

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	New England
State	Connecticut
Discipline Group	Water Management Engineering
Practice Code/Name	606 - Subsurface Drain
Scenario ID	6
Scenario Name	4 in PVC Footing Drain
Scenario Description	Description: Below ground installation of 4" Perf PVC to improve soil drainage. Installed where greater strength is needed under high traffic areas; in locations where replacement may be difficult; or in conjunction with other structural conservation practices to remove excess water and ensure proper function of that practice. Pipe usually installed in a crushed stone envelope, w/ geotextile around base of structure. Resource Concerns: Excess Water (Seasonal High Water Table); Water Quality Degradation (Nutrients). Per practice it supports. Associated Practices: 607 - Surface Drain, Field Ditch; 608 - Surface Drain, Main or Lateral; 587 - Structure for Water Control, 533 - Pumping Plant; 606 Underground Outlet, 313 Waste Storage Facility, and 554 - Drainage Water Management.
Before Practice Situation	Before installation soil conditions are excessively wet due to poor internal soil drainage. Excess soil water threatens stability/functionality of proposed conservation practice.
After Practice Situation	The drainage modifications result in improved drainage of groundwater to ensure function and longevity of supporting practice.
Scenario Feature Measure	length of pipe
Scenario Unit	Foot
Scenario Typical Size	100

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	\$577.94	\$5.78
Equipment/Installation	\$0.00	\$0.00
Labor	\$205.68	\$2.06
Mobilization	\$0.00	\$0.00
Acquisition of Technical Knowledge	\$0.00	\$0.00
Foregone Income	\$0.00	\$0.00
Total	\$783.62	\$7.84

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Materials	1209	Geotextile, non-woven, light weight	Non-woven less than 8 ounce/square yard geotextile with staple anchoring. Materials only.	Square Yard	\$1.87	78	\$145.86
Materials	46	Aggregate, Gravel, Graded	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	\$27.76	8	\$222.08
Materials	989	Pipe, PVC, 4", SDR 26	Materials: - 4" - PVC - SDR 26 160 psi - ASTM D2241	Foot	\$2.10	100	\$210.00
Labor	231	General Labor	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	\$25.71	8	\$205.68

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	New England
State	Connecticut
Discipline Group	Water Management Engineering
Practice Code/Name	606 - Subsurface Drain
Scenario ID	7
Scenario Name	6 in CPP Footing Drain
Scenario Description	Description: Below ground installation of 6" Perf CPT to improve soil drainage. Installed along structures footings; or in conjunction with other structural conservation practices to remove excess water and ensure proper function of that practice. Pipe usually installed in a crushed stone envelope around base of structure. Resource Concerns: Excess Water (Seasonal High Water Table); Water Quality Degradation (Nutrients). Per practice it supports. Associated Practices: 607 - Surface Drain, Field Ditch; 608 - Surface Drain, Main or Lateral; 587 - Structure for Water Control, 533 - Pumping Plant; 606 Underground Outlet, 313 Waste Storage Facility, and 554 - Drainage Water Management.
Before Practice Situation	Before installation soil conditions are excessively wet due to poor internal soil drainage. Excess soil water threatens stability/functionality of proposed conservation practice.
After Practice Situation	The drainage modifications result in improved drainage of groundwater to ensure function and longevity of supporting practice.
Scenario Feature Measure	length of pipe
Scenario Unit	Foot
Scenario Typical Size	100

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	\$334.08	\$3.34
Equipment/Installation	\$0.00	\$0.00
Labor	\$102.84	\$1.03
Mobilization	\$0.00	\$0.00
Acquisition of Technical Knowledge	\$0.00	\$0.00
Foregone Income	\$0.00	\$0.00
Total	\$436.92	\$4.37

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Materials	1242	Pipe, HDPE, 6", CPT, Single Wall	Pipe, Corrugated Plastic Tubing, Single Wall, 6" diameter - ASTM F405. Material cost only.	Foot	\$1.12	100	\$112.00
Materials	46	Aggregate, Gravel, Graded	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	\$27.76	8	\$222.08
Labor	231	General Labor	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	\$25.71	4	\$102.84

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Practice and Scenario Description:

