

LINDBERG GEOLOGIC CONSULTING

**David N. Lindberg, CEG
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August 29, 2022

Project No: 0474.00

High Grade 007, LLC
Mr. Neven Kalas
950 Detroit Avenue, Ste 1-B
Concord, California 94518

Subject: Hydrologic Isolation of Existing Well from Surface Waters
16533 Cobb Road, Dinsmore, APN: 208-341-021, WCR2017-000770

To Whom It May Concern:

As requested, Lindberg Geologic Consulting has assessed an existing permitted well on the above-referenced parcel to estimate its potential for hydrologic connectivity with any adjacent wetlands, wells, and or surface waters, and if pumping this well could affect surface waters in nearby water courses. Tributaries in the vicinity of this well drain to the Van Duzen River (Figure 1). A California-Certified Engineering Geologist visited this site on August 23, 2022, to observe the subject well and local site conditions. Based on our research, observations, and our professional experience, it is our opinion the subject well has minimal likelihood of being hydrologically connected to nearby surface waters in any manner that could affect adjacent springs, wetlands and or surface waters in the vicinity. We understand that the applicant hopes to use water from this well to irrigate cannabis. No cultivation or irrigation was occurring at the time of our site visit, and we are not aware of the volume of water to be extracted or what the pumping schedule might be, but we expect that that information is provided elsewhere in the application.

Based on the Humboldt County WebGIS and the Assessor's Parcel Map (Figure 2), parcel 208-341-021 (Figure 2) encompasses approximately 8 acres. GPS located the subject well at latitude 40.48155° north, and longitude 123.57335 west ($\pm 29'$). As reported by the driller, and as found by our office, this well is in Section 11, T1N, R5E, HB&M (Figure 1 and 2).

The Humboldt County WebGIS shows this well more than 1,550 feet northeast of the Van Duzen River (Figure 1). Based on interpolation from the USGS Dinsmore, Calif. (1977), topographic quadrangle map (Figure 1), and the Humboldt County WebGIS, the elevation of this well site is approximately 2,620 feet. At its nearest point, more than 1,550 feet southwest of this well, the elevation of the Van Duzen River is slightly more than 2,400 feet. The elevation of the bottom of the well is 2,270 feet, so the well bottom is approximately 130 feet lower than, and 1,550 feet north of the Van Duzen River.

The location of well 000770 is shown approximately on attached figures. The well was drilled by Watson Well Drilling, Inc. of Eureka, in February 2017, under Humboldt County well permit

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#16/17-0457. Watson Well Drilling is a licensed well-drilling contractor (C-57 #1014048). They submitted their Well Completion Report (DWR 188) on March 14, 2017, and it is attached to this report. The driller estimated a yield of 12 gpm on February 23, 2017.

Total drilled depth of this well is 350 feet. The borehole diameter is 12-inches from the surface to 20-feet, and 7.875-inches from 20-feet to 350-feet. From grade to 20-feet, 8-inch stainless steel, blank casing pipe was installed. From grade to 170-foot blank PVC casing, 4.95-inches in diameter was installed. From 170-feet to 350-feet, in alternating 20-foot sections, 4.95-inch screened PVC casing (0.032-inch) milled slot size was installed alternating with blank PVC casing pipe. Per County requirements, a bentonite surface sanitary seal was installed from the surface to 20 feet, sealing the outer annulus around the 8-inch stainless steel surface casing pipe. The well is therefore cased and sealed through any potential shallow subsurface aquifers. From 20-feet to 350-feet the driller reports no annular fill. Depth to first water was reported as 75 feet below grade, and depth to static water in the completed and developed well was reported to be 63 feet bgs when the driller conducted the pump test on February 23, 2017.

No springs are mapped in Section 11 on the USGS Dinsmore, Calif., (1977) topographic quadrangle map (Figure 1). From the well, the nearest mapped spring is in Section 1, and was estimated to be more than 4,710 feet to the northeast, on the northeast facing side of Mad River Ridge. This nearest spring is within the Mad River drainage basin at an elevation of approximately 3,430 feet. The second nearest mapped spring is approximately 5,775 feet to the northwest at an elevation of approximately 3,125 feet in Section 2.

This parcel is located within California's Coast Range Geomorphic Province, in the Central Belt of the Franciscan Complex (McLaughlin et al., 2000), a seismically active region in which large earthquakes are expected to occur during the economic life span (70 years) of any developments on the subject property. Geologic mapping by McLaughlin, shows that the site is underlain by (yb?) "Metasandstone of the Yolla Bolly terrane (undivided)", a part of the Central Belt of the Franciscan Complex, as presented in Figure 4. The Metasandstone of Yolla Bolly terrane, undivided, was described as a "Lawsonitic metasandstone, commonly reconstituted to textural zone 2A (Jayko and others, 1989), locally interleaved with metachert and rarely with metavolcanic rocks, inferred to be derived from western side of Yolla Bolly terrane and translated northward with Central belt". The query in the yb? map symbol indicates the mapping geologist(s) had some degree of uncertainty in the identification of these materials.

The near-surface soils are thin and rocky and are composed predominantly of broken rock (gravel) with a silty fine sand matrix. The attached USDA-NRCS map unit description of the soils at this site describes the typical profile as consisting of gravelly loam from the surface to 13-inches, underlain by very gravelly clay loam to 60-inches, with weathered (metasandstone) bedrock below. The USDA-NRCS reports the water table lies at a depth of more than 80 inches. The near-surface soils onsite were observed to include a significant percentage of clay. Soils, based on our observations, are interpreted to be uniformly distributed across the subject parcel. In the areas we

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explored, the soil profile appeared to consist of approximately 6-inches (maximum) of gravelly loam topsoil. Beneath the topsoil, we observed that the soils become more clayey and rockier.

Materials reported on the geologic log of the driller's well completion report (attached) include "Yellow Clay with gravel" in the upper 23-feet of the borehole. Beneath the yellow clay is 327 feet (23 to 350-feet) of "Blackish-Blue Sandstone" which was reported to be the water-bearing unit and is therefore presumably fractured.

We interpret the yellow clay with gravel section of this profile, from grade to 23 feet, to be an aquitard, a material of low permeability and transmissivity. Sandstone materials below 23 feet appear to be the water-bearing aquifer material tapped by this well. The water-bearing blackish-blue sandstone is highly likely to be extensively fractured, and thereby will have a higher transmissivity and permeability than would an unfractured sandstone. At the location of the subject well, the elevation of the water-bearing aquifer unit is thus between approximately 2,557 feet and 2,545 feet, based on the driller's report.

Below the surface soils, the earth materials encountered in the boring are Metasandstone of the Yolla Bolly terrane, a part of the Central Belt of the Franciscan Complex, (McLaughlin et al., 2000). As noted, fractured metasandstone rocks typically have high hydraulic conductivity and can constitute significant aquifers. We interpret the underlying sequence of materials described by the driller (gravelly clay and sandstone), as lithologies within the Central Belt of the Franciscan Complex. This sandstone apparently has a favorable hydraulic conductivity, making it, in our interpretation, the primary water bearing unit in this well.

A geologic cross section of the area after McLaughlin et al., (2000) shows the general structural and stratigraphic relationships between the regional geologic units (Figure 5). Central Belt rocks dip northeast and are bound by thrust fault plane contacts. On-site, no dip of the rock units could be observed because they are mantled with soil and hillslope colluvium and obscured by vegetation. We interpret the faults to be hydrologic boundaries of minimal permeability (due to grinding and shearing along the fault planes) which effectively separate units of the Franciscan Complex from each other, and limit groundwater flow between these fault-bound units.

Based on observations, review of pertinent and available information, and our experience, it is our professional opinion that this well has a low potential of having significant direct connection to proximal surface waters. First water was reportedly encountered at 75 feet, and then rose to a static level at 63 feet bgs. This well is sealed with bentonite hole plug (3/8") through the upper 20 feet; the bentonite seal isolates the deeper well bore from potential unconfined, near-surface aquifers with which it might communicate hydraulically. The bentonite-sealed surface casing seals the well from surface and shallow subsurface water infiltration into the deeper sandstone aquifer. When considered with the stratigraphy and easterly plunge of the geologic structure, plus the distances (horizontally and vertically) from the nearest surface waters, and the depth of the producing zone of this well (~63 to 350 feet), as well as its position relative to the watercourses and surface waters

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in Section 11, we conclude that the depth of the surface seal, combined with the 23-feet of yellow clay with gravel, are sufficient to preclude the potential for hydraulic connectivity with surface waters, of which there are none closer than 1,550 feet in the Van Duzen River. Thus, the water source from which this well draws appears to be a confined subsurface aquifer not demonstrably connected to any surface waters or unconfined, near-surface aquifer(s). This well appears, in our professional opinion, likely to be hydraulically isolated from nearby wells, surface waters, springs or wetlands.

The driller estimated the yield of this well at 12 gallons per minute (gpm) on February 23, 2017. Drawdown and duration were not reported from the Watson Well Drilling pump test. At 12 gallons per minute, this well could potentially produce 17,280 gallons per day. As noted on the well completion report, this capacity may not be representative of this well's long-term yield. Additional testing would be necessary to estimate the sustainable long-term yield of the site well.

