

Soil-Cement for Stream Bank Stabilization

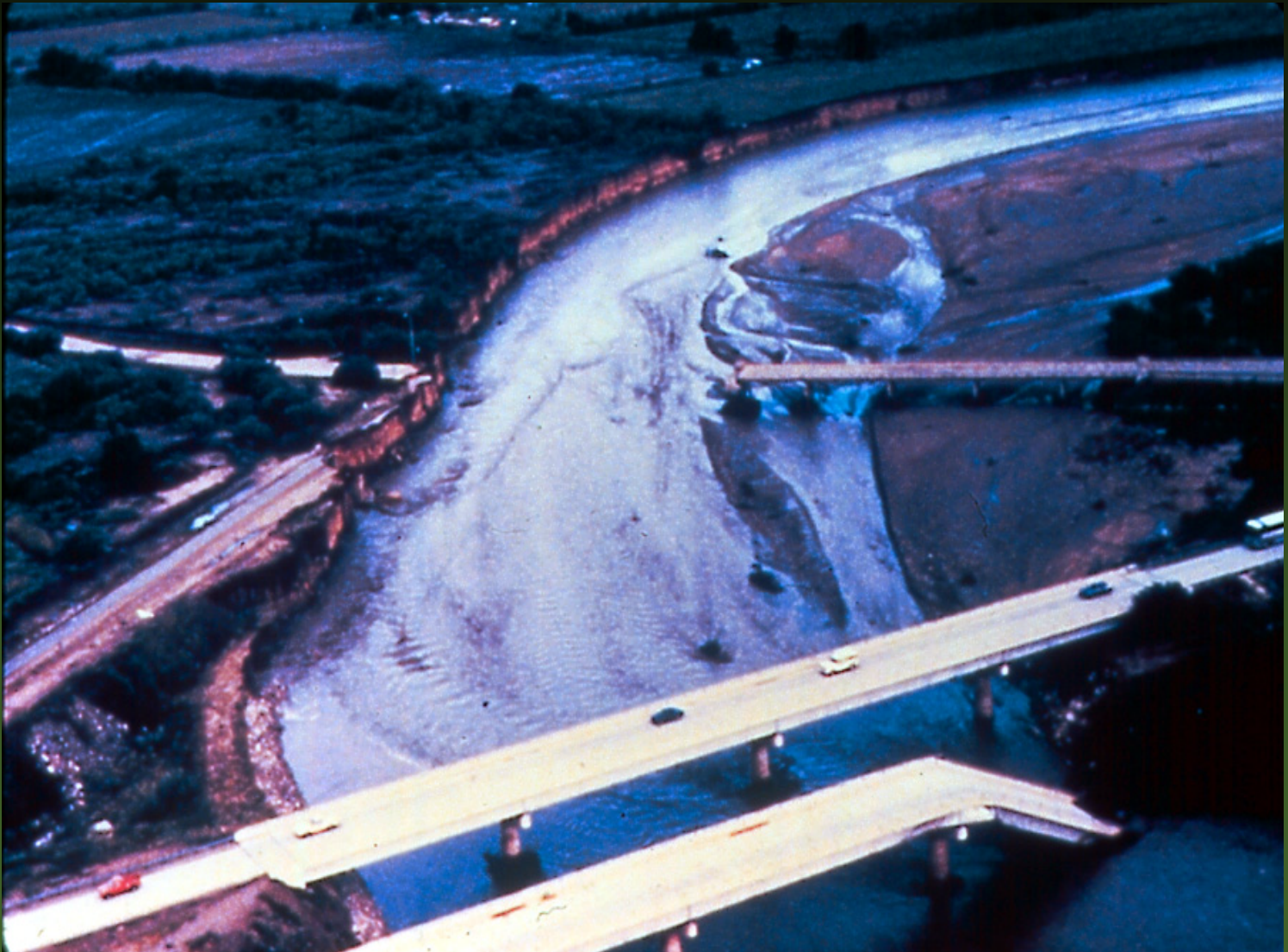


Wayne Adaska
Portland Cement Association
Tri-Service Infrastructure Systems Conference
August 2 – 4, 2005

















