

**Title: Road Standard and Approach  
Construction Guidelines**

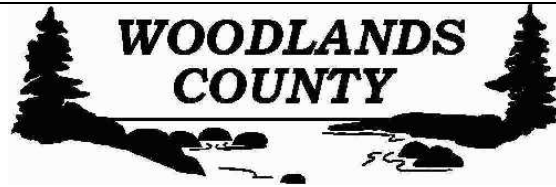
**Policy No: 3218**

**Approval: County Council**

**Effective Date: January 1, 1994**

**Revised Date: July 15, 2008**

**Supersedes Policy No: NIL**



**Policy Statement:** To outline the circumstances and specifications for the construction of local roads and approaches thereto.

The Municipality will implement the following general standards and specifications for municipal roads and approaches. These may be varied as necessary by Council to meet unusual topography and construction conditions. Where extra back sloping or fill material is required, the Municipality will negotiate with the landowner for landscape borrow wherever possible instead of purchasing additional right-of-way.

#### **1. LOCAL ROADS, CLASS 1 – Low Traffic Volume**

**Purpose:** To allow for access to lands with very low traffic volumes, residences farms and/or other approved uses.

Roads servicing for limited farming or other uses with low traffic volumes would be constructed in accordance with this standard. The design will generally follow the existing terrain within the confines of the allowable grades and should be confined to the existing right-of-way, if possible. The road structure is relatively light and will accommodate buses but not heavy trucks. Additional subdivision is not allowed unless additional road structure is added by the developer. Upgrading shall include additional structure to facilitate oiling/coldmixing of the roadway.

- 1.1 Right-of-way: 30.48 m (20.12 m-if landowner agrees to provide a 5.18 m easement on both sides of the right of ways).
- 1.2 Road Surface: 7 m.
- 1.3 Minimum Grade: .6 m.
- 1.4 Designed for 60 km/hr. (posted at 50 km/hr).
- 1.5 Side sloping: 3:1 minimum.
- 1.6 Back sloping: 2:1 maximum.
- 1.7 Ditch bottom width: 2.0 m, "V" ditch minimum.
- 1.8 Crown: 3%.

- 1.9 Minimum excavation of .3 m below finished gravel surface.
- 1.10 Maximum Gradient: 6%.

**2. LOCAL ROADS, CLASS 2 –Moderate Traffic Volume**

Purpose Roadways constructed under this classification are typically used for internal subdivision, or other uses with moderate traffic volumes.

Road grades generally follow the terrain within the allowable grade limits. Roadway structure to allow for the passage of buses and heavy trucks (on a limited basis). The Roadway width may include a 0.5 m shoulder for heavy use areas. Future paving or cold mix applications can be accommodated without significant subgrade improvements.

- 2.1 Right-of-way: 30.48 m
- 2.2 Road surface – 7 m.;  
Minimum grade - 1.0m of suitable compactable material.
- 2.3 Designed for 60 km/hr (posted at 50km/hr).
- 2.4 Side sloping - 3:1 minimum.
- 2.5 Back sloping - 2:1 minimum.
- 2.6 Ditch bottom width - 3 m.
- 2.7 Crown - 3%.
- 2.8 Minimum excavation and compaction of .6 m below finished gravel surface.
- 2.9 Maximum Gradient: 6%.
- 2.10 Curves to have a minimum 40m radius for inside boundary of ROW.
- 2.11 All roads that will come under the direction/control of the municipality shall require engineered drawings and shall be submitted prior to commencement of construction for review and approval by Woodlands County. This shall include drainage patterns, culvert locations and sizes, approach locations, and alternate accesses if required.
- 2.12 Compaction testing by a certified testing company will be required for all fill areas over 1.0m. These areas will be required to be tested every 0.5m of fill at intervals as determined by the Director of Infrastructure or his designate. A minimum of 98% Standard Proctor Density shall be required. Compaction in areas of fill 1.0m or less shall be approved via proof roll. The loaded truck will provided by Woodlands County.

**3. LOCAL ROAD COLLECTOR, CLASS 3 – High Traffic Volume**

Purpose: Roads constructed under this classification include Industrial, High traffic truck volumes or Collector Roadways. These roadways typically provide access to secondary or primary highways.

Roadways are designed to accommodate heavy trucks and this is reflected in a heavier road structure. Road structure and design approach those of Secondary Highways but with lower design speed. Roadway follows terrain to the limits of the allowable grade, but would require significant right-of-way in areas of large grade change. Roadway shoulder width reflects the heavy truck traffic and large loads.

