGULATORY SIGN DETAILS | 06-15-04 |
| E-146 | REGULATORY SIGN DETAILS | 09-20-95 |
| E-160 | FLANGED CHANNEL STEEL SIGN POST | 05-20-99 |
| E-170 | TRAFFIC CONTROL SIGNALS PEDESTAL POST MOUNTED | 11-04-99 |
| E-171A | TRAFFIC CONTROL SIGNALS GENERAL NOTES AND DETAILS | 08-09-95 |
| E-171B | TRAFFIC CONTROL SIGNALS MISCELLANEOUS DETAILS | 08-09-95 |
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| E-191 | PAVEMENT MARKING DETAILS | 02-01-99 |
| E-193 | PAVEMENT MARKING DETAILS | 08-18-95 |
| F-7 | WOOD SCREENING FENCE | 06-01-94 |
| G-1 | STEEL BEAM GUARDRAIL (50 MPH AND OVER), HEAVY DUTY STEEL BEAM GUARDRAIL, TWISTED END TERMINAL, ANCHOR FOR STEEL BEAM RAIL | 01-03-00 |
| G-1D | STEEL BEAM GUARDRAIL (40 MPH AND LESS), HEAVY DUTY STEEL BEAM GUARDRAIL, STEEL BEAM MEDIAN BARRIER, ANCHOR FOR STEEL BEAM RAIL | 01-03-00 |
| G-18 | PRECAST CONCRETE TEMPORARY TRAFFIC BARRIER | 06-01-94 |
| J-3 | MAILBOX SUPPORT DETAILS | 08-07-95 |

FINAL HYDRAULICS REPORT

HYDROLOGIC DATA

DRAINAGE AREA = 311 sq. mi. 1805 sq. km
 CHARACTER OF TERRAIN: Hilly to mountainous
 CHARACTER & TYPE OF STREAM: Probably incised, sinuous.
 NATURE OF STREAMBED: Little or no flood plain at site
 NATURE OF STREAMBED: Unknown

02.33= 6000 cfs (170 cms)	050= 16050 cfs (454 cms)
010= 10800 cfs (306 cms)	0100= 18900 cfs (535 cms)
025= 13800 cfs (391 cms)	0500= 27200 cfs (770 cms)

DATE OF FLOOD OF RECORD: Nov. 1927
 WATER SURFACE ELEV. @ 512 +/- ESTIMATED DISCHARGE: Unknown
 NATURAL STREAM VELOCITY @ 025 = Not available
 ICE CONDITIONS: Moderate DEBRIS: Moderate
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEVATION RAPIDLY? No
 IS ORDINARY RISE RAPID? No
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No
 IF YES, DESCRIBE: _____

WATERSHED STORAGE: 2% HEADWATERS UNIFORM THROUGHOUT WATERSHED X
 IMMEDIATELY ABOVE SITE _____

EXISTING STRUCTURE

STRUCTURE TYPE: Single span steel truss bridge YEAR BUILT: 1928
 CLEAR SPAN (NORMAL TO STREAM): 137 ft (41.8 m)
 VERTICAL CLEARANCE ABOVE STREAMBED: 26 ft (7.9 m)
 WATERWAY OF FULL OPENING: 3000 sq. ft (279 sq. m)
 DISPOSITION OF STRUCTURE: Rehabilitate superstructure

TYPE OF MATERIAL UNDER SUBSTRUCTURE: Unknown at abutment 1 (west), ledge at abutment 2 (east).
 WATER SURFACE ELEV. @ 02.33= 488.0 VELOCITY: Not available
 010= 492.0 " " "
 025= 494.0 " " "
 050= 495.3 " " "
 0100= 497.0 " 7.0 fps (2.13 mps)

LONG TERM STREAM BED CHANGES: Unknown

IS THE ROADWAY OVERTOPPED BELOW THE Q100? No FREQUENCY: _____
 RELIEF ELEVATION: _____ DISCHARGE OVER ROAD @ Q100: _____

UPSTREAM STRUCTURE: TOWN: Johnson DISTANCE: 1.6 mi. (2.6 km)
 HIGHWAY NO.: Railroad STRUCTURE NO.: Unknown
 STRUCTURE TYPE: Unknown
 CLEAR SPAN: Unknown CLEAR HEIGHT: Unknown
 YEAR BUILT: _____ FULL WATERWAY: _____

DOWNSTREAM STRUCTURE: TOWN: Johnson DISTANCE: 2.1 mi. (3.4 km)
 HIGHWAY NO.: Vt. 15 STRUCTURE NO.: 33
 STRUCTURE TYPE: Two span plate girder
 CLEAR SPAN: 220 ft (67.1 m) CLEAR HEIGHT: 20 ft (6.1 m)
 YEAR BUILT: 1987 FULL WATERWAY: 4180 sq. ft. (388 sq. m)

PROPOSED STRUCTURE

STRUCTURE TYPE: Rehabilitate existing single span steel truss
 CLEAR SPAN (NORMAL TO STREAM): 137 ft (41.8 m)
 VERTICAL CLEARANCE ABOVE STREAMBED: 26 ft (7.9 m)
 WATERWAY OF FULL OPENING: 3000 sq. ft (279 sq. m)

WATER SURFACE ELEV. @ 02.33= 488.0 VELOCITY: Not available
 010= 492.0 " " "
 025= 494.0 " " "
 050= 495.3 " " "
 0100= 497.0 " 7.0 fps (2.13 mps)

