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via e-mail

SUBJECT: Artesa (Codorniu Napa) Fairfax Conversion Partially Recirculated Draft Environmental Impact Report (EIR) – comments (SCH # 2004082094)

Dear Mr. Robertson:

I am submitting the following comments on the “partially recirculated” Draft EIR for the proposed Artesa Fairfax vineyard conversion project in Annapolis, Sonoma County, CA. I am submitting these comments on behalf of myself and also Friends of the Gualala River (www.gualalariver.org), in addition to other comments prepared on their behalf. I have previously submitted comments on multiple modified versions of vineyard conversion projects regulated by CAL FIRE on this site:

- the first (withdrawn) THP for the antecedent of this project from 2001;
- the (withdrawn) Mitigated Negative Declaration for the antecedent project;
- the Notice of Preparation (NOP) for the second (previous) project description in September 2004;
- the Draft Environmental Impact Report (DEIR) of May 2009 circulated almost 5 years after the NOP.

My qualifications to provide technical comments on the CEQA document are summarized in my July 28, 2009 DEIR comment letter, and are incorporated by reference.

My comments concern the following issues with the partially recirculated DEIR:

- **Changes, vagueness, and inconsistencies in the project description** (project component classification and acreage) and vague or inadequately described project modification, including 27 acres of unspecified land uses that may result in undisclosed significant indirect and cumulative impacts or project piecemealing;

- **Alternatives analysis:** continued failure to address fundamental deficiencies in the DEIR's prejudicial, inadequate analysis of alternatives, particularly off-site alternatives, failing to comply with alternatives criteria of CEQA Guidelines 15126(d)(3) and (5) based on conditions prevalent at the time of the original Notice of Intent, as well as significantly changed conditions affecting the feasibility and availability of off-site alternatives since the DEIR was circulated.

- **Cultural and archaeological resources:**
 - inadequate analysis of the site and its setting (geographic, ethnobotanical, and archaeological context), particularly the lack of integration between geographic information in the ethnographic record and interpretation of archaeological features of the site (cf. CEQA guidelines 15125(a));
 - arbitrary and inconsistent determinations that the setting qualifies as an archaeological district with significant, unique context, but that designation of archaeological district status is not justified;
 - inadequate and unenforceable mitigation regarding detection of previously undiscovered archaeological resources that are disturbed during earthmoving;
 - inadequate pre-construction systematic subsurface surveys.

- **Greenhouse gas analysis:** By limiting the GHG analysis to forestry and construction, and continuing to omit arbitrarily all meaningful analysis of ongoing intensive agricultural (viticulture) GHG and its contribution to potentially significant impacts, the rDEIR provides a selective and incomplete analysis that understates significant potential impacts and precludes analysis of appropriate mitigation measures, including:
 - seasonal soil carbon emission (microbial respiration) accelerated by fertilizer application (reduced C:N) and irrigation,
 - annual grapevine frost protection fossil fuel consumption (turbines/fans and heaters using propane or kerosene),
 - annual grapevine frost protection requiring fuel-driven pumping of water
 - annual irrigation pumping fuel costs
 - annual disposal of annual grapevine wood prunings (burning or non-soil decomposition), one of the most important variables influencing carbon balance for vineyards (Kroodsma and Field 2006)
 - annual fertilizer and pesticide carbon costs (full manufacturing and application life-cycle C cost),
 - analysis of cumulative contribution of the proposed project's ongoing annual agricultural net carbon emissions in context of existing Annapolis, Sonoma County, and North Coast existing and forecast future vineyard acreages, including the (CEQA-foreseeable) proposed Preservation Ranch project;
 - net long-term carbon emission and net C sequestration opportunity loss comparing forest and vineyard
 - missing justification of the assertion that drought-tolerant rootstocks would be used in production in a region where fine-tuned seasonally timed fertilizer

and water applications are used to control grape sugar content and secondary metabolite content (shallow root systems sensitive to short-term variations in water and nutrient availability)

- **Arbitrary exclusion of public comments on substantial changes** with respect to the circumstances under which the project propose to be undertaken, particularly feasible alternatives with less environmental impact of forest conversion, which were not previously considered and would substantially lessen multiple significant impacts, inconsistent with CEQA Guidelines 15162(a);
- **Significant irretrievable and irreversible environmental impacts** due to relatively short-term economic uses at the expense of long-term productivity (Guidelines 15126(e-f): because of continued failure of the rDEIR to address off-site alternatives that do not require forest conversion to intensive agriculture, and to failure to address irreversible (human time; recoverable only in geologic time) loss of forest topsoil microbial community, biomass, and carbon stocks, the rDEIR precludes a good faith, reasoned analysis and meaningful public comments of the project impacts and alternatives.
- **Persistent uncorrected inadequate and incomplete analysis of significant environmental impacts and mitigation** regarding biological resources (cumulative and direct additive impacts of permanent invasive non-native bullfrog breeding habitat creation in reservoirs; pesticide impacts associated with novel pest outbreaks; cumulative and direct impacts of surface and groundwater capture to supplement irrigation pond levels during prolonged critical droughts; etc.).

