RCC Showcase

Laboratory and Construction Results

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Outline

- Background
- Materials
- Results

Background

- Why is LTRC and DOTD interested in RCC?
  - Shale gas exploration
  - Logging activities
  - Agricultural activities
- RCC is tough, economical, and may provide a potential solution for the above locations

Laboratory Materials

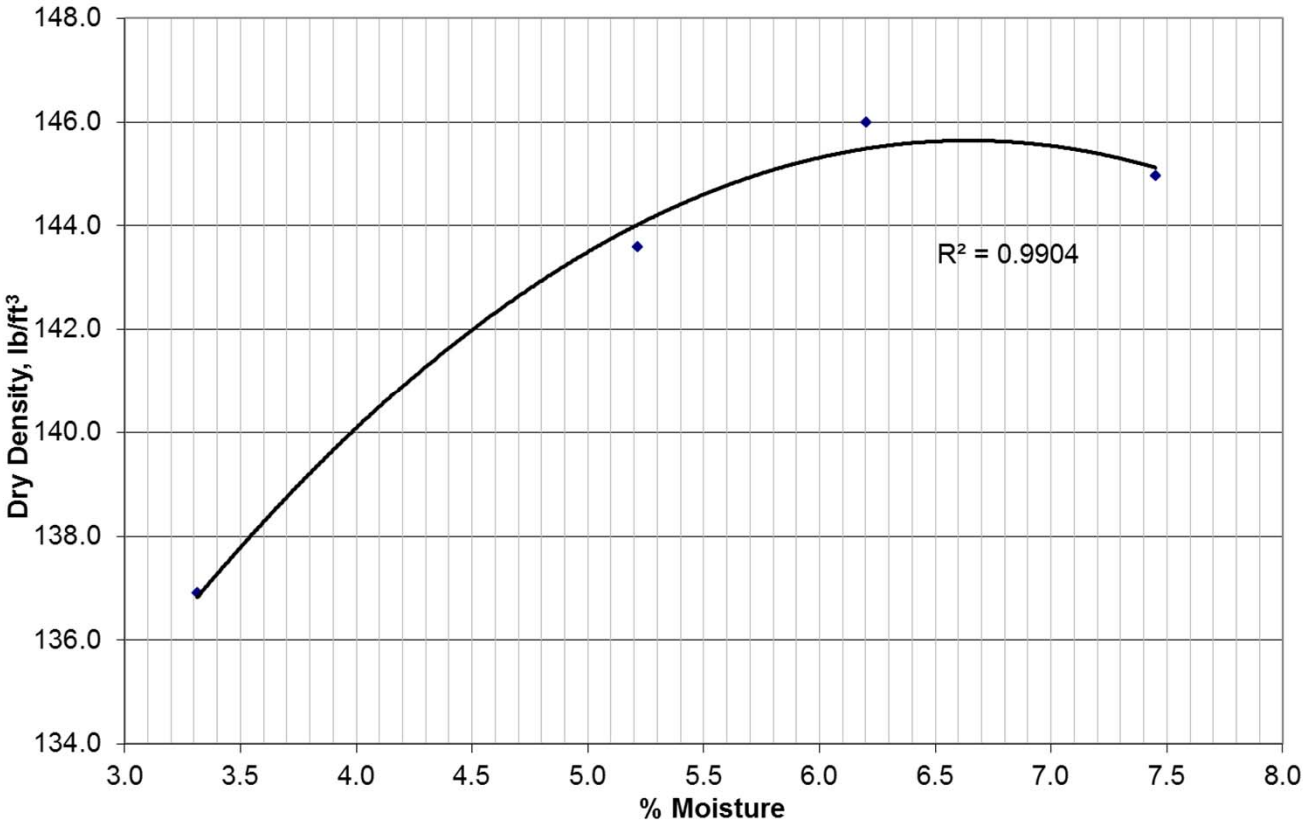
- No. 67 crushed limestone
- Manufactured sand
- Type I portland cement

Laboratory Mixtures

- 350, 400, 450, and 500 PCY mixtures
- Tested for density first (Modified Proctor)
- Then tested for strength

