

Practice: 655 - Forest Trails and Landings

Scenario: #1 - Trail Installation

Scenario Description: Forest Trails and/or Landings will be constructed for the purpose of providing periodic or infrequent access and staging areas in a gently sloping forest stand. Such infrequently used access routes (14' wide) and staging areas facilitate the application of other conservation practices, monitoring and the removal of pre-commercial forest products. Installation will include removal of woody vegetation as needed, a minimum amount of blading and soil disturbance, and the installing of water control measures such as water bars, broad-based dips, turn-ups, belt deflectors, etc. It will not include measures more common to Access Roads such as gravelling, ditching, or culverts. 2000' of new trail is to be cut, cleared and stabilized across land that has <10% slope; trail slope averages 2%, requiring a total of 8 water bars. Installation will be supervised by a consultant forester, land manager, or other resource professional. Other related 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: Access to the tract is not available for occasional travel by the landowner or manager for the purposes of monitoring, implementing conservation practices and/or the removal of forest products. Improperly installed trails and landings will cause soil erosion and water quality problems.

After Situation: A trail system is installed that provides access to the forested tract and no longer causes excessive erosion or water quality resource concerns.

Scenario Feature Measure: Length of trail treated

Scenario Unit: Foot

Scenario Typical Size: 2000

Total Scenario Cost: \$2,027.32

Scenario Cost/Unit: \$1.01

Cost Details

| Component Name | Id | Description | Unit | Cost | Qty | Total |
|----------------|----|-------------|------|------|-----|-------|
|----------------|----|-------------|------|------|-----|-------|

Labor

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|----------------------------|-----|---|------|----------|----|----------|
| 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 | \$39.93 | 8 | \$319.47 |
| 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 | \$23.74 | 17 | \$403.52 |
| Specialist Labor | 235 | Labor requiring a specialized skill set: Includes Agronomists, Foresters, Biologists, etc. to provide additional technical information during the planning and implementation of the practice. Does not include NRCS or TSP services. | Hour | \$102.74 | 2 | \$205.48 |

Equipment Installation

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|--------------|-----|--|------|---------|----|----------|
| Chainsaw | 937 | Equipment and power unit costs. Labor not included. | Hour | \$4.30 | 17 | \$73.17 |
| Dozer, 80 HP | 929 | Track mounted Dozer with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included. | Hour | \$65.18 | 8 | \$521.41 |

Mobilization

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|--------------------------------|------|---|------|----------|---|----------|
| Mobilization, medium equipment | 1139 | Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds. | Each | \$252.13 | 2 | \$504.26 |
|--------------------------------|------|---|------|----------|---|----------|

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&Especies. 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

Total Scenario Cost: \$742.52

Scenario Cost/Unit: \$185.63

Cost Details

| Component Name | Id | Description | Unit | Cost | Qty | Total |
|----------------|----|-------------|------|------|-----|-------|
|----------------|----|-------------|------|------|-----|-------|

Labor

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|----------------------------|-----|--|------|---------|---|---------|
| 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 | \$39.93 | 2 | \$79.87 |
| 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 | \$23.74 | 1 | \$23.74 |

Equipment Installation

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|--------------|-----|--|------|---------|---|----------|
| Chainsaw | 937 | Equipment and power unit costs. Labor not included. | Hour | \$4.30 | 1 | \$4.30 |
| Dozer, 80 HP | 929 | Track mounted Dozer with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included. | Hour | \$65.18 | 2 | \$130.35 |

Mobilization

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|--------------------------------|------|---|------|----------|---|----------|
| Mobilization, medium equipment | 1139 | Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds. | Each | \$252.13 | 2 | \$504.26 |
|--------------------------------|------|---|------|----------|---|----------|

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&Especies. 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

Total Scenario Cost: \$1,401.23

Scenario Cost/Unit: \$175.15

Cost Details

| Component Name | Id | Description | Unit | Cost | Qty | Total |
|----------------|----|-------------|------|------|-----|-------|
|----------------|----|-------------|------|------|-----|-------|

Labor

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|----------------------------|-----|--|------|---------|---|----------|
| 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 | \$39.93 | 8 | \$319.47 |
| 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 | \$23.74 | 2 | \$47.47 |