1. Changes, vagueness, and inconsistencies in the project description.

The project description in the rDEIR differs from the DEIR in terms of accounting and classification of project components, and includes a vague and indeterminate description of significant acreages. Contrasts are summarized in the table below. The “20 acres of graded perimeter slopes” with unstated slopes, soils, land use or cover type, was increased to 27 acres of unspecified “non-vineyard uses”. These unspecified “non-vineyard uses” are **impermissibly vague**, and may have **potential significant impacts that are not disclosed or analyzed**. The “27 acres of non-vineyard uses” are also **potential sources of project segmentation** (piecemealing), such as predictable subsequent permit applications for wine tasting rooms or residential development compatible with a large area of 27 acres. The “work area” is inadequately described, and the restrictions of land uses for the “work area” during and after vineyard construction are unclear. The distinction between “net” and “gross” vineyard and the changed acreages between 2009 and 2011 are not adequately explained, nor are the changes in acreages. The nature, standards, objectives, and measurable, enforceable criteria for the proposed “deed restriction”, and potential types of deed restriction/easement holders are not explained.

The degree of ambiguity, inconsistency, and indeterminacy in the project description modifications are severe enough to preclude meaningful public comment on analysis of potential significant impacts and mitigation. Contrary to the rDEIR’s claim, these changes (particularly the new 27 acre “non-vineyard uses” designation) may potentially increase project impacts in a manner or degree not analyzed in the DEIR.

2009 DEIR	2011 NOA and partially recirculated DEIR
190-acre project site No quantification or description of “work area”	173 acre site 5 mi east of Pacific Ocean on Beatty Ridge. 173 acre “work area”
“ 135-acre net vineyard ”; “ 171 acres of the 190-acre total would be converted from young-growth timber” (originally 105 acre conversion – 2001 THP)	116 acre “net vineyard” 146 acre “gross vineyard”
20-acres of graded perimeter slopes	27 acres of “non-vineyard uses” (not described)
134 acres “... permanent deed restriction over approximately of land composed of the south-draining tributaries to Patchett Creek in the central portion of the site, and additional biologically rich or culturally significant areas.” (<i>deed restriction proposal, objectives, criteria, not described</i>) CONSERVATION EASEMENT 20.0 acres total 154 acres	151 acre “permanent deed restriction ... over land composed of the south-draining tributaries of Patchett Creek in the central portion of the site and additional biologically rich or culturally significant areas” (<i>deed restriction proposal, objectives, criteria, not described</i>) [conservation easement? “ 133 forested acres with permanent open space easements” (p. 1-7)]
Net Vineyard Area 135 Ac Corporation Yard 1Ac Reservoir and Sump 9 Ac Perimeter Avenues 23 Ac Driveway and Roads 2 Ac Perimeter Grading 20 Ac Total Project Area 190 Ac CONSERVATION EASEMENT 20.0	324 acre property 173 acre work area limit 151 acre reserve/set-aside 173 acre work area 146 acre gross vineyard 27 acre non-vineyard 146 acre gross vineyard 116 acre net vineyard 18 acre perimeter avenues 9 acre reservoir, sump 2 acre driveway, roads 1 acre corporation yard

Because the modified project description is inconsistent, vague, and includes new land use designations and acreages that may increase project impacts, the CAL FIRE notice of availability improperly restricted the scope of public comment under CEQA: “CAL FIRE directs that public comments must be restricted to the newly circulated information contained in the RDEIR...”. This restriction is arbitrary also because CAL FIRE simultaneously re-opened the corresponding Timber Harvest Plan for the same project and site (01-09-058-SON) with unrestricted scope of public comments.

