

# Stabilization Sub-committee

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P Paige-Green  
BE CSIR



**cement &  
concrete  
institute**

**CSIR**

our future through science

# Planned tasks

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- Update chemical stabilization guides for South Africa including latest research and thoughts
- Prepare document on the use of Alternative (chemical) Stabilizers

# Current status (Task 1)

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- Decision was made to prepare updated stabilization manual (basis of TRH 13 update??)
- Included project in 2010/11 and again in 2011/2012 CSIR PG allocation
- In progress
- Gautrans Stabilization Guide used as base document
- Remove Chap 2 (Mechanical stabilization) and Chapter 11 (Surface stabilization and fines retention on unsealed roads)

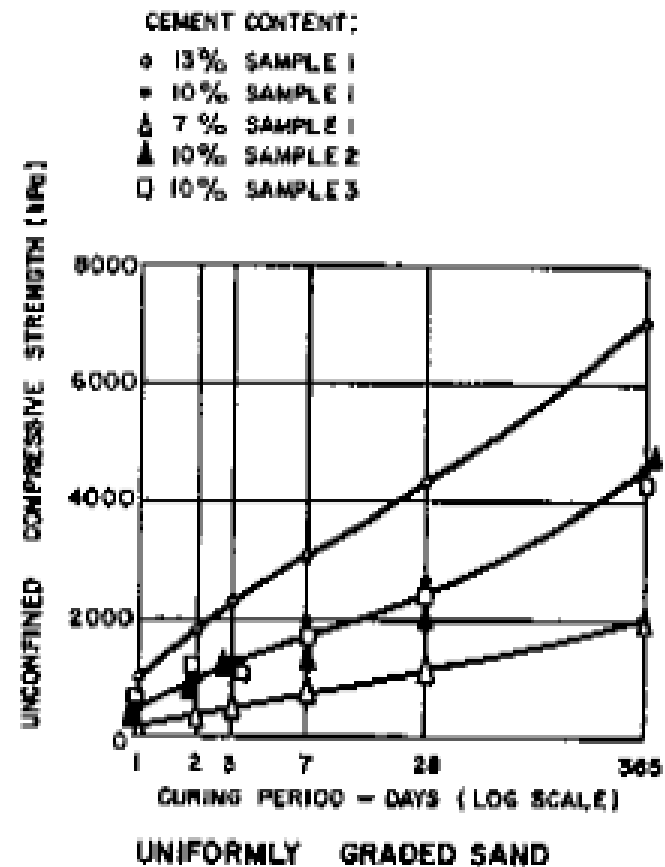
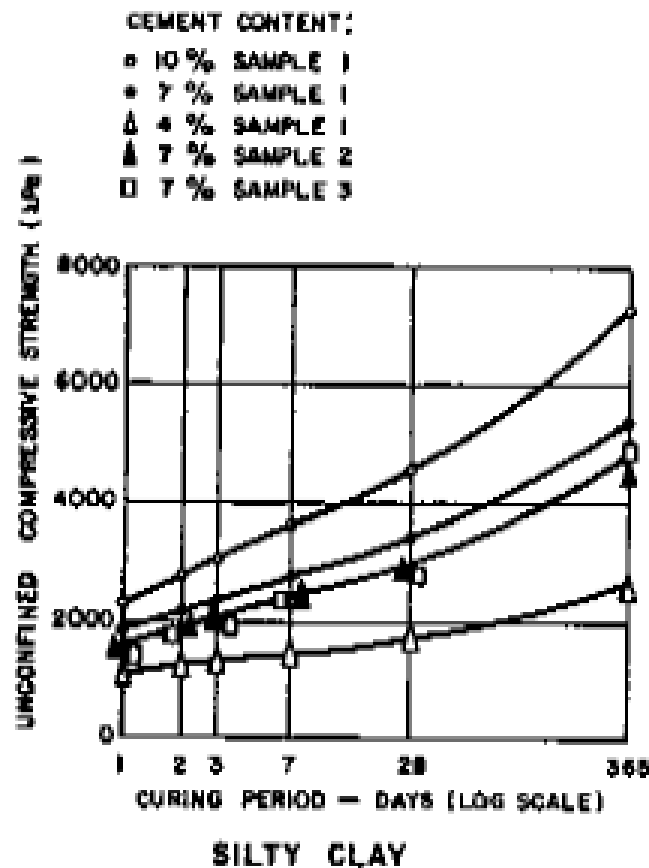
# Current status