As noted, this subject well does not appear to be hydrologically connected to, or capable of influencing surface water flows in the Van Duzen River. Nor does this well appear to be hydrologically connected to any local springs or ephemeral wetlands. Given the horizontal distances involved, the elevation differences between the water-producing zone in the subject well, and the surface waters of the nearest watercourses, on-site the potential for significant hydrologic connectivity between surface waters and groundwater in the deeper bedrock aquifer appears low. Further, given the apparently limiting condition of 23 feet of low-transmissivity yellow clay with gravel above the water-bearing sandstone units, the aquifer seems isolated from, and without any significant geohydrologic connection to other aquifer(s).

As mentioned, on the Dinsmore USGS topographic quadrangle map, there are no springs mapped within 4,700 feet of this site well. There is a spring mapped in the southwest quarter of Section 1, more than 4,700 feet northeast of the subject well, and another spring in the northwest quarter of Section 2, more than 5,700 feet away from the subject well. The well in Section 1 is on the north facing flank of Mad River Ridge, within the drainage of the Mad River. There do not appear to be any other springs or wetlands mapped within a mile of this subject well.

We researched the California Department of Water Resources (DWR) database to determine if there were any other wells within 1,000 feet of the subject well. Based on the information available at the present time, there are multiple wells in Section 11, surrounding this parcel. The wells and their corresponding well completion reports are as follows:

- Well WCR1999-008348 (legacy #0705676) is a 98-foot deep domestic well on the subject parcel (208-341-021), that is not used for cannabis irrigation. Well WCR1999-008348 is screened in hard brown sandstone and sandy brown clay with hard brown boulders.
- Well WCR2016-001633 is more than 550 feet to the west southwest on parcel 208-071-032 (46070 Highway 36) in the alluvial valley bottom fill. Well WCR2016-001633 is 100 feet in depth and is screened from 40 to 90 feet in brown and blue river run (gravel).

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- WCR2000-008693 (legacy #705692) is more than 900 feet to the north northwest on parcel 208-341-011. WCR2000-008693 is a domestic well that is 100 feet deep and is screened from 60 to 100 feet hard blue rock and soft blue gray shale.
- Well WCR2017-000830 is reportedly on parcel 208-341-015, but the coordinates in the drillers report placed it on parcel 210-092-003, so its location is somewhat uncertain. Well WCR2017-000830 is 120 feet deep and was completed in blue clay with black sandstone at 60 to 120 feet.
- Well WCR0159744, on parcel 208-341-016 is 60 feet deep, and more than 900 feet to the northeast on parcel 208-341-016. Well WCR0159744 is 60 feet deep with no screened interval specified; we speculate from the driller's report that the screened interval is from 20 to 60 feet.
- Well WCR2018-006592 is on parcel 208-341-020, more than 810 feet to the southeast. Well WCR2018-006592 is 200 feet deep and is screened in grayish blue shale with quartz from 80 to 200 feet.

In our professional opinion, it appears that the aquifer tapped by the subject well is recharged by water infiltrating through the soil from source areas both proximal and distal to the well site. The groundwater gradient in the shallow unconfined aquifer generally follows topography and flows toward the watercourses where it emerges as stream flow. When flowing, ephemeral streams in the vicinity also contribute to recharge as runoff infiltrates into these usually-dry stream beds.

The Natural Resources Conservation Service's (NRCS), online Web Soil Survey, shows the subject well within the Six Rivers National Forest Area, California, Hecker family on slopes of 35 to 70 percent, (#256, Figure 7), which is described as well-drained. The Web Soil Survey unit description is attached to this report. Mean annual precipitation in the area is listed by the NRCS as 50 to 70 inches per year. Capacity of the most limiting soil layer to transmit water (Ksat) is described as Very Low to moderately low (0.00 to 0.14 in/hr). Depth to the water table is reported to be at a depth of more than 80 inches. If, during the wet season, ten percent of the "low end" 50 inches of precipitation is absorbed by the soils and does not flow across the surface and into local watercourses, then approximately 3.33 acre-feet, or 1.08 million gallons of water per year, may be expected to recharge the local aquifer below this 8-acre subject property.

On March 28, 2022, Governor Newsome issued an executive order (N-7-22) relating to the ongoing drought in California. In his executive order, the governor outlined measures the state will undertake to avoid and ameliorate the negative impacts of the current drought. Among these measures, it was ordered that counties, cities, and other public agencies have been prohibited from approving permits for new groundwater wells (or alteration of existing wells) in basins "*subject to the Sustainable Groundwater Management Act and classified as medium- or high-priority without first obtaining written verification from a Groundwater Sustainability Agency managing the basin or area of the basin where the well is proposed*". The well at 16533 Cobb Road, Dinsmore, is not

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within a basin subject to the Act, and there has been no Groundwater Sustainability Agency established with authority over the area where this county-permitted well is sited.

The Order states that counties, cities, and other public agencies are prohibited from issuing permits for new groundwater wells (or alteration of existing wells) *“without first determining that extraction of groundwater from the proposed well is (1) not likely to interfere with the production and functioning of existing nearby wells, and (2) not likely to cause subsidence that would adversely impact or damage nearby infrastructure”*. Note that this Order, and that cited in the preceding paragraph, are not applicable to *“wells that provide less than two acre-feet per year (650,000+ gallons) of groundwater for individual domestic users, or that will exclusively provide groundwater to public water supply systems.”*

Based on our observations, research, and professional experience, it is our professional opinion that the well on APN 208-341-021, at 16533 Cobb Road, Dinsmore, has a minimal likelihood of being hydrologically connected to nearby surface waters or wells in any manner that might significantly impact or affect adjacent wetlands, wells, and or surface waters in the vicinity.

Please contact us if you have questions or concerns regarding our findings and conclusions.

Sincerely,

David N. Lindberg, CEG 1895
Lindberg Geologic Consulting

DNL:sll

Attachments:

- Figure 1: Topographic Well Location Map
- Figure 2: Humboldt County Assessor’s Parcel Map
- Figure 3: Satellite Image of Well location
- Figure 4: Geologic Map
- Figure 4a: Geologic Map Explanation
- Figure 5: Geologic Cross Section
- Figure 6: Hydrogeologic Cross Section
- Figure 7: USDA-NRCS Soil Map

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Appended:

State of California Well Completion Report:

WCR2017-000770, APN: 208-341-021 (Subject Well)

WCR1999-008348 (legacy well #0705676), APN: 208-341-021 (Subject Parcel, drilled in 8/2000)

WCR2016-001633, APN: 208-071-032 (550 feet to south/southwest)

WCR200-008693 (legacy well #705692), APN, 208-341-011 (900 feet to the north)

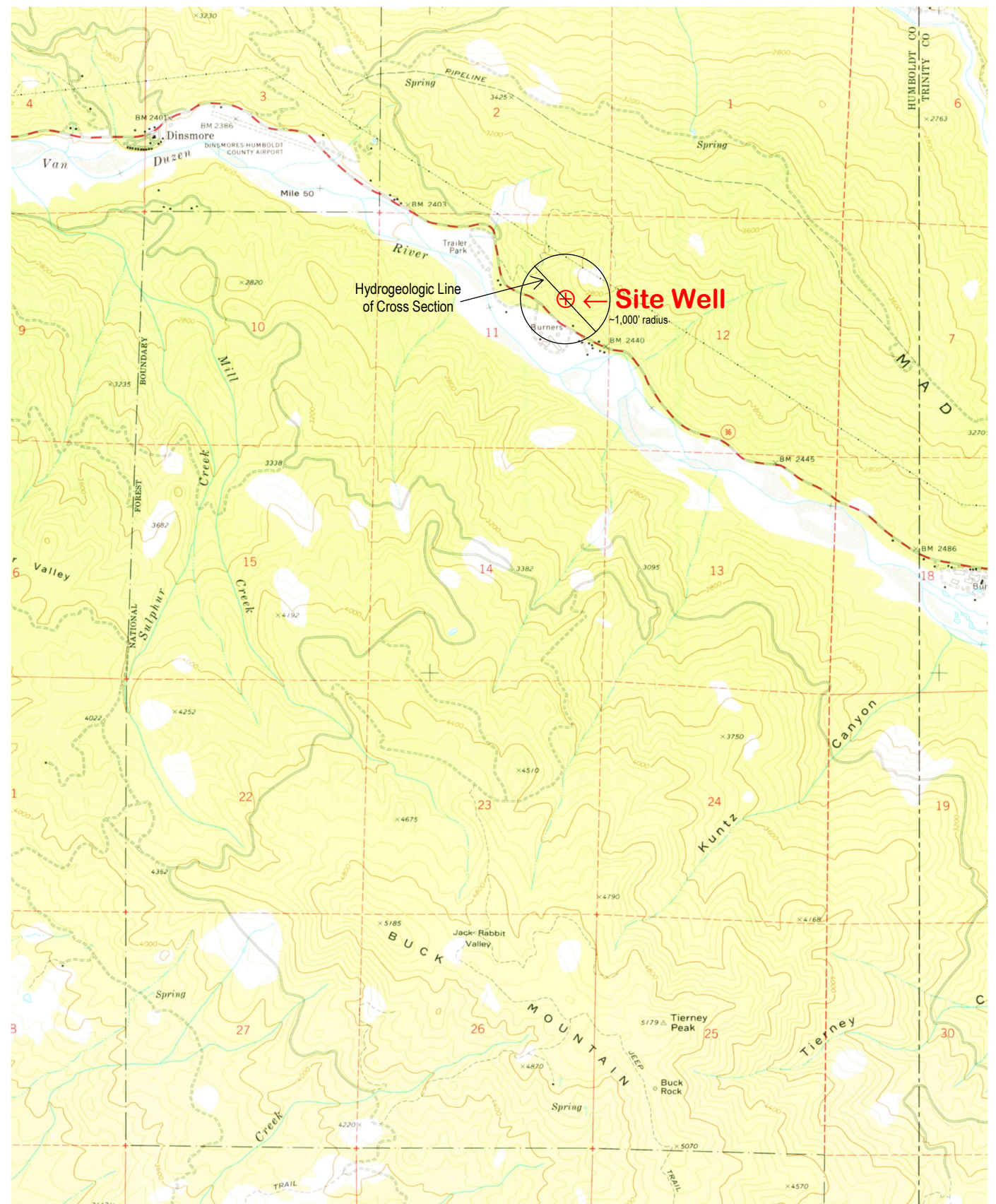
WCR2017-000830, APN: 208-314-015 (not accurately located)

