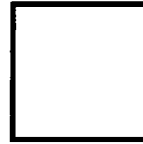
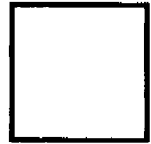




Type



Docs



Plans

SEV00-0766

Building Permit Number

35830

Street Number

HAUSER BRIDGE RD

Street Name

CAZ

Community Code

109-230-016

APN



Sent 10-10-00

COUNTY OF SONOMA
PERMIT AND RESOURCE MANAGEMENT DEPARTMENT

2550 Ventura Avenue, Santa Rosa, CA 95403
(707) 565-1900 FAX (707) 565-1103

Subject: **Soils Evaluation for On-Site Sewage Disposal Purposes**

HE Huffman Eng
876 Grovenstein Hwy So
Seb 95472

Date: 11-10-2000

35830 Houser Br Rd
Site Address: Assessor's Parcel Number
Turheim SE10000766
Property Owner: Site I.D. #: Subdivision # Lot #

Your soils evaluation for the subject property has been reviewed and filed. Review of the data indicates potential for the following type of sewage disposal system:

20" std area B 79' per
36" shallow sloping 85' " sized at:

- Design by a Registered Environmental Health Specialist or Registered Civil Engineer is required.
- Complete topographic map of site is necessary.
- The following critical design elements need to be observed. Final approval cannot be given until these have been addressed:

The sewage disposal capability of the site is dependent upon topography and setbacks. The acceptable sewage discharge volume (i.e., number of bedrooms in a dwelling) will be based upon the final sewage disposal system design.

Construction of the septic system cannot occur until plans have been approved and a permit has been issued by our office. **All septic systems must comply with standards in effect at the time of permit application.**

For further information, please feel free to contact the undersigned at (707) 565-1676 between 7:30 & 9:00 a.m.

Very truly yours,

DM DONAVAN
District Environmental Health Specialist

Handwritten signature/initials on the right margin.



COUNTY OF SONOMA
PERMIT AND RESOURCE MANAGEMENT DEPARTMENT

2550 Ventura Avenue, Santa Rosa, CA 95403
(707) 527-1900 FAX (707) 527-1103

Field Operations • Code Enforcement • Permits • Environmental & Comprehensive Planning

NOTIFICATION TO PERFORM SOIL PERCOLATION TEST

Site I. D. Number: Se100-0766

Address 35830 HAUSER BRIDGE RD.
CAZADERO CA. 95421

A.P. No. 109-230-016

Property Owner ED TUNHEIM

Address 35500 HAUSER BRIDGE 1
CAZADERO CA 95421

Test Conducted by BOHAN & CANEUS

Certified by ROB HUFFMAN

Engineer's License No. _____

Water Supply Private Public

Planning App. Type/File No. _____

Land Division Yes No

Minor or Major Subdivision No. _____

If for a proposed Subdivision, supply: Lot No. _____

Subdivision Name _____

Wet weather test Yes No

Wet weather ground determination Yes No

Note: Percolation test shall be completed within 120 days
See Section 13-C of Sonoma County Percolation Test Methods for Proper Notification

Plot plans must be attached showing area to be tested in relationship to property features, as well as a map showing location of the test site.

PLEASE NOTE: INCOMPLETE APPLICATIONS WILL NOT BE ACCEPTED

HUFFMAN ENGINEERING

876 GRAVENSTEIN HWY. SO., SEBASTOPOL, CA 95472 (707) 823-2190 FAX (707) 823-5703

September 19, 2000

SEND - 0760
Sonoma County Permit and Resource Management
Environmental Health Division
2550 Ventura Avenue
Santa Rosa, California 95403
Attn.: Dave Donovan, R.E.H.S.

Re: Percolation testing at 35830 Hauser Bridge Road, Cazadero

Dear Dave,

Percolation testing was conducted on the above-mentioned parcel for the purpose of constructing a leach field for a single-family residence.

Description of Sites:

Site B:

The site is located in a large upland saddle. The site is covered in large fir and redwood trees. We viewed one profile in the area Labeled "B"

Site D:

This site is located along a sideslope with tan oaks, redwood and fir trees.

We viewed one profile in the area Labeled "D"

The Soil Conservation Service indicates the area to have an Empire Series (EmE) soil.

Percolation Test Results:

Site B

The percolation test was performed on 8-3-2000 for a possible Standard System.

<u>Percolation Hole #</u>	<u>Depth (In.)</u>	<u>Rate (M.P.I.)</u>
1	30	6
2	30	6
3	30	1
4	30	22

Average percolation rate is 8.75 minutes per inch

The depth of soil criteria was satisfied with the hydrometer analysis of soil extracted from profile Pit B at a depth of 66" deep. The result of the testing was a Zone 2, Sandy Clay Loam.

Site D

The percolation test was performed on 8-3-2000 for a possible Shallow Sloping System.

<u>Percolation Hole #</u>	<u>Depth (In.)</u>	<u>Rate (M.P.I.)</u>
5	36	6
6	36	5
7	36	24
10	36	6

Average percolation rate is 10.25 minutes per inch

Recommendations:

Site B

The following is recommended for the Primary Leach field:

System Type	Standard
Gravel below pipe (in.)	12
Soil application rate (Lf/bdrm)	79
Depth of leach lines (in.)	30

Site D

The following is recommended for the Reserve Leach field:

System Type	Shallow Sloping
Gravel below pipe (in.)	12
Soil application rate (Lf/bdrm)	85
Depth of leach lines (in.)	36

The following are restrictions:

- A). Maintain 10 foot setback to all large trees.
- B). Maintain system in less than 30% slope in area of Site D and less than 8% in the area of Site B.

