## Practice: 317 - Composting Facility

**Scenario # 1** **Concrete Slab Under Concrete Bin Dividers**

**Scenario Description:** **Missouri**

A composting facility for manure and other agricultural organic by-products designed with a concrete slab under concrete bin dividers. Composter is installed to address water quality concerns and results in a composted product that can be used in multiple ways. Payment includes materials and equipment necessary for pad and bin construction. If a roof is to be included in the installation refer to Practice Standard 367 - Roofs and Covers. Not to be used for animal mortality composting. All animal mortality composting shall be done using Practice Standard 316 - Animal Mortality Facility. Potential Associated Practices: Pond Sealing or Lining, Bentonite Sealant (521C), Pond Sealing or Lining, Compacted Clay Treatment (521D), Pond Sealing or Lining, Flexible Membrane (521A), Pond Sealing or Lining, Soil Dispersant (521B), Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Structure for water control (587), Diversion (362), Pipeline (516), Subsurface Drain (606), Heavy Use Area Protection (561), Roofs and Covers (367), Roof Runoff Structure (558), Waste Storage Facility (313), Waste Recycling (633), Waste Transfer (634), Underground Outlet (620) and Vegetative Treatment Area (635).

**Before Practice Situation:**

Manure and other agricultural by-products are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed of. This situation poses an environmentally threat of excessive nutrients, organics, and pathogens being transported into surface and groundwaters, in addition to the use of excessive amounts of fertilizers.

**After Practice Situation:**

Manure, litter and other agricultural by-products are being controlled, by the collection at the source, and stored properly, at an environmentally suitable location, until such time that they are disposed of or utilized in a proper manner. This scenario is based upon a 40' x 56' concrete slab with 5' high bin dividers, and 5 bins (configured 2 at 20'x28' and 3 at 20'x18.5'). Preparation includes stripping the top 1' of soil and roll compact same back into sub-floor. The bins are constructed on a 5" concrete slab used to store and stabilize manure, litter and other agricultural by-products.

**Scenario Feature Measure:**

Square Foot Floor Area

| **Scenario Typical Size:** | 2240 | Square Foot | Tot Unit Cost | $10.93 |
|---|---|---|---|---|

| Cost Category | Component Name | Quantity | Unit | Unit Cost | Cost |
|---|---|---|---|---|---|
| Materials | Aggregate, Gravel, Graded | 28 | Cubic yard | $24.76 | $693.28 |
| Equip./Install. | Concrete, CIP, formed reinforced | 35 | Cubic yard | $402.08 | $14,072.80 |
| Equip./Install. | Concrete, CIP, slab on grade, reinforced | 35 | Cubic yard | $253.20 | $8,862.00 |
| Equip./Install. | Earthfill, Roller Compacted | 83 | Cubic yard | $3.62 | $300.46 |
| Equip./Install. | Excavation, Common Earth, side cast, small | 83 | Cubic yard | $1.96 | $162.68 |
| Mobilization | Mobilization, medium equipment | 2 | Each | $200.43 | $400.86 |
| | | | | Total Cost: | $24,492.08 |

**Payment types:**

| PayType | Unit Payment | PayType | Unit Payment |
|---|---|---|---|
| EQIP-NOI | $8.20 | EQIP-HUNOI | $9.84 |
| EQIP-MRBI | $8.20 | EQIP-HUMRBI | $9.84 |

## Practice: 317 - Composting Facility

**Scenario # 2 Compacted Earth Pad**

**Scenario Description:** **Missouri**

A composting facility for manure and other agricultural organic by-products designed with a compacted earth pad. Composter is installed to address water quality concerns and results in a composted product that can be used in multiple ways. Payment includes materials and equipment necessary for pad construction. This scenario is applicable when geological, soil, and climate conditions are appropriate for earth floors and are allowed by state and local regulations. If a roof is to be included in the installation refer to Practice Standard 367 - Roofs and Covers. Not to be used for animal mortality composting. All animal mortality composting shall be done using Practice Standard 316 - Animal Mortality Facility. Potential Associated Practices: Pond Sealing or Lining, Bentonite Sealant (521C), Pond Sealing or Lining, Compacted Clay Treatment (521D), Pond Sealing or Lining, Flexible Membrane (521A), Pond Sealing or Lining, Soil Dispersant (521B), Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Structure for water control (587), Diversion (362), Pipeline (516), Subsurface Drain (606), Heavy Use Area Protection (561), Roofs and Covers (367), Roof Runoff Structure (558), Waste Storage Facility (313), Waste Recycling (633), Waste Transfer (634), Underground Outlet (620) and Vegetative Treatment Area (635).

