

Constructed Ditch FACTSHEET

CONSTRUCTED DITCH MAINTENANCE

This factsheet provides information on how to properly conduct maintenance works on constructed ditches. General considerations for all types of work are to:

- Do maintenance works in a dry ditch.
- Follow the timing windows as indicated in Factsheet 4 *Fishery Timing Windows for Maintenance Work in Constructed Ditches*.
- Install a control structure (or block the ditch downstream of the work) to prevent material from entering fish habitat.
- Follow the contact requirements as indicated in Table 1 Factsheet 3 *Agency Contact Requirements for Constructed Ditch Maintenance* if the ditch contains water.
- Refer to additional Guidelines and Best Management Practices in the reference section of the *Drainage Management Guide*.

Cleaning Subsurface Drain Tiles



Subsurface drain tiles may need to be maintained or flushed periodically due to the buildup of sediment or iron ochre. See factsheets:

543.200-1 *Maintenance and Checking of Performance of Subsurface Drainage Systems*

543.300-1 *Iron Ochre Problems in Agricultural Drains*

To minimize impacts on the watercourses downstream when cleaning drain tiles consider the following:

- Install a control structure (or block the ditch downstream) to prevent sediment and iron ochre from migrating into fish habitat.
- Install a sediment trap at the downstream end of the ditch to collect contaminated water. Pump the collected water into an area where it will not reenter the ditch. Clean the sediment trap prior to opening the control structure and allowing flow to proceed downstream.

-  **Iron Ochre Problems in Agricultural Drains**
-  **Maintenance and Checking of Performance of Subsurface Drainage Systems**

Sediment Removal

The preferred time to remove sediment is when the ditch is dry. Whether wet or dry, the ditch should always be blocked when maintenance work is done to prevent sediment from moving downstream. Also consider the following:

- Only remove sufficient material to keep the original ditch depth.
- Removed material should be placed in a location so that it cannot re-enter the ditch.
- If possible do work when the municipality is doing channel maintenance adjacent to your ditch.

Mowing

Quite often mowing of vegetation above the waterline is required to control blackberries, thistle, tansy ragwort or other noxious weeds.



Figure 1 Mowing a Ditch From One Side

Mowing Vegetation Along Banks

For constructed ditches that are wet year-round, the preferred time of year for mowing vegetation growth adjacent to constructed ditches is in winter when water levels are low. Mowing during fall/ winter allows for riparian vegetation to green up along the ditch during the summer months, providing shade to help keep water temperatures cool and to provide protective cover for juvenile salmonids and shade out instream vegetation.

Mowing Vegetation in the Ditch

If the constructed ditch dries each summer but is wet during winter, it should be mowed during the dry period to avoid the need to do a 'wet' clean out during winter.

Table 1 below is taken from Table 1 of Factsheet 3 in this series, *Agency Contact Requirements for Constructed Ditch Maintenance*. The table describes the notification (or approval requirements) for various types of vegetation removal, when maintenance work is done during the timing window.

Additional considerations for mowing include:

- Remove mowed material from the ditch so it does not reduce drainage efficiency.
- Prevent mowed material from reentering the channel as the decay of material can lower oxygen levels in the water thereby harming fish.

Table 1 Notification Requirements for Vegetation Removal on Wet Constructed Ditches			
Description	No Agency Contact	Ditch maintenance Form	DFO Authorization
Localized hand pruning of riparian vegetation above the high water mark. (does not include whole tree removal)	X		
Hand <i>cutting</i> of aquatic vegetation below the waterline.	X		
Machine mowing of emergent aquatic vegetation above the current waterline of the ditch	< 100m X	>100m X	
Hand removal of emergent aquatic vegetation from the bottom of the ditch. (i.e. emergent aquatic vegetation along the edges of the ditch is not disturbed)	< 100m X	>100m X	
Machine mowing of vegetation in the ditch bottom below the waterline			X
Machine removal of riparian vegetation on the north and east side of a constructed ditch (wet or dry) only for the purpose of constructing an access for channel maintenance. (<10m)		X	
Machine removal of riparian vegetation on the south and west side of a constructed ditch (wet or dry).			X
Large scale removal of riparian vegetation on constructed ditches (i.e. removal of trees and riparian vegetation beyond which is outlined in the conditions above).			X

See *Agency Contact Requirements for Constructed Ditch Maintenance*, Factsheet No. 3 in this series.

Procedures for Vegetation Maintenance on Constructed Ditches

The following information is not intended to be used for the removal of large scale vegetation such as land clearing. Standards and guidelines for large scale vegetation removal in agricultural areas are being prepared.

Some forms of vegetation removal on constructed ditches are allowed with minimal or no agency contact. See Table 1.

