Exhibits to Attachments

MILLER PACIFIC ENGINEERING GROUP

September 23, 2024
File: 3613.001altr.doc

Mr. Tom Lajcik
[redacted]
Lakeport, California 95453

Re: Geologic Evaluation
Udding Road at Highland Springs Road
Lakeport, California

Introduction and Project Description

This letter presents the results of our Geologic Evaluation of approximately 1,057 linear feet of Udding Road within Highland Springs Regional Park in Lakeport, California. A Site Location Map is shown on Figure 1. We understand that the need for our evaluation is related to proposed development farther west along Udding Road, which will require significant grading of both Udding Road and portions along Highland Springs Road to provide access. It is anticipated that approximately 6,500 cubic yards of County property will be excavated or otherwise disturbed along Udding Road and within the study area during the proposed grading operation.

Purpose and Scope

The purpose of our Geologic Evaluation is to confirm and document the presence of serpentinite outcrops in the study area. The scope of our work is outlined in our proposal letter dated August 27, 2024 and includes reviewing readily-available geologic information, performing a site reconnaissance to observe exposed soil and rock materials, and preparation of a preliminary geologic map of the study area showing areas of exposed serpentinite and/or other geologic materials.

Regional Geology

Lake County lies within the Coast Ranges geomorphic province of California, a region characterized by active seismicity, steep, young topography, and abundant landsliding and erosion owing partly to its relatively high annual rainfall. The regional basement rock consists of sedimentary, igneous, and metamorphic rock of the Jurassic-Cretaceous age (65-190 million years ago) Franciscan Complex and marine sedimentary strata of the Great Valley Sequence, which is of similar age. Within central and northern California, the Franciscan and Great Valley rocks are locally overlain by a variety of late Cretaceous and Tertiary-age sedimentary and volcanic rocks which have been deformed by episodes of folding and faulting. The youngest geologic units in the region are Quaternary-age (last 1.8 million years) sedimentary deposits. These unconsolidated deposits partially fill many of the valleys of the region.

Regional geologic mapping[1] shows the study area to be underlain by serpentinite and basalt bedrock in the eastern and western portions of the study area, respectively. Lower Unit Franciscan Complex bedrock is mapped north and south of the study area. The Lower Unit Franciscan Complex bedrock is described as a massive, gray-green graywacke with interbedded dark shale and conglomerate. Conformable, discontinuous lenses and sheets of serpentinite, basalt, diabase, chert, and other metamorphic rocks occur within the Lower Unit Franciscan Complex at irregular intervals vertically and horizontally. A Regional Geologic Map is presented on Figure 2.

[1] McNitt, J.R., 1968, "Geologic Map and Sections of the Kelseyville Quadrangle, Mendocino, Lake, and Sonoma Counties, California", California Division of Mines and Geology (CGS), Scale 1:62,500.

Reconnaissance Observations and Mapping

The study area generally includes about 1,057 linear feet of Udding Road, west of the intersection with Highland Springs Road, within Highland Springs Regional Park. The terrain is generally moderately to steeply sloping, with near-vertical road cuts along Highland Springs Road at the eastern extent of the study area. Elevations within the study area range from about +1521-feet at the intersection of Udding Road and Highland Springs Road, to +1687-feet at the western extent of the study area.

We performed a site reconnaissance on September 5th, 2024, to observe and document serpentinite outcrops at the site and prepare a geologic map of the study area. We observed several outcrops of serpentinite bedrock within the eastern half of the study area, including a large and prominent outcrop in the northeastern corner of the study area that is exposed within about 200 linear feet of the road cut adjacent to Highland Springs Road. The serpentinite is light to dark green with minor gray-white and brown where fresh and dark orange-yellow-red where weathered. The rock exhibits low to moderate hardness and a typically waxy luster and of variable strength. Locally abundant green to white chrysotile veining was noted. About 1- to 3-feet of reddish-brown silty sand and gravel residual and colluvial soils mantles the serpentinite bedrock in between surface outcrops.

Within the western half of the study area, bedrock outcrops consisted of meta-graywacke and meta-shale bedrock. The meta-graywacke is greenish gray, hard, strong, massive, and composed predominately of medium-grained angular quartz sand and lithic fragment embedded in a fine-grained matrix. The meta-shale is greenish-gray, moderately hard, relatively weak, and exhibits foliation consistent with low-grade metamorphism. About 1- to 3-feet of tan-brown silty sand and gravel residual and colluvial soils mantles the meta-graywacke and meta-shale in between surface exposures. We also observed smaller, isolated outcrops of interbedded sandstone and shale on the east side of Highland Springs Road. Our Geologic Map is shown on Figure 3.

Supplemental Consultation

We trust that this letter contains the information you require at this time. We can be available to consult with you to further discuss the results of our Evaluation. If desired, we can also provide supplemental geologic evaluation, geotechnical investigation, and/or geotechnical plan review and consultation services.

If there are any questions or if we can be of further assistance, please call.

Yours very truly,
MILLER PACIFIC ENGINEERING GROUP

Emily Carreño
Project Geologist

REVIEWED BY:

Michael F. Jewett
Engineering Geologist No. 2610
(Expires 1/31/25)

Attachments: Figures 1 through 3

SITE COORDINATES
LAT. 38.94315°
LON. -122.91191°

SITE LOCATION

N.T.S.

NORTH

REFERENCE: Google Earth, 2024

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FILENAME: 3613.001 Figures.dwg

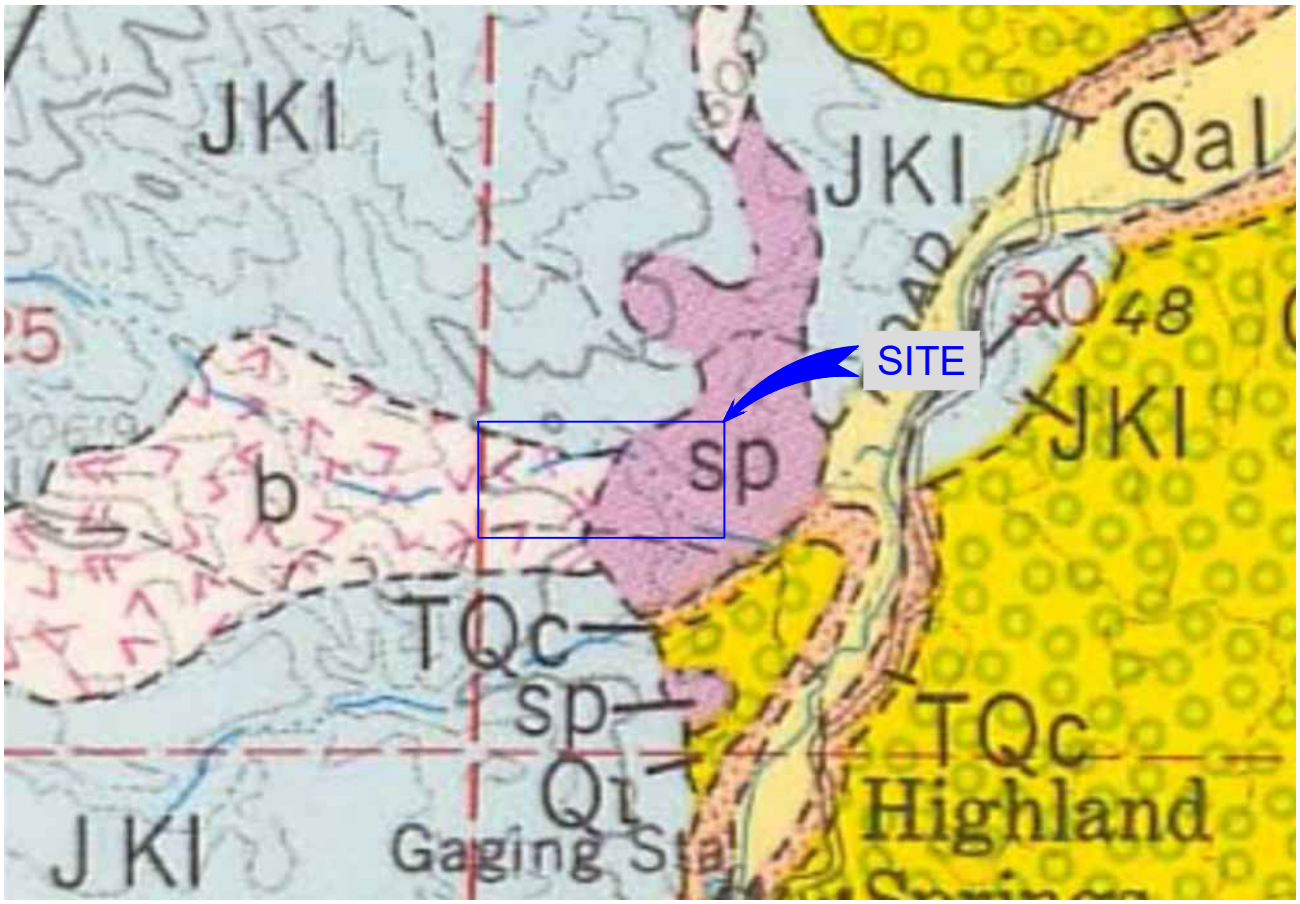
SITE LOCATION MAP

Geologic Evaluation
Udding Road
Lakeport, California

Project No. 3613.001 Date: 9/17/2024

Drawn EIC
Checked

1
FIGURE



REGIONAL GEOLOGIC MAP

NORTH

Qal	**Alluvium** [Quaternary] - Gravel, sand, silt, and clay deposited by streams.
Qt	**Terrace deposits** [Quaternary] - Composed principally of pebbles and cobbles of light colored porphyritic rock.
TQc	**Cache Formation** [Tertiary] - Well-bedded, poorly consolidated lacustrine deposits of fine sandstone, sandy siltstone, diatomaceous siltstone, and blue clay.
JKl	**Lower Unit Franciscan Group** [Jurassic - Cretaceous] - Massive gray-green graywacke and interbedded dark shale and conglomerate.
sp	**Serpentinite** [Jurassic - Cretaceous] - Concordant bodies of serpentinite within Franciscan Group range in thickness from a few feet to 1,500 feet.
b	**Basalt** [Jurassic - Cretaceous] - Gray to greenish-gray spilitic basalt occur at irregular intervals within Franciscan Group. Generally massive, although few flows show amygdaloidal or pillow structure.

— — — **Geologic Contact** - Solid where accurately located, dashed where approximate.

REFERENCE: McNitt, J.R. (1968) 'Geologic Map and Sections of the Kelseyville Quadrangle, Mendocino, Lake, and Sonoma Counties, California', California Division of Mines and Geology, Scale 1:62,500.

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REGIONAL GEOLOGIC MAP

Geologic Evaluation
Udding Road
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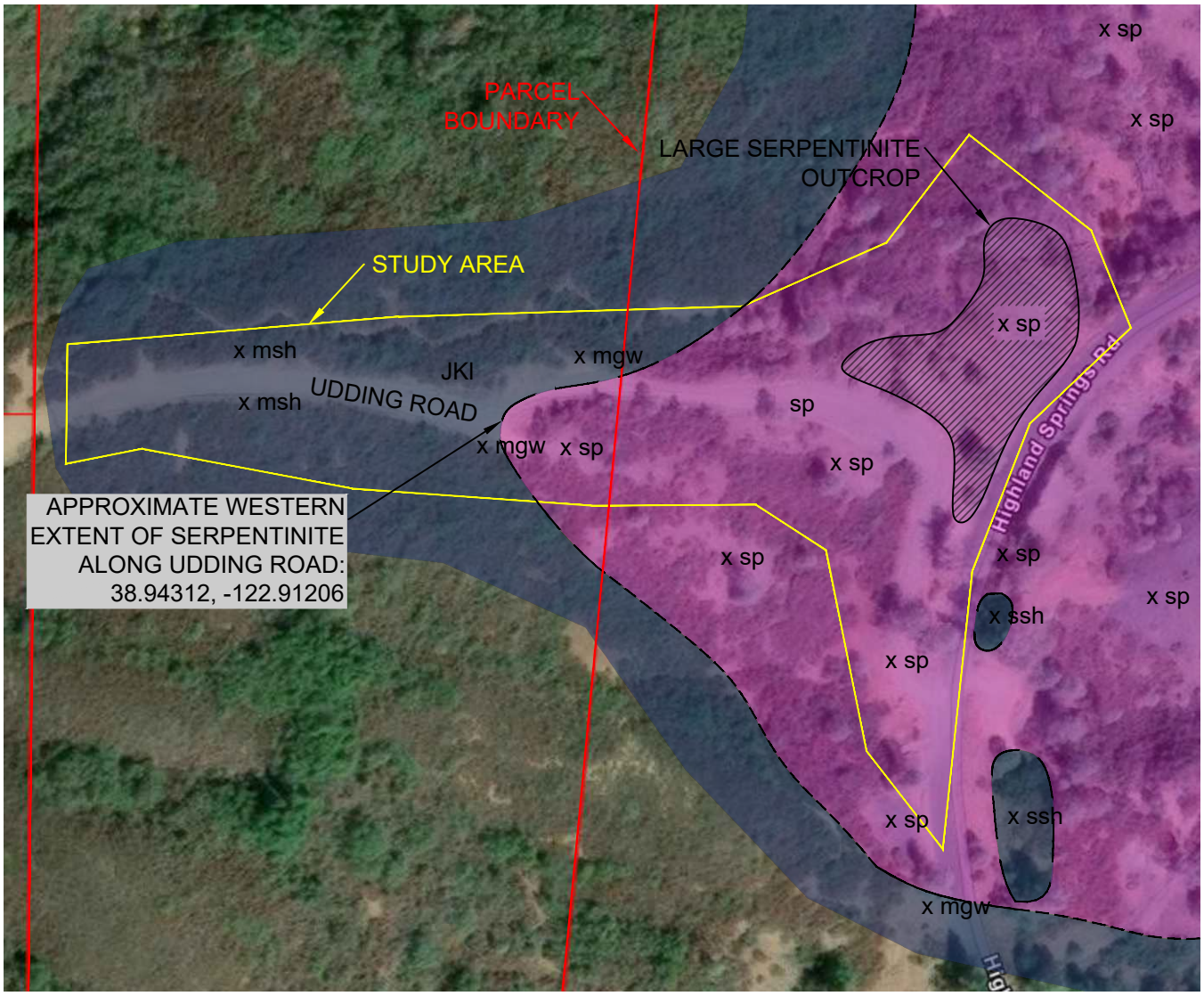
Project No. 3613.001 Date: 9/17/2024

Drawn EIC
Checked

2
FIGURE



GEOLOGIC MAP

SCALE

0 100 200 400 FEET

NORTH

JKl **Franciscan Complex** [Jurassic - Cretaceous] - Predominately meta-graywacke (**mgw**) and meta-shale (**msh**) within the study area. Few outcrops of interbedded sandstone and shale observed just east of the study area. The meta-graywacke is green-gray, hard, strong, massive, and composed predominately of medium grained sand with abundant lithic grains in a fine-grained matrix. The meta-shale is green-gray, moderately hard, weak, and has a slight foliation texture. The interbedded sandstone and shale (**ssh**) is composed of alternating, thinly to very thinly bedded, brown-tan sandstone and brown-gray shale.

sp **Serpentinite** [Jurassic - Cretaceous] - Light to dark green with minor gray-white and brown where fresh, dark orange-yellow-red where weathered, generally low to moderate hardness, weak to strong, and has waxy luster. Locally abundant chrysotile veining present.

Geologic Contact - Solid where accurately located, dashed where approximate, short-dashed where inferred.

x sp **Used to denote observed surface outcrop**

REFERENCE: ArcGIS Pro, Maxar Satellite Imagery dated September 27, 2023.

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GEOLOGIC MAP

Geologic Evaluation
Udding Road
Lakeport, California

Project No. 3613.001 Date: 9/17/2024

Drawn EIC
Checked

3
FIGURE

EXH-240

Arnold Schwarzenegger, Governor

Mitigated Negative Declarations

CEQA Technical Advice Series

Governor's Office of Planning and Research
1400 Tenth Street
Sacramento, CA 95814
(916) 445-0613

Jan Boel, Acting Director, Office of Planning and Research

Terry Roberts, Director, State Clearinghouse

December 2004 Edition

The **CEQA Technical Advice Series** is intended to offer CEQA practitioners, particularly at the local level, concise information about some aspects of the California Environmental Quality Act. This series of publications is part of OPR's public education and training program for planners, developers and others. As with all OPR publications, you are free to photocopy this publication in whole or in part. You need not secure written permission; simply cite OPR on any copied information.

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The 2004 edition contains updates to the 1997 edition including legislative changes and court opinions.

Table of Contents

I. Introduction

A. Background of CEQA

The California Environmental Quality Act (CEQA) encourages protection of all aspects of the physical environment through disclosure of potential environmental impacts and appropriate action with regard to those impacts. CEQA has changed the course of development and decision making in the public and private sector in California. There are several objectives of CEQA centering on public participation, reduction in environmental damage, interagency coordination and exploration of feasible alternatives and mitigation measures.

For many years, lead agencies have adopted "mitigated negative declarations" (MND) that are designed to mitigate or avoid a project's potential significant impacts. CEQA encouraged the use of MNDs but the process was never specifically part of the law until 1993; two bills, Senate Bill 919 (Stats. 1993, Ch. 1131) and Assembly Bill 1888 (Stats. 1993, Ch. 1130) were passed that outlined the requirements for the adoption of a MND under the appropriate circumstances. *Mitigated Negative Declarations* discusses the process of adopting a MND in accordance with these two important statutes and the court decisions interpreting the law.

This advisory publication is aimed primarily at local public agencies and CEQA practitioners. It is intended to offer basic guidance in the preparation of MNDs and to encourage their use where appropriate. *Mitigated Negative Declarations* is neither a replacement of nor an amendment to the *CEQA Guidelines* (Title 14, Ch. 3, § 15000 et seq). All code citations refer to the Public Resources code unless noted otherwise.

B. Organization of this Advisory

This technical advisory explains the statutory basis for using a MND, the circumstances under which the use of a MND is appropriate, the importance of a well documented initial study, the types of project modifications and mitigation measures that may be used to reduce significant effects, and examples of how some lead agencies enforce compliance with mitigation measures. It also discusses how a MND may be used in conjunction with other types of environmental documents, and a brief summary of court cases that specifically address the proper use of MNDs.

Appendix A contains the full text of code sections relating to MNDs. Appendix B includes examples of MND agreements which suggest acceptable format for the disclosure of mitigation measures between the project proponent and the Lead Agency. Appendix C summarizes additional court cases that are not directly related to MNDs but are cited in this publication as cases because they set precedence to steps in the MND process.

II. Determining Which CEQA Document to Prepare

A. What is a Negative Declaration?

When faced with a discretionary project which is not exempt from (CEQA), a Lead Agency must prepare an initial study to determine whether the project may have a significant adverse effect on the environment. If such an effect may occur, the Lead Agency must prepare an Environmental Impact Report (EIR).

If there are no adverse effects, or if the potential effect can be reduced to a level that is less than significant through project revisions, a Negative Declaration or MND can be adopted (§21080). A MND is a type of Negative Declaration that allows the Lead Agency to revise the project prior to circulating the environmental document for public review. The statute provides that MNDs may be used, "when the initial study has identified potentially significant effects 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" (§21064.5).

The prerequisites for adopting a MND include:

1. Making a good faith effort to determine whether there is substantial evidence that the project would result in any significant environmental effect.
2. Incorporating effective revisions or mitigation measures into the project to alleviate potential significant effects prior to circulating the draft Negative Declaration for public review.
3. Evidence in the record to support the agency's determination that there will be no significant effect as a result of the project.

B. The Initial Study

An initial study formalizes the Lead Agency's preliminary analysis to determine whether an EIR or Negative Declaration must be prepared. Most commonly, the initial study is based upon a checklist which illuminates the various environmental impacts which may result from project completion. The checklist, however, is only one part of the initial study. The initial study must also give support for the checklist findings and note or reference the source or content of the data relied upon in its preparation. Simply filling out an initial study checklist without citing supporting information is insufficient to show the absence of significant effects (*Sundstrom v. County of Mendocino* (1988) 202 Cal. App. 3d. 296). At the same time, the initial study is not intended to provide the thorough analysis expected of a complete EIR. (*Leonoff v. Monterey County Board of Supervisors* (1990) 222 Cal. App. 3d. 1337 and *San Joaquin Raptor/ Wildlife Rescue Center v. County of Stanislaus* (1996) 42 Cal. App. 4th 608).

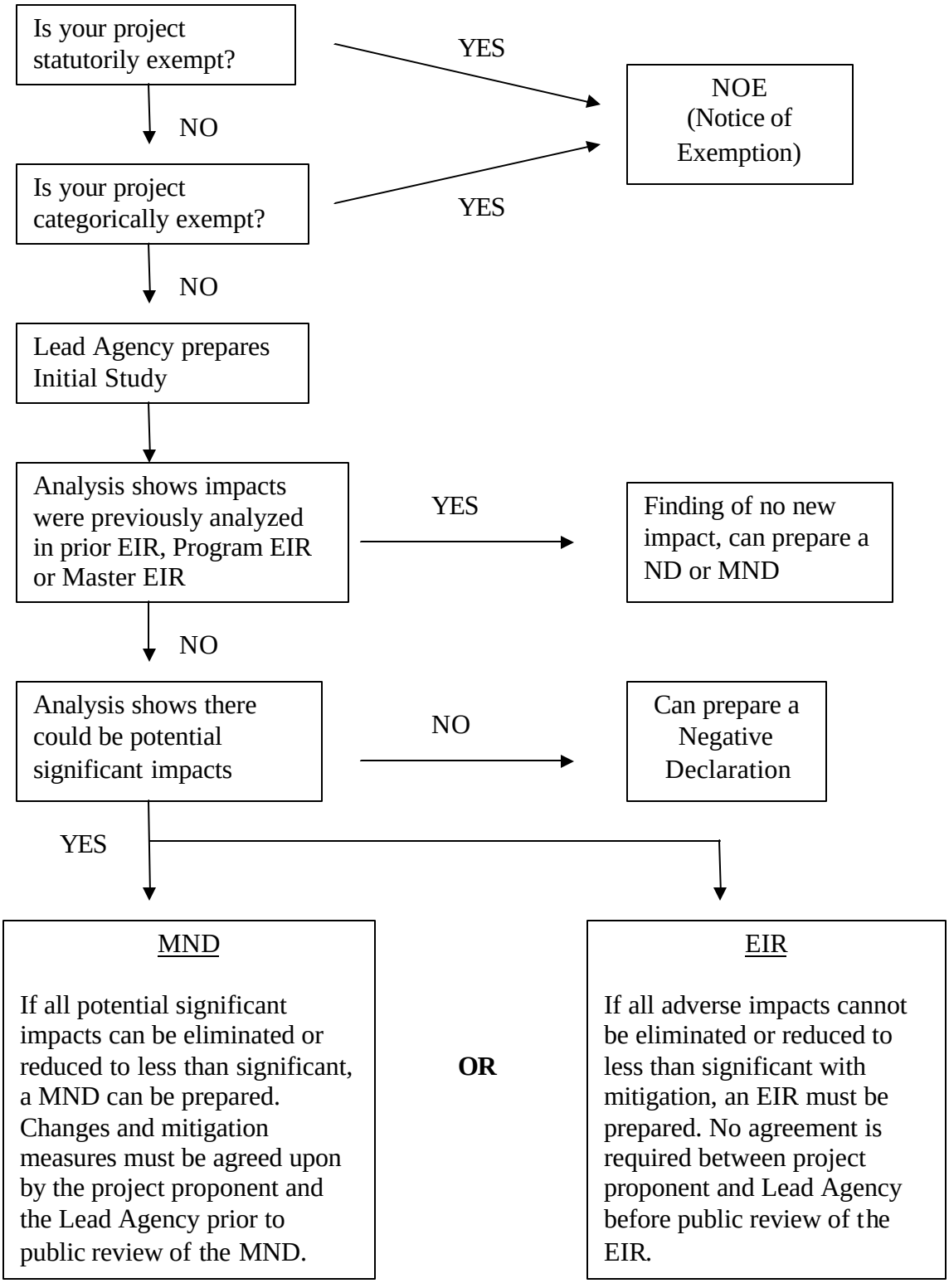
Supporting information may include specific studies which examine the potential significance of an anticipated environmental effect. It may include references to previous environmental documents or other information sources. In any case, a thorough, referenced

initial study is a crucial part of the record supporting the Lead Agency's determination to prepare a MND.

CEQA requires that the Lead Agency, through its initial study, evaluate the whole of a project. A project must not be broken into smaller parts, each of which alone might qualify for a Negative Declaration, in an attempt to avoid preparing an EIR (*Association for Sensible Development of Bishop Area v. County of Inyo* (1985) 172 Cal.App.3d 151). The decision to prepare a Negative Declaration or a MND must be grounded in an objective, good faith effort on the part of the Lead Agency to review the project's potential for significant impacts (*Sundstrom v. County of Mendocino*, supra).

The initial study must be attached to the Negative Declaration circulated for public review according to §15071 of the CEQA Guidelines. The purpose of this is to document the reasons supporting the finding that the project will not result in a significant effect on the environment. OPR recommends that prior to circulating a draft MND the Lead Agency revise or annotate the initial study, if necessary, to reflect revisions to the project. The initial study circulated with a MND should not indicate that there will be any significant effects from the project and should identify or reference the data which supports its determination that any potentially significant effects have been mitigated or avoided.

Generalized CEQA Process Flow Chart



C. Fair Argument Test

The original determination made on the basis of the initial study whether to prepare either a Negative Declaration or an EIR is subject to the "fair argument" test (*Laurel Heights Improvement Assoc. v. U.C. Regents* (1993) 47 Cal.4th 376). In other words, if a fair argument can be made on the basis of "substantial evidence" in the record that the project may have a significant adverse environmental impact - even if evidence also exists to the contrary - then an EIR is required. A Negative Declaration is authorized when the Lead Agency determines that no substantial evidence exists supporting a fair argument of significant effect. A MND applies when changes to the project or mitigation measures reduce the significant effects to a less than significant level or avoid them all together.

According to §21080 (d) and (e), if there is substantial evidence of significant effects, even though the full analysis has yet to be prepared, an EIR is required. This provides the Lead Agency a means by which to gauge the quality of evidence discovered during its review of a project. Similarly, a court examining the actions of the Lead Agency now has a consistent standard by which to judge the quality of the evidence which was available.

Substantial evidence includes "facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts." It does not include "argument, speculation, unsubstantiated opinion or narrative, evidence which is clearly inaccurate or erroneous, or evidence of social or economic impacts which do not contribute to, or are not caused by, physical impacts on the environment." Further, public controversy over the possible environmental effects of a project is not sufficient reason to require an EIR "if there is no substantial evidence in light of the whole record before the Lead Agency that the project may have a significant effect on the environment" (§ 21082.2).

D. Required Contents-Project Mitigation and Revision

There are two tests for determining whether a MND can be used. These criteria distinguish a MND from a Negative Declaration:

1. All potentially significant effects of the project can and will be avoided or mitigated to a less than significant level by project revisions or other requirements imposed on the project. A MND is based on the premise that the project will not result in a significant effect. For example, suppose a project would increase traffic from Level of Service (LOS) B to LOS D where local guidelines have identified LOS D as the threshold for significance. If mitigation can reduce the impact to LOS C, then the project's impact would not be considered significant.

2. The project changes and mitigation measures must be agreed to or made by the proponent before the draft MND is circulated for public review and comment. In other words, the draft document must reflect the revised project, with changes and mitigation measures. A few agencies require proponents to submit a new project description before the draft MND is released. This procedure is not required by CEQA if the proponent has otherwise agreed to or made the revisions and mitigations. However, requiring or allowing an applicant to adopt prospective mitigation measures which are to be recommended in a future study, but which are not incorporated into the project before the proposed MND is released for public review, is not allowed (*Sundstrom v. County of Mendocino*, supra).

A key question for the Lead Agency is: What level of mitigation or project revision is sufficient to avoid or eliminate a potential significant effect? There is no ironclad answer which would apply in every instance. The answer depends upon the specific situation; the Lead Agency must use its own independent and objective judgment, based on the information before it, to determine that "clearly no significant effect on the environment would occur" (§ 21064.5). Further, there must be evidence in the record as a whole to support that conclusion.

Pursuant to § 15370 of the CEQA Guidelines, mitigation includes:

(a) Avoiding the impact altogether by not taking a certain action or parts of an action.

(b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.

(c) Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.

(d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.

(e) Compensating for the impact by replacing or providing substitute resources or environments.

Project revisions may include such things as changes in design, location, operations, or scope. Effective project revisions will achieve any or all of the above objectives.

Effective mitigation measures are those written in clear, declaratory language specifying what is required to be done, how it is to be done, when it is to be done, and who will be responsible for doing it. The words "will" and "shall" are preferred to "may" and "should" when directing an action. Furthermore, measures must be feasible to undertake and complete. Avoid measures that are conditional upon feasibility (i.e., required only "when feasible"), rather than applied directly or at a specified project stage. Also avoid deferred mitigation and mitigation measures consisting of monitoring and future studies not tied to performance standards and contingency plans (*Sundstrom v. County of Mendocino*, supra).

E. Negotiations

Some jurisdictions require the applicant to sign the draft MND, indicating agreement with the mitigation measures or project revisions included therein, prior to circulating the document. In others, the applicant and the agency may negotiate the revisions or mitigation measures until they are mutually acceptable and enter into a more formal agreement. Whatever the procedure, agreement must be reached before the draft MND is circulated for review and comment. Examples of some agreement forms are included in Appendix B of this publication.

F. Public Review and Comment

A MND is subject to the same consultation and notice requirements as any Negative Declaration (see § 21080.3, 21091, and 21092 for details on current requirements). The Lead Agency shall provide a public review period of no less than 20 days. When a Negative

Declaration or MND is submitted to the State Clearinghouse, the review period shall last no less than 30 days, unless a shorter period is approved. The notice of a draft Negative Declaration must include an address where copies of the draft and all documents referenced in the draft will be available for review during the comment period.

The Lead Agency must consider the comments it receives during the review period prior to adopting a MND. If these comments include substantial evidence that a potential environmental effect may occur despite the project revisions or mitigation measures included in the MND, the Lead Agency must either require further revisions to the project which would effectively avoid or mitigate that effect, or if that is not possible, prepare an EIR. Although not explicitly required by CEQA, OPR recommends that under the first circumstance the Lead Agency re-circulate the revised MND for review prior to acting on the project and adopting the MND. This ensures that the public will have been afforded the chance to review the new mitigation measures as well as the revised project (*Leonoff v. Monterey County Board of Supervisors* (1990) 222 Cal.App.3d 1337 and *Perley v. County of Calaveras* (1982) 137 Cal.App.3d 424). As before, the proponent must have agreed to or made the additional project changes before the MND is re-circulated.

Upon adopting a MND, the Lead Agency must make both of the following findings: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.

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. (§ 21064.5 and 21080(c)).

G. Substituting Mitigation Measures

If the Lead Agency concludes prior to approval of a project that one or more of the mitigation measures identified in the MND are infeasible or otherwise undesirable, § 21080(f) provides that the Lead Agency may delete those measures and substitute other equivalent or better measures without having to re-circulate the MND for review. The Lead Agency must: (1) hold a public hearing on the matter before substituting new mitigation measures; (2) impose the new measures as conditions of project approval or otherwise make them a part of the project approval; and (3) find that the new measures will effectively reduce potentially significant effects to a less than significant level and will not cause any potentially significant effects of their own.

When a mitigation measure imposed as a condition of project approval is set aside by either an administrative body or a court, the Lead Agency's approval of the MND for the project is invalidated and a new environmental review is required. However, pursuant to § 21080(g), the Lead Agency may avoid invalidation and the need for a new environmental review if it substitutes equivalent or better measures. The procedure and findings for substituting new measures is the same as described above.

After project approval an agency has some flexibility in interpreting the manner in which mitigation measures are complied with, within reasonable bounds. "[T]he agency's interpretation is reasonable in the CEQA context only if it imposes no significant new or adverse environmental impacts. Such a standard would promote the Legislature's expressed concern for balancing environmental considerations against the social and economic burdens of compliance

with CEQA mandates" (*Stone v. Board of Supervisors* (1988) 205 Cal.App.3d 927, 934). Although the court allowed the defendant county in this case to substitute one means of complying with a mitigation measure for its functional equivalent, it also implied that actually amending a mitigation measure would require further CEQA review.

H. Mitigation Monitoring or Reporting Program

Upon approving a project for which a MND is adopted, the Lead Agency must also adopt a mitigation monitoring or reporting program pursuant to § 21081.6. The purpose of the program is to ensure compliance with the required mitigation measures or project revisions during project implementation. Section 21081.6 also requires that mitigation measures be adopted as conditions of approval. A detailed discussion of program requirements is contained in OPR's publication, *Tracking CEQA Mitigation Measures.*

III. Use with Other Documents

In a number of situations where an environmental document has already been prepared, a MND may be sufficient to address subsequent projects which have been largely examined in the previous document and which will have no unavoidable significant impacts. The most common of these and suggested findings for adopting a MND are summarized below. In no case where a MND is being adopted is it necessary to also adopt EIR findings pursuant to § 21081.

A. Master EIR

The Master EIR is a 1994 statutory innovation intended to provide a detailed environmental review of plans and programs upon which the analysis of subsequent related development proposals can be based. Pursuant to AB 1888 of 1993 and its enabling legislation, a Master EIR must, to the greatest extent feasible, evaluate the cumulative impacts, growth inducing impacts, and irreversible significant effects on the environment of specific, subsequent projects. The review of later projects which were described in the Master EIR can be limited to the extent that the Master EIR has already reviewed project impacts and set forth mitigation measures (§ 21156).

AB 1888 provides that a MND shall be prepared for a later project identified in a Master EIR when there is no substantial evidence before the Lead Agency that the project may have a significant effect on the environment and both of the following occur:

1. An initial study has identified potentially new or additional significant effects on the environment that were not analyzed in the Master EIR.
2. Feasible mitigation measures or alternatives will be incorporated to revise the proposed later project, before the MND is released for public review, such that the new potential significant effects are eliminated or reduced to a less than significant level (§ 21157.5).

The subsequent project must incorporate all applicable mitigation measures or project alternatives from the Master EIR, as well as the measures adopted pursuant to the MND.

Findings -- Upon adopting a MND under these circumstances, OPR recommends that the Lead Agency make the following findings pursuant to § 21064.5, 21080(c), and 21157.5.

1. The subsequent project is identified in the Master EIR.

2. The project incorporates all applicable mitigation measures or project alternatives from the Master EIR.

3. 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. Feasible mitigation measures or alternatives were incorporated to revise the proposed later project, before the MND was released for public review, such that the potential significant effects have been eliminated or reduced to a less than significant level.

B. Program EIR

A Program EIR may be prepared on a series of related actions which can be characterized as one large project (CEQA Guidelines § 15168). A Program EIR can be used to support the determination made in an initial study to prepare either a Negative Declaration or an EIR for a later project under the program.

Pursuant to subdivision (c) of CEQA Guidelines § 15168, a MND prepared for a later project would focus on new effects which had not previously been considered in the Program EIR, and which can be reduced to a less than significant level by mitigation measures or revisions incorporated into the project. In addition to these measures or revisions, the project must incorporate all applicable mitigation measures and alternatives identified in the Program EIR (CEQA Guidelines §15168(c)). A MND is not recommended when the Program EIR identified unavoidable significant cumulative effects.

Findings -- OPR recommends that, in addition to the findings required under § 21080(c) and 21064.5, the Lead Agency find:

1. The project is consistent with the plans for which the Program EIR was prepared;
2. New effects which had not previously been considered in the program EIR have been reduced to less than significant by mitigation measures or revisions incorporated into the project; and
3. The project incorporates all applicable mitigation measures and alternatives identified in the program EIR.

C. Tiering

CEQA Guidelines § 15152 and § 21083.3 of the Public Resources Code allow a Negative Declaration to be adopted when an EIR has previously been prepared for a program, policy, plan or ordinance. The later project must be consistent with that program or other action and must not result in any significant effects which were not examined in that previous EIR. In order to tier from an EIR, the later project must be consistent with the general plan and zoning of the applicable city or county. The Negative Declaration must clearly state that it is being tiered upon a previous EIR, reference that EIR, and state where a copy of the EIR can be examined.

These requirements apply equally to MNDs. Of course, any potential significant effects that were not examined in the previous EIR must be avoided or completely mitigated if a MND is to be adopted. A MND is not recommended when the document on which it is being tiered has identified unavoidable significant cumulative effects.

Findings -- In addition to the findings required of a MND pursuant to § 21080 and 21064.5, OPR recommends that the Lead Agency find that:

1. The project is consistent with the program, policy, plan or ordinance for which the previous EIR was prepared.
2. The project is consistent with the general plan and zoning of the applicable city or county.
3. The project, as revised or mitigated, will not result in any significant effects which were not examined in the previous EIR.

D. Subsequent Negative Declarations

Where an EIR or Negative Declaration has been certified or adopted for a project, no additional EIR need be prepared for the same project unless there is substantial evidence before the agency that any of the following have occurred (CEQA Guidelines § 15162):

1. Subsequent changes are proposed in the project which will require important revisions of the previous EIR or Negative Declaration due to new significant effects not considered in the previous EIR or Negative Declaration.
2. Substantial changes occur with respect to the circumstances under which the project is undertaken which will require important revisions in the previous EIR or Negative Declaration due to the involvement of new significant effects not considered in the previous EIR or Negative Declaration.
3. New information relating to the significant effects of the project and means of reducing or avoiding those effects, which was not known and could not have been known at the time the previous EIR or Negative Declaration was certified or adopted, becomes available. "New information" is further defined in CEQA Guidelines § 15162(a)(3).

Because the project has already been the subject of either an EIR or Negative Declaration and the time for challenging the adequacy of the previous document is passed, the "fair argument" test does not apply (*Bowman v. City of Petaluma* (1986) 185 Cal.App.3d 1065). The project is judged by the "traditional substantial evidence" test instead. In other words, an EIR does not need to be prepared when substantial evidence exists for the occurrence of a significant effect, as long as the Lead Agency has substantial evidence showing none of the three situations described above exist. The courts will respect the Lead Agency's decision not to prepare a subsequent or supplemental EIR if there is substantial evidence in the record supporting the Lead Agency's finding that none of the three conditions exist that would warrant preparation of subsequent or supplemental EIR under § 15162 of the Guidelines.

Findings -- The findings required under § 21064.5 and 21080 should be sufficient.

IV. Court Cases Regarding MNDs

In recent years, the courts have supported the use of MNDs where the Lead Agency has been careful neither to ignore substantial evidence of one or more significant effects, nor attempted to defer mitigation. Following are very brief summaries of additional cases involving MNDs. Refer to the cases themselves for more specific information.

A. Mitigated Negative Declaration Upheld

The following cases from 1982-2004 summarize decisions in which the use of a MND was upheld by the courts.

Perley v. Board of Supervisors (1982) 187 Cal. Rptr. 53

This case was the first to challenge the validity of a MND. The petitioner claimed that a MND was a way for the board to cut out the public and avoid an EIR. Even though the specific code authorizing MNDs had not yet been passed, the court ruled an EIR was not required because there was no public controversy about the project and it could be shown to have no significant effect on the environment with mitigation measures.

Citizens for Responsible Development in West Hollywood v. City of West Hollywood (1995) 39 Cal.App.4th 925

The court affirmed the city's MND for a 40-unit low-income housing project which would rehabilitate and restore two craftsman-style homes on the front of the property and demolish another four buildings in the rear. West Hollywood had established a "Craftsman District" which encompassed the front buildings for purposes of historic preservation and established a Cultural Heritage Advisory Board (CHAB) to evaluate proposed activities within the district. The housing project was reviewed and approved by the CHAB as being benign relative to the architectural features and historic value of the front buildings and in conformance with the Secretary of Interior's rehabilitation standards.

