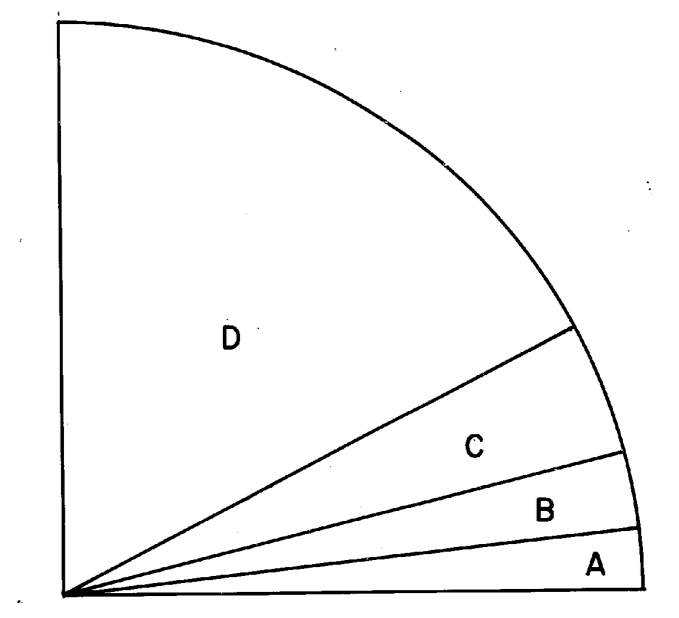


EXPLANATION

SLOPE UNITS

SYMBOL	UNIT	DESCRIPTION
A	FLAT	0% - 10%, 0° - 6°
B	SLOPING	10% - 25%, 6° - 14°
C	STEEP	25% - 50%, 14° - 27°
D	VERY STEEP	>50%, >27°



CRITICAL SLOPE STEEPNESS FOR SPECIFIC ACTIVITIES (From Cooke & Doornkamp, 1974)	
SLOPE STEEPNESS(%)	CRITICAL FOR:
1	INTERNATIONAL AIRPORT RUNWAYS
2	MAINLINE PASSENGER AND FREIGHT RAIL TRANSPORT MAXIMUM FOR LOADED COMMERCIAL VEHICLES WITHOUT SPEED REDUCTION LOCAL AERODROME RUNWAYS FREE PLOUGHING AND CULTIVATION BELOW 2% - FLOODING AND DRAINAGE PROBLEMS IN SITE DEVELOPMENT
4	MAJOR ROADS
5	AGRICULTURAL MACHINERY FOR WEEDING AND SEEDING SOIL EROSION BEGINS TO BECOME A PROBLEM LAND DEVELOPMENT (CONSTRUCTION) DIFFICULT ABOVE 5%
8	HOUSING AND ROADS EXCESSIVE SLOPE FOR GENERAL DEVELOPMENT INTENSIVE CAMP AND PICNIC AREAS
9	ABSOLUTE MAXIMUM FOR RAILWAYS HEAVY AGRICULTURAL MACHINERY
10	LARGE-SCALE INDUSTRIAL SITE DEVELOPMENT
15	SITE DEVELOPMENT STANDARD WHEELED TRACTOR
20	TWO-WAY PLOUGHING COMBINE HARVESTING HOUSING-SITE DEVELOPMENT
25	CROP ROTATIONS LOADING TRAILERS RECREATIONAL PATHS AND TRAILS

NOTE: SLOPES STEEPER THAN 50% TYPICALLY PROHIBIT DEVELOPMENT.

SLOPE MAP

FOR THE BOISE FOOTHILLS
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Geology and Land Use Hazards. Chris C. Beck.
Plates 1, 2, 3, 4, and 5 in C. C. Beck, 1988, Geological Engineering Assessment of the Boise
Foothills, Ada County, Idaho. University of Idaho M. S. thesis, 75 p.

Ref: Cooke, R.U. and Doornkamp, J.C., 1974, Geomorphology in Environmental Management:
Oxford, England, Clarendon Press, 413 p.



