GENERAL NOTES

1. The underdrain pipe shall be either 4” smooth or 5” corrugated tubing unless otherwise shown in the plans. The size to be furnished will be based on the nominal internal diameter of a pipe with a smooth interior wall. Except when prohibited by the plans, the special provisions or this standard, pipe with a corrugated interior wall may be provided based on the following size equivalency:

   - 4” smooth interior equivalent to 5” corrugated interior
   - 5” smooth interior equivalent to 6” corrugated interior
   - 6” smooth interior equivalent to 8” corrugated interior
   - 8” smooth interior equivalent to 10” corrugated interior

2. Fine aggregate shall be quartz sand meeting the requirements of Sections 902-4 of the Standard Specifications.

3. Coarse aggregate shall be gravel or stone meeting the requirements of Sections 901-2 or 901-3. The gradation shall meet Section 901, Gradation, 4, 467.5, 56, or 57 stone unless otherwise shown restricted in the plans.

4. Underdrain Type I, II, and III and V shall be in accordance with Section 440.

5. Filter fabric shall be Type D-3 (See Index No. 193). The internal filter fabric of Type V underdrain shall have a permeability of 0.7 csec and an ACP of 40 above.

6. When Type I is used, a filter fabric meeting Section 448 is required.

7. See Index No. 500 for the standard location of Type I, II, and III underdrain. The location of Type V underdrain and nonstandard locations of Type I, II, and III underdrain will be as detailed in the plans.

8. All filter fabric joints shall overlap a minimum of 1”. The internal filter fabric of Type V underdrain shall overlap into the coarse aggregate or the fine aggregate a minimum of 1”.

9. Underdrain outlet pipes shall be perforated and all bends shall be made using 45° (45 deg.) elbows. 90 deg bends shall be constructed with two 45° elbows separated by at least 1' of straight pipe. Outlet pipes stubbed into inlets or other drainage structures shall not be less than 6” above the structure flow line. Outlet pipes discharging into grassed areas shall have concrete aprons, hardwore cloth, and bordering as shown in Index No. 387 for Edgemoor outlets.

10. Pay Item shall be based on the size of the smooth interior pipes. The contract unit price for Underdrain LF shall include the cost of pipe, fittings, aggregate, sock, filter fabric, underdrain cleanouts, and concrete aprons.

   - The contract unit price for Underdrain Outlet Pipe, LF, shall be full compensation for trench excavation, pipe and fittings, concrete aprons, hardsore cloth for concrete aprons, stubbing into drainage structures, backfilling place, and disposal of excess materials.

   - The contract unit price for Underdrain Inspection Box, E4, shall be the number completed and accepted.

DESIGN NOTES

1. The type of underdrain should be selected to meet design water removal rate and soil conditions. Caution is prescribed in the use of these typical sections since special designs may be required to satisfy project conditions.

2. Type I underdrain is intended for minimum water removal conditions.

3. Type II underdrain is intended for moderate water removal conditions. Where reactive conditions may create chemical clogging, the use of an inert material and/or elimination of the filter fabric may be necessary.

4. Type III underdrain is intended for maximum water removal conditions. Filter fabric is required between the coarse aggregate or fine aggregate including those described in general notes 2 and 3. Design note 3 applies for reactive conditions.

5. Type V underdrain is intended for use in detention basins and other locations which require a filtration system. The standard fine aggregate specified for Type V underdrain conforms to filtration gradation requirements of Chapter 62-25 FAC

6. The designer should detail the plans, the location of:
   - Type V underdrain
   - nonstandard locations of Type I, II, and III underdrain
   - Underdrain inspection boxes
   - Cleanouts for Type V underdrain
   - Underdrain outlet pipes

7. The designer should specify the flow line elevations at the beginning, bends, junctions, and ends of underdrain pipes and outlet pipes.

8. The designer should evaluate whether an external filter fabric envelope is required around underdrain Types I, and III. When required, fabric shall be specified in the plans.
UPPER LIMIT

* Slope To Match Top of Fine Aggregate

LOWER LIMIT

* Slope To Match Top of Fine Aggregate

SECTION AA
CLEANOUT FOR TYPE II UNDERDRAIN