

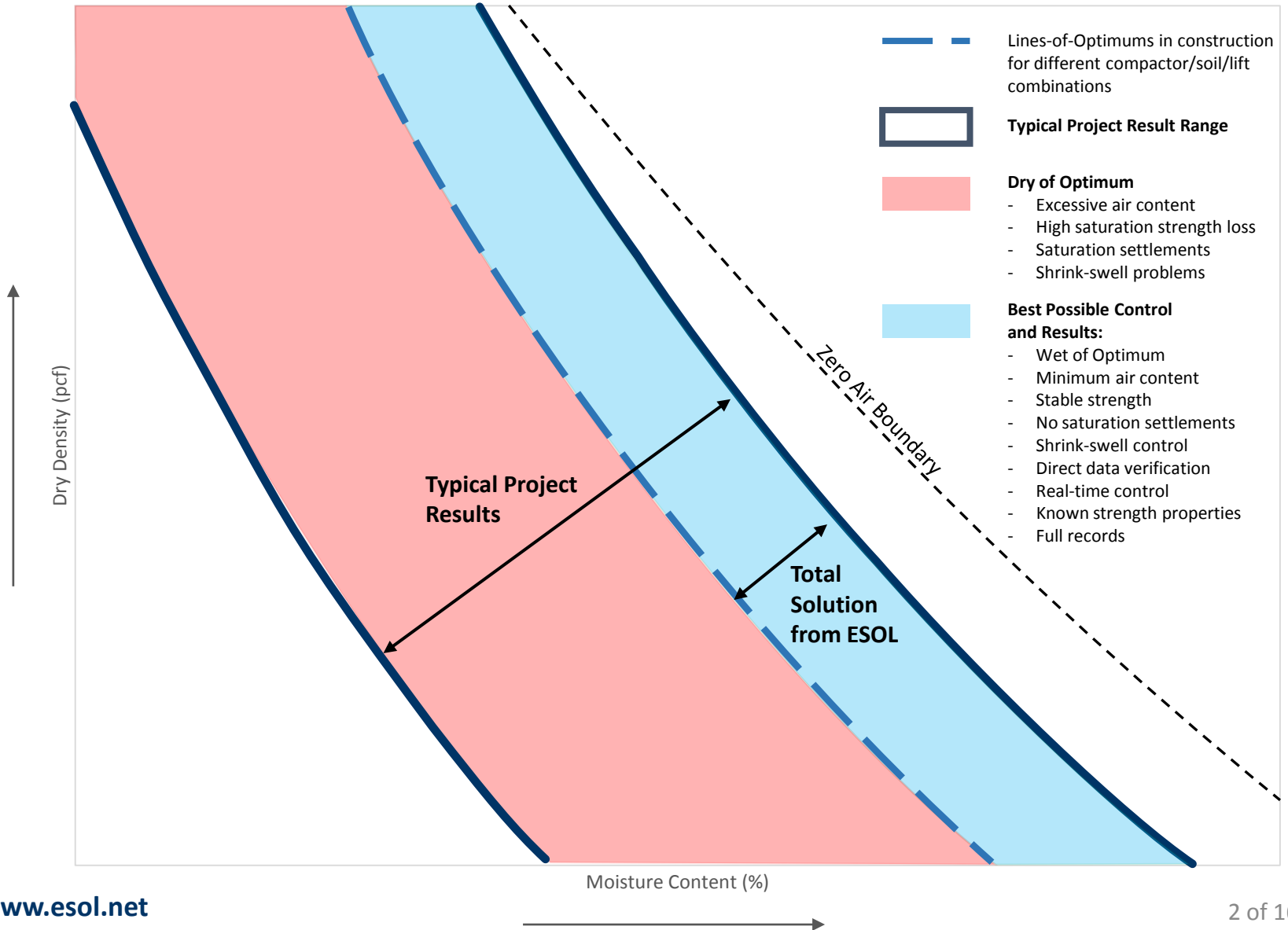
# Typical Case Projects

**“Before & After” Project Controls and Results  
Illustrating a Variety of Projects and Fills**

## Total Solutions From ESOL

# Typical Construction Results on All Infrastructure Projects

Typical Process Control Unknowns: Field Lines-of-Optimums, Lift Optimums, Compacted Fill Properties – ZAV Lines Usually Assumed



