**SECTION 6.1**

**TECHNICAL SPECIFICATION FOR**

**CEMENT STABILIZED SAND BACKFILL**

**NOVEMBER 2000**

**Part 1: General**

* 1. **Scope of Work**

This section specifies cement stabilized sand for use as backfill and any other work that requires stabilized material, and will be placed at the direction of the Engineer.

**Part 2: Quality Assurance**

* 1. **Reference Standards**

### Unless otherwise stated, the latest editions of the following documents are applicable

for this specification:

## ASTM C150 Standard Specification for Portland Cement

## ASTM C117 Standard Test Method for Materials Finer than 75-μm (No. 200) Sieve in Mineral Aggregates by Washing

## ASTM C136 Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates

## ASTM D4318 Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils

## ASTM D558 Standard Test Methods for Moisture-Density (Unit Weight) Relations of Soil-Cement Mixtures

* 1. **Submittals**

Mix design shall be submitted to the Owner for approval.

**Part 3: Product**

Stabilized sand shall consist of approximately one to one and half sacks of type I/II cement and 27 cu. ft. of cushion sand. Concrete sand is not permitted.

* 1. **Cement**

Type I Portland Cement conforming to ASTM C150 shall be used.

* 1. **Sand**

Sand shall be free from organic or otherwise deleterious materials and shall conform to the following requirements:

SIEVE SIZE PERCENT PASSING (%)

3/8-Inch 100

#200 0-20

The Plasticity Index (P.I.) shall not exceed six (6).

* 1. **Water**

Potable water shall be free of oils, acids, alkalis, organic matter, or other deleterious

Substances.

# PART 4: EXECUTION

# Design Requirements

# The cement stabilized sand shall have a comprehensive strength of 50 to 150 psi in 28 days. Backfill that exceeds the maximum compressive strength shall be removed by the contractor.

# Mixing

The cement, aggregate and water shall be thoroughly mixed in an approved processing plant. The mixer shall be a stationary Twin Shaft Pugmill. The plant shall be equipped with feeding and metering devices, which will add the aggregate, cement and water into the mixer in the specified quantities. The moisture content of the mixture shall be maintained between one percent below and two percentage points above optimum moisture or shall be maintained within the range established by the Engineer. The amounts of cement are expressed as percentage of dry weight of aggregate.

* 1. **Placement and Compaction**
* Placement of cement stabilized sand shall be in 8-inch-thick lifts and to be compact to 95% of ASTM D558 unless other specified by the engineer. Compaction shall continue until the entire depth of the mixture is uniformly compacted.
* Compaction shall be within four (4) hours of the addition of water to the dry mixed material.
* Cement stabilized sand shall not be placed or compacted in standing or free water.
* Material will be delivered in tandem or trailer trucks. Any material left in stockpile after four (4) hours should be discarded.

**PART 5: METHOD OF MEASUREMENT AND PAYMENT**

Method of Measurement and Payment for the work included in this section will be in accordance with the payment schedule in the Bid Proposal.

**\*\*END OF SECTION\*\***