

**COLORADO DEPARTMENT OF TRANSPORTATION
GEOLOGICAL BORING LOG**



Boring #:		Page		of																						
Depth	M ft	Boring Operation and Drill Rate (min./ft)	% Drilling fluid recovery	% Core recovery	% RQD	SPT results	N Value	Sample #	Sample type	Discontinuities					Start date:		Finish date:									
										Spacing					Orientation		Engr/Geol:		Driller:							
										Wide		Close			Horiz.	Vert.	Rig: <input type="checkbox"/> Auger <input type="checkbox"/> Wireline <input type="checkbox"/> Other									
										1	2	3	4	5	H	45	V	Description								
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H ₂ O	Date:				Soil Description	Name	Relative Density	Rock Description	Name	Sample type			
	Depth:					Color	Texture		Weathering		<input checked="" type="checkbox"/> SPT <input checked="" type="checkbox"/> Grab <input checked="" type="checkbox"/> California <input checked="" type="checkbox"/> Shelby <input checked="" type="checkbox"/> Continuous <input checked="" type="checkbox"/> Core		
					Plasticity	Cementation	Structure	Recovery/RQD	Formation				
					Moisture	Structure	Origin						
					Consistency	Origin							

Rock hardness

Very plastic	Claystone, clayey fault gouge & rocks altered to clay Knife: easily cut
Plastic	Claystone, clayey fault gouge & rocks altered to clay Knife: can be cut
Friable	Brittle rocks which can be broken in the hand or by light blows w/ pick point.
Very low	Knife: Easily gouged deeply or carved
Low	Knife: Deep gouges or scrapes are difficult
Moderate	Knife: Readily scratched (leaves dust & scratch is readily visible when dust blown away)
Hard	Knife: Can be scratched W/ difficulty (leaves only little dust & often only faintly visible)
Very Hard	Knife: Cannot be scratched

Shale bedrock hardness

<i>N</i>	<i>Field Approximation</i>
<20	Clay (weathered claystone)
20 - 30	Firm
30 - 50	Med hard
50 - 80	Hard
>80	Very hard

Weathering

UnW	Unweathered except for joints, fresh fabric
SIW	Slightly weathered, not indented by steel nail
MdW	Moderately weathered, breaks with difficulty
HiW	Highly weathered, rock-like, easily broken
Dec	Decomposed, soil-like

Discontinuities

1. Very wide	> 3m	> 10 ft.
2. Wide	90cm - 3m	36 in. - 10 ft.
3. Mod close	30cm - 90cm	12 in. - 36 in.
4. Close	5cm - 30cm	2 in. - 12 in.
5. Very close	< 5cm	< 2 in.

Fractures

Fault	A fracture along which there has been an observable displacement. Faults are rarely single planar units; normally they occur as parallel or sub-parallel sets of fractures along which movement has taken place to a greater or lesser extent.
Bedding	A surface parallel to the surface of disposition, which may or may not have a physical expression. Note that the original attitude of the bedding plane should not be assumed to be horizontal.
Foliation	The parallel orientation of platy minerals, or mineral banding in metamorphic rock.
Joint	A fracture in which there has been no observable relative movement. In general joints intersect primary surfaces such as bedding, cleavage & schistosity. A series of parallel joints is called a joint set; two or more intersecting sets produce a joint system; two sets of joints nearly at right angles to one another are said to be conjugate.
Cleavage	Parallel fractures formed in incompetent layers in a series of beds of varying degrees of competency. In general, the term implies that the cleavage planes are not controlled by mineral particles in parallel orientation.
Schistosity	The foliation in schist or other coarse-grained crystalline rock do to the arrangement of mineral grains of the platy or prismatic type. Usually mica.

Rock alteration

Unaltered	Rock shows no discoloration, loss of strength or other effects of weathering or alteration
Slight	Rock is slightly discolored but not noticeably lower in strength than fresh rock
Moderate	Rock is discolored & noticeably weakened, but a 50mm core cannot usually be broken by hand across the rock fabric
High	Rock is weakened to such an extent that a 50mm core can be broken readily by hand across the rock fabric
Extreme	The material is discolored & the original minerals of the rock have been almost entirely altered to secondary minerals, even though the original fabric may be intact

Particle size

<3/4 in.	Sand
3/4 in. - 3 in.	Gravel
3 in. - 1 ft.	Cobble
>1 ft.	Boulder

Relative density of granular soils

<i>N</i>	<i>Desc</i>	<i>Field Approximation</i>
0 - 4	VLoose	Easily penetrated many inches (>12) with 1/2 in. rebar pushed by hand
4 - 10	Loose	Easily penetrated several inches with 1/2 in. rebar pushed by hand
10 - 30	MDense	Easily to moderately penetrated with 1/2 in. rebar driven with 5 lb. hammer
30 - 50	Dense	Penetrated 1 ft with difficulty using 1/2 in. rebar driven with 5 lb. hammer
>50	VDense	Penetrated only a few inches with 1/2 in. rebar driven with 5 lb. hammer

Consistency of cohesive soils

<i>N</i>	<i>Desc</i>	<i>Field Approximation</i>
<2	VSoft	Squeezes between fingers when fist is closed; easily penetrated several inches by fist
2 - 4	Soft	Easily molded by fingers; easily penetrated several inches by thumb
4 - 8	MStiff	Molded by strong pressure of fingers; can be penetrated several inches by thumb with moderate effort
8 - 15	Stiff	Dented by strong pressure of fingers; readily indented by thumb but can be penetrated only with great effort
15 - 30	VStiff	Readily indented by thumb nail
30 - 60	Hard	Indented with difficulty by thumb nail
>60	VHard	