LINDBERG GEOLOGIC CONSULTING
David N. Lindberg, CEG
Post Office Box 306
Cutten California 95534
(707) 442-6000

October 11, 2022 Project No: 0476.00

Lower Thomas Road, LLC
c/o Elevated Solutions
3990 Walnut Drive
Eureka, California 95503

Subject: Hydrologic Isolation of Existing Well from Surface Waters
3556 Lower Thomas Road, Miranda, CA APN: 219-041-012, WCR2019-008589

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 and or surface waters, and if pumping this well might affect nearby surface waters. The nearest tributary in the vicinity of this well is an unnamed perennial tributary of Bogus Creek (Figure 1).

A California-Certified Engineering Geologist visited this site on July 13, 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 a low 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 define the "vicinity" as the area within a 1,000-foot radius of the subject well, an area of approximately 72 acres. We understand that the applicant hopes to use water from this well to irrigate cannabis. We are not aware of the volume of water to be extracted or what the pumping schedule might be but 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 219-041-012 (Figure 2) encompasses approximately 47 acres. Our GPS located the subject well at latitude 40.20032° north, and longitude 123.87584 west (±9'). This well is in Section 18, T3S, R3E, it is 180 feet deep, and the wellhead at an elevation of approximately 1,060 feet (Figure 1).

The Humboldt County WebGIS shows one perennial tributary of Bogus Creek 855-feet to the southeast. South Fork Salmon Creek is approximately 2,400 feet southwest of this well (Figure 1). Based on interpolation from the USGS "Ettersberg, Calif." (1969), topographic quadrangle map (Figure 1), and the Humboldt County WebGIS, the well site elevation is 1,060 feet. At its nearest point, the elevation of the perennial tributary of Bogus Creek is approximately 870 feet. The well bottom elevation of the well is approximately 880 feet, making the nearest watercourse approximately 10 feet lower than the total depth of the well.

Well location is shown approximately on the attached figures, and was drilled by Fisch Drilling, of Hydesville, in June 2019, under Humboldt County well permit #18/19-0859. Fisch Drilling is a

licensed well-drilling contractor (C-57 #683865). Fisch Drilling submitted their well completion report (DWR 188) on June 20, 2019 (attached). The driller estimated a yield of one gallon per minute (gpm) in June 2019, based on a 4-hour air lift pump test. Total drawdown during the pump test was reported to be 129 feet.

Total drilled depth of this well is 180 feet. The borehole diameter is 10-inches from grade to 180-feet. From the surface to 40 feet, a 5.563-inch diameter blank (unslotted) PVC casing was installed. Per County requirements, a bentonite surface sanitary seal was installed from the surface to 20 feet. Below the bentonite seal, the annulus was backfilled with 3/8-inch pea gravel to total depth. The well is cased and sealed through potential shallow subsurface aquifers in the uppermost 20 feet as required by county regulation. Depth to first water was reported at 51 feet below the surface (bgs), and depth to static water in the completed developed well was reported to be 42 feet bgs when the driller conducted the pump test on June 20, 2019, so the aquifer is slightly artesian.

Based on the Ettersburg (1969), and the Miranda (1970), USGS topographic maps, and the Humboldt County WebGIS, there are no springs mapped in Section 18. The nearest spring appears to be approximately 2,450 feet south, in the northeast quarter of the northeast quarter of Section 19, at an estimated elevation of 900 feet. There are three springs mapped in the southeast quarter of Section 17, and one in the northeast quarter of Section 24 (Figure 1). Due to the intervening topography and streams, the subject well does not appear to be in a position to affect any of these springs.

This parcel is located within California's Coast Range Geomorphic Province, in the Yager Terrane of the Coastal Belt of the Franciscan Complex (McLaughlin et at., 2000). The Coast Range Geomorphic Province is 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 Yager Terrane (y1) of the Franciscan Complex, as shown in Figures 4 and 5.

According to the NRCS Web Soil Survey, the near-surface soils are gravelly loam, very gravelly loam, and extremely gravelly sandy loam. Soils are interpreted to be uniformly distributed across that portion of the subject parcel. In this part of the subject parcel, the soil profile consisted of 5-inches of topsoil, or less. Beneath this thin topsoil, the loamy continued to a depth of approximately 76 feet where they are underlain by unweathered Yager Terrane parent material.

Materials reported on the geologic log of the driller's well completion report (attached) include 5-feet of "top soil" above 26-feet (5-feet to 31-feet) of "brown sandstone silt mix". Beneath the brown sandstone silt mix lies 12-feet of "brown shale" (31- to 43-feet). Below the brown shale the driller reported "sandstone shale mix", which, at 51 feet is the first water bearing unit in this well. The driller logged 104-feet of "sandstone shale mix" from 43- to 147-feet. In the final 33-feet of the boring, from 147-feet to 180-feet, the driller logged "soft shale".

We interpret the brown shale section of the profile in this well, from 31- to 43-feet, to be an aquitard, a material of low permeability and transmissivity. The sandstone shale mix material below 51 feet are expected to be porous and permeable and is the water-bearing aquifer material in this well. Sandstone typically has higher transmissivity and permeability than shale. At the location of the subject well, the elevation of the first water-bearing aquifer unit is at approximately 1,090 feet, based on the driller's report.

Below the surface, the earth materials encountered in the boring are sheared and highly folded mudstone that includes minor, rhythmically interbedded sandstone of the Yager Terrane of the Franciscan Complex, as mapped by McLaughlin et al., (2000). Sheared and folded meta-sedimentary rock materials can have highly variable hydraulic conductivity, but can also, under the favorable conditions, constitute significant aquifers. We interpret the sequence described by the driller, as lithologies within the Yager Terrane of the Franciscan Complex. The sandstone shale mix section of this profile apparently has favorable hydraulic conductivity, making the sandstone shale mix, 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 structural and stratigraphic relationships between the regional geologic units (Figure 5). The Yager Terrane is shown dipping southwesterly and bounded by faults. On-site, no dip of the rock units could be observed because they are mantled with soil and colluvium and obscured by vegetation. We interpret the faults in the subsurface to be hydrologic boundaries of reduced permeability (due to grinding and shearing along the fault planes), effectively separating units of the Yager Terrane units from each other hydrologically and limiting groundwater flow between 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 any direct or significant connection to proximal surface waters. First water was reportedly encountered at 51 feet and rose to a static level at 42 feet bgs. This well is sealed through the upper 20 feet of any potential unconfined, near-surface aquifers with which it might communicate hydraulically through the borehole. The bentonite-sealed surface casing isolates the well bore from surface and shallow subsurface water infiltration into the deeper water-bearing aquifers.

