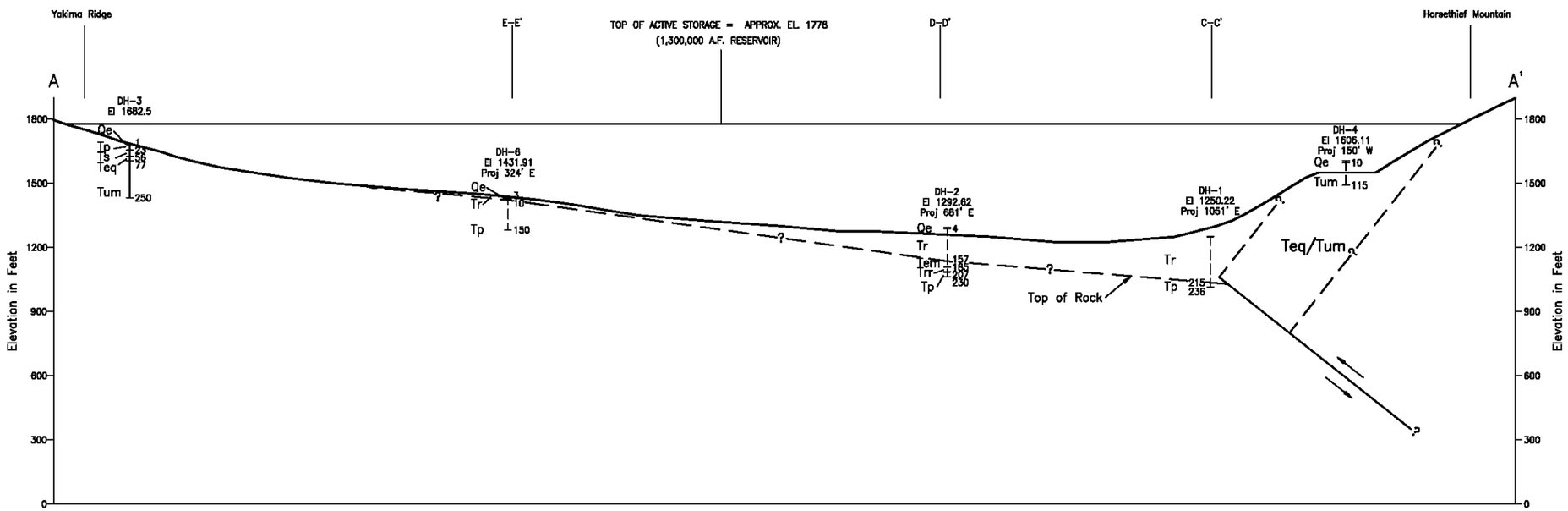

Original (East) Alignment

Geologic Units

Alluvial Units	Qe	Pediment Deposits
	Qh	Alluvium Deposits
	Tr	Ringold Formation
Bedrock Units	Tem	Elephant Mountain Member
	Trr	Rattlesnake Ridge Member
	Tp	Pomona Member
	Ts	Selah Interbed
	Teq	Esquatzel Member
	Tum	Umatilla Member
	Tm	Mabton Interbed
	Tpr	Priest Rapids Member

Notes:

1 General geology and tectonic features from report titled "Black Rock Reservoir, Initial Geotechnical Investigation, Prepared for Benton County Sustainable Development by Washington Infrastructures Services, Inc., Dated January 2003."

2 Locations and stick-log information for drill holes DH-1, DH-2, DH-3, DH-4 and DH-6 from f rom report titled "Black Rock Reservoir, Initial Geotechnical Investigation, Prepared for Benton County Sustainable Development by Washington Infrastructures Services, Inc., Dated January 2003."

3. For Location of Geologic Section refer to Drawing 33-100-3381. For Geologic Explantion, Legend and Notes refer to Drawing 33-100-3380.