Equipment Installation

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|--------------|-----|--|------|---------|---|----------|
| Chainsaw | 937 | Equipment and power unit costs. Labor not included. | Hour | \$4.30 | 2 | \$8.61 |
| Dozer, 80 HP | 929 | Track mounted Dozer with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included. | Hour | \$65.18 | 8 | \$521.41 |

Mobilization

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|--------------------------------|------|---|------|----------|---|----------|
| Mobilization, medium equipment | 1139 | Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds. | Each | \$252.13 | 2 | \$504.26 |
|--------------------------------|------|---|------|----------|---|----------|

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/appurtenant 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&Especies. 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: Foot

Scenario Typical Size: 2000

Total Scenario Cost: \$6,908.79

Scenario Cost/Unit: \$3.45

Cost Details

| Component Name | Id | Description | Unit | Cost | Qty | Total |
|----------------|----|-------------|------|------|-----|-------|
|----------------|----|-------------|------|------|-----|-------|

Materials

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|---|------|---|-------|----------|----|----------|
| Lime, ENM | 75 | Fertilizer: Limestone Spread on field. | Ton | \$113.27 | 1 | \$113.27 |
| 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 | \$0.73 | 70 | \$51.23 |
| One Species, Warm Season, Introduced Perennial Grass (seed or sprigs) | 2323 | Introduced, warm season perennial grass seed or sprig. Includes material and shipping only. | Acre | \$64.09 | 1 | \$64.09 |
| 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 | \$0.78 | 55 | \$43.13 |
| Potassium, K2O | 74 | K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed. | Pound | \$0.44 | 40 | \$17.43 |

Labor

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|----------------------------|-----|--|------|---------|----|----------|
| Equipment Operators, Light | 232 | Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers | Hour | \$23.96 | 40 | \$958.51 |
| 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 | \$23.74 | 16 | \$379.78 |
| 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 | \$45.66 | 4 | \$182.64 |

Equipment Installation

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|---------------------------------|-----|--|------|---------|----|----------|
| All terrain vehicles, ATV | 965 | Includes equipment, power unit and labor costs. | Hour | \$32.21 | 10 | \$322.08 |
| Backhoe, 80 HP | 926 | Wheel mounted backhoe excavator with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included. | Hour | \$55.24 | 16 | \$883.89 |
| Chainsaw | 937 | Equipment and power unit costs. Labor not included. | Hour | \$4.30 | 8 | \$34.43 |
| Fertilizer, ground application, | 950 | Dry bulk fertilizer application performed by ground equipment. | Acre | \$6.77 | 1 | \$6.77 |

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|--------------------------------------|------|--|------|----------|-----|------------|
| dry bulk | | Includes equipment, power unit and labor costs. | | | | |
| Lime application | 953 | Lime application performed by ground equipment. Includes equipment, power unit and labor costs. | Acre | \$10.29 | 1 | \$10.29 |
| Motor Grader, 200 HP | 1782 | Motor Grader or Maintainer, 200 hp. Typical of equipment with HP in range of 170-225. Equipment cost, does not include labor. | Hour | \$161.99 | 10 | \$1,619.87 |
| 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 | \$12.44 | 1 | \$12.44 |
| Skidsteer, 80 HP | 933 | Skidsteer loader with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included. | Hour | \$43.96 | 16 | \$703.29 |
| Tillage, Light | 945 | Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs. | Acre | \$10.98 | 1 | \$10.98 |
| 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 | \$3.30 | 300 | \$990.41 |

Mobilization

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|--------------------------------|------|---|------|----------|---|----------|
| Mobilization, medium equipment | 1139 | Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds. | Each | \$252.13 | 2 | \$504.26 |
|--------------------------------|------|---|------|----------|---|----------|

Practice: 655 - Forest Trails and Landings

Scenario: #5 - Temporary Stream Crossing

Scenario Description: The design and installation of a temporary stream crossing that will meet the immediate forest management/conservation needs. Afterwards the crossing will be restored and stabilized. Improperly designed and/or installed stream crossings will, in the long term, adversely affect water quality and aquatic life. Approaches will also be stabilized for the use of the crossing and stabilized afterwards as necessary. Installation will be supervised. Permanent and/or high-traffic crossings will be designed and installed according to the Stream Crossing (578) Standard. Resource concerns include: Excessive sediment in surface waters and Habitat degradation.

Before Situation: Access to a forested tract is not available for the installation of conservation practices or removal of forest products due to the lack of a suitable stream crossing(s).