When considered with the stratigraphy, and the underlying geologic structure, plus the distances (horizontal and vertically) from the nearest surface waters, and the depth of the producing zone of this well (~50 to 147 feet), as well as the position of the well relative to the nearest surface waters in the vicinity, we conclude that the depth of the surface seal, combined with the 12 feet of brown shale, are sufficient to preclude the potential for hydraulic connectivity with surface waters, of which there are none closer than 855 feet in the perennial tributary of Bogus Creek. Thus, the water source from which this well draws appears to be a confined, slightly artesian 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.

According to the driller, the estimated the yield of this well was 1 gallon per minute (gpm) on June 20, 2019. Total drawdown was reported to be 129 feet after Fisch Drilling's four-hour air-lift pump test. At 1 gpm, this well would potentially produce 1,440 gallons per day. This well was not pumped dry during the pump test. As noted on the well completion report, this capacity may not be representative of this well's long-term yield. Additional drawdown and recovery testing would be necessary to estimate a sustainable long-term yield of the site well.

Due to the distance between them, this subject well does not appear to be hydrologically connected to, or capable of influencing surface water flows in the local perennial tributary of Bogus Creek. Nor does this well appear to be hydrologically connected to any local springs or ephemeral wetlands. Given the horizontal distances involved, and the elevation differences between the water-producing zone in the subject well, and the surface waters of the nearest watercourses, springs, and ponds on-site, the potential for significant hydrologic connectivity between surface waters and groundwater in the blue sandstone aquifers appears highly unlikely. Further, given the apparently limiting condition of the low-transmissivity shale units above and below the water-bearing blue sandstone units, and the artesian pressure in these aquifers, they are not likely to have significantly hydraulically connections to shallow unconfined aquifers.

As mentioned, on the Ettersburg and Miranda USGS topographic quadrangle maps, there are no springs within 1000-feet of well WCR2019-008589.

We researched the DWR (California Department of Water Resources) database to find other permitted wells within 1,000 feet of the subject well. Based on the information available at the present time, there are no wells which meet this criterion. The closest well found WCR2017-004574 in Section 18, on APN 212-022-014, is at an elevation of over 1,720 feet and is more than 2,400 feet north of the subject well, so we will consider it here. Well -004574 is on the ridge, in a different subbasin and encountered somewhat similar, though not identical stratigraphy. Well -004574 is a 5.563-inch, 5 gpm well, 280 feet in depth. It is screened from 80 to 280 feet and encountered first water at 171 feet (elevation ~1,559'). Static water level was 165 feet bgs on September 25, 2017.

In our professional opinion, it appears that the aquifer tapped by the subject well is recharged by water infiltrating through the soil and mélange bedrock from upslope source areas both proximal and distal to the well site. Ephemeral streams and other seasonal drainage courses in the vicinity of the well also contribute recharge when they flow during runoff generating storm events.

The United States Department of Agriculture's (USDA), Natural Resources Conservation Service's (NRCS), online Web Soil Survey, shows the subject well within soils of the Canoecreek-Coyoterock-Sproulish complex, on slopes of 15 to 50 percent, (#5508, Figure 7), which the NRCS describes as a well-drained soil. The Web Soil Survey's unit description is attached to this report. Mean annual precipitation is listed by the NRCS as 49 to 100 inches per year. Capacity of the most

limiting soil layer to transmit water (Ksat) is described as moderately high to high (0.60 to 2.00 in/hr) with a depth to the water table of greater than 80 inches.

If during the wet season, only ten percent of the "low end" precipitation estimation of 49 inches is absorbed by the soils/bedrock and does not flow across the ground surface and into local watercourses (or be lost to evapotranspiration), then approximately 19.2 acre-feet, or more than 6.2 million gallons of water per year (MGPY), may be expected to recharge the local aquifers below this 47-acre subject property. Given the same amount of precipitation (49") and the same 10 percent partitioned to recharge, then within a 1,000-foot radius of the subject well, recharge can be estimated. Recharge within the 72 acres enclosed by a circle having a 1,000-foot radius, would be more than 29 acre feet, and more than 9.5 MGPY. Our estimates are conservative; United States Geological Survey (USGS) researchers estimate that in northwest California, approximately 33 percent of precipitation goes to recharge (Flint, et al., 2103).

On March 28, 2022, Governor Newsom issued an executive order (N-7-22) relating to the ongoing drought in California. In executive order N-7-22, 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*". This well on 3556 Lower Thomas Road, Miranda, is not within a basin subject to the Act, and there has been no Groundwater Sustainability Agency established with authority over the area where this 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 the conditions in the Order, 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 experience, it is our professional opinion that the well on APN 219-041-012, located at 3556 Lower Thomas Road, Miranda, has a minimal likelihood of being hydrologically connected to nearby surface waters or neighboring wells in any manner that might significantly have a negative impact or effect on proximal wetlands, wells, and or surface waters.