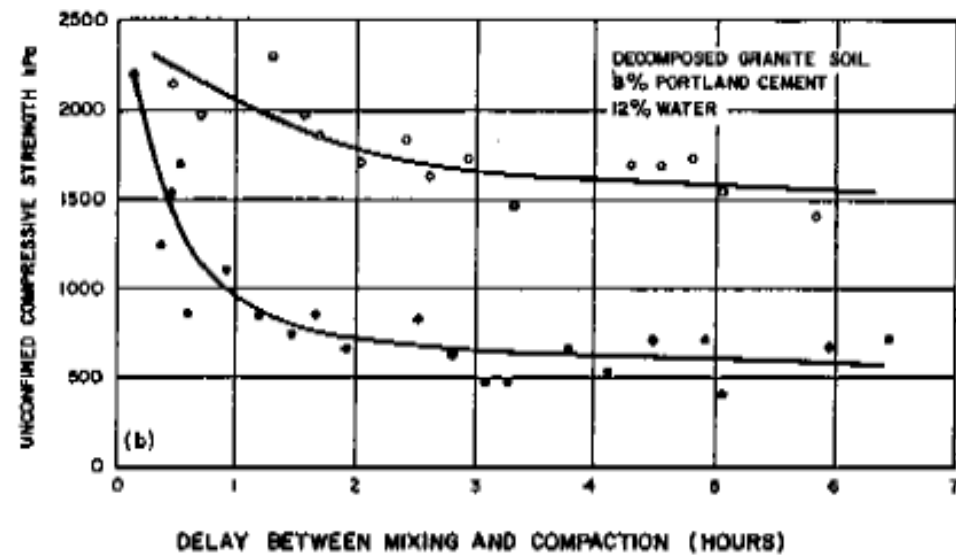
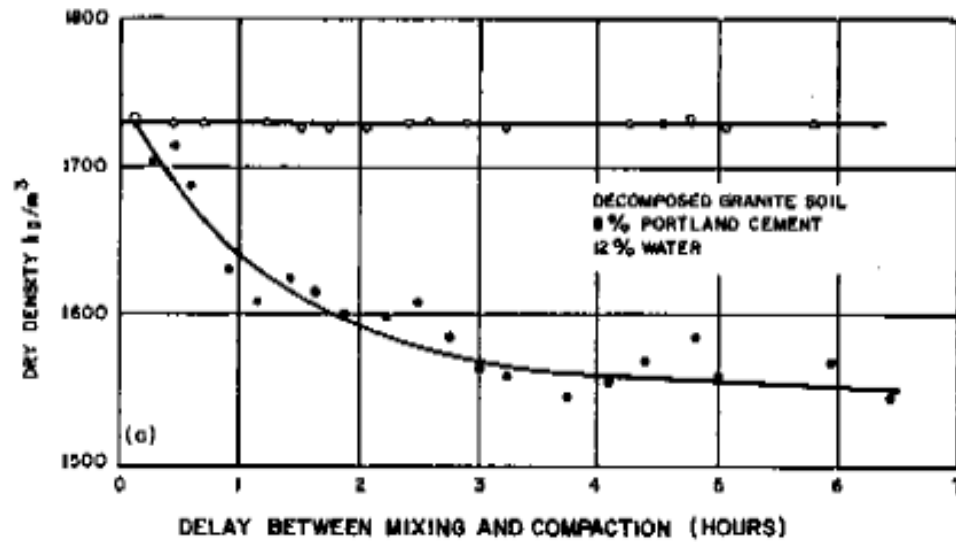
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- Incorporated missing TRH 13 sections
- Incorporating other relevant information
  - Little – lime stab
  - NCHRP MEPDM, CSIR SRP
  - Protocol results - please ??
  - etc
- Will update and answer as many of the questions raised at the Stabilization Workshop as possible
  - No new research specifically –lots of testing !