300 0 300 600 900
SCALE OF FEET

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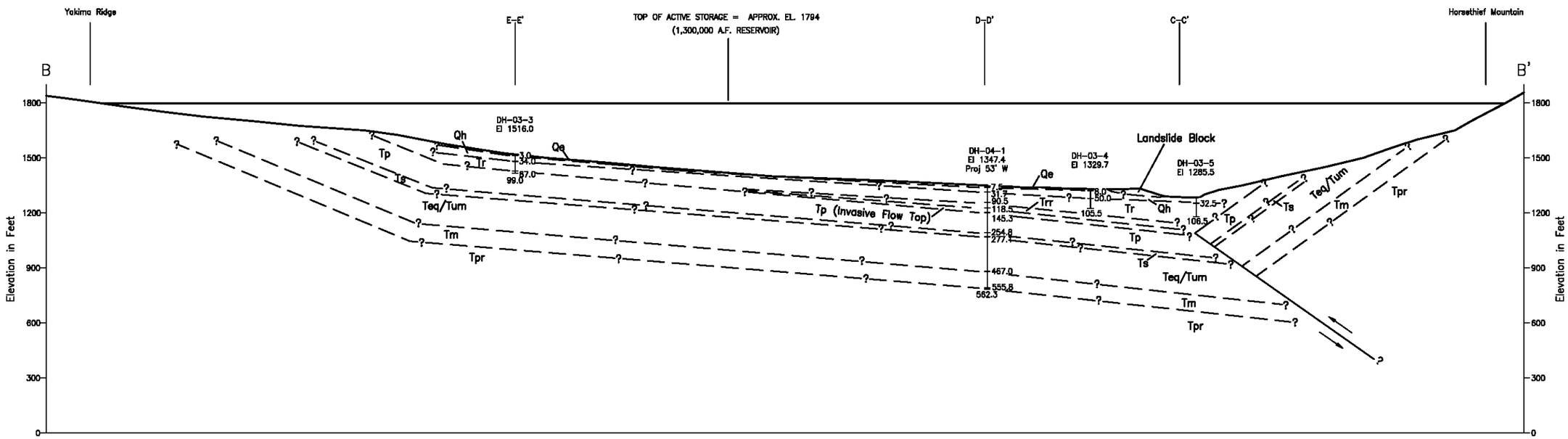
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA RIVER BASIN WATER STORAGE FEASIBILITY STUDY - WASHINGTON

BLACK ROCK DAM SITE
(ORIGINAL ALIGNMENT)
GEOLOGIC SECTION A-A'

GEOLOGY STELMA / MCAFEE CHECKED DS
DRAWN T.ENGLAND TECH. APPR. DOUGLAS J. BENNETT
APPROVED RICHARD A. LINK
PEER REVIEWER - REGIONAL GEOLOGIST

CAD SYSTEM ACAD 2004 | geo\blackrock\dwgs\33-100-3382
BOISE, IDAHO SHEET 1 OF 1 2004, JUNE 15 | 33-100-3382



Alternate (West) Alignment

Geologic Units

Alluvial Units	Qe	Pediment Deposits
	Qh	Alluvium Deposits
	Tr	Ringold Formation
Bedrock Units	Trr	Rattlesnake Ridge Member
	Tp	Pomona Member
	Ts	Selah Interbed
	Teq	Esquatzel Member
	Tum	Umatilla Member
	Tm	Mabton Interbed
	Tpr	Priest Rapids Member

Notes:

1. General geology and tectonic features from report titled "Black Rock Reservoir, Initial Geotechnical Investigation, Prepared for Benton County Sustainable Development by Washington Infrastructures Services, Inc., Dated January 2003."

2. For Location of Geologic Section refer to Drawing 33-100-3381. For Geologic Explantion, Legend and Notes refer to Drawing 33-100-3380.

