Holder Law Group
holderecolaw.com
1980 Mountain Blvd.., Ste. 211
Oakland, CA 94611
(510) 338-3759
jason@holderecolaw.com

March 2, 2022

VIA EMAIL ONLY (PLEASE CONFIRM RECEIPT

County of Humboldt
Humboldt County Planning Commission
Hon. Alan Bongio, Chair
Planningclerk@co.humboldt.ca.us

Humboldt County Planning Department
Attn: John Ford, Planning Director
Desmond Johnston, Supervising Planner
Email: jford@co.humboldt.ca.us;
djohnston@co.humboldt.ca.us

Re: **Comments Concerning Blocksburg Family Farm, LLC Conditional Use Permits for Approximately Six Acres of Commercial Cannabis Propagation, Cultivation and Processing** (PLN-12265-CUP; APN: 217-471-001)

Dear Chairman Bongio, Honorable Members of the Humboldt County Planning Commission, Director Ford, and Mr. Johnston:

On behalf of Citizens for a Sustainable Humboldt ("CSH") and the Northcoast Environmental Center ("NEC"), we are writing to comment specifically on the above-referenced large-scale commercial cannabis project and more generally address the chronic deficiencies in the analysis of project impacts that characterize the regulatory program for cannabis enacted and implemented by the County of Humboldt ("County"). By providing these supported and substantiated comments concerning this Project in particular, and the requirements for adequate investigation of project impacts in general, CSH and NEC intend to meaningfully participate in the ongoing dialogue concerning important issues related to the industries' unmitigated direct, indirect, and cumulative environmental impacts. The comments below also supplement those presented in November 2021 by Mr. Barry Hecht, a certified hydrogeologist with Balance Hydrologics, concerning tools available to scientifically evaluate and transparently disclose the potential for groundwater hydrologic connectivity.[1]

After reviewing the IS/MND, the technical appendices, the July 8, 2021, letter from geologist David Lindberg addressed below, and the analysis in the staff report, CSH and NEC conclude that the Planning Commission should not rely upon this level of insufficient investigation and explanation as evidence that a groundwater well for a proposed industrial-

[1] *See* Exh. A to CSH and NEC comments concerning investigation of hydrologic connectivity, dated 11/03/21 – Hecht, Review of Hydrogeologic Connection Investigation Memorandum Prepared for Platinum King Commercial Cannabis Project (Humboldt County, PLN-2018-15196), incorporated herein by reference.

scale commercial cannabis project is not hydrologically connected to surface waters and that the Project's well can produce sufficient water for the Project, in perpetuity. This deficient analysis does not satisfy the requirements of the California Environmental Quality Act ("CEQA"). Accordingly, the IS/MND must be substantially revised, if the identified potentially significant impacts cannot be dispositively ruled out based on a scientific and factually supported analysis, then an EIR must be prepared for this Project.

I. Introduction: Substantially Expanded Operation on Greenfield Site Requires Robust Environmental Impact Analysis and Adherence to County Standards.

The Project involves substantially expanded large-scale cultivation and processing of cannabis on an isolated "greenfield" property in rural Humboldt County. The Project is being processed under Ordinance 1.0 (the CMMLUO). Due to the Project's unusually large size and its associated increased potential to cause significant impacts in this sensitive setting, CSH and NEC determined it was appropriate to review the analysis and weigh in with comments.

The Project site is previously undeveloped and has limited road access. The applicant seeks a Conditional Use Permit ("CUP") for 6.39 acres of cultivation and processing facilities. Notably, at this size, this would be one of the larges projects ever proposed under the CMMLUO. Cultivation would occur both outdoors (3 acres) and in framed rigid greenhouses utilizing light deprivation (3 acres). Operations would occur year-round, with a maximum of two cultivation cycles annually for the light deprivation half of the operation.

In the initial phase (Phase 1), the Project will cultivate 2 acres relying entirely on wells and generators. Only later will the Project shift to reliance on rainwater catchment and renewable energy sources. Adherence to the Operations Plan would require improvements to be in place before progressing to later development phases. The Project will initially rely on small-scale cultivation systems to scale up to an industrial-size operation. For example, gasoline used to power generators will be stored in 5-gallon containers that employees will refill repeatedly, as need.

Because of the Project's potential to cause unanalyzed significant direct, indirect, and cumulative impacts, CSH and NEC urge the Planning Commission to direct staff and the Project applicant to substantially revise the impact analysis before it considers this Project for approval.

II. Discussion: The Project Has the Potential to Cause Significant Impacts Related to Groundwater Use, Wildfire Risks, and Biological and Aquatic Resources.

A. CEQA's Provisions Militate in Favor of Preparing an EIR

CEQA contains a strong presumption in favor of requiring a lead agency to prepare an EIR. This presumption is reflected in the "fair argument" standard. Under that standard, a lead agency must prepare an EIR whenever substantial evidence in the whole record before the

agency supports a fair argument that a project may have a significant effect on the environment.[2] In contrast,

> "CEQA excuses the preparation of an EIR and allows the use of a negative declaration when an initial study shows that there is no substantial evidence that the project may have a significant effect on the environment." [Citations.] In certain situations where a straightforward negative declaration is not appropriate, the agency may permit the use of a mitigated negative declaration. [Citations.][3]

A mitigated negative declaration may be prepared instead of an EIR only when, after preparing an initial study, a lead agency determines that a project may have a significant effect on the environment, but:

> (1) revisions in the project plans or proposals made by, or agreed to by, the applicant before the proposed negative declaration and initial study are released for public review *would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur*, and (2) there is *no substantial evidence* in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment.[4]

Courts have held that, "[i]f no EIR has been prepared for a nonexempt project, but substantial evidence in the record supports a fair argument that the project may result in significant adverse impacts, the proper remedy is to order preparation of an EIR."[5] The fair argument standard creates a "low threshold" favoring environmental review through an EIR, rather than through issuance of a negative declaration or notices of exemption from CEQA.[6] An agency's decision not to require an EIR can be upheld only when there is no credible evidence

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[2] Pub. Res. Code § 21082.2; CEQA Guidelines § 15064(f), (h); Laurel Heights Improvement Assn. v. Regents of University of California (1993) 6 Cal.4th 1112, 1123 (*Laurel Heights II*); *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal. 3d 68, 75, 82; *Stanislaus Audubon Society, Inc. v. County of Stanislaus* (1995) 33 Cal.App.4th 144, 150-151; *Quail Botanical Gardens Foundation, Inc. v. City of Encinitas* (1994) 29 Cal.App.4th 1597, 1601-1602.

[3] *Inyo Citizens for Better Planning v. Board of Supervisors* (2009) 180 Cal.App.4th 1, 6-7 (emphasis added), quoting *San Lorenzo Valley Community Advocates for Responsible Education v. San Lorenzo Valley Unified School Dist.* (2006) 139 Cal.App.4th 1356, 1372-1374.

[4] Pub. Resources Code, § 21064.5, emphasis added.

[5] See, e.g., *Communities For A Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal.4th 310, 319-320 (*CBE v. SCAQMD*), citing *No Oil, supra*, 13 Cal.3d at p. 75 and *Brentwood Assn. for No Drilling, Inc. v. City of Los Angeles* (1982) 134 Cal.App.3d 491, 504-505.

[6] *Citizens Action to Serve All Students v. Thornley* (1990) 222 Cal.App.3d 748, 754.

to the contrary.[7] Substantial evidence can be provided by technical experts or members of the public.[8]

With respect to the Project at issue here, the IS/MND, as currently drafted, does not satisfy the basic purposes and requirements of CEQA. Specifically, among other problems with the analysis, the IS/MND does not adequately analyze the Project's potentially significant impacts and provide substantial evidence to conclude that Project impacts will be avoided or mitigated to less-than-significant levels. The public cannot meaningfully evaluate and comment on the Project and its potentially significant impacts without this and other missing basic information (e.g., dry season well pump tests and a description of access road pinch points). In addition, because the IS/MND lacks essential information regarding the Project's potentially significant impacts, there is no evidence to support the necessary conclusion that the Project will "clearly" have a less-than-significant impact on the environment.

An EIR may be appropriate here, given that this large-scale commercial project (involving 6.39 acres of cultivation, up to twenty-five (25) employees, and approximately 3,157,826 gallons of water annually) located on a currently undeveloped "greenfield" site in a remote area with limited access, sensitive species, and potentially uncertain water resources.

B. New Cultivation Causes New Impacts.

The Project will include six acres of cultivation, a substantial expansion over the purported 16,800 square feet of existing cultivation area.

> The project will add four (4) fully enclosed ancillary propagation greenhouses that measure 100-feet by 20-feet (8,000 sq. ft) to support the addition of six cultivation acres to the parcel. These will be built in stages with two to four (2-4) propagation greenhouses constructed during Phase I and the remainder (0-2) built during Phase II.[9]

This additional cultivation area will result in a higher water demand than the existing cultivation, as well as other increased impacts.

The narrative advanced repeatedly by industry proponents at past Planning Commission meetings is that the County should not make it more difficult for existing unpermitted cultivators to transition to legal operations, and that concerns about environmental impacts should not result in "moving the goalposts." These arguments do not apply, however, to projects comprised primarily of new cultivation area. According to the February 2022 Watershed Map prepared for this Project, the majority of cannabis projects approved in the

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[7] *Sierra Club v. County of Sonoma* (1992) 6 Cal.App.4th, 1307, 1318.

[8] CEQA Guidelines § 15063(a)(3); *Gabric v. City of Rancho Palos Verdes* (1977) 73 Cal.App.3d 183, 199.

[9] *See* IS/MND, p. 15.

County are for new cultivation operations, not existing operations. For new and expanded operations, the externalities of the business ventures should be internalized through regulation, not forced upon their neighbors and the natural environment.

With this Project, the substantial increase in cultivation square footage will ultimately require approximately 25 employees to operate. The IS/MND assumes these employees would be transported to and from the Project site by two vans circulating to each employee's home.[10] CSH and NEC doubt whether this transportation plan is feasible. Will employees be willing to potentially commute several hours per day via vanpool (likely involving a long, circuitous route)? If not where will the employees travel from? The IS/MND simply assumes sufficient employees will be shuttled in from the nearby community, but it does not address the potential logistical problems with this plan. For example, this transportation plan, involving use a "vanpool" for employees, could leave employees on site with little or no ability to evacuate, if necessary, in the event of wildfire or other emergency on the Project site.

When describing parking areas that the Project will utilize, the IS/MND states "The project will also gravel and delineate a minimum of five (5) standard parking spaces on the west face of the proposed Multi-Use Building (approximately 900 sq. ft.)."[11] This aspect of the Project should be revised to accurately describe the amount of parking area that will be created adjacent to the Multi-Use Building.

The proposed Conditions of Approval do not appear to restrict Project phases from proceeding until renewable energy facilities are developed. Please ensure that all conditions precedent are required to be satisfied before the Project scales up to over 6 acres of cultivation area.

C. The Project's Use of Groundwater May Cause Significant Impacts to Any Hydrologically Connected Surface Water Features

The ISMND does not contain any assurance that the Project's intensive use of groundwater will not cause significant impacts to watershed and surface water hydrology. Reliance on wells and pumping groundwater does not eliminate the potential for significant effects to water supply. For in this area, with limited alluvial deposits, most groundwater either drains to or is otherwise hydrologically connected to surface water features (as explained further below).

According to the most recent comprehensive update to Bulletin 118, prepared by the Department of Water Resources ("DWR"):

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[10] *See* IS/MND, p. 26.

[11] *See* IS/MND, p. 17.

> Groundwater development in the inland coastal valleys north of the divide between the Russian and Eel Rivers is generally of limited extent. Most problems stemming from reliance on groundwater in these areas is a lack of alluvial aquifer storage capacity. Many groundwater wells rely on hydrologic connection to the rivers and streams of the valleys.[12]

According to the thorough report on groundwater resources in the Eureka area prepared by the United States Geological Survey ("USGS") in 1959, the fractured Franciscan Sandstone formation underlying much of the Project site (below the landslide deposits) is likely to bear relatively little groundwater.[13] Indeed,

> The oldest rocks exposed [within the Eureka area] are undifferentiated sedimentary and metamorphic rocks of the Franciscan and Yager formations of Jurassic and Cretaceous age. These rocks crop out in the hills and mountains along the east and south edges of the area and underlie most of the mountainous drainage area. However, they do not yield appreciable amounts of water to wells.[14]

The USGS further found what relatively little groundwater there is to be found in Franciscan formations "occurs along fault zones, in landslide debris, and in joints" and that this water is "discharged in springs or through seepage zones."[15] This finding, while admittedly dated, constitutes substantial evidence that the groundwater the Project will depend upon is hydrologically connected to surface waters and that extracting this groundwater may reduce the discharge of groundwater underlying the Project well site to nearby "springs and seepage zones." The geology of the area has not changed appreciably since the report was written in 1959. Further, given increased water demand, prolonged droughts, and the effects of climate change, groundwater availability in these zones cannot possibly have improved.

The above information undermines the unsupported assertions in the IS/MND that 1) the Project's well can sustainably pump up to 3,157,826 gallons a year without depleting groundwater resources and without affecting surface waters such as tributary streams and wetlands and 2) the Project will have no significant impact on groundwater supplies.[16]

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[12] DWR's Bulletin 118 Update (2003), p. 123, available at: https://cawaterlibrary.net/wp-content/uploads/2003/10/Bulletin_118_Update_2003.pdf, accessed Sept. 9, 2020.

[13] *See generally* USGS (prepared in cooperation with the California Department of Water Resources), Water-Supply Paper 1470, Geology and Ground-Water Features of the Eureka Area Humboldt County, California (1959), pp. 1, 3-4, 7, 11-12, available at: https://pubs.usgs.gov/wsp/1470/report.pdf, accessed 10/01/20.

[14] *See id.* at p. 12; *see also id.* at p. 13 [Table 1, stating Franciscan Sandstone of the Jurassic age is "Consolidated; not tapped by wells, probably contains *some* water in fractures and in deeply weathered rocks," emphasis added].

[15] *See* USGS Water Supply Paper 1470, *supra*, p. 14.

[16] *See* Revised IS/MND, pp. 196-198.

Reliance on groundwater does not eliminate the potential for significant effects to water supply. Furthermore, to the extent the Project's use of limited available groundwater depletes or adversely affects the quantity and quality of surface water wetlands, streams, and tributaries (e.g., to adjacent headwaters to McMahon Creek and to the nearby tributary to Cooper Creek), the use of Project wells may also cause significant impacts to biological resources (e.g., fish, birds, and other wildlife) that depend upon those impacted surface waters.[17]

The applicant and County can use available modelling tools and field techniques to determine or estimate whether and to what degree the projected groundwater pumping from Project well can potentially impact surface waters.[18] For example, USGS Circular 1376 addresses situations where groundwater pumping from wells having a hydrological connection to surface waters may cause a decline in those surface waters.[19] The circular recommends several modeling and field techniques that can be used to determine whether groundwater pumping from a specific well can potentially impact nearby surface waters.[20] The analysis of this Project's impacts to surface waters should employ modeling and investigation.

USGS Circular 1376 summarizes the "Components of streamflow depletion" as follows:

> Both captured groundwater discharge and induced infiltration of streamflow result in reductions in the total rate of streamflow. Streamflow depletion, therefore, is the sum of captured groundwater discharge and induced infiltration. Captured groundwater discharge is often the primary component of streamflow depletion, but if pumping rates are relatively large or the locations of withdrawal relatively close to a stream, then induced infiltration may become an important component of streamflow depletion.[21]

The required revised analysis must carefully examine all the ways in which the Project's well can cause streamflow depletion.

For areas outside of large alluvial basins, such as mountainous areas with limited alluvial deposits, the County should assume groundwater drains to or is otherwise hydrologically connected to surface waters unless proven otherwise. In other words, the County should utilize the "precautionary principle."[22]

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[17] *See generally*, *e.g.*, CDFW, Fish & Wildlife Groundwater Planning Considerations (2019).

