

# HYDRAULICS REPORT

## HYDRAULIC DATA

1. DRAINAGE AREA 14.2 km<sup>2</sup>  
 2. CHARACTER OF TERRAIN SMALL MOUNTAINS  
 3. CHARACTER AND TYPE OF STREAM ALLUVIAL RANDOM VARIATION IN WIDTH  
 4. NATURE OF STREAMBED SAND/GRAVEL BOTTOM  
 Q2.33 = 6 m<sup>3</sup>/s Q50 = 30.5 m<sup>3</sup>/s  
 Q10 = 18 m<sup>3</sup>/s Q100 = 35.5 m<sup>3</sup>/s  
 Q25 = 25.5 m<sup>3</sup>/s Q500 = 48 m<sup>3</sup>/s  
 5. DATE OF FLOOD OF RECORD UNKNOWN  
 6. WATER SURFACE ELEVATION NA ESTIMATED DISCHARGE NA m<sup>3</sup>/s  
 7. NATURAL STREAM VELOCITY @ Q 2.33 = 1.70 m/s  
 8. ICE CONDITIONS LIGHT DEBRIS MODERATE TO HEAVY  
 9. DOES THE STREAM REACH MAX. HIGHWATER ELEVATION RAPIDLY? YES, STREAM IS CONSIDERED FLASHY  
 10. IS ORDINARY RISE RAPID? NO  
 11. IS STAGE AFFECTED BY UPSTREAM/DOWNSTREAM CONDITIONS? YES  
 IF YES, DESCRIBE: AT GREATER THAN Q2.33 THE WATER OVER FLOWS STREAM BANKS AND TRAVELS ACROSS WETLANDS TO ADJACENT ROUTE 9  
 12. WATERSHED STORAGE < 1/2 HEADWATERS UNIFORM THROUGHOUT WATERSHED IMMEDIATELY ABOVE SITE ✓

## PROPOSED STRUCTURE

STRUCTURE GEOMETRY:  
 1. STRUCTURE TYPE EXISTING BRIDGE WITH DECK AND ABUTMENT CAP EXTENSION  
 2. CLEAR SPAN LENGTH(S) 5.6 m  
 3. VERTICAL CLEARANCE ABOVE STREAMBED: 3.14 m  
 4. ARE PROVISIONS TO BE MADE FOR PUBLIC UTILITIES? NO  
 HYDRAULIC DATA:  
 1. WATERWAY AREA OF FULL OPENING (NORMAL TO STREAM): 18 m<sup>2</sup> NA m<sup>2</sup>/s  
 2. WATER SURFACE ELEVATION @ Q 2.33 = 83.77 m VELOCITY = 1.70 m/s  
 Q 10 = 84.68 m = 2.68 m/s  
 Q 25 = 85.07 m = 3.66 m/s  
 Q 50 = 85.32 m = 3.90 m/s  
 Q 100 = 85.55 m = 4.8 m/s  
 3. IS THE ROADWAY OVERTOPPED BELOW THE Q100? YES FREQUENCY: Q2.5  
 4. RELIEF ELEVATION: 84.25 DISCHARGE OVER ROAD @ Q100: 27 m<sup>3</sup>/s  
 5. AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 85.83 m  
 6. VERTICAL CLEARANCE @ Q 80 = 0.73 m  
 7. SCOUR: TO BE ADDRESSED IN FINAL HYDRAULIC REPORT  
 8. REQUIRED CHANNEL PROTECTION: TO BE ADDRESSED IN FINAL HYDRAULIC REPORT. ANTICIPATED STONE FILL.

## PERMIT INFORMATION

AVERAGE DAILY FLOW: NA  
 ORDINARY LOW WATER: NA DEPTH: NA  
 ORDINARY HIGH WATER: NA DEPTH: NA  
 NA = NOT AVAILABLE

## TRAFFIC DATA

FUNCTIONAL CLASSIFICATION MINOR ARTERIAL  
 2002 ADT = N/A  
 2022 ADT = N/A  
 2022 ADTT = N/A  
 2002 DHV = N/A  
 2022 DHV = N/A  
 D = N/A  
 T = N/A  
 V = N/A  
 2002-2022 18 KIP ESAL = N/A  
 2002-2042 18 KIP ESAL = N/A

## TEMPORARY BRIDGE REQUIREMENTS

1. STRUCTURE TYPE NO TEMPORARY STRUCTURE  
 2. CLEAR SPAN LENGTH(S) NORMAL TO STREAM: N/A  
 3. VERTICAL CLEARANCE ABOVE STREAMBED: N/A  
 4. WATERWAY AREA OF FULL OPENING (NORMAL TO STREAM): N/A  
 NA = NOT APPLICABLE

NOTE:  
 TRAFFIC MAINTENANCE:  
 1. IS TRAFFIC TO BE MAINTAINED? YES IF YES, ON EXISTING STRUCTURE X OR ON TEMPORARY BRIDGE \_\_\_\_\_  
 2. TEMPORARY BRIDGE REQUIREMENTS: ONE OR TWO WAY \_\_\_\_\_  
 TRAFFIC CONTROL SIGNALS REQUIRED \_\_\_\_\_  
 ARE SIDEWALKS REQUIRED? \_\_\_\_\_ IF SO, ON WHAT SIDE? \_\_\_\_\_  
 STRUCTURE TYPE: \_\_\_\_\_