We viewed and logged the profile holes, witnessed and reviewed the percolation data. We have determined that they are true, accurate and indicative of the site for an on-site sewage disposal system as measured by the current standards of the Sonoma County Permit and Resource Management Department, Well and Septic Division.

If you have any questions, please call us at 823-2190.

Sincerely,



Rob Huffman, PE, I/S

RH:fv enc.
00-83

Name **CANELIS**

Pit# **A** %Slope **4%** Date **6-10-00**

COMMENTS

Depth **0-19** Sample

Color/Chip **10 YR 3/4**

Gravelly Very Extreme Size of Gravel 1/4" 1/2" 1 1/2" 2"-3"
15 to 35% 35% to 65% >65%

Texture: S LS **(SL)** L SCI CL SC SIL SICI SI C

Mottles: few 2% to 6% common 5% to 20% many >20%
fine <5mm medium 5-15mm large > 15mm
faint distinct prominent

Structure: **(strong)** moderate weak

Shape: massive, single grain, granular, platy, prismatic, columnar, angular blocky, **(subangular blocky)**

Consistence: (dry) lo, so, sh, h, vhy, exh,
(moist) lo, **(vyfrb)** frb, frm, vfrm, exfrm
(plasticity) **(ns)** ss, s, vs, **(np)** sp, p, vp

Roots: vy fine (1mm) fine (1-2 mm) medium (2-5mm) coarse(5-10mm)
Few <10 <10 <1 <1
common 10-100 10-100 1-10 1-5
many >100 >100 >10 **(>5)**

Pores: vy fine (0.1 - 0.5mm) fine(0.5 - 2mm) medium(2 - 5mm) coarse(5-10mm)
Few <25 <10 <1 <1
Common 25-200 10-50 1-5 1-2.5
Many >200 >50 >5 **(>2.5)**

Boundary: Abrupt (<1) Clear (1" to 2.5") **(Gradual (2.5" to 5"))** Diffuse (>5") Bottom Wavy

OK FOR
FILLED
LAND

Depth **19-30** Sample

Color/Chip **7.5 YR 3/4**

Gravelly Very Extreme Size of Gravel 1/4" 1/2" 1 1/2" 2"-3"
15 to 35% 35% to 65% >65%

Texture: S LS SL **(L)** SCI CL SC SIL SICI SI C

Mottles: few 2% to 5% common 5% to 20% many >20%
fine <5mm medium 5-15mm large > 15mm
faint distinct prominent

Structure: **(strong)** moderate weak

Shape: massive, single grain, granular, platy, prismatic, columnar, **(angular blocky)**, **(subangular blocky)**

Consistence: (dry) lo, so, sh, h, vhy, exh,
(moist) lo, vyfrb, frb, frm, vfrm, exfrm
(plasticity) ns, ss, s, vs, np, sp, p, vp

Roots: vy fine (1mm) fine (1-2 mm) medium (2-5mm) coarse(5-10mm)
Few <10 <10 **(<1)** <1
common 10-100 10-100 1-10 1-5
many >100 >100 >10 >5

Pores: vy fine (0.1 - 0.5mm) fine(0.5 - 2mm) medium(2 - 5mm) coarse(5-10mm)
Few <25 <10 **(<1)** <1
Common 25-200 10-50 1-5 1-2.5
Many >200 **(>50)** >5 >2.5

Boundary: Abrupt (<1) Clear (1" to 2.5") **(Gradual (2.5" to 5"))** Diffuse (>5") Bottom Wavy

Name **CANELIS** Pit# **A** %Slope **7** Date **6-10-00**

Depth **30-42** Sample

Color/Chip **10YR 6/6**

Gravelly Very Extreme Size of Gravel $\frac{1}{4}$ " $\frac{3}{8}$ " $\frac{1}{2}$ " 2"-3"
15 to 35% 35% to 65% >65%

Texture: S LS SL L SCI CL SC SIL SICI SI C

Mottles: few 2% to 5% common 5% to 20% many >20%
fine <5mm medium 5-15mm large > 15mm
faint distinct prominent

Structure: strong moderate weak

Shape: massive, single grain, granular, platy, prismatic, columnar, angular blocky, subangular blocky

Consistence: (dry) lo, so, sh, h, vhy, exh,
(moist) lo, vyfrb, frb, frm, vfrm, exfrm
(plasticity) ns, ss, s, vs, np, sp, p, vp

Roots: vy fine (1mm) fine (1-2mm) medium (2-5mm) coarse (5-10mm)
Few <10 <10 <1 <1
common 10-100 10-100 1-10 1-5
many >100 >100 >10 >5

Pores: vy fine (0.1-0.5mm) fine (0.5-2mm) medium (2-5mm) coarse (5-10mm)
Few <25 <10 <1 <1
Common 25-200 10-50 1-5 1-2.5
Many >200 >50 >5 >2.5

Boundary: Abrupt (<1) Clear (1" to 2.5") Gradual (2.5" to 5") Diffuse (>5") Bottom Wavy

COMMENTS

REDUCED ZONE

Depth **42-84** Sample

Color/Chip **10YR 6/6**

Gravelly Very Extreme Size of Gravel $\frac{1}{4}$ " $\frac{3}{8}$ " $\frac{1}{2}$ " 2"-3"
15 to 35% 35% to 65% >65%