EXPLANATION

HYDROLOGY UNITS

SYMBOL	UNIT	DESCRIPTION
	FLOODWAY	THE AREA POTENTIALLY AFFECTED BY A 500 YEAR FLOOD.
	WATER TABLE	CONTOURS OF EQUAL WATER TABLE ELEVATION FOR THE LOCAL FLOW SYSTEM. RECHARGE IS DERIVED FROM PRECIPITATION AND IRRIGATION WITHIN THE STUDY AREA. DISCHARGE IS AT THE BASE OF THE FOOTHILLS.
	PIEZOMETRIC SURFACE	CONTOURS OF EQUAL PIEZOMETRIC SURFACE ELEVATION FOR THE REGIONAL FLOW SYSTEM. RECHARGE IS DERIVED FROM PRECIPITATION ON THE BOISE RIDGE. DISCHARGE IS SOUTH OF THE BOISE RIVER.

HYDROLOGY MAP FOR THE BOISE FOOTHILLS ADA COUNTY, IDAHO PREPARED BY CHRIS C. BECK 1988

Ref: Mohammad, O.J., 1970, Hydrogeology of the Boise Ridge Area, University of Idaho Master's Thesis, 66 p.

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EXPLANATION SOIL UNITS

SYMBOL	SOIL UNIT	DESCRIPTION Unified Soil Classification Symbol	% Passing # 4	% Passing # 200	Liquid Limit (%)	Plasticity Index	Moist Bulk Density (g/cc)	Permeability (cm/sec)	Soil pH	Organic Matter (%)
4	Adg gravelly sandy loam	GM,GC,GP,SM,SC	30-85	0-30	0-55	0-35	75-105	0.6-2.0	6.6-7.3	2-4
9	Bisael loam	ML,CL,SC,SM	100	15-75	20-35	NP-15	87-105	0.6-1.6	6.1-8.4	2-4
12	Brom silt loam	ML,CL	90-95	80-90	20-30	NP-10	87-100	0.2-0.6	7.4-9.0	1-2
16	Brent loam	CL,ML,CH,GM,SM	40-100	5-90	10-60	NP-40	75-105	0.05-2.0	6.6-8.4	1-4
19	Brent-Lodd loams	CL,ML,CH,GM,SM,SC	40-100	5-90	10-60	NP-40	75-105	0.05-2.0	6.1-8.4	1-4
21	Brent-Scorias complex	CL,ML,CH,GM,SM,SC	25-100	5-90	10-60	NP-40	75-105	0.05-2.0	6.6-8.4	1-2
23	Cashmere coarse sandy loam	SM	80-100	15-45	20-30	NP-5	91-105	2.0-2.0	6.1-7.8	2-4
32	Chicoft-Brent silt loams	CL,ML,SM,GM,SP	40-100	5-90	10-60	NP-40	75-105	0.05-2.0	6.6-8.4	1-2
45	Day clay	CL,CH	75-100	50-95	30-75	10-55	75-94	10.05	6.6-9.0	NE
46	Drexloom/urban land complex	CL,ML	100	55-90	20-40	5-20	84-94	0.2-2.0	6.6-9.0	3-5
52	Elijah silt loam	CL,ML	95-100	75-90	20-40	5-15	87-100	0.2-2.0	6.1-9.0	1-2
64	Gem silty clay loam	CL,CH,ML,GM,GC	65-100	40-95	20-65	NP-45	75-100	0.05-2.0	6.1-9.0	2-4
64	Gem-Rock outcrop complex	SM,CL,CH,GM,GC	65-100	35-95	20-65	NP-45	75-100	0.05-2.0	6.1-9.0	2-4
65	Goose Creek loam	CL,ML	100	55-85	20-40	5-15	84-94	0.2-2.0	6.6-8.4	3-5
