
Sardis Dam -Pile Remediation

Dr. Robert L. Hall
Geotechnical and Structures Laboratory
U.S. Army Engineer Research and Development Center



Location of Sardis Dam



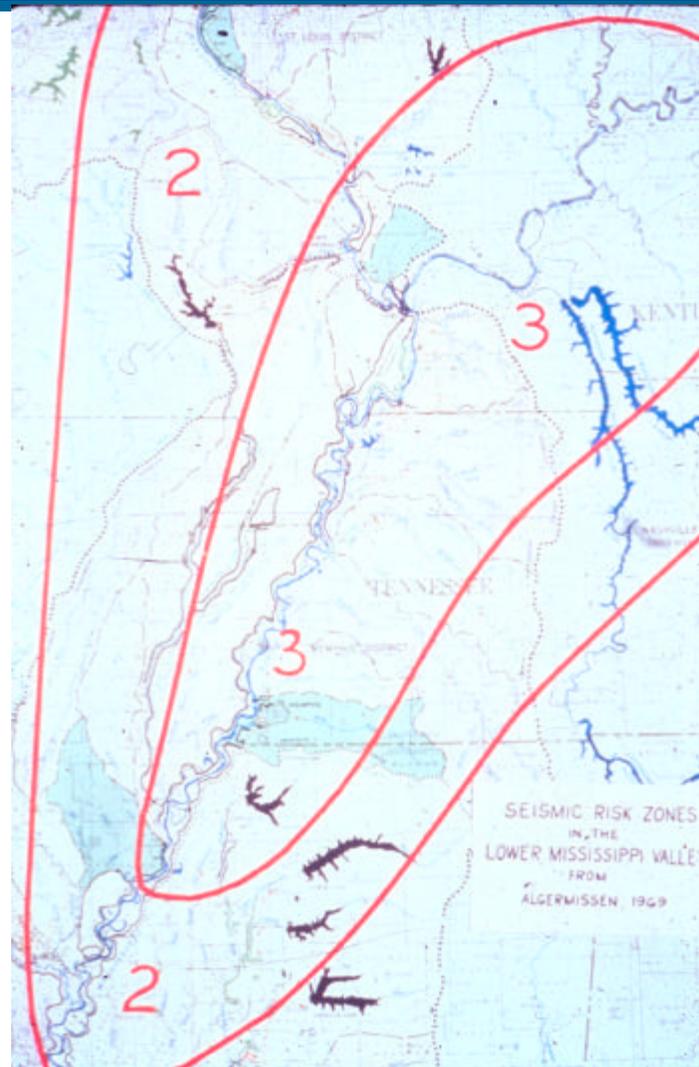
Sardis Dam



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Seismic Zones



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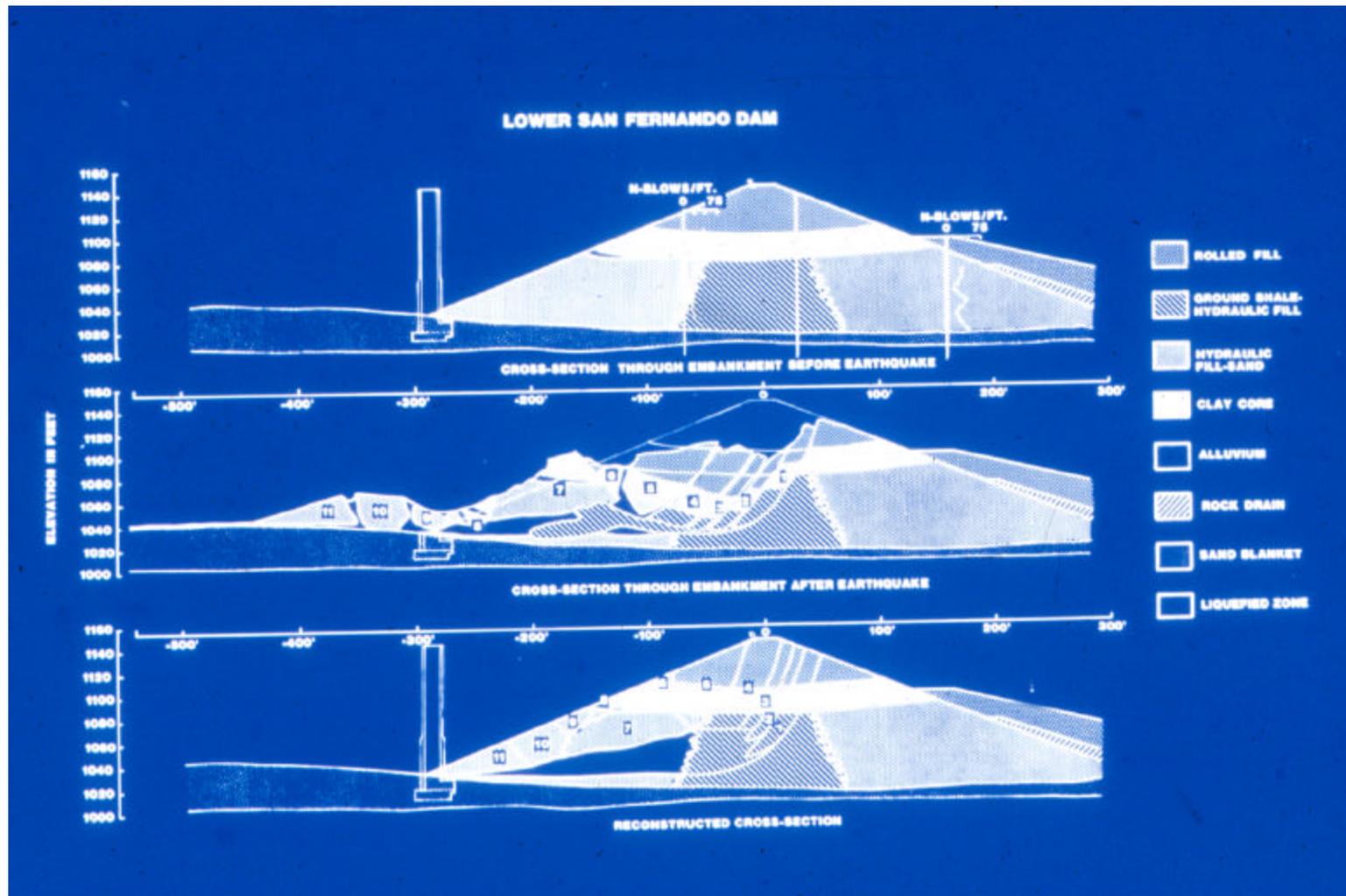
Lower San Fernando Dam



