

ACCESS TRACK CONSTRUCTION IN SMALL WOODLANDS

Introduction

This Information Note is one of a series derived from a Technical Development Branch (TDB) Outdoor Workshop (ODW). It is produced as a guide to part of a harvesting system suitable for use in small scale broad-leaved woodlands. ODWs are a TDB initiative designed to offer practical advice to practical people through presentation, demonstration and user guidance. The ODW program will involve repeating trials and introducing new systems around Great Britain so that a wide range of sites, systems and practitioners can be included.

Information has been gathered from equipment and method trial based at a single location. This information therefore must be taken as indicative only. Variation could be expected for other operations where factors such as terrain, crop specification, product specification, operating distances or operator efficiency differ.

Simple access tracks can be constructed at relatively low cost using basic construction machines. An experienced operator is essential to ensure a suitable specification is achieved.

Constructing access tracks can:

- Enable management of neglected woodlands.
- Give a wider choice of harvesting machines.
- Allow more cost effective harvesting.

Legislation

Planning considerations: Forest roads and tracks are governed under Permitted Developments in The Town and Country Planning Act 1995 (SI 418) for England and Wales. Scotland is covered by similar conditions under (SI 223) 1992.

Water: The legal obligation pertaining to water are covered under the Control of Pollution Act (1974). Advice can be obtained from the Environment Agency (EA) in England and Wales. In Scotland advice can be obtained from the Scottish Environmental Protection Agency (SEPA).



Conservation & Archaeology: Guidance can be obtained from the EPA, SEPA and other regulatory bodies.

The System

Throughout the country there are many areas of woodlands that are receiving little or no management. A major reason is poor or no access to these sites. A simple track constructed at a low cost can be achieved using small construction machines.

General Features: Well constructed new or upgraded tracks can accommodate small harvesting equipment, ATCs and pedestrian controlled harvesting systems. They:

- Can reduce harvesting costs.
- Are environmentally sensitive and have a low impact on the landscape.
- Are suitable for general 4 wheel drive vehicles.
- Are suitable for all weather access except in periods of extreme rainfall.

Track Specifications

There is a wide range of specifications for track construction. The choice of track can depend on any of the following factors:

- The level of access required.
- The harvesting system.
- Environmental constraints.
- Availability of stone for surfacing.

Case Studies at a Previous Site

The following 3 case studies are typical of the tracks that can be constructed in small broadleaved woodland to cater for small scale extraction equipment and the control of water runoff:

- Upgrading existing tracks.
- Creating access tracks.
- Creating access track, with culvert drain.

A 13 tonne Samsung SE130 excavator fitted with a standard square mouth bucket was used to construct the tracks and culvert on a good loamy soil. It was hired from a local contractor at a cost including driver of £21.00/hr (1998) which increased to £29.60/hr when transportation costs were apportioned to all operations on the site.

Transportation can add considerably to the overall cost of jobs, particularly those of short duration using larger machines.

All standard outputs include allowances of 16% for Rest and 15% Other Work.

Upgrading Existing Tracks: An existing track between a stream and a bracken area had become overgrown through lack of use and maintenance.

The objective was to clear the existing c. 48 m track of vegetation to create a level 3 m running surface using the cut and fill method.

The track was cleared and spoil levelled using the excavator. Soft stone and stony spoil was dug from the roadside bank and laid to form the base. A small drain was dug on the upper side, to prevent water running onto the track and the hard stone from the drain was used to form the surface. The track was firmed by "tamping" with the bucket and by the tracks of the excavator.

The output achieved was 13.9 m/standard hour (shr) at a cost of £2.13/m.

Creating Access Tracks: A 36 m track was required to give access from the bracken area to a glade at the down stream end of the wood.

The objective was to create a 2.5 m to 3.0 m wide track which reduced the existing 25% slope and removed the side slope. No track side drainage was required.

Using the excavator the vegetation and soft spoil were dug from the front of the machine and spread and levelled to form the track base. A limited amount of harder stone was cut from the 'batter' edge and mixed with spoil to produce the running surface.

The track was consolidated and 'tamped down' using the bucket and the tracks of the machine. A slight inward slope was produced to allow rain water to run off.

The output achieved was 43.2 m/shr at a cost of £0.69/m.

Create Access Track with Culvert Drain: A c 25 m track was constructed to allow access into the woodland block through a soft wet area which contained a wet drain. The drain required a culvert to maintain the flow of water and prevent flooding and further water logging.

The objective was to construct a 3 m wide track with a level running surface. The drain that passed through the soft wet area required a 4 m x 45 cm plastic pipe. Stone for the formation of the track was to be obtained from a 'borrow pit' adjacent to the site.

The term 'borrow pit' is often used when acquiring stone. In general terms it refers to an area where stone is obtained on or near to the construction site. On this site the stone was dug from a pit that was reinstated when the operation was completed. The material obtained from the 'borrow pit' reduced the construction costs. If the material had not been available from a 'borrow pit' another machine would have been needed to transport material from another area.

The drain was cleaned out prior to the installation of the plastic pipe. The bucket removed the adjacent vegetation and levelled off any rough ground. A 'borrow pit' was dug and the soft stony soil used to form the main trackway. Hard stone from the pit was used to create the running surface. The bucket and tracks of the machine were used to firm the surface and produce a profile that would allow water to run off.

The output achieved for the track construction was 31.9 m/shr at a cost of £0.93/m. The drain culvert was constructed in 35 standard minutes at a cost of c. £60. This included a cost of £42.58 for the pipe.

Outdoor Workshop Case Study

An existing well rutted track 280 m long was upgraded to give a 3 m wide running surface capable of supporting light vehicles during dry weather.

The work was carried out by a 13 tonne Hitachi excavator fitted with a standard bucket. The excavator levelled the track and surplus spoil was removed 'off site' by the use of a 5 tonne front end loading Dump Truck.

Crushed stone from a borrow pit 3 km away was brought in by the 5 tonne Dump Truck and deposited on the levelled track. The excavator spread the crushed stone by the use of the bucket and compacted it by travelling up and down each completed section.

The output achieved by the excavator was c. 4.6 m/shr at a cost of £4.50/m. The cost of bringing in the stone was £7.00/tonne which gave a cost of £8.40/m.

The overall cost of the upgrading of the track was £12.90/m.

General Guidelines

The following action should be taken when constructing access tracks:

Identify environmental constraints, i.e. SSSIs, water courses, archaeological features, public rights of way, public and private water supplies etc, and consult the relevant bodies.

Decide on the level of access required and plan the route before starting the operation. Ensure that the track lengths between culverts and stream crossings are as long as possible.

Identify potential sources of stone as near the site as possible.

Select the most appropriate size of excavator to keep construction costs to a minimum.

Allow the track to settle and consolidate before use.

Health and Safety

The machinery used in the operation requires a high level of skill and proficiency from the operator for a safe operation. This is applicable in all operations especially when working on steep slopes.

Training is essential in all aspects of this work.

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