Information Type	Data
Region	New England
State	Connecticut
Discipline Group	Water Management Engineering
Practice Code/Name	606 - Subsurface Drain
Scenario ID	8
Scenario Name	6 in Footing Drain w/ Geotextile Fabric
Scenario Description	Description: Below ground installation of 4" Perf PVC or 6" Perf CPT to improve soil drainage. PVC installed where greater strength is needed under high traffic areas; in locations where replacement may be difficult; both installed in conjunction with other structural conservation practices to remove excess water and ensure proper function of that practice. Pipe usually installed in a crushed stone envelope, w/ geotextile around base of structure. Resource Concerns: Excess Water (Seasonal High Water Table); Water Quality Degradation (Nutrients). Per practice it supports. Associated Practices: 607 - Surface Drain, Field Ditch; 608 - Surface Drain, Main or Lateral; 587 - Structure for Water Control, 533 - Pumping Plant; 606 Underground Outlet, 313 Waste Storage Facility, and 554 - Drainage Water Management.
Before Practice Situation	Before installation soil conditions are excessively wet due to poor internal soil drainage. Excess soil water threatens stability/functionality of proposed conservation practice.
After Practice Situation	The drainage modifications result in improved drainage of groundwater to ensure function and longevity of supporting practice.
Scenario Feature Measure	length of pipe
Scenario Unit	Foot
Scenario Typical Size	100

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	\$528.40	\$5.28
Equipment/Installation	\$0.00	\$0.00
Labor	\$205.68	\$2.06
Mobilization	\$0.00	\$0.00
Acquisition of Technical Knowledge	\$0.00	\$0.00
Foregone Income	\$0.00	\$0.00
Total	\$734.08	\$7.34

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Materials	1209	Geotextile, non-woven, light weight	Non-woven less than 8 ounce/square yard geotextile with staple anchoring. Materials only.	Square Yard	\$1.87		\$0.00
Materials	1242	Pipe, HDPE, 6", CPT, Single Wall	Pipe, Corrugated Plastic Tubing, Single Wall, 6" diameter - ASTM F405. Material cost only.	Foot	\$1.12	100	\$112.00
Materials	46	Aggregate, Gravel, Graded	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	\$27.76	15	\$416.40
Labor	231	General Labor	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	\$25.71	8	\$205.68

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Practice and Scenario Description:

Information Type	Data
Region	New England
State	Connecticut
Discipline Group	Water Management Engineering
Practice Code/Name	606 - Subsurface Drain
Scenario ID	1
Scenario Name	Corrugated Plastic Pipe (CPP), Single-Wall, ≤ 6 in
Scenario Description	Description: Below ground installation of perforated HDPE (Corrugated Plastic Pipe) pipeline, using a backhoe. HDPE (CPP) Single-Wall is manufactured in sizes (nominal diameter) from 3-inch to 24-inch; typical practice sizes range from 3-inch to 12-inch; and typical scenario size is 6-inch. Construct 1,000 feet of 6-inch, Single-Wall, perforated HDPE Corrugated Plastic Pipe (CPP), installed below ground to a minimum depth 5 feet. The unit is in length of pipe. The typical number of mainline connections for 1,000 feet of subsurface drainline is ~ 3 each. Resource Concerns: Excess Water (Seasonal High Water Table); Degraded Plant Condition; Water Quality Degradation (Nutrients). Associated Practices: 608 - Surface Drain, Main or Lateral; 587 - Structure for Water Control, 533 - Pumping Plant; 606 - Underground Outlet, and 554 - Drainage Water Management.
Before Practice Situation	Before installation soil conditions are excessively wet in the spring due to poor internal soil drainage. Excess soil water is causing crop stress and delay of field operations (seed bed preparation, planting, etc.).
After Practice Situation	The drainage modifications result in reduced plant stress due to excessive wetness caused by a seasonal high water table, or improved drainage water quality due to system retrofit enabling drainage water management.
Scenario Feature Measure	Length of pipe
Scenario Unit	Linear Foot
Scenario Typical Size	1,000

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	\$1,198.90	\$1.20
Equipment/Installation	\$2,126.10	\$2.13
Labor	\$205.68	\$0.21
Mobilization	\$300.54	\$0.30
Acquisition of Technical Knowledge	\$0.00	\$0.00
Foregone Income	\$0.00	\$0.00
Total	\$3,831.22	\$3.83

