## Forest Reclamation and Tree Salvage in the Foothills of Alberta

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## Outline

- Definitions
- Overview of
  Silviculture
- Site Description
- Salvaging Trees
- Recontour
- CWD Distribution
- Mounding
- Seedling Planting

- Silviculture Survey
- Tree Survival
- Tree Height
- Leader Length
- Competition
- Tree Density
- Density Model
- Cost Comparison

### Reclamation

- The process of reconverting disturbed land to its former, or other, productive uses.
- All practical and reasonable methods of designing and conducting an activity to ensure:

(1) stable, non-hazardous, nonerodible, favorably drained soil conditions, and

(2) equivalent land capability.

## Silviculture

- The art and science of controlling the establishment, growth, composition, and quality of forest vegetation for the full range of forest resource objectives.
- Applies not only to timber production but also includes wildlife, water, recreation, aesthetics, or any combination of these or other forest uses.

### **Traditional Silviculture Methods**

- Planting
- Drag Scarification
- Disc Trenching
- Mound and Plant
- Seed Tree
- Coppice
- Vegetative Repropagation



## **Reclamation Objective**

- Meet 2010 Forest Reclamation Criteria
- Satisfy landscape, soil and vegetation requiremnts
- Established a desirable plant community based on the surrounding ecosite
- Vegetation cover >25% herbaceous and woody cover
- Woody stem count > 2000 stms/ha
- Reclamation certificate

#### Location







## LOC



## Tree Salvage



## Salvage



#### **Species**

- Lodgepole Pine
- White Spruce
- Black Spruce
- Balsam Fir
- Trembling Aspen
- Balsam Poplar
- Alder
- Willow
- Mountain Ash

# Salvage



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### **MSL** Recontour



## **CWD** Distribution



# Mounding



## Mounding



### LOC Recontour



## Salvage Tree Planting



## Salvage Tree Planting



## Seedling Tree Planting



## Aerial



## Aerial



## Silviculture Survey



## Silviculture Survey

- Circular Plot
- R = 3.99 m
- 1/200 ha
- 50 m<sup>2</sup>
- 6 plots/disposition
- Tree count = 167



## Silviculture Survey

#### **Measured Parameters Included:**

- Disposition
- Slope (%)
- Aspect
- Plot position on slope
- Topsoil depth
- Soil texture
- Tree species
- Tree condition
- Tree height

- Root collar diameter
- Dieback
- Leader length
- Course woody debris
- Snags
- Cover (%)
- Cover species

#### **Tree Survival**

**Tree Survival - LOC** 



#### **Tree Survival**

**Tree Survival - MLS** 



## **Tree Height**



## Leader Length



#### Competition



### **Tree Density**

#### **Surviving Tree Density**



### **Tree Density Model**



### **Cost Comparison**

#### Salvage Trees

- 3,800 trees
- 633 stems/ha
- Various species
- 87-89% survival
  - \$6.32/tree



#### **Nursery Trees**

- 12,000 trees
- 2,000 stems/ha
- Lodgepole pine
- 91-94% survival
  - \$4.10/tree



# Questions