



Technical Note

Pre-disturbance Assessment

Introduction

Successful reclamation of disturbed forest landscapes requires the establishment of native herbaceous and woody plant communities. The goal is to restore the site to a state that resembles the pre-existing plant community. ASRD defines equivalent capability of forested lands as ‘the condition in which the ecosystem processes are functioning in a manner that will support the production of ecosystem goods and services consistent in quality and quantity as was present prior to disturbance.’ Success therefore involves a comparison of the pre-existing landscape with the reclaimed area.

This section will provide information on the data that must be collected prior to the construction of the wellsite, as well as some best practices that are emerging. The assumption used is that all permits and access requirements are in place, consultation has been completed and other land use conflicts have been resolved prior to field visits to look at the sites.

Site Assessment

The pre-disturbance assessment shall sample all the points prior to building the wellsite providing pre-disturbance information. The restoration and reclamation phases would use this information when implementing their programs. Accurate data will enable those future phases to provide more successful treatments. The assessment should contain some basic information on a broad range of data specific to that disposition. Sites should be assessed for landscape, vegetation and soil parameters.

- **Landscape Assessment:** The following parameters should be recorded:
 - Surface water flow direction
 - Subsurface water flow direction
 - Riparian areas
 - Soil stability: erosion, slumping
 - Bare areas

- Operability
- Woody debris

Major issues such as watercourses, poor drainage or water source areas should be noted either as part of the Environmental Field Report form (EFR), or pre-disturbance Record of Observations (RoO). If drainage issues will be a problem, plan for methods of getting the water around the wellsite, or consider moving the location of the well. It may be easy to divert the water while the wellsite is operational, but erosion or slumping will be a problem when restoring the well to its original contours.

- **Vegetation Assessment:** detailed vegetation inventory should be completed and include:
 - Plant community: Tree layer, shrub layer and herbaceous layer.

It is strongly recommended to use the Environmental Field Report form (EFR) for this purpose. If no pre-disturbance site assessment is planned, then more detailed vegetation should be collected at this time using similar forms. This will enable the reclamation specialist to understand what the site was like prior to disturbance and may use the information to reduce the amount of cost involved at that stage. Especially important is to document variability in the site, along with a map of where that variability exists.

- **Soils Assessment:** The basic soil information to collect includes vertical soil profile: texture and structure.

As specified in the handbook (ASRD, 2004), a soil survey should be completed before any disturbance to determine the appropriate soil handling techniques. To prevent soil degradation, the timing of soil salvage should be carefully considered and the equipment should be appropriate for the specific soil removal situation. Poor construction techniques can result in increased reclamation efforts (costs).

The Environmental Field Report form (EFR) is a good tool to use at this stage but gathering more detailed information would certainly help reduce reclamation costs at the back end. Once again, if a pre-disturbance Record of Observation (RoO) will be completed this information will be collected at that stage. If not, similar information should be collected at the EFR stage.

This detailed information should be used to prepare a Soils Management Plan. This plan would use the information collected to prescribe the number and depth of lifts, of placement of soils strippings, along with a reason for the decision and a plan to deal with stripping piles.

Sketch of the site

A sketch of the site and photography are required to illustrate soil, vegetation and landscape attributes. The following is an example of such sketch.

