

**Practice: 561 - Heavy Use Area Protection**

**Scenario: #1 - Gravel Pad on geotextile, no site prep**

**Scenario Description:**

The stabilization of areas around facilities that are frequently and intensively used by people, animals or vehicles by surfacing with sand or quarry dust, a binder layer and then a rock base course on a geotextile fabric foundation to provide a stable, non-eroding surface. This scenario requires that site is ready for geotextile and various stone layers without any additional site preparation. Most common use will be with Animal Trail and Walkways (575) that covers the cost of site preparation, if needed. Installation includes all materials, equipment, and labor to install this practice, The stabilized area will address the resource concerns of soil erosion and water quality degradation.

Associated Practices: Critical Area Planting (342), Herbaceous Wind Barriers (603), Sediment Basin (350), Stream Crossing (578), Animal Trail and Walkway (575), Waste Storage Facility (313), Waste Transfer (634), Waste Treatment (629), Watering Facility (614), and Windbreak/Shelterbelt Establishment (380).

**Before Situation:**

This practice applies to agricultural, urban, recreational and other frequently and/or intensively used areas requiring treatment to address soil erosion and water quality degradation.

**After Situation:**

The stabilized area is surfaced 2,000 square feet of rock and or gravel and or sand (8 inches final thickness with 3 layers) on a geotextile fabric foundation material for surfacing areas around facilities that are frequently and intensively used by people, animals or vehicles and will address soil erosion and water quality degradation. All needed roads must use Access Road (560). Any needed treatment of stream crossings must use Stream Crossing (578). Any needed vegetation of disturbed areas must use Critical Area Planting (342). Provisions to collect, store, utilize, and or treat contaminated runoff must use Sediment Basin (350), Waste Storage Facility (313), or Waste Treatment (629) as appropriate. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (380) or Herbaceous Wind Barriers (603).

**Scenario Feature Measure:** Area of rock or gravel

**Scenario Unit:** Square Foot

**Scenario Typical Size:** 2,000

**Scenario Cost:** \$3,164.87

**Scenario Cost/Unit:** \$1.58

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Roller, static, smooth, self propelled	1392	Self propelled smooth drum static roller compactor, typically 1.5 ton with 34" roller. Equipment cost only. Does not include labor.	Hour	\$21.88	3	\$65.64
Geotextile, woven	42	Woven Geotextile Fabric. Includes materials, equipment and labor	Square Yard	\$2.53	222	\$561.66
<b>Labor</b>						
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	\$42.74	3	\$128.22
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	\$37.38	3	\$112.14
<b>Materials</b>						
Aggregate, Sand, Graded, Washed	45	Sand, typical ASTM C33 gradation, includes materials, equipment and labor to transport and place	Cubic yard	\$35.46	13	\$460.98
Aggregate, Gravel, Ungraded, Quarry Run	1099	Includes materials, equipment and labor	Cubic yard	\$24.78	26	\$644.28
Rock Riprap, graded, angular, material and shipping	1200	Graded Rock Riprap for all gradation ranges. Includes materials and delivery only.	Ton	\$24.54	38	\$932.52
<b>Mobilization</b>						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$259.43	1	\$259.43

**Practice: 561 - Heavy Use Area Protection**

**Scenario: #2 - Gravel pad on geotextile with site prep**

**Scenario Description:**

The stabilization of areas around facilities that are frequently and intensively used by people, animals or vehicles by surfacing with sand or quarry dust, a binder layer and then a rock base course on a geotextile fabric foundation to provide a stable, non-eroding surface. Installation includes all materials, equipment, and labor to install this practice, including site preparation. The stabilized area will address the resource concerns of soil erosion and water quality degradation.

Associated Practices: Critical Area Planting (342), Herbaceous Wind Barriers (603), Sediment Basin (350), Stream Crossing (578), Waste Storage Facility (313), Waste Transfer (634), Waste Treatment (629), Watering Facility (614), and Windbreak/Shelterbelt Establishment (380).

