Mechanically Stabilized Embankment
Construction Checklist

I. SOURCES OF INFORMATION

- *Bridge Design Specifications*, Section 5, *Retaining Walls*.
- *Bridge Design Aids* – Chapter 3-8, *Mechanically Stabilized Embankments*.
- *Caltrans Highway Design Manual* – Chapter 200, Topic 210, *Reinforced Earth Slopes and Earth Retaining Systems.*
- Earth Retaining Systems Committee web page at https://des.onramp.dot.ca.gov/structure-policy-innovation/earth-retaining-systems

II. PROPRIETARY EARTH RETAINING SYSTEMS

The contract Special Provisions usually gives the contractor the option of choosing one of the proprietary systems listed in the Department's current list of pre-qualified earth retaining systems. These systems are alternatives to the fully detailed State system shown on the contract plans. The pre-qualified list can be accessed from the SC home page under "Field Resources."

III. POTENTIAL PROBLEMS

Observation	Potential Cause
Wall Distortion:	
• Differential settlement that causes panels to contact each other resulting in chipping or spalling. • Low spot in the wall profile. • Overall wall leaning.	• Weak or improper bearing material. • Inadequate compaction and/or poor-quality foundation material 1. • Leveling pad not constructed per the tolerances specified in the approved shop plans.
Wall Leaning Out (away from backfill).	
• Backfill material pushed against back of wall before being compacted on the strips. • Excessive or vibratory compaction on uniform fine sand (more than 60% passing a No. 40 sieve).	• Panels not battered sufficiently. • Large backfill placing and/or compaction equipment working within the 3' zone from the back of the wall. • Backfill material dumped too close to the free end of reinforcing strips, then spread towards back of wall, causing bulge in strips and pushing panels out.

	• Backfill material too wet. • Backfill contains excessive fines materials (beyond the Specifications for percent of materials passing a No. 200 sieve). • Wedges not seated securely. • Excessive lift thickness. • Clamps not tight. • Plasticity Index of backfill material in excess of the specification limit.
Observation	**Potential Cause**
Wall Leaning In (towards backfill).	• Excessive batter set in panels for select granular backfill material being used. • Inadequate compaction of backfill. • Panels excessively battered. • Improper Compaction of lower backfill levels. • Settlement of the original ground behind the wall.
Localized differential distortion between adjacent panels that causes points of inflection and excessively wide joints.	• Adjacent panels set at different battered angles.