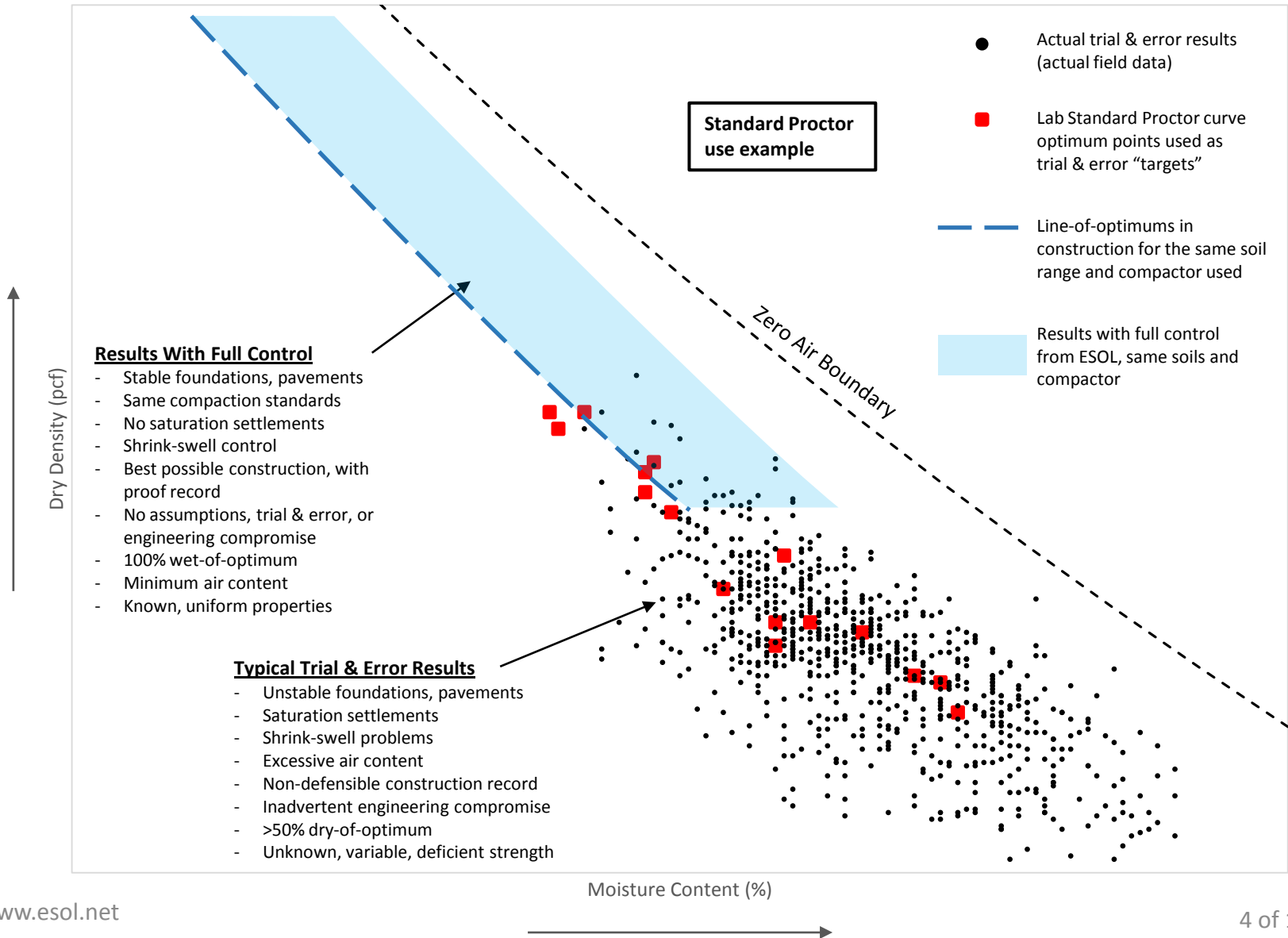
# **Illustrations of Typical Results on All Projects**

## **Comparison of “Before & After” Problems vs Solutions**

**Illustrating Several Scenarios**

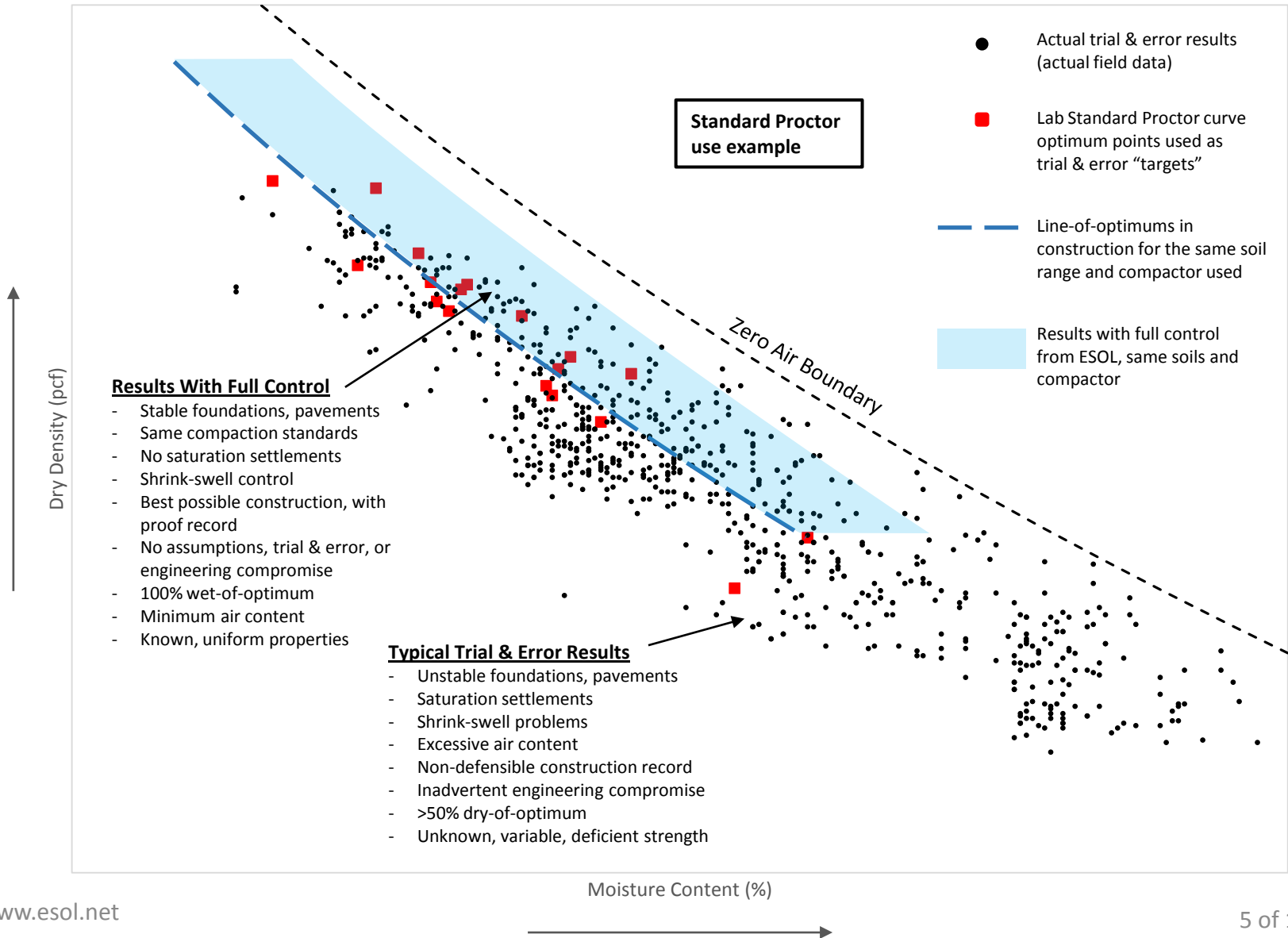
# “Before & After” Comparison of Controls and Actual Construction Results – Typical All Projects