[18] *See* Exh. A – Hecht Letter, pp. 9-10.

[19] *See generally* USGS Circular 1376, Streamflow Depletion by Wells—Understanding and Managing the Effects of Groundwater Pumping on Streamflow, available at: https://pubs.usgs.gov/circ/1376/pdf/circ1376_barlow_report_508.pdf, accessed Sept. 24, 2020.

[20] *See id.* at p. 35, 50, 54.

[21] USGS Circular 1376, p. 76 [Conclusion].

[22] *See* National Institutes of Health, Environmental Health Perspectives, The precautionary principle in

> The precautionary principle, then, is meant to ensure that the public good is represented in all decisions made under scientific uncertainty. When there is substantial scientific uncertainty about the risks and benefits of a proposed activity, policy decisions should be made in a way that errs on the side of caution with respect to the environment and the health of the public.[23]

If there is any evidence of a potential hydrologic connection between the Project well and surface water features, the Project may be subject to forbearance of groundwater pumping during certain times of year under the State Water Resource Control Board's Cannabis Cultivation Policy.[24]

The Staff Report states that "A July 2021 study, Hydrologic Isolation of Existing Well from Surface Waters, determined there is no connectivity between the well and surface waters."[25] The IS/MND reports that "[t]he well, in the context of the geologic structure of the site as well appears to access an aquifer between 110 to 140 feet below ground that exist within a layer of fractured water bearing sandstone that is hydrologically disconnected from the upper layer of landslide deposits."[26] The well log only offers a two-dimensional view of the geology surrounding the well. While there may be impervious layers vertically in the well's bore hole, that does not rule out non-impervious layers laterally, to the area downslope of the Project site. It is possible that groundwater pumping could result in reducing the amount of groundwater that would otherwise make its way to the surface.

However, the referenced July 2021 study does not conclusively rule out the potential for hydrologic connectivity. Information in the IS/MND suggests that the Project may well be hydrologically connected:

> Landscapes exhibit irregular, lumpy topography, with numerous springs, seeps, sag ponds and wetlands; hillslopes lack well incised drainage features. Shallow groundwater perches on a dense clay layer at concave to planar hillslope locations or dense, weakly fractured argillite on some convex to planar hillslope

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environmental science, Vol. 109, No. 9 (2001), p. 871 ["The precautionary principle, proposed as a new guideline in environmental decision making, has four central components: taking preventive action in the face of uncertainty; shifting the burden of proof to the proponents of an activity; exploring a wide range of alternatives to possibly harmful actions; and increasing public participation in decision making"], available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1240435/pdf/ehp0109-000871.pdf, accessed March 2, 2022.

[23] *Id.* at p. 876.

[24] *See* SWRCB, Cannabis Cultivation Policy Principles and Guidelines for Cannabis Cultivation, 2019, p. 13, available at: https://www.waterboards.ca.gov/water_issues/programs/cannabis/cannabis_policy.html., accessed 03/01/22.

[25] *See* Staff Report, p. 5.

[26] *See* IS/MND, p. 140

> locations. Seeps and springs are evident in hillslope swales and along margins of toeslopes.[27]

The above description of the geology underlying the Project area suggests that groundwater pumping on the Project site could indeed impact springs, seeps, wetlands, and streams located downslope from the well location.

The May 2021 letter from CDFW expressed concern for the very rare wetland type between the Project well and the cultivation site. A hydrologically connected well could impact this rare wetland.

D. The Project May Not Have a Sufficiently Reliable Long-Term Water Supply.

The Staff Report notes that "Water is presently sourced from an existing, onsite non-diversionary well that has a production rate of 28 gallons/minute, as established in a recent drawdown pump test" Similarly, the IS/MND states "The well has a production rate of 28 gallons/minute, as established in a recent drawdown pump test. This production rate will allow the project to pump up to 40,320 gallons in 24 hours."[28] Neither the staff report nor the IS/MND reveals, however, that the Well 2 was installed in June 2017 and the initial pump test for the well was completed at that time, outside of the dry season. The IS/MND also does not reveal that the updated pump test for the well was conducted in May 2020, and was also not conducted during the dry season, as required by County regulations.[29] The IS/MND also does not reveal that the updated pump test was not conducted for the 8-hour minimum duration required under County Department of Environmental Health requirements, but was only conducted for 6.5 hours.[30] Further, because these wells are located outside of an alluvial formation, the production rate of 28 gallons per minute (reported solely in handwritten notes, in violation of CDEH guidelines) is inherently suspect.[31]

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[27] *See* IS/MND, p. 140.

[28] *See* IS/MND, p. 26, citing Appendix I [well report and drawdown test details].

[29] *See* Appendix I to IS/MND, handwritten notes concerning pump test for Well #2, conducted on May 13, 2020; *see also* Exhibit B: CDEH, Water Production Standards and Test Procedures, p. 3 ["All water production tests must be conducted during the dry season and be representative of the lowest annualwater production anticipated from the source. The dry season testing period is August 1 through September 30"], available at: https://humboldtgov.org/DocumentCenter/View/98439/Water-Production-Standards-and-Test-Procedures-PDF, accessed March 1, 2022.

[30] *See* CDEH, Water Production Standards and Test Procedures, p. 3.

[31] *See ibid.*; *see also* public hearing testimony of David Fisch to the Humboldt Planning Commission on November 18, 2021, available at: https://humboldt.granicus.com/MediaPlayer.php?view_id=5&clip_id=1562 [see video of PC meeting at approximately hour/minute mark 2:00, stating most wells in the County outside of the major alluvial basins typically only produce 5 to 10 gallons per minute].

The IS/MND asserts that "[w]hile water demand for Phase II/III irrigation using only the existing well is feasible and sustainable, the project will have the benefit of the 2.2 million gallon rainwater catchment pond to support irrigation demands."[32] This rainwater backup water supply for later phases of the Project is a great improvement over other large-scale cannabis projects proposed in the County. However, there is no evidence to support the claim that reliance on groundwater alone as the Project's supply would be "sustainable."

The sustained yield of the Project's wells have not been adequately assessed. At a minimum, for the analysis of long-term yield to be sufficient, the applicant must conduct at least one pump test in the dry season (August through November) and should report the results of that test.[33] As it stands, there is simply no factual support for a conclusion that well productivity will be sufficient during the dry season both in the near term and in the long-term. According to a well driller in the County with substantial experience determining the long-term yield of wells, multiple pump tests through multiple seasons are necessary to accurately determine that a well can be a reliable long-term water source.[34] According to the County's own standards, the information concerning the well's productivity provided in the IS/MND and in Appendix I is insufficient to determine the reliability of the Project's groundwater supply.[35]

The IS/MND reports that "McMahon Creek to the north is a blue line, Class I stream, but is likely intermittent near the headwaters on the project parcel."[36] Pumping groundwater from Well 2 could potentially affect the headwaters to McMahon Creek and nearby Cooper Creek, potentially making these surface water streams even more intermittent than baseline conditions – this possibility has not been ruled out. The IS/MND should be revised to analyze the potentially significant impacts that can result if pumping from the Project well measurably dewaters one or both of these streams in the dry season.

In his letter, Mr. Lindberg reports:

> Groundwater is also approximately 58 feet higher in elevation than the elevation of the ephemeral tributary of McMahan Creek. Therefore, the perennial

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[32] *See* IS/MND, p. 31.

[33] *See* Humboldt County, Division of Environmental Health, Well Permits and Water Production, available at: https://humboldtgov.org/DocumentCenter/View/56116/Well-Permits-and-Water-Production-PDF ["All water production tests must be conducted during the dry season and be representative of the lowest annual water production anticipated from the source. The dry season testing period is August 1 through September 30."]

[34] *See* Fisch testimony to Planning Commission on November 18, 2021, *supra*, at 1:43, 1:50 [well completion report is a "snapshot in a moment in time, it is not a document to take to the bank and say 'look this is my well it is going to last for 1,000s years"], 1:51 [testing well productivity in dry season and wet season is necessary to better understand long-term well yield].

[35] In light of this clear inconsistency with County standards, it is unclear why the IS/MND was accepted as complete by County staff and noticed for approval on the Planning Commission's consent agenda.

[36] *See* IS/MND, p. 88.

> tributary of McMahan Creek appears to be flowing in a different part of the stratigraphic section than the sourced aquifer, and the ephemeral tributary only appears to convey surface runoff during the winter wet season, drying up soon after the seasonal rains end.[37]

We have reviewed the maps and materials provided and are unable to verify the above statement. However, in light of past inaccuracies in Mr. Lindberg's testimony on the subject of potential hydrologic connectivity (where Mr. Lindberg opined that a well that is approximately 20 to 40 feet deeper than the nearest adjacent river level is "approximately equal" in depth to the river),[38] NEC and CSH request independent, scientific, and transparent verification that the groundwater is hydrologically disconnected to surface water features, including but not limited to the perennial tributary of McCann Creek, the tributary to Cooper Creek, and nearby wetlands, springs, and seeps. Dewatering such connected surface water features could result in potentially significant impacts to wildlife that must be analyzed.[39]

1. <u>If Groundwater Is Hydrologically Connected to Surface Waters or Insufficiently Available, It May Be Uncertain as an Identified Water Source, Requiring Identification of Alternative Water Supplies.</u>

Because the Project's groundwater supply itself may be depleted over time, the identified groundwater supply may be uncertain. In *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412 (*Vineyard Area Citizens*), the California Supreme Court set forth a set of principles, derived from over a decade of Court of Appeal case law, governing the manner in which lead agencies must address water-related issues in land use EIRs. Among other principles, the Court stated that:

> If the uncertainties inherent in long-term land use and water planning make it impossible to confidently identify the future water sources, an EIR may satisfy CEQA if it acknowledges the degree of uncertainty involved, discusses the reasonably foreseeable alternatives—including alternative water sources and the option of curtailing the development if sufficient water is not available for later phases—and discloses the significant foreseeable environmental effects of each alternative, as well as mitigation measures to minimize each adverse impact.[40]

Neither the IS/MND nor the staff report for the Project acknowledge the uncertainties concerning the Project's groundwater supply, nor do these analyses include the required

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[37] *See* Exh. E to IS/MND, Letter from D Lindberg, dated July 8, 2021, p. 3.

[38] *See* Appeal Hearing for Humboldt's Own permit, dated February 15, 2022 [hour/minute range: 2:50 to 3:03].

[39] *See Vineyard*, *supra*, 40 Cal.4th at pp. 448-450 [addressing petitioners' claim that groundwater extraction from well field would dewater adjacent river, potentially impacting migrating salmon].

[40] *Vineyard*, *supra*, 40 Cal.4th at p. 434.

analysis that would follow from this acknowledgment. Instead, staff and project consultants simply assume that sufficient groundwater would be available for the Project in perpetuity and that if this water supply proved insufficient, and supplemental supplies through rainwater catchment prove insufficient, the Project could curtail water use.

According to *Vineyard Area Citizens*, in light of an uncertain water supply, the environmental review document (e.g., IS/MND) must acknowledge the uncertainties inherent in a project's sole groundwater supply, identify secondary/alternative sources of water for cultivation and other needs, and analyze the impacts of obtaining the required water from those sources.

For many projects, the most likely potential secondary/alternative sources are: (1) increased groundwater pumping from additional wells, (2) increased rainwater capture, or (3) diversions of surface water under currently nonexistent appropriative rights. Yet, for both hydrological and legal reasons, any claims regarding the availability of these secondary/ alternative sources to serve as a water supply for these projects may themselves be highly uncertain and problematic.

To the extent that the project applicants propose increased groundwater pumping from new wells as a secondary/alternative water supply to make up for uncertain or unavailable groundwater from existing wells or from surface water, CEQA would require assessment of the actual availability of and environmental impacts associated with such groundwater resources, and such assessment cannot be undertaken without first providing up to date information on baseline groundwater conditions and any hydrologic connection between groundwater underlying the Project site and any surface waters.

Rooftop rainwater capture water source can be exempt from the requirement for a water right permit, pursuant to the Rainwater Capture Act of 2012.[41] However, any proposed increase in the capture of rainwater as a secondary/alternative water supply source, unless also (and exclusively) from greenhouse or other project rooftops, would be subject to the water right permit requirement.

Any appropriative diversions of surface water as a secondary/alternative source would require a permit application to the California State Water Resource Control Board ("SWRCB"). In light of increasing water scarcity and high demand, it is highly uncertain that such an appropriative water right application would be approved. In any event, this would need to be explained, together with an analysis of the impacts of diverting surface water.

Again, when a transparent and scientifically sound analysis of the groundwater supply reveals uncertainty of the planned groundwater supply in the long-term, the required analysis under CEQA must identify secondary/alternative sources of water, identify any permits that

[41] *See* Water Code, §§ 10571(c), (d), 10573(d), 10574.

would be required for such sources, and analyze the environmental effects that would stem from utilizing those sources.

2. The County has a Duty to Independently Assess Water Supply Information.

The County has a statutory obligation under CEQA, PRC section 21082.1 to "independently" review and analyze the legal adequacy of the environmental impact assessment performed for land use development projects. This duty includes the duty to undertake an independent assessment by the County of the claimed entitlements to water supply, the claimed sufficiency of the identified groundwater supply, and the environmental impacts of utilizing that identified water source. For the reasons discussed above, the projected groundwater supplies for the Project may be uncertain and utilizing those supplies (or alternative supplies) may cause impacts. The County must independently review and analyze the water supply for the Project and may not merely rely upon opinions or bald assertions of advocates for the proposed development. Here, because the two pump tests for the wells were conducted in June 2017 and May 2020, outside of the dry season, their results are unreliable for determining the well's long-term yield. Yet County staff appear to have uncritically accepted the conclusions from these pump tests.[42]

Importantly, groundwater extraction for commercial cannabis projects in remote mountainous regions may cause cumulative impacts to navigable surface waters, including major rivers, the Public Trust Doctrine is implicated.[43] The County has an independent responsibility, under this doctrine, to ensure these projects do not cause impacts to surface waters and the species that depend on them. Unfortunately, in many of the staff reports that we have reviewed, County staff appear to simply accept scantly supported representations made by the applicant's consultants concerning the lack of a hydrological connection between a project's groundwater source and surface waters.

E. The Project's Roads May Not Satisfy the Minimum Standards of the County's Fire Safe Regulations.

The Project is subject to the SRA Fire Safe Regulations and all other County land use regulations.[44] The County's Fire Safe Regulations require that "Road and street networks, whether public or private, unless exempted under Section 3111-3(b), shall provide for safe access for emergency wildland fire equipment and civilian evacuation concurrently, and shall

[42] *See* Staff Report, p. 5 ["Water is presently sourced from an existing, onsite non-diversionary well that has a production rate of 28 gallons/minute, as established in a recent drawdown pump test"]. Notably, the only evidence reporting the results of the May 2020 pump tests are handwritten notes.

[43] *See Environmental Law Found. v. State Water Resources Control Bd.* (2018) 26 Cal.App.5th 844, 867-68.

[44] *See* CMMLUO, HCC, §§ 55.4.3.3, 55.4.8.1; *see also* SRA Fire Safe Regulation, HCC §§ 3111-1, 3111-2, 3111-3(a)(3).

provide unobstructed traffic circulation during a wildfire emergency consistent with Sections 3112-2 through 3112-13."[45]

In spite of the above mandatory requirements, the Project utilizes a primary access road that does not satisfy minimum requirements of the County's Fire Safe Regulations. For example, County Code section 3112-2 generally requires all access roads for commercial developments to be rated as Category 4 or its functional equivalent. The Fire Safe Regulations would require, at a minimum, expansion of the ranch access roads to Category 3 standards.[46]

The Project will rely upon 3.2 miles of an un-named private road to provide the Project's primary access. The Project does not include improvements to this road. "The evaluation concluded that, with annual maintenance (maintenance grading, ditch upkeep, and spot rocking), the un-named private roads meet the Humboldt County Category 4 Standards (Appendix F)."[47] It is inappropriate to site an operation that, between cultivation and processing facilities, exceeds 200,000 square feet in size with up to 25 employees in a remote wildland area with access roads that do not even currently meet a Category 2 standard.

