

Practice: 410 - Grade Stabilization Structure

Scenario: #13 - GSS lower cfs, lower fill

Scenario Description:

An earthen embankment with a principle spillway pipe < 15 inches in diameter with lower cfs (<=5 cfs) and lower fill (< 300 cu yds). Installed to stabilize the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. Cost estimate is based upon a typical amount of earthfill of 50 cubic yards, 12" smooth steel principle spillway with a 30 ft barrel. A small rock lined plunge pool protects the outlet channel. Disturbed areas are protected with permanent vegetative cover. Addresses resource concerns such as soil erosion-concentrated flow erosion and water quality degradation.

Before Situation:

The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters degrading water quality and causing soil loss.

After Situation:

Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Pond (378), Dam (402), Fence (382), Pumping Plant (533), Watering Facility (614), and Livestock Pipeline (516) will use the corresponding Standard(s) as appropriate.

Scenario Feature Measure: Each

Scenario Unit: Each

Scenario Typical Size: 1

Scenario Cost: \$1,587.17

Scenario Cost/Unit: \$1,587.17

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Hydraulic Excavator, 1 CY	931	Track mounted hydraulic excavator with bucket capacity range of 0.8 to 1.5 CY. Equipment and power unit costs. Labor not included.	Hour	\$111.48	1.25	\$139.35
Earthfill, Roller Compacted	49	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	\$3.66	50	\$183.00
Labor						
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$23.09	1.25	\$28.86
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	\$18.46	1	\$18.46
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	\$24.60	1	\$24.60
Materials						
Pipe, Steel, 12", Std Wt, USED	1356	Materials: - USED - 12" - Steel Std Wt	Foot	\$20.41	30	\$612.30
Rock Riprap, Placed with geotextile	44	Rock Riprap, placed with geotextile, includes materials, equipment and labor to transport and place	Cubic yard	\$129.52	2	\$259.04
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$251.98	1	\$251.98
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	\$69.58	1	\$69.58

Practice: 410 - Grade Stabilization Structure

Scenario: #14 - GSS lower cfs, med fill

Scenario Description:

An earthen embankment with a principle spillway pipe < 15 inches with lower cfs (<=5 cfs)and med fill (300 to 1200 cu yds). Installed to stabilized the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. Cost estimate is based upon a typical amount of earthfill of 1000 cubic yards, 12" smooth steel principle spillway with a 45 ft barrel. A rock lined plunge pool protects the outlet channel. Disturbed areas are protected with permanent vegetative cover. Addresses resource concerns such as soil erosion-concentrated flow erosion and water quality degradation.

Before Situation:

The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters degrading water quality and causing soil loss.

After Situation:

Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Pond (378), Dam (402), Fence (382), Pumping Plant (533), Watering Facility (614), and Livestock Pipeline (516) will use the corresponding Standard(s) as appropriate.

Scenario Feature Measure: Each

Scenario Unit: Each

Scenario Typical Size: 1

Scenario Cost: \$7,378.40

Scenario Cost/Unit: \$7,378.40

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Hydraulic Excavator, 1 CY	931	Track mounted hydraulic excavator with bucket capacity range of 0.8 to 1.5 CY. Equipment and power unit costs. Labor not included.	Hour	\$111.48	5	\$557.40
Earthfill, Roller Compacted	49	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	\$3.66	1000	\$3,660.00
Labor						
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$23.09	5	\$115.45
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	\$18.46	6	\$110.76
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	\$24.60	6	\$147.60
Materials						
Rock Riprap, Placed with geotextile	44	Rock Riprap, placed with geotextile, includes materials, equipment and labor to transport and place	Cubic yard	\$129.52	10	\$1,295.20
Pipe, Steel, 12", Std Wt, USED	1356	Materials: - USED - 12" - Steel Std Wt	Foot	\$20.41	45	\$918.45
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$251.98	2	\$503.96
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	\$69.58	1	\$69.58

