

Practice: 614 - Watering Facility

Scenario: #2 - Steel Tank

Scenario Description:

A permanent watering facility for livestock constructed of galvanized steel with 1,200 gallon capacity that stores adequate quantity and quality of water for storage and or direct drinking access. All watering facilities will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. The watering facility will be placed on a gravel or compacted earthen base. This watering facility will address the resource concerns of inadequate supply of water for livestock and or wildlife, habitat degradation, water quality, and undesirable plant productivity and health.

Before Situation:

This practice applies to all land uses where there is a need for new or improved watering facilities for livestock and or wildlife, where water is not available in sufficient quantities at specific locations, and habitat, water quality, plant productivity and health needs to be improved.

After Situation:

A permanent watering facility with a capacity of 1,200 gallons constructed of galvanized steel is installed with all tank materials, tank plumbing and float valve, to provide adequate water storage capacity to ensure an adequate supply and quality of water for livestock or wildlife for storage and or direct drinking access and provides improved plant productivity and health, water quality, and habit. All watering facilities are constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation and placed on a gravel or compacted earth foundation with required plumbing. All needed pipelines are installed using Livestock Pipeline (516). Any needed vegetation of disturbed areas will use Critical Area Planting (342). All collectors or catchments for collecting precipitation will be addressed by using Water Harvesting Catchment (636). Any needed water source installation will use Water Well (642), Pumping Plant (533), Spring Development (574), or Livestock Pipeline (516) as appropriate. Areas around watering facilities where animal concentrations or overflow from the watering facility will cause resource concerns will be protected by using Heavy Use Area Protection (561) as

Scenario Feature Measure: Capacity in Gallons

Scenario Unit: Gallon

Scenario Typical Size: 1,200

Scenario Cost: \$1,877.93

Scenario Cost/Unit: \$1.56

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Backhoe, 80 HP	926	Wheel mounted backhoe excavator with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$56.19	2	\$112.38
Skidsteer, 80 HP	933	Skidsteer loader with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$43.30	2	\$86.60
Labor						
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$22.65	4	\$90.60
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	\$18.99	4	\$75.96
Materials						
Post, Wood, CCA Treated, 4-5" X 7'	1050	Wood Post, Line 4-5" X 7', CCA Treated. Includes materials and shipping only.	Each	\$7.71	3	\$23.13
Freeze Proof Hydrant, ≤ 3' Bury	240	Freeze Proof Hydrant, 3 foot or less bury. Materials only.	Each	\$45.52		\$0.00
Tank, Galvanized Steel Livestock, > 300 - 1,000 gallon	1068	Includes tank materials and float valve	Gallon	\$0.73	1200	\$876.00
Dimension Lumber, Treated	1044	Treated dimension lumber with nominal thickness equal or less than 2". Includes lumber and fasteners	Board Foot	\$0.83	30	\$24.90
Wildlife Escape Ramp	242	Pool size 15' x 30', for small mammals less than one pound	Each	\$23.88	2	\$47.76
Aggregate, Gravel, Ungraded, Quarry Run	1099	Includes materials, equipment and labor	Cubic yard	\$15.44	1.5	\$23.16

Mobilization

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$258.72	2	\$517.44
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Practice: 614 - Watering Facility

Scenario: #3 - Rubber, fiberglass on earth

Scenario Description:

A permanent watering facility for livestock constructed using a rubber equipment tire with concrete plug or fiberglass tank with 1,200 gallon capacity placed on a gravel or compacted earth foundation that stores adequate quantity and quality of water for storage and or direct drinking access. All watering facilities will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. This watering facility will address the resource concerns of inadequate supply of water for livestock, habitat degradation, water quality, and undesirable plant productivity and health.

Before Situation:

This practice applies to all land uses where there is a need for new or improved watering facilities for livestock and or wildlife during the entire year in the Northern Plains Region, where water is not available in sufficient quantities at specific locations, and habitat, water quality, plant productivity and health needs to be improved.