67	Harpt loam	CL,ML,SM,SC	90-100	40-90	20-35	NP-15	87-105	0.6-6.0	6.1-7.8	1-2
69	Haw-Lankbush complex	ML,CL,SM,SP,SC	85-100	5-90	20-30	NP-15	84-105	0.2-2.0	6.1-9.0	0-4
79	Lodd loam	ML,CL,SM,SC	85-100	30-90	20-40	NP-15	87-100	0.2-2.0	6.1-7.3	2-4
83	Lodd-Ada complex	ML,CL,SM,SC,GP,GM	30-100	0-90	20-55	NP-30	75-105	0.05-2.0	6.1-7.3	2-4
86	Lodd-Scorias complex	ML,CL,SM,SC,GP,GM	25-100	5-90	20-40	NP-15	84-100	0.2-2.0	6.1-7.8	2-4
90	Lankbush-Brent sandy loams	SM,CL,ML,SC,GP,GM	40-100	5-90	10-60	NP-40	75-105	0.05-2.0	6.6-9.0	0-1
94	Lankbush-Lodd complex	SM,CL,ML,SC	85-100	25-90	20-40	NP-15	87-100	0.2-6.0	6.1-9.0	0-4
111	Moulton fine sandy loam	ML,CL,SM,SC,GP,GM	30-100	0-55	20-30	NP-10	87-105	2.0-2.0	6.6-7.8	2-4
112	Notus soils	SM,SP,GM,GP	30-100	0-50	20-25	NP-5	94-105	2.0-2.0	6.1-8.4	0.5-1
113	Ota-Scorias complex	CL,ML,SM,SC,GP,GM	25-100	5-75	20-35	5-15	84-100	0.2-2.0	6.1-7.8	NE
117	Payette-Quincy complex	SM,GM,ML,CL,SP	80-100	5-75	20-30	NP-10	87-105	2.0-2.0	6.1-8.4	0-7
131	Power silt loam	CL,ML	100	75-95	20-35	NP-15	87-100	0.2-2.0	6.6-8.8	1-2
145	Purdum-Power silt loam	CL,ML,GM,GC,GP	40-100	5-95	20-35	NP-15	87-105	0.2-6.0	6.6-8.8	1-2
149	Quincy-Brent complex	SM,CL,ML,CH,GM,SP	40-100	15-90	10-60	NP-40	75-105	0.05-2.0	6.1-8.4	0-7
152	Quincy-Lankbush complex	SM,SC,SP,ML,CL	80-100	5-80	20-30	NP-15	87-105	0.2-6.0	6.1-9.0	0-1
154	Rainey-Ota coarse sandy loams	SM,SC,SP,ML,CL	80-100	5-80	20-35	NP-15	84-100	0.6-6.0	6.1-7.3	2-4
157	Riverwash	NE	NE	NE	NE	NE	NE	NE	NE	NE
158	Rock outcrop-Trevino complex	ML,CL	90-100	50-85	20-30	NP-10	91-100	0.6-2.0	6.6-8.4	1-2
159	Rubble land	NE	NE	NE	NE	NE	NE	NE	NE	NE
167	Scorias-Lodd complex	CL,ML,SM,GM,SC,GC	25-100	5-90	20-40	NP-15	84-100	0.2-2.0	6.1-7.8	2-4
171	Scorias-Rock outcrop complex	SM,ML,GC	5-80	15-55	30-40	NP-15	87-100	0.2-2.0	6.6-7.3	NE
176	Tamula very fine loam	GM,GP,GC	40-60	0-40	20-45	NP-25	87-105	0.05-2.0	7.4-8.4	1-2
178	Tindshay fine sandy loam	SM,SC,SP	75-100	5-90	20-30	NP-10	91-105	2.0-2.0	6.6-7.8	0-1
181	Tindshay gravelly loam	SM,SC,SP	75-100	5-90	20-30	NP-10	91-105	0.6-2.0	6.6-8.4	0-1
197	Van Dusen-Payette complex	ML,CL,SM,SP,SC,GM	75-100	5-85	20-35	NP-15	87-105	0.6-2.0	6.1-8.4	NE
198	Xerolite Haplograxis	NE	NE	NE	NE	NE	NE	NE	NE	NE

