

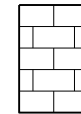
### Description of Soil Compactness or Consistency

SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF PENETRATION RESISTANCE	RANGE OF UNCONFINED COMPRESSIVE STRENGTH
Coarse grained soils (More than half of material is larger than No. 200 sieve size.)	Very loose Loose Medium compact Compact Very compact	Less than 4 blows per ft. 4 to 10 10 to 30 30 to 50 Greater than 50	Not applicable
Fine grained soils (More than half of material is smaller than No. 200 sieve size.)	Very soft Soft Medium stiff Stiff Very stiff Hard	Not applicable	Less than 0.25 tsf 0.25 to 0.50 0.50 to 1.0 1.0 to 2.0 2.0 to 4.0 Greater than 4.0

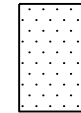
### Unified Soil Classifications

MAJOR DIVISION	SYMBOL	NAME	
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GW 	Well-graded gravels or gravel-sand mixtures, little or no fines.
		GP 	Poorly graded gravels or gravel-sand mixtures, little or no fines.
		GM 	Silty gravels, gravel-sand-silt mixtures.
		GC 	Clayey gravels, gravel-sand-clay mixtures.
	SAND AND SANDY SOILS	SW 	Well graded sands or gravelly sands, little or no fines.
		SP 	Poorly graded sands or gravelly sands, little or no fines.
		SM 	Silty sands, sand-silt mixtures.
		SC 	Clayey sands, sand-clay mixtures.
FINE GRAINED SOILS	SILTS AND CLAYS LL IS LESS THAN 50	ML 	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
		CL 	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays silty clays, lean clays.
	SILTS AND CLAYS LL IS GREATER THAN 50	MH 	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
		CH 	Inorganic clays of high plasticity, fat clays.
UNCLASSIFIED MATERIAL	NONE	Non-classified material (i.e. overburden, pavement, slag, etc.) include visual description.	

- AI Activity Index
- LI Liquidity Index
- N Penetration Resistance
- S+C(%) Material finer than No. 200 sieve
- Rockline Soundings
- ⊕ Disturbed Sample Boring
- ⊙ Undisturbed Sample Boring
- ⊗ Undisturbed Sample Boring & Rock Core
- Rock Core
- ⊗ Slope inclinometer Installation
- typical applications: ○ ⊕ ⊗ ⊙ ⊗
- Approximate Footing Elevation
- OW 7-Day (or greater) Water Table & Date
- ⊠ Thin-walled Tube Sample
- Standard Penetration Test Sample
- < UU (psi) Unconsolidated, Undrained Triaxial Test
- Qu (psi) Unconfined Compressive Strength
- w (%) Moisture Content
- RQD (%) Rock Quality Designation
- SDI (JS) Slake Durability Index (Jar Slake Test)
- Rec. (%) Core Recovery
- ∅ Angle of Internal Friction
- ∅ Effective Angle of Internal Friction
- c (psi) Cohesion
- c̄ (psi) Effective Cohesion
- γ Total Unit Weight
- RDZ Rock Disintegration Zone
- OB Overburden Bench
- IB Intermediate Bench
- R Refusal
- NR Refusal Not Encountered
- VS (psi) Field Vane Shear Strength



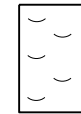
LIMESTONE



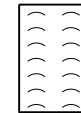
SANDSTONE



COAL



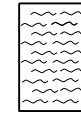
NONDURABLE SHALE (SDI < 90)



DURABLE SHALE (SDI ≥ 90)



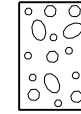
TALUS OR MINE WASTE OR FILL MATERIAL



ROADWAY FILL-GRANULAR EMBANKMENT



STRUCTURE GRANULAR BACKFILL



SLOPE PROTECTION

### Relation of RQD and in situ Rock Quality

RQD (%)	Rock Quality
90 - 100	Excellent
75 - 90	Good
50 - 75	Fair
25 - 50	Poor
0 - 25	Very Poor

KENTUCKY DEPARTMENT OF HIGHWAYS

GEOTECHNICAL LEGEND

STANDARD DRAWING NO. BGX-012-02

SUBMITTED: *[Signature]* 12-01-99  
 DIRECTOR, DIVISION OF BRIDGE DESIGN DATE  
 APPROVED: *[Signature]* 12-01-99  
 STATE HIGHWAY ENGINEER DATE