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Failure of Lower San Fernando Dam



Construction of Sardis Dam



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Hydraulic Fill of Sardis Dam



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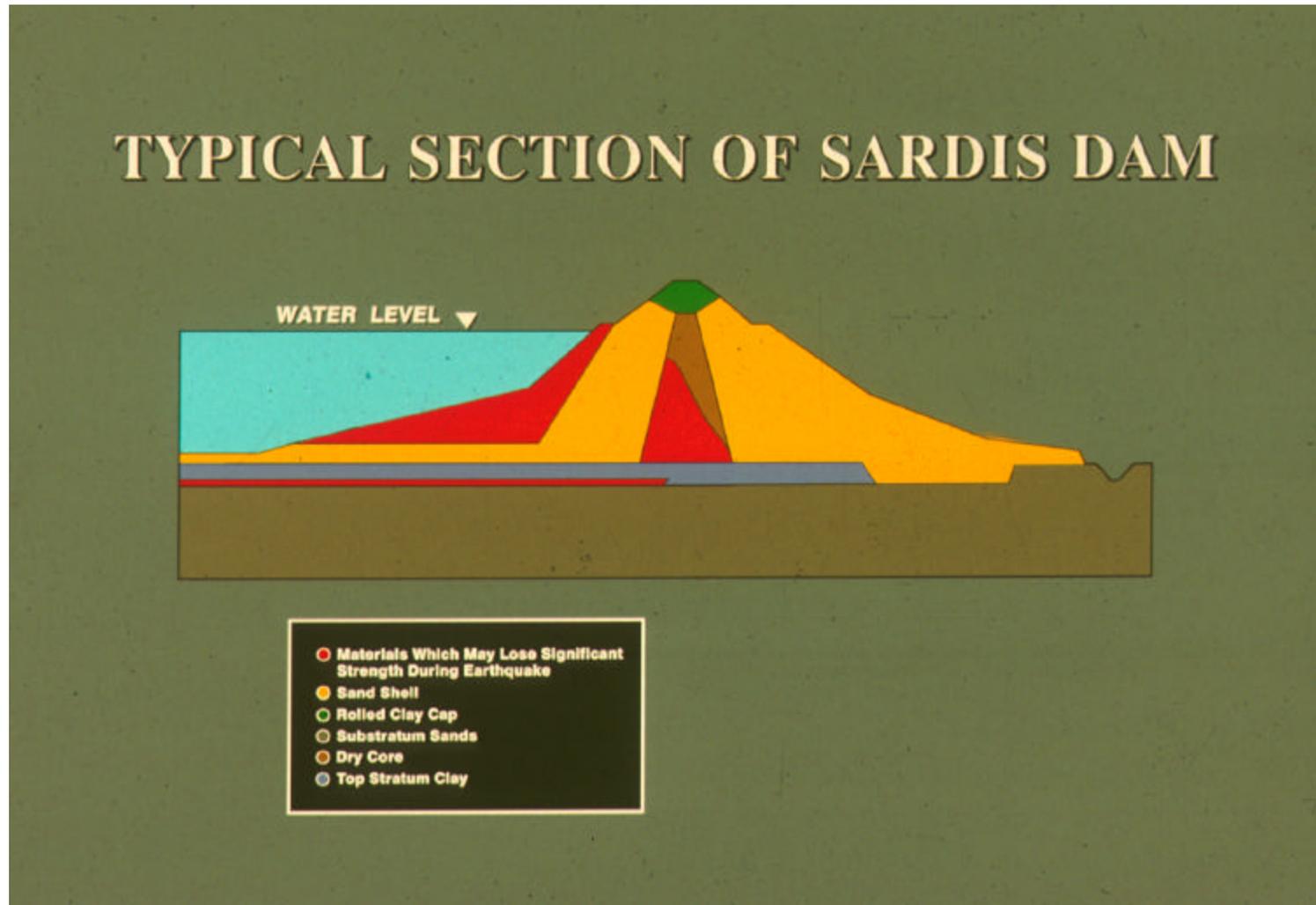
Original Remediation