In contravention of the assumptions relied upon in connection with approving the CMMLUO concerning compliance with access road performance standards, this Project, as proposed, will only satisfy a Category 2 access road standard along the access road to the Project's facilities for one of the largest commercial cannabis projects ever to be proposed in the County. Staff has never explained how a Category 2, 12-foot wide unpaved road will satisfy the access road requirements under the SRA Fire Safe Regulations. The County's Fire Safe Regulations, HCC § 3112-1, requires that "Road and street networks, whether public or private, unless exempted under Section 3111-3(b), shall provide for safe access for emergency wildland fire equipment and civilian evacuation concurrently, and shall provide unobstructed traffic circulation during a wildfire emergency consistent with Sections 3112-2 through 3112-13." Allowing an access road for this commercial project that does not satisfy these minimum standards would require processing this permit as an exception to the applicable standards.

Part A of the Road Evaluation Report included in Appendix F to the IS/MND is inaccurate because it reports that the entire un-named access road is developed to a Category 4 standard.[48] The supporting Road Evaluation Report contradicts and undermines the checked box in Part A of the Road Evaluation Report with the following statement: "Travel way width from intersection of Un-Named Private Access Road varies from 9-15 ft wide with 1'-2' shoulder

[45] HCC, § 3112-1. Notably, none of the exemptions for access road requirements enumerated in HCC § 3111-3(b) apply to the Project.

[46] HCC, § 3112-3(b).

[47] IS/MND, p. 17.

[48] *See* IS/MND, Appendix F, Road Evaluation Report Form.

and adequate turnouts" (emphasis added). An access road that is 9 feet wide in undescribed places could not possibly be a Category 4 road, nor even its functional equivalent.

A "Category 4" road requires the following:

(1) Two lane - narrow roadway, low to moderate speed - 25-40 mph.

(2) No parking on traveled way.

(3) Serves a maximum of 100 parcels with no more than one dwelling unit per parcel.

(4) Urbanization situation. Vicinity is beginning to undergo a transition from rural to urban.

The two 9' -wide gates pictured at pages 350 and 352 of the IS/MND appendix document do not appear to satisfy minimum width requirements under the County's fire safe regulations.[49]

The staff report to the Planning Commission vaguely describes the Project's access roads as satisfying the County's SRA Fire Safe Regulations, but does not acknowledge that staff has relied upon the improper Category 2 access road standard.[50] If the Project access roads remain 9-15 feet wide, and a fire engine is 8 feet wide, how can the access road provide concurrent public evacuation and fire response access? Staff does not address critical questions concerning what is, as a matter of law, a mandatory regulatory requirement.

Because the initial phases of the Project will rely upon two gas generators for all electricity needs, and generators are a known source of accidental wildfire ignition, it is even more important that the access road meet the County's fire safe standards. According to the IS/MND:

> Generator support for product drying during a full build out season is estimated to take a maximum of 6.5 weeks and burn 1,680 gallons of gasoline. [¶] During periods of elevated gasoline use, the project will increase the supply of gasoline to (8) five-gallon containers; these will be refilled by employees daily or as needed."[51]

Operating generators during the fall harvest and drying period would coincide with California's fire season. Both generator operation and transporting gasoline and propane to and from the

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[49] *See* HCC § 3112-13 [Gate entrances shall be at least two (2) feet wider than the width of the traffic lane(s) serving the gate, and have pull outs in both directions"].

[50] *See* Staff Report, pp. 6-7 ["[the] conclusion [in the Road Evaluation Report] is that the road network leading to the cultivation area on the subject parcel (APN 217- 215-001) will be equivalent to Road Category 4 with routine annual maintenance, given the adequate distribution of turnouts and low ADT"].

[51] IS/MND, p. 18.

Project site will exacerbate the risk of wildfire. Even the gasifier (which burns wood chips) that will be utilized for heat and energy in Phase 4 may exacerbate wildfire risks because it would be operated in August, September, and October – the most critical fire months. While NEC and CSH support the effort to utilize alternative energy sources, the associated increased risk of wildfire must be considered in the impact analysis. These potentially significant impacts related to wildfire risk were not adequately considered in the IS/MND's impact analysis.

F. The Project Will Contribute to Cumulative Impacts to Grassland Prairie Habitat

When the CMMLUO was adopted, the stated intent was to discourage cannabis cultivation in remote mountainous areas and encourage cultivation in more appropriate flat agricultural land.[52] Indeed, when adopting Resolution 16-14 approving the CMMLUO, the Board specifically found that, under the ordinance:

> New operations are focused towards areas explicitly zoned for agricultural uses that are host to level terrain and prime soils. Since these sites are typically either equipped for or already host to agricultural uses, this helps ensure that runoff from site development and irrigation is controlled and contained, while the lack of steep slopes prevent the possibility of soil erosion and sediment runoff. A documented current water right or non-diversionary source of irrigation water is also required. The amount of prime agricultural soils on the parcel that may be used for cultivation are limited to 20% of those on the parcel to discourage the complete conversion of all prime ag lands to cannabis cultivation, thus helping to preserve and maintain land for existing conventional agricultural activities. Additionally, all grows must comply with the performance standards and conditions contained in the ordinance.[53]

The Project is inconsistent with many of the assumptions made in the above finding.[54] The Project will be located on mountainous terrain in the few interspersed relatively flat grasslands that can potentially be classified as "prime agricultural soil."

This understanding of the unintended consequence of the "Prime Agricultural Soil Loophole," as some commenters have referred to it, has persisted.[55] In late 2020, when the

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[52] *See* Humboldt County Bd. of Supervisors, Resolution 16-14, General Plan Consistency Analysis and Findings, p. 2; *see also id.*, Substituted Mitigation Measure Analysis and Findings, p. 8 [finding that a substituted mitigation measure prohibiting new cultivation operations in TPZ zoned parcels "does not allow new cannabis cultivation in forest lands…."].

[53] *See id.*, Substituted Mitigation Measure Analysis and Findings, p. 4.

[54] For example, the Project site is characterized by steep slopes with few relatively flat areas. *See* Exh. B to IS/MND, Figure 4. Study Area Map, 2 of 2 [topographic map of Project site].

[55] *See*, *e.g.*, Exh. C – comments by Friends of the Marbled Murrelet on the Revised IS/MND for the Rolling Meadow Ranch Project, dated Dec. 30, 2020 [stating "the county never analyzed the impacts of a loophole in the ordinance that creates a path for developers to hire consultants that map 'new' prime ag soils. This loophole has

Board heard the Appeal of the decision to approve the Adesa project, staff reported the following frank discussion among the Planning Commissioners:

> During the three Planning Commission meetings there was considerable debate among the commissioners over whether the provisions of the CMMLUO for parcels over 320 acres in size was intended to allow for new cultivation in remote rural portions of the county such as Maple Creek. Specifically, most commissioners agreed that requirement for new cultivation to be located on prime soils was intended to keep new cultivation limited to the more fertile bottomland areas. Commissioners appeared to agree that the identification of prime soils by soils scientists in various rural portions of the county was an unintended byproduct of the CMMLUO as written ….[56]

CDFW's past comments on this issue as it applies to other commercial cannabis projects have pointed out how the associated environmental impact analysis did not address potential cumulative impacts to important grassland prairies (golden eagle foraging habitat) that may result from locating cannabis facilities on newly identified prime agricultural soils located in remote mountainous areas.[57] Neither the IS/MND nor the post-analysis explanations provided by staff address this issue.

The IS/MND must be revised to consider whether the Project is inconsistent with the intent of the CMMLUO. Because the Project will contribute to cumulative impacts to rare plant species and plant communities, the analysis must include mitigation measures to reduce or eliminate this impact.

III. Conclusion: The IS/MND Must be Substantially Revised to Fully Analyze and Address the Project's Potentially Significant Impacts, or an EIR Must be Prepared.

CSH and NEC appreciate the opportunity to provide these comments, albeit under a very tight timeframe. The County, as CEQA lead agency, has the duty to address all of the above substantiated issues based on facts and applicable regulatory standards. In the past, County staff have attempted to improperly shift the burden of proof concerning whether there will be significant impacts onto project challengers and the public. But the failure to adhere to the County's regulatory standards (e.g., performance standards relied upon in prior findings concerning significant impacts) carries with it the presumption that the Project, as designed and currently mitigated, may cause significant impacts.[58] This is all commenters need show in order

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been exploited throughout the county, where questionable methods and consultants have produced soil reports miraculously finding new prime ag soils in places that were never analyzed under the CMMLUO and its MND."]

[56] *See* Appeal package for Adesa project, for 10/27/20 BOS meeting, p. 3.

[57] *See* Exh. D – CDFW comments on revised IS/MND, dated Dec. 30, 2020, pp. 7-8.

[58] When approving the CMMLUO and the CCLUO, the Board relied upon adherence to access road performance

to compel an EIR. Accordingly, and for all of the foregoing reasons, the Planning Commission should not approve this Project based on the flawed and incomplete analysis in the IS/MND.

* * *

We sincerely hope these comments will be useful in revising the impact analysis so that the environmental impacts of pressing concern are adequately addressed in the analysis and fully mitigated, as necessary and appropriate. Please contact us with any questions or concerns you may have regarding these comments.

Very Truly Yours,

Jason Holder

cc: (Via e-mail only)
Client contacts

Attachments:

Exhibit A: Barry Hecht letter, dated Nov. 2, 2021, re: Review of Hydrogeologic Connection Investigation Memorandum Prepared for Platinum King Commercial Cannabis Project (Humboldt County, PLN-2018-15196)

Exhibit B: CDEH, Water Production Standards and Test Procedures

Exhibit C: Comments by Friends of the Marbled Murrelet on the Revised IS/MND for the Rolling Meadow Ranch Project, dated Dec. 30, 2020

Exhibit D CDFW comments on revised IS/MND, dated Dec. 30, 2020

standards in order to find that projects permitted under these regulatory regimes would not have any significant impacts to public services. Now staff proposes an informal exception to the requirements concerning access roads; but the IS/MND does not transparently reveal this exception let alone justify it.

Exhibit A

Balance Hydrologics

800 Bancroft Way • Suite 101 • Berkeley, CA 94710 • (510) 704-1000
224 Walnut Avenue• Suite E • Santa Cruz, CA 95060 • (831) 457-9900
12020 Donner Pass Rd Suite B1 • Truckee, CA 96160 • (530) 550-9776
www.balancehydro.com • email: office@balancehydro.com

November 2, 2021

David Nims, Esq
Janssen Malloy LLP
730 5th Street
Eureka, California 95501
dsnims@janssenlaw.com

Jason Holder, Esq
Holder Law Group
317 Washington Street #177
Oakland, California 94607
jason@holderecolaw.com

Re: Review of Hydrogeologic Connection Investigation Memorandum Prepared for Platinum King Commercial Cannabis Project (Humboldt County, PLN-2018-15196)

Dear David and Jason,

You have asked for a technical review of a memorandum prepared by Rinehart Engineering interpreting groundwater conditions beneath the Platinum King holdings off of Petrolia Road, and how groundwater at this project site might be connected to streams, seeps, springs, wetlands and other surface-water bodies. The Rinehart Engineering memo is appended to the letter as Attachment A.

As you explained, this memo was attached to a staff report presented to the Humboldt County Planning Commission on September 2, 2021, in connection with the Platinum King, LLC application for a Special Permit for an existing commercial cannabis project. Relying in part on the Rinehart Engineering memo analysis of potential groundwater hydrologic connectivity, the Planning Commission unanimously approved the project. The critical question is whether the analysis and information presented in the Rinehart Engineering memo is sufficient to determine and establish a lack of hydrologic connectivity between the project wells and surface waters.

The Reinhart memo is based on the premise that the potential surface water connections can be described entirely on information contained in Well Completion Reports ('well logs') signed by the licensed drilling contractor who drilled the wells. I have been provided only with a 2-page memo, without materials which frequently accompany a well log intended for agency review, such as a geologic map, a well test report ("flow test/inspection report") noting the water levels during the development testing required for new wells, and, for wells to be used for irrigation, basic water-quality report ("irrigation suitability analysis"), if available. I do not know whether these materials were originally submitted, then separated from the memo; there is no specific reference to such materials in the memo, nor are they cited as attachments or enclosures. As fully set forth below, that information is directly relevant to assessing potential effects of

groundwater withdrawals and sufficiently vital to the intended hydrogeologic interpretation. We would be more than willing to re-interpret the findings below if shown that a more complete package had been relied upon in reaching the conclusions made in the memo.

The memo is primarily based upon the geologic logs in the well completion reports (WCRs) for two wells drilled on slopes of bedrock knobs on either side of Reynolds Road. Their location is also identified as 37773 Mattole Road, shown in other documents to be somewhat more than a mile south of the Mattole River, and at least several dozens of feet above the river. The WCRs (as yet unnumbered but bearing owners' designation as wells 1 and 2) indicate the wells were drilled by mud-rotary methods during May and July 2017, respectively, to depths of 185 and 120 feet, yielding 3 and 10 gallons per minute (gpm) as measured by air lift, a conventional quick-and-dirty approximation appropriately used for interim evaluation of newly completed wells.

Drilling was conducted by Mitchell Drilling, a state-licensed C-57 contractor, under approved Humboldt County Environmental Health Department domestic well-drilling permits. The geologic logs discussed in the Rinehart memo were prepared by the driller. They were filed with the state through the WCR process as required by state law. The logs appear to have been carefully prepared, noteworthy because 2017 was the wettest rainy season of the past 10 years, so access and drilling conditions may have been challenging. Further information on the wells can be found in the staff report prepared by the Humboldt County Planning Department for the Planning Commission hearing of September 2, 2021. Excerpts from the staff report related directly to the wells are appended as Attachment B.

The Rinehart memo does not discuss the nature or location of the wetlands, springs, seeps or streams which may potentially be affected by pumping the wells. No site visits seem to have been made in preparing the memo. It might be noted that the Humboldt County staff report does mention several nearby features considered as habitat for yellow-legged frogs but does not cite their position or distance from either well. This could be important because, *if the aquifer(s) are confined as the memo concludes*, drawing water from the wells could deplete such water bodies at much greater distances (as described below) than from an unconfined water-table aquifer, which is more familiar to most people.

Aquifer Mechanics

Wells work by drawing water out of saturated rock. A cone of depression drained water-bearing rock (aquifer) develops when a well is pumped, much as a depression forms on the surface of a large milkshake when sucked through a straw. The size of the cone of drained water depends on how quickly the fluid is withdrawn. If the cone extends below a river or pond, the water in the waterbody can drain – often quickly – into the cone, with the water level falling and eventually not available to support ecological values in the affected streams, springs, seeps, and wetlands. The volume of the cone (depth and distance from a well) depends upon (1) how quickly the fluid is drawn from the aquifer, (2) the distance from a water body, and (3) how long the well is to be pumped. At a technical level, it is also affected by the permeability of the aquifer integrated over the saturated depth of the aquifer (Transmissivity, or "T"), the storage coefficient ("S"), and the depth and slope of the water table, as well as the degree of confinement (if any) and whether the aquifer is being appreciably (a) recharged by recent rains, or (b) depleted by pumping in nearby wells. None of these factors need to be known exactly to assess effects of pumping on nearby surface-water bodies; approximations can be developed by suitably qualified

individuals, with the needed precision of the estimates varying with the intended purpose of the evaluation. In this case, approximations may be sufficient, but the size and depth of the cone should be roughly known. If the cone does not extend outward as far as the water bodies, it will not directly affect them. Such steps are further discussed in the last section of this letter.

Quandaries in the Rinehart Engineering memo.

Several positions or interpretations put forth in the memo are simply confusing and/or illogical.