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Materials	1242	Pipe, HDPE, 6", CPT, Single Wall	Pipe, Corrugated Plastic Tubing, Single Wall, 6" diameter - ASTM F405. Material cost only.	Foot	\$1.12	1000	\$1,120.00
Materials	1458	Drainage Lateral Connection	Connect 3"-6" drainage lateral to main drain, includes excavation to 6' depth, install tee on main line, connect lateral, and backfill. Includes material cost for tee.	Each	\$26.30	3	\$78.90
Equipment/Installation	48	Excavation, Common Earth, side cast, small equipment	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	\$2.16	640	\$1,382.40
Equipment/Installation	1260	Compaction, earthfill, vibratory plate	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	\$2.01	370	\$743.70
Labor	231	General Labor	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	\$25.71	8	\$205.68
Mobilization	1142	Mobilization, General labor	Mobilization of general labor: Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$26.21	1	\$26.21
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$274.33	1	\$274.33

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	New England
State	Connecticut
Discipline Group	Water Management Engineering
Practice Code/Name	606 - Subsurface Drain
Scenario ID	4
Scenario Name	Corrugated Plastic Pipe (CPP), Single-Wall, ≥ 8 in
Scenario Description	Description: Below ground installation of HDPE (Corrugated Plastic Pipe) pipeline, using a drainage plow. HDPE (CPP) Single-Wall is manufactured in sizes (nominal diameter) from 3-inch to 24-inch; typical practice sizes range from 3-inch to 12-inch; and typical scenario size is 10-inch. Construct 1,000 feet of 10-inch, Single-Wall, HDPE Corrugated Plastic Pipe (CPP), installed below ground to a minimum depth 5 feet. The unit is in length of pipe of pipe in feet. Resource Concerns: Excess Water (Seasonal High Water Table); Degraded Plant Condition; Water Quality Degradation (Nutrients). Associated Practices: 607 - Surface Drain, Field Ditch; 608 - Surface Drain, Main or Lateral; 587 - Structure for Water Control, 533 - Pumping Plant; and 554 - Drainage Water Management.
Before Practice Situation	Before installation soil conditions are excessively wet in the spring due to poor internal soil drainage. Excess soil water is causing crop stress and delay of field operations (seed bed preparation, planting, etc.).
After Practice Situation	The drainage modifications result in reduced plant stress due to excessive wetness caused by a seasonal high water table, or improved drainage water quality due to system retrofit enabling drainage water management.
Scenario Feature Measure	Weight of Pipe
Scenario Unit	Linear Foot
Scenario Typical Size	1,000

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	\$8,995.60	\$9.00
Equipment/Installation	\$2,527.02	\$2.53
Labor	\$205.68	\$0.21
Mobilization	\$300.54	\$0.30
Acquisition of Technical Knowledge	\$0.00	\$0.00
Foregone Income	\$0.00	\$0.00
Total	\$12,028.84	\$12.03

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Materials	1273	Pipe, HDPE, 10", PCPT, Single Wall	Pipe, Corrugated Plastic Tubing, Single Wall, Perforated, 10" diameter - ASTM F667. Material cost only.	Foot	\$3.86	1000	\$3,860.00
Materials	46	Aggregate, Gravel, Graded	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	\$27.76	185	\$5,135.60
Equipment/Installation	48	Excavation, Common Earth, side cast, small equipment	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	\$2.16	740	\$1,598.40
Equipment/Installation	1260	Compaction, earthfill, vibratory plate	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	\$2.01	462	\$928.62
Labor	231	General Labor	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	\$25.71	8	\$205.68
Mobilization	1142	Mobilization, General labor	Mobilization of general labor: Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$26.21	1	\$26.21
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$274.33	1	\$274.33

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	New England
State	Connecticut
Discipline Group	Water Management Engineering
Practice Code/Name	606 - Subsurface Drain
Scenario ID	5
Scenario Name	Corrugated Plastic Pipe (CPP), Twin-Wall, ≥ 8 in
Scenario Description	Description: Below ground installation of HDPE (Corrugated Plastic Pipe) pipeline, using a backhoe. HDPE (CPP) Twin-Wall is manufactured in sizes (nominal diameter) from 4-inch to 60-inch; typical practice sizes range from 8-inch to 15-inch; and typical scenario size is 12-inch. Construct 1,000 feet of 12-inch, Twin-Wall, HDPE Corrugated Plastic Pipe (CPP), installed below ground to a minimum depth 5 feet. The unit is in length of pipe in feet. Resource Concerns: Excess Water (Seasonal High Water Table); Degraded Plant Condition; Water Quality Degradation (Nutrients). Associated Practices: 607 - Surface Drain, Field Ditch; 608 - Surface Drain, Main or Lateral; 587 - Structure for Water Control; 533 - Pumping Plant; and 554 - Drainage Water Management.
Before Practice Situation	Before installation soil conditions are excessively wet in the spring due to poor internal soil drainage. Excess soil water is causing crop stress and delay of field operations (seed bed preparation, planting, etc.).
After Practice Situation	The drainage modifications result in reduced plant stress due to excessive wetness caused by a seasonal high water table, or improved drainage water quality due to system retrofit enabling drainage water management.
Scenario Feature Measure	length of pipe
Scenario Unit	Linear Foot
Scenario Typical Size	1,000

