Threestoneburn Forest – Proposed Road Construction

Summary of work required

Section 1 – South Middleton farm to Dene Cottage
1049 metres of existing farm track. Potholes to be in-filled and road strengthened by adding 15cm depth of stone to surface, followed by rolling and grading.

Section 2 – Dene Cottage to end of hill track.
2310 metres of existing hill track. On flat sections dig roadsides ditch(s) and lay stone to depth of 45cm. On existing cut formation widen to 4 metres, incorporating ditch where required and lay stone to depth of 30 cm. All section to be rolled and graded.

Section 3 – Hill track to Forest boundary
Remove vegetation and upper soil horizons and excavate ditch on top side of road line 500 metres in length to depth of 60-80 cm

Section 4 – Forest boundary – existing forest road
1670 metres of new link road with same specification as for section 3

Road upgrade specification

1. The existing road formation is to be upgraded and formed to a width of 4 metres with additional widening on curves according to the table at 2 below and to a width of 8 metres at passing places. On peat and other soft areas the formation must be built of material of high stone content forming a bottoming capable of carrying the road. The average ruling gradient must not exceed 1 in 12 and the maximum gradient at any one point be 1 in 10.

2. The road will be surfaced and graded as follows:-

   a) Suitable surfacing stone is to be spread to a thickness of 30 cms (12") to provide a clear carriageway of 3.5 metres width (11'6") and widening on curves in accordance with the following table. Imported stone for surfacing should be metal blindings or equivalent with a maximum size of 7.5cm (3").

Radis of Curve (road centre line)		Extra Width Required (centre of curve)	
M	ft	M	ft
13.75	45	3.97	13
15.30	50	3.36	11
16.80	55	2.75	9
18.30	60	2.14	7
30.50	100	1.22	4
61.00	200	0.92	3

   b) Surfacing will be spread to a width of 7.5 metres at passing places.

   c) The surface will be capable of carrying 12 tonne axle loads in dry, wet or frosty conditions.

   d) The metalled surface will be cambered on cross slopes to a settled crossfall of 100-150mm (4-5 inches) to the uphill side and spread evenly across the metalled width. On level ground the surface will be cambered from 75-100mm (3-4 inches) from the centre line to both edges of the metalled surface.

   e) The surface will be graded and compacted with a vibrating roller to a smooth easily driveable surface. The minimum deadweight of roller to be used is 5 tonnes.

3. Passing places will be constructed at intervals of approximately 500 metres as directed.. Passing places will be surfaced to a width of 4 metres and a length of 18 metres and will be constructed to the same specification as the roadway. Where possible, existing junctions will be incorporated as passing places.

4. Adequate drainage will be provided as follows:-

a) On cross slopes a roadside ditch of not less than 50cm in depth (20 inches) below formation level is to be cut on the uphill side of the road and cut not closer than 0.5 metres from the edge of the metalled surface. In rock an adequate gutter must be cut.

b) On level ground, in cuttings or where the formation has been formed by laying, ditches not less than 50cm (20 inches) in depth must be provided on both sides of the road the distance between their inside edges being 4.6 to 5.5 metres (15 to 18 feet). No cutting shall be formed through depressions in soft ground and so leading to ponding in side ditches.

6. Adequate piped culverts are to be provided for all natural water courses and for all depressions into which roadside ditches run. On even slopes culverts will be placed at intervals of approximately 100 metres (110 yards). No culvert pipe shall be less than 300mm in internal diameter (12 inches).

The location and size of culverts will be confirmed prior to the construction. The minimum acceptable grade of all steel culvert pipes is BS2989. All culverts will be constructed of bitumised galvanised steel (ARMCO) according to diameter, and all culverts must be covered to a depth equal to the diameter of the pipe plus 300mm. All concrete culvert pipes will be to a minimum of BS5911 and with Ogee or similar overlapping joints. For steel pipes the metal grade must be ZZH3 and treated with bitumen to AASHTO specification M190 or alluzinc to BS6830.

Culverts will be of sufficient length so that road formation material will slope down to the intake and outflow at an angle not greater than 45 degrees. Culvert intakes will be provided with a catch-pit of 1.0 metes square to a depth of 0.5m below the base of the pipe.

9. All workings in the vicinity of power-lines must be carried out within the regulations as applied by the Electricity Authority. Liaison with the electricity authority will be the responsibility of the contractor.

11. The location of any quarries or borrow pits will be identified prior to upgrading commencing. Quarries and pits will be left in a tidy condition and graded to the road formation where necessary.

12. The Contractor will be responsible for complying with the provisions of the Health and Safety at Work Act 1974 and all other relevant regulations and with the Safety Policy of Tilhill Forestry.

13. The contractor will be responsible for maintaining gates and fences adjoining the new road-line in a stock-proof condition at all times, but will not be responsible for any fence re-alignment that may be considered necessary, nor new fences, gates and stiles.

Comparison of Road stone requirements

1. Original access proposal 2008

Summary of requirements;

Upgrade access road from Calder to Forest entrance 3500 m	- 4570 tonnes
Access improvements adjacent to council road 200m	- 750 tonnes
Upgrade internal forest road network (staged) 6650 m	- 15600 tonnes
Construct 1100 m new forest road	- 6580 tonnes
Total	- 27500 tonnes

Revised access proposal 2010

Summary of requirements

Upgrade farm road – 1049 m	- 700 tonnes
Upgrade farm track/formation – 2310 m	- 4700 tonnes
New link to forest – 500m	- 1700 tonnes
New forest road - 1670 m	- 7500 tonnes
Upgrade internal forest road network (phased) – 6000m	- 13000 tonnes
Total	- 27600 tonnes

Fig 1 - Typical Access road (No roadside ditch)

Fig 2 - Typical Access road with roadside ditch

Fig 3 - Access road 10 years after decommissioning

Reinstatement

The proposal is to use the track for HGV traffic over the next 12 years whilst the forest is felled, but that it would then revert to a private road only used by estate vehicles for ongoing farming and sporting activities. The track upgrading and construction specifications are included in **Appendix II** as are photographic illustrations of similarly constructed tracks, at Wooler Common. These tracks were constructed in 2000 and with 9 years usage by light traffic have quickly grassed over. To speed up this process further it is intended to hydro-seed the upgraded tracks within the forest and the new hill track. This process will commence as soon as sections of track are no longer in usage by HGV`s. There will be a rolling program of hydro-seeding commencing in year 4 of the deforestation programme and continuing on an intermittent basis with completion at the cessation of the haulage operations.