- 3.1 Right-of-way: Variable.
- 3.2 Road Surface: 8 m, Industrial Roads: 9 m.
- 3.3 Minimum Grade: 1.2 m.
- 3.4 Designed for 90 km/hr. (posted at 80 km/hr.).
- 3.5 Back sloping: 3:1 maximum.
- 3.6 Side sloping: 4:1 minimum.
- 3.7 Ditch bottom width: 3.0 m.
- 3.8 Crown: 3%.
- 3.9 Minimum excavation and compaction of .6 m below finished gravel surface.
- 3.10 Maximum Gradient: 6%.
- 3.11 Compaction testing by a certified testing company will be required for all fill areas over 1.0m. These areas will be required to be tested every 0.5m of fill at intervals as determined by the Director of Infrastructure or his designate. A minimum of 98% Standard Proctor Density shall be required. Compaction in areas of fill 1.0m or less shall be approved via proof roll. The loaded truck will provided by Woodlands County.

**4. Approaches To Existing Municipal Road Allowances**

- 4.1 The municipality agrees to supply one approach per parcel at no cost to the landowner. Home quarters will be allowed two accesses with a minimum distance of 40 meters between the two approaches, again at the expense of the municipality, where a natural severance such as a water course or otherwise prohibits access to a portion of the parcel or where an additional access is required for movement of farm or commercial

equipment where the existing approach is not suitable for such equipment. Where there is an existing fence, the landowner will be requested to install a gate prior to construction in order for the Municipality to properly finish the approach.

- 4.2 The Municipality agrees to supply one approach per land disposition of adjoining Crown Lands at no cost to the landowner, provided that the subject lands are actively used for agricultural purposes.
- 4.3 Approaches will be constructed with a minimum 7 m and a maximum of 14 m finished driving surface.
- 4.4 Approaches on market, secondary and local roads shall have a side slope of 3:1.
- 4.5 If the Municipality determines that a culvert is required, the allowable length shall be determined by site-specific requirements. The minimum diameter required shall be a minimum of 400 millimeters.
- 4.6 All approaches must be at a lower elevation than the applicable public road so that drainage patterns remain unaffected. If the approach is private it shall be lower than the adjoining road until the edge of ROW. If the approach is for a public road it shall remain lower than the adjoining road for a distance of 30m from the edge of the ROW. This will apply to any intersections of new construction.
- 4.7 Should the landowner require an approach with the finished driving surface exceeding 7 m, the additional cost shall be borne by the landowner.
- 4.8 If landowners desire to install their own approaches, the Infrastructure Services Department shall approve the application and determine the required specifications.
- 4.9 The Municipality reserves the right to remove or upgrade unauthorized approaches to parcels installed by property owners which are contrary to policy specifications, such removal or upgrading to be done at the owner's expense. The Director of Infrastructure Services shall notify property owners who have non-conforming approaches, giving them sixty days to upgrade to specifications or, in cases where the approach creates a traffic hazard, removal of the approach. The sixty-day provision will apply during the period April 1 to October 31. If the owner fails to comply with the Order from the Director of Infrastructure Services, the Municipality will rectify the situation and charge the owner accordingly. The landowner has the right of written appeal to Council following the notice, providing same is received at the County Office prior to the final date for rectification as outlined in the notice from the Director of Infrastructure Services.

- 4.10 The Infrastructure Services Department will check with the Development Department to ensure that the Municipality is not building or upgrading accesses to comply with a subdivision requirement. If so, the responsibility for the cost lies with the applicant.
- 4.11 Approaches whether they are private or road approaches must have a minimum 200m sightline. Sightline to be verified by County staff.
- 4.12 Private lots which are accessed from internal subdivision roads will only be permitted one approach per lot.
- 4.13 Approaches are to have a minimum 40m separation and a minimum distance of 20m from the nearest property line. Approaches located on cul-de-sacs are exempt from minimum distances.

