

Drainfill and Filters

1. SCOPE

The work shall consist of furnishing, placing and compacting drainfill required in the construction of structure drainage systems.

2. MATERIALS

Quality. Drainfill materials shall be sand, gravel, crushed stone or mixtures thereof obtained from the specified sources. They shall be selected as necessary to avoid the inclusion of organic matter, clay balls, excessive fine particles or other substances that would interfere with their free-draining properties.

Aggregates of crushed limestone shall be thoroughly washed and screened. Coarse aggregate containing crushed limestone shall have not more than 3% by weight of particles finer than the No. 4 sieve. Crushed limestone shall not be used for fine aggregates except in combination with other materials such that not more than 5% of the portion finer than the No. 4 sieve shall be crushed limestone.

If a source is not specified in the special provisions, drainfill materials shall conform to the following requirements. At least 30 days prior to delivery of the materials to the site the Contractor shall inform the Technician in writing of the source from which they intend to obtain them. The Contractor shall provide the Technician free access to the source for the purpose of obtaining samples for testing.

Aggregates shall be tested for soundness according to ASTM Method C-88, and shall have a weighted average loss in 5 cycles of not more than 12 percent when sodium sulfate is used or 18 percent when magnesium sulfate is used.

Grading. Drainfill and filter aggregates shall conform to the specified grading limits after
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being placed in the work, and after being compacted if compaction is specified. Grading shall be determined by ASTM Method C-136. The percentage of material finer than the No. 200 sieve shall be determined by the method in ASTM Designation C-117.

Storing and handling. Drainfill and filter aggregates shall be stored and handled by methods that prevent segregation of particle sizes or contamination by mixing with other materials.

3. BASE PREPARATION

Foundation surfaces and trenches shall be clean and free of organic matter, loose soil, foreign substance, and standing water when the drainfill is placed. Earth surfaces upon or against which drainfill will be placed shall not be scarified.

4. PLACEMENT

Drainfill shall be placed uniformly in layers not more than 12 inches deep before compaction. When compaction is accomplished by manually controlled equipment, the layers shall be not more than 8 inches deep. The material shall be placed in a manner to avoid segregation of particle sizes and to insure the continuity and integrity of all zones. No foreign materials shall be allowed to become intermixed with or otherwise contaminate the drainfill.

Traffic shall not be allowed to cross over drains at random. Equipment crossovers shall be maintained, and the number and location of such crossovers shall be established and approved prior to the beginning of drainfill placement. Each crossover shall be cleaned of all contaminating materials before additional drainfill is placed.

Any damage to the foundation surface or the sides or bottoms of trenches occurring during placement of drainfill shall be repaired before drainfill placement is continued.

The upper surface of drainfill constructed concurrently with adjacent zones of earthfill shall be maintained at an elevation at least one foot above the upper surface of the adjacent fill.

Drainfill over or around pipe or drain tile shall be placed in a manner to avoid any displacement in line or grade of the pipe or tile.

Placement of drainfill adjacent to structures shall not be started until the required time intervals shown in Table 1 have elapsed after placement of the concrete.

5. CONTROL OF MOISTURE

When the addition of water is required, it shall be applied in such a way as to avoid excessive wetting to adjacent earthfill. Except as specified in the Special Provisions, control of moisture content will not be required.

6. COMPACTION

Unless specific compaction requirements are specified by the Special Provisions, no compaction will be required beyond that resulting from the placing and spreading operations.

Heavy equipment shall not be operated within 2 feet of any structure. Vibrating rollers shall not be operated within 5 feet of any structure. Compaction by means of drop weights operating from cranes or hoists will not be permitted.

7. MEASUREMENT AND PAYMENT (Used only if applicable)

For items of work for which specific unit prices are established, each item will be measured to the nearest unit applicable. Payment for each item will be made at the agreed-to unit price for that item. For items of work for which specific lump sum prices are established, payment will be made at the lump sum price.

Such payment will constitute full compensation for all materials, labor, equipment, tools, and all other items necessary and incidental to the completion of the work.

Compensation for any item of work shown on the drawings or described in the Special Provisions but not listed on the bid schedule will be considered incidental to and included in the pay items listed on the bid schedule.

TABLE 1

Structure	Time Interval
Retaining walls and counterforts (impact basins)	14 days
Walls backfilled on both sides simultaneously	7 days
Conduits and spillway risers, cast-in-place (with inside forms in place)	7 days
Conduits and spillway risers, cast-in-place (inside forms removed)	14 days
Conduits, pre-cast, cradled	2 days
Conduits, pre-cast, bedded	1 day
Cantilever outlet bents (backfilled both sides simultaneously)	3 days