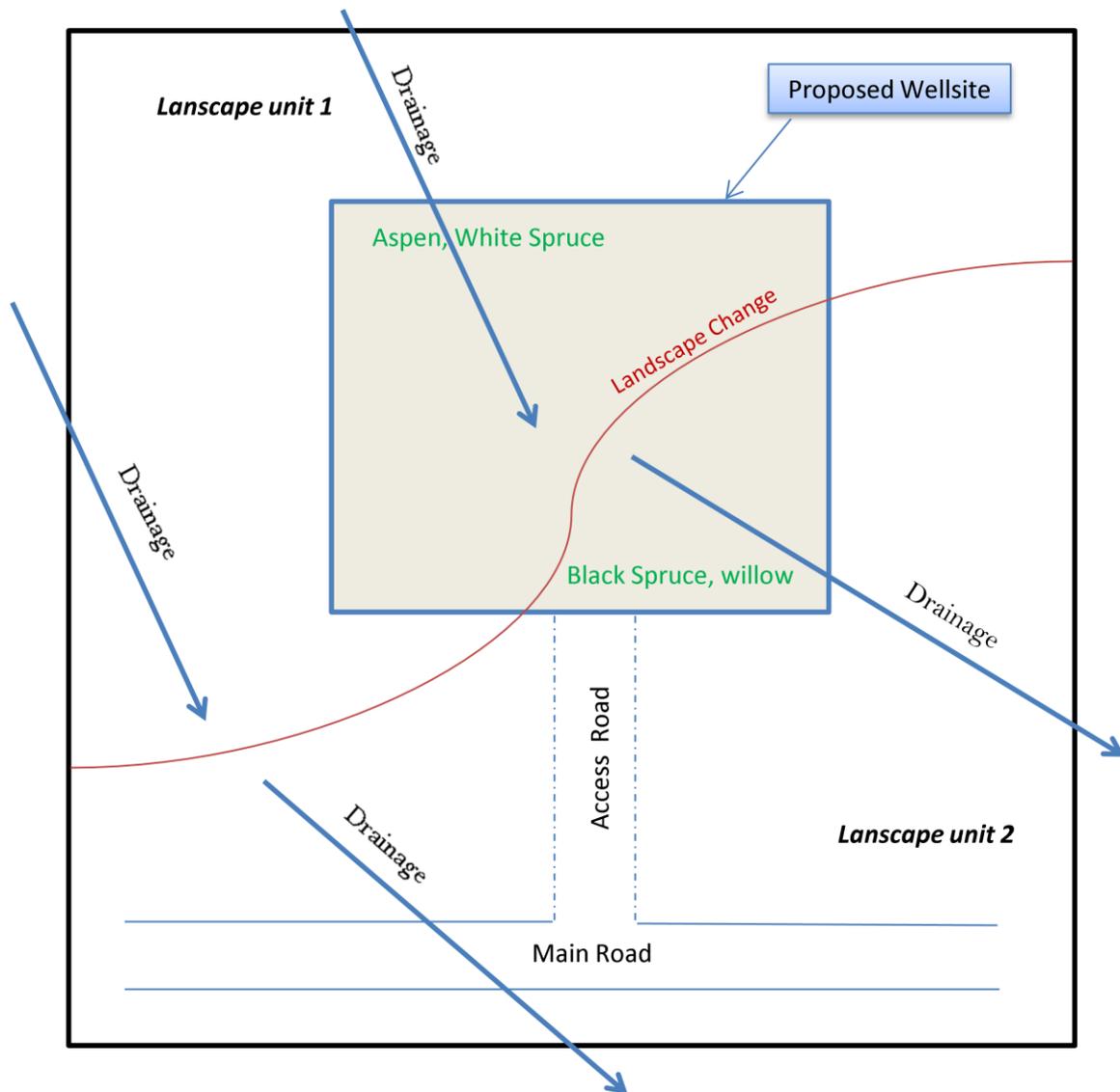


Figure 1: Example of Lease with natural features. Adapted from ASRD (2010): Detail Site Assessment, Record of Observations.

The following documents provide a very detailed assessment of the site. Soil pits and vegetation information are collected in a systematic fashion determined by the type and shape of the disposition:

- Environmental Field Report (EFR). This form or an Area Operating Plan (AOA) must be filled out for every public land disposition. Note any significant issues that may impact construction and reclamation phases.
(www.srd.alberta.ca/MapsFormsPublications/Forms/LandsForms/Default.aspx)
- Public Lands Operational Handbook: Reading and understanding the relevant sections of the Public Lands Operating Handbook will provide a better understanding of the requirements.
(www.srd.alberta.ca/MapsFormsPublications/Publications/IZ.aspx)
- 2010 Assessment Tool and Record of Observation: A Pre-Disturbance Detailed Site Assessment properly filled out will provide future operations to be more effective.