The court found that there was no substantial evidence to support Citizen's claim that a historical resource was being adversely affected. Those structures deemed to be of historical importance were being rehabilitated and restored in accordance with adopted city, state, and federal regulations. The structures proposed for demolition were neither on a historic register nor eligible for the California Register, and their potential historical significance was duly investigated by the city during creation of the Craftsman District and dismissed.

Citizens' Committee to Save Our Village v. City of Claremont (1995) 37 CalApp.4th 1157

The city did not abuse its discretion by rejecting as irrelevant and untimely "new evidence" submitted by project opponents regarding a MND for a new, two-story college building. In prior litigation on the project, the trial court had ordered the city to make findings to support the MND. The project's opponents attempted to introduce new evidence at the hearing that the project would adversely affect a historically significant landscape garden. The court concluded that the material presented at the hearing was not new and that no substantial evidence

existed that a landscape garden planned for the project site in 1905 had ever been installed or maintained. Without evidence of an impact, no EIR was required.

San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus (1996) 42 Cal.App.4th 608

The court upheld a MND for a surface mining operation where there was no substantial evidence to support a fair argument of significant effect. The plaintiff's claim that the project would result in cumulative effects on birds, including the Swainson's Hawk, was vague and unsubstantiated by facts or expert opinion. The County, on the other hand, had three biologists confirm that the project would have no impact on endangered species. Further, the court affirmed, based on the Leonoff decision, that absent substantial evidence that the project would have a considerable incremental effect, and in the presence of expert testimony that it would not, an in-depth study of potential cumulative impacts was not a prerequisite to preparing a MND.

Bowman v. City of Berkeley (2004) 18 Cal.Rptr. 3d. 814

A neighborhood group challenged the approval of a MND prepared for a mixed-use, affordable senior housing project. Their main complaint was that the MND did not acknowledge a significant aesthetic impact of the project on the surrounding area. The project would have a four-story façade in an area with mainly two-story buildings. The court upheld the MND on the grounds that aesthetics were objective and the physical impact to the surrounding area was not significant.

B. Mitigated Negative Declaration Inadequate

The following cases from 1990-2004 summarize decisions in which the MND was found inadequate or insufficient by the court.

Oro Fino Gold Mining Corp. v. County of El Dorado (1990) 225 Cal.App. 3d 872.

The El Dorado County Planning Staff prepared a MND for the special use permit application of Oro Fino to perform exploratory mineral drilling. The El Dorado Planning Commission rejected the application, citing significant impacts that warranted an EIR. Oro Fino appealed to the County Board of Supervisors who also ruled an EIR was needed for the permit. Oro Fino sued and also claimed that a prior permit issued for exploratory drilling to another mining company under a MND gave precedent for their case. The Superior court denied their permit. The appellate court affirmed the lower courts decision. They found that there was substantial evidence to support the county's determination. The project could have a significant effect and therefore an EIR was required. The court also found that the project proponent could not use a prior case involving a different mining company since the two cases were not identical.

Quail Botanical Gardens Foundation v. City of Encinitas (1994) 29 Cal.App.4th 1597

The court overturned a MND for a 40-lot subdivision adjacent to the botanical garden on "fair argument" grounds. Expert testimony presented during the city's consideration of the subdivision indicated that the project would obscure views of the ocean from the Gardens,

resulting in a significant aesthetic impact that could not be completely mitigated. Since the impact could not be mitigated completely, a Negative Declaration could not be used.

Gentry v. City of Murrieta (1995) 36 Cal.App.4th 1359

The court set aside and ordered the city to reconsider the MND for a proposed 500-lot subdivision. Substantial evidence existed that the project would adversely impact the endangered Stephens kangaroo rat. In addition, Murrieta attempted to defer mitigation of this impact pending further study, as held improper in *Sundstrom v. County of Mendocino*. The city had also made a variety of procedural errors in circulating the Negative Declaration for review.

Stanislaus Audubon Society v. County of Stanislaus (1995) 33 Cal.App.4th 144

The court concluded that a country club and golf course proposed on agricultural land required preparation of an EIR. The court found that during the process of considering the project the county had been presented with an abundant amount of substantial evidence, including testimony from its own planning staff in the initial study, to support a fair argument that the project would have a significant growth-inducing effect on the surrounding agricultural area.

League for Protection of Oakland's Architectural and Historic Resources v. City of Oakland (1997) 52 Cal.App.4th 896

The city approved a shopping center which proposed to demolish the old Montgomery Ward store. The city had adopted a MND for the project, requiring that the store be documented before demolition, that the new center utilize design elements from the store, that a qualified archaeologist oversee the demolition, and other measures as mitigation for the impact on historical resources. Section 21084.1 provides that "[a] project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." The court held that because the Ward building is eligible for historic status and is described as historic in the city's general plan, § 21084.1 requires the city to consider this action a significant effect requiring preparation of an EIR.

Ocean View Estates Homeowners Association, Inc. v. Montecito Water District. (2004) 10 Cal. Rptr. 3d 451

The water district prepared a MND for a proposal to cover a reservoir. The project would place a four acre aluminum cover over the reservoir and provide landscaping to mitigate the impact on views from surrounding homes. The homeowner's association sued on the grounds that the aesthetic impact was significant and thus required an EIR. The Superior Court denied the petition. The Court of Appeal held that the mitigation measures discussed in the MND did not satisfy the requirements of CEQA and substantial evidence existed to support a fair argument that the project might have significant aesthetic impacts, and an EIR was required.

Architectural Heritage Association v. County of Monterey (2004) 19 Cal. Rptr. 3d 469

The County of Monterey proposed to demolish an old jail by way of a MND. The plaintiff sued due to inadequate mitigation measures and loss of historic value under the fair argument rule. The jail has historic value not only for architectural reasons but also that Cesar Chavez was incarcerated there for approximately two weeks. The court held that the County erred in proceeding without benefit of a full EIR. The mitigation measures, which consisted of photographs and documentation do not reasonably alleviate the impact of the jail's destruction.

V. Final Words

The use of MNDs has been affirmed by the courts since 1982 (*Perley v. County of Calaveras* 137 Cal.App. 3d. 424) and statutorily authorized since 1993. The purpose of the MND is to identify areas of potential significant impacts and incorporate mitigation measures to eliminate significant impacts before the environmental documentation is circulated for public review. This is beneficial to the Lead Agency because it can be more efficient than preparing an EIR. The MND can potentially benefit the community because the Lead Agency and project proponent have an agreement that legally obligates the project proponent to perform the mitigation measures. Through court cases the appropriate use of MNDs has been refined. The MND is becoming a more common tool because it is effective at reducing environmental impacts while streamlining the CEQA process.

DIAMOND SPRINGS COMMUNITY PARK

Draft Environmental Impact Report

SCH# 2023050469
September 2023

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Environmental Impact Report

Diamond Springs Community Park Project

SCH# 2023050469

SEPTEMBER 2023

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of vinyl chloride in air can cause nervous system effects, such as dizziness, drowsiness, and headaches. Long-term exposure through inhalation can cause liver damage, including liver cancer.

Hydrogen Sulfide

Hydrogen sulfide is a colorless and flammable gas that has a characteristic odor of rotten eggs. Sources of hydrogen sulfide include geothermal power plants, petroleum refineries, sewers, and sewage treatment plants. Exposure to hydrogen sulfide can result in nuisance odors, as well as headaches and breathing difficulties at higher concentrations.

Visibility-Reducing Particles

Visibility-reducing particles are any particles in the air that obstruct the range of visibility. Effects of reduced visibility can include obscuring the viewshed of natural scenery, reducing airport safety, and discouraging tourism. Sources of visibility-reducing particles are the same as for $PM_{2.5}$ described above.

Reactive Organic Gases

Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of O_3 are referred to and regulated as ROGs [also referred to as volatile organic compounds (VOCs)]. Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

The primary health effects of ROGs result from the formation of O_3 and its related health effects. High levels of ROGs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs. There are no separate health standards for ROGs as a group.

Non-Criteria Air Pollutants

Toxic Air Contaminants

A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic non-cancer health effects. A toxic substance released into the air is considered a TAC. TACs are identified by federal and state agencies based on a review of available scientific evidence. In the State of California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. In addition, the California Air Toxics "Hot Spots" Information and Assessment Act, Assembly Bill (AB) 2588, was enacted by the California State Legislature (Legislature) in 1987 to address public concern over the release of TACs into the atmosphere. The law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years.

Examples of TACs include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources, such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources, such as automobiles; and area sources, such as landfills. Adverse health

effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced with either short-term (acute) or long-term (chronic) exposure to a given TAC.

Diesel Particulate Matter

Diesel particulate matter (DPM) is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases, gas and particle, both of which contribute to health risks. More than 90% of DPM is less than 1 micrometer in diameter (about 1/70th the diameter of a human hair), and thus is a subset of $PM_{2.5}$ (CARB 2019f). DPM is typically composed of carbon particles ("soot," also called black carbon) and numerous organic compounds, including over 40 known carcinogenic organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene (CARB 2019d). CARB classified "particulate emissions from diesel-fueled engines" (i.e., DPM) (17 CCR Section 93000) as a TAC in August 1998. DPM is emitted from a broad range of diesel engines: on-road diesel engines of trucks, buses, and cars; and off-road diesel engines including locomotives, marine vessels, and heavy-duty construction equipment, among others. Approximately 70% of all airborne cancer risk in California is associated with DPM (CARB 2000). To reduce the cancer risk associated with DPM, CARB adopted a diesel risk reduction plan in 2000 (CARB 2000). Because it is part of $PM_{2.5}$, DPM also contributes to the same non-cancer health effects as $PM_{2.5}$ exposure. These effects include premature death; hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma; increased respiratory symptoms; and decreased lung function in children. Several studies suggest that exposure to DPM may also facilitate development of new allergies (CARB 2019f). Those most vulnerable to non-cancer health effects are children, whose lungs are still developing, and the elderly, who often have chronic health problems.

Naturally Occurring Asbestos

In El Dorado County, naturally occurring asbestos is another TAC of concern. Asbestos is the common name for a group of naturally occurring fibrous silicate minerals that can separate into thin but strong and durable fibers, with principal forms including chrysotile, crocidolite, amosite, tremolite, actinolite, and anthophyllite (OEHHA 2000). Naturally occurring asbestos is found in some areas throughout California, most commonly where ultramafic rock or serpentinite rock is present. When construction activities occur in areas with naturally occurring asbestos in the soils or rock, the asbestos fibers can become airborne and may be inhaled, which can cause chronic local inflammation and disrupt orderly cell division, both of which can facilitate the development of asbestosis (a noncancerous lung disease involving fibrotic scarring of the lungs) and cancer (OEHHA 2000).

Odorous Compounds

Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The ability to detect odors varies considerably among the population and overall is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. In a phenomenon known as odor fatigue, a person can become desensitized to almost any odor, and recognition may only occur with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

Table 3.2-3. Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentrations[c]	Primary[c,d]	Secondary[c,e]
Visibility reducing particles	8 hour (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70%	—	

Source: CARB 2016.
Notes: ppm = parts per million by volume; µg/m³ = micrograms per cubic meter; mg/m³= milligrams per cubic meter.

a California standards for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, suspended particulate matter—PM_{10}, $PM_{2.5}$, and visibility-reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in 17 CCR Section 70200.

b National standards (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

c Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

d National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

e National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

f On October 1, 2015, the primary and secondary NAAQS for O_3 were lowered from 0.075 ppm to 0.070 ppm.

g To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

h On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated non-attainment of the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

i On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m³ to 12.0 µg/m³. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m³, as was the annual secondary standard of 15 µg/m³. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m³ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

j CARB has identified lead and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

k The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated non-attainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

Toxic Air Contaminants

The state Air Toxics Program was established in 1983 under AB 1807 (Tanner). The California TAC list identifies about 200 pollutants, of which carcinogenic and noncarcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code. In accordance with AB 2728, the state list includes the (federal) HAPs. In 1987, the Legislature enacted the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) to address public concern over the release of TACs into the atmosphere.

AB 2588 law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years. TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment, and if specific thresholds are exceeded, the facility operator is required to communicate the results to the public in the form of notices and public meetings.

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines (CARB 2000). The regulation is anticipated to result in an 80-percent decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000. Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In Use Off-Road Diesel Vehicle Regulation, and the New Off-Road Compression-Ignition (Diesel) Engines and Equipment Program. These regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment. There are several airborne toxic control measures (ATCMs) that reduce diesel emissions, including In-Use Off-Road Diesel-Fueled Fleets (13 CCR Section 2449 et seq.), In-Use On-Road Diesel-Fueled Vehicles (13 CCR Section 2025), and Limit Diesel-Fueled Commercial Motor Vehicle Idling (13 CCR Section 2485).

Asbestos is strictly regulated due to its serious adverse health effects, including asbestosis and lung cancer, and based on its natural widespread occurrence and its use as a building material. CARB has established two ATCMs for naturally occurring asbestos. The first asbestos ATCM applies to Surfacing Applications (e.g., restricts the content of asbestos material used in surfacing applications, such as unpaved roads and parking lots), and the second asbestos ATCM is for Construction, Grading, Quarrying and Surface Mining Operations (i.e., requires implementation mitigation measures to minimize asbestos-laden dust during these activities). Pursuant to the ATCM for Construction, Grading, Quarrying and Surface Mining Operations, an Asbestos Dust Mitigation Plan is required for any project with greater than 1 acre of surface disturbance if any portion of the area to be disturbed is mapped as having serpentine or ultramafic rock, or if any portion of the area to be disturbed has naturally occurring asbestos as determined by the owner/operator or the Air Pollution Control Officer. The Asbestos Dust Mitigation Plan, which must include dust mitigation practices that are sufficient to ensure that no equipment or operation emits dust that is visible crossing the property line, would be required to be submitted to and approved by the local air district before any clearing, grading, or construction begins.

California Health and Safety Code Section 41700

Section 41700 of the Health and Safety Code states that a person shall not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose, health, or safety of any of those persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property (Health and Safety Code Section 41700). This section also applies to sources of objectionable odors.

3.2.2.3 Regional

El Dorado County Air Quality Management District

The El Dorado County Air Quality Management District (EDCAQMD) is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the MCAB, where the

STATE OF CALIFORNIA
GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH
STATE CLEARINGHOUSE AND PLANNING UNIT

ARNOLD SCHWARZENEGGER
GOVERNOR

CYNTHIA BRYANT
DIRECTOR

MEMORANDUM

To: All CEQA Lead Agencies

From: Terry Roberts, State Clearinghouse Director
Governor's Office of Planning and Research

Date: August 1, 2007

Re: **Addressing Naturally Occurring Asbestos in CEQA Documents**

I. Purpose

This advisory memorandum provides guidance to Lead Agencies to analyze the impacts of naturally occurring asbestos (NOA) on the environment through the California Environmental Quality Act (CEQA) review process.

II. Background

What it is:

Asbestos is a term used for several types of naturally occurring fibrous minerals that are a human health hazard when airborne. The most common type of asbestos is chrysotile, but other types such as tremolite and actinolite are also found in California. Asbestos is classified as a known human carcinogen by state, federal, and international agencies and was identified as a toxic air contaminant by the California Air Resources Board (CARB) in 1986. All types of asbestos are hazardous and may cause lung disease and cancer.

Serpentinite may contain chrysotile asbestos, especially near fault zones. Ultramafic rock, a rock closely related to serpentinite, may also contain asbestos minerals. Asbestos can also be associated with other rock types in California, though much less frequently than with serpentinite and/or ultramafic rock. However, information available at this time is insufficient to allow such occurrences to be mapped on a regional or statewide basis.

Where it is Found:

Serpentinite and/or ultramafic rock are known to be present in 44 of California's 58 counties. These rocks are particularly abundant in the counties of the Sierra Nevada foothills, the Klamath

Mountains, and Coast Ranges. These counties are identified in the attached list (Attachment 1). A report containing a map of ultramafic and serpentinite rock areas of the state that may contain NOA can be accessed at ftp://ftp.consrv.ca.gov/pub/dmg/pubs/ofr/ofr_2000-019.pdf. The report also contains definitions for asbestos, serpentine, serpentinite, and ultramafic rock. More detailed geologic maps indicating ultramafic rock units in California may be obtained from the Department of Conservation (DOC), California Geological Survey. It should be noted that these geologic maps are generalized depictions of the presence and distribution of rock types for given areas. Consequently, they may not show all potential occurrences of NOA within the areas they cover.

III. The Issue

Although NOA is present in many counties in California, many Lead Agencies are not aware of the environmental effects of NOA or how to analyze and mitigate them in the planning process.

Asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations. All of these activities may have the effect of releasing potentially harmful asbestos into the air. Natural weathering and erosion processes can act on asbestos bearing rock and make it easier for asbestos fibers to become airborne if such rock is disturbed.

IV. Regulations

Serpentinite and asbestos-bearing ultramafic rock materials used for surfacing applications subjected to vehicular, pedestrian, or non-pedestrian use, such as cycling and horse-back riding, may not contain more than 5% asbestos under the Asbestos Airborne Toxic Control Measure (ATCM) for Surface Applications adopted by the CARB in 1990. Several air pollution control districts adopted regulations in the early 1990's that lowered the limit on asbestos content to 1%, which is consistent with most regulations related to asbestos-containing materials in structures.

In July 2000, the CARB amended the ATCM whereby the allowable asbestos content was lowered to less than 0.25% (the detection limit for the specified analysis method) for surfacing applications. In addition, the amended rule prohibits the use of surfacing material from ultramafic rock units identified on specific geological maps developed by the DOC, unless testing of the material demonstrates that it is below the 0.25% asbestos content limit. Some limited exemptions are contained in the rule with the requirement that applications for the exemptions be filed with the local air pollution control or air quality management districts. The geological maps described in the regulation can be purchased through the DOC at the address listed below. More information about the CARB's ATCM for Surface Applications can be

obtained through the CARB web site, or by contacting them directly at the address listed in Section VI of this memo.

In July 2001, the CARB approved the ATCM for Construction, Grading, Quarrying and Surface Mining Operations to minimize NOA through the application of best management practices for fugitive dust from construction, grading and quarrying operations. Under this regulation, the ATCM requires dust control mitigation measures to be used on projects where construction activities, grading, quarrying and surface mining operations occur in areas known to have NOA. In addition, prior to the commencement of project activities, this ATCM requires notification to local air pollution control or air quality management districts.

V. Addressing the NOA Issue through CEQA Review

NOA is an environmental issue appropriate for analysis and review under CEQA. The CEQA process provides an opportunity for Lead Agencies to identify whether serpentinite or ultramafic rocks will be disturbed by the proposed project and to investigate ways to avoid, control, or otherwise mitigate the impacts of NOA. In addition, CEQA gives Lead Agencies the authority to require mitigation measures as a condition of the approval of a proposed project. NOA analysis can be logically included in the typical impact analysis for air quality, human health, and geology and soils.

Why CEQA?

CEQA requires that Lead Agencies evaluate the effects of proposed projects on the environment, including public health and safety impacts such as those resulting from the release of NOA by project activities. CEQA Guidelines Section 15126.2 specifically states:

> "In assessing the impact of a proposed project on the environment, the Lead Agency should normally limit its examination to changes in the existing physical conditions in the affected area as they exist at the time the notice of preparation is published, or where no notice of preparation is published, at the time environmental analysis is commenced. Direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects. The discussion should include relevant specifics of the area, the resources involved, physical changes, alterations to ecological systems, and changes induced by population distribution, population concentration, the human use of land (including commercial and residential development), health and safety problems caused by physical changes (emphasis added), and other aspects of the resource base such as water, historical resources, scenic quality and public services."

The CEQA process enables early identification of NOA and its associated environmental impacts. This encourages better decision-making by Lead Agencies and strengthens the Lead Agency's ability to protect the public health and welfare. The Lead Agency also benefits from greater protection against legal challenges to the adequacy of the CEQA document, if the NOA impacts and mitigation measures are clearly addressed.

How to Address the NOA Issue in a CEQA Document:

The Lead Agency should address the possibility of human exposure to NOA in the CEQA document for a proposed project. The Lead Agency should identify the nature and extent of exposure to NOA based on the project location and type of development that is being proposed. Even if the presence of NOA is not indicated or suggested by available state maps, it should still be addressed within the CEQA document if NOA is otherwise known to occur in an area.

Analysis of the NOA issue can be incorporated into the CEQA document's sections on air quality, geology and soils, and/or human health, depending on the nature of the project. Thresholds of significance should be developed to determine if the impacts from NOA are significant.

Jurisdictions that are known to have large amounts of NOA may want to develop standardized mitigation measures when those thresholds are reached. The CARB has developed a list of suggested mitigation measures that can reduce emissions during the design, construction, and operation phases of projects. These measures are listed in the attached table (Attachment 2). As mentioned earlier, the CARB adopted a regulation to minimize NOA emissions from construction, grading, and quarrying operations through the use of best management practices, including those in Attachment 2. Check with the CARB for any updates to these dust mitigation options by checking its web site at http://www.arb.ca.gov/toxics/asbestos/asbestos.htm, or by contacting them directly at the address listed below. If a Lead Agency considers these mitigation measures to be inadequate, they may develop alternative mitigation measures and/or propose project alternatives.

VI. For More Information

The CARB and the DOC have done considerable research on NOA. In 2002, the DOC developed guidelines for geologic investigations of sites where NOA may be present. The DOC has also completed several maps and reports related to NOA in California, but such specialized maps are unavailable for most of the state at this time. In their absence, DOC can provide information on the availability and use of existing geologic and soil maps to identify areas in California with the potential for NOA. The following links are provided for access to additional information on NOA.

California Air Resources Board
Asbestos: www.arb.ca.gov/toxics/asbestos/asbestos.htm
Asbestos Regulatory Information: www.arb.ca.gov/toxics/asbestos/reginfo.htm
Asbestos ATCM for Surface Applications: www.arb.ca.gov/toxics/atcm/asbeatcm.htm
Asbestos ATCM for Construction, Grading, Quarrying and Surface Mining Operations: www.arb.ca.gov/toxics/atcm/asb2atcm.htm

California Department of Conservation
Asbestos: www.consrv.ca.gov/cgs/minerals/hazardous_minerals/asbestos/index.htm

Guidelines for Geologic Investigations of Naturally Occurring Asbestos in California:
www.consrv.ca.gov/cgs/minerals/hazardous_minerals/asbestos/Asbestos_Guidelines_SP124.pdf

For more information and technical assistance in addressing this issue in your CEQA documents, please contact:

State Clearinghouse
Office of Planning and Research
1400 Tenth Street, Room 212
P.O. Box 3044
Sacramento, CA 95812-3044
Telephone (916) 445-0613
Website: www.opr.ca.gov/clearinghouse.html
E-Mail: state.clearinghouse@opr.ca.gov

California Air Resources Board (CARB)
Public Information Office
P.O. Box 2815
Sacramento, CA 95812
Telephone: (916) 322-2990
Website: www.arb.ca.gov

California Department of Conservation (DOC)
California Geological Survey
801 K Street MS 14-34
Sacramento, CA 95814-3532
Telephone: (916) 445-5716
Website: www.consrv.ca.gov

Attachments

1) Counties Containing Serpentinite and Ultramafic Rock
2) Ways to Control Naturally Occurring Asbestos Dust

Attachment 1

Counties Containing Serpentinite and Ultramafic Rock
(In Alphabetical Order)

Alameda	Los Angeles	Santa Barbara
Amador	Madera	Santa Clara
Butte	Marin	Shasta
Calaveras	Mariposa	Sierra
Colusa	Mendocino	Siskiyou
Contra Costa	Merced	Solano
Del Norte	Monterey	Sonoma
El Dorado	Napa	Stanislaus
Fresno	Nevada	Tehama
Glenn	Placer	Trinity
Humboldt	Plumas	Tuolumne
Imperial	San Benito	Tulare
Kern	San Francisco	Yolo
Kings	San Luis Obispo	Yuba
Lake	San Mateo	

Note: A map of the areas known to contain naturally occurring asbestos is available at: ftp://ftp.consrv.ca.gov/pub/dmg/pubs/ofr/ofr_2000-019.pdf. In addition, the Department of Conservation, California Geological Survey, can be contacted for more detailed quadrangle maps (scale 1: 250,000) that indicate locations of ultramafic rock units in more specific regions of the state.

Attachment 2

Ways to Control Naturally Occurring Asbestos Dust

Shown below are suggested ways to control asbestos dust from construction projects and roadways. These mitigation measures will not completely eliminate asbestos dust, but offer options to reduce the release of airborne asbestos fibers from various activities.

Construction Projects and Roadways

Dust Source	Mitigation Measure	Application Frequency	Relative Effectiveness[1]
Excavation	Water wetting	as needed	2-3
	Excavate during calm periods	when possible	1
Mobile Construction Equipment	Water wetting of roads surfaces	as needed	2-3
	Rinse vehicles / equipment	as needed	3
	Wet loads of excavated material	each load	3
	Cover loads of excavated material	each load	2-3
	Wet and cover loads	each load	4
Exposed Serpentine Areas	Water wetting	as needed	3-4
	Cover with 6 to 12 inches of non-asbestos material	end of project	4
	Wind breaks / berms	where needed	1-2
	Chemical sealants / dust suppressants	3 mos. - 1 yr.	3
	Vegetative reclamation	end of project	3
	Asphalt cement paving	as needed	4
Roads	Water wetting	as needed	3-4
	Speed control	always	1-3
	Wind breaks / berms	where needed	1-2
	Cover with 2 to 4 inches of non-asbestos rock	as needed	3-4
	Chemical sealants / dust suppressants	3 mos. - 1 yr.	2-3
	Single-coat chip/seal	as needed	4
	Triple-coat chip/seal	as needed	4
	Petroleum sealants	as needed	4
	Asphalt cement paving	as needed	4

1. Subjective rating where: 1 = least effective, and 4 = most effective

DRAFT PARTIALLY REVISED ENVIRONMENTAL IMPACT REPORT

Guenoc Valley Mixed Use Planned Development Project

July 2024

LEAD AGENCY:

Lake County Community Development Department
255 N. Forbes St. #330
Lakeport, CA 95453

Draft Partially Revised Environmental Impact Report

GUENOC VALLEY MIXED USE PLANNED DEVELOPMENT PROJECT

July 2024

LEAD AGENCY:

Lake County Community
Development Department
255 N. Forbes St. #330
Lakeport, CA 95453

PREPARED BY:

Acorn Environmental
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(916) 235-8224
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Executive Summary

INTRODUCTION

This section provides a summary of the Guenoc Valley Mixed-Use Planned Development Project (Proposed Project) Partially Revised Environmental Impact Report (PREIR). This chapter also includes a table summarizing the impacts of the Modified Project that have been assessed within this PREIR and mitigation measures that have been identified to reduce potentially significant impacts.

PROJECT UNDER REVIEW

The Proposed Project includes the development of a master planned mixed-use resort and residential community within a portion of the Guenoc Valley Ranch property. The Project as evaluated in the 2020 EIR includes a General Plan amendment to designate the 16,000-acre Guenoc Valley Site (Project Site) as Resort Commercial and rezone it to Guenoc Valley District (GVD). These amendments would allow for the development of up to 400 hotel rooms, 450 resort residential units, 1,400 residential estates, and 500 workforce co-housing units (the "Original Project") within the zoning district. Phase 1 of the Original Project included the phased subdivision and related entitlements to allow up to 401 residential estates, 141 resort residential units, 177 hotel units, and accessory resort and commercial uses. In addition, Phase 1 includes a subdivision and rezoning of an off-site parcel (Middletown Housing Site) to accommodate 21 single family residences with optional accessory dwelling units, 29 duplex units in 15 structures, and a community clubhouse and associated infrastructure. Other off-site infrastructure improvements under Phase 1 analyzed in the 2020 EIR included a proposed water supply well on an off-site parcel (Off-Site Well Site) and pipeline located adjacent to and within Butts Canyon Road, along with intersection and electrical improvements (collectively referred to as 'Off-Site Improvements').

The Project Modifications revise the Original Project analyzed in the 2020 EIR such that 25 building sites within the Equestrian Center area and 39 building sites within the northeastern portion of the Project Site would be relocated further from the wildland/urban interface, and various connector roads and road buffers would be added. The Project Modifications include voluntary measures and some contained within a settlement agreement with the State of California, and which are intended to further reduce the wildfire risks and greenhouse gas emissions associated with the Proposed Project. The Project Modifications include the following:

- A new proposed emergency route called the Grange Road Connector will connect the Guenoc Valley Site with the County-maintained Grange Road to the north. The Grange Road Connector will be approximately 3.9 miles, with 2.2 miles occurring on the Guenoc Valley Site and 1.7 miles sited on the off-site property to the north;
- Relocating 25 residential building sites that the 2020 Project would have located on a hilltop near the proposed Equestrian Center and 39 residential building sites that the 2020 Project would have located within the northeastern portion of the Project site such that they would be located further from the wildland/urban interface;
- Reconfiguring the roadway plan so that there are no dead-end, non-looped road segments that exceed 1-mile in length;

- Improving an area of approximately 10 feet on each side of roadways with hardscape, to the extent topography permits;
- Removal of the camping area in the northern portion of the property;
- Funding and staffing commitments for the onsite Emergency Response Center; and
- Various renewable energy commitments and greenhouse gas reduction measures that will not change the development footprint.

PROJECT LOCATION

The Guenoc Valley Site (Project Site) consists of approximately 16,000 acres located in the southeast portion of incorporated Lake County (County). The site is generally bounded by Long Valley and Coyote Valley to the west, a U.S. Coast Guard LORAN station military reservation to the northwest, the Cedar Mountains to the north, and the Lake County / Napa County border to the east. The project site is located in the "Middletown," "Jericho Valley," "Detert Reservoir," and "Aetna Springs" U.S. Geological Survey (USGS) 7.5 Minute Topographic Quadrangles. The site is located north and south of an approximately five mile segment of Butts Canyon Road, approximately four miles east of the intersection of State Route (SR) 29 / Butts Canyon Road, and 1.5 miles west of the intersection of Snell Valley Road / Butts Canyon Road. The project site is approximately 3.5 miles east of the unincorporated community of Middletown, and is directly adjacent to the Napa County line.

SUMMARY TABLE

Table ES-1 presents a summary of project impacts and proposed mitigation measures that would further avoid or minimize potential impacts. These mitigation measures were either introduced in the 2020 EIR or modified within this PREIR; the full mitigation measures are included in **Section 5**. In the table, the level of significance of each environmental impact is indicated both before and after the application of the recommended mitigation measure(s). For detailed discussions of all project impacts and mitigation measures, refer to environmental analysis sections in **Section 3** and **Section 4** of this PREIR.

Acronyms used within **Table ES-0-1** to describe levels of significance are explained below:

- BI – Beneficial impact
- NI – No impact
- LTS – Less than significant
- PS – Potentially significant
- S – Significant
- SU – Significant and unavoidable

Impact Number	Environmental Impact	2020 EIR Conclusion (Original Project: Level of Significance Before Mitigation \ After Mitigation)	Mitigation Measures	PREIR Conclusion (Modified Project: Level of Significance Before Mitigation \ After Mitigation)
			MM 3.4-1: Construction Best Management Practices; MM3.4-2: Work Environmental Awareness Training; MM 3.4-3: General Special-Status Plant Mitigation; MM 3.4-4: American Badger Impacts; MM 3.4-5: Ringtail Impacts; MM 3.4-6: Bat Maternity Roosts and Special-Status Bat Impacts; MM 3.4-7: Artificial Lighting Impacts; MM 3.4-8: Special-Status Birds – Nesting; MM 3.4-9: Special-Status Birds – Burrowing Owl; MM 3.4-10: Northwestern Pond Turtle Impacts – Construction; MM 3.4-11: Foothill Yellow-Legged Frog Impacts – Construction; MM 3.4-12: Invasive Species Management – Operation; MM 3.4-13: Aquatic Habitat Public Signage; MM 3.9-1: Storm Water Pollution Prevention Plan; MM 3.9-2: Aggregate/Concrete Monitoring and Reporting Program; MM 3.4-21: Domestic Cat Predation; and MM 3.10-2: Construction Noise Reduction.	
3.4-2	Substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS.	**Guenoc Valley Site:** S \ LTS **Off-Site Areas:** S \ LTS	*Modifications to the following:* MM 3.4-15: Impact to Sensitive Habitats (added newly designated serpentine rock outcrop); MM 3.4-18: Sensitive Habitat Impacts from Wildfire Clearing (added newly designated serpentine rock outcrop). *No modifications to the following from the 2020 EIR:* MM 3.4-1 Construction Best Management Practices; MM 3.9-1 Storm Water Pollution Prevention Plan; MM 3.9-2 Aggregate/Concrete Monitoring and Reporting;	S \ LTS

4.3.5 Mitigation Measures

No changes to the mitigation measures are warranted as a result of the Project Modifications. A full list of the mitigation measures is included in the MMRP in **Section 5**.

4.4 BIOLOGICAL RESOURCES

4.4.1 Introduction

The 2020 EIR, Volume II, Section 3.4.2 includes a detailed description of the environmental setting related to biological resources on the Guenoc Valley Site, Middletown Housing Site, and Off-Site Infrastructure Improvement Areas that is not repeated in its entirety within this PREIR. **Section 4.4.2** of this PREIR includes a description of only the environmental setting related to biological resources that has changed since the 2020 EIR. **Section 4.4.3** of this PREIR includes a description of relevant laws and ordinances that have been passed or amended since preparation of the 2020 EIR. The full discussion of the environmental and regulatory settings is available in the 2020 EIR (**Appendix D**). **Section 4.4.4** of this PREIR describes methods of analysis and provides a discussion on whether Project Modifications would result in new significant effects or a substantial increase in the severity of previously identified effects. Mitigation for impacts to biological resources is discussed in **Section 4.4.5**.

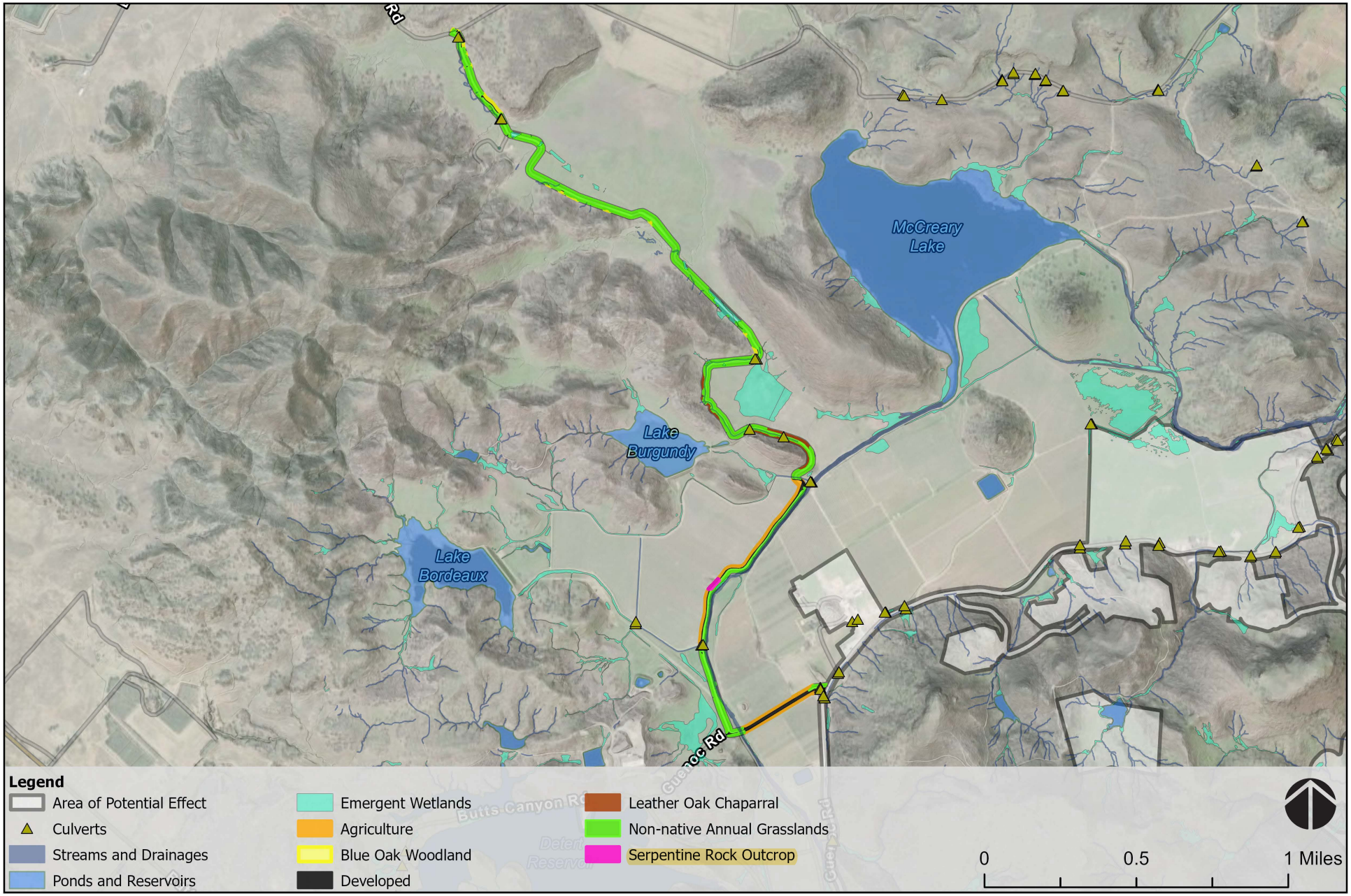
4.4.2 Environmental Setting

The 2020 EIR, Volume II, Section 3.4.2 provided information on the biological resources setting, including habitat types, wetlands and waters, wildlife movement corridors, and designated critical habitat that occurs within or near the Guenoc Valley Site. The 2020 EIR additionally described the special-status plants and wildlife with the potential to occur within the Guenoc Valley Site. These topics are discussed in detail below, focusing on changes or updates that have occurred since the 2020 EIR.

Habitat Types

There were 22 terrestrial habitat types and 3 aquatic habitat types observed within the Guenoc Valley Site, each described in detail in the 2020 EIR (**Appendix D**). While the Project Modifications would result in an overall reduction of the APE and Development Area, changes to the Connector Roadway alignments and Parcel Reconfiguration would result in impacts in areas not previously assessed in the 2020 EIR at the project level, and the addition of the Grange Road Connector would result in impacts in an area adjacent to the Guenoc Valley Site that was not assessed at the project or programmatic level in the 2020 EIR. Therefore, an updated Biological Resources Assessment (BRA) was prepared for the Project Modifications that includes: 1) the areas of potential impacts outside of the Guenoc Valley Site associated with the off-site portion of the Grange Road Connector that were not previously assessed; 2) the on-site portions of the Grange Road Connector that were described at a programmatic level in the 2020 EIR; and 3) all other areas within the Guenoc Valley Site that, due to the Project Modifications, are within the Modified APE but outside of the 2020 APE and were therefore only described at the programmatic level in the 2020 EIR (**Appendix I-1**).

Table 4.4-1 provides a breakdown of habitat type acreages within the totality of the Guenoc Valley Site that considers the updated BRA included in **Appendix I-1**. Additionally, the habitat types mapped within the portion of the Grange Road Connector that falls outside of the Guenoc Valley Site are identified in the table below and depicted in **Figure 4-6**.