**Before Situation:**

This practice applies to agricultural, urban, recreational and other frequently and/or intensively used areas requiring treatment to address soil erosion and water quality degradation.

**After Situation:**

The stabilized area is surfaced 2,000 square feet of rock and or gravel and or sand (8 inches final thickness with 3 layers) on a geotextile fabric foundation material for surfacing areas around facilities that are frequently and intensively used by people, animals or vehicles and will address soil erosion and water quality degradation. All needed roads must use Access Road (560). Any needed treatment of stream crossings must use Stream Crossing (578). Any needed vegetation of disturbed areas must use Critical Area Planting (342). Provisions to collect, store, utilize, and or treat contaminated runoff must use Sediment Basin (350), Waste Storage Facility (313), or Waste Treatment (629) as appropriate. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (380) or Herbaceous Wind Barriers (603).

**Scenario Feature Measure:** Area of Rock and or Gravel

**Scenario Unit:** Square Foot

**Scenario Typical Size:** 2,000

**Scenario Cost:** \$4,035.18

**Scenario Cost/Unit:** \$2.02

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Roller, static, smooth, self propelled	1392	Self propelled smooth drum static roller compactor, typically 1.5 ton with 34" roller. Equipment cost only. Does not include labor.	Hour	\$21.88	4	\$87.52
Track Loader, 95HP	935	Equipment and power unit costs. Labor not included.	Hour	\$89.84	4	\$359.36
Geotextile, woven	42	Woven Geotextile Fabric. Includes materials, equipment and labor	Square Yard	\$2.53	222	\$561.66
<b>Labor</b>						
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	\$42.74	4	\$170.96
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	\$37.38	8	\$299.04
<b>Materials</b>						
Rock Riprap, graded, angular, material and shipping	1200	Graded Rock Riprap for all gradation ranges. Includes materials and delivery only.	Ton	\$24.54	38	\$932.52
Aggregate, Gravel, Ungraded, Quarry Run	1099	Includes materials, equipment and labor	Cubic yard	\$24.78	26	\$644.28
Aggregate, Sand, Graded, Washed	45	Sand, typical ASTM C33 gradation, includes materials, equipment and labor to transport and place	Cubic yard	\$35.46	13	\$460.98
<b>Mobilization</b>						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$259.43	2	\$518.86

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**Scenario: #3 - Concrete Slab, reinforced with gravel foundation**

**Scenario Description:**

The stabilization of areas around facilities that are frequently and intensively used by people, animals or vehicles by surfacing with reinforced concrete on a sand or gravel foundation to provide a stable, non-eroding surface. Installation includes all materials, equipment, and labor to install this practice, The stabilized area will address the resource concerns soil erosion and water quality degradation.

Associated Practices: Critical Area Planting (342), Herbaceous Wind Barriers (603), Sediment Basin (350), Stream Crossing (578), Waste Storage Facility (313), Waste Transfer (634), Waste Treatment (629), Watering Facility (614), and Windbreak/Shelterbelt Establishment (380).

**Before Situation:**

This practice applies to agricultural, urban, recreational and other frequently and/or intensively used areas requiring treatment to address soil erosion and water quality degradation.

**After Situation:**

The stabilized area is surfaced with approximately 5000 (50 x 100) square feet of 5" thick, welded wire mesh reinforced concrete and 6 inches of sand or gravel foundation material for surfacing areas around facilities that are frequently and intensively used by people, animals or vehicles and will address soil erosion and water quality degradation. All needed roads must use Access Road (560). Any needed treatment of stream crossings must use Stream Crossing (578). Any needed vegetation of disturbed areas must use Critical Area Planting (342). Provisions to collect, store, utilize, and or treat contaminated runoff must use Sediment Basin (350), Waste Storage Facility (313), or Waste Treatment (629) as appropriate. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (380) or Herbaceous Wind Barriers (603).