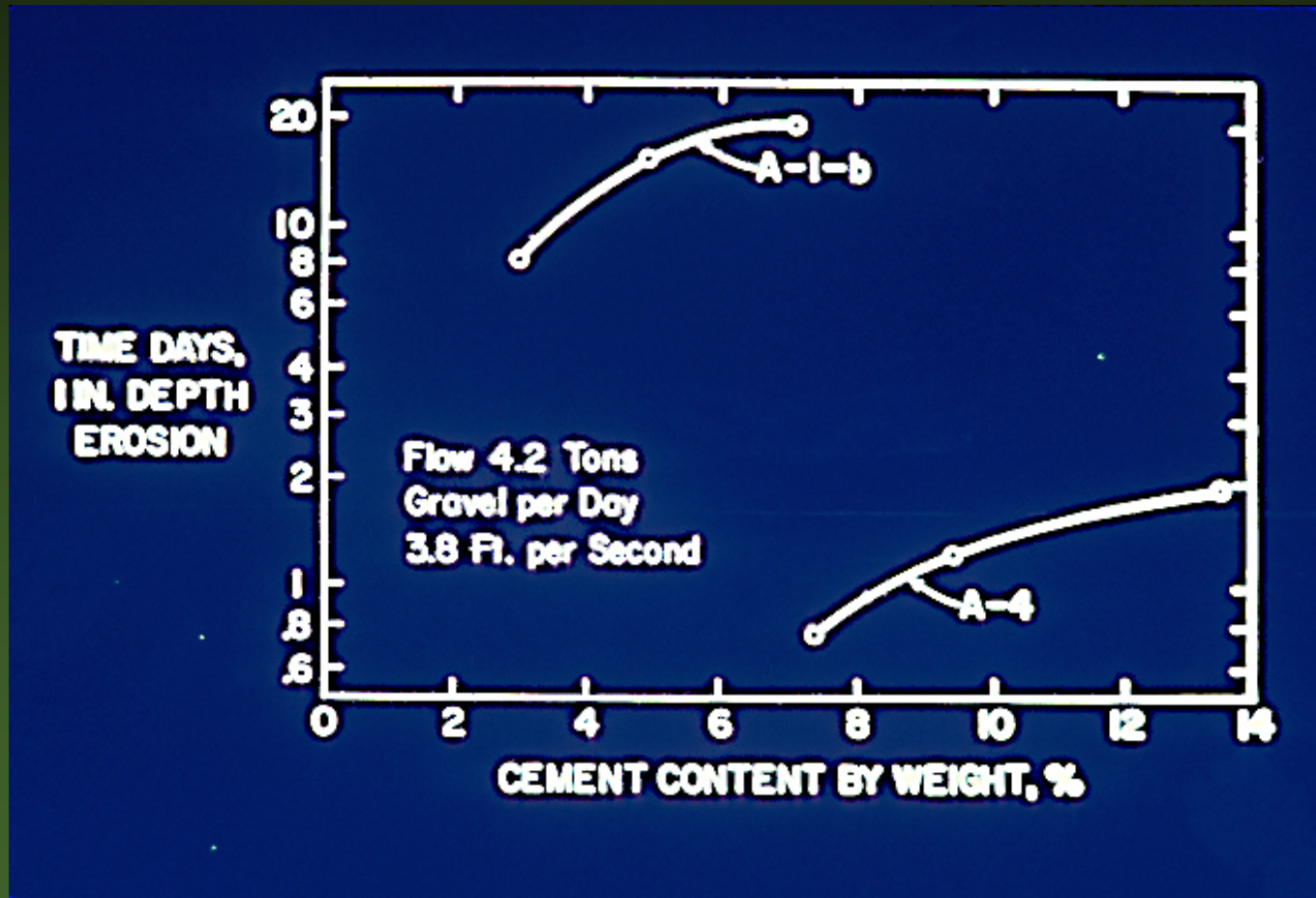
Mix Design

- Granular material
- Plasticity index of fines less than 8
- Cement contents between 5 -13%
- 7-day compressive strengths between 500 – 1000 psi
- PCA short-cut method (plus 2% cement)