Texture: S LS SL L SCI CL SC SIL SICI SI C

Mottles: few 2% to 5% common 5% to 20% many >20%
fine <5mm medium 5-15mm large > 15mm
faint distinct prominent

Structure: strong moderate weak

Shape: massive, single grain, granular, platy, prismatic, columnar, angular blocky, subangular blocky

Consistence: (dry) lo, so, sh, h, vhy, exh,
(moist) lo, vyfrb, frb, frm, vfrm, exfrm
(plasticity) ns, ss, s, vs, np, sp, p, vp

Roots: vy fine (1mm) fine (1-2mm) medium (2-5mm) coarse (5-10mm)
Few <10 <10 <1 <1
common 10-100 10-100 1-10 1-5
many >100 >100 >10 >5

Pores: vy fine (0.1-0.5mm) fine (0.5-2mm) medium (2-5mm) coarse (5-10mm)
Few <25 <10 <1 <1
Common 25-200 10-50 1-5 1-2.5
Many >200 >50 >5 >2.5

Boundary: Abrupt (<1) Clear (1" to 2.5") Gradual (2.5" to 5") Diffuse (>5") Bottom Wavy

**CLAY W/
POCKETS OF
DEC FRAC
SANDSTONE**

Name **CANELIS** Pit# **B** %Slope **4%** Date **6-10-00**

Depth **0-9** Sample

COMMENTS

Color/Chip **10YR 3/4**

Gravelly Very Extreme Size of Gravel **1/4"** 1/2" 1" 2"-3"
15 to 35% 35% to 65% >65%

Texture: S LS SL **L** SCI CL SC SIL SICI Si C

Mottles: few 2% to 5% common 5% to 20% many >20%
fine <5mm medium 5-15mm large > 15mm
faint distinct prominent

Structure: **strong** moderate weak

Shape: massive, single grain, granular, platy, prismatic, columnar, angular blocky, **subangular blocky**

Consistence: (dry) lo, so, sh, h, vhy, exh,
(moist) lo, **vyfrb** frb, frm, vfrm, exfrm
(plasticity) **ns** ss, s, vs, **np** sp, p, vp

Roots: vy fine (1mm) fine (1-2 mm) medium (2-5mm) coarse (5-10mm)
Few <10 <10 <1 <1
common 10-100 10-100 1-10 1-5
many >100 >100 **>10** >5

Pores: vy fine (0.1 - 0.5mm) fine (0.5 - 2mm) medium (2 - 5mm) coarse (5-10mm)
Few <25 <10 <1 <1
Common 25-200 10-50 1-5 1-2.5
Many >200 >50 **>5** >2.5

Boundary: Abrupt (<1") **Clear (1" to 2.5")** Gradual (2.5" to 5") Diffuse (>5") Bottom Wavy

Depth **9-33** Sample

Color/Chip **7.5 YR 3/4**

Gravelly Very Extreme Size of Gravel 1/4" 1/2" 1" 2"-3"
15 to 35% 35% to 65% >65%

Texture: S LS SL **L** SCI CL SC SIL SICI Si C

Mottles: few 2% to 5% common 5% to 20% many >20%
fine <6mm medium 5-15mm large > 15mm
faint distinct prominent

Structure: **strong** moderate weak

Shape: massive, single grain, granular, platy, prismatic, columnar, angular blocky, **subangular blocky**

Consistence: (dry) lo, so, sh, h, vhy, exh,
(moist) lo, **vyfrb** frb, frm, vfrm, exfrm
(plasticity) **ns** ss, s, vs, **np** sp, p, vp

Roots: vy fine (1mm) fine (1-2 mm) medium (2-5mm) coarse (5-10mm)
Few <10 <10 <1 <1
common 10-100 10-100 1-10 1-5
many >100 >100 **>10** >5

Pores: vy fine (0.1 - 0.5mm) fine (0.5 - 2mm) medium (2 - 5mm) coarse (5-10mm)
Few <25 <10 <1 <1
Common 25-200 10-50 1-5 1-2.5
Many >200 >50 **>5** >2.5

Boundary: Abrupt (<1") **Clear (1" to 2.5")** **Gradual (2.5" to 5")** Diffuse (>5") Bottom Wavy

OK FOR
30" STD
AREAS LESS
THAN 8%

Name **CANELIS**

Plt# **B** %Slope

Date **6-10-00**

Depth **33-50** Sample

Color/Chip **7.5 YR 3/4**

Gravelly Very Extreme Size of Gravel 1/4" 3/4" 1 1/2" 2"-3"
15 to 35% 35% to 65% >65%

Texture: S LS SL L SCI **CL** SC SIL SICI SI C

Mottles: few 2% to 5% common 5% to 20% many >20%
fine <5mm medium 5-15mm large > 15mm
faint distinct prominent

Structure: strong **moderate** weak

Shape: massive, single grain, granular, platy, prismatic, columnar, **angular blocky**, subangular blocky

Consistence: (dry) lo, so, sh, h, vhy, exh,
(moist) lo, vyfrb, **frb**, frm, vfrm, exfrm
(plasticity) ns, **ss**, s, vs, np, **sp**, p, vp

Roots: vy fine (1mm) fine (1-2mm) medium (2-6mm) coarse (5-10mm)
Few <10 <10 <1 <1
common 10-100 10-100 1-10 1-5
many >100 >100 >10 >5

Pores: vy fine (0.1-0.5mm) fine (0.5-2mm) medium (2-5mm) coarse (5-10mm)
Few <25 <10 <1 <1
Common 25-200 10-50 1-5 1-2.5
Many >200 >50 >5 >2.5

