

FINAL HYDRAULICS REPORT

HYDROLOGIC DATA

DRAINAGE AREA = 0.5 SQUARE MILES
 CHARACTER OF TERRAIN: MOSTLY DEVELOPED, FLAT TO HILLY
 STREAM CHARACTERISTICS: SINUOUS
 NATURE OF STREAMBED: SAND AND GRAVEL
 02.33 = 65 cfs 050 = 190 cfs
 010 = 130 cfs 0100 = 230 cfs
 025 = 160 cfs 0500 = 330 cfs
 DATE OF FLOOD OF RECORD: UNKNOWN
 WATER SURFACE ELEV.: UNKNOWN ESTIMATED DISCHARGE: UNKNOWN
 NATURAL STREAM VELOCITY @ 0.50 = 4.7 f/s
 ICE CONDITIONS: MODERATE DEBRIS: LIGHT
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEVATION RAPIDLY? YES
 IS ORDINARY RISE RAPID? YES
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? NO
 IF YES, DESCRIBE.

PROPOSED STRUCTURE

STRUCTURE TYPE: PRECAST CONCRETE STRUCTURE (6'-0" X 6'-0" X 184'-0" BOX)
 CLEAR SPAN (NORMAL TO STREAM): 6'
 VERTICAL CLEARANCE ABOVE STREAMBED: 6'
 WATERWAY OF FULL OPENING: 36 sq.ft.
 WATER SURFACE ELEV. @ 02.33 = 292.0' VELOCITY = 8.7 f/s
 010 = 293.5' " 10.6 f/s
 025 = 294.1' " 11.1 f/s
 050 = 294.7' " 11.5 f/s
 0100 = 295.5' " 12.1 f/s
 IS THE ROADWAY OVERTOPPED BELOW THE Q100? NO FREQUENCY: N/A
 RELIEF ELEVATION: 302.5' DISCHARGE OVER ROAD @ Q100: NONE
 AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 295.4 feet
 VERTICAL CLEARANCE @ 0.50 = 0.7 feet
 SCOUR: REQUIRED CHANNEL PROTECTION: TYPE II STONE FILL

EXISTING STRUCTURE

STRUCTURE TYPE: CGMPP YEAR BUILT: _____
 CLEAR SPAN (NORMAL TO STREAM): 7'-3"
 VERTICAL CLEARANCE ABOVE STREAMBED: 5'-3"
 WATERWAY OF FULL OPENING: 31 sq.ft.
 DISPOSITION OF STRUCTURE: REMOVAL
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: UNKNOWN
 WATER SURFACE ELEV. @ 02.33 = 292.4' VELOCITY = 3.9 f/s
 010 = 294.1' " 5.4 f/s
 025 = 295.0' " 6.0 f/s
 050 = 295.9' " 6.7 f/s
 0100 = 298.5' " 7.7 f/s

PERMIT INFORMATION

AVERAGE DAILY FLOW: 1 cfs
 ORDINARY LOW WATER: > 1 cfs DEPTH: 0.5 feet
 ORDINARY HIGH WATER: 28 cfs DEPTH: 1.0 feet

ADDITIONAL INFORMATION

- SEE TITLE SHEET FOR TRAFFIC DATA AND ESAL INFORMATION.
- FINAL HYDRAULICS REPORT PREPARED BY VTRANS.

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT

18 kip ESAL for flexible pavement from _____ to _____
 18 kip ESAL for flexible pavement from _____ to _____
 Design speed: _____

BOX CULVERT

DESIGN CRITERIA:
 1. DESIGN LIVE LOAD AASHTO HL-93 PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
 2. DESIGN SPAN 6'
 3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL FACTORED SOIL BEARING RESISTANCE - 4400 psf (STRENGTH II) ON LEDGE
 4. ALLOWABLE LOAD FOR PILING N/A TYPE N/A ESTIMATED LENGTH N/A
 5. STRUCTURAL STEEL AASHTO GRADE N/A
 6. REINFORCING STEEL GRADE 60
 7. CONCRETE HIGH PERFORMANCE CLASS A: $f'_c = 4000$ PSI (NOT USED)
 CONCRETE HIGH PERFORMANCE CLASS B: $f'_c = 3500$ PSI (NOT USED)
 PRECAST CONCRETE: $f'_c = 5000$ PSI
 8. SOIL UNIT WEIGHT: 140 PCF
 TRAFFIC MAINTENANCE:
 1. IS TRAFFIC TO BE MAINTAINED? YES IF YES, ON EXISTING STRUCTURE YES OR ON TEMPORARY BRIDGE N/A
 2. TEMPORARY BRIDGE REQUIREMENTS: ONE OR TWO WAY N/A TRAFFIC CONTROL SIGNALS REQUIRED N/A
 ARE SIDEWALKS REQUIRED? NO IF SO, ON WHAT SIDE? N/A