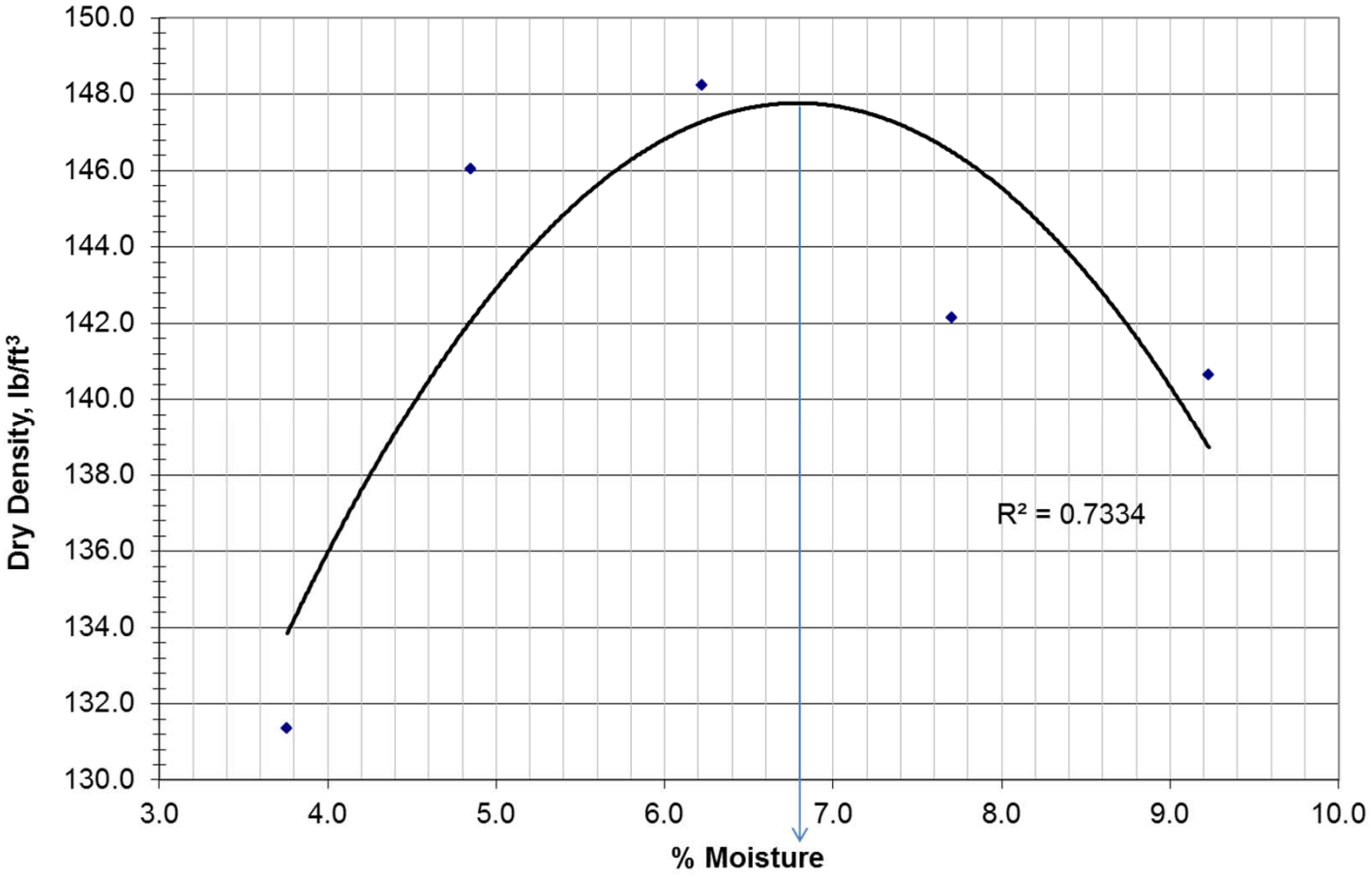
Mixture Results

- 500 lb curve



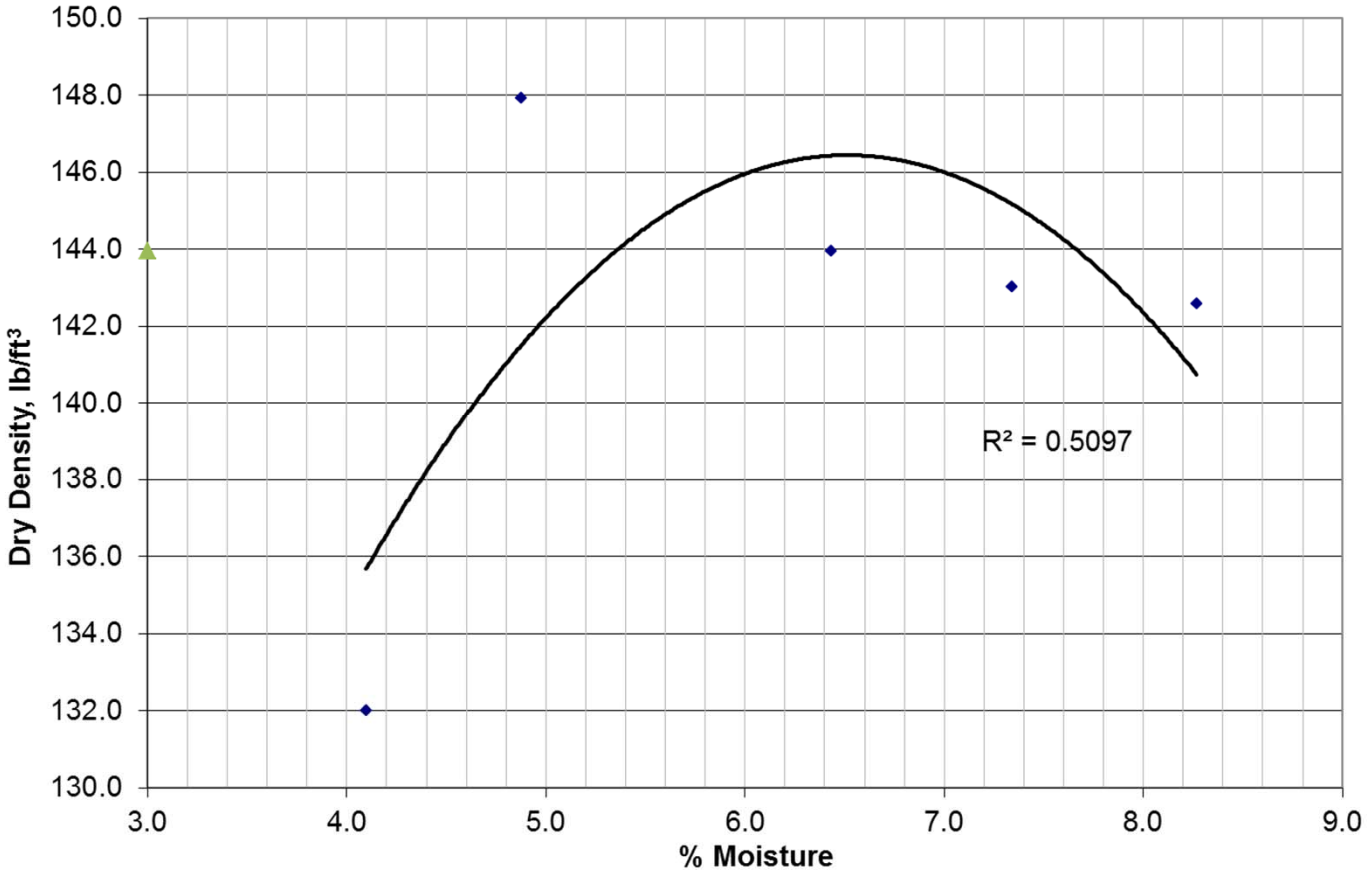
Mixture Results