# Current status

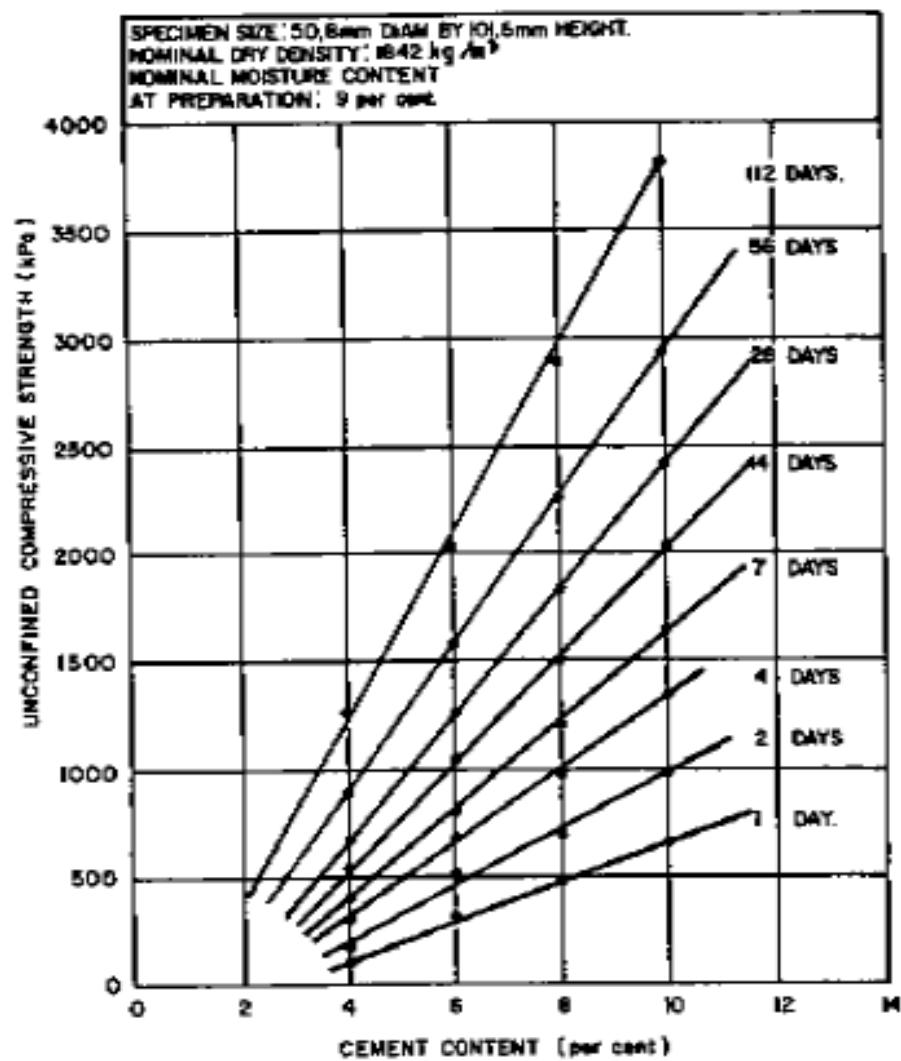
- Problem highlighted in November ?