After Situation:

A permanent watering facility with a capacity of greater than 1,200 gallons constructed using a rubber equipment tire with concrete plug or fiberglass tank is installed on a gravel or compacted earth foundation with all tank materials, tank plumbing and float valve, to provide adequate water storage capacity to ensure an adequate supply and quality of water for livestock or wildlife for storage and or direct drinking access and provides improved plant productivity and health, water quality, and habitat. All watering facilities are constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation and placed on a properly prepared foundation with required plumbing. All needed pipelines are installed using Livestock Pipeline (516). Any needed vegetation of disturbed areas will use Critical Area Planting (342). All collectors or catchments for collecting precipitation will be addressed by using Water Harvesting Catchment (636). Any needed water source installation will use Water Well (642), Pumping Plant (533), Spring Development (574), or Livestock Pipeline (516) as appropriate. Areas around watering facilities where animal concentrations or overflow from the watering facility will cause resource concerns will be protected by using Heavy Use Area Protection (561) as appropriate.

Scenario Feature Measure: Capacity in Gallons

Scenario Unit: Gallon

Scenario Typical Size: 1,200

Scenario Cost: \$1,853.38

Scenario Cost/Unit: \$1.54

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Backhoe, 80 HP	926	Wheel mounted backhoe excavator with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$56.19	1	\$56.19
Skidsteer, 80 HP	933	Skidsteer loader with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$43.30	1	\$43.30
Concrete, CIP, formless, non reinforced	36	Non reinforced concrete cast-in-placed without forms by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic yard	\$116.35	0.25	\$29.09
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	\$18.99	2	\$37.98
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$22.65	2	\$45.30
Materials						
Dimension Lumber, Treated	1044	Treated dimension lumber with nominal thickness equal or less than 2". Includes lumber and fasteners	Board Foot	\$0.83	30	\$24.90
Wildlife Escape Ramp	242	Pool size 15' x 30', for small mammals less than one pound	Each	\$23.88	2	\$47.76
Freeze Proof Hydrant, ≤ 3' Bury	240	Freeze Proof Hydrant, 3 foot or less bury. Materials only.	Each	\$45.52	1	\$45.52

Materials

Tank, Tire, 10' diameter	287	Tire, includes material cost for tank and shipping. Labor and other appurtenance costs not included.	Each	\$959.61	1	\$959.61
Aggregate, Gravel, Ungraded, Quarry Run	1099	Includes materials, equipment and labor	Cubic yard	\$15.44	1.5	\$23.16
Post, Wood, CCA Treated, 4-5" X 7'	1050	Wood Post, Line 4-5" X 7', CCA Treated. Includes materials and shipping only.	Each	\$7.71	3	\$23.13

Mobilization

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$258.72	2	\$517.44
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Practice: 614 - Watering Facility

Scenario: #4 - Rubber, fiberglass on concrete

Scenario Description:

A permanent watering facility for livestock constructed using a rubber equipment tire with concrete plug or fiberglass tank with 1,200 gallon capacity placed on a concrete foundation that stores adequate quantity and quality of water for storage and or direct drinking access. All watering facilities will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. This watering facility will address the resource concerns of inadequate supply of water for livestock, habitat degradation, water quality, and undesirable plant productivity and health.

Before Situation:

This practice applies to all land uses where there is a need for new or improved watering facilities for livestock and or wildlife, where water is not available in sufficient quantities at specific locations, and habitat, water quality, plant productivity and health needs to be improved.

After Situation:

A permanent watering facility with a capacity of greater than 1,200 gallons constructed using a rubber equipment tire with concrete plug or fiberglass tank is installed on a concrete foundation with all tank materials, tank plumbing and float valve, to provide adequate water storage capacity to ensure an adequate supply and quality of water for livestock or wildlife for storage and or direct drinking access and provides improved plant productivity and health, water quality, and habitat. All watering facilities are constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation and placed on a properly prepared foundation with required plumbing. All needed pipelines are installed using Livestock Pipeline (516). Any needed vegetation of disturbed areas will use Critical Area Planting (342). All collectors or catchments for collecting precipitation will be addressed by using Water Harvesting Catchment (636). Any needed water source installation will use Water Well (642), Pumping Plant (533), Spring Development (574), or Livestock Pipeline (516) as appropriate. Areas around watering facilities where animal concentrations or overflow from the watering facility will cause resource concerns will be protected by using Heavy Use Area Protection (561) as appropriate.

