Highway Maintenance Specification Sections

1-130 Gravel Surface Grading and Reshaping

1-150 Highway Surface and Shoulder Gravelling

1-160 Highway Shoulder Maintenance

1-170 Road Base Maintenance

Available at:

http://www.th.gov.bc.ca/BCHighways/contracts/maintenance/Schedule_21_Maintenance_Specifications.pdf

5.2 Gravel Surface Management

Gravel surface management includes activities such as gravelling and grading of unpaved road surfaces and maintenance of road shoulders (on both paved and unpaved roads) as required to maintain good road conditions and ensure public safety on highways and roads.

Environmental Issues

Primary environmental issues relating to routine gravel surface management activities are summarized in the following table. It should be noted that site-specific conditions might present additional issues you will need to address in planning and undertaking your works.

Work Activity	Potential Environmental Impacts	Performance Standards and Legal Requirements
Patching and Sealing	May introduce sediment or other deleterious substances to a watercourse through runoff from newly placed or disturbed gravels	No release of any substance that could be deleterious (toxic) to fish or fish habitat (*Fisheries Act*, Sections 34(1) and 36(3)).
	May damage roadside watercourses, riparian vegetation or other significant habitats through the side casting of aggregate Introduction of non-native soils and vegetation may contribute to the spread of invasive plants	No harmful alteration, disruption or destruction of fish habitat without authorization (*Fisheries Act* Section 35(1)). No alteration of a stream unless authorized by an approval, licence, or order (*Water Act,* Section 9), or through a Notification (*Water Act* Regulation, Part 7). Ensure gravel sources are weed-free to control noxious weeds (*Weed Control Act*, Weed Control Regulation).

Work Activity	Potential Environmental Impacts	Performance Standards and Legal Requirements
Shoulder Maintenance	May introduce sediment or other deleterious substances to a watercourse through runoff from newly placed or disturbed gravels	No release of any substance that could be deleterious (toxic) to fish or fish habitat (*Fisheries Act,* Sections 34(1) and 36(3)).
	May damage roadside watercourses, riparian vegetation or other significant habitats through the side casting of aggregate Through introduction of non-native soils and vegetation may contribute to the spread of invasive plants	No harmful alteration, disruption or destruction of fish habitat without authorization (*Fisheries Act* Section 35(1)). No alteration of a stream unless authorized by an approval, licence, or order (*Water Act,* Section 9), or through a Notification (*Water Act* Regulation, Part 7).
Road Base Stabilization	May introduce sediment or other deleterious substances (dust control palliatives) to a watercourse through road base repair	No release of any substance that could be deleterious (toxic) to fish or fish habitat (*Fisheries Act,* Sections 34(1) and 36(3)).
	May contaminate surface waters, groundwater, and soils through improper storage or disposal of materials used as dust control palliatives	Reporting of any polluting substance spills (*Environmental Management Act,* Section 79(5)) and disposal of all waste materials in accordance with the *Act* (*Environmental Management Act*, Waste Disposal Regulation).

Environmental Best Practices

The following BPs are provided as guidelines to help you ensure your works are completed in compliance with the performance standards and environmental legislation. Please note that the general BPs provided apply for most work activities within this category; if BPs specific to the activity are available they are also noted below.

Regulatory Agency Contact

- Prior to beginning your gravel surface management activities, identify any sensitive habitat areas, including watercourses—streams, lakes and marine foreshores, found within your work area.
- Determine how much impact your required works will have on the identified areas. Are you placing gravel along a portion of road immediately adjacent to a watercourse? Are you planning shoulder stabilization works beside a lake or fish-bearing watercourse? Where will you place any excess gravel left on site after your re-grading works are complete? By asking these questions, you should be able to identify any planned works that may be of concern to regulatory agencies.
- Meet with the appropriate regulatory agency contact, as listed in Section 8, to discuss site-specific environmental protection measures. Refer to Section 7 for information on the Memorandum of Understanding with MoE, and the recommended protocol for maintaining regular communications with regulatory agencies.

Timing of Works

For most work activities within this category, the following general BPs apply:

- Works are preferably undertaken during periods of dry weather (e.g., summer) as this allows easier control of sediment. Typically this is also a less sensitive period for fish and wildlife than other seasons.
- If the work schedule requires working in the rain, take steps to ensure that appropriate site isolation and sediment controls are in place. Contain any disturbance you create and prevent the release of sediment-laden water or any other deleterious substances to nearby watercourses.
- If your maintenance activities require work instream (e.g., erosion protection as part of bank shoulder stabilization), you must schedule them to coincide with your region's instream work window. Contact your local MoE and DFO offices for further information on timing windows in your District.