**Scenario Feature Measure:** Area of concrete

**Scenario Unit:** Square Foot

**Scenario Typical Size:** 5,000

**Scenario Cost:** \$17,981.09

**Scenario Cost/Unit:** \$3.60

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Dozer, 80 HP	929	Track mounted Dozer with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$68.19	4	\$272.76
Earthfill, Roller Compacted	49	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	\$4.39	139	\$610.21
Excavation, Common Earth, side cast, small equipment	48	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	\$2.36	185	\$436.60
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	\$159.97	80	\$12,797.60
<b>Materials</b>						
Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	\$35.94	81	\$2,911.14
<b>Mobilization</b>						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$259.43	3	\$778.29
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	\$174.49	1	\$174.49

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**Scenario: #4 - Concrete Slab, Fiber-reinforced with No Gravel**

**Scenario Description:**

The stabilization of areas around facilities that are frequently and intensively used by people, animals or vehicles by surfacing with fiber reinforced concrete to provide a stable, non-eroding surface. Installation includes all materials, equipment, and labor to install this practice, The stabilized area will address the resource concerns soil erosion and water quality degradation.

Associated Practices: Critical Area Planting (342), Herbaceous Wind Barriers (603), Sediment Basin (350), Stream Crossing (578), Waste Storage Facility (313), Waste Transfer (634), Waste Treatment (629), Watering Facility (614), and Windbreak/Shelterbelt Establishment (380).

**Before Situation:**

This practice applies to agricultural, urban, recreational and other frequently and/or intensively used areas requiring treatment to address soil erosion and water quality degradation.

**After Situation:**

The stabilized area is surfaced with approximately 1600 (40 x 40) square feet of 6" thick non-reinforced concrete with 6 inches of sand or gravel foundation material for surfacing areas around facilities that are frequently and intensively used by people, animals or vehicles and will address soil erosion and water quality degradation. All needed roads must use Access Road (560). Any needed treatment of stream crossings must use Stream Crossing (578). Any needed vegetation of disturbed areas must use Critical Area Planting (342). Provisions to collect, store, utilize, and or treat contaminated runoff must use Sediment Basin (350), Waste Storage Facility (313), or Waste Treatment (629) as appropriate. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (380) or Herbaceous Wind Barriers (603).

**Scenario Feature Measure:** Area

**Scenario Unit:** Square Foot

**Scenario Typical Size:** 1,600

**Scenario Cost:** \$7,949.82

**Scenario Cost/Unit:** \$4.97

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Excavation, Common Earth, side cast, small equipment	48	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	\$2.36	30	\$70.80
Concrete, CIP, Slab on Grade, fiber reinforced	2001	Fiber 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	\$248.17	30	\$7,445.10
<b>Mobilization</b>						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$259.43	1	\$259.43
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	\$174.49	1	\$174.49

**Practice: 561 - Heavy Use Area Protection**

**Scenario: #5 - Concrete Slab, Fiber-reinforced with Gravel**

**Scenario Description:**

The stabilization of areas around facilities that are frequently and intensively used by people, animals or vehicles by surfacing with reinforced concrete on a sand or gravel foundation to provide a stable, non-eroding surface. Installation includes all materials, equipment, and labor to install this practice, The stabilized area will address the resource concerns soil erosion and water quality degradation.

Associated Practices: Critical Area Planting (342), Herbaceous Wind Barriers (603), Sediment Basin (350), Stream Crossing (578), Waste Storage Facility (313), Waste Transfer (634), Waste Treatment (629), Watering Facility (614), and Windbreak/Shelterbelt Establishment (380).

**Before Situation:**

This practice applies to agricultural, urban, recreational and other frequently and/or intensively used areas requiring treatment to address soil erosion and water quality degradation.

**After Situation:**

The stabilized area is surfaced with approximately 1600 (40 x 40) square feet of 5" thick non-reinforced concrete with 6 inches of sand or gravel foundation material for surfacing areas around facilities that are frequently and intensively used by people, animals or vehicles and will address soil erosion and water quality degradation. All needed roads must use Access Road (560). Any needed treatment of stream crossings must use Stream Crossing (578). Any needed vegetation of disturbed areas must use Critical Area Planting (342). Provisions to collect, store, utilize, and or treat contaminated runoff must use Sediment Basin (350), Waste Storage Facility (313), or Waste Treatment (629) as appropriate. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (380) or Herbaceous Wind Barriers (603).