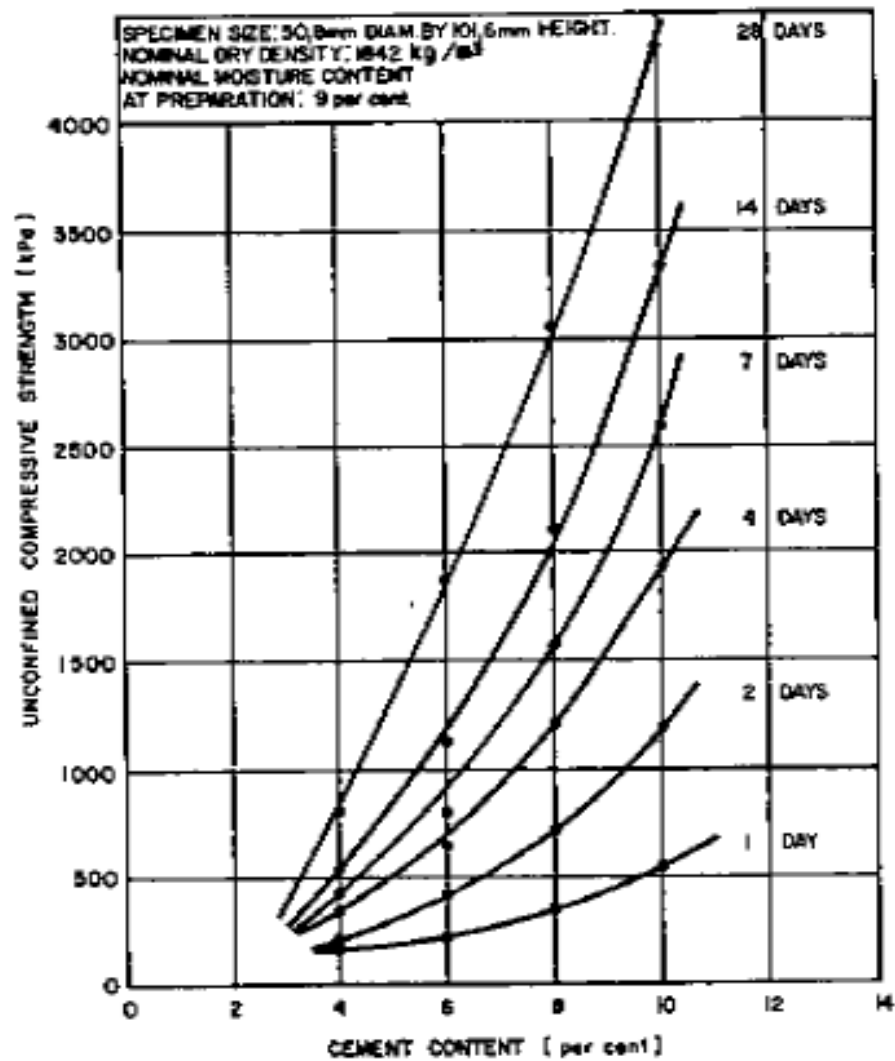


LEGEND:

- SAMPLES PREPARED IN CYLINDERS, 50,8mm DIAMETER, 101,6mm HEIGHT, TO CONSTANT DRY DENSITY (1730 kg/m<sup>3</sup>)
- SAMPLES PREPARED IN CYLINDERS, 50,8mm DIAMETER, 101,6mm HEIGHT, BY USING CONSTANT COMPACTION EFFORT ( THE EFFORT, WHICH PRODUCED A DRY DENSITY OF 1730 kg/m<sup>3</sup> WITH NO TIME LAPSE, WAS KEPT CONSTANT )