## **5. SUBDIVISIONS**

- 5.1 On all new subdivisions, the owner or developer will be required to provide a minimum standard access as specified by the Municipality. The municipality will review the road standard required for each subdivision on a case by case basis. If, in the opinion of the Municipality, a variance to the approved policy is warranted, this information will be forwarded to the Municipal Planning Commission as part of the subdivision review process. Variances to the Policy would be considered by Council following a written request by the developer or owner.
- 5.2 The owner of the property is also required to enter into an agreement with the Municipality to provide right-of-way for future road widening purposes along all roads adjacent to the parcel under subdivision consideration. A Caveat pursuant thereto will be registered with the Land Titles Office. Payment will be made by the County under current policy at the time of the legal survey and will include payment for any right-of-way taken off the actual subdivision and will include the payment for any right-of-way to the residue of the quarter section in question.

## **6. ROAD CONSTRUCTION WARRANTIES AND RE-GRAVEL DEPOSIT**

- 6.1 Warranties will be required for a period of two years on all new construction or upgrades of existing County roads. The warranty shall be in the form of a deposit or bond for the amount equal to 10% of the construction or upgrade costs, as determined by Woodlands County. The warranty deposit will be returned at the end of the two year period if no outstanding issues remain, as determined by Woodlands County.

The warranty will commence once the final inspection has been approved by Woodlands County. The warranty will be used to ensure that any defects or oversights of the design process can be dealt with or repaired at the contractor's expense.

6.2 The developer must prepay Woodlands County the cost to re-gravel the new or upgraded road with  $\frac{3}{4}$ " crush the following year. The application rate will be at 200 tonne/km. The cost for re-graveling will be determined by Woodlands County and must be paid in advance of final approval.

**7. VARIANCE PROVISIONS**

For new construction or upgrades to existing County roads variance may be given by the Director of Infrastructure Services.

## ROAD AND APPROACH CONSTRUCTION GUIDELINES

### GENERAL:

- All disturbed areas to be seeded as per Woodlands County's specifications.
- Original water courses and drainage patterns are to be maintained, not altered.
- Brush is to be disposed of by burning, chipping or removal off site, not buried in ROW.
- Erosion protection needed in all ditches that are susceptible to erosion.
- Proof roll to be completed on sub grade prior to first lift of gravel as outlined in Road Standard Policy.
- Engineered drawings as per Road Standard Policy, to be submitted before construction commences.
- Notify Woodlands County when stripping of organics in roadway areas has been completed.
- Final inspection and commencement of warranty.

### CULVERTS:

- All Culverts must be new CSP, and utilize "Annular Corrugated band type" couplers.
- Minimum Approach Culvert diameter is 400mm and maybe increased at Woodlands County discretion.
- Minimum Road Culvert diameter is 600mm and maybe increased at Woodlands County discretion.
- Existing culverts in approaches may utilize "natural" erosion control at the culverts inlet/outlet.
- All culverts to be counter sunk in the ditch bottom by 10% of the diameter.
- All culverts to have sloped ends to match approach side slopes.
- All culverts to be ripraped as described under the riprap section.
- Culverts with a diameter from 1m to 1.5m to be inspected by a Woodlands County rep. or professional Engineer before and during backfill.
- All installations of bridge structures to be certified after construction by a professional Engineer.

### GRAVEL:

- 550 tonne/km (40 mm crush gravel) - To be graded into the top 2" of grade and compacted.
- 550 tonne/km (20 mm crush gravel)

**GRAVEL SPECIFICATIONS:**

40mm (1-1/2")	
Sieve Size (mm)	Percent passing
50000	
40000	100
25000	55-90
20000	
16000	
12500	
10000	25-72
8000	
5000	8-55
1250	0-30
630	
315	
160	
80	0-12
% Fracture 1 Face	50%

20mm (3/4")	
Sieve Size (mm)	Percent passing
50000	
40000	
25000	
20000	100
16000	
12500	
10000	35-77
8000	
5000	15-55
1250	0-30
630	
315	
160	
80	0-30
% Fracture 1 face	60%



## CALCULATION OF LENGTH OF CULVERT REQUIRED:

Flat grade: length =  $A + (B \times C \times 2)$

Example:

- A) Width of Road is 7m
- B) Side slopes are at a 3:1
- C) Height of road to bottom of ditch is 1.5m

$$L = 7 + (3 \times 1.5 \times 2)$$

$$L = 7 + (9)$$

$$L = 16\text{m}$$

A culvert of 16m would be required.