WCR-e0159744, APN: 208-341-016 (900 feet to the northeast)

WCR2018-006592, APN: 208-341-020 (> 810 feet to the southeast)

Web Soil Survey, NRCS Map Unit Description:

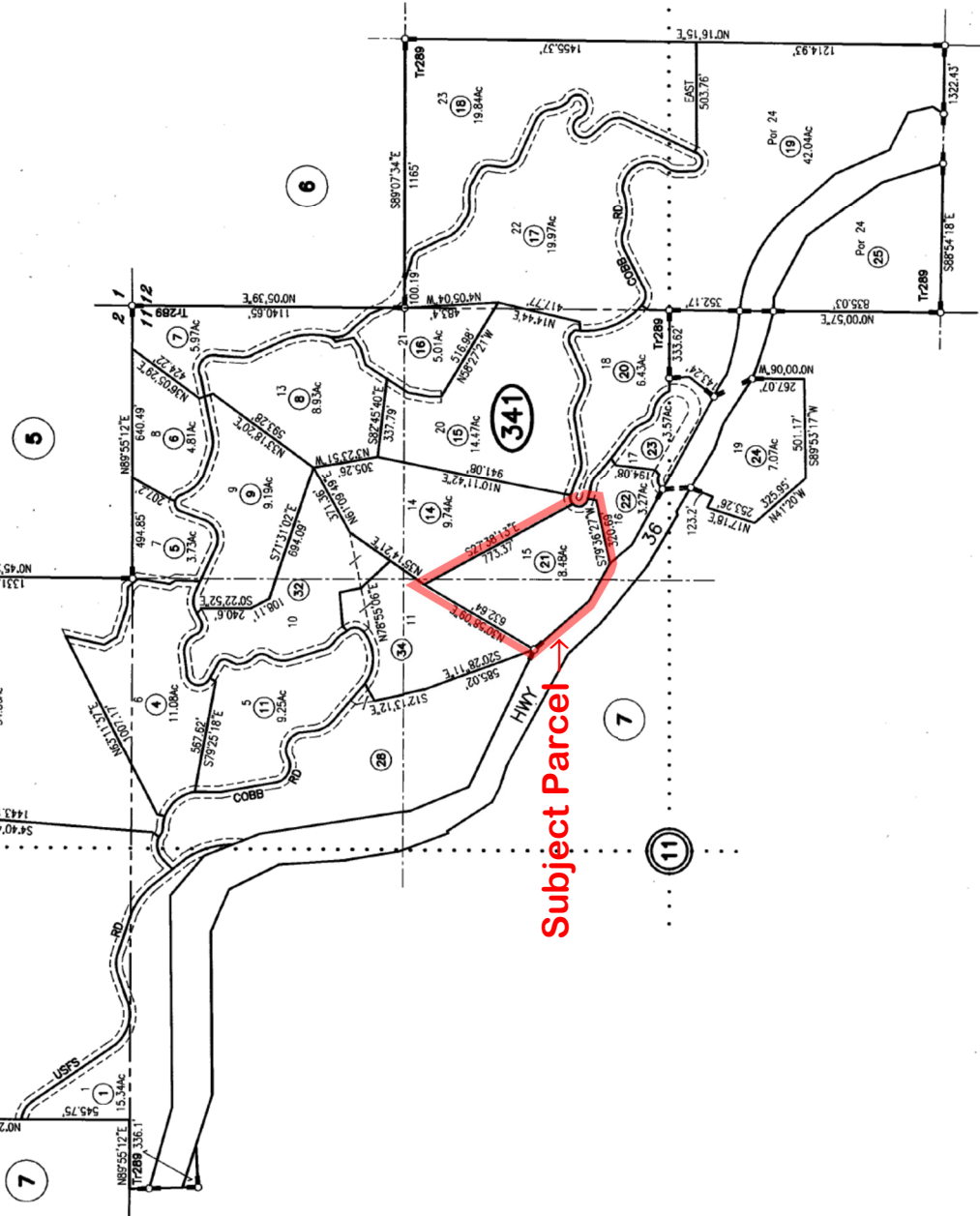
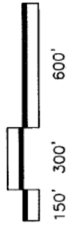
Hecker family, deep, 35 to 70 percent slopes (Soil Unit #256)



Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 2
Post Office Box 306	16533 Cobb Road, Dinsmore, California	August 29, 2022
Cutten, CA 95534	APN 208-341-021, High Grade 007 LLC, Mr. Neven Kalas, Client	Project 0474.00
(707) 442-6000	Assessor's Parcel Map (locations approximate)	Scale as Shown

208-34

PTN SECS 2, 11 & 12 T1N, R5E H.B.& M.

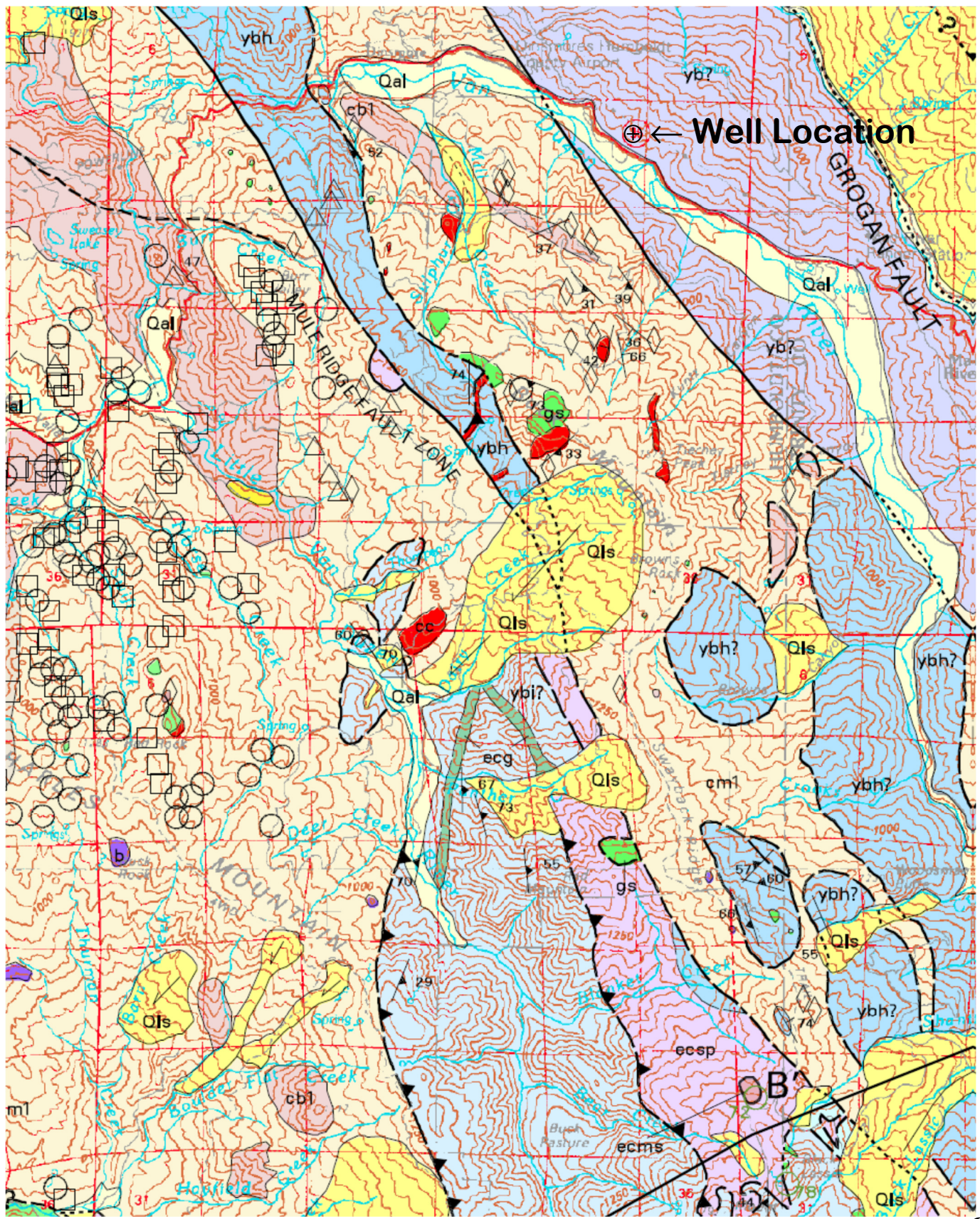


Assessor's Map Bk.208, Pg.34
County of Humboldt, CA.

NOTE - Assessor's Block Numbers Shown in Ellipses
Assessor's Parcel Numbers Shown in Circles.

Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 3
Post Office Box 306	16533 Cobb Road, Dinsmore, California	August 29, 2022
Cutten, CA 95534	APN 208-341-021, High Grade 007 LLC, Mr. Neven Kalas, Client	Project 0474.00
(707) 442-6000	Satellite View of Well Location (all locations approximate)	1" ≈ 250'





Modified from: McLaughlin et al., (2000). N ≈

Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 4a
P. O. Box 306	16533 Cobb Road, Dinsmore, California	August 29, 2022
Cutten, CA 95534	APN 208-341-021, High Grade 007 LLC, Mr. Neven Kalas, Client	Project 0474.00
(707) 442-6000	Geologic Map Explanation	No Scale

DESCRIPTION OF MAP UNITS

GREAT VALLEY SEQUENCE OVERLAP ASSEMBLAGE

QUATERNARY AND TERTIARY OVERLAP DEPOSITS

Qal	Alluvial deposits (Holocene and late Pleistocene?)
Qm	Undeformed marine shoreline and aeolian deposits (Holocene and late Pleistocene)
Qt	Undifferentiated nonmarine terrace deposits (Holocene and Pleistocene)
Qls	Landslide deposits (Holocene and Pleistocene)
QTog	Older alluvium (Pleistocene and [or] Pliocene)
QTW	Marine and nonmarine overlap deposits (late Pleistocene to middle Miocene)
Ti	Volcanic rocks of Fickle Hill (Oligocene)

COAST RANGES PROVINCE FRANCISCAN COMPLEX

-- Coastal Belt --

Coastal terrane (Pliocene to Late Cretaceous)

Sedimentary, igneous, and metamorphic rocks of the Coastal terrane (Pliocene to Late Cretaceous):

co1	Melange
co2	Melange
co3	Broken sandstone and argillite
co4	Intact sandstone and argillite
cob	Basaltic Rocks (Late Cretaceous)
cols	Limestone (Late Cretaceous)
m	Undivided blueschist (Jurassic?)

King Range terrane (Miocene to Late Cretaceous)

Krp	Igneous and sedimentary rocks of Point Delgada (Late Cretaceous)
m	Undivided blueschist blocks (Jurassic?)
	Sandstone and argillite of King Peak (middle Miocene to Paleocene?):
krk1	Melange and (or) folded argillite
krk2	Highly folded broken formation
krk3	Highly folded, largely unbroken rocks
krf	Limestone
krc	Chert
krb	Basalt

False Cape terrane (Miocene? to Oligocene?)

fc	Sedimentary rocks of the False Cape terrane (Miocene? to Oligocene?)
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Yager terrane (Eocene to Paleocene?)

Sedimentary rocks of the Yager terrane (Eocene to Paleocene?):

y1	Sheared and highly folded mudstone
y2	Highly folded broken mudstone, sandstone, and conglomeratic sandstone
y3	Highly folded, little-broken sandstone, conglomerate, and mudstone
Ycgl	Conglomerate

-- Central belt --

Melange of the Central belt (early Tertiary to Late Cretaceous):

Unnamed Metasandstone and meta-argillite (Late Cretaceous to Late Jurassic):

cm1	Melange
cm2	Melange
cb1	Broken formation
cb2	Broken formation
cwr	White Rock metasandstone of Jayko and others (1989) (Paleogene and [or] Late Cretaceous)
chr	Haman Ridge graywacke of Jayko and others (1989) (Cretaceous?)
cfs	Fort Seward metasandstone (age unknown)
cls	Limestone (Late to Early Cretaceous)

cc	Chert (Late Cretaceous to Early Jurassic)
bs	Basaltic rocks (Cretaceous and Jurassic)
m	Undivided blueschist blocks (Jurassic?)
gs	Greenstone
c	Metachert
yb	Metasandstone of Yolla Bolly terrane, undivided
b	Melange block, lithology unknown

-- Eastern Belt --

Pickett Peak terrane (Early Cretaceous or older)

Metasedimentary and metavolcanic rocks of the Pickett Peak terrane (Early Cretaceous or older):

ppsm	South Fork Mountain Schist
mb	Chinquapin Metabasalt Member (Irwin and others, 1974)
ppv	Valentine Springs Formation
mv	Metabasalt and minor metachert

Yolla Bolly terrane (Early Cretaceous to Middle Jurassic?)

Metasedimentary and metaigneous rocks of the Yolla Bolly terrane (Early Cretaceous to Middle Jurassic?):

ybt	Tallaferro Metamorphic Complex of Suppe and Armstrong (1972) (Early Cretaceous to Middle Jurassic?)
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ybc	Chicago Rock melange of Blake and Jayko (1983) (Early Cretaceous to Middle Jurassic)
------------	--

gs	Greenstone
-----------	------------

c	Metachert
----------	-----------

ybh	Metagraywacke of Hammerhorn Ridge (Late Jurassic to Middle Jurassic)
------------	--

c	Metachert
----------	-----------

gs	Greenstone
-----------	------------

sp	Serpentinite
-----------	--------------

ybd	Devils Hole Ridge broken formation of Blake and Jayko (1983) (Early Cretaceous to Middle Jurassic)
------------	--

c	Radiolarian chert
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ybi	Little Indian Valley argillite of McLaughlin and Ohlin (1984) (Early Cretaceous to Late Jurassic)
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Yolla Bolly terrane

yb	Rocks of the Yolla Bolly terrane, undivided
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GREAT VALLEY SEQUENCE AND COAST RANGE OPHIOLITE

Elder Creek(?) terrane

ecms	Mudstone (Early Cretaceous)
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	Coast Range ophiolite (Middle and Late Jurassic):
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ecg	Layered gabbro
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ecsp	Serpentinite melange
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Del Puerto(?) terrane

Rocks of the Del Puerto(?) terrane:

dpms	Mudstone (Late Jurassic)
-------------	--------------------------

	Coast Range ophiolite (Middle and Late Jurassic):
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dpt	Tuffaceous chert (Late Jurassic)
------------	----------------------------------

dpb	Basaltic flows and keratophytic tuff (Jurassic?)
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dpc	Diabase (Jurassic?)
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dpsp	Serpentinite melange (Jurassic?)
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sp	Undivided Serpentinized peridotite (Jurassic?)
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KLAMATH MOUNTAINS PROVINCE

	Undivided Great Valley Sequence:
Ks	Sedimentary rocks (Lower Cretaceous)

Hayfork terrane

Eastern Hayfork subterrane:

eh	Melange and broken formation (early? Middle Jurassic)
ehls	Limestone
ehsp	Serpentinite

Western Hayfork subterrane:

whu	Hayfork Bally Meta-andesite of Irwin (1985), undivided (Middle Jurassic)
whwg	Wildwood (Chancelulla Peak of Wright and Fahan, 1989) pluton (Middle Jurassic)
whwp	Clinopyroxenite
whji	Diorite and gabbro plutons (Middle? Jurassic)

Rattlesnake Creek terrane

rcm	Melange (Jurassic and older)
rcls	Limestone
rcc	Radiolarian chert
rcis	Volcanic Rocks (Jurassic or Triassic)
rcic	Intrusive complex (Early Jurassic or Late Triassic)
rcp	Plutonic rocks (Early Jurassic or Late Triassic)
rcum	Ultramafic rocks (age uncertain)
rcpd	Blocky peridotite