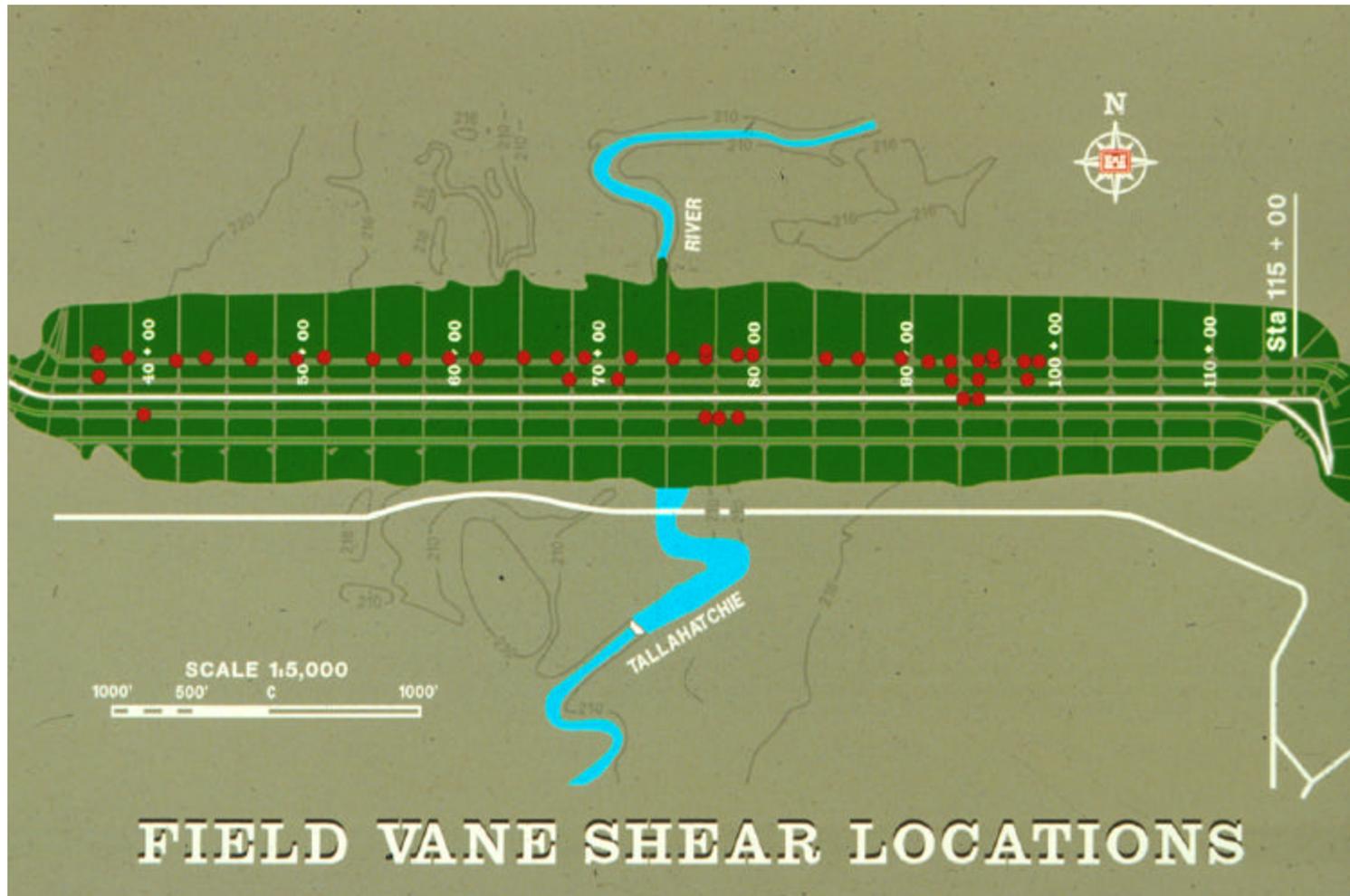
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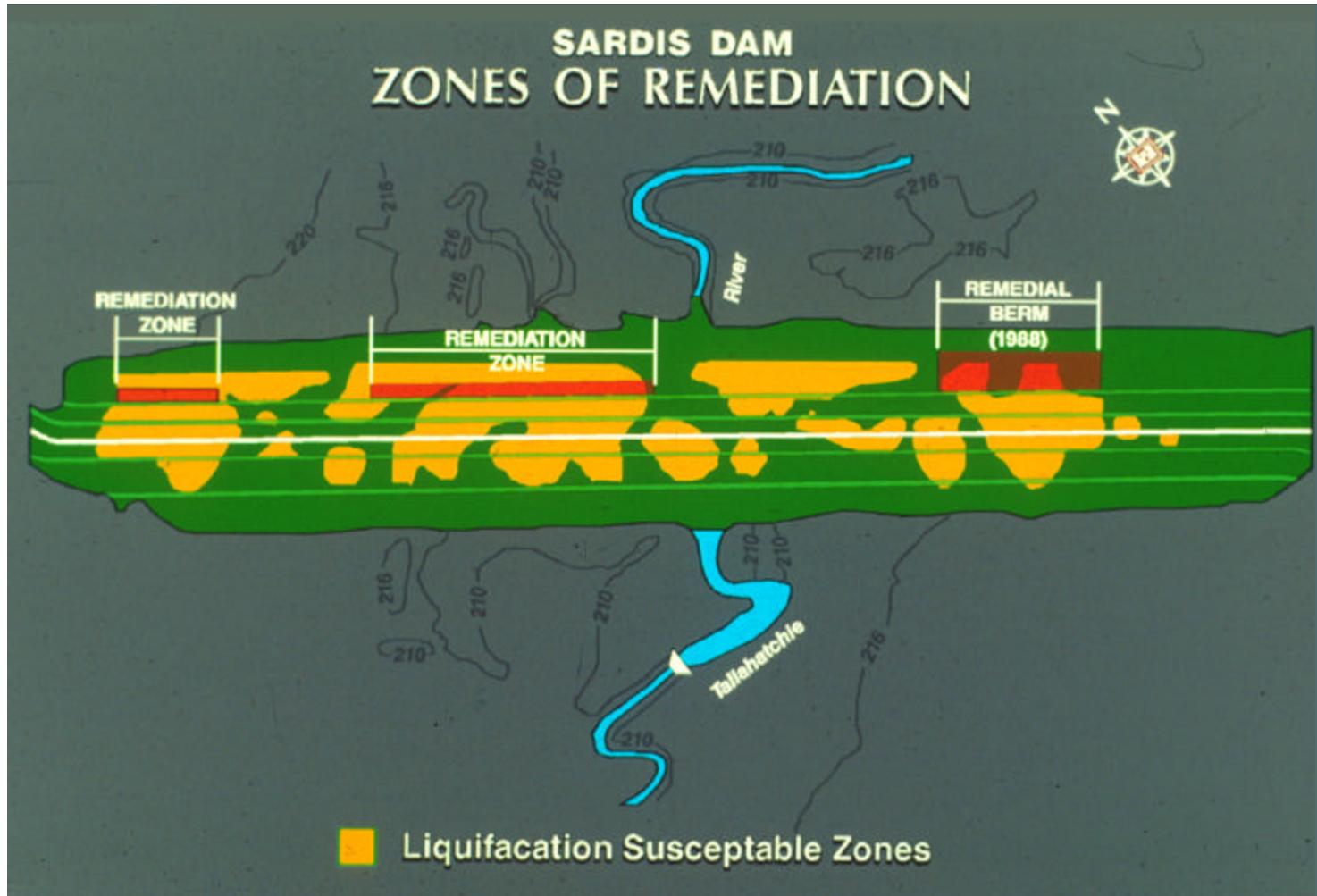
Typical Cross Section



