

**Practice: 710 - Agricultural Secondary Containment Facility**

**Scenario: #1 - Double wall tank, with foundation and appurtenances**

**Scenario Description:**

This practice scenario includes the replacement of an existing single wall fuel storage tank with a new double wall tank anchored to a concrete pad. May include a new foundation, piping, pumps, and appurtenances. The purpose of the practice is to address resource concerns related to water quality degradation due to the excessive release of organics into ground and surface waters or excessive sediment and turbidity in surface waters.

Associated practices: Heavy Use Area Protection (561).

**Before Situation:**

The agricultural operation has an existing single wall fuel/oil storage tank(s) without any spill prevention protection. The producer has developed an SPCC plan in accordance with EPA requirements, which requires an above ground secondary containment facility for on-farm oil products.

**After Situation:**

This scenario is based on the replacement of an existing single wall tank(s) with a new double wall tank(s). Installation of "used" double wall tank(s) will not be allowed. A 1000 gallon horizontal or vertical antiroll tank (U/L 142-23 Secondary Containment Vessel) double walled which meets EPA regulations will be installed. Payment Schedule is based on the cost difference between a new single wall tank and new double wall tank of the same size. The double wall tank will provide an environmentally safe facility for handling and storage of oil products stored on the farm. Any accidental spills will be contained.

**Scenario Feature Measure:** Tank volume

**Scenario Unit:** Gallon

**Scenario Typical Size:** 1,000

**Scenario Cost:** \$7,899.72

**Scenario Cost/Unit:** \$7.90

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Crane, truck mounted, hydraulic, 12 ton	1734	12 ton capacity truck mounted hydraulic crane. Equipment cost only.	Hour	\$101.56	4	\$406.24
Hydraulic Excavator, .5 CY	930	Track mounted hydraulic excavator with bucket capacity range of 0.3 to 0.8 CY. Equipment and power unit costs. Labor not included.	Hour	\$62.93	1	\$62.93
Concrete, CIP, slab on grade, reinforced	37	Steel reinforced concrete formed and cast-in-placed as a slab on grade by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic yard	\$267.09	1	\$267.09
<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	\$29.15	24	\$699.60
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	\$37.73	5	\$188.65
<b>Materials</b>						
Tank, storage tank, upgrade to a double wall from a single wall, horizontal, steel, above ground, fixed cost portion	2275	Fixed cost portion of the difference between a single wall and double wall horizontal steel storage tank. Includes cradles, coating, fittings, labor, equipment. Excludes foundations, pumps or piping.	Each	\$4,394.38	1	\$4,394.38
Tank, storage tank, upgrade to a double wall from a single wall, horizontal, steel, above ground, variable cost portion	2260	Variable cost portion of the difference between a single wall and double wall horizontal steel storage tank. Includes cradles, coating, fittings, labor, equipment. Excludes foundations, pumps or piping.	Gallon	\$0.33	1000	\$330.00
Fuel Containment Facility, Gate valve 2 inch diameter	1735	Metal 2 inch diameter gate valve. Materials only.	Each	\$119.84	2	\$239.68

**Materials**

Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	\$30.43	5	\$152.15
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**Mobilization**

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$289.75	4	\$1,159.00
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**Practice: 710 - Agricultural Secondary Containment Facility**

**Scenario: #2 - Double wall tank, with foundation and appurtenances, off-road**

**Scenario Description:**

This practice scenario includes the replacement of an existing single wall fuel storage tank with a new double wall tank anchored to a concrete pad in a remote location. May include a new foundation, piping, pumps, and appurtenances. For the purpose of this scenario the intention of a remote site definition is one that requires the tank to be purchased and then shipped by either air or barge to its intended location. The purpose of the practice is to address resource concerns related to water quality degradation due to the excessive release of organics into ground and surface waters or excessive sediment and turbidity in surface waters.

Associated practices: Heavy Use Area Protection (561).

**Before Situation:**

The agricultural operation has an existing single wall fuel/oil storage tank(s) without any spill prevention protection. The producer has developed an SPCC plan in accordance with EPA requirements, which requires an above ground secondary containment facility for on-farm oil products.

**After Situation:**

This scenario is based on the replacement of an existing single wall tank(s) with a new double wall tank(s). Installation of "used" double wall tank(s) will not be allowed. A 1000 gallon horizontal or vertical antiroll tank (U/L 142-23 Secondary Containment Vessel) double walled which meets EPA regulations will be installed. Payment Schedule is based on the cost difference between a new single wall tank and new double wall tank of the same size. The double wall tank will provide an environmentally safe facility for handling and storage of oil products stored on the farm. Any accidental spills will be contained.

**Scenario Feature Measure:** Tank volume

**Scenario Unit:** Gallon

**Scenario Typical Size:** 1,000

**Scenario Cost:** \$13,265.72

**Scenario Cost/Unit:** \$13.27

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Concrete, CIP, slab on grade, reinforced	37	Steel reinforced concrete formed and cast-in-placed as a slab on grade by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic yard	\$267.09	1	\$267.09
Hydraulic Excavator, .5 CY	930	Track mounted hydraulic excavator with bucket capacity range of 0.3 to 0.8 CY. Equipment and power unit costs. Labor not included.	Hour	\$62.93	1	\$62.93
Crane, truck mounted, hydraulic, 12 ton	1734	12 ton capacity truck mounted hydraulic crane. Equipment cost only.	Hour	\$101.56	4	\$406.24
<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	\$37.73	5	\$188.65
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	\$29.15	24	\$699.60
<b>Materials</b>						
Tank, storage tank, upgrade to a double wall from a single wall, horizontal, steel, above ground, fixed cost portion	2275	Fixed cost portion of the difference between a single wall and double wall horizontal steel storage tank. Includes cradles, coating, fittings, labor, equipment. Excludes foundations, pumps or piping.	Each	\$4,394.38	1	\$4,394.38
Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	\$30.43	5	\$152.15
Tank, storage tank, upgrade to a double wall from a single wall, horizontal, steel, above ground, variable cost portion	2260	Variable cost portion of the difference between a single wall and double wall horizontal steel storage tank. Includes cradles, coating, fittings, labor, equipment. Excludes foundations, pumps or piping.	Gallon	\$0.33	1000	\$330.00

**Materials**

Fuel Containment Facility, Gate valve 2 inch diameter	1735	Metal 2 inch diameter gate valve. Materials only.	Each	\$119.84	2	\$239.68
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**Mobilization**

Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been i	Dollar	\$1.00	5366	\$5,366.00
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$289.75	4	\$1,159.00

**Practice: 710 - Agricultural Secondary Containment Facility**

**Scenario: #3 - Double wall tank, with appurtenances, existing foundation**

**Scenario Description:**

This practice scenario includes the replacement of an existing single wall fuel storage tank with a new double wall tank anchored to an existing concrete foundation. May also include piping, pumps, and appurtenances. The purpose of the practice is to address resource concerns related to water quality degradation due to the excessive release of organics into ground and surface waters or excessive sediment and turbidity in surface waters.