Source: Airbus,USGS,NGA,NASA,CGIAR,NCEAS,NLS,OS,NMA,Geodatastyrelsen,GSA,GSI and the GIS User Community, County of Napa, California State Parks, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc,

FIGURE 4-6

BIOLOGICAL COMMUNITIES WITHIN GRANGE ROAD CONNECTOR

Table 4.4-1: Habitat Types

Habitat Type	Acres on the Guenoc Valley Site from 2020 EIR	Updated Acres on Guenoc Valley Site Plus Grange Road Connector
Terrestrial		
Developed	218.2	213.3
Agriculture (currently developed)	1,001.6	1,279.6
Rock outcrop	37.9	13.8
Serpentine rock outcrop	N/A	18.9
Non-native annual grassland	2,259.4	2,284.1
Purple needlegrass grassland	11.7	12.1
Leather oak chaparral	2,573.2	2,529.8
Scrub oak chaparral	49.8	50.1
Chamise chaparral	987.2	978.1
Whiteleaf manzanita chaparral	150.4	150.5
Musk brush chaparral	33.1	31.8
California Yerba Santa scrub	37.9	38.2
Deer weed scrub	19.7	19.7
White alter grove	10.9	10.9
Brewer willow thicket	3.6	4.5
Douglas fir forest	61.5	58.6
Sargent cypress woodland	10.7	10.7
Foothill pine woodland	1,400.7	1,379.0
Interior live oak woodland	756.5	749.7
Valley oak woodland	49.3	48.7
Blue oak woodland	3,472.4	3,454.5
Blue oak savanna	1,238.7	1,215.2
Mixed oak woodland	174.9	172.6
Aquatic		
Streams and drainages	199.3 (1,079,758 linear feet)	191.7
Ponds and reservoirs	658.1	661.2
Emergent wetlands	429.7	407.4
Totals*	**15,846.4**	**15,984.7**

*The total updated acreage exceeds the acreage presented in the 2020 EIR for the Guenoc Valley Site due to the inclusion of the portion of the Grange Road Connector that is outside of the Guenoc Valley Site. Additionally, a portion of land internal to the Guenoc Valley Site identified as "Not in Project Site" in the 2020 EIR (See Figure 2-1 of the 2020 EIR) is now partially within the Modified APE. Impacts within this area are limited to road alignments along existing farm roads in an area that will be leased out for maintenance of existing vineyard.

Precise boundaries of habitat types can shift in their distribution over time due to ecological succession or natural occurrences (e.g., wildfire). The Guenoc Valley Site experienced the Valley Fire in August 2020 after the Final EIR was prepared, and ongoing vineyard development as allowed by the Guenoc Water Rights Modification Project has occurred, which resulted in some variation in habitat acreages as compared to the 2020 EIR. Approximately 276 acres of additional vineyard has been developed on the property, which has resulted in the conversion of other habitat types. These changes in habitat distribution, either due to previously-authorized agricultural conversion or due to natural occurrences, are not evaluated herein as the 2020 EIR (Volume II Section 2.5.2.10) already considered an extended timeframe for development commencing in mid-2020 and continuing over the course of approximately 8-10 years. Section 3.4.4 of Volume II of the EIR considered the potential for habitats and vegetative communities to shift over time and presented an analysis and mitigation based on the assumption that

construction would not commence for several years following publication of the 2020 EIR and would continue for approximately 8-10 years. Therefore, natural shifts in vegetation and previously-authorized agricultural conversions were accounted for in the 2020 EIR analysis. Only those 333 acres within the Modified APE that were previously reviewed at a programmatic level have been subject to additional surveys, mapping, and analysis included in a supplemental BRA to ensure a project-level assessment of potential impacts (**Appendix I-1**).

No substantial changes to the condition or quality of terrestrial habitats were observed, therefore full habitat descriptions are not repeated herein. Complete descriptions of each of the habitat types are provided in Volume II, Section 3.4.2 of the 2020 EIR (**Appendix D**).

One new terrestrial habitat type was observed as a result of the supplemental BRA: serpentine rock outcrop. This habitat type was previously identified as rock outcrop, however, since publication of the 2020 EIR, the California Department of Fish and Wildlife (CDFW) has provided further descriptors of rock outcrop habitats to include specific subtypes of rock outcrops that are considered sensitive. Therefore, updated mapping of this habitat type is not a reflection of changed conditions within the Guenoc Valley Site, but rather a reflection of updated habitat classification systems. This habitat is described below.

Serpentine Rock Outcrop

This natural community occurs on rocky serpentine slopes, ridges, and outcrops in the California Coast Range, Klamath Mountains, Sierra Nevada Range and foothills, and southern Cascades (**Appendix I**). Vegetative cover is sparse. Where vegetation is present, plant species are characterized by serpentine indicator species (**Appendix I**). Within the totality of the Guenoc Valley Site and Grange Road connector, 18.9 acres of this habitat occurs. Plant species present include sickle leaf onion (*Allium falcifolium*), golden buckwheat (*Eriogonum luteolum* var. *luteolum*), western flax (*Hesperolinon* spp.), and Sonoma lessingia (*Lessingia ramulosa*).

Wetlands and Waters

Aquatic habitats within the Guenoc Valley Site and the footprint of the Grange Road Connector have the potential to be jurisdictional wetlands or waters of the U.S. under the CWA. An Aquatic Resources Delineation Report was prepared in support of the 2020 EIR for the 2020 APE. This report conservatively assumes that all aquatic features within the Modified APE are potentially jurisdictional. No new aquatic habitat types were observed on the Guenoc Valley Site or the off-site portion of the Grange Road Connector as a result of the supplemental BRA (**Appendix I**). **Appendix I**, similar to the 2020 EIR, identified streams and drainages, ponds and reservoirs, and emergent wetlands. Specifically, these areas include the following:

- Streams and Drainages: perennial streams, intermittent streams, ephemeral streams, and ephemeral ditches
- Ponds and Reservoirs: Open waters
- Emergent wetlands: seasonal wetland depressions, seasonal wetland ditches, seasonal wetland pond fringes, seasonal wetland seeps/swales, seasonal wetland wet meadow, stream fringe/in-stream wetlands, and riparian woodland

Complete descriptions of the aquatic habitat types are provided in Volume II Section 3.4.2 of the 2020 EIR and includes streams and drainages, ponds and reservoirs, and emergent wetlands.

Wildlife Movement

The Guenoc Valley Site and surrounding area continues to remain a mixture of low-density residential and agricultural development and open space, consistent with what was presented in the 2020 EIR, Volume II, Section 3.4.2. The 2020 EIR reviewed the California Essential Habitat Connectivity Project and the Building Landscape Connectivity for Climate Adaptations: Mayacamas to Berryessa Connectivity Network (M2B) Final Report. Per the California Essential Habitat Connectivity Project, the Guenoc Valley Site is not within an Essential Connectivity Area. However, the M2B study identified high levels of riparian permeability within the Guenoc Valley Site as well as multiple potential wildlife movement corridors and four least-cost pathways. There are no changes to the general setting as it relates to wildlife movement in the region, and no changes to the California Essential Habitat Connectivity Project and M2B study have occurred (Spencer, 2010; Pepperwood Preserve, 2018). Therefore, there are no changes to the wildlife movement setting as presented in the 2020 EIR. A complete description of the wildlife movement setting is provided in the 2020 EIR, Volume II, Section 3.4.2.

Critical Habitat

As stated within the 2020 EIR Volume II Section 3.4.2, no Critical Habitat, Essential Fish Habitat, or other habitat designated by federal, State, or local conservation plans occur on the Guenoc Valley Site. An updated review of the U.S. Fish and Wildlife Service (USFWS) mapper of Critical Habitat and the National Oceanic and Atmospheric Administration mapper of Essential Fish Habitat confirmed that Critical Habitat and Essential Fish Habitat remain absent from the Guenoc Valley Site and immediately adjacent land, including the portion of the Grange Road Connector outside of the Guenoc Valley Site (USFWS, 2024; National Oceanic and Atmospheric Administration [NOAA], 2024).

Special-Status Wildlife

A BRA was prepared to assess the footprint of the Grange Road Connector and the portion of the Guenoc Valley Site that was assessed at a programmatic level in the 2020 EIR but which now falls within the Modified APE. Section 5.2 of the BRA (**Appendix I**) assessed the potential for these areas to support special-status species based on surveys completed following publication of the 2020 EIR, as well as updated database searches from the USFWS, CDFW, and CNPS. There are 24 special-status wildlife species that have the potential to occur within the Modified APE, as summarized in **Table 4.4-2**.

Table 4.4-2: Special-Status Wildlife with Potential to Occur within the Modified APE

Species	Status	Potential to Occur	Change Since 2020 EIR
Mammals			
Pallid bat (*Antrozous pallidus)*	SSC	Observed onsite (foraging)	No change
Ring-tailed cat (Ringtail) *(Bassariscus astutus)*	CFP	Moderate	No change
Townsend's big-eared bat *(Corynorhinus townsendii)*	SSC	High	No change
Western red bat *(Lasiurus blossevillii)*	SSC	Moderate	No change
American badger *(Taxidea taxus)*	SSC	Moderate	No change
Birds			
Tricolored blackbird *(Agelaius tricolor)*	ST, SSC	High	No change

Species	Status	Potential to Occur	Change Since 2020 EIR
Grasshopper sparrow *(Ammodramus savannarum)*	SSC	High	No change
Golden eagle *(Aquila chrysaetos)*	CFP	Observed onsite (nesting and foraging)	No change
Long-eared owl *(Asio otus)*	SSC	Moderate	No change
Burrowing owl *(Athene cunicularia)*	SSC	Moderate	No change
Northern harrier *(Circus hudsonius)*	SSC	Observed onsite (foraging)	No change
Olive-sided flycatcher *(Contopus cooperi)*	SSC	Moderate	No change
White-tailed kite *(Elanus leucurus)*	CFP	Observed onsite (foraging)	No change
American peregrine falcon *(Falco peregrinus anatum)*	CFP	Observed onsite (nesting)	No change
Bald eagle *(Haliaeetus leucocephalus)*	SE, CFP	Observed onsite (nesting and foraging)	No change
Yellow-breasted chat (*Icteria virens)*	SSC	Moderate	No change
Least bittern *(Ixobrychus exilis)*	SSC	Moderate	No change
Loggerhead shrike *(Lanius ludovicianus)*	SSC	High	No change
Purple martin *(Progne subis)*	SSC	High	No change
Yellow warbler *(Setophaga* [*Dendroica*] *petechia brewsteri)*	SSC	Observed onsite (foraging)	No change
Yellow-headed blackbird (*Xanthocephalus xanthocephalus)*	SSC	Observed onsite (nesting)	No change
Insects			
Monarch Butterfly (Danaus plexippus)	FC	Moderate	Newly considered under Federal Endangered Species Act
Reptiles			
Northwestern pond turtle *(Actinemys marmorata)*	SSC	Observed onsite (multiple locations)	No change
Amphibians			
Foothill yellow-legged frog *(Rana boylii)*	SSC	Observed onsite (multiple locations)	No change

Notes:
CFP – California Fully Protected Species
SC – California State Listed Candidate Species
SE – State Endangered
SSC – California Species of Special Concern
ST – California State Listed Threatened Species
FC – Federal Candidate

There is one new species identified in **Table 4.4-2** that was not assessed in the 2020 EIR: Monarch butterfly. The Monarch butterfly was identified as a "Candidate" species for listing on December 17, 2020, and therefore was not considered in the 2020 EIR as it was not designated as a Candidate species at that time. An account of this species and its potential to occur within the Modified APE is presented below.

Additionally, western pond turtle has been re-classified as northwestern pond turtle and is described within this PREIR as northwestern pond turtle. The northwestern pond turtle was proposed for federal Threatened status on October 3, 2023 (88 FR Vol 190, 68370) with a rule under section 4(d) of the Federal Endangered Species Act (FESA). Critical Habitat for northwestern pond turtle has not been designated,

nor has a Recovery Plan been completed (**Appendix I**). No other changes to the species description for the northwestern pond turtle have occurred, and more details about this species can be found in the 2020 EIR under 'western pond turtle'.

Finally, at the time of the 2020 EIR, foothill yellow-legged frog was considered a State species of special concern and was a State candidate for listing under the California Endangered Species Act (CESA). However, it was determined that formal listing was not warranted. Therefore, this species is only considered now as a species of special concern. No other changes to the species description for the foothill yellow-legged frog have occurred, and more details can be found in the 2020 EIR (**Appendix D**).

There are no other newly considered special-status species not considered in the 2020 EIR. Potential for species to occur remains the same, and no new special-status animals have been observed since the 2020 EIR.

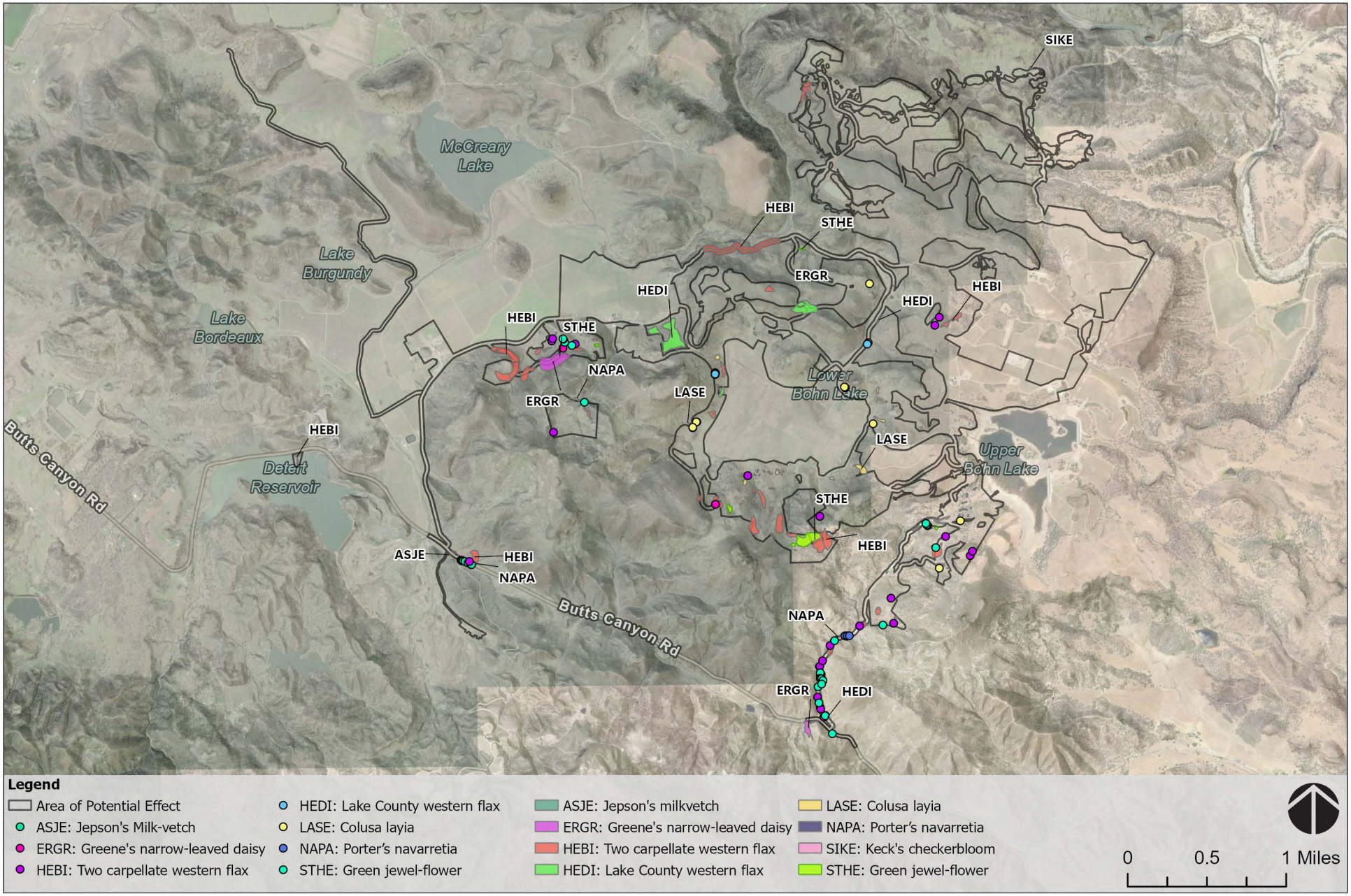
Monarch Butterfly

A description of Monarch butterfly is provided in Section 5.2.2 of **Appendix I**. As stated within **Appendix I**, Monarch butterfly is found throughout the United States, southern Canada, and Central America. It also occurs in parts of South America and other continents. In North America, this species spends the spring and summer months breeding and foraging across much of its range. The monarch butterfly generally uses milkweed (*Asclepias spp*.) for both breeding and as a nectar source, although nectar may also be obtained from a variety of additional plant species. From August to October, monarchs will migrate to winter roost sites along the California coast and central Mexico. At roost sites, monarchs will congregate in thousands or millions on a tree or group of trees. Monarchs prefer overwintering habitat comprised of a relatively dense grove of trees with some understory, located near water and nectar sources and protected from the wind by topographic landforms or trees. Winter roost sites are often on south, southwest, or west facing slopes which may provide more favorable temperature regimes and wind protection. Monarch butterflies typically arrive in mid-October to overwintering sites along the California coast and remain until late February or March.

Monarchs roost along the coast, which is outside the Modified APE; therefore, there is no potential for roosting. This species may be seen migrating across the Modified APE, but the Project Modifications will not remove roost sites. Host (milkweed) and nectar plants are present in the Modified APE, and monarchs may breed in the Modified APE in spring/early summer.

Special-Status Plants

In addition to the special-status wildlife identified above, **Appendix I** identified 51 special-status plant species with the potential to occur within the Modified APE. **Table 4.4-3** summarizes those special-status plant species that have the potential to occur within the Modified APE based on **Appendix I** and the data collected in support of the 2020 EIR. These plant populations are depicted in **Figure 4-7**.



Source: Lake County Community Development and General Plan; County of Napa, California State Parks, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS,

FIGURE 4-7

SPECIAL STATUS PLANTS WITHIN PHASE 1 APE

Table 4.4-3: Special-Status Plants with Potential to Occur within the Modified APE

Species	Status	Potential to Occur	Change Since 2020 EIR
Napa false indigo (*Amorpha californica var. napensis*)	1B.2	Moderate	No change
Bent-flowered fiddleneck (*Amsinckia lunaris*)	1B.2	Moderate	No change
Konocti manzanita (*Arctostaphylos manzanita ssp. elegans*)	1B.3	Observed onsite outside 2020 APE	No change, observations outside of Modified APE
Clara Hunt's milk-vetch (*Astragalus claranus*)	FE, ST, 1B.1	Moderate	No change
Jepson's milk-vetch (*Astragalus rattanii var. jepsonianus*)	1B.2	Observed onsite within 2020 APE	No change, observations are within Modified APE
Big-scale balsamroot (*Balsamorhiza macrolepis*)	1B.2	Observed onsite within 2020 APE	Observed onsite, observations outside of Modified APE
Watershield *(Brasenia schreberi)*	2B.3	Moderate	No change
Narrow-anthered brodiaea (*Brodiaea leptandra*)	1B.2	Observed onsite outside 2020 APE	No change, observations outside of Modified APE
Pink creamsacs (*Castilleja rubicundula var. rubicundula*)	1B.2	Moderate	No change
Rincon Ridge ceanothus (*Ceanothus confuses*)	1B.1	Moderate	No change
Calistoga ceanothus (*Ceanothus divergens*)	1B.2	Moderate	No change
Holly-leaved ceanothus (*Ceanothus purpureus*)	1B.2	Moderate	No change
Sonoma ceanothus (*Ceanothus sonomensis*)	1B.2	Moderate	No change
Dwarf soaproot (*Chlorogalum pomeridianum var. minus*)	1B.2	Moderate	No change
Serpentine cryptantha (*Cryptantha dissita*)	1B.2	Moderate	No change
Deep-scarred cryptantha (*Cryptantha excavate*)	1B.1	Moderate	No change
Cascade downingia (*Downingia willamettensis*)	2B.2	Moderate	No change
Brandegee's eriastrum (*Eriastrum brandegeeae*)	1B.1	Moderate	No change
Greene's narrow-leaved daisy (*Erigeron greenei*)	1B.2	Observed onsite within 2020 APE	No change, observations are within Modified APE
Snow Mountain buckwheat (*Eriogonum nervulosum*)	1B.2	Moderate	No change
Loch Lomond button-celery (*Eryngium constancei*)	FE, SE, 1B.1	Moderate	No change
Jepson's coyote thistle (*Eryngium jepsonii*)	1B.2	Moderate	No change
Adobe-lily (*Fritillaria pluriflora*)	1B.2	Moderate	No change
Boggs Lake hedge-hyssop (*Gratiola heterosepala*)	SE, 1B.2	Moderate	No change
Hall's harmonia (*Harmonia hallii*)	1B.2	Moderate	No change
Congested-headed hayfield tarplant (*Hemizonia congesta ssp. congesta*)	1B.2	Moderate	No change
Glandular western flax (*Hesperolinon adenophyllum*)	1B.2	Moderate	No change

Species	Status	Potential to Occur	Change Since 2020 EIR
Two-carpellate western flax (*Hesperolinon bicarpellatum*)	1B.2	Observed onsite within 2020 APE	No change, observations are within Modified APE
Lake County western flax (*Hesperolinon didymocarpum*)	SE, 1B.2	Observed onsite within 2020 APE	No change, observations are within Modified APE
Drymaria-like western flax (*Hesperolinon drymarioides*)	1B.2	Moderate	No change
Sharsmith's western flax (*Hesperolinon sharsmithiae*)	1B.2	Moderate	No change
Bolander's horkelia (*Horkelia bolanderi*)	1B.2	Moderate	No change
Santa Lucia dwarf rush (*Juncus luciensis*)	1B.2	Moderate	No change
Burke's goldfields (*Lasthenia burkei*)	FE, SE, 1B.1	Moderate	No change
Colusa layia (*Layia septentrionalis*)	1B.2	Observed onsite within 2020 APE	No change, observations are within Modified APE
Legenere (*Legenere limosa*)	1B.1	Moderate	No change
Jepson's leptosiphon (*Leptosiphon jepsonii*)	1B.2	Moderate	No change
Sebastopol meadowfoam (*Limnanthes vinculans*)	FE, SE, 1B.1	Moderate	No change
Cobb Mountain lupine (*Lupinus sericatus*)	1B.2	Moderate	No change
Marsh microseris (*Microseris paludosa*)	1B.2	Moderate	No change
Baker's navarretia (*Navarretia leucocephala ssp. bakeri*)	1B.1	Moderate	No change
Small pincushion navarretia (*Navarretia myersii ssp. deminuta*)	1B.1	Moderate	No change
Porter's navarretia (*Navarretia paradoxinota*)	1B.3	Moderate	Observed onsite, within Modified APE
Marin County navarretia (*Navarretia rosulata*)	1B.2	Moderate	No change
Slender Orcutt grass (*Orcuttia tenuis*)	FT, SE, 1B.1	Moderate	No change
Sonoma beardtongue (*Penstemon newberryi var. sonomensis*)	1B.3	Moderate	No change
Bearded popcornflower (*Plagiobothrys hystriculus*)	1B.1	Moderate	No change
Eel-grass pondweed (*Potamogeton zosteriformis*)	2B.2	Moderate	No change
Lake County stonecrop (*Sedella leiocarpa*)	FE, SE, 1B.1	Moderate	No change
Napa checkerbloom (*Sidalcea hickmanii ssp. napensis*)	1B.1	Moderate	No change
Keck's checkerbloom (*Sidalcea keckii*)	FE, 1B.1	Observed onsite within 2020 APE	No change, observations are within Modified APE
Marsh checkerbloom (*Sidalcea oregana ssp. hydrophila*)	1B.2	Moderate	No change
Socrates Mine jewelflower (*Streptanthus brachiatus ssp. brachiatus*)	1B.2	Moderate	No change
Freed's jewelflower (*Streptanthus brachiatus ssp. hoffmanii*)	1B.2	Moderate	No change
Green jewelflower (*Streptanthus hesperidis*)	1B.2	Observed onsite within 2020 APE	No change, observations are within Modified APE

Species	Status	Potential to Occur	Change Since 2020 EIR
Three Peaks jewelflower (*Streptanthus morrisonii ssp. elatus*)	1B.2	Observed onsite outside 2020 APE	No change, observations outside of Modified APE
Kruckeberg's jewelflower (*Streptanthus morrisonii ssp. kruckebergii*)	1B.2	Moderate	No change
Early jewelflower (*Streptanthus vernalis*)	1B.2	Moderate	No change
Slender-leaved pondweed (*Stuckenia filiformis ssp. alpine*)	2B.2	Moderate	No change
Napa bluecurls (*Trichostema ruygtii*)	1B.2	Moderate	No change
Oval-leaved viburnum (*Viburnum ellipticum*)	2B.3	Moderate	No change

Notes:
FE – Federally Listed Endangered Species
FT – Federally Listed Threatened Species
SE – California State Listed Endangered Species
ST – California State Listed Threatened Species
CNPS Rank 1B – Plants Rare, Threatened, or Endangered in California and Elsewhere
CNPS Rank 2B – Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
Threat Rank 0.1 – Seriously Threatened in California
Threat Rank 0.2 – Fairly Threatened in California
Threat Rank 0.3 – Not Very Threatened in California

Since publication of the 2020 EIR there are no new special-status plant species with the potential to occur within the Modified APE. No changes to the status of plants considered in the 2020 EIR have occurred. Porter's navarretia was previously determined to have a moderate potential to occur and has since been observed on the Guenoc Valley Site within the Modified APE. Big-scale balsamroot was previously within the 2020 APE, however, with Project Modifications all populations of this species have been avoided and it is not within the Modified APE. Potential to occur within the Modified APE is still considered high.

4.4.3 Regulatory Setting

Clean Water Act

2015 Clean Water Rule

In 2015, the U.S. Army Corp of Engineers (USACE) and USEPA published the "Clean Water Rule" clarifying the scope of coverage of the CWA. Upon issuance however, numerous lawsuits were filed and consolidated in the Sixth Circuit, immediately putting a "stay" on its implementation. In January 2018, the U.S. Supreme Court dissolved the stay. The 2015 Clean Water Rule remained in effect in 22 states, including California, the District of Columbia, and the U.S. territories until December 23, 2019.

Repeal of 2015 Clean Water Rule

On October 22, 2019, the EPA and the USACE published a final rule to repeal the 2015 Clean Water Rule and restore the regulatory methodology that existed prior to the 2015 Rule. Under this rule, which became effective on December 23, 2019, jurisdictional waters of the U.S. were defined by the 1986/1988 regulatory definition of waters of the U.S. under CWA regulations 40 CFR 230.3(s). This corresponds to the CWA described in the 2020 EIR (**Appendix D**).

Navigable Waters Protection Rule

On January 23, 2020, the USEPA and the USACE finalized the Navigable Waters Protection Rule (NWPR) to define waters of the U.S. On April 21, 2020, the USEPA and the USACE published the NWPR in the Federal Register. On June 22, 2020, 60 days after publication in the Federal Register, the NWPR became effective across the nation including the State of California. The NWPR eliminated the case specific application of the significant nexus test articulated in the Rapanos decision.

Remand and Vacatur of the Navigable Waters Protection Rule

On August 30, 2021, the NWPR was remanded and immediately vacated by the United States District Court for the District of Arizona in the case of *Pascua Yaqui Tribe v. U.S. Environmental Protection Agency*. In light of this order, the USEPA and the USACE halted implementation of the NWPR nationwide and reinstated the pre-2015 definition of waters of the U.S. Under the pre-2015 definition, the USACE and USEPA require the case specific application of the significant nexus test, as articulated in the Rapanos decision, to determine jurisdictionality.

Final Rule to Amend the January 2023 Rule

In January 2023, a revised definition of waters of the U.S. was promulgated (January 2023 Rule). However, on May 25, 2023, the Supreme Court decided *Sackett v. Environmental Protection Agency*. Although this case was not specific in challenging the amended definition of waters of the U.S., the Court considered the jurisdictional standards set forth within the January 2023 Rule. After several revisions, the USEPA on August 29, 2023 issued the final rule to amend the January 2023 rule, thus conforming the January 2023 rule to the *Sackett v. Environmental Protection Agency* decision. Due to ongoing litigation in numerous states, the operational definition of waters of the U.S. varies from state to state. California currently operates under the January 2023 Rule, as amended under the final rule to amend the January 2023 rule. Under this definition, waters of the U.S. are "relatively permanent, standing or continuously flowing bodies of water" and includes wetlands when such wetlands have "continuous surface connection to bodies that are "waters of the United States" in their own right".

4.4.4 Impacts

Method of Analysis

Impacts to biological resources were determined utilizing information gathered during preparation of the 2020 EIR in addition to information collected since publication of the EIR. Updated background research cited herein and included in **Appendix I** was also utilized. This analysis conservatively presents a worst-case scenario and assumes the maximum potential impacts to sensitive biological resources. For example, similar to the 2020 EIR, the Design Guidelines would limit the developable space within residential lots. However, as the precise building locations within these lots are unknown at this time, this analysis conservatively assesses for total loss of habitat within the lot or maximum allowable impacts in the case of oak-dominated habitats. This is consistent with the methodology for impacts to biological resources contained within Volume II, Section 3.4.4 of the 2020 EIR (**Appendix D**).

Table 4.4-4 provides a breakdown of the impact acreages by habitat type of the 2020 APE and the Modified APE. For simplicity, the totality of the Grange Road Connector is represented in **Table 4.4-4** even though a portion of the Grange Road Connector lies outside of the Guenoc Valley Site.

Table 4.4-4: Habitat Types Within the 2020 APE and Modified APE

Habitat Type	Updated Acres on Guenoc Valley Site and Grange Road Connector	Acres Within Modified APE	Acres within 2020 APE	Impact Change from 2020 EIR	Habitat Sensitivity
Terrestrial					
Developed	213.3	70.0	81.0	-11.0	Non-sensitive
Agriculture (currently developed)	1,279.6	309.7	291.8	+17.9	Non-sensitive
Rock outcrop	13.8	2.0	8.0	-6.0	Non-sensitive
Serpentine rock outcrop	18.9	3.9	N/A	N/A	Sensitive
Non-native annual grasslands	2,284.1	438.3	554.1	-115.8	Non-sensitive
Purple needlegrass grassland	12.1	5.7	8.0	-2.3	Sensitive
Leather oak chaparral	2,529.8	170.0	197.9	-27.9	Non-sensitive
Scrub oak chaparral	50.1	31.3	29.3	+2	Non-sensitive
Chamise chaparral	978.1	242.5	351.7	-109.2	Non-sensitive
Whiteleaf manzanita chaparral	150.5	61.3	57.3	+4.0	Non-sensitive
Musk brush chaparral	31.8	2.8	19.5	-16.7	Sensitive
California yerba santa scrub	38.2	6.0	6.9	-0.9	Non-sensitive
Deer weed scrub	19.7	0.0	0.9	-0.9	Non-sensitive
White alder grove	10.9	0.0	0.1	-0.1	Sensitive
Brewer willow thicket	4.5	1.1	0.04	+1.06	Sensitive
Douglas fir forest	58.6	0.0	0.0	0.0	Non-sensitive
Sargent cypress woodland	10.7	0.0	0.0	0.0	Sensitive
Foothill pine woodland	1,379.0	126.1	206.1	-80.0	Non-sensitive
Interior live oak woodland	749.7	58.0	189.0	-131.0	Sensitive
Valley oak woodland	48.7	1.0	13.1	-12.1	Sensitive
Blue oak woodland	3,454.5	153.0	599.4	-446.4	Sensitive
Blue oak savanna	1,215.2	96.0	269.4	-173.4	Sensitive
Mixed oak woodland	172.6	0.0	0.0	0.0	Sensitive
Total	**14,724.4**	**2,408.4**	**2,877.6**	**-469.2**	**--**
Aquatic					
Streams and drainages	191.7	13.1	13.1	0.0	Sensitive
Ponds and reservoirs	658.1	9.3	7.4	+1.9	Sensitive
Emergent wetlands	429.7	22.4	49.6	-27.2	Sensitive
Total	**1,279.5**	**44.8**	**69.9**	**-25.1**	--

Source: 2020 EIR, **Appendix I** and **Appendix J**

Impacts

This analysis of the Project Modifications follows the same methodology outlined in Section 3.4.4 of the 2020 EIR, focusing on whether the Project Modifications would have new or substantially more severe significant effects than those described in the 2020 EIR. Refer to Section 3.4.4 of the 2020 EIR (**Appendix D**) for a complete description of the methodology and significance criteria relating to biological resources impacts.

IMPACT 3.4-1	**SUBSTANTIAL ADVERSE EFFECT, EITHER DIRECTLY THROUGH HABITAT MODIFICATIONS OR INDIRECTLY, ON ANY SPECIES IDENTIFIED AS A CANDIDATE, SENSITIVE, OR SPECIAL-STATUS SPECIES IN LOCAL OR REGIONAL PLANS, POLICIES, OR REGULATIONS, OR BY CDFW OR USFWS**		
2020 EIR Conclusions			**Do Project Modifications Result in New Significant Effects or a Substantial Increase in the Severity of Previously Identified Effects?**
Project Component	**Guenoc Valley Site Phase 1 and Future Phases**	**Other Phase 1 (Off-Site) Areas**	
Significance Before Mitigation	Significant	Significant	No
Mitigation Measures	MM 3.4-1 through MM 3.4-13; MM 3.9-1, 3.9-2; MM 3.4-21; MM 3.10-2 (Phase I) MM 3.4-1 through MM 3.4-14; MM 3.4-21; MM 3.9-1, 3.9-2; MM 3.10-2 (Future Phases)	MM 3.4-1 through 3.4-2, 3.4-6 through 3.4-8; 3.4-10, 3.4-11, 3.4-13; MM 3.9-1, 3.9-2; MM 3.10-2 (Workforce Housing) MM3.4-8 and 3.4-9 (Infrastructure)	Modifications to MM 3.4-2, 3.4-8, and 3.4-10; all other mitigation measures applicable as originally written
Significance After Mitigation	Less than Significant	Less than Significant	Less than Significant

*Impact numbering retained from the 2020 EIR.

As described in the 2020 EIR, an impact to special-status species may be considered significant if a project has the potential to result in direct or indirect harm to a special-status species or individuals of that species. **Mitigation Measures 3.4-1** through **3.4-13**, **3.4-21**, and **3.10-2** will ensure that general construction impacts and impacts to specific species are reduced to less-than-significant levels. Project Modifications that would result in no changes to the APE or Development Area, including the GHG Reduction Measures, Updated WPP, and DMP, would have no potential to increase the severity of this impact. The Project Modifications that would result in changes to the APE and previously studied Development Area (see **Table 4.1-1**), including the Parcel Reconfiguration, Connector Roadways, and Grange Road Connector, would have the potential to result in displacement of special-status species and conversion or degradation of habitat they rely on, and therefore the impact discussions below focus on this subset of Project Modifications. **Mitigation Measures 3.4-1** through **3.4-13**, **3.4-21**, and **3.10-2** would continue to apply and would reduce impacts to less-than-significant levels for the same reasons stated in

the 2020 EIR. The Project Modifications would not result in any new significant effects or a substantial increase in the severity of previously identified significant impacts associated with special-status species as compared to the 2020 EIR, as explained in more depth by species below.

Construction

As there is no Critical Habitat or Essential Fish Habitat within or adjacent to the Guenoc Valley Site or Modified APE, impacts to these resources would not occur. As noted under Impact 3.4-1 of the 2020 EIR, construction in general has the potential to displace special-status species and convert or degrade habitat they rely on, which would be a potentially significant impact. The Project Modifications result in an overall decrease in the size of the Development Area (213 acres), which will ultimately result in a slightly lesser impact to special status species due to construction activities as compared to the Original Project analyzed in the 2020 EIR. **Mitigation Measures 3.4-1** and **3.4-2** include construction best management practices (BMPs) to reduce the likelihood that this would occur, and these measures would continue to apply to the Modified Project. **Section 4.4.5** of this PREIR contains a minor modification to **Mitigation Measure 3.4-2** to clarify that this mitigation measure also applies to the Grange Road Connector, as this mitigation measure specified the necessary content of worker environmental awareness training by construction location. **Mitigation Measures 3.4-1** and **3.4-2** (as updated) would continue to reduce impacts to less-than-significant levels for the same reasons stated in the 2020 EIR.

Special-Status Plants

Several special-status plants have been observed within the Modified APE, and there are several other special-status plants that have the potential to occur within the Modified APE. Since publication of the 2020 EIR there are no new special-status plant species with the potential to occur within the Modified APE and no changes have occurred to the status of plants considered in the 2020 EIR. The 2020 EIR determined that Porter's navarretia had a moderate potential to occur, and it has since been observed within the Modified APE (**Appendix I-1**). This plant is not listed under the FESA or CESA and is considered herein solely for its CNPS Rank (1B.3). Although this additional plant has been observed within the Modified APE, the 2020 EIR already assumed those plants with a moderate to high potential to occur may establish within an impact area due to the long timeframe for development and therefore put forth mitigation for special-status plants that have been observed and those that may establish over time. Surveys conducted across the remainder of the Modified APE did not identify any other new special status plants that were not included in the 2020 EIR. **Mitigation Measure 3.4-3** includes a preconstruction survey for special-status plants within a reasonable timeframe prior to development and includes avoidance measures where possible and options for transplanting and/or compensatory planting when plants cannot be avoided, which reduces this impact to less-than-significant levels. Project Modifications that would result in no changes to the APE or Development Area, including the GHG Reduction Measures, Updated WPP, and DMP, would have no potential to increase the severity of this impact. The Project Modifications that change the APE or Development Area (Parcel Reconfiguration, Grange Road Connector, and Connector Roadways) result in an overall decrease in the size of the Development Area (213 acres), which will ultimately result in more undeveloped land available to serve as transplanting or compensatory planting locations, and a significant portion of the Guenoc Valley Site would be conserved as open space. **Mitigation Measure 3.4-3** would continue to apply and would reduce impacts to less-than-significant levels for the same reasons stated in the 2020 EIR. The Project Modifications would not result in any new significant effects or a substantial increase in the severity of previously identified significant impacts associated with special-status plants as compared to the 2020 EIR.

3.4-21 includes education of residents on action items to reduce or prevent domestic cat predation of wildlife. Project Modifications such as the GHG Reduction Measures, Updated WPP, Grange Road Connector, Connector Roadways, and DMP, would have no potential to increase the severity of this impact. The Parcel Reconfiguration will increase the density of proposed developments and may reduce the geographical area that domestic cats are likely to wander, this PREIR conservatively assumes that the level of impact would remain the same as the 2020 EIR. Therefore, **Mitigation Measure 3.4-21** would continue to apply and would reduce impacts to less-than-significant levels for the same reasons stated in the 2020 EIR. The Project Modifications would not result in any new significant effects or a substantial increase in the severity of previously identified significant impacts associated with domestic cat predation as compared to the 2020 EIR.

IMPACT 3.4-2	**SUBSTANTIAL ADVERSE EFFECT ON ANY RIPARIAN HABITAT OR OTHER SENSITIVE NATURAL COMMUNITY IDENTIFIED IN LOCAL OR REGIONAL PLANS, POLICIES, REGULATIONS, OR BY CDFW OR USFWS**		
2020 EIR Conclusions			**Do Project Modifications Result in New Significant Effects or a Substantial Increase in the Severity of Previously Identified Effects?**
Project Component	**Guenoc Valley Site Phase 1 and Future Phases**	**Other Phase 1 (Off-Site) Areas**	
Significance Before Mitigation	Significant	Significant (Workforce Housing) No Impact (Infrastructure)	No
Mitigation Measures	MM 3.4-1, 3.4-15 through 3.4-18; MM 3.9-1, 3.9-2 (Phase I) MM 3.4-1, 3.4-14 through 3.4-18; MM 3.9-1, 3.9-2 (Future Phases)	MM 3.4-1, 3.4-15, 3.4-16; MM 3.9-1 (Workforce Housing) None Required (Infrastructure)	Modifications to Mitigation Measures 3.4-15 and 3.4-18; all other mitigation measures applicable as originally written
Significance After Mitigation	Less than Significant	Less than Significant (Workforce Housing) No Impact (Infrastructure)	Less than Significant

*Impact numbering retained from the 2020 EIR.

