

Practice: 342 - Critical Area Planting

Scenario: #1 - Cool Season

Scenario Description:

Establish cool season grass or grass/legume mix on a site that is void or nearly void of vegetation due to a natural occurrence or a newly constructed conservation practice. Involves site preparation with typical implements, and includes grass/legume seed, and fertilizer and lime application. Mulch is not included.

Before Situation:

Areas that are void or nearly void of vegetation, resulting in bare soil being exposed to erosive processes. The exposed areas may be caused from recent natural occurrences (fire, flood, wind, etc.) or due to newly constructed conservation practices such as waterways, terraces, water and sediment basins or dams. The exposed areas will be subject to wind erosion, sheet and rill erosion, or visible rills may have already occurred. Runoff from the area flows into streams, water courses or other water bodies causing degradation to the receiving waters. The soil typically has low pH and low fertility.

After Situation:

This typical 1.0 acre critical area is amended with lime and fertilizer and seeded to a grass and legume cover. Erosion is minimized and soil is stabilized.

Scenario Feature Measure: area seeded

Scenario Unit: Acre

Scenario Typical Size: 1

Scenario Cost: \$487.73

Scenario Cost/Unit: \$487.73

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
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	\$11.79	1	\$11.79
Cultipacking	1100	Includes equipment, power unit and labor costs.	Acre	\$7.92	1	\$7.92
Lime application	953	Lime application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$9.52	1	\$9.52
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$6.36	1	\$6.36
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	\$10.44	1	\$10.44
Materials						
Two Species Mix, Cool Season Annual (1 grass and 1 legume)	2314	Cool season annual grass and legume mix. Includes material and shipping only.	Acre	\$50.33	1	\$50.33
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	\$119.94	2	\$239.88
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	100	\$28.00
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	50	\$19.50
Nitrogen (N), Urea	71	Price per pound of N supplied by Urea. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.67	50	\$33.50
Mobilization						
Mobilization, very small equipment	1137	Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces of equipment if all hauled simultaneously.	Each	\$70.49	1	\$70.49

Practice: 342 - Critical Area Planting

Scenario: #2 - Cool Season, Extra Site Preparation

Scenario Description:

Establish cool season grass or grass/legume mix on a site that is void or nearly void of vegetation due to a natural occurrence or a newly constructed conservation practice. Typically includes grading/shaping/fill, seedbed preparation, grass/legume seed, and fertilizer and lime application. Mulch is not included.

Before Situation:

Areas that are void or nearly void of vegetation, resulting in bare soil being exposed to erosive processes. The exposed areas may be caused from recent natural occurrences (fire, flood, wind, etc.) or due to newly constructed conservation practices such as waterways, terraces, water and sediment basins or dams. The exposed areas will be subject to wind erosion, sheet and rill erosion, or visible rills may have already occurred. Runoff from the area flows into streams, water courses or other water bodies causing degradation to the receiving waters. The soil typically has a pH imbalance and low fertility.

After Situation:

This typical 1.0 acre critical area is graded/shaped/filled, amended with lime and fertilizer and seeded to a grass and legume cover. Erosion is minimized and soil is stabilized.

Scenario Feature Measure: area seeded

Scenario Unit: Acre

Scenario Typical Size: 1

Scenario Cost: \$1,165.47

Scenario Cost/Unit: \$1,165.47

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$6.36	1	\$6.36
Cultipacking	1100	Includes equipment, power unit and labor costs.	Acre	\$7.92	1	\$7.92
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	\$11.79	1	\$11.79
Lime application	953	Lime application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$9.52	1	\$9.52
Dozer, 80 HP	929	Track mounted Dozer with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$66.54	5	\$332.70
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	\$34.14	5	\$170.70
Materials						
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	100	\$28.00
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	\$119.94	2	\$239.88
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	50	\$19.50
Nitrogen (N), Urea	71	Price per pound of N supplied by Urea. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.67	50	\$33.50
Two Species Mix, Cool Season Annual (1 grass and 1 legume)	2314	Cool season annual grass and legume mix. Includes material and shipping only.	Acre	\$50.33	1	\$50.33
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$255.27	1	\$255.27

Practice: 342 - Critical Area Planting

Scenario: #3 - Warm Season

Scenario Description:

Establish native warm season grasses/legumes or a warm/cool season mix on a site that is void or nearly void of vegetation due to a natural occurrence or a newly constructed conservation practice. Involves site preparation with typical implements, and includes grass/legume seed, and fertilizer and lime application. Mulch is not included.

Before Situation:

Areas that are void or nearly void of vegetation, resulting in bare soil being exposed to erosive processes. The exposed areas may be caused from recent natural occurrences (fire, flood, wind, etc.) or due to newly constructed conservation practices such as waterways, terraces, water and sediment basins or dams. The exposed areas will be subject to wind erosion, sheet and rill erosion, or visible rills may have already occurred. Runoff from the area flows into streams, water courses or other water bodies causing degradation to the receiving waters. The soil typically has a pH imbalance and low fertility.