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

Sincerely,

David N. Lindberg, CEG
Lindberg Geologic Consulting

DNL:sll

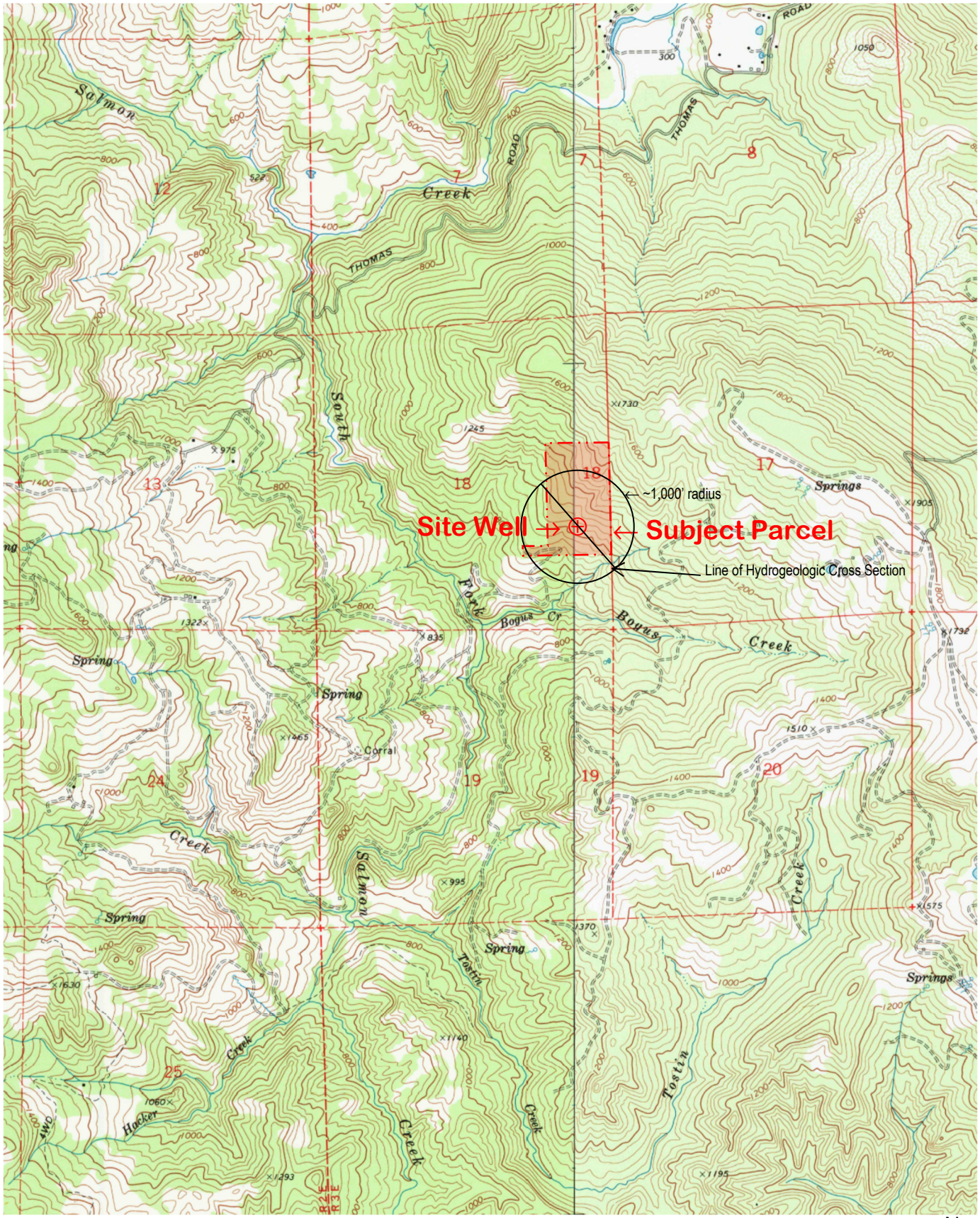
Attachments:
Figure 1: Topographic Well Site Location Map
Figure 2: Humboldt County Assessor's Parcel Map
Figure 3: Satellite Image of Well location
Figure 4: Geologic Map
Figure 4a: Geologic Map Explanation
Figure 5: Generalized Geologic Cross Section
Figure 6: Hydrogeologic Cross Section
Figure 7: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

State of California Well Completion Report:
WCR2019-008589, APN: 219-041-012 (Subject Well)
WCR2017-004574 APN: 212-022-014 (2,400 feet to north)

Web Soil Survey, NRCS Map Unit Description:
Canoecreek-Coyoterock-Sproulish complex, #5508, 15 to 50 percent slopes.

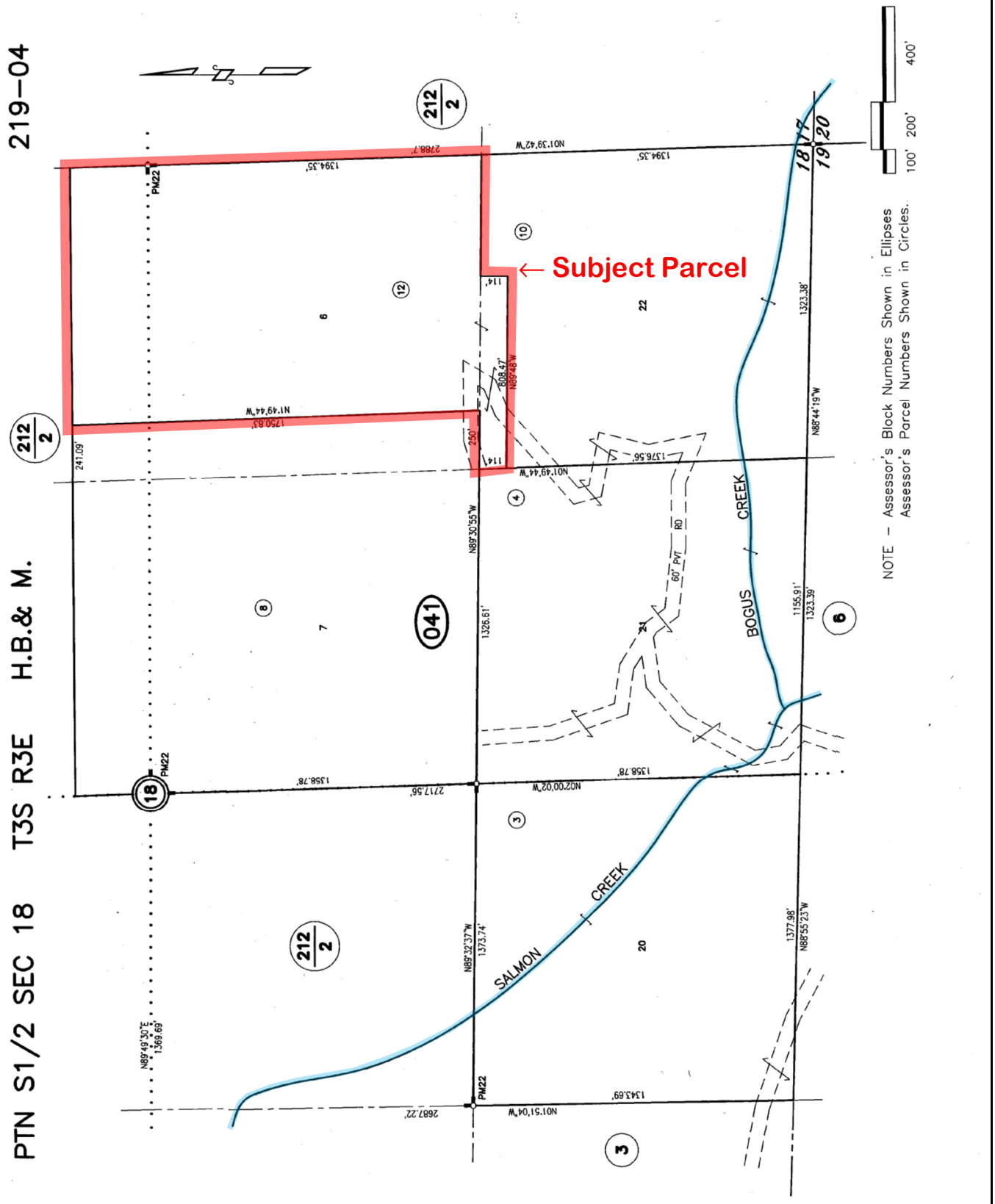
Reference:
Flint et al.: Fine-scale hydrologic modeling for regional landscape applications: the California Basin Characterization Model development and performance. Ecological Process, 2013, 2:25. (doi:10.1186/2192-1709-2-25)

Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 1
Post Office Box 306	Lower Thomas Road, Miranda, California	October 11, 2022
Cutten, CA 95534	DWR Well 2019-008589, APN 219-041-012, Lower Thomas LLC, Client	Project 0476.00
(707) 442-6000	Topographic Well Site Location Map (locations approximate)	1" ≈ 2,400'



Modified from: USGS "Ettersburg, Calif." (1969), and "Miranda, Calif." (1970), 7.5' Quadrangle Maps. N ≅

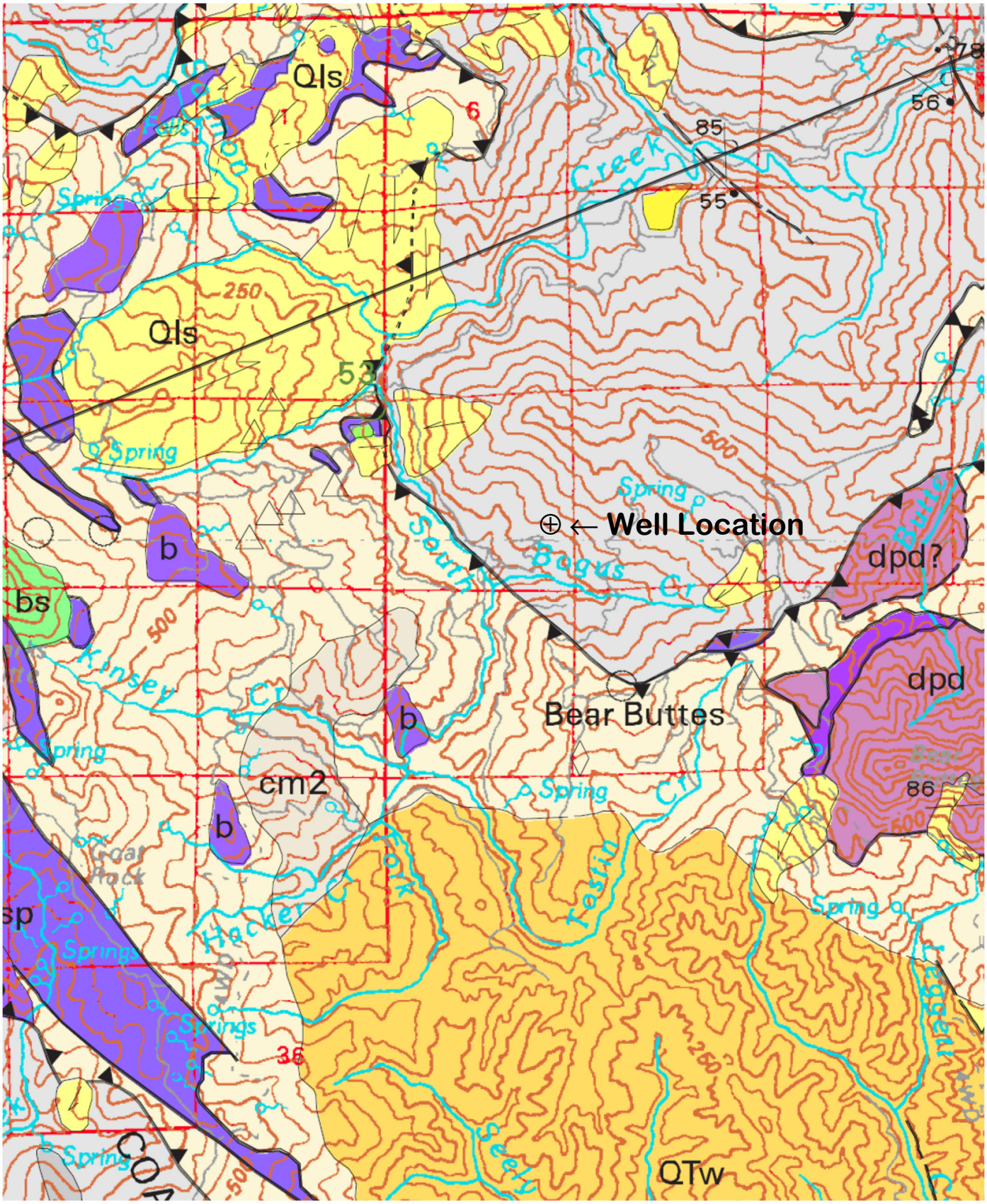
Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 2
Post Office Box 306	Lower Thomas Road, Miranda, California	October 11, 2022
Cutten, CA 95534	DWR Well 2019-008589, APN 219-041-012, Lower Thomas LLC, Client	Project 0476.00
(707) 442-6000	Humboldt County Assessor's Parcel Map (locations approximate)	Scale as Shown



Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 3
Post Office Box 306	Lower Thomas Road, Miranda, California	October 11, 2022
Cutten, CA 95534	DWR Well 2019-008589, APN 219-041-012, Lower Thomas LLC, Client	Project 0476.00
(707) 442-6000	Satellite Image of Well Location (locations approximate)	1" ≈ xxx'

Modified from: Google Earth Imagery of April 21, 2019. N ≈

Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 4
Post Office Box 306	Lower Thomas Road, Miranda, California	October 11, 2022
Cutten, CA 95534	DWR Well 2019-008589, APN 219-041-012, Lower Thomas LLC, Client	Project 0476.00
(707) 442-6000	Geologic Map (locations approximate)	1" ≈ 3,800'



Modified from: McLaughlin, et al., (2,000). N ≈

Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 4a
P. O. Box 306	Lower Thomas Road, Miranda, California	October 11, 2022
Cutten, CA 95534	DWR Well 2019-008589, APN 219-041-012, Lower Thomas LLC, Client	Project 0476.00
(707) 442-6000	Geologic Map Explanation	No Scale

DESCRIPTION OF MAP UNITS

QUATERNARY AND TERTIARY OVERLAP DEPOSITS

- Qal — Alluvial deposits (Holocene and late Pleistocene?)
- Qm — Undeformed marine shoreline and aolian 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
- krl — Limestone
- krc — Chert
- krb — Basalt

False Cape terrane (Miocene? to Oligocene?)

- fc — Sedimentary rocks of the False Cape terrane (Miocene? to Oligocene?)

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 — Taliaferro Metamorphic Complex of Suppe and Armstrong (1972) (Early Cretaceous to Middle Jurassic?)
- 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
- ybi — Little Indian Valley argillite of McLaughlin and Ohlin (1984) (Early Cretaceous to Late Jurassic)

Yolla Bolly terrane

- yb — Rocks of the Yolla Bolly terrane, undivided

GREAT VALLEY SEQUENCE AND COAST RANGE OPHIOLITE

Elder Creek(?) terrane

- ecms — Mudstone (Early Cretaceous)

Coast Range ophiolite (Middle and Late Jurassic):

- ecg — Layered gabbro
- ecsp — Serpentinite melange

Del Puerto(?) terrane

Rocks of the Del Puerto(?) terrane:

- dpms — Mudstone (Late Jurassic)

Coast Range ophiolite (Middle and Late Jurassic):

- dpt — Tuffaceous chert (Late Jurassic)
- dpb — Basaltic flows and keratophyric tuff (Jurassic?)
- dpd — Diabase (Jurassic?)
- dpsp — Serpentinite melange (Jurassic?)
- sp — Undivided Serpentinized peridotite (Jurassic?)

KLAMATH MOUNTAINS PROVINCE

Undivided Great Valley Sequence:

- Ks — Sedimentary rocks (Lower Cretaceous)

GREAT VALLEY SEQUENCE OVERLAP ASSEMBLAGE

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 (Chanchelulla Peak of Wright and Fahan, 1988) 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 — Galice? 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
- Overturned
- Approximate
- Joint
- Strike and dip of cleavage

Shear foliation:

- Inclined
- Vertical

Folds:

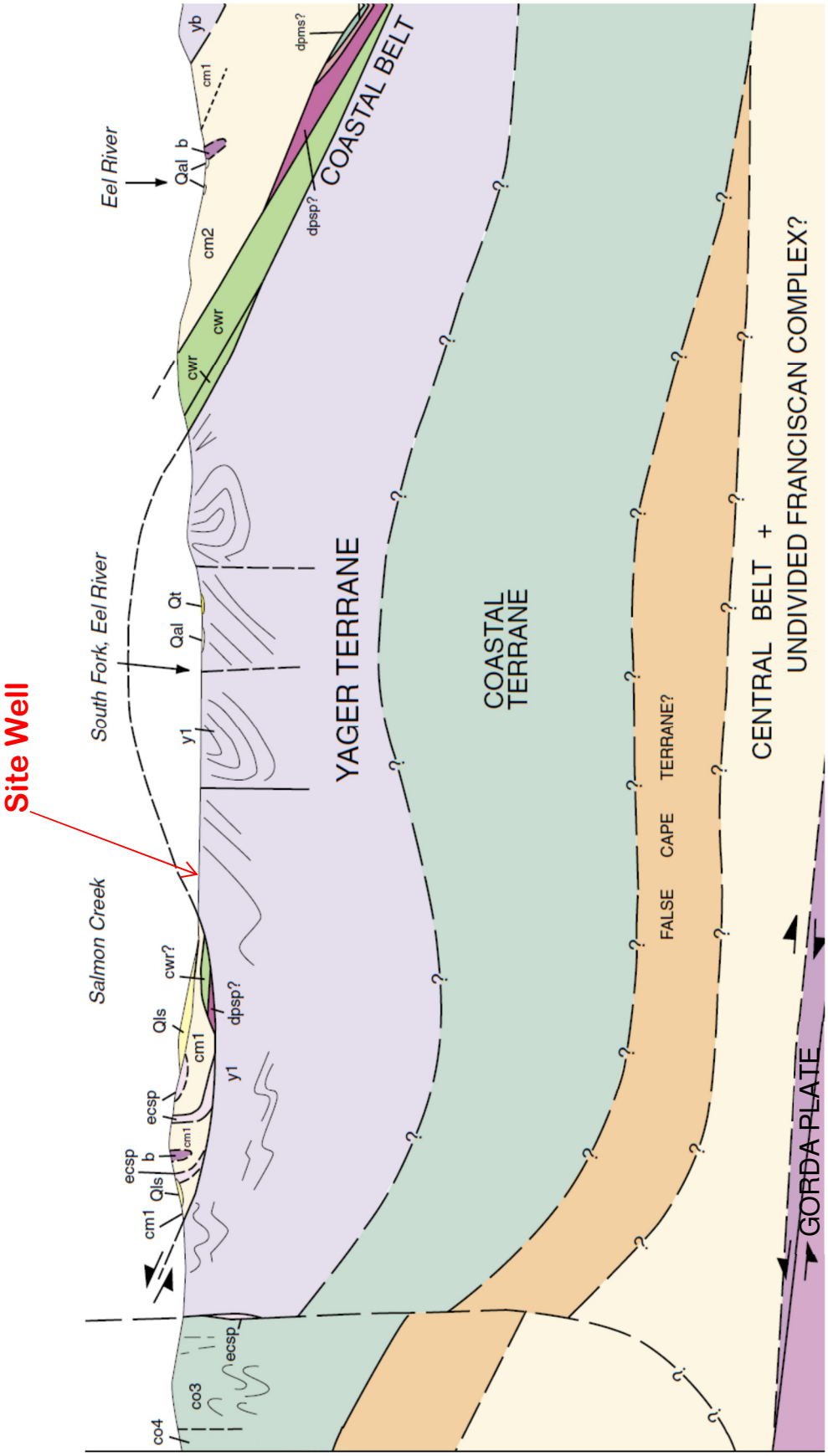
- Synclinal or synformal axis
- Anticlinal or antiformal axis
- Overturned syncline
- Landslide (Qls)