As described in the 2020 EIR, potentially significant impacts would occur to sensitive natural communities if sensitive habitat types are directly converted, disturbed through the process of construction and maintenance of a project, or indirectly disturbed by construction or ongoing activity associated with a project. Indirect impacts may occur due to narrow buffers from development, connectivity of resources such as groundwater, non-discrete impacts such as pollution, and other project-related impacts. As with the 2020 EIR, sensitive habitats include purple needlegrass grassland, musk-brush chaparral, white alder grove, brewer willow thicket, Sargent cypress woodland, oak habitat, and aquatic habitats. Sargent cypress woodland was not within the 2020 APE and is not within the Modified APE and is therefore not

discussed further (**Figure 4-8**). Serpentine rock outcrop is a newly defined sensitive habitat and is discussed herein. **Mitigation Measures 3.4-1**, **3.4-15** through **3.4-18**, **3.9-1** and **3.9-2** will ensure that impacts to sensitive habitats are reduced to less-than-significant levels.

Project Modifications that would result in no changes to the APE or Development Area, including the GHG Reduction Measures, Updated WPP, and DMP, would have no potential to increase the severity of this impact. The Project Modifications that would result in changes to the APE and previously studied Development Area (see **Table 4.1-1**), including the Parcel Reconfiguration, Connector Roadways, and Grange Road Connector, would have the potential to change the level of impact compared to what was analyzed in the 2020 EIR, and therefore the impact discussions below focus on this subset of Project Modifications. **Mitigation Measures 3.4-1**, **3.4-15** through **3.4-18**, **3.9-1** and **3.9-2** would continue to apply and would reduce impacts to less-than-significant levels for the same reasons stated in the 2020 EIR. The Project Modifications would not result in any new significant effects or a substantial increase in the severity of previously identified significant impacts associated with sensitive habitats as compared to the 2020 EIR, as explained in more depth by habitat type below.

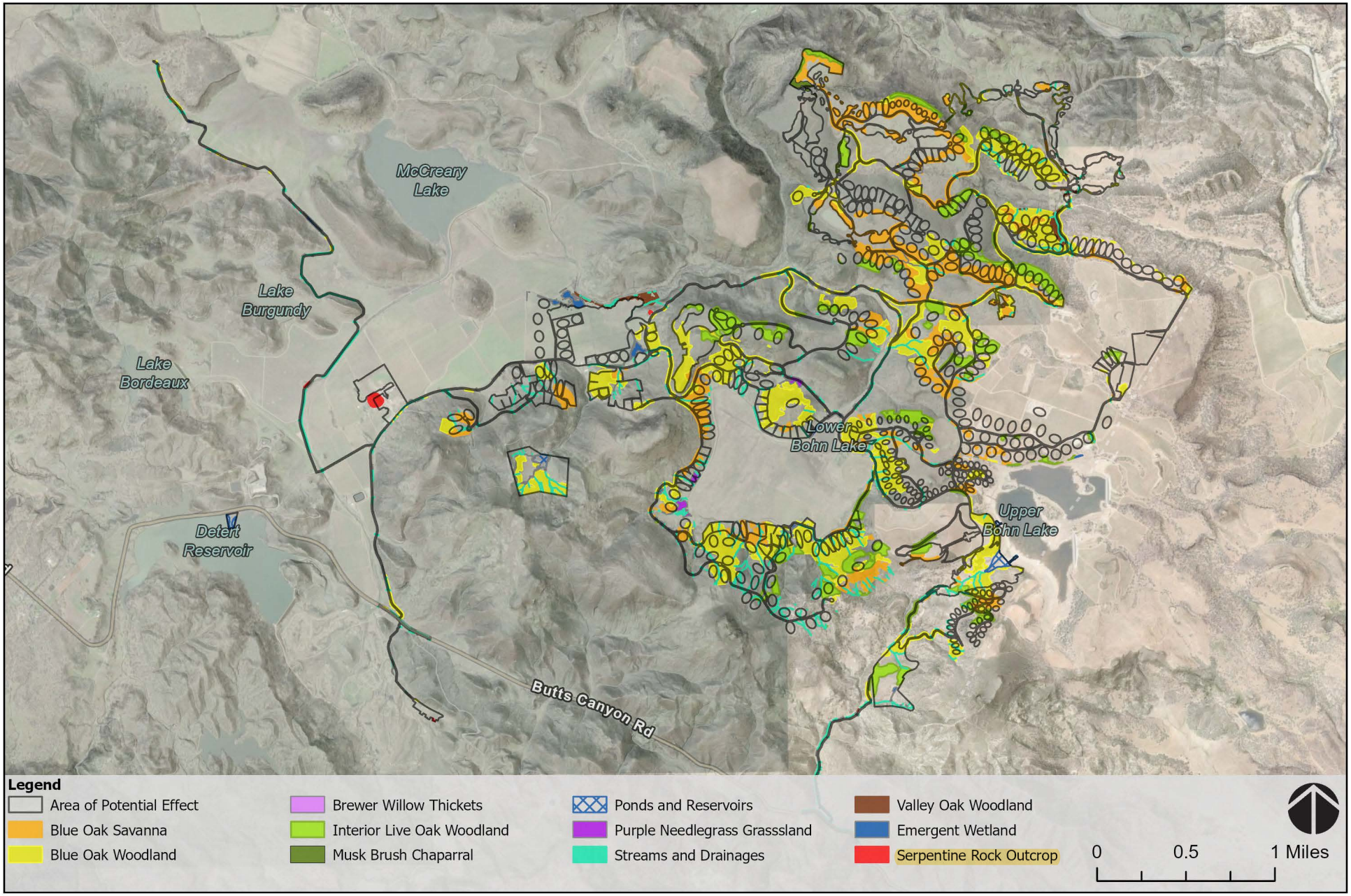
Construction

Purple Needlegrass

The 2020 EIR assessed impacts of up to 8.0 acres of purple needlegrass due to the Original Project, which is a significant impact. In order to reduce this impact to less than significant, **Mitigation Measure 3.4-15** requires that this habitat type be avoided as possible and includes options for mitigating impacts to habitat that cannot be avoided, through preservation, creation, restoration, or enhancement at a 2:1 ratio. The Project Modifications would result in up to 5.7 acres of impacts to purple needlegrass (up to 47.1 percent converted of the total 12.1 acres across the Guenoc Valley Site and Grange Road Connector). Therefore, the Project Modifications will reduce impacts to purple needlegrass by approximately 2.3 acres (21.3 percent). The quality and condition of purple needlegrass is unchanged since the 2020 EIR, but because purple needlegrass is a sensitive habitat type this would still be a potentially significant impact. **Mitigation Measure 3.4-15** would continue to apply and would reduce impacts to less-than-significant levels for the same reasons stated in the 2020 EIR. The Project Modifications would not result in any new significant effects or a substantial increase in the severity of previously identified significant impacts associated with purple needlegrass as compared to the 2020 EIR.

Musk-brush Chaparral

The 2020 EIR identified impacts of up to 19.5 acres of musk-brush chaparral due to the Original Project, which is a significant impact. In order to reduce this impact to less than significant, **Mitigation Measure 3.4-15** requires that this habitat type be avoided as possible and includes options for mitigating habitat that cannot be avoided through preservation, creation, restoration, or enhancement at a 2:1 ratio. The Project Modifications would result in up to 2.8 acres of impacts to musk-brush chaparral (8.8 percent of the total habitat). The Project Modifications will reduce impacts to this sensitive habitat type by 16.7 acres. The quality and condition of musk-brush chaparral is unchanged since the 2020 EIR, however as musk-brush chaparral is a sensitive habitat type, impacts to up to 2.8 acres of musk-brush chaparral would still be a potentially significant impact. **Mitigation Measure 3.4-15** would continue to apply and would reduce this impact to less-than-significant levels for the same reasons stated in the 2020 EIR. The Project Modifications would not result in any new significant effects or a substantial increase in the severity of previously identified significant impacts associated with musk-brush chaparral as compared to the 2020 EIR.



Source: Lake County Community Development and General Plan; County of Napa, California State Parks, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS,

FIGURE 4-8

SENSITIVE HABITATS WITHIN MODIFIED PHASE 1 APE

White Alder Grove

The 2020 EIR identified impacts to 0.1 acres of white alder grove, which was a potentially significant impact. The Project Modifications, specifically the Parcel Reconfiguration, would result in complete avoidance of white alder grove and no impacts to this sensitive habitat would occur. Therefore, no mitigation is necessary and **Mitigation Measure 3.4-15**, which was recommended in the 2020 EIR for impacts to white alder grove, would not apply to Phase 1 as it relates to white alder grove.

Brewer Willow Thicket

The 2020 EIR identified impacts of up to 0.04 acres of brewer willow thicket, which is a significant impact. In order to reduce this impact to less than significant, **Mitigation Measure 3.4-15** requires that this habitat type be avoided as possible and includes options for mitigating impacts to habitat that cannot be avoided through preservation, creation, restoration, or enhancement at a 2:1 ratio. The Project Modifications would result in 1.1 acres of impacts to brewer willow thicket (a conversion rate of 24.4 percent). The Project Modifications will result in an increase in impacts to this habitat, but the majority of brewer willow thicket would be preserved (minimum of 75.6 percent). **Mitigation Measure 3.4-15** would continue to apply and would decrease impacts to brewer willow thicket by prioritizing avoidance of this habitat type followed by mitigating impacts at a 2:1 ratio, which will continue to reduce impacts to brewer willow thicket to a less-than-significant level. Even with the increase in impacted acreage, sufficient unimpacted brewer willow thicket would remain to fulfill mitigation through preservation, even if the full 1.1 acres within the Modified APE is impacted, and sufficient undeveloped open space remains should mitigation be completed through creation, enhancement, or restoration. The Project Modifications would not result in any new significant effects or a substantial increase in the severity of previously identified significant impacts associated with brewer willow thicket as compared to the 2020 EIR.

Serpentine Rock Outcrop

As discussed in **Section 4.4.2**, serpentine rock outcrop is a newly classified sensitive habitat type pursuant to updated CDFW habitat classification systems, and conversion of this habitat would be a significant impact. The onsite rock outcrops were previously classified in the 2020 EIR as non-sensitive, and 18.9 acres within the Project Site meet the standard of serpentine rock outcrop, which is considered a sensitive habitat type. Up to 3.9 acres of this habitat type falls within the Modified APE, resulting in a conversion rate of 20.6 percent. As this habitat type was not described at the time of publication of the 2020 EIR, no analysis of the level of impacts to this habitat type was presented. In order to reduce potential impacts to less-than-significant levels, serpentine rock outcrops have been added to the sensitive habitat mitigation included as **Mitigation Measure 3.4-15**. **Mitigation Measure 3.4-15** provides compensatory mitigation in the form of habitat preservation, restoration, creation, and/or enhancement of in-kind habitat at a 2:1 ratio. As creation of serpentine rock outcrops is not a feasible method of mitigation, mitigation for rock outcrops as outlined in **Mitigation Measure 3.4-15** would be limited to preservation, restoration, or enhancement. As up to 3.9 acres of serpentine rock outcrop would be impacted by the Modified Project, up to 7.8 acres of serpentine rock outcrop would be needed to satisfy mitigation through preservation. A total of 15.0 acres of serpentine rock outcrop occurs throughout the Guenoc Valley Site and outside of the Modified APE and would be sufficient to mitigate for the Proposed Project based on preservation alone. In addition to preservation, the option to restore or enhance serpentine rock outcrops would be available as high levels of invasive vegetation was observed in areas where vegetative cover was present. With inclusion of **Mitigation Measure 3.4-15**, impacts to serpentine rock outcrop would be less-than-significant.

Oak Woodland and Savanna

The 2020 EIR identified impacts to oak habitat up to the following:

- 257 acres of blue oak woodland
- 146 acres of blue oak savanna
- 72 acres of interior live oak woodland
- 2 acres of valley oak woodland

The 2020 EIR determined that conversion of oak woodland and oak savanna was a potentially significant impact that was reduced to less-than-significant levels through inclusion of **Mitigation Measure 3.4-16**. **Mitigation Measure 3.4-16** includes adherence to an oak mitigation plan that would offset impacts through preservation and compensatory plantings. Even with the addition of the Grange Road Connector and the Connector Roadways, the Parcel Reconfiguration results in an overall decrease in the APE and Development Area (213 acres). With consideration of the Project Modifications, the following maximum potential impacts to oaks were identified:

- 153 acres of blue oak woodland
- 96 acres of blue oak savanna
- 58 acres of interior live oak woodland
- 1 acre of valley oak woodland

Although this impact has decreased for every type of oak habitat, conversion of oak habitat would still be considered a significant impact. Therefore, **Mitigation Measure 3.4-16** as presented in the 2020 EIR would apply to the Modified Project. The Oak Mitigation Plan included as Appendix OAK to Volume III of the 2020 EIR has been revised to reflect the updated impact acreages and is included herein as **Appendix J**. The methodology and standards set forth in the Oak Mitigation Plan are unchanged, and revisions are limited to acreage accounts. **Mitigation Measure 3.4-16** would continue to apply and would reduce impacts to less-than-significant levels for the same reasons stated in the 2020 EIR. The Project Modifications would not result in any new significant effects or a substantial increase in the severity of previously identified significant impacts associated with oak woodlands and oak savannah as compared to the 2020 EIR.

Aquatic Habitats

The direct impact of aquatic resources through loss, modification, or degradation would be a significant impact. **Mitigation Measure 3.4-17** would reduce impacts to less-than-significant levels by prioritizing avoidance as possible, followed by preservation, restoration and/or habitat creation at a minimum 1:1 ratio and consistent with agency permitting requirements. Even with the addition of the Grange Road Connector and the Connector Roadways, the Modified Project would result in a maximum potential impact to aquatic habitats of 25.1 fewer acres than the Original Project (**Table 4.4-4**) due to the Parcel Reconfiguration. Although impacts of the Modified Project would be less, direct conversion of aquatic habitat would still be a significant impact without mitigation. **Mitigation Measure 3.4-17** would continue to apply and would reduce impacts to less-than-significant levels for the same reasons stated in the 2020 EIR. The Project Modifications would not result in any new significant effects or a substantial increase in the severity of previously identified significant impacts associated with aquatic habitats as compared to the 2020 EIR.

In addition to direct conversion of habitat, indirect impacts resulting in degradation of aquatic habitat would be significant if runoff produced during the construction phase result in impaired water quality. Although the Modified APE is generally smaller than what was evaluated in the 2020 EIR, construction of project components still poses a significant risk to waters due to impaired runoff. **Mitigation Measures 3.9-1** and **3.9-2** would reduce this impact to a less-than-significant level through permitting under the

Construction General Permit, which includes a requirement for a SWPPP that includes construction BMPs and inspections throughout construction. **Mitigation Measure 3.9-2** would further reduce this impact by ensuring that on-site aggregate and concrete production be conducted in accordance with requirements of the Central Valley RWQCB. The Modified Project would not introduce new construction methodologies that would increase this impact compared to what was evaluated in the 2020 EIR and it would similarly be required to be permitted under the Construction General Permit. **Mitigation Measures 3.9-1** and **3.9-2** would continue to apply and would reduce impacts to less-than-significant levels for the same reasons stated in the 2020 EIR. The Project Modifications would not result in any new significant effects or a substantial increase in the severity of previously identified significant impacts associated with indirect impacts to aquatic habitats as compared to the 2020 EIR.

Operation

The 2020 EIR determined that significant operation impacts to sensitive habitats following construction would be limited to ongoing wildfire management activities and **Mitigation Measure 3.4-18** would reduce this impact to a less-than-significant level. **Mitigation Measure 3.4-18** would reduce impacts by avoiding sensitive habitats with a limited distribution and by restricting what types of wildfire management actions and tools are allowable within other sensitive habitats. The Project Modifications including the Grange Road Connector, GHG Emissions Reduction Measures, and DMP would have no potential to change the severity of this impact as they do not include alterations to operational activities. The Updated WPP (**Appendix F**) which has been modified to reflect the Parcel Reconfiguration includes alterations to where landscape management activities would occur to align with the new parcel and road alignments, but the methodology of wildfire management as it relates to fuel load management is unchanged. Figure 17 of **Appendix F** reallocates "Residential/Resort/Facility Grazing Areas" to "Active Landscape Management Areas" to reflect where relocated Residential/Resort/Facility areas are now proposed to remain as undeveloped open space. The Updated WPP does not result in changes to future operational activities that would increase the potential for impact to sensitive habitats. As discussed above, serpentine rock outcrop has been newly identified as a sensitive habitat and therefore, **Mitigation Measure 3.4-18** has been revised to discuss serpentine rock outcrop. As this habitat definitionally has minimal vegetation cover (less than 10 percent), it would not require wildfire management activities. Therefore, its addition to **Mitigation Measure 3.4-18** is simply to ensure that staging activities would not occur in these areas, thus ensuring impacts to serpentine rock outcrop would not occur as a result of wildfire management activities. **Mitigation Measure 3.4-18** would continue to apply and would reduce impacts to less-than-significant levels for the same reasons stated in the 2020 EIR. The Project Modifications would not result in any new significant effects or a substantial increase in the severity of previously identified significant impacts associated with sensitive habitats as compared to the 2020 EIR.

IMPACT 3.4-3	SUBSTANTIAL ADVERSE EFFECT ON STATE OR FEDERALLY PROTECTED WETLANDS THROUGH DIRECT REMOVAL, FILLING, HYDROLOGICAL MODIFICATION, OR OTHER MEANS		
2020 EIR Conclusions			Do Project Modifications Result in New Significant Effects or a Substantial Increase in the Severity of Previously Identified Effects?
Project Component	**Guenoc Valley Site Phase 1 and Future Phases**	**Other Phase 1 (Off-Site) Areas**	
Significance Before Mitigation	Significant	Less than Significant	No
Mitigation Measures	MM 3.4-1, 3.4-17; MM 3.9-1, 3.9-2 (Phase I) MM 3.4-1, 3.4-17; MM 3.9-1, 3.9-2 (Future Phases)	None Required	No Modifications Necessary
Significance After Mitigation	Less than Significant	Less than Significant	Less than Significant

*Impact numbering retained from the 2020 EIR.

As described in the 2020 EIR, potentially significant impacts would occur to state or federally protected wetlands or waters if a project resulted in the direct conversion of wetlands, resulted in runoff and erosion that degrades habitat quality, or altered a watercourse or supporting adjacent habitat, such as a riparian community. **Mitigation Measures 3.4-1**, **3.4-17**, **3.9-1**, and **3.9-2** will ensure that impacts to jurisdictional wetlands and waters are reduced to less-than-significant levels. Consistent with the 2020 EIR, this PREIR conservatively assumes that all surface water resources are potentially jurisdictional. Project Modifications that would result in no changes to the APE or Development Area, including the GHG Reduction Measures, Updated WPP, and DMP, would have no potential to increase the severity of this impact. The Project Modifications that would result in changes to the APE and previously studied Development Area (see **Table 4.1-1**), including the Parcel Reconfiguration, Connector Roadways, and Grange Road Connector, would have the potential to change the level of impact compared to what was analyzed in the 2020 EIR, and therefore the impact discussions below focus on this subset of Project Modifications. **Mitigation Measures 3.4-1**, **3.4-17**, **3.9-1**, and **3.9-2** would continue to apply and would reduce impacts to less-than-significant levels for the same reasons stated in the 2020 EIR. The Project Modifications would not result in any new significant effects or a substantial increase in the severity of previously identified significant impacts associated with jurisdictional wetlands and waters as compared to the 2020 EIR, as explained in more depth by habitat type below.

Construction

The 2020 EIR determined that impacts to surface waters that have the potential to be considered jurisdictional wetlands or waters would constitute a significant impact and included **Mitigation Measure 3.4-17** to reduce impacts to a less-than-significant level. **Mitigation Measure 3.4-17** would require consultation with the RWQCB, USACE, and CDFW to identify jurisdictional habitats, to obtain necessary permits prior to impacts to jurisdictional features, and adhere to all permit terms and conditions.

Mitigation Measure 3.4-17 sets minimum mitigation actions for impacts to aquatic habitats that cannot be avoided, including preservation, restoration and/or habitat creation at a minimum 1:1 ratio and consistent with agency permitting requirements. Project Modifications would not alter the type of impacts to potentially jurisdictional surface waters and would include direct conversion for urban uses, roadway crossings, and similar impacts as already assessed in the 2020 EIR. As shown in **Table 4.4-4**, the Project Modifications would result in maximum potential impacts to aquatic habitats that are 25.1 acres less than what was evaluated in the 2020 EIR. Although the Project Modifications decrease this impact, direct conversion of aquatic habitat with the potential to be jurisdictional would still be a significant impact. **Mitigation Measure 3.4-17** would continue to apply and would reduce this impact to less-than-significant levels for the same reasons stated in the 2020 EIR. The Project Modifications would not result in any new significant effects or a substantial increase in the severity of previously identified significant impacts associated with jurisdictional wetlands and waters as compared to the 2020 EIR.

Operation

Operation of Phase 1 would not result in the removal, fill, or modification of wetlands or waters beyond that occurring for construction. There would be no impact. None of the Project Modifications would result in operational impacts to jurisdictional waters or wetlands. The Project Modifications would not result in any new significant effects or a substantial increase in the severity of previously identified significant impacts associated with jurisdictional waters and wetlands during the operational phase as compared to the 2020 EIR.

IMPACT 3.4-4	**INTERFERE SUBSTANTIALLY WITH THE MOVEMENT OF ANY NATIVE RESIDENT OR MIGRATORY WILDLIFE SPECIES OR WITH ESTABLISHED NATIVE RESIDENT OR MIGRATORY WILDLIFE CORRIDORS, OR IMPEDE THE USE OF NATIVE WILDLIFE NURSERY SITES**		
2020 EIR Conclusions			**Do Project Modifications Result in New Significant Effects or a Substantial Increase in the Severity of Previously Identified Effects?**
Project Component	**Guenoc Valley Site Phase 1 and Future Phases**	**Other Phase 1 (Off-Site) Areas**	
Significance Before Mitigation	Significant	Less than Significant (Workforce Housing) No Impact (Infrastructure)	No
Mitigation Measures	MM 3.4-7, 3.4-19 (Phase I) MM 3.4-7, 3.4-14, 3.4-19, 3.4-20 (Future Phases)	None Required	No Modifications Necessary
Significance After Mitigation	Less than Significant	Less than Significant (Workforce Housing) No Impact (Infrastructure)	Less than Significant

*Impact numbering retained from the 2020 EIR.

As described in the 2020 EIR, potential impacts to wildlife movement or nursery sites would be considered significant if a project resulted in the significant restriction of wildlife movement, alteration of a known wildlife corridor, or any adverse impact to known nursery sites. The Original Project would result in a potentially significant impact relating to wildlife movement, primarily due to proposed fences and proposed lighting on the Project Site. **Mitigation Measures 3.4-7** and **3.4-19** will ensure that impacts to wildlife movement and use are reduced to less-than-significant levels. Appendix WILDLIFE to the 2020 EIR identified where least cost wildlife movement pathways were preserved within designated open space and provided an additional approximately 400 acres of Habitat Connectivity Easements to preserve least cost pathways in and near development lots to ensure a minimum 300-foot width of the corridor preserved. With consideration of Appendix WILDLIFE and project design, the 2020 EIR determined impacts to wildlife movement corridors were less than significant. Project Modifications would not impact additional M2B pathways beyond what was already identified in the 2020 EIR. Project Modifications that would result in no changes to the APE or Development Area, including the GHG Reduction Measures, Updated WPP, and DMP, would have no potential to increase the severity of this impact. The Project Modifications that would result in changes to the APE and previously studied Development Area (see **Table 4.1-1**), including the Parcel Reconfiguration, Connector Roadways, and Grange Road Connector, would have the potential to change the level of impact compared to what was analyzed in the 2020 EIR, and therefore the impact discussions below focus on this subset of Project Modifications. **Mitigation Measures 3.4-7** and **3.4-19** would continue to apply and would reduce impacts to less-than-significant levels for the same reasons stated in the 2020 EIR. The Project Modifications would not result in any new significant effects or a substantial increase in the severity of previously identified significant impacts associated with wildlife movement or nursery sites as compared to the 2020 EIR, as explained in more depth by habitat type below.

Fencing

The 2020 EIR determined that fencing has the potential to result in wildlife entrapment or exclusion and can restrict wildlife access and movement to and through areas of otherwise suitable habitat. This impact was determined to be significant, and **Mitigation Measure 3.4-19** was presented to reduce this impact to a less-than-significant impact. **Mitigation Measure 3.4-19** further defines and limits allowable fencing location and design beyond the restrictions already identified in the Design Guidelines. This includes prohibitions against bottom rails that would preclude small animal dispersal and setting of top rails higher than six feet. Since the 2020 EIR, there have been no changes to the Design Guidelines and the allowable height, type, and amount of fencing allowed is unchanged since the 2020 EIR. The Parcel Reconfiguration would result in placement of fencing associated with resort and residential uses within a smaller, denser area with no fencing in areas previously assumed to have some level of fencing. Although the extent of fencing would be reduced under the Project Modifications, there is still the potential to significantly limit wildlife movement even when considering the Design Guidelines. **Mitigation Measure 3.4-19** would continue to apply and would reduce impacts to less-than-significant levels for the same reasons stated in the 2020 EIR. The Project Modifications would not result in any new significant effects or a substantial increase in the severity of previously identified significant impacts associated with fencing as compared to the 2020 EIR.

Lighting

The 2020 EIR considered potential impacts to wildlife movement due to an increase in artificial lighting on the Guenoc Valley Site which could lead to stranding, disorienting, attracting, or otherwise disrupting the natural dispersal and migratory behaviors of wildlife. Per the Design Guidelines, the Proposed Project would adhere to the Dark Sky Initiative standards that include use of color balanced light that is matte,

shielded from spillage, and set on a timer to avoid unnecessary use. However, this impact was still determined to be significant, and **Mitigation Measure 3.4-7** was presented to reduce this impact to a less-than-significant impact by further limiting the type and use of artificial lighting. The Parcel Reconfiguration would increase the density of proposed lots and minimize the more remote lots adjacent to the urban-wildland interface, which would reduce the potential for the spread of artificial lighting compared to the Original Project. Although the spread of artificial lighting would be less than what was evaluated in the 2020 EIR, this would still constitute a potentially significant impact, as discussed under Impact 3.4-1 for Special-Status, Nesting, and Migratory Birds. **Mitigation Measure 3.4-7** would continue to apply and would reduce impacts to less-than-significant levels for the same reasons stated in the 2020 EIR. The Project Modifications would not result in any new significant effects or a substantial increase in the severity of previously identified significant impacts associated with lighting as compared to the 2020 EIR.

Open Space

The 2020 EIR identified 2,765 contiguous acres of open space within the Guenoc Valley Site to demonstrate that sufficient open space remained available to meet open space mitigation requirements of the 2008 Langtry Farms Water Rights Modification Project Open Space Preservation Plan (2008 OSPP). The Project Modifications would not infringe on this designated open space area (see **Figure 2-1**) and sufficient open space would remain to meet existing mitigation requirements of the 2009 Water Rights EIR.

The 2020 EIR determined that impacts to wildlife movement would be minimized considering the amount of open space remaining, preservation of known corridors, clustering of development, and restrictions on fencing and lighting within the Design Guidelines. This impact was deemed less than significant with consideration of **Mitigation Measure 3.4-7** and **3.4-19** as discussed above. The Project Modifications would result in a smaller APE and would maintain the OSPP area, corridors, and Habitat Connectivity Easement areas. **Mitigation Measure 3.4-7** and **3.4-19** would continue to apply and would reduce impacts to less-than-significant levels for the same reasons stated in the 2020 EIR. The Project Modifications would not result in any new significant effects or a substantial increase in the severity of previously identified significant impacts associated with open space as compared to the 2020 EIR.

IMPACT 3.4-5	CONFLICT WITH ANY LOCAL POLICIES OR ORDINANCES PROTECTING BIOLOGICAL RESOURCES, SUCH AS A TREE PRESERVATION POLICY OR ORDINANCE		
2020 EIR Conclusions			Do Project Modifications Result in New Significant Effects or a Substantial Increase in the Severity of Previously Identified Effects?
Project Component	**Guenoc Valley Site Phase 1 and Future Phases**	**Other Phase 1 (Off-Site) Areas**	
Significance Before Mitigation	Significant	Significant (Workforce Housing) No Impact (Infrastructure)	No
Mitigation Measures	MM 3.4-16 (Phase I) MM 3.4-14, 3.4-16 (Future Phases)	MM 3.4-16 (Workforce Housing) None Required (Infrastructure)	No Modifications Necessary
Significance After Mitigation	Less than Significant	Less than Significant (Workforce Housing) No Impact (Infrastructure)	Less than Significant

*Impact numbering retained from the 2020 EIR.

As discussed in the 2020 EIR, potential conflicts with existing local policies and ordinances may be considered significant if a project resulted in construction or use of land contrary to the overall goals of existing local regulations, or if a project conflicts with specific allowable uses or compensatory requirements. This was identified as a potentially significant impact, and **Mitigation Measures 3.4-16** will reduce impacts related to conflict with existing local policies and ordinances to less-than-significant levels. The primary potential conflict between the Original Project and local policies or ordinances would be conflict with Lake County Code § 30-21, which protects oak woodland. **Mitigation Measure 3.4-16** requires adherence to the Oak Mitigation Plan, which was prepared consistent with local policies and ordinances and was included as Appendix OAK in Volume III of the 2020 EIR.

Project Modifications that would result in no changes to the APE or Development Area, including the GHG Reduction Measures, Updated WPP, and DMP, would have no potential to increase the severity of this impact. As discussed under Impact 3.4-1 above, the Modified Project (specifically the Parcel Reconfiguration, Grange Road Connector, and Connector Roadways) would result in the following changes to the maximum potential oak impacts in comparison to the Original Project:

- A decrease of 446.4 acres of blue oak woodland maximum impacts
- A decrease of 173.4 acres of blue oak savanna maximum impacts
- A decrease of 131.0 acres of interior live oak woodland maximum impacts
- A decrease of 12.1 acres of valley oak woodland maximum impacts

Although overall impacts to oaks would decrease, this would still constitute a potential conflict with Lake County Code § 30-21. The Oak Mitigation Plan described in **Mitigation Measure 3.4-16** has been revised to reflect the Project Modifications and is included as **Appendix J**. The methodology, performance standards, and other metrics of the Oak Mitigation Plan are unchanged. Revisions are limited to updates to the project description and updated mapping demonstrating locations of oak impacts and potential mitigation areas. **Mitigation Measure 3.4-16** would continue to apply and would reduce impacts to less-than-significant levels for the same reasons stated in the 2020 EIR. The Project Modifications would not result in any new significant effects or a substantial increase in the severity of previously identified significant impacts associated with conflict with local plans or policies as compared to the 2020 EIR.

IMPACT 3.4-6	**CONFLICT WITH THE PROVISIONS OF AN ADOPTED HABITAT CONSERVATION PLAN, NATURAL COMMUNITY CONSERVATION PLAN, OR OTHER APPROVED LOCAL, REGIONAL, OR STATE HABITAT CONSERVATION PLAN**		
2020 EIR Conclusions			**Do Project Modifications Result in New Significant Effects or a Substantial Increase in the Severity of Previously Identified Effects?**
Project Component	**Guenoc Valley Site Phase 1 and Future Phases**	**Other Phase 1 (Off-Site) Areas**	
Significance Before Mitigation	Significant	No Impact	No
Mitigation Measures	MM 3.4-16 (Phase I) MM 3.4-14, 3.4-16 (Future Phases)	None Required	No Modifications Necessary
Significance After Mitigation	Less than Significant	No Impact	Less than Significant

*Impact numbering retained from the 2020 EIR.

As analyzed in the 2020 EIR, conflicts with existing conservation plans may be considered significant if a project resulted in construction or use of land contrary to the overall goals of an existing conservation plan. This was identified as a potentially significant impact, and **Mitigation Measures 3.4-16** will reduce this impact to less-than-significant levels. Existing habitat plans that cover the Guenoc Valley Site include the 2008 OSPP and the 2008 Oak Tree Replacement Plan that were both developed as mitigation for the 2009 Water Rights EIR. As the Proposed Project introduces new areas of development that would impact open space and oak trees, there is the potential for either of these plans to be impacted by the Proposed Project, which would be a significant impact. Each of these plans is therefore discussed below.

Open Space Preservation Plan

During preparation of the 2020 EIR, the 2008 OSPP was revised to ensure that sufficient open space remained to satisfy mitigation of the 2009 Water Rights EIR. The updated OSPP as presented within Appendix OSPP of Volume III of the 2020 EIR identified sufficient open space to be set aside as the Open Space Combining District. This area is unchanged by the Project Modifications, as shown in **Figure 2-1**. Therefore, Appendix OSPP of the 2020 EIR does not require revisions, and the Modified Project remains consistent with the OSPP. The Project Modifications would not result in any new significant effects or a

substantial increase in the severity of previously identified significant impacts associated with conflict with the OSPP as compared to the 2020 EIR.

Oak Tree Replacement Plan

In addition to impacts to oaks and oak woodlands, the Proposed Project could result in conflicts with the 2008 Oak Tree Replacement Plan if it impacted oaks such that sufficient oak mitigation areas are not available to mitigate the 2009 Water Rights EIR and the Proposed Project. During preparation of the 2020 EIR, the 2008 Oak Tree Replacement Plan was revised to ensure that sufficient mitigation areas remained to satisfy mitigation of the 2009 Water Rights EIR in addition to the Original Project. A revised Oak Mitigation Plan was prepared pursuant to **Mitigation Measure 3.4-16** to review oak mitigation areas and confirm that the combined mitigation of the 2009 Water Rights EIR and the Proposed Project remain feasible. As discussed above, overall impacts to oaks would be reduced under the Project Modifications, and sufficient mitigation areas are available to satisfy combined mitigation of the 2009 Water Rights EIR and the Modified Project (**Appendix J**). **Mitigation Measure 3.4-16** would ensure compliance with the Oak Tree Replacement Plan by identifying oak woodland preservation areas necessary to satisfy the 2009 Water Rights EIR prior to construction of the Modified Project. Therefore, the Project Modifications would not result in any new significant effects or a substantial increase in the severity of previously identified significant impacts associated with conflict with the 2008 Oak Tree Replacement Plan as compared to the 2020 EIR.

IMPACT 3.4-7	**CUMULATIVE IMPACTS TO BIOLOGICAL RESOURCES**		
2020 EIR Conclusions			**Do Project Modifications Result in New Significant Effects or a Substantial Increase in the Severity of Previously Identified Effects?**
Project Component	**Guenoc Valley Site Phase 1 and Future Phases**	**Other Phase 1 (Off-Site) Areas**	
Significance Before Mitigation	Significant	Less than Significant	No
Mitigation Measures	MM 3.4-1 through MM 3.4-13; 3.4-15 through 3.4-21 (Phase I) MM 3.4-11 through MM 3.4-21 (Future Phases)	None Required	No Modifications Necessary
Significance After Mitigation	Less than Significant	Less than Significant	Less than Significant

*Impact numbering retained from the 2020 EIR.

As explained further in the 2020 EIR and **Section 4.13** of this PREIR, a significant cumulative impact to biological resources would occur if the Proposed Project, in addition to recent, ongoing, and foreseeable development, caused a cumulatively significant impact to biological resources. Planned cumulative projects in the region are described in **Table 4.13-1**, and while some changes have occurred to the cumulative projects since the 2020 EIR, the main projects in the region remain consistent (i.e., buildout of

the Hidden Valley Community, Valley Oaks Community, and the Guenoc Valley Water Rights Modification Project). All projects have the potential to impact biological resources during construction and operation, but compliance with Federal, State, and County land use and environmental regulations would reduce impacts. The 2020 EIR determined that significant cumulative impacts to biological resources would not occur with consideration of **Mitigation Measures 3.4-1** through **3.4-13**, and **3.4-15** through **3.4-21**. These same measures would ensure the Project Modifications would not result in new significant environmental effects or an increase in the severity of previously identified significant effects. No additional mitigation for cumulative development would be required.

4.4.5 Mitigation Measures

This PREIR has identified modifications to several biological resources mitigation measures to ensure the potential impacts of the Project Modifications are reduced to less-than-significant levels. Each mitigation measure with revisions is discussed below, and a presentation of changes in underline ~~strikeout~~ is provided in **Section 5**.

Mitigation Measure 3.4-2 outlines the worker environmental awareness training program and includes a table that identifies which species shall be included within training materials based upon which construction location personnel are assigned to. The phrase 'Grange Road Connector' has been added to this measure to clarify that the environmental training would apply to the totality of the Grange Road Connector, even that portion outside of the Guenoc Valley Site.

Similarly, **Mitigation Measure 3.4-8** requires preconstruction nesting bird surveys for work completed on the Guenoc Valley Site, Middletown Housing Site, and Off-Site Infrastructure Improvement Areas. The Grange Road Connector has been added to this measure to clarify that the preconstruction surveys would apply to the totality of the Grange Road Connector, even that portion outside of the Guenoc Valley Site.

Mitigation Measure 3.4-10 has also been revised as western pond turtle has been re-classified to northwestern pond turtle since publication of the 2020 EIR. Additionally, northwestern pond turtle was proposed for federal Threatened status on October 3, 2023 (88 FR Vol 190, 68370) with a rule under section 4(d) of the Endangered Species Act. Therefore, Mitigation Measure 3.4-10 has been revised to account for USFWS's jurisdiction over northwestern pond turtle and associated implications of listing under FESA.

Both **Mitigation Measures 3.4-15** and **3.4-18** relate to sensitive habitat mitigation. As serpentine rock outcrop has been recently described and classified as sensitive, it has been added to these mitigation measures. The mechanisms of mitigation remain unchanged.

No other changes to the mitigation measures are warranted as a result of the Project Modifications. A full list of the mitigation measures is included in the MMRP in **Section 5**.

4.5 CULTURAL RESOURCES

4.5.1 Introduction

The 2020 EIR, Volume II, Section 3.5.2 includes a detailed description of the environmental setting related to cultural resources on the Guenoc Valley Site, Middletown Housing Site, and Off-Site Infrastructure Areas that is not repeated in its entirety within this PREIR. **Section 4.5.2** of this PREIR includes a description

measures identified in the 2020 EIR. **Mitigation Measure 3.7-1** has been revised to require that the Project achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2, and that the use of natural gas or propane at restaurants be minimized and replaced with alternative equipment to the extent consistent with restaurants' commercial needs or requirements. No other changes to the mitigation measures are warranted as a result of the Project Modifications. A full list of the mitigation measures, including revised **Mitigation Measure 3.7-1**, is included in the MMRP in **Section 5**.