Associated practices: Heavy Use Area Protection (561).

**Before Situation:**

The agricultural operation has an existing single wall fuel/oil storage tank(s) without any spill prevention protection. The producer has developed an SPCC plan in accordance with EPA requirements, which requires an above ground secondary containment facility for on-farm oil products.

**After Situation:**

This scenario is based on the replacement of an existing single wall tank(s) with a new double wall tank(s). Installation of "used" double wall tank(s) will not be allowed. A 1000 gallon horizontal or vertical antiroll tank (U/L 142-23 Secondary Containment Vessel) double walled which meets EPA regulations will be installed. Payment Schedule is based on the cost difference between a new single wall tank and new double wall tank of the same size. The double wall tank will provide an environmentally safe facility for handling and storage of oil products stored on the farm. Any accidental spills will be contained.

**Scenario Feature Measure:** Tank volume

**Scenario Unit:** Gallon

**Scenario Typical Size:** 1,000

**Scenario Cost:** \$5,987.62

**Scenario Cost/Unit:** \$5.99

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Crane, truck mounted, hydraulic, 12 ton	1734	12 ton capacity truck mounted hydraulic crane. Equipment cost only.	Hour	\$101.56	4	\$406.24
<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	\$37.73	4	\$150.92
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	\$29.15	16	\$466.40
<b>Materials</b>						
Fuel Containment Facility, Gate valve 2 inch diameter	1735	Metal 2 inch diameter gate valve. Materials only.	Each	\$119.84	2	\$239.68
Tank, storage tank, upgrade to a double wall from a single wall, horizontal, steel, above ground, variable cost portion	2260	Variable cost portion of the difference between a single wall and double wall horizontal steel storage tank. Includes cradles, coating, fittings, labor, equipment. Excludes foundations, pumps or piping.	Gallon	\$0.33	1000	\$330.00
Tank, storage tank, upgrade to a double wall from a single wall, horizontal, steel, above ground, fixed cost portion	2275	Fixed cost portion of the difference between a single wall and double wall horizontal steel storage tank. Includes cradles, coating, fittings, labor, equipment. Excludes foundations, pumps or piping.	Each	\$4,394.38	1	\$4,394.38

**Practice: 710 - Agricultural Secondary Containment Facility**

**Scenario: #4 - Double wall tank, with appurtenances, existing foundation, off-road**

**Scenario Description:**

This practice scenario includes the replacement of an existing single wall fuel storage tank with a new double wall tank anchored to an existing concrete foundation, in a remote location. May also include piping, pumps, and appurtenances. For the purpose of this practice the intention of a remote site definition is one that requires the tank to be purchased and then shipped by either air or barge to its intended location. The purpose of the practice is to address resource concerns related to water quality degradation due to the excessive release of organics into ground and surface waters or excessive sediment and turbidity in surface waters.

Associated practices: Heavy Use Area Protection (561).

**Before Situation:**

The agricultural operation has an existing single wall fuel/oil storage tank(s) without any spill prevention protection. The producer has developed an SPCC plan in accordance with EPA requirements, which requires an above ground secondary containment facility for on-farm oil products.

**After Situation:**

This scenario is based on the replacement of an existing single wall tank(s) with a new double wall tank(s). Installation of "used" double wall tank(s) will not be allowed. A 1000 gallon horizontal or vertical antiroll tank (U/L 142-23 Secondary Containment Vessel) double walled which meets EPA regulations will be installed. Payment Schedule is based on the cost difference between a new single wall tank and new double wall tank of the same size. The double wall tank will provide an environmentally safe facility for handling and storage of oil products stored on the farm. Any accidental spills will be contained.

**Scenario Feature Measure:** Tank volume

**Scenario Unit:** Gallon

**Scenario Typical Size:** 1,000

**Scenario Cost:** \$9,353.62

**Scenario Cost/Unit:** \$9.35

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Crane, truck mounted, hydraulic, 12 ton	1734	12 ton capacity truck mounted hydraulic crane. Equipment cost only.	Hour	\$101.56	4	\$406.24
<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	\$37.73	4	\$150.92
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	\$29.15	16	\$466.40
<b>Materials</b>						
Fuel Containment Facility, Gate valve 2 inch diameter	1735	Metal 2 inch diameter gate valve. Materials only.	Each	\$119.84	2	\$239.68
Tank, storage tank, upgrade to a double wall from a single wall, horizontal, steel, above ground, variable cost portion	2260	Variable cost portion of the difference between a single wall and double wall horizontal steel storage tank. Includes cradles, coating, fittings, labor, equipment. Excludes foundations, pumps or piping.	Gallon	\$0.33	1000	\$330.00
Tank, storage tank, upgrade to a double wall from a single wall, horizontal, steel, above ground, fixed cost portion	2275	Fixed cost portion of the difference between a single wall and double wall horizontal steel storage tank. Includes cradles, coating, fittings, labor, equipment. Excludes foundations, pumps or piping.	Each	\$4,394.38	1	\$4,394.38
<b>Mobilization</b>						
Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been i	Dollar	\$1.00	3366	\$3,366.00

**Practice: 710 - Agricultural Secondary Containment Facility**

**Scenario: #5 - Earthen containment of existing tank**

**Scenario Description:**

This practice scenario includes the construction of an earthen containment wall with a flexible membrane liner around an existing storage tank. The containment will not have a roof.

The purpose of the practice is to address resource concerns related to water quality degradation due to the excessive release of organics into ground and surface waters or excessive sediment and turbidity in surface waters.

Associated practices: Heavy Use Area Protection (561).

**Before Situation:**

The agricultural operation has a single walled fuel/oil storage tank(s) without any spill prevention protection. The producer has developed an SPCC plan in accordance with EPA requirements, which requires an above ground secondary containment facility for on-farm oil products.

**After Situation:**

This scenario is based on containment for a 10,000 gallon tank. The containment will be lined with a flexible membrane liner. The containment volume is designed for 125% of the tank volume (10,000 gallons X 125% = 12,500 gallons). The bottom dimensions of the containment are 40 ft x 24 ft. The wall is 2.5 feet high with a 2 ft top width and 2:1 sideslopes. The total volume of earthfill = 114 CY. The flexible liner size = 1,872 SF. Tanks will be moved or raised to install base materials. Hauled in earthfill will be used to construct the dike. The flexible liner will be installed in conformance with the design and specifications. The completed structure will provide an environmentally safe facility for handling and storage of oil products stored on the farm. Any accidental spills will be contained.