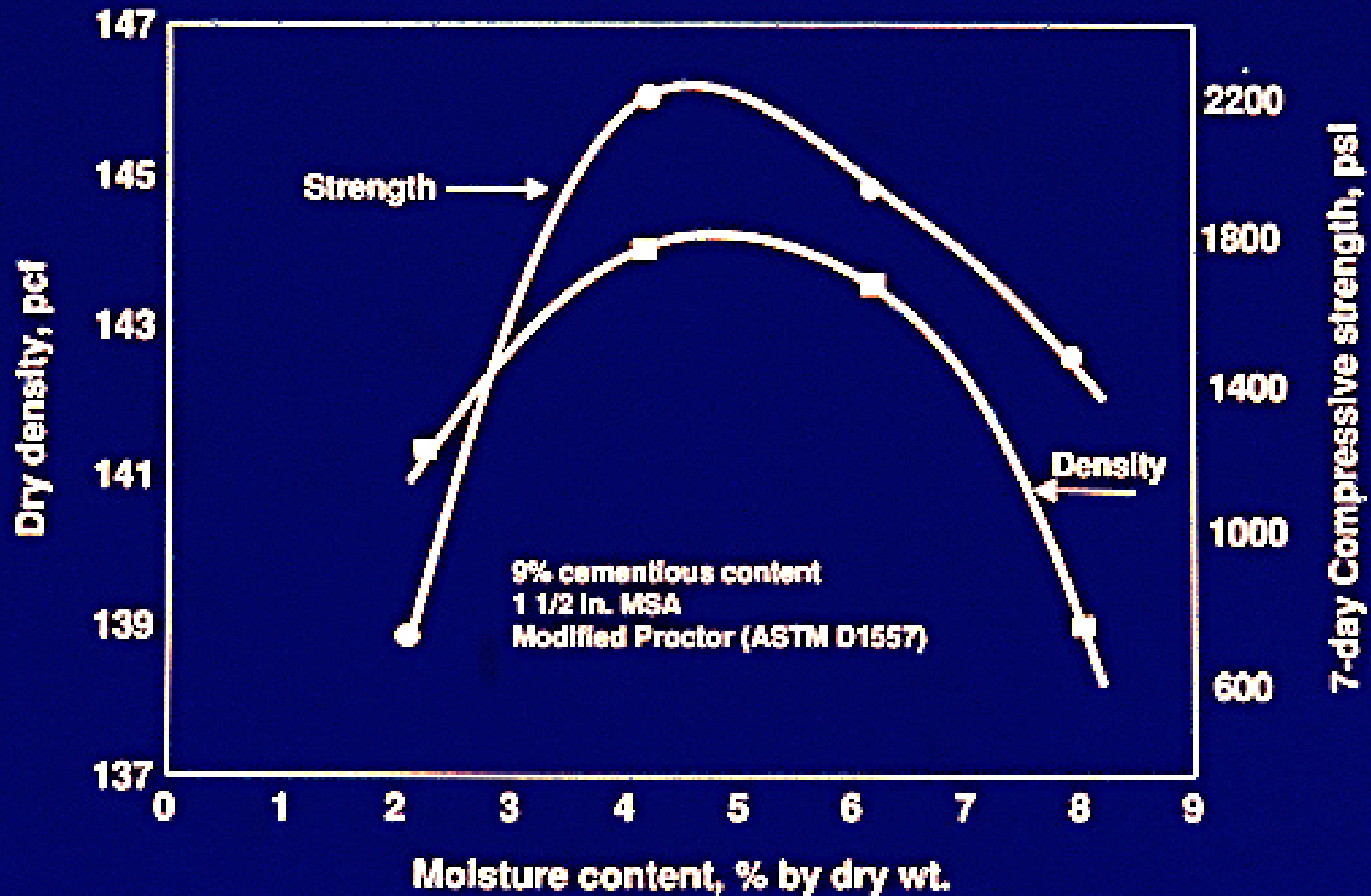
Typical Cement Contents

Gravels	A-1a	5-7% by weight
	A-1b	7-10%
Sands	A-2	7-11%
	A-3	9-13%
Silts	A-4	Not recommended
	A-5	Not recommended
Clays	A-6	Not recommended
	A-7	Not recommended