Melange Blocks:

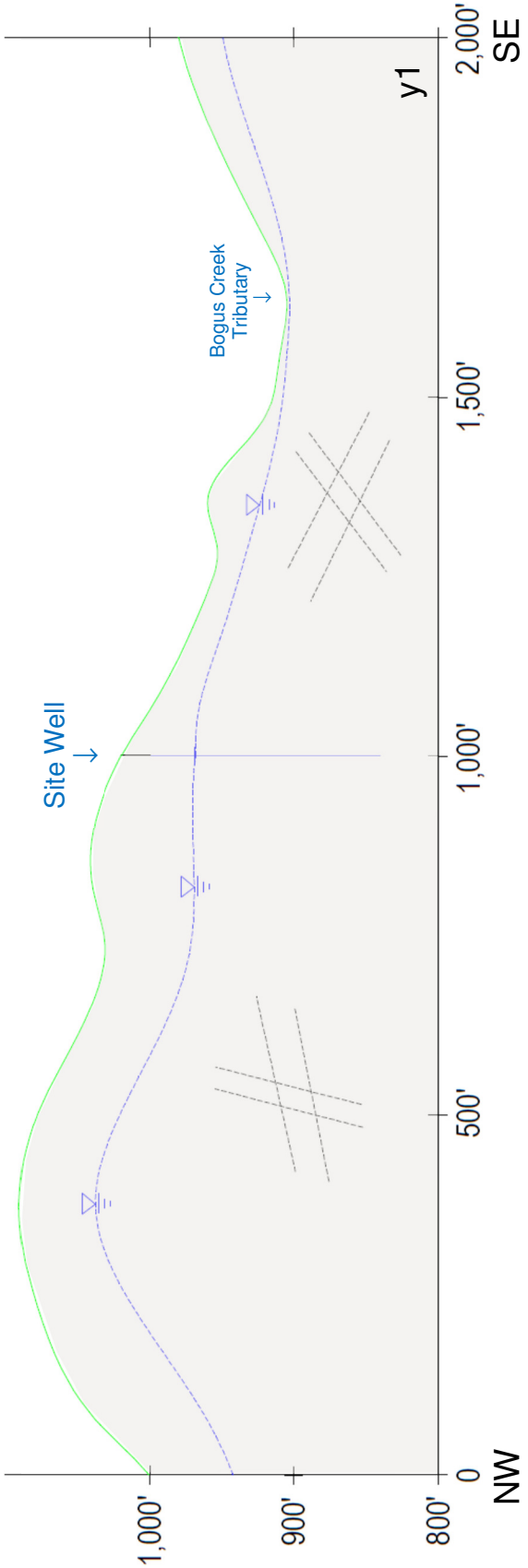
- Serpentinite
- Chert
- Blueschist
- Greenstone
- Fossil locality and number

GEOLOGY OF THE CAPE MENDOCINO, EUREKA, GARBERVILLE, AND SOUTHWESTERN PART OF THE HAYFORK 30 X 60 MINUTE QUADRANGLES AND ADJACENT OFFSHORE AREA, NORTHERN CALIFORNIA (McLaughlin et al., 2000)

Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 5
Post Office Box 306	Lower Thomas Road, Miranda, California	October 11, 2022
Cutten, CA 95534	DWR Well 2019-008589, APN 219-041-012, Lower Thomas LLC, Client	Project 0476.00
(707) 442-6000	Generalized Geologic Cross Section (locations approximate)	Not to Scale