**Scenario Feature Measure:** Cubic Yard of compacted earthen wall

**Scenario Unit:** Cubic Yard

**Scenario Typical Size:** 114

**Scenario Cost:** \$14,878.64

**Scenario Cost/Unit:** \$130.51

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Earthfill, Roller Compacted	49	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	\$5.27	126	\$664.02
Earthfill, Dumped and Spread	51	Earthfill, dumped and spread without compaction effort, includes equipment and labor	Cubic yard	\$4.33	114	\$493.62
Crane, truck mounted, hydraulic, 12 ton	1734	12 ton capacity truck mounted hydraulic crane. Equipment cost only.	Hour	\$101.56	2	\$203.12
<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	\$37.73	2	\$75.46
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	\$29.15	4	\$116.60
<b>Materials</b>						
Fuel Containment Facility, Gate valve 2 inch diameter	1735	Metal 2 inch diameter gate valve. Materials only.	Each	\$119.84	1	\$119.84
Synthetic Liner, 40 mil	1387	Synthetic 40 mil HDPE, LLDPE, EPDM, etc membrane liner material. Includes materials and shipping only.	Square Yard	\$5.65	1872	\$10,576.80
Geotextile, non-woven, heavy weight	1210	Non-woven greater than 8 ounce/square yard geotextile with staple anchoring. Materials and shipping only.	Square Yard	\$3.84	208	\$798.72
Pipe, PVC, 2", SCH 40	976	Materials: - 2" - PVC - SCH 40 - ASTM D1785	Foot	\$1.40	50	\$70.00
Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	\$30.43	18	\$547.74
<b>Mobilization</b>						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$289.75	2	\$579.50

**Mobilization**

Mobilization, large equipment	1140	Equipment >150HP or typical weights greater than 30,000 pounds or loads requiring over width or over length permits.	Each	\$553.21	1	\$553.21
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	\$80.01	1	\$80.01

**Practice: 710 - Agricultural Secondary Containment Facility**

**Scenario: #6 - Concrete containment of existing tank**

**Scenario Description:**

This practice scenario includes the installation of a reinforced concrete wall containment with a concrete slab around an existing storage tank. The purpose of the practice is to address resource concerns related to water quality degradation due to the excessive release of organics into ground and surface waters or excessive sediment and turbidity in surface waters. Due to topography, limited site space and/or geological conditions a fabricated structure is needed. Structure will provide an environmentally safe facility for handling and storage of these products. Associated practices may include: Heavy Use Area Protection (561).

**Before Situation:**

Existing agricultural operation that has single walled fuel/oil storage tank(s) not protected. The producer has developed an SPCC plan in accordance with EPA requirements, that requires an above ground secondary containment facility for on-farm oil products, in order to control the excessive release of organics into ground and surface waters, or to control the excessive sediment and turbidity in surface water.

**After Situation:**

This scenario is based on containment for a 4,700 gallon tank. The containment volume is designed for 125% of the tank volume (4,700 gallons X 125% = 5,875 gallons). Structure will provide an environmentally safe facility for handling and storage of these products. Typical containment dimensions are 196 sqft bottom x 6" thick slab with 6" thick x 4' tall formed sidewalls. Tanks will be moved or raised to install base materials. The fabricated containment structure will be installed in conformance with the design and specifications. The on-farm oil products stored on the farm have secondary containment of accidental release that controls the excessive release of organics, suspended sediments, and turbidity. Structure will provide an environmentally safe facility for handling and storage of these products.

**Scenario Feature Measure:** Volume of concrete used for containment

**Scenario Unit:** Cubic Yard

**Scenario Typical Size:** 4

**Scenario Cost:** \$5,014.83

**Scenario Cost/Unit:** \$1,253.71

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Concrete, CIP, slab on grade, reinforced	37	Steel reinforced concrete formed and cast-in-placed as a slab on grade by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic yard	\$267.09	4.2	\$1,121.78
Concrete, CIP, formed reinforced	38	Steel reinforced concrete formed and cast-in-placed in formed structures such as walls or suspended slabs by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic yard	\$574.52	4.3	\$2,470.44
Crane, truck mounted, hydraulic, 12 ton	1734	12 ton capacity truck mounted hydraulic crane. Equipment cost only.	Hour	\$101.56	2	\$203.12
<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	\$37.73	2	\$75.46
<b>Materials</b>						
Pipe, PVC, 2", SCH 40	976	Materials: - 2" - PVC - SCH 40 - ASTM D1785	Foot	\$1.40	30	\$42.00
Fuel Containment Facility, Gate valve 2 inch diameter	1735	Metal 2 inch diameter gate valve. Materials only.	Each	\$119.84	1	\$119.84
Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	\$30.43	4.2	\$127.81
<b>Mobilization</b>						
Mobilization, small equipment	1138	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	\$194.88	1	\$194.88
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$289.75	2	\$579.50

**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	\$80.01	1	\$80.01
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**Practice: 734 - Fish and Wildlife Structure**

**Scenario: #1 - Snag Creation**

**Scenario Description:**

Create snags from existing live trees to provide nesting, foraging, perching, thermal cover, and display habitat for target species such as cavity nesting birds (woodpeckers, songbirds, wood duck, etc), small mammals (shrew, weasel, flying squirrel, bats, etc.), and bumble bees. Trees must be at least 12" DBH. Resulting snag will be a minimum of 25' tall. Snag creation methods may include girdling, chemical injection, or high topping. Typically 5 snags are created per acre

**Before Situation:**

These structures are targeted for areas that lack sufficient snag habitat conditions to support viable populations of targeted species. Insufficient cavity nests, foraging, and perching habitat exists on the planning unit. Existing snag habitat is lacking or not well distributed.

**After Situation:**

Snag creation enhances the overall habitat condition for numerous terrestrial species. These structures/features enhance habitat and improve species survivability. By providing cavity nesting sites, invertebrate foraging area, perching/hunting opportunities, and thermal cover/escape cover, larger open spaces are more effectively used by cavity nesting birds and pollinators, amphibians, reptiles, and small mammals. Increased cover reduces predation.