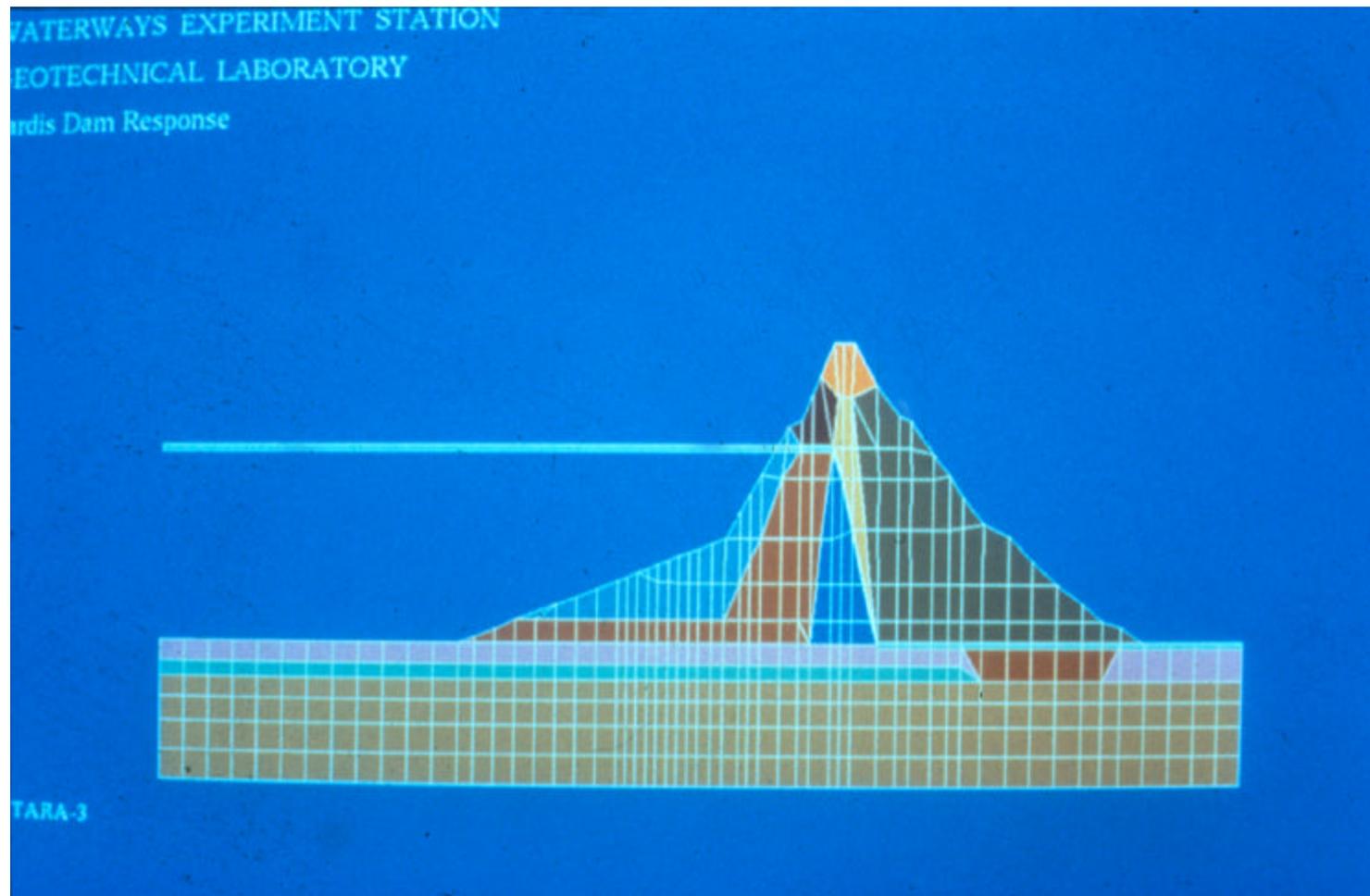
Field Investigations



Zones of Remediation



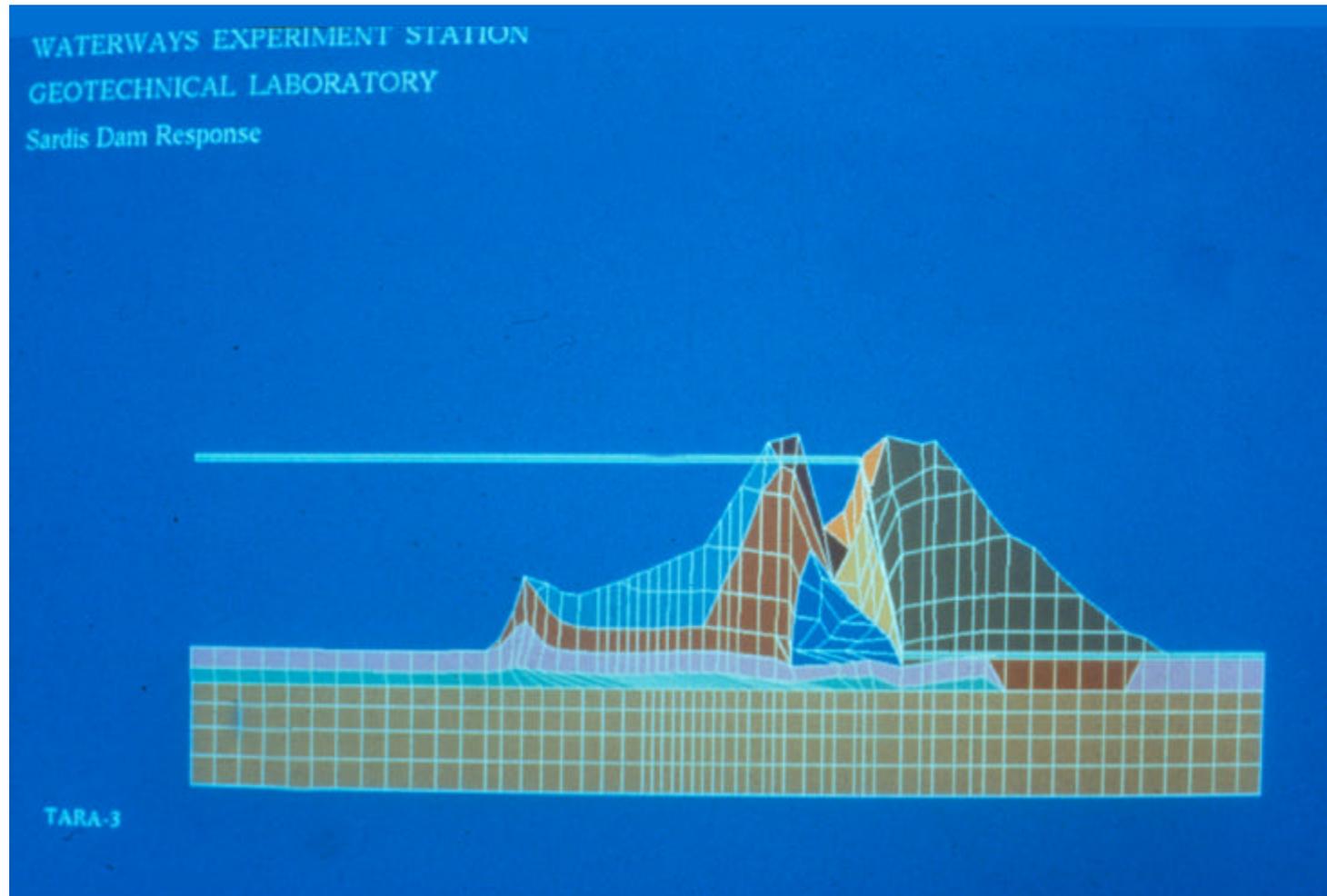
Numerical Model



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Numerical Results



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Consultants

Project Consultants (Remedial Requirements)

- 1.) **Woodward Clyde Consultants,
Oakland, California**
- 2.) **Dr. Liam Finn University of
British Columbia**
- 3.) **Dr. Jim Mitchell University
of California, Berkeley**
- 4.) **Dr. I. M. Idriss, University
of California, Davis**



Remediation Options

ALTERNATIVE REMEDIAL METHODS - SARDIS DAM

- **Vibro-Grouted Stone Columns**
- **Deep Soil Mixing**
- **Cast-in-Place Piles**
- **Driven Piles**