NE = Not Estimated

SOILS MAP FOR THE BOISE FOOTHILLS ADA COUNTY, IDAHO PREPARED BY CHRIS C. BECK 1988

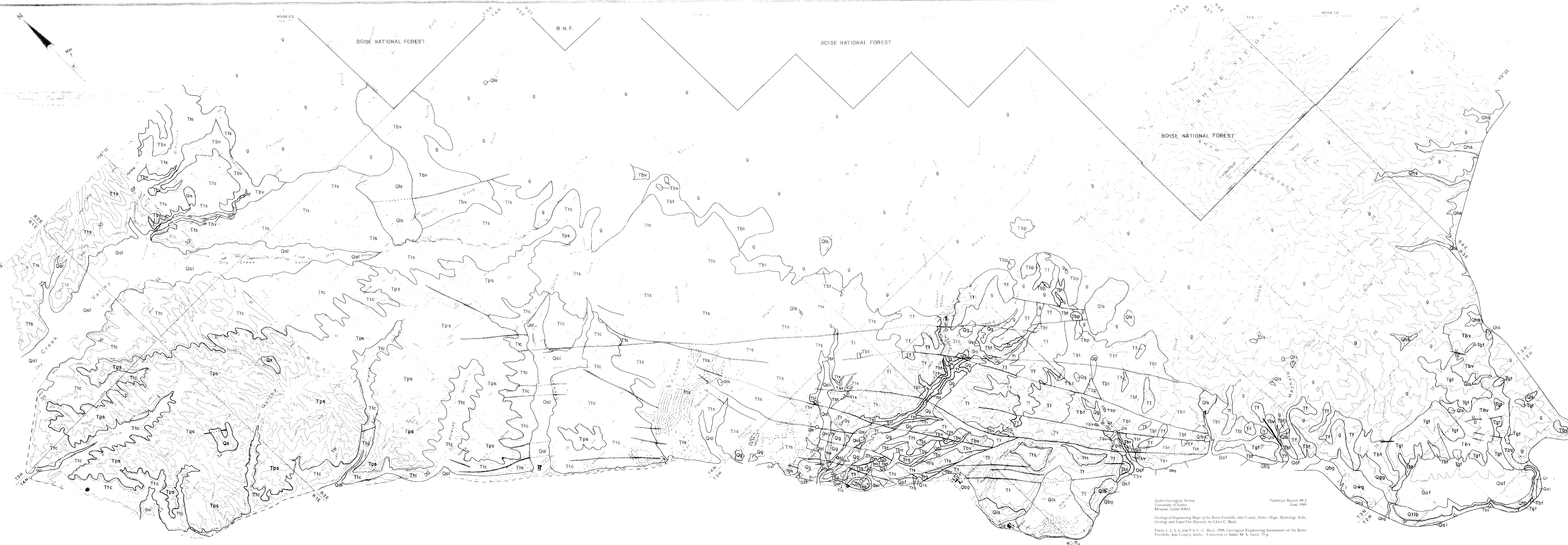
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Foothills, Ada County, Idaho. University of Idaho M. S. thesis, 75 p.

Ref: Collett, R.A., 1980, Soil Survey of Ada County Area, Idaho: U.S. Department of
Agriculture, Soil Conservation Service, 327 pages and 72 map sheets, 1:20,000.