300 0 300 600 900
SCALE OF FEET

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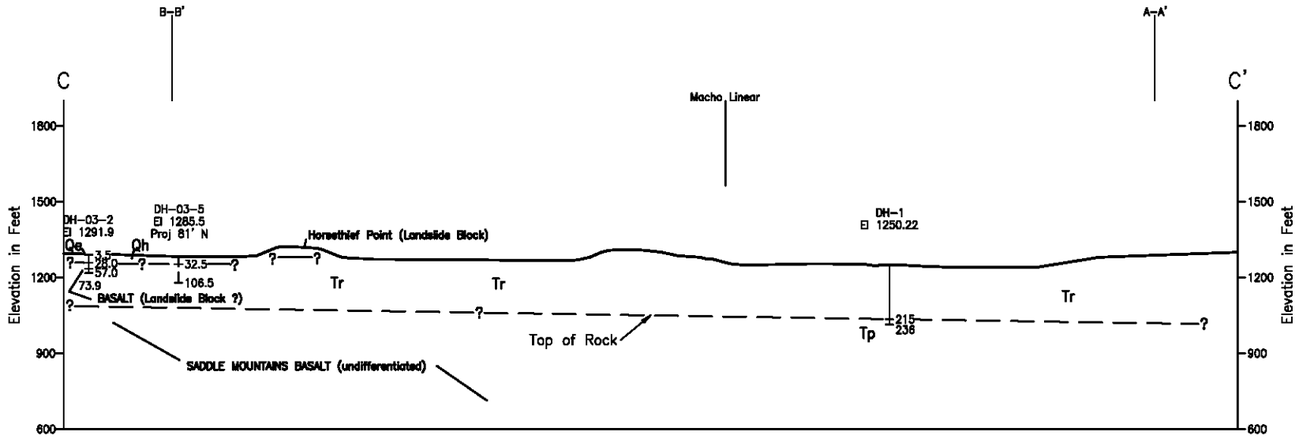
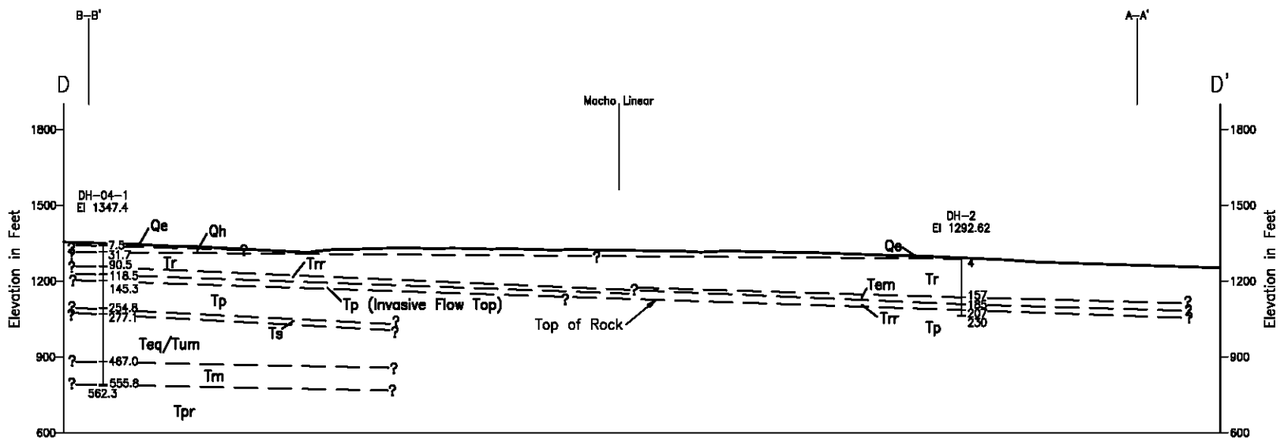
YAKIMA RIVER BASIN WATER STORAGE FEASIBILITY STUDY - WASHINGTON

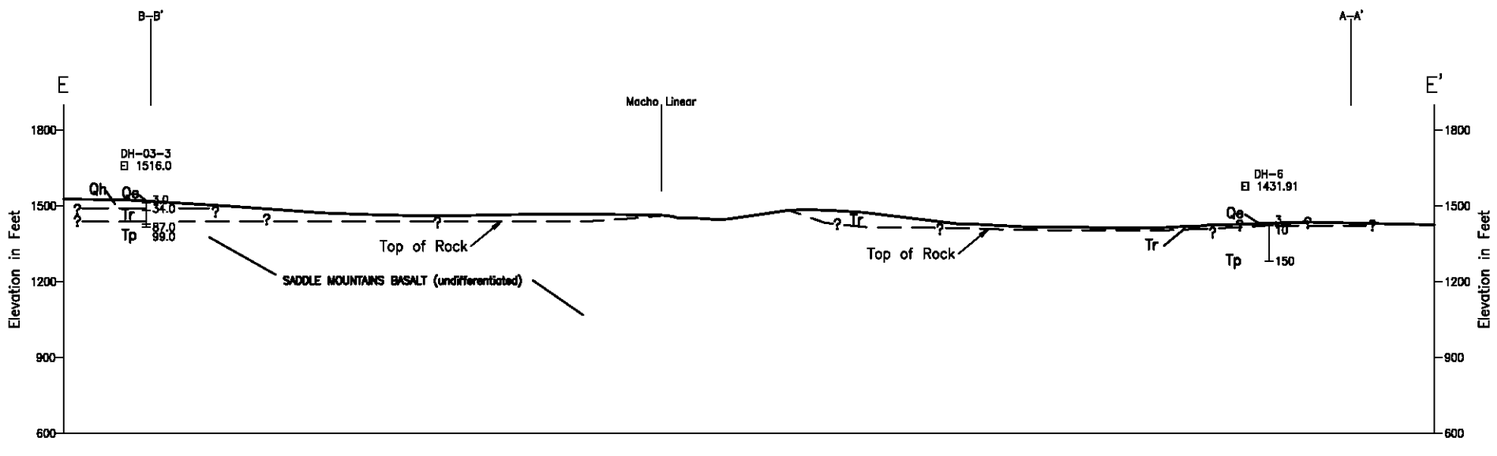
BLACK ROCK DAM SITE
(ALTERNATE ALIGNMENT)
GEOLOGIC SECTION B-B'

GEOLOGY STELMA / MCAFEE CHECKED DS
DRAWN T.ENGLAND TECH. APPR. DOUGLAS J. BENNETT
APPROVED RICHARD A. LINK
PEER REVIEWER - REGIONAL GEOLOGIST

CAD SYSTEM ACAD 2004 geo\blackrock\dwgs\33-100-3383
BOISE, IDAHO SHEET 1 OF 1 2004, JUNE 15
33-100-3383







Notes:

1 General geology and tectonic features from report titled "Black Rock Reservoir, Initial Geotechnical Investigation, Prepared for Benton County Sustainable Development by Washington Infrastructures Services, Inc., Dated January 2003."

