Chapter 17
Mechanically Stabilized Earth (MSE) Retaining Walls
General Types of MSE Walls

- MSE Segmental (Modular) Walls
- MSE (Large Panel) Walls
- MSE Wire Face Walls
  - Not a common wall type
MSE Modular Block Walls

• Normally 6” x 12” Blocks
• 3/4” Setback per Course (7.1 Degree Batter)
• Alignment Pins (Plastic)
• Extensible Reinforcement (Geogrid)
  – Uni-axial / Bi-axial
• Granular Backfill
  – 3/4” Minus
MSE (Large Panel) Walls

- Approx. 5’ x 5’
- Batter Built Into Wall - Comes out in Construction
- Alignment Pins (Galvanized/PVC)
- Non-extensible Reinforcement
- Granular Backfill
  - 2 1/2” Minus
MSE (Wireface) Walls

- Uses an open mesh to retain fill
- Used when aesthetics is not a major issue
Construction Plans

- Plan and Elevation Views Given
  - Begin and End Wall
  - Drain Outlets
  - Wall Elevations
  - Undercut/Backfill Notes
Construction Plans
Construction Plans

Fig. 17.3 – MSE Segmental (Modular) Wall Section
Preconstruction Preparation

• Design is the responsibility of the Contractor

• “Shop Plans” are to be submitted for approval to the Office of Bridge Design two weeks prior to construction.

• Review site conditions prior to construction
Materials Inspection

• Concrete Facing Elements
  – Imperfect Molding
  – Honeycombing
  – Cracks, Chips, or Spalls
  – Color Variation
  – Dimension Tolerances
  – Connection Misalignment
Materials Inspection

• Reinforcing
  – Damage to epoxy or galvanized coating.

• Backfill Material
  – Correct gradation?
Foundation Preparation

- Thoroughly compacted subgrade
  - Undercut if necessary

- Entire area under reinforcement is the foundation (Not just the leveling pad)

- Concrete Leveling Pad
  - 6” x 18” (Modular)
  - 6” x 12” (Large Panel)
Erecting Facing Elements

• First Row is very important

• Ensure correct batter
  – Temporary Wedges
  – Spacer Bars
  – Adequate Bracing
Reinforced Fill Placement

- Placement of subdrain
- Density requirements
  - Smooth drum rollers
  - Walk-behind vibratory rollers or plate compactors
Reinforcement Placement

- Reinforcing should be level or slightly upwards.
- Skew Reinforcement around obstacles.
- Overlapping layers of reinforcement should be separated by 3” of fill.
Quantities

- Estimated Quantity
- Shop Plans Quantity
Construction Problems and Causes

• See Structures Construction Manual