

## FORM 425



GOVERNMENT OF NEWFOUNDLAND AND LABRADOR  
Department of Transportation and Works  
Highway Design Division

### SECTION 425 TIMBER CULVERT EXTENSION

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#### 425.01 SCOPE

This specification covers the requirements for extending existing timber culverts by amounts and to grades as shown on the drawings and as required by the Engineer.

#### 425.02 MATERIALS

Timber for extending timber culverts shall be treated timber of sizes as shown on the drawings.

Spikes and drift bolts together with nuts and washers shall be of the dimensions shown on the drawings.

Wood preservative shall be required. Wood preservative for use in treating field cuts shall be of the same type and chemical composition as that used in the timber for the extension.

The Contractor shall supply the above listed materials.

#### 425.03 EXCAVATION

The Contractor shall excavate a foundation for the proposed extension within the limits and to the grade as staked by the Engineer. This excavation shall be carried out and paid for in accordance with Section 403 "Excavation for Foundations".

Excavation will normally be to a depth of 600 mm below the proposed invert elevation, to a width equal to the outside width of the culvert plus 600 mm on each side, and to a length equal to the required length of the extension plus 600 mm. Where aprons are required the excavation shall be deepened by an amount equal to the depth of the required apron below the invert.

The sides of the existing end pieces shall normally be excavated to a width 600 mm from the face, to a depth 100 mm below the bottom of the nailing strip and as far as the start of the existing sheathing.

#### 425.04 BEDDING

The Contractor shall prepare a bed for the nailing strips comprising selected bedding material.

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Selected bedding material shall consist of well graded other material, or other material borrow, having no more than 10% passing the 0.075 mm sieve and with a particle size not exceeding 75 mm.

The bed shall be placed to a compacted grade such that the positioned nailing strips will be at their required grade. The bed shall be placed so that the nailing strips bear completely on firm material leaving no voids under the nailing strip.

The bed shall be compacted to at least 95% of Standard Proctor Density (ASTM D698-78).

After the nailing strips have been placed to the required lines, and to the required grades, then selected bedding material shall be placed

between the strips to a compacted grade level with the tops of the nailing strips, so that when placed, the bottom cover will bear completely on firm material. The bedding material between the nailing strips shall be compacted to at least 95% of Proctor Density (ASTM D698-78).

### **425.05 ASSEMBLY**

The extension shall be carried out in accordance with the drawings and the instructions of the Engineer. The extension shall have the same cross section dimensions as the existing timber culvert.

All field cut ends and field bore holes shall be treated with wood preservative before drive bolts are placed. The field treatment shall be carried out in accordance with Section 590 "Wood Preservation".

Before sheathing is applied to the sides of the culvert; the Contractor shall brush off all soil sticking to the sides of the exposed end sections.

### **425.06 BACKFILLING**

Selected backfill material shall be used in backfilling, and it shall consist of well graded other material or other material borrow having no more than 10% passing the 0.075 mm sieve and with particle size not exceeding 75 mm.

The backfill shall be carefully placed so that no damage occurs to the structure.

The selected backfill material shall be placed simultaneously on both sides of the structure in layers not exceeding 200 mm in thickness. The backfill material shall be spread with a light dozer running parallel to, not at right angles to the structure.

Selected backfill shall extend along the sides of the structure at least one span width from each side.

Backfilling with selected backfill shall be extended to subgrade or until all parts of the structure have at least 1 m of cover, whichever is less.

Each layer of selected backfill material shall be compacted to at least 95% of Standard Proctor Density (ASTM D698-78), before a further layer is placed on top.

Compaction shall be provided by means of a hand held mechanical type compactor. Normal highway fill type compaction equipment shall not be used in close proximity to the structure.

### **425.07 PROTECTION FROM TRAFFIC**

Prior to allowing the movement of construction equipment or any vehicular traffic over the structure the depth of cover shall be such that no damage will occur to the structure.

### **425.08 MEASUREMENT FOR PAYMENT**

Measurement for payment shall be the volume measured in cubic metres, to two decimal places, of the timber actually incorporated into the extension of the culvert. Wasted ends, or timber added in excess of that required by the Engineer will not be measured for payment.

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Volume of timber being assessed as the sum of the individual pieces of timber calculated as the product of measured length, times measured width, times measured depth.

### **425.09 BASIS OF PAYMENT**

Payment at the contract price for timber culvert extension shall be compensation in full for all materials, labour, and use of equipment to: supply all treated lumber, hardware and wood preservative, cut pieces as required, treat cut ends and holes with preservative, construct the extension, and place and compact bedding and backfill as specified, together with the provision of such unwatering as may be required.

Select bedding material and select backfill material shall be paid for in accordance with Section 206 "Grading of Cuts", or Section 207 "Borrow" or Section 310 "Use of Pits, Quarries or stockpiles for Production of Materials Supplied by the Contractor", as the case may be, but the additional requirements for bedding and backfilling as stipulated in this specification shall be considered compensated for in the contract price for timber culvert extension.