Practice: 620 - Underground Outlet

Scenario: #2 - ≤ 5in Diameter Pipe with Risers

Scenario Description:

Scenario is for the Installation of a 5" or less diameter approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Payment includes pipe, perforated PVC riser inlet, trench excavation, and trench backfill. This practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations.

After Situation:

Excessive sedimentation and soil erosion is controlled after UGO is installed in association with terraces or water and sediment control basin.

Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Scenario Feature Measure: Length of Conduit

Scenario Unit: Feet

Scenario Typical Size: 500

Scenario Cost: $1,470.16 **Scenario Cost/Unit:** $2.94

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Compaction, earthfill, vibratory plate	1260	Compaction of earthfill with a walk behind vibratory plate compactor in typical 6-8 inch thick lifts, 2 passes. Includes equipment and labor.	Cubic Yard	$2.06	2	$4.12
Trenching, Earth, 12" x 48"	53	Trenching, earth, 12" wide x 48" depth, includes equipment and labor for trenching and backfilling	Foot	$1.26	500	$630.00
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	$36.72	2	$73.44
Materials						
Pipe, HDPE, 5", PCPT, Single Wall	1271	Pipe, Corrugated Plastic Tubing, Single Wall, Perforated, 5" diameter - ASTM F405. Material cost only.	Foot	$0.69	480	$331.20
Inlet, riser, 6"	1261	Riser, polymer, complete vertical perforated UGO inlet with Tee, orifice plate if needed, 6" diameter. Materials only.	Each	$69.66	2	$139.32
Pipe, PVC, 4", SDR 35	992	Materials: - 4" - PVC - SDR 35 - ASTM D3034	Foot	$1.66	20	$33.20
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$258.88	1	$258.88

Practice: 620 - Underground Outlet

Scenario: #4 - 6in Diameter Pipe with Risers

Scenario Description:

Scenario is for the Installation of a 6" diameter approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Payment includes pipe, perforated PVC riser inlet, trench excavation, and trench backfill. This practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations.

After Situation:

Excessive sedimentation and soil erosion is controlled after UGO is installed in association with terraces or water and sediment control basin.

Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Scenario Feature Measure: Length of Conduit

Scenario Unit: Feet

Scenario Typical Size: 500

Scenario Cost: $1,717.76 **Scenario Cost/Unit:** $3.44

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Trenching, Earth, 12" x 48"	53	Trenching, earth, 12" wide x 48" depth, includes equipment and labor for trenching and backfilling	Foot	$1.26	500	$630.00
Compaction, earthfill, vibratory plate	1260	Compaction of earthfill with a walk behind vibratory plate compactor in typical 6-8 inch thick lifts, 2 passes. Includes equipment and labor.	Cubic Yard	$2.06	2	$4.12
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	$36.72	2	$73.44
Materials						
Pipe, HDPE, 6", CPT, Single Wall	1242	Pipe, Corrugated Plastic Tubing, Single Wall, 6" diameter - ASTM F405. Material cost only.	Foot	$1.12	480	$537.60
Inlet, riser, 6"	1261	Riser, polymer, complete vertical perforated UGO inlet with Tee, orifice plate if needed, 6" diameter. Materials only.	Each	$69.66	2	$139.32
Pipe, PVC, 6", SDR 35	993	Materials: - 6" - PVC - SDR 35 - ASTM D3034	Foot	$3.72	20	$74.40
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$258.88	1	$258.88

Practice: 620 - Underground Outlet

Scenario: #6 - 8in Diameter Pipe with Risers

Scenario Description:

Scenario is for the Installation of a 8" diameter approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Payment includes pipe, perforated PVC riser inlet, trench excavation, and trench backfill. This practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations.

After Situation:

Excessive sedimentation and soil erosion is controlled after UGO is installed in association with terraces or water and sediment control basin.

Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Scenario Feature Measure: Length of Conduit

Scenario Unit: Feet

Scenario Typical Size: 500

Scenario Cost: $2,247.76 **Scenario Cost/Unit:** $4.50

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Compaction, earthfill, vibratory plate	1260	Compaction of earthfill with a walk behind vibratory plate compactor in typical 6-8 inch thick lifts, 2 passes. Includes equipment and labor.	Cubic Yard	$2.06	2	$4.12
Trenching, Earth, 12" x 48"	53	Trenching, earth, 12" wide x 48" depth, includes equipment and labor for trenching and backfilling	Foot	$1.26	500	$630.00
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	$36.72	2	$73.44
Materials						
Inlet, riser, 8"	1262	Riser, polymer, complete vertical perforated UGO inlet with Tee, orifice plate if needed, 8" diameter. Materials only.	Each	$108.36	2	$216.72
Pipe, HDPE, 8", PCPT, Single Wall	1272	Pipe, Corrugated Plastic Tubing, Single Wall, Perforated, 8" diameter - ASTM F667. Material cost only.	Foot	$1.94	480	$931.20
Pipe, PVC, 8", SDR 35	994	Materials: - 8" - PVC - SDR 35 - ASTM D3034	Foot	$6.67	20	$133.40
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$258.88	1	$258.88

Practice: 620 - Underground Outlet

Scenario: #8 - 10in Diameter Pipe with Risers

Scenario Description:

Scenario is for the Installation of a 10" diameter approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Payment includes pipe, perforated PVC riser inlet, trench excavation, and trench backfill. This practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations.

After Situation:

Excessive sedimentation and soil erosion is controlled after UGO is installed in association with terraces or water and sediment control basin.

Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Scenario Feature Measure: Length of Conduit

Scenario Unit: Feet

Scenario Typical Size: 500

Scenario Cost: $4,436.14 **Scenario Cost/Unit:** $8.87

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Compaction, earthfill, vibratory plate	1260	Compaction of earthfill with a walk behind vibratory plate compactor in typical 6-8 inch thick lifts, 2 passes. Includes equipment and labor.	Cubic Yard	$2.06	2	$4.12
Trenching, Earth, clay, 24" x 48"	55	Trenching, earth, clay, 24" wide x 48" depth, includes equipment and labor for trenching and backfilling and shoring/dewatering	Foot	$3.38	500	$1,690.00
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	$36.72	4	$146.88
Materials						
Inlet, riser, 10"	1263	Riser, polymer, complete vertical perforated UGO inlet with Tee, orifice plate if needed, 10" diameter. Materials only.	Each	$146.93	2	$293.86
Pipe, PVC, 10", SDR 35	1251	Pipe, PVC, SDR 35, 10" Diameter - ASTM D3034. Material cost only.	Foot	$10.44	20	$208.80
Pipe, HDPE, 10", PCPT, Single Wall	1273	Pipe, Corrugated Plastic Tubing, Single Wall, Perforated, 10" diameter - ASTM F667. Material cost only.	Foot	$3.82	480	$1,833.60
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$258.88	1	$258.88

Practice: 620 - Underground Outlet

Scenario: #10 - ≥12in Diameter Pipe with Risers

Scenario Description:

Scenario is for the Installation of a 12" diameter approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Payment includes pipe, perforated PVC riser inlet, trench excavation, and trench backfill. This practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations.

After Situation:

Excessive sedimentation and soil erosion is controlled after UGO is installed in association with terraces or water and sediment control basin.

Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Scenario Feature Measure: Length of Conduit

Scenario Unit: Feet

Scenario Typical Size: 500

Scenario Cost: $5,911.02 **Scenario Cost/Unit:** $11.82

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Compaction, earthfill, vibratory plate	1260	Compaction of earthfill with a walk behind vibratory plate compactor in typical 6-8 inch thick lifts, 2 passes. Includes equipment and labor.	Cubic Yard	$2.06	2	$4.12
Trenching, Earth, clay, 24" x 48"	55	Trenching, earth, clay, 24" wide x 48" depth, includes equipment and labor for trenching and backfilling and shoring/dewatering	Foot	$3.38	500	$1,690.00
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	$36.72	4	$146.88
Materials						
Inlet, riser, 12"	1264	Riser, polymer, complete vertical perforated UGO inlet with Tee, orifice plate if needed, 12" diameter. Materials only.	Each	$535.37	2	$1,070.74
Pipe, HDPE, 12", PCPT, Single Wall	1274	Pipe, Corrugated Plastic Tubing, Single Wall, Perforated, 12" diameter - ASTM F667. Material cost only.	Foot	$4.78	480	$2,294.40
Pipe, PVC, 12", SDR 35	1252	Pipe, PVC, SDR 35, 12" Diameter - ASTM D3034. Material cost only.	Foot	$22.30	20	$446.00
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$258.88	1	$258.88

Practice: 620 - Underground Outlet

Scenario: #11 - Blind Inlet

Scenario Description:

Install an excavated earthen box with perforated collector tubing placed in the bottom and filled to the surface with bedding material and rock riprap to direct surface flow into a "main line" or subsurface drain. Typically installed at the upper end of a waterway to protect the vegetation of the waterway from prolonged surface flow, thus facilitating vegetative growth and controlling ephemeral gully erosion. Costs include the collection pipe, excavation, and rock. This practice is often installed in conjunction with waterways or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations.