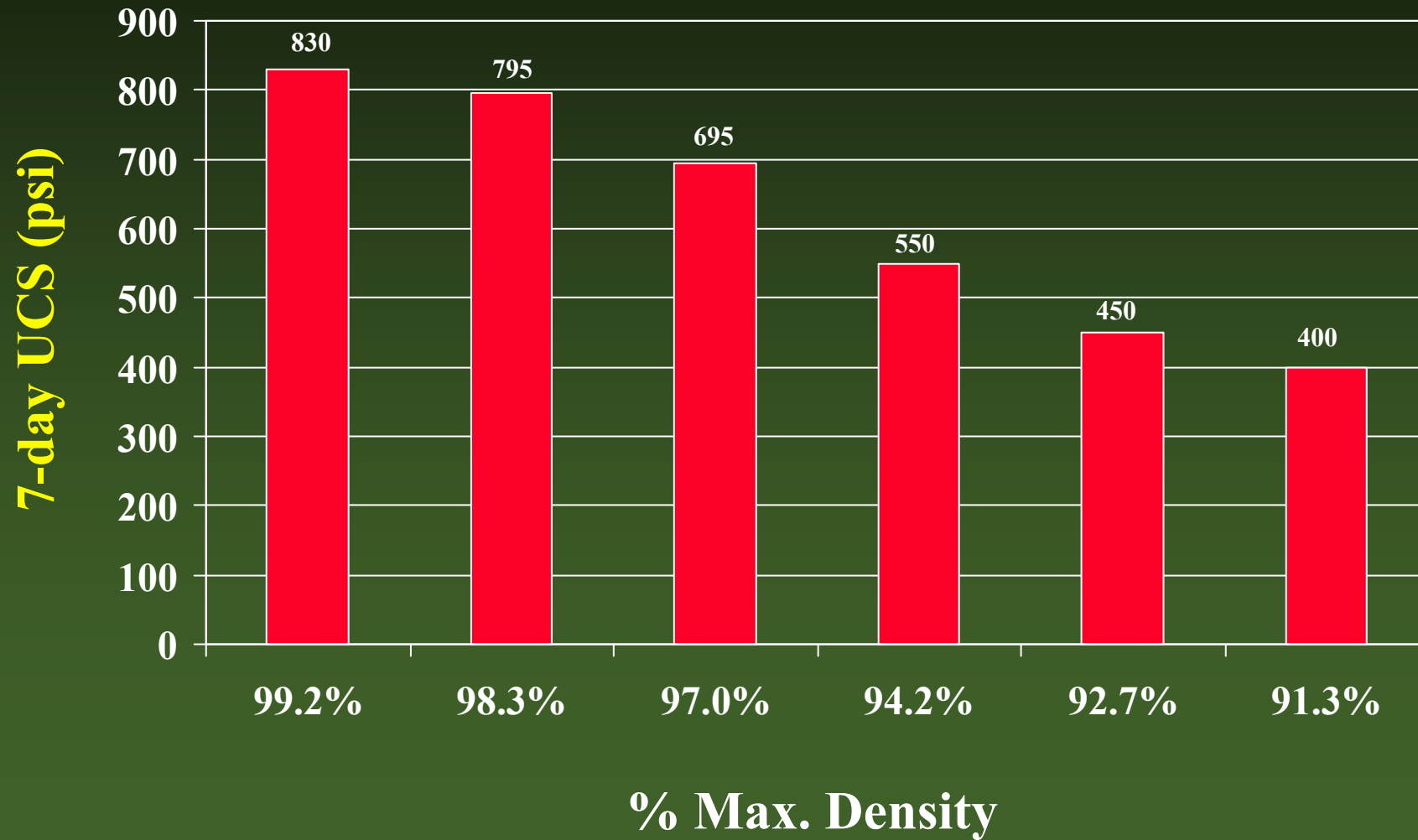
Effect of Soil Type on Erosion Resistance



