

**BOWSER-MORNER, INC. - GEOTECHNICAL LABORATORY**  
**2011a Laboratory Testing Fees - Soil and Rock**  
**AASHTO/ISO 17025 ACCREDITED • AASHTO R 18 ACCREDITED • USACE VALIDATED**



*Add 20% for samples recovered from C or D level hazard sites. Samples recovered from A or B sites will be considered on a case by case basis.*

| <b>Miscellaneous Fees</b>               |               |
|---|---------------|
| Sampling - Time                         | \$60.00/Hour  |
| Sampling - Mileage                      | \$0.60/Mile   |
| Consultation, Senior Geologist/Engineer | \$125.00/Hour |

| <b>Texture Plasticity, and Density Properties</b>      |          |
|--|----------|
| 1. Moisture Content (D 2216)                           | \$9.50   |
| 2. Atterberg Limits                                    |          |
| a. Plasticity Index (D 4318)                           | \$90.00  |
| b. Liquid Limit or Plastic Limit Only                  | \$75.00  |
| c. Shrinkage Limit (D 427)                             | \$400.00 |
| 3. Specific Gravity (D 854)                            | \$70.00  |
| 4. Particle-Size Analysis (jar sample, D 422, D 1140)  |          |
| a. Sieve & Hydrometer (cohesive soils)                 | \$140.00 |
| b. Sieve Only - thru No. 200 (granular soils)          | \$85.00  |
| c. Sieve Only - thru No. 635 Sieve                     | \$125.00 |
| d. Bank run samples (bag sample, long-graded)          | \$170.00 |
| 5. Compaction Characteristics                          |          |
| a. Standard Proctor - 5 Points (D 698)                 | \$185.00 |
| b. Modified Proctor - 5 Points (D 1557)                | \$185.00 |
| c. One Point Verification (D 698, D 1557)              | \$80.00  |
| d. Relative Density (D 4253 & D 4254)                  | \$380.00 |
| 6. Unit Weight (includes Moisture Content & Extrusion) |          |
| a. Direct Measurement (D 7263 - Method B)              | \$65.00  |
| b. Paraffin Method (D 7263 - Method A)                 | \$80.00  |

| <b>Identification and Classification</b>        |          |
|---|----------|
| 7. USCS Classification (D 2487)                 |          |
| a. Cohesive Soils (incl. D 422, D 2216, D 4318) | \$198.00 |
| b. Granular Soils (incl. D 422, D 2216)         | \$90.00  |
| 8. Visual Description                           |          |
| a. Quick-jar                                    | \$30.00  |
| b. Shelby Tube-log, moisture, extrusion         | \$50.00  |

| <b>Structural Properties</b>   |                      |
|--|----------------------|
| 9. Unconfined Compression - incl. Extrusion, Unit Wt., Load Curve (D 2166)   | \$90.00              |
| 10. One-Dimensional Consolidation (D 2435) incl. Specific Gravity (D 854)  |                      |
| a. E log p curve, incl. Time-settlement curves   | \$560.00             |
| b. Rebound and Reload - additional   | \$190.00             |
| 11. One-Dimensional Swell or Settlement Potential (D 4546)   |                      |
| a. Swell Pressure  | \$850.00             |
| b. Percent Swell   | \$850.00             |
| 12. 3D Consolidation (Triaxial Method)   | \$1,200.00           |
| 13. California Bearing Ratio, CBR (D 1883), one pair each additional point   | \$230.00<br>\$130.00 |
| 14. Direct Shear Testing, per 3 pts, incl. Extrusion, unit wt, & moisture  |                      |
| a. Direct Shear, Drained (D 3080)  | \$640.00             |
| b. Residual Direct Shear (EM-1110-2-1906, IXA)   | \$1,400.00           |
| 15. Triaxial Testing, per 3 points, incl. Extrusion, Unit Wt., and Moisture  |                      |
| a. Unconsolidated-Undrained (Q, UU), (D 2850)  | \$450.00             |
| b. Consolidated-Undrained (R, CU, CU <sub>PP</sub> ), (D 4767) includes:<br>back pressure saturation and pore pressure | \$950.00             |
| c. Remolding specimens, per set of 3   | \$300.00             |

| <b>Hydraulic Properties</b>                            |            |
|--|------------|
| 16. Laboratory Hydraulic Conductivity (Permeability)   |            |
| a. Flexible-Wall, Cohesive Soils (D 5084)              |            |
| i. Undisturbed   | \$320.00   |
| ii. Remolded   | \$390.00   |
| iii. With confining pressure, additional               | \$50.00    |
| b. Rigid-Wall, granular soils (D 2434) incl. Remolding | \$290.00   |
| 17. Gradient Ratio (D 5101)                            | \$1,200.00 |