Boundary: Abrupt (<1) Clear (1" to 2.5") Gradual (2.5" to 5") Diffuse (>5") Bottom **Wavy**

Depth **50-66** Sample

Color/Chip **7.5 YR 3/4**

Gravelly **15 to 35%** Very Extreme Size of Gravel 1/4" **3/4"** **1 1/2"** 2"-3"
35% to 65% >65%

Texture: S LS SL L SCI **CL** SC SIL SICI SI **C**

Mottles: few 2% to 5% common 5% to 20% many >20%
fine <5mm medium 5-15mm large > 15mm
faint distinct prominent

Structure: strong **moderate** weak

Shape: massive, single grain, granular, platy, prismatic, columnar, angular blocky, subangular blocky

Consistence: (dry) lo, so, sh, h, vhy, exh,
(moist) lo, vyfrb, **frb**, frm, vfrm, exfrm
(plasticity) ns, **ss**, s, vs, np, **sp**, p, vp

Roots: vy fine (1mm) fine (1-2mm) medium (2-6mm) coarse (5-10mm)
Few <10 <10 <1 <1
common 10-100 10-100 1-10 1-5
many >100 >100 >10 >5

Pores: vy fine (0.1-0.5mm) fine (0.5-2mm) medium (2-5mm) coarse (5-10mm)
Few <25 **<10** <1 <1
Common 25-200 10-50 1-5 1-2.5
Many >200 >50 >5 >2.5

Boundary: Abrupt (<1) Clear (1" to 2.5") **Gradual (2.5" to 5")** Diffuse (>5") Bottom Wavy

COMMENTS

NEED
PERC
TEST OR
HYDRA @ 66"

Name CANELLS Pit# B %Slope 4% Date 6-10-00

COMMENTS

Depth 66-90 Sample

Color/Chip 7.5YR 3/4

Gravelly Very Extreme Size of Gravel 1/4" 1/2" 1 1/2" 2"-3"
15 to 35% 35% to 65% >65%

Texture: S LS SL L SCI CL SC SIL SICI SI C

Mottles: few 2% to 5% common 5% to 20% many >20%
fine <5mm medium 5-15mm large > 15mm
faint distinct prominent

Structure: strong moderate weak

Shape: massive, single grain, granular, platy, prismatic, columnar, angular blocky, subangular blocky

Consistence: (dry) lo, so, sh, h, vhy, exh,
(moist) lo, vyfrb, frb, frm, vfrm, exfrm
(plasticity) ns, ss, s, vs, np, sp, p, vp

Roots: vy fine (1mm) fine (1-2mm) medium (2-5mm) coarse (5-10mm)
Few <10 <10 <1 <1
common 10-100 10-100 1-10 1-5
many >100 >100 >10 >5

Pores: vy fine (0.1-0.5mm) fine (0.5-2mm) medium (2-5mm) coarse (5-10mm)
Few <25 <10 <1 <1
Common 25-200 10-50 1-5 1-2.5
Many >200 >50 >5 >2.5

Boundary: Abrupt (<1) Clear (1" to 2.5") Gradual (2.5" to 5") Diffuse (>5") Bottom Wavy

Depth Sample

Color/Chip

Gravelly Very Extreme Size of Gravel 1/4" 1/2" 1 1/2" 2"-3"
15 to 35% 35% to 65% >65%

Texture: S LS SL L SCI CL SC SIL SICI SI C

Mottles: few 2% to 5% common 5% to 20% many >20%
fine <5mm medium 5-15mm large > 15mm
faint distinct prominent

Structure: strong moderate weak

Shape: massive, single grain, granular, platy, prismatic, columnar, angular blocky, subangular blocky

Consistence: (dry) lo, so, sh, h, vhy, exh,
(moist) lo, vyfrb, frb, frm, vfrm, exfrm
(plasticity) ns, ss, s, vs, np, sp, p, vp

Roots: vy fine (1mm) fine (1-2mm) medium (2-5mm) coarse (5-10mm)
Few <10 <10 <1 <1
common 10-100 10-100 1-10 1-5
many >100 >100 >10 >5

Pores: vy fine (0.1-0.5mm) fine (0.5-2mm) medium (2-5mm) coarse (5-10mm)
Few <25 <10 <1 <1
Common 25-200 10-50 1-5 1-2.5
Many >200 >50 >5 >2.5

Boundary: Abrupt (<1) Clear (1" to 2.5") Gradual (2.5" to 5") Diffuse (>5") Bottom Wavy

Name **CANELIS**

Pit# **C** %Slope **25** Date **6-10-00**

Depth **0-24** Sample

COMMENTS

Color/Chlp **10YR 3/4**

Gravelly Very Extreme Size of Gravel 1/4" 1/2" 1 1/4" 2"-3"
15 to 35% 35% to 65% >65%

Texture: S LS **SL L** SCI CL SC SIL SICI SI C

Mottles: few 2% to 5% common 5% to 20% many >20%
fine <5mm medium 5-15mm large > 15mm
faint distinct prominent

Structure: **strong** moderate weak

Shape: massive, single grain, granular, platy, prismatic, columnar, angular blocky, **subangular blocky**

Consistence: (dry) lo, so, sh, h, vhy, exh,
(moist) lo, **vyfrb**, frb, frm, vfrm, exfrm
(plasticity) **ns**, ss, s, vs, **np**, sp, p, vp