2. Alternatives analysis.

The rDEIR compounded the original fundamental deficiencies in the analysis of off-site feasible project alternatives by failing to review substantially changed vineyard real estate

availability (lease, fee-title acquisition) on **previously converted agricultural lands in the North Coast region capable of growing premium wine grapes that do not involve significant environmental impacts of forest conversion or intrusion into sensitive archaeological districts or resources**. This is the most fundamental CEQA impact avoidance question underlying evaluation of potential feasible alternatives sites. The omission of evaluating reasonable off-site alternatives that avoid forest conversion impacts and location-dependent impacts among sensitive archaeological and cultural resources violates CEQA Guidelines Section 15126 (d)(3): “The discussion of alternatives shall focus on alternatives capable of eliminating any significant adverse environmental effects or reducing them to a level of insignificance, even if these alternatives would impact to some degree the attainment of the project objectives, or would be more costly” (*i.e.*, to some degree less desirable or profitable)”

The rDEIR continues to fail to consider a reasonable “market area” or “service area” for alternative sites that could produce premier wine grapes in prior converted croplands and prior converted agricultural watersheds. The rDEIR continues to fail to justify a **reasonable minimum economically viable size for a reduced project alternative**, and fails to account for the evident economic feasibility of antecedent, adjacent vineyards with substantially smaller vineyard acreage and no reservoir development. The rDEIR continues to fail to account for the original smaller-scale Artesa proposal to convert 105 acres of vineyard rather than 171 acres.

Scope of reasonable alternatives cannot be arbitrarily limited to the narrow objectives of the project description, but must be based on basic objectives of the project in light of **short-term versus long-term effects** (Guidelines 15126(a), 15126 (d)(5) “...The key issue is whether the selection and discussion of alternatives fosters informed decision-making and informed public participation”. The significant impact of irreversible redwood forest conversion to crop agriculture is clearly at the heart of CEQA’s concern about “The relationship between local short-term uses of man’s environment and the maintenance and enhancement of long-term productivity. ...special attention should be given to impacts which narrow the range of beneficial uses of the environment ...” in CEQA Guidelines Section 15126 (e). The **vagaries of the short-term wine industry fashions and bubbles of demand – which have notoriously continued to burst since the DEIR (Harvest takes \$142 million toll on North Coast growers, Santa Rosa Press Democrat, February 10, 2011: <http://www.petaluma360.com/article/20110210/BUSINESS/110219952/-1/PT07?p=all&tc=pgall>)** must be weighed against the irreversible loss of forest soils that support forest productivity . See CEQA Guidelines 15126 (f): “Any significant irreversible environmental changes which would be involved in the proposed action should it be implemented”. Vineyard conversion irreversibly strips away forest soils, and there is no mitigation for rebuilding redwood forest soil profiles that require millennia to form. Redwood forests are not merely acreages of board-feet of timber. They are ecosystems capable of resilient recovery after disturbance, but not after physical removal of their substrate and biota. Only off-site alternatives analysis can address this issue. The rDEIR utterly failed its CEQA obligation to rectify this fundamental omission in the DEIR, despite ample public comments on this issue.

3. Cultural and archaeological resources

The rDEIR's supplemental "review" of cultural and archaeological resources failed to analyze adequately the instructive and substantive criticism provided by expert comments of Prof. Peter Schmidt, who recommended a rigorous examination of the published ethnographic (Pomo cultural anthropology) record to properly define geographic context archaeological resources. The rDEIR acknowledges (p.3.5-3, 3.5-22) that ethnographic data on geographic patterns of prehistoric inhabitants of Annapolis is important for interpretation of the area as an archaeological district and context for "significance". I was unaware of how myopic the analysis of archaeological resources was in the DEIR until I followed his advice and checked his cited published references myself. I was further surprised to find that the **recirculated DEIR merely "reviewed", but did not analyze, the very explicit and detailed semi-quantitative narrative and graphic geographic data of southern Pomo and Kashia village and camp sites what is now the Annapolis area that were published in the 20th century.**

The rDEIR referred to its qualitative "review" (p. 3.5-22) of semi-quantitative narrative locality data in Barrett (1908), but **failed to utilize standard readily available GIS analytic tools – routinely used by CAL FIRE in forestry regulation – to analyze the documentary village and camp locality evidence in the published ethnographic record and apply it to basic geographic data on topography, soils, springs/seeps, and distinctive vegetation types** such as erratic, anomalous modern and historical dominance of oaks and manzanitas (important Pomo inland food plants) and grasslands **within an otherwise nearly continuous redwood forest belt**. The rDEIR understates the physical geographic fact that the same distinctive, unique soils, vegetation structure, and topography that makes Annapolis attractive to vineyards was documented to have been responsible for what was described in the rDEIR and DEIR as a "somewhat unique" (p 3.5-3) terrain patterning of density and location of Kashaya and Southern Pomo seasonal or permanent villages and camps above the Gualala River, in what was otherwise a sparsely inhabited redwood forest belt. In fact, as any geologic or topographic map of the Sonoma-Mendocino coast region will indicate, the **interior** Ohlson Ranch formation terrain and vegetation within the regional redwood belt of Annapolis is in fact unique.