**Scenario Feature Measure:** Number of snags

**Scenario Unit:** Each

**Scenario Typical Size:** 5

**Scenario Cost:** \$204.60

**Scenario Cost/Unit:** \$40.92

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Chainsaw	937	Equipment and power unit costs. Labor not included.	Hour	\$7.08	1	\$7.08
All terrain vehicles, ATV	965	Includes equipment, power unit and labor costs.	Hour	\$34.51	1.5	\$51.77
<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	\$29.15	5	\$145.75

**Practice: 734 - Fish and Wildlife Structure**

**Scenario: #2 - Strutting or Display log**

**Scenario Description:**

A log or combination of log structures is provided to create or enhance courtship and display behavior for grouse in forested or edge settings. As defined in an approved wildlife habitat management plan, locate drumming logs in areas of early successional mixed forest areas of sparse understory but dense mid-story where stem densities range from 12,000-20,000 stems per acre. Surrounding stem and vegetation shall be a minimum of 8' in height to deter predation from avian species. Insure heights of strutting surface range from 20"- 36" above the ground. Raise logs to achieve required height when necessary. Logs shall be a minimum of 20' in length and 12" in diameter for at least ten feet of the length of the log. Logs shall be limbed to the trunk diameter along the strutting surface (some limbs may be left on the bottom of the log area to help support the log to the appropriate height). De-limb all other surface obstruction on log. Locate up to two logs per acre in the most suitable habitat available. Local site material will be used for construction.

**Before Situation:**

Lack of display and strutting habitat features limit use of suitable habitat areas for ruffed or spruce grouse.

**After Situation:**

The installation of strutting logs now provides grouse species with use of an are for reproductive behavior in a suitable habitat.

**Scenario Feature Measure:** Number

**Scenario Unit:** Number

**Scenario Typical Size:** 4

**Scenario Cost:** \$283.94

**Scenario Cost/Unit:** \$70.99

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
All terrain vehicles, ATV	965	Includes equipment, power unit and labor costs.	Hour	\$34.51	2	\$69.02
Chainsaw	937	Equipment and power unit costs. Labor not included.	Hour	\$7.08	2	\$14.16
<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	\$29.15	4	\$116.60
<b>Materials</b>						
Log, un-anchored	2035	Price of log picked up at the Mill. Includes material only.	Ton	\$39.08	2	\$78.16
<b>Mobilization</b>						
Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been i	Dollar	\$1.00	6	\$6.00

**Practice: 734 - Fish and Wildlife Structure**

**Scenario: #3 - Brush and Rock Piles**

**Scenario Description:**

Creation of brush piles provides many benefits to a wide variety of wildlife species. Properly constructed brushpiles can provide cover, shelter, escape, nesting and denning, display, roosting and foraging opportunities for seasonal or yearlong use for many species. Brush piles are appropriate for sites which have already received vegetative clearing where little or no ground level escape or habitat cover exists, in forested or wooded sites to be cleared or thinned, or in pastureland, hayland or cropland where there is interest in improving habitat opportunities or create travel corridors. Strutting "log's" can also be constructed in conjunction or by using a brushpile-like structure. These structures are located and constructed to meet focus species biology and life history needs. While size varies, brush piles are typically 10 ft in diameter and 6 ft high (500 to 700 square feet) at the center. Multiples brush piles are better than one larger pile, and two to four piles per acre of area adjacent to woodlands is desirable. Piles are typically 200 to 300 ft apart. Stumps, logs, rocks and pipes are typically placed at the bottom with limbs and leaves placed on top, thereby allowing easy access to the bottom of the pile. These piles can provide nesting habitat, resting areas, concealment, and protection from some predators for birds, rabbits, and other small mammals.

As defined in an approved wildlife habitat management plan, piles are to be constructed using the Alaska Wildlife Brushpile Job Sheet as a part of the Fish and Wildlife Structure Practice. This practice can be used in association with other land management or treatment practices where brushpile (s) will facilitate enhancement of wildlife species use of the conservation treatment unit/ land use category. Material for piles are to be locally (on-site) obtained, appropriate ecologically, and located, sized and configured (height, material, density requirements and physical shape, etc.) at designated sites according to the job sheet design and management plan. The conservation practice, wildlife management or conservation plan will identify number of piles, intent/goals, wildlife species, and any live material used. A Wildlife Habitat Evaluation Guide must accompany the assessment to install brushpiles, and becomes part of the required planning documentation.

Brushpiles are generally not permanent. Some brushpile designed as living structures will require vegetative operation and maintenance to retain or improve the vegetative functions and habitat the pile was intended to provide. Where piles are not designed as living structures, rot and decay are normal process's. Piles will be examined yearly to determine if the state of decay is such that the pile needs material or adjustment to extend the useful life of the pile, or to determine if a new pile needs to be constructed. Noxious weeds invading piles or encroaching on the landscape reducing the piles habitat benefits must be controlled (hand-controlled or careful spot-spraying where spraying can be accomplished with a minimal amount of contamination to the pile). Required O&M will be identified on the Brushpile specification/ jobsheet.

**Before Situation:**

These structures are targeted for areas that lack sufficient overall habitat conditions to support viable populations of targeted species. Insufficient ground cover is available for resting, basking, and escape cover. Existing brushy cover is lacking or not well distributed.

**After Situation:**

The installation of a brush piles and rock piles enhances the overall habitat needs of numerous terrestrial species. These structures/features enhance habitat and improve species survivability. By providing resting, basking, and escape cover, larger open spaces are more effectively used by ground nesting birds, amphibians, reptiles, and small mammals. Increased cover reduces predation.

**Scenario Feature Measure:** Number of Piles

**Scenario Unit:** Each

**Scenario Typical Size:** 4

**Scenario Cost:** \$791.48

**Scenario Cost/Unit:** \$197.87

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Chainsaw	937	Equipment and power unit costs. Labor not included.	Hour	\$7.08	8	\$56.64
Tractor, agricultural, 60 HP	963	Agricultural tractor with horsepower range of 50 to 90. Equipment and power unit costs. Labor not included.	Hour	\$26.35	4	\$105.40
All terrain vehicles, ATV	965	Includes equipment, power unit and labor costs.	Hour	\$34.51	4	\$138.04
<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	\$29.15	16	\$466.40

**Mobilization**

**Mobilization**

Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been i	Dollar	\$1.00	25	\$25.00
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**Practice: 734 - Fish and Wildlife Structure**

**Scenario: #4 - Escape Ramp**

**Scenario Description:**

Retrofit an existing watering trough/tank with an appropriately designed and installed wildlife escape ramp to reduce wildlife mortality and improve wildlife habitat. Typical ramps are built according to 614 practice standard and guidance in "Water for Wildlife" publication: <http://www.batcon.org/pdfs/water/bciwaterforwildlife.pdf>

**Before Situation:**

These structures are targeted for containers (tank, trough, or other watertight container) or small basins provisioning livestock water that currently restrict birds, small mammals, amphibians and other wildlife species from the ability to escape these confined structures once entered.