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	\$11,062.72	\$11.06
Equipment/Installation	\$3,926.07	\$3.93
Labor	\$205.68	\$0.21
Mobilization	\$300.54	\$0.30
Acquisition of Technical Knowledge	\$0.00	\$0.00
Foregone Income	\$0.00	\$0.00
Total	\$15,495.01	\$15.50

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Materials	1274	Pipe, HDPE, 12", PCPT, Single Wall	Pipe, Corrugated Plastic Tubing, Single Wall, Perforated, 12" diameter - ASTM F667. Material cost only.	Foot	\$4.90	1000	\$4,900.00
Materials	46	Aggregate, Gravel, Graded	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	\$27.76	222	\$6,162.72
Equipment/Installation	48	Excavation, Common Earth, side cast, small equipment	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	\$2.16	888	\$1,918.08
Equipment/Installation	1260	Compaction, earthfill, vibratory plate	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	\$2.01	999	\$2,007.99
Labor	231	General Labor	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	\$25.71	8	\$205.68
Mobilization	1142	Mobilization, General labor	Mobilization of general labor: Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$26.21	1	\$26.21
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$274.33	1	\$274.33

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	New England
State	Connecticut
Discipline Group	Water Management Engineering
Practice Code/Name	606 - Subsurface Drain
Scenario ID	3
Scenario Name	Env Corrugated Plastic Pipe (CPP), Single-Wall, ≤ 6 in, deep
Scenario Description	Description: below ground installation of perforated HDPE (Corrugated Plastic Pipe) pipeline with Sand-Gravel envelope, using a drainage trencher or backhoe. HDPE (CPP) Single-Wall is manufactured in sizes (nominal diameter) from 3-inch to 24-inch; typical practice sizes range from 3-inch to 12-inch; and typical scenario size is 6-inch. Construct 1,000 feet of 6-inch, Single-Wall, perforated HDPE Corrugated Plastic Pipe (CPP), installed below ground to a depth of 10 feet, and surrounded with a sand-gravel envelope. The unit is in length of pipe. The typical volume sand-gravel for 1,000 feet of 2'wide x 12" high envelope is 74 cubic yards. The typical number of mainline connections for 1,000 feet of subsurface drainline is a total of 3 each. Resource Concerns: Excess Water (seasonal High Water Table); Degraded Plant Condition; Water Quality Degradation (Nutrients). Associated Practices: 608 - Surface Drain, Main or Lateral; 587 - Structure for Water Control, 533 - Pumping Plant; 606-Underground Outlet, and 554 - Drainage Water Management.
Before Practice Situation	Before installation soil conditions are excessively wet in the spring due to poor internal soil drainage. Excess soil water is causing crop stress and delay of field operations (seed bed preparation, planting, etc.).
After Practice Situation	The drainage modifications result in reduced plant stress due to excessive wetness caused by a seasonal high water table, or improved drainage water quality due to system retrofit enabling drainage water management.
Scenario Feature Measure	length of pipe
Scenario Unit	Linear Foot
Scenario Typical Size	1,000

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	\$6,170.02	\$6.17
Equipment/Installation	\$5,121.33	\$5.12
Labor	\$308.52	\$0.31
Mobilization	\$300.54	\$0.30
Acquisition of Technical Knowledge	\$0.00	\$0.00
Foregone Income	\$0.00	\$0.00
Total	\$11,900.41	\$11.90