(a)  
ORDINARY PORTLAND CEMENT



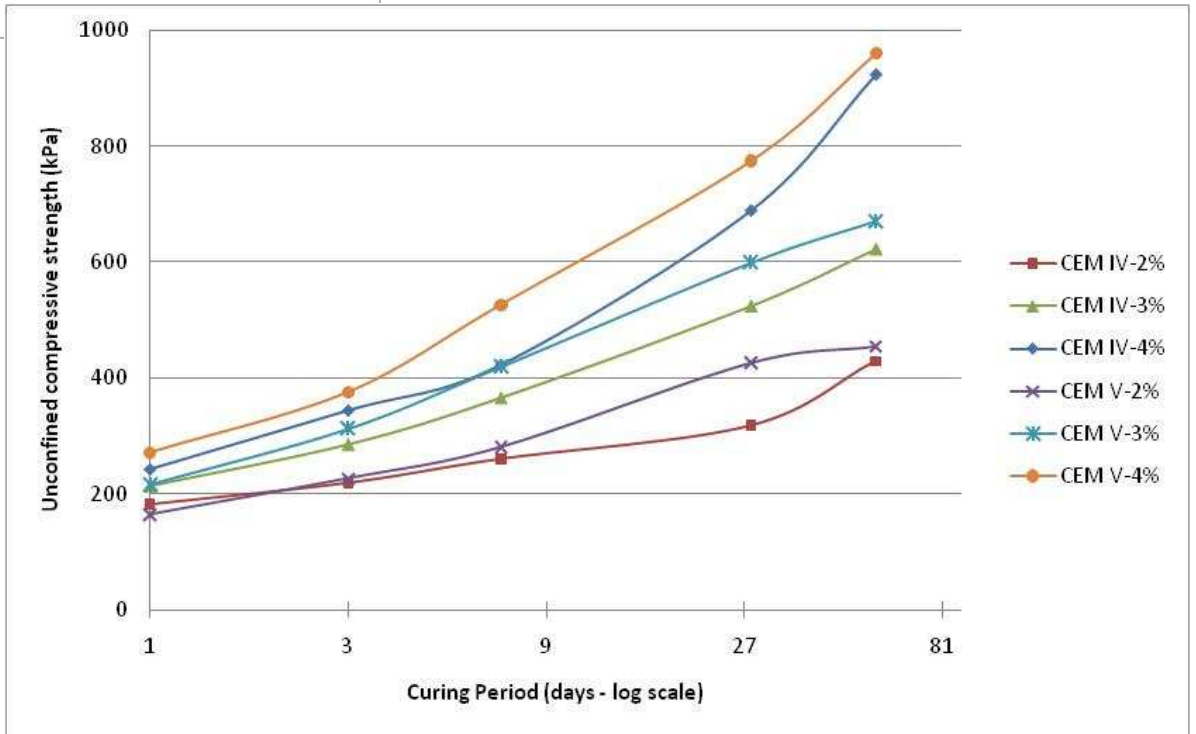
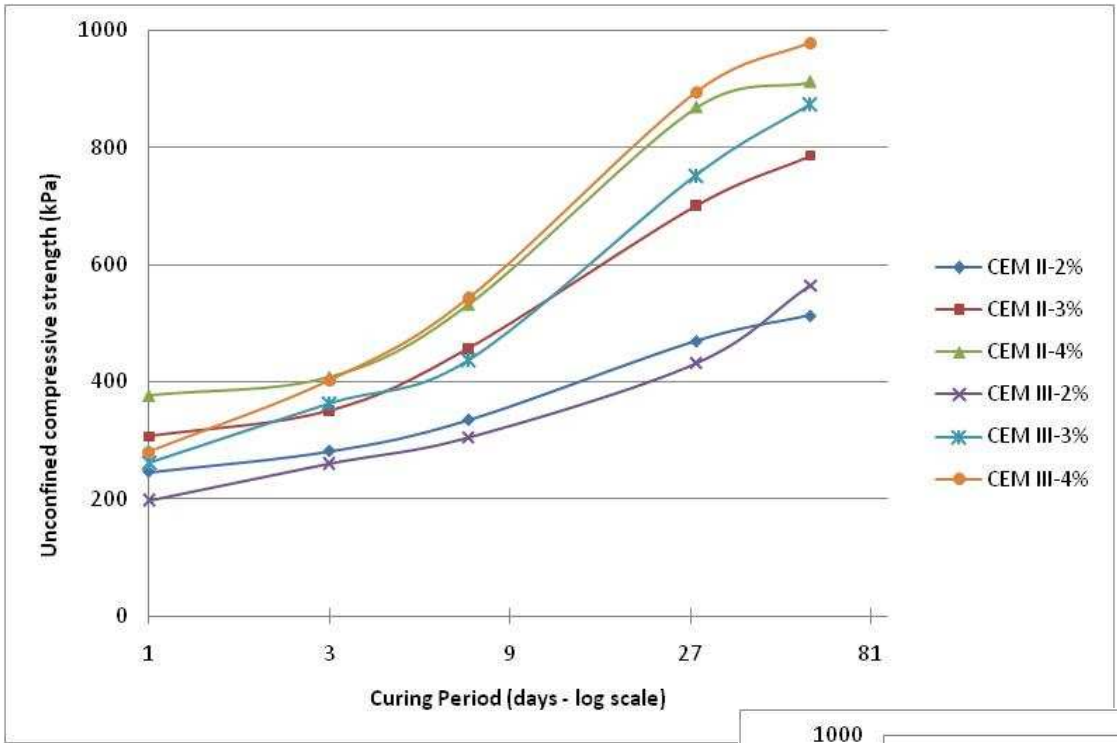
(b)  
PORTLAND BLASTFURNACE CEMENT

