

## **SCHEDULE B**

### **SITE RECLAMATION REQUIREMENTS**

**THIS SCHEDULE B** is made as of this 8th day of December 2017 *and cancels and replaces the SCHEDULE B entered into between the ALC and the OGC dated June 13, 2013.*

All sites developed after 1995 must meet the following criteria unless the Qualified Specialist completing the report concludes that there is appropriate rationale for not fully applying them to an individual site or portion of a site as outlined below. Sites developed prior to 1995 must also submit a Schedule B report containing the same information but will not be as rigorously reviewed.

The purpose of the following requirements is to ensure that the soil, topography, and vegetation of surface leases and pipelines are restored to an equivalent condition and capability after wells have been decommissioned and pipelines have been installed. Surface lease means all leases, easements, and rights-of-way that may be required for a well site, access road, pipeline, camp, workspace, sump, borrow pit and/or any other area related to oil and gas production. The requirements do not address site contamination and the disposal of wastes as these matters fall under other legislation and/or government agencies.

These reclamation requirements are intended to provide the flexibility to respond to practical realities of differing site characteristics and soils. There is room for interpretation of the Schedule B assessment criteria based on site specific issues and the professional judgement of the Qualified Specialist hired to carry out the assessment. Schedule A Reports will be used as part of this review process as a baseline for pre-development information.

#### **Schedule B Report Required**

A Schedule B Report must be submitted according to the timelines specified in 4.3.4 or 6.3.4 of the Delegation Agreement. The obligation to submit a Schedule B report will not be considered met until all required reclamation on the site is declared complete. Satisfying this requirement will require the submission of multiple reports if all areas requiring reclamation cannot be declared in the initial report. Reporting requirements vary depending on whether or not reclamation on the site or a portion of the site is being declared as met. Where only a portion of the site is being declared as reclamation complete, reporting on both the reclamation complete areas and those areas where reclamation is not complete can be combined in the same report provided the information requirements applicable to each are met. For areas where reclamation is not declared complete, future reports will only need to address the undeclared area and not the entire site.

## **Required Content of a Schedule B Report**

### **A. For Areas Where Reclamation is Not Being Declared Complete**

If through a visual analysis or more detailed assessment it is determined that reclamation has not been achieved on the site or a portion of the site, the following information must be provided. If more detailed information on the area(s) has been collected, it can be submitted in the report at the discretion of the Qualified Specialist preparing the report:

#### **1. Site Information:**

- well name/legal and well site approval number or pipeline location (well to well)
- date of construction
- petroleum company name contact information
- location and legal description of property(s)
- name and contact information of surface landowner or specify if Crown land
- date of reclamation
- date of site inspection
- name and address of person conducting the site assessment
- An area summary identifying:
  - a. the total area of the site where reclamation has been declared complete
  - b. the total area of the site where reclamation has not been declared complete
  - c. the total area of the site where reclamation is not required
  - d. The total area of the site
- A map showing the site and the location of each of the areas specified in a to c above

#### **2. Assessment of Failure to Achieve Reclamation:**

Provide a brief assessment of the reasons why reclamation was not achieved on the area identified.

#### **3. Remedial Reclamation Plan:**

Provide a plan to complete reclamation for any areas where reclamation was not identified as complete. The Plan must identify specific planned actions and associated timelines, designed to ensure reclamation is completed expeditiously.

**B. For Areas Where Reclamation Is Being Declared Complete**

**1. Site Information:**

- well name/legal and well site approval number or pipeline location (well to well)
- date of construction
- petroleum company name contact information
- location and legal description of property(s)
- name and contact information of surface landowner or specify if Crown land
- date of reclamation
- date of site inspection
- name and address of person conducting the site assessment
- An area summary identifying:
  - a. the area of the site where reclamation has been declared complete in the report
  - b. the total area of the site where reclamation has declared complete in previous reports, including the date of that previous report, if any
  - c. the total area of the site where reclamation is not required
  - d. The total area of the site
- A map showing the site and the location of the areas being declared complete in the report and any areas of the site where reclamation is not required.