Project: Lean Clay Embankment for a Large Industrial Containmentment



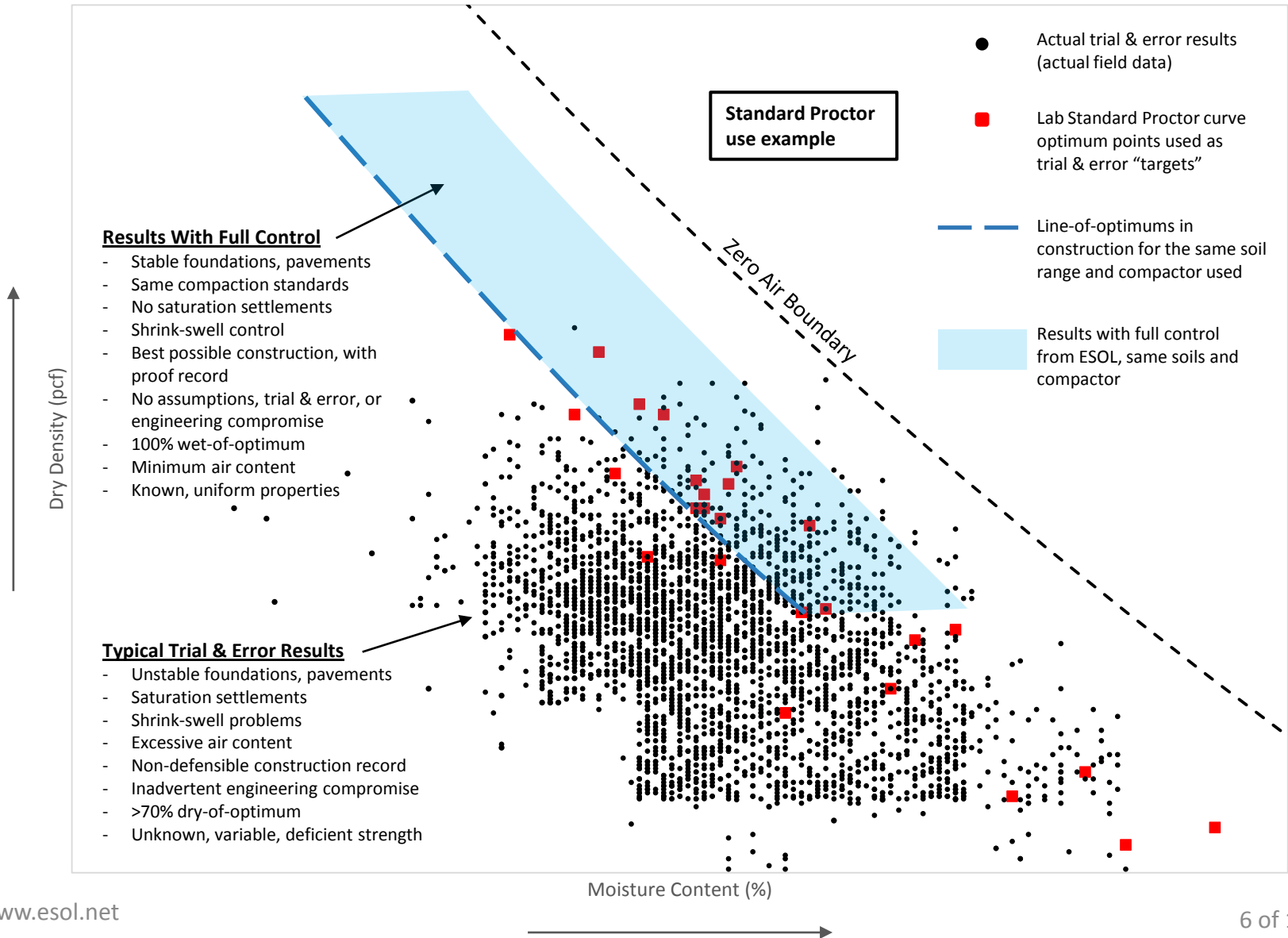
# "Before & After" Comparison of Controls and Actual Construction Results – Typical All Projects