More specifically, the published semi-quantitative narrative and graphic geographic locality descriptions of old village and camp sites explicitly converge on a **continuous soil and topographic unit** (elevation between 600 and about 800 feet) linking two principal Pomo villages, **Shamli** (camli) of Beatty Ridge and **Hibuwi** of Nob Hill. This geographic context of a distinctive topographic, soil, and vegetation unit including the Artesa project site in close proximity or including the old camp site **Kabatui** (k'abãthwi), bracketed between two of the main old villages mapped and described in the Annapolis area, is obscured in the DEIR and rDEIR by narrow focus on whether or not the project site includes these sites. **Neither the DEIR nor rDEIR state that project site location narrowly within a village or camp site boundary, rather than broadly within a cultural resource zone patterned in relation to them, is a threshold for CEQA significance.** In the absence of GIS analysis, the rDEIR does not objectively justify its conclusion that "Based upon Barrett's

descriptions of these site locations, all three of these named villages appear to be outside the project area”, or identify the project site’s topographic and cultural resources relationships to those localities.

I compiled the following data **directly and verbatim** from narrative and semi-quantitative geographic descriptions (approximate mile distance and direction based on geologically fixed creek/river confluence points) of village and camp site locations in the publicly available published ethnographic literature, beginning with Prof. Schmidt’s reference to S.A. Barrett’s 1908 monograph, and compared with the U.S. Geological Survey Annapolis quadrangle sheet (1977). These data were not, and should be, analyzed using standard GIS methods to test whether the subjective “review” of the ethnographic documentary geographic descriptions supports the rDEIR’s (inconsistent) conclusions. The data sources include:

Barrett, S.A. 1908. *The Ethno-Geography of the Pomo and Neighboring Indians*. University of California Publications in American Archaeology and Ethnology, volume 6. Berkeley, The University Press.

Bean, J.L., and D. Theodoratus. 1978. *Western Pomo and Northeastern Pomo*. in: Heizer, R.F. *Handbook of North American Indians*, volume 8: California. Smithsonian Institution, Washington, DC.

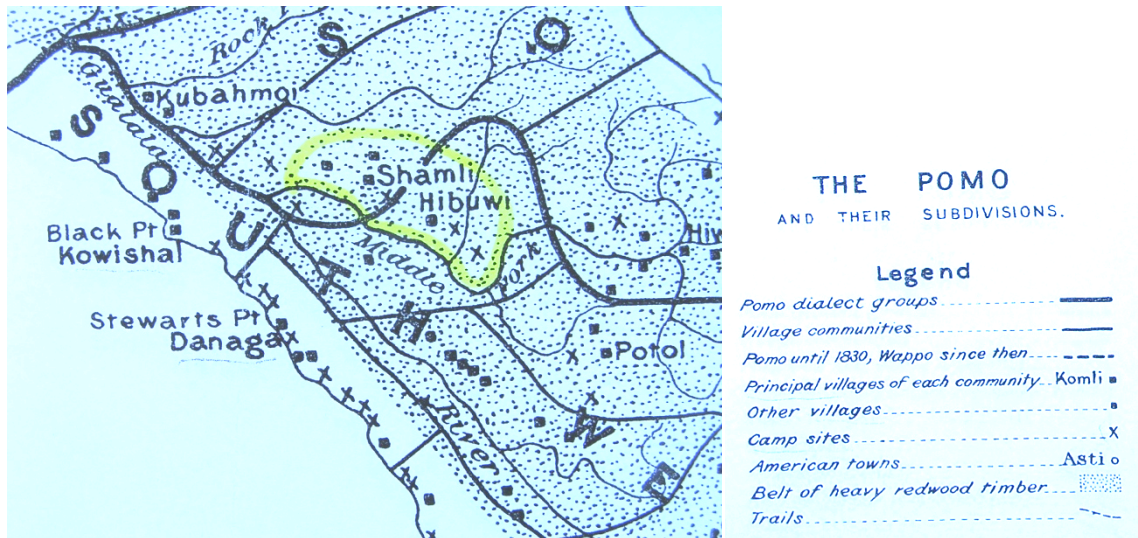
Gifford, E.W. and A.L. Kroeber. 1939. *Culture element Distributions: IV. Pomo*. University of California Publications in American Archaeology and Ethnology vol. 37, No. 4, Pp. 117-254.

