



GOVERNMENT OF  
NEWFOUNDLAND AND LABRADOR  
Department of Environment & Conservation

Guidance Document

**Title:** **Guidelines for Waste Asphalt Reuse in New Pavement  
or in Roadbed Construction of Paved Roads;  
and/or Storage and Final Disposal**

**Prepared By:** Marie Ryan  
**Marie Ryan, Senior Environmental Scientist**

**Updated:** **February, 2011**

**Approved By:** Derrick Maddocks  
**Derrick Maddocks, Director**

## 1.0 PURPOSE

This document **GD-PPD-008.2** consolidates the information contained in GD-PPD-008 Use of Waste Asphalt in Roadbed Construction of Paved Roads (Revised May3, 2007), and GD-PPD-23.1 Waste Asphalt Storage (Revised April, 2010).

The document provides environmental guidelines for the environmentally sound and sustainable reuse of waste asphalt, to minimize disposal to landfills and any adverse impact or potential contamination.

It sets out minimum requirements to request authorization from the Government Service Centre (GSC) for the use of waste asphalt as a supplementary roadbed fill material or road shoulder material in the construction or rehabilitation of a paved road

## 2.0 LEGISLATION

### Provincial legislation

- *Environmental Protection Act SNL 2002 cE-14.2. and Regulations*
- *Occupational Health and Safety Act (O.C. 96-478) and Regulations*
- *Municipalities Act , 1999 and Regulations*
- *Water Resources Act, 2004 and Regulations*

### Municipal

- Zoning Requirements and Building Codes as applicable

### Other Supporting Documents

*2001 Asphalt Plant - Policy & Procedures Manual*

*Operation of Small Asphalt Heaters for Driveway Paving Policy*

1998 Department of Works Service and Transportation, *Engineering Field Manual* (6<sup>th</sup> printing)

January 2002, Department of Works, Services, and Transportation, *Selected Granular Base Course of the Specification Book*.

*Koch S. and Ksaibati K. October 2010. Performance of Recycled Asphalt Pavement in Gravel Roads. University of Wyoming. 265 pp.*

## 3.0 BACKGROUND

The Department of Environment & Conservation and the Department of Government Services oversee the asphalt paving industry in Newfoundland and Labrador. The production of new asphalt and the disposal of used asphalt is regulated. Recycling is not disposal, and does not generally require prior approval.

Large quantities of waste asphalt can be generated when roads are stripped of existing pavement for re-paving. Improper handling of stripped asphalt, and off-specification asphalt, may result in negative environmental impacts. The recycling of waste asphalt into new asphalt may not always be possible. Burial of waste asphalt on-site or disposal at an approved waste disposal sites is not an accepted practice. Approval from the Department of Government Services is required to store /stockpile waste asphalt for later re-use at another location.

#### 4.0 RATIONALE: ENVIRONMENTAL ISSUES ASSOCIATED WITH ASPHALT

Asphalt is a petroleum based product. Depending on the source and formulation, it normally has a very high melting point ( $>> 45^{\circ}\text{C}$ ) and is very dense ( $1000\text{ kg/m}^3$ ) and very strong. The source of bituminous asphalt, and aggregate may vary depending upon regional availability, and the formulations for specified applications will also vary.

Because of its physical and chemical properties, waste asphalt is considered to be a non-hazardous, but not inert solid waste. This means that certain sources of asphalt, under certain conditions, may still pose a risk of contamination to the environment. Indiscriminate disposal of asphalt (product or pavement) may result in a negative environmental impact, due to the physical structure of the material depending upon where disposed e.g. the material may block small streams used by fish. As well, contaminants of concern in asphalt may include various petroleum hydrocarbons, polyaromatic hydrocarbons, heavy metals and road salts that can leach into the environment.

#### 5.0 RECYCLING OPTIONS FOR ASPHALT

- RAP may be blended with virgin materials as per *Appendix M for section 315, Selected Granular Base Course of the Specification Book, January 2002 (Department of Works, Services, and Transportation)* for the production of new hot mix asphalt pavement. Contractors are encouraged to recycle or they may make application to the Department for temporary storage.
- The next best practice environmentally is to incorporate old pavement into the new roadbed and roadbed shoulder.
- Recycled asphalt pavement (RAP) may also be incorporated into resurfacing of gravel roadbeds. This reuse has been shown to significantly decrease dust, surface distress and gravel road deterioration when added to the surface structure. Lower levels of dust improve air quality and reduce the adverse health and environmental issues, while increasing the service life of the road (Koch and Ksaibati, 2010).
- Old asphalt, exceeding the quantity that can be reused in a given area, may be reduced in size and utilized for landfill cover where there is no other reuse potential.
- Waste or off-spec asphalt may also be made available to the public in small quantities, for use by local residents for paving driveways. In this case, the local municipality should be advised.