Practice: 410 - Grade Stabilization Structure

Scenario: #15 - GSS lower cfs, higher fill

Scenario Description:

An earthen embankment with a principle spillway pipe <15 inches with lower cfs (<=5 cfs) and higher fill (>1200-2500 cu yds). Installed to stabilize the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. Cost estimate is based upon a typical amount of earthfill of 2000 cubic yards, 12" smooth steel principle spillway with a 50 ft barrel. A rock lined plunge pool protects the outlet channel. Disturbed areas are protected with permanent vegetative cover. Addresses resource concerns such as soil erosion-concentrated flow erosion and water quality degradation.

Before Situation:

The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters degrading water quality and causing soil loss.

After Situation:

Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Pond (378), Dam (402), Fence (382), Pumping Plant (533), Watering Facility (614), and Livestock Pipeline (516) will use the corresponding Standard(s) as appropriate.

Scenario Feature Measure: Each

Scenario Unit: Each

Scenario Typical Size: 1

Scenario Cost: \$13,220.81

Scenario Cost/Unit: \$13,220.81

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Hydraulic Excavator, 1 CY	931	Track mounted hydraulic excavator with bucket capacity range of 0.8 to 1.5 CY. Equipment and power unit costs. Labor not included.	Hour	\$111.48	7	\$780.36
Earthfill, Roller Compacted	49	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	\$3.66	2200	\$8,052.00
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	\$18.46	7	\$129.22
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	\$24.60	7	\$172.20
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	\$23.09	7	\$161.63
Materials						
Rock Riprap, Placed with geotextile	44	Rock Riprap, placed with geotextile, includes materials, equipment and labor to transport and place	Cubic yard	\$129.52	18	\$2,331.36
Pipe, Steel, 12", Std Wt, USED	1356	Materials: - USED - 12" - Steel Std Wt	Foot	\$20.41	50	\$1,020.50
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$251.98	2	\$503.96
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	\$69.58	1	\$69.58

Practice: 410 - Grade Stabilization Structure

Scenario: #16 - GSS med cfs, lower fill

Scenario Description:

An earthen embankment with a principle spillway pipe 15 to 22 inches with med cfs (>5-10 cfs) and lower fill (<300 cu yds). Installed to stabilize the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. Cost estimate is based upon a typical amount of earthfill of 150 cubic yards, 18" smooth steel principle spillway with a 40 ft barrel. A rock lined plunge pool protects the outlet channel. Disturbed areas are protected with permanent vegetative cover. Addresses resource concerns such as soil erosion-concentrated flow erosion and water quality degradation.

Before Situation:

The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters degrading water quality and causing soil loss.

After Situation:

Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Pond (378), Dam (402), Fence (382), Pumping Plant (533), Watering Facility (614), and Livestock Pipeline (516) will use the corresponding Standard(s) as appropriate.

Scenario Feature Measure: Each

Scenario Unit: Each

Scenario Typical Size: 1

Scenario Cost: \$3,780.55

Scenario Cost/Unit: \$3,780.55

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Hydraulic Excavator, 1 CY	931	Track mounted hydraulic excavator with bucket capacity range of 0.8 to 1.5 CY. Equipment and power unit costs. Labor not included.	Hour	\$111.48	3	\$334.44
Earthfill, Roller Compacted	49	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	\$3.66	150	\$549.00
Labor						
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$23.09	3	\$69.27
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	\$24.60	3	\$73.80
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	\$18.46	3	\$55.38
Materials						
Rock Riprap, Placed with geotextile	44	Rock Riprap, placed with geotextile, includes materials, equipment and labor to transport and place	Cubic yard	\$129.52	6	\$777.12
Pipe, Steel, 18", Std Wt, USED	1358	Materials: - USED - 18" - Steel Std Wt	Foot	\$33.70	40	\$1,348.00
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	\$69.58	1	\$69.58
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$251.98	2	\$503.96