After Situation:

This typical 1.0 acre critical area is amended with lime and fertilizer and seeded to a warm season grass. Erosion is minimized and soil is stabilized.

Scenario Feature Measure: Area Seeded

Scenario Unit: Acre

Scenario Typical Size: 1

Scenario Cost: \$609.46

Scenario Cost/Unit: \$609.46

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
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	\$11.79	1	\$11.79
Cultipacking	1100	Includes equipment, power unit and labor costs.	Acre	\$7.92	1	\$7.92
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	\$10.44	1	\$10.44
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$6.36	1	\$6.36
Lime application	953	Lime application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$9.52	1	\$9.52
Materials						
Three plus Species Mix, Warm Season, Native Perennial	2327	Native, warm season perennial grass. Includes material and shipping only.	Acre	\$205.56	1	\$205.56
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	50	\$19.50
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	100	\$28.00
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	\$119.94	2	\$239.88
Mobilization						
Mobilization, very small equipment	1137	Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces of equipment if all hauled simultaneously.	Each	\$70.49	1	\$70.49

Practice: 342 - Critical Area Planting

Scenario: #4 - Warm Season, Extra Site Preparation

Scenario Description:

Establishment of warm season grass or warm/cool season mix on a site that is void or nearly void of vegetation due to a natural occurrence or a newly constructed conservation practice. Typically includes grading/shaping/fill, seedbed preparation, grass/legume seed, and fertilizer and lime application. Mulch is not included.

Before Situation:

Areas that are void or nearly void of vegetation, resulting in bare soil being exposed to erosive processes. The exposed areas may be caused from recent natural occurrences (fire, flood, wind, etc.) or due to newly constructed conservation practices such as waterways, terraces, water and sediment basins or dams. The exposed areas will be subject to wind erosion, sheet and rill erosion, or visible rills may have already occurred. Runoff from the area flows into streams, water courses or other water bodies causing degradation to the receiving waters. The soil typically has a pH imbalance and low fertility.

After Situation:

This typical 1.0 acre critical area is shaped, amended with lime and fertilizer and seeded to a warm season grass. Erosion is minimized and soil is stabilized.

Scenario Feature Measure: area seeded

Scenario Unit: Acre

Scenario Typical Size: 1

Scenario Cost: \$1,287.20

Scenario Cost/Unit: \$1,287.20

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Dozer, 80 HP	929	Track mounted Dozer with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$66.54	5	\$332.70
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$6.36	1	\$6.36
Lime application	953	Lime application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$9.52	1	\$9.52
Cultipacking	1100	Includes equipment, power unit and labor costs.	Acre	\$7.92	1	\$7.92
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	\$11.79	1	\$11.79
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	\$34.14	5	\$170.70
Materials						
Three plus Species Mix, Warm Season, Native Perennial	2327	Native, warm season perennial grass. Includes material and shipping only.	Acre	\$205.56	1	\$205.56
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	50	\$19.50
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	100	\$28.00
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	\$119.94	2	\$239.88
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$255.27	1	\$255.27

Practice: 342 - Critical Area Planting

Scenario: #5 - Hydroseeding

Scenario Description:

Hydroseeding on a highly disturbed site that is relatively steep with concentrated flow resulting rills and channel erosion. Involves minimal site preparation. Site is susceptible to high rates of soil erosion and it is difficult to establish vegetation through conventional means.

Before Situation:

Steep side slopes such as those on road banks and travel ways in forestland are eroding or have the potential to erode and cause severe road stability problems and environmental degradation. Sufficient seedbed is present such that grading is not necessary.

After Situation:

Seed, fertilizer, and wood-fiber mulch materials are mixed into a slurry. Slurry is applied to steep slopes. Permanent vegetation is established, erosion is minimized, and soil is stabilized.

Scenario Feature Measure: area seeded

Scenario Unit: Acre

Scenario Typical Size: 1

Scenario Cost: \$1,467.03

Scenario Cost/Unit: \$1,467.03

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Seeding Operation, hydroseeder	1291	Hydroseeding with typical 1500 to 3600 gallon seeder. Includes all costs for equipment, power unit, and labor.	Acre	\$840.55	1	\$840.55
Materials						
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	50	\$19.50
Two Species Mix, Cool Season Annual (1 grass and 1 legume)	2314	Cool season annual grass and legume mix. Includes material and shipping only.	Acre	\$50.33	1	\$50.33
Nitrogen (N), Urea	71	Price per pound of N supplied by Urea. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.67	50	\$33.50
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	\$119.94	2	\$239.88
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	100	\$28.00
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$255.27	1	\$255.27

Practice: 342 - Critical Area Planting

Scenario: #6 - Hydroseeding, Extra Site Preparation

Scenario Description:

Hydroseeding on a highly disturbed site that is relatively steep with concentrated flow resulting rills and channel erosion. Shaping/grading/fill is required to prepare seedbed for hydroseed slurry. Site is susceptible to high rates of soil erosion and it is difficult to establish vegetation through conventional means.