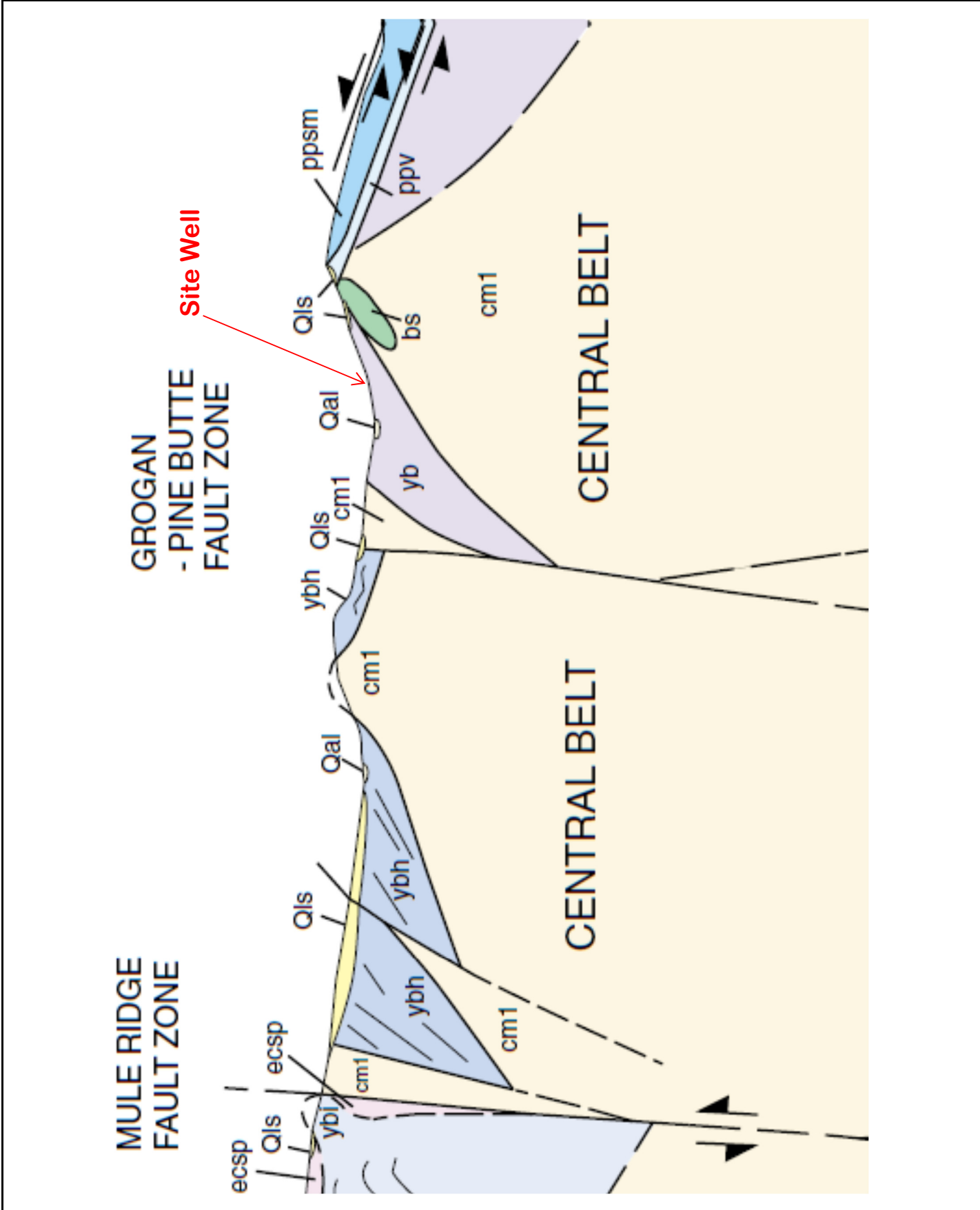
Western Klamath terrane

Smith River subterrane:

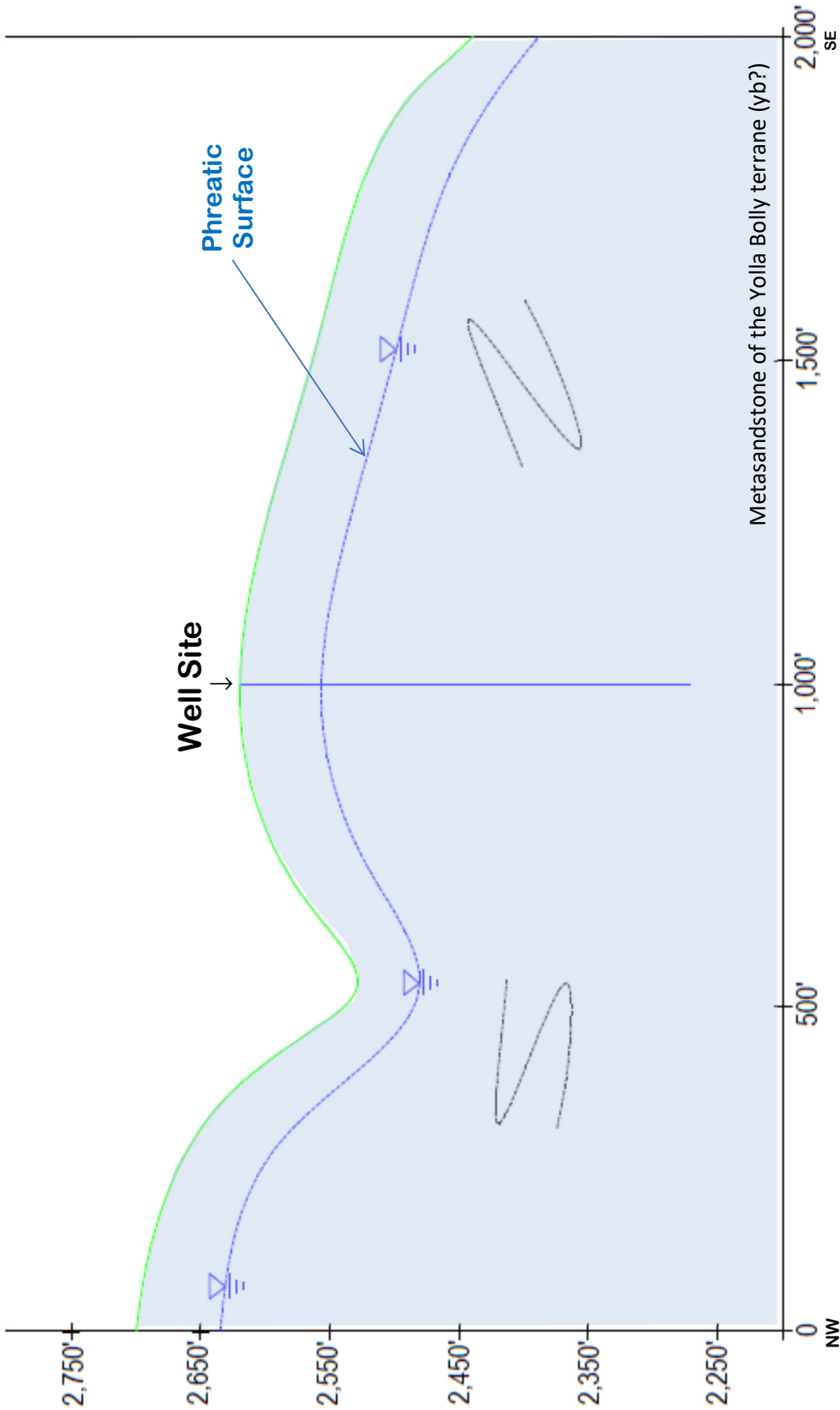
srs	Gallice? formation (Late Jurassic)
srv	Pyroclastic andesite
srgb	Glen Creek gabbro-ultramafic complex of Irwin and others (1974)
srpd	Serpentinized peridotite

MAP SYMBOLS

	Contact
	Fault
	Thrust fault
	Trace of the San Andreas fault associated with 1906 earthquake rupture
	Strike and dip of bedding:
	Inclined
	Vertical
	Horizontal
	Overtured
	Approximate
	Joint
	Strike and dip of cleavage
	Shear foliation:
	Inclined
	Vertical
	Folds:
	Synclinal or synformal axis
	Anticlinal or antiformal axis
	Overtured syncline
	Landslide
	Melange Blocks:
	Serpentinite
	Chert
	Blueschist
	Greenstone
	Fossil locality and number



Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 6
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Cutten, CA 95534	APN 208-341-021, High Grade 007 LLC, Mr. Neven Kalas, Client	Project 0474.00
(707) 442-6000	Hydrogeologic Cross Section (locations approximate)	V.E. ≈ 2x



In this vertically exaggerated (~2x) cross section, the view is looking up slope toward the northeast. Groundwater flow in the cross section is toward the viewer, or out of the page. Groundwater is presumed to flow from recharge areas in the high ground to the east and northeast, to the southwest toward Dinsmore Valley and the Van Duzen River. Bedrock subgrade is presumed to be composed of abundantly fractured metasandstone of the Yolla Bolly terrane of the Central Belt of the Franciscan Complex (yb?). These deposits are one of several components of the Central Belt Franciscan Complex. Groundwater is envisioned as flowing through fractured zones in the metasandstone. Fractures are interpreted to be the primary preferential flow paths for groundwater in this area.

Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 7
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Cutten, CA 95534	APN 208-341-021, High Grade 007 LLC, Mr. Neven Kalas, Client	Project 0474.00
(707) 442-6000	USDA-NRCS Soil Map (locations approximate)	No Scale



State of California
Well Completion Report
 Form DWR 188 Complete 4/12/2017
 WCR2017-000770

Owner's Well Number _____ Date Work Began 02/22/2017 Date Work Ended 02/23/2017
 Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program
 Secondary Permit Agency _____ Permit Number 16/17-0457 Permit Date 11/08/2016

Well Owner (must remain confidential pursuant to Water Code 13752)		Planned Use and Activity	
Name <u>XXXXXXXXXXXXXXXXXXXX</u>	Activity <u>New Well</u>		
Mailing Address <u>XXXXXXXXXXXXXXXXXXXX</u> <u>XXXXXXXXXXXXXXXXXXXX</u>	Planned Use <u>Water Supply Domestic</u>		
City <u>XXXXXXXXXXXXXXXXXXXX</u> State <u>XX</u> Zip <u>XXXXX</u>			

Well Location			
Address <u>16533 Cobb RD</u>	APN <u>208-341-021</u>		
City <u>Dinsmore</u> Zip <u>95526</u> County <u>Humboldt</u>	Township <u>01 N</u>		
Latitude _____ N Longitude _____ W	Range <u>05 E</u>		
Deg. Min. Sec. Deg. Min. Sec.	Section <u>11</u>		
Dec. Lat. <u>40.47952</u> Dec. Long. <u>-123.57926</u>	Baseline Meridian <u>Humboldt</u>		
Vertical Datum _____ Horizontal Datum <u>WGS84</u>	Ground Surface Elevation _____		
Location Accuracy <u>Centroid of</u> Location Determination Method <u>Derived from TRS</u>	Elevation Accuracy _____		
	Elevation Determination Method _____		

Borehole Information	
Orientation <u>Vertical</u> Specify _____	Drilling Method <u>Direct Rotary</u> Drilling Fluid <u>Air</u>
Total Depth of Boring <u>350</u> Feet	Total Depth of Completed Well <u>350</u> Feet

Water Level and Yield of Completed Well	
Depth to first water <u>75</u> (Feet below surface)	Depth to Static _____
Water Level <u>63</u> (Feet) Date Measured <u>02/23/2017</u>	Estimated Yield* <u>12</u> (GPM) Test Type _____
Test Length _____ (Hours) Total Drawdown _____ (feet)	*May not be representative of a well's long term yield.