2 Locations and stick-log information for drill holes DH-1, DH-2, and DH-6 from from report titled "Black Rock Reservoir, Initial Geotechnical Investigation, Prepared for Benton County Sustainable Development by Washington Infrastructures Services, Inc., Dated January 2003."

3. For Location of Geologic Sections refer to Drawing 33-100-3381. For Geologic Explantion, Legend and Notes refer to Drawing 33-100-3380.

Geologic Units

Alluvial Units	Qe	Pediment Deposits
	Qh	Alluvium Deposits
	Tr	Ringold Formation
Bedrock Units	Tem	Elephant Mountain Member
	Trr	Rattlesnake Ridge Member
	Tp	Pomona Member
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	Teq	Esquatzel Member
	Tum	Umatilla Member
	Tm	Mabton Interbed
	Tpr	Priest Rapids Member

300 0 300 600 900
SCALE OF FEET

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YAKIMA RIVER BASIN WATER STORAGE FEASIBILITY STUDY – WASHINGTON

BLACK ROCK DAM SITE

GEOLOGIC SECTIONS C–C', D–D' AND E–E'

GEOLOGY STELMA / MCAFFEE CHECKED DS
DRAWN T.ENGLAND TECH. APPR. DOUGLAS J. BENNETT
APPROVED RICHARD A. LINK
PEER REVIEWER – REGIONAL GEOLOGIST

CAD SYSTEM ACAD 2004 | geo\blackrock\dwgs\33-100-3384
BOISE, IDAHO SHEET 1 OF 1 2004, JUNE 15 | 33-100-3384

WEATHERING

FRESH (W1): Body of rock is not oxidized or discolored; fracture surfaces are not oxidized or discolored*; no separation of grain boundaries; no change of texture and no solutioning. Hammer rings when crystalline rocks are struck.

SLIGHTLY WEATHERED TO FRESH (W2):**

SLIGHTLY WEATHERED (W3): Discoloration or oxidation is limited to surface of, or short distance from fractures; some feldspar crystals are dull; fracture surfaces have minor to complete discoloration or oxidation; no visible separation of grain boundaries; texture preserved and minor leaching of soluble minerals may be present. Hammer rings when crystalline rocks are struck, body of rock is not weakened by weathering.

MODERATELY TO SLIGHTLY WEATHERED (W4):**

MODERATELY WEATHERED (W5): Discoloration or oxidation extends from fractures, usually throughout body of rock; ferromagnesian minerals are "rusty", feldspar crystals are "cloudy"; all fracture surfaces are discolored or oxidized; partial opening of grain boundaries visible; texture generally preserved, but soluble minerals may be mostly leached. Hammer does not ring when rock is struck, body of rock is slightly weakened.

INTENSELY TO MODERATELY WEATHERED (W6):**

INTENSELY WEATHERED (W7): Body of rock is discolored or oxidized throughout; all feldspars and ferromagnesian minerals are altered to clay to some extent. All fracture surfaces are discolored or oxidized, and friable; partial separation of grain boundaries, rock is friable; in situ disaggregation of granitics common in semi-arid regions; texture altered and leaching of soluble minerals may be complete. Rock has dull sound when struck with hammer; rock is weakened, usually can be broken with moderate to heavy manual pressure or by light hammer blow without reference to planes of weakness.

VERY INTENSELY WEATHERED (W8):**

DECOMPOSED (W9): Body of rock is discolored or oxidized throughout, but resistant minerals such as quartz may be unaltered; all feldspars and ferro-magnesian minerals are completely altered to clay; complete separation of grain boundaries (disaggregated), partial or complete remnant rock structure may be preserved, but resembles a soil.

NOTE: Weathering categories are established primarily for crystalline rocks and those with ferromagnesian minerals, weathering in various sedimentary rocks will not always fit the categories established – weathering categories may be modified for particular site conditions or alteration such as hydrothermal alteration. Where modified criteria are established, they should be identified and described.

* Characteristics of fracture surfaces do not include directional weathering along shears or faults and their associated fracture zones; for example a shear that carries weathering to great depths in a fresh rock mass would not require the whole rock mass to be classified as weathered.

** Combination descriptors are used when equal distribution of both weathering characteristics are present over significant intervals or where characteristics noted are " in between" the diagnostic characteristics.