1. The memo states that there is no confining layer, but it states the two wells both draw nonetheless upon confined groundwater, presumably connected. The condition of confinement in groundwater is measured by a difference in pressure (or 'head'), generally of some appreciable magnitude. There must be a mechanism – a geologic bed or unit, or a durable membrane of some kind – to maintain that pressure difference. In virtually all cases I know of, confinement is maintained by a confining bed on top of the confined water body, something impermeable below it – either intact bedrock or another confining bed. But since the memo puts forth the notion of (presumably significant) groundwater confinement, it is not clear how pumping these wells would affect the local groundwater system or the surficial water bodies. If so, there is no structure or support for any confinement, the opinion with which the memo concludes.

2. Confined groundwater bodies (or "aquifers") have several well-documented attributes. First, they transmit pressure quickly. Wells developed in confined aquifers can affect water levels in wells developed in the same geologic unit at distances of some thousands of feet or even miles, with the effects being almost instantaneous. There are many widely-known accounts of water levels suddenly rising in wells at some distance from a railroad station as a train approaches a station, then quickly dropping as the train departs and the pressure in the aquifer returns to the pre-existing state; one such case describes a well near the Eureka train station (see Evenson, 1956) from back in the days when there were actual trains at that station.[1] Second, the storage factor (or storativity, commonly symbolized as 'S' in the groundwater literature) is generally much lower in confined aquifers of all types. In unconfined aquifers, S usually ranges from 1 to 25 percent, most commonly 5 or 10 percent. Conversely, in confined aquifers S values typically fall in the range of 0.00005 and 0.005 (or 0.005 and 0.5 percent)[2]. Therefore, when the well if operated, and the pumping cone or funnel described above is being drained to yield water to wells, much less water is produced from a confined aquifer. Draining a cubic foot of aquifer within the cone may produce 5 or 10 percent of a cubic foot of water in a typical unconfined or 'water table' aquifer but might produce only 0.5 to 0.005 cubic feet of water from a confined aquifer. Pumping a confined aquifer to irrigate a crop may dewater many times as much volume in a confined aquifer than in an unconfined aquifer. Cumulatively, pumping a confined aquifer can result in cutting off the supply of water flowing to springs, seeps, streams, and wetlands much more quickly and over a much broader area than would occur when pumping a similarly situated unconfined aquifer.

[1] The weight of train adds pressure to a confined aquifer, causing a rise in water level; pumping such a well causes the reverse effect – it diminishes pressure, causing the water level to fall. Adding pressure causes water levels to rise in a confined aquifer by the same distance that pumping (or lowering pressure) would call water levels to fall in the same well under similar conditions.
[2] Values for confined aquifers from David Keith Todd's textbook (1963), p.31

3. The memo finds definitive meaning in reported differences between static water levels and the water level at which first water was reported to be encountered. This conclusion lacks evidentiary support. The following might be noted:

    a. If a static water level has been established while drilling at shallow depth, and the level in the well rises *above* that level when lower beds are penetrated, yes that does indicate a special kind of confined aquifer, commonly known as an artesian system. But that is not what the memo is stating *("Positive pore pressures were not observed in a borehole when it was drilled.")*

    b. Rather, the memo, though, seems to argue the opposite: *"If the depth to the first encountered water is greater than the depth to the static water after the well has been completed, developed and pumped, this is a* ***determinative indicator*** *that the well has been completed in a confined aquifer." (Emphasis added).* This position is not supported and, in our experience, is counter to well behavior in a confined aquifer setting. It would be helpful if a citation to a groundwater text, article, manual or ordinance were provided.

    c. In that light, we are not aware of any statutory requirement to note in the WCRs where "first water" is encountered, and no established method of doing so. Depth to first water or the difference between static water level and the depth at which saturated aquifer was first perceived is not recorded on many WCRs ('drillers' logs'). And, as noted below, the observations can mean vastly different things depending upon the drilling methods used for a given well or boring, and whether the static water level is measured before or after the drilling muds are washed out of the gravel pack and the immediately adjacent aquifer clogged by the 'mud cake' associated with drilling with muds. So how can a metric which is estimated (seldom measured) differently by multiple individuals who use different criteria and varies substantially with method of drilling – not to mention that it is not required – be used to define and quantify confinement in the real-world hydrologic environments? The next section explores this further.

It is difficult to distinguish the depth at which water is first encountered during drilling when the drilling method is mud rotary. Mud rotary entails pumping hundreds of gallons of water and 'mud' down the borehole during drilling. To estimate the depth of 'first water' the driller or his helper must have a look at the mud-coated cuttings washed out of the hole to detect whether they are saturated. In the real world, many drillers who use mud must legitimately focus on safety and often don't have time to do that as they face the very real challenges posed when drilling through the water table; rather, they simply note when enough water from the upper portion of the saturated aquifer has entered the bore such that the drilling mud is becoming thinner. This condition may not be discernible until long after the 'first water' level has been drilled through, at which point the noted first water depth may be dozens of feet lower than when the water table

was first penetrated.[3] In Franciscan formation rocks, such in as those in the Mattole watershed, recognition of saturated rock tends to be further delayed (meaning that the driller reports first water to be deeper than actually might be) because the drilling muds tend to have the same grey coloration as the saturated aquifer. As a result, depth to reported first water is often, or even usually, considerably deeper when drilling with muds. We are not aware of a formal protocol or standard of care for measuring depth to first water. Therefore, many groundwater professionals who need reasonably accurate depths to first water for shallow-water-table, landslide-causation, or contamination investigations (among others) are focused on the level at which first water is encountered do **not** drill with mud, typically specifying "air" or auger methods.

Geologic Context

We concur with the unsurprising observation in the Reinhart memo that "It is essential to fully understand the geologic context at each of these well sites before asserting whether a hydrogeologic connection [to surface waters, including streams, springs, seeps, and wetlands] is likely to exist." But the memo contradicts this principle by not investigating and explain the Platinum King site's geologic context. Because we were unable to find an attached geologic map (or any reference to one), we went to the most widely used published map and produced a copy of the area around these wells (attached). We also checked the geological mapping and literature, just to be sure that the regional mapping was still current and relevant to hydrologic connections. We then posed a few basic questions which geologists and other groundwater professionals typically ask when major re-interpretations have been put forward. These questions and inferred answers are presented below:

Can these wells produce enough water from the screened zone to supply the intended volumes? (NO)

The Rinehart Engineering memo and related discussions with staff seem to be the primary source for the finding in the Planning Department staff report considering the firm yield of the project's water-supply system. Water supply is characterized as 2.5 million gallons per year of ponded surface runoff collection[4] and 1.032 million gallons of groundwater pumped on a 24/7 basis. The arithmetic computation of well yield is correct, but the value is not usable because:

(a) It is based on using air-lift measurements for purpose for which they are not appropriate. They are very approximate short-term pumping tests which the State notes "may not be representative of a well's long-term yield", a statement printed on the well log (WCR) for good reason. Once a well is completed and a pump installed, well yields seldom match airlift tests. Further, both yields and water levels often quickly fall as the cone of depression expands as the well is pumped for sustained periods, and the limits of water-yielding rock are encountered.

[3] Water diluting the muds is drawn into the bore largely by gravity. The deeper the drill may be below the water table, the more water flows into the bore, making the dilution more noticeable. Especially in low-permeability aquifers (such as those at Platinum King), dilution may not be noticeable for tens of feet.
[4] Not considered in this letter.

(b) The tests for well 1 and well 2 were conducted during May and July 2017, the wettest year of the past decade and are not likely reflective of drought conditions, one logical basis for planning an industrial water supply in a remote area.

(c) The wells are not built for 24/7 operation. They were permitted and built as basic domestic wells. When permits for the wells were obtained, the owner had the option of checking boxes which identified them as either "irrigation wells" or "industrial wells" in which heavier-duty materials, construction techniques, pumps, controls, and gravel pack might have been installed.[5]

For estimating reliable annual contributions to the firm of this facility, expectations of available groundwater supplies should reasonably be throttled way down.

Is the hypothesis of an intact confining bed consistent with the local geologic evidence (NO, it is not.)

The memo gives an impression of near-flat-lying confined aquifer overlain by confining layer (seemingly called "aquitard" in the memo), with the well(s) drawing solely from an extensive zone sealed from any hydrogeologic flow above the aquitard.

Site-specific geologic and hydrogeologic conditions:

The wells are located near the Mendocino Triple Junction, probably the most seismically active portion of Humboldt County over the past several million years and counting. The local aquifers are heavily deformed, tightly folded, and physically torn apart. Groundwater conditions in the vicinity of the wells have been fundamentally affected. The geologic deformation – and how inconsistent with the memo's assumption of an extensive confined aquifer -- is not recognized in the Reinhart memo.

The following four points describe why the highly deformed, faulted and fine-grained underlying geology of Franciscan sediments make it unlikely that a confined aquifer isolated from surface waters would occur in the Reynolds Road area. For more background, readers can seek out the U. S. Geological Survey's regional geologic overview by McLaughlin and others (2000) and some of the narrower context of hydrologic response at this site to seismic activity is documented in part in McPherson and Dengler's (1992) article in California Geology.

a. **Confinement of groundwater conditions require continuity of the affected aquifer, which the local geology does not provide:** The memo claims that confinement is the mechanism by which surface water bodies can be isolated from groundwater pumped at the two wells, which the memo implies may be interconnected. Any confining geologic unit must logically extend at least the distance (seemingly several hundred yards) between the two wells, and substantially beyond them. The geologic conditions at the site do not provide for such continuity. But there is nothing gentle, flat, or continuous about the local geologic structure. Figure 1 (Attachment C) shows geologic units which dip steeply and in almost every direction, chaotically folded. And the map shows that Coastal-Belt Franciscan deposits underlying the Reynolds Road area, even if not fragmented by the chaotic folding, are mélanges -- so fine-grained, squeezed, having peanut-

[5] Not that any well should be operated on this schedule. Maximum pumping of 14 to 16 hours per day are the standard of care.

butter-like plasticity with minimal permeability, such that a connection of either pressure or water within the sediment is so unlikely that it approaches impossible. The two main geologic units under this site are described as violently sheared clayey, sticky, incoherent rock, plainly incapable of forming a nearly flat continuous confined aquifer as more extensive than the distance between the two wells (McLaughlin and others, 2000):

> "**Co1 Mélange** – Dominantly of highly folded argillite and abundant clayey penetratively sheared rock that exhibits rounded, lumpy, and irregular poorly incised topography
>
> **Co2 Mélange** – Subequal amounts of shattered sandstone and argillite with much clayey, penetratively sheared rock that exhibits generally irregular topography lacking well-incised sidehill drainages."

The likelihood of continuous aquifers or aquitards in the Reynolds Road area is vanishingly small.

b. Confinement requires an extensive, rigid, or near-rigid layer with minimal permeability: While the memo states that no confining layer exists, the only logical means of creating confinement is by a layer capable of maintaining a potentially significant pressure differential, with essentially no permeability and with no gaps, holes, or tears which would permit interconnection. The individual beds in these units are too thin, too contorted and convoluted, and transected by faults and fractures to prevent leakage of water or pressure between the zones in which the wells are developed and those which support the streams, springs, seeps and wetlands. The U.S. Geological Survey cross section through this area[6] shows beds so contorted to depths of at least 700 meters (more than 2200 feet, or far deeper than the wells) that the agency uses a series of dense pinwheels cartoons rather than conventional geologic symbology, which is not capable of showing how densely deformed and folded these beds are, and the unlikelihood that any layer capable of groundwater or pressure isolation might exist. Not to mention the ruptures from faulting (see Figure 1) or deep fractures (see below) which characterize this immediate area.

In reality, two such layers would probably be needed to confine water in this area – one above the confined waters and one below to maintain confinement. "Impermeable" bedrock serves as the lower boundary confining pressure and waters in most geologic settings. Given the local contorted folding and the absence of a continuous underlying bedrock, a lower confining unit of some type would be needed to maintain a pressure differential. The memo does not identify one, let alone two, such units.

c. The Reynolds Road area is typical of areas drained of groundwater following the Honeydew earthquake of August 1991 and the Petrolia earthquake of April 1992; raising the question of when else does water move to the Mattole River, its tributaries, and springs and seeps? So it is known that under at least some extreme conditions that groundwater moves to the streams (and presumably seeps, springs, and wetlands). Following the Honeydew earthquake, streamflow

[6] The cross section is located along the thin line trending northeastward through Figure 1.

in the Mattole River increased by 5 to 8 times, with flows only gradually dim? shing to pre-quake levels after 60 to 90 days[7]:

The geology under the Reynolds Road area is typical of the hydrogeologic environment which contributed to these post-event significant and persistent flows. The memo does not envision any barrier which would have isolated water from this area during the regional post-event drainage. While post-quake conditions may not be the benchmark for defining surface/groundwater connection relevant to the Humboldt County regulations, it does raise the question of when else does water move to the streams from beneath this area.

d. **"Well technology" and "impermeable well seals" cannot isolate surface and groundwaters in this area, as claimed in the memo.** Local seismic events in the Triple Junction Area tend to be unusually violent and grinding for their size. For example, Petrolia earthquake of 1992 accelerated the whole region surrounding Reynolds Road by a measured rate of 2.2 times gravity, enough to launch unanchored items (such as pumps or concrete pads surrounding wells) in the air, and one of the most abrupt seismic shaking events ever recorded in the country. Hydrogeologists know that even more-routine earthquakes are sufficient to shatter well seals, rupture casings, and destroy wells. To give some idea of the types of stresses to which wells are subjected in this area, the entire region was thrown upward by more than a yard during the Petrolia event.

   Similarly, the smaller Honeydew event left cracks in the rock extending to great depths through the multiple groundwater-bearing zones throughout the Reynolds Road and surrounding (described by McPherson and Dengler, 1992), further casting doubt on the ability of "well technology" to create a well seal capable of lasting the life of the proposed project.

   Natural geologic barriers capable of causing confined conditions are similarly unlikely to survive events of this type without rupturing, especially since they have been shaken by literally dozens of comparable events over recent geologic time.

In summary, the Rinehart memo proposes confinement as a mechanism precluding connection between the wells and surface waters, but states that no confining layer exists. No alternate mechanism for confinement is proposed. Confinement requires geologic conditions which can maintain significant pressure differences over areas at least as far apart as the two wells, but the memo offers no evidence or even indications for it. If confinement indeed exists, pumping of these wells must result in a much more extensive and more rapid dewatering of the aquifer per volume of water pumped than would be true in an unconfined or 'water table' condition, because of the much lower storativity ("S") that is integral to confinement. In all likelihood, any well will be drawn down further when a given volume is pumped out of the well if the aquifer is unconfined. These are known relationships and are to be expected if the aquifer(s) are in fact confined. It would have been useful to include in the memo some indication that the effects of pumping were likely to propagate further –perhaps onto adjoining properties – or more rapidly

[7] A similar response was documented in many watersheds in the Santa Cruz Mountains following the Loma Prieta earthquake (1989) in a region where very few confined aquifers are reported.

extend to the bottom of the usable aquifer, that such information might belong in the memo, and be available to guide evaluation of the project.

The memo states that "well technology" can isolate these wells. Water can and does go around the type of unperforated ("blank") casing described, as well as the 'impermeable concrete grout' well seals discussed in the memo.[8] Water does so by percolating into the soil and infiltrating to the water table and flowing into the well, completely bypassing the so-called impermeable well seal when drawn into the well by the forces within the well's cone of depression. That is why wells with perfect seals still produce contaminated water when they are situated in areas where groundwater has been (or is being) contaminated. And if water did not move to the water table from which the two wells draw, where are they being recharged each year to meet the annual production anticipated?

Perhaps there is a better way?

The memo does not consider other ways of exploring and documenting connection(s) with other surface waters that were and are available to its writer. We make several suggestions of ways to assess this set of questions in which the public process might be more usefully informed. These alternate approaches are in keeping with standard practice statewide. They would provide the County with greater assurance of protecting the public resources that are so valued in Humboldt. And they are not unduly costly relative to other standard methods used to assess or monitor as part of the CEQA process. Among accepted approaches are:

1. Show the locations and extents of seeps, springs, wetlands, or wetted reaches of streams which could possibly be linked to the aquifer within which the well(s) is developed, preferably on a map also showing the cone from which the wells will draw.