**2. Soil Assessment:**

- a) A visual analysis of each soil test pit must include the following information:
  - Sample number
  - Surface soil depth
  - Soil disturbance (admixing 0-10%, 10-20%, 20-30%, 30-40%, 40-50% and >50%);
  - Texture
  - Coarse fragment content (% of volume)
  - Colour
  - Consistence
  - Structure
- b) A map showing test pit and control sample locations.
- c) Summary of assessment results conformance to the Soil Reclamation Standards

**3. Topographic Assessment:**

Summary of site's conformance to the Topographic Reclamation Standards.



#### **4. Revegetation Assessment**

Summary of site's conformance to the Vegetation Reclamation Standards.

#### **5. Photographs:**

Photographs must be taken which show the condition of the surface lease, associated developments and pipelines after reclamation. Each photograph should have noted with it the location, direction and any comments.

#### **6. Overall Summary:**

A short summary statement suggesting a pass or fail, comments on where criteria have not been met and if this will have a negative impact on the use of the land for agriculture and/or what should be done to remedy the problem areas. Any landowner/occupant comments or requests should be noted.

### **Schedule B Assessment Procedures and Reclamation Standards**

#### **Definition of Surface Soil:**

For the purposes of Schedule B, surface soil means the soil that has been salvaged, amended, and replaced onto the surface lease.

#### **Soil Test Pits and Sampling Procedures:**

Soil test pits must penetrate 20 cm below the surface soil, or to a maximum depth of 50 cm.

##### ***a. Well Sites, camps, borrow pits, facility sites***

Soil test pits are not required for portions of the surface lease where soil disturbance has not occurred. Disturbance includes, but is not limited to, stripping, rutting, trenching, compaction, and erosion.

The quantity and quality of the replaced surface soil on a surface lease must be assessed using a minimum of 100 metre x 100 metre survey or a minimum of five (5) soil test pits; more may be necessary based on site conditions. The edges of the grid should correspond to the boundaries of the surface lease, and grid should be adjusted to evenly cover the entire lease. A soil test pit must be advanced from the middle of each 100 m X 100 m grid in the surface lease.

Where a Schedule A Assessment is not available for reference, a minimum of four (4) control soil test pits must be taken from adjacent undisturbed ground; one each from the center point of each side of the surface lease.

### ***b. Access Roads and Pipelines***

The quantity and quality of replaced surface soil must be assessed at 250 m intervals for roads and pipelines > 250 m in length. A minimum of two (2) soil test pit locations are required for roads and pipelines less than 250 m in length (one at the terminus and one at the midpoint). This is the minimum number of soil test pits; more may be necessary based on site conditions.

Two soil test pits are required for each location. One test pit must be advanced at the centerline of the access road or advanced from the disturbed ground over a pipeline. The second test pit must be advanced in the undisturbed ground a minimum of 10 m outside the boundary of the surface lease.

#### **Soil Reclamation Standards:**

The following minimum reclamation standards must be met:

### ***a. Depth of Surface Soil***

#### ***Well sites, camps, borrow pits, facility sites***

- the required replacement depth (RRD) of surface soil is 80% of the depth of the average A horizon on the adjacent undisturbed ground.
- the average replacement depth (ARD) is the average depth of all the surface soil samples. The ARD must be equivalent to or greater than the RRD.
- the minimum replacement depth (MRD) is 80% of the RRD. All surface soil samples must be 2: the MRD, except for surface leases which were originally covered by native trees or shrubs or where the average A horizon depth on the undisturbed ground is <10 cm,
  - Sites which were covered by trees or shrubs may have three surface soil samples, which are not adjacent, that are  $\geq 40\%$  of the RRD.
  - The MRD requirement does not apply where the average A horizon depth on the undisturbed ground is <10 cm, but the available surface soil must be replaced as evenly as possible across the entire surface lease.

#### ***Access Roads and Pipelines***

- the RRD of surface soil is 80% of the adjacent control.
- the ARD must be equivalent or greater than the RRD
- the MRD does not apply to linear disturbances, however the expectation is that topsoil would be evenly disturbed

**b. Mixing of Soil Horizons**

- the average admixing of the assessed surface soil samples must not be greater than 30%. That is, the average of the assessed surface soil must be composed of less than 30% of non-surface soil (B horizon).