DURABILITY INDEX

DURABILITY DESCRIPTOR	DESCRIPTIVE CRITERIA
DIØ	Rock specimen or exposure remains intact with no deleterious cracking after exposure longer than 1 year.
DI1	Rock specimen or exposure develops hairline cracking on surfaces within 1 month, but no disaggregation within 1 year of exposure.
DI2	Rock specimen or exposure develops hairline cracking on surfaces within 1 week, and/or disaggregation within 1 month of exposure.
DI3	Specimen or exposure may develop hairline cracks in 1 day and displays pronounced separation of bedding and/or disaggregation within 1 week of exposure.
DI4	Specimen or exposure displays pronounced cracking and disaggregation within 1 day (24 hours) of exposure. Generally ravels and degrades to small fragments.

COLOR

The Munsell color system (Geologic Society of America Rock Color Chart) should be used. This system defines wet color by its hue, value, and chroma. Color symbols used (i.e., 5 YR 5/6 may be included).

SEDIMENTARY AND PYROCLASTIC ROCK PARTICLE SIZES

Size in mm	Sedimentary Rounded, subrounded, subangular		Pyroclastic	
	Particle or fragment	Lithified product	Fragment	Lithified product
256	Boulder	Boulder conglomerate	Block[a] or Bomb[b]	Volcanic[a] breccia or Volcanic[b] agglomerate
64	Cobble	Cobble conglomerate		
4	Pebble	Pebble conglomerate	Lapilli	Lapillistone and Lapilli tuff
2	Granule	Granule conglomerate		
1	Very coarse sand	Sandstone (Very coarse, coarse, medium, fine, or very fine)	Coarse ash	Coarse tuff
0.5	Coarse sand			
0.25	Medium sand			
0.125	Fine sand			
0.0625	Very fine sand			
0.00391	Silt	Siltstone/ Shale	Fine ash	Fine tuff
	Clay	Claystone Shale		

(a) Broken from previous igneous rock, block shaped (angular to subangular).
(b) Solidified from plastic material while in flight, rounded clasts.

IGNEOUS AND METAMORPHIC ROCK TEXTURE

TEXTURE DESCRIPTOR	AVERAGE GRAIN DIAMETER
VERY COARSE GRAINED OR PEGMATITIC	>10 mm [>3/8 in]
COARSE GRAINED	5–10 mm [3/16 –3/8 in]
MEDIUM GRAINED	1–5 mm [1/32 –3/16 in]
FINE GRAINED	0.1–1 mm [0.004 – 1/32 in]
APHANITIC (Cannot be seen with the unaided eye)	<0.1 mm [<0.004 in]

ADDITIONAL TEXTURAL ADJECTIVES

PIT (pitted) – pinhole to 0.03 ft [3/8 in] (<1 to 10 mm) openings.

VUG (vuggy) – Small openings (usually lined with crystals) ranging in diameter from 0.03 ft [3/8 in] to 0.33 ft [4 in] (10 to 100 mm).

CAVITY – An opening larger than 0.33 ft [4 in] (100 mm), size descriptions are required, and adjectives such as small, large, etc., may be used.

HONEYCOMBED – If numerous enough that only thin walls separate individual pits or vugs, this term further describes the preceding nomenclature to indicate cell-like form.

VESICLE (vesicular) – Small openings in volcanic rocks of variable shape and size formed by entrapped gas bubbles during solidification.

BEDDING FOLIATION OR FLOW TEXTURE

DESCRIPTORS	THICKNESS/SPACING
MASSIVE	Greater than 10 ft (>3 m)
VERY THICKLY (bedded, foliated or banded)	3 to 10 ft (1 to 3 m)
THICKLY	1 to 3 ft (300 mm to 1 m)
MODERATELY	0.3 to 1 ft (100 to 300 mm)
THINLY	0.1 to 0.3 ft (30 to 100 mm)
VERY THINLY	0.03 [3/8 in] to 0.1 ft (10 to 30 mm)
LAMINATED (Intensely foliated or banded)	Less than 0.03 ft [3/8 in] (<10 mm)

BEDROCK HARDNESS/STRENGTH

EXTREMELY HARD (H1): Core, fragment or exposure cannot be scratched with knife or sharp pick; can only be chipped with repeated heavy hammer blows.

VERY HARD (H2): Cannot be scratched with knife or sharp pick. Core or fragment breaks with repeated heavy hammer blows.

HARD (H3): Can be scratched with knife or sharp pick with difficulty (heavy pressure). Heavy hammer blow required to break specimen.

MODERATELY HARD (H4): Can be scratched with knife or sharp pick with light or moderate pressure. Core or fragment breaks with moderate hammer blow.

MODERATELY SOFT (H5): Can be grooved 1/16 inch (2 mm) deep by knife or sharp pick with moderate or heavy pressure. Core or fragment breaks with light hammer blow or heavy manual pressure.