Steep grade: length =  $(B^1 \times C^1 + \frac{1}{2} A) + (B^2 \times C^2 + \frac{1}{2} A)$

Example:

- A) Width of Road is 7m
- B<sup>1</sup>) Side slopes are at a 3:1
- B<sup>2</sup>) Side slopes are at a 3:1
- C<sup>1</sup>) Height of road to bottom of ditch is 1m
- C<sup>2</sup>) Height of road to bottom of ditch is 1.6m

$$L = (3 \times 1 + 3.5) + (3 \times 1.6 + 3.5)$$

$$L = (6.5) + (8.3)$$

$$L = 14.8\text{m}$$

A culvert of 14.8m would be required.

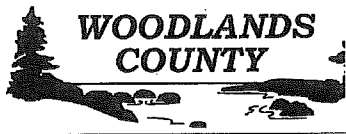
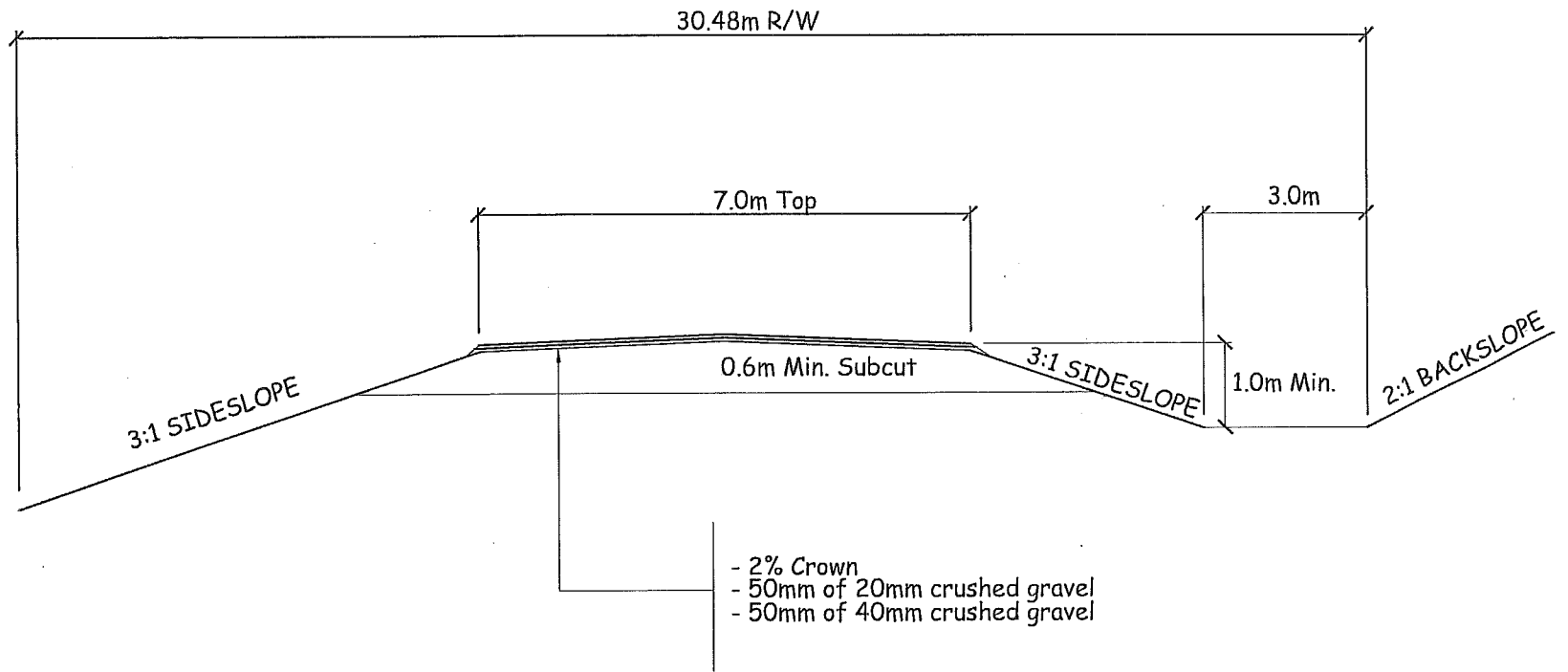
## RIPRAP:

Riprap Consists of a protective covering of hand-laid rock, randomly deposited rock, sacked concrete or sacked soil cement, that is placed around the culvert inlets and outlets, along the slopes and embankments, ditches, or any other placed required. The chief purpose of riprap is to prevent erosion of constructed fills and channels by water action. The secondary purpose, in the case of culvert ends is to provide some weight through downward force which will counteract the upward forces that can cause culvert ends to rise above the channel bed.