Geologic Log - Free Form		
Depth from Surface	Feet to Feet	Description
0	23	Yellow Clay with Gravel
23	350	Blackish-Blue Sandstone

Casings

Casing #	Depth from Surface Feet to Feet		Casing Type	Material	Casings Specificatons	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
1	0	20	Blank	Stainless Steel	N/A	0.188	8			
2	0	170	Blank	PVC	N/A	0.291	4.95			
2	170	190	Screen	PVC	N/A	0.291	4.95	Milled Slots	0.032	
2	190	210	Blank	PVC	N/A	0.291	4.95			
2	210	230	Screen	PVC	N/A	0.291	4.95	Milled Slots	0.032	
2	230	250	Blank	PVC	N/A	0.291	4.95			
2	250	270	Screen	PVC	N/A	0.291	4.95	Milled Slots	0.032	
2	270	290	Blank	PVC	N/A	0.291	4.95			
2	290	310	Screen	PVC	N/A	0.291	4.95	Milled Slots	0.032	
2	310	330	Blank	PVC	N/A	0.291	4.95			
2	330	350	Screen	PVC	N/A	0.291	4.95	Milled Slots	0.032	

Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	20	Bentonite	Non Hydrated Bentonite		3/8 Hole Plug
20	350	Other Fill	See description.		non annular fill

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	20	12
20	350	7.875

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name WATSON WELL DRILLING
 Person, Firm or Corporation

500 Summer Street Eureka CA 95501
 Address City State Zip

Signed electronic signature received 03/14/2017 1014048
 C-57 Licensed Water Well Contractor Date Signed C-57 License Number

DWR Use Only

CSG #	State Well Number	Site Code	Local Well Number

Latitude Deg/Min/Sec

Longitude Deg/Min/Sec

TRS:
APN:

ORIGINAL
File with DWR

RECEIVED

STATE OF CALIFORNIA
WELL COMPLETION REPORT

DWR USE ONLY — DO NOT FILL IN

01N/05E-11H

STATE WELL NO./STATION NO.

LATITUDE _____ LONGITUDE _____

APN/TRS/OTHER _____

Page ___ of ___

JUN 27 2000

Refer to Instruction Pamphlet

Owner's Well No. _____

No. **705676**

Date Work Began **9-16-99**

Ended **9-17-99**

Local Permit Agency **HUMBOLT COUNTY**

Permit No. _____

Permit Date **9-9-99**

GEOLOGIC LOG

ORIENTATION (∠)		VERTICAL	HORIZONTAL	ANGLE	(SPECIFY)
DEPTH FROM SURFACE		DRILLING METHOD		FLUID	
Ft.	to Ft.	DESCRIPTION			
Describe material, grain size, color, etc.					
0	2	TOP SOIL			
2	60	HARD BROWN SANDSTONE			
60	98	SANDY BROWN CLAY AND HARD BROWN BOULDERS			
TOTAL DEPTH OF BORING 98 (Feet)					
TOTAL DEPTH OF COMPLETED WELL 98 (Feet)					

WELL LOCATION

Address **COBB STATION SUBDIVISION**

City **DINAHORE - PARCE # 15**

County **HUMBOLT**

APN Book **208** Page **341** Parcel **21**

Township **01N** Range **05E** Section **11**

Latitude _____ Longitude _____

DEG. MIN. SEC. NORTH DEG. MIN. SEC. WEST

LOCATION SKETCH

ACTIVITY (∠)

NEW WELL

MODIFICATION/REPAIR

Deepen

Other (Specify) _____

DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (∠)

WATER SUPPLY

Domestic Public

Irrigation Industrial

MONITORING _____

TEST WELL _____

CATHODIC PROTECTION _____

HEAT EXCHANGE _____

DIRECT PUSH _____

INJECTION _____

VAPOR EXTRACTION _____

SPARGING _____

REMEDIATION _____

OTHER (SPECIFY) _____

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER **65** (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL **60** (Ft.) & DATE MEASURED _____

ESTIMATED YIELD * **315** (GPM) & TEST TYPE **PUMP**

TEST LENGTH **3 1/2** (Hrs.) TOTAL DRAWDOWN **80** (Ft.)

* May not be representative of a well's long-term yield.

DEPTH FROM SURFACE	BORE-HOLE DIA. (Inches)	CASING (S)					DEPTH FROM SURFACE	ANNULAR MATERIAL				
		TYPE (∠)	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)		CEMENT (∠)	BEN-TONITE (∠)	FILL (∠)	FILTER PACK (TYPE/SIZE)	
0	20	10	✓	F480	5	200PSI	0	20	✓			
20	40	8	✓	F480	5	200PSI	20	98		✓	3/8 PER	
40	98	8	✓	F480	5	200PSI						GRAVELL

ATTACHMENTS (∠)

Geologic Log

Well Construction Diagram

Geophysical Log(s)

Soil/Water Chemical Analyses

Other _____

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME **CAMPBELL DRILLING** (PERSON, FIRM OR CORPORATION) (TYPED OR PRINTED)

ADDRESS **PO BOX 1529 UKIAH CA 95482**

Signed **Mike Campbell** WELL DRILLER/AUTHORIZED REPRESENTATIVE

DATE SIGNED **9-10-99**

JUL 10 2000

STATE **CA** ZIP **95482**

C-57 LICENSE NUMBER **535763**

State of California
Well Completion Report
 Form DWR 188 Complete 3/1/2016
 WCR2016-001633

Owner's Well Number 1 Date Work Began 02/26/2016 Date Work Ended 02/29/2016
 Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program
 Secondary Permit Agency _____ Permit Number 15/16-0392 Permit Date 02/22/2016

Well Owner (must remain confidential pursuant to Water Code 13752)			
Name	<u>XXXXXXXXXXXXXXXXXXXX</u>		
Mailing Address	<u>XXXXXXXXXXXXXXXXXXXX</u> <u>XXXXXXXXXXXXXXXXXXXX</u>		
City	State	Zip	<u>XXXXX</u>

Planned Use and Activity	
Activity	<u>New Well</u>
Planned Use	<u>Water Supply Domestic</u>

Well Location					
Address	<u>46070 HWY 36</u>		APN	<u>208-071-32</u>	
City	<u>Dinsmore</u>	Zip	<u>95526</u>	County	<u>Humboldt</u>
Latitude	<u> </u> N	Longitude	<u> </u> W	Township	<u>01 N</u>
	Deg. Min. Sec.		Deg. Min. Sec.	Range	<u>05 E</u>
Dec. Lat.	<u>40.4800672</u>		Dec. Long.	<u>-123.5737151</u>	
Vertical Datum	_____		Horizontal Datum	<u>WGS84</u>	
Location Accuracy	_____		Location Determination Method	_____	
			Section	<u>11</u>	
			Baseline Meridian	<u>Humboldt</u>	
			Ground Surface Elevation	_____	
			Elevation Accuracy	_____	
			Elevation Determination Method	_____	

Borehole Information	
Orientation	<u>Vertical</u> Specify _____
Drilling Method	<u>Other - Under-Ream Down-Hole Hammer</u> Drilling Fluid <u>Air</u>
Total Depth of Boring	<u>100</u> Feet
Total Depth of Completed Well	<u>100</u> Feet

Water Level and Yield of Completed Well	
Depth to first water	<u>22</u> (Feet below surface)
Depth to Static	_____
Water Level	<u>16</u> (Feet) Date Measured <u>02/29/2016</u>
Estimated Yield*	<u>200</u> (GPM) Test Type <u>Air Lift</u>
Test Length	<u>4.0</u> (Hours) Total Drawdown <u>84</u> (feet)
*May not be representative of a well's long term yield.	

Geologic Log - Free Form		
Depth from Surface Feet to Feet		Description
0	2	Top Soil
2	47	Brown River Run
47	100	Blue River Run

Casings										
Casing #	Depth from Surface Feet to Feet		Casing Type	Material	Casings Specificatons	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
1	0	40	Blank	Low Carbon Steel	Grade: ASTM A53	0.188	8.625			
1	40	90	Screen	Low Carbon Steel	Grade: ASTM A53	0.188	8.625	Milled Slots	0.05	
1	90	100	Blank	Low Carbon Steel	Grade: ASTM A53	0.188	8.625			

Annular Material					
Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	20	Bentonite	Other Bentonite		Sanitary Seal
20	100	Filter Pack	Other Gravel Pack	3/8 in.	Pea Gravel

Other Observations:

Borehole Specifications		
Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	100	12

Certification Statement			
I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief			
Name	FISCH DRILLING		
Person, Firm or Corporation			
3150 JOHNSON ROAD	HYDEVILLE	CA	95547
Address		City	State Zip
Signed	electronic signature received	02/29/2016	683865
C-57 Licensed Water Well Contractor		Date Signed	C-57 License Number

Attachments
BowenSiteMap.pdf - Location Map

DWR Use Only																									
CSG #	State Well Number	Site Code	Local Well Number																						
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										N															
										W															
Latitude Deg/Min/Sec		Longitude Deg/Min/Sec																							
TRS:																									
APN:																									