**Scenario Feature Measure:** Area

**Scenario Unit:** Square Foot

**Scenario Typical Size:** 1,600

**Scenario Cost:** \$10,453.28

**Scenario Cost/Unit:** \$6.53

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Backhoe, 80 HP	926	Wheel mounted backhoe excavator with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$56.82	2	\$113.64
Concrete, CIP, Slab on Grade, fiber reinforced	2001	Fiber 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	\$248.17	30	\$7,445.10
Earthfill, Roller Compacted	49	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	\$4.39	15	\$65.85
Excavation, Common Earth, side cast, small equipment	48	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	\$2.36	30	\$70.80
<b>Labor</b>						
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$39.79	8	\$318.32
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	\$42.74	8	\$341.92
<b>Materials</b>						
Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	\$35.94	27	\$970.38

**Mobilization**

**Mobilization**

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	\$174.49	2	\$348.98
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$259.43	3	\$778.29

**Practice: 561 - Heavy Use Area Protection**

**Scenario: #6 - Concrete Slab with Curbs & Buckwall**

**Scenario Description:**

The stabilization of areas around facilities that are frequently and intensively used by people, animals or vehicles by surfacing with reinforced concrete on a sand or gravel foundation to provide a stable, non-eroding surface. Installation includes all materials, equipment, and labor to install this practice, including a walled section to facilitate loading accumulated wastes. The stabilized area will address the resource concerns soil erosion and water quality degradation.

Associated Practices: Critical Area Planting (342), Herbaceous Wind Barriers (603), Sediment Basin (350), Stream Crossing (578), Waste Storage Facility (313), Waste Transfer (634), Waste Treatment (629), Watering Facility (614), and Windbreak/Shelterbelt Establishment (380).

**Before Situation:**

This practice applies to agricultural, urban, recreational and other frequently and/or intensively used areas requiring treatment to address soil erosion and water quality degradation.

**After Situation:**

The stabilized area is surfaced with 2000 (50' x 40') square feet of 5" thick concrete, reinforced with welded wire mesh. The perimeter has 100 LF of 12" high by 8" thick curbs, a 40 LF section of rolled curb for access, and 50 LF of 4' high, 8" thick reinforced concrete buck wall and footer. The wall is for assisting in loading out solids collected on the lot. If area is used for storage, use 313-Waste Storage Facility. Entire site needs to be excavated, regraded, and compacted with an average fill of 2 ft. Base under concrete to be 4-6 inches of sand or gravel foundation material for surfacing areas around facilities that are frequently and intensively used by people, animals or vehicles and will address soil erosion and water quality degradation. All needed roads must use Access Road (560). Any needed treatment of stream crossings must use Stream Crossing (578). Any needed vegetation of disturbed areas must use Critical Area Planting (342). Provisions to collect, store, utilize, and or treat contaminated runoff must use Sediment Basin (350), Waste Storage Facility (313), or Waste Treatment (629) as appropriate. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (380) or Herbaceous Wind Barriers (603).

**Scenario Feature Measure:** Area of pad

**Scenario Unit:** Square Foot

**Scenario Typical Size:** 2,000

**Scenario Cost:** \$23,421.27

**Scenario Cost/Unit:** \$11.71

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Earthfill, Dumped and Spread	51	Earthfill, dumped and spread without compaction effort, includes equipment and labor	Cubic yard	\$3.61	150	\$541.50
Track Loader, 95HP	935	Equipment and power unit costs. Labor not included.	Hour	\$89.84	4	\$359.36
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	\$159.97	32	\$5,119.04
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	\$505.45	24	\$12,130.80
Earthfill, Roller Compacted	49	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	\$4.39	150	\$658.50
Excavation, Common Earth, side cast, small equipment	48	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	\$2.36	150	\$354.00
<b>Labor</b>						
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	\$42.74	24	\$1,025.76