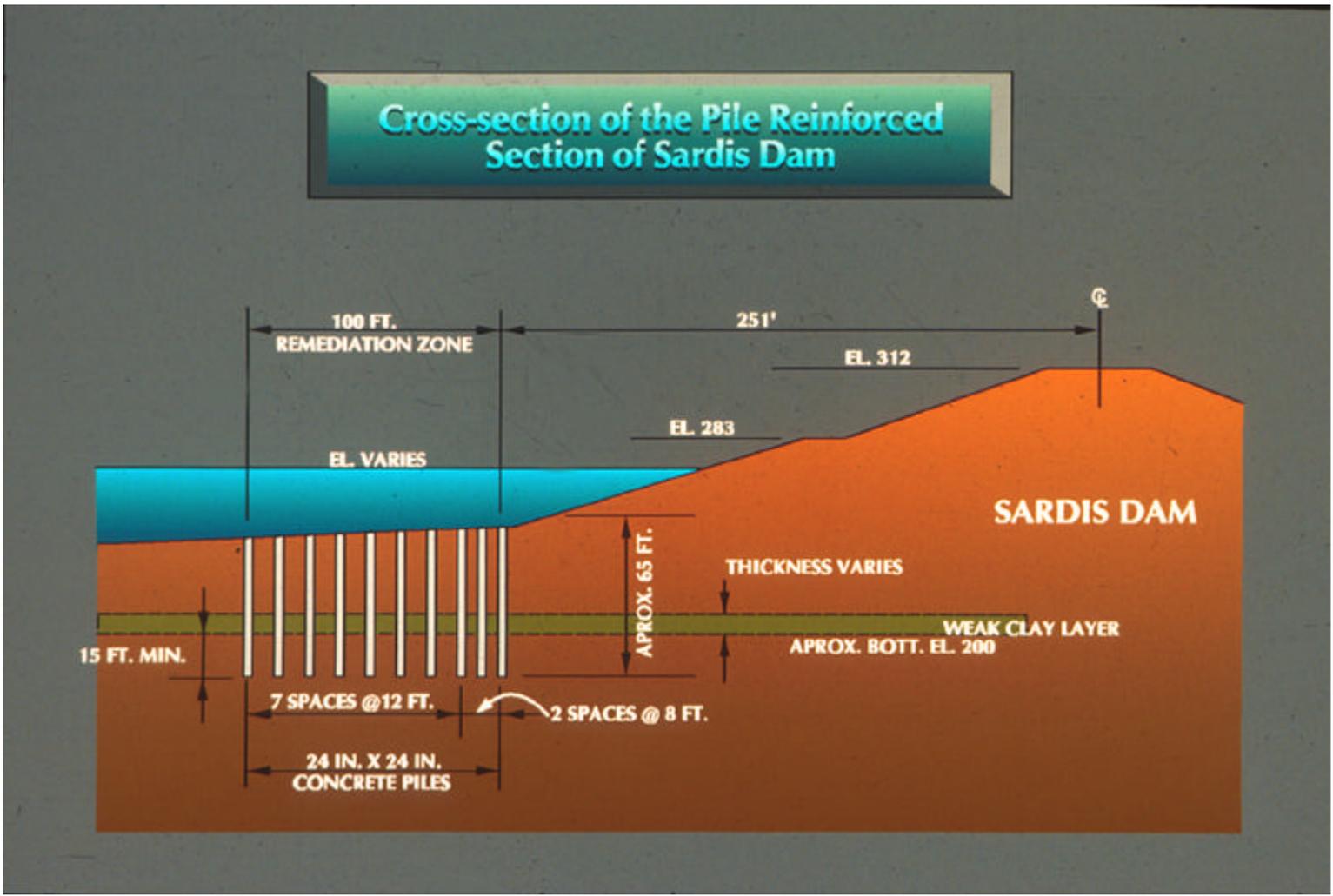
Finite Element Programs

**2-D and 3-D Finite Element Analyses
Were Utilized to Design Pile Layout,