- 450 lb curve



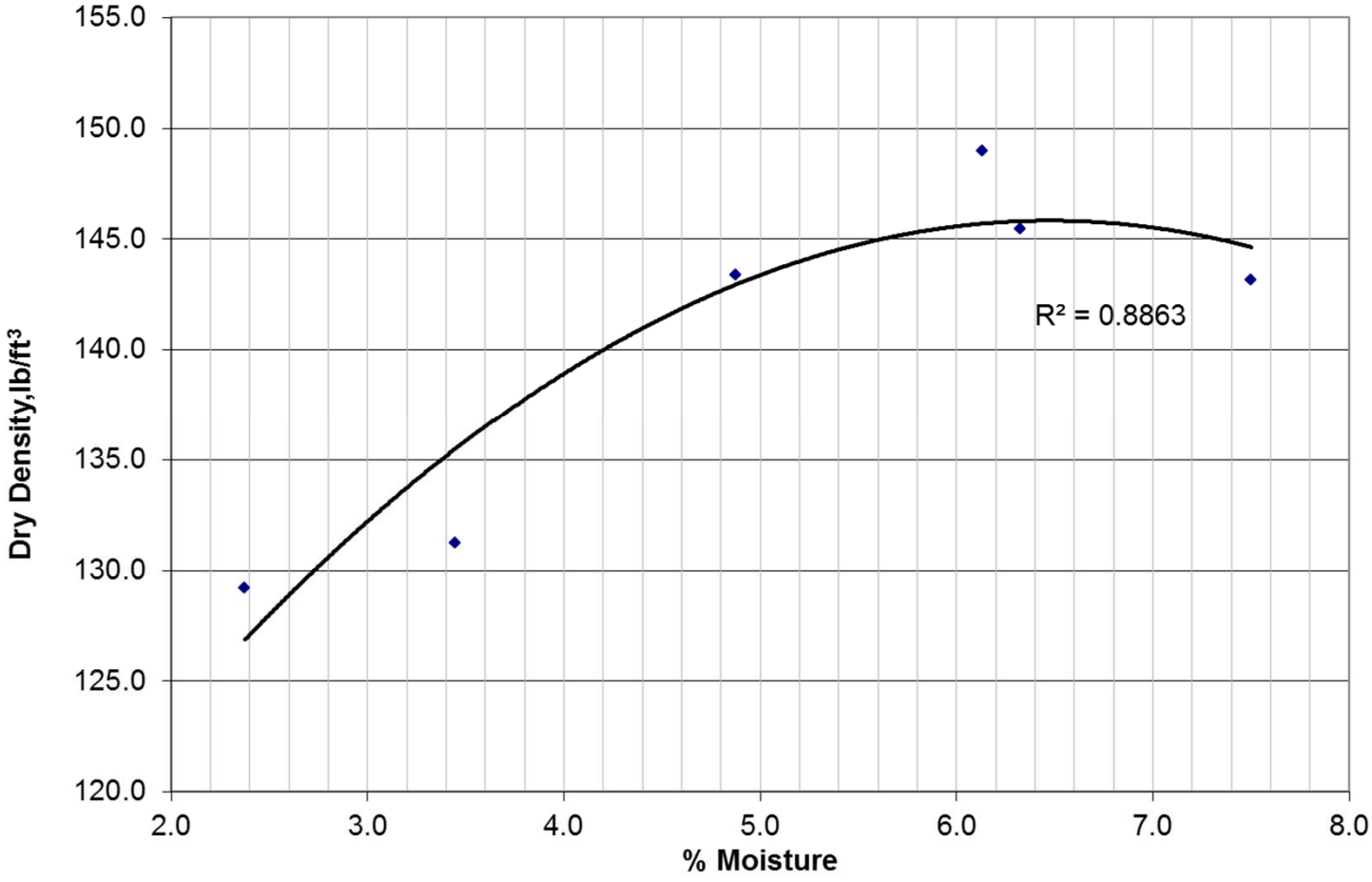
Mixture Results

- 400 lb curve

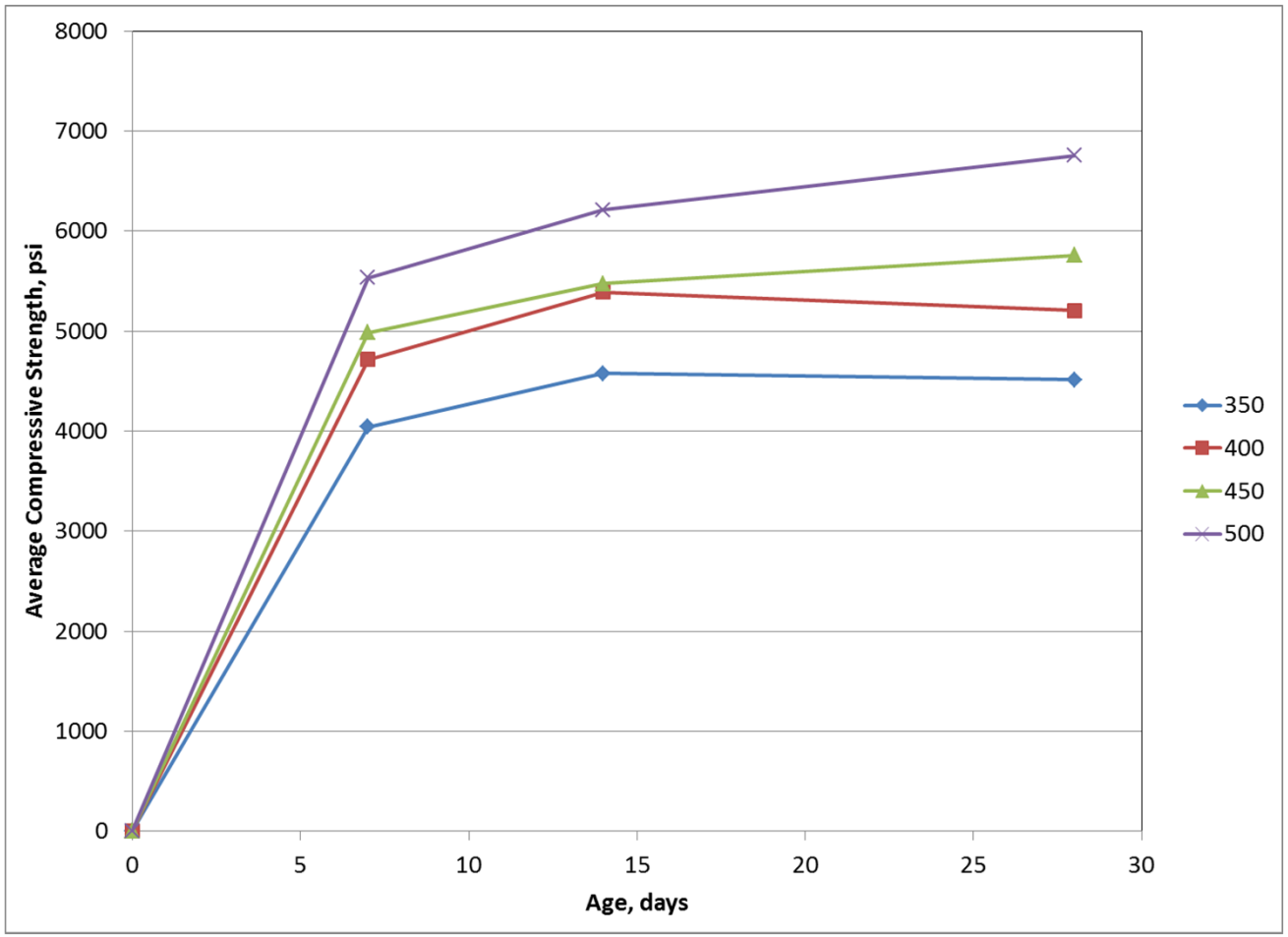