After Situation:

Excessive sedimentation and soil erosion is controlled through the installation of the blind inlet and grassed waterway. Vegetation is successfully established within the waterway.

Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Scenario Feature Measure: Length of Conduit

Scenario Unit: Feet

Scenario Typical Size: 40

Scenario Cost: $2,352.80 **Scenario Cost/Unit:** $58.82

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Excavation, common earth, small equipment, 50 ft	1220	Bulk excavation of common earth with dozer <100 HP with average push distance of 50 feet. Includes equipment and labor.	Cubic Yard	$2.47	30	$74.10
Excavation, common earth, side cast, large equipment	1227	Bulk excavation and side casting of common earth with hydraulic excavator with less greater than 1 CY capacity. Includes equipment and labor.	Cubic Yard	$1.83	30	$54.90
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	$36.72	2	$73.44
Materials						
Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	$25.33	15	$379.95
Rock Riprap, Placed with geotextile	44	Rock Riprap, placed with geotextile, includes materials, equipment and labor to transport and place	Cubic yard	$64.83	15	$972.45
Pipe, HDPE, 6", CPT, Single Wall	1242	Pipe, Corrugated Plastic Tubing, Single Wall, 6" diameter - ASTM F405. Material cost only.	Foot	$1.12	40	$44.80
Mobilization						
Mobilization, large equipment	1140	Equipment >150HP or typical weights greater than 30,000 pounds or loads requiring over width or over length permits.	Each	$494.28	1	$494.28
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$258.88	1	$258.88

Practice: 620 - Underground Outlet

Scenario: #13 - Trickle Flow Collector

Scenario Description:

Install a perforated pipe to collect surface flow and redirect water to a subsurface outlet. The Trickle Flow Collector consists of a rock/rip rap area bedded around the perforated pipe to trap sediment prior to outletting water. Scenario describes a 10' long by 30' wide by 1.5' deep rectangular shaped area lined with riprap. This scenario includes the installation of pipe in the bottom of the rock bedding to serve as a trickle flow collector. These typically are installed adjacent to waterway and with same flow dimensions. Half the flow channel is excavated, before excavation for riprap. Excess excavation is spoiled in the immediate area. Cost includes excavation, spoiling of excess material, geotextile underlayment and installing Rock Riprap. TFC area is measured from upstream to downstream flow catchment area.

Before Situation:

Excessive sedimentation and soil erosion as a result of ephemeral or classic gully erosion. Erosion is occuring in areas that cannot maintain established vegetation and are not otherwise protected. Water quality is compromised as nutrient/pesticide-laden sediments are leaving the site. Water quantity is also a concern as excessive surface water flow is contributing to gully erosion.

After Situation:

Rock lined area is 10' long by 30' wide by 1.5' deep. This armor will result in a protected surface to address the initial concern of erosion. Placement of the perforated pipe and rock/rip rap bedding will not only armor the surface area from erosion, but will provide a filter for trapping sediment laden with nutrients and/or pesticides, to result in an improvement to water quality. Area is excavated and rock is placed using a hydraulic excavator. Geotextile underlayment is installed by laborers.

Associated practices are Subsurface Drain (606), Underground Outlet (620), Structure for Water Control (587), and Critical Area Seeding (342).