Roots: vy fine (1mm) fine (1-2 mm) medium (2-5mm) COARSE(5-10mm)
Few <10 <10 <1 <1
common 10-100 10-100 1-10 1-5
many >100 >100 >10 >5

Pores: vy fine (0.1 - 0.5mm) fine(0.5 - 2mm) medium(2 - 5mm) coarse(5-10mm)
Few <25 <10 <1 <1
Common 25-200 10-50 1-5 1-2.5
Many >200 >50 >5 >2.5

Boundary: Abrupt (<1") **Clear (1" to 2.5")** Gradual (2.5" to 5") Diffuse (>5") Bottom Wavy

MARGINAL
FOR
SHALLOW
SLOPING

Depth **24-33** Sample

Color/Chlp **7.5YR 3/4**

Gravelly Very Extreme Size of Gravel 1/4" 1/2" 1 1/4" 2"-3"
15 to 35% 35% to 65% >65%

Texture: S LS SL L **SCI** CL SC SIL SICI SI C

Mottles: few 2% to 5% common 5% to 20% many >20%
fine <5mm medium 5-15mm large > 15mm
faint distinct prominent

Structure: **strong** moderate weak

Shape: massive, single grain, granular, platy, prismatic, columnar, angular blocky, subangular blocky

Consistence: (dry) lo, so, sh, h, vhy, exh,
(moist) lo, vyfrb, frb, frm, vfrm, exfrm
(plasticity) ns, **ss**, s, vs, np, **sp**, p, vp

Roots: vy fine (1mm) fine (1-2 mm) medium (2-5mm) coarse (5-10mm)
Few <10 <10 <1 <1
common 10-100 10-100 **1-10** 1-5
many >100 >100 >10 >5

Pores: vy fine (0.1 - 0.5mm) fine(0.5 - 2mm) medium(2 - 5mm) coarse(5-10mm)
Few <25 <10 <1 <1
Common 25-200 10-50 1-5 1-2.5
Many >200 >50 >5 >2.5

Boundary: Abrupt (<1") **Clear (1" to 2.5")** Gradual (2.5" to 5") Diffuse (>5") Bottom **Wavy**

Name CANELIS Pit# C %Slope 25 Date 6-10-00

Depth 33-90 Sample

COMMENTS

Color/Chip 7.5YR 3/4

Gravelly Very Extreme Size of Gravel 1/4" 1/2" 1 1/2" 2"-3"
15 to 35% 35% to 65% >65%

Texture: S LS SL L SCI CL SC SIL SICI SI C

Mottles: few 2% to 5% common 5% to 20% many >20%
fine <5mm medium 5-15mm large > 15mm
faint distinct prominent

**AVOID
AREA**

Structure: strong moderate weak

Shape:
massive, single grain, granular, platy, prismatic, columnar, angular blocky, subangular blocky

Consistence; (dry) lo, so, sh, h, vhy, exh,
(moist) lo, vyfrb, frb, frm, vfrm, exfrm
(plasticity) ns, ss, s, vs, np, sp, p, vp

Roots: vy fine (1mm) fine (1.2 mm) medium (2-5mm) coarse (5-10mm)
Few <10 <10 <1 <1
common 10-100 10-100 1-10 1-5
many >100 >100 >10 >5

Pores: vy fine (0.1-0.5mm) fine (0.5-2mm) medium (2-5mm) coarse (5-10mm)
Few <25 <10 <1 <1
Common 25-200 10-50 1-5 1-2.5
Many >200 >50 >5 >2.5

Boundary: Abrupt (<1) Clear (1" to 2.5") Gradual (2.5" to 5") Diffuse (>5") Bottom Wavy

Depth Sample

Color/Chip

Gravelly Very Extreme Size of Gravel 1/4" 1/2" 1 1/2" 2"-3"
15 to 35% 35% to 65% >65%

Texture: S LS SL L SCI CL SC SIL SICI SI C

Mottles: few 2% to 5% common 5% to 20% many >20%
fine <5mm medium 5-15mm large > 15mm
faint distinct prominent

Structure: strong moderate weak

Shape:
massive, single grain, granular, platy, prismatic, columnar, angular blocky, subangular blocky

Consistence; (dry) lo, so, sh, h, vhy, exh,
(moist) lo, vyfrb, frb, frm, vfrm, exfrm
(plasticity) ns, ss, s, vs, np, sp, p, vp

Roots: vy fine (1mm) fine (1.2 mm) medium (2-5mm) coarse (5-10mm)
Few <10 <10 <1 <1
common 10-100 10-100 1-10 1-5
many >100 >100 >10 >5

Pores: vy fine (0.1-0.5mm) fine (0.5-2mm) medium (2-5mm) coarse (5-10mm)
Few <25 <10 <1 <1
Common 25-200 10-50 1-5 1-2.5
Many >200 >50 >5 >2.5

Boundary: Abrupt (<1) Clear (1" to 2.5") Gradual (2.5" to 5") Diffuse (>5") Bottom Wavy

Name **CANELIS**

PH# **D**

%Slope

Date **6-10-00**

COMMENTS

Depth **0-33** Sample

Color/Chip **10YR 3/4**

Gravelly Very Extreme Size of Gravel 1/4" 1/2" 1 1/2" 2"-3"
15 to 35% 35% to 65% >65%

Texture: S LS **(SL)** L SCI CL SC SIL SICI SI C

Mottles: few 2% to 5% common 5% to 20% many >20%
fine <5mm medium 5-15mm large >15mm
faint distinct prominent