Working in the Rain

Some gravel surface management activities are best scheduled after a rainfall, when road aggregate is damp, easier to compact and less likely to generate dust. While a little rain may be helpful, work should be halted if precipitation continues or increases. Under heavy rainfall, disturbed materials are more likely to release sediment and other deleterious substances to nearby watercourses.

Site Management

- When preparing your worksite and undertaking your maintenance works, minimize vegetation-clearing activities.
- When your works involve the disturbance of soils or the use of erodible materials (e.g., sands, topsoil), prevent the transport of sediment through the installation of appropriate erosion and sediment control BPs and devices.

Materials Storage

- Use temporary covers to keep erodible construction materials dry if they are stored on site near watercourses.
- Store hazardous materials (surface treatments, dust palliatives) in accordance with applicable regulations and ensure that deleterious substances are handled with care.
- Mix any hazardous materials to be used in a contained area to reduce the risk of contaminating soils or surface waters adjacent to the road surface.
- Clean equipment and tools off-site, if possible. Ensure that any wash water generated by cleaning tools and equipment is managed in a manner that will prevent its release to watercourses or road drains.
- Ensure all equipment used on site is well maintained and free of fluid leaks.

Waste and Materials Containment

- Have a spill response plan in place and spill kits on site.
- Where possible, sweep up loose material or debris. Any material thought to pose a risk of contamination to soils, surface water or groundwater

should be disposed of appropriately off-site. Any clean surplus material should be removed to an area where it will not enter any watercourse, ditch, or channel.

- Limit the application of surface treatments including dust palliatives to the road surface. Avoid over-spraying near watercourses and at watercourse crossings.
- Inspect sediment controls and wash water runoff areas regularly to ensure they are functioning. Repair as required.
- Consider the potential impacts of side cast materials. Avoid grading materials into roadside watercourses. If excess material is to be disposed of on the highway right of way, designate disposal sites away from sensitive habitats and watercourses. Ensure that materials are placed in a manner that will prevent their future introduction to any watercourse.

Key Information Sources

The documents and websites listed below are recommended resources for gravel surface management. They can provide examples of existing protocols and management strategies, as well as additional information on specific operational BPs (e.g., erosion and sediment control techniques).

MoT Technical Circulars:

Removal of Gravel from MoT Pits by Third Parties – MoT Technical Circular T-1/91

Dust Abatement Chemicals – MoT Technical Circular T-5/94

These and all other MoT Technical Circulars are available at:
http://www.th.gov.bc.ca/Publications/Circulars/Current_technical.asp

Locally Developed BPs (Provide any locally-developed BPs):

-
-
-

Other Resources:

Gravel License – Schedule 13 – Current Maintenance Agreement Schedules - Highway Maintenance Contracts. 2008. BC Ministry of Transportation and Infrastructure.
http://www.th.gov.bc.ca/BCHighways/contracts/maintenance/Maintenance_Agreements/SCHEDULE-13_10-Jan-06.pdf

Catalogue of Stormwater Best Management Practices. September 2005. Idaho Department of Environmental Quality.
http://www.deq.state.id.us/water/data_reports/storm_water/catalog/index.cfm

Storm Water Management Fact Sheet – Dust Control. Sept. 1999. US EPA. http://www.epa.gov/OW-OWM.html/mtb/dustctr.pdf

Gravel Roads: Maintenance and Design Manual. Nov. 2000. Skorseth, Ken and Ali A. Selim, Ph.D., P.E., US Environmental Protection Agency. http://www.epa.gov/owow/nps/gravelroads/

Recommended Practices Manual: A Guideline for Maintenance and Service of Unpaved Roads. Feb. 2000. Choctawhatchee, Pea and Yellow Rivers Watershed Management Authority. http://www.epa.gov/owow/nps/unpavedroads.html

Checklist for Environmental Protection Requirements

- ☐ Is your proposed work considered a "routine" maintenance activity? If not, approvals or permits may be required. Contact your local municipal, provincial, or federal regulatory agency staff.
- ☐ Has this project been discussed with local environmental regulatory staff? In addition to the BP information presented, other site-specific conditions may apply.
- ☐ Have site-specific environmental protection requirements been identified? List below:
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____