4.8 HAZARDS AND HAZARDOUS MATERIALS

4.8.1 Introduction

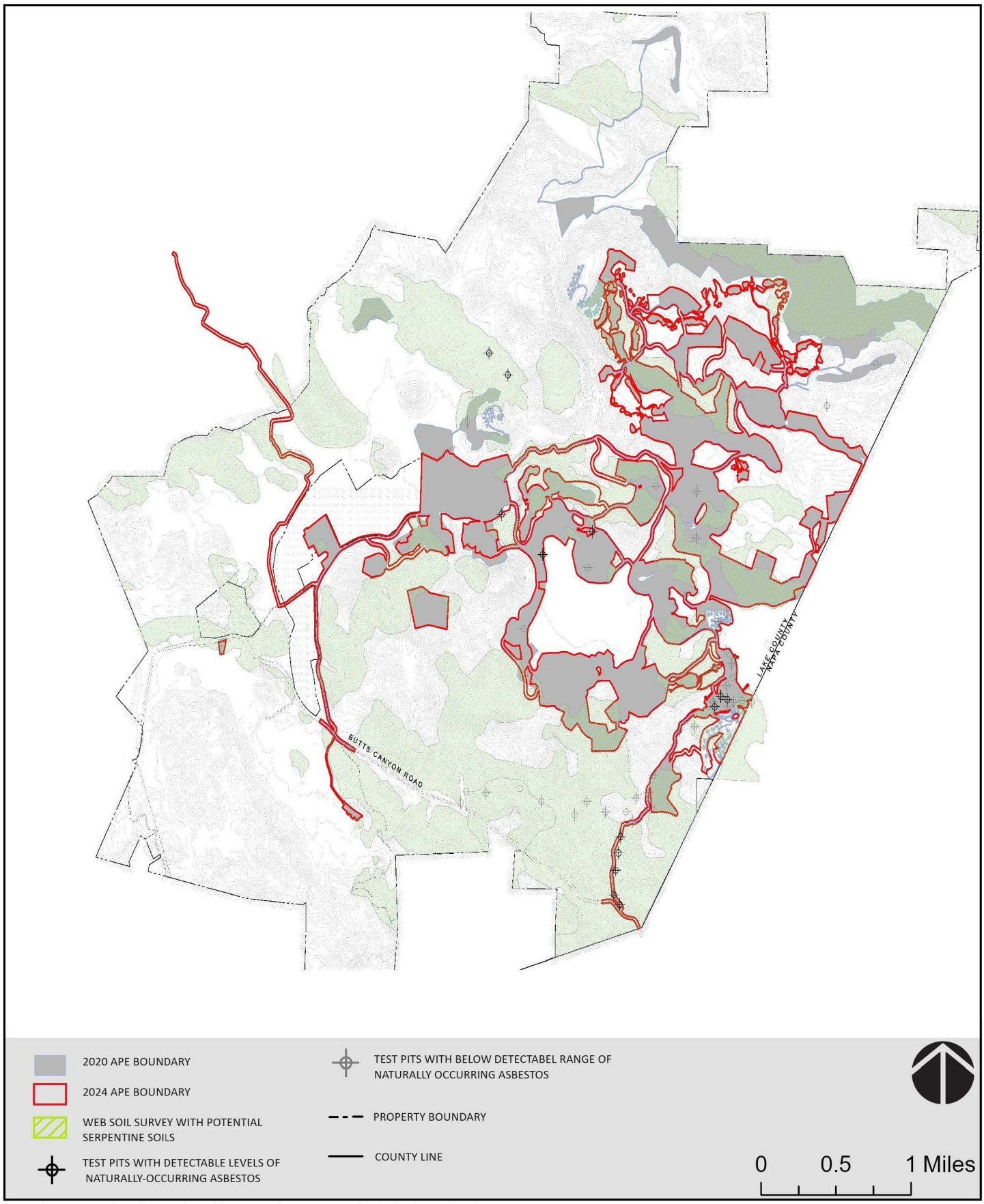
The 2020 EIR, Volume II, Section 3.8.2 includes a detailed description of the environmental setting related to hazards and hazardous materials on the Guenoc Valley Site, Middletown Housing Site, and Off-Site Infrastructure Areas that is not repeated in its entirety within this PREIR. **Section 4.8.2** of this PREIR includes a description of the environmental setting that has changed since the 2020 EIR. There have been no substantial changes to the hazards and hazardous materials "Regulatory Setting" since preparation of the 2020 EIR. The full discussion of the environmental and regulatory settings is provided in the 2020 EIR (**Appendix D**). **Section 4.8.3** of this PREIR provides a discussion on whether Project Modifications would result in new significant effects or a substantial increase in the severity of previously identified effects, and mitigation is discussed in **Section 4.8.4**.

4.8.2 Environmental Setting

Ultramafic, ultrabasic, and serpentine soils occur within the Guenoc Valley Site, which can contain naturally occurring asbestos (NOA), as explained further in the 2020 EIR. The soils underlying the Grange Road Connector APE are listed in **Table 4.6-1**. **Figure 4-10** shows the serpentine soils on the Guenoc Valley Site and the off-site portion of the Grange Road Connector. An updated review of the State Water Resources Control Board's (SWRCB) GeoTracker database was conducted to determine if there are any known hazardous materials sites within 1 mile of the off-site portion of the Grange Road Connector; no known hazardous sites exist within the Grange Road Connector alignment or the 1-mile radius search (SWRCB, 2024a).

4.8.3 Impacts

The hazards and hazardous materials impacts of the Original Project were determined by analyzing changes to the existing conditions that would occur as a result of the proposed land uses within the area. This analysis of the Project Modifications follows the same methodology outlined in Section 3.8.4 of the 2020 EIR, focusing on whether the Project Modifications would result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects than those described in the 2020 EIR. Refer to Section 3.8.4 of the 2020 EIR (**Appendix D**) for a complete description of the methodology and significance criteria relating to hazards and hazardous materials impacts.



Source: Lake County Community Development and General Plan; Source: Esri, USDA FSA, County of Napa, California State Parks, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS, Airbus,USGS,NGA,NASA,CGIAR,NCEAS,NLS,OS,NMA,Geodatastyrelsen,GSA,GSI and the GIS User Community

FIGURE 4-10

SERPENTINE SOILS WITHIN MODIFIED PHASE 1 APE

IMPACT 3.8-2	CREATE A SIGNIFICANT HAZARD TO THE PUBLIC OR THE ENVIRONMENT THROUGH REASONABLY FORESEEABLE UPSET AND ACCIDENT CONDITIONS INVOLVING THE RELEASE OF HAZARDOUS MATERIALS INTO THE ENVIRONMENT OR FROM BEING LOCATED ON A SITE WHICH IS INCLUDED ON A LIST OF HAZARDOUS MATERIALS SITES COMPILED PURSUANT TO GOVERNMENT CODE §65962.5		
2020 EIR Conclusions			**Do Project Modifications Result in New Significant Effects or a Substantial Increase in the Severity of Previously Identified Effects?**
Project Component	**Guenoc Valley Site Phase 1 and Future Phases**	**Other Phase 1 (Off-Site) Areas**	
Significance Before Mitigation	Potentially Significant	Potentially Significant	No
Mitigation Measures	MM 3.8-2; MM 3.8-3; MM 3.8-4; MM 3.8-5	MM 3.8-2; MM 3.8-5; MM 3.8-6	Modifications to MM 3.8-5 and 3.4-18; all other mitigation measures applicable as originally written
Significance After Mitigation	Less than Significant	Less than Significant	Less than Significant

As analyzed in the 2020 EIR, there are numerous project components that could result in a potentially significant impact to the public or the environment through the release of hazardous materials. The 2020 EIR discussed these impacts generally under the subheadings "Contaminated Soil and/or Groundwater", "Demolition of Structures", "Abandoned Geothermal Wells", and "Naturally Occurring Asbestos." **Mitigation Measures 3.8-2** through **3.8-5** would ensure that appropriate measures are taken to reduce this impact to less-than-significant levels. Project Modifications that would result in no changes to the APE or Development Area, including the GHG Reduction Measures, Updated WPP, and DMP, would have no potential to increase the severity of this impact. Regarding contaminated soils and/or groundwater, none of the Project Modifications would result in development within the existing hazardous materials sites identified on the property, nor have new hazardous materials sites been located within the off-site Grange Road Connector APE. There is the same potential for undocumented hazards to exist within the Modified APE, and **Mitigation Measure 3.8-2** would continue to reduce this impact to less-than-significant levels for the same reasons stated in the 2020 EIR. The Project Modifications do not change the demolition of existing structures analyzed in the 2020 EIR, and therefore **Mitigation Measure 3.8-3** will continue to apply and reduce the impact to less than significant for the same reasons stated in the 2020 EIR. No new geothermal wells have been located on the Project Site since circulation of the 2020 EIR. The Parcel Reconfiguration would remove some potential residential lots from areas that contained known geothermal wells, however the Modified APE still includes geothermal wells and this remains a significant impact. **Mitigation Measure 3.8-4** would continue to apply and reduce this impact to less than significant for the same reasons stated in the 2020 EIR.

NOA occurs on the Project Site and construction activities occurring on ultramafic rock and serpentine soils pose a potentially significant hazard when NOA becomes airborne from soil-disrupting activities. Project Modifications that would result in no changes to the APE or Development Area, including the GHG Reduction Measures, Updated WPP, and DMP, would have no potential to increase the severity of this impact. The Project Modifications that would result in changes to the APE and previously studied Development Area (see **Table 4.1-1**), including the Parcel Reconfiguration, Connector Roadways, and Grange Road Connector, could result in changes to the amount of development occurring on soils or substrate potentially containing NOA. As shown in **Figure 4-10**, the Original Project had approximately 1,000 acres overlaying soils that have the potential to contain NOA. The Modified APE contains only 669 acres of soils that may contain NOA. In addition and as discussed further in **Section 4.4**, serpentine rock outcrops have been designated by CDFW as sensitive habitat types since circulation of the 2020 EIR. **Mitigation Measure 3.4-18** was revised to add serpentine rock outcrops as a sensitive habitat type and limit the types of wildfire clearing that can occur in these areas during operation of the Modified Project. Therefore, the rock outcrops most likely to contain NOA will be avoided to the extent feasible and will no longer be subject to equipment use during wildfire clearing activities that could mobilize NOA and impact onsite workers and residents.

While the severity of this impact has decreased, it remains significant and **Mitigation Measure 3.8-5** would apply to the Proposed Project to protect onsite workers and residents from NOA. Since circulation of the 2020 EIR, the LCAQMD has more stringent requirements and reporting procedures to implement its existing Rule 4.467 "Asbestos Emissions Control Measure." **Section 4.8.5** of this PREIR contains a minor modification to **Mitigation Measure 3.8-5** to clarify that a Site-Specific Health and Safety Plan is a required component of the Asbestos Dust Mitigation Plan in accordance with the most up-to-date LCAQMD policies. **Mitigation Measure 3.8-5** (as updated) would continue to reduce impacts to less-than-significant levels for the same reasons stated in the 2020 EIR.

IMPACT 3.8-3	**EMIT HAZARDOUS EMISSIONS OR HANDLE HAZARDOUS OR ACUTELY HAZARDOUS MATERIALS, SUBSTANCES, OR WASTE WITHIN 0.25 MILE OF AN EXISTING OR PROPOSED SCHOOL**		
2020 EIR Conclusions			**Do Project Modifications Result in New Significant Effects or a Substantial Increase in the Severity of Previously Identified Effects?**
Project Component	**Guenoc Valley Site Phase 1 and Future Phases**	**Other Phase 1 (Off-Site) Areas**	
Significance Before Mitigation	Not Applicable	Less than Significant	Not Applicable
Mitigation Measures	Not Applicable	None Required	Not Applicable
Significance After Mitigation	Not Applicable	N/A	Not Applicable

The Guenoc Valley Site is not located within 0.25 mile of an existing or proposed school, so Impact 3.8-3 of the 2020 EIR analyzed only the potential for the Middletown Housing Site and the Off-Site Infrastructure to have the potential to emit hazardous materials within 0.25 mile of a school. The on-site Project

Modifications would not be within 0.25 mile of a school and there are no Project Modifications affecting the Middletown Housing Site or the Off-Site Infrastructure. The off-site portion of the Grange Road Connector is approximately 4.5 miles from the nearest school. Therefore, the Project Modifications would have no potential to release hazardous materials within 0.25 mile of a school. The Project Modifications would not result in any new significant effects or a substantial increase in the severity of previously identified significant impacts associated with the release of hazardous materials near a school as compared to the 2020 EIR.

IMPACT 3.8-4	**POTENTIAL FOR CUMULATIVE EFFECTS ASSOCIATED WITH HAZARDS AND HAZARDOUS MATERIALS**		
2020 EIR Conclusions			**Do Project Modifications Result in New Significant Effects or a Substantial Increase in the Severity of Previously Identified Effects?**
Project Component	**Guenoc Valley Site Phase 1 and Future Phases**	**Other Phase 1 (Off-Site) Areas**	
Significance Before Mitigation	Less than Significant	Less than Significant	Less than Significant
Mitigation Measures	None Required	None Required	None Required
Significance After Mitigation	N/A	N/A	N/A

As explained further in the 2020 EIR and **Section 4.13** of this PREIR, the context for evaluation of potential cumulative impacts on hazards and hazardous materials is based on development in the region, including projected build out under the Middletown Area Plan and approved or potential projects in the County. However, the analysis of cumulative hazardous materials impacts is generally site-specific, rather than cumulative in nature. For example, the use of common hazardous chemicals during construction could impact the health or safety of onsite workers but is unlikely to impact the safety of offsite residents in the surrounding community, and therefore the geographic scope is limited to the Project Site and immediate vicinity. The Original Project's contribution to significant impacts related to hazards and hazardous materials were found to be less than significant, and the Project Modifications would not result in new significant environmental effects or an increase in the severity of previously identified significant effects. No additional mitigation for cumulative development would be required.

4.8.4 Mitigation Measures

This PREIR has identified modifications to one hazardous materials mitigation measure to ensure the potential impacts of the Project Modifications are reduced to less-than-significant levels. As discussed in **Section 4.4.5**, several mitigation measures in the biological resources section have also been updated to minimize operational wildfire-related activities in serpentine soils. The mitigation measure with revisions is discussed below, and a presentation of changes in underline ~~strikeout~~ is provided in **Section 5**.

Mitigation Measure 3.8-5 outlines the specific components of the Asbestos Dust Mitigation Plan that is required to minimize impacts to onsite workers and residents due to the presence of naturally occurring

asbestos. A Site-Specific Health and Safety Plan has been added to this measure to better comply with the current requirements of the LCAQMD.

4.9 HYDROLOGY AND WATER QUALITY

4.9.1 Introduction

The 2020 EIR, Volume II, Section 3.9.2 includes a detailed description of the environmental setting related to hydrology and water quality on the Guenoc Valley Site, Middletown Housing Site, and Off-Site Infrastructure Areas that is not repeated in its entirety within this PREIR. **Section 4.9.2** of this PREIR includes a description of the environmental setting that has changed since the 2020 EIR and **Section 4.9.3** describes any relevant regulations that are new or updated. The full discussion of the environmental and regulatory settings is available in the 2020 EIR (**Appendix D**). **Section 4.9.4** of this PREIR provides a discussion on whether Project Modifications would result in new significant effects or a substantial increase in the severity of previously identified effects, and **Section 4.9.5** describes mitigation for impacts to hydrology and water quality.

4.9.2 Environmental Setting

Watersheds and Drainage

The Grange Road Connector APE is approximately 3.8 miles, of which 1.6 miles are located on the off-site Comstock Ranch property and the remaining 2.2 miles are located on the Guenoc Valley Site. The watershed, hydrologic conditions, and water quality of the on-site portion are discussed in the 2020 EIR. The off-site portion of the Grange Road Connector APE is located in the Upper Putah Creek watershed, within the Westside Subregion of the Sacramento River Basin (Basin), the same watershed as the Guenoc Valley Site. At the local watershed level, the off-site portion of the Grange Road Connector APE is located in the Crazy Creek-Putah Creek subwatershed (HUC 180201620307), and transitions to the Bucksnort Creek subwatershed (HUC 180201620305) when it enters the Guenoc Valley Site (USGS, 2018).

As further explained in the 2020 EIR, Bucksnort Creek is the primary drainage within the Guenoc Valley Site and most subwatersheds on the site drain to this creek. Bucksnort Creek flows north from the southwest side of the site through Detert Reservoir on to McCreary Lake, eventually discharging into Putah Creek. The Grange Road Connector APE is adjacent to Bucksnort Creek once the roadway enters the Guenoc Valley Site, following an existing vineyard access road that is adjacent to the stream. The Grange Road Connector then turns and crosses Bucksnort Creek over an existing bridge (see **Figure 4-6**).

Flooding

The Federal Emergency Management Agency (FEMA) oversees the delineation of flood hazard zones as it relates to the National Flood Insurance Program (NFIP) and the provision of federal disaster assistance. FEMA manages the NFIP and publishes the Flood Insurance Rate Maps (FIRMs), which show the expected frequency and severity of flooding by area, typically for the existing land use and type of drainage/flood control facilities present. Flood zones are determined by the probability of flooding within a certain time period, typically the 1% annual chance flood (100-year flood) or 0.2% annual chance flood (500-year flood). Floodplains are divided into flood hazard zones, designated by the potential for flooding of an area during a flood event. Flood zones B, C, and X may include those areas that are located within the 100-year flood plain but are adequately protected by levee systems or other flood protection, while Zone A is

Section 5 | Updated Mitigation Monitoring and Reporting Program

5.1 INTRODUCTION

CEQA requires that a Lead Agency establish a program to report on and monitor measures adopted as part of the environmental review process to mitigate or avoid significant effects on the environment. This MMRP is designed to ensure that the mitigation measures identified in the EIR for the Guenoc Valley Mixed Use Planned Development Project (Proposed Project) are fully implemented. The MMRP, as presented in **Table 5-1**, describes the implementation and timing of mitigation responsibilities and standards, and verification of compliance for the mitigation measures identified in the PREIR.

Table 5-1 presents all applicable requirements of the recommended mitigation measures and is organized in the same order as the contents of the 2020 EIR, by topic. Monitoring responsibilities have been distributed between the County and the Applicant under this MMRP. All monitoring actions, once completed, would be reported (in writing) to Lake County staff, which would maintain mitigation monitoring records for the Proposed Project.

Any text revisions to the mitigation measure language compared to what was previously considered in the 2020 EIR are shown in ~~strikethrough~~ (to indicate deletions) or underline (to indicate additions). Some text has been moved from cultural mitigation measures to new tribal cultural mitigation measures; this moved text is shown with ~~double-strikethrough~~ and double-underline.

The components of the MMRP table are described below.

- **Mitigation Measure:** The mitigation measures are taken verbatim from the 2020 EIR. Mitigation measures are assigned the same number as in the EIR.
- **Implementation and Timing:** Identifies the timing for the implementation of each action.
- **Responsibility for Implementation:** Identifies the authority responsible for implementing the mitigation measure.
- **Responsibility for Monitoring:** Identifies the authority responsible for monitoring implementation of the mitigation measure.

5.2 PROJECT COMMITMENTS

In addition to mitigation responsibilities listed in **Table 5-1**, the Applicant has committed to certain actions that would reduce the environmental effects of the Project, including effects related to wildfire prevention and response. A number of project commitments are outlined in **Table 5-2**, along with the timing, responsible party for implementation, and responsible party of monitoring. It should be noted that **Table 5-2** is not inclusive of all of the project's environmental commitments. Other measures may be described in the 2020 Final EIR, Volume II, Section 2.0 Project Description, and the appendices cited

therein, including but not limited to the Design Guidelines (Appendix DG) and zoning ordinance requirements (Appendix GVD).

5.3 SETTLEMENT AGREEMENT MEASURES

In addition to mitigation responsibilities listed in **Table 5-1** and project commitments in **Table 5-2**, the Applicant voluntarily entered into a Settlement Agreement with the State to resolve the State's petition and appeal (**Appendix C**). The Settlement Agreement stipulated several Project Modifications that the Applicant has agreed to incorporate into the Project pertaining to wildfire prevention and protection, GHG emissions, and land use, which are listed in **Table 5-3**. The timing, responsible party for implementation, and responsible party of monitoring, are also listed in **Table 5-3**.

	Mitigation Measure	Implementation and Timing	Responsible for Implementing	Responsibility for Monitoring
3.4-13	**Aquatic Habitat Public Signage** Signage at primary public access locations in proximity to western pond turtle or foothill yellow-legged frog habitat shall be posted that describes the sensitive nature of these habitat types and their importance within the Guenoc Valley Site ecosystem. Signage shall also include action items for visiting public to encourage protection of these valuable resources. This may include, but is not limited to: ▪ Proper collection and disposal of trash; ▪ Leashing of pets to prevent harassment of wildlife; ▪ Passive activities to enjoy wildlife without disturbing natural behavior; ▪ Discouragement of removal of plants or other biological resources; and ▪ Restrictions on allowable transportation (vehicles, bicycles, horses, etc.) near sensitive habitat. Infrastructure shall also include waste receptacles sufficient in number and size to service public use of the Guenoc Valley Site with regular service to prevent over spilling. Removal of litter shall occur during servicing of waste receptacles.	Signage shall be installed prior to issuance of the first occupancy permit. (Use Permit COA) Maintenance of signage shall be the responsibility of the HOA, and this shall be included in the CC&Rs. (TM COA)	Applicant	County
3.4-14	**Future Phases Biological Review** Following the development of sufficient information related to future phases of development and prior to any on the ground impacts, a qualified biologist shall perform an updated and detailed analysis on impacts to biological resources within the future phases Area of Potential Effect. A report detailing any necessary survey methods, results, and analysis of potential future phases impacts shall be prepared to determine the application of Mitigation Measures 3.4-1 through 3.4 13, 3.4-15 through 3.4-21, 3.9- 1, 3.9-2, and 3.10-2 to future phases, and the need for additional mitigation measures beyond those measures to reduce impacts of future phases to a less than significant level. The analysis shall be to the level of detail presented within this EIR. Additional mitigation shall be presented for those impacts determined to be significant or potentially significant following the inclusion of Mitigation Measures 3.4-1 through 3.4 13, 3.4-15 through 3.4-21, 3.9-1, 3.9-2, and 3.10-2. Additional mitigation shall be designed such that impacts to biological resources are reduced to less-than-significant levels and include avoidance, compensation, and monitoring similar to mitigation identified for Phase 1.	Applicant shall include in application for SPD for future phases. County will ensure that this mitigation is implemented prior to approval of SPDs for future phases.	Applicant/County	County
3.4-15	**Impact to Sensitive Habitats** Sensitive habitats shall be avoided to the maximum extent feasible. In areas where full avoidance of sensitive habitat types is not possible, mitigation shall occur as	The applicant shall ensure that sensitive habitats are avoided as described in	Applicant/County	County

Mitigation Measure	Implementation and Timing	Responsible for Implementing	Responsibility for Monitoring
described below. This mitigation shall be applicable to impacts for purple needlegrass, musk- brush chaparral, white alder grove, Brewer willow thicket, Sargent cypress forest, serpentine rock outcrops, and native grasslands: ▪ Preservation of in-kind habitat shall occur at a minimum ratio of 2 acre:1 acre. ▪ Areas designated for preservation shall be maximized within identified protection areas, such as sensitive habitats within Habitat Connectivity Easement Areas. Sensitive habitats within the Open Space Combining District that are not required to mitigate for impacts to POU resulting from vineyard development approved in the 2009 FEIR may be used for the purpose of this mitigation. ▪ Preservation of in-kind habitat that occurs within residential lots shall occur only within open space prohibited from development (including landscaping and agricultural uses) by the Design Guidelines, or through the establishment of habitat easements within the residential lots. Preservation of sensitive habitat for the purposes of mitigation that occurs within deed-restricted open space shall be identified within the deed restriction and shall prohibit the development of that area identified for preservation. Preservation within deed-restrictions shall be preserved in perpetuity as a condition of the deed. ▪ Areas that area preserved for in-kind habitat that occur outside of residential lots, Habitat Connectivity Easement Areas, and the Open Space Combining District shall be avoided during future phases of development. Should unavoidable impacts to in-kind habitat preservation areas occur during future phases of construction, those impacts shall be subject to additional compensatory actions set forth in this mitigation. Should insufficient habitat occur to offset future impacts, a compensatory habitat restoration, enhancement, and/or creation mitigation measure shall be prepared and approved by the County prior to on the ground impacts of future development phases. ▪ Those areas selected for preservation shall be provided on a map to the County and approved by the County. Preservation of in-kind habitat shall be the preferred method of mitigation when possible. The Applicant may additionally satisfy the 2:1 mitigation ratio through restoration, creation, and/ or enhancement of in-kind habitat. “In-kind” requires that habitats meet the classification criteria of their respective vegetative community as defined during the appropriate biological surveys. Mitigation performed through restoration, creation, or enhancement shall be monitored for a minimum of five years	Mitigation Measure 3.4-15, and where avoidance is not feasible, implement mitigation described in Mitigation Measure 3.4-15. (Use Permit and TM COAs) The County shall review and approve mitigations prior to on the ground impacts of future development phases.		

	Mitigation Measure	Implementation and Timing	Responsible for Implementing	Responsibility for Monitoring
	by a qualified biologist. The biologist shall prepare an annual report on the status of mitigation activities along with adaptive management recommendations as necessary. These reports shall be maintained by the Applicant and available to agencies upon request. Success criteria shall be as follows and shall require additional years of monitoring and management should mitigation fail to meet success criteria: ▪ Purple needlegrass and native grasslands shall achieve a percent native plant cover that meets or exceeds that of the habitat impacted. Non-sensitive grasslands and herb-dominated habitat types are suitable for restoration and creation activities. ▪ Musk-brush chaparral shall be restored in non-sensitive suitable habitat. Mitigation shall occur at a 2:1 acre ratio and shall achieve a 75 percent acreage establishment. The monitoring biologist shall consider percent cover, species composition, overall health of plantings, and other indicators when determining success of establishment. ▪ White alder grove and Brewer willow thicket may be restored along riparian corridors where invasive species or bank stabilization issues have occurred. Mitigation shall occur at a 2:1 acre ratio and shall achieve a 75 percent acreage enhancement. The monitoring biologist shall consider percent cover, species composition, bank stability, overall health of plantings, and other indicators when determining success of establishment. ▪ Sargent cypress forest shall be enhanced through the removal of competing foothill pines at an acreage ratio of 2:1 once annually for a total of five years and/or Sargent cypress trees shall be replanted at a 2:1 ratio and monitored for a total of five years. Replanting shall achieve a 75 percent success rate. ▪ Serpentine rock outcrop shall be enhanced through the removal of invasive species at an acreage ratio of 2:1 in similar habitat that has a dominant invasive species relative cover to achieve a percent native plant cover that meet or exceeds that of the habitat impacted.			
3.4-16	**Oak Mitigation Plan** All project activities shall be subject to compliance with the Oak Mitigation Plan, dated June 2020, included as Appendix OAK to this Final EIR. Prior to approval of final maps, the Applicant shall demonstrate compliance within the Oak Mitigation Plan	Prior to approval of final maps, the Applicant shall demonstrate compliance within the Oak Mitigation	Applicant	County

	Mitigation Measure	Implementation and Timing	Responsible for Implementing	Responsibility for Monitoring
3.4-18	**Sensitive Habitat Impacts from Wildfire Clearing** Sensitive habitats included below shall be avoided during removal of dead vegetation and fire fuel load reduction necessary for safety purposes in managing wildfire risk to the degree feasible. The following sensitive habitats shall be addressed in the following manner as it relates to fire management fire breaks, lop and scatter, and masticating outside of development areas: ▪ Purple needlegrass grasslands – This habitat does not require wildfire risk fuel reduction activities. This habitat shall be avoided to the degree feasible. Equipment and vehicles shall not be used or staged within this habitat type. ▪ Musk brush chaparral – This habitat does not require wildfire risk fuel reduction activities. This habitat shall be avoided to the degree feasible. Equipment and vehicles shall not be used or staged within this habitat type. ▪ White alder grove – Due to limited distribution and association with natural riparian fire breaks, this habitat type should not require ongoing wildfire risk fuel reduction activities and shall be avoided as possible. Equipment and vehicles shall not be used or staged within this habitat type. If determined necessary by safety personnel, hand-clearing of dead vegetation may occur. ▪ Brewer willow thicket - Due to the limited distribution and association with natural riparian fire breaks, this habitat type does not require wildfire risk fuel reduction activities. This habitat shall be avoided to the degree feasible. Equipment and vehicles shall not be used or staged within this habitat type. ▪ Sargent cypress forest – This habitat may require occasional management for wildfire risk. Due to the sensitive nature of this habitat type, hand tools shall be the only acceptable use of vegetation management. No live Sargent cypress trees shall be felled. Equipment and vehicles shall not be used or staged within this habitat type. ▪ Serpentine rock outcrop - Due to the limited distribution and low vegetation cover, this habitat type does not require wildfire risk fuel reduction activities. This habitat shall be avoided to the degree feasible. Equipment and vehicles shall not be used or staged within this habitat type. ▪ Oak woodland - This habitat may require occasional management for wildfire risk. Due to the sensitive nature of this habitat type, hand tools or grazing shall be the only acceptable use of vegetation management. Should impacts to any living oak trees occur, they shall be mitigated for as outlined within the Oak Mitigation Plan. Equipment and vehicles shall not be used or staged	The applicant shall ensure compliance with Mitigation Measure 3.4-18. Applicant to incorporate these measures into the Wildfire Prevention Plan and obtain County approval of revised Wildfire Prevention Plan prior to approval of Grading or Improvement Plans- (whichever occurs first). The applicant shall include these requirements in construction contracts. The applicant shall include all of these requirements in construction contracts. (Use Permit COA)	Applicant/County	County

	Mitigation Measure	Implementation and Timing	Responsible for Implementing	Responsibility for Monitoring
	within this habitat type. ▪ Oak savanna – Cover for this habitat type is dominated by non-native annual grasses and would not likely require management for wildfire risk except limited grazing or mowing immediately adjacent to high risk fire areas such as within 50 feet of roads. Equipment use and staging may occur within areas of non- native annual grassland provided that the driplines of oaks are not impacted. Should impacts to any living oak trees occur, mitigation shall occur as outlined within the Oak Mitigation Plan.			
3.4-19	**Wildlife Movement – Fencing** Use of fencing shall be minimized throughout the Guenoc Valley Site and shall adhere to those restrictions set forth in the Design Guidelines for all phases of development. Fencing shall not be installed for the purpose of wildlife exclusion except in the case of safety or protection of agricultural resources or residential development areas, and shall be designed to allow for continued movement of non-target species as possible. Unless approved by the Home Owner's Association or for ongoing protection of agricultural resources or property, fencing exceeding six feet in height shall not be used. Fencing materials designed for the purpose of wildlife entrapment or injury shall not be used. Full perimeter fencing for residential lots exceeding two acres in size shall be prohibited unless consistent with the following wildlife-friendly fencing measures: ▪ Fencing shall be reasonably visible to travelling wildlife to prevent collision with fencing, ▪ Fencing shall not include low rails or wires that would prevent smaller dispersing animals from passing, ▪ Fencing shall not present a top rail clearance exceeding six feet, and shall not exceed four feet when possible. Clearance height shall consider the ground slop approaching the fence such that the height of a jump required to clear the fence from the downslope side does not exceed six feet, and ▪ Materials that entangle or otherwise entrap wildlife, such as loose wire, top or bottom barbed wires, shall be prohibited.	Fencing requirements are incorporated into the Design Guidelines and shall be administered by the HOA. The County will review compliance prior to issuance of building permits. The applicant shall include all of these requirements in construction contracts. (Use Permit COA)		
3.4-20	**Wildlife Movement – Future Phases** Future phases of development shall retain the clustered development design and restriction on maximum allowable residential lot development standards set forth within the Design Guidelines. Residential lots shall be restricted to an allowable	Applicant shall include in application for SP~~O~~D for future phases. County will ensure that this mitigation	Applicant/County	County

Appendix I

Biological Resources Assessment

Project Modifications Biological Resources Assessment

Guenoc Valley Mixed Use Planned Development Project

Lake County, California

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WRA#27162

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Definitions

2020 Phase 1 Study Area: The approximately 4,977-acre area analyzed in the February 2020 Biological Resources Assessment prepared by WRA for Phase 1 of the Guenoc Valley Mixed Use Planned Development Project and in the 2020 Final Environmental Impact Report's analysis of impacts of Phase 1 of the Guenoc Valley Mixed Use Development Project. Note that more area was studied in the 2020 BRA than the 2020 Area of Potential Effects (APE)

2020 Project: The Guenoc Valley Mixed Use Planned Development Project as defined in the 2020 FEIR and analyzed in the 2020 Biological Resources Assessments prepared by WRA for the Guenoc Valley Mixed Use Planned Development Project. The 2020 Project APE was 2,958 acres.

Modified Area of Potential Effects (Modified APE): The approximately 2,453-acre area of the Guenoc Valley Mixed Use Planned Development Project after inclusion of the Project Modifications. This Biological Resources Assessment assesses the Modified APE, with particular focus on the 333 acres that are located outside of the 2020 APE.

Project Modifications: The project Applicant has modified the project to include the following:

- A new proposed emergency route called the Grange Road Connector that will connect the Guenoc Valley Site with the County-maintained Grange Road to the north. The Grange Road Connector will be approximately 3.9 miles, with 2.2 miles occurring on the Guenoc Valley Site and 1.7 miles sited on the off-site property to the north;

In addition, the following modifications to the 2020 Project have been incorporated pursuant to a 2022 settlement agreement between the State of California and the project applicant:

- Relocating 25 residential building sites that the 2020 Project would have located on a hilltop near the proposed Equestrian Center and 39 residential building sites that the 2020 Project would have located within the northeastern portion of the Project site such that they would be located further from the wildland/urban interface;
- Reconfiguring the roadway plan so that there are no dead-end, non-looped road segments that exceed 1-mile in length;
- Improving an area of approximately 10 feet on each side of roadways with hardscape, to the extent topography permits.
- Removal of the camping area in the northern portion of the property
- Funding and staffing commitments for the onsite Emergency Response Center; and
- Various renewable energy commitments and greenhouse gas reduction measures that will not change the development footprint.

List of Preparers

Matthew Richmond	Principal in Charge
Brian Freiermuth	Associate Wildlife Biologist
Rhiannon Korhummel	Plant Biologist and Wetland Specialist
Michael Rochelle	GIS Analyst

180201620307), or Butts Creek-Putah Creek (HUC 12: 180201620308) local watershed. The National Wetland Inventory (NWI), California Aquatic Resources Inventory (CARI) and USGS 7.5-minute quadrangle maps depict several aquatic resources in the Modified APE (USFWS 2024; SFEI 2024; USGS 2020). Detailed descriptions of aquatic resources are provided in Section 5.1 below.

4.3 Land Use

The Modified APE is characterized by widespread serpentine and volcanic soils experiencing relatively low rainfall and hot, dry summers; the resulting vegetation is dominated by a mix of chaparral, foothill pine woodland, and blue oak woodland, with grasslands in valley bottoms and alluvial positions. The offsite land use on the Comstock Ranch is agricultural/livestock grazing fields and old ranch roads, with several viticultural production areas in the surrounding south. Developed areas include existing ranch roads and areas associated with existing residence and livestock facilities. As is the case with the Guenoc Valley Ranch property, many of the valley bottoms and alluvial positions throughout the region were historically converted for grazing lands, vineyards, or other agricultural uses. No significant differences in land use were observed in the Modified APE, as compared to the 2020 APE and as reported in the 2020 BRA. Much of the vegetation across the property burned during the Valley Fire of 2015 and/or the LNU Lightning Complex Fire of 2020, leaving many communities in an early seral stage of development, often with relict snags and downed woody debris giving evidence of the climax community that was present before the fire and may return over time. The 2020 fire occurred from August through October, following the approval of the FEIR in July 2020. Details of fire impacts are provided in Section 5.1.1 below.

5.0 ASSESSMENT RESULTS

The following sections describe the assessment results of the Modified APE with a focus on new conditions not reported in the 2020 BRA. Approximately 2,216 acres of the 2,453 acre Modified APE is included in the 2020 Phase 1 Study Area and surveyed between 2017 and 2019, while approximately 236 acres is outside the 2020 Phase 1 Study Area. Due to location of Modified APE in relation to the 2020 APE, 333 acres were not assessed in the 2020 EIR; however, portions of these 333 acres were assessed in the 2020 BRA. An additional 181 acres have been surveyed between 2020 and 2023. Approximately 55 acres of the Modified APE have not been field assessed; for these areas, desktop assessment for land cover types was conducted. For a complete description of the ecological setting of the 2020 APE, refer to the 2020 BRA and 2020 EIR.

5.1 Vegetation Communities and Other Land Cover

WRA observed 30 land cover types within the Modified APE, including 18 terrestrial types and 12 aquatic resource types. Of the 18 terrestrial land cover types, a total of 10 non-sensitive and eight sensitive terrestrial land cover types are mapped. Land cover mapping conducted in the 333 acres areas not included in the 2020 APE resulted in no new land cover types; all had been previously identified elsewhere in the 2020 Phase 1 Study Area in previous biological surveys and reported in the 2020 BRA. No new land cover types were observed in the Modified APE; however, some areas of the previously mapped land cover Rock Outcrop meet the criteria of a new CDFW natural community that is considered sensitive. See below for further discussion. For a complete

description of the terrestrial land cover types in the Modified APE, refer to the 2020 BRA and 2020 EIR.

Table 3 below summarizes and compares land cover types of Modified APE. The land cover types are illustrated in Appendix A on Figure 4 set (Land Cover), Figure 5 set (Aquatic Resources), and Figure 6 (Fire Impacts).

Table 3: Vegetation Communities and Other Land Cover Types

COVER TYPE	SENSITIVE STATUS	RARITY RANKING	ACRES WITHIN MODIFIED APE	ACRES IN 333 ACRES	ACRES OF MODIFIED APE DESKTOP ASSESSED
TERRESTRIAL / COMMUNITY LAND COVER					
Agriculture	Non-Sensitive	Not Applicable	309.71	36.30	0
California Yerba Santa Scrub	Non-Sensitive	G5 S5	6.02	0	0
Chamise Chaparral[7]	Non-Sensitive	G5 S5	242.46	9.41	8.56
Developed	Non-Sensitive	Not Applicable	69.95	11.89	0.22
Foothill Pine Woodland	Non-Sensitive	G4 S4	126.08	18.52	5.71
Leather Oak Chaparral[8]	Non-Sensitive	G4 S4	169.95	52.25	7.77
Non-native Annual Grasslands	Non-Sensitive	GNA SNA	438.27	77.13	3.11
Rock Outcrop	Non-Sensitive	Not Applicable	1.98	0.02	0
Scrub Oak Chaparral	Non-Sensitive	G4 S4	31.25	1.92	0
Whiteleaf Manzanita Chaparral[9]	Non-Sensitive	G4 S4	61.31	4.29	1.18
Blue Oak Woodland	Sensitive	G4 S4	481.33	57.83	12.54
Blue Oak Savannah	Sensitive	G4 S4	276.17	30.36	5.46
Interior Live Oak Woodland	Sensitive	G4 S4	170.44	15.71	10.64

[7] Although the chamise chaparral alliance is listed as secure at the global (G5) and state (S5) levels, there may be sensitive associations within the alliance present. This was also identified in the 2020 BRA.
[8] Although the leather oak chaparral alliance is listed as apparently secure at the global (G4) and state (S4) levels, there may be sensitive associations within the alliance present such as the leather oak – chamise/Sonoma sage association. This was also identified in the 2020 BRA.
[9] Although the whiteleaf manzanita chaparral alliance is listed as apparently secure at the global (G4) and state (S4) levels, there may be sensitive associations within the alliance present such as the whiteleaf manzanita – musk brush provisional association. This was also identified in the 2020 BRA.

COVER TYPE	SENSITIVE STATUS	RARITY RANKING	ACRES WITHIN MODIFIED APE	ACRES IN 333 ACRES	ACRES OF MODIFIED APE DESKTOP ASSESSED
Musk Brush Chaparral[10]	Sensitive	Y (G3 S3)	2.84	0.03	0
Purple Needlegrass Grassland[11]	Sensitive	G4G3 S4S3	5.69	0.43	0
Valley Oak Woodland	Sensitive	G3 S3	9.83	0.50	0
Brewer Willow Thicket	Sensitive	G3 S3	1.12	1.10	0
Serpentine Rock Outcrop	Sensitive	G3G2 S3S2	3.92	0.18	0
AQUATIC RESOURCES					
Ponds/Reservoirs	Sensitive	Not Applicable	9.32	0.22	0
Perennial Stream	Sensitive	Not Applicable	6.53	4.72	0.01
Intermittent Stream	Sensitive	Not Applicable	9.73	3.63	0
Ephemeral Stream	Sensitive	Not Applicable	21.05	4.06	0.67
Ephemeral Ditch	Sensitive	Not Applicable	0.78	0.40	0
Seasonal Wetland Depressions	Sensitive	Not Applicable	0.12	0.05	0
Seasonal Wetland Ditches	Sensitive	Not Applicable	0.38	0.21	0
Seasonal Wetland Pond Fringe	Sensitive	Not Applicable	1.06	0	0
Seasonal Wetland Seeps/Swales	Sensitive	Not Applicable	8.81	3.51	0.06
Seasonal Wetland Wet Meadow	Sensitive	Not Applicable	7.92	0.68	0
Stream Fringe/In-Stream Wetland	Sensitive	Not Applicable	4.12	1.69	0
Riparian Woodland	Sensitive	Not Applicable	9.71	2.38	0

[10] This community is not described by Holland (1986), CDFW (2023), or CNPS (2024b), but may be considered part of the leather oak – musk brush provisional association and is being treated as part of the leather oak – musk brush association which is considered sensitive by the CDFW. This was also identified in the 2020 BRA.