2. Compare similarities and differences in basic water quality measures, such as salinity (measured either as total dissolved solids or the field index of specific conductance), or individual major ions, simple measures which comparisons of water to quantify whether they come from common source(s). If the sources may be significantly different, there is a good chance that extracting water from the well(s) may not directly affect the surface water body; strong similarities suggest the possibility of a strong connection.

3. Evaluate the well(s) by pumping, which can be done in many ways and levels of accuracy, but it is essential to estimate the sustained yield of the wells) and the properties of their target aquifer, such that effects of pumping the well(s) can be knowledgeably estimated.

[8] The memo indicates that both wells will not affect other local waters because they are sealed with concrete grout. However, the promised well technology does not apply here, since the WCRs ('driller's logs) show that both wells are sealed with field-hydrated bentonite pellets, not concrete grout. The pellets may actually be a suitable idea, as they may provide a seal likely to flex rather than shatter during the unusually forceful seismic events which affect this particular area – with deep geologic cracks (observed after the Honeydew earthquake of 1991) and vertical acceleration exceeding 2g, plus tectonic uplift of more than a meter (during the Petrolia earthquake of 1992) -- provided that County so allows it.

4. Assess the water levels in the wells relative to the surface water bodies, including field visits, if warranted, such that adjustments can be made for wet year/drought year and seasonal water-level fluctuations.

5. Use historical and recent aerial photography to identify where vegetation supported by a surface-water body or elsewhere may be drawing on groundwater, including the use of commonly available false-color infrared imagery and other remote-sensing applications can be incorporated, if and where useful.

6. Inquire of knowledgeable local observers as to where and when springs, seeps, and streams flow or when wetlands pond, and inquiring about factors possibly contributing to identified changes.

7. Evaluate water levels in waterbodies (and/or other local wells) relative to the water level in the well(s) of interest to calculate groundwater slopes and flow paths; and

8. Measure any visually connected flows (using approved methods), then adjust for evapotranspiration to compute whether the flows are being depleted or augmented by local groundwater pumping or recharge.

These approaches can be combined, conducted concurrently, and can be checked and validated with results of each other approaches. Many or most would not be needed in all settings, or even the majority of settings, as the right set of approaches for each site should be tailored to local conditions and constraints. Other approaches (such as geophysical investigations) can be added in special situations. In the specific instance of the Reynolds Road wells and aquifers, it is likely for example, that the eighth method would not be appropriate, and the information needed to assess the utility of 1, 2, and 3 such as basic well-development records or water-quality data are not currently available in the public forum. Generally, though, the most valid, cost-effective, and reproducible answers will likely result from assessing effects on other bodies by applying this "supported by multiple, independent lines of evidence set of approaches" (SMILES).

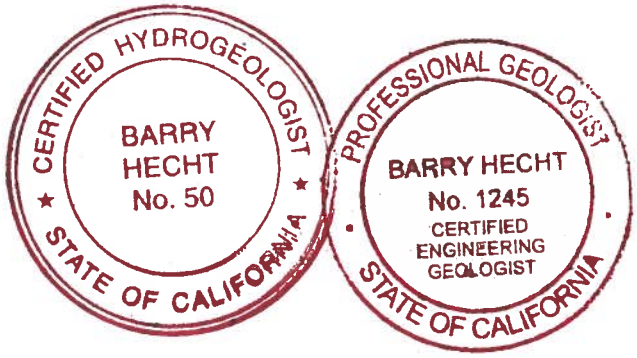
The practice of evaluating the effects of pumping wells on springs, seeps, streams, and wetlands is now rapidly evolving in California. Partly, this is a secular change as practitioners become increasingly interested in protecting sensitive habitat, often in conjunction with managing Waters of the U.S. or Waters of the State. In our opinion, three distinct other resource-management trends are also catalyzing this evolution. First, the State Division of Water Rights is increasingly conditioning all projects to consider, conserve, and monitor springs, seeps, and wetlands. Second, water conservation efforts statewide such as measures encouraging lining of ponds, ditches, and canals are now requiring assessment of their effects on seeps, springs, wetlands, and in-channel flows. Finally, the California Department of Water Resources and the State Water Resource Control Board are implementing the State Groundwater Management Act (SGMA), which requires all regulated entities to demonstrate that they are not adversely affecting such waterbodies, known as Groundwater Dependent Ecosystems (GDEs). Consequences under SGMA of not being able to demonstrate affirmative efforts to show no adverse effects on GDEs and to do so with hydrologically rigorous methods are very real and very substantial. While Platinum King is not within a specified jurisdiction subject to SGMA, the state-wide professional standards are rapidly shifting toward a

quantitative standard. It may serve Humboldt County well to draw upon the methods outlined above, staying in step with at least the basic elements of the statewide state of the art. Once again, I remain available to modify this review as additional information becomes available.

I appreciate the questions you have asked and look forward to helping find sound answers.

BALANCE HYDROLOGICS, Inc.

Barry Hecht, Senior Principal
PG 3664, Ch 50, CEG 1245



Literature Cited

Evenson, R., 1956, Geology and groundwater features of the Eureka area, Humboldt County, California: U.S. Geological Survey Water Supply Paper 1470.

McLaughlin, R.J., and others, 2000, Geology of the Cape Mendocino, Eureka, Garberville, and southwestern part of the Hayfork 30 x 60-minute quadrangles and adjacent offshore area, Northern California: U.S. Geological Survey miscellaneous field studies MF-2336. Figures (geologic maps, cross sections, seismic event epicenters) and pamphlet (28 p.)

McPherson, R.C., and Dengler, L.A., 1992, The Honeydew Earthquake, August 17, 1991: California Geology, v.45, no. 2, p. 31-39

Attachments:
A. Rinehart Engineering memo
B. Materials from the Sept. 2, 2021 Planning Commission public hearing
C. Geologic map of the area surrounding Reynolds Road.

ATTACHMENT A:

MEMORANDUM FROM RINEHART ENGINEERING
JULY 20, 2021

As noted in our Nov. 2, letter, we do not know if this memo included the well completion reports (WCRs or driller's logs), Flow-Test Report (Well-Development log) or analytical results of water quality testing. All three shed important light on the memorandum, but are not cited as being attached.

RINEHART ENGINEERING
559 Howard Heights Road Eureka, CA 95503
(707) 498-3414
rinehartengineering@gmail.com

To: Platinum King Farms, LLC

From: Bret Rinehart, PE

Date: July 20, 2021

Subject Well Hydrogeologic Analysis

Location: 37773 Mattole Road, Petrolia CA 95558 APN 104-071-004

I have reviewed the attached Well Completion Reports for the existing 6" diameter 180 ft deep well (Well #1) and existing 4" diameter 120 ft deep well (Well #2) at 37773 Mattole Road, Petrolia CA 95558 (APN 107-071-004) to assess the likelihood of a direct hydrologic connection between the well as completed and surface waters.

I evaluated the well log for the following specific evidence of a potential surface water connection:

1. The presence of a stratum of alluvium within the screened interval(s). The presence of rounded rocks or gravels is a strong indicator that the well intersected an area that was formerly a stream channel. While not conclusive proof that an individual well is hydrologically connected to surface water, alluvium is a strong indicator that such a connection could exist. Lenses or stringers of course sand, gravel, and cobbles provide a preferential pathway for groundwater to discharge to surface water or for surface water to be depleted by pumping from a well. However, even if alluvium is encountered in the borehole, well completion techniques typically preclude the shallow groundwater from the borehole. This is most often accomplished by installation of blank casing and a sanitary seal (impermeable grout) or a conductor casing completed to the depth of the aquitard.

2. Positive pore pressures were not observed in a borehole when it was drilled. If the depth to the first encountered water is greater than the depth to the static water level after the well has been completed, developed, and pumped, this is a determinative indicator that the well has been completed in a confined aquifer. The presence of observable positive pore pressure in an aquifer precludes a direct connection to surface water. If a direct connection did exist, pore pressures would be in equilibrium with the ambient atmospheric pressure.

3. A confining layer is not present. In the geologic logs, the screened interval for the well lies below a substantial aquitard. In order for a confined aquifer to exist, there must be an aquitard that allows some level of positive pore pressure to exist in an aquifer.

4. Screened well interval(s) do not intersect shallow water tables or geologic units with very high hydraulic conductivity or porosity. The geology of north western California does not have extensive bedrock units that have high hydraulic conductivity and effective porosity (such as karst). The colluvial soils derived from bedrock in this area tend to be relatively fine-grained, do not yield significant groundwater, and tend to form competent aquitards.

5. It is essential to fully understand the geologic context at each of these well sites before asserting whether a hydrologic connection is likely to exist. For instance, wells in deep Franciscan bedrock units are unlikely to have a hydrologic connection to surface water unless extreme topographic relief and a deeply incised stream channel results in a nearby surface exposure of that same bedrock unit.

Conclusion

I have concluded that the existing wells at 37773 Mattole Road are not hydrologically connected because of the geology, the distance to nearby surface waters and the construction technique.

At Well #1, approximately 75 feet of overburden ("top soil" and "brown clay, silty clay, sandy clay and silty sandy clay") overlies about 85 feet of "grey shale" followed by 20 feet of "greyish sand and gravel". Based on the depth to first water, the primary water bearing unit is the "grey shale" layer from 75 to 160 feet deep. The depth to the first observed water was 35 feet bgs and the static water level after the well was completed and developed was 20 feet bgs, meaning that this well is screened in a confined aquifer. The upper 40 feet is blank well casing and cannot yield shallow groundwater. The screened interval extends from 40 to 180 feet bgs and groundwater from intervals shallower than 40 feet cannot be produced from this well.

At Well #2, approximately 40 feet of overburden ("topsoil" and "brown clay, brown silty clay, brown sandy clay") overlies about 60 ft of "rock & shale, grey shale, grey silty sand, rock & gravel". Below that lies "greyish sandy sandstone". Based on the depth to first water, the primary water bearing unit is the "rock & shale" layer from 40 to 100 ft deep. The depth to the first observed water was 30 feet bgs and the static water level after the well was completed and developed was 20 feet bgs, meaning that this well is screened in a confined aquifer. The upper 30 feet is blank well casing and cannot yield shallow groundwater. The screened interval extends from 30 to 120 feet bgs and groundwater from intervals shallower than 30 feet cannot be produced from this well.

Please feel free to contact me if you have any questions at (707) 498-3414.

REGISTERED PROFESSIONAL ENGINEER
BRET R. RINEHART
No. 70375
EXP. 9/30/22
CIVIL
STATE OF CALIFORNIA

7/20/21

Bret Rinehart, PE
Rinehart Engineering

ATTACHMENT B:

MATERIALS FROM HUMBOLDT COUNTY PLANNING COMMISSION SEPTEMBER 2, 2021 AGENDA PACKET

ATTACHMENT C

FIGURE 1: GEOLOGICAL MAP OF REGION SURROUNDING PLATINUM KING HOLDINGS, PETROLIA, CA

(Excerpt From Mclaughlin And Others, 2000)

Division of Environmental Health
100 H Street - Suite 100 - Eureka, CA 95501
Phone: 707-445-6215 - Toll Free: 800-963-9241
Fax: 707-441-5699
envhealth@co.humboldt.ca.us

WATER PRODUCTION STANDARDS AND TEST PROCEDURES

Purpose

The following standards apply to individual water supplies serving 1 to 4 service connections for proposed subdivisions, individual residences in the coastal zone, and accessory dwelling units where proof of water is needed in accordance with Humboldt County Code. These standards are intended to assure that development is consistent with the limitations of the parcel's water supply. Water production testing results shall be valid for a period of five (5) years without a comprehensive justification for extension from a Registered Geologist or a Registered Civil Engineer.

The water production test is necessary to identify the sustained yield of a water supply and demonstrate that the proposed source has sufficient, and sustainable, capacity to meet the minimum water supply requirements. However, water rights entitlements are not considered under this policy. Developers and owners must demonstrate compliance with applicable laws and regulations related to water resources during the development project evaluation.

Water production testing must be conducted in conformance with the procedures herein. Alternative testing procedures may be utilized if they yield equivalent results, have no greater impact to neighboring wells or surface waters, and are approved in writing by the Division of Environmental Health prior to the test.

WATER PRODUCTION STANDARDS

- For individual residences the minimum required water supply per residence from the source shall be 1.0 gallons per minute (gpm) per dwelling unit. This quantity may be reduced to a minimum of 0.5 gpm per dwelling unit if a minimum of 1,500 gallons of domestic water storage is provided for the residence. Note that this storage volume must be dedicated to domestic use and does not include storage for fire suppression, if required.

- Minimum required water supply for commercial, institutional, and industrial facilities shall be determined by a licensed civil or mechanical engineer and accepted by the County Planning Department during project review. The procedure outlined in this document may be used to demonstrate specific capacity.

- Water production tests for springs and streams must be conducted by a Licensed Well Drilling Contractor (C-57), Licensed Land Surveyor, Registered Civil Engineer, Registered Geologist, or Registered Environmental Health Specialist. Other qualified consultants may conduct water production tests if they obtain prior written approval from the Division of Environmental Health.

- Well production tests must be conducted by a Licensed Well Drilling Contractor (C-57), Registered Civil Engineer, or Registered Geologist. Other qualified consultants may conduct water production tests if they obtain prior written approval from the Division of Environmental Health.

- All water production tests must be conducted during the dry season and be representative of the lowest annual water production anticipated from the source. The dry season testing period is August 1 through September 30. The period may be modified, extended, or terminated by the Division of Environmental Health during periods of unusual rainfall.

- The Division of Environmental Health may waive or modify the dry season testing requirement on a case-by-case basis where adequate documentation is presented to determine adequate water supply is available, accessible and sustainable for the proposed development.

- Requests for waivers, modifications, or proposals for alternative testing procedures must be submitted in writing with appropriate supporting information.

- In cases, where extraction may have long term impacts to surface and/or groundwater supplies in areas identified as Critical Watershed Areas or Critical Water Supply Areas, by the Humboldt County Board of Supervisors, an analysis of impacts from a certified hydrogeologist may be required.

WATER PRODUCTION TEST PROCEDURES

Streams and Springs: Where Water Overflows the Collection Facility

The water tester shall measure the time required to fill a container of a known volume (minimum size two (2) gallons) to determine the source water flow rate in gallons per minute. At least three measurements must be made to complete a test. If the rates vary considerably (by more than 33 percent), a minimum of ten measurements must be taken to complete a test. The average of the recorded measurements shall be considered the test production rate. A minimum of three (3) tests shall be taken, each spaced at least seven (7) days apart.

Wells and Springs: Where Water Must Be Pumped from The Collection Facilities

The static or non-pumping water level shall be established prior to the start of the test, and the volume stored in the well or spring shall be calculated. For existing wells, it may be necessary to prohibit pumping 12 to 24 hours prior to beginning the test. For newly developed wells, production testing shall commence no sooner than 7-days following well development.

A sustained yield, metered pump test is required for pumped water sources for a minimum specified time period of 12 hours for water systems with 1-2 connections, 24 hours for water systems with 3-4 connections, and 72 hours for systems with 5 or more connections. Note: also refer to Section 64563 of the California Code of Regulations for systems with 5 or more connections.

When multiple sources are proposed to provide the minimum water supply for a shared water system each source shall be tested simultaneously.

Water pumped from the water source during testing shall be conserved by storage or routed to a recharge/discharge area beyond the influence of the pump test (minimum 200 feet from well). The pump shall be set at the depth of the lowest producing zone of the spring or well. During the initial stage of the production test, a volume of water equivalent to the calculated volume stored in the well or spring shall be removed as quickly as possible.

