

**Practice: 655 - Forest Trails and Landings**

**Scenario: #2 - Trail Erosion Control w/o Vegetation, Slopes < 35%**

**Scenario Description:**

Rehabilitation of an existing forest trail segments (+20% slope and <5% grade) by addressing legacy resource issues to sustain long-term use. The degraded single-lane trail (14' wide, including cut and fill), requires the installation of erosion control measures using heavy equipment such as dozers, graders, backhoes, and/or excavators. This scenario applies to only those segments of the trail system that have resource concerns requiring rehabilitation. Approximately 500' of existing trail is to be repaired across land that has <25% slope; trail slope averages 5%. Scenario includes designing and installing measures such as out sloping (or changing surface drainage), rolling dips, water bars, and ditch outs as needed. Installation will be supervised by a consultant forester, land manager, or other resource professional. Other practices such as Stream Crossing, Critical Area Planting, Access Road, and Structure for Water Control can be adjacent/appurtenant but not part of this practice scenario. Resource concerns include: Soil Erosion, Degraded Surface Water Quality, Degraded Plant Condition, and Degraded Wildlife Habitat.

**Before Situation:**

Trails are delivering sediment to waterways, impacting riparian areas and wetlands, with possible effect to T&E species. The system's usefulness for access is also being compromised by inadequate erosion and drainage control systems. However rehabilitation over abandonment is an acceptable course of action.

**After Situation:**

Trails and landings provide access and no longer adversely affect the natural resources.

**Scenario Feature Measure: Each Structure**

**Scenario Unit: Each**

**Scenario Typical Size: 4**

**Scenario Cost: \$797.49**

**Scenario Cost/Unit: \$199.37**

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Dozer, 80 HP	929	Track mounted Dozer with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$73.87	2	\$147.74
Chainsaw	937	Equipment and power unit costs. Labor not included.	Hour	\$6.92	1	\$6.92
<b>Labor</b>						
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$27.88	2	\$55.76
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$20.29	1	\$20.29
<b>Mobilization</b>						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$283.39	2	\$566.78

**Practice: 655 - Forest Trails and Landings**

**Scenario: #3 - Trail Erosion Control w/o Vegetation, Slopes >35%**

**Scenario Description:**

Rehabilitation of an existing forest trail segments by addressing legacy resource issues such as excessive sedimentation to sustain long-term use. The degraded single-lane trail (14' wide, including cut and fill), requires the installation of erosion control measures using heavy equipment such as dozers, graders, backhoes, and/or excavators. This scenario applies to only those segments of the trail system that have resource concerns requiring rehabilitation. 500' of existing trail to be repaired across land that has >35% slope; trail slope averages 15%. Scenario includes designing and installing measures such as out sloping (or changing surface drainage), rolling dips, water bars, and ditch outs as needed. Installation will be supervised by a consultant forester, land manager, or other resource professional. Other practices such as Stream Crossing, Critical Area Planting, Access Road, and Structure for Water Control can be adjacent/appurtenant but not part of this practice scenario. Resource concerns include: Soil Erosion, Degraded Surface Water Quality, Degraded Plant Condition, and Degraded Wildlife Habitat.

**Before Situation:**

Trails are delivering sediment to waterways, impacting riparian areas and wetlands, with possible effect to T&E species. The system's usefulness for access is also being compromised by inadequate erosion and sediment control systems. However rehabilitation over abandonment is an acceptable course of action.

**After Situation:**

Trails and landings provide access and no longer adversely affect the natural resources.