Scenario Feature Measure: Capacity in Gallons

Scenario Unit: Gallon

Scenario Typical Size: 1,200

Scenario Cost: \$2,104.25

Scenario Cost/Unit: \$1.75

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Concrete, CIP, formless, non reinforced	36	Non reinforced concrete cast-in-placed without forms by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic yard	\$116.35	0.25	\$29.09
Backhoe, 80 HP	926	Wheel mounted backhoe excavator with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$56.19	1	\$56.19
Skidsteer, 80 HP	933	Skidsteer loader with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$43.30	1	\$43.30
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	\$170.90	1.5	\$256.35
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	\$18.99	2	\$37.98
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$22.65	2	\$45.30
Materials						
Aggregate, Sand, Graded, Washed	45	Sand, typical ASTM C33 gradation, includes materials, equipment and labor to transport and place	Cubic yard	\$22.10	0.8	\$17.68

Materials

Freeze Proof Hydrant, ≤ 3' Bury	240	Freeze Proof Hydrant, 3 foot or less bury. Materials only.	Each	\$45.52	1	\$45.52
Tank, Tire, 10' diameter	287	Tire, includes material cost for tank and shipping. Labor and other appurtenance costs not included.	Each	\$959.61	1	\$959.61
Dimension Lumber, Treated	1044	Treated dimension lumber with nominal thickness equal or less than 2". Includes lumber and fasteners	Board Foot	\$0.83	30	\$24.90
Post, Wood, CCA Treated, 4-5" X 7'	1050	Wood Post, Line 4-5" X 7', CCA Treated. Includes materials and shipping only.	Each	\$7.71	3	\$23.13
Wildlife Escape Ramp	242	Pool size 15' x 30', for small mammals less than one pound	Each	\$23.88	2	\$47.76

Mobilization

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$258.72	2	\$517.44
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Practice: 614 - Watering Facility

Scenario: #5 - Steel Rim, bottomless

Scenario Description:

A permanent watering facility for livestock constructed of a 30' diameter galvanized steel rim with impermeable membrane or bentonite treated earthen bottom with 10,500 gallons of capacity that stores adequate quantity and quality of water for storage and or direct drinking access. All watering facilities will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. This watering facility will address the resource concerns of inadequate supply of water for livestock, habitat degradation, water quality, and undesirable plant productivity and health.

Before Situation:

This practice applies to all land uses where there is a need for new or improved watering facilities for livestock and or wildlife, where water is not available in sufficient quantities at specific locations, and habitat, water quality, plant productivity and health needs to be improved.

After Situation:

A permanent watering facility constructed of a galvanized steel rim with impermeable membrane or bentonite treated earthen bottom with a capacity of 10,500 gallons is installed with all tank materials, tank plumbing and float valve, to provide adequate water storage capacity to ensure an adequate supply and quality of water for livestock or wildlife for storage and or direct drinking access and provides improved plant productivity and health, water quality, and habitat. All watering facilities are constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation and placed on a properly prepared foundation with required plumbing. All needed pipelines are installed using Livestock Pipeline (516). Any needed vegetation of disturbed areas will use Critical Area Planting (342). All collectors or catchments for collecting precipitation will be addressed by using Water Harvesting Catchment (636). Any needed water source installation will use Water Well (642), Pumping Plant (533), Spring Development (574), or Livestock Pipeline (516) as appropriate. Areas around watering facilities where animal concentrations or overflow from the watering facility will cause resource concerns must be protected by using Heavy Use Area Protection (561) as appropriate.

Scenario Feature Measure: Capacity in Gallons

Scenario Unit: Gallon

Scenario Typical Size: 10,500

Scenario Cost: \$3,717.49

Scenario Cost/Unit: \$0.35

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Skidsteer, 80 HP	933	Skidsteer loader with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$43.30	3	\$129.90
Backhoe, 80 HP	926	Wheel mounted backhoe excavator with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$56.19	3	\$168.57
Labor						
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$22.65	6	\$135.90
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	\$18.99	6	\$113.94
Materials						
Freeze Proof Hydrant, ≤ 3' Bury	240	Freeze Proof Hydrant, 3 foot or less bury. Materials only.	Each	\$45.52	1	\$45.52
Aggregate, Sand, Graded, Washed	45	Sand, typical ASTM C33 gradation, includes materials, equipment and labor to transport and place	Cubic yard	\$22.10	19.7	\$435.37
Wildlife Escape Ramp	242	Pool size 15' x 30', for small mammals less than one pound	Each	\$23.88	2	\$47.76
Poly film, 6 mil.	245	6 mil, polyethylene, black	Square Foot	\$0.08	1414	\$113.12
Dimension Lumber, Treated	1044	Treated dimension lumber with nominal thickness equal or less than 2". Includes lumber and fasteners	Board Foot	\$0.83	30	\$24.90