Kniffen, F.B. 1939. *Pomo Geography*. University of California Publications in American Archaeology and Ethnology, Vol. 36

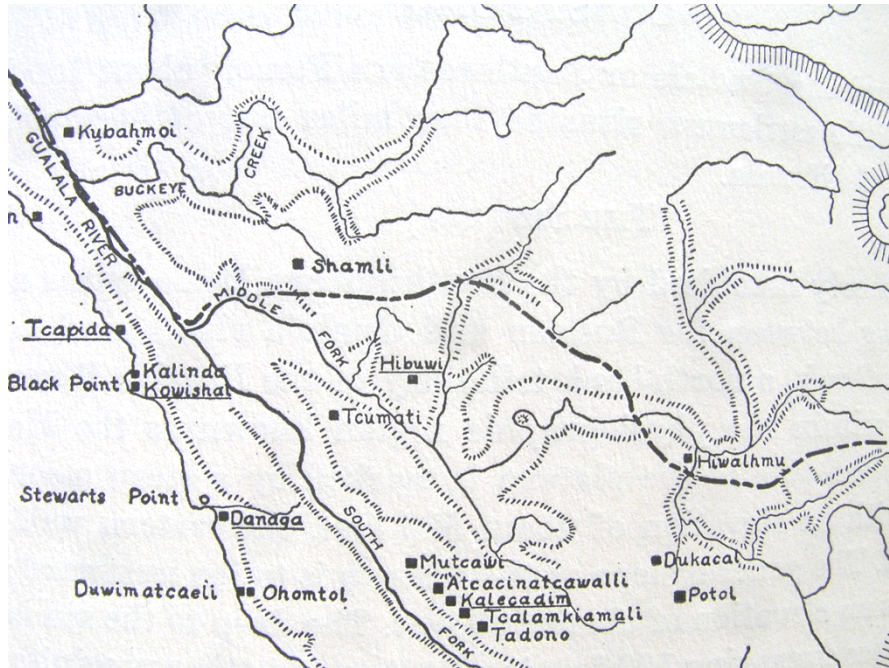
Kroeber, A.L. 1925, *Handbook of the Indians of California*, Bulletin 78 of the Bureau of American Ethnology of the Smithsonian Institution

McLendon, S. and R.L. Oswalt. 1978. *Pomo: Introduction*. in: Heizer, R.F. *Handbook of North American Indians*, volume 8: California. Smithsonian Institution, Washington, DC.

These data include detailed approximate maps that represent village sites in relation to portions of Patchett Creek drainage (Kniffen 1939) of the Artesa project site, and village and camp sites in relation to defined creek and river confluences (Kroeber and Gifford 1925). The rDEIR failed to represent the project site geographically (or even merely graphically) in relation to the overall habitat pattern, as a context for interpretation of the archaeological district or “unique” aspect of prehistoric Annapolis.



Excerpt plate 36, from Kroeber, A.L. 1925, Handbook of the Indians of California, Bulletin 78 of the Bureau of American Ethnology of the Smithsonian Institution showing distribution of “old village sites” (black rectangles) and “principal villages” (black squares with names) north of “Middle Fork” (Wheatfield Fork) Gualala River west of Fuller Creek (shown as forked creek above “I” in “Middle”). Black line represents inferred boundary of “southwestern dialect” (Kashaya). Note principal named Kashaya village **Hibuwi** (“potato-place” – a reference to edible native bulbs in grasslands) approximately at the location of Nob Hill (broad flat-topped ridge with grassland; not located on Burnt Ridge, which corresponds with Barrett’s semi-quantitative geographic description of the old camp site **Nekawi** north of the mouth of Fuller Creek) southeast of the camp site (×) corresponding with Barrett’s (1908) narrative location of **Kabatui** (“madrone forks”; Barrett 1908 p. 226, “about a mile and a half northwest of the old village of **Hibuwi**...very near the boundary between Southern and Southwestern dialect areas...about a mile from the river). The Artesa site overlaps with at least this semi-quantitative narrative vicinity of Kabatui based on distance, direction, and topography in relation to the mapped points.



Excerpt of Map 3, page 382, from Kniffen, F.B. 1939. Pomo Geography. University of California Publications in American Archaeology and Ethnology, Vol 36, showing distribution of “old village sites” (black rectangles) and “principal villages” (black squares with names). Dashed line represents inferred boundary of “southwestern dialect” (Kashaya). Note principal named Kashaya village **Hibuwi** (“potato-place” – a reference to edible native bulbs in grasslands) approximately at the location of Nob Hill (flat-topped ridge) here explicitly represented between short **Patchett Creek** sub-watershed (shown with one distinctive east-trending branch of the stream draining the **Artesa Fairfax site**) and Fuller Creek at a point west of Sullivan or Boyd Creek. **Shamli** (“Camli” of Barrett 1908; southern Pomo village) is represented in relation to Little Creek, a short distance west of its headwaters on Beatty Ridge, near the modern Craig ranch west of the Artesa-Fairfax site. Kabatui and other camp sites are not shown in this map. Kabatui and the modern Artesa-Fairfax site are situated along the continuous gently sloping drainage divide contour between 600 and 800 ft between Shamli and Hibuwi.