# Requirements

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- Lot of testing
- Various being done
  - G6 weathered quartzitic sandstone (BE)
  - G6 weathered dolerite (Harrismith) (BE, MSc)
  - G6 weathered dolomite, norite and granite (2 x final year B Eng skripsies)
  - Various cements (including CEM I 42.5N to CEM V 32.5N)
- Some short term, some longer term
- Some preliminary results





# CHEMICAL STABILIZATION

## (Snake oils)

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- Compile existing information into a single comprehensive document (based on extended slide presentation & other published information)
- On same basis as conventional chemical stabilization
- Different “steering (review) committee”



# CHEMICAL STABILIZATION (Non-traditional)

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- Busy with it
- Complete by March 2011 – local only so far
- Still busy with international stuff – sift out nonsense

# Claims (internet)!!

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- T.... optimal soil stabilizer is a safe, effective, non-corrosive liquid enzyme soil stabilizer that *significantly enhances the properties of the soil used in the construction of road infrastructure*. The result is a better and longer lasting road with increased CBR loading, reduced soil permeability and increased road strength. These *lower a road's construction and maintenance costs while increasing the overall quality of its structure*. T.. is easy to use and is not harmful to the soil or its applicators.
- E.... is an unparalleled enzyme soil treatment that creates *infinitely better roads* as well as a multitude of solutions to an endless list of other infrastructure problems, environmentally and economically.
- Road builders can now *construct a new road base using existing soil materials without trucking in additional aggregate*

# CHEMICAL STABILIZATION (Non-traditional)

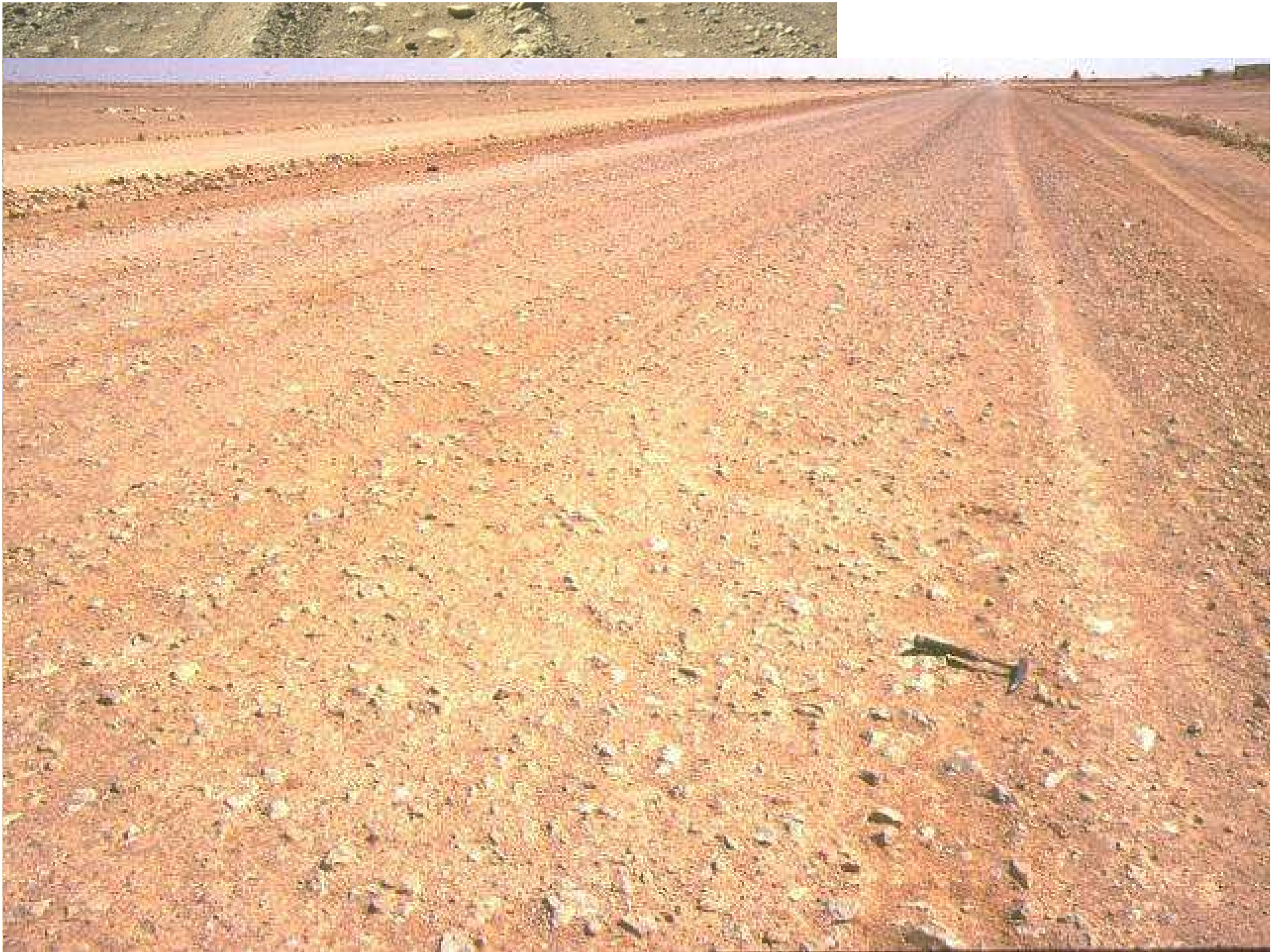
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- Contents of guideline