[11] Although the Nassella – Melica herbaceous alliance is listed as apparently secure at the global (G4) and state (S4) levels, purple needlegrass grasslands are considered a sensitive plant association by the CDFW (2023) and native grasslands are generally protected under CEQA; therefore, purple needlegrass grasslands are treated as sensitive. This was also identified in the 2020 BRA.

5.1.1 Terrestrial Land Cover

A total of 10 non-sensitive and eight sensitive terrestrial land cover types were observed within the Modified APE; the same land cover types were observed in the 2020 APE. No new terrestrial land cover types are present in the Modified APE than those observed in the 2020 Phase 1 Study Area and the 2020 APE. Quality of habitats observed is similar to those observed in the 2020 APE. The sensitivity ranking for each of the land cover types has not changed since the 2020 BRA, except for Brewer Willow Thicket and areas of rock outcrop that are serpentine.

The 2020 BRA reports the rank of Brewer Willow Thicket as G2 S2; however, the Brewer Willow Thicket community has since been lumped into the *Frangula californica-Rhododendron occidentale-Salix breweri* Shrubland Alliance as an association. The alliance is ranked G3 S3 which is considered sensitive. The association is considered provisional and remains a sensitive community. Therefore, rank and hierarchal placement have changed but the community remains a sensitive community, as reported and analyzed in the 2020 BRA.

A total of 3.92 acres of previously mapped Rock Outcrop are now considered sensitive as these areas are of serpentine rock with sparse vegetation cover that is dominated by serpentine indicator plant species. See below for a full description.

Serpentine Rock Outcrop (*Allium* spp.-*Streptanthus* spp.-*Hesperolinon* spp. Serpentinite Sparsely Vegetated Alliance). CDFW Rank: G3G2 G3S3. This natural community occurs on rocky serpentine slopes, ridges, and outcrops in the California Coast Range, Klamath Mountains, Sierra Nevada Range and foothills, and southern Cascades (CNPS 2024b). Vegetation cover is sparse. Where vegetation is present, plant species are characterized by serpentine indicator species. (CNPS 2024b). Within the Modified APE, three small areas of serpentine rock outcrop are present, including 333 acres outside the 2020 APE. Plant species present include sickle leaf onion (*Allium falcifolium*), golden buckwheat (*Eriogonum luteolum* var. *luteolum*), western flax (*Hesperolinon* spp.) and Sonoma lessingia (*Lessingia ramulosa*).

2020 FIRE AREA

Impacts caused by fire vary greatly, due to many factors. In the area surveyed since the fire, observations of burned habitat include a healthy re-sprout of native plants, minimal area of invasive species dominance, and use by native wildlife. As no comparison studies have been conducted, any shift in natural community types is unknown. However, many of the natural community types of the Guenoc Valley Site are adapted to fire and the existing landscape is a result of pre-historic, historic, and contemporary fire activity.

5.1.2 Aquatic Resources

WRA observed 12 aquatic resource types within the Modified APE (Table 3). Aquatic resource mapping conducted in the 333 acres areas not included in the 2020 APE resulted in no new aquatic resource types. Each of the aquatic resources observed in the Modified APE had been previously identified elsewhere in the 2020 Phase 1 Study Area in previous biological surveys and reported in the 2020 BRA. No new aquatic resources were observed in the Modified APE. To provide a clear crosswalk of these aquatic resources to the broader types described in the 2020 BRA and EIR, the resources are placed within one of the three category types provided in the 2020 BRA: emergent wetlands, ponds and reservoirs, and streams:

EMERGENT WETLANDS

Seasonal Wetland Depressions
Seasonal Wetland Ditches
Seasonal Wetland Pond Fringes
Seasonal Wetland Seeps/Swales
Seasonal Wetland Wet Meadows
Stream Fringe/In-Stream Wetland
Riparian Woodland

PONDS AND RESERVOIRS

Open Water

STREAMS

Ephemeral Ditches
Ephemeral Streams
Intermittent Streams
Perennial Streams

For a complete description of the broader aquatic resource types in the Modified APE, refer to the 2020 BRA and 2020 EIR. For a complete description of the more specific aquatic types in the Modified APE, refer to the January 2020 Aquatic Resources Delineation Report drafted by WRA.

5.2 Special-status Species

5.2.1 Special-status Plants

Based upon a 2024 review of the resource databases listed in Section 3.0, 77 special-status plant species[12] have been documented in the vicinity of the Modified APE. Database results from the same resource databases queried for the 2020 BRA assessments now include eight additional CNPS Rank 4 species; however, as these species are not considered special-status for the purposes of this report, no further assessment is conducted. Another change includes the ranking of one species observed in 2020 BRA assessments, serpentine sunflower (*Helianthus exilis*), which has been re-ranked from CNPS Rank 4.2 to 'Considered But Rejected' (CBR) by CNPS in 2022. Two special-status plants no longer have documented occurrences in the 7.5-minute quads used for the database search, presumably due to CNPS review and edits which indicated those species were erroneously mapped. For thoroughness, while no ultimate change has occurred, an additional species, Napa lomatium (*Lomatium repostum*) was re-ranked from Rank 4 to Rank 1B in 2021 but then returned to Rank 4 in 2023 (CNPS 2024a). Therefore, no new special-status plant species have been documented in the resource databases listed since 2020, and the 77 special-status plant species documented in the 2024 database searches were also identified in

[12] CNPS Rank 3 and 4 species are not considered special-status in this assessment. See Section 7.1 for further discussion on Rank 3 and 4 species.

BRA for a complete description of the special-status plants identified on the rest of the Guenoc Valley Site.

Table 4: Potential Special-status Plants Not Observed

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	POTENTIAL HABITAT IN THE NEW ACRES[13]
FORMALLY LISTED PLANTS (FESA, CESA, CNPPA)			
Astragalus claranus	Clara Hunt's milk-vetch	FE, ST, Rank 1B.1	Chaparral, cismontane woodland, valley and foothill grassland
Eryngium constancei	Loch Lomond button-celery	FE, SE, Rank 1B.1	Seasonal wetlands
Gratiola heterosepala	Boggs Lake hedge-hyssop	SE, Rank 1B.2	Seasonal wetlands
Lasthenia burkei	Burke's goldfields	FE, SE, Rank 1B.1	Meadows and seeps
Limnanthes vinculans	Sebastopol meadowfoam	FE, SE, Rank 1B.1	Meadows and seeps, valley and foothill grassland .
Sedella leiocarpa	Lake County stonecrop	FE, SE, Rank 1B.1	Cismontane woodland, valley and foothill grassland
OTHER SPECIAL-STATUS PLANTS (CEQA, OTHER)			
Amorpha californica* var. *napensis	Napa false indigo	Rank 1B.2	Broadleafed upland forest, chaparral, cismontane woodland.
Amsinckia lunaris	bent-flowered fiddleneck	Rank 1B.2	Cismontane woodland, valley and foothill grassland
Arctostaphylos manzanita* ssp. *elegans	Konocti manzanita	Rank 1B.3	Chaparral, cismontane woodland

[13] Inclusive of the 333 acres of the Modified APE outside the 2020 APE.

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	POTENTIAL HABITAT IN THE NEW ACRES[13]
Balsamorhiza macrolepis	big-scale balsamroot	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland
Brasenia schreberi	Watershield	Rank 2B.3	Marshes and swamps (freshwater)
Brodiaea leptandra	narrow-anthered brodiaea	Rank 1B.2	cismontane woodland, valley and foothill grassland
Castilleja rubicundula* var. *rubicundula	pink creamsacs	Rank 1B.2	Chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland
Ceanothus confusus	Rincon Ridge ceanothus	Rank 1B.1	Chaparral, cismontane woodland
Ceanothus divergens	Calistoga ceanothus	Rank 1B.2	Chaparral
Ceanothus purpureus	holly-leaved ceanothus	Rank 1B.2	Chaparral, cismontane woodland
Ceanothus sonomensis	Sonoma ceanothus	Rank 1B.2	Chaparral, cismontane woodland
Chlorogalum pomeridianum* var. *minus	Dwarf soaproot	Rank 1B.2	Chaparral
Cryptantha dissita	serpentine cryptantha	Rank 1B.2	Chaparral
Cryptantha excavata	deep-scarred cryptantha	Rank 1B.1	Cismontane woodland
Downingia willamettensis	Cascade downingia	Rank 2B.2	Cismontane woodland (lake margins), valley and foothill grassland (lake margins), vernal pools

construction activities by at least 50 feet unless the monitor is positioned between the FYLF and the construction activity.

- Work areas can optionally be enclosed with an exclusion fence as described above and no monitoring would be required.
- If a FYLF is found to be in a work area and cannot be avoided, the qualified biologist will coordinate with CDFW to develop an acceptable relocation strategy.

Incorporation of this mitigation measure would require identification of nests or individuals in pre-construction surveys and appropriate avoidance measures in the event an occupied nest or individual is detected, thereby reducing potential impacts to **less-than-significant.** Additionally, MM BIO-01b Worker Awareness Training reduces potential construction impacts.

7.3 Sensitive Natural Communities and Land Cover Types

This section addresses the question:

> *b) Does the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or U.S. Fish and Wildlife Service;*

The Modified APE includes eight sensitive communities; each of these were observed in the 333 acres added to the 2020 APE, including blue oak woodland, blue oak savannah, interior live oak woodland, valley oak woodland, purple needlegrass grassland, serpentine rock outcrop, and Brewer willow thicket. Since 2020, one of the previously mapped land cover types, rock outcrop, has since been re-designated as sensitive if the outcrop is serpentine with serpentine indicator plants (CNPS 2024a). Based on this change, 0.18 acre of rock outcrop is now considered sensitive. This community occurs in the Modified APE, including the 333 acres outside the 2020 APE. Project modifications would not constitute a new impact as sensitive natural communities we assessed and mitigated in the 2020 EIR and the mitigation measures (MM BIO 10b and MM BIO 10c) are also applicable to the new community to reduce potential impacts to less-than-significant, when applied to serpentine rock outcrop.

The Modified APE is 505 acres smaller than the 2020 APE, resulting in avoidance of two sensitive natural communities: White Alder Grove and Sargent Cypress Woodland. Project Modifications occur in habitat types of similar quality to the 2020 project.

BIO IMPACT 10: The Project Modifications were designed to reduce impacts to sensitive communities to the extent feasible. However, impacts to these natural communities are anticipated. Each of the sensitive communities were previously mapped on the project site based on surveys conducted between 2017 and 2019 and impacts to such were previously analyzed and mitigated in the 2020 BRA and 2020 Final EIR, except as noted above. The following mitigation measures from the 2020 EIR, as applicable to the Project Modifications, would continue to apply to the Project Modifications and will reduce potential impacts to a level that is **less-than-significant**.

MM BIO 10a: Oak Mitigation Plan (2020 EIR MM 3.4-16)

All project activities shall be subject to compliance with the Oak Mitigation Plan, dated June 2020, included as Appendix OAK to the Final EIR (AES 2020). Prior to approval of final maps, the Applicant shall demonstrate compliance within the Oak Mitigation Plan related to impacts to oaks and oak woodland canopy. Prior to issuance of grading and building permits, the Applicant or applicants for grading and building permits shall demonstrate compliance with the Oak Mitigation Plan related to impacts to oaks, mitigation compliance, building envelope and deed restrictions. The Oak Mitigation Plan for this project addresses impacts to oaks as a result of the Proposed Project. The Oak Mitigation Plan was prepared in accordance with the Lake County General Plan. The Oak Mitigation Plan includes the following:

- Goals of the mitigation plan;
- Method of impact identification appropriate for all phases of construction;
- Discussion on compliance with the Lake County General Plan and 2008 Oak Tree Replacement Plan per the 2009 FEIR;
- Proposed compensatory action suitable to meet mitigation goals;
- Compensatory planting ratios of 2:1 for smaller trees and 5:1 for larger trees;
- Success criteria for mitigation such that compensatory plantings for impacts to individual trees achieve a minimum of 80 percent success rate;
- Preservation for impacts to valley oak woodland, when applied, shall be no less than 3:1 of in-kind habitat type acreage, and 2:1 for all other types of oak woodland;
- A requirement of at least 7 years of monitoring, adaptive management, and reporting throughout the mitigation process; and
- Limitation of the total impact to oak woodlands to 1 acre on residential lots consistent with the design guidelines.

The Oak Mitigation Plan shall be subject to Lake County review and approval prior to ground disturbance.

Oaks present in the Middletown Housing Site and Modified APE shall be avoided. If full avoidance of oaks is not feasible, the measures in the Oak Mitigation Plan prepared for the Guenoc Valley Site shall apply. Replanting for oaks removed on the Middletown Housing Site and/or the Modified APE may occur in the Middletown Housing Site or the Guenoc Valley Site, the Comstock Ranch property or Guenoc Valley Site.

Incorporation of this mitigation measure would reduce the overall impact by identification of location and establishment of suitable buffers for avoidance or provide for compensatory mitigation actions for areas that would not be avoided, thereby reducing potential impacts to **less-than-significant.**

MM BIO 10b: Impacts to Sensitive Habitats (2020 EIR MM 3.4-15)
Sensitive habitats shall be avoided to the maximum extent feasible. In areas where full avoidance of sensitive habitat types is not possible, mitigation shall occur as described below. This mitigation shall be applicable to impacts for purple needlegrass, musk-brush chaparral, white alder grove, Brewer willow thicket, Sargent cypress forest, serpentine rock outcrops, and native grasslands:

1) Preservation of in-kind habitat shall occur at a minimum ratio of 2 acre:1 acre.
2) Areas designated for preservation shall be maximized within identified protection areas,

such as sensitive habitats within Habitat Connectivity Easement Areas. Sensitive habitats within the Open Space Combining District that are not required to mitigate impacts to POU resulting from vineyard development approved in the 2009 FEIR may be used for the purpose of this mitigation.

3) Preservation of in-kind habitat that occurs within residential lots shall occur only within open space prohibited from development (including landscaping and agricultural uses) by the Design Guidelines, or through the establishment of habitat easements within the residential lots. Preservation of sensitive habitat for the purposes of mitigation that occurs within deed-restricted open space shall be identified within the deed restriction and shall prohibit the development of that area identified for preservation. Preservation within deed-restrictions shall be preserved in perpetuity as a condition of the deed.
4) Areas that are preserved for in-kind habitat that occurs outside of residential lots, Habitat Connectivity Easement Areas, and the Open Space Combining District shall be avoided during future phases of development. Should unavoidable impacts to in-kind habitat preservation areas occur during future phases of construction, those impacts shall be subject to additional compensatory actions set forth in this mitigation. Should insufficient habitat occur to offset future impacts, a compensatory habitat restoration, enhancement, and/or creation mitigation measure shall be prepared and approved by the County prior to on the ground impacts of future development phases.
5) Those areas selected for preservation shall be provided on a map to the County and approved by the County.

The Applicant may additionally satisfy the 2:1 mitigation ratio through restoration, creation, and/or enhancement of in-kind habitat. Mitigation performed through restoration, creation, or enhancement shall be monitored for a minimum of three years by a qualified biologist. The biologist shall prepare an annual report on the status of mitigation activities along with adaptive management recommendations as necessary. These reports shall be maintained by the Applicant and available to agencies upon request. Success criteria shall be as follows and shall require additional years of monitoring and management should mitigation fail to meet success criteria:

- Purple needlegrass and native grasslands shall achieve a percent native plant cover that meets or exceeds that of the habitat impacted. Non-sensitive grasslands and herb-dominated habitat types are suitable for restoration and creation activities.
- Musk-brush chaparral shall be restored in non-sensitive suitable habitat. Mitigation shall occur at a 2:1 acre ratio and shall achieve a 75 percent acreage establishment. The monitoring biologist shall consider percent cover, species composition, overall health of plantings, and other indicators when determining success of establishment.
- White alder grove and Brewer willow thicket may be restored along riparian corridors where invasive species or bank stabilization issues have occurred. Mitigation shall occur at a 2:1 acre ratio and shall achieve a 75 percent acreage enhancement. The monitoring biologist shall consider percent cover, species composition, bank stability, overall health of plantings, and other indicators when determining success of establishment.
- Sargent cypress forest shall be enhanced through the removal of competing foothill pines at an acreage ratio of 2:1 once annually for a total of five years and/or Sargent cypress trees shall be replanted at a 2:1 ratio and monitored for a total of five years. Replanting shall achieve a 75 percent success rate.
- Serpentine rock outcrop shall be enhanced through the removal of invasive species at an acreage ratio of 2:1 in similar habitat that has a dominant invasive species relative cover

to achieve a percent native plant cover that meet or exceeds that of the habitat impacted.

MM BIO 10c: Sensitive Habitat Impacts from Wildfire Clearing (2020 EIR MM 3.4-18)
Sensitive habitats included below shall be avoided during removal of dead vegetation and fire fuel load reduction necessary for safety purposes in managing wildfire risk to the degree feasible. The following sensitive habitats shall be addressed in the following manner as it relates to fire management fire breaks, lop and scatter, and masticating outside of development areas:

- Purple needlegrass grasslands – This habitat does not require wildfire risk fuel reduction activities. This habitat shall be avoided to the degree feasible. Equipment and vehicles shall not be used or staged within this habitat type.
- Musk brush chaparral – This habitat does not require wildfire risk fuel reduction activities. This habitat shall be avoided to the degree feasible. Equipment and vehicles shall not be used or staged within this habitat type.
- White alder grove – Due to limited distribution and association with natural riparian fire breaks, this habitat type should not require ongoing wildfire risk fuel reduction activities and shall be avoided as possible. Equipment and vehicles shall not be used or staged within this habitat type. If determined necessary by safety personnel, hand-clearing of dead vegetation may occur.
- Brewer willow thicket - Due to the limited distribution and association with natural riparian fire breaks, this habitat type does not require wildfire risk fuel reduction activities. This habitat shall be avoided to the degree feasible. Equipment and vehicles shall not be used or staged within this habitat type.
- Sargent cypress forest – This habitat may require occasional management for wildfire risk. Due to the sensitive nature of this habitat type, hand tools shall be the only acceptable use of vegetation management. No live Sargent cypress trees shall be felled. Equipment and vehicles shall not be used or staged within this habitat type.
- Serpentine rock outcrop - Due to the limited distribution and low vegetation cover, this habitat type does not require wildfire risk fuel reduction activities. This habitat shall be avoided to the degree feasible. Equipment and vehicles shall not be used or staged within this habitat type.
- Oak woodland - This habitat may require occasional management for wildfire risk. Due to the sensitive nature of this habitat type, hand tools or grazing shall be the only acceptable use of vegetation management. Should impacts to any living oak trees occur, they shall be mitigated for as outlined within the Oak Mitigation Plan. Equipment and vehicles shall not be used or staged within this habitat type.
- Oak savanna – Cover for this habitat type is dominated by non-native annual grasses and would not likely require management for wildfire risk except limited grazing or mowing immediately adjacent to high risk fire areas such as within 50 feet of roads. Equipment use and staging may occur within areas of non-native annual grassland provided that the driplines of oaks are not impacted. Should impacts to any living oak trees occur, mitigation shall occur as outlined within the Oak Mitigation Plan.

Incorporation of these mitigation measures would reduce the overall impact by identification of location and establishment of suitable buffers for avoidance or provide for compensatory

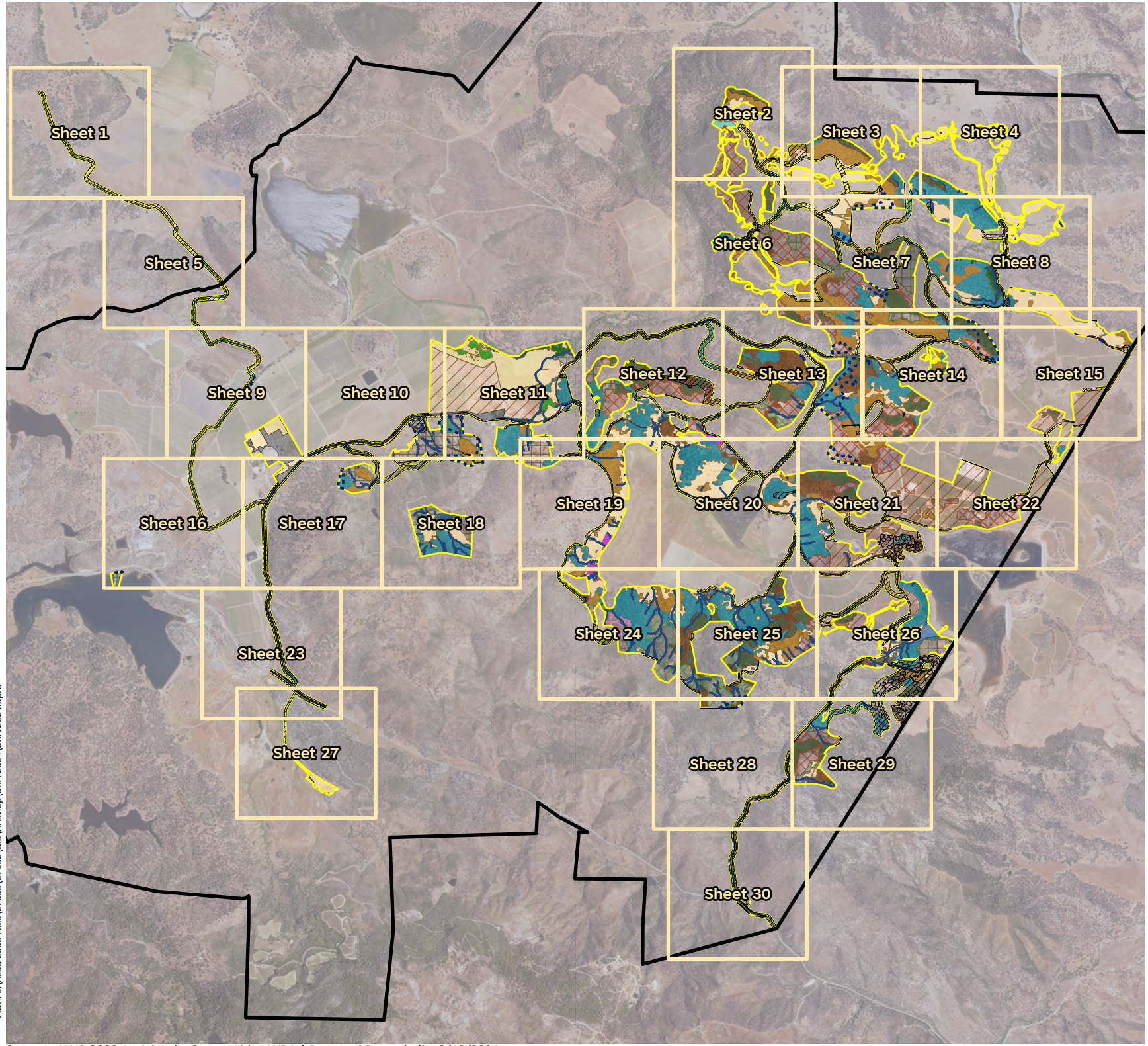


Figure 4-1. Land Cover Types Mapped within the Modified APE (Overview)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Property Boundary
- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Mapbook Grid

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grasssland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

0 1,500 3,000
Feet

wra Environmental Consultants

EXH-389

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-2. Land Cover Types Mapped within the Modified APE (Sheet 1)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

0 200 400
Feet

wra Environmental Consultants

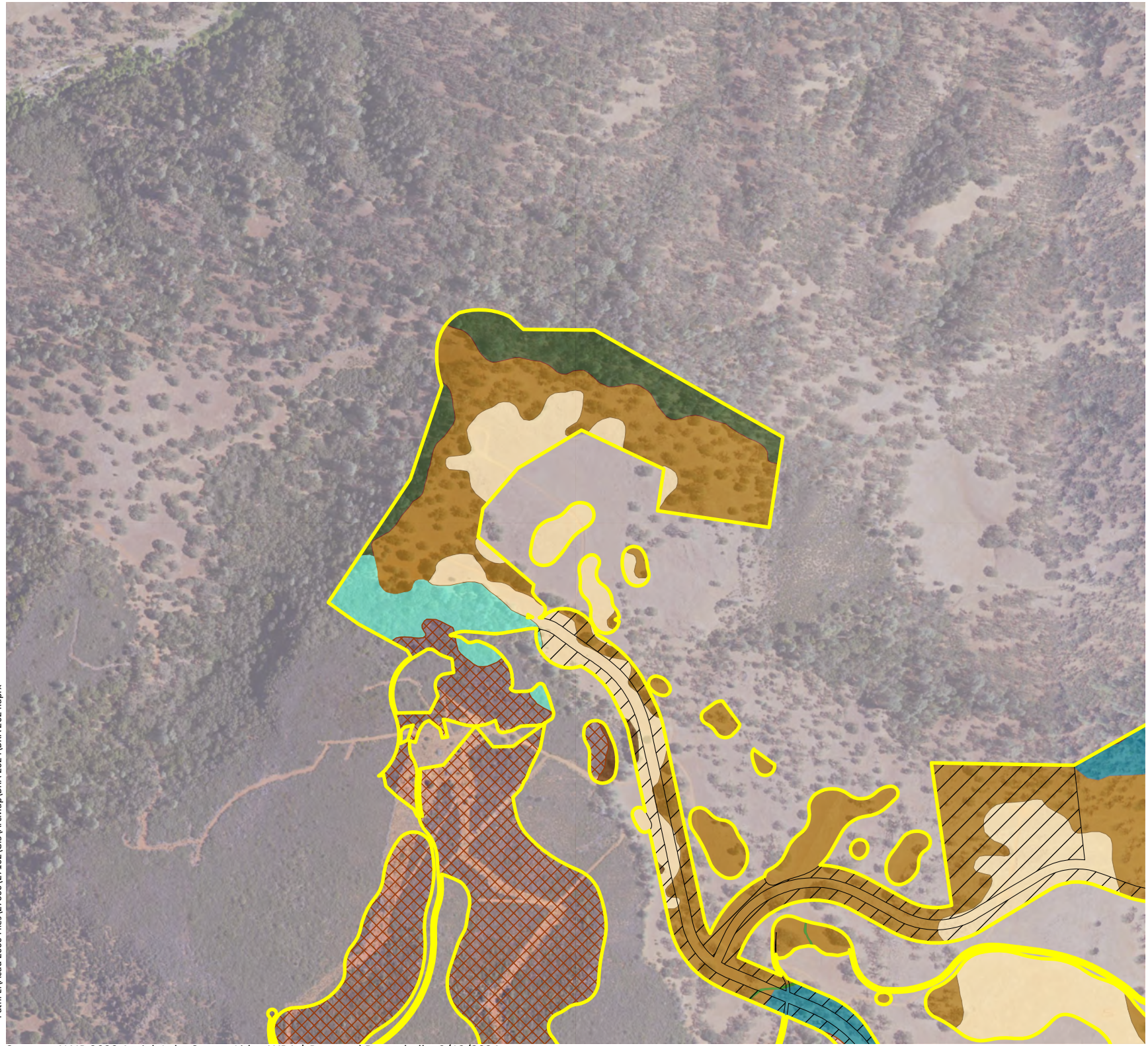
EXH-340

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-3. Land Cover Types Mapped within the Modified APE (Sheet 2)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California



- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

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Feet

wra Environmental Consultants

EXH-341

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

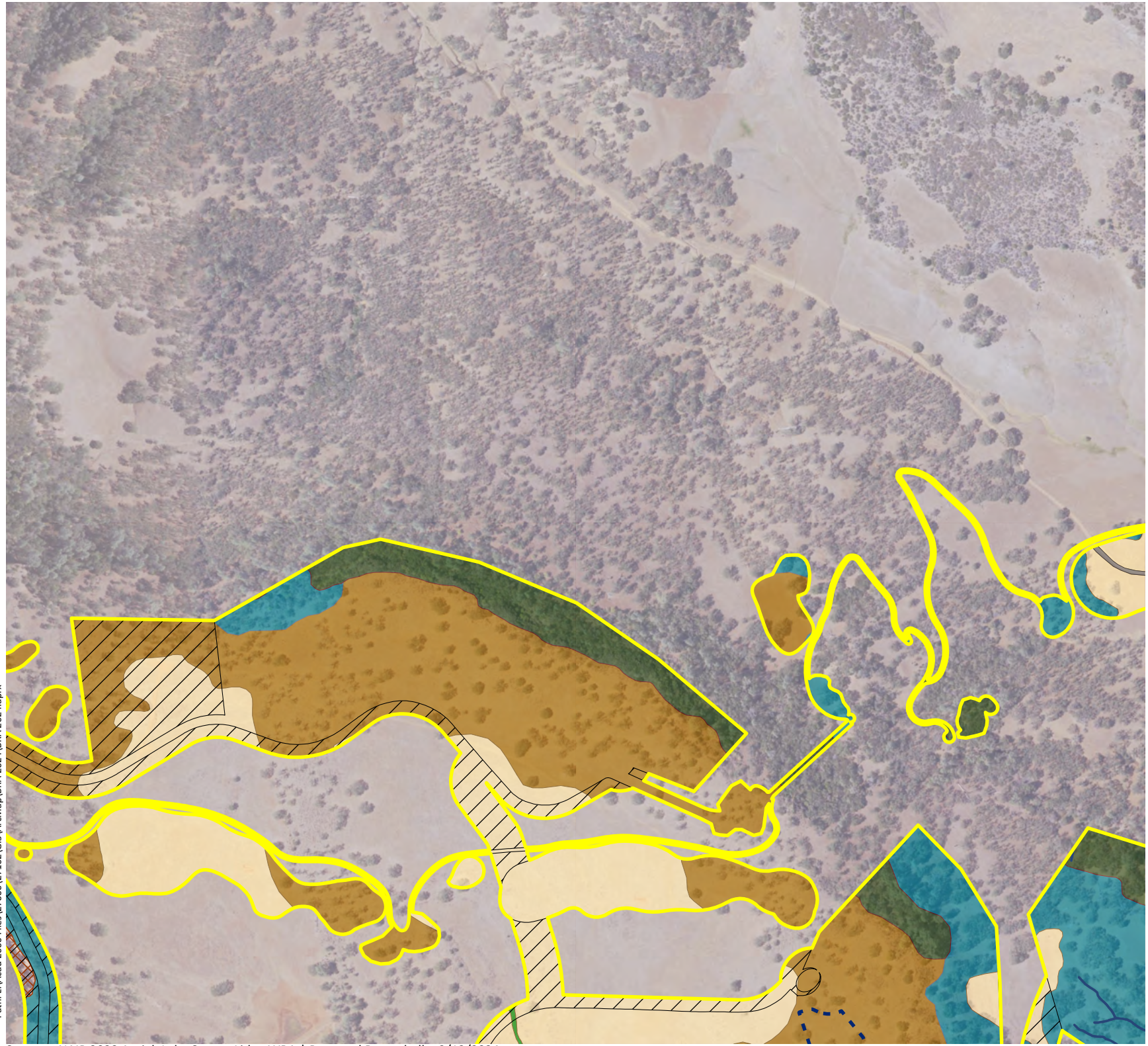

Figure 4-4. Land Cover Types Mapped within the Modified APE (Sheet 3)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

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Feet

wra Environmental Consultants

EXH-342

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-5. Land Cover Types Mapped within the Modified APE (Sheet 4)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

0 200 400
Feet

wra Environmental Consultants

EXH-343

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-6. Land Cover Types Mapped within the Modified APE (Sheet 5)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

0 200 400
Feet

wra Environmental Consultants

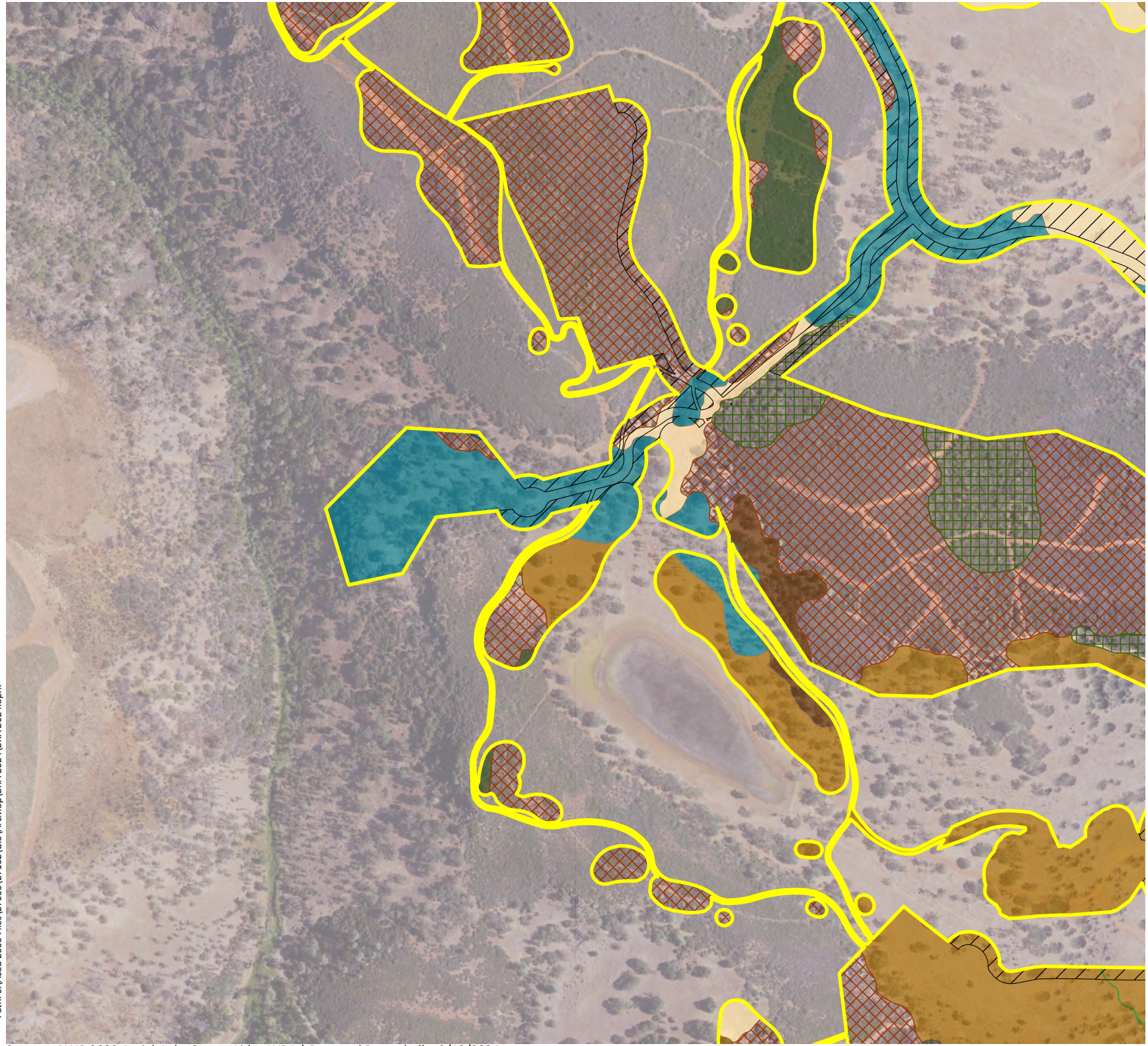
EXH-344

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-7. Land Cover Types Mapped within the Modified APE (Sheet 6)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California



Modified APE - 2,453.18 ac.
Modified APE not within 2020 APE - 332.85 ac.
Areas Only Desktop Assessed

Sensitive Land Cover Types

Blue Oak Savanna - 276.17 ac.
Blue Oak Woodland - 481.33 ac.
Interior Live Oak Woodland - 170.44 ac.
Valley Oak Woodland - 9.83 ac.
Musk Brush Chaparral - 2.84 ac.
Brewer Willow Thickets - 1.12 ac.
Serpentine Rock Outcrop - 3.92 ac.
Emergent Wetlands - 22.41 ac.
Ponds and Reservoirs - 9.32 ac.
Purple Needlegrass Grassland - 5.69 ac.
Streams - 13.13 ac.

Non-Sensitive Land Cover Types

Foothill Pine Woodland - 126.08 ac.
Chamise Chaparral - 242.46 ac.
Whiteleaf Manzanita Chaparral - 61.31 ac.
California Yerba Santa Scrub - 6.02 ac.
Scrub Oak Chaparral - 31.25 ac.
Leather Oak Chaparral - 169.95 ac.
Non-native Annual Grasslands - 438.27 ac.
Rock Outcrop - 1.98 ac.
Agriculture - 309.71 ac.
Developed - 69.95 ac.

