

SECTION 800 RETAINING WALLS

801 DESIGN CRITERIA

801.01 GENERAL

Retaining walls are used when normal fill or cut slopes extend beyond acceptable limits. Walls may be classified in the following classes:

Gravity Walls

- Bin
- Crib
- Wire basket
- Mass concrete

Cantilever Walls

- Concrete

Braced Walls

- Anchored Walls
- Soldier pile and lagging
- Tangent cylinder piles

Mechanically Stabilized Walls

- Reinforced Earth
- VSL Retained Earth
- Hilfiker-Reinforced Soil embankment

Walls shall be designed for a minimum factor of safety of 1.5 against sliding and 2.0 against overturning.

The wall selection process includes identification of types of walls appropriate for the site, evaluation of geotechnical behavior and properties affecting wall behavior and selection of wall systems which fit all site constraints. Identification of alternate designs may be appropriate.

In determining the types of retaining walls capable of fitting a particular site the following should be considered:

- Availability of materials
- Service life, maintenance, future use
- Deflection tolerance
- Ease of construction
- Environmental/visual considerations
- Special loading requirements
- Settlement tolerance
- Availability of space

801.02 POLICY

The following policy shall apply to retaining wall design:

1. Walls up to 6 meters high:

The Consultant shall prepare drawings for cast-in-place concrete retaining walls utilizing the Abu Dhabi Roads Section Standards and Specifications.

2. Walls over 6 meters high:

The Consultant shall evaluate the applicability of mechanically stabilized wall systems and confirm their site-specific suitability. If the Consultant determines that a mechanically stabilized wall system is not appropriate due to soils conditions or other site specific conditions, a complete cast-in-place concrete retaining wall design must be prepared for inclusion into the bid documents.

801.03 RESPONSIBILITIES

The design of a retaining wall will usually involve the efforts of three sections: Roadway Design Section, Geotechnical Section, and the Bridge Design Section.

801.03.01 Roadway Design Section

Roadway Design Section is responsible for identifying the need for and limits of the retaining walls. They will be responsible for providing a profile adjacent to the top of the wall and the soil profile line along the front face of the wall. Roadway Design is also responsible for identifying the acceptable limit of excavation required to maintain traffic and to design any detours when required.