**After Situation:**

Watering facilities and basins equipped with escape ramps facilitate movement of the trapped wildlife species across these ramps and safely exist from the watering facility or basin. These structures are constructed along side of the watering facility extending from the to the bottom of the container to the top inside edge. Appropriate placement at an angle and flush to the container wall enhances the successful use of escaping animal.

**Scenario Feature Measure:** Each Ramp

**Scenario Unit:** Each

**Scenario Typical Size:** 1

**Scenario Cost:** \$53.03

**Scenario Cost/Unit:** \$53.03

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<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	\$29.15	1	\$29.15
<b>Materials</b>						
Wildlife Escape Ramp	242	Pool size 15' x 30', for small mammals less than one pound	Each	\$23.88	1	\$23.88

**Practice: 734 - Fish and Wildlife Structure**

**Scenario: #5 - Nesting Box Small**

**Scenario Description:**

A structure is provided to support the nesting and rearing of smaller targeted species, such as bees and birds, and is directly mounted to a tree, building or other structure. These structures are designed to meet targeted species biology and life history needs.

**Before Situation:**

These structures are targeted for areas that lack sufficient overall habitat conditions to support viable populations of targeted species. Increased predation of target and non-targeted species may or may not be a problem. A suitable location to mount the box is available.

**After Situation:**

The installation of nesting and rearing boxes support the life-cycle needs of targeted species, such as birds, bats and pollinators. Because of suitable location and conditions the nesting box can be directly mounted such as on a tree or building, thereby eliminating the need for mounting poles and predator guards. Species such as cavity dwelling birds and pollinators use this approach, but this treatment is not limited to those species. These structures/features enhance habitat, cover, and improve species survivability.

**Scenario Feature Measure:** Number

**Scenario Unit:** Each

**Scenario Typical Size:** 4

**Scenario Cost:** \$177.30

**Scenario Cost/Unit:** \$44.33

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<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	\$29.15	2	\$58.30
<b>Materials</b>						
Habitat Box, Bird	251	Bluebird nesting box to increase nesting success. Each is 1-1/2" x 6" x 12-1/2" w/ 1-1/2" diameter opening. Includes materials and shipping.	Each	\$29.75	4	\$119.00

**Practice: 734 - Fish and Wildlife Structure**

**Scenario: #6 - Nesting Box Small with wood pole**

**Scenario Description:**

Constructing a nest box and mounting on a wooden pole. A structure is provided to support the nesting and rearing of targeted species, such as pollinators and birds. Trees, buildings or other structures are not available. These structures are designed to meet targeted species biology and life history needs. Addresses Resource Concern: Inadequate Cover/Shelter.

**Before Situation:**

These structures are targeted for areas that lack sufficient overall habitat conditions to support viable populations of targeted species. Increased predation of target and non-targeted species may or may not be a problem.

**After Situation:**

The installation nesting and rearing boxes support the life-cycle needs of targeted species, such as blue birds and waterfowl. Location and conditions suggest that predator guards are not needed. These structures/features enhance habitat, cover, and improve species survivability.

**Scenario Feature Measure:** Number

**Scenario Unit:** Number

**Scenario Typical Size:** 4

**Scenario Cost:** \$774.57

**Scenario Cost/Unit:** \$193.64

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Skidsteer, 80 HP	933	Skidsteer loader with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$48.50	4	\$194.00
Auger, Post driver attachment	934	Auger or post driver attachment to a tractor or skidsteer. Does not include power unit. Labor not included.	Hour	\$9.40	4	\$37.60
<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	\$29.15	6	\$174.90
<b>Materials</b>						
Post, Wood, CCA treated, 6" x 12-14'	13	Wood Post, Line/End 6" X 12-14', CCA Treated. Includes materials and shipping only.	Each	\$26.08	4	\$104.32
Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	\$30.43	1	\$30.43
Habitat Box, Bird	251	Bluebird nesting box to increase nesting success. Each is 1-1/2" x 6" x 12-1/2" w/ 1-1/2" diameter opening. Includes materials and shipping.	Each	\$29.75	4	\$119.00
Predator Guard	1461	Predator guards (i.e. stove pipes, cone, hole guard, etc.) for habitat boxes. Materials only. Includes material and shipping only.	Each	\$28.58	4	\$114.32

**Practice: 734 - Fish and Wildlife Structure**

**Scenario: #7 - Nesting Box Waterfowl**

**Scenario Description:**

A structure is provided to support the nesting and rearing of larger targeted species such as waterfowl, bats and barn owls, and is directly mounted to a tree, building or other structure. These structures are designed to meet targeted species biology and life history needs. Addresses Resource Concern: Inadequate Cover/Shelter.

**Before Situation:**

These structures are targeted for areas that lack sufficient overall habitat conditions to support viable populations of targeted species. Increased predation of target and non-targeted species may or may not be a problem. A suitable location to mount the box is available.

**After Situation:**

The installation of nesting and rearing boxes support the life-cycle needs of targeted species, such as birds, bats and pollinators. Because of suitable location and conditions the nesting box can be directly mounted such as on a tree or building, thereby eliminating the need for mounting poles and predator guards. Species such as cavity dwelling birds and pollinators use this approach, but this treatment is not limited to those species. These structures/features enhance habitat, cover, and improve species survivability.

**Scenario Feature Measure:** Number

**Scenario Unit:** Each

**Scenario Typical Size:** 4

**Scenario Cost:** \$451.90

**Scenario Cost/Unit:** \$112.98

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<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	\$29.15	2	\$58.30
<b>Materials</b>						
Predator Guard	1461	Predator guards (i.e. stove pipes, cone, hole guard, etc.) for habitat boxes. Materials only. Includes material and shipping only.	Each	\$28.58	4	\$114.32
Habitat Box, waterfowl	1449	Wood Duck Box, typically 24" x 11" x 12" with 4" wide oval entrance, single. Includes material and shipping only.	Each	\$69.82	4	\$279.28

**Practice: 734 - Fish and Wildlife Structure**

**Scenario: #8 - Nesting Box Waterfowl with Steel Pole**

**Scenario Description:**

Constructing a nest box on a steel pole. A structure is provided to support the nesting and rearing of larger targeted species such as waterfowl, bats and barn owls. Trees, buildings, ore other structures are not available on which to install the box. These structures are designed to meet targeted species biology and life history needs. Addresses Resource Concern: Inadequate Cover/Shelter.

**Before Situation:**

These structures are targeted for areas that lack sufficient overall habitat conditions to support viable populations of targeted species. Increased predation of target and non-targeted species may or may not be a problem.

**After Situation:**

The installation nesting and rearing boxes support the life-cycle needs of targeted specessuch as bats and waterfowl. Location and conditions suggest that predator guards are not needed. These structures/features enhance habitat, cover, and improve species survivability.