Spacing, Size, and Length.**

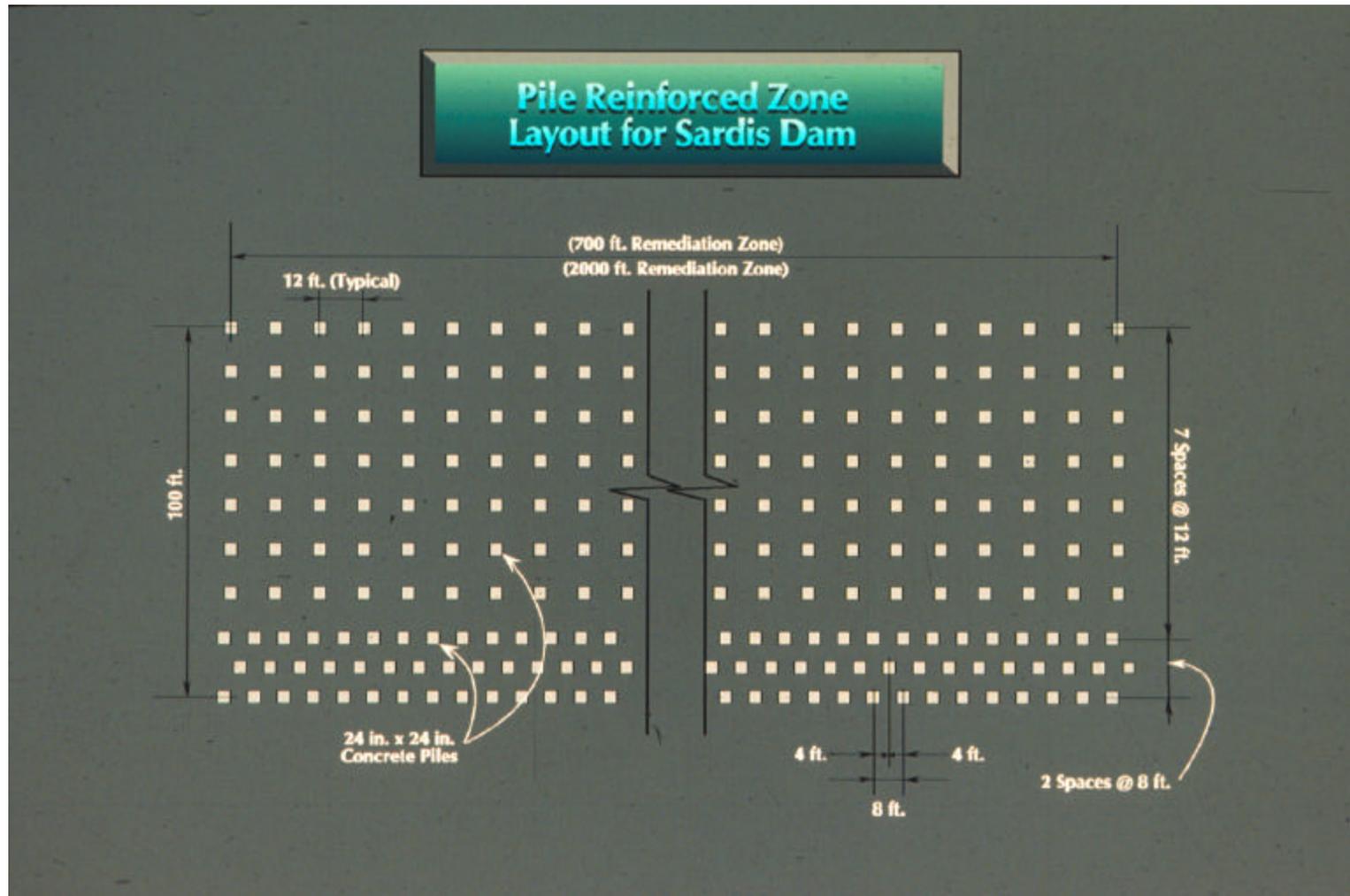
- 1.) ABACUS**
- 2.) SSCOMP**
- 3.) TARA 3 FL**



