

# QUALITY CONTROL AND GUIDE SPECIFICATIONS

## Quicklime Plus

### 1.01 Description

This work consists of mixing in-place material, Quicklime Plus and water, and spreading, mixing, and compacting the mixture to the lines, grades and dimensions shown on the plans and as specified in these specifications or special provisions.

### 1.02 Materials

**In-place material** shall be the native material containing no rocks or solids other than soil clods larger than 4 inches in any dimension. Removing and disposing of said rocks or solids larger than 4 inches will be paid for as extra work.

**Quicklime Plus** – Quicklime Plus is Hi-Calcium or Dolomitic Quicklime with General Use Portland Cement. The components shall not be spread separately.

The Quicklime Plus shall be protected from moisture until used and be sufficiently dry to flow freely when handled.

**Water** shall be clean and potable and shall be added as needed during mixing and re-mixing operations, during compacting, during the curing period, and to keep the cured material moist until covered.

### 1.03 Proportioning / Spreading

The Quicklime Plus shall be spread to the required width, grade and cross section. Spreader and method of operation shall provide a uniform distribution of the Quicklime Plus through out the treatment zone.

Quicklime Plus to be mixed with the native material shall be furnished in bulk. Quicklime Plus shall be spread by mechanical equipment. Quicklime Plus shall be added to the native material at the rate designated by the engineer. The spread rate shall be designated as pounds of Quicklime Plus per square foot of material.

The Quicklime Plus shall be added in a dry state and every precaution shall be taken to prevent dusting. The rate of Quicklime Plus spread shall not vary more than +/-ten (10) percent from the designated rate.

Tailgate spreading of the Quicklime Plus will not be permitted. Tailgating is defined as having manual control of the spread rate. The spreader truck shall demonstrate the ability to maintain a constant spread rate over variable travel speeds. The contractor to demonstrate the consistency of the spread rate shall conduct a pan test.

The spreading operations shall be conducted in such a manner that a hazard is not present to construction personnel or the public. All Quicklime Plus spread shall be thoroughly mixed into the soil the same day Quicklime Plus spreading operations are performed.

No traffic other than the mixing equipment or other related construction equipment will be allowed to pass over the spread Quicklime Plus until after completion of mixing.

#### **1.04 Mixing / Re-mixing**

The Engineer shall determine the depth of treatment. Mixing equipment shall be equipped with a visible depth indicator showing mixing depth, an odometer or footmeter to indicate travel speed and a controllable water additive system for regulating water added to the mixture.

Mixing equipment shall be of the type that can mix the full depth of the desired thickness and leave a relatively smooth bottom of the treated section. Mixing and re-mixing, regardless of equipment used will continue until the material is uniformly mixed, free of streaks or pockets of Quicklime Plus. Moisture content shall be approximately 3 percent over optimum and all material other than rock or aggregate complies with the following requirements:

Sieve size	Percent Passing
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1" -----	98 Min.
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No. 4 -----	60 Min.
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Non-uniformity of color reaction when the treated material, exclusive of one inch or larger clods, is tested with the standard phenolphthalein alcohol indicator, will be considered evidence of inadequate mixing.

Treated material shall not be mixed or spread while the atmospheric temperature is below 35 F or below 1.67 C.

**The first and final mixings shall not be performed on the same day, unless approved by the engineer.** The entire mixing operation shall be completed within 7 days of the initial spreading of Quicklime Plus, unless otherwise permitted by the Engineer.

#### **1.05 Compacting**

The Quicklime Plus treated soils shall be compacted to a minimum relative compaction determined by ASTM 1557 modified by using the maximum wet density compared to the in-place wet density.

The maximum compacted thickness of a single layer may be any thickness the contractor can demonstrate to the Engineer that his equipment and method of operation will provide the required compacted density throughout the layer.

Initial compaction shall be performed by means of sheepsfoot compactor. Final rolling shall be by means of steel-tired or pneumatic-tired rollers. Areas inaccessible to rollers shall be compacted to the required compaction by other means satisfactory to the Engineer.

### **1.07 Curing**

The surface of each compacted layer of treated material shall be kept moist until covered by a subsequent layer ("moist blanket cure", i.e. baserock). If treated section is to be exposed for more than 3-days, then a curing seal may be considered. The cure seal shall consist of SS or CSS grade asphaltic emulsion, can be applied as an option to continued water curing after the initial 3-days.

Curing seal shall be applied at a rate of between 0.45- and 0.90-L per square meter of surface. Curing seal shall not be placed when the atmospheric temperature is below 5°C.

At the contractor's option, a layer of baserock may act as the cure seal.