Comment Letter No. O8

Wildlife Newhall Ranch

From:	Oak Staff <oakstaff@californiaoaks.org>
Sent:	Monday, February 13, 2017 11:35 AM
To:	Wildlife Newhall Ranch
Subject:	Comments on Newhall Ranch Draft AEA
Attachments:	NewhallRanchDAEACommentsFnl1_17.pdf

Greetings,

Please find attached comments from California Oaks on the Newhall Ranch Draft AEA. 1

Best,

Angela Moskow
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Preserving and perpetuating California's oak woodlands and wildlife habitats

January 28, 2017

California Department of Fish and Wildlife
3883 Ruffin Road
San Diego, CA 92123
newhallranch@wildlife.ca.gov.

Re: Newhall Ranch Draft Additional Environmental Analysis

Department of Fish and Wildlife:

California Oaks appreciates the opportunity to submit Newhall Ranch AEA comments. We incorporate herein the California Environmental Quality Act (CEQA) forest land conversion greenhouse gas (GHG) biogenic emission comments submitted by the California Oak Foundation dated July 8, 2010 (Exhibit A). 2 3

The 2008 California Air Resources Board's AB 32 Scoping Plan recognized the significant contribution that terrestrial greenhouse gas storage will make in meeting the state's GHG emissions reduction goals: "This plan also acknowledges the important role of terrestrial sequestration in our forests, rangelands, wetlands, and other land resources." When these natural resources are impacted due to land use change potentially five GHGs are directly or indirectly[1] released into the atmosphere. 4

Review of the AEA finds that the project fails to comprehensively analyze or feasibly and proportionally mitigate terrestrial conversion vegetation and soil organic carbon direct/indirect GHG emissions pursuant to CEQA requirements. Specifically, the failure to fully account for the foreseeable carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), black carbon and hydrofluorocarbon emission effects due to biomass disposal decomposition, combustion and transportation, and the soil CO_2 emissions associated with ground disturbing activities. These AEA omissions represent a failure to proceed in the manner prescribed by CEQA. 5 6

Forest Land Conversion

The limitations of the Intergovernmental Panel on Climate Change (IPCC) forest land general default standards were clearly demonstrated in the 2010 California Oak Foundation comments. These generic IPCC forest default standards are applied indiscriminately worldwide. The California Emissions Estimator Model (CalEEMod) used for the AEA GHG biogenic emissions analysis employs IPCC forest land general defaults that 7 8

[1] CEQA recognizes these secondary GHG biogenic emissions in the indirect effects language of Guidelines § 15358(2), "... are later in time or farther removed in distance, but are still reasonably foreseeable."

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are unrelated to actual California woodlands carbon stocking values (CalEEMod Appendix A, pp. 51, 52). This one size fits all approach doesn't reflect California's diverse forests and fails to account for CEQA site-specific forest land conversion requirements or other relevant state GHG policies/laws. In fact the only IPCC general default standards relevant to California forest lands are the international GHG global warming potential (GWP) values established by the 2013 IPCC Fifth Assessment Report. See Exhibit B for detailed regulatory and GWP values comment. 8 9

- Please provide the following project information: 10

1. What GWP values did the AEA use for calculating CH_4, N_2O, black carbon and hydrofluorocarbon emissions?

CEQA § 15364.5 states that "Greenhouse gas" or "greenhouse gases" includes but is not limited to: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. In 2016 Senate Bill 1383 designated methane, black carbon and hydrofluorocarbon short-lived climate pollutants. Neither the 2009 CEQA GHG amendments nor the enabling legislation Senate Bill 97 mention the term "carbon sequestration." CEQA's focus is "*the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions*." Further, the AEA must explain how the terrestrial conversion mitigation proposals result in less than significant GHG emissions consistent with state 2020, 2030 and 2050 GHG reduction targets. 11 12

Upon the disposal of impacted vegetation, the decomposition of biomass does in all cases result in CO_2 and CH_4 biogenic emissions[2] and the combustion of biomass does in all cases result in CO_2, CH_4, N_2O and black carbon biogenic emissions[3] (Exhibits C/D). CEQA doesn't differentiate between anthropogenic and biogenic GHG emissions. The following 2009 Natural Resources Agency response to the California Wastewater Climate Change Group proves the point:

Response 95-1: "Regarding the comment that the Guidelines should distinguish between anthropogenic and biogenic carbon dioxide emissions, the Natural Resources Agency notes that SB 97 did not distinguish between the sources of greenhouse gas emissions. Thus, it would not be appropriate for the Natural Resources Agency to treat the different categories of emissions differently absent a legislative intent that the Guidelines do so. Neither AB 32 nor the Air Resources Board's Scoping Plan distinguishes between biogenic and anthropogenic sources of greenhouse gas emissions. On the contrary, the Scoping Plan identifies methane from, among other sources, organic wastes decomposing in landfills as a source of emissions that should be controlled. (Scoping Plan, at pp. 62-63)." 13

[2] "Anaerobic digestion, chemical process in which organic matter is broken down by microorganisms in the absence of oxygen, which results in the generation of carbon dioxide (CO_2) and methane (CH_4) .... Sugars, starches, and cellulose produce approximately equal amounts of methane and carbon dioxide." Encyclopædia Britannica (2013). http://www.britannica.com/EBchecked/topic/22310/anaerobic-digestion.

[3] "... the combustion of biomass does in all cases result in net additions of CH_4 and N_2O to the atmosphere, and therefore emissions of these two greenhouse gases as a result of biomass combustion should be accounted for in emission inventories under Scope 1" (at p. 11). World Resources Institute/World Business Council for Sustainable Development (2005).

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CalEEMod Methodology

The CalEEMod is used for project forest conversion GHG biogenic emissions analysis. Like all publicly available forest land conversion models the CalEEMod measures only the carbon loss (emission) or carbon gain (sequestration). The CalEEMod was not designed to calculate vegetation methane, nitrous oxide and black carbon biogenic emissions due to biomass decomposition/combustion. The California Air Pollution Control Officers Association have never claimed their model has that capability regarding forest resources conversion GHG biogenic emissions analysis. 14

Evidence that the CalEEMod only calculates CO_2 biogenic emissions is provided in the Vegetation 10.0 land change output table (Appendix B, p. 43) which identifies no methane or nitrous oxide emissions and doesn't recognize potential super pollutant black carbon emissions. Additionally, the CalEEMod allows forest carbon sequestration offset credits only for the "planting of new trees" and "There is no reduction in GHG emissions associated with preservation of land" (CalEEMod Appendix A, p. 50). That means any preserved land, anywhere.

