

To: All HQ Directors: Operations, Planning & Major Projects  
All Regional Directors  
All District Managers, Transportation  
All Regional Managers, Engineering  
All Regional Geotechnical and Materials Engineers

**Subject: Use of Hog Fuel for Road Construction Purposes**

**Purpose:**

This Technical Circular clarifies the responsibility of the Ministry and its design engineers regarding the use of hog fuel for road construction purposes.

**Background:**

Hog fuel is a wood product of the forest industry, consisting of bark and wood chips, having various applications. Since hog fuel is light weight and durable, the material has applications for use as a cost-effective, light weight fill material for the construction of road embankment foundations. Depending on the source of the material, tree species and the environment the material is used in, hog fuel can be a valuable and cost effective product. The use of cedar as a source of hog fuel is to be avoided. Hog fuel has the potential to produce a leachate which may require consideration of environmental impacts. As a consequence, design engineers must address the potential for adverse impacts to the environment in accordance with the approaches outlined in this memorandum before the Ministry can accept the responsibility for the potential environmental concerns when hog fuel is used as a light weight fill.

**Scope and Application:**

Hog fuel is an important product for the design engineer to consider on a project where light weight fill is required. The engineer shall analyze all suitable light weight fill options appropriate for the project, including hog fuel. All of the options analyzed shall be presented to the Ministry for consideration with a discussion on both the geotechnical and environmental risks of each. The Ministry will assess and determine the appropriate risk to take on projects and the Ministry will advise the design engineer accordingly if hog fuel would or would not be best suited under the particular circumstances.

The geotechnical design engineer is responsible for the geotechnical aspects of road base foundation design, in accordance with Ministry engineering standards and agreed engineering performance criteria. The construction contractor is responsible for the construction materials and workmanship to meet industry's standards and contractual requirements.

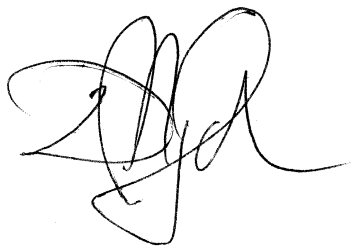
The Ministry accepts responsibility for the environmental aspects related to potential hogfuel leachate development in accordance with the selected design option.

Appropriate mitigating design features, such as locating the hog fuel outside the zone of fluctuating water table, engineered ditches and containing ponds, shall be considered in the design. In this regard, based on past experience, the Ministry has found designs as shown in attached Figures A, B and C provide satisfactory environmental performance, and comparable designs will generally be considered acceptable from an environmental viewpoint. Also, hog fuel leachate that may be generated must be controlled and prevented from entering watercourses. Appropriate ditches, berms, containment structures and or encapsulation materials must be considered in the design. The use of aged hog fuel stockpiles are considered to be more acceptable in terms of leachate production.

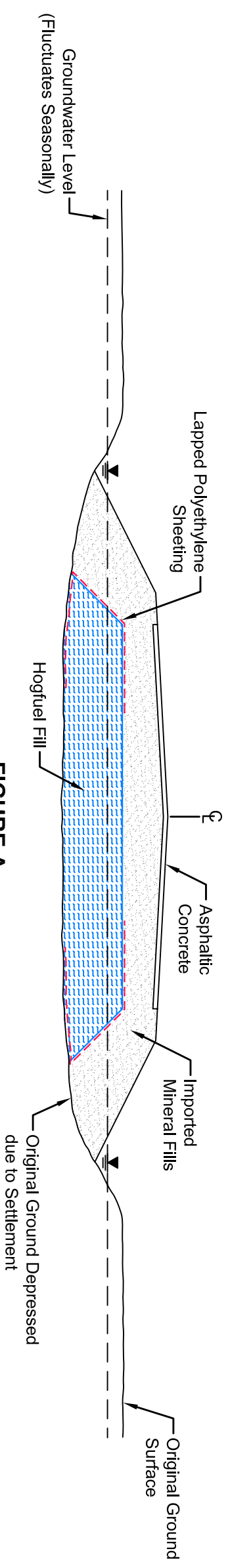
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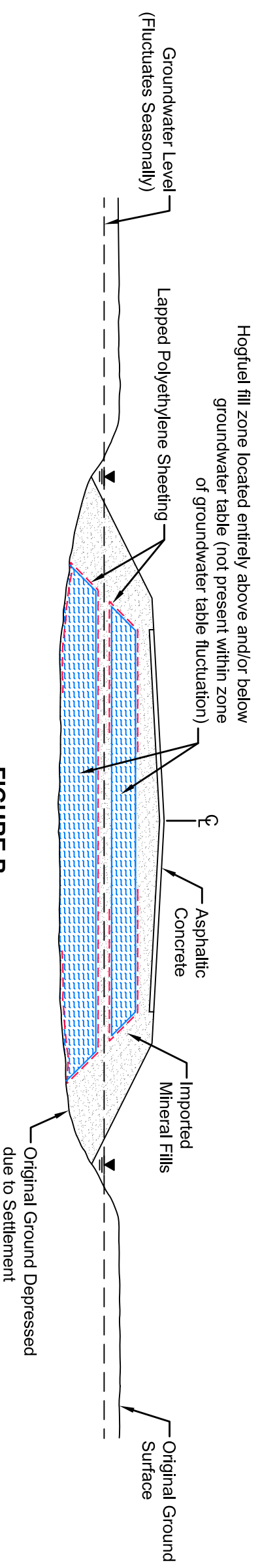
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A handwritten signature in black ink, appearing to read 'D. Nyland', with a stylized, cursive script.

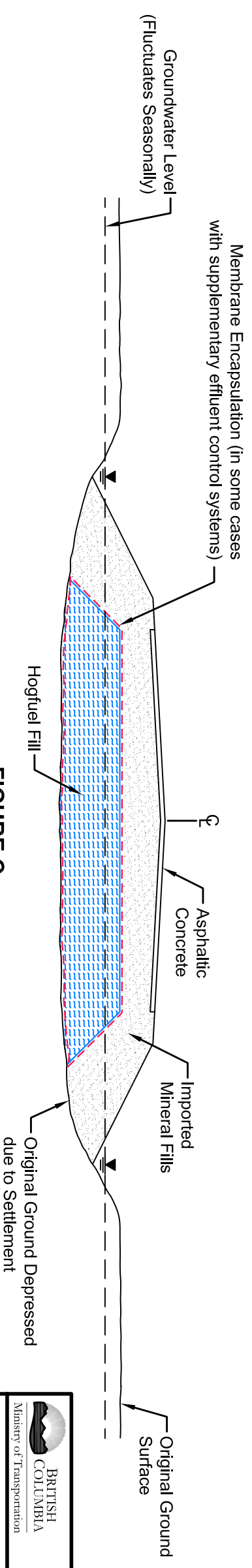
Dirk Nyland, P.Eng.  
Chief Engineer



**FIGURE A**  
**SHOWING HISTORICAL HOG FUEL USE ON HIGHWAY CONSTRUCTION PROJECTS**



**FIGURE B**  
**SHOWING POSSIBLE REFINEMENT TO HISTORICAL HOG FUEL USE TO LIMIT EFFLUENT GENERATION/DISCHARGE BY POSITIONING HOGFUEL ZONE ENTIRELY ABOVE AND/OR BELOW GROUNDWATER TABLE**



**FIGURE C**  
**SHOWING MEMBRANE ENCAPSULATION OF HOG FUEL (WHERE MORE COMPLETE EFFLUENT RETENTION IS REQUIRED AT CRITICAL LOCATIONS)**

DATE: 2006-10-17