Practice: 606 - Subsurface Drain

Scenario # 1 **Corrugated Plastic Pipe, Single Wall, Less than or equal to 6 inches**

Scenario Description: **Actual Scenario # 1** **New York**

A perforated HDPE (Corrugated Plastic Pipe) pipeline less than or equal to 6 inches in diameter is installed below ground using a drainage plow to address excess water (seasonal high water table), degraded plant condition, and water quality degradation (nutrients). Associated Practices: 608 - Surface Drain, Main or Lateral; 587 - Structure for Water Control, 533 - Pumping Plant; and 554 - Drainage Water Management.

Before Practice Situation:

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.

After Practice Situation:

A perforated HDPE (Corrugated Plastic Pipe) pipeline less than or equal to 6 inches in diameter is installed below ground using a drainage plow to address excess water (seasonal high water table), degraded plant condition, and water quality degradation (nutrients). A 5” single wall, perforated HDPE Corrugated Plastic Pipe (CPP) is installed below ground to a minimum depth of 5 feet. The typical number of mainline connections for 1,000 feet of subsurface drainline is 3. The drainage modifications result in reduced plant stress due to excess wetness or improved drainage water quality due to system retrofit enabling drainage water management.

Scenario Feature Measure:

Feet of Pipe

Scenario Typical Size:	1000	Foot	Tot Unit Cost	$5.06

Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Pipe, HDPE, corrugated single wall, ≤	500	Pound	$1.54	$770.00
Materials	Drainage Lateral Connection	3	Each	$31.13	$93.39
Equip./Install.	Trenching, tile line plowing, earth,	1000	Foot	$2.55	$2,550.00
Mobilization	Mobilization, medium equipment	2	Each	$282.78	$565.56
Mobilization	Mobilization, large equipment	2	Each	$539.90	$1,079.80
				Total Cost:	$5,058.75

Payment types:

PayType	Unit Payment	PayType	Unit Payment
EQIP	$3.79	EQIP-HU	$4.55
WHIP	$0.00	WHIP-HU	$0.00

Practice: 606 - Subsurface Drain

Scenario # 2 Enveloped Corrugated Plastic Pipe, Single Wall, Less than or equal to 6 inches

Scenario Description: **Actual Scenario # 2** **New York**

A perforated HDPE (Corrugated Plastic Pipe) pipeline less than or equal to 6 inches in diameter is installed with a sand-gravel envelope below ground using a drainage plow to address excess water (seasonal high water table), degraded plant condition, and water quality degradation (nutrients).
Associated Practices: 608 - Surface Drain, Main or Lateral; 587 - Structure for Water Control, 533 - Pumping Plant; and 554 - Drainage Water Management, Grass Waterway;412, 620- Underground Outlet;313-Waste Storage Structure

Before Practice Situation:

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.

After Practice Situation:

A perforated HDPE (Corrugated Plastic Pipe) pipeline less than or equal to 6 inches in diameter is installed with a sand-gravel envelope below ground using a drainage plow to address excess water (seasonal high water table), degraded plant condition, and water quality degradation (nutrients). A 5” single wall, perforated HDPE Corrugated Plastic Pipe (CPP) is installed below ground to a minimum depth of 5 feet. The line is surrounded with a sand-gravel envelope. The typical volume sand-gravel for 1,000 feet of 12"wide x 12" high envelope is 32 cubic yards. The typical number of mainline connections for 1,000 feet of subsurface drainline is 3. The drainage modifications result in reduced plant stress due to excess wetness or improved drainage water quality due to system retrofit enabling drainage water management.

Scenario Feature Measure:

Feet of Pipe

Scenario Typical Size:	1000	Foot	Tot Unit Cost	$6.07

Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Aggregate, Gravel, Graded	32	Cubic yard	$30.22	$967.04
Materials	Pipe, HDPE, corrugated single wall, ≤	500	Pound	$1.54	$770.00
Materials	Drainage Lateral Connection	3	Each	$31.13	$93.39
Equip./Install.	Track Loader, 95HP	4	Hour	$97.13	$388.52
Equip./Install.	Trenching, Earth, 12" x 60"	1000	Foot	$2.06	$2,060.00
Labor	Equipment Operators, Heavy	4	Hour	$36.55	$146.20
Mobilization	Mobilization, medium equipment	2	Each	$282.78	$565.56
Mobilization	Mobilization, large equipment	2	Each	$539.90	$1,079.80
				Total Cost:	$6,070.51

Payment types:

PayType	Unit Payment	PayType	Unit Payment
EQIP	$4.55	EQIP-HU	$5.46
WHIP	$0.00	WHIP-HU	$0.00

Practice: 606 - Subsurface Drain

Scenario # 3 **Corrugated Plastic Pipe , less than 8 inches, Buried 8 feet or more**

Scenario Description: **Actual Scenario # 3** **New York**

A perforated HDPE, Corrugated Plastic Pipe is installed with a stone drain using a hydraulic excavator. The depth of excavation can range from 8 to 15 feet deep. The drain is installed upslope of a proposed waste storage facility to intercept subsurface water flow. Failure to collect the flow could impair the integrity of proposed waste storage facility. Associated Practices: 313 - Waste Storage Facility, 608 - Surface Drain, Main or Lateral; 587 - Structure for Water Control, 533 - Pumping Plant; and 554 - Drainage Water Management, 620 Underground Outlet.

Before Practice Situation:

Soil conditions are excessively wet in the spring due to poor internal soil drainage. An earthen waste storage facility is planned, which will be vulnerable to failure from excess soil water upslope of the impoundment.

After Practice Situation:

A 4" perforated HDPE (Corrugated Plastic Pipe) pipeline is installed with a stone drain using a hydraulic excavator. A 12 feet deep trench is backfilled with a gravel drain. The drain is 2 feet wide by 8 feet high and runs the length of the project. The drainage modifications result in reduced risk of failure of the waste storage facility since the excessive moisture is now collected and carried around the structure to a safe outlet.

Scenario Feature Measure:

Feet of Pipe

Scenario Typical Size:	500	Foot	Tot Unit Cost	$26.78

Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Pipe, HDPE, corrugated single wall, ≤	150	Pound	$1.54	$231.00
Materials	Aggregate, Gravel, Graded	296	Cubic yard	$30.22	$8,945.12
Equip./Install.	Hydraulic Excavator, 2 CY	12	Hour	$209.12	$2,509.44
Labor	General Labor	8	Hour	$23.16	$185.28
Labor	Equipment Operators, Heavy	12	Hour	$36.55	$438.60
Mobilization	Mobilization, large equipment	2	Each	$539.90	$1,079.80
				Total Cost:	$13,389.24

Payment types:

PayType	Unit Payment	PayType	Unit Payment
EQIP	$20.08	EQIP-HU	$24.10
WHIP	$0.00	WHIP-HU	$0.00