**Labor**

Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$39.79	24	\$954.96
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**Materials**

Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	\$35.94	32	\$1,150.08
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**Mobilization**

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	\$174.49	2	\$348.98
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$259.43	3	\$778.29

**Practice: 561 - Heavy Use Area Protection**

**Scenario: #7 - Concrete Slab with Curbs, Reinforced**

**Scenario Description:**

The stabilization of areas around facilities that are frequently and intensively used by people, animals or vehicles by surfacing with reinforced concrete on a sand or gravel foundation to provide a stable, non-eroding surface. Installation includes all materials, equipment, and labor to install this practice, The stabilized area will address the resource concerns soil erosion and water quality degradation.

Associated Practices: Critical Area Planting (342), Herbaceous Wind Barriers (603), Sediment Basin (350), Stream Crossing (578), Waste Storage Facility (313), Waste Transfer (634), Waste Treatment (629), Watering Facility (614), and Windbreak/Shelterbelt Establishment (380).

**Before Situation:**

This practice applies to agricultural, urban, recreational and other frequently and/or intensively used areas requiring treatment to address soil erosion and water quality degradation.

**After Situation:**

The stabilized area is surfaced with 2500 (50 x 50) square feet of 5" thick concrete, reinforced with welded wire mesh and has 12" high by 8" thick curbs on the perimeter except for a 20' section of rolled curb for access. Entire site needs excavated, regraded and compacted with an average fill of 2'. Base under concrete to be 6 inches of sand or gravel foundation material for surfacing areas around facilities that are frequently and intensively used by people, animals or vehicles and will address soil erosion and water quality degradation. All needed roads must use Access Road (560). Any needed treatment of stream crossings must use Stream Crossing (578). Any needed vegetation of disturbed areas must use Critical Area Planting (342). Provisions to collect, store, utilize, and or treat contaminated runoff must use Sediment Basin (350), Waste Storage Facility (313), or Waste Treatment (629) as appropriate. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (380) or Herbaceous Wind Barriers (603).

**Scenario Feature Measure:** Area of slab with curbing

**Scenario Unit:** Square Foot

**Scenario Typical Size:** 2,500

**Scenario Cost:** \$21,144.58

**Scenario Cost/Unit:** \$8.46

**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	\$159.97	37	\$5,918.89
Excavation, Common Earth, side cast, small equipment	48	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	\$2.36	334	\$788.24
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	\$505.45	15	\$7,581.75
Dozer, 80 HP	929	Track mounted Dozer with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$68.19	4	\$272.76
Earthfill, Dumped and Spread	51	Earthfill, dumped and spread without compaction effort, includes equipment and labor	Cubic yard	\$3.61	241	\$870.01
Earthfill, Roller Compacted	49	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	\$4.39	215	\$943.85
<b>Labor</b>						
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	\$42.74	24	\$1,025.76

**Labor**

Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$39.79	24	\$954.96
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**Materials**

Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	\$35.94	39	\$1,401.66
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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	\$259.43	4	\$1,037.72
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	\$174.49	2	\$348.98

**Practice: 561 - Heavy Use Area Protection**

**Scenario: #8 - Concrete slab with curb on steep site**

**Scenario Description:**

The stabilization of areas around facilities that are frequently and intensively used by people, animals or vehicles by surfacing with concrete slab and curbs. Existing natural site grade is too steep and fill will be brought in to establish a suitable grade for concrete area and stable slopes for areas beyond the pad. Installation includes all materials, equipment, and labor to install this practice. The stabilized area will address the resource concerns of soil erosion and water quality degradation.

Associated Practices: Critical Area Planting (342), Herbaceous Wind Barriers (603), Sediment Basin (350), Stream Crossing (578), Waste Storage Facility (313), Waste Transfer (634), Waste Treatment (629), Watering Facility (614), and Windbreak/Shelterbelt Establishment (380).