Materials

Post, Wood, CCA Treated, 4-5" X 7'	1050	Wood Post, Line 4-5" X 7', CCA Treated. Includes materials and shipping only.	Each	\$7.71	3	\$23.13
Tank, Galvanized Steel Bottomless Livestock, > 6,000 gallon	1070	Includes tank materials, shipping, and float valve, no liner	Gallon	\$0.18	10500	\$1,890.00
Bentonite	41	Bentonite, includes materials (50# bag)	Each	\$11.99	6	\$71.94

Mobilization

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$258.72	2	\$517.44
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Practice: 614 - Watering Facility

Scenario: #6 - Steel Rim, concrete base

Scenario Description:

A permanent watering facility for livestock constructed of a 20' diameter galvanized steel rim set in a reinforced concrete base with 4,700 gallons of capacity that stores adequate quantity and quality of water for storage and or direct drinking access. All watering facilities will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. This watering facility will address the resource concerns of inadequate supply of water for livestock, habitat degradation, water quality, and undesirable plant productivity and health.

Before Situation:

This practice applies to all land uses where there is a need for new or improved watering facilities for livestock and or wildlife, where water is not available in sufficient quantities at specific locations, and habitat, water quality, plant productivity and health needs to be improved.

After Situation:

A permanent watering facility constructed of a galvanized steel rim set in a reinforced concrete base with a capacity of 10,500 gallons is installed with all tank materials, tank plumbing and float valve, to provide adequate water storage capacity to ensure an adequate supply and quality of water for livestock or wildlife for storage and or direct drinking access and provides improved plant productivity and health, water quality, and habitat. All watering facilities are constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation and placed on a properly prepared foundation with required plumbing. All needed pipelines are installed using Livestock Pipeline (516). Any needed vegetation of disturbed areas will use Critical Area Planting (342). All collectors or catchments for collecting precipitation will be addressed by using Water Harvesting Catchment (636). Any needed water source installation will use Water Well (642), Pumping Plant (533), Spring Development (574), or Livestock Pipeline (516) as appropriate. Areas around watering facilities where animal concentrations or overflow from the watering facility will cause resource concerns must be protected by using Heavy Use Area Protection (561) as appropriate.

Scenario Feature Measure: Capacity in Gallons

Scenario Unit: Gallon

Scenario Typical Size: 4,700

Scenario Cost: \$5,402.07

Scenario Cost/Unit: \$1.15

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
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	\$170.90	11.2	\$1,914.08
Skidsteer, 80 HP	933	Skidsteer loader with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$43.30	10	\$433.00
Backhoe, 80 HP	926	Wheel mounted backhoe excavator with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$56.19	4	\$224.76
Labor						
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	\$36.74	4	\$146.96
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$22.65	14	\$317.10
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	\$18.99	12	\$227.88
Materials						
Post, Wood, CCA Treated, 4-5" X 7'	1050	Wood Post, Line 4-5" X 7', CCA Treated. Includes materials and shipping only.	Each	\$7.71	3	\$23.13

Materials

Dimension Lumber, Treated	1044	Treated dimension lumber with nominal thickness equal or less than 2". Includes lumber and fasteners	Board Foot	\$0.83	60	\$49.80
Wildlife Escape Ramp	242	Pool size 15' x 30', for small mammals less than one pound	Each	\$23.88	2	\$47.76
Aggregate, Sand, Graded, Washed	45	Sand, typical ASTM C33 gradation, includes materials, equipment and labor to transport and place	Cubic yard	\$22.10	8.4	\$185.64
Freeze Proof Hydrant, ≤ 3' Bury	240	Freeze Proof Hydrant, 3 foot or less bury. Materials only.	Each	\$45.52	1	\$45.52
Tank, Galvanized Steel Bottomless Livestock, ≤ 6,000 gallon	1069	Includes tank materials, shipping, and float valve, no liner	Gallon	\$0.27	4700	\$1,269.00

Mobilization

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$258.72	2	\$517.44
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Practice: 614 - Watering Facility

Scenario: #7 - Water Fountain

Scenario Description:

A permanent watering facility consisting of a commercially available water fountain for livestock set on a concrete base to be installed with all tank materials, and plumbing, to provide adequate water supply capacity to ensure an adequate quality of water for livestock and direct drinking access and provide improved plant productivity and health, water quality, and habitat. All watering facilities are constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation and placed on a properly prepared foundation with required plumbing. All needed pipelines are installed using Livestock Pipeline (516). Any needed vegetation of disturbed areas will use Critical Area Planting (342). All collectors or catchments for collecting precipitation will be addressed by using Water Harvesting Catchment (636). Any needed water source installation will use Water Well (642), Pumping Plant (533), Spring Development (574), or Livestock Pipeline (516) as appropriate. Areas around watering facilities where animal concentrations or overflow from the watering facility will cause resource concerns will be protected by using Heavy Use Area Protection (561) as appropriate.