**Before Practice Situation:**

Manure and other agricultural by-products are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed of. This situation poses an environmentally threat of excessive nutrients, organics, and pathogens being transported into surface and groundwaters, in addition to the use of excessive amounts of fertilizers.

**After Practice Situation:**

Manure and other agricultural by-products are being controlled, by the collection at the source, and stored temporarily, at an environmentally suitable location, until such time that they are disposed of or utilized in a proper manner. This scenario consists of removing and compacting back into place the top 1' of soil to create a compacted, impervious earthen floor to act as a working area to compost organic material in a static pile, windrow, that has sufficient carbon based bulking material to allow natural aeration. Piles typically turned at least once to go into another heat cycle prior to final disposal, typically land application. Construct a 75'x226' earthen surface on an improved compacted earthen surface. Include sufficient area for processing equipment access. Single piles or windrows to minimize runoff. Site to be located out of drainage areas, off-site water diverted and any runoff to spread out into a grassed area or vegetated treatment area as per regulations. Site preparation includes topsoil removal, compaction of subsoil, and reinstalling topsoil, compacted.

**Scenario Feature Measure:**

Square Foot Floor Area

| **Scenario Typical Size:** | 16950 | Square Foot | Tot Unit Cost | $0.23 |
|---|---|---|---|---|

| Cost Category | Component Name | Quantity | Unit | Unit Cost | Cost |
|---|---|---|---|---|---|
| Equip./Install. | Earthfill, Roller Compacted | 630 | Cubic yard | $3.62 | $2,280.60 |
| Equip./Install. | Excavation, Common Earth, side cast, small | 630 | Cubic yard | $1.96 | $1,234.80 |
| Mobilization | Mobilization, medium equipment | 2 | Each | $200.43 | $400.86 |
| | | | | Total Cost: | $3,916.26 |

**Payment types:**

| PayType | Unit Payment | PayType | Unit Payment |
|---|---|---|---|
| EQIP-NOI | $0.17 | EQIP-HUNOI | $0.21 |
| EQIP-MRBI | $0.17 | EQIP-HUMRBI | $0.21 |

## Practice: 317 - Composting Facility

**Scenario # 3** **Concrete Pad**

**Scenario Description:** **Missouri**

A composting facility for manure and other agricultural organic by-products designed with a concrete pad. Composter is installed to address water quality concerns and results in a composted product that can be used in multiple ways. Payment includes materials and equipment necessary for pad construction. This scenario is applicable when geological, soil, climate conditions or state and local regulations prohibit the use of an earthen surface. If a roof is to be included in the installation refer to Practice Standard 367 - Roofs and Covers. Not to be used for animal mortality composting. All animal mortality composting shall be done using Practice Standard 316 - Animal Mortality Facility. Potential Associated Practices: Pond Sealing or Lining, Bentonite Sealant (521C), Pond Sealing or Lining, Compacted Clay Treatment (521D), Pond Sealing or Lining, Flexible Membrane (521A), Pond Sealing or Lining, Soil Dispersant (521B), Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Structure for water control (587), Diversion (362), Pipeline (516), Subsurface Drain (606), Heavy Use Area Protection (561), Roofs and Covers (367), Roof Runoff Structure (558), Waste Storage Facility (313), Waste Recycling (633), Waste Transfer (634), Underground Outlet (620) and Vegetative Treatment Area (635).

**Before Practice Situation:**

Manure and other agricultural by-products are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed of. This situation poses an environmentally threat of excessive nutrients, organics, and pathogens being transported into surface and groundwaters, in addition to the use of excessive amounts of fertilizers.

**After Practice Situation:**

Manure and other agricultural by-products are being controlled, by the collection at the source, and stored temporarily, at an environmentally suitable location, until such time that they are disposed of or utilized in a proper manner. This scenario consists of removing and compacting back into place the top 1' of soil to create a compacted, impervious earthen floor to act as a working area to compost organic material in a static pile, windrow, that has sufficient carbon based bulking material to allow natural aeration. Piles typically turned at least once to go into another heat cycle prior to final disposal, typically land application. Construct a 75'x226' concrete surface 5" thick on an improved compacted earthen surface. Include sufficient area for processing equipment access. Single piles or windrows to minimize runoff. Site to be located out of drainage areas, off-site water diverted and any runoff to spread out into a grassed area or vegetated treatment area as per regulations. Site preparation includes topsoil removal, compaction of subsoil, and reinstalling topsoil, compacted.