#### 6.0 REUSE LIMITATIONS

- Reuse of old asphalt as fill material in road construction or in gravel road surfacing is prohibited where it may contact surface or ground water. This would include environmentally sensitive areas subject to runoff or periodic flooding, bogs, peatlands, river banks or flood-plains, and the edges of ponds and lakes that may have been infilled to widen roads. Approaches to bridges, causeways and culverts are also to be avoided.
- It is recommended that waste asphalt blended with regular fill material be placed no closer than 1.5 m above the highest groundwater level.
- The waste asphalt should be placed in the roadbed such that it is at least 15 metres

horizontally from any surface body of water.

- The use of waste asphalt as shoulder and roadbed fill is not permitted within the boundaries of a provincial or national parks, protected water supply areas, a wildlife or wilderness preserve or similar environmentally sensitive locations.
- Domestic quantities (e.g. pickup load from a private driveway) may be landfilled at the discretion of the landfill owner/operator. However, direct disposal of large quantities of old asphalt to landfill is not permitted.

## **7.0 NOTIFICATION**

Persons seeking permission to use waste asphalt as fill in the roadbed, in gravel road surfacing, on the road shoulder of a paved road, or to store waste asphalt for future use, shall provide at least 14 days advance notice to the Regional Government Service Centre office. The notification must contain a description of the source of the waste asphalt, its quantity, location(s), the ratio of waste asphalt to regular material that is to be placed and where; or the amount to be stored and proposed location. The reason for not recycling the material into new asphalt pavement shall be provided.

The notification will be reviewed by an official of the GSC, who will communicate with the applicant directly, clarify any issues and provide advice where warranted.

As noted in Section 6.0, there are limitations on reuse of waste asphalt depending upon the proposed location and potential environmental receptors. These limitations shall be respected. Section 8.0 also provides directives on correct placement procedures for waste asphalt reuse as fill material.

## **8.0 WASTE ASPHALT AS FILL MATERIAL - PLACEMENT PROCEDURES**

Where waste asphalt is used in the construction or rehabilitation of a specified roadbed, the following minimum conditions shall apply:

### **8.1 Waste Asphalt as Fill Material:**

- 1) The waste asphalt shall have no dimension greater than the material for which it is substituting.
- 2) The waste asphalt shall be placed in the roadbed as a homogeneous mixture of waste asphalt and regular fill material at a ratio no greater than 1:3 (25% waste asphalt).
- 3) The waste asphalt shall be placed in the roadbed such that it is at least 1.5 metres vertically above the highest groundwater level which is known or expected in the underlying material. (See Figure 1)
- 4) The waste asphalt shall also be placed in the roadbed such that it is at least 15 metres horizontally from any surface body of water. (See Figures 2 and 3)
- 5) The waste asphalt fill material shall be centrally placed in the roadbed such that it comes no closer than 2 metres to a vertically projected plane coinciding with the designed edge of either side of the asphalt pavement layer which is to be applied as the road's completed driving surface. (See Figure 1).

## 8.2 Waste Asphalt as Shoulder Material:

- 1) The waste asphalt used as road shoulder material shall originate from a cold milling process and the applicator must be able to demonstrate that the application of heat was not used to change the waste asphalt back to its liquid state.
- 2) The waste asphalt used as road shoulder material shall be compacted as per regular road shoulder requirements.
- 3) The waste asphalt shall also be placed on the shoulder such that it is at least 15 metres horizontally from any surface body of water. (See Figure 4)
- 4) The waste asphalt for road shoulder material shall be placed by means of an approved spreader. Spreaders shall consist of a box to hold the waste asphalt and a suitable mechanism to control the width and rate of application and to prevent materials getting onto the pavement, and beyond the road shoulder.
- 5) The waste asphalt shall be placed directly on the shoulder and any spillage or material dragged off the shoulder shall be immediately removed.

These requirements shall be reflected in the letter of acknowledgement sent out by the GSC official. Each letter shall, insofar as possible, address the site specific conditions and circumstances.

Note: In the event of infilling a body of water (Pond, River, etc.), or portion thereof, or in the construction of a bridge or causeway, the minimum horizontal distance is 15m and the minimum vertical distance is 1.5m.

Figure 1: Permitted waste asphalt fill extent with respect to groundwater and edge of asphalt pavement.