Old Village sites (southern)

camli, in the mountains immediately north of the middle fork of Gualala river and at a point probably about three miles a little north of east of the confluence of that stream with the main branch of the Gualala river.

Old Camp Sites (southern)

kabatui, from *kaba*, madrona, and *tui*, forks (?), in the mountains north of the middle fork of Gualala River and at a point about a mile and a half northwest of the old village of Hibuwi. This site is very near the boundary between the Southern and Southwestern dialect areas and is about a mile from the river.

Old Village Sites (Southwestern/Kashaya)

hibumi, from *hibu*, Indian potato, and *mi*, place, at a point about half a mile north of the middle fork of Gualala River and about five miles east of its confluence with the main branch. This village site is probably in the vicinity referred to by Powers in speaking of the people whom he calls the Gualala. He says, “There is a certain locality on Gualala creek, called by them Hipowi, which signifies ‘potato place’”. [Nob Hill on USGS 1977 Annapolis Quadrangle, topographically continuous with the Artesa site and Patchett Creek headwaters along the 600 ft elevation contour marked by grassland and oak vegetation within what is otherwise a redwood-douglas fir-tanoak dominated conifer forest belt]

Old Camp Sites (Southwestern/Kashaya)

nekami, from *neu*, to lay anything down, *ka*, water or spring, and *mi*, place at a point about three-quarters of a mile east north-east of the confluence of Fuller creek with the middle fork of Gualala river [Burnt Knoll Ridge on USGS 1977 Annapolis Quadrangle] (Barrett, 1908; USGS quad references added)

With regard to the determination of the project site’s occurring within a valid archaeological district (a threshold for significance, and a type of significant impact in its own right) or a unique archaeological resource, the rDEIR is inconsistent in affirming on the one hand that “while there are important Native American sites in the vicinity of Annapolis, it is **not a unique area** in terms of archaeological and/or cultural site **density**” (rDEIR p.3/5-22, emphasis added) and on the other hand that

...the terrain in the vicinity of Annapolis is generally much gentler and flatter than other inland areas associated with the North Coast Range, **making the region somewhat unique and likely more attractive to prehistoric habitation**. As such, the **location and density of archaeological sites** within this particular area **may reflect patterns outside of the typical Northern Coastal habitation model**. (original in DEIR and repeated in rDEIR p. 3.5-3, emphasis added)

The interpretation of “natural” vegetation in relation to the Goldridge soil pattern in Annapolis, and their potential uniqueness within the regional redwood belt, is important to cultural patterns of natural resource utilization and location of habitat sites, and habitation patterns in relation to topography, vegetation, and natural resources. The rDEIR’s overbroad generalization that “In their **natural state**, Goldridge soils support forest trees including redwood, Douglas fir, baywood, and oak, and Hugo soils support Douglas fir, redwood, and California laurel” (rDEIR p. 3.5-1), applied to Annapolis, is inconsistent with previous cultural anthropology findings specific to the area by multiple authors who states that the **natural openings in the redwood forest** were essential to habitation patterns, and supported grassland, oak, and manzanita (important food resources) and were **actively maintained** by periodic burning:

The country formerly inhabited by the Southwestern Pomo forms a narrow coastal strip lying between the Russian and Gualala rivers... In the deep valleys along the perennial streams, on the well-protected north slopes, tree growth is heavy. On the **higher slopes**

with southerly exposures there are numerous and good-sized natural openings where the vegetation cover is grass and shrubs rather than trees. Though *manzanita* [footnote 49: *Arctostaphylos manzanita* ?] is fairly abundant in the area, patches of true chaparral [are] rather uncommon. The treeless openings were formerly covered with wild oats and clover, now rapidly disappearing in the normal plant succession of an overgrazed country. (Kniffen 1939, p. 383, bold type added).