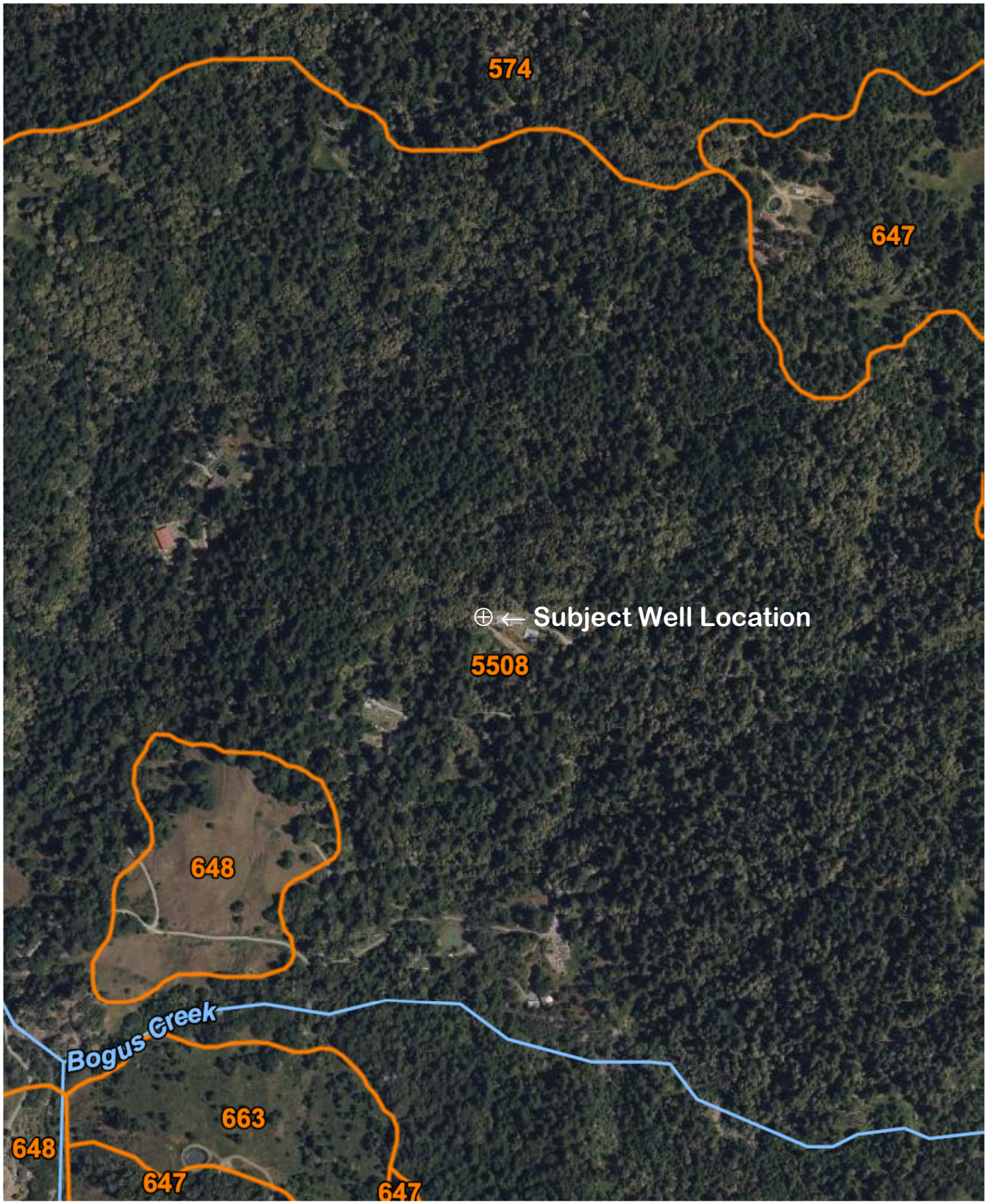


Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 6
Post Office Box 306	Lower Thomas Road, Miranda, California	October 11, 2022
Cutten, CA 95534	DWR Well 2019-008589, APN 219-041-012, Lower Thomas LLC, Client	Project 0476.00
(707) 442-6000	Hydrogeologic Cross Section (locations approximate)	2x ≈ V. E.



In this vertically exaggerated (~2x) cross section, the view is looking upslope and toward the northeast. Groundwater flow in this cross section is toward the viewer, or out of the page. Groundwater is presumed to flow from recharge areas in the higher ground to the northeast, to the southwest toward the South Fork Salmon Creek. Bedrock subgrade is mapped by McLaughlin et al. as composed of Yager terrane (y1) of the Central Belt of the Franciscan Complex. Mélange is one of several components of the Franciscan Complex. Groundwater is envisioned as flowing through fractured zones in mudstone with rhythmically interbedded sandstone. Fractures are interpreted to be the primary permeability and providing preferential flow paths for groundwater in this area.

Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 7
Post Office Box 306	Lower Thomas Road, Miranda, California	October 11, 2022
Cutten, CA 95534	DWR Well 2019-008589, APN 219-041-012, Lower Thomas LLC, Client	Project 0476.00
(707) 442-6000	USDA-NRCS Soils Map (locations approximate)	Scale Not Determined



Modified from: USGS-NRCS Web Soil Survey, October 7, 2022 N ≈

State of California

Well Completion Report

Form DWR 188 Submitted 6/20/2019

WCR2019-008589

Owner's Well Number

Date Work Began 06/18/2019 Date Work Ended 06/20/2019

Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program

Secondary Permit Agency

Permit Number 18/19-0859 Permit Date 04/02/2019

Well Owner (must remain confidential pursuant to Water Code 13752)

Name LOWER THOMAS ROAD, LLC, Micha Anderson

Mailing Address 5666 La Jolla Blvd. #270

City La Jolla State CA Zip 92037

Planned Use and Activity

Activity New Well

Planned Use Water Supply Irrigation - Agriculture

Well Location

Address 3556 Lower Thomas RD

City Miranda Zip 95553 County Humboldt

Latitude 40 Deg. 12 Min. 0.72 Sec. N Longitude -123 Deg. 52 Min. 33.24 Sec. W

Dec. Lat. 40.2002 Dec. Long. -123.8759

Vertical Datum Horizontal Datum WGS84

Location Accuracy Location Determination Method

APN 219-041-012

Township 03 S

Range 03 E

Section 18

Baseline Meridian Humboldt

Ground Surface Elevation

Elevation Accuracy

Elevation Determination Method

Borehole Information

Orientation Vertical Specify

Drilling Method Direct Rotary Drilling Fluid Air

Total Depth of Boring 180 Feet

Total Depth of Completed Well 180 Feet

Water Level and Yield of Completed Well

Depth to first water 51 (Feet below surface)

Depth to Static Water Level 42 (Feet) Date Measured 06/20/2019

Estimated Yield* 1 (GPM) Test Type Air Lift

Test Length 4 (Hours) Total Drawdown 129 (feet)

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

Geologic Log - Free Form

Depth from Surface Feet to Feet		Description
0	5	top soil
5	31	brown sandstone silt mix
31	43	brown shale
43	147	sandstone shale mix
147	180	soft shale

