

Practice: 561 - Heavy Use Area Protection

Scenario: #2 - Geocell and Gravel HUA

Scenario Description: Installation of a geocell and gravel heavy use pad to provide a stable, non-eroding surface for areas frequently used by livestock, people or vehicles.

Before Situation: A 30 head cow/calf operation with a frequently used area that is unstable with an eroding surface. The area lacks vegetation and has severe compaction concerns as well as deep mud. Concentration of nutrients cannot be spread on adjacent fields due to the unstable surface. Livestock health is compromised as additional energy is being used to travel through mud. A need exists to improve water quality, air quality, livestock health, as well as reduce soil erosion.

After Situation: The stabilization of an area frequently and intensively used by people, animals or vehicles by installing a gravel surface with geocells to reduce soil erosion and improve livestock health. Typical size is 3900 square feet. 4" of gravel is placed into a 4" geocell "matting material" and surfaced with a 3" layer of fines. Payment incorporates site preparation through grading and shaping, gravel (7" depth total with gravel and fines) and geoweb "matting material". An additional 8 hours of general labor is added to put the geocells in place. Cost data is applicable to organic and conventional agricultural production systems.

Scenario Feature Measure: Area of rock-gravel GeoCell GeoTex

Scenario Unit: Square Foot

Scenario Typical Size: 3900

Total Scenario Cost: \$14,925.66

Scenario Cost/Unit: \$3.83

Cost Details

Component Name	Id	Description	Unit	Cost	Qty	Total
----------------	----	-------------	------	------	-----	-------

Materials

Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic Yard	\$25.57	85	\$2,173.55
GeoCell, 4"	1054	4-inch thick cellular confinement system, three-dimensional, expandable panels made from high-density polyethylene (HDPE), polyester or another polymer material. Includes materials, labor and equipment for the geocell only, does not include backfill	Square Yard	\$28.05	433	\$12,145.81

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	72	\$154.71
--	----	---	------------	--------	----	----------

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	\$23.83	8	\$190.67
---------------	-----	--	------	---------	---	----------

Mobilization

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$260.93	1	\$260.93
--------------------------------	------	---	------	----------	---	----------

Practice: 561 - Heavy Use Area Protection

Scenario: #8 - Gravel without Geotextile, Thick

Scenario Description: Installation of a gravel heavy use pad to provide a stable, non-eroding surface for areas frequently used by livestock, people or vehicles.

Before Situation: A 30 head cow/calf operation with a frequently used area that is unstable with an eroding surface. The area lacks vegetation and has severe compaction concerns as well as deep mud. Concentration of nutrients cannot be spread on adjacent fields due to the unstable surface. Livestock health is compromised as additional energy is being used to travel through mud. A need exists to improve water quality, air quality, livestock health, as well as reduce soil erosion and compaction.

After Situation: The stabilization of areas frequently and intensively used by livestock by installing a gravel surface to reduce soil erosion, improve water quality, air quality, and livestock health. Typical size is 3,900 square feet. Gravel, 8" deep, is surfaced with a 3" layer of fines. Payment incorporates site preparation through grading and shaping, gravel and layer of fines. Cost data is applicable to organic and conventional agricultural production systems.

Scenario Feature Measure: Area of gravel

Scenario Unit: Square Foot

Scenario Typical Size: 3900

Total Scenario Cost: \$4,597.47

Scenario Cost/Unit: \$1.18

Cost Details

Component Name	Id	Description	Unit	Cost	Qty	Total
----------------	----	-------------	------	------	-----	-------

Materials

Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic Yard	\$25.57	133	\$3,400.97
---------------------------	----	--	------------	---------	-----	------------

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	\$29.43	6	\$176.58
----------------------------	-----	---	------	---------	---	----------

Equipment Installation

Dozer, 140 HP	927	Track mounted Dozer with horsepower range of 125 to 160. Equipment and power unit costs. Labor not included.	Hour	\$126.50	6	\$759.00
---------------	-----	--	------	----------	---	----------

Mobilization

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$260.93	1	\$260.93
--------------------------------	------	---	------	----------	---	----------

Practice: 561 - Heavy Use Area Protection

Scenario: #9 - Gravel with Geotextile, Regular Thickness

Scenario Description: Installation of a gravel heavy use pad to provide a stable, non-eroding surface for areas frequently used by livestock, people or vehicles.

Before Situation: A 30 head cow/calf operation with a frequently used area that is unstable with an eroding surface. The area lacks vegetation and has severe compaction concerns as well as deep mud. Concentration of nutrients cannot be spread on adjacent fields due to the unstable surface. Livestock health is compromised as additional energy is being used to travel through mud. A need exists to improve water quality, air quality, livestock health, as well as reduce soil erosion and compaction.

After Situation: The stabilization of areas frequently and intensively used by livestock by installing a gravel surface to reduce soil erosion, improve water quality, air quality, and livestock health. Typical size is 3,900 square feet. Gravel, 5" deep, is placed over light geotextile fabric and surfaced with a 2" layer of fines. Payment incorporates site preparation through grading and shaping, gravel and layer of fines and light geotextile fabric. Cost data is applicable to organic and conventional agricultural production systems.

Scenario Feature Measure: Area of gravel

Scenario Unit: Square Foot

Scenario Typical Size: 3900

Total Scenario Cost: \$4,362.97

Scenario Cost/Unit: \$1.12

Cost Details

Component Name	Id	Description	Unit	Cost	Qty	Total
----------------	----	-------------	------	------	-----	-------

Equipment Installation

Dozer, 140 HP	927	Track mounted Dozer with horsepower range of 125 to 160. Equipment and power unit costs. Labor not included.	Hour	\$126.50	6	\$759.00
Geotextile, woven	42	Woven Geotextile Fabric. Includes materials, equipment and labor	Square Yard	\$2.29	433	\$992.91

Materials

Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic Yard	\$25.57	85	\$2,173.55
---------------------------	----	--	------------	---------	----	------------

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	\$29.43	6	\$176.58
----------------------------	-----	---	------	---------	---	----------

Mobilization

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$260.93	1	\$260.93
--------------------------------	------	---	------	----------	---	----------