**Scenario Feature Measure:**

Square Foot Floor Area

| **Scenario Typical Size:** | 16950 | Square Foot | Tot Unit Cost | $4.35 |
|---|---|---|---|---|

| Cost Category | Component Name | Quantity | Unit | Unit Cost | Cost |
|---|---|---|---|---|---|
| Materials | Aggregate, Gravel, Graded | 206 | Cubic yard | $24.76 | $5,100.56 |
| Equip./Install. | Concrete, CIP, slab on grade, reinforced | 260 | Cubic yard | $253.20 | $65,832.00 |
| Equip./Install. | Earthfill, Roller Compacted | 315 | Cubic yard | $3.62 | $1,140.30 |
| Equip./Install. | Excavation, Common Earth, side cast, small | 630 | Cubic yard | $1.96 | $1,234.80 |
| Mobilization | Mobilization, medium equipment | 2 | Each | $200.43 | $400.86 |
| | | | | Total Cost: | $73,708.52 |

**Payment types:**

| PayType | Unit Payment | PayType | Unit Payment |
|---|---|---|---|
| EQIP-NOI | $3.26 | EQIP-HUNOI | $3.91 |
| EQIP-MRBI | $3.26 | EQIP-HUMRBI | $3.91 |

## Practice: 317 - Composting Facility

**Scenario # 4** **Compacted Gravel Pad - 6" compacted gravel**

**Scenario Description:** **Missouri**

A composting facility for manure and other agricultural organic by-products designed with a 6" compacted gravel pad. Composter is installed to address water quality concerns and results in a composted product that can be used in multiple ways. Payment includes materials and equipment necessary for pad construction. This scenario is applicable when geological, soil, climate conditions or state and local regulations prohibit the use of an earthen surface. If a roof is to be included in the installation refer to Practice Standard 367 - Roofs and Covers. Not to be used for animal mortality composting. All animal mortality composting shall be done using Practice Standard 316 - Animal Mortality Facility. Potential Associated Practices: Pond Sealing or Lining, Bentonite Sealant (521C), Pond Sealing or Lining, Compacted Clay Treatment (521D), Pond Sealing or Lining, Flexible Membrane (521A), Pond Sealing or Lining, Soil Dispersant (521B), Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Structure for water control (587), Diversion (362), Pipeline (516), Subsurface Drain (606), Heavy Use Area Protection (561), Roofs and Covers (367), Roof Runoff Structure (558), Waste Storage Facility (313), Waste Recycling (633), Waste Transfer (634), Underground Outlet (620) and Vegetative Treatment Area (635).

**Before Practice Situation:**

Manure and other agricultural by-products are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed of. This situation poses an environmentally threat of excessive nutrients, organics, and pathogens being transported into surface and groundwaters, in addition to the use of excessive amounts of fertilizers.

**After Practice Situation:**

Manure and other agricultural by-products are being controlled, by the collection at the source, and stored properly, at an environmentally suitable location, until such time that they are disposed of or utilized in a proper manner. This scenario consists of installing a gravel pad over impervious soil to act as a working area to compost organic material in a static pile, windrow, that has sufficient carbon based bulking material to allow natural aeration. Piles typically turned at least once to go into another heat cycle prior to final disposal, typically land application. Construct a 75'x226' area on an improved gravel surface. Sub base material sufficiently compacted or improved. Include sufficient area for processing equipment access. Single piles or windrows to minimize runoff. Site to be located out of drainage areas, off-site water diverted and any runoff to spread out into a grassed area or vegetated treatment area as per regulations. Site preparation includes topsoil removal, compaction of subsoil, and installing 6" of compacted gravel.

**Scenario Feature Measure:**

Square Foot Floor Area

| **Scenario Typical Size:** | 16950 | Square Foot | Tot Unit Cost | $0.87 |
|---|---|---|---|---|

| Cost Category | Component Name | Quantity | Unit | Unit Cost | Cost |
|---|---|---|---|---|---|
| Materials | Aggregate, Gravel, Graded | 315 | Cubic yard | $24.76 | $7,799.40 |
| Equip./Install. | Geotextile, woven | 1883 | Square Yard | $2.18 | $4,104.94 |
| Equip./Install. | Earthfill, Roller Compacted | 315 | Cubic yard | $3.62 | $1,140.30 |
| Equip./Install. | Excavation, Common Earth, side cast, small | 630 | Cubic yard | $1.96 | $1,234.80 |
| Mobilization | Mobilization, medium equipment | 2 | Each | $200.43 | $400.86 |
| | | | | Total Cost: | $14,680.30 |

**Payment types:**

| PayType | Unit Payment | PayType | Unit Payment |
|---|---|---|---|
| EQIP-NOI | $0.65 | EQIP-HUNOI | $0.78 |
| EQIP-MRBI | $0.65 | EQIP-HUMRBI | $0.78 |