## DESIGN CRITERIA

1. DESIGN LIVE LOAD AREA E80  
 2. DESIGN SPAN 6m  
 3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL NA ON LEDGE 950kPa  
 4. ALLOWABLE LOAD FOR PILING NA TYPE NA ESTIMATED LENGTH NA  
 5. ALLOWABLE STRESS FOR STRUCTURAL STEEL AASHTO M270M OR 345 WEATHERING STEEL TENSION 186 MPa  
 6. ALLOWABLE STRESS FOR REINFORCING STEEL AASHTO M31M GRADE 400 TENSION TENSION 165 MPa COMPRESSION 138 MPa  
 7. ALLOWABLE STRESS FOR CONCRETE CLASS A  $f_c$  25 MPa  $f_t$  NA  
 CLASS B  $f_c$  25 MPa  $f_t$  NA  
 SILICA FUME  $f_c$  35 MPa  $f_t$  NA

FEB 05 2003

## LOAD RATING (TONS)(LOAD FACTOR)

RATING	INVENTORY	POSTED	OPERATING

## STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of BRATTLEBORO Bridge No. 62.51  
 Highway No. VT. ROUTE 9 Log Sta. \_\_\_\_\_  
 Surv. Sta. \_\_\_\_\_

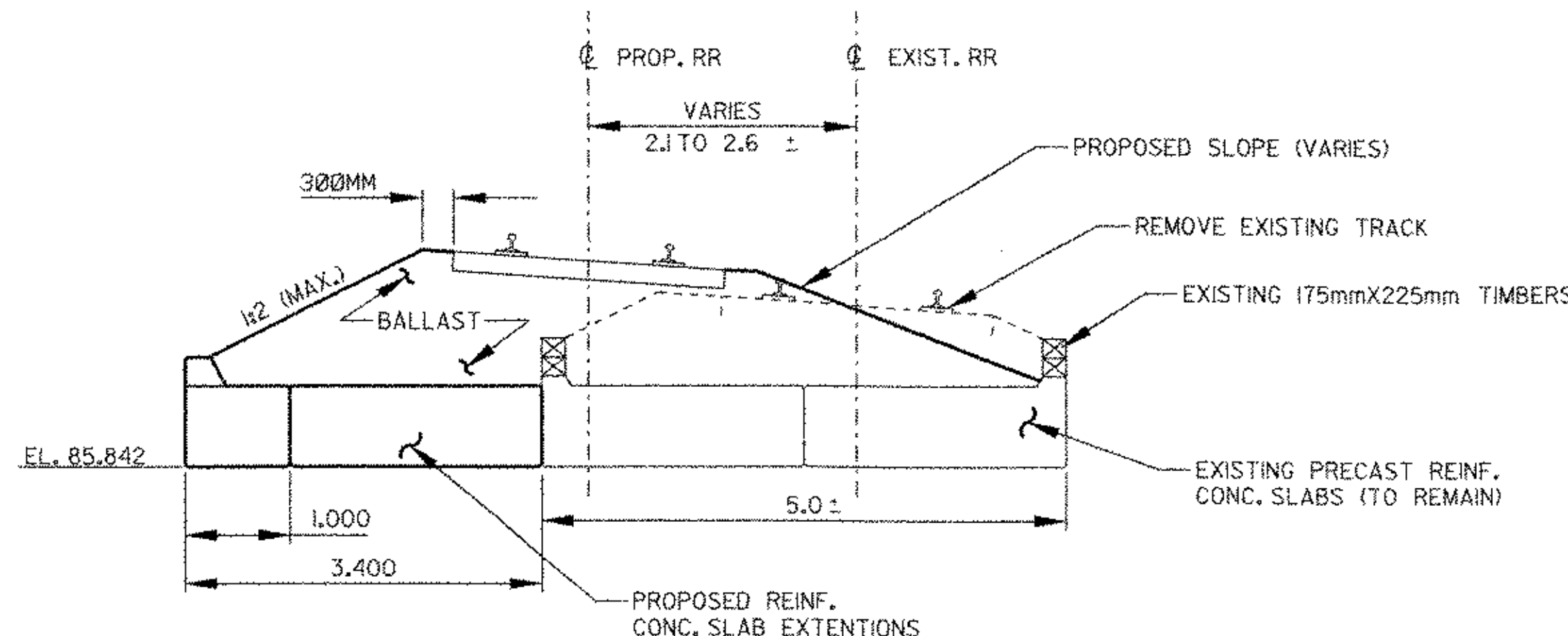
## NEW ENGLAND CENTRAL RAILROAD OVER SARGENT BROOK

### PRELIMINARY INFORMATION

Designed By LM Drawn By DHL  
 Checked By GJB Date \_\_\_\_\_ Bridge Design Supervisor JHR Date \_\_\_\_\_

PROJECT BRATTLEBORO PROJECT NO. NH BRF 012-1K33  
 I.G.C. Info. \_\_\_\_\_

R.O.W. SHEET 13 OF 27 SHEETS



TYPICAL BRIDGE SECTION  
 SARGENT BROOK

SCALE 1:50

95b270\structures\sgtbr302.dgn  
 sgtbr302.i 09-MAR-2001