**Scenario Feature Measure:** Number

**Scenario Unit:** Number

**Scenario Typical Size:** 4

**Scenario Cost:** \$921.79

**Scenario Cost/Unit:** \$230.45

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Skidsteer, 80 HP	933	Skidsteer loader with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$48.50	4	\$194.00
Auger, Post driver attachment	934	Auger or post driver attachment to a tractor or skidsteer. Does not include power unit. Labor not included.	Hour	\$9.40	4	\$37.60
<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	\$29.15	4	\$116.60
<b>Materials</b>						
Pipe, steel, galvanized, threaded, 2", schedule 40	257	Spec. A-53, includes coupling and clevis hanger assembly sized for covering, 10' OC	Foot	\$37.39	4	\$149.56
Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	\$30.43	1	\$30.43
Habitat Box, waterfowl	1449	Wood Duck Box, typically 24" x 11" x 12" with 4" wide oval entrance, single. Includes material and shipping only.	Each	\$69.82	4	\$279.28
Predator Guard	1461	Predator guards (i.e. stove pipes, cone, hole guard, etc.) for habitat boxes. Materials only. Includes material and shipping only.	Each	\$28.58	4	\$114.32

**Practice: 734 - Fish and Wildlife Structure**

**Scenario: #9 - Nesting Islands**

**Scenario Description:**

This practice involves constructing, maintaining, and monitoring loafing structures to provide nesting/loafing cover for waterfowl and shorebirds.. This practice applies to construction of sites within or as peninsula's associated with permanent ponds.. A habitat appraisal guide has identified that nesting/loafing cover is a limiting factor for shorebirds, waterbirds, waterfowl, or other wetland wildlife and where natural recovery of that habitat element is either unlikely or will take many years to naturally develop. Each island will be a minimum of 800 sqft above the waterline with slopes of between 8:1 and 10:1 with a one foot freeboard. There will be one created island per 10 acres with a minimum of three islands per project. Vegetated areas can be used for breeding waterfowl; encourage non-vegetated areas for breeding shorebirds.

Resource Concern: Inadequate Habitat for Fish and Wildlife.

**Before Situation:**

This practice applies to permanent natural or created ponds/ flooded wetlands where a habitat appraisal guide has identified that nesting/loafing cover is a limiting factor for shorebirds, waterfowl, or other wetland wildlife and where natural recovery of that habitat element is either unlikely or will take many years to naturally develop.

**After Situation:**

Each island constructed to a minimum of 800 sqft above the waterline with slopes of between 8:1 and 10:1 with a one foot freeboard. A minimum distance from the island to the permanent shoreline during nesting season is 200', where the water depth is at least 36". Number of islands per treatment unit area will be determined site by site and based on total size of flooded or ponded area. Creating islands provides suitable nesting/ loafing areas within the flooded agricultural fields and offsets the lack of protected uplands for nesting or loafing shorebirds, waterfowl, reptiles, and amphibians.

**Scenario Feature Measure: Nesting Islands**

**Scenario Unit:** Each

**Scenario Typical Size:** 1

**Scenario Cost:** \$2,020.57

**Scenario Cost/Unit:** \$2,020.57

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Dozer, 200 HP	928	Track mounted Dozer with horsepower range of 160 to 250. Equipment and power unit costs. Labor not included.	Hour	\$209.53	7	\$1,466.71
<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	\$37.73	7	\$264.11
<b>Mobilization</b>						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$289.75	1	\$289.75

**Practice: 734 - Fish and Wildlife Structure**

**Scenario: #10 - Conservation Signs, TrailMarkers**

**Scenario Description:**

Conservation sign(s) are required to provide explicit information for land use/area management requirements or activities on private lands. For companion wildlife practices to be effective at the site, the public, specific user groups or other individuals are informed of allowable access or restrictions, proper use, goals, benefits and/or other actions or requirements, to promote associated wildlife management activities and structural practices.

Trail marker (s) is/are necessary to provide guidance and location of trail course, mark corners or trail sections where special concerns, features or conditions (safety, location, restrictions, etc.) exist, and are necessary to support wildlife practices or habitat management plans and activities. Graphics (decals) or text may be required/ necessary to inform users of special circumstances or other important information. Number and location of the marker (s) must be identified in the attending wildlife, engineering or conservation plan. Specifications for location and installation requirements will be a part of the install plan design.

General frequency recommendations are to place markers no less than 250' apart demarking one or both sides. Where trail placement is difficult to see or significantly different from side to side of the track, two markers may be used at one location. It is expected only one side of the track will usually be marked. Install markers at significant grade changes or where terrain or vegetation necessitates the visual location of the track necessary. Install markers on both sides of track intersections by roads or moderate sized surface water courses crossing the track. In open terrain with little view obstruction markers should only be needed every eight hundred to one thousand feet, or further. Take into consideration inclement weather visual conditions (eg. fog, blowing snow) when determining distances between markers.

**Before Situation:**

Trail Marking sign(s) are required for trail location purposes or to provide explicit information for land use/area management requirements or activities on private lands. The public or user groups do not currently or, need to be aware/ apposed of structural and management features on the landscape for which wildlife habitat benefits are being addressed or created. indiscrimant use of the landscape by user groups has or will dedteriorate quality/ qunatity of wildlife habita benefits sought by practice or management intents.

**After Situation:**

Trail locations are now identifiedand thereby reduce insidcrimant off trail disturbances, facilitating companion wildlife practices/ structures and wildlife management at the site where the public, specific user groups or other individuals are now informed of allowable access or restrictions, proper use, goals, benefits and/or other actions or requirements, to promote associated wildlife management activities and structural practices.

**Scenario Feature Measure:** Number of markers installed

**Scenario Unit:** Each

**Scenario Typical Size:** 50

**Scenario Cost:** \$2,339.48

**Scenario Cost/Unit:** \$46.79

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
All terrain vehicles, ATV	965	Includes equipment, power unit and labor costs.	Hour	\$34.51	8	\$276.08
Tractor, agricultural, 60 HP	963	Agricultural tractor with horsepower range of 50 to 90. Equipment and power unit costs. Labor not included.	Hour	\$26.35	8	\$210.80
Auger, Post driver attachment	934	Auger or post driver attachment to a tractor or skidsteer. Does not include power unit. Labor not included.	Hour	\$9.40	8	\$75.20
<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	\$29.15	16	\$466.40
<b>Materials</b>						
Trail Marker	2258	Carsonite CRM375 fiberglass utility marker or equivalent, 66" tall by 3.5" wide, available with custom 3"x3" reflective decal applied. Includes materials and shipping only.	Each	\$24.22	50	\$1,211.00

**Mobilization**

**Mobilization**

Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been i	Dollar	\$1.00	100	\$100.00
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**Practice: 734 - Fish and Wildlife Structure**

**Scenario: #11 - Conservation Signage 24 by 18 inches**

**Scenario Description:**

Conservation sign(s) are required to provide explicit information for land use/area management requirements or activities on private lands. For companion wildlife practices to be effective at the site, the public, specific user groups or other individuals are informed of allowable access or restrictions, proper use, goals, benefits and/or other actions or requirements, to promote associated wildlife management activities and structural practices.