# CHEMICAL STABILIZATION (Non-traditional)

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- Introduction
- Types of stabilizer
- Actions and processes
- Testing
- Standards and specifications
- Construction
- Quality assurance
- Maintenance and rehabilitation



# CHEMICAL STABILIZATION (Non-traditional)

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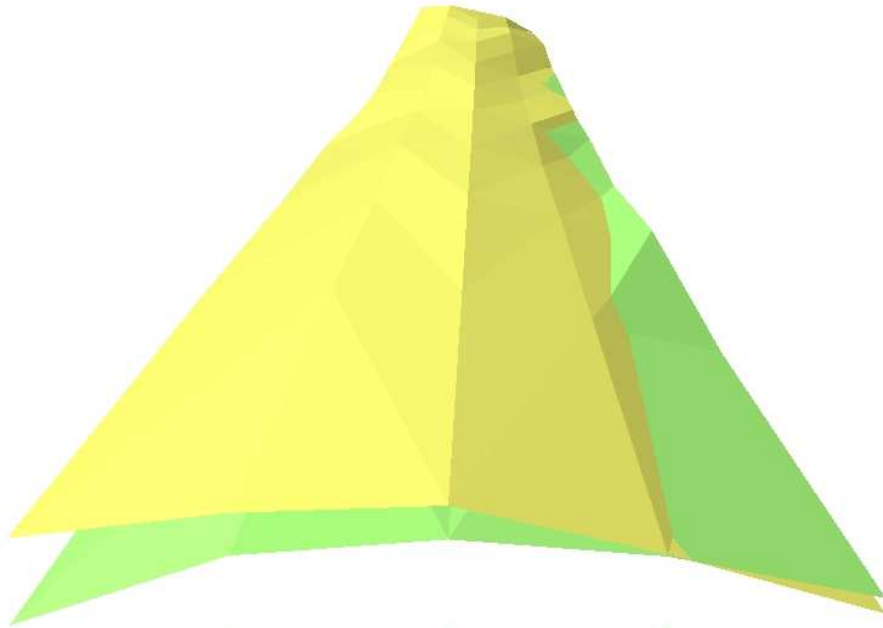
- Will incorporate ongoing monitoring results as well
- Plus any other ones – volunteers with results





Green after construction  
Yellow after 6 months

Yellow after 6 months  
Green after 12 months



Dark green after 0 months  
Light green after 12 months





THE END

THANK YOU