Project: Fat Clay Containment Berm for a Large Industrial Pond



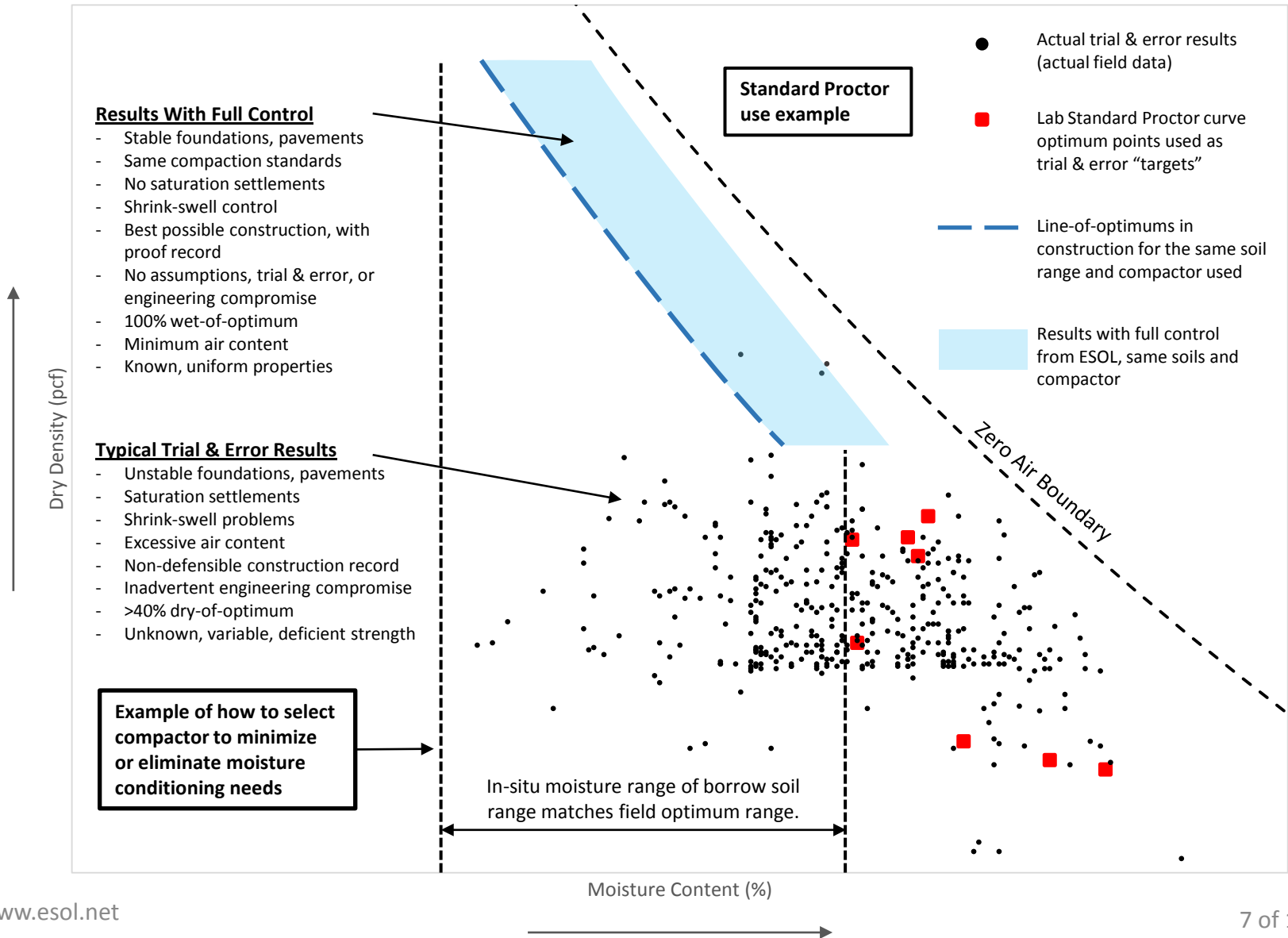
# "Before & After" Comparison of Controls and Actual Construction Results – Typical All Projects

Project: Grade Raise Fills for a Power Plant



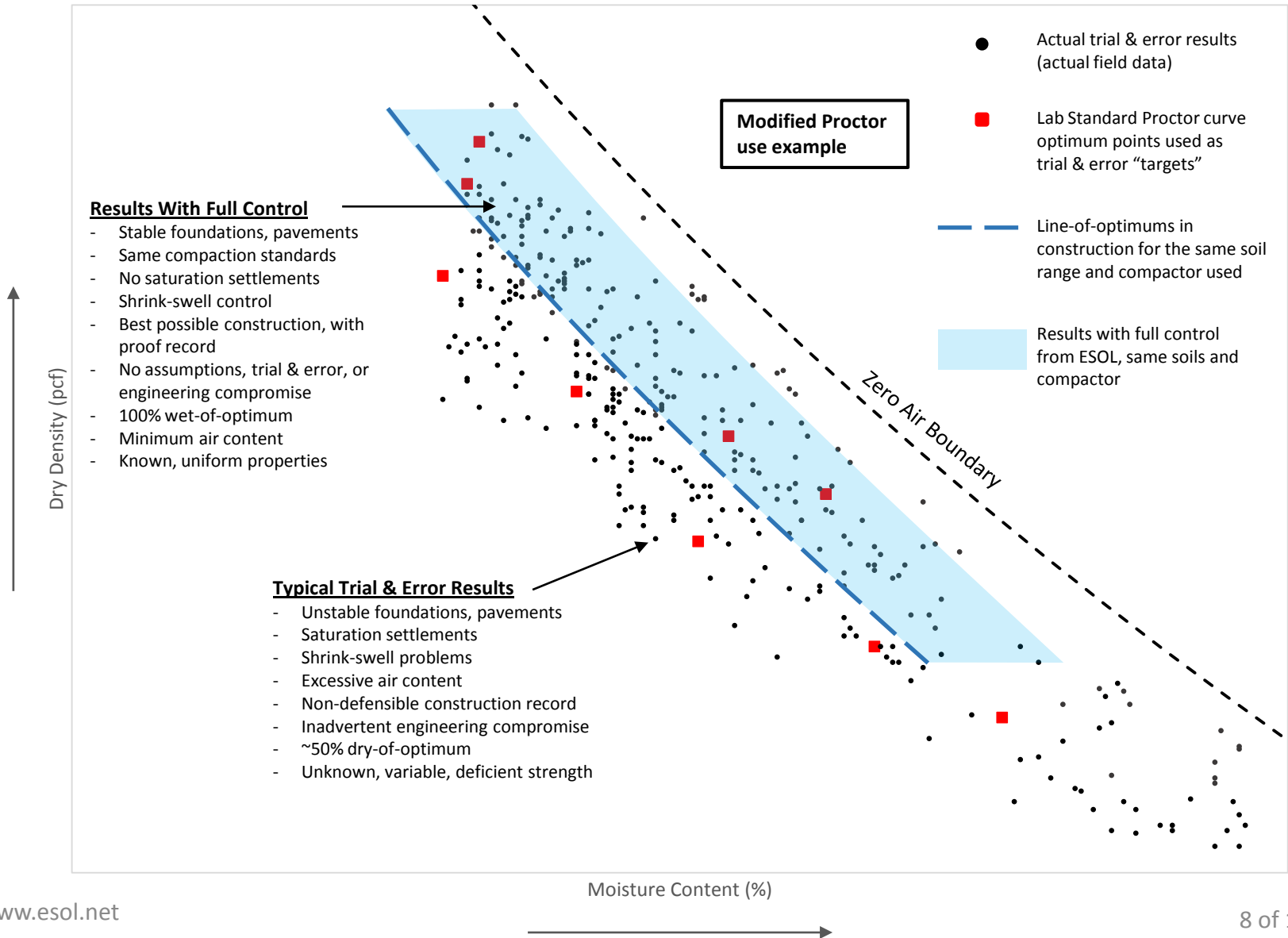
# "Before & After" Comparison of Controls and Actual Construction Results – Typical All Projects

