



**VELASCO DRAINAGE DISTRICT  
Standard Specification:**

**Stripping, Stockpiling, Site Preparation  
and Spreading Topsoil**

**Revision Control**

Revision Number	Date	Revision Author
1.0 – Approved for use	05/23/2011	HSS – District Engineer
2.0	05/06/2015	HSS – District Engineer
3.0	03/22/2016	HSS – District Engineer
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## **1.0 Scope and Discussion**

- 1.1 This specification shall govern work associated with levee repair on the Freeport Hurricane Flood Protection System (the “federal levee”). This section describes stripping, stockpiling, placing, spreading and finishing of topsoil on sections of repaired levees. Topsoil shall be native topsoil taken from within the project limits either from the area of levee repairs or if necessary to complete the work, from other sources outside the right-of-way and secured by the Contractor. Topsoil outside project limits to be approved by District Engineer or designated representative.
- 1.2 This specification applies to routine levee repairs that do not involve raising the levee (other than a nominal amount for settlement) or do not require approval by the United States Army Corps of Engineers (Section 408 Review).

## **2.0 Site Preparation**

- 2.1 Mow topsoil procurement areas to a height of approximately 6 inches. Remove litter such as brush, rock, and other debris that may interfere with establishment of subsequent vegetation.

## **3.0 Topsoil Material**

- 3.1 Strip topsoil from only those areas that will be disturbed by excavation, reshaping, filling and associated work conducted during the course of levee repairs. Salvaged topsoil material consists of loam, silty clay loam, or clay loam-humus bearing soils available from overlying portions of areas to be disturbed during levee repair operations. PH of soil to range from 6.0 to 7.8.

## **4.0 Construction Methods**

- 4.1 All erosion and sediment control practices shall be in place and functioning properly prior to stripping.
- 4.2 Strip off the humus bearing soil and vegetation to a depth of 6 to 8 inches. Determine depth of topsoil by taking samples at several locations within each area to be stripped. Do not over excavate and incorporate underlying sterile soil.
- 4.3 Stockpile topsoil and vegetation from embankment areas outside the limits of levee repair in areas separate from embankment material, as designated by District Engineer or designated representative. Place orange plastic barricade fencing around stockpiled topsoil material to prevent incorporating topsoil into embankment material during excavation. Select stockpile location to avoid slopes, drainage patterns and traffic routes. Stockpiled material may be piles or windrows adjacent to work limits.

- 4.4 After embankment repair has been completed to the required alignment, grades and cross sections and prior to spreading of salvaged topsoil, soil surfaces shall be scarified by plowing, disking, or tilling to a depth of 4 inches deep along horizontal slope to key topsoil into slope.
- 4.5 The topsoil is to be spread to uniform depth of 6 inches. Trash, wood, brush, rocks over 1½" in size and other objectionable material encountered in the fill shall be removed and disposed of. Topsoil shall not be spread during wet conditions.
- 4.6 Irregularities in the surface that result from top soiling of other operations shall be corrected to prevent the formations of depressions or water pockets.
- 4.7 Finish surface to topsoil to be disked to a depth of approximately 2" and a harrow dragged across the surface to create a reasonably uniform surface with maximum gradation of 2 inches. Lightly compact the topsoil enough to insure good contact with the underlying soil but avoid excessive compaction which would inhibit growth. In the event existing vegetation was not salvaged and segregated from excavated material as noted, provide seed from the previous season's crop meeting the requirements of the Texas Seed Law, including the testing and labeling for pure live seed (PLS= Purity x Germination). Furnish seed of designated specie, in labeled unopened bags or containers to the District Engineer, or representative, before planting. Use seed within 12 months from the date of the analysis. Seed levee surfaces with Common Hull Bermuda, 98% germination, at rate of 15#/acre. During Cool Season Planting, (September 1 - March 30), or when ground temperatures are below 70 degrees supplement Winter Rye (Common) at the rate of 125 #/acre to the Common Hull Bermuda seeding operation.
- 4.8 Upon completion of topsoil replacement and re-vegetation or re-seeding apply fertilizer. Fertilizer shall be standard commercial fertilizer containing the percentages (13-13-13) of total nitrogen, available phosphoric acid and water soluble potash and shall meet the specified requirements of the applicable State and Federal laws. At least 50% of the nitrogen component must be slow-release formulation such as urea-based or plastic resin-coated fertilizers. Apply fertilizer uniformly at the rate of 450 pounds per acre.
- 4.9 Within five days of topsoil installation the Contractor shall provide all labor, material and equipment necessary for all watering required for establishment of vegetation. In the absence of rain it shall be watered and kept moist until vegetation is established. The subgrade shall have a uniform moisture content to depth of four inches below the surface of topsoil. When watering slopes use fine spray which will prevent erosion during watering operations.

**5.0 Acceptance**

5.1 Acceptance shall be given upon completion to required grade and cross section and vegetation is established to 90 percent of embankment surface.

**6.0 Sections**

6.1 Maintain a maximum side slope, Protected Side of 3H:1V. (3.5H:1V is preferred)

6.2 Maintain maximum side slope, Flood Side of 6H:1V (for levees exposed seaward) or 3.5:1V for levees not subject to wave action.

6.3 Maintain the existing levee top width, reconstructed with similar materials if not earth.

**7.0 Construction Documentation**

7.1 Prior to Construction

7.1.1 Provide Plan and Cross Section Drawings which adequately identify the areas of repairs on the ground and show the limits of the work. Note limits of repair, rip rap and other elements of the project. All designs shall have horizontal location based on NAD 83 and vertical based on NAVD 88.

7.1.2 Provide soil classification analysis of proposed topsoil from geotechnical laboratory.

7.1.3 All data and designs must bear seal of a Licensed Professional Engineer - Texas. (LPE-T)

7.2 During Construction:

7.2.1 Provide adequate observation (if work is done by contractor) or superintendence (if work is Force Account, or done by Velasco Drainage District) to document that these provisions are complied with during construction.

7.2.2 Assure that the selected geotechnical laboratory provides geotechnical testing as required by this Specification.

7.3 After Construction

7.3.1 Provide As Built drawings, note any deviation from planned drawings as needed.

- 7.3.2 Provide all geotechnical test reports.
- 7.3.3 Assure that all submittals under Section 6.3 bear the seal of a Licensed Professional Engineer - Texas (LPE-T).

**END OF SPECIFICATION**