Mixture Results

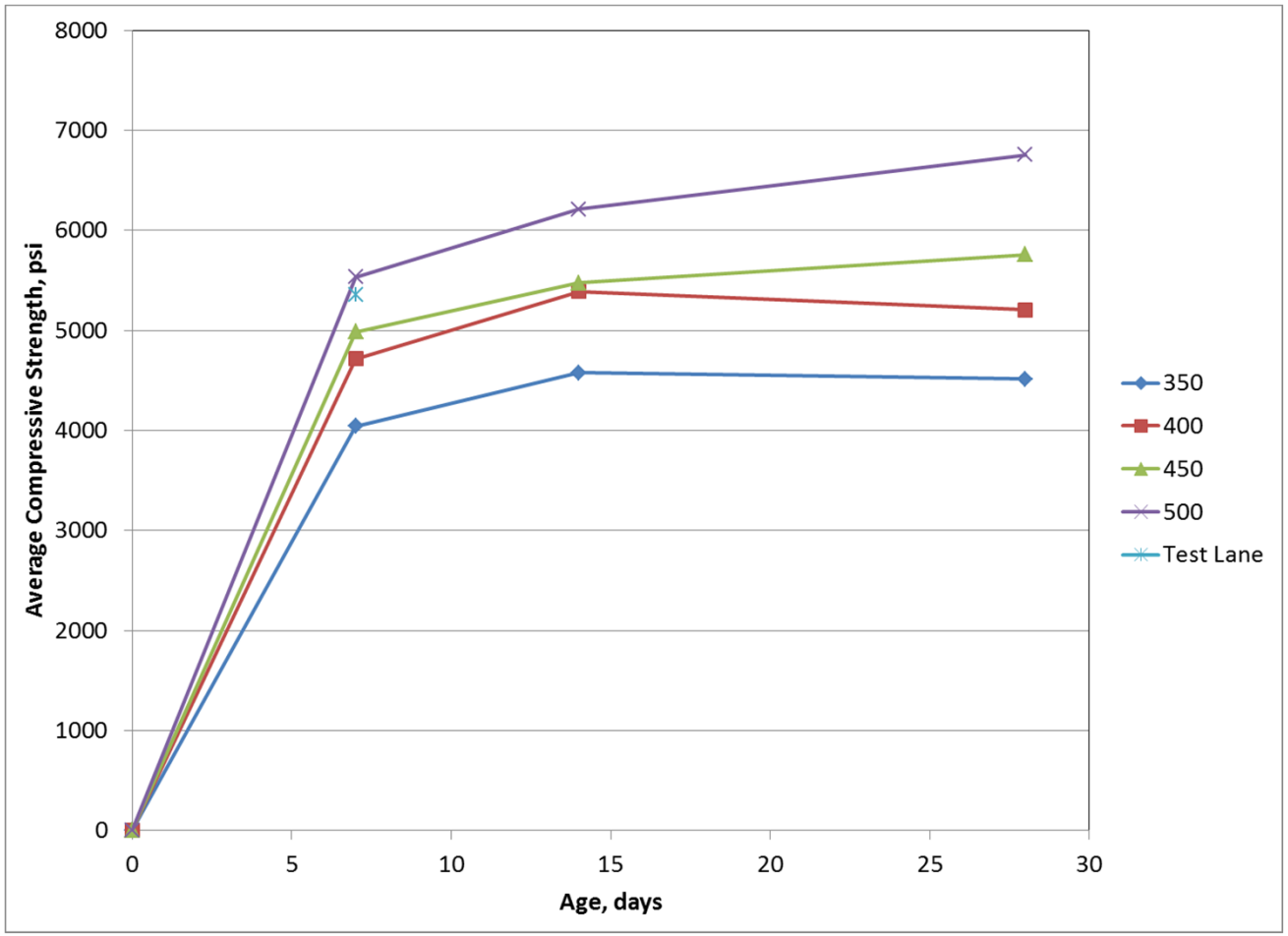
- 350 lb curve



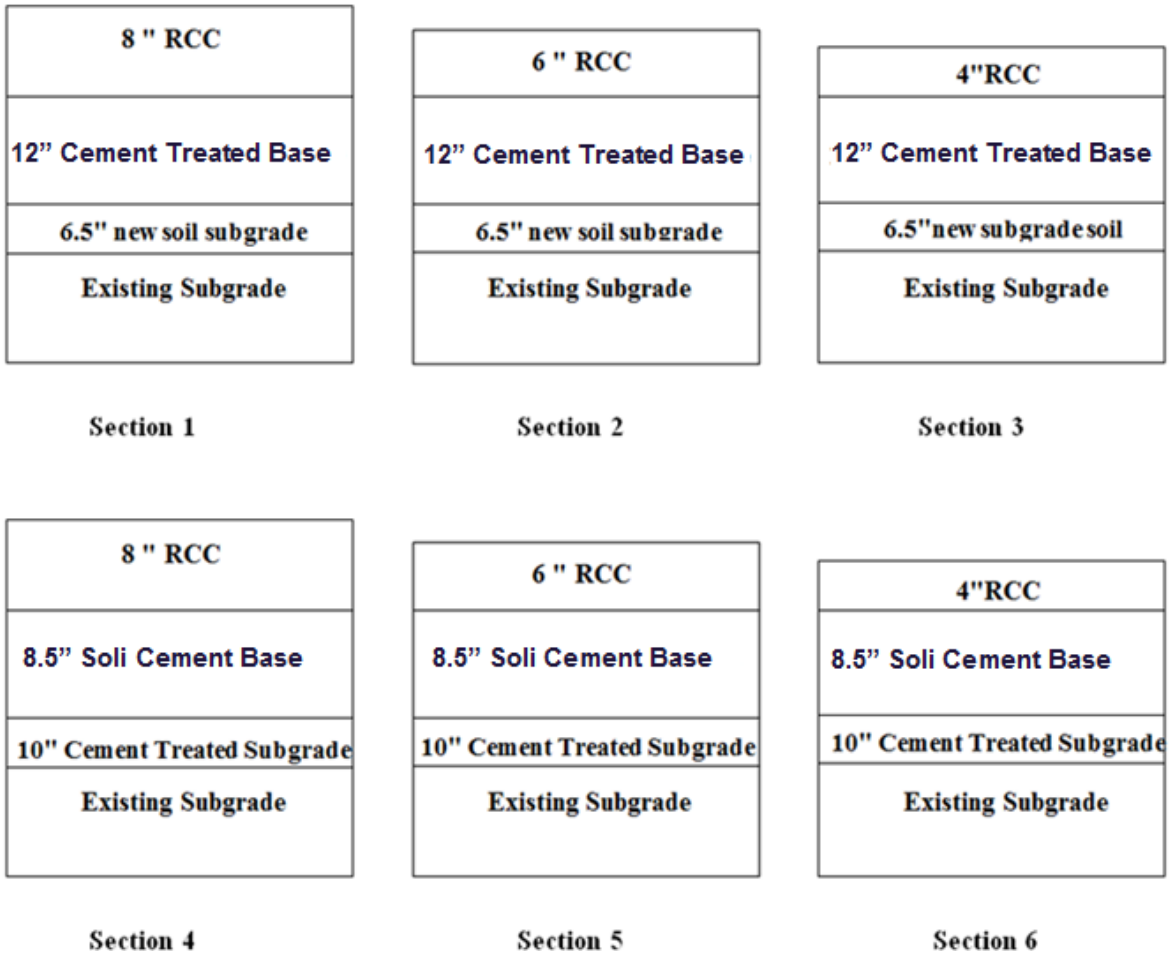