**Before Situation:**

This practice applies to agricultural, urban, recreational and other frequently and/or intensively used areas requiring treatment to address soil erosion and water quality degradation.

**After Situation:**

The stabilized area is surfaced with 2500 (50 x 50) square feet of 6" thick concrete, reinforced with welded wire mesh and has 12" high by 8" thick curbs on the perimeter except for a 20' section of rolled curb for access. Entire site needs excavated, regraded and compacted with an average fill of 5' due to steep site conditions. Base under concrete to be 6 inches of sand or gravel foundation material for surfacing areas around facilities that are frequently and intensively used by people, animals or vehicles and will address soil erosion and water quality degradation. All needed roads must use Access Road (560). Any needed treatment of stream crossings must use Stream Crossing (578). Any needed vegetation of disturbed areas must use Critical Area Planting (342). Provisions to collect, store, utilize, and or treat contaminated runoff must use Sediment Basin (350), Waste Storage Facility (313), or Waste Treatment (629) as appropriate. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (380) or Herbaceous Wind Barriers (603).

**Scenario Feature Measure:** Area of concrete

**Scenario Unit:** Square Foot

**Scenario Typical Size:** 2,500

**Scenario Cost:** \$25,645.40

**Scenario Cost/Unit:** \$10.26

**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	\$159.97	39	\$6,238.83
Earthfill, Roller Compacted	49	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	\$4.39	650	\$2,853.50
Earthfill, Dumped and Spread	51	Earthfill, dumped and spread without compaction effort, includes equipment and labor	Cubic yard	\$3.61	600	\$2,166.00
Excavation, Common Earth, side cast, small equipment	48	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	\$2.36	740	\$1,746.40
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	\$505.45	15	\$7,581.75
<b>Labor</b>						
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$39.79	20	\$795.80

**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	\$42.74	20	\$854.80
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**Materials**

Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	\$35.94	54	\$1,940.76
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**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	\$71.64	6	\$429.84
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$259.43	4	\$1,037.72

**Practice: 561 - Heavy Use Area Protection**

**Scenario: #9 - Concrete slab with curb, steep site with retaining wall**

**Scenario Description:**

The stabilization of areas around facilities that are frequently and intensively used by people, animals or vehicles by surfacing with concrete slab and curbs. Existing natural site grade is too steep and /or to close to a water body. A combination of a retaining and fill will be brought in to establish a suitable grade for concrete area and stable slopes for areas beyond the pad. Installation includes all materials, equipment, and labor to install this practice. The stabilized area will address the resource concerns of soil erosion and water quality degradation.

Associated Practices: Critical Area Planting (342), Herbaceous Wind Barriers (603), Sediment Basin (350), Stream Crossing (578), Waste Storage Facility (313), Waste Transfer (634), Waste Treatment (629), Watering Facility (614), and Windbreak/Shelterbelt Establishment (380).

**Before Situation:**

This practice applies to agricultural, urban, recreational and other frequently and/or intensively used areas requiring treatment to address soil erosion and water quality degradation.

**After Situation:**

The stabilized area is surfaced with 2500 (50 x 50) square feet of 6" thick concrete, reinforced with welded wire mesh and has 12" high by 8" thick curbs on the perimeter except for a 20' section of rolled curb for access. Entire site needs excavated, regraded and compacted with an average fill of 5' due to steep site conditions. In addition, the location prevents extending the slope downhill due to steepness or nearest to water. A 8' high retaining wall is needed on 50% of the perimeter or 100 LF. Base under concrete to be 6 inches of sand or gravel foundation material for surfacing areas around facilities that are frequently and intensively used by people, animals or vehicles and will address soil erosion and water quality degradation. All needed roads must use Access Road (560). Any needed treatment of stream crossings must use Stream Crossing (578). Any needed vegetation of disturbed areas must use Critical Area Planting (342). Provisions to collect, store, utilize, and or treat contaminated runoff must use Sediment Basin (350), Waste Storage Facility (313), or Waste Treatment (629) as appropriate. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (380) or Herbaceous Wind Barriers (603).