Before Situation:

This practice applies to all land uses where there is a need for new or improved watering facilities for livestock and or wildlife, where water is not available in sufficient quantities at specific locations, and habitat, water quality, plant productivity and health needs to be improved.

After Situation:

A permanent watering facility consisting of a commercially available water fountain for livestock set on a concrete base is installed with tank plumbing to ensure an adequate supply and quality of water for livestock or wildlife for direct drinking access and provides improved plant productivity and health, water quality, and habitat. All watering facilities are constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation and placed on a properly prepared foundation with required plumbing. All needed pipelines are installed using Livestock Pipeline (516). Any needed vegetation of disturbed areas will use Critical Area Planting (342). All collectors or catchments for collecting precipitation will be addressed by using Water Harvesting Catchment (636). Any needed water source installation will use Water Well (642), Pumping Plant (533), Spring Development (574), or Livestock Pipeline (516) as appropriate. Areas around watering facilities where animal concentrations or overflow from the watering facility will cause resource concerns will be protected by using Heavy Use Area Protection (561) as appropriate.

Scenario Feature Measure: Number of Tanks Installed

Scenario Unit: Each

Scenario Typical Size: 1

Scenario Cost: \$1,656.55

Scenario Cost/Unit: \$1,656.55

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
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	\$170.90	1.6	\$273.44
Skidsteer, 80 HP	933	Skidsteer loader with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$43.30	2	\$86.60
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	\$18.99	2	\$37.98
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$22.65	2	\$45.30
Materials						
Aggregate, Sand, Graded, Washed	45	Sand, typical ASTM C33 gradation, includes materials, equipment and labor to transport and place	Cubic yard	\$22.10	0.8	\$17.68
Freeze Proof Hydrant, ≤ 3' Bury	240	Freeze Proof Hydrant, 3 foot or less bury. Materials only.	Each	\$45.52	1	\$45.52
Tank, Freeze Proof, 4 hole	281	Tank, Freeze Proof with 4 drinking holes. Includes materials and shipping.	Each	\$891.31	1	\$891.31
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$258.72	1	\$258.72

Practice: 614 - Watering Facility

Scenario: #8 - Pre-Cast Concrete

Scenario Description:

A permanent watering facility with a capacity of 500 gallons constructed of PreCast Concrete is installed with all tank materials, plumbing and float valve, to provide adequate water storage capacity to ensure an adequate supply and quality of water for livestock for storage and or direct drinking access and provide improved plant productivity and health, water quality, and habitat. All watering facilities are constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation and placed on a properly prepared foundation with required plumbing. All needed pipelines are installed using Livestock Pipeline (516). Any needed vegetation of disturbed areas will use Critical Area Planting (342). All collectors or catchments for collecting precipitation will be addressed by using Water Harvesting Catchment (636). Any needed water source installation will use Water Well (642), Pumping Plant (533), Spring Development (574), or Livestock Pipeline (516) as appropriate. Areas around watering facilities where animal concentrations or overflow from the watering facility will cause resource concerns will be protected by using Heavy Use Area Protection (561) as appropriate.

Before Situation:

This practice applies to all land uses where there is a need for new or improved watering facilities for livestock and or wildlife, where water is not available in sufficient quantities at specific locations, and habitat, water quality, plant productivity and health needs to be improved.

After Situation:

A permanent watering facility with a capacity of 500 gallons is constructed of PreCast concrete, tank plumbing and float valve, to provide adequate water storage capacity to ensure an adequate supply and quality of water for livestock or wildlife for storage and or direct drinking access and provides improved plant productivity and health, water quality, and habitat. All watering facilities are constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation and placed on a properly prepared foundation with required plumbing. All needed pipelines are installed using Livestock Pipeline (516). Any needed vegetation of disturbed areas will use Critical Area Planting (342). All collectors or catchments for collecting precipitation will be addressed by using Water Harvesting Catchment (636). Any needed water source installation will use Water Well (642), Pumping Plant (533), Spring Development (574), or Livestock Pipeline (516) as appropriate. Areas around watering facilities where animal concentrations or overflow from the watering facility will cause resource concerns will be protected by using Heavy Use Area Protection (561) as appropriate.