Practice: 410 - Grade Stabilization Structure

Scenario: #17 - GSS med cfs, med fill

Scenario Description:

An earthen embankment with a principle spillway pipe 15 to 22 inches with med cfs (>5-10 cfs) and med fill (300 - 1200 cu yds). Installed to stabilize the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. Cost estimate is based upon a typical amount of earthfill of 1200 cubic yards, 18" smooth steel principle spillway with a 45 ft barrel. A rock lined plunge pool protects the outlet channel. Disturbed areas are protected with permanent vegetative cover. Addresses resource concerns such as soil erosion-concentrated flow erosion and water quality degradation.

Before Situation:

The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters degrading water quality and causing soil loss.

After Situation:

Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Pond (378), Dam (402), Fence (382), Pumping Plant (533), Watering Facility (614), and Livestock Pipeline (516) will use the corresponding Standard(s) as appropriate.

Scenario Feature Measure: Each

Scenario Unit: Each

Scenario Typical Size: 1

Scenario Cost: \$8,886.08

Scenario Cost/Unit: \$8,886.08

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Hydraulic Excavator, 1 CY	931	Track mounted hydraulic excavator with bucket capacity range of 0.8 to 1.5 CY. Equipment and power unit costs. Labor not included.	Hour	\$111.48	6	\$668.88
Earthfill, Roller Compacted	49	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	\$3.66	1200	\$4,392.00
Labor						
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$23.09	6	\$138.54
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	\$24.60	7	\$172.20
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	\$18.46	7	\$129.22
Materials						
Pipe, Steel, 18", Std Wt, USED	1358	Materials: - USED - 18" - Steel Std Wt	Foot	\$33.70	45	\$1,516.50
Rock Riprap, Placed with geotextile	44	Rock Riprap, placed with geotextile, includes materials, equipment and labor to transport and place	Cubic yard	\$129.52	10	\$1,295.20
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	\$69.58	1	\$69.58
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$251.98	2	\$503.96

Practice: 410 - Grade Stabilization Structure

Scenario: #18 - GSS med cfs, higher fill

Scenario Description:

An earthen embankment with a principle spillway pipe 15 to 22 inches with med cfs (>5-10 cfs) and higher fill (>1200-2500 cu yds). Installed to stabilize the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. Cost estimate is based upon a typical amount of earthfill of 2500 cubic yards, 18" smooth steel principle spillway with a 80 ft barrel. A rock lined plunge pool protects the outlet channel. Disturbed areas are protected with permanent vegetative cover. Addresses resource concerns such as soil erosion-concentrated flow erosion and water quality degradation.

Before Situation:

The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters degrading water quality and causing soil loss.

After Situation:

Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Pond (378), Dam (402), Fence (382), Pumping Plant (533), Watering Facility (614), and Livestock Pipeline (516) will use the corresponding Standard(s) as appropriate.

Scenario Feature Measure: Each

Scenario Unit: Each

Scenario Typical Size: 1

Scenario Cost: \$16,479.43

Scenario Cost/Unit: \$16,479.43

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Earthfill, Roller Compacted	49	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	\$3.66	2500	\$9,150.00
Hydraulic Excavator, 1 CY	931	Track mounted hydraulic excavator with bucket capacity range of 0.8 to 1.5 CY. Equipment and power unit costs. Labor not included.	Hour	\$111.48	9	\$1,003.32
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	\$18.46	6	\$110.76
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	\$23.09	9	\$207.81
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	\$24.60	6	\$147.60
Materials						
Pipe, Steel, 18", Std Wt, USED	1358	Materials: - USED - 18" - Steel Std Wt	Foot	\$33.70	80	\$2,696.00
Rock Riprap, Placed with geotextile	44	Rock Riprap, placed with geotextile, includes materials, equipment and labor to transport and place	Cubic yard	\$129.52	20	\$2,590.40
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	\$69.58	1	\$69.58
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$251.98	2	\$503.96