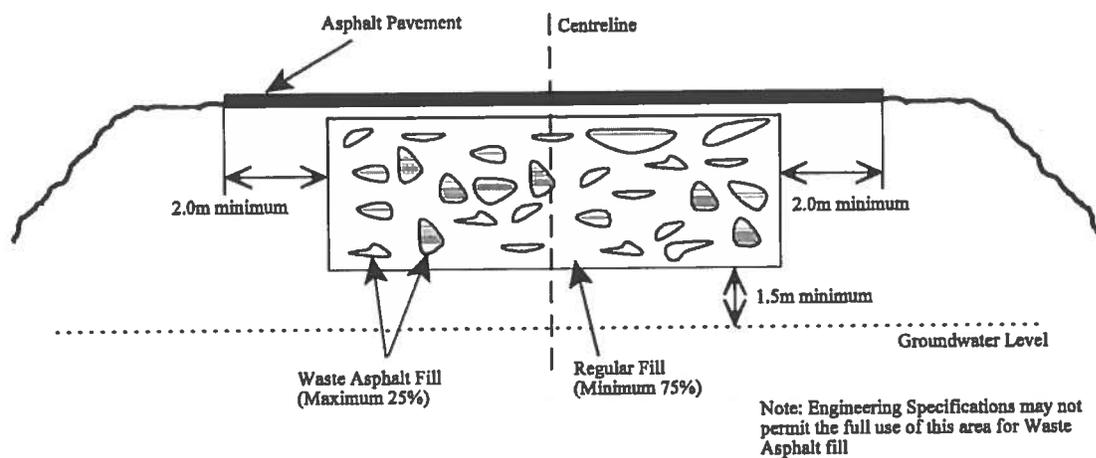


Figure 2: Permitted waste asphalt fill extent with respect to a body of water. Roadway parallel to water.

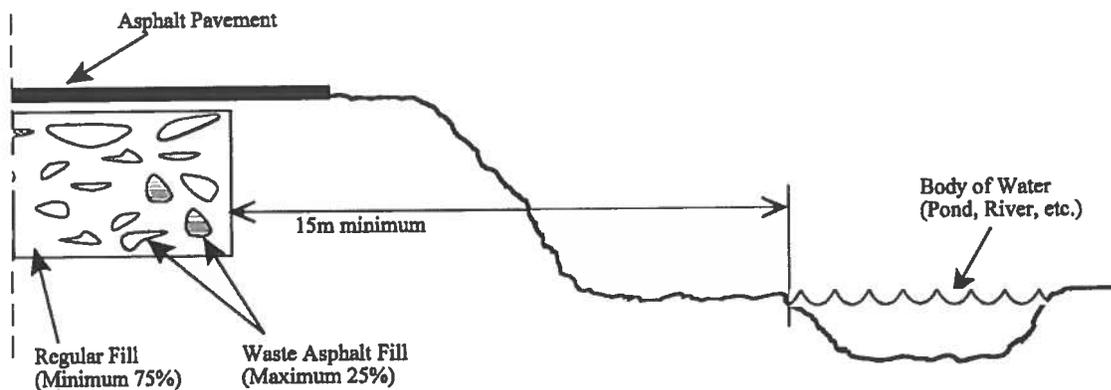


Figure 3: Permitted waste asphalt fill extent with respect to a body of water. Roadway perpendicular to water.