The AEA does not stipulate that new planted trees will be a mitigation measure. 15 In fact, in the Vegetation 10.2 land use output table (p. 45) preserved existing trees are masquerading as "new" planted trees. The AEA inappropriate substitution of existing trees in place of new planted trees violates the CalEEMod assumptions. Models have parameters for a reason. It is not the prerogative of the end user to contravene model assumptions as they so choose. 16

To accurately and fully account for forest land conversion GHG biogenic emissions the total biomass weight[4] of the impacted overstory/understory vegetation must be known, the means of biomass disposal identified and the soil organic carbon emissions calculated. 17

- Please provide the following forest land conversion information: 18

1. What is the estimated total biomass weight of the impacted overstory and understory vegetation?
2. What are the estimated biomass decomposition CO_2 and CH_4 emissions? 19
3. What are the estimated biomass combustion CO_2, CH_4, N_2O and black carbon emissions? 20
4. Due to the transport of disposed biomass off-site, what are the estimated CO_2, CH_4, N_2O, black carbon and hydrofluorocarbon emissions?[5] 21
5. Explain how the proposed mitigation is consistent with SB 1383 2030 reduction requirements regarding methane, black carbon, hydrofluorocarbon emissions and landfill organic waste disposal. 22
6. By soil series, what are the estimated soil organic carbon CO_2 biogenic emissions associated with permanent and temporary ground disturbing activities? 23

[4] EPA/USDA FS, 2015. Forest Biomass Components: https://cfpub.epa.gov/roe/indicator_pdf.cfm?i=86.

[5] "... the analysis conservatively assumes that there will be 64 trips a day for hauling vegetation waste during the grading phase" (AEA Appendix 1, p. 9). SB 1383 requires: (1) a 50 percent statewide reduction in black carbon emissions and a 40 percent reduction in methane/hydrofluorocarbon emissions from 2013 levels by 2030; (2) a 50 percent reduction in the level of the statewide disposal of organic waste in landfills from the 2014 level by 2020 and a 75 percent reduction from the 2014 level by 2025. The 2016 CARB Short-Lived Climate Pollutants Strategy lists on-road brake/tire (2%), on-road gasoline (2%) and on-road diesel (18%) as transportation sources of black carbon emissions. http://www.arb.ca.gov/cc/shortlived/meetings/04112016/appendixa.pdf

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Forest Land Conversion Direct Reduction Activities

The applicant is "considering" three forest land conversion mitigation actions, "if ultimately pursued," that "may" be explored:

"The Project applicant is actively considering Direct Reduction Activities involving the forestry sector where the Project applicant (or its designee) could help conserve forest land or forest stocks for the purpose of sequestering GHG emissions. The Project applicant (or its designee) may pursue opportunities that involve three types of forestry sequestration activities:

Avoided conversion of forests: this activity involves the avoided de-forestation of forest land through a land purchase or, in the U.S., the creation of a conservation easement or other legally binding agreement.

Improved forestry management: this activity may include increasing rotation ages to increase the overall age of the forest, increasing the stocking of trees on understocked areas, and increasing forest productivity by thinning diseased and suppressed trees.

Afforestation: This activity involves the planting of new trees" (GHG Reduction Plan, p. 3).

Rather than providing mitigation, forest thinning creates GHG emissions (Exhibit C). Avoided conversion, improved forest management and increased rotation ages don't mitigate forest conversion GHG biogenic emissions either. Existing trees aren't suddenly going to begin growing faster and sequester more carbon to reduce biomass/soil GHG biogenic emission impacts over time. California doesn't have 100 years or more for preserved mitigation forest growth to equal pre-construction carbon stocking levels *or* to mitigate the forest conversion non-CO_2 biogenic emissions. The appropriate means to feasibly and proportionally mitigate forest land conversion GHG biogenic emissions is by planting/maintaining the requisite number of native woodland trees in Los Angeles County to reduce forest conversion emissions 80 percent by 2050. Moreover, planted native trees would improve soil carbon stocking over time and provide wildlife habitat.

The AEA provides no science or fact to support how its potential land preservation mitigation measures are going to actually feasibly mitigate the project's dual impacts of lost forest land carbon sequestration capacity *and* significant biomass disposal/soil disturbance GHG biogenic emissions.

- Please provide the following forest land conversion mitigation information:

1. Demonstrate mathematically how the retention or increased rotation age of existing trees would mitigate the CO_2, CH_4, N_2O, black carbon and hydrofluorocarbon emissions due to the decomposition, combustion and transportation of the impacted biomass.

2. Demonstrate mathematically how the retention of existing forest land would mitigate the soil organic carbon CO_2 biogenic emissions associated with ground disturbing activities.

3. Explain how the proposed mitigation is consistent with SB 1383 2030 reduction requirements regarding methane, black carbon, hydrofluorocarbon emissions and landfill organic waste disposal.

4. Explain how the non-tree planting migration measures are consistent with reducing GHG emissions statewide 80 percent by 2050.

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Cap and Trade Forest Conversion Offsets

Forest carbon offset credits weren't created for the purpose of mitigating the conversion of another forest, which would make no sense when California's declared forest sequestration goals are "no net loss" or to potentially significantly increase the state's forest carbon capture capacity by 2050.[6] This fact is evidenced by the two state models, CalEEMod and Forest Project Protocol, which don't allow GHG offset reduction credits for CEQA'a version of "avoided conversion." This is because both models recognize that existing forest carbon sequestration doesn't mitigate removed forest carbon dioxide emissions over time, let alone non-CO_2 biogenic emissions. The following example demonstrates how the Protocol forest carbon offset trading term avoided conversion works: 32

A Los Angeles County landowner of a 300-acre forest land property wants to sell. The landowner has an offer on the table from a developer to purchase the property. However the landowner would prefer to sell to a local land trust at a substantially reduced price for placement in a conservation easement. In order for the land trust to register that forest land with the Climate Action Reserve for carbon offset trading purposes the land trust would have to provide specific documentation that the property was under imminent threat of development. The forest carbon offset trading market doesn't recognize CEQA avoided conversion because that concept doesn't avoid or mitigate forest land GHG biogenic emissions.

Non-Forest Land Terrestrial Conversion

A number of non-forest land vegetation types would be impacted by the project, including California annual grassland, coastal scrub chaparral, chamise chaparral and riparian woodland. The Vegetation 10.1 land change output table (p. 44) lists no methane, nitrous oxide or black carbon biogenic emissions associated with grassland, scrubland and riparian woodland impacts. 33

Soil organic carbon (SOC) is a measure of the carbon contained within soil organic matter. Typically, the SOC stocking profile extends to a depth of one and a half meters (Exhibit E).[7] 34

- Please provide the following non-forest land vegetation type and soil series conversion information: 35

1. By vegetation type, what is the total biomass weight of the impacted vegetation?
2. By vegetation type, what are the estimated biomass decomposition CO_2 and CH_4 biogenic emissions? 36
3. By vegetation type, what are the estimated biomass combustion CO_2, CH_4, N_2O and black carbon biogenic emissions? 37
4. Due to the transport of disposed biomass off-site, what are the estimated CO_2, CH_4, N_2O, black carbon and hydrofluorocarbon emissions? 38

[6] http://www.climatechange.ca.gov/forestry/documents/AB32_BOF_Report_1.5.pdf.