## Project: Foundation Fills for a Manufacturing Plant



# "Before & After" Comparison of Controls and Actual Construction Results – Typical All Projects

Project: Embankment for a Railroad



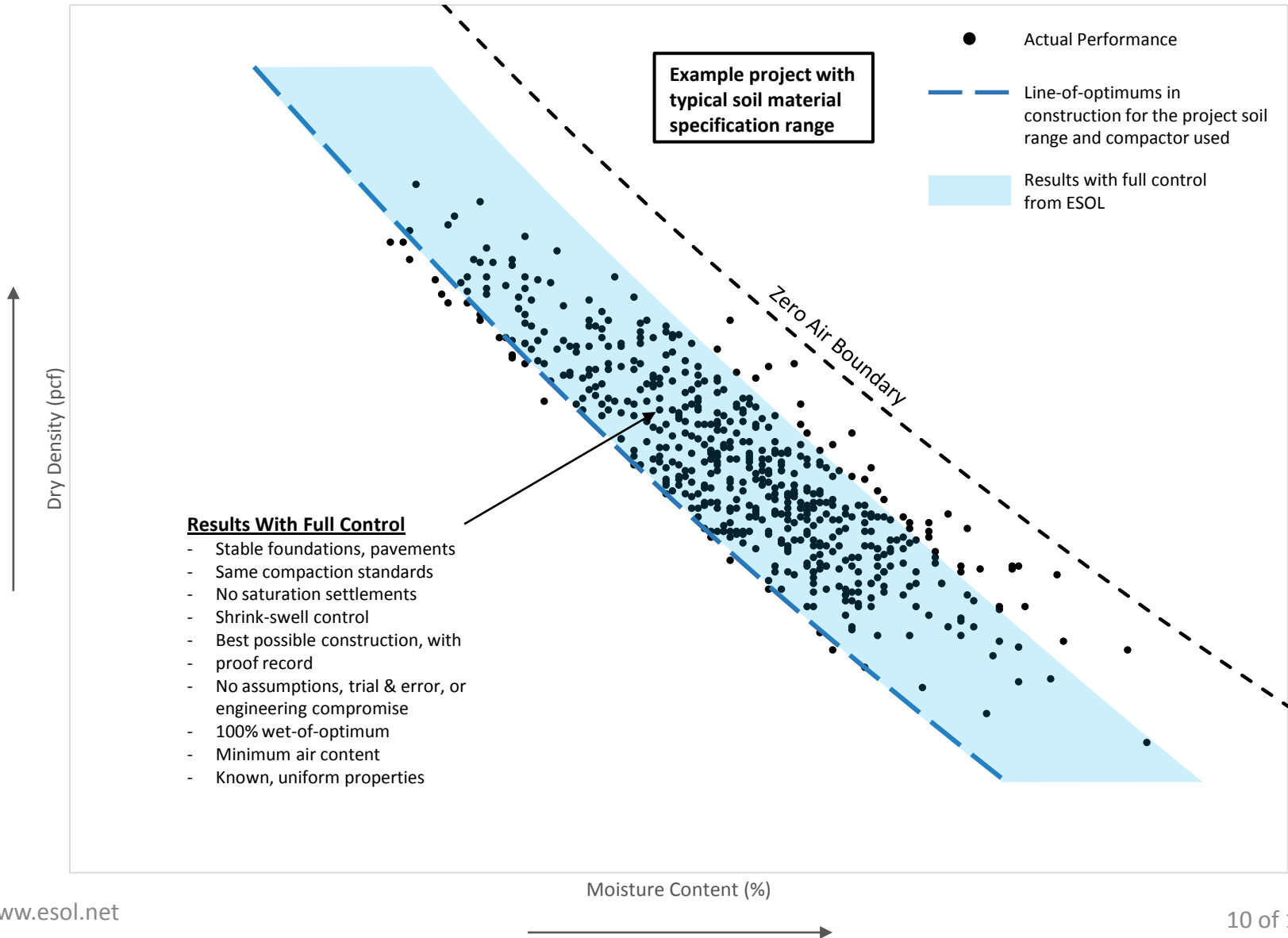


# **Illustrations of Typical Results with Full Control (for All Parties)**

**Typical Data Results with Total  
Solutions - No Assumptions, Trial &  
Error or Engineering Compromise**

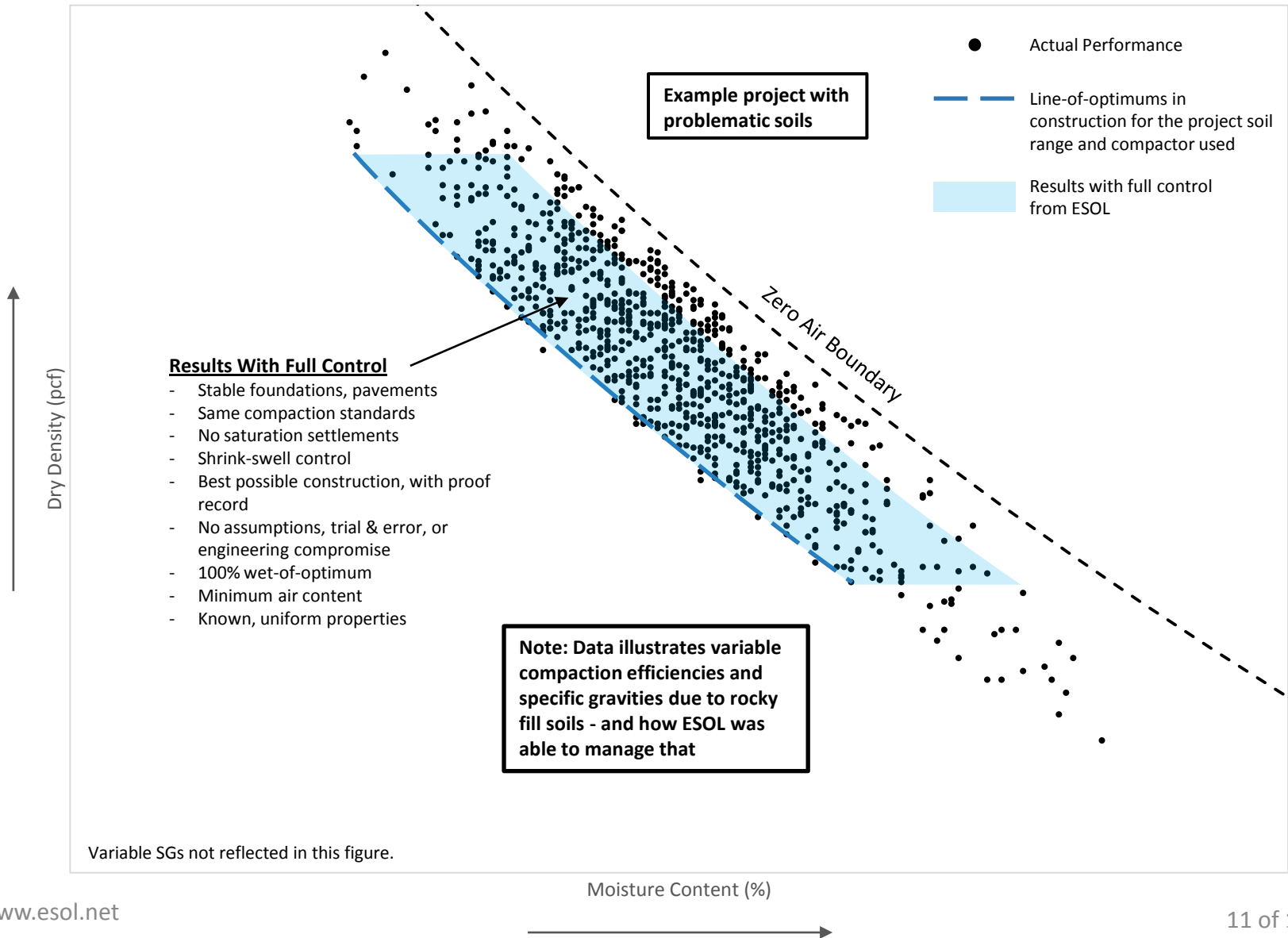
# Typical Results with Full Control and Suitable Soils – Typical All Projects

Project: Grade Raise Fills for a Chemical Plant Expansion (Typical Material Spec Range)