Mixture Results - Strength



Mixture Results - Strength



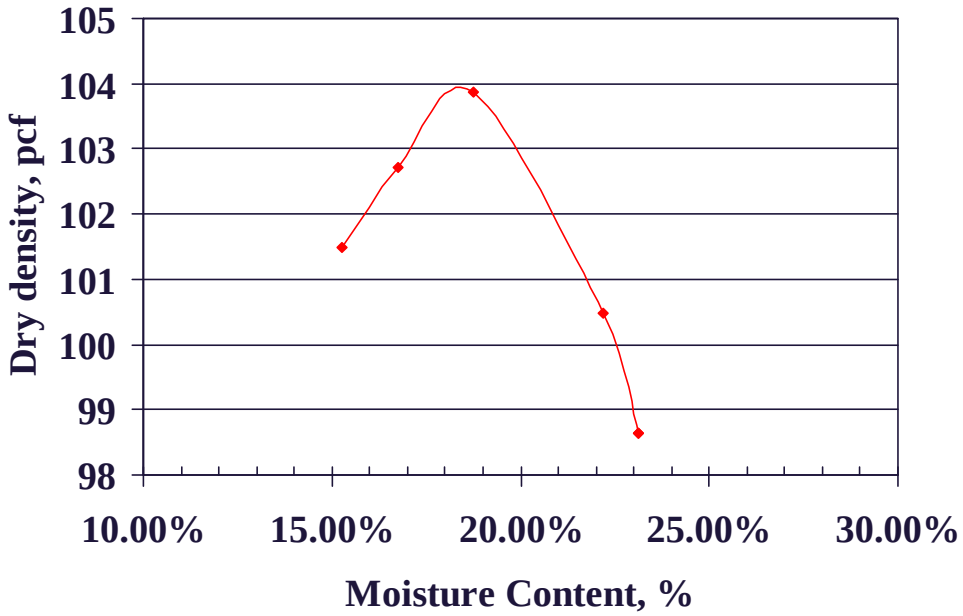
Section Layouts



4% cement was used in