[7] USDA Natural Resources Conservation Service. 2016. *Gridded Soil Survey Geographic (gSSURGO) Database*. Version 2.2. USDA-NRCS Soil Science Division.

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5. Explain how the proposed mitigation is consistent with SB 1383 2030 reduction requirements regarding methane, black carbon, hydrofluorocarbon emissions and landfill organic waste disposal. 39

6. By soil series, what are the estimated SOC CO_2 biogenic emissions associated with permanent and temporary ground disturbing activities? 40

Wetlands are major carbon sinks. Western US freshwater inland wetland and riparian corridor carbon stocks in the project region range between 75-99 MT carbon per acre.[8] Impacted wetlands carbon sequestration rates can take decades or longer to replicate through replacement mitigation. In general, Ambrose et al. (2007) found that the primary state and federal wetland protection programs have been generating more wetlands of lower quality than the wetlands they allowed to be destroyed. CEQA GHG biogenic emissions analysis applies to *all* California wetlands, not just those wetlands designated waters of the United States. The Vegetation 10.1 land change output table lists no CO_2 or CH_4 biogenic emissions associated with wetland impacts. 41

- Please provide the following wetlands conversion information: 42

1. By wetland type, what are the estimated vegetation CO_2,CH_4 and N_2O and black carbon biogenic emissions associated with impacts to all project area wetlands?

2. By wetland type, what are the estimated soil CO_2 biogenic emissions associated with impacts to all project area wetlands? 43

3. By wetland type, what are the estimated carbon sequestration rates (i.e. metric tonnes carbon per acre per year) for the replacement mitigation? Please provide regional data to support the findings. 44

4. Due to the transport of disposed biomass off-site, what are the estimated CO_2, CH_4, N_2O, black carbon and hydrofluorocarbon emissions? 45

5. Explain how the mitigation is consistent with SB 1383 2030 reduction requirements regarding methane, black carbon, hydrofluorocarbon emissions and landfill organic waste disposal. 46

Summary 47

"*FivePoint viewed the Supreme Court's ruling as an opportunity to set a higher standard of environmental sustainability—net zero greenhouse gas emissions*" (FivePoint Chairman/CEO Emile Haddad, Nov. 17, 2016).

The Newhall Ranch AEA perpetuates the myth that forest land and other terrestrial conversion GHG emissions are simply an issue of carbon transformed to carbon dioxide. This fallacy belies the fact that potentially four other GHGs are involved, including the super pollutants methane and black carbon. 48 The constant among court decisions regarding GHG analysis is that project emissions must be fully rendered in a CEQA document. 49 This AEA appears designed to obfuscate and minimize project GHG biogenic emissions, rather than a bona fide attempt to comply with CEQA's focus of ascertaining the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions. 50

[8] Nahlik and Fennessy. 2016. *Carbon Storage in US Wetlands*. Nature Communications, Vol. 7, pp 1-9.

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Substantial evidence has been presented that project GHG biogenic emissions will result in potentially significant environmental effects that have not been sufficiently analyzed or feasibly mitigated. 51

The project has not made "a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project" (CEQA Guidelines § 15064.4(a)). 52

Therefore the AEA is deficient as an informational document, in that it fails to apprise decision-makers/public of the full range and intensity of the adverse GHG emission effects on the environment that may reasonably be expected if the project is approved. 53

Sincerely,

Janet Cobb

Janet Cobb, Executive Officer
California Oaks

attachments (6)

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Exhibit A

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July 8, 2010

U.S. Army Corps of Engineers
Ventura Field Office
2151 Alessandro Drive, Suite 110
Ventura, California 93001
Attn: Aaron Allen

California Department of Fish and Game
Newhall Ranch EIS/EIR Project Comments
4949 Viewridge Avenue
San Diego, California 92123
Attn: Dennis Bedford

Re: Newhall Ranch FEIS/FEIR

Dear Messrs. Allen and Bedford:

California Oaks (CO) appreciates the opportunity to submit Newhall Ranch Project FEIS/FEIR public comments. CO finds that due to numerous informational deficiencies, the FEIS/FEIR fails to properly analyze or proportionally mitigate direct and indirect project greenhouse gas (GHG) impacts. Specifically, (1) the FEIS/FEIR fails to adequately analyze the GHG emissions effect of forestland conversion to non-forestland use; (2) the FEIS/FEIR fails to comply with Public Resources Code (PRC) § 21083.4 oak woodlands measurement standards; (3) the FEIS/FEIR fails to analyze the effect of GHG emissions on oak woodlands habitat and oak mitigation planting. Consequently, the FEIS/FEIR fails to provide the GHG effects information necessary for informed public participation and informed decision-making regarding project environmental effects or proportional mitigation measures. 55

1. The FEIS/FEIR Fails to Adequately Analyze the Greenhouse Gas Emissions Effect of Forestland Conversion to Non-Forestland Use

FEIS/FEIR: "Several assumptions were utilized in quantifying the emissions resulting from land use/vegetation changes. First, the IPCC provides default annual CO2e sequestration rates on a per tree basis. The numbers given are for 10 *likely* species classes in urban areas, and range from a high of 0.052 tonne CO2e per year in hardwood maple to a low of 0.012 tonne CO2e/year in juniper trees. Alternatively, an average of 0.035 tonne CO2e/year per tree can be assumed if the tree type is not known. Because the tree types that will be planted on the Project area are not known at this time, the 0.035 tonne CO2e/year per tree rate was utilized." (FEIS/FEIR at 8.0-45)

Comment: The FEIS/FEIR assumptions are unscientific and fallacious. Rather than use the California Forest Project Protocol GHG measurement methodology to analyze forestland carbon sequestration and biogenic GHG emissions, the FEIS/FEIR instead chose the wholly inappropriate International Panel on Climate Change generic vegetation standard to measure forestland GHG emissions. For example, the project site is largely vacant non-urban land. There are no hardwood maple, juniper or other IPCC-listed tree species growing on-site. The

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project trees species are known and the default tree rate is not relevant. Furthermore, the IPCC methodology doesn't accurately: (1) measure carbon stored in forestland soils, which accounts for 50-60 percent of total California forestland carbon; (2) measure the loss of future forestland carbon sequestration; (3) measure the GHG emissions resulting from forestland biomass disposal. Accordingly, the FEIS/FEIR greatly underestimates forestland carbon storage and biogenic/soil GHG emissions.