EXPLANATION

	GEOLOGIC UNIT (1)	COLOR	GRAIN SIZE	FRACTURE SPACING	WEATHERING	HARDNESS/INDURATION	COMMENTS	
QUATERNARY	Qx	Artificial Fill	N.A.	N.A.	N.A.	N.A.	Landfills	
	Qal	Active Stream Alluvium	Light Gray to Gray	Clay to Boulder	N.A.	Slight	Poorly Indurated	
	Qf	Talus Deposits	Brown Gray to Dark Gray	Gravel to Boulder	N.A.	Slight to Moderate	Hard to Very Hard	Loose, Unstable Slopes
	Qls	Landslide Deposits	Variable	Clay to Boulder	N.A.	N.A.	Loose	Includes Scarp Areas
	Qbg	Boise Terrace Gravel	Light Gray	Sand to Cobble	N.A.	Slight	Poorly Indurated	
	Qhs	Highland Valley Sandy Alluvium	Light Gray	Medium to Coarse Sand	N.A.	Slight to Moderate	Poorly Indurated	Well Stratified
	Qwg	Whitney Terrace Gravel	Light Gray	Sand to Cobble	N.A.	Fresh to Slight	Poorly Indurated	Caliche Layers
	Qtg	Inter canyon Terrace Gravel	Light Gray	Sand to Boulder	N.A.	Fresh to Slight	Poorly Indurated	Poorly Stratified
	Qaf	Alluvial Fan Deposits	Light Gray	Sand to Gravel	N.A.	Fresh to Slight	Poorly Indurated	Poorly Stratified
	Qgg	Gowen Terrace Gravel	Light Gray	Sand to Cobble	N.A.	Slight	Moderately Indurated	Caliche Layers
MESOZOIC	Qtlb	Lucky Peak Basalt	Dark Gray to Black	Very Fine Grained	1" - 24"	Slight to Moderate	Hard to Very Hard	Olivine
	Tf	Alluvial Fan Deposits	Gray	Sand to Boulder	N.A.	Fresh to Slight	Poorly Indurated	Iron Oxide Staining
	Tgt	Tennille Gravel	Light Gray Yellow Brown	Sand to Cobble	N.A.	Slight to Moderate	Poorly Indurated	Sand Lenses
	Tps	Pierce Gulch Fm. Sand	Light Gray to Tan	Medium to Coarse Sand	N.A.	Fresh to Slight	Poorly to Moderately Indur.	Upper Gravel Cap
	Ttc	Terteling Springs Fm. Clay stone and Siltstone	Light Gray	Clay to Silt	1" - 24"	Slight	Moderately Indurated	Thin Sand Layers
	Tt	Terteling Springs Fm. Sandy Sediments	Tan to Light Gray	Clayey to Gravely Sand	2" - 24"	Slight	Poorly to Moderately Indur.	Poorly to Well Sorted
	Tts	Terteling Springs Fm. Sand and Sandstone	Tan to Light Gray	Fine to Coarse Sand	6" - 10"	Slight	Moderately to Well Indurated	Silice Cement
	Tba	Aldape Heights Basalt	Gray-Black to Brown Black	Very Fine to Fine Grained	1" - 6"	Slight to Moderate	Hard	Vesicular Base
	Tbp	Picket Pin Canyon Basalt	Gray to Black	Fine Grained	1" - 6"	Moderate to High	Moderately Hard to Hard	White Plagioclase Rosettes
	Tbt	Basaltic Tuff	Olive, Gray and Brown	Medium to Fine Grained	N.A.	Slight to High	Soft to Hard	Mudstone and Sandstone Layers
CRETACEOUS	Tbv	Lower Basalt Assemblage	Brown Gray to Dark Gray	Very Fine to Fine Grained	1" - 6"	Moderate	Moderately Hard	Vesicles and Zeolites
	Trc	Cottonwood Creek Rhyolite	Light Gray to Pink	Porphyritic	1" - 6"	Slight to Moderate	Moderately Hard to Hard	Sandlines and Plagioclase Crystals
	Trq	Quarry View Rhyolite	Yellow Brown	Porphyritic	1" - 3"	Slight to Moderate	Moderately Hard to Hard	White to Tan Plagioclase Crystals
	g	Biotite Granite / Granodiorite	Light Gray	Medium to Coarse Grained	6" - 3"	Slight to Moderately Decomposed	Soft to Very Hard	Pegmatite Dikes