**Scenario Feature Measure:** Each Structure

**Scenario Unit:** Each

**Scenario Typical Size:** 8

**Scenario Cost:** \$1,435.20

**Scenario Cost/Unit:** \$179.40

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Dozer, 80 HP	929	Track mounted Dozer with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$73.87	8	\$590.96
Chainsaw	937	Equipment and power unit costs. Labor not included.	Hour	\$6.92	2	\$13.84
<b>Labor</b>						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$20.29	2	\$40.58
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$27.88	8	\$223.04
<b>Mobilization</b>						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$283.39	2	\$566.78

**Practice: 655 - Forest Trails and Landings**

**Scenario: #4 - Grading and Shaping with Vegetative Establishment**

**Scenario Description:**

Rehabilitation of existing forest access trails and landings on a medium slope by addressing rutting, erosion, and sedimentation. Typically the trail is a single, existing 18-foot wide (including cut and fill) seasonal road prism on gently sloping terrain requiring sustained erosion control measures applied with heavy equipment such as dozers, graders, backhoes, and/or excavators. The purpose is to hydrologically disconnect the existing trail/landing system from streams and natural drainages and to establish a vegetative cover. This scenario includes designing and installation measures such as cross drains, rock drains, relief drainage, out sloping (or changing surface drainage), rolling dips and water bars and ditch outs as needed, and applies to only those segments of the trail system that have resource concerns requiring rehabilitation. It also includes seedbed preparation, seeding and soil amendments determined to be needed. Some hand work (chainsaw) will be needed to allow the use of the equipment. The work will be supervised. Other practices such as Stream Crossing, and Critical Area Planting. Access Road and Structure for Water Control can be adjacent/apurtenant but not part of the practice scenario. Treatments are for long-term reduction of sediment, restore fish habitat, create fire access and to move routes off unstable slopes. Resource concerns include: Excessive sediment in surface waters, Concentrated and Sheet & rill flow erosion, Soil compaction, and Habitat degradation.

**Before Situation:**

Trail/landings are delivering sediment to waterways, impacting riparian/wetlands and/or possibly affecting fish/T&E species. The usefulness of the trail/landing system is being adversely affected by erosion.

**After Situation:**

A trail system is installed that provides access to the forested tract and does not cause excessive erosion or water quality concerns.

**Scenario Feature Measure:** Length of trail treated

**Scenario Unit:** Feet

**Scenario Typical Size:** 2,000

**Scenario Cost:** \$8,123.99

**Scenario Cost/Unit:** \$4.06

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<i>Equipment/Installation</i>						
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	\$11.59	1	\$11.59
Chainsaw	937	Equipment and power unit costs. Labor not included.	Hour	\$6.92	8	\$55.36
Backhoe, 80 HP	926	Wheel mounted backhoe excavator with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$61.55	16	\$984.80
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$7.06	1	\$7.06
Lime application	953	Lime application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$10.56	1	\$10.56
Seeding Operation, Broadcast, Ground	959	Broadcast seed via ground operation. May require post tillage operation to incorporate seed. Includes equipment, power unit and labor costs.	Acre	\$13.09	1	\$13.09
All terrain vehicles, ATV	965	Includes equipment, power unit and labor costs.	Hour	\$33.75	10	\$337.50
Truck, water	1448	Water tanker truck. Equipment only. Labor not included.	Hour	\$182.64	6	\$1,095.84
Water Bars	1500	Installation of graded trail water controlling structures such as water bars, broad based dips for erosion control. Typical cross section is 1.5 feet high with 4:1 side slopes yielding about 0.33 CY/ft of length.	Foot	\$2.80	300	\$840.00
Motor Grader, 200 HP	1782	Motor Grader or Maintainer, 200 hp. Typical of equipment with HP in range of 170-240. Equipment cost, does not include labor.	Hour	\$173.51	10	\$1,735.10
Skidsteer, 80 HP	933	Skidsteer loader with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$47.43	16	\$758.88

**Labor**

**Labor**

General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$20.29	16	\$324.64
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$23.74	40	\$949.60
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	\$41.42	4	\$165.68

**Materials**

Nitrogen (N), Ammonium Nitrate	69	Price per pound of N supplied by Ammonium Nitrate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.79	70	\$55.30
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.39	55	\$21.45
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.28	40	\$11.20
One Species, Warm Season, Introduced Perennial Grass (seed or sprigs)	2323	Native, warm season perennial grass seed or sprig. Includes material and shipping only.	Acre	\$59.62	1	\$59.62
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	\$119.94	1	\$119.94

**Mobilization**

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$283.39	2	\$566.78
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