California Forest Project Protocol

Pursuant to Senate Bill 812 (2002) mandates, in June 2005 the California Climate Action Registry adopted the Forest Project Protocol (FPP) for calculating forestland greenhouse gas sequestration and emissions. Subsequently, the California Air Resources Board approved the FPP measurement methodology in October 2007. Specific California Environmental Quality Act (CEQA) GHG guidelines for the conversion of forestland to non-forest land use, including FPP citation, became effective March 2010. (Attachment)

The AB 32 Scoping Plan has set a "no net loss" goal for forestland carbon sequestration and "stretch targets" of increasing forestland CO_2 storage by 2 million metric tons by 2020 and 5 MMT by 2050.[1] The FPP is a primary component of California's adopted greenhouse gas regulatory policy to increase forestland carbon sequestration statewide and to require proportional mitigation for GHG emissions due to forestland conversion to non-forestland use.

For CEQA purposes, the FPP functions as a scientific GHG measurement standard to determine the significance of project forestland emission impacts and the sufficiency of mitigation measures. Key FPP standards for CEQA review are measurement of carbon stocks for all trees three (3) inches or greater in diameter at breast height and calculation of all forestland biogenic emissions over a 100-year period.

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Regarding the discretion of a lead agency to select the project forestland GHG emissions methodology, the Natural Resources Agency Final Statement of Reasons makes clear that the FPP is preferred for CEQA forestland emissions analysis/mitigation purposes unless another methodology can demonstrate scientific and factual equivalency. Moreover, the Natural Resources Agency has stated that forest emission mitigation measures based on the Forest Project Protocol likely will be viewed as sufficient project-level mitigation for GHG impacts:

> *"Consistent with section 15126.4(a), a lead agency must support its choice of, and its determination of the effectiveness of, any reduction measures with substantial evidence…Where a mitigation proposal cannot be verified with an existing protocol, a greater evidentiary showing may be required."* (Final Statement of Reasons at 49)

Forestland biomass and soil impacts result in direct GHG emissions and the loss of future carbon dioxide sequestration. Thus, the conversion of forestland to non-forestland use results in both direct and indirect GHG emissions. Verification of these distinct direct and indirect forestland GHG emission effects is provided by the Natural Resources Agency:

> *"As explained in the Initial Statement of Reasons, forest conversions may result in direct greenhouse gas emissions. Further, such conversions remove existing forest stock and the potential for further carbon sequestration. (Initial Statement of Reasons, at p. 63.) Sequestration is recognized as a key mitigation strategy in the Air Resources Board`s [AB 32] Scoping Plan. (Scoping Plan, Appendix C, at p. C-168.)"* (Final Statement of Reasons at 74)

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Biomass and soil emissions associated with land-use change are carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O). Based on AB 32, Executive Order S-3-05, Forest Project Protocol and CEQA greenhouse gas criterion, there are four GHG emission questions the conversion of forestland must answer:

1. How much potential CO_2 sequestration over the next 100 years will be lost as a result of project impacts to live trees three inches or greater in diameter at breast height?

2. How much CO_2, CH_4 and N_2O will be released if the live trees, standing dead trees, downed-woody debris and other vegetation are burned or are otherwise dispersed? For example, if the biomass is burned, CO_2, CH_4 and N_2O are emitted. How much of each gas depends on biomass moisture content and the method of combustion. If not burned, the quantity of GHG emissions is dependent on how the biomass is reduced.

3. How much CO_2, CH_4 and N_2O will be released due to soil emissions associated with forestland earth-moving activities?

4. How will project forestland GHG emissions be proportionally mitigated in the context of effectively meeting California's 2020/2050 GHG reduction goals, AB 32 forestry sector no net loss/stretch targets and over a 100-year measurement period?

Contrary to CEQA scientific and factual requirements, the FEIS/FEIR has not adequately analyzed and mitigated the significant forestland conversion GHG emissions associated with the Newhall Ranch project.

2. The FEIS/FEIR Fails to Comply with Public Resources Code § 21083.4 Oak Woodlands Measurement Standards

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FEIS/FEIR: "In summary, trees with minimum trunk diameters (eight inches for single trunks or a combined 12 inches for two stems on a multi-stemmed tree) were inventoried. Additionally, trees with trunks of five inches or larger diameter were recorded from specific areas in consideration of the Oak woodlands Conservation Act (Pub. Resources Code, § 21083.4), the state law applicable to County oak woodland [habitat] impact analysis. Based on the tree inventory data available to Dudek, the number of trees in the five- to seven-inch range is not substantial within the Newhall Land property." (FEIS/FEIR at 4.5-1857)

Comment: The speculative assertion that project oak tree stocking in the 5-7 inch diameter range isn't substantial is unsupported by any FEIS/FEIR scientific or factual evidence. Further, whether project oaks 5-7 inches in diameter are present in "substantial" numbers is irrelevant; PRC § 21083.4 mandates mitigation for all impacted oak trees 5 inches or greater in diameter to reduce adverse habitat effects. In fact, it is absurd to claim that a 12,000-acre property with tens of thousands of oak trees on-site does not contain substantial oak stocking in the 5-7 inches diameter classes and that no oaks in these diameter classes will be impacted by the project.

FEIS/FEIR: "Oak woodland is defined as areas with 20% to 50% cover by oak trees." (FEIS/FEIR at 4.5-111)

Comment: The definition of forestland, including oak woodland, is 10% or greater tree canopy cover — not the 20% canopy cover standard used by the FEIS/FEIR. The Board of Forestry and Fire Protection has explained this fact to several counties in the aftermath of PRC § 21083.4 implementation (2005), including a January 9, 2006 letter to the Lake County Board of Supervisors regarding oak woodlands: *"The Board of Forestry and Fire Protection has generally interpreted the term significant stand of tree species to mean those stands with a*

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canopy cover of 10% or greater." The Forest Project Protocol also applies the 10% canopy cover standard for forestland conversion GHG emissions analysis.

Project failure to adhere to the PRC § 21083.4 measurement standards means the FEIS/FEIR significantly underestimates both the number of oak trees and oak woodland acres actually impacted. In fact, the FEIS/FEIR unlawfully substituted the Los Angeles County tree ordinance 8-inch and 12-inch diameter standards for the CEQA 5-inch requirement and chose an arbitrary definition for oak woodlands instead of the state designation.