* LOAD RESISTANCE FACTOR RATING (TONS)

LOADING LEVELS	TRUCK				
	H	HS	3S2	6 AXLE	3A. STR. 4A. STR. 5A. SEMI
INVENTORY					
POSTED					
OPERATING					

STATE OF VERMONT
 AGENCY OF TRANSPORTATION

Town Of S. BURLINGTON Bridge No. 67-1
 Highway No. I-89 Log Sta. _____
 Surv. Sta. _____

I-89 OVER POTASH BROOK TRIBUTARY

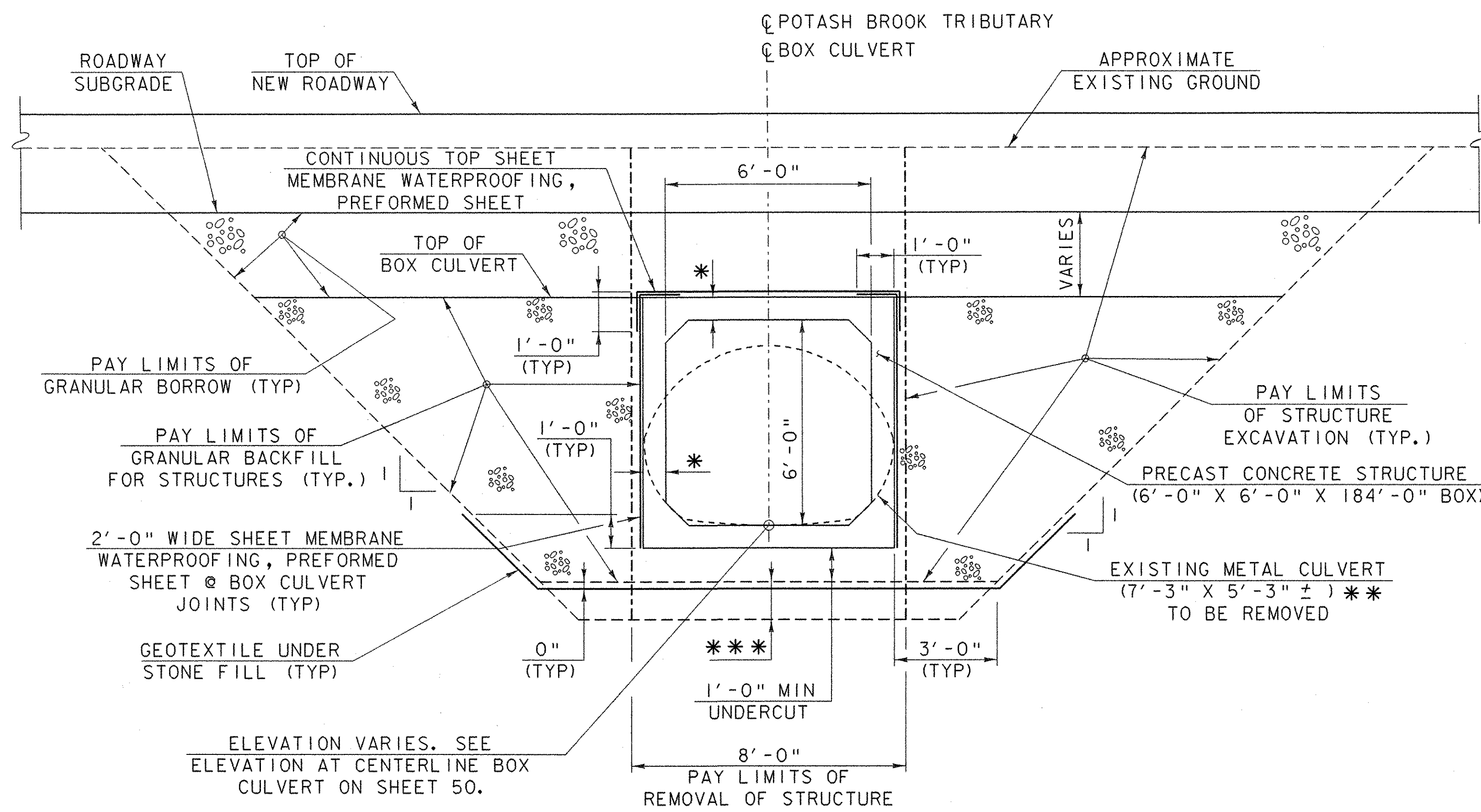
PRELIMINARY INFORMATION SHEET

Designed By VTRANS/LKW Drawn By SFD
 Checked By _____ Date _____ Bridge Design Supervisor
 RLW 09/07 TTK Date 09/07

