Example Soil Sections (Resource Category 2)

Soils Example 1

Resource assessment

Soil type

There is only one soil type on the property: Alderwood gravelly sandy loam, 0 to 15 percent slopes.

Parent material

Parent material is glacial drift and/or outwash over dense glaciomarine deposits. Glacial drift refers to basal and/or ablation till. The presence of a restrictive layer indicates basal till is present. Glaciomarine deposits would have resulted from saltwater intrusion when the weight of the glacier depressed the continental land mass below sea level.

Drainage

The soil is moderately well-drained with low water storage available in the profile, and an average depth of 20-39” to a restrictive layer (likely basal till).

Erosion hazard

Road/trail erosion hazard is rated as slight.

Compaction and rutting hazards

Rutting hazard is moderate, and compaction resistance is low.

Site index

The Douglas-fir 50-year site index rating is 111, which means that dominant Douglas-fir trees on the site are expected to be 111 feet tall at age 50. Site index 111 corresponds to Site Class III, which is moderate productivity.

Planting and seedling mortality

The soil is moderately suited for hand planting due to rock fragments. Potential for seedling mortality is high with available water being the limiting factor.

Management recommendations

Any forest health management activities such as thinning will be performed in such a way as to minimize disturbance of the soil. Foot traffic and equipment use will be limited to the dry season due to the high risk of rutting and compaction. When planting, extra seedlings will need to be planted and drought tolerant species favored due to the high seedling mortality potential.

Soils Example 2

Resource assessment

Soil type

The soil type on the property is Chuckanut gravelly ashy sandy loam, with varying percent sloping, with parent material of volcanic ash mixed with colluvium derived from sandstone over dense glacial till.

Drainage

The depth to any restrictive layer is 142”. Depth to water table is listed in the soils report as over 200”, but walking the property we have found a wetland in Stand 1 and Stand 3 has soggy areas in the winter season. The ponding frequency in the soil resource report indicates none but field data indicates it is frequent

Erosion hazard

Erosion Hazard for off road/off trail is moderate to severe depending on slope degree. Erosion for road and trail is severe

Compaction and rutting hazards

Soil rutting hazard is severe. Compaction hazard is medium according to the soil resources report, but it may be more severe in the wetter pieces of the stands.

Site index

The Web Soil Survey report indicated that the property has a 50-year Douglas-fir site index (King 1966) of 130. This means that dominant Douglas-fir trees are expected to be 130 feet tall at age 50. This corresponds to Site Class II, which is moderately high productivity. From field data it also appears the soil is also very productive for red alder, bigleaf maple, western redcedar, and western hemlock, which are all comfortable growing in wetter soils. Douglas-fir should not be planted in lower wetter areas of stand 1 and 3.

Planting and seedling mortality

The suitability for hand planting is moderate to well suited, based on slope. There is poor suitability for mechanical planting due to rock fragments and sloping. The potential for seeding mortality is moderate due to available water capacity.

Other suitabilities

The suitability for use of harvesting equipment is poor due to slope. The suitability for construction of haul roads is moderate to severe based on slope. The suitability of log landings is poor due to slope and rock fragments

Management recommendations

Areas of Stands 1 and 3 can be wet, but our planned activities are not likely to be in conflict with this. Ground-based equipment operations should avoid the rainy season to avoid causing compaction (which can then lead to surface erosion and ponding). Our property can all be operated on from the existing road and yard area. A road maintenance plan and schedule addresses surface drainage. Competing vegetation can be severe so monitor for signs of stress to regeneration trees caused by other vegetation or invasive species. Monitoring for signs of stress due to this competition will require removing vegetation where needed. Species for future planting should be a mix of dry tolerant and wet tolerant trees, based on the height of the slope that they are planted.

Soils Example 3

Resource assessment

Soil type

Our property has a 12% slope, increasing in elevation from 230 feet to 400 feet; it lies east-west on the western slope of a north-south ridge that is the remnant of a glacial moraine. The soil is composed of 90% Indianola-Uselessbay complex (5%-30% slopes) and 10% Uselessbay-Utsalady complex (0-10% slopes). The overall composition is approximately 88% sand, 10% silt, and less than 1% clay.

Parent material

Glacial outwash.

Drainage

Drainage is predominantly “somewhat excessively drained.” The depth to the water table is greater than 200 inches, which is consistent with our well depth. Flooding is not an issue. A restrictive layer is not an issue.

Erosion hazard

Road/trail erosion hazard is rated moderate. The slope contributes to a slight to moderate off-road/trail erosion hazard, indicating that some erosion is likely and control measures may be needed. The road and trail erosion hazard is rated moderate to severe, indicating that significant erosion may be expected. Roads and trails should be minimized and may require frequent maintenance.

Compaction and rutting hazards

Rutting hazard and compaction resistance is moderate.

Site index

The Douglas-fir 50-year site index ratings are 108 for Indianola-Uselessbay complex and 111 for Uselessbay-Utsalady complex, which both correspond to Site Class III (moderate productivity).

Planting and seedling mortality

The soil is well-suited for hand planting. Potential for seedling mortality is high with available water being the limiting factor.

Management recommendations

Erosion is our major soil concern, particularly following clearing to establish a home site. Native grasses will be sown to help hold down the soil in those areas designated for the septic system and drain field. We will have our builder keep any excavated topsoil and organic matter piled onsite for the duration of construction rather than being removed, so that we can redistribute it around our home upon completion. Care should be taken to minimize new road or trail construction. Roads and trails should be regularly monitored and well-maintained. Vegetation disturbance should be minimized in unstable areas.

Appropriate measures will be taken to reduce or prevent soil rutting or compaction on the property. During thinning and other stewardship activities, we will operate in the dry season and use low ground pressure equipment to minimize the potential for compaction, rutting, or erosion.

When planting, we will need to plant extra to compensate for expected seedling mortality and favor drought-tolerant species in dry areas.