The typical minimum length for aprons at: on the inlet side is 1.5 times the diameter, and on the outlet side 2 times the diameter of culvert. These minimum lengths may be exceeded if required at a particular site.

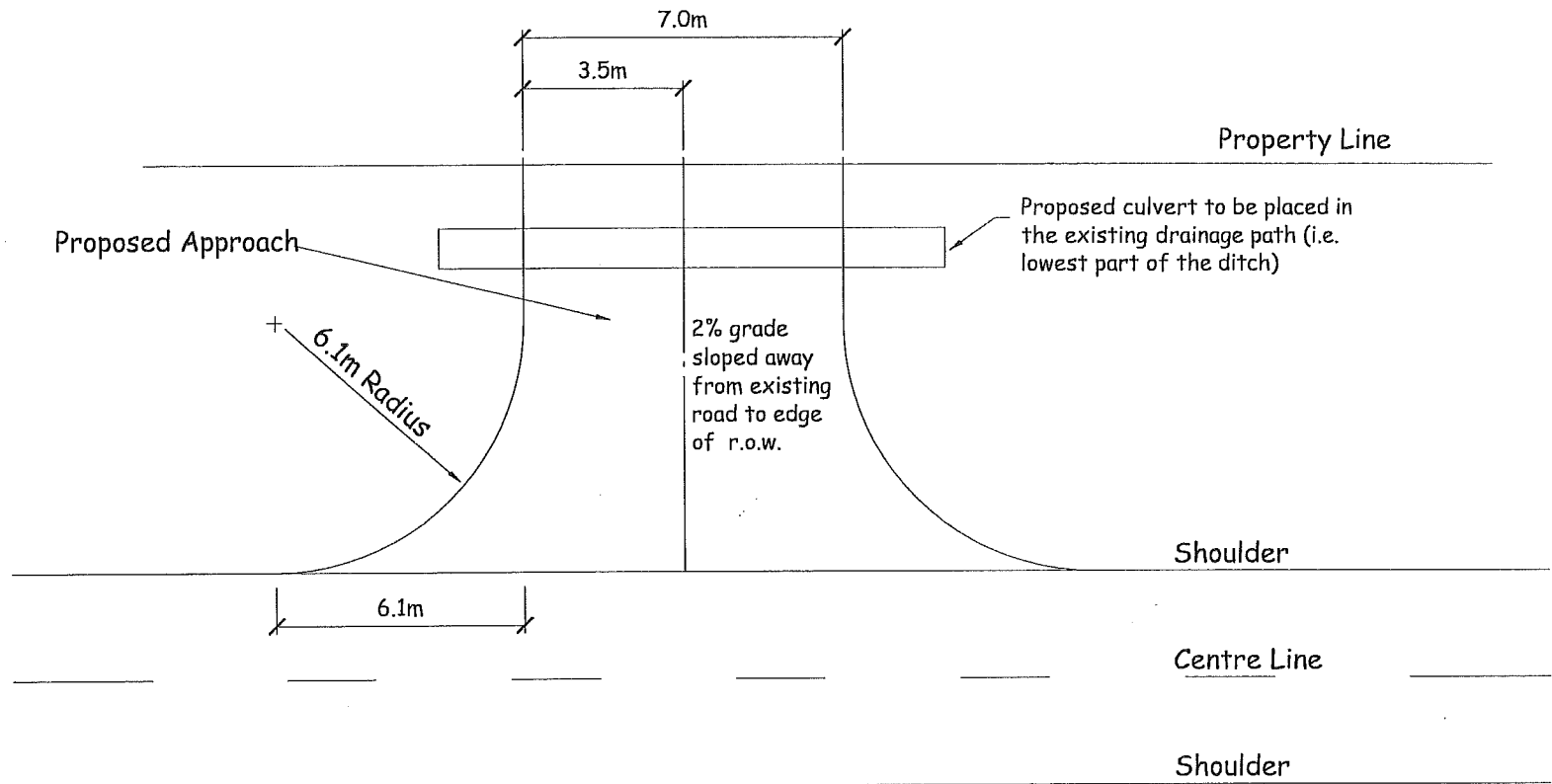
Rock riprap is generally preferred where rock is available, due to its longer life. Where rock is not readily available, sacked concrete or sacked cement stabilized material may be used as a substitute.

# TYPICAL CROSS-SECTION



Scale: NTS

# TYPICAL PRIVATE APPROACH



Scale: NTS