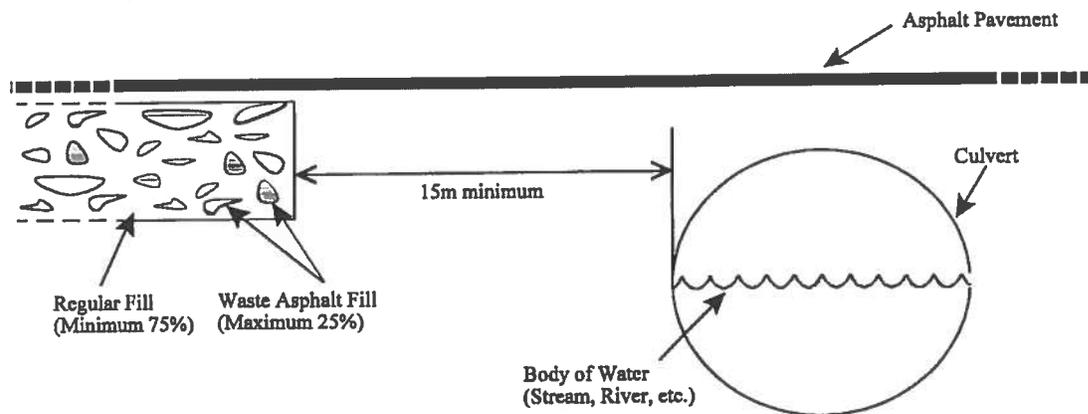
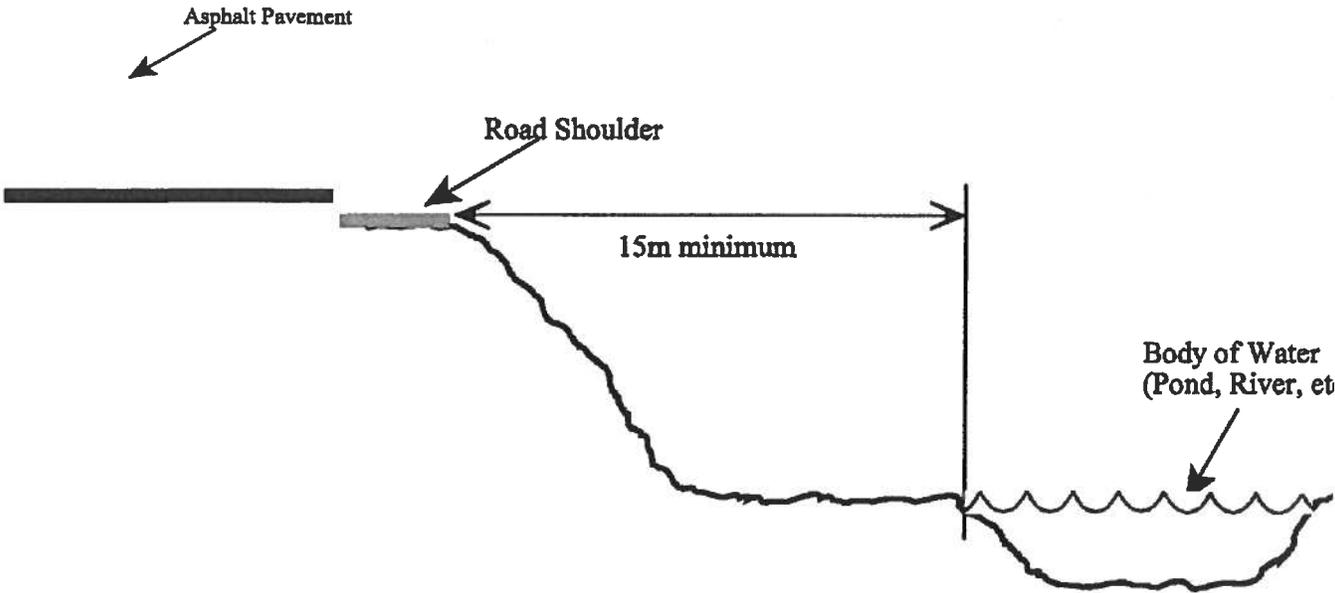


Figure 4: Permitted waste asphalt for road shoulder material extent with respect to a body of water. Roadway parallel to water.



## 9.0 WASTE ASPHALT STORAGE

### 9.1 Private Asphalt Recyclers

Private asphalt recyclers must notify the local Government Service Centre at least 14 days in advance of plans to store any more than 20 m<sup>3</sup> waste asphalt. Where private storage is less than 20 m<sup>3</sup>, the local municipal authority should be contacted. Privately stored asphalt is subject to the same siting requirements as for commercial storage.

### 9.2 Commercial Recyclers

Commercial asphalt recyclers must notify the local Government Service Centre of plans to store waste asphalt at least 14 days in advance. The notification shall comprise a 1:50,000 scale map indicating the location of the proposed site, along with a sketch orienting the site with bodies of water, landmarks, roads, and other distinguishing features. The type of equipment to be employed in the recycling, a description of the utilization of the waste asphalt, and the time frame involved should also be included.

A security deposit (made payable to the Consolidated Tenders Account, Province of Newfoundland and Labrador); or surety bond (made payable to the Ministry of Environment, Province of Newfoundland and Labrador) for the amount of at least \$5000 is required. The amount should be sufficient to cover the costs for site rehabilitation in the event of abandonment by the contractor.

Any equipment or process employed in the recycling of waste asphalt must comply with the *Air Pollution Control Regulations* and *Environmental Control Water and Sewage Regulations*.

### 9.3 Asphalt storage/recycling site requirements

The site requirements are as follows:

- not be located within a protected watershed area;
- be a minimum of 100 m from a body of water;
- not be visible from residential or commercial properties, recreational facilities, or public roadways; and
- have permission from the municipal authority if within municipal boundary.

### 9.4 Record keeping for waste asphalt storage and recycling

The operator of the waste asphalt storage site must record the amount and origin of waste asphalt stored and recycled, as well as the source of the waste asphalt, i.e. from pavement, or off-specification asphalt from either production or paving operations. When available, additional information on the source/supply of aggregate used in production of the asphalt should be noted. This information must be available to the NLDOE/ GSC representatives, and reported on an annual basis.

### 9.5 Inactive waste asphalt storage

If waste asphalt has not been recycled at a storage site within a three year period an official, in consultation with the operator, will determine whether the continued storage is appropriate. At this time, a plan for recycling the asphalt shall be provided to the department.