During the test, the pumping water level (drawdown) and discharge rate shall be measured according to the following schedule:

Time since pumping initiated (including pumping to remove stored volume)	Time Interval
0 to 10 minutes	Record every 1 minute
10 to 45 minutes	Record every 5 minutes
45 to 90 minutes	Record every 15 minutes
90 to 180 minutes	Record every 30 minutes
180 minutes to end of test	Record every 1 hour

Should the measurements not be made exactly at the time specified, the actual time of each measurement shall be recorded.

Once the calculated volume stored in the spring or well is removed, the water source shall be pumped at a flow rate equal to or greater than the minimum required flow for a duration equal to or greater than the minimum specified time period. If the pump breaks suction at a flow rate higher than the minimum requirement, the pumping rate may be slowly decreased to not less than the minimum required supply flow. Each time the pump breaks suction, the pumping rate shall be reduced by a minimum of 5 percent to a rate that allows the pump to continuously operate. The well shall be pumped at this rate until the drawdown stabilizes for a minimum of 3 consecutive hours. The discharge rate and drawdown, thus established, shall be maintained until the 3 hour drawdown stabilization concludes or the minimum test duration expires, whichever is longer. If the pump breaks suction at or below the minimum required water supply rate, the test fails.

For water well sources, the minimum required pump test duration may be reduced to a minimum specified time period of 8 hours for water systems with 1-2 connections or 16 hours for water systems with 3-4 connections if, after at least 4 hours of pumping, the following conditions are met:

- the pump never breaks suction with the pumping water level
- the specific capacity (pump rate divided by drawdown) is greater than 0.05

For both spring and water well sources, the 72 hour test duration for sources serving 5 or more connections may be modified by the Division of Environmental Health if sufficient justification is provided in writing by the qualified test conductor; in no case shall the 72 hour test be reduced to less than 48 hours.

On completion of pumping, the final discharge rate and pumping water level shall be recorded, and post-test recovery measurements shall begin. Recovery measurements shall be made according to the above drawdown schedule until the water source recovers to 95% of the original static water level or until a maximum duration of 72 hours is completed, whichever is sooner. If a 95% recovery cannot be obtained within 72 hours following the pump test, the water source's yield is inadequate to support the proposed development.

All measurements shall be recorded and reported with the highest degree of accuracy. All data and information pertinent to the project shall be submitted on a form(s) prepared by, or approved by, the Division of Environmental Health (see Attachments 1 and 2) and accompanied by a summary report of the testing. The summary report shall include a site plan encompassing all existing, and proposed, developments and all hydrologic features within 1000 feet of each water source being tested.

Drawdown effects on all wells within 300 feet of the proposed production well, or spring, must be evaluated and disclosed. Impacts to flow rates, static water level and recovery of neighboring wells greater than 5% shall not be approved as demonstration of adequate water supplies. Additionally, an adequate water supply pump test shall not have an impact to neighboring wells with less than 1.0 gpm per connection, within 300 feet, greater than 1%.

Effective 07/30/2021

(Attachment 1) **DRY WEATHER WATER PRODUCTION TEST DRAWDOWN DATA**

Owner: _____ **APN:** _____

Well Location latitude: **longitude:**

_____1/4	_____1/4	_____1/4	**Section:** _____	**Township** _____ N / S	**Range** _____ E / W

Type of Water Measuring Equipment: _____ **Date Test Performed:** _____

Company Performing Test: _____ **Measured By**: _____

TIME DATA	WATER LEVEL DATA	DISCHARGE DATA
PUMP ON Date:_____ Time: _____ (t_0) **PUMP OFF** Date: _____ Time: _____ (t_1) **DURATION OF AQUIFER TEST** Pumping: _____ Recovery: _____	**STATIC WATER LEVEL:** _____ **MEASURING POINT:** _____ **HEIGHT OF MEASURING POINT ABOVE GROUND:** _____	**HOW WAS DISCHARGE MEASURED?** _____ **DEPTH OF PUMP/AIRLINE:** _____

Pumping Data: **Specific Capacity:**

Date	Clock Time	Time Since Pump Started (min.) t_0	Pumping Water Level Measurement (ft)	Pump Rate (discharge) gpm	Comments on Factors Affecting Test Data

(Attachment 2) **DRY WEATHER WATER PRODUCTION TEST RECOVERY DATA**

Owner: _____ **APN:** _____

Well Location latitude: **longitude:**

_____1/4	_____1/4	_____ 1/4	**Section:** _____	**Township** _____ N / S	**Range** _____ E / W

Type of Water Measuring Equipment: _____ **Date Test Performed:** _____

Company Performing Test: _____ **Measured By**: _____

TIME DATA	WATER LEVEL DATA	DISCHARGE DATA
PUMP ON Date:_____ Time: _____ (t_0) **PUMP OFF** Date: _____ Time: _____ (t_1) **DURATION OF AQUIFER TEST** Pumping: _____ Recovery: _____	**STATIC WATER LEVEL:** _____ **MEASURING POINT:** _____ **HEIGHT OF MEASURING POINT ABOVE GROUND:** _____	**HOW WAS DISCHARGE MEASURED?** _____ **DEPTH OF PUMP/AIRLINE:** _____

Recovery Data:

Date	Clock Time	Time Since Pump Shutoff (min.) t_1	Recovery Water Level Measurement (ft)	Comments on Factors Affecting Test Data

Exhibit C

McClenagan, Laura

From: Ryan, Meghan
Sent: Wednesday, December 30, 2020 2:14 PM
To: 'Marbled Murrelet'; Planning Clerk; Johnson, Cliff
Subject: RE: Rolling Meadows CUPs, SCH 2020070339

Dear Friends of the Marbled Murrelet - Thank you for your comments on the Rolling Meadow Ranch project near the community of McCann. Your comments will be forwarded to the Humboldt County Planning Commission for consideration at the January 7, 2021, Planning Commission hearing.

I appreciate your participation in the public process.

Best,
Meghan

From: Marbled Murrelet <marbledmurreletfriends@gmail.com>
Sent: Wednesday, December 30, 2020 1:41 PM
To: Planning Clerk <planningclerk@co.humboldt.ca.us>; Johnson, Cliff <CJohnson@co.humboldt.ca.us>; Ryan, Meghan <mryan2@co.humboldt.ca.us>
Subject: Rolling Meadows CUPs, SCH 2020070339

We urge the county to deny this project. In the alternative, should the county persist in attempting to approve the project, it should be recirculated, and an NOP & EIR must be prepared because there are multiple significant environmental impacts. Nothing in county code requires approval of the project, and the county has complete discretion to deny the project.

Issues of grave concern:

1) Golden Eagle

An active Golden Eagle territory completely overlaps the project, and a mapped nest site is within 1000 yards of the primary development area. The US Fish and Wildlife Service (USFWS) requires a one mile “no disturbance” buffer around Golden Eagle nests. The developers have conducted some surveys but none have occurred in the critical eagle courtship timeframe (January & February) when observers are most likely to see Eagles and potential nest sites. This means that they failed to follow established protocols, either deliberately or because the consultants at NRM are incompetent. If the project is built as proposed it will likely result in the loss of this Eagle territory. And no, Eagles don’t just move somewhere else, because those other areas are occupied by Eagles already.

The county has already approved the Adesa project in the Maple Creek area of the Mad River, over the objections of a retired USFWS Eagle expert and without consultation with the USFWS. The county is currently evaluating at least 40 commercial cannabis projects that occur within known Golden Eagle territories, but has failed to analyze these cumulative impacts.

This is a significant issue, and once again the county has totally failed to protect the resources and comes to a false conclusion. If the county persists in approving projects in Golden Eagle territories, we shall work diligently to involve the Enforcement branch of the US Fish and Wildlife Service, US Attorneys and federal courts in order to uphold the federal Bald and Golden Eagle Protection Act. This is an issue of region wide significance that must be evaluated in an EIR.

2) Water wells connected to the Eel River

The water wells are absolutely “connected” to the Eel River, and the county has the obligation to evaluate the public trust impacts of water extraction for commercial cannabis cultivation. A letter from the well driller is not sufficient evidence (merely his opinion) as he is not qualified to make such statements about the wells. The well driller further has financial incentive to state his wells are not connected to streams. Only a CA licensed engineering geologist or hydro geologist may evaluate the hydraulic connectivity of wells to surface waters. The county should require an independent evaluation of the wells from a licensed and qualified professional that is not bought and paid for by the developers. In not doing so here and across the county for the many hundreds of wells supplying commercial cannabis, the county has failed in its basic duties under CEQA and the Public Trust Doctrine as put forth by the California Supreme Court.

3) Prime Ag Loophole

This project’s location and the fact that it’s a brand new large scale cultivation enterprise is completely counter to the county’s own policies for siting new commercial cannabis development. The use of “prime agricultural” soil to justify this new development turns logic on its head. The county’s first ordinance (CMMLUO) allowed for new cannabis on prime ag soils, but only to minimize environmental impacts by getting cultivation areas out of remote locations. At the time the county passed the first ordinance, it could have only evaluated the currently mapped prime ag soils, all of which occur in traditional farmland, down in the flat valleys and coastal plains. This, of course, made sense to locate cannabis on actual farmland. However, the county never analyzed the impacts of a loophole in the ordinance that creates a path for developers to hire consultants that map “new” prime ag soils. This loophole has been exploited throughout the county, where questionable methods and consultants have produced soil reports miraculously finding new prime ag soils in places that were never analyzed under the CMMLUO and its MND. Thus, that is why this Rolling Meadows project is even being considered, based entirely on a loophole in the law that was never analyzed under CEQA. This is a farce and shall not continue. We shall push to expose this damaging loophole in the county code because it is offensive to basic tenets in CEQA, and counter to policies in place for siting new commercial cannabis development.

4) Predetermined Outcome frustrates CEQA’s purpose and public involvement

The county has already set a hearing for this project on January 7, 2021 to move for approval before the planning commission. The deadline for comments on the MND is set as December 30, 2020. This leaves only a few days between the New Years Holiday and the weekend, for county staff to compile, organize, and respond to public and agency comments. This absurd timeframe only leads to a single conclusion for members of the general public that have an interest in this project: that the county planning department has already made up its mind, and will be pushing through the MND and the project for approval regardless of any comments received. The complete lack of transparency and respect for CEQA’s public process has become a hallmark of the Humboldt county planning department. This type of disregard for public comments and input is not new, and has grown out of the complete disaster of a public process that was the damaging TerraGen wind project. It is extremely discouraging and insulting to see it continue under county leadership. Therefore, should the county persist with this damaging proposal, it should propose a new hearing date that is more realistic and in keeping with the spirit of public engagement under CEQA. However, we have zero confidence in the county’s process after observing the deceitful actions that took place over the Adesa hearings and with the total disaster that was TerraGen.

Respectfully submitted,

- Friends of the Marbled Murrelet

Exhibit D

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Northern Region
601 Locust Street
Redding, CA 96001
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

December 30, 2020

Meghan Ryan, Senior Planner
Humboldt County Planning and Building Department
3015 H Street
Eureka, CA. 95501
mryan2@co.humboldt.ca.us

Subject: Rolling Meadows (SCH# 2020070339) Conditional Use Permits Initial Study and Draft Mitigated Negative Declaration

Dear Meghan Ryan:

The California Department of Fish and Wildlife (CDFW) received from the County of Humboldt (Lead Agency) a recirculated Initial Study and Draft Mitigated Negative Declaration (IS/MND), dated November 25, 2020, for the Rolling Meadows (Project), in McCann, Humboldt County, California. CDFW understands the Lead Agency will accept comments on the Project through December 30, 2020.

Previously, on July 16, 2020, the Lead Agency circulated an IS/MND. On Thursday, August 13, 2020, CDFW staff conducted a site visit of Facilities #1-16 of the Project area. On August 17, 2020, CDFW submitted written comments on the IS/MND. On October 8, 2020, CDFW issued a final Lake or Streambed Alteration (LSA) Agreement to rebuild an existing bridge on Larabee Creek that will serve as an alternate access to the Project from Alderpoint Road. Work at several additional stream crossing locations disclosed in the IS/MND are subject to LSA Notification and have not yet been evaluated or authorized by CDFW.

The Project is located on Humboldt County Assessor's Parcel Numbers (APNs) 217-181-028, 217-201-001, 217-022-004, 217-201-001, 211-281-006, and 217-181-017. The project proposes 306,648 square feet (7 acres) of new cannabis facility space, including 249,739 square feet (5.73 acres) of new mixed-light cannabis cultivation. The Project also proposes use of three wells for irrigation in addition to 320,000 gallons of proposed greenhouse roof rainwater catchment that will be stored in tanks. The mixed-light cultivation is proposed to be powered by Pacific Gas and Electric, however new connection lines and associated infrastructure will be needed.

As the Trustee for the State's fish and wildlife resources, CDFW has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants and the habitat necessary to sustain their populations. As a Responsible Agency, CDFW administers the California Endangered Species Act and other provisions of the Fish and Game Code (FGC) that conserve the State's fish and wildlife public trust resources. CDFW offers the following comments and recommendations in our role as Trustee and Responsible Agency pursuant to the California Environmental Quality Act (CEQA; California Public Resource Code §21000 *et seq*.). CDFW participates in the regulatory process in its roles as Trustee and Responsible Agency to minimize project impacts and

avoid potential significant environmental impacts by recommending avoidance and minimization measures. These comments are intended to reduce the Projects impacts on public trust resources.

Clarification of CEQA Document Type

The CEQA document currently in circulation is called an "Initial Study and Environmental Checklist", however the November 30, 2020 Notice of Intent calls the document an IS/MND. For this comment letter, CDFW assumes the document currently is circulation is an IS/MND. However, the Environmental Checklist on page 33 of the November 25, 2020 IS/MND was not completed or signed.

Please provide clarification if the document is 1) IS/MND or 2) an Initial Study and Environmental Checklist that will be used to determine the appropriate CEQA Environmental Document (i.e., Mitigated Negative Declaration or an Environmental Impact Report) (**Recommendation 1**).

Golden Eagle

The IS/MND discloses a previously documented golden eagle (*Aquila chrysaetos*) nest site within line-of-site from the Project (California Natural Diversity Database occurrence #80, Nelson 2000), however complete protocol level golden eagle surveys for the Project have not yet occurred. The IS/MND acknowledges golden eagles are designated as Fully Protected pursuant to FGC section 3511, and that take of Fully Protected Species is prohibited. Additionally, the low and declining population numbers of golden eagles within northwestern California (Harris 2005, Hunter et al. 2005) and the broader Bird Conservation Region (BCR) where the Project occurs (Millsap et al. 2016, USFWS 2016) suggest impacts to golden eagle may be potentially significant (CEQA Guidelines section 15125 (c)). However, the IS/MND does not contain complete or adequate survey results for this species (Pagel et al. 2010). Without sufficient and complete surveys for golden eagle, CDFW cannot adequately comment on the potential for take or significant impacts to this species nor the effectiveness and feasibility of mitigations.

No Sustainable Take Rates. The importance of conserving golden eagle populations and their habitats is highlighted by their low and declining population numbers within BCR, where the Project occurs. BCR 5 spans from Alaska to Sonoma County, California and is estimated to contain only 189 golden eagle breeding pairs with no sustainable take rates (Millsap et al. 2016, USFWS 2016). While avoiding disturbance to nest locations is important during courtship, breeding, and rearing of young, it is also important to ensure that adequate grassland foraging habitat remains within a golden eagle territory. Prior studies in the western US suggest a radius of two miles encompasses 50 to 80 percent of golden eagle use and represents densely used core area (Watson et al. 2014, Hansen et al. 2017).

Project Juxtaposition to Golden Eagle Breeding Habitat. Grasslands within one mile of nest sites may be particularly vulnerable to disturbance effects on golden eagle while

they are feeding nestlings (USFWS 2020). From the location of the documented 2003 nest site, the Project's two eastern most clusters of greenhouse facilities lie within one-mile and are within in line-of-site of the nest location (Figure 1- 2). The juxtaposition of the Project area to the 2003 nest site would maximize visual and other disturbances perceived at the nest site and potentially eliminate the majority of the foraging habitat within the core area (Figure 1 – 2).

