

SECTION 32 28 32  
SEGMENTAL RETAINING WALLS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes single-depth segmental retaining walls without soil reinforcement.
- B. See Division 2 Section "Earthwork" for excavation for segmental retaining walls.

1.2 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide segmental retaining walls capable of withstanding the effects of gravity loads due to soil pressures resulting from grades indicated.
- B. Drainage: Provide segmental retaining wall drainage system capable of preventing accumulation of groundwater in retained soils and in retaining wall foundation soils.

1.3 SUBMITTALS

- A. Product Data: For each product indicated.
  - 1. Include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation for all walls over 3.0 feet in height.
- B. Samples: For each color and texture required.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Segmental Retaining Wall Units:
    - a. Licensees of Transpave Retaining Wall Systems
    - b. Licensees of Anchor Wall Systems, Inc.
    - c. Licensees of Keystone Retaining Wall Systems, Inc.

2.2 SEGMENTAL RETAINING WALL UNITS

- A. Concrete Units: ASTM C 1372, Normal Weight, except that units shall not differ in height more than plus or minus 1/16 inch from specified dimension.

1. Provide units that comply with requirements for freeze-thaw durability.
  2. Provide units that interlock with courses above and below.
- B. Colors: To be determined from standard Color range.
- C. Exposed Face: Machine-split textured, flat face.

### 2.3 INSTALLATION MATERIALS

- A. Pins and Clips: Product supplied by segmental retaining wall unit manufacturer for use with units provided, made from non-degrading polymer reinforced with glass fibers.
- B. Cap Adhesive: Product supplied or recommended by segmental retaining wall unit manufacturer.
- C. Leveling Base: Comply with requirements in Division 2 Section 02200.
- D. Drainage Fill: Comply with requirements in Division 2 Section "Sub-drainage."
- E. Soil Fill: Comply with requirements in Division 2 Section "Earthwork" for satisfactory soils.
- F. Filter Fabric: Comply with requirements in Division 2 Section 02411
- G. Drainage Pipe: Comply with requirements in Division 2 Section 02411
- H. Soil Reinforcement: Product specifically manufactured for use as soil reinforcement and as follows:
1. Product Type: Knitted or woven geogrid made from polyester yarns with a protective coating.
  2. Physical Properties: As required for completed segmental retaining walls to comply with performance requirements.

## PART 3 - EXECUTION

### 3.1 RETAINING WALL INSTALLATION

- A. General: Place units according to NCMA's "Segmental Retaining Wall Installation Guide" and segmental retaining wall unit manufacturer's written instructions. Lay units in running bond.
1. Form corners and ends by using special units or splitting units with mason's hammer and chisel.
- B. Leveling Base: Place and compact base material to thickness indicated and with not less than 95 percent maximum dry unit weight according to ASTM D 698
- C. First Course: Place first course of segmental retaining wall units on leveling base/course for full length of wall. Place units in firm contact with each other, properly aligned and level.
1. Tamp units into leveling base as necessary to bring tops of units into a level plane.
  2. Place and compact fill, either drainage or soil fill as indicated, to top of first course. Place fill on both sides of wall at same time without disturbing alignment of units. Fill voids between and within units with drainage fill.

- D. Subsequent Courses: Remove excess fill and debris from tops of units in course below. Place units in firm contact, properly aligned, and directly on course below.
  - 1. Place fill on both sides of wall at same time, where both sides are indicated to be filled.
  - 2. Fill voids between and within units with drainage fill.
- E. Cap Units: Place cap units and secure with cap adhesive according to manufacturer's written instructions.
- F. Steps: Place step units and secure with adhesive according to manufacturer's written instructions.

### 3.2 FILL PLACEMENT

- A. General: Comply with requirements in Division 2 Section "Earthwork," NCMA's "Segmental Retaining Wall Installation Guide," and segmental retaining wall unit manufacturer's written instructions.
- B. Place, spread, and compact fill in uniform lifts for full width and length of embankment as wall is laid. Begin at back of wall and place and spread fill toward embankment.
  - 1. Use only hand-operated compaction equipment within 48 inches of wall, or one-half of height above bottom of wall, whichever is greater.
  - 2. Compact drainage fill to not less than 95 percent maximum dry unit weight according to ASTM D 698.
- C. Place a layer of drainage fill at least 12 inches deep behind wall to within 12 inches of finished grade. Place a layer of filter fabric between drainage fill and soil fill.
  - 1. Wrap drainage pipe with filter fabric and place in drainage fill as indicated, sloped 1:50 to drain.
  - 2. Place impervious fill over top edge of drainage fill layer.
- D. Where required, place soil reinforcement in horizontal joints of retaining wall where indicated and according to soil reinforcement manufacturer's written instructions. Embed reinforcement a minimum of 8 inches into retaining wall and stretch tight over compacted backfill. Anchor soil reinforcement before placing fill on it.

### 3.3 FIELD QUALITY CONTROL

- E. Comply with requirements in Division 2 Section "Earthwork" for in-place compaction testing.
  - 1. In each compacted backfill layer, perform at least 1 field in-place compaction test for each 200 feet or less of segmental retaining wall length.

END OF SECTION 02832