SOFT (H6): Can be grooved or gouged easily by knife or sharp pick with light pressure, can be scratched with fingernail. Breaks with light to moderate manual pressure.

VERY SOFT (H7): Can be readily indented, grooved or gouged with fingernail, or carved with a knife. Breaks with light manual pressure.

Any bedrock unit softer than H7, Very Soft, is to be described using USBR 5005-86 (visual classification of soils) consistency characteristics.

REV NO		
1	3-8-00 D – P. M. R.	CONVERTED ORIGINAL DRAWING 40-D-8493 TO ACAD, CHANGED DWG. NO., MINOR REVISIONS.

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UNITED STATES
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GEOLOGY FOR DESIGN & SPECIFICATIONS

STANDARD DESCRIPTORS AND DESCRIPTIVE CRITERIA FOR ROCK

GEOLOGY NOMENCLATURE COMMITTEE CHECKED CHUCK SULLIVAN
DRAWN MARSHALL MONSON TECH. APPROVAL PETER M. ROHRER
APPROVED MARK McKEOWN PEER REVIEWER

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DISCONTINUITY TERMINOLOGY

DISCONTINUITY – A collective term used for all structural breaks in geologic materials which usually are unhealed and have zero or low tensile strength. Discontinuities also may be healed and exhibit high tensile strength. Discontinuities comprise fractures (including joints), planes of weakness, shears/faults, and shear/fault zones. Contacts between various units also may be considered discontinuities.

FRACTURE – A term used to describe any natural break in geologic material excluding shears and shear zones. Additional fracture terminology is provided below.

SHEAR – A structural break where differential movement has taken place along a surface or zone of failure by shear; characterized by striations, slickensides, gouge, breccia, mylonite, or any combination of these. Often direction, amount of displacement, and continuity may not be known because of limited exposures or observations.

FAULT – A shear with significant continuity which can be correlated between observations; occurs over a significant portion of a given site, foundation area, or region; or is a segment of a fault or fault zone defined in the literature. The designation of a shear as a fault or fault zone is a site-specific determination.

SHEAR/FAULT ZONE – A shear that is expressed in relative terms of width. The zone may consist of gouge, breccia, or many related faults or shears together with fractured and crushed rock between the shears and faults, or any combination of these. In the literature many fault zones simply are referred to as faults.

SHEAR-/FAULT-DISTURBED ZONE – An associated zone of fractures and/or folds adjacent to a shear or shear zone where the country rock has been subjected to only minor cataclastic action and may be mineralized. If adjacent to a fault or fault zone, the term is fault-disturbed zone. Occurrence, orientation, and areal extent of these phenomena depend upon depth of burial (pressure and temperature) during shearing, brittleness of materials, and the stress envelope.

FRACTURE TERMINOLOGY

EXAMPLES SHOWN FOR CORE, BUT APPLICABLE TO ANY OBSERVATION

JOINT (JT) – A relatively planar fracture along which there has been little or no shearing displacement.

FOLIATION JOINT (FJ) OR BEDDING JOINT (BJ) – a relatively planar fracture which is parallel to foliation or bedding along which there has been little or no shearing displacement.

BEDDING PLANE SEPARATION – A separation along bedding after extraction or exposure due to stress relief or slaking.

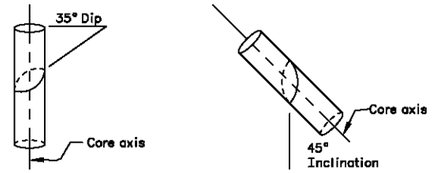
INCIPIENT JOINT (IJ) OR INCIPIENT FRACTURE (IF) – A joint or fracture which does not continue through the specimen or at least is not seen with the naked eye. However, when the specimen is wetted, and then allowed to dry, the joint or fracture trace is evident. When core is broken, it breaks along an existing plane.

RANDOM FRACTURE (RF) – A natural break which does not belong to a joint set, and which exhibits a generally rough, very irregular, nonplanar surface.

MECHANICAL BREAK (MB) – A break due to drilling, blasting, or handling. Mechanical breaks parallel to bedding or foliation are called Bedding Breaks (BB) or Foliation Breaks (FB), respectively. Recognizing mechanical breaks may be difficult. The absence of oxidation, staining, or mineral fillings, and often a hackly or irregular surface are clues for recognition.

FRACTURE ZONE (FZ) – Numerous, very closely spaced intersecting fractures. Often fragmented core cannot be fitted together.

METHOD OF MEASURING DIP OF PLANAR DISCONTINUITIES, FOLIATION, AND BEDDING IN CORE



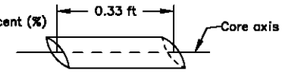
1. Vertical hole – true dip is measured and reported.
2. Angle hole – true dip usually not known; angle is measured from core axis and is called inclination.