To assure the permanency of the natural openings and to maintain the quality of the oat crop, the dry straw was burned off every few years, generally after the first good rain of fall. (Kniffen 1939, p. 389, bold type added)

In addition to these three inhabited areas, there is a fourth which was almost uninhabited except at certain seasons of the year and then only to a very limited extent. This is the **belt of dense redwood forest** covering the coast mountains, and extending as an almost continuous forest...**there were many villages along the eastern border of the belt and even some permanent villages in more favorable locations within it, as along Gualala river in the territory of southwestern Pomo. In a great measure, however, the whole belt was uninhabited except for camps in the small open valleys** where hunting and food gathering parties remained for a short time in certain seasons. (Barrett, 1908 p. 123, bold type added)

Along almost the entire length of the coast between the mouths of Gualala river and Salmon creek, near Bodega bay, the redwood forest begins almost at the shore-line – nowhere does the open land extend for more than a mile back from the cliffs – and continues as a solid belt of timber with **but few open areas for many miles inland this belt of timber was not inhabited, except in these small open areas, by the people of the Southwestern or the Southern dialect...**(Barrett 1908 p. 211, bold type added)

...in the north, the Southern Pomo occupied a section of the coast, separating the Kashaya from the Central Pomo...**The more desirable living sites, especially in winter, were near springs in the relatively open land atop the ridge divides, above the dark densely forested canyons and riverbanks, and inland from the coastal wind and fog.** (McLendon and Oswalt 1978 p. 278, bold type added)

The redwood forests were considered hinterlands...The coast redwood zone was the least favorable of the habitats exploited by the Pomo...**In several places along the coastal foothills stands of coastal oak were exploited in the fall while various edible bulbs, berries, roots, tubers, and seeds were available...** (Bean and Theodoratus 1978, p. 289 bold type added)

The rDEIR on p. 3.5-3 (retaining the original DEIR conclusion) affirms that

The terrain in the vicinity of Annapolis is generally much gentler and flatter than other inland areas associated with the North Coast Range, **making the region somewhat unique and likely more attractive to prehistoric habitation.**

As such, the **location and density of archaeological sites within this particular area may reflect patterns outside of the typical Northern Coastal habitation model.**

It is therefore inconsistent of the rDEIR to conclude – despite the convergent evidence of geologically confined, soil-specific, oasis-like redwood forest gaps supplying grassland bulbs (Indian potato) and seed (pinole) resources, manzanita, oak, spring/seeps, and south-facing gentle slopes distant from cool ocean winds, and proximity to salmon streams (all documented to be exceptional for Pomo habitation in the redwood belt, consistent with the correlated distribution of camp and village sites) – that recognizing Annapolis as a unique archaeological district is not justified because of a **“lack of sufficient data”** (rDEIR p. 3.5-22, 3.5-31). The rDEIR expressly applied the phrase “somewhat unique” to describe the Annapolis “District” on p. 3.5-3. The rDEIR rejection of an archaeological district appears to be prejudicial rationalization of the original DEIR conclusions, despite contrary evidence and expert opinion in the administrative record. I urge CAL FIRE to bring this important question of archaeological district status and justification to expert arbitration prior the FEIR by convening an expert peer review/advisory panel of independent and academic anthropologists and archaeologists with expertise in Pomo tribal lands. The findings of this panel should be included in the FEIR.

The DEIR and rDEIR also failed to objectively compare the archaeological data with criteria for **“unique”** archaeological resources at Pub. Res. Code Section 21083.2(c)-(f), (defined at 21083.2(g) as “an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria: (1) contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information. (2) Has a special and particular quality such as oldest of its type or best available example of its type. In the absence of any objective geographic analysis of interior redwood belt patterns of geologic/soil-patterned oasis-like grassland, oak, manzanita scrub resources and habitation patterns in Pomo lands, it is arbitrary for the rDEIR to dismiss the unique archaeological and prehistoric cultural setting of Annapolis.

The rDEIR also failed to consider the potential for designation of an Annapolis Archaeological District to mitigate cumulative significant impacts to archaeological and cultural resources caused by further, foreseeable vineyard expansion and conversion, such as portions of Preservation Ranch and the recently acquired Wellman parcel (on Beatty Ridge) adjacent to Artesa.

Compared with the mitigation proposed in the Final Environmental Impact Report for Glen Cove Waterfront Park Master Plan (SCH# 2001092044, *September 2007*), for equivalent earthmoving impacts to equivalent important buried undocumented archaeological resources (midden, scatter deposits, village site context, exclusion buffer zone but unclear boundaries because of obscuring vegetation and lack of subsurface systematic survey) the rDEIR mitigation is insufficient in failing to explicitly require expert and qualified archaeologists for detecting undocumented archeological artifacts or human remains during earthmoving and having authority to stop earthmoving operations. The Glen Cove EIR cultural resource

mitigation, which is still controversial and deemed insufficient and unacceptable to Ohlone tribal members (<http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2011/04/14/BAD11J03G4.DTL&type=printable>), is much more stringent for the same impacts and physical context at Artesa's site, in that it requires expert archaeological monitoring and reporting under a formal monitoring agreement:

All earth-moving activities including... [enumerated activities] and buffer areas shall be monitored by **a qualified archaeologist**. Archaeological monitoring for the [project] shall be conducted under a **written Archaeological Monitoring Agreement**. Such an agreement shall provide for at a minimum: [a...f covers timely notification of earthmoving, monitoring, authority to stop work, etc.].