3. The FEIR Fails to Analyze the Effect of Greenhouse Gas Emissions on Forestland Habitat and Oak Mitigation Planting

A recent scientific study found that, *"California's native plant species are so vulnerable to global climate change that two-thirds of them could suffer 80 percent reduction in their geographic range by the end of the 21st century."* [2] University of California research examining the effects of California temperature increases on blue and valley oaks *"found that the areas of the state where the climate is suitable for these species to grow will shift northward and could shrink to nearly half their current size as a result of global warming."* [3]

California is already experiencing climate change impacts, including effects on forest habitats and carbon sequestration. These effects are predicted to intensify in the coming decades and significantly impact the state's natural resources.[4] Since increasing GHG emissions are forecast to substantially impact project valley oak habitat values and carbon sequestration capacity, these changes must be analyzed by the FEIS/FEIR in conjunction with other natural resource GHG cumulative effects.

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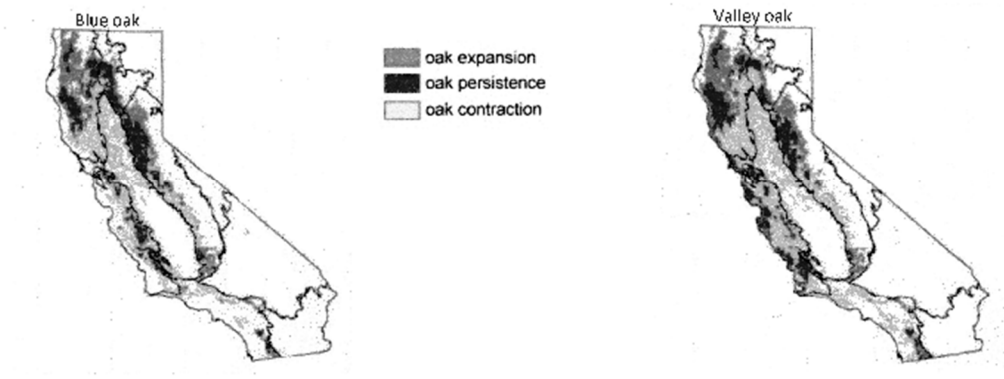
Figure 1. Potential modern (light blue and brown) and future (brown and green) distributions of blue oak and valley oak.



Graphic: Modeled regional climate change and California endemic oak ranges (2005)

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The **FEIS/FEIR** has not analyzed the efficacy of the proposed oak planting mitigation in light of predicted temperature increase effects on the establishment, growth and survival of planted mitigation oaks. A recent decision of the Third District Court of Appeal confronting questions regarding the effectiveness of a mitigation measure explained: *"[C]oncerns about whether a specific mitigation measure 'will actually work as advertised,' whether it 'can ... be carried out,' and whether its 'success ... is uncertain' go to the feasibility of the mitigation measure[.]"* (*California Native Plant Society v. City of Rancho Cordova* (2009) 172 Cal. App. 4th 603, 622-623.)

Summary

The above information demonstrates that the **FEIS/FEIR** has not complied with CEQA oak woodlands measurement standards or considered the impact of greenhouse gas emissions on project habitat and mitigation planning. Substantial evidence has been presented that the Newhall Ranch project will result in significant forestland biogenic greenhouse gas emissions that have not been properly analyzed or proportionally mitigated. The **FEIS/FEIR** has not made *"a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project."* (CEQA Guidelines, § 15064.4 (a)) Therefore the **FEIS/FEIR** is deficient as an informational document, in that it fails to apprise decision-makers/public of the full range and intensity of the adverse greenhouse gas emission effects on the environment that may be reasonably expected if the project is approved.

Respectfully,

Janet Cobb, Executive Officer
California Oaks

Attachment

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References

[1] Board of Forestry and Fire Protection (2008). *The 2008 Strategic Plan and Report to the California Air Resources Board on Meeting AB32 Forestry Sector Targets.* www.climatechange.ca.gov/forestry/documents/AB32_BOF_Report_1.5.pdf

[2] Loarie et al. (2008). *Climate change and the future of California's endemic flora.* www.plosone.org/article/info:doi/10.1371/journal.pone.0002502

[3] Kueppers et al. (2005). *Modeled regional climate change and California endemic oak ranges.* www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1283413

[4] California Natural Resources Agency (2009). *California Climate Adaptation Strategy*: A Report to the Governor of the State of California in Response to Executive Order S-13-2008. www.climatechange.ca.gov/adaptation

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CEQA Guidelines Appendix G, Environmental Checklist Form
EVALUATION OF ENVIRONMENTAL IMPACTS

II. AGRICULTURE AND FOREST RESOURCES ... In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and the forest carbon measurement methodology provided in the Forest Protocols adopted by the California Air Resources Board. Would the project:

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)) or timberland (as defined in Public Resources Code section 4526)?

d) Result in the loss of forest land or conversion of forest land to non-forest use?

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

Natural Resources Agency, Final Statement of Reasons

Appendix G. Initial Study Checklist - Forest Resources
"The amendments would add several questions addressing forest resources in the section on Agricultural Resources. Forestry questions are appropriately addressed in the Appendix G checklist for several reasons. First, forests and forest resources are directly linked to both GHG emissions and efforts to reduce those emissions. For example, conversion of forests to non-forest uses may result in direct emissions of GHG emissions. (See, e.g., California Energy Commission Baseline GHG Emissions for Forest, Range, and Agricultural Lands in California (March, 2004) at p. 19.) Such conversion would also remove existing carbon stock (i.e., carbon stored in vegetation), as well as a significant carbon sink (i.e., rather than emitting GHGs, forests remove GHGs from the atmosphere). (Scoping Plan, Appendix C, at p. C-168.) Thus, such conversions are an indication of potential GHG emissions. Changes in forest land or timberland zoning may also ultimately lead to conversions, which could result in GHG emissions, aesthetic impacts, impacts to biological resources and water quality impacts, among others. Thus, these additions are reasonably necessary to ensure that lead agencies consider the full range of potential impacts in their initial studies. In the same way that an EIR must address conversion of prime agricultural land or wetlands as part of a project (addressing the whole of the action requires analyzing land clearance in advance of project development), so should it analyze forest removal. (at 74)

Consistent with section 15126.4(a), a lead agency must support its choice of, and its determination of the effectiveness of, any reduction measures with substantial evidence. Substantial evidence in the record must demonstrate that any mitigation program or measure is will result in actual emissions reductions. As a practical matter, where a mitigation program or measure is consistent with protocols adopted or approved by an agency with regulatory authority to develop such a program, a lead agency will more easily be able to demonstrate that off-site mitigation will actually result in emissions reductions. Examples of such protocols include the forestry protocols described above. Where a mitigation proposal cannot be verified with an existing protocol, a greater evidentiary showing may be required. (at 49)

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Exhibit B

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Exhibit B

Terrestrial Conversion Greenhouse Gas Emissions

Regulatory Framework
The following regulatory background information provides context to the importance of reducing and feasibly mitigating terrestrial conversion greenhouse gas (GHG) biogenic emission effects:

Executive Order S-3-05
Signed by Governor Schwarzenegger on June 1, 2005. Executive Order S-3-05 established a California GHG reduction target of 80 percent below the 1990 level by 2050.