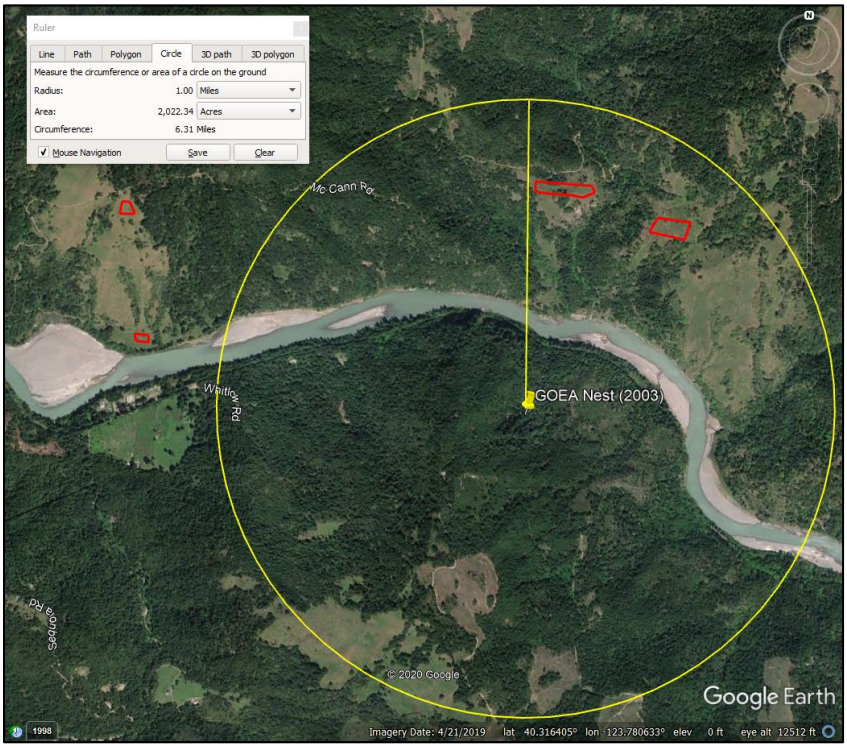


Figure 1. A one-mile radius around the 2003 nest site. Project areas are shown in red and two locations are within the one-mile no disturbance buffer. Note: alternative nest sites may be closer to the Project.

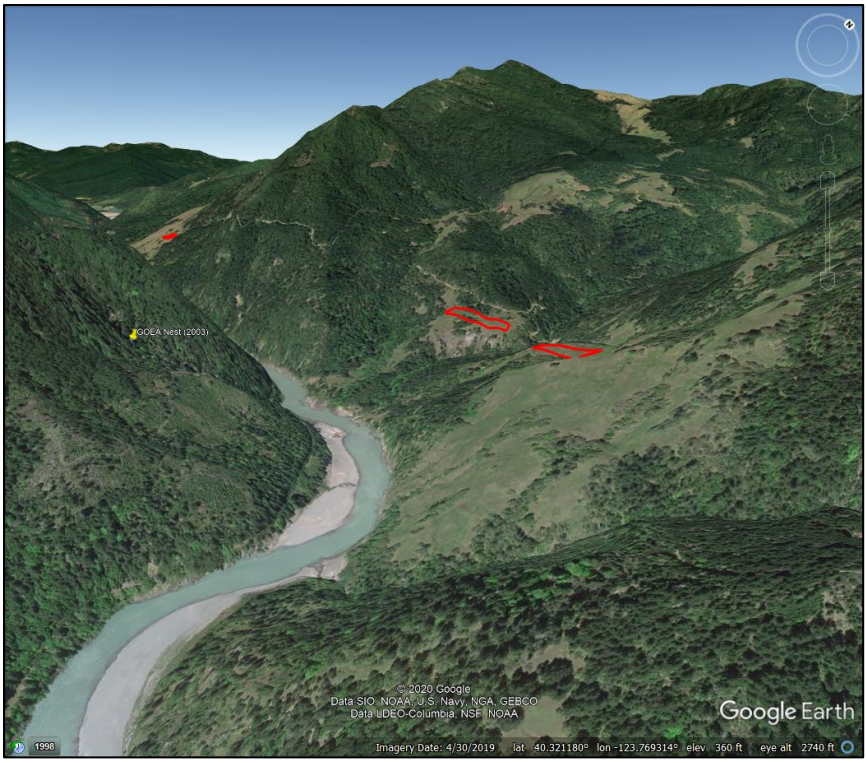


Figure 2. A documented golden eagle nest site (yellow pin) is within line-of-site of Project cultivations areas (shown in red). Note: alternative nest sites may be closer to the Project.

Golden Eagle Sensitivity to Disturbance. Although not well described in the Environmental Setting section of the IS/MND, the pre-Project baseline level of anthropogenic disturbance (e.g., visual, noise, and light) is very low or non-existent within the Project area. Any golden eagles in this vicinity are likely to be especially sensitive to human disturbance. Based on the range of disturbance distance thresholds for golden eagles (Hansen et al. 2017), they may flush from their nests or reduce feeding young with even low to moderate disturbance (including pedestrian activity) occurs within 1,000 meters (3,281 feet or 0.62 miles). Furthermore, nest-site protection is only beneficial if there is adequate access to prey. While male golden eagle's presence at nests is generally limited to prey delivery or brief assistance with young, they frequently rest on perches in view of nests (Watson et al. 2014). In southwestern Idaho, golden eagles perched away from nests were 12 times more likely to flush in response to recreationists than eagles at nests (Hansen et al. 2017). This suggests frequent human activity away from nests could result in chronic disturbance of foraging golden eagles and reduced provisioning rates at the nest. For example, if the 1,000-meter disturbance metric is applied to Project cultivation areas that may affect grassland foraging areas within a one-mile no disturbance buffer of the 2003 nest site, approximately 125 acres of 219 acres (57 percent) of foraging area may be avoided by foraging golden eagles attempting to feed their young (Figure 3).

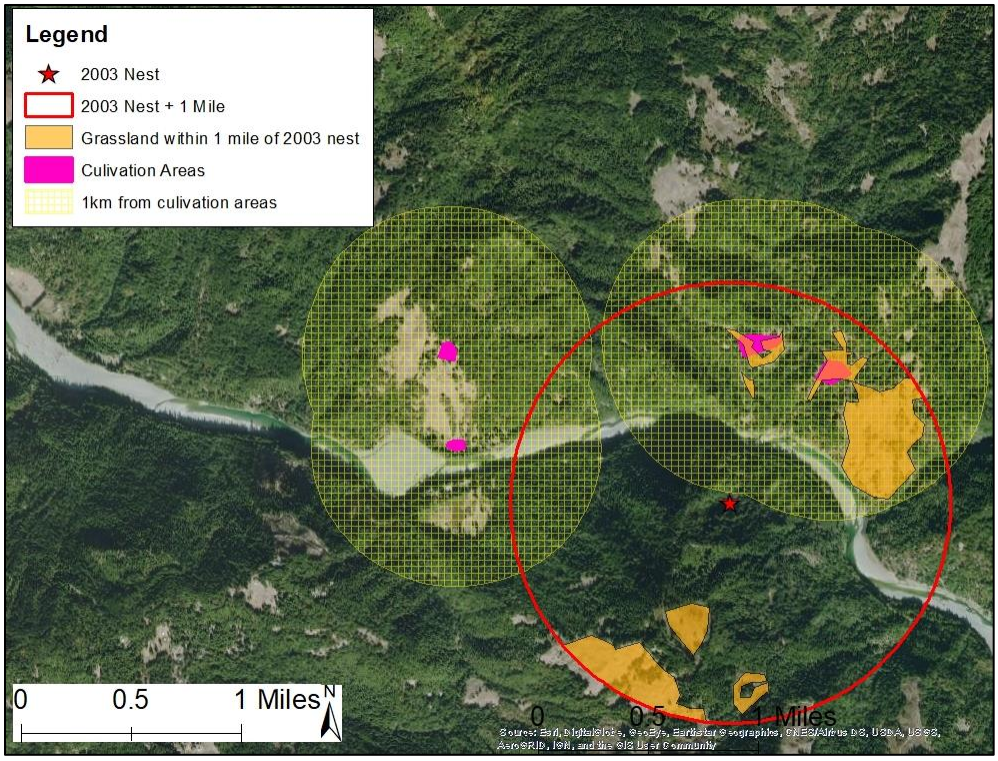


Figure 3. Assuming no golden eagles forage within 1,000 meters of cultivation sites, the Project would result in a 57 percent reduction of foraging habitat within a one-mile no disturbance buffer.

Unlike short term disturbance impacts (e.g., timber harvest), ongoing chronic disturbance may warrant buffers in excess of 1,000 meters, further supporting the USFWS' one-mile no disturbance buffer for golden eagle nest sites. Importantly, the IS/MND Mitigation Measure Bio-16 calling for a 660-foot buffer from nest sites was intended by the USFWS for bald eagles (*Haliaeetus leucocephalus*) (USFWS 2017), who are much less sensitive to disturbance than golden eagles (USFWS 2016).

Golden Eagle Surveys. Deficiencies in Project golden eagle surveys include: 1) none of the golden eagle surveys conducted for the Project occurred during the courtship season when golden eagles are most likely to be detected. Once golden eagles have paired and laid eggs after courtship, they become secretive and difficult to detect. The protocol specifically states the first inventory and monitoring surveys should be conducted during courtship when adults are mobile and conspicuous. Other deficiencies of the Project's golden eagle surveys include: 2) survey duration less than four hours (as recommended in the protocol), 3) surveyor location movement during surveys (survey should occur in blinds or other cryptic locations because golden eagles will avoid human presence and activities, potentially resulting in false negative survey results), 4) insufficient Project area coverage from survey locations (cultivation locations are nearly two miles apart and likely require multiple four-hour protocol observation points), 5) anecdotal conclusions based on out-of-season observations that the documented 2003 nest site is unoccupied, and 6) no evaluation of potential alternative nest sites within the Project vicinity (golden eagles often rotate annual occupancy of several alternative nest sites within a core area (Watson et al., 2014)).

Regarding anecdotal conclusions based on out-of-season observations, the IS/MND provides insufficient evidence to support current unoccupancy at the 2003 golden eagle nest that occurs about 1,000 meters south of the Project. The nest was last reported occupied in 2003 (Nelson 2020), but there are no records of attempts to verify continued nesting until one month ago, outside the breeding season. Project biologists visited the 2003 nest vicinity in November 2020 and concluded the nest is no longer present due to a lack of visible white-wash (fecal matter) or prey remains on the ground. If that nest location was occupied in 2020, young may have fledged from the nest several months prior and evidence of white-wash and prey remains may no longer have been present in November. The lack of a physical nest observation in 2020 does not support the conclusion a nesting site is no longer there because, 1) nests can occur in any portion of trees that could support a large stick platform and can be obscured from ground view when located at the top of a tree or in complex side-branch structures, 2) nest structures can be 10-feet in diameter and retain white-wash and discarded prey remnants where they cannot be observed from the ground, and 3) nests platforms occasionally fall out of trees and are rebuilt by golden eagles when they choose to nest in that tree again as part of their semi-annual rotation of alternative nest sites within a territory, of which they exhibit nest site fidelity over years and decades (Hansen et al., 2017).

Regarding no evaluation of potential alternative nest sites within the Project vicinity, the IS/MND states that no golden eagle nesting habitat exists in the immediate vicinity of the Project based on the assumption that potential nesting habitat is synonymous with northern spotted owl (NSO) high quality nesting/roosting habitat, but this statement is not supported. While NSO may be more likely to utilize forested areas with many larger trees, golden eagles can nest in locations with just one tree large enough to support a nest platform anywhere within the tree (Menkens et al. 1987, Baglien 1975). Given that many large diameter trees (e.g., Douglas fir [*Pseudotsuga menziesii*] crown diameter 40+ft visible on Google Earth) occur within one mile of Project locations, suitable nesting trees with complex branch structures may occur closer to the Project than the 2003 nest location.

Given the high-quality nesting and foraging habitat in the Project vicinity (large trees and grasslands), the previously documented nest site, 2018 golden eagle flyover observation during Project surveys, multiple other recent reports of juvenile golden eagles in the vicinity (Gaffin 2014 and 2015), and fidelity to nesting sites over years or decades (Hansen et al. 2017), the potential for an active breeding territory within the Project vicinity is high. Without adequate surveys for this species and, if present, a detailed effects analysis of potential Project impacts, CDFW is concerned that the Project could interfere with breeding, nesting success, feeding, sheltering behavior, and result in a loss of productivity, nest failure (e.g., disturbance-induced reduced provisioning of young), or complete abandonment of a golden eagle breeding territory (due to long term chronic disturbance).

Based on the golden eagle information discussed above, CDFW recommends the Project complete protocol golden eagles surveys and consult with CDFW prior to completion of CEQA (**Recommendation 2**). There is a reasonable likelihood an active

golden eagle breeding territory occurs within the Project vicinity and that several alternative nest sites may exist within relatively close proximity to the Project. Without sufficient protocol surveys for this species, we cannot adequately comment on the potential for significant impacts nor the effectiveness and feasibility of take avoidance or mitigations. Additionally, as proposed in the IS/MND, mitigation measure Bio-16's 660-foot nest buffer may be inadequate for this species and could potentially result in take of a Fully Protected species.

Cumulative Impacts to Grassland Prairies

The Lead Agency's Commercial Medical Marijuana Land Use Ordinance states no more than 20 percent of the area of prime agricultural soils on a parcel may be permitted for commercial cannabis cultivation. It is unclear if the ordinance and its supporting CEQA analysis intended new cultivation sites to be located within remote (i.e., exurban), hillside grassland prairies (where sensitive species may occur) as opposed to traditional agricultural lands already associated with crop production. An unintended consequence of requiring new cultivation on prime agricultural soils (and allowing new areas to be classified as such with no minimum size) is the targeting of small, isolated, flat grasslands within larger prairie complexes on steeper slopes. These habitats are vital elements of biodiversity and provide important habitat for wildlife (Stromberg et al. 2007, CNPS 2011, CDFW 2014a). For example, grasslands in less developed portions of the County correspond with golden eagle foraging habitat and may be occupied by sensitive breeding territories, as described previously in this letter.

The Humboldt County Planning and Building Department has received at least 45 commercial cannabis applications occurring within 1 mile (recommended no disturbance buffer) of documented golden eagle nest sites (Table 1, Battistone, 2020). Furthermore, over 150 commercial cannabis cultivation applications occur within two miles of documented golden eagle nest sites. Given the number of proposed projects within one mile of documented nest sites and that 50 to 80 percent of eagle habitat use is reported to occur within 2 miles of nest sites, CDFW is concerned cumulative project impacts could eliminate golden eagle territories within Humboldt County.

Additional cumulative impacts could occur to other grassland-dependent special status species such as northern red-legged frog (*Rana aurora*), grasshopper sparrow (*Ammodramus savannarum*), mountain plover (*Charadrius montanus*), northern harrier (*Circus hudsonius*), white-tailed kite (*Elanus leucurus*), Pacific gilia (*Gilia capitata* ssp. *pacifica*), short-leaved evax (*Hesperevax sparsiflora* var. *brevifolia*), Baker's navarretia (*Navarretia leucocephala* ssp. *bakeri*), Kneeland prairie pennycress (*Noccaea fendleri* ssp. *californica*), maple-leaved checkerbloom (*Sidalcea malachroides*), Siskiyou checkerbloom (*Sidalcea malviflora* ssp. *patula*), beaked tracyina (*Tracyina rostrata*), leafy reed grass (*Calamagrostis foliosa*), Hitchcock's blue-eyed grass (*Sisyrinchium hitchcockii*), and other special status species (CDFW 2020a).

Table 1. Humboldt County commercial cannabis applications within two miles of documented golden eagle nest sites.