Structure: **(strong)** moderate weak

Shape: massive, single grain, granular, platy, prismatic, columnar, angular blocky, subangular blocky

Consistence: (dry) lo, so, sh, h, vhy, exh,
(moist) lo, **(vyfrb)**, frb, frm, vfrm, exfrm
(plasticity) **(ns)**, ss, s, vs, **(np)**, sp, p, vp

Roots: vy fine (1mm) fine (1-2mm) medium (2-4mm) coarse (5-10mm)
Few <10 <10 <1 <1
common 10-100 10-100 1-10 1-5
many >100 >100 **(>10)** >5

Pores: vy fine (0.1-0.5mm) fine (0.5-2mm) medium (2-8mm) coarse (8-10mm)
Few <25 <10 <1 <1
Common 25-200 10-50 1-5 1-2.5
Many >200 >50 **(>5)** >2.5

Boundary: Abrupt (<1) Clear (1" to 2.5") **(Gradual (2.5" to 5"))** Diffuse (>5") Bottom Wavy

**GOOD
PROF.
FOR
SHALLOW
SLOPING**

Depth **33-53** Sample

Color/Chip **10YR 5/6**

Gravelly Very Extreme Size of Gravel 1/4" 1/2" 1 1/2" 2"-3"
15 to 35% 35% to 65% >65%

Texture: S LS **(SL)** L SCI CL SC SIL SICI SI C

Mottles: few 2% to 5% common 5% to 20% many >20%
fine <5mm medium 5-15mm large >15mm
faint distinct prominent

Structure: strong **(moderate)** weak

Shape: massive, single grain, granular, platy, prismatic, columnar, angular blocky, **(subangular blocky)**

Consistence: (dry) lo, so, sh, h, vhy, exh,
(moist) lo, vyfrb, **(frb)**, frm, vfrm, exfrm
(plasticity) **(ns)**, ss, s, vs, **(np)**, sp, p, vp

Roots: vy fine (1mm) fine (1-2mm) medium (2-4mm) coarse (5-10mm)
Few <10 <10 <1 <1
common 10-100 10-100 **(1-10)** 1-5
many >100 >100 >10 >5

Pores: vy fine (0.1-0.5mm) fine (0.5-2mm) medium (2-8mm) coarse (8-10mm)
Few <25 **(<10)** <1 <1
Common 25-200 10-50 1-5 1-2.5
Many >200 >50 >5 >2.5

Boundary: Abrupt (<1) **(Clear (1" to 2.5"))** Gradual (2.5" to 5") Diffuse (>5") Bottom Wavy

Name **CANELIS** Pit# **D** %Slope Date **6-10-00**

Depth **53-84** Sample

COMMENTS

Color/Chip **10 YR 5/6**

Gravelly Very Extreme Size of Gravel 1/4" 1/2" 1 1/4" 2"-3"
15 to 35% 35% to 65% >65%

Texture: S LS SL L **SCI** CL SC SIL SICI SI C

Mottles: few 2% to 5% common 5% to 20% many >20%
fine <5mm medium 5-15mm large > 15mm
faint distinct prominent

Structure: strong **moderate** weak

Shape: massive, single grain, granular, platy, prismatic, columnar, angular blocky, subangular blocky

Consistence: (dry) lo, so, sh, h, vhy, exh,
(moist) lo, vyfrb, frb, **frm**, vfrm, exfrm
(plasticity) ns, **ss**, s, vs, np, **sp**, p, vp

Roots: vy fine (1mm) fine (1-2 mm) medium (2-5mm) coarse (5-10mm)
Few <10 <10 <1 <1
common 10-100 10-100 1-10 1-5
many >100 >100 >10 >5

Pores: vy fine (0.1 - 0.5mm) fine (0.5 - 2mm) medium (2 - 5mm) coarse (5-10mm)
Few <25 <10 <1 <1
Common 25-200 10-50 1-5 1-2.5
Many >200 >50 >5 >2.5

Boundary: Abrupt (<1") Clear (1" to 2.5") Gradual (2.5" to 5") Diffuse (>5") **Bottom** Wavy

PEDS w/
Clay SKINS
SLIGHTY
PERM.

Depth Sample

Color/Chip

Gravelly Very Extreme Size of Gravel 1/4" 1/2" 1 1/4" 2"-3"
15 to 35% 35% to 65% >65%

Texture: S LS SL L SCI CL SC SIL SICI SI C

Mottles: few 2% to 5% common 5% to 20% many >20%
fine <5mm medium 5-15mm large > 15mm
faint distinct prominent

Structure: strong moderate weak

Shape: massive, single grain, granular, platy, prismatic, columnar, angular blocky, subangular blocky

Consistence: (dry) lo, so, sh, h, vhy, exh,
(moist) lo, vyfrb, frb, frm, vfrm, exfrm
(plasticity) ns, ss, s, vs, np, sp, p, vp

Roots: vy fine (1mm) fine (1-2 mm) medium (2-5mm) coarse (5-10mm)
Few <10 <10 <1 <1
common 10-100 10-100 1-10 1-5
many >100 >100 >10 >5

Pores: vy fine (0.1 - 0.5mm) fine (0.5 - 2mm) medium (2 - 5mm) coarse (5-10mm)
Few <25 <10 <1 <1
Common 25-200 10-50 1-5 1-2.5
Many >200 >50 >5 >2.5

Boundary: Abrupt (<1") Clear (1" to 2.5") Gradual (2.5" to 5") Diffuse (>5") Bottom Wavy