# Typical Results with Full Control and Problematic Soils – Typical All Projects

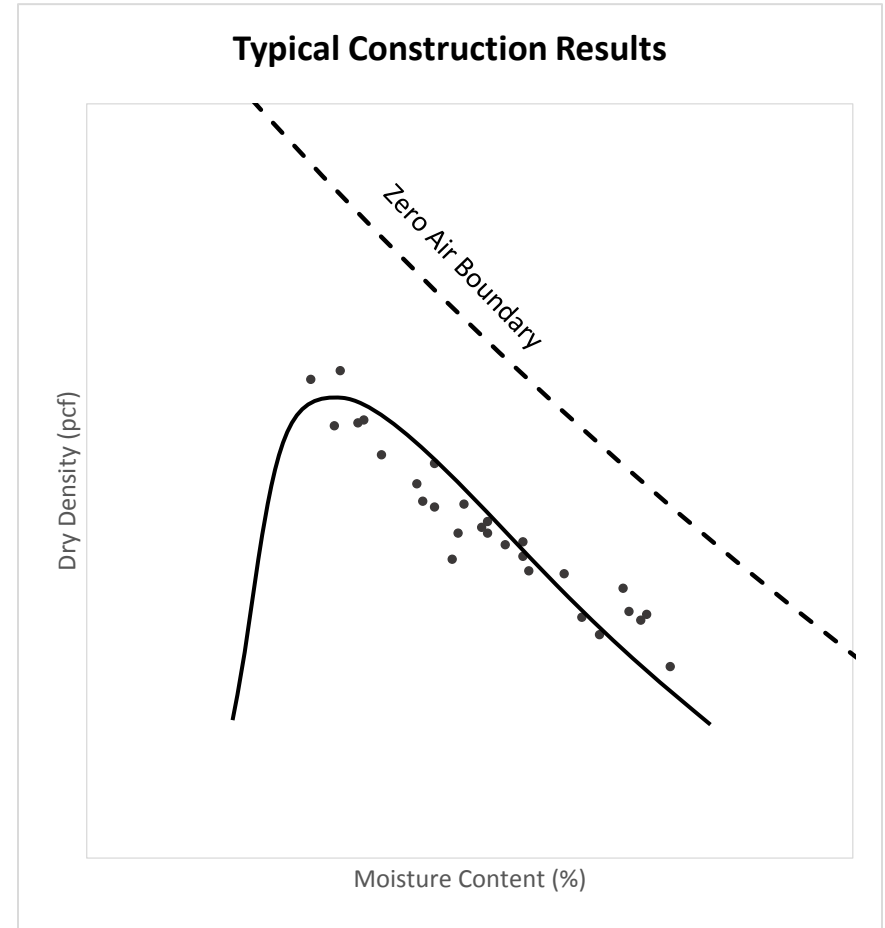
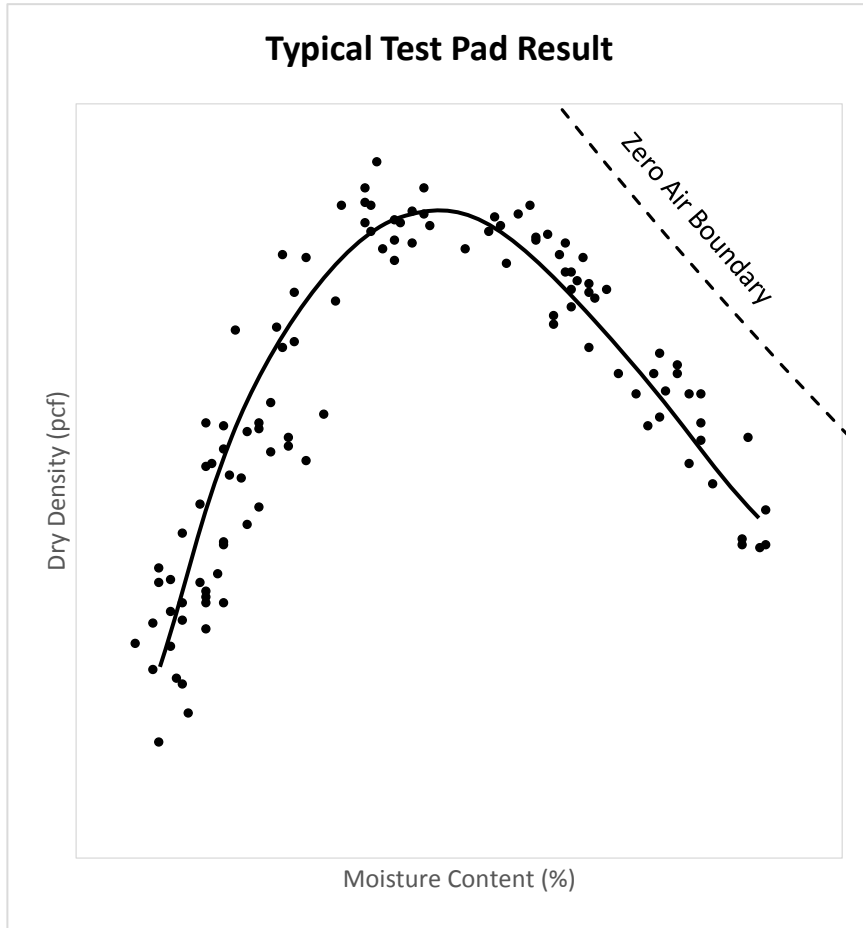
Project: Heavy Rocky/Highly Variable Fills for a Highway Embankment (Example with Problematic Soil Type)