Assembly Bill 32
AB 32 defines carbon dioxide equivalent (CO_2e) to mean, "... the amount of carbon dioxide by weight that would produce the same global warming impact as a given weight of another greenhouse gas, based on the best available science, including from the Intergovernmental Panel on Climate Change [IPCC]."

"The IPCC released its Fifth Assessment Report (AR5) in 2013, including scientific research and conclusions regarding current GHG global warming potential (GWP) values for determining CO_2e. The IPCC recommends using the AR5 GWP values, as they reflect the best information on global warming potentials. The Air District is using the GWP values from AR5, which include a GWP for methane (including all feedback effects) of 34. We recommend that ARB also use GWPs from AR5 in the Strategy."[1] Consistent with the AB 32 carbon dioxide equivalent definition, the Bay Area Air Quality Management District uses the GWP values from AR5.

Senate Bill 97
Signed by Governor Schwarzenegger on August 24, 2007. This statute required that the Office of Planning and Research prepare CEQA guidelines for evaluating the effects of GHG emissions and for mitigating such effects. The Natural Resources Agency adopted these guidelines on December 31, 2009.

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Senate Bill 32
Signed by Governor Brown on September 8, 2016. This statute requires that statewide greenhouse gas emissions be reduced to 40% below the 1990 level by 2030.

Senate Bill 1383
Signed by Governor Brown on September 19, 2016. This statute requires: (1) a 50 percent statewide reduction in black carbon emissions and a 40 percent reduction in methane and hydrofluorocarbon emissions from 2013 levels by 2030; (2) a 50-percent reduction in the level of the statewide disposal of organic waste in landfills from the 2014 level by 2020 and a 75-percent reduction from the 2014 level by 2025.[2]

Senate Bill 1386
Signed by Governor Brown on September 23, 2016. This statute states that the protection and management of natural lands, as defined, is an important strategy in meeting the state's GHG reduction goals, and would require all state agencies, departments, boards, and commissions to consider this policy when revising, adopting, or establishing policies, regulations, expenditures, or grant criteria relating to the protection and management of natural lands.

[1] BAAQMD May 26, 2016 letter from Jack P. Broadbent, Executive Officer/APCO to Richard Corey, Executive Officer, California Air Resources Board regarding ARB Short-Lived Climate Pollutants Strategy.

[2] See Gov. Brown's SB 1383 signing comments at https://www.gov.ca.gov/news.php?id=19549.

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Exhibit C

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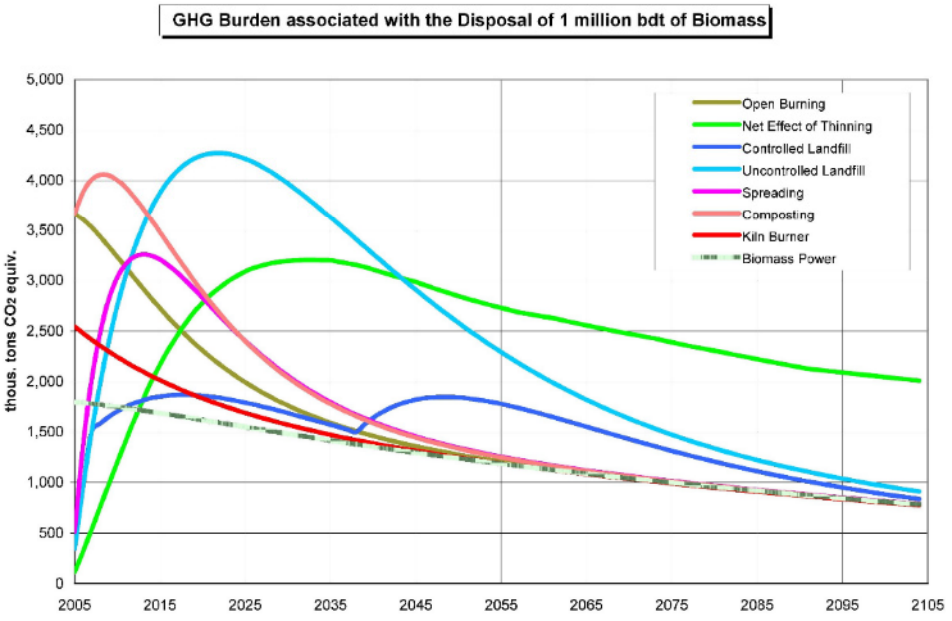
Exhibit C

Biomass Disposal Greenhouse Gas Emissions

The following chart illustrates the relative GHG indirect biogenic emission effects from common methods of vegetation (biomass) disposal.[1] The biomass combustion GHG emission values do not include black carbon emissions.

Uncontrolled landfill disposal produces the greatest biomass GHG biogenic emissions followed by composting, open burning, mulching, forest thinning, kiln burner, controlled landfill and biomass power. The chart demonstrates that peak GHG emissions vary substantially depending on the means of biomass disposal, with the higher peaks reflecting increased amounts of methane and/or nitrous oxide emissions.

Terminology: Net effect of thinning emissions apply to forest thinning emissions and spreading emissions are equivalent to mulching emissions.



Graphic: Gregory Morris, PhD. *Bioenergy and Greenhouse Gases*. Published by Pacific Institute (2008).

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[1] One bone dry ton (bdt) is a volume of wood chips (or other bulk material) that would weigh one ton (2000 pounds, or 0.9072 metric tons) if all the moisture content was removed.

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Exhibit D

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Exhibit D

Biomass Decomposition and Combustion GHG Emissions

Governor Brown
"We must also reduce the relentless release of methane, black carbon and other potent pollutants across industries. And we must manage farm and rangelands, forests and wetlands so they can store carbon." – January 2015 inaugural address regarding the state's greenhouse gas reduction goals for the next 15 years.