Name CANELIS Pit# E %Slope 20 Date 6-10-00

Depth 0-40 Sample

Color/Chip 10YR 4/4

Gravelly Very Extreme Size of Gravel $\frac{1}{8}$ " $\frac{1}{4}$ " $\frac{1}{2}$ " 2"-3"
15 to 35% 35% to 65% >65%

Texture: S LS SL (L) SCI CL SC SIL SICI SI C

Mottles: few 2% to 5% common 5% to 20% many >20%
fine <5mm medium 5-15mm large > 15mm
faint distinct prominent

Structure: (strong) moderate weak

Shape: massive, single grain, granular, platy, prismatic, columnar, angular blocky, (subangular blocky)

Consistence: (dry) lo, so, sh, h, vhy, exh,
(moist) lo, vyfrb, frb, frm, vfrm, exfrm
(plasticity) ns, ss, s, vs., np, sp, p, vp

Roots: vy fine (1mm) fine (1.2 mm) medium (2-5mm) coarse (5-10mm)
Few <10 <10 <1 <1
common 10-100 10-100 1-10 1-5
many >100 >100 >10 >5

Pores: vy fine (0.1-0.5mm) fine (0.5-2mm) medium (2-5mm) coarse (5-10mm)
Few <25 <10 <1 <1
Common 25-200 10-50 1-5 1-2.5
Many >200 >50 >5 >2.5

Boundary: Abrupt (<1") (Clear (1" to 2.5")) Gradual (2.5" to 5") Diffuse (>5") Bottom Wavy

Depth 40-76" Sample

Color/Chip 10YR 5/6

Gravelly Very Extreme Size of Gravel $\frac{1}{8}$ " $\frac{1}{4}$ " ($\frac{1}{2}$ " 2"-3"
15 to 35% 35% to 65% >65%

Texture: S LS SL L SCI CL SC SIL SICI SI C

Mottles: few 2% to 5% common 5% to 20% many >20%
fine <5mm medium 5-15mm large > 15mm
faint distinct prominent

Structure: (strong) moderate weak

Shape: massive, single grain, granular, platy, prismatic, columnar, (angular blocky), subangular blocky

Consistence: (dry) lo, so, sh, h, vhy, exh,
(moist) lo, vyfrb, frb, frm, vfrm, exfrm
(plasticity) ns, (ss), s, vs., np, (sp), p, vp

Roots: vy fine (1mm) fine (1.2 mm) medium (2-5mm) coarse (5-10mm)
Few <10 <10 <1 <1
common 10-100 10-100 1-10 1-5
many >100 >100 >10 >5

Pores: vy fine (0.1-0.5mm) fine (0.5-2mm) medium (2-5mm) coarse (5-10mm)
Few <25 <10 <1 <1
Common 25-200 10-50 1-5 1-2.5
Many >200 >50 >5 >2.5

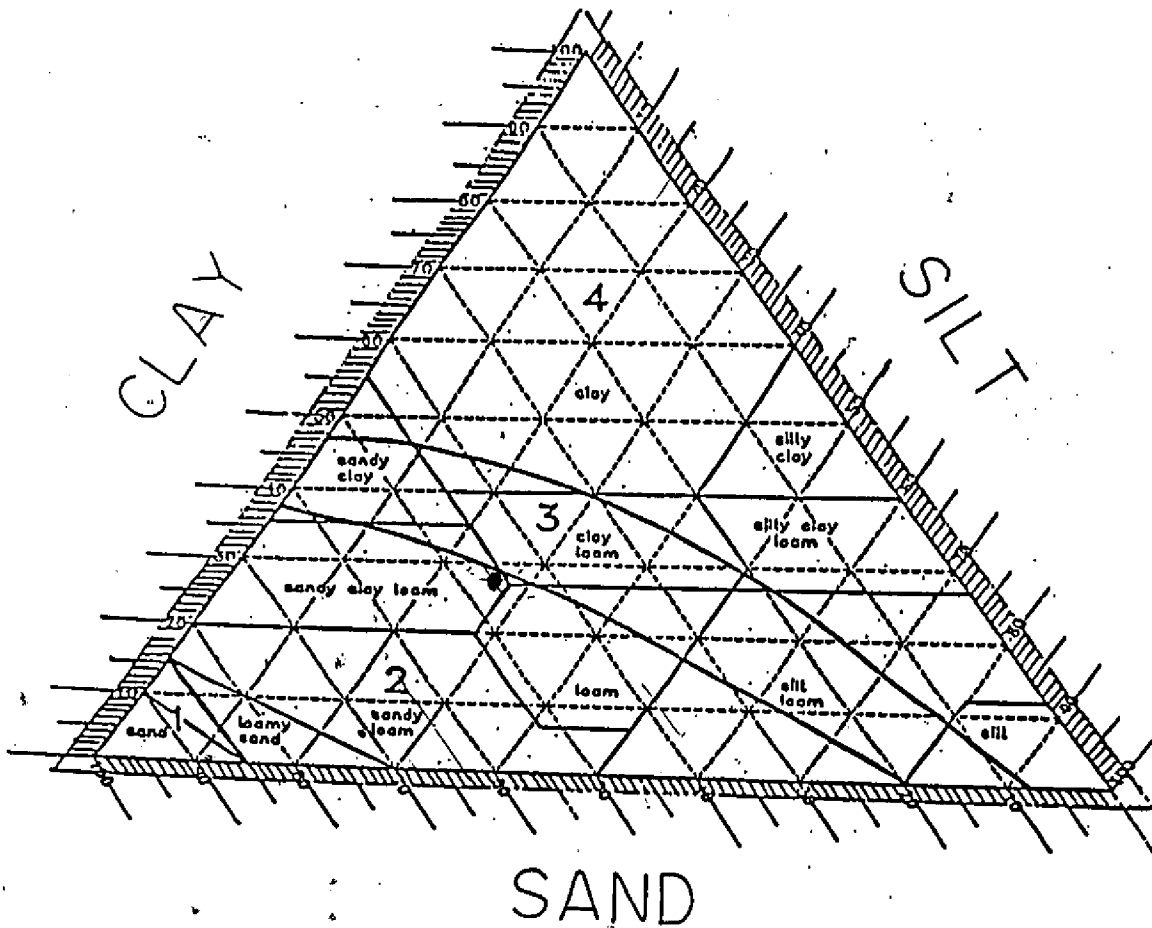
Boundary: Abrupt (<1") Clear (1" to 2.5") Gradual (2.5" to 5") Diffuse (>5") (Bottom Wavy)