PROJECT SOUTH BURLINGTON PROJECT NO. AC 1M CULV (9)
 I.G.C. Info. m:\656310 I-89 Culvert\BRIDGE\20add\4final-prelim\205k286P\dgn

Bridge Sheet No. _____ Sheet 5 of 63

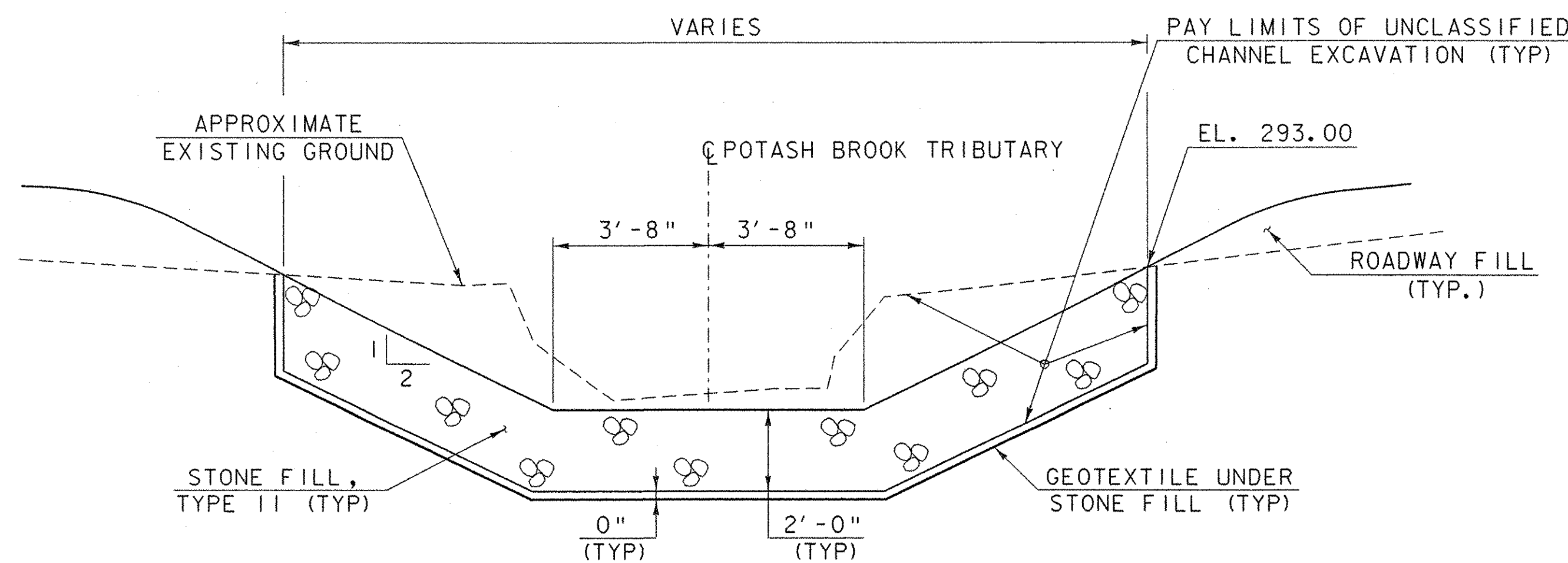
* TABLE TO BE COMPLETED BY CONTRACTOR'S DESIGNER. SEE STANDARD SPECIFICATIONS.



TYPICAL BOX CULVERT SECTION

SCALE 3/8" = 1'-0"
 1 0 1 2 3 4

- * PRECAST ELEMENTS TO BE DESIGNED BY THE CONTRACTOR'S PRECASTER.
- ** COST INCLUDED IN REMOVAL OF STRUCTURE.
- *** REMOVAL OF ADDITIONAL UNSUITABLE MATERIAL MAY BE REQUIRED AS ORDERED BY THE RESIDENT ENGINEER. SEE GENERAL NOTES.



TYPICAL CHANNEL SECTION

SCALE 3/8" = 1'-0"
 1 0 1 2 3 4