Practice: 410 - Grade Stabilization Structure

Scenario: #19 - GSS higher cfs, lower fill

Scenario Description:

An earthen embankment with a principle spillway pipe 22 to 34 inches with higher cfs (>10-20 cfs) and lower fill (<300 cu yds). Installed to stabilize the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. Cost estimate is based upon a typical amount of earthfill of 275 cubic yards, 24" smooth steel principle spillway with a 45 ft barrel. A rock lined plunge pool protects the outlet channel. Disturbed areas are protected with permanent vegetative cover. Addresses resource concerns such as soil erosion-concentrated flow erosion and water quality degradation.

Before Situation:

The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters degrading water quality and causing soil loss.

After Situation:

Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Pond (378), Dam (402), Fence (382), Pumping Plant (533), Watering Facility (614), and Livestock Pipeline (516) will use the corresponding Standard(s) as appropriate.

Scenario Feature Measure: Each

Scenario Unit: Each

Scenario Typical Size: 1

Scenario Cost: \$5,419.02

Scenario Cost/Unit: \$5,419.02

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Hydraulic Excavator, 1 CY	931	Track mounted hydraulic excavator with bucket capacity range of 0.8 to 1.5 CY. Equipment and power unit costs. Labor not included.	Hour	\$111.48	4	\$445.92
Earthfill, Roller Compacted	49	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	\$3.66	275	\$1,006.50
Labor						
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$23.09	5	\$115.45
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	\$18.46	7	\$129.22
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	\$24.60	7	\$172.20
Materials						
Rock Riprap, Placed with geotextile	44	Rock Riprap, placed with geotextile, includes materials, equipment and labor to transport and place	Cubic yard	\$129.52	7	\$906.64
Pipe, Steel, 24", Std Wt, USED	1360	Materials: - USED - 24" - Steel Std Wt	Foot	\$45.99	45	\$2,069.55
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	\$69.58	1	\$69.58
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$251.98	2	\$503.96

Practice: 410 - Grade Stabilization Structure

Scenario: #20 - GSS higher cfs, med fill

Scenario Description:

An earthen embankment with a principle spillway pipe 22 to 34 inches with higher cfs (>10-20 cfs) and med fill (>300 to 1500 cu yds). Installed to stabilize the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. Cost estimate is based upon a typical amount of earthfill of 1400 cubic yards, 24" smooth steel principle spillway with a 45 ft barrel. A rock lined plunge pool protects the outlet channel. Disturbed areas are protected with permanent vegetative cover. Addresses resource concerns such as soil erosion-concentrated flow erosion and water quality degradation.

Before Situation:

The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters degrading water quality and causing soil loss.

After Situation:

Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Pond (378), Dam (402), Fence (382), Pumping Plant (533), Watering Facility (614), and Livestock Pipeline (516) will use the corresponding Standard(s) as appropriate.

Scenario Feature Measure: Each

Scenario Unit: Each

Scenario Typical Size: 1

Scenario Cost: \$10,430.17

Scenario Cost/Unit: \$10,430.17

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Hydraulic Excavator, 1 CY	931	Track mounted hydraulic excavator with bucket capacity range of 0.8 to 1.5 CY. Equipment and power unit costs. Labor not included.	Hour	\$111.48	6	\$668.88
Earthfill, Roller Compacted	49	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	\$3.66	1400	\$5,124.00
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	\$24.60	7	\$172.20
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	\$23.09	6	\$138.54
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	\$18.46	7	\$129.22
Materials						
Rock Riprap, Placed with geotextile	44	Rock Riprap, placed with geotextile, includes materials, equipment and labor to transport and place	Cubic yard	\$129.52	12	\$1,554.24
Pipe, Steel, 24", Std Wt, USED	1360	Materials: - USED - 24" - Steel Std Wt	Foot	\$45.99	45	\$2,069.55
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$251.98	2	\$503.96
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	\$69.58	1	\$69.58