COMMENTS

40%
FRAC DEC
SANDSTONE
FIRM
WITH CLAY
SKINS

Bohan & Canella

P.O.Box 186 - Cazadero, Ca 95421 707-632-5708 Fax 707-632-6342



Client: ED TUNHEIM

AP# 109-230-016

Sample / Depth 66"

Particle Size Analysis

% Based on total sample
 + #10 Before conversion.... 15
 + #10 After conversion..... 9
 Sand.....
 Clay.....
 Silt.....
 Total.....
 Db g/cc.....

Hydro % Passing #10 Sieve
 Sand..... 47
 Clay..... 28
 Silt..... 25
 Total..... 100
 Soil Zone.....
 Soil Series.....

By: Joseph Mercieca

Laboratory Technician Date: 9-8-2000

SONOMA COUNTY
 PERMIT & RESOURCE MANAGEMENT
 WELL & SEPTIC DIVISION
 2550 Ventura Avenue
 Santa Rosa, CA 95403

SOIL PERCOLATION TEST DATA

Address of Percolation Test: 35830 HAUSER BRIDGE RD		A.P. Number: 109-230-016	Winter Groundwater Test:	"Wet Weather Per
Owner's Name: ED TUNHIEM		Field Check: Yes No By: Date: Time:		
Owner's Mailing Address: 35500 HAUSER BRIDGE RD		Review of Data: Rates Acceptable: Yes No		
City/State/Zip Code: CAZADERO CA 95421	Telephone Number: (707) 847-3761	Remarks:		Receipt Information:
Water Supply: Private Public	Lot or Parcel Size:			
Test Conducted By: BOHAN & CANELIS	Telephone Number: (707) 632-5708	Circle One: Initial Test Supplemental		Sanitarian
Address/City/State/Zip Code: 600 AUSTIN CREEK RD. CAZADERO CA. 95421				
Type of Soil: E.M.E. EMPIRE SERIES 8-3-2000	Date of Test:			

Hole No.	Depth of Hole	Pipe Length	Presoak Remaining	Start Measurement		First Measurement		Second Measurement		Third Measurement		Fourth Measurement		Fifth Measurement		Sixth Measurement		RATE
				Time	Inches	Time	Inches	Time	Inches	Time	Inches	Time	Inches	Time	Inches	Time	Inches	
1	30	70	0	7:40	58	7:40	7	11:00	58	12:00	TEN	10	MIN	2:00	TEST	3:00		
2	30	101	0	7:40	7	7:40	7	7:40	7	7:40	7	7:40	7	100/12	90		10 1/2	6
3	30	27	0	7:15	7	7:15	7	7:15	7	7:15	7	7:15	7	7:15	7			
4	30	77	0	6:5	72	6:5	72	7:5	75	7:5	70	7:5	72 3/4	7:5	75		69	22
5	36	77	0	6:5	76	6:5	76	7:5	75	7:5	74	7:5	76 1/2	7:5	75		75	24
6	30	47	0	7:35	7	7:35	7	7:35	7	7:35	7	7:35	7	7:35	7		TRACE	5
7	30	27	0	7:15	25	7:15	25	7:15	25	7:15	25	7:15	25	7:15	25		24 1/2	6
8	36	48	0	7:31	7	7:31	7	7:31	7	7:31	7	7:31	7	7:31	7		TRACE	5
9	36	52	0	7:40	7	7:40	7	7:40	7	7:40	7	7:40	7	7:40	7		TRACE	5
10	36	51	0	7:19	30	7:19	30	7:19	30	7:19	29 3/4	7:19	29 1/2	7:19	29 1/2		29 1/2	6

SOIL PERCOLATION TEST DATA

Hole Number	Depth of Hole	Pipe Length	Presoak Remaining	Start		First Measurement		Second Measurement		Third Measurement		Fourth Measurement		Fifth Measurement		Sixth Measurement	
				Time	Inches	Time	Inches	Time	Inches	Time	Inches	Time	Inches	Time	Inches	Time	Inches
1	30	70	0	11:45	58	11:25	69/58	11:35	69/58	11:45	69/58	11:55	69/58	12:05	69/58	12:15	69/58
						12:15	69/58	12:35	69/58	12:45	68 1/2 / 54	12:55	68 1/2 / 58	1:05	68 / 58	1:15	68
3	30	27	0		15		P/15		P/15		P/15		P/15		P/15		P/15
							P/15		P/15		P/15		P/15		P/15		DRY