Key Parcel Distance to Mapped Golden Eagle Nest (Miles)	Number of County Cannabis Cultivation Applications
0 - 0.25	9
0.26 - 0.5	9
0.51 - 1	27
1.1 - 2	112
Total	157

Cumulative impacts could also occur to rare vegetation types known as Sensitive Natural Communities. Using the best available data on the abundance, distribution, and threat, CDFW assigns natural communities rarity ranks and/or a designation as "Sensitive" (*). Rarity ranks range from 1 (very rare and threatened) to 5 (demonstrably secure). Sensitive Natural Communities (S1 – S3 or otherwise designated as sensitive) should be addressed in the environmental review processes of CEQA and its equivalents (CDFW 2020b). Cumulative impacts could occur to grassland-associated Sensitive Natural Communities in Humboldt County including California brome – blue wildrye prairie (*Bromus carinatus – Elymus glaucus*; S3), Oatgrass - Tufted Hairgrass - Camas wet meadow (*Danthonia californica – Deschampsia cespitosa – Camassia quamash*; S4*), Idaho fescue - California oatgrass grassland (*Festuca idahoensis – Danthonia californica*; S3), California goldfields – dwarf plantain – small fescue flower fields (*Lasthenia californica – Plantago erecta – Vulpia microstachys*; S4*), and other sensitive natural communities.

The IS/MND should evaluate cumulative impacts to grassland prairies, particularly special status species and sensitive natural communities (**Recommendation 3**).

Use of Water Wells

The IS/MND relies on written statements from David Fisch of Fisch Drilling to assess well use impacts to groundwater. Although Mr. Fisch is a Licensed Water Well Contractor, it is not apparent that he is licensed to provide geologic interpretations and/or related evaluations of groundwater/surface water connectivity. The scientific and engineering community universally accepts the connectivity of surface water and groundwater systems and that groundwater discharge to streams constitutes a sizeable and important fraction of streamflow (Fetter 1988, Winter et al. 1998, Department of Water Resources 2003, Barlow and Leake 2012, Province of British Columbia 2016).

In light of the Project's geologic setting, mapped springs, wetlands, and other surface water features (IS/MND Figure 61 on page 197), and based on the potential total volume of groundwater extraction from the three new wells, CDFW recommends the applicant retain a qualified professional (e.g. geologist or engineer with hydrogeology background) licensed to practice in California to conduct a preliminary evaluation of the Project's potential impacts to local surface water flows, and to provide

recommendations that ensure Project activities will not substantially affect aquatic resources (**Recommendation 4**).

Post-project Reclamation and Restoration

As described in the IS/MND, the Project will occur in a remote area of the County that supports numerous special status species and habitats. The Project's seven acres of new cannabis facility development and infrastructure will have lasting effects on the landscape if the Project permanently ceases operations at some point in the future. Similar to other industries with this spatial magnitude of ground disturbance (e.g., mining) it is appropriate to decommission facilities and restore the area at the end of a project's life.

CDFW recommends a mitigation measure or condition of approval to require a Post-project Reclamation and Restoration Plan. That plan should be implemented if project activities cease for five years (**Recommendation 5**).

The following resource topics were brought up in our August 17, 2020 letter for this Project, and are reiterated with additional information here as the revised IS/MND did not appear to fully address these:

Botanical Surveys and Impact Analysis

The IS/MND states botanical surveys for rare plants did not encompass the entire Project area, specifically Facilities #6 through #9. The entire Project area should include the "whole of the action" (CEQA Guidelines section 15003 (h)), including all proposed buildings, new powerlines, borrow pits, access roads, and other areas of new ground disturbance. The IS/MND proposes completing botanical surveys as a mitigation measure. Based on the IS/MND, it appears floristic botanical surveys have not yet covered the entire Project area, including proposed work on the access road to Alderpoint, which contains suitable habitat for a Humboldt County milk-vetch (*Astragalus agnicidus)*, a State Endangered Species.

To avoid deferred analysis, and potential deferred mitigation, the IS/MND should include the results of floristically appropriate botanical surveys for the entire Project area. Surveys and reporting should be in accordance with CDFW's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* and propose avoidance/mitigation where appropriate (**Recommendation 6**).

Wetland Fill and Development Setbacks

The IS/MND indicates development of Facility #9 will require wetland fill and encroachments on wetland setbacks at Facilities #1 and #2. Approximately 90 percent of California's historical wetlands have been filled or converted to other uses, with a consequent reduction in the functions and values wetlands provide (CDFW 2014b). Additionally, there may not be a viable path for wetland fill to create cultivation sites

pursuant to the SWRCB's Cannabis Cultivation General Order (SWRCB 2019a).

CDFW recommends the Project adhere to Humboldt County General Plan wetland setbacks through Project layout changes to avoid wetland fill and associated development setbacks (**Recommendation 7**). CDFW also recommends the Project consult with the North Coast Regional Water Quality Control Board regarding the State Water Resources Control Board's (SWRCB) Cannabis Cultivation Policy and its mandate to protect springs, wetlands, and aquatic habitats from negative impacts of cannabis cultivation (SWRCB 2019b).

Development within the 100-year Flood Zone

The Project proposes locating two greenhouses (Facilities #1 and #2) within the 100-year flood zone of the Eel River (IS/MND Figure 63 on page 200). Floodplains, by their nature, are likely to be inundated by high flow events. They also connect streams and rivers to upland habitat and provide an important ecological transition zone (CDFW 2014b). Grading within the floodplain and placement of complex, automated mixed-light greenhouses, and ancillary facilities, would likely result in pollution and debris during a 100-year flood event.

CDFW recommends Project layout changes to avoid non-essential development in Eel River 100-year floodplain. (**Recommendation 8**).

Electric Infrastructure Expansion

The IS/MND indicates approximately four miles of new electrical lines will be installed to connect existing powerlines to proposed cannabis cultivation sites. Based on the IS/MND, it appears the new electrical lines will be installed, primarily buried within the road prism.

Although CDFW appreciates the Project using existing disturbed areas for the utility alignment, the IS/MND should include further analysis on potential additional development or growth inducing impacts within the local region that may be facilitated by the creation of four miles of new electrical utilities (**Recommendation 9**). If the Project will not be growth inducing, as stated in the IS/MND, it may be appropriate to include development limitations on these parcels in the form of a Development Plan recorded with the County.

Mixed-light Cultivation

Light pollution effects on wildlife include disruption of circadian rhythms and suppressed immune response, changes in foraging behavior, altered navigation and migration patterns, altered predator-prey relationships, impacts on reproduction, and phototaxis (CDFW 2018, CDFW 2020c). CDFW and others have observed light pollution originating from greenhouses throughout the County. This is inconstant with the County General Plan and International Dark Sky Standards. The IS/MND suggests International Dark Sky Standards will be upheld by the Project.

Based on experience with other similar cultivation projects, it is difficult to monitor and regulate potential light pollution impacts from non-compliance with permit conditions. The County should ensure the measures to comply with International Dark Sky Standards are implementable and easy to confirm or monitor (**Recommendation 10**).

Invasive Species

The IS/MND does not address potential significant effects from introduction or spread of invasive plant and animal species. Invasive species are known to result in habitat loss and other impacts to native species and may result in an overall loss of biodiversity, particularly special status species (Duenas et al. 2018). Invasive plant species may enter or spread through the Project area from imported soil, attachment to vehicles, and other means of accidental introduction.

CDFW recommends a mitigation measure or condition of approval to require an invasive species management plan that would manage any existing invasive species and prohibit planting, seeding or otherwise introducing terrestrial or aquatic invasive species on Project parcels, including all access roads (**Recommendation 11**).

Rodenticides and Similar Harmful Substances

This Project has potential high use areas for birds of prey including, white-tailed kite (*Elanus leucurus*), red-tailed hawk (*Buteo jamaicensis*), ferruginous hawk (*Buteo regalis*), golden eagle, and other species. New agricultural development has the potential to increase rodent populations, which are sometimes treated with rodenticides. Rodents killed by rodenticide have the potential to be consumed by raptors, other birds of prey, and wildlife species, resulting in harm or mortality (CDFW 2018, CDFW 2020c).

CDFW recommends a condition of approval that will prohibit the use of rodenticides and similar harmful substances on Project parcels (**Recommendation 12**).

We appreciate the opportunity to comment on this IS/MND. If you have any questions please contact Environmental Scientist Greg O'Connell by email at Gregory.OConnell@Wildlife.ca.gov.

Sincerely,

DocuSigned by:
Curt Babcock
974D273FEE784E2...

Curt Babcock
Northern Region Habitat Conservation Program Manager
California Department of Fish and Wildlife

ec:

State Clearinghouse, Office of Planning and Research
state.clearinghouse@opr.ca.gov

Humboldt County Planning Commission Clerk
planningclerk@co.humboldt.ca.us

Mona Dougherty, Kason Grady
Regional Water Quality Control Board
mona.doherty@waterboards.ca.gov; Kason.Grady@waterboards.ca.gov

Curt Babcock, Scott Bauer, Laurie Harnsberger, Greg O'Connell, Cheri Sanville
California Department of Fish and Wildlife
Curt.Babcock@wildlife.ca.gov; Scott.Bauer@wildlife.ca.gov;
Laurie.Harnsberger@wildlife.ca.gov; Gregory.OConnell@Wildlife.ca.gov;
Cheri.Sanville@wildlife.ca.gov; CEQACommentLetters@wildlife.ca.gov

Citations

Barlow, P.M., and Leake, S.A. (2012). Streamflow depletion by wells—Understanding and managing the effects of groundwater pumping on streamflow: U.S. Geological Survey Circular 1376, 84 p. (Also available at https://pubs.usgs.gov/circ/1376/.)

Baglien, J. W. (1975). Biology and habitat requirements of the nesting Golden Eagle in southwestern Montana. M.S. thesis, Montana State University, Bozeman, MT, USA.

Battistone, C. (2020). Golden Eagle Observations [ds963]. California Department of Fish and Wildlife. Biogeographic Information and Observation System (BIOS). Retrieved December 14, 2020 from http://bios.dfg.ca.gov

CDFW. (2014a). California Wildlife Habitat Relationships. Sacramento, CA. Accessed at https://wildlife.ca.gov/data/cwhr

CDFW. (2014b). Development, land use, and climate change impacts on wetland and riparian habitats—A summary of scientifically supported conservation strategies, mitigation measures, and best management practices. Technical Memorandum. California Department of Fish and Wildlife, Northern Region. Redding, CA.

CDFW. (2018). A Review of the Potential Impacts of Cannabis Cultivation on Fish and Wildlife Resources. California Department of Fish and Wildlife, Habitat Conservation Planning Branch. Sacramento, CA.

CDFW. (2020a). California Natural Diversity Database Quick View Tool. Biogeographic Data Branch, California Department of Fish and Wildlife. Retrieved December 14, 2020 from https://wildlife.ca.gov/Data/CNDDB

CDFW. (2020b). Vegetation Classification and Mapping Program. Biogeographic Data Branch, California Department of Fish and Wildlife. Retrieved December 14, 2020 from https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities

CDFW. (2020c). Impacts of Cannabis Cultivation on Fish and Wildlife Resources. California Fish and Wildlife Journal. Sacramento, CA.

[CNPS] California Native Plant Society. (2011). California's Prairies and Grasslands. Fremontia. Vol. 39, No. 2 and 3.

Department of Water Resources. (2003). California's Groundwater: State of California, The Resources Agency, Department of Water Resources Bulletin 118, 2003 Update, 246 p.

Duenas, M. A., Ruffhead, H. J., Wakefield, N. H., Roberts, P. D., Hemming, D. J., & Diaz-Soltero, H. (2018). The role played by invasive species in interactions with endangered and threatened species in the United States: a systematic review. Biodiversity and Conservation, 27(12), 3171-3183.

Fetter Jr., C.W. (1988). Applied Hydrogeology: Charles E. Merrill Publishing Company.

Gaffin, J. (2014). eBird Checklist: https://ebird.org/checklist/S20325960. eBird: An online database of bird distribution and abundance. eBird, Ithaca, New York. Available: http://www.ebird.org. (Accessed: Date December 14, 2020).

Gaffin, J. (2015). eBird Checklist: https://ebird.org/checklist/S25900515. eBird: An online database of bird distribution and abundance. eBird, Ithaca, New York. Available: http://www.ebird.org. (Accessed: Date December 14, 2020).

Hansen, D.L., R.J. Spaul, B. Woodbridge, D. Leal, J.R. Dunk, J.W. Watson, and J. T. Driscoll. (2017). Human disturbance of breeding golden eagles (*Aquila chrysaetos*). Unpublished report prepared for the Western Golden Eagle Team, U.S. Fish and Wildlife Service. Available online at: https://ecos.fws.gov/ServCat/Reference/Profile/112570

Harris, S. W. (2005). Northwestern California birds: a guide to the status, distribution, and habitats of the birds of Del Norte, Humboldt, Trinity, northern Mendocino, and western Siskiyou counties, California. Living Gold Press, Klamath River, California.

Hunter, J. E., D. Fix, G. A. Schmidt, and J. C. Power. (2005). Atlas of the breeding birds of Humboldt County, California. Redwood Region Audubon Society, Eureka, California

Menkens, G. E., Jr., and S. H. Anderson. (1987). Nest site characteristics of a predominantly tree-nesting population of Golden Eagles. Journal of Field Ornithology 58: 22–25.

Millsap B., E. Bjerre, M. Otto, G Zimmerman, and N. Zimpfer. (2016). Bald and golden eagles: population demographics and estimation of sustainable take in the United States, 2016 update. U.S. Fish and Wildlife Service. Division of Migratory Bird Management, Washington, DC USA.

Nelson, M. (2020). California Natural Diversity Database [ds85]. California Department of Fish and Wildlife. Biogeographic Information and Observation System (BIOS). Retrieved December 14, 2020 from http://bios.dfg.ca.gov

Pagel, J.E., D.M Whittington, and G.T Allen. (2010). Interim golden eagle inventory and monitoring protocols and other recommendations: Division of Migratory Bird Management, U.S. Fish and Wildlife Service.

Province of British Columbia. (2016). Determining the likelihood of hydraulic connection – Guidance for the purpose of apportioning demand from diversion of groundwater on streams: Version 1.0, Water Science Series, WSS2016-01, Province of British Columbia, Victoria, British Columbia, http://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-science-data/water-science-series.

SWRCB. (2019a). Cannabis Cultivation General Order Resolution Number 2019-0007. State Water Resources Control Board. Sacramento, CA. Accessed at: https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2019/rs2019_0007.pdf

SWRCB. (2019b). Cannabis Cultivation Policy Principles and Guidelines for Cannabis Cultivation. State Water Resources Control Board. Sacramento, CA. Accessed at: https://www.waterboards.ca.gov/water_issues/programs/cannabis/docs/policy/final_cannabis_policy_with_attach_a.pdf

Stromberg, M. R., Corbin, J. D., and Antonio, C. M. (2007). California grasslands: ecology and management. Univ of California Press.

U.S. Fish and Wildlife Service. (2016). Final programmatic environmental impact statement for the Eagle Rule revision. Department of Interior, Washington D.C., USA.

U.S. Fish and Wildlife Service. (2017). Recommended Buffer Zones for Human Activities around Nesting Sites of Bald Eagles in California and Nevada. Pacific Southwest Region, Migratory Birds Program.

U.S. Fish and Wildlife Service. (2020). Recommended buffer zones for ground-based human activities around nesting sites of golden eagles in California and Nevada. Pacific Southwest Region, Migratory Birds Program.

Watson, J. W., A. A. Duff, R. W. Davies. (2014). Home range and resource selection by GPS-monitored adult golden eagles in the Columbia Plateau Ecoregion: implications for wind power development. The Journal of Wildlife Management, 78(6), 1012-1021.

Winter, T.C., J.W. Harvey, O.L. Franke, and W.M. Alley. (1998). Ground Water and Surface Water A Single Resource: U.S. Geological Survey Circular 1139, Denver, Colorado, 79 p.