ROCK QUALITY DESIGNATION (RQD)

EXAMPLE SHOWN FOR CORE, BUT APPLICABLE TO ANY LINEAR OBSERVATION

$$RQD = \frac{\text{Sum of length of solid core pieces} > 0.33 \text{ ft [4 in] (100 mm) long}}{\text{Length of the run in feet (mm)}} \times 100$$

Expressed as percent (%)



FRACTURE FREQUENCY

FRACTURE FREQUENCY – The number of natural fractures occurring within a base length or core run. The number of fractures is divided by the length and is reported as fractures per foot or fractures per meter. Expressed as 3/m or 6/ft.

FRACTURE DENSITY

FRACTURE DENSITY – Based on the spacing of all natural fractures in an exposure or core recovery lengths in boreholes; excludes mechanical breaks, shears, and shear zones; however, shear-disturbed zones (fracturing outside the shear) are included. Descriptors for fracture density apply to all rock exposures such as tunnel walls, dozer trenches, outcrops, or foundation cut slopes and inverts, as well as boreholes. Descriptive criteria presented below are based on borehole cores where lengths are measured along the core axis. For other exposures the criterium is distance measured between fractures (size of blocks).

UNFRACTURED (FD0): No fractures.

VERY SLIGHTLY FRACTURED (FD1): Core recovered mostly in lengths greater than 3 feet (1 m).

SLIGHTLY TO VERY SLIGHTLY FRACTURED (FD2) *

SLIGHTLY FRACTURED (FD3): Core recovered mostly in lengths from 1 to 3 feet (300 to 1000 mm) with few scattered lengths less than 1 foot (300 mm) or greater than 3 feet (1000 mm).

MODERATELY TO SLIGHTLY FRACTURED (FD4) *

MODERATELY FRACTURED (FD5): Core recovered mostly in 0.3- to 1.0-foot (100- to 300-mm) lengths with most lengths about 0.6 foot (200 mm).

INTENSELY TO MODERATELY FRACTURED (FD6) *

INTENSELY FRACTURED (FD7): Lengths average from 0.1 to 0.3 foot (30 to 100 mm) with scattered fragmented intervals. Core recovered mostly in lengths less than 0.3 foot (100 mm).

VERY INTENSELY TO INTENSELY FRACTURED (FD8) *

VERY INTENSELY FRACTURED (FD9): Core recovered mostly as chips and fragments with a few scattered short core lengths.

* Combinations of fracture densities (e.g., Very Intensely to Intensely Fractured or Moderately to Slightly Fractured) are used where equal distribution of both fracture density characteristics are present over a significant interval or exposure, or where characteristics are "in between" the descriptor definitions.

FRACTURE SPACING

JOINT SET, OR FRACTURE SPACING DESCRIPTOR	TRUE SPACING
EXTREMELY WIDELY SPACED (SP1)	Greater then 10 ft (>3 m)
VERY WIDELY SPACED (SP2)	3 to 10 ft (1 to 3 m)
WIDELY SPACED (SP3)	1 to 3 ft (300 mm to 1 m)
MODERATELY SPACED (SP4)	0.3 to 1 m (100 to 300 mm)
CLOSELY SPACED (SP5)	0.1 to 0.3 ft (30 to 100 mm)
VERY CLOSELY SPACED (SP6)	less than 0.1 ft (<30 mm)

FRACTURE CONTINUITY

CONTINUITY DESCRIPTOR	DISCONTINUITY LENGTH
DISCONTINUOUS (C1)	Less than 3 ft (<1 m)
SLIGHTLY CONTINUOUS (C2)	3 to 10 ft (1 to 3 m)
MODERATELY CONTINUOUS (C3)	10 to 30 ft (3 to 10 m)
HIGHLY CONTINUOUS (C4)	30 to 100 ft (10 to 30 m)
VERY CONTINUOUS (C5)	Greater than 100 ft (>30 m)

FRACTURE ENDS (JOINT SURVEYS)

FRACTURE ENDS DESCRIPTOR	DESCRIPTIVE CRITERIA
EØ	Zero ends leave the exposure (both ends can be seen).
E1	One end of the fracture terminates in the exposure (one end can be seen).
E2	Neither fracture end terminates in the exposure (neither end can be seen).