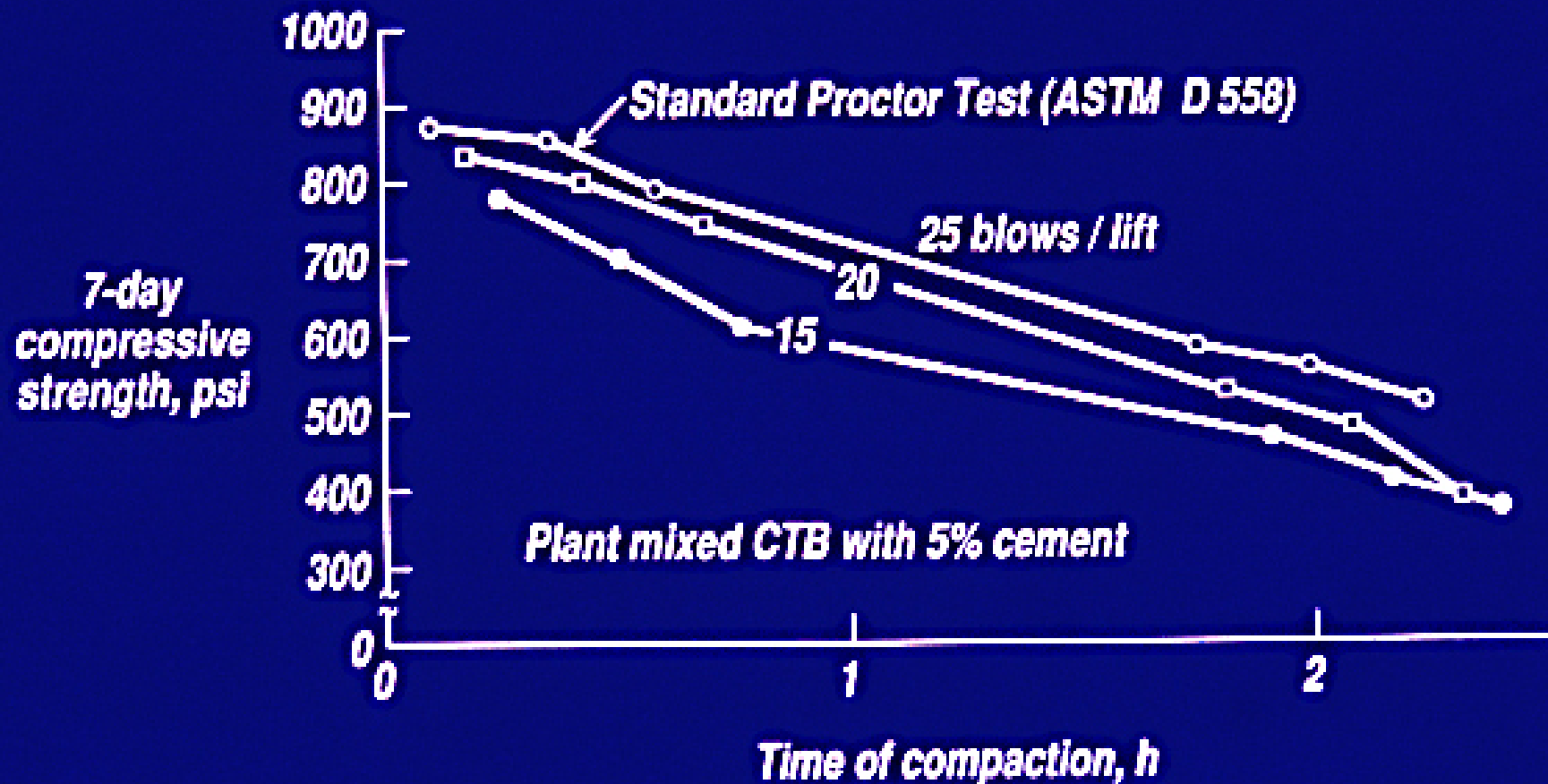
RELATIONSHIP BETWEEN DENSITY AND COMPRESSIVE STRENGTH



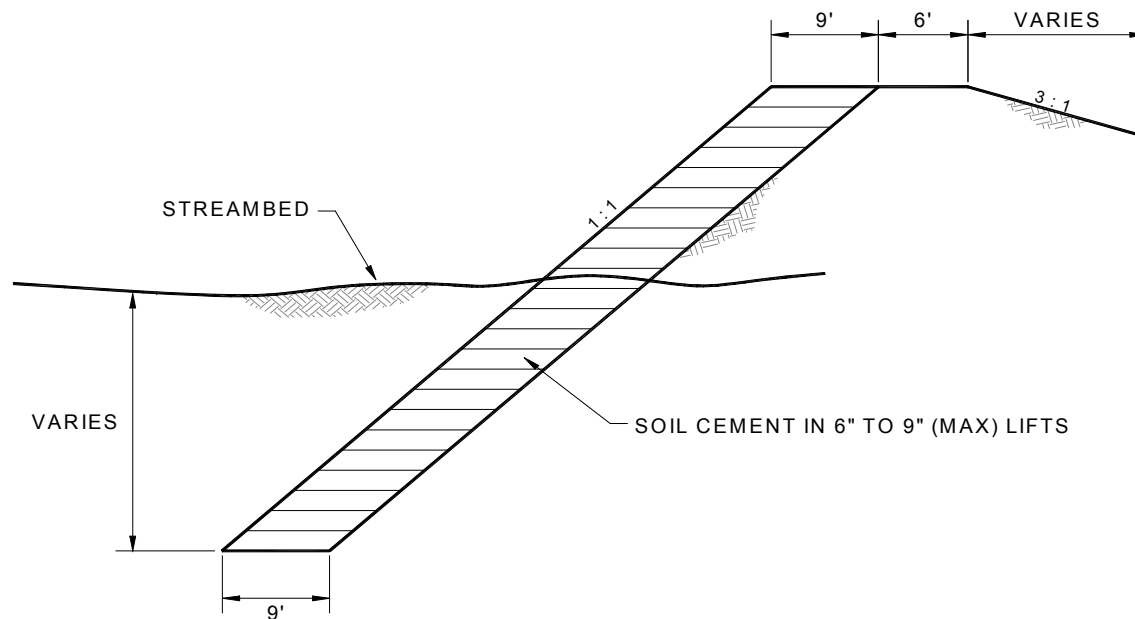
Effect of Density on Strength



STRENGTH VERSUS TIME OF COMPACTION AT VARIOUS COMPACTIVE EFFORTS



Typical Section



TYPICAL SECTION FOR BANK PROTECTION















Construction

























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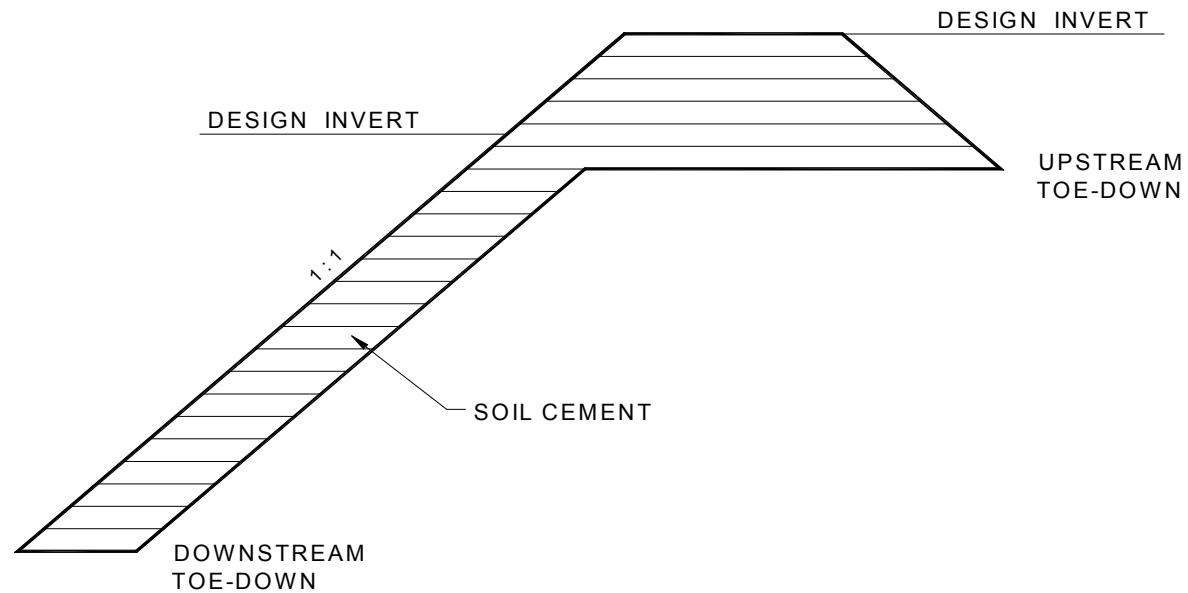








Grade Control Structure



GRADE CONTROL STRUCTURE PROFILE







More Information

- PCA website – www.cement.org/water
- Water Resources EC
- PCA Technical Support
 - Fares Abdo, P.E.
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The screenshot shows the PCA website's 'Water Resources' page. The header includes the PCA logo and navigation links for 'PCA SITES', 'PCA RESOURCES', and 'BOOKSTORE SEARCH'. A search bar is present with the text 'Type in a Keyword' and a 'FIND' button. Below the header, there's a navigation menu with links for 'PCA Home', 'Bookstore', 'Cement & Concrete Basics', 'Newsroom', 'Government Affairs', 'Member Home', and 'About PCA'. The main content area features a large image of a dam and the title 'Water Resources'. A sidebar on the left contains a menu with links: 'OVERVIEW', 'ROLLER-COMPACTED CONCRETE', 'SOIL-CEMENT', 'RESOURCES', 'FIND A CEMENT SUPPLIER', 'FIND A CONTRACTOR', 'TECHNICAL SUPPORT', and 'STAY INFORMED'. The main text area discusses the role of concrete in water resources infrastructure, mentioning applications like dams, spillways, and reservoir liners. It also includes sections for 'Roller-Compacted Concrete', 'Soil Cement', 'Tech Support', and 'Stay Informed'. A 'Water Resources E-Newsletter' sign-up form is located on the right, with an email input field and a 'SIGN UP' button. The footer contains contact information for the Portland Cement Association, including addresses in Skokie, IL and Washington, D.C., and the email 'info@cement.org'.