Practice: 410 - Grade Stabilization Structure

Scenario: #21 - GSS higher cfs, higher fill

Scenario Description:

An earthen embankment with a principle spillway pipe 22 to 34 inches with higher cfs (>10-20 cfs) and higher fill (> 1500-2800 cu yds). Installed to stabilize the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. Cost estimate is based upon a typical amount of earthfill of 2750 cubic yards, 24" smooth steel principle spillway with a 110 ft barrel. A rock lined plunge pool protects the outlet channel. Disturbed areas are protected with permanent vegetative cover. Addresses resource concerns such as soil erosion-concentrated flow erosion and water quality degradation.

Before Situation:

The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters degrading water quality and causing soil loss.

After Situation:

Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Pond (378), Dam (402), Fence (382), Pumping Plant (533), Watering Facility (614), and Livestock Pipeline (516) will use the corresponding Standard(s) as appropriate.

Scenario Feature Measure: Each

Scenario Unit: Each

Scenario Typical Size: 1

Scenario Cost: \$19,870.28

Scenario Cost/Unit: \$19,870.28

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Hydraulic Excavator, 1 CY	931	Track mounted hydraulic excavator with bucket capacity range of 0.8 to 1.5 CY. Equipment and power unit costs. Labor not included.	Hour	\$111.48	4	\$445.92
Earthfill, Roller Compacted	49	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	\$3.66	2750	\$10,065.00
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	\$24.60	9	\$221.40
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	\$18.46	9	\$166.14
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	\$23.09	10	\$230.90
Materials						
Rock Riprap, Placed with geotextile	44	Rock Riprap, placed with geotextile, includes materials, equipment and labor to transport and place	Cubic yard	\$129.52	24	\$3,108.48
Pipe, Steel, 24", Std Wt, USED	1360	Materials: - USED - 24" - Steel Std Wt	Foot	\$45.99	110	\$5,058.90
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$251.98	2	\$503.96
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	\$69.58	1	\$69.58

Practice: 410 - Grade Stabilization Structure

Scenario: #22 - GSS xhigh cfs, xhigh fill

Scenario Description:

An earthen embankment with a principle spillway pipe greater than 34 inches with highest cfs (>20 cfs) and extra high fill (>2800 cu yds). Installed to stabilize the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. Cost estimate is based upon a typical amount of earthfill of 3000 cubic yards, 36" smooth steel principle spillway with a 130 ft barrel. A rock lined plunge pool protects the outlet channel. Disturbed areas are protected with permanent vegetative cover. Addresses resource concerns such as soil erosion-concentrated flow erosion and water quality degradation.

Before Situation:

The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters degrading water quality and causing soil loss.

After Situation:

Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Pond (378), Dam (402), Fence (382), Pumping Plant (533), Watering Facility (614), and Livestock Pipeline (516) will use the corresponding Standard(s) as appropriate.

Scenario Feature Measure: Each

Scenario Unit: Each

Scenario Typical Size: 1

Scenario Cost: \$29,326.77

Scenario Cost/Unit: \$29,326.77

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Hydraulic Excavator, 1 CY	931	Track mounted hydraulic excavator with bucket capacity range of 0.8 to 1.5 CY. Equipment and power unit costs. Labor not included.	Hour	\$111.48	15	\$1,672.20
Earthfill, Roller Compacted	49	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	\$3.66	3000	\$10,980.00
Labor						
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$23.09	15	\$346.35
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	\$18.46	15	\$276.90
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	\$24.60	15	\$369.00
Materials						
Pipe, Steel, 36", Std Wt, USED	1362	Materials: - USED - 36" - Steel Std Wt	Foot	\$92.31	130	\$12,000.30
Rock Riprap, Placed with geotextile	44	Rock Riprap, placed with geotextile, includes materials, equipment and labor to transport and place	Cubic yard	\$129.52	24	\$3,108.48
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	\$69.58	1	\$69.58
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$251.98	2	\$503.96