

SOP Title: FO – SOP 27 Watercourse Classification and Buffer Measurement

Purpose

The purpose of this procedure is to:

- i. outline a consistent procedure to classify watercourses;
- ii. outline the required documentation to backup watercourse designations
- iii. outline process to measure buffers on watercourse channels and lakes

For an accurate reference to watercourse classification, please refer to the Operating Ground Rules that are relevant in your forest area.

Definitions

Buffer – used in several contexts. In this context, it is a strip of land between 2 areas under different management regimes. Streamside buffers are used to limit the effects of logging on creeks, such as siltation, loss of shading, loss of nutrient inputs from trees and degradation of riparian zones. The size and composition of the buffer zone depends on the intended function.

Braided streams – a stream pattern formed by a network of interlaced stream channels separated from each other by islands or bars of bedload material – (Dictionary of Natural Resource Management).

High water mark – stream course water levels corresponding to top of the unvegetated (may also be transition where hydrophytic vegetation ends and terrestrial vegetation begins) channel or lakeshore.

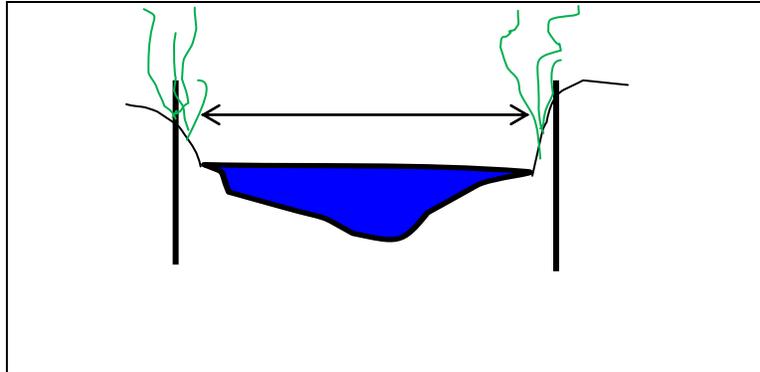
Watercourse – the bed, bank or shore of a river, stream, creek or lake or other natural body of water, whether it contains or conveys water continuously or intermittently.

Procedure

A. Watercourse Classification

1. Forest Officers do not have to measure every watercourse in an opening; this can be completed via an ocular assessment. However, if a Forest Officer notes a problem and calls a variance on watercourse classification, the steps indicated below **must** be followed.
2. If there is no variance, then the Forest Officer should note in the comments of the FOM inspection form (under Riparian category) e.g. “Watercourse classification as per approved plan and OGR’s”.

Figure 1 – Watercourse width measured from high water mark (HWM) to HWM



3. The channel width measurement is from high water mark to high water mark, to the nearest cm. (see Figure 1)
4. The channel width is the horizontal width of the channel between high-water marks (mean or annual), or the rooted (or terrestrial) vegetation on the banks, measured at right angles to the direction of flow. Multiple channel widths (or braided streams) are summed to represent total channel width measured from where the channel bank begins to slope down towards the channel bottom across to the same point on the opposite bank.
5. Companies do not have to document watercourse classification measurements when going with larger/higher classification.
6. Companies should document watercourse classification measurements if they feel the classification may be questioned. For example, if the watercourse shares characteristics of two different levels of watercourse, and company has chosen the lower order watercourse.
7. In the event the watercourse classification is not distinctly evident, the width of the channel shall be determined by the average of the recorded measurements taken at approximately 50 meter intervals at a minimum of **four** representative points of undisturbed stream channel over the length of the watercourse bordering the block.
8. A representative point is to capture the average channel width. The average channel width is NOT represented when any of the following characteristics are present:
 - a. a scour pool or backwater created by debris
 - b. a bend or sharp curve in the channel
 - c. “unusually wide or narrow” portion of the channel
 - d. the measurement should not extend below the bank i.e. to the edge of the undercut bank
9. There are cases where the 50m interval can be increased or decreased (for example in some cases a watercourse may only be 50m long), as long as pictures are taken, locations of measurements flagged intervals are consistent, and photographed.

Be advised that if watercourse classification is in question, ESRD measurements will be considered the source of truth.

