

**Practice: 620 - Underground Outlet**

**Scenario: #1 - 4 inch pipe**

**Scenario Description:**

Install 100 feet of 4" diameter approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Trench is excavated 48" deep and 12" wide by hydraulic track excavator. Costs include 4" SCH 40 PVC pipe, trench excavation, trench backfill, labor, and supervision. This practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways, roof runoff structure, 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. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contributes to the amount of runoff that has to be stored or treated.

**After Situation:**

Field system meets "T" 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), Roof Runoff Structure (558), and Subsurface Drainage (606)

**Scenario Feature Measure:** Length of Conduit

**Scenario Unit:** Foot

**Scenario Typical Size:** 100

**Scenario Cost:** \$1,033.52

**Scenario Cost/Unit:** \$10.34

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Trenching, Earth, 12" x 48"	53	Trenching, earth, 12" wide x 48" depth, includes equipment and labor for trenching and backfilling	Foot	\$1.18	100	\$118.00
<b>Labor</b>						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$18.11	10	\$181.10
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	\$37.95	3	\$113.85
<b>Materials</b>						
Pipe, PVC, 4", SCH 40	978	Materials: - 4" - PVC - SCH 40 - ASTM D1785	Foot	\$4.03	100	\$403.00
<b>Mobilization</b>						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$217.57	1	\$217.57

**Practice: 620 - Underground Outlet**

**Scenario: #2 - 6 inch pipe**

**Scenario Description:**

Install 100 feet of 6" diameter approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Trench is excavated 48" deep and 12" wide by hydraulic track excavator. Costs include 6" SCH 40 PVC pipe, trench excavation, trench backfill, labor, and supervision. This practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways, roof runoff structure, 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. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contributes to the amount of runoff that has to be stored or treated.

**After Situation:**

Field system meets "T" 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), Roof Runoff Structure (558), and Subsurface Drainage (606)

**Scenario Feature Measure:** Length of Conduit

**Scenario Unit:** Foot

**Scenario Typical Size:** 100

**Scenario Cost:** \$1,294.52

**Scenario Cost/Unit:** \$12.95

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Trenching, Earth, 12" x 48"	53	Trenching, earth, 12" wide x 48" depth, includes equipment and labor for trenching and backfilling	Foot	\$1.18	100	\$118.00
<b>Labor</b>						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$18.11	10	\$181.10
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	\$37.95	3	\$113.85
<b>Materials</b>						
Pipe, PVC, 6", SCH 40	980	Materials: - 6" - PVC - SCH 40 - ASTM D1785	Foot	\$6.64	100	\$664.00
<b>Mobilization</b>						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$217.57	1	\$217.57

**Practice: 620 - Underground Outlet**

**Scenario: #3 - 8 inch pipe**

**Scenario Description:**

Install 100 feet of 8" diameter approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Trench is excavated 48" deep and 12" wide by hydraulic track excavator. Costs include 8" SCH 40 PVC pipe, trench excavation, trench backfill, labor, and supervision. This practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways, roof runoff structure, 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. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contributes to the amount of runoff that has to be stored or treated.

**After Situation:**

Field system meets "T" 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), Roof Runoff Structure (558), and Subsurface Drainage (606)

**Scenario Feature Measure:** Length of Conduit

**Scenario Unit:** Foot

**Scenario Typical Size:** 100

**Scenario Cost:** \$1,643.47

**Scenario Cost/Unit:** \$16.43

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Trenching, Earth, 12" x 48"	53	Trenching, earth, 12" wide x 48" depth, includes equipment and labor for trenching and backfilling	Foot	\$1.18	100	\$118.00
<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	\$37.95	4	\$151.80
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	\$18.11	10	\$181.10
<b>Materials</b>						
Pipe, PVC, 8", SCH 40	981	Materials: - 8" - PVC - SCH 40 - ASTM D1785	Foot	\$9.75	100	\$975.00
<b>Mobilization</b>						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$217.57	1	\$217.57

**Practice: 620 - Underground Outlet**

**Scenario: #4 - 10 inch pipe**

**Scenario Description:**

Install 100 feet of 10" diameter approved pipe to convey stormwater from one location to a suitable and stable outlet. Trench is excavated 48" deep and 24" wide by hydraulic track excavator. Costs include 10" SDR 35 PVC pipe, trench excavation, trench backfill, labor, and supervision. This practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways, roof runoff structure, 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. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contributes to the amount of runoff that has to be stored or treated.

**After Situation:**

Field system meets "T" 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), Roof Runoff Structure (558), and Subsurface Drainage (606)

**Scenario Feature Measure:** Length of Conduit

**Scenario Unit:** Foot

**Scenario Typical Size:** 100

**Scenario Cost:** \$1,957.69

**Scenario Cost/Unit:** \$19.58

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
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	\$3.16	100	\$316.00
<b>Labor</b>						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$18.11	12	\$217.32
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	\$37.95	4	\$151.80
<b>Materials</b>						
Pipe, PVC, 10", SDR 35	1251	Pipe, PVC, SDR 35, 10" Diameter - ASTM D3034. Material cost only.	Foot	\$10.55	100	\$1,055.00
<b>Mobilization</b>						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$217.57	1	\$217.57

**Practice: 620 - Underground Outlet**

**Scenario: #5 - 12 inch or greater pipe**

**Scenario Description:**

Install 100 feet of 12" or greater diameter approved pipe to convey stormwater from one location to a suitable and stable outlet. Trench is excavated 48" deep and 24" wide by hydraulic track excavator. Costs include 12" CMP pipe, trench excavation, trench backfill, labor, and supervision. This practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways, roof runoff structure, 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. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contributes to the amount of runoff that has to be stored or treated.

**After Situation:**

Field system meets "T" 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), Roof Runoff Structure (558), and Subsurface Drainage (606)

**Scenario Feature Measure:** Length of Conduit

**Scenario Unit:** Foot

**Scenario Typical Size:** 100

**Scenario Cost:** \$2,039.13

**Scenario Cost/Unit:** \$20.39

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
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	\$3.16	100	\$316.00
<b>Labor</b>						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$18.11	16	\$289.76
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	\$37.95	4	\$151.80
<b>Materials</b>						
Pipe, CMP, 12", 16 Gauge	1269	12" Corrugated Metal Pipe, Galvanized, Uncoated, 16 gage. Material cost only.	Foot	\$10.64	100	\$1,064.00
<b>Mobilization</b>						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$217.57	1	\$217.57