# **Typical Controls with the Compaction Curves in Construction**

## **Typical Results Verified by Direct-Data from Routine Monitoring**

# Typical Control Results vs. the Actual Compaction Curves in Construction

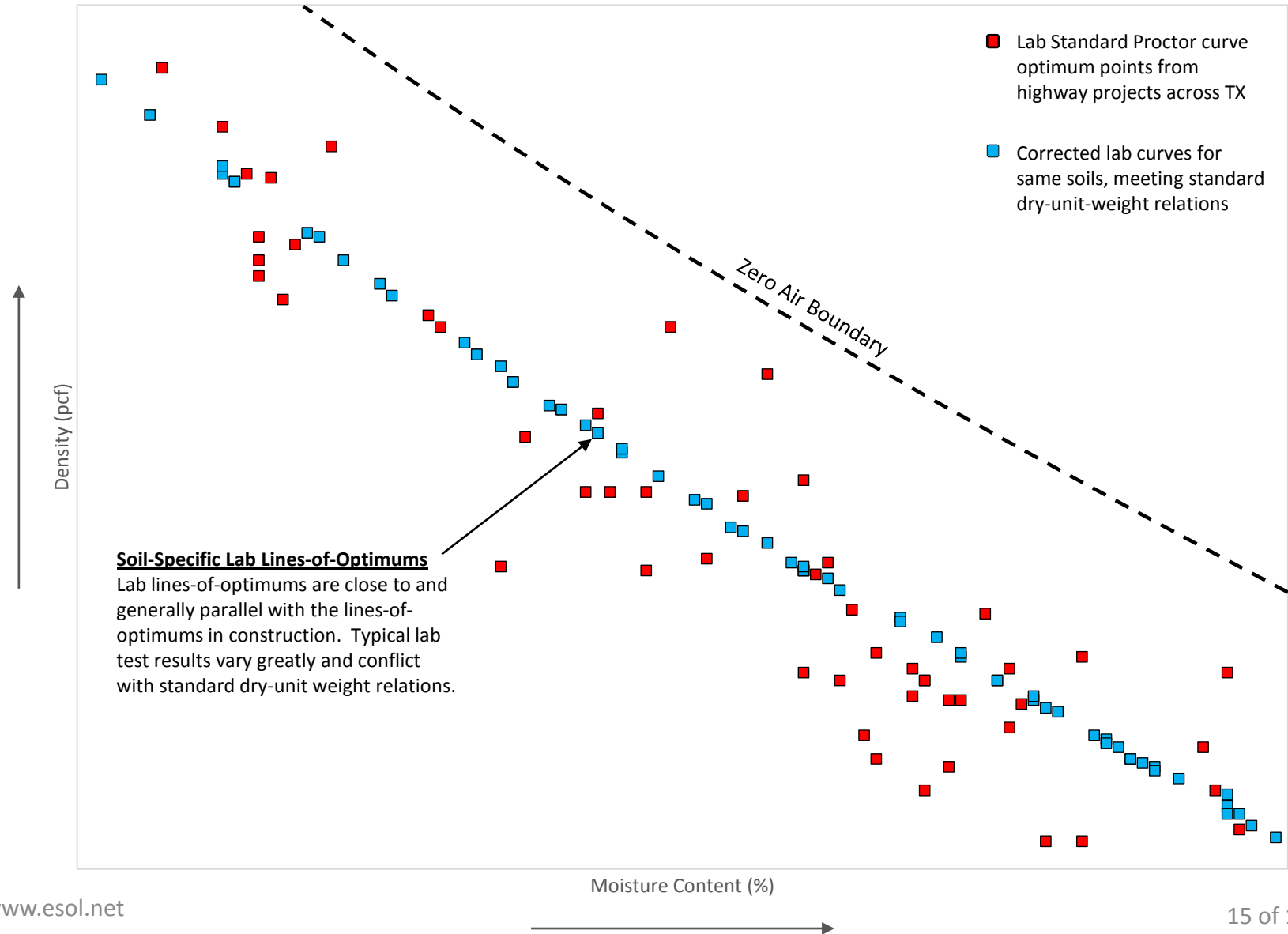


# **Typical Lab Curve Comparisons on All Projects**

**Inadvertent Source of  
All Problems on All Projects**

# Typical Lab Curve Comparisons on All Projects

Typical lab curves used as trial & error "targets" vs. lab curves for the same soils corrected according to standard dry-unit weight relations