The rDEIR provides no valid reasons for Artesa to have less stringent mitigation relying on non-expert/unqualified equipment operator detection of archeological resources. The only relevant difference appears to be that Glen Cove has undergone intensive and well-publicized scrutiny from Ohlone organizations in the Bay Area, while Annapolis' equally important Kashaya heritage sites in isolated northwestern Sonoma County are substantially left to the protection of unqualified equipment operators. I believe the mitigation is essentially token and unenforceable, and that the Glen Cove standards should apply.

I defer to the comments of Prof. Peter Schmidt that the rDEIR still relies on archeological survey methods and sampling intensity that are insufficient to reasonably avoid potentially significant impacts. I believe that the approach of pre-construction surveys has placed an unreasonable emphasis on narrow "hit or miss" impacts of individual localized sites or deposits, and inadequately assess the integrity of the archaeological resources at the site as a whole.

4. Greenhouse gas analysis

The rDEIR's accounting of GHG emissions fails to identify or quantitatively estimate the contribution of ongoing agriculture (viticulture) – the primary purpose of the project – to greenhouse gas emissions over time. It fails to identify any significant impacts of foreseeable carbon-based agricultural practices such as:

- frost protection by fossil-fuel combustion engine-driven fans, fossil fuel heaters),
- annual grapevine frost protection requiring fuel-driven pumping of water
- pumping of water from wells during consecutive critical drought years
- annual irrigation pumping fuel costs
- annual disposal of annual grapevine wood prunings (burning or non-soil decomposition), one of the most important variables influencing carbon balance for vineyards (Kroodsma and Field 2006)
- annual fertilizer and pesticide carbon costs (full manufacturing and application life-cycle C cost)

Furthermore the rDEIR lacks analysis of the following agricultural components of long-term GHG emissions:

- analysis of cumulative contribution of the proposed project's ongoing annual agricultural net carbon emissions in context of existing Annapolis, Sonoma County, and North Coast existing and forecast future vineyard acreages, including the (CEQA-foreseeable) proposed Preservation Ranch project;
- net long-term carbon emission and net C sequestration opportunity loss comparing forest and vineyard
- seasonal soil carbon emission (microbial respiration) accelerated by fertilizer application (reduced C:N) and irrigation,

The rDEIR analysis of GHG emissions is therefore incomplete and biased to underestimate (or omit) potentially significant GHG emissions from ongoing wine grape production in the local climate. In addition, I concur with the expert conclusions of Tom Gaman that the forestry component of the GHG analysis is inadequate to address significant impacts of the forest, and relies on unsupported or insufficiently justified estimates of GHG emissions.

Biological Resources

The rDEIR failed to correct most of the deficiencies in the original DEIR analysis of biological impacts due to direct and indirect impacts of forest conversion and agricultural operations. Outstanding examples include:

- Bullfrog breeding habitat and dispersal corridor impacts of reservoir maintenance (facilitation of invasive non-native predators of listed salmonid species; Garwood et al. 2010, Northwest Naturalist 91: 99-101)
- Lack of justification of the assertion that drought-tolerant rootstocks would be used in production in a region where fine-tuned seasonally timed fertilizer and water applications are used to control grape sugar content and secondary metabolite content (shallow root systems sensitive to short-term variations in water and nutrient availability).
- Indirect and cumulative impacts of fungicide, herbicide, pesticide transport and fate on native amphibians, fish, and prey base (aquatic invertebrates) and review of relevant scientific literature on transport and fate of agricultural pesticides in adjacent streams
- Impacts of pesticide responses to "emergency" outbreaks of new vineyard pest

Conclusions and recommendations

The entire DEIR, not just two sections, should be recirculated to address the basic CEQA defects in the stale, outdated alternatives analysis, the incomplete and apparently biased

assessment of archaeological and cultural resources, greenhouse gas emissions of ongoing vineyard operation, and related hydrological and biological impacts. CAL FIRE should assemble an independent expert panel to adjudicate the issue of whether the designation of an Annapolis Archaeological District is justified.

Sincerely,

A handwritten signature in black ink that reads "Peter Baye". The signature is written in a cursive, flowing style.

Peter Baye
baye@earthlink.net

cc:
Friends of the Gualala River
Interested Parties