FRACTURE OPENNESS OR FILLING THICKNESS

FILLING THICKNESS DESCRIPTOR	THICKNESS/OPENNESS	OPENNESS DESCRIPTOR
CLEAN (TØ)	No film or coating.	
	No visible separation.	TIGHT (OØ)
VERY THIN (T1)	Less than 0.003 ft [1/32 in] (<1 mm).	SLIGHTLY OPEN (O1)
MODERATELY THIN (T2)	0.003 to 0.01 ft [1/32 to 1/8 in] (1 to 3 mm).	MODERATELY OPEN (O2)
THIN (T3)	0.01 to 0.03 ft [1/8 to 3/8 in] (3 to 10 mm).	OPEN (O3)
MODERATELY THICK (T4)	0.03 ft [3/8 in] to 0.1 ft (10 to 30 mm).	MODERATELY WIDE (O4)
THICK (T5)	Greater than 0.1 ft (>30 mm). Actual thickness or openings recorded.	WIDE (O5)

FRACTURE MOISTURE CONDITIONS

MOISTURE DESCRIPTOR	DESCRIPTIVE CRITERIA
M1	The fracture is dry. It is tight or filling (where present) is of sufficient density or composition to impede waterflow. Waterflow along the fracture does not appear possible.
M2	The fracture is dry with no evidence of previous waterflow. Waterflow appears possible.
M3	The fracture is dry, but shows evidence of waterflow such as staining, leaching and/or vegetation.
M4	The fracture or filling (where present) is damp, but no free water is present.
M5	The fracture shows seepage. It is wet with occasional drops of water.
M6	The fracture emits a continuous flow (estimate flow rate) under low pressure. Filling materials (where present) may show signs of leaching or piping.
M7	The fracture emits a continuous flow (estimate flow rate) under moderate to high pressure. Water is squirting and/or filling material (where present) may be substantially washed out.

FRACTURE ROUGHNESS

Refers to small-scale asperities of surfaces, not large-scale undulations or waviness.

STEPPED (R1): Near-normal steps and ridges occur on the fracture surface.
ROUGH (R2): Large, angular asperities can be seen.
MODERATELY ROUGH (R3): Asperities are clearly visible and fracture surface feels abrasive.
SLIGHTLY ROUGH (R4): Small asperities on the fracture surface are visible and can be felt.
SMOOTH (R5): No asperities, smooth to the touch.
POLISHED (R6): Extremely smooth and shiny.

FRACTURE SURFACE AND/OR FILLING ALTERATION AND HARDNESS

Descriptors for weathering or alteration of fracture surfaces and fracture fillings (excluding soil materials) are the same as those used for weathering and alteration of rock.

Descriptors for hardness/strength of fillings and/or fracture surfaces are the same as those presented for hardness of rock and consistency of soils.

DISCONTINUITY HEALING

TOTALLY HEALED (HL1) – All fragments bonded, discontinuity is completely healed or recemented to a degree at least as hard as surrounding rock.

MODERATELY HEALED (HL3) – Greater than 50 percent of fractured or sheared material, discontinuity surfaces or filling is healed or recemented; and/or strength of healing agent is less hard than surrounding rock.

PARTLY HEALED (HL5) – Less than 50 percent of fractured or sheared material, discontinuity surface or filling is healed or recemented.

NOT HEALED (HL6) – Discontinuity surface, fractured zone, sheared material or filling is not healed or recemented, rock fragments or filling (if present) held in place by their own angularity and/or cohesiveness.

SHEAR/FAULT DESCRIPTORS

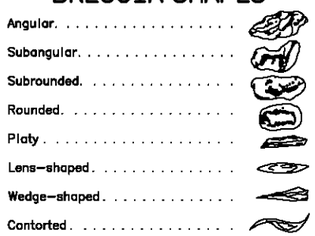
SHEAR/FAULT GOUGE CONSISTENCY

DESCRIPTOR	DESCRIPTIVE CRITERIA (Similar to consistency of soils)
VERY HARD	Gouge cannot be broken with finger pressure; cannot be indented with fingernail.
HARD	Gouge can be broken with firm finger pressure; can be indented with fingernail; cannot be indented with thumb.
FIRM	Gouge can be easily crumbled; can be indented with thumb 1 to 5 mm.
SOFT	Gouge can be easily molded; can be penetrated with thumb 5 to 25 mm.
VERY SOFT	Gouge can be penetrated with thumb more than 25 mm.

SHEAR/FAULT MOISTURE DESCRIPTORS

The apparent moisture content of gouge is described as WET (visible free water); MOIST (damp, but no visible water); and DRY (absence of moisture, dusty, dry to the touch). Moisture descriptors M1 through M7 may be used to describe the shear or shear zone.

BRECCIA SHAPES



REV NO	DATE	DESCRIPTION
1	3-8-00 D – P. M. R.	CONVERTED ORIGINAL DRAWING 40-D-6499 TO ACAD, CHANGED DWG. NO., MINOR REVISIONS.

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GEOLOGY FOR DESIGN & SPECIFICATIONS

STANDARD DESCRIPTORS AND DESCRIPTIVE CRITERIA FOR DISCONTINUITIES

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