Scenario Feature Measure: Capacity in Gallons

Scenario Unit: Gallon

Scenario Typical Size: 500

Scenario Cost: \$1,748.04

Scenario Cost/Unit: \$3.50

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Skidsteer, 80 HP	933	Skidsteer loader with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$43.30	1	\$43.30
Backhoe, 80 HP	926	Wheel mounted backhoe excavator with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$56.19	1	\$56.19
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	\$18.99	2	\$37.98
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$22.65	2	\$45.30
Materials						
Wildlife Escape Ramp	242	Pool size 15' x 30', for small mammals less than one pound	Each	\$23.88	1	\$23.88
Aggregate, Gravel, Ungraded, Quarry Run	1099	Includes materials, equipment and labor	Cubic yard	\$15.44	0.9	\$13.90
Post, Wood, CCA Treated, 4-5" X 7'	1050	Wood Post, Line 4-5" X 7', CCA Treated. Includes materials and shipping only.	Each	\$7.71	3	\$23.13
Tank, Concrete, 500 gallon	1049	Concrete tank for water storage, with riser and lid. Includes materials and delivery	Each	\$924.80	1	\$924.80

Materials

Dimension Lumber, Treated	1044	Treated dimension lumber with nominal thickness equal or less than 2". Includes lumber and fasteners	Board Foot	\$0.83	20	\$16.60
Freeze Proof Hydrant, ≤ 3' Bury	240	Freeze Proof Hydrant, 3 foot or less bury. Materials only.	Each	\$45.52	1	\$45.52

Mobilization

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$258.72	2	\$517.44
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Practice: 614 - Watering Facility

Scenario: #10 - Belowground Storage Tank

Scenario Description:

A permanent below ground storage facility to provide water for a watering facility for livestock, wildlife and/or other conservation practices. All water storage facilities will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. This watering facility will address the resource concerns of inadequate supply of water for livestock and or wildlife, habitat degradation, water quality, and undesirable plant productivity and health.

Before Situation:

This practice applies to all land uses where there is a need for new or improved watering facilities for livestock and or wildlife; where water is not available in sufficient quantities at specific locations; and habitat, water quality, plant productivity and health needs to be improved.

After Situation:

A permanent water storage facility using a below ground concrete tank is installed with all tank materials, tank plumbing and float valve, to provide adequate water storage capacity to ensure an adequate supply and quality of water for livestock, wildlife or other conservation practices for storage and/or direct drinking access and provides improved plant productivity and health, water quality, and habitat. All water storage facilities are constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation and placed on a properly prepared foundation with required plumbing. All needed pipelines are installed using Livestock Pipeline (516). Any needed vegetation of disturbed areas will use Critical Area Planting (342). All collectors or catchments for collecting precipitation will be addressed by using Water Harvesting Catchment (636). Any needed water source installation will use Water Well (642), Pumping Plant (533), Spring Development (574), or Livestock Pipeline (516) as appropriate. Areas around watering facilities where animal concentrations or overflow from the watering facility will cause resource concerns will be protected by using Heavy Use Area Protection (561) as appropriate.

Scenario Feature Measure: Capacity in Gallons

Scenario Unit: Gallon

Scenario Typical Size: 5,000

Scenario Cost: \$7,945.58

Scenario Cost/Unit: \$1.59

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	\$67.44	4	\$269.76
Hydraulic Excavator, 2 CY	932	Track mounted hydraulic excavator with bucket capacity range of 1.5 to 2.5 CY. Equipment and power unit costs. Labor not included.	Hour	\$191.33	4	\$765.32
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	\$18.99	16	\$303.84
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	\$24.95	8	\$199.60
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	\$36.74	4	\$146.96
Materials						
Tank, Concrete, 2500 gallon	1055	Concrete tank for water storage, with riser and lid. Includes materials and delivery.	Each	\$3,103.81	2	\$6,207.62
Tank, Float Valve Assembly	1077	Float Valve, Stem, Swivel, Float Ball	Each	\$23.36	1	\$23.36
Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	\$22.40	1.3	\$29.12