Laboratory Tests and Methods

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

TEST	METHOD
Soils	
Atterberg Limits	D 4318, CT 204, T 89, T 90
California Bearing Ratio (CBR)	D 1883
Chloride and Sulfate Content	CT 417 & CT 422
Consolidation	D 2435
Consolidation – Time Rate	D 2435
Direct Shear – Remolded	D 3080
Direct Shear – Undisturbed	D 3080
Durability Index	CT 229
Expansion Index	D 4829
Expansion Potential (Method A)	D 4546
Expansive Pressure (Method C)	D 4546
Geofabric Tensile and Elongation Test	D 4632
Hydraulic Conductivity	D 5084
Hydrometer Analysis	D 7928, CT 203
Moisture, Ash, & Organic Matter of Peat/Organic Soils Moisture Only	D 2216, CT 226
Moisture and Density	D 2937, D 2216 (moisture), T 265 (moisture)
Permeability, CH	D 2434, CT 220
pH and Resistivity	D 4972 (pH), CT 643, T 289 (pH)
Proctor Density	D 1557, D 698, CT216, & AASHTO T-180, T 99
R-value	D 2844, CT 301
Sand Equivalent	D 2419, CT 217
Sieve Analysis	D 6913, CT 202
Sieve Analysis, 200 Wash	D 1140, CT 202
Specific Gravity	D 854, T 100
Thermal Resistivity	ASTM 5334, IEEE 442
Triaxial Shear, C.D	D 4767, T 297
Triaxial Shear, C.U., w/ pore pressure	D 4767, T 2297 per pt.
Triaxial Shear, C.U., w/o pore pressure	D 4767, T 2297 per pt.
Triaxial Shear, U.U.	D 2850
Unconfined Compression	D 2166, T 208
Wax Density	D 1188
Roofing	
Built-up Roofing, cut-out samples	D 2829
Roofing Materials Analysis	D 2829
Roofing Tile Absorption, (set of 5)	C 67
Roofing Tile Strength Test, (set of 5)	C 67

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TEST	METHOD
Masonry	
Brick Absorption, 24-hour submersion	C 67
Brick Absorption, 5-hour boiling	C 67
Brick Absorption, 7-day	C 67
Brick Compression Test	C 67
Brick Efflorescence	C 67
Brick Modulus of Rupture	C 67
Brick Moisture as received	C 67
Brick Saturation Coefficient	C 67
Concrete Block Compression Test, 8x8x16	C 140
Concrete Block Conformance Package	C 90
Concrete Block Linear Shrinkage	C 426
Concrete Block Unit Weight and Absorption	C 140
Cores, Compression or Shear Bond	CA Code
Masonry Grout, 3x3x6 prism compression	C 1019
Masonry Mortar, 2x4 cylinder compression	C 270
Masonry Prism, half size, compression	C 1314
Concrete	
Cement Analysis Chemical and Physical	C 114
Compression Tests, 6x12 Cylinder	C 39, T 22
Concrete Mix Design Review	Job Spec
Concrete Mix Design, per Trial Batch, 6 cylinder	C 192
Concrete Cores, Compression (excludes sampling)	C 42
Drying Shrinkage	C 157
Flexural Test	C 78, T 97
Flexural Test	C 293
Flexural Test	CT 523
Gunite/Shotcrete, Panels, 3 cut cores per panel and test	C 1604, C 1140
Lightweight Concrete Fill, Compression	C 495
Petrographic Analysis	C 856
Splitting Tensile Strength	C 496
Reinforcing and Structural Steel	
Fireproofing Density Test	E 605
Hardness Test, Rockwell	E 18, F 606
High Strength Bolt, Nut & Washer Conformance, set	A 325, A 490
Mechanically Spliced Reinforcing Tensile Test	CT 670
Pre-Stress Strand (7 wire)	A 416
Chemical Analysis	A 751, A 36
Reinforcing Tensile or Bend up to No. 11	A 615 & A 706
Structural Steel Tensile Test: Up to 200,000 lbs. (machining extra)	A 370
Welded Reinforcing Tensile Test: Up to No. 11 bars	CT 670
Asphalt Concrete	
Asphalt Mix Design	Caltrans/Greenbook
Asphalt Mix Design Review	Job Spec
Extraction, % Asphalt, including Gradation	D 2172, CT 382
Film Stripping	CT 302
Hveem Stability and Unit Weight	CTM or ASTM, CT 366
Marshall Stability, Flow and Unit Weight	T-245
Maximum Theoretical Unit Weight	D 2041
Swell	CT 305
Unit Weight sample or core	D 2726, CT 308

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Aggregates	
Absorption, Coarse	C 127
Absorption, Fine	C 128
Clay Lumps and Friable Particles	C 142
Cleanness Value	CT 227
Crushed Particles	CT 205
Durability, Coarse	CT 229
Durability, Fine	CT 229
Los Angeles Abrasion	C 131 or C 535
Mortar making properties of fine aggregate	C 87
Organic Impurities	C 40
Potential Reactivity of Aggregate (Chemical Method)	C 289
Sand Equivalent	CT 217
Sieve Analysis, Coarse Aggregate	C 136
Sieve Analysis, Fine Aggregate	C 136
Sodium Sulfate Soundness	C 88
Specific Gravity, Coarse	C 127
Specific Gravity, Fine	C 128

CONTACTS

Mark Reeser
Director of Construction Services
mreeser@ninyoandmoore.com

Kenneth Mansir, Jr., PE, GE
Principal Engineer/Construction Services
kmansir@ninyoandmoore.com

Tino Rodriguez
Principal/Construction Services
arodriguez@ninyoandmoore.com

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> *We have been super happy with the services we have been getting from Ninyo & Moore. It has been a really great partnership for the District and we look forward to continuing to do business with you.*
>
> - Steve Weddle, Engineering Supervisor
> Olivenhain Municipal Water District