Sign text is developed to reflect the site information and requirements, operation, goals and benefits of the land management and practice (s) installation identified in the required long-range wildlife or habitat management plan. Graphics reflecting intent, use, directions, assignment of responsibility, or other information relevant or important to the management plan and practice operation may be included, but are not required. Location (GPS) of the sign (s) must be identified in the wildlife or conservation plan.

This scenario provides for up to three generally text and graphically identical signs (costed as each) of approximate 2'x1.5' dimensions, with any combination of lettering and graphics. Signs are .125 inch thick flat aluminum with engineer grade reflective sheeting applied over the surface. Signs shall not rust. Scenario includes installation allowance for materials which achieves the practice life span under general climatic/ecological circumstances at the site (this does not include abuse or human activities which could threaten the integrity of the install or sign). Installation must follow manufacturers recommendations or specifications approved by NRCS, whichever is deemed by NRCS most appropriate. Operation and maintenance for the presence, display and condition of the sign is the responsibility of the landowner and must be maintained over the lifespan of the practice.

**Before Situation:**

Conservation sign(s) are required to provide explicit information for land use/area management requirements or activities on private lands. The public or user groups do not currently or, need to be aware/ approsed of structural and management features on the landscape for which wildlife habitat benefits are being addressed or created. indiscrimant use of the landscape by user groups has or will dedteriorate quality/ qunatity of wildlife habita benefits sought by practice or management intents.

**After Situation:**

Companion wildlife practices and wildlife management is effected at the site where the public, specific user groups or other individuals are now informed of allowable access or restrictions, proper use, goals, benefits and/or other actions or requirements, to promote associated wildlife management activities and structural practices.

**Scenario Feature Measure:**

**Scenario Unit:** Each

**Scenario Typical Size:** 1

**Scenario Cost:** \$246.72

**Scenario Cost/Unit:** \$246.72

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Auger, Post driver attachment	934	Auger or post driver attachment to a tractor or skidsteer. Does not include power unit. Labor not included.	Hour	\$9.40	0.75	\$7.05
Tractor, agricultural, 60 HP	963	Agricultural tractor with horsepower range of 50 to 90. Equipment and power unit costs. Labor not included.	Hour	\$26.35	1.25	\$32.94
All terrain vehicles, ATV	965	Includes equipment, power unit and labor costs.	Hour	\$34.51	1	\$34.51
<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	\$29.15	0.5	\$14.58
<b>Materials</b>						
Sign, 2' x 1.5'	2257	.125 aluminum, single-sided, with nonreflective, EG reflective or HIP reflective face copy, Posts, 2" x 8' galvanized perforated square steel tube signpost, Anchor, 2.5" x 30" galv. Non-perforated square steel tube anchor for post, and Windbeam Bolt Assem	Each	\$132.65	1	\$132.65

**Mobilization**

**Mobilization**

Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been i	Dollar	\$1.00	25	\$25.00
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**Practice: 734 - Fish and Wildlife Structure**

**Scenario: #12 - Conservation Signage 2 by 3 foot**

**Scenario Description:**

Conservation sign(s) are required to provide explicit information for land use/area management requirements or activities on private lands. For companion wildlife practices to be effective at the site, the public, specific user groups or other individuals are informed of allowable access or restrictions, proper use, goals, benefits and/or other actions or requirements, to promote associated wildlife management activities and structural practices.

Sign text is developed to reflect the site information and requirements, operation, goals and benefits of the land management and practice (s) installation identified in the required long-range wildlife or habitat management plan. Graphics reflecting intent, use, directions, assignment of responsibility, or other information relevant or important to the management plan and practice operation may be included, but are not required. Location (GPS) of the sign (s) must be identified in the wildlife or conservation plan.

This scenario provides for up to three generally text and graphically identical signs (costed as each) of approximate 3'x2' dimensions, with any combination of lettering and graphics. Signs are .125 inch thick flat aluminum with engineer grade reflective sheeting applied over the surface. Signs shall not rust. Scenario includes installation allowance for materials which achieves the practice life span under general climatic/ecological circumstances at the site (this does not include abuse or human activities which could threaten the integrity of the install or sign). Installation must follow manufacturers recommendations or specifications approved by NRCS, whichever is deemed by NRCS most appropriate. Operation and maintenance for the presence, display and condition of the sign is the responsibility of the landowner and must be maintained over the lifespan of the practice.

**Before Situation:**

Conservation sign(s) are required to provide explicit information for land use/area management requirements or activities on private lands. The public or user groups do not currently or, need to be aware/ approsed of structural and management features on the landscape for which wildlife habitat benefits are being addressed or created. indiscrimant use of the landscape by user groups has or will dedteriorate quality/ qunatity of wildlife habita benefits sought by practice or management intents.

**After Situation:**

Companion wildlife practices and wildlife management is effected at the site where the public, specific user groups or other individuals are now informed of allowable access or restrictions, proper use, goals, benefits and/or other actions or requirements, to promote associated wildlife management activities and structural practices.

**Scenario Feature Measure:**

**Scenario Unit:** Each

**Scenario Typical Size:** 1

**Scenario Cost:** \$342.62

**Scenario Cost/Unit:** \$342.62

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
All terrain vehicles, ATV	965	Includes equipment, power unit and labor costs.	Hour	\$34.51	1	\$34.51
Tractor, agricultural, 60 HP	963	Agricultural tractor with horsepower range of 50 to 90. Equipment and power unit costs. Labor not included.	Hour	\$26.35	1.25	\$32.94
Auger, Post driver attachment	934	Auger or post driver attachment to a tractor or skidsteer. Does not include power unit. Labor not included.	Hour	\$9.40	0.75	\$7.05
<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	\$29.15	2.25	\$65.59
<b>Materials</b>						
Sign, 3' x 2'	2259	.125 aluminum, single-sided, with nonreflective, EG reflective or HIP reflective face copy, Posts, 2" x 8' galvanized perforated square steel tube signpost, Anchor, 2.5" x 30" galv. Non-perforated square steel tube anchor for post, and Windbeam Bolt Assem	Each	\$142.53	1	\$142.53

**Mobilization**

**Mobilization**

Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been i	Dollar	\$1.00	60	\$60.00
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**Practice: 734 - Fish and Wildlife Structure**

**Scenario: #13 - Conservation Signage 3 by 5 foot**

**Scenario Description:**

Conservation sign(s) are required to provide explicit information for land use/area management requirements or activities on private lands. For companion wildlife practices to be effective at the site, the public, specific user groups or other individuals are informed of allowable access or restrictions, proper use, goals, benefits and/or other actions or requirements, to promote associated wildlife management activities and structural practices.