| <b>Physico-Chemical Properties</b>                 |          |
|--|----------|
| 18. pH (D 4972)                                    | \$45.00  |
| 19. a. CEC; EPA Method 9080A (Ammonium Acetate)    | \$180.00 |
| b. CEC; EPA Method 9081A (Sodium Acetate)          | \$180.00 |
| 20. a. Percent Organic - Loss on Ignition (D 2974) | \$62.00  |
| b. Wet Combustion; Potassium Dichromate (T 194)    | \$160.00 |
| 21. Total Organic Carbon (EPA Method 9060A)        |          |
| a. EPA Method 9060A                                | \$80.00  |
| b. Walkley-Black Method                            | \$80.00  |
| 22. Resistivity, Lab (G 187, T 288)                | \$220.00 |
| 23. Water Soluble Sulfate Ion (AASHTO T 290)       | \$70.00  |
| 24. Water Soluble Chloride Ion (AASHTO T 291)      | \$70.00  |
| 25. Sample Prep for items 23 & 24                  | \$60.00  |
| 26. Agricultural Analysis                          | \$160.00 |
| 27. X-Ray Diffraction/Mineralogy                   | \$200.00 |

| <b>MSE Wall Parameters</b>   |          |
|--|----------|
| 28. a. Sieve Analysis (ASTM C 136, D 422, D 1140, T 27, T 88)          | \$85.00  |
| b. Long-Graded Sieve (ASTM C 136, D 422, D 1140, T 27, T 88)           | \$140.00 |
| 29. Compaction Characteristics, Std. Proctor (D 698 or T 99):          | \$185.00 |
| 30. Direct Shear Testing, per 3 pts, incl. remolding (D 3080 or T 236) | \$640.00 |
| 31. Hydraulic Conductivity (Permeability), (D 2434 or T 215)           | \$290.00 |
| 32. Resistivity, Lab (ASTM G 187 or AASHTO T 288)                      | \$220.00 |
| 33. pH (D 4972 or T 289)   | \$45.00  |
| 34. Water Soluble Sulfate Ion (ASTM D 516, AASHTO T 290)               | \$70.00  |
| 35. Water Soluble Chloride Ion (ASTM D 512, AASHTO T 291)              | \$70.00  |
| 36. Sample Prep for items 34 & 35                                      | \$60.00  |
| 37. Loss on Ignition (LOI) (ASTM D 2974, AASHTO T 267)                 | \$62.00  |
| 38. Plasticity Index (ASTM D 4318, AASHTO T 89, T 90)                  | \$90.00  |
| 39. 4-Cycle Magnesium Sulfate Soundness (req'd by FHWA)                | \$340.00 |

| <b>Rock Mechanics</b>                                 |          |
|---|----------|
| 40. Compressive Strength (D 2938/ D 7012 Procedure C) | \$80.00  |
| 41. Splitting Tensile Strength (D 3967)               | \$120.00 |
| 42. Indirect Diametrical Strength (Brazilian)         | \$120.00 |
| 43. Cut/Prep Core Specimen (D 4543)                   | \$60.00  |

| <b>Rock Weathering (Riprap/Armor Stone)</b>                  |            |
|--|------------|
| 44. Slake Durability ( D 4644)                               | \$88.00    |
| 45. Jar Slake Durability (KM 64-514)                         | \$60.00    |
| 46. Freeze Thaw (D 5312, CRD-C 144)                          | \$850.00   |
| 47. Wet Dry (D 5313, CRD-C 169)                              | \$850.00   |
| 48. Soundness-Slab Method (D 5240)                           | \$850.00   |
| 49. Petrographic Examination (C 295/ D 4992)                 | \$1,500.00 |
| 50. Specific Gravity/Absorption (D 6473)                     | \$120.00   |
| 51. Adsorption/Absorption Ratio                              | \$120.00   |
| 52. Sample Prep for items 46 & 47 (cut/ trim slabs) (D 5121) | \$300.00   |

| <b>Soil-Cement/Cement Treated Base/Lime-Stabilized Mixes</b> |            |
|--|------------|
| 53. Mix Design (5 Percentages), incl 15 strength spec's      | \$1,800.00 |
| 54. Wet-Dry Durability (D 559)                               | \$1,400.00 |
| 55. Freeze-Thaw Durability (D 560)                           | \$1,400.00 |
| 56. Compressive Strength (D 558), per specimen               | \$60.00    |

| <b>Mailing Address:</b>   | <b>Shipping Address:</b>   | <b>Contact Person:</b>   | <b>Alternate Contacts:</b>   |  |
|---|--|--|--|--|
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