- Hand cutting and/or hand removal of instream or riparian vegetation is the preferred method for vegetation maintenance. Hand maintenance is area specific and enables selective clearing where necessary instead of whole scale cutting or removal of vegetation.
- Pruning of vegetation should be undertaken during the fall or winter months so that vegetation shades the water during summer to help keep water temperatures cool.
- All grass cuttings or fallen debris from hand-cutting or pruning should be cleared from the ditch to prevent flow blockages and to prevent decaying material from reducing oxygen levels in the water and harming fish.
- Removal of riparian vegetation, for example shrubs, to create openings for access and/or sight lines for channel maintenance activities should only be undertaken on one side of the channel, preferably the north or east sides. Vegetation on the south and west sides should be left, if possible, to provide shading for the watercourse. The vegetation removal area should only be wide enough to allow access of equipment to conduct maintenance. Vegetation removal should be minimized as much as possible.
- If clearing and grubbing activity is undertaken in or about the ditch, the work must be conducted and completed in such a manner as to prevent the release of silt, sediment or sediment-laden water, or other deleterious substances from entering the ditch. See *Sediment Control*, Factsheet No. 9 in this series.
- Maintain the integrity of the ditch by keeping the vegetation roots in place and bottom and bank side slopes intact.
- Mowing does not include the removal of shrubs and/or trees.

Requirements for Managing Noxious Weeds

“Noxious weeds” refer to only those weed species legislated under the British Columbia *Weed Control Act* administered by the Ministry of Agriculture, Food and Fisheries. The Act states: “*Every occupier shall control, in accordance with the regulations, noxious weeds growing on land and premises, and on any other property located on land and premises, occupied by him.*”

This means that private landowners, private companies, utility companies, regional districts, municipalities, and provincial government agencies or anyone in physical possession of land and having control over the activities conducted on that land all have a statutory responsibility to control legislated noxious weeds. Land occupiers may also have a non-statutory responsibility under common law if noxious weeds create a nuisance by spreading to adjacent land thereby causing some injury.

The Act currently designates forty-eight (48) plant species as noxious weeds. Twenty-one (21) weeds are listed as noxious within all regions of the province. A further twenty-seven (27) are classified as noxious within the boundaries of specific regional districts.

All of these species are foreign plants that are responsible for reductions in crop yield and quality and lead to environmental degradation through destruction of native plant and animal habitat. Weeds also harbour insects and diseases of crops, create unsafe conditions, reduce property values and the aesthetics of an enjoyable landscape. Many can poison humans, livestock and wildlife.

If using herbicides to manage noxious weeds, be aware of federal and provincial legislation that regulates pesticide applications and protection of fisheries, wildlife and riparian habitats.

Contact the Ministry of Water, Land and Air Protection, Environmental Division for more information on regulations pertaining to applying herbicides.

Maintenance of Pumps Screens and Weirs

Irrigation and drainage pumps, as well as water control structures such as weirs, may be located in or connected to constructed ditches.

These facilities should be inspected regularly and maintained as required. Irrigation pumps, diversion structures and weirs licenced under the *BC Water Act* are authorized to be serviced or maintained by the licence. Drainage pumps and other instream facilities may not be covered by a licence under the *Water Act* but can be maintained and serviced following best management practices.

Conduct maintenance using the following practices:

- If possible, install a silt screen to keep fish away from the area while maintenance work on the drainage pump intake or sump area is being done.
- Debris that is removed from pump screens and weirs should be placed far enough away from the ditch bank so that the material cannot inadvertently reenter the ditch.
- For gas combustion engines, the pump motor should be located in a manner to prevent fuel from entering the watercourses in the case of a spill.

Contact Information

Agency Contacts, Factsheet No. 19 in this series contains a list of local agency contacts and other organizations that may be able to provide some assistance.

Additional Information

Removal of Sediment, Debris or Vegetation From a Stream. Environmental Stewardship Standards and Recommended Best Practices Instream Works Type No. 9. Ministry of Water, Land and Air Protection. February 2002.

Standards and Best Practices for Instream Works

 <http://wlapwww.gov.bc.ca/wld/BMP/bmpintro.html>

Further information on legislated noxious weeds and their management can be obtained from the Ministry of Agriculture, Food and Fisheries and from the following web sites:

 <http://www.weedsbc.ca/>

 <http://www.agf.gov.bc.ca/cropprot/weeds.htm>

Two references, *Guide to Weeds in British Columbia* and *Seven Steps to Managing Your Weeds – A Manual for Integrated Weed Management in British Columbia* can be purchased from the Open Learning Agency, 4355 Mathissi Place, Burnaby, BC V5G 4S8.