STATE OF CALIFORNIA
WELL COMPLETION REPORT

DWR USE ONLY - DO NOT FILL IN

STATE WELL NO./STATION NO. **01N|05E-11**

LATITUDE _____ LONGITUDE _____

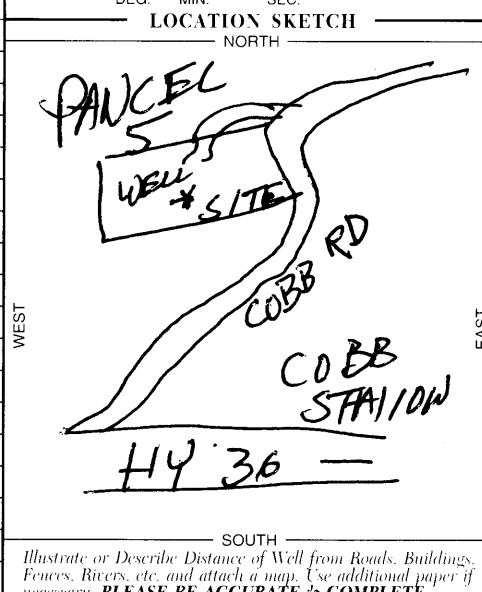
APN/TRS/OTHER _____

Page ___ of ___
 Owner's Well No. _____ No. **705692**
 Date Work Began **7-17-00** Ended **7-21-00**
 Local Permit Agency **HUMBOLT COUNTY**
 Permit No. _____ Permit Date **5-31-00**

DEPTH FROM SURFACE		DESCRIPTION
Ft.	to Ft.	
0	2	TOP SOIL
3	38	SANDY BROWN CLAY
38	52	BLUE SHALE QUARTZ LINED
52	81	HARD BLUE ROCK
81	100	SOFT BLUE GRAY SHALE
TOTAL DEPTH OF BORING		100 (Feet)
TOTAL DEPTH OF COMPLETED WELL		97 (Feet)

WELL LOCATION

Address **FARCEL #5 COBB STATION**
 City **DINSMORE CA**
 County **HUMBOLT**
 APN Book **208** Page **341** Parcel **11 01N|05E-11**
 Township **208** Range **341** Section **11 01N|05E-11**
 Latitude _____ Longitude _____



ACTIVITY ()

NEW WELL

MODIFICATION/REPAIR

___ Deepen

___ Other (Specify) _____

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES ()

WATER SUPPLY

Domestic ___ Public

___ Irrigation ___ Industrial

MONITORING ___

TEST WELL ___

CATHODIC PROTECTION ___

HEAT EXCHANGE ___

DIRECT PUSH ___

INJECTION ___

VAPOR EXTRACTION ___

SPARGING ___

REMEDIATION ___

OTHER (SPECIFY) _____

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER **60** (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL **57** (Ft.) & DATE MEASURED **7-21-00**

ESTIMATED YIELD **3** (GPM) & TEST TYPE **PUMP**

TEST LENGTH **3** (Hrs.) TOTAL DRAWDOWN **30** (Ft.)

* May not be representative of a well's long-term yield.

DEPTH FROM SURFACE	BORE-HOLE DIA. (Inches)	CASING (S)							
		TYPE ()				MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
Ft.	to Ft.	BLANK	SCREEN	CON-DOCTOR	FILL PIPE				
0	20	10"	<input checked="" type="checkbox"/>			F480	5"	200PSI	
20	60	8"	<input checked="" type="checkbox"/>			F480	5"	200PSI	
60	100	8"	<input checked="" type="checkbox"/>			F480	5"	200PSI	1/4x4

DEPTH FROM SURFACE	ANNULAR MATERIAL				
	TYPE				
Ft.	to Ft.	CE-MENT ()	BEN-TONITE ()	FILL ()	FILTER PACK (TYPE/SIZE)
1	20	<input checked="" type="checkbox"/>			
20	100			<input checked="" type="checkbox"/>	3/8" PEA GRAVEL

- ATTACHMENTS ()
- ___ Geologic Log
 - ___ Well Construction Diagram
 - ___ Geophysical Log(s)
 - ___ Soil/Water Chemical Analyses
 - ___ Other _____
- ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME **CAMPBELL DRILLING**
 (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS **PO. BOX 1529 UKIAH CA 95482**
 CITY STATE ZIP

Signed **Mike Campbell** DATE SIGNED **9-26-00** 525763
 WELL DRILLER AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

State of California
Well Completion Report
 Form DWR 188 Complete 4/12/2017
 WCR2017-000830

Owner's Well Number Well #1 Date Work Began 02/23/2017 Date Work Ended 02/24/2017
 Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program
 Secondary Permit Agency _____ Permit Number 16/17-0542 Permit Date 12/23/2016

Well Owner (must remain confidential pursuant to Water Code 13752)			
Name	<u>XXXXXXXXXXXXXXXXXXXX</u>		
Mailing Address	<u>XXXXXXXXXXXXXXXXXXXX</u> <u>XXXXXXXXXXXXXXXXXXXX</u>		
City	State	Zip	<u>XXXXX</u>

Planned Use and Activity	
Activity	<u>New Well</u>
Planned Use	<u>Water Supply Domestic</u>

Well Location						
Address	<u>14051 Cobb RD</u>		APN	<u>208-341-015</u>		
City	<u>Dinsmore</u>	Zip	<u>96025</u>	County	<u>Humboldt</u>	
Latitude	<u> </u>	N	Longitude	<u> </u>	W	
	Deg.	Min.	Sec.	Deg.	Min.	Sec.
Dec. Lat.	<u>40.47952</u>		Dec. Long.	<u>-123.57926</u>		
Vertical Datum	_____		Horizontal Datum	<u>WGS84</u>		
Location Accuracy	<u>Centroid of</u>		Location Determination Method	<u>Derived from TRS</u>		
				Township	<u>01 N</u>	
				Range	<u>05 E</u>	
				Section	<u>11</u>	
				Baseline Meridian	<u>Humboldt</u>	
				Ground Surface Elevation	_____	
				Elevation Accuracy	_____	
				Elevation Determination Method	_____	

Borehole Information	
Orientation	<u>Vertical</u> Specify _____
Drilling Method	<u>Direct Rotary</u> Drilling Fluid <u>Air</u>
Total Depth of Boring	<u>120</u> Feet
Total Depth of Completed Well	<u>120</u> Feet

Water Level and Yield of Completed Well	
Depth to first water	<u>70</u> (Feet below surface)
Depth to Static	_____
Water Level	<u>68</u> (Feet) Date Measured _____
Estimated Yield*	<u>15</u> (GPM) Test Type _____
Test Length	_____ (Hours) Total Drawdown _____ (feet)
*May not be representative of a well's long term yield.	

Geologic Log - Free Form		
Depth from Surface Feet to Feet		Description
0	8	Brown Clay
8	18	Yellow Clay
18	65	Brown Clay with Gravel
65	120	Blue Clay with Black Sandstone

Casings

Casing #	Depth from Surface Feet to Feet		Casing Type	Material	Casings Specificatons	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
1	0	20	Blank	Stainless Steel	N/A	0.188	8			
2	0	60	Blank	PVC	N/A	0.291	4.95			
2	60	80	Screen	PVC	N/A	0.291	4.95	Milled Slots	0.032	
2	80	100	Blank	PVC	N/A	0.291	4.95			
2	100	120	Screen	PVC	N/A	0.291	4.95	Milled Slots	0.032	

Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	20	Bentonite	Non Hydrated Bentonite		3/8 Hole Plug
20	120	Other Fill	See description.		No Annular Fill

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	20	12
20	120	7.875

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name WATSON WELL DRILLING
Person, Firm or Corporation

500 Summer Street Eureka CA 95501
Address City State Zip

Signed electronic signature received 03/20/2017 1014048
C-57 Licensed Water Well Contractor Date Signed C-57 License Number