Sign text is developed to reflect the site information and requirements, operation, goals and benefits of the land management and practice (s) installation identified in the required long-range wildlife or habitat management plan. Graphics reflecting intent, use, directions, assignment of responsibility, or other information relevant or important to the management plan and practice operation may be included, but are not required. Location (GPS) of the sign (s) must be identified in the wildlife or conservation plan.

This scenario provides for Conservation Signs approximately 5'x3' in dimension, with any combination of lettering and graphics. Signs are .125 inch thick flat aluminum with engineer grade reflective sheeting applied over the surface. Signs shall not rust. Scenario includes installation allowance for materials which achieves the practice life span under general climatic/ecological circumstances at the site (this does not include abuse or human activities which could threaten the integrity of the install or sign). Installation must follow manufacturers recommendations or specifications approved by NRCS, whichever is deemed by NRCS most appropriate. Operation and maintenance for the presence, display and condition of the sign is the responsibility of the landowner and must be maintained over the lifespan of the practice.

**Before Situation:**

Conservation sign(s) are required to provide explicit information for land use/area management requirements or activities on private lands. The public or user groups do not currently or, need to be aware/ approsed of structural and management features on the landscape for which wildlife habitat benefits are being addressed or created. indiscrimant use of the landscape by user groups has or will dedteriorate quality/ qunatity of wildlife habita benefits sought by practice or management intents.

**After Situation:**

Companion wildlife practices and wildlife management is effected at the site where the public, specific user groups or other individuals are now informed of allowable access or restrictions, proper use, goals, benefits and/or other actions or requirements, to promote associated wildlife management activities and structural practices.

**Scenario Feature Measure:**

**Scenario Unit:** Each

**Scenario Typical Size:** 1

**Scenario Cost:** \$598.74

**Scenario Cost/Unit:** \$598.74

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
All terrain vehicles, ATV	965	Includes equipment, power unit and labor costs.	Hour	\$34.51	1	\$34.51
Auger, Post driver attachment	934	Auger or post driver attachment to a tractor or skidsteer. Does not include power unit. Labor not included.	Hour	\$9.40	0.75	\$7.05
Tractor, agricultural, 60 HP	963	Agricultural tractor with horsepower range of 50 to 90. Equipment and power unit costs. Labor not included.	Hour	\$26.35	1.25	\$32.94
<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	\$29.15	2	\$58.30
<b>Materials</b>						
Sign, 5' x 3'	2256	.125 Aluminum, Single-Sided, with Non-Reflective, EG reflective or HIP reflective face copy, Back framing, Posts 2" x 12' galvanized perforated square steel tube signpost, Anchor, 2.5" x 30" galv. Non-perforated square steel tube anchor, and Wind beam Bo	Each	\$390.94	1	\$390.94

**Mobilization**

**Mobilization**

Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been i	Dollar	\$1.00	75	\$75.00
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**Practice: 798 - Seasonal High Tunnel for Crops**

**Scenario: #1 - Alaska Remote Snow**

**Scenario Description:**

Used for remote locations in Alaska, which is a Non-Contiguous US area. There are extreme shipping costs usually by boat, rail, truck and/or air. A manufactured frame of tubular steel (30 x 72 ft.) with additional bracing for extreme weather events. The frame is covered with 4-year polyethylene of 6 mil thickness. Costs are based on purchase of manufactured kit and landowner installing the structure. Structure must be installed to manufacturer's specifications.

**Before Situation:**

Cropland where extension of the growing season is needed. Additional resource concerns that may need to be addressed include: soil erosion, soil condition, water quality, water quantity, plant condition, and energy use.

**After Situation:**

A seasonal high tunnel has been installed and the growing season has been extended for 2-4 months on average. Plant health and vigor is improved and there is decreased energy use by producing food locally.

**Scenario Feature Measure: Area of Tunnel Installed**

**Scenario Unit: Square Foot**

**Scenario Typical Size: 2,160**

**Scenario Cost: \$18,526.80**

**Scenario Cost/Unit: \$8.58**

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<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	\$29.15	120	\$3,498.00
<b>Materials</b>						
Hoop House, gothic style, base package	1278	Includes heavy-duty, gothic framework complete with all predrilled steel, hardware and instructions. Includes 6 mil 4-year polyethylene film to cover tunnel, roll-up sides, lumber, and polylock for sides and ends for a gothic style (peaked top) hoop house	Square Foot	\$4.18	2160	\$9,028.80
<b>Mobilization</b>						
Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been i	Dollar	\$1.00	6000	\$6,000.00

**Practice: 798 - Seasonal High Tunnel for Crops**

**Scenario: #2 - Alaska Urban Snow**

**Scenario Description:**

Used for urban locations in Alaska (a Non-Contiguous US area) where urban labor is available year round, and commercial shipping is regular. It is not necessary to pay extreme wages for labor and within-state shipping in Alaskan urban areas. A manufactured frame of tubular steel (30 x 72 ft.) with additional bracing for extreme weather events. The frame is covered with 4-year polyethylene of 6 mil thickness. Costs are based on purchase of manufactured kit and landowner installing the structure. Structure must be installed to manufacturer's specifications.

**Before Situation:**

Cropland where extension of the growing season is needed. Additional resource concerns that may need to be addressed include: soil erosion, soil condition, water quality, water quantity, plant condition, and energy use.

**After Situation:**

A seasonal high tunnel has been installed and the growing season has been extended for 2-4 months on average. Plant health and vigor is improved and there is decreased energy use by producing food locally.

**Scenario Feature Measure:** Area of Tunnel Installed

**Scenario Unit:** Square Foot

**Scenario Typical Size:** 2,160

**Scenario Cost:** \$16,526.80

**Scenario Cost/Unit:** \$7.65

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<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	\$29.15	120	\$3,498.00
<b>Materials</b>						
Hoop House, gothic style, base package	1278	Includes heavy-duty, gothic framework complete with all predrilled steel, hardware and instructions. Includes 6 mil 4-year polyethylene film to cover tunnel, roll-up sides, lumber, and polylock for sides and ends for a gothic style (peaked top) hoop house	Square Foot	\$4.18	2160	\$9,028.80
<b>Mobilization</b>						
Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been i	Dollar	\$1.00	4000	\$4,000.00