Remediation Plan



Pile Layout



Pile Description

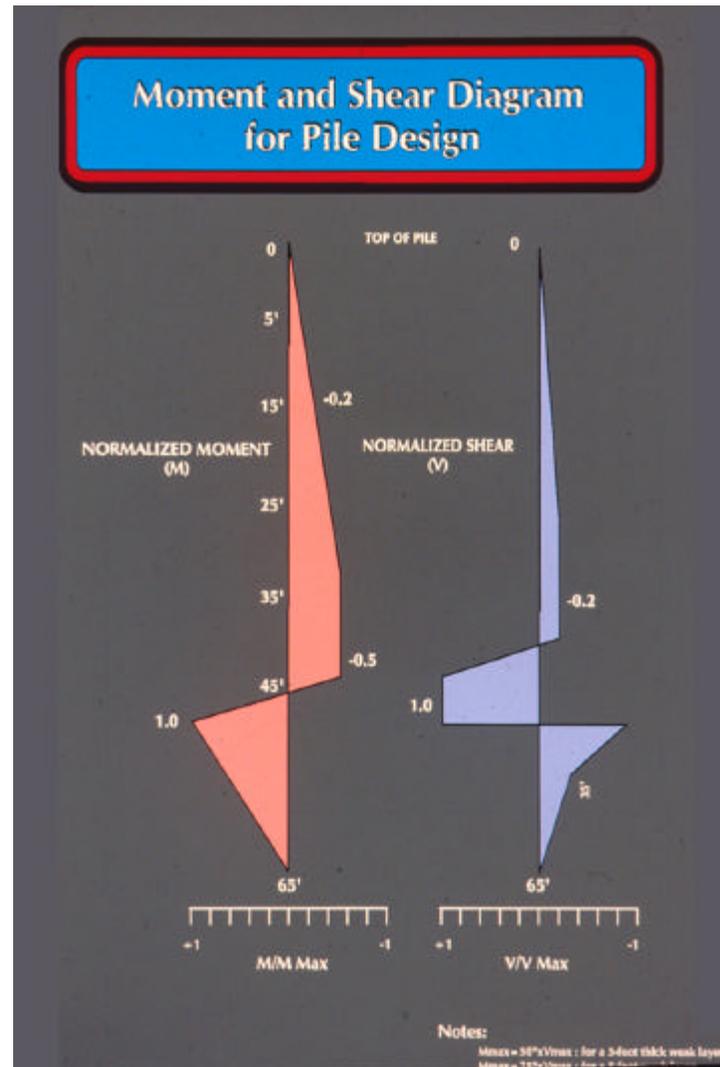
Sardis Dam Foundation Modification

Project Features

- 2594 Piles
- 24 inch square
- 55 to 65 feet long
- 10 pile rows
 - First 3 rows - piles spaced at 8 feet
 - Last 7 rows - piles spaced at 12 feet



Pile Design



Construction



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Pile Placement



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Pile Construction



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More Piles !



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Successful Remediation



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