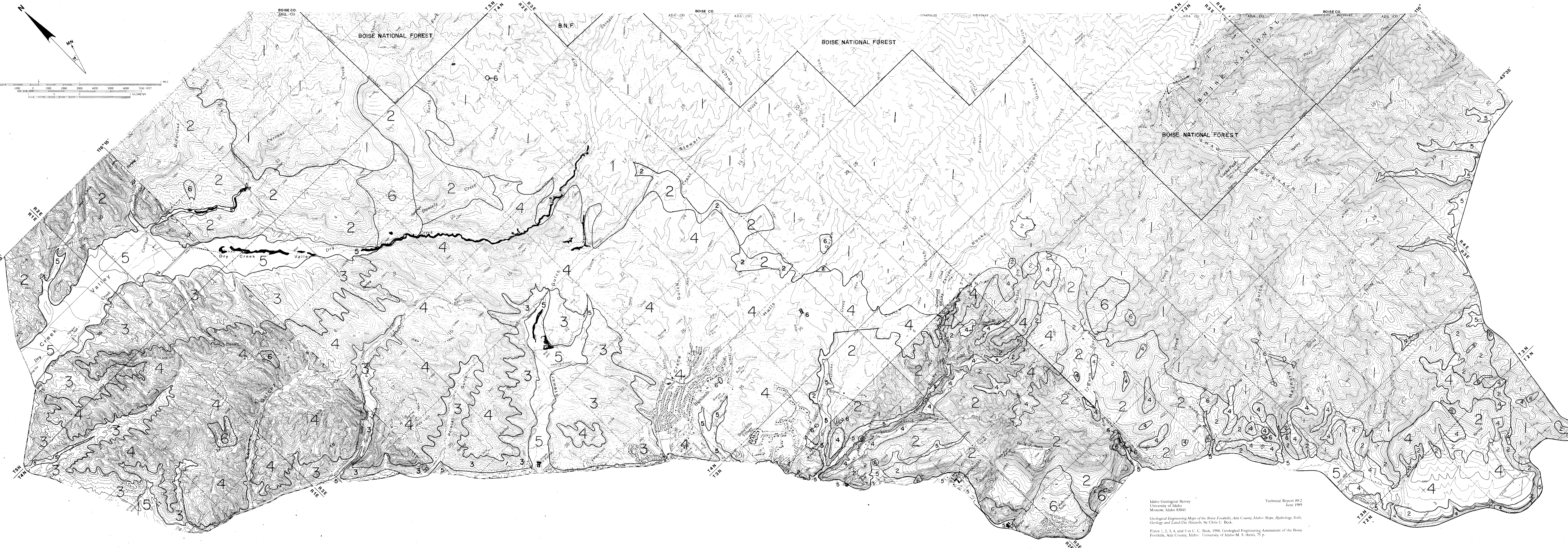
FAULT TRACE
 INFERRED OR CONCEALED FAULT TRACE

(1) No Exact Stratigraphic Order Implied. Some Units May Overlap Or Are Equivalent In Age.

GEOLOGY MAP

FOR THE BOISE FOOTHILLS
ADA COUNTY, IDAHO
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1988

Ref: Burnham, W.L. and Wood, S.H., 1987, Geologic Map of the Boise South 7.5 minute Quadrangle, Ada County, Idaho. (unpublished manuscript).
 Holtenbaugh, K.H., 1973, The Evaluation of Geologic Processes in the Boise Foothills that May Be Hazardous to Urban Development: Ada COG, Boise, Idaho, 88 p.
 Othberg, K.L. and Burnham, W.L., 1988, Geologic Map of the Lucky Peak Quadrangle, Ada County, Idaho. (unpublished manuscript).
 Wood, S.H. and Burnham, W.L., 1983, Geology of Boise, Idaho: Implications for Geothermal Development and Engineering Geology: 1983, Proc. of the 20th Annual Symp. on Engr. Geology and Soils Engr., Idaho Dept. of Trans., Div. of Highways.



EXPLANATION

GEOTECHNICAL TERRAIN UNITS

- | SYMBOL | UNIT | DESCRIPTION |
|--------|-------------------------|---|
| 1 | GRANITIC HIGHLANDS | RIDGES, SLOPES AND VALLEYS OF THE BOISE RIDGE UNDERLAIN BY DECOMPOSED TO COMPETENT GRANITIC ROCK. |
| 2 | VOLCANIC SLOPES | FOOTHILLS UNDERLAIN BY BASALT, TUFF, RHYOLITE, SILTSTONE, SILT, SAND AND CEMENTED SANDSTONE. |
| 3 | SILTSTONE SLOPES | FOOTHILLS UNDERLAIN BY SILTSTONE AND CLAYSTONE WITH MINOR SAND LAYERS. |
| 4 | SAND SLOPES | FOOTHILLS UNDERLAIN BY SAND AND GRAVEL DEPOSITS. |
| 5 | GRAVEL AND SAND VALLEYS | DRAINAGEWAYS UNDERLAIN BY UNCONSOLIDATED SAND AND GRAVEL DEPOSITS WITH MINOR SILT AND CLAY ZONES. |
| 6 | LANDSLIDES | LOOSE, UNSTABLE ROCK AND SOIL MASSES. (INCLUDES LANDFILLS) |

	GEOTECHNICAL TERRAIN UNIT					
	1	2	3	4	5	6
SLOPE	H	M	M	M	L	H
GROUND WATER	L	M	M	M	H	H
EROSION	L	M	M	H	M	H
SOILS	L	H	L	L	L	H
LANDSLIDES	M	H	L	M	L	H
EARTHWORK	M	M	L	L	L	H
ROADWAYS	M	L	M	L	M	H
FOUNDATIONS	M	M	M	L	M	H
SEPTIC SYSTEMS	H	M	H	L	H	H

L = Low Hazard Potential M = Moderate Hazard Potential H = High Hazard Potential

LAND USE HAZARDS MAP

SHOWING GEOTECHNICAL TERRAIN UNITS FOR THE BOISE FOOTHILLS ADA COUNTY, IDAHO
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