# Typical Lab Compaction Test Results in Terms of Air Content (Na)

Lab curve optimums / AMRL centroids vs SSCE<sup>®</sup> corrected optimums (complying with standard dry-unit weight relations)

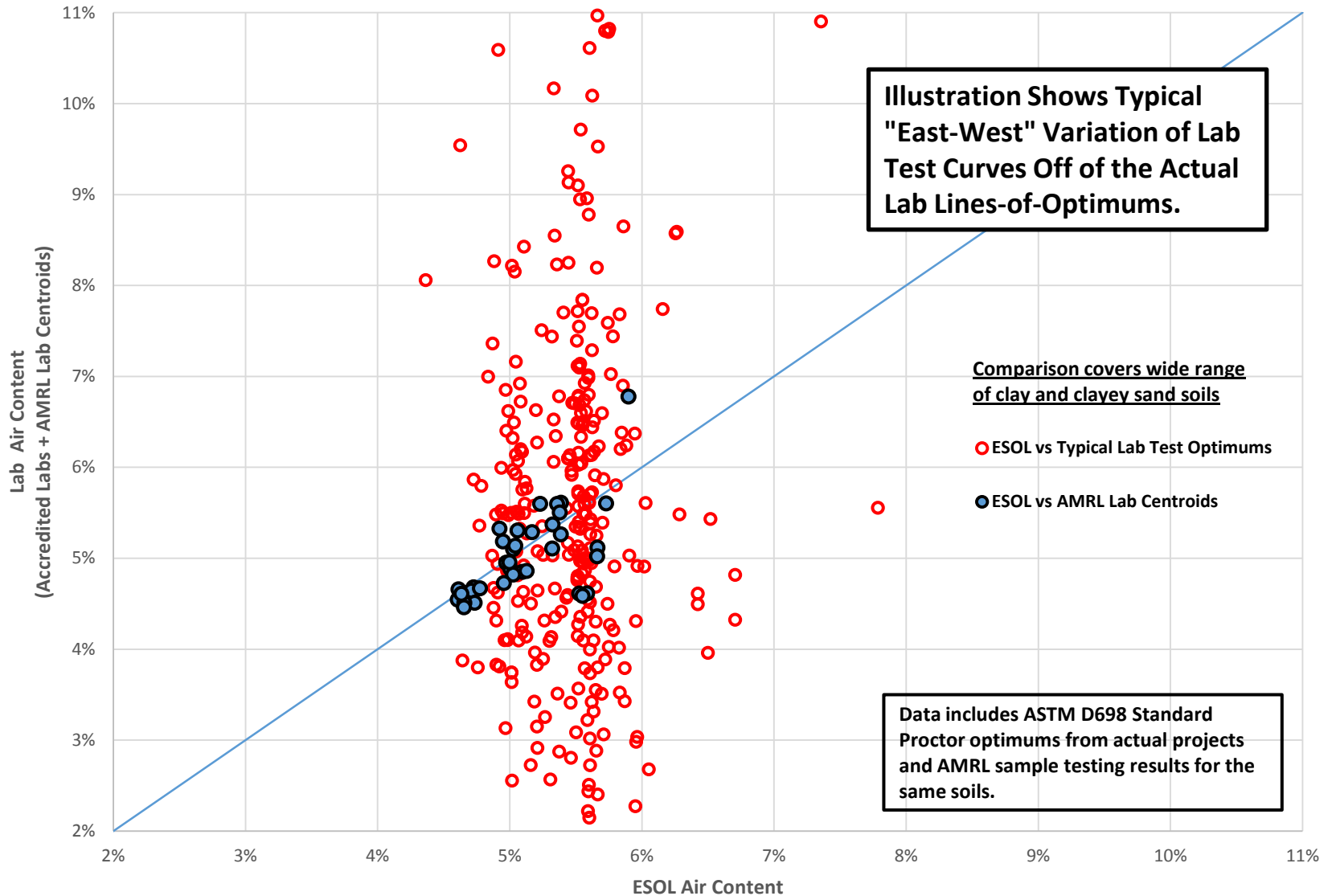


Illustration Shows Typical "East-West" Variation of Lab Test Curves Off of the Actual Lab Lines-of-Optimums.

Comparison covers wide range of clay and clayey sand soils

- ESOL vs Typical Lab Test Optimums
- ESOL vs AMRL Lab Centroids

Data includes ASTM D698 Standard Proctor optimums from actual projects and AMRL sample testing results for the same soils.