Scenario Feature Measure: Width of collector area (ft)

Scenario Unit: Linear Foot

Scenario Typical Size: 30

Scenario Cost: $1,731.62 **Scenario Cost/Unit:** $57.72

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
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	$2.15	22	$47.30
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	$36.72	2	$73.44
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	$20.32	1	$20.32
Materials						
Rock Riprap, Placed with geotextile	44	Rock Riprap, placed with geotextile, includes materials, equipment and labor to transport and place	Cubic yard	$64.83	13	$842.79
Pipe, PVC, 4", SCH 40	978	Materials: - 4" - PVC - SCH 40 - ASTM D1785	Foot	$3.99	40	$159.60
Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	$25.33	13	$329.29
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$258.88	1	$258.88

Practice: 620 - Underground Outlet

Scenario: #14 - ≤5in Diameter Pipe

Scenario Description:

Scenario is for the Installation of a 5" or less diameter approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Payment includes pipe, trench excavation, and trench backfill. The typical use for this scenario is non-pressure underground outlet for roof runoff management and non-perforated outlet for upstream drainage installed adjacent to a wetland.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contminated with agricultural wastes that significantly contributes to the amount of runoff that has to be stored or treated.

After Situation:

Excessive sedimentation and soil erosion is controlled or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste.

Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Scenario Feature Measure: Length of Conduit

Scenario Unit: Feet

Scenario Typical Size: 200

Scenario Cost: $745.84 **Scenario Cost/Unit:** $3.73

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Trenching, Earth, 12" x 48"	53	Trenching, earth, 12" wide x 48" depth, includes equipment and labor for trenching and backfilling	Foot	$1.26	200	$252.00
Compaction, earthfill, vibratory plate	1260	Compaction of earthfill with a walk behind vibratory plate compactor in typical 6-8 inch thick lifts, 2 passes. Includes equipment and labor.	Cubic Yard	$2.06	2	$4.12
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	$36.72	2	$73.44
Materials						
Pipe, PVC, 4", SDR 35	992	Materials: - 4" - PVC - SDR 35 - ASTM D3034	Foot	$1.66	20	$33.20
Pipe, HDPE, 5", PCPT, Single Wall	1271	Pipe, Corrugated Plastic Tubing, Single Wall, Perforated, 5" diameter - ASTM F405. Material cost only.	Foot	$0.69	180	$124.20
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$258.88	1	$258.88

Practice: 620 - Underground Outlet

Scenario: #15 - 6in Diameter Pipe

Scenario Description:

Scenario is for the Installation of a 6" diameter approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Payment includes pipe, trench excavation, and trench backfill. The typical use for this scenario is non-pressure underground outlet for roof runoff management and non-perforated outlet for upstream drainage installed adjacent to a wetland.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contminated with agricultural wastes that significantly contributes to the amount of runoff that has to be stored or treated.

After Situation:

Excessive sedimentation and soil erosion is controlled or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste.

Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Scenario Feature Measure: Length of Conduit

Scenario Unit: Feet

Scenario Typical Size: 200

Scenario Cost: $864.44 **Scenario Cost/Unit:** $4.32

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Compaction, earthfill, vibratory plate	1260	Compaction of earthfill with a walk behind vibratory plate compactor in typical 6-8 inch thick lifts, 2 passes. Includes equipment and labor.	Cubic Yard	$2.06	2	$4.12
Trenching, Earth, 12" x 48"	53	Trenching, earth, 12" wide x 48" depth, includes equipment and labor for trenching and backfilling	Foot	$1.26	200	$252.00
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	$36.72	2	$73.44
Materials						
Pipe, HDPE, 6", CPT, Single Wall	1242	Pipe, Corrugated Plastic Tubing, Single Wall, 6" diameter - ASTM F405. Material cost only.	Foot	$1.12	180	$201.60
Pipe, PVC, 6", SDR 35	993	Materials: - 6" - PVC - SDR 35 - ASTM D3034	Foot	$3.72	20	$74.40
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$258.88	1	$258.88

Practice: 620 - Underground Outlet

Scenario: #16 - 8in Diameter Pipe

Scenario Description:

Scenario is for the Installation of a 8" diameter approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Payment includes pipe, trench excavation, and trench backfill. The typical use for this scenario is non-pressure underground outlet for roof runoff management and non-perforated outlet for upstream drainage installed adjacent to a wetland.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contminated with agricultural wastes that significantly contributes to the amount of runoff that has to be stored or treated.

After Situation:

Excessive sedimentation and soil erosion is controlled or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste.

Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Scenario Feature Measure: Length of Conduit

Scenario Unit: Feet

Scenario Typical Size: 200

Scenario Cost: $1,071.04 **Scenario Cost/Unit:** $5.36

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Trenching, Earth, 12" x 48"	53	Trenching, earth, 12" wide x 48" depth, includes equipment and labor for trenching and backfilling	Foot	$1.26	200	$252.00
Compaction, earthfill, vibratory plate	1260	Compaction of earthfill with a walk behind vibratory plate compactor in typical 6-8 inch thick lifts, 2 passes. Includes equipment and labor.	Cubic Yard	$2.06	2	$4.12
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	$36.72	2	$73.44
Materials						
Pipe, PVC, 8", SDR 35	994	Materials: - 8" - PVC - SDR 35 - ASTM D3034	Foot	$6.67	20	$133.40
Pipe, HDPE, 8", PCPT, Single Wall	1272	Pipe, Corrugated Plastic Tubing, Single Wall, Perforated, 8" diameter - ASTM F667. Material cost only.	Foot	$1.94	180	$349.20
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$258.88	1	$258.88

Practice: 620 - Underground Outlet

Scenario: #17 - 10in Diameter Pipe

Scenario Description:

Scenario is for the Installation of a 10" diameter approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Payment includes pipe, trench excavation, and trench backfill. The typical use for this scenario is non-pressure underground outlet for roof runoff management and non-perforated outlet for upstream drainage installed adjacent to a wetland.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contminated with agricultural wastes that significantly contributes to the amount of runoff that has to be stored or treated.

After Situation:

Excessive sedimentation and soil erosion is controlled or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste.

Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Scenario Feature Measure: Length of Conduit

Scenario Unit: Feet

Scenario Typical Size: 200

Scenario Cost: $1,982.28 **Scenario Cost/Unit:** $9.91

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Trenching, Earth, clay, 24" x 48"	55	Trenching, earth, clay, 24" wide x 48" depth, includes equipment and labor for trenching and backfilling and shoring/dewatering	Foot	$3.38	200	$676.00
Compaction, earthfill, vibratory plate	1260	Compaction of earthfill with a walk behind vibratory plate compactor in typical 6-8 inch thick lifts, 2 passes. Includes equipment and labor.	Cubic Yard	$2.06	2	$4.12
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	$36.72	4	$146.88
Materials						
Pipe, PVC, 10", SDR 35	1251	Pipe, PVC, SDR 35, 10" Diameter - ASTM D3034. Material cost only.	Foot	$10.44	20	$208.80
Pipe, HDPE, 10", PCPT, Single Wall	1273	Pipe, Corrugated Plastic Tubing, Single Wall, Perforated, 10" diameter - ASTM F667. Material cost only.	Foot	$3.82	180	$687.60
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$258.88	1	$258.88

Practice: 620 - Underground Outlet

Scenario: #18 - ≥12in Diameter Pipe

Scenario Description:

Scenario is for the Installation of a 12" diameter approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Payment includes pipe, trench excavation, and trench backfill. The typical use for this scenario is non-pressure underground outlet for roof runoff management and non-perforated outlet for upstream drainage installed adjacent to a wetland.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contminated with agricultural wastes that significantly contributes to the amount of runoff that has to be stored or treated.

After Situation:

Excessive sedimentation and soil erosion is controlled or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste.

Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Scenario Feature Measure: Length of Conduit

Scenario Unit: Feet

Scenario Typical Size: 200

Scenario Cost: $2,392.28 **Scenario Cost/Unit:** $11.96

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Trenching, Earth, clay, 24" x 48"	55	Trenching, earth, clay, 24" wide x 48" depth, includes equipment and labor for trenching and backfilling and shoring/dewatering	Foot	$3.38	200	$676.00
Compaction, earthfill, vibratory plate	1260	Compaction of earthfill with a walk behind vibratory plate compactor in typical 6-8 inch thick lifts, 2 passes. Includes equipment and labor.	Cubic Yard	$2.06	2	$4.12
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	$36.72	4	$146.88
Materials						
Pipe, PVC, 12", SDR 35	1252	Pipe, PVC, SDR 35, 12" Diameter - ASTM D3034. Material cost only.	Foot	$22.30	20	$446.00
Pipe, HDPE, 12", PCPT, Single Wall	1274	Pipe, Corrugated Plastic Tubing, Single Wall, Perforated, 12" diameter - ASTM F667. Material cost only.	Foot	$4.78	180	$860.40
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$258.88	1	$258.88