the 10" cement treated subgrade

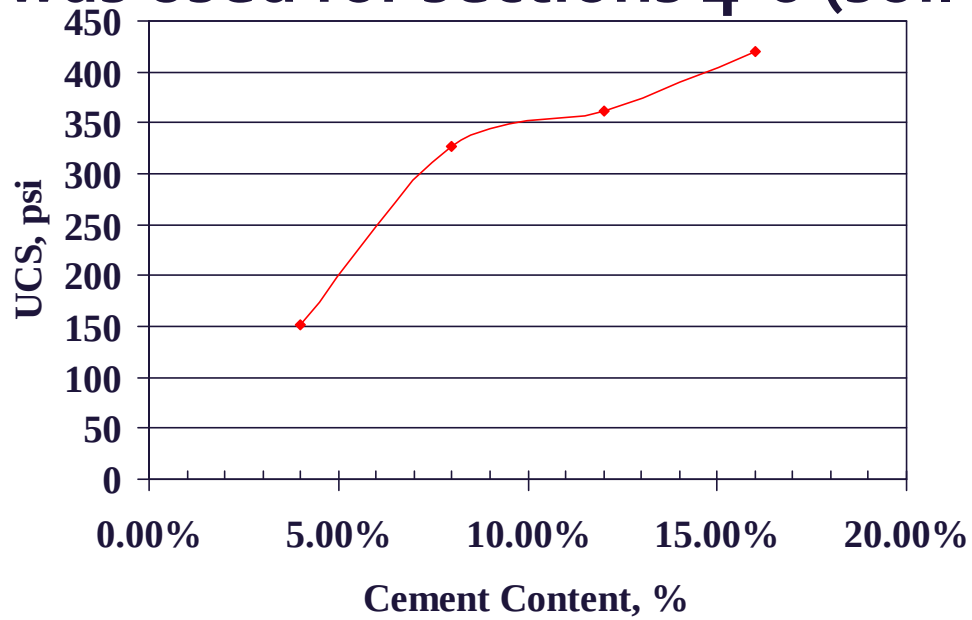
Soil Properties

- The selected soil is classified as A-6
  - Contains: 47.7% silt & 30% clay
  - LL = 32; PL = 18; and PI = 14
  - Optimum Moisture = 18.5% and Max. Dry Density=104 pcf