After Situation: Access was available to address other resource concerns/management needs and the stream is restored to its previous or better condition.

Scenario Feature Measure: Number of crossings

Scenario Unit: Each

Scenario Typical Size: 1

Total Scenario Cost: \$1,010.85

Scenario Cost/Unit: \$1,010.85

Cost Details

| Component Name | Id | Description | Unit | Cost | Qty | Total |
|----------------|----|-------------|------|------|-----|-------|
|----------------|----|-------------|------|------|-----|-------|

Labor

| | | | | | | |
|----------------------------|-----|--|------|---------|---|---------|
| 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 | \$39.93 | 2 | \$79.87 |
| 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 | \$23.74 | 2 | \$47.47 |
| 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 | \$45.66 | 1 | \$45.66 |

Equipment Installation

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|---------------------------|-----|--|------|----------|---|----------|
| Hydraulic Excavator, 1 CY | 931 | Track mounted hydraulic excavator with bucket capacity range of 0.8 to 1.5 CY. Equipment and power unit costs. Labor not included. | Hour | \$112.10 | 2 | \$224.20 |
| Skidsteer, 80 HP | 933 | Skidsteer loader with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included. | Hour | \$43.96 | 2 | \$87.91 |
| Truck, Pickup | 939 | Equipment and power unit costs. Labor not included. | Hour | \$21.47 | 1 | \$21.47 |

Mobilization

| | | | | | | |
|--------------------------------|------|---|------|----------|---|----------|
| Mobilization, medium equipment | 1139 | Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds. | Each | \$252.13 | 2 | \$504.26 |
|--------------------------------|------|---|------|----------|---|----------|

Practice: 655 - Forest Trails and Landings

Scenario: #61 - Landing Installation

Scenario Description: Forest Landings will be sized and constructed for the purpose of periodically providing staging areas in gently sloped forest stands to facilitate prescribed implementation of forest management activities and the removal of forest products. Installation will typically include the removal of woody vegetation, minor grading, the installing of water control measures (i.e. water bars, broad-based dips, turn-ups, belt deflectors, etc.), and the establishment of appropriate vegetation under the 342 Critical Area Planting Standard. Installation will be supervised by a consultant forester, land manager, or other resource professional.

Before Situation: Forest products generated during prescribed management activities are currently not capable of being processed or staged before utilization or marketing. Processing and/or marketing typically facilitates prescribed forest management activities. Improperly installed landings may cause excessive soil erosion and threaten the water quality of surface waters.

After Situation: A log landing is installed that provides adequate space to safely stage and process wood products generated by the implementation of prescribed forest stand management activities. Precautions have been taken to minimize soil erosion and/or water quality degradation of surface waters. With the appropriate choice of vegetation to stabilize the landing, additional benefits may be available to benefit wildlife and pollinator habitat.

Scenario Feature Measure: Acres of landing area

Scenario Unit: Acre

Scenario Typical Size: 1

Total Scenario Cost: \$2,531.88

Scenario Cost/Unit: \$2,531.88

Cost Details

| Component Name | Id | Description | Unit | Cost | Qty | Total |
|----------------|----|-------------|------|------|-----|-------|
|----------------|----|-------------|------|------|-----|-------|

Equipment Installation

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|--------------|-----|--|------|---------|----|----------|
| Chainsaw | 937 | Equipment and power unit costs. Labor not included. | Hour | \$4.30 | 20 | \$86.09 |
| Dozer, 80 HP | 929 | Track mounted Dozer with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included. | Hour | \$65.18 | 12 | \$782.11 |

Labor

| | | | | | | |
|----------------------------|-----|---|------|----------|----|----------|
| 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 | \$39.93 | 12 | \$479.21 |
| 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 | \$23.74 | 20 | \$474.73 |
| Specialist Labor | 235 | Labor requiring a specialized skill set: Includes Agronomists, Foresters, Biologists, etc. to provide additional technical information during the planning and implementation of the practice. Does not include NRCS or TSP services. | Hour | \$102.74 | 2 | \$205.48 |

Mobilization

| | | | | | | |
|--------------------------------|------|---|------|----------|---|----------|
| Mobilization, medium equipment | 1139 | Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds. | Each | \$252.13 | 2 | \$504.26 |
|--------------------------------|------|---|------|----------|---|----------|