

**Practice: 521A - Pond Sealing or Lining, Flexible Membrane**

**Scenario: #1 - Flexible Membrane, Uncovered, with liner drainage or venting**

**Scenario Description:**

Installation of a flexible geosynthetic membrane liner, uncovered, to reduce seepage from waste storage impoundment structures. Practice implementation includes a geotextile or soil cushion to protect the liner from subgrade damage, and liner drainage or venting.

**Before Situation:**

In-place soils at site exhibit seepage rates in excess of acceptable limits.

**After Situation:**

Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.

**Scenario Feature Measure:** Surface area of Liner Material (including anchorage)

**Scenario Unit:** Square Yard

**Scenario Typical Size:** 4,840

**Scenario Cost:** \$57,879.48

**Scenario Cost/Unit:** \$11.96

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Geotextile, woven	42	Woven Geotextile Fabric. Includes materials, equipment and labor	Square Yard	\$2.12	4840	\$10,260.80
<b>Labor</b>						
Specialist Labor	235	Labor requiring a specialized skill set: Includes Agronomists, Foresters, Biologists, etc. to provide additional technical information during the planning and implementation of the practice. Does not include NRCS or TSP services.	Hour	\$96.04	32	\$3,073.28
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$25.07	40	\$1,002.80
<b>Materials</b>						
Geonet	1778	Geosynthetic drainage liner, typically HDPE of 300 mil thickness. Includes materials and shipping only.	Square Yard	\$2.99	4840	\$14,471.60
Synthetic Liner, 40 mil	1387	Synthetic 40 mil HDPE, LLDPE, EPDM, etc membrane liner material. Includes materials and shipping only.	Square Yard	\$5.90	4840	\$28,556.00
<b>Mobilization</b>						
Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been included in the component price.	Dollar	\$1.03	500	\$515.00

**Practice: 521A - Pond Sealing or Lining, Flexible Membrane**

**Scenario: #2 - Flexible Membrane, Covered, with liner drainage or venting**

**Scenario Description:**

Installation of a flexible geosynthetic membrane liner to reduce seepage from waste storage impoundment structures. Practice implementation includes 1 foot of soil cover for liner protection, a geotextile or soil cushion to protect liner from subgrade damage, and liner drainage or venting.

**Before Situation:**

In-place soils at site exhibit seepage rates in excess of acceptable limits.

**After Situation:**

Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.

**Scenario Feature Measure:** Surface area of Liner Material (including anchorage)

**Scenario Unit:** Square Yard

**Scenario Typical Size:** 4,840

**Scenario Cost:** \$63,895.97

**Scenario Cost/Unit:** \$13.20

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Earthfill, Roller Compacted	49	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	\$3.73	1613	\$6,016.49
Geotextile, woven	42	Woven Geotextile Fabric. Includes materials, equipment and labor	Square Yard	\$2.12	4840	\$10,260.80
<b>Labor</b>						
Specialist Labor	235	Labor requiring a specialized skill set: Includes Agronomists, Foresters, Biologists, etc. to provide additional technical information during the planning and implementation of the practice. Does not include NRCS or TSP services.	Hour	\$96.04	32	\$3,073.28
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$25.07	40	\$1,002.80
<b>Materials</b>						
Geonet	1778	Geosynthetic drainage liner, typically HDPE of 300 mil thickness. Includes materials and shipping only.	Square Yard	\$2.99	4840	\$14,471.60
Synthetic Liner, 40 mil	1387	Synthetic 40 mil HDPE, LLDPE, EPDM, etc membrane liner material. Includes materials and shipping only.	Square Yard	\$5.90	4840	\$28,556.00
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