Before Situation:

Steep side slopes such as those on road banks and travel ways in forestland are eroding or have the potential to erode and cause severe road stability problems and environmental degradation.

After Situation:

Seed, fertilizer, and wood-fiber mulch materials are mixed into a slurry. Seedbed is shaped/graded. Slurry is applied to steep slopes. Permanent vegetation is established, erosion is minimized, and soil is stabilized.

Scenario Feature Measure: area seeded

Scenario Unit: Acre

Scenario Typical Size: 1

Scenario Cost: \$2,071.11

Scenario Cost/Unit: \$2,071.11

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Dozer, 80 HP	929	Track mounted Dozer with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$66.54	6	\$399.24
Seeding Operation, hydroseeder	1291	Hydroseeding with typical 1500 to 3600 gallon seeder. Includes all costs for equipment, power unit, and labor.	Acre	\$840.55	1	\$840.55
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	\$34.14	6	\$204.84
Materials						
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	\$119.94	2	\$239.88
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	100	\$28.00
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	50	\$19.50
Nitrogen (N), Urea	71	Price per pound of N supplied by Urea. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.67	50	\$33.50
Two Species Mix, Cool Season Annual (1 grass and 1 legume)	2314	Cool season annual grass and legume mix. Includes material and shipping only.	Acre	\$50.33	1	\$50.33
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$255.27	1	\$255.27

Practice: 342 - Critical Area Planting

Scenario: #7 - Wetland Planting- 2 ft x 2 ft

Scenario Description:

Establishment of wetland plants in both coastal and palustrine wetlands. The wetland has been restored, enhanced or created and establishment of vegetation using normal seeding methods is difficult because of the inflow of tidal waters or continuous flooding. Wetland vegetative plugs are used to establish the plants. Plants used for coastal wetland include *Spartina alterniflora*, *Spartina patens*, and *Distichlis*. Plants such as sedges, rushes, cattails, pickle weed, sparganium are used for freshwater wetlands. Plugs will be installed on 2 ft centers, typical density is 10,890 plants per acre. If additional erosion control is needed use 484 Mulching.

Before Situation:

The surface of a coastal or palustrine wetland is void of vegetation. There is erosion and a lack of suitable vegetation to provide food and cover for native wildlife. Water quality may be impacted by the lack of vegetation.

After Situation:

The coastal or palustrine wetland has established native vegetation. Erosion is controlled and there is adequate cover and food for native wildlife. Water quality has improved. The established plants are uptaking excess nutrients.

Scenario Feature Measure: Acres planted

Scenario Unit: Acre

Scenario Typical Size: 1

Scenario Cost: \$17,046.50

Scenario Cost/Unit: \$17,046.50

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
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	\$24.74	130	\$3,216.20
Materials						
Native Aquatic Plants, Emergent or Submerged	2336	Native aquatic emergent or submerged. All required materials for establishing vegetation. Includes material and shipping.	Each	\$1.27	10890	\$13,830.30

Practice: 342 - Critical Area Planting

Scenario: #8 - Wetland Planting 1 ft by 1 ft

Scenario Description:

Establishment of wetland plants in both coastal and palustrine wetlands. The wetland has been restored, enhanced or created and establishment of vegetation using normal seeding methods is difficult because of the inflow of tidal waters or continuous flooding. Wetland vegetative plugs are used to establish the plants. Plants used for coastal wetland include *Spartina alterniflora*, *Spartina patens*, and *Distichlis*. Plants such as sedges, rushes, cattails, pickle weed, sparganium are used for freshwater wetlands. Plugs will be installed on 1 ft centers (21780plants/acre). If additional erosion control is need use 484 Mulching.

Before Situation:

The surface of a coastal or palustrine wetland is void of vegetation. There is erosion and a lack of suitable vegetation to provide food and cover for native wildlife. Water quality may be impacted by the lack of vegetation.

After Situation:

The coastal or palustrine wetland has established native vegetation. Erosion is controlled and there is adequate cover and food for native wildlife. Water quality has improved. The established plant are uptaking excess nutrients.

Scenario Feature Measure: Acres Planted

Scenario Unit: Acre

Scenario Typical Size: 1

Scenario Cost: \$31,371.60

Scenario Cost/Unit: \$31,371.60

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
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	\$24.74	150	\$3,711.00
Materials						
Native Aquatic Plants, Emergent or Submerged	2336	Native aquatic emergent or submerged. All required materials for establishing vegetation. Includes material and shipping.	Each	\$1.27	21780	\$27,660.60