California Air Resources Board
"California is committed to reducing emissions of CO_2, which is the most abundant greenhouse gas and drives long-term climate change. However, short-lived climate pollutants [methane, black carbon, etc.] have been shown to account for 30-40 percent of global warming experienced to date. Immediate and significant reduction of both CO_2 and short-lived climate pollutants is needed to stabilize global warming and avoid catastrophic climate change." *Reducing Short-Lived Climate Pollutants in California, 2014.*

UC Irvine Engineering
"Generation of electricity from biomass is unique among the potential technologies for meeting RPS [renewable portfolio standards] goals in that it is associated with the generation of substantial amounts of GHGs and pollutants at generation sites during operation. This feature elucidates the importance in assessing GHG and air quality impacts from biopower." Sospedra, M. and Dabdub, D. 2015. *Assessment of the Emissions and Energy Impacts of Biomass and Biogas Use in California.*

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Stanford Engineering
"Biomass burning also includes the combustion of agricultural and lumber waste for energy production. Such power generation often is promoted as a 'sustainable' alternative to burning fossil fuels. And that's partly true as far as it goes. It is sustainable, in the sense that the fuel can be grown, processed and converted to energy on a cyclic basis. But the thermal and pollution effects of its combustion - in any form - can't be discounted, [Mark] Jacobson said.

"The bottom line is that biomass burning is neither clean nor climate-neutral," he said. "If you're serious about addressing global warming, you have to deal with biomass burning as well."
engineering.stanford.edu/news/stanford-engineers-study-shows-effects-biomass-burning-climate-health
Jacobson, M. Z. 2014. *Effects of biomass burning on climate, accounting for heat and moisture fluxes, black and brown carbon, and cloud absorption effects.*

Phoenix Energy
"As wood starts to decompose it releases roughly equal amounts of methane (CH_4) and carbon dioxide (CO_2)." 2016. http://www.phoenixenergy.net/powerplan/environment

Macpherson Energy Corporation
"Rotting produces a mixture of up to 50 percent CH_4, while open burning produces 5 to 10 percent CH_4." 2014. http://macphersonenergy.com/mt-poso-conversion.html

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Exhibit E

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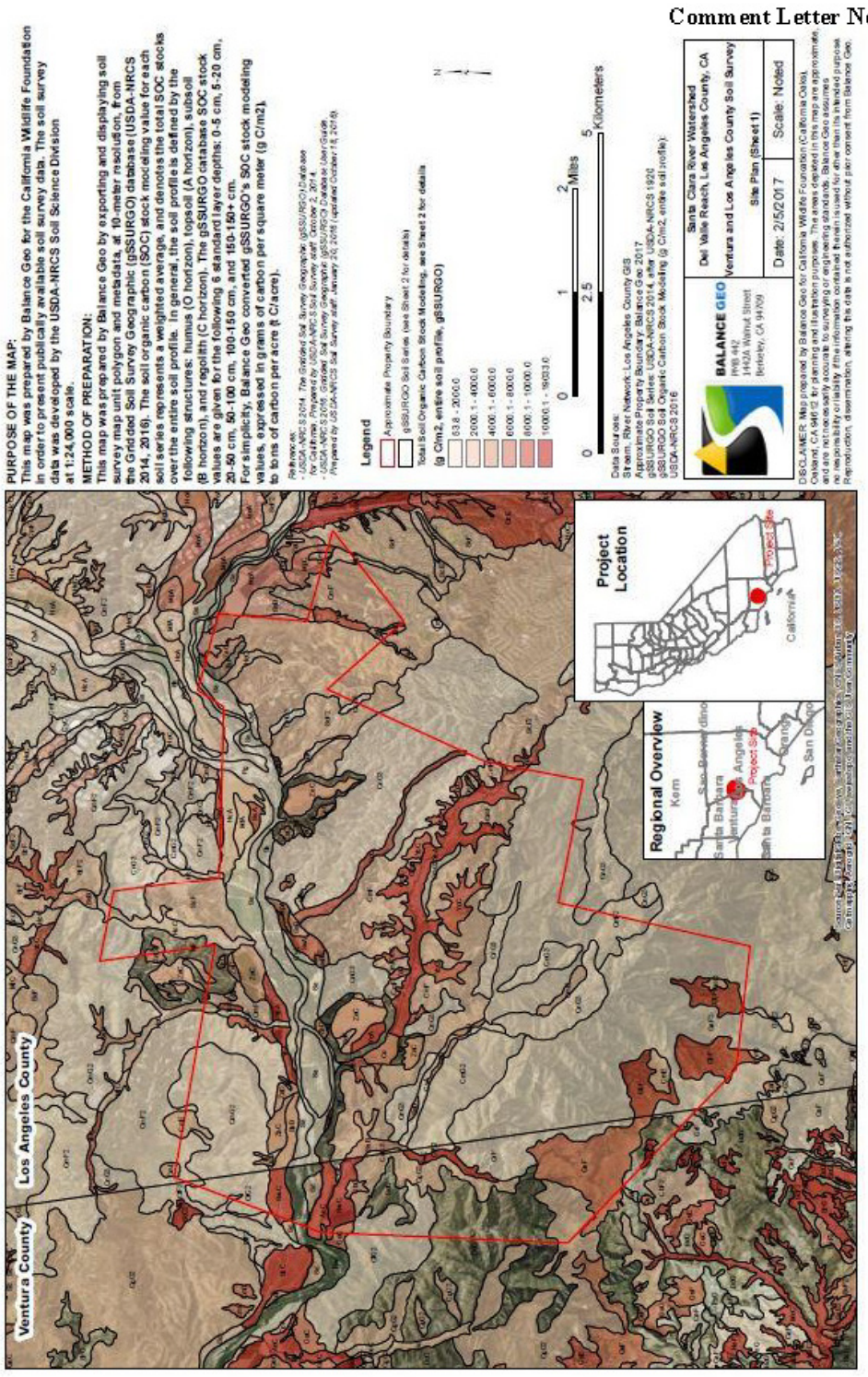