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Materials	1210	Geotextile, non-woven, heavy weight	Non-woven greater than 8 ounce/square yard geotextile with staple anchoring. Materials only.	Square Yard	\$4.04	722	\$2,916.88
Materials	1242	Pipe, HDPE, 6", CPT, Single Wall	Pipe, Corrugated Plastic Tubing, Single Wall, 6" diameter - ASTM F405. Material cost only.	Foot	\$1.12	1000	\$1,120.00
Materials	1458	Drainage Lateral Connection	Connect 3"-6" drainage lateral to main drain, includes excavation to 6' depth, install tee on main line, connect lateral, and backfill. Includes material cost for tee.	Each	\$26.30	3	\$78.90
Materials	46	Aggregate, Gravel, Graded	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	\$27.76	74	\$2,054.24
Equipment/Installation	48	Excavation, Common Earth, side cast, small equipment	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	\$2.16	1406	\$3,036.96
Equipment/Installation	1260	Compaction, earthfill, vibratory plate	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	\$2.01	1037	\$2,084.37
Labor	231	General Labor	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	\$25.71	12	\$308.52
Mobilization	1142	Mobilization, General labor	Mobilization of general labor: Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$26.21	1	\$26.21
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$274.33	1	\$274.33

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	New England
State	Connecticut
Discipline Group	Water Management Engineering
Practice Code/Name	606 - Subsurface Drain
Scenario ID	2
Scenario Name	Enveloped Corrugated Plastic Pipe (CPP), Single-Wall, ≤ 6 in
Scenario Description	Description: below ground installation of perforated HDPE (Corrugated Plastic Pipe) pipeline with Sand-Gravel envelope, using a or backhoe. HDPE (CPP) Single-Wall is manufactured in sizes (nominal diameter) from 3-inch to 24-inch; typical practice sizes range from 3-inch to 12-inch; and typical scenario size is 6-inch. Construct 1,000 feet of 6-inch, Single-Wall, perforated HDPE Corrugated Plastic Pipe (CPP), installed below ground to a minimum depth of 5 feet, and surrounded with a sand-gravel envelope. The unit is in length of pipe. The typical volume sand-gravel for 1,000 feet of 2'wide x 12" high envelope is 74 cubic yards. The typical number of mainline connections for 1,000 feet of subsurface drainline is a total of 3 each. Resource Concerns: Excess Water (seasonal High Water Table); Degraded Plant Condition; Water Quality Degradation (Nutrients). Associated Practices: 608 - Surface Drain, Main or Lateral; 587 - Structure for Water Control, 533 - Pumping Plant; 606-Underground Outlet, and 554 - Drainage Water Management.
Before Practice Situation	Before installation soil conditions are excessively wet in the spring due to poor internal soil drainage. Excess soil water is causing crop stress and delay of field operations (seed bed preparation, planting, etc.).
After Practice Situation	The drainage modifications result in reduced plant stress due to excessive wetness caused by a seasonal high water table, or improved drainage water quality due to system retrofit enabling drainage water management.
Scenario Feature Measure	length of pipe
Scenario Unit	Linear Foot
Scenario Typical Size	1,000

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	\$6,170.02	\$6.17
Equipment/Installation	\$2,777.22	\$2.78
Labor	\$205.68	\$0.21
Mobilization	\$300.54	\$0.30
Acquisition of Technical Knowledge	\$0.00	\$0.00
Foregone Income	\$0.00	\$0.00
Total	\$9,453.46	\$9.45

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Materials	1210	Geotextile, non-woven, heavy weight	Non-woven greater than 8 ounce/square yard geotextile with staple anchoring. Materials only.	Square Yard	\$4.04	722	\$2,916.88
Materials	1242	Pipe, HDPE, 6", CPT, Single Wall	Pipe, Corrugated Plastic Tubing, Single Wall, 6" diameter - ASTM F405. Material cost only.	Foot	\$1.12	1000	\$1,120.00
Materials	1458	Drainage Lateral Connection	Connect 3"-6" drainage lateral to main drain, includes excavation to 6' depth, install tee on main line, connect lateral, and backfill. Includes material cost for tee.	Each	\$26.30	3	\$78.90
Materials	46	Aggregate, Gravel, Graded	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	\$27.76	74	\$2,054.24
Equipment/Installation	48	Excavation, Common Earth, side cast, small equipment	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	\$2.16	666	\$1,438.56
Equipment/Installation	1260	Compaction, earthfill, vibratory plate	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	\$2.01	666	\$1,338.66
Labor	231	General Labor	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	\$25.71	8	\$205.68
Mobilization	1142	Mobilization, General labor	Mobilization of general labor: Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$26.21	1	\$26.21
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$274.33	1	\$274.33