Cement Content

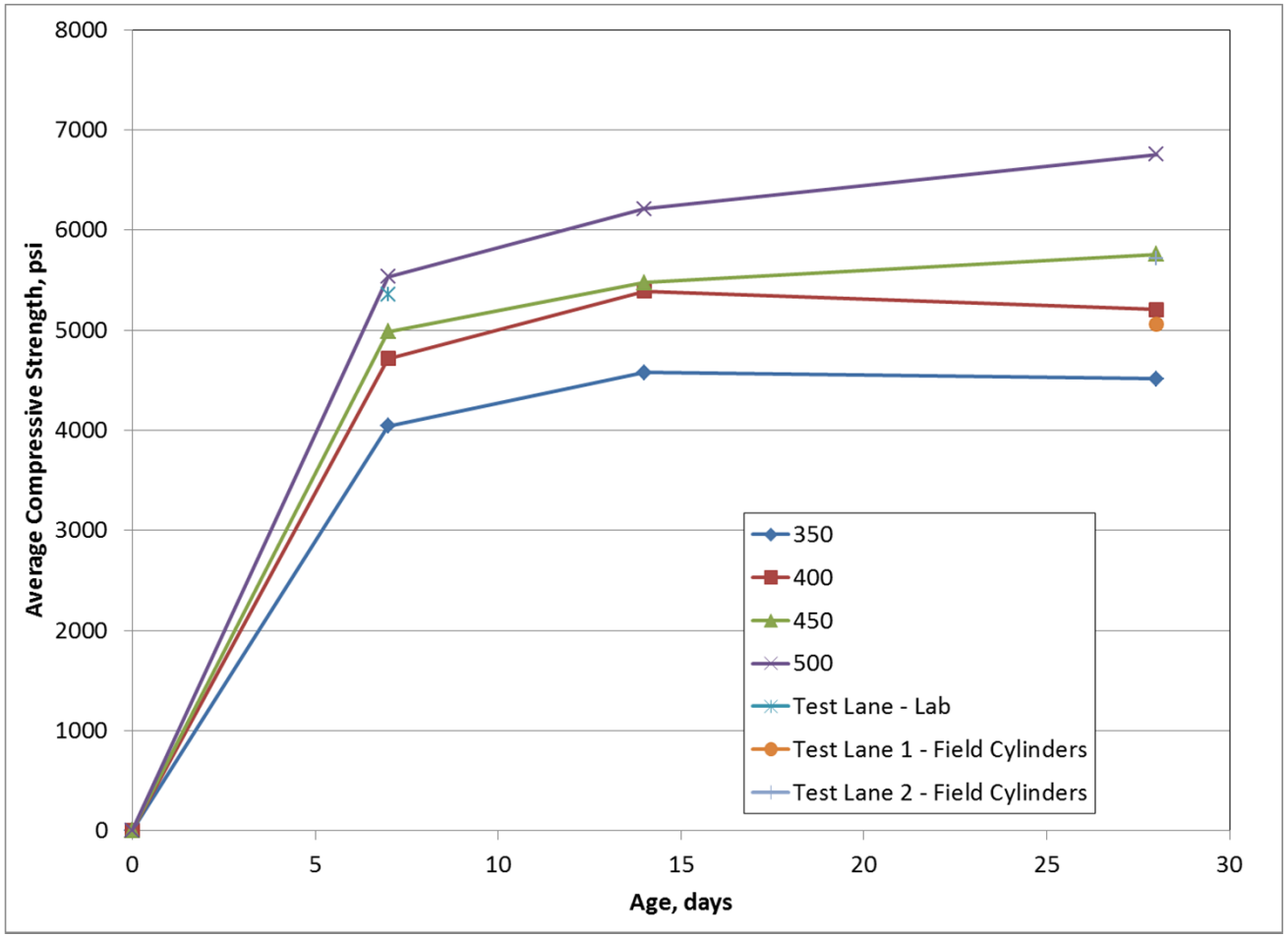
- Cement contents were determined by DOTD TR 432 to achieve 7-day UCS of 150 or 300 psi.
  - **6% was used for sections 1-3 (cement treated base)**
  - **8% was used for sections 4-6 (soil cement)**



Test Lane Results

- Densities were not to 98%, but all tested sections hit 96.5% or greater of the target wet density
  - All but two tests were greater than 97% density
- Strengths are adequate, but gain was slowed due to low overnight temps in the upper 30's

Test Lane Results - Strength



Field Cores

- Density a little lacking in the bottom depth
- Strengths at 55 days of age
  - Lane 1 – 5192 psi
  - Lane 2 – 4422 psi
    - Due to lower densities
- Adequate strengths

Pictures

Pictures

Pictures

Pictures

Pictures

Pictures

Questions