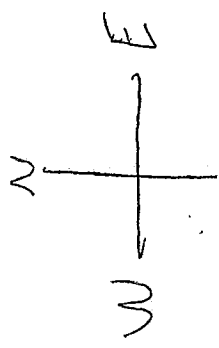
DWR Use Only

CSG #	State Well Number	Site Code	Local Well Number

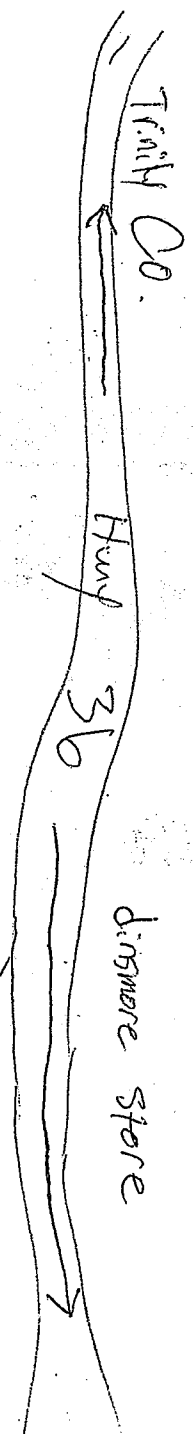
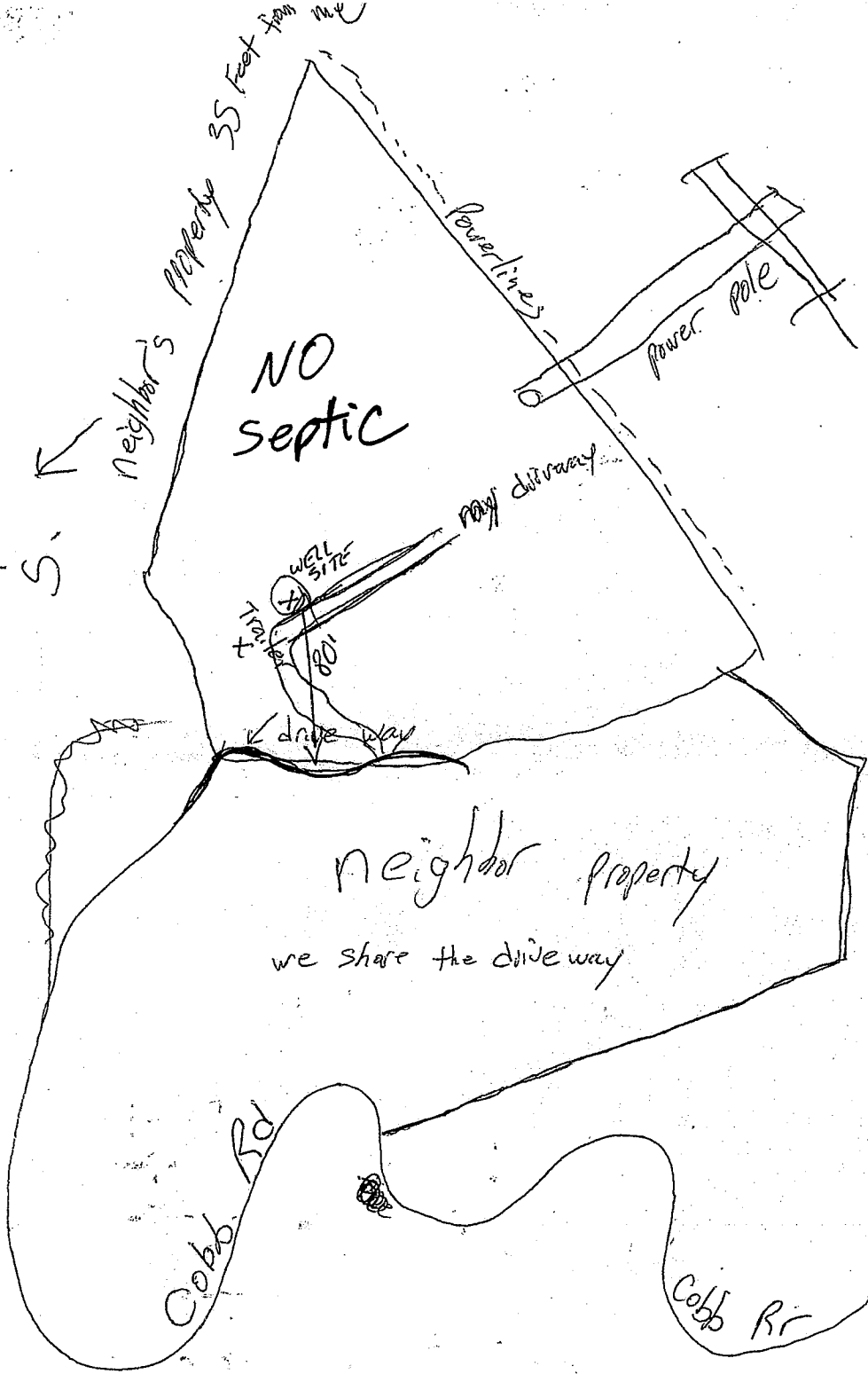
<table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 25%;"> </td> <td style="width: 25%;"> </td> <td style="width: 25%;"> </td> <td style="width: 25%;"> </td> <td style="width: 25%;">N</td> </tr> </table> <p style="text-align: center;">Latitude Deg/Min/Sec</p>					N	<table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 25%;"> </td> <td style="width: 25%;"> </td> <td style="width: 25%;"> </td> <td style="width: 25%;"> </td> <td style="width: 25%;"> </td> <td style="width: 25%;"> </td> <td style="width: 25%;"> </td> <td style="width: 25%;">W</td> </tr> </table> <p style="text-align: center;">Longitude Deg/Min/Sec</p>								W
				N										
							W							

TRS:

APN:



AP # 208-341-016
1000 Cobb Rd



State of California
Well Completion Report
 Form DWR 188 Complete 9/13/2018
 WCR2018-006592

Owner's Well Number WELL #2 Date Work Began 07/30/2018 Date Work Ended 08/01/2018
 Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program
 Secondary Permit Agency _____ Permit Number 17/18-1292 Permit Date 02/15/2018

Well Owner (must remain confidential pursuant to Water Code 13752)			
Name	<u>XXXXXXXXXXXXXXXXXXXX</u>		
Mailing Address	<u>XXXXXXXXXXXXXXXXXXXX</u> <u>XXXXXXXXXXXXXXXXXXXX</u>		
City	State	Zip	<u>XXXXX</u>

Planned Use and Activity	
Activity	<u>New Well</u>
Planned Use	<u>Water Supply Domestic</u>

Well Location						
Address	<u>46255 STATE HWY 36</u>			APN	<u>208-341-020</u>	
City	<u>BRIDGEVILLE</u>	Zip	<u>95526</u>	County	<u>Humboldt</u>	
Latitude	<u>40</u> <u>28</u> <u>48.8427</u> <u>N</u>	Longitude	<u>-123</u> <u>34</u> <u>15.5053</u> <u>W</u>	Township	<u>01 N</u>	
	Deg. Min. Sec.		Deg. Min. Sec.	Range	<u>05 E</u>	
Dec. Lat.	<u>40.4802341</u>			Section	<u>11</u>	
	Dec. Long. <u>-123.5709737</u>			Baseline Meridian	<u>Humboldt</u>	
Vertical Datum	_____			Horizontal Datum	<u>WGS84</u>	
Location Accuracy	_____			Location Determination Method	_____	
				Ground Surface Elevation	_____	
				Elevation Accuracy	_____	
				Elevation Determination Method	_____	

Borehole Information			
Orientation	<u>Vertical</u>	Specify	_____
Drilling Method	<u>Other - CASING ADVANCE</u>	Drilling Fluid	<u>Air</u>
Total Depth of Boring	<u>200</u>	Feet	_____
Total Depth of Completed Well	<u>200</u>	Feet	_____

Water Level and Yield of Completed Well			
Depth to first water	<u>100</u>	(Feet below surface)	_____
Depth to Static	_____		
Water Level	<u>77</u>	(Feet)	Date Measured <u>08/01/2018</u>
Estimated Yield*	<u>70</u>	(GPM)	Test Type <u>Air Lift</u>
Test Length	<u>4</u>	(Hours)	Total Drawdown _____ (feet)
*May not be representative of a well's long term yield.			

Geologic Log - Free Form		
Depth from Surface Feet to Feet		Description
0	25	BROWN SHALE WITH CLAY
25	70	BLUE SHALE WITH CLAY
70	200	GRAYISH BLUE SHALE WITH QUARTZ

Casings										
Casing #	Depth from Surface Feet to Feet		Casing Type	Material	Casings Specificatons	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
1	0	20	Blank	Low Carbon Steel	N/A	0.188	8.625			*
2	0	80	Blank	Low Carbon Steel	N/A	0.188	6.625			*
2	80	160	Other: KNIFE	Low Carbon Steel	N/A	0.188	6.625		0.25	*
2	160	180	Blank	Low Carbon Steel	N/A	0.25	6.625			*
2	180	200	Other: KNIFE	Low Carbon Steel	N/A	0.25	6.625		0.25	*

Annular Material					
Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	20	Bentonite	Non Hydrated Bentonite		3/8 HOLE PLUG
20	200	Other Fill	See description.		NO ANNULAR FILL

Other Observations:

Borehole Specifications		
Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	20	13
20	200	7.475

Certification Statement			
I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief			
Name	WATSON WELL DRILLING, INC.		
	Person, Firm or Corporation		
500 Summer Street	Eureka	CA	95501
Address	City	State	Zip
Signed	<i>electronic signature received</i>	08/08/2018	1014048
	C-57 Licensed Water Well Contractor	Date Signed	C-57 License Number

DWR Use Only			
CSG #	State Well Number	Site Code	Local Well Number
		N	W
Latitude Deg/Min/Sec		Longitude Deg/Min/Sec	
TRS:			
APN:			

Six Rivers National Forest Area, California

256—Hecker family, deep, 35 to 70 percent slopes

Map Unit Setting

National map unit symbol: hsb9

Elevation: 2,200 to 4,800 feet

Mean annual precipitation: 50 to 70 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 250 days

Farmland classification: Not prime farmland

Map Unit Composition

Hecker family, deep, and similar soils: 60 percent

Minor components: 40 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hecker Family, Deep

Setting

Landform: Mountains

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Mountainflank

Down-slope shape: Concave

Across-slope shape: Convex

Parent material: Residuum weathered from metasedimentary rock

Typical profile

H1 - 0 to 13 inches: gravelly loam

H2 - 13 to 60 inches: very gravelly clay loam

H3 - 60 to 64 inches: weathered bedrock

Properties and qualities

Slope: 35 to 70 percent

Depth to restrictive feature: 60 to 64 inches to paralithic bedrock

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: B

Hydric soil rating: No

Minor Components

Rock outcrop

Percent of map unit: 10 percent

Hydric soil rating: No

Soulajule, deep

Percent of map unit: 10 percent

Hydric soil rating: No

Oxalis, deep

Percent of map unit: 10 percent

Hydric soil rating: No

Melbourne, deep

Percent of map unit: 10 percent

Hydric soil rating: No

Data Source Information

Soil Survey Area: Six Rivers National Forest Area, California

Survey Area Data: Version 15, Sep 6, 2021