**c. Soil Structure**

- the average bulk density of the subsoil of the disturbed ground location must not be more than 120% of the average bulk density of the subsoil of the undisturbed ground.

**d. Stoniness/Coarse Fragment Content**

- the coarse fragment content of the surface soils must be less than or equivalent to pre-disturbance/adjacent conditions.

**e. Topographic Reclamation Standards**

- The topography of the surface lease must be restored to its original or better condition. The reclamation of the surface lease is to be assessed by comparing the reclaimed site, as a whole, with adjacent undisturbed ground. The following requirements must be met:

Criteria:	Requirement:
Drainage	<ul style="list-style-type: none"><li>▪ Surface drainage must be consistent with the original natural drainage patterns, directions, and capacity, or be compatible with the surrounding landscape.</li><li>▪ Facilities and structures left in place must not impede natural surface drainage and water flow.</li></ul>
Erosion	<ul style="list-style-type: none"><li>▪ The frequency and extent of erosion features must be similar to adjacent undisturbed land.</li></ul>
Contour	<ul style="list-style-type: none"><li>▪ The contour of the surface lease must conform to adjacent land or be consistent with present or intended land uses.</li></ul>
Stability	<ul style="list-style-type: none"><li>▪ No visible evidence of slope movement, slumping, subsidence, or tension cracks are allowed.</li></ul>



Gravel and Rocks	<ul style="list-style-type: none"> <li>May not be piled, windrowed, or concentrated in one area unless it improves the agricultural capability of the surface lease.</li> </ul>
Debris	<ul style="list-style-type: none"> <li>No industrial or domestic debris is allowed.</li> <li>No large wood debris that could be removed with a brush rake is allowed for cultivated land, unless permitted in writing by the landowner.</li> </ul>

#### **Vegetation Reclamation Standards:**

Reclamation of a surface lease includes restoring vegetation by either replanting native vegetation or applying a suitable seed mixture. Preventing soil erosion, and preventing an increase in the distribution of weeds, should be the main criteria when choosing a seed mixture.

The reclamation of the surface lease is to be assessed by visually comparing the reclaimed site, as a whole, with adjacent undisturbed ground. The following requirements must be met within 24 months of applying the seed mixture or introducing vegetation:

Criteria:	Requirement:
Species	<ul style="list-style-type: none"> <li>Seed mixtures must not increase the frequency or distribution of any weed species on the surface lease or on adjacent undisturbed ground.</li> <li>Seed mixtures must include species that are adapted to the climate and soil conditions of the Peace River region of British Columbia. (contact your local Ministry of Agriculture office if you require information or assistance)</li> <li>Native species must be similar to vegetation which would occur naturally on the undisturbed ground.</li> </ul>
Density	<ul style="list-style-type: none"> <li>≥80% of the density on adjacent undisturbed ground. This criteria only applies to cultivated land</li> </ul>
Height	<ul style="list-style-type: none"> <li>≥80% of height on adjacent undisturbed ground. This criteria only applies to cultivated land</li> </ul>
Health	<ul style="list-style-type: none"> <li>Plants should be healthy based on a visual inspection of their vigour, height, and colour.</li> </ul>
Cover	<ul style="list-style-type: none"> <li>The vegetation must cover ≥80% of the soil surface.</li> <li>Vegetation on the reclaimed site must be evenly distributed, or be similar to the distribution on the undisturbed ground.</li> </ul>


#### **Signature:**

The Schedule B report must be signed by a Qualified Specialist (or specialists if more than one).

SIGNED THIS 8<sup>TH</sup> DAY OF DECEMBER, 2017

PROVINCIAL AGRICULTURAL LAND COMMISSION,


as represented by: Frank Leonard, Chair

  
A handwritten signature in black ink, appearing to read "Frank Leonard", is written over a horizontal line.

I have authority to sign this Schedule B on behalf of the  
Provincial Agricultural Land Commission

OIL AND GAS COMMISSION,

as represented by: Paul Jeakins, Commissioner

  
A handwritten signature in black ink, appearing to read "Paul Jeakins", is written over a horizontal line.

I have authority to sign this Schedule B on behalf of the Oil  
and Gas Commission