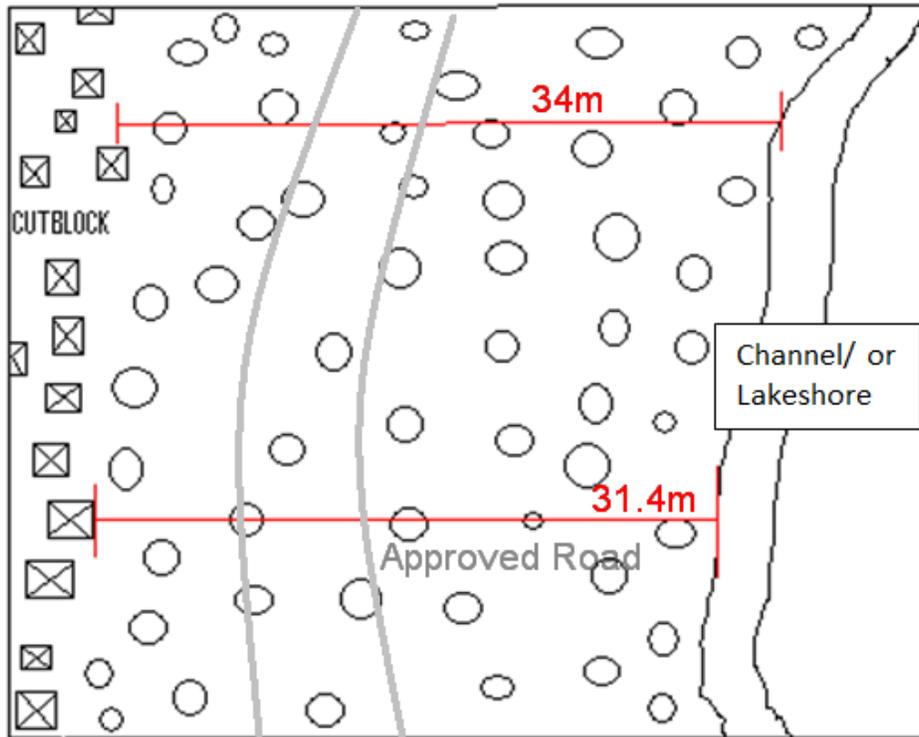
10. To better reference the scale of the photo, include a carpenter's tape or scale stick with a specified length. These locations should be GPS'd or otherwise accurately mapped (ie. reference point clearly flagged in the block).

11. In the event of a dispute between a company and ESRD regarding watercourse classification, both parties will share their documented measurements, photographs and maps. If they cannot come to agreement using these, they may schedule a field inspection. If they are unable to agree after this, and no enforcement is proposed, ESRDs call will stand and based on this inappropriate protection would be noted as a variance. If enforcement does result, the Delegated Authority determines the classification based on the strength of evidence presented.

B. Buffer Measurement for Watercourses and Lakes

1. Forest Officers do not have to measure every buffer in an opening; this can be completed via an ocular assessment. However, if a Forest Officer notes a problem and calls a variance on riparian buffer width, the steps indicated below must be followed.
2. Obtain at least 4 buffer width measurements along the length of the buffer to be assessed. These do not have to be at set intervals unless a variance is suspected. If a variance is suspected, the measurements should occur in equal increments along the distance in question. **E.g. a 40m portion of the buffer appears inadequate, so the measurement interval should be 10m along this portion.**
3. Each measurement is to be taken perpendicular (90°) from the orientation of the channel or lakeshore.
4. The measurement is taken from where terrestrial vegetation starts (high water mark). The end measurement is at the first harvested tree in the opening adjacent to the buffer. Total horizontal distance and comments with respect to vegetation types should be recorded on FOM form. Based on the very nature of topography and road layout configuration, there are cases where a riparian buffer width might be slightly less or more than is required within the OGR's.

Figure 2 – Buffer measurement on watercourse/lake



5. At each measurement site, use flagging to mark the measurement start location as well as measurement end location. Start and end locations are to have a GPS point taken.
6. Each location is to have flagging with a unique identifier written on it with permanent marker: Recommend using at a minimum:
 - i. Block number
 - ii. Buffer number
 - iii. Measurement Station Number
 Example: **Block 2422 - Buffer #1 - Station 1**
7. Rangefinders, GPS units, and Topofil may be used as coarse measurement tools. If you require more precise measurements, fiberglass 50 or 100 meter tapes provide the most accurate measurements. Rangefinder measurements require only a start location that is flagged and a GPS point taken.
8. Photographs may be taken if there is an item of interest to note; photographs are always taken if there is a variance to the approval conditions.

Records:

Records can include maps / GPS locations, actual channel width measurements and photos by watercourse type.

Revision History				
Revision #	Revision Date	Revision Reason	Reviewed by	Approved by
5.0	May 1, 2010	Annual program review and text edits		Chris Valaire
6.0	July 1, 2010	Numbering		Andre Savaria
7.0	April 28, 2011	Annual Document Review		Darren Fearon
8.0	May 1, 2012	Annual Document Review	Jamie Bruha/Darren Fearon	Robert Popowich
9.0	May 1, 2013	Annual Document Review	J. Koch	Robert Popowich
10.0	April 8, 2014	Add standard for measuring buffers on watercourses and lakes	D.Fearon/A. Savaria	Robert Popowich
11.0	September 30, 2015	Added Forest Officer reference; clarified buffer measurement in horizontal distance	Darren Fearon	Robert Popowich