IS THE ROADWAY OVERTOPPED BELOW THE Q100? No FREQUENCY: _____
 RELIEF ELEVATION: _____ DISCHARGE OVER ROAD @ Q100: _____

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 501.0
 VERTICAL CLEARANCE @ Q100 = 4.0 ft. (1.22 m)

SCOUR: Not available
 REQUIRED CHANNEL PROTECTION: Stone fill, type IV, if needed

PERMIT INFORMATION

AVERAGE DAILY FLOW: 650 cfs (18.4 cms)
 ORDINARY LOW WATER: 300 cfs (8.5 cms) DEPTH: 1 ft. (0.3 m)
 ORDINARY HIGH WATER: 2600 cfs (73.6 cms) DEPTH: 4 ft. (1.2 m)

TEMPORARY BRIDGE REQUIREMENTS**

STRUCTURE TYPE: Bridge, with up to two slender (2 ft Max. Width) piers (pile bents).

CLEAR SPAN (NORMAL TO STREAM): 140' (42.7 m) total
 VERTICAL CLEARANCE ABOVE STREAMBED: Beams above elevation 494.0
 WATERWAY OF FULL OPENING: 2100 sq. ft. (195 sq. m)

PILES SHOULD BE DESIGNED TO WITHSTAND 24" OF ICE WITH A DYNAMIC ICE LOAD OF 200 psi APPLIED AT THE O10 WSE OF 492'. THIS ELEVATION IS 12-15' FROM THE RIVER BOTTOM AT THE LOCATION OF THE PLANNED PIERS SO THE MOMENT ON THE FOUNDATION IS SUBSTANTIAL.

PROVISION SHOULD BE MADE OVER THE COURSE OF THE WINTER TO REMOVE ICE AND/OR DEBRIS SHOULD A BUILDUP OCCUR AT EITHER OF THE PILE BENTS. THE CONTRACTOR SHALL STATION EQUIPMENT ON SITE TO EFFECT THIS REMOVAL IF REQUIRED. THIS WORK SHALL BE INCIDENTAL TO THE ITEM "ONE-WAY TEMPORARY BRIDGE (3360 SF-EST.) (MOD.)".

** SEE SHEET 11 FOR TEMPORARY BRIDGE LAYOUT AND REQUIREMENTS

DESIGN CRITERIA:

1. DESIGN LIVE LOAD AASHTO H20-44 (POSTED)
2. DESIGN SPAN N/A
3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL N/A ON LEDGE N/A
4. ALLOWABLE LOAD FOR PILING N/A TYPE _____ ESTIMATED LENGTH N/A
- * 5. ALLOWABLE STRESS FOR STRUCTURAL STEEL AASHTO NEW M270 GRADE 50 (PAINTED) TENSION 21000 psi
6. ALLOWABLE STRESS FOR REINFORCING STEEL GRADE 60 TENSION 24000 psi
7. ALLOWABLE STRESS FOR CONCRETE HIGH PERFORMANCE, CLASS A f_c 4000 psi f_c 1600 psi
 CONCRETE HIGH PERFORMANCE, CLASS B f_c 3500 psi f_c 1400 psi

TRAFFIC MAINTENANCE:

1. IS TRAFFIC TO BE MAINTAINED? YES IF YES, ON EXISTING STRUCTURE _____ OR ON TEMPORARY BRIDGE YES
2. TEMPORARY BRIDGE REQUIREMENTS: ONE OR TWO WAY _____ ONE WAY _____ TRAFFIC CONTROL SIGNALS REQUIRED YES
 MINIMUM CLEAR SPAN (NORMAL TO STREAM) 140' MINIMUM CLEAR HEIGHT LOW BEAM ELEV 494.0 MINIMUM WATERWAY AREA 2100 SF
 ARE SIDEWALKS REQUIRED? YES IF SO, ON WHAT SIDE? UPSTREAM
 STRUCTURE TYPE: _____

* ASSUMED EXISTING ALLOWABLE STRESS FOR STRUCTURAL STEEL GRADE 30 TENSION 16,500 psi

WORKING STRESS LOAD RATING (TONS)

LOADING LEVELS (WORKING STRESS)	TRUCK						
	H	HS	352	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
INVENTORY 0.55fy = 27.5 ksi	14	23					
POSTED 0.67fy = 33.5 ksi	23	37	40		36	36	39
OPERATING 0.75fy = 37.5 ksi		43	54	57	44	43	

$$RF = \frac{f_{ALL} - f_{DE}}{f_{LL}}$$

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
1998	1660	230	53	10	190
2018	2250	315	53	13	320

18 kip ESAL for flexible pavement from 1998 to 2018: 1,681,000
 18 kip ESAL for flexible pavement from 2018 to 2038: 4,438,000
 Design speed: 25 mph

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

Town Of JOHNSON Bridge No. 6
 Highway No. TH 2 Log Sta. _____
 Surv. Sta. 15 + 50

RR ST. BRIDGE OVER THE LAMOLLE RIVER
 LIST OF SHEETS, STANDARDS AND HYDRAULIC DATA

Designed By C. SCHMELZENBACH Drawn By S. MAGNAN
 Checked By J. P. SPILAK Date 8/94 Bridge Design Supervisor R. WHITCOMB Date 7/94

PROJECT JOHNSON PROJECT NO. BHO 1448(18)

I.G.C. Info. /str/90/067/s1067.pl.dgn s1067.pl.1
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