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	PVC	OD: 5.563 in. | SDR: 21 | Thickness: 0.265 in.	0.265	5.563			
1	40	180	Screen	PVC	OD: 5.563 in. | SDR: 21 | Thickness: 0.265 in.	0.265	5.563	Milled Slots	0.032	

Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	20	Bentonite	Other Bentonite		Sanitary Seal
20	180	Filter Pack	Other Gravel Pack	3/8 Inch	Pea Gravel

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	180	10

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 (Address) | HYDESVILLE (City) | CA (State) | 95547 (Zip)

Signed: *electronic signature received* (C-57 Licensed Water Well Contractor) | 06/20/2019 (Date Signed) | 683865 (C-57 License Number)

Attachments

Scan.pdf - Location Map

DWR Use Only

CSG #	State Well Number	Site Code	Local Well Number

				N						W

Latitude Deg/Min/Sec | Longitude Deg/Min/Sec

TRS:

APN:

State of California

Well Completion Report

Form DWR 188 Complete 10/30/2017

WCR2017-004574

Owner's Well Number 1 | Date Work Began 09/15/2017 | Date Work Ended 09/25/2017

Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program

Secondary Permit Agency | Permit Number 16/17-0500 | Permit Date 11/28/2016

Well Owner (must remain confidential pursuant to Water Code 13752)

Name XXXXXXXXXXXXXXXXXXX

Mailing Address XXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXX

City XXXXXXXXXXXXXXXXXXX State XX Zip XXXXX

Planned Use and Activity

Activity New Well

Planned Use Water Supply Irrigation - Agriculture

Well Location

Address 1753 Grenz AVE

City Miranda Zip 95553 County Humboldt

Latitude Deg. Min. Sec. N Longitude Deg. Min. Sec. W

Dec. Lat. 40.2068600 Dec. Long. -123.8745100

Vertical Datum Horizontal Datum WGS84

Location Accuracy Location Determination Method

APN 212-022-014

Township 03 S

Range 03 E

Section 18

Baseline Meridian Humboldt

Ground Surface Elevation

Elevation Accuracy

Elevation Determination Method

Borehole Information

Orientation Vertical Specify

Drilling Method Direct Rotary Drilling Fluid Air

Total Depth of Boring 280 Feet

Total Depth of Completed Well 280 Feet

Water Level and Yield of Completed Well

Depth to first water 171 (Feet below surface)

Depth to Static Water Level 165 (Feet) Date Measured 09/25/2017

Estimated Yield* 5 (GPM) Test Type Air Lift

Test Length 4 (Hours) Total Drawdown 115 (feet)

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

Geologic Log - Free Form

Depth from Surface Feet to Feet		Description
0	7	top soil
7	101	soft brown sandstone
101	143	blue sandstone
143	265	sandstone shale mix
265	280	soft 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	80	Blank	PVC	OD: 5.563 in. | Thickness: 0.375 in.	0.375	5.563			
1	80	280	Screen	PVC	OD: 5.563 in. | Thickness: 0.375 in.	0.375	5.563	Milled Slots	0.032	

Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	20	Bentonite	Other Bentonite		Sanitary Seal
20	280	Filter Pack	Other Gravel Pack	3/8"	Pea Gravel

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	280	10

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 (Address) | HYDESVILLE (City) | CA (State) | 95547 (Zip)

Signed: *electronic signature received* (C-57 Licensed Water Well Contractor) | 09/26/2017 (Date Signed) | 683865 (C-57 License Number)

Attachments

/WellReport_20171030_141517.pdf - WCR Final

Scan.pdf - Location Map

DWR Use Only

CSG #	State Well Number	Site Code	Local Well Number

N — Latitude Deg/Min/Sec

W — Longitude Deg/Min/Sec

TRS:

APN:

Humboldt County, South Part, California

5508—Canoecreek-Coyoterock-Sproulish complex, 15 to 50 percent slopes

Map Unit Setting

National map unit symbol: 2qds2
Elevation: 200 to 2,790 feet
Mean annual precipitation: 49 to 100 inches
Mean annual air temperature: 48 to 57 degrees F
Frost-free period: 240 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Canoecreek and similar soils: 35 percent
Sproulish and similar soils: 25 percent
Coyoterock and similar soils: 25 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canoecreek

Setting

Landform: Ridges, mountain slopes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainflank
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Colluvium derived from sandstone and/or mudstone and/or residuum weathered from mudstone and/or sandstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A1 - 1 to 4 inches: gravelly loam
A2 - 4 to 8 inches: gravelly loam
Bt1 - 8 to 16 inches: very gravelly loam
Bt2 - 16 to 37 inches: very gravelly loam
C - 37 to 79 inches: extremely gravelly sandy loam

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: F004BJ102CA - Dry, steep mountain slopes
Hydric soil rating: No

Description of Sproulish

Setting

Landform: Ridges, mountain slopes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainflank
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Colluvium derived from mudstone and/or sandstone and/or residuum weathered from mudstone and/or sandstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 5 inches: loam
Bt1 - 5 to 15 inches: loam
Bt2 - 15 to 33 inches: loam
Bt3 - 33 to 40 inches: loam
BCt - 40 to 71 inches: very paragravelly clay loam

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: F004BJ102CA - Dry, steep mountain slopes
Hydric soil rating: No

Description of Coyoterock

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Colluvium derived from mudstone and/or sandstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A1 - 1 to 7 inches: loam
A2 - 7 to 11 inches: loam
Bt1 - 11 to 22 inches: clay loam
Bt2 - 22 to 35 inches: clay loam
Bt3 - 35 to 51 inches: clay loam
BCt - 51 to 71 inches: paragravelly clay loam

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 28 to 39 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: F004BI106CA - High precipitation mountain slopes
Hydric soil rating: No

Minor Components

Yorknorth, moist

Percent of map unit: 7 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Kingrange

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Rock outcrop

Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Data Source Information

Soil Survey Area: Humboldt County, South Part, California
Survey Area Data: Version 12, Sep 2, 2022