**Scenario Feature Measure:** Area of concrete

**Scenario Unit:** Square Foot

**Scenario Typical Size:** 2,500

**Scenario Cost:** \$49,311.58

**Scenario Cost/Unit:** \$19.72

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Truck, Concrete Pump	1211	Concrete pump, normally truck mounted. Use this item in association with other concrete components when job requires placement by other than normal chutes. Include drive and setup time in quantity; therefore, do not include mobilization. Includes equi	Hour	\$197.60	6	\$1,185.60
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	\$505.45	62	\$31,337.90
Earthfill, Roller Compacted	49	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	\$4.39	400	\$1,756.00
Earthfill, Manually Compacted	50	Earthfill, manually compacted, includes equipment and labor	Cubic yard	\$5.77	125	\$721.25
Earthfill, Dumped and Spread	51	Earthfill, dumped and spread without compaction effort, includes equipment and labor	Cubic yard	\$3.61	600	\$2,166.00
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	\$159.97	39	\$6,238.83

**Labor**

**Labor**

Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$39.79	32	\$1,273.28
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	\$42.74	32	\$1,367.68

**Materials**

Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	\$35.94	54	\$1,940.76
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**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	\$71.64	4	\$286.56
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$259.43	4	\$1,037.72

**Practice: 561 - Heavy Use Area Protection**

**Scenario: #11 - Bituminous Concrete Pavement**

**Scenario Description:**

The stabilization of areas around facilities that are frequently and intensively used by people, animals or vehicles by surfacing with bituminous concrete pavement on aggregate gravel foundation to provide a stable, non-eroding surface. Installation includes all materials, equipment, and labor to install this practice. The stabilized area will address the resource concerns of soil erosion and water quality degradation.

Associated Practices: Critical Area Planting (342), Herbaceous Wind Barriers (603), Sediment Basin (350), Stream Crossing (578), Waste Storage Facility (313), Waste Transfer (634), Waste Treatment (629), Watering Facility (614), and Windbreak/Shelterbelt Establishment (380).

**Before Situation:**

This practice applies to agricultural, urban, recreational and other frequently and/or intensively used areas requiring treatment to address soil erosion and water quality degradation.

**After Situation:**

The stabilized area is surfaced with 1,000 square feet of 8" thick bituminous concrete pavement over a 6" aggregate gravel material for surfacing areas around facilities that are frequently and intensively used by people, animals or vehicles and will address soil erosion and water quality degradation. Entire site needs excavated by 1' and an average fill of 2'. All needed roads must use Access Road (560). Any needed treatment of stream crossings must use Stream Crossing (578). Any needed vegetation of disturbed areas must use Critical Area Planting (342). Provisions to collect, store, utilize, and or treat contaminated runoff must use Sediment Basin (350), Waste Storage Facility (313), or Waste Treatment (629) as appropriate. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (380) or Herbaceous Wind Barriers (603).

**Scenario Feature Measure:** Area of Bituminous Pavement

**Scenario Unit:** Square Foot

**Scenario Typical Size:** 1,000

**Scenario Cost:** \$8,860.04

**Scenario Cost/Unit:** \$8.86

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Excavation, Common Earth, side cast, small equipment	48	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	\$2.36	37	\$87.32
Earthfill, Manually Compacted	50	Earthfill, manually compacted, includes equipment and labor	Cubic yard	\$5.77	75	\$432.75
Earthfill, Dumped and Spread	51	Earthfill, dumped and spread without compaction effort, includes equipment and labor	Cubic yard	\$3.61	97	\$350.17
<b>Labor</b>						
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	\$42.74	8	\$341.92
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$39.79	8	\$318.32
<b>Materials</b>						
Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	\$35.94	19	\$682.86
Asphalt, pavement	1867	Bituminous Concrete, includes materials, equipment and labor for 4" layer, base not included.	Square Foot	\$2.63	2000	\$5,260.00
<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	\$174.49	2	\$348.98

**Mobilization**

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$259.43	4	\$1,037.72
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