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Soil Map Unit Symbol	Soil Map Unit Name	Organic Carbon Stock Modeling (t C/acre)	Max. Reported SOC-Storing Soil Profile Depth (cm)
104	Capona cobbly loam, 5 to 30 percent slopes	28.7	79.90
117	Eastable loam, 0 to 5 percent slopes	6.5	25.50
118	Eastable-Hedox complex, 2 to 9 percent slopes	28.3	56.80
119	Esro loam, 0 to 2 percent slopes	30.0	60.35
121	Forbar fine sand, 0 to 2 percent slopes	5.7	26.40
AcC	Ahwahnee coarse sandy loam, 9 to 15 percent slopes	58.0	129.20
AuC2	Auberry coarse sandy loam, 9 to 15 percent slopes, eroded	13.5	129.20
BdG	Badland	N/A	N/A
CaF	Caspar sandy loam, 30 to 50 percent slopes	7.1	39.10
CbF2	Cibo stony clay, 15 to 50 percent slopes, eroded	9.2	64.95
CfE	Cohasset gravelly loam, 30 to 50 percent slopes	9.1	60.60
CfF2	Castaic-Balcom complex, 30 to 50 percent slopes, eroded	7.8	52.90
CfG2	Castaic-Balcom complex, 50 to 65 percent slopes, eroded	7.9	52.90
CgG2	Cieneba gravelly sandy loam, 30 to 75 percent slopes, eroded	8.8	76.00
CmD	Cohasset stony loam, 0 to 30 percent slopes	8.1	70.40
CmE	Cohasset stony loam, 30 to 50 percent slopes	8.3	70.40
CmF	Cohasset gravelly loam, 30 to 50 percent slopes	8.9	72.90
CmF2	Colma sandy loam, very steep, eroded	7.6	67.60
CmG2	Castaic-Balcom silty clay loams, 50 to 65 percent slopes, eroded	7.6	67.60
CnG3	Castaic and Saugus soils, 30 to 65 percent slopes, severely eroded	7.8	73.40
Co	Columbia loam, 0 to 3 percent slopes	31.2	129.20
CoA	Cole clay loam, 0 to 2 percent slopes	18.6	123.25
CyA	Corralitos sandy loam, over clay, nearly level, imperfectly drained	7.8	129.20
CyC	Corning-Newville-Gullied land complex, 3 to 15 percent slopes	7.8	129.20
GaC	Gaviota fine sandy loam, 3 to 15 percent slopes	25.6	129.20
GaE2	Gaviota rocky sandy loam, 5 to 40 percent slopes, eroded	7.9	39.00
GaF2	Gaviota rocky sandy loam, 40 to 75 percent slopes, eroded	7.9	38.90
GbC	Garey sandy loam, 2 to 9 percent slopes	21.6	129.20
GbF	Gaviota sandy loam, 30 to 50 percent slopes, MLRA 15	32.7	60.35
GcB	Garretson silt loam, calcareous variant, 2 to 5 percent slopes	25.1	129.20
GrF	Glenbrook-Rock outcrop complex, 5 to 50 percent slopes	3.7	16.00
GsE	Guenoc stony loam, 30 to 50 percent slopes	32.6	95.20
GsF	Gazos clay loam, 30 to 45 percent slopes	32.2	86.70
GsG	Gazos clay loam, 45 to 75 percent slopes	32.2	86.70
HcA	Hillgate loam, 0 to 2 percent slopes, MLRA 17	15.9	151.30
HcC	Haire clay loam, 0 to 9 percent slopes	15.9	151.30
LaF	Laniger loam, 30 to 50 percent slopes	N/A	N/A
MeC	Milpitas-Positas fine sandy loams, 2 to 9 percent slopes	13.5	129.20
MfA	Marguerite silty clay loam, 0 to 1 percent slopes	13.0	129.20
MfC	Metz loamy sand, 2 to 9 percent slopes	13.3	129.20
MgB	Metz loam, 2 to 5 percent slopes	14.0	129.20
MhF2	Millsholm silt loam, 45 to 75 percent slopes, eroded	22.0	44.60
MoA	Modesto loam, 0 to 1 percent slopes	24.9	129.20
MoC	McCarthy cobbly loam, 5 to 15 percent slopes	53.7	129.20
MpA	Modesto loam, slightly saline-alkali, 0 to 1 percent slopes	28.9	129.20
MpC	Montpellier coarse sandy loam, 9 to 15 percent slopes	28.9	129.20
NaD2	Nacimiento silty clay loam, 10 to 30 percent slopes, eroded	25.1	56.10
NaE2	Nacimiento silty clay loam, 30 to 50 percent slopes, eroded, warm MAAT, MLRA 15	25.1	56.10
NaF	Nacimiento silty clay loam, 30 to 50 percent slopes, MLRA 15	42.2	64.60
OgC	Ojai loam, 2 to 9 percent slopes	39.4	129.20
OzE	Ojai-Zamora loams, 15 to 30 percent slopes	32.8	161.20
PcC	Parkfield clay, 2 to 9 percent slopes	43.1	129.20
PxG	Pits and dumps	N/A	60.80
Rg	Red Bluff gravelly loam, 0 to 3 percent slopes	0.2	129.20
Rw	Riverwash	N/A	136.80
Sa	Sacramento clay, 0 to 2 percent slopes, MLRA 17	5.3	129.20
ScD2	Santa Lucia shaly clay loam, 9 to 15 percent slopes, eroded	52.1	129.20
ScE	Sehorn silty clay, 30 to 50 percent slopes	12.5	99.45
ScE2	Santa Lucia shaly clay loam, 15 to 30 percent slopes, eroded	52.1	129.20
ScF	Shaver very rocky coarse sandy loam, 51 to 71 percent slopes	12.5	99.45
ScF2	Santa Lucia shaly loam, 30 to 50 percent slopes, eroded	52.1	99.45
ScG	Santa Lucia shaly loam, 50 to 75 percent slopes	48.4	96.90
Sd	Sacramento clay, drained	12.2	136.80
SnG	Sedimentary rock land	N/A	N/A
SsA	Soquel loam, over clay, nearly level, imperfectly drained	35.0	155.55
SsB	Sorrento loam, 2 to 5 percent slopes	22.8	155.55
SsE2	Sween rocky clay loam, 15 to 30 percent slopes, eroded	24.4	86.70
SvF2	Soper gravelly loam, 30 to 50 percent slopes, eroded	19.9	86.70
SwC	Sorrento loam, 2 to 9 percent slopes, warm MAAT, MLRA 19	77.0	158.91
SxC	Sorrento silty clay loam, 2 to 9 percent slopes, warm MAAT, MLRA 19	58.0	170.00
TeF	Terrace escarpments	N/A	N/A
TsF	Tierra clay loam, 15 to 45 percent slopes	N/A	136.80
W	Water	N/A	N/A
YoA	Yokohl clay loam, 0 to 3 percent slopes	70.6	155.55
YoC	Yolo loam, 0 to 15 percent slopes, dry, MLRA 15	36.5	155.55
ZaC	Zaca clay, 8 to 15 percent slopes	20.5	181.05
ZaD	Zaca clay, 15 to 30 percent slopes	20.5	181.05
ZmC	Zamora loam, 2 to 9 percent slopes	29.1	129.20

BALANCE GEO
PMB 442
1442A Walnut Street
Berkeley, CA 94709

Santa Clara River Watershed
Del Valle Reach, Los Angeles County, CA

Ventura and Los Angeles County Soil Survey

Soil Organic Carbon Stock (Sheet 2)

Date: 2/5/2017 | Scale: Noted

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