N

0 200 400
Feet

EXH-345

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

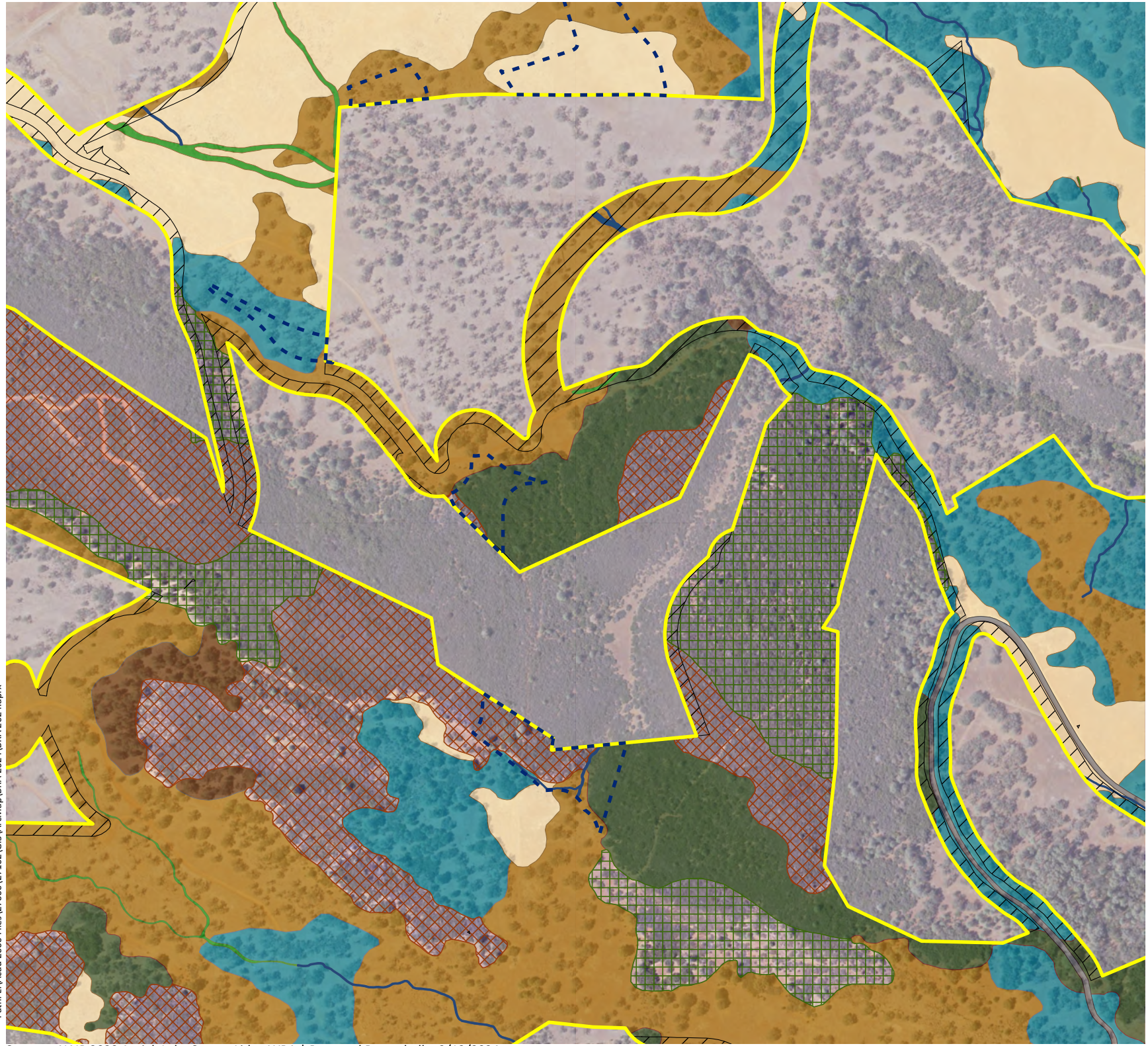


Figure 4-8. Land Cover Types Mapped within the Modified APE (Sheet 7)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
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- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

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Feet

wra Environmental Consultants

EXH-346

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

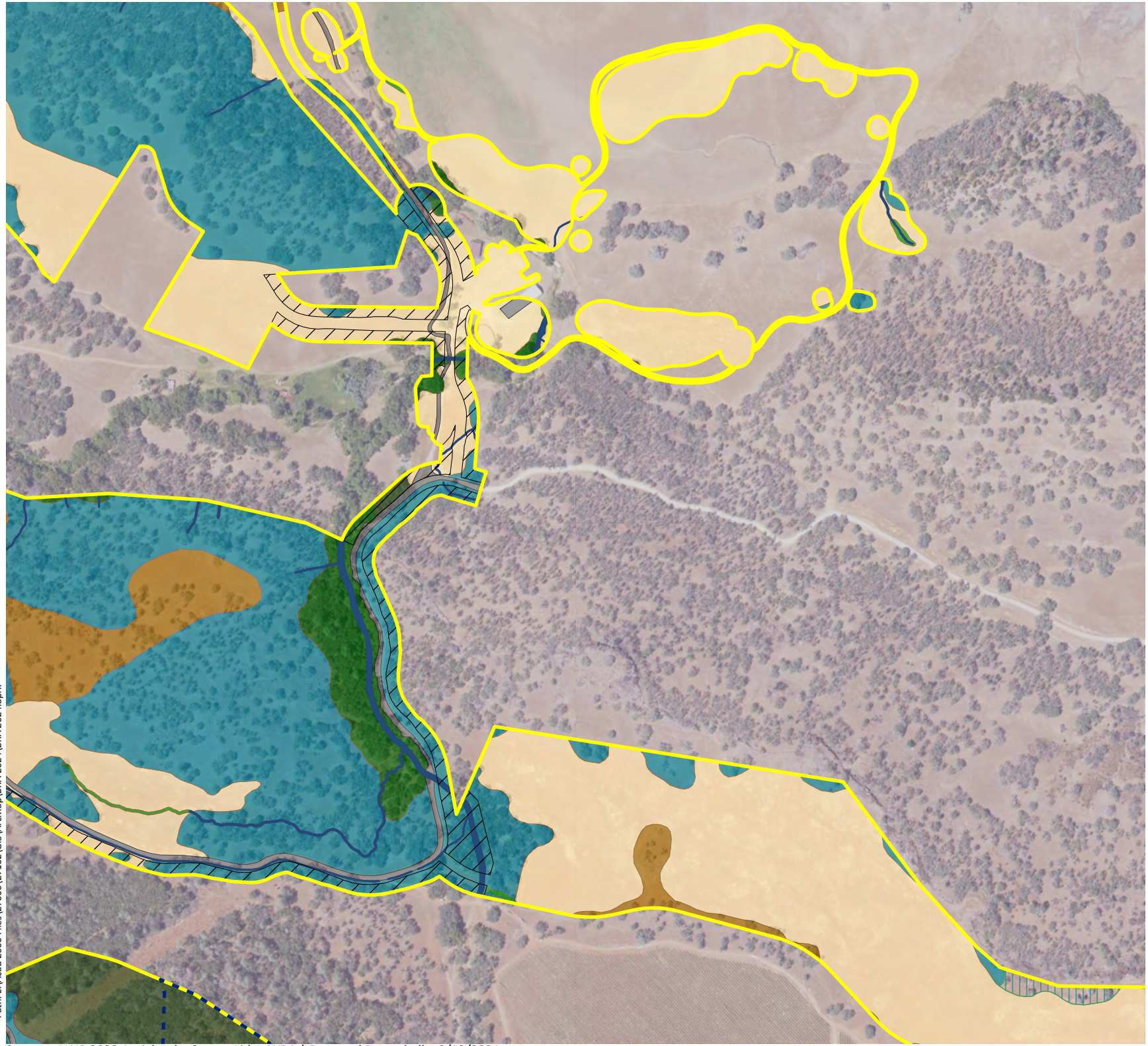

Figure 4-9. Land Cover Types Mapped within the Modified APE (Sheet 8)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
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- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
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- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

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Feet

wra Environmental Consultants

EXH-347

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-10. Land Cover Types Mapped within the Modified APE (Sheet 9)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
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- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

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Feet

wra Environmental Consultants

EXH-348

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

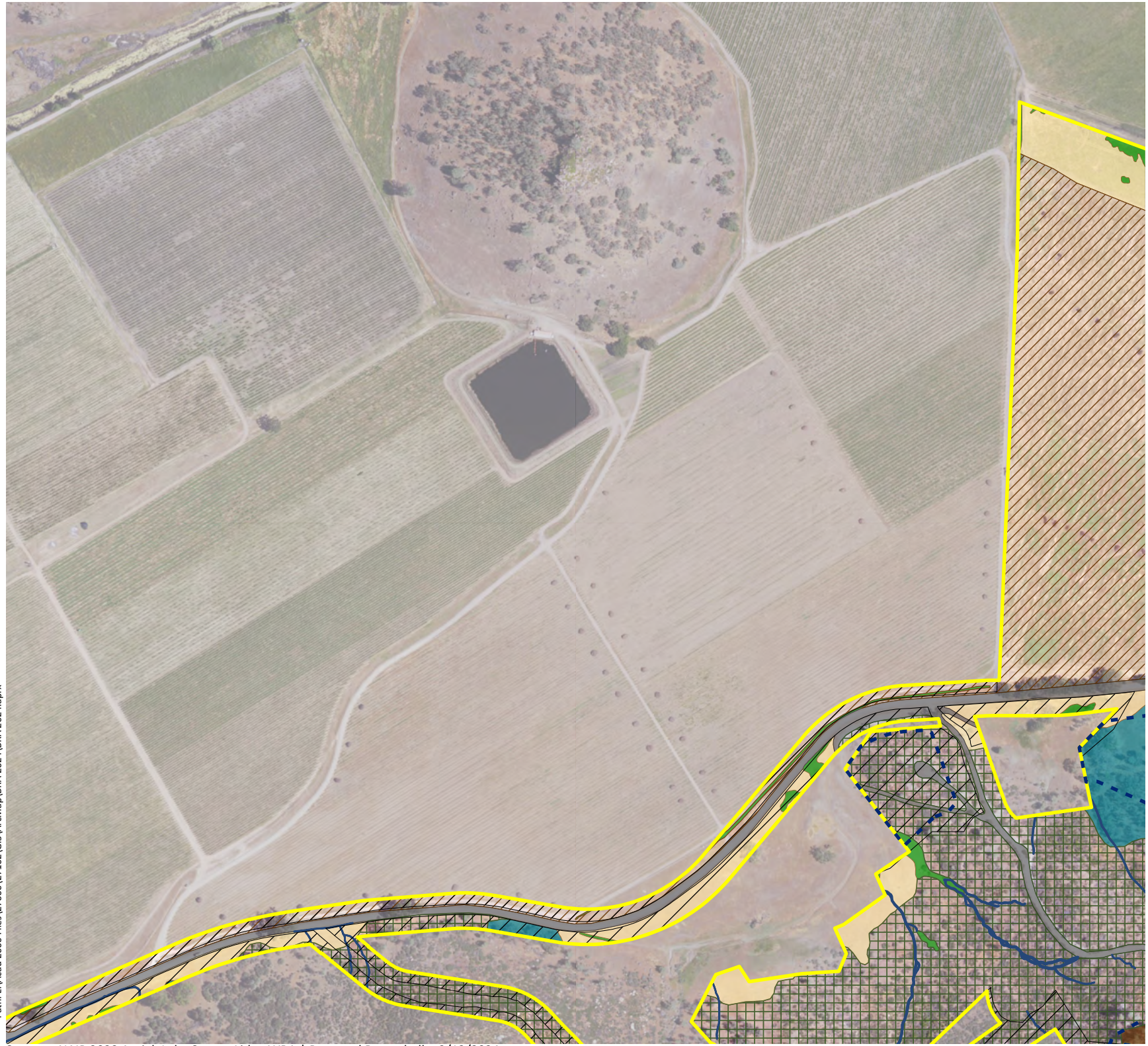

Figure 4-11. Land Cover Types Mapped within the Modified APE (Sheet 10)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
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- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
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- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
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- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

0 200 400
Feet

wra Environmental Consultants

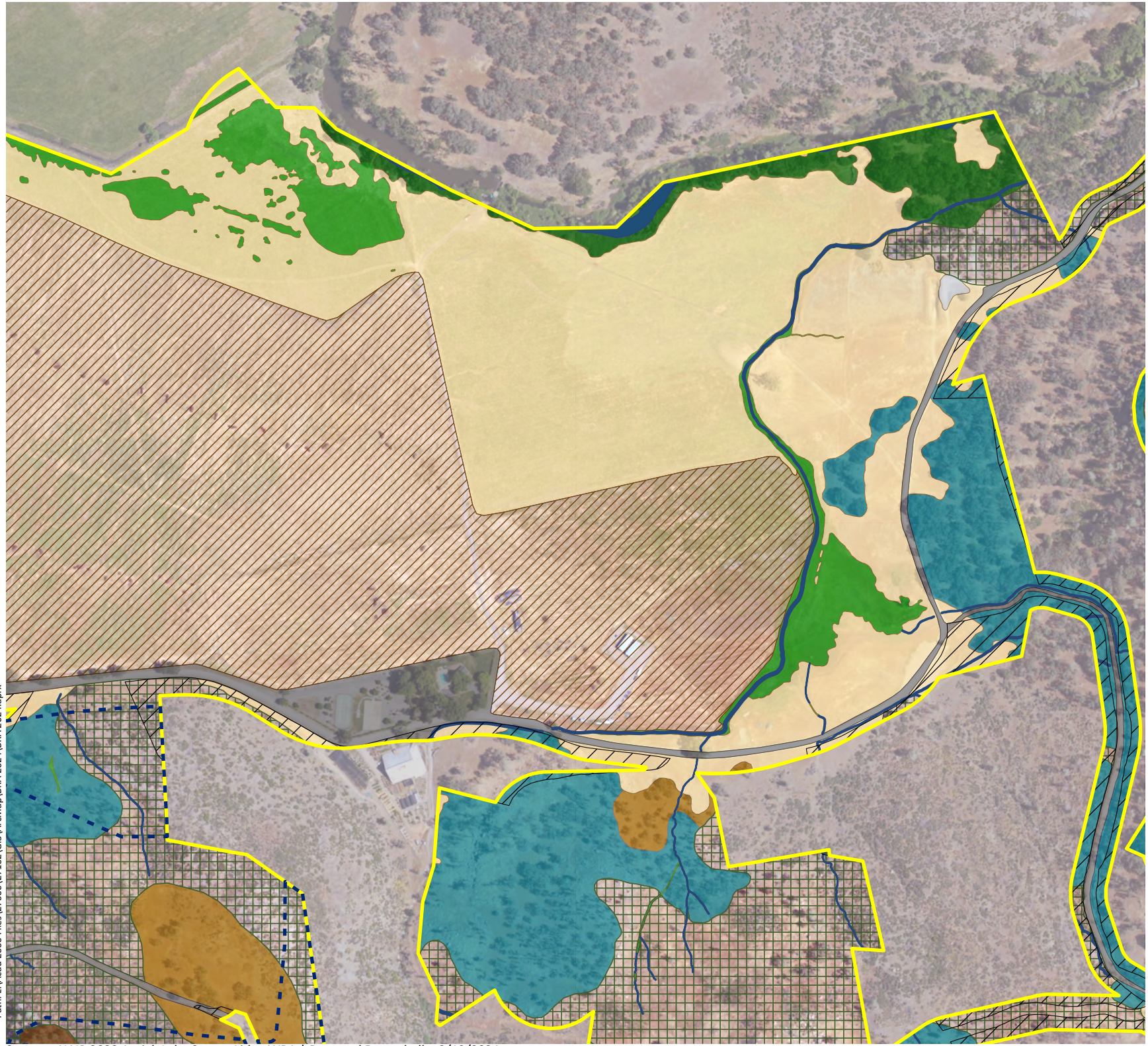
EXH-349

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-12. Land Cover Types Mapped within the Modified APE (Sheet 11)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California



- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
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- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

0 200 400
Feet

wra Environmental Consultants

EXH-350

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

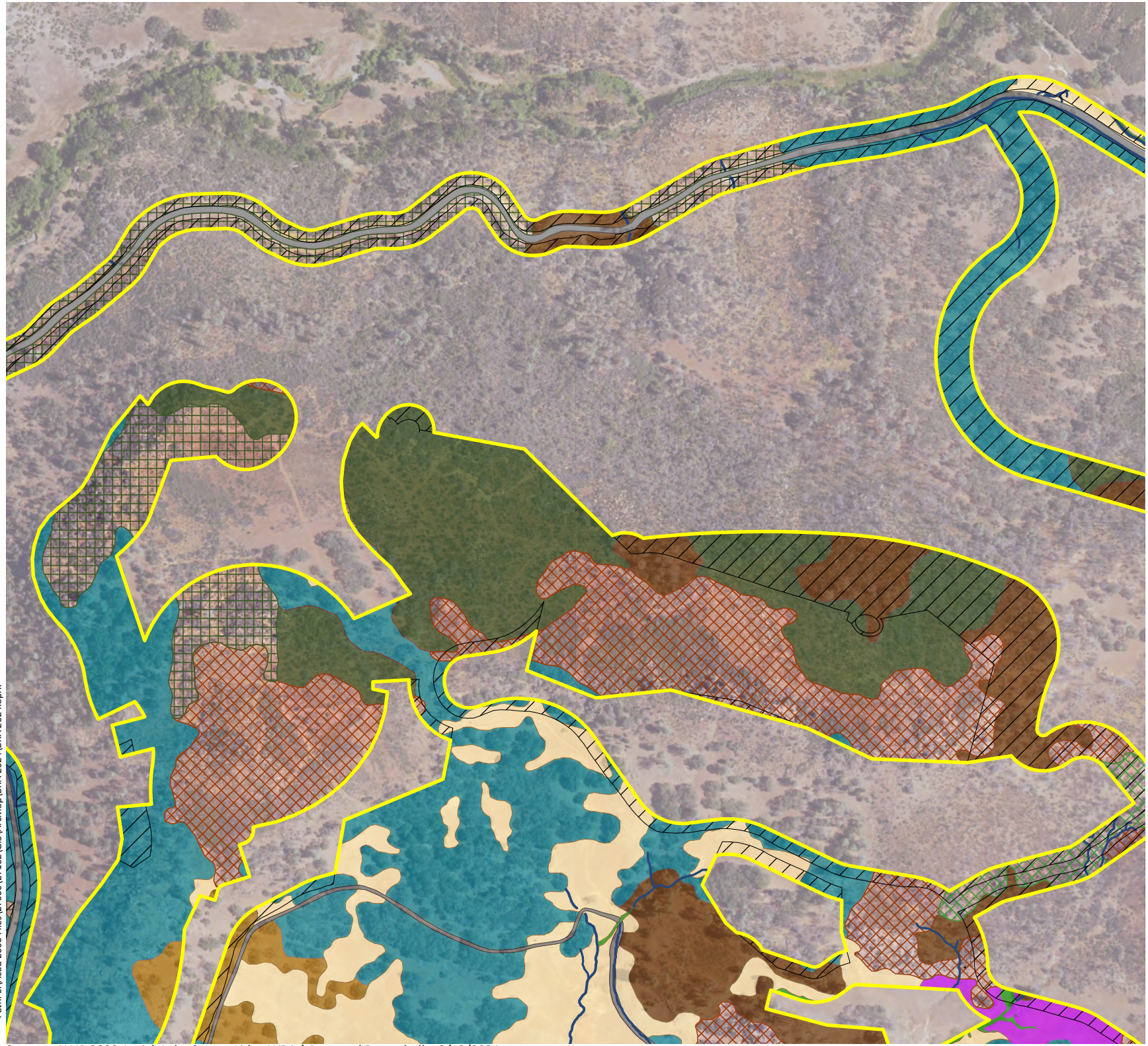

Figure 4-13. Land Cover Types Mapped within the Modified APE (Sheet 12)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
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- Serpentine Rock Outcrop - 3.92 ac.
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- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
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- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

0 200 400
Feet

wra Environmental Consultants

EXH-351

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

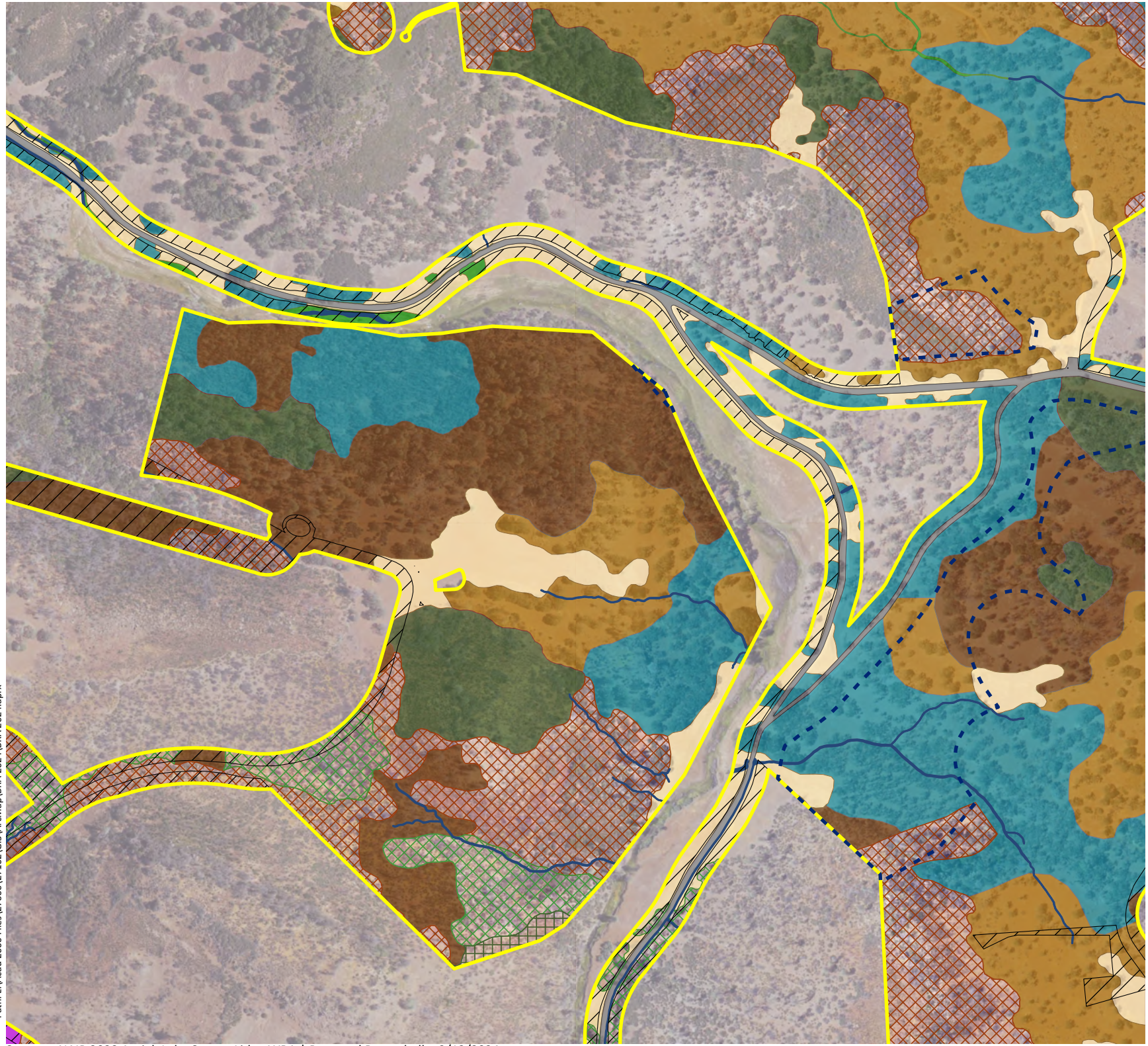

Figure 4-14. Land Cover Types Mapped within the Modified APE (Sheet 13)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
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- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
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- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
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- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

0 200 400
Feet

wra Environmental Consultants

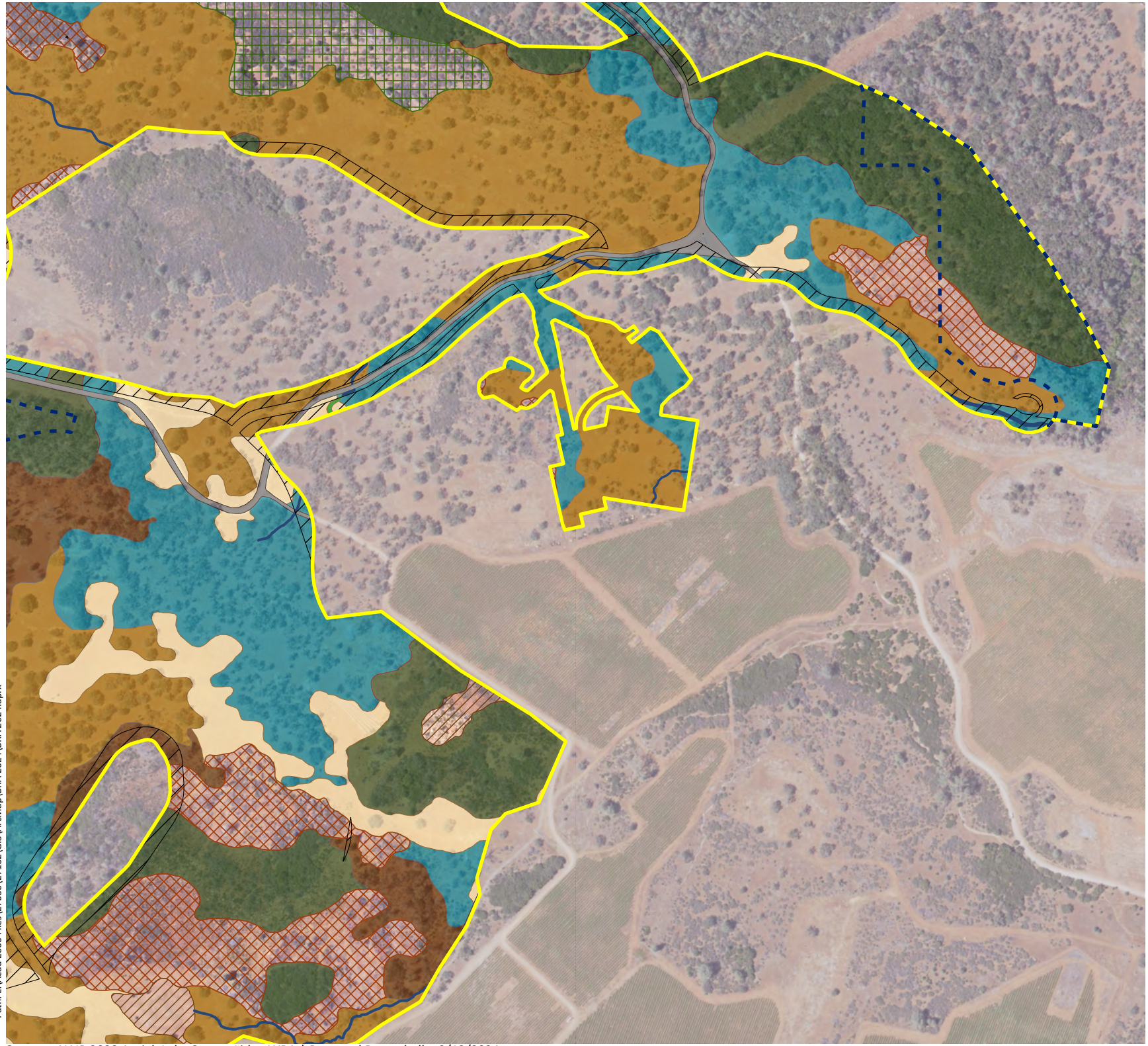
EXH-352

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-15. Land Cover Types Mapped within the Modified APE (Sheet 14)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California



- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
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- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
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- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
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- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

0 200 400
Feet

wra Environmental Consultants

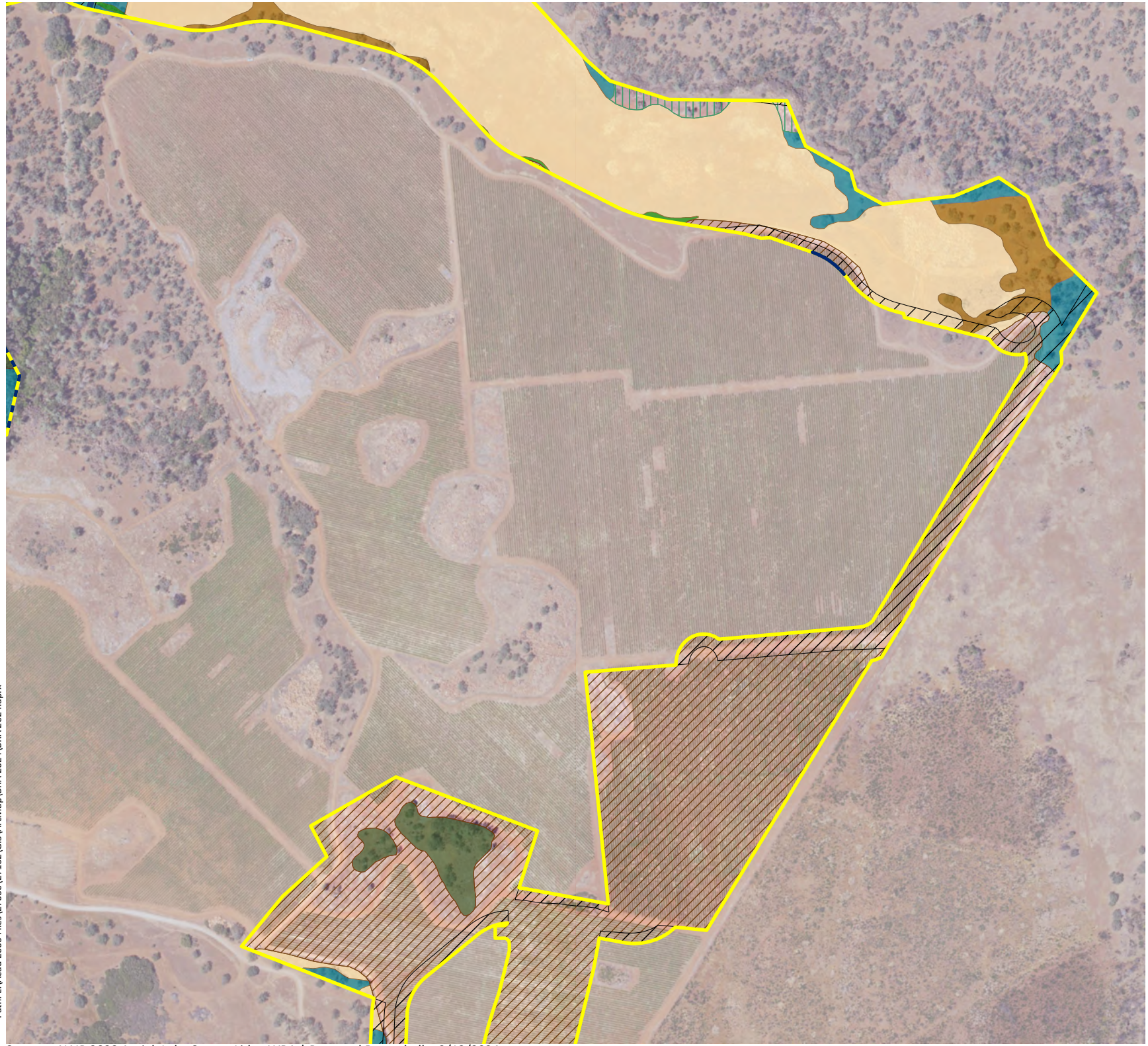
EXH-353

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-16. Land Cover Types Mapped within the Modified APE (Sheet 15)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California



Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

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Feet

wra Environmental Consultants

EXH-354

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-17. Land Cover Types Mapped within the Modified APE (Sheet 16)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
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- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
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- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

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Feet

wra Environmental Consultants

EXH-355

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-18. Land Cover Types Mapped within the Modified APE (Sheet 17)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
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- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
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- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

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Feet

wra Environmental Consultants

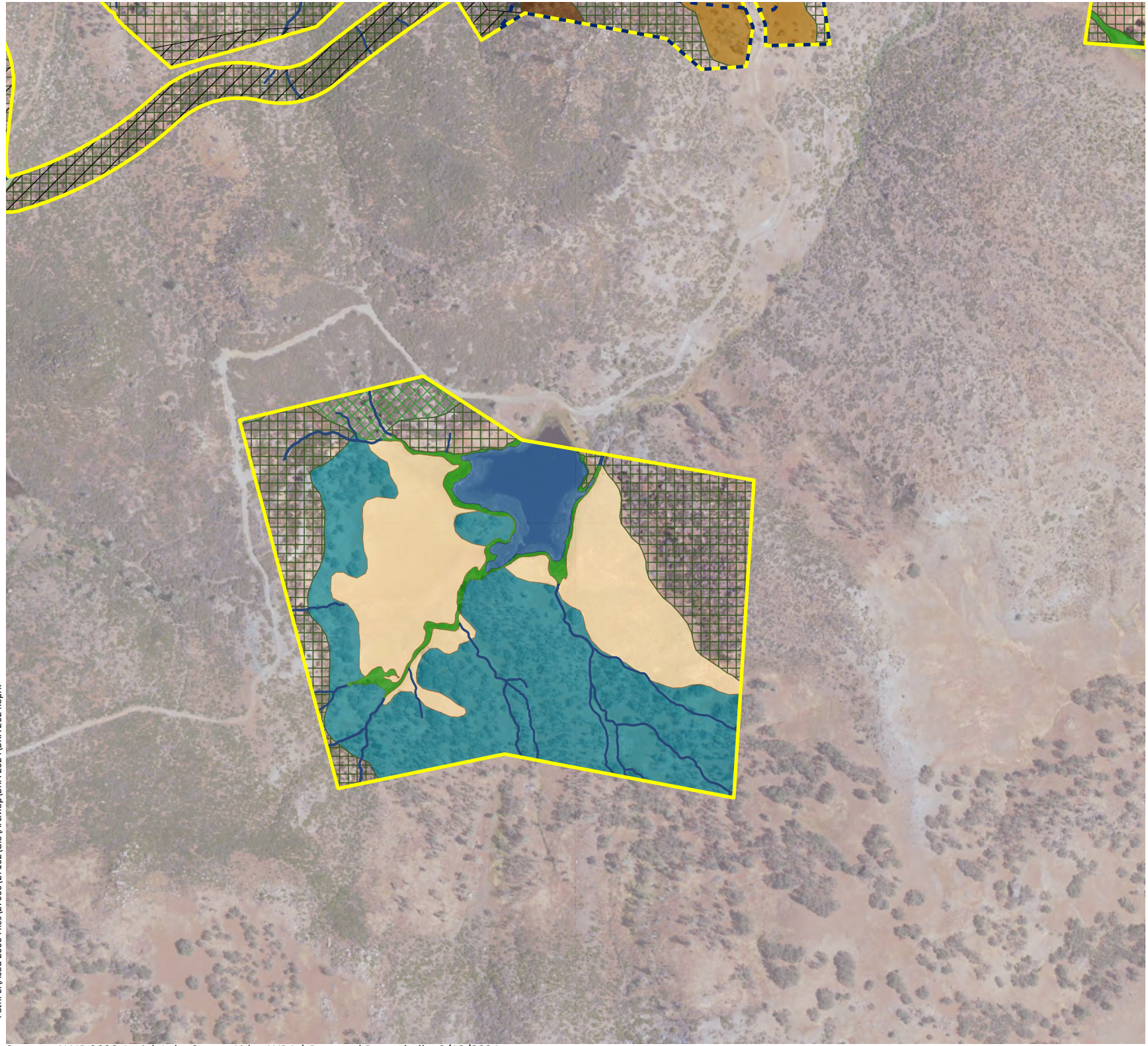
EXH-356

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-19. Land Cover Types Mapped within the Modified APE (Sheet 18)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California



- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
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- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
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- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

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Feet

wra Environmental Consultants

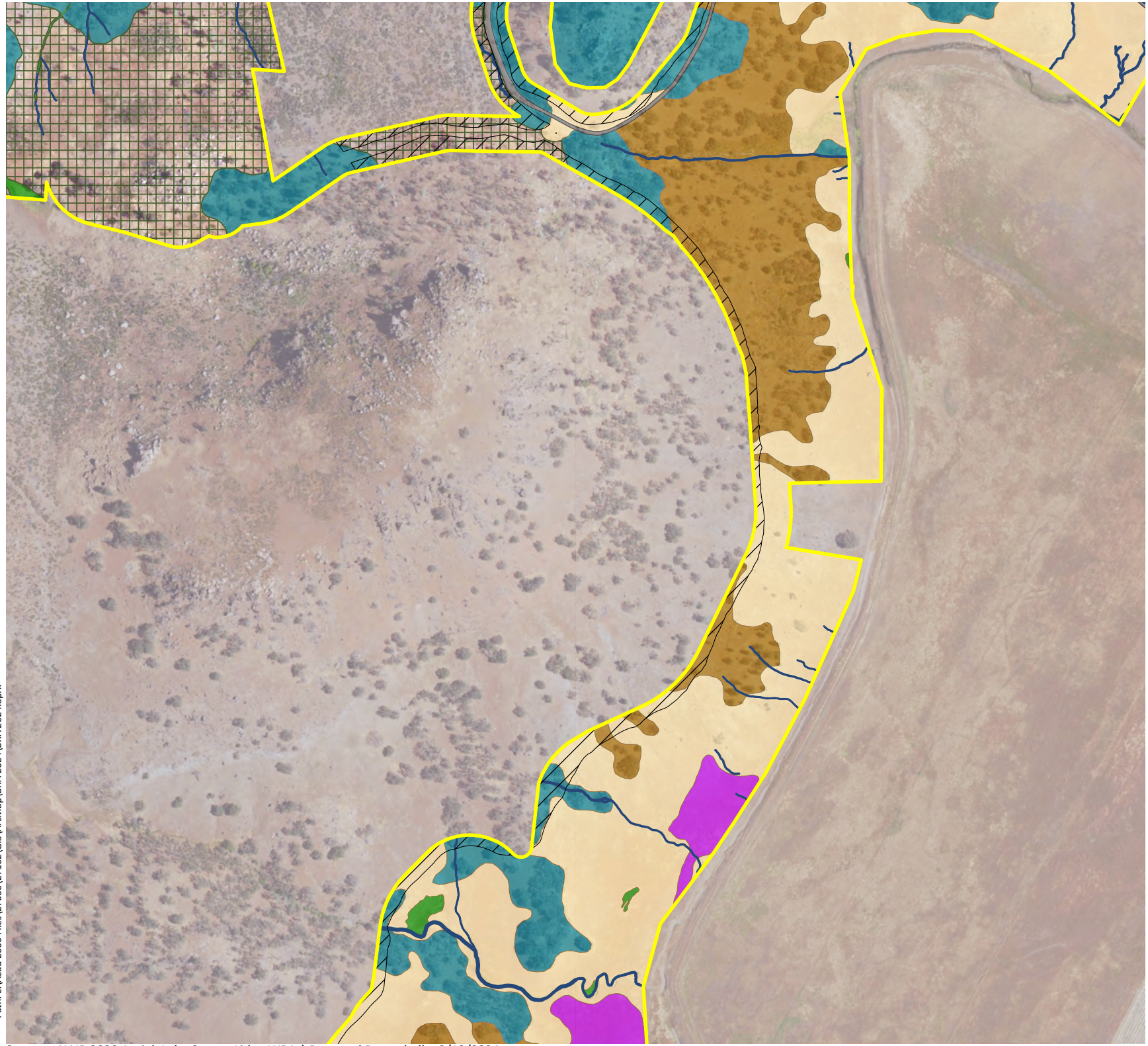
EXH-357

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-20. Land Cover Types Mapped within the Modified APE (Sheet 19)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California



Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
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- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

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Feet

wra Environmental Consultants

EXH-358

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-21. Land Cover Types Mapped within the Modified APE (Sheet 20)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
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- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

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- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

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Feet

wra Environmental Consultants

EXH-359

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-22. Land Cover Types Mapped within the Modified APE (Sheet 21)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
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- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

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- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

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Feet

wra Environmental Consultants

EXH-360

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-23. Land Cover Types Mapped within the Modified APE (Sheet 22)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

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- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
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- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

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Feet

wra Environmental Consultants

EXH-361

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-24. Land Cover Types Mapped within the Modified APE (Sheet 23)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
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- Serpentine Rock Outcrop - 3.92 ac.
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- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

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- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

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Feet

wra Environmental Consultants

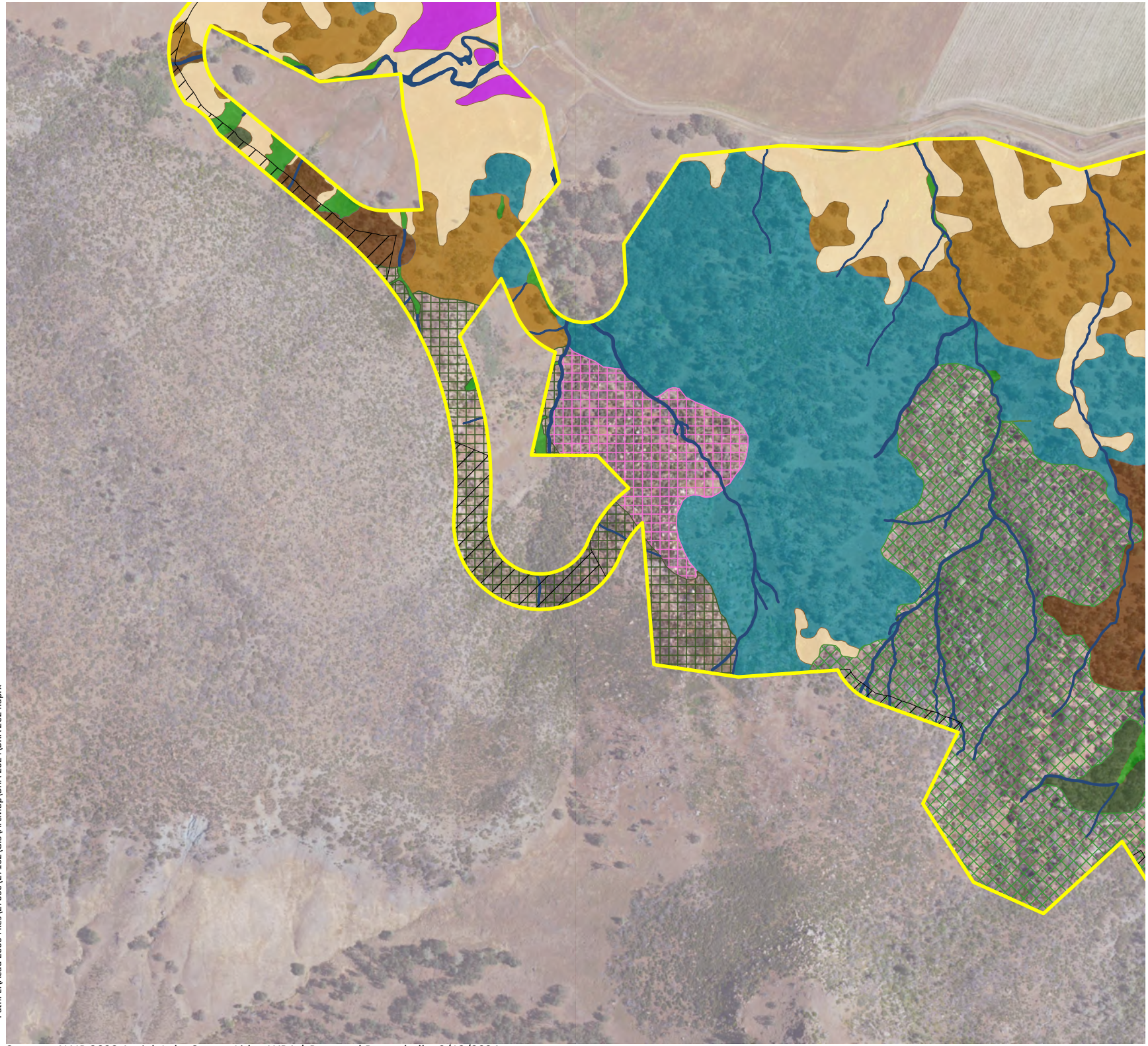
EXH-362

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-25. Land Cover Types Mapped within the Modified APE (Sheet 24)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California



- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
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Non-Sensitive Land Cover Types

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- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

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Feet

wra Environmental Consultants

EXH-363

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

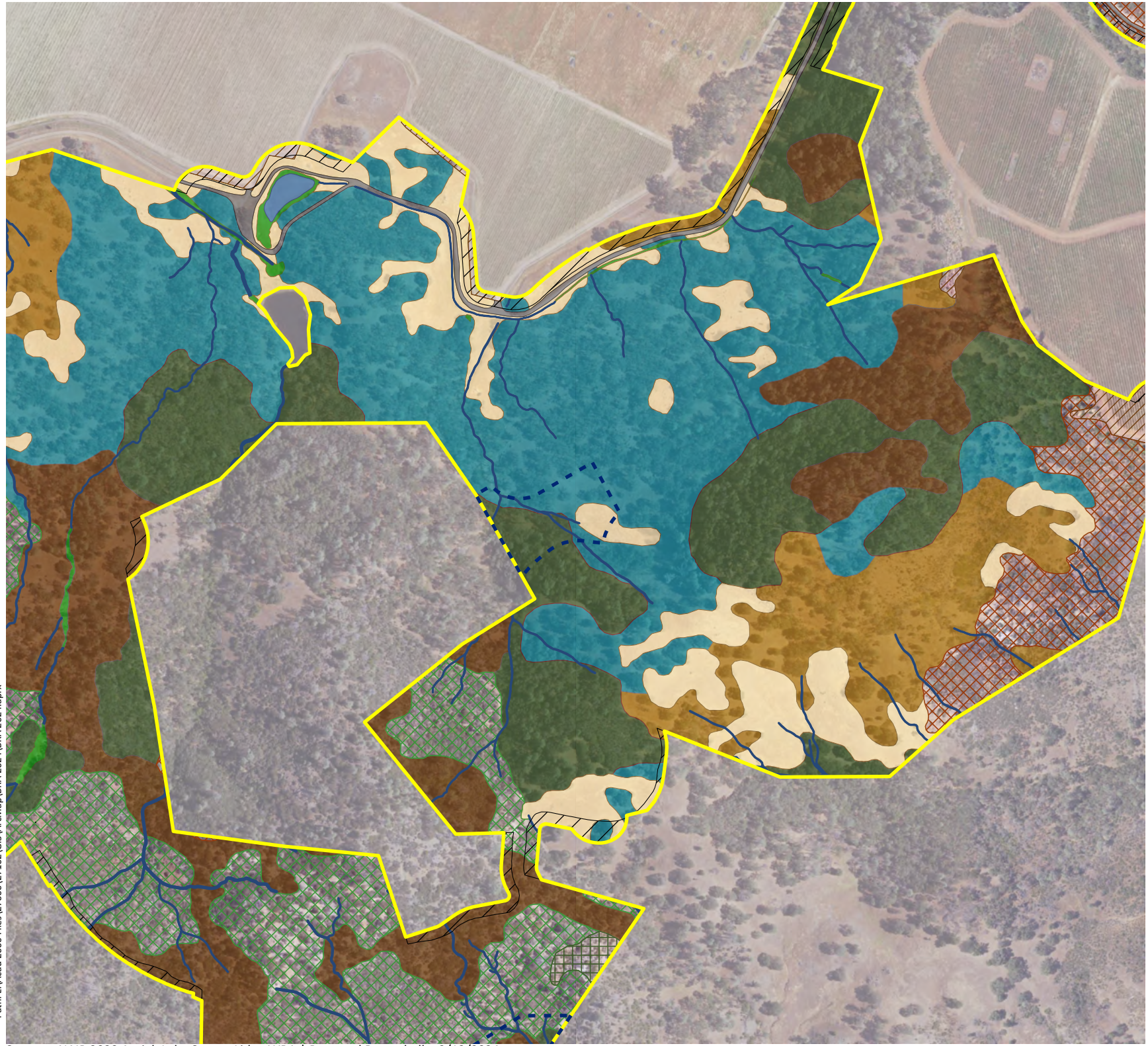

Figure 4-26. Land Cover Types Mapped within the Modified APE (Sheet 25)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
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Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
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- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

0 200 400
Feet

wra Environmental Consultants

EXH-364

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

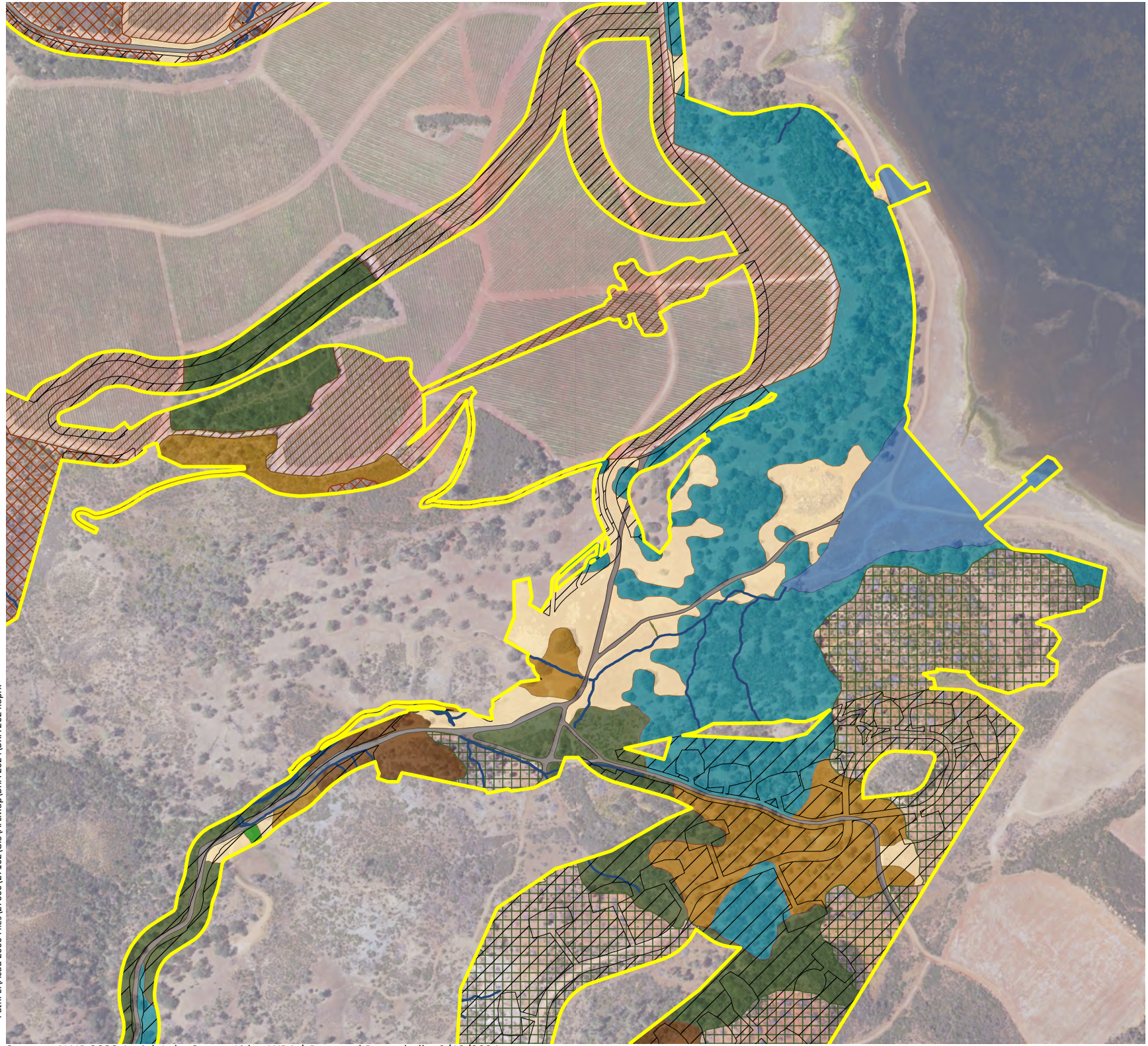

Figure 4-27. Land Cover Types Mapped within the Modified APE (Sheet 26)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
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- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

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Feet

wra Environmental Consultants

EXH-365

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

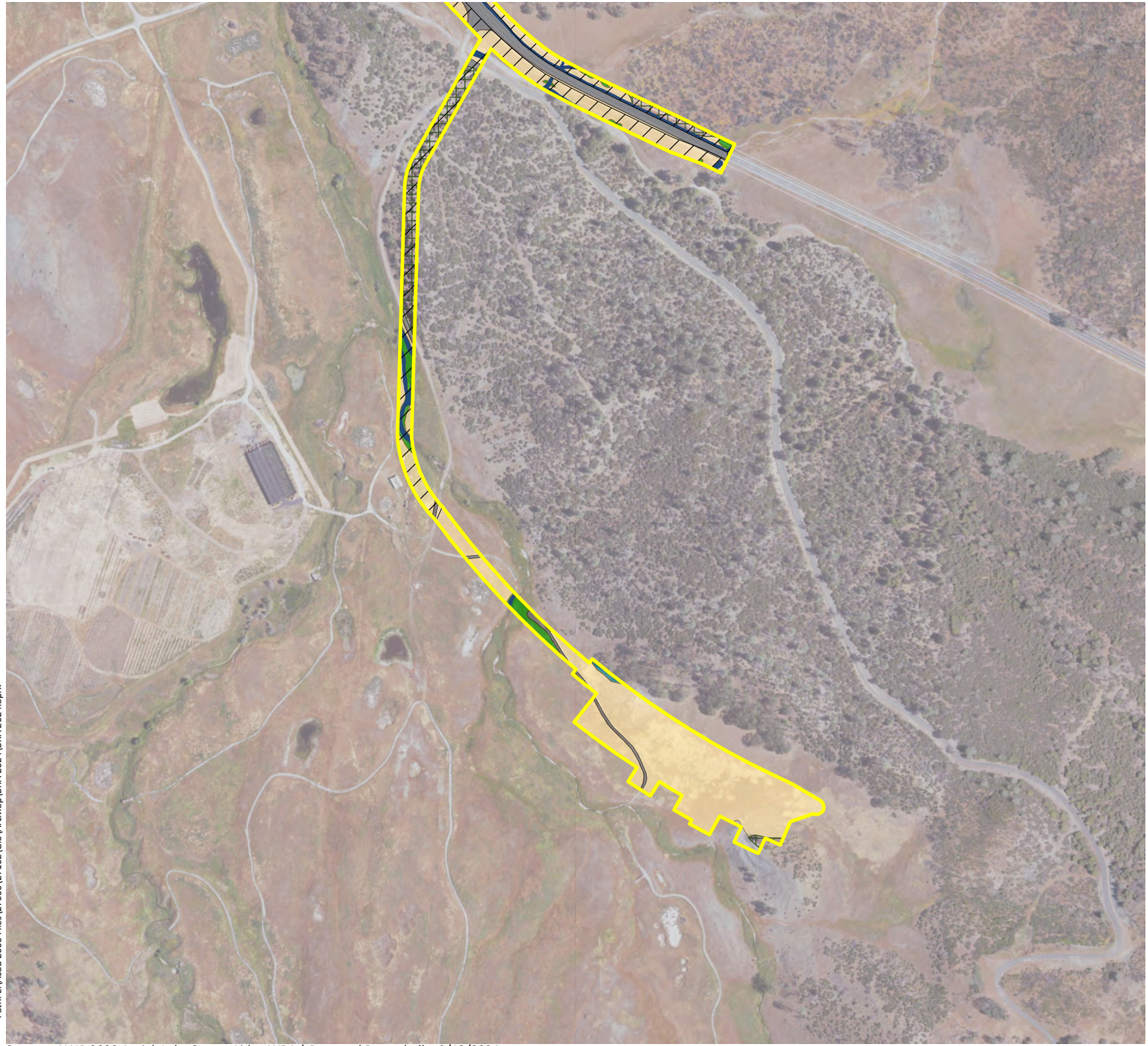

Figure 4-28. Land Cover Types Mapped within the Modified APE (Sheet 27)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

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- Leather Oak Chaparral - 169.95 ac.
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- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

0 200 400
Feet

wra Environmental Consultants

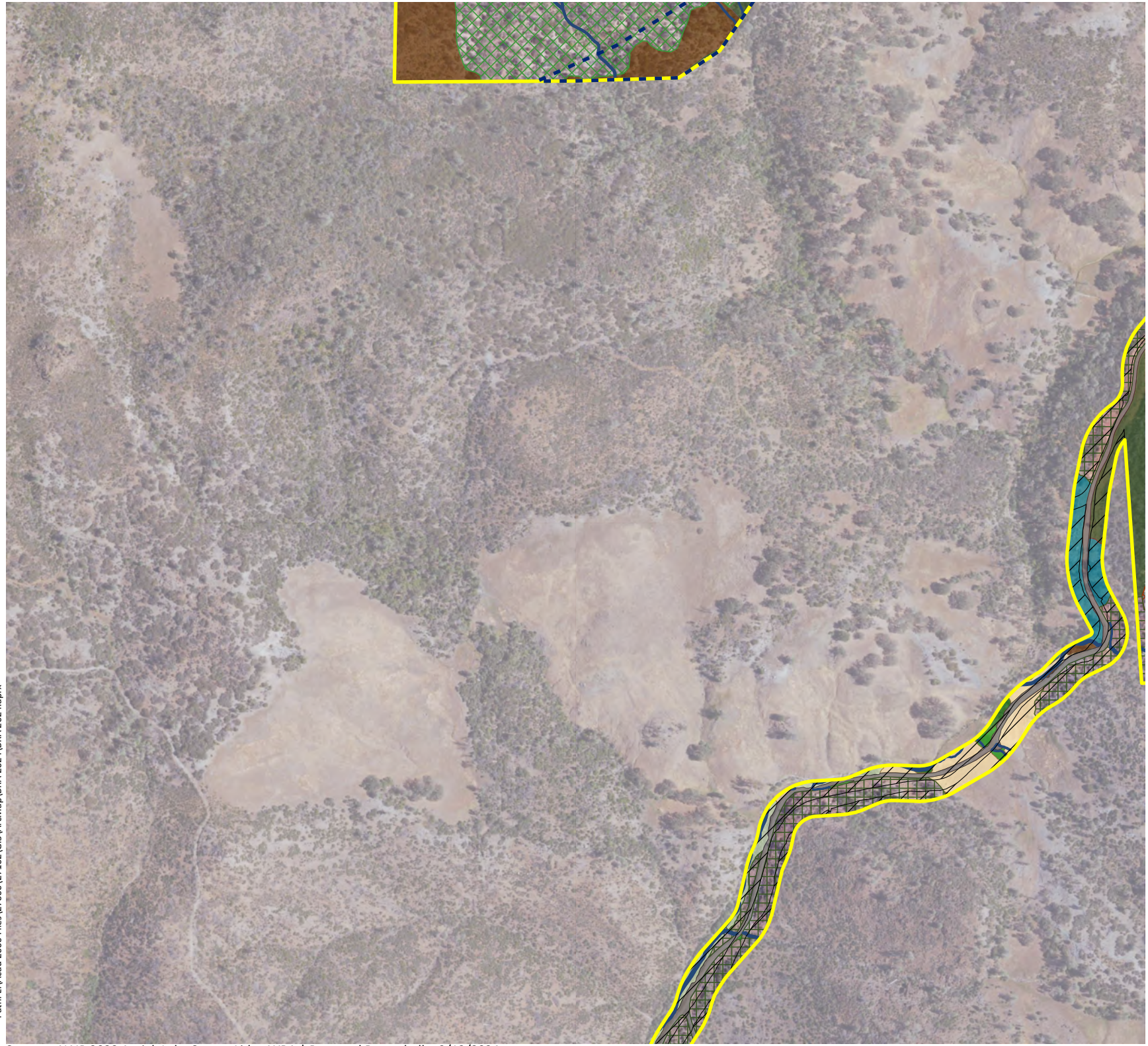
EXH-366

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-29. Land Cover Types Mapped within the Modified APE (Sheet 28)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California



Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
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- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

0 200 400

Feet

wra Environmental Consultants

EXH-367

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

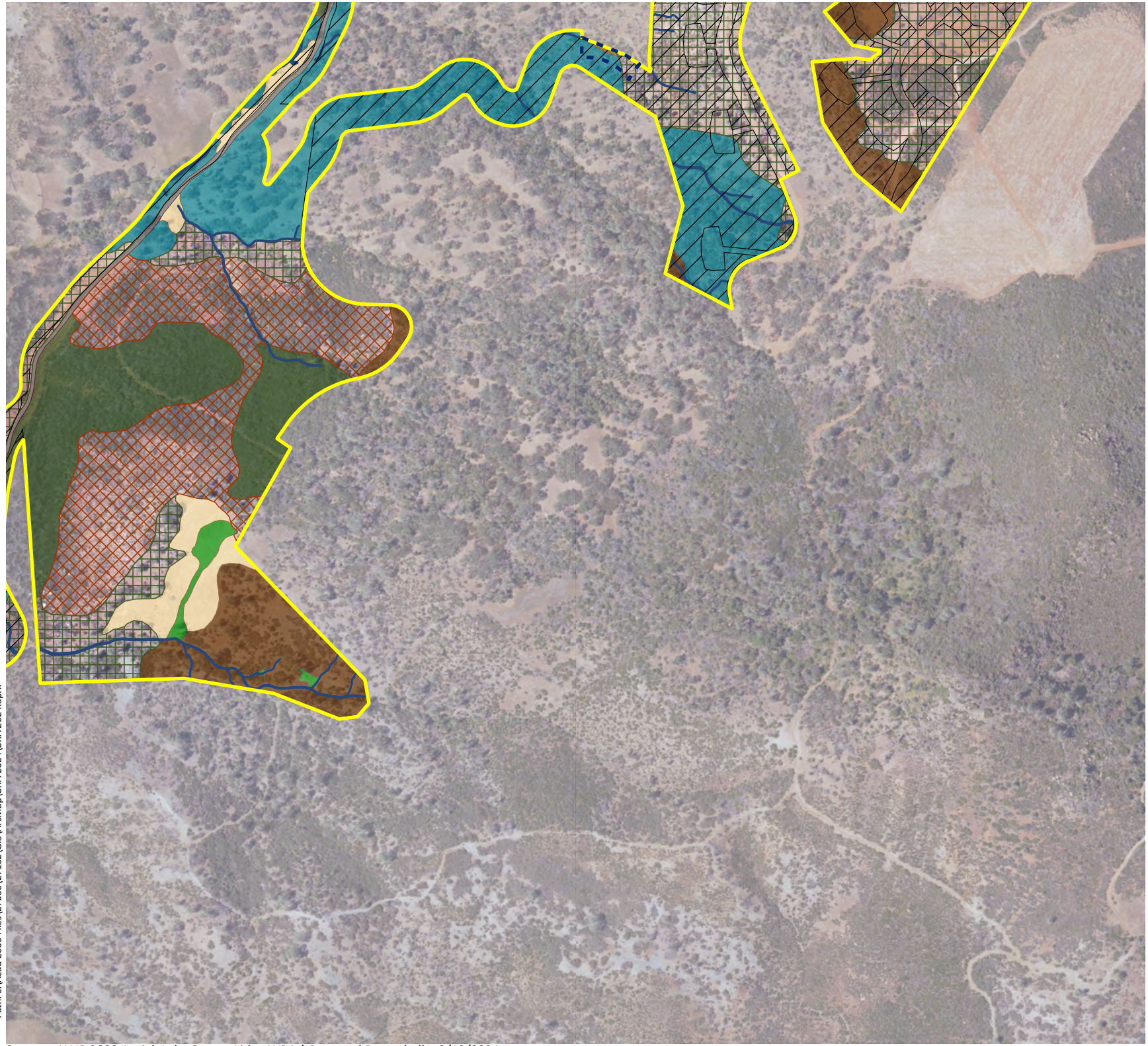

Figure 4-30. Land Cover Types Mapped within the Modified APE (Sheet 29)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

0 200 400
Feet

wra Environmental Consultants

EXH-368

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-31. Land Cover Types Mapped within the Modified APE (Sheet 30)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

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- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

0 200 400
Feet

wra Environmental Consultants

EXH-369

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Appendix C-1. Potential Special-Status Plant Species Table. List compiled from database searches focused on the following 7.5-minute USGS quadrangles: Aetna Springs, Calistoga, Chiles Valley, Clearlake Highlands, Detert Reservoir, Glascock Mountain, Jericho Valley, Knoxville, Lower Lake, Mark West Springs, Middletown, Mount Saint Helena, Saint Helena, Walter Springs, Whispering Pines, and Wilson Valley (CNPS 2024a, CDFW 2024a).

SPECIES	CONSERVATION STATUS[1]	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE MODIFIED APE[2]	RESULTS AND RECOMMENDATIONS[3]
PLANTS				
Napa false indigo *Amorpha californica* var. *napensis*	Rank 1B.2	Broadleafed upland forest, chaparral, cismontane woodland. Elevation ranges from 165 to 6560 feet (50 to 2000 meters). Blooms Apr-Jul.	**Moderate Potential.** Potentially suitable, cool, forested habitat on north-facing slopes and/or along draws exists within the Modified APE, and the species is known from a nearby occurrence.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
bent-flowered fiddleneck *Amsinckia lunaris*	Rank 1B.2	Cismontane woodland, coastal bluff scrub, valley and foothill grassland. Elevation ranges from 10 to 1640 feet (3 to 500 meters). Blooms Mar-Jun.	**Moderate Potential.** Potentially suitable grassland, chaparral, and scrub habitats exist within the Modified APE, and the species is known from nearby occurrences.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Konocti manzanita *Arctostaphylos manzanita* ssp. *elegans*	Rank 1B.3	Chaparral, cismontane woodland, lower montane coniferous forest. Elevation ranges from 1295 to 5300 feet (395 to 1615 meters). Blooms (Jan)Mar-May(Jul).	**High Potential.** This species was observed in two locations on the Guenoc Ranch property outside of the Phase 1 Modified APE, in blue oak woodland. Similar suitable habitat exists in the Modified APE.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE MODIFIED APE[2]	RESULTS AND RECOMMENDATIONS[3]
Dwarf soaproot *Chlorogalum pomeridianum* var. *minus*	Rank 1B.2	Chaparral (serpentine). Elevation ranges from 1,000 to 3,280 feet (305 to 1,000 meters). Blooms May-Aug.	**Moderate Potential.** The Modified APE contains chaparral on serpentine.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
pappose tarplant *Centromadia parryi* ssp. *parryi*	Rank 1B.2	Chaparral, coastal prairie, marshes and swamps, meadows and seeps, valley and foothill grassland. Elevation ranges from 0 to 1380 feet (0 to 420 meters). Blooms May-Nov.	**Unlikely**. This species is known from alkaline substrate, which is not present within the Modified APE.	No further actions are recommended for this species.
serpentine cryptantha *Cryptantha dissita*	Rank 1B.2	Chaparral. Elevation ranges from 1295 to 1905 feet (395 to 580 meters). Blooms Apr-Jun.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from nearby occurrences.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
deep-scarred cryptantha *Cryptantha excavata*	Rank 1B.1	Cismontane woodland. Elevation ranges from 330 to 1640 feet (100 to 500 meters). Blooms Apr-May.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Cascade downingia *Downingia willamettensis*	Rank 2B.2	Cismontane woodland (lake margins), valley and foothill grassland (lake margins), vernal pools. Elevation ranges from 50 to 3640 feet (15 to 1110 meters). Blooms Jun-Jul(Sep).	**Moderate Potential.** Potentially suitable lake margin habitat is present within the Modified APE, and the species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.

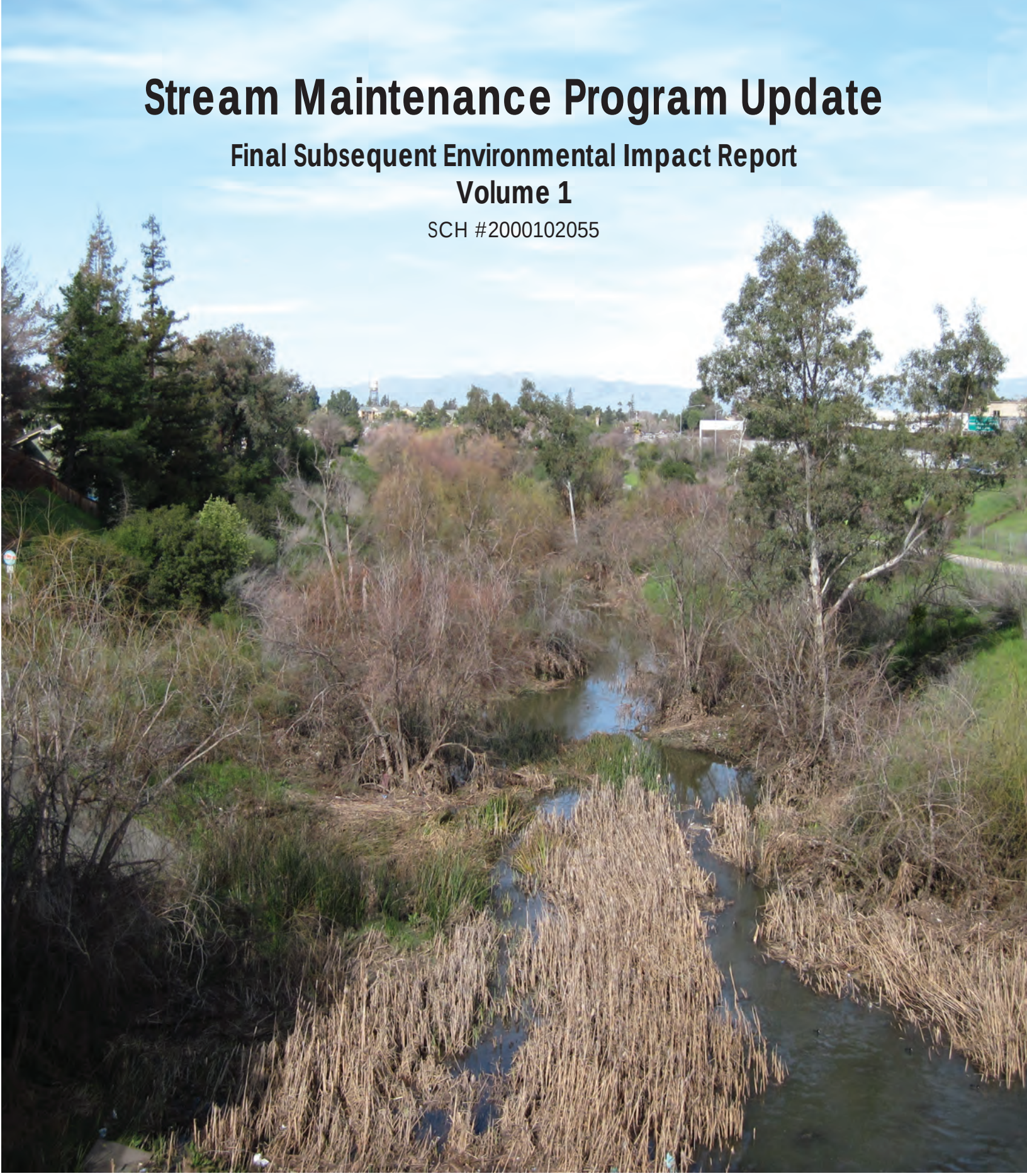
SPECIES	CONSERVATION STATUS[1]	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE MODIFIED APE[2]	RESULTS AND RECOMMENDATIONS[3]
Glandular western flax *Hesperolinon adenophyllum*	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 490 to 4315 feet (150 to 1315 meters). Blooms May-Aug.	**Moderate Potential.** Potentially suitable chaparral and foothill pine woodland habitat on rocky, serpentine substrate exists within the Modified APE, and the species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
two-carpellate western flax *Hesperolinon bicarpellatum*	Rank 1B.2	Chaparral. Elevation ranges from 195 to 3295 feet (60 to 1005 meters). Blooms (Apr)May-Jul.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from the region.	**Observed**. See Section 7.2 for recommendations.
Lake County western flax *Hesperolinon didymocarpum*	SE, Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 1085 to 1200 feet (330 to 365 meters). Blooms May-Jul.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from the region.	**Observed**. See Section 7.2 for recommendations.
drymaria-like western flax *Hesperolinon drymarioides*	Rank 1B.2	Chaparral, cismontane woodland, closed-cone coniferous forest, valley and foothill grassland. Elevation ranges from 330 to 3710 feet (100 to 1130 meters). Blooms May-Aug.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Sharsmith's western flax *Hesperolinon sharsmithiae*	Rank 1B.2	Chaparral. Elevation ranges from 885 to 985 feet (270 to 300 meters). Blooms May-Jul.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.

Stream Maintenance Program Update

Final Subsequent Environmental Impact Report

Volume 1

SCH #2000102055



Santa Clara Valley Water District

December 2011

Horizon
WATER and ENVIRONMENT

Santa Clara Valley Water District

EXH-373

Final
Subsequent Environmental Impact Report

Santa Clara Valley Water District
Stream Maintenance Program Update
2012–2022

Volume I of II

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December 2011

4.5.2 Cumulative Impact Analysis

Cumulative Setting

The following key impacts are considered cumulatively significant in the context of current and future projects. The cumulative impact discussion is limited to these topics only.

Air Quality. The San Francisco Bay Area Air Basin (SFBAAB) has been designated by the Bay Area Air Quality Management District (BAAQMD) as being in non-attainment under both federal and state standards for ozone. Particulate matter $(PM)_{10}$ and $PM_{2.5}$ also are designated as in non-attainment under state standards. Several pollutants are undesignated at either the federal or state level: 24-hour PM_{10} and $PM_{2.5}$ concentrations under federal standards, and hydrogen sulfide and visibility-reducing particles under state standards. As growth occurs in the county, increased emissions of these and other pollutants could result in continued non-attainment status or new non-attainment designations.

In addition, as discussed in Section 3.5, *Global Climate Change*, anthropogenic emissions of greenhouse gases (GHGs) are widely accepted in the scientific community as contributing to global warming.

The BAAQMD has adopted specific quantitative and qualitative criteria that they recommend using to evaluate air quality impacts. The BAAQMD adopted CEQA thresholds for construction and operation are summarized in Tables 3.2-5 and 3.5-1. The BAAQMD's cumulative operation criteria for air pollutant and precursor emissions, including GHGs, are identical to their individual project thresholds. These thresholds represent the levels at which a project's individual emissions of criteria air pollutants, precursors, or GHGs would result in a cumulatively considerable contribution to the SFBAAB's existing air quality conditions.

As described in Section 3.2, *Air Quality*, proposed SMP maintenance activities would result in increased air pollutant emissions from on-road and off-road vehicles, including increases in nitrogen (NOx) emissions. These activities are estimated to result in the emission of 27.8 tons of nitrogen per year in 2012. Although daily vehicle activity would not change between 2012 and 2022, daily emissions are expected to decrease over this period as existing vehicles are replaced with lower-emission vehicles. Consequently, average daily vehicle emissions are expected to be much lower in 2022 (10.2 tons/year) compared to 2012. A portion of airborne NOx emissions are converted into forms that can fall to earth as depositional nitrogen. Weiss (1999) concluded that such nitrogen deposition effectively "fertilizes" serpentine habitats to the point that non-native annual grasses are better able to invade these nutrient-poor habitats, resulting in degradation of serpentine plant communities and the subsequent loss of the Bay checkerspot butterfly's native larval host plants.

Cumulative Impact BIO-1: Effects on Biological Resources (Less than Significant with Mitigation)

The Proposed Project could potentially affect biological resources through habitat alterations or losses, as described further below.

All Proposed Project Activities

The proposed maintenance activities would involve sediment removal, bank stabilization, minor maintenance, management of animal conflicts, vegetation management, and canal maintenance. Any of the Proposed Project's activities could have the potential for impacts to a variety of biological resources, including the following:

- temporary disturbance or permanent loss of aquatic and upland natural communities;
- temporary disturbance or permanent loss of potential habitat for, and loss of individuals of, special-status plants, including:
  - serpentine-associated species (Santa Clara Valley dudleya, Metcalf Canyon jewel-flower, big-scale balsamroot, pink creamsacs, Mt. Hamilton thistle, San Francisco collinsia, fragrant fritillary, Loma Prieta hoita, woolly-headed lessingia, smooth lessingia, and most beautiful jewel-flower);
  - non-serpentine associated species (Franciscan onion, bent-flowered fiddleneck, Anderson's manzanita, brittlescale, round-leaved filaree, Congdon's tarplant, Santa Clara red ribbons, Hospital Canyon larkspur, western leatherwood, Hoover's button-celery, Satan's goldenbush, showy golden madia, arcuate bush-mallow, Davidson's bush-mallow, Hall's bush-mallow, Oregon meconella, Mt. Diablo cottonweed, robust monardella, hooked popcorn-flower, and saline clover);
- temporary disturbance or permanent loss of potential habitat for, and loss of individuals of, special-status animals, including:
  - special-status invertebrates (Bay checkerspot butterfly, Hom's micro-blind harvestman, Jung's micro-blind harvestman, and Opler's longhorn moth, mimic tryonia);
  - special-status fish (Central California Coast and South-Central Coast steelhead, Pacific lamprey, Monterey roach, longfin smelt, and green sturgeon);
  - special-status amphibians (California tiger salamander, California red-legged frog, and foothill yellow-legged frog);
  - special-status reptiles (western pond turtle and California horned lizard);
  - special-status birds (western snowy plover, black skimmer, California clapper rail, California black rail, redhead, American peregrine falcon, golden eagle, bald eagle, burrowing owl, short-eared owl, long-eared owl, northern harrier, white-tailed kite, Alameda song sparrow, Bryant's savannah sparrow, San Francisco

Each of the County and jurisdictional general plans considered for this cumulative impact assessment contains conservation measures that would benefit biological resources, as well as measures to avoid, minimize, and mitigate impacts to these resources. Likewise, the two regional HCPs with which SCVWD is involved will result in a net benefit to biological resources. As a result, through CEQA documents and permit conditions (including the conditions of these HCPs), each project in the region would mitigate its contribution to biological resources, reducing cumulative impacts. Section 3.3, *Biological Resources* identifies a number of mitigation measures that would be implemented to reduce impacts to sensitive habitats and to both common and special-status species: Collectively, implementation of the Proposed Project's mitigation plan and CEQA mitigation measures would ensure that the Proposed Project's contributions to cumulative impacts on biological resources would not be considerable, with one exception (habitat fragmentation, which is considered separately in Cumulative Impact BIO-2: Habitat Fragmentation, below). With implementation of the following mitigation measures, the Proposed Project's contributions would be less than considerable.

Mitigation Measures:

Mitigation Measure BIO-1: Implement Compensatory Mitigation for Wetlands and Other Waters

Mitigation Measure BIO-2: Implement Compensatory Mitigation for Woody Riparian Vegetation

Mitigation Measure BIO-3: Implement Compensatory Mitigation for Serpentine Communities

Mitigation Measure BIO-4: Implement Compensatory Mitigation for Serpentine-Associated Special-Status Plant Species

Mitigation Measure BIO-5: Implement Compensatory Mitigation for Impacts to Non-Serpentine Special-Status Plant Species

Mitigation Measure BIO-6: Implement Compensatory Mitigation for Impacts to Serpentine-Associated Special-Status Invertebrates

Mitigation Measure BIO-7: Tree Replacement

Mitigation Measure BIO-8: Augmentation of Spawning Gravel

Mitigation Measure BIO-9: Augmentation of Instream Complexity for Non-Tidal Stream Fish

Mitigation Measure BIO-10: Implement Compensatory Mitigation for the California Tiger Salamander

Mitigation Measure BIO-11: Implement Compensatory Mitigation for the California Red-Legged Frog

Mitigation Measure BIO-12: Implement Compensatory Mitigation for the Least Bell's Vireo

Mitigation Measure BIO-13: Implement Compensatory Mitigation for the Burrowing Owl

Mitigation Measure BIO-14: Implement Compensatory Mitigation for the Yellow Warbler

Mitigation Measure BIO-15: Provide Alternative Bat Roost

Mitigation Measure-BIO-16: Invasive Plant Species Management Program

US Army Corps of Engineers
Waterways Experiment Station

Wetlands Research Program Technical Report Y-87-1 (on-line edition)

Corps of Engineers Wetlands Delineation Manual

by Environmental Laboratory

January 1987 - Final Report
Approved For Public Release; Distribution Is Unlimited

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3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Final report

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Prepared for U.S. Army Corps of Engineers
Washington, DC 20314-1000

and volcanic activities) may also alter or destroy wetland indicators on a site.

Such atypical situations occur throughout the United States, and all of these cannot be identified in this manual.

13. Certain wetland types, under the extremes of normal circumstances, may not always meet all the wetland criteria defined in the manual. Examples include prairie potholes during drought years and seasonal wetlands that may lack hydrophytic vegetation during the dry season. Such areas are discussed in Part IV, Section G, and guidance is provided for making wetland determinations in these areas. However, such wetland areas may warrant additional research to refine methods for their delineation.

14. Appendix A is a glossary of technical terms used in the manual. Definitions of some terms were taken from other technical sources, but most terms are defined according to the manner in which they are used in the manual.

15. Data forms for methods presented in Part IV are included in Appendix B. Examples of completed data forms are also provided.

16. Supporting information is presented in Appendices C and D. ~~Appendix C contains lists of plant species that occur in wetlands. Section 1 consists of regional lists developed by a Federal interagency panel. Section 2 consists of shorter lists of plant species that commonly occur in wetlands of each region.~~

USER NOTES: CE-supplied plant lists are obsolete and have been superseded by the May 1988 version of the "National List of Plant Species that Occur in Wetlands" published by the U.S. Fish and Wildlife Service and available on the World Wide Web. (HQUSACE, 27 Aug 91)

Section 3 describes morphological, physiological, and reproductive adaptations associated with hydrophytic species, as well as a list of some species exhibiting such adaptations. Appendix D discusses procedures for examining soils for hydric soil indicators, ~~and also contains a list of hydric soils of the United States~~.

USER NOTES: The hydric soil list published in the 1987 Corps Manual is obsolete. Current hydric soil definition, criteria, and lists are available over the World Wide Web from the U.S.D.A. Natural Resources Conservation Service (NRCS). (HQUSACE, 27 Aug 91, 6 Mar 92)

Use

17. Although this manual was prepared primarily for use by Corps of Engineers (CE) field inspectors, it should be useful to anyone who makes wetland determinations for purposes of Section 404 of the Clean Water Act. The user is

directed through a series of steps that involve gathering of information and decisionmaking, ultimately leading to a wetland determination. A general flow diagram of activities leading to a determination is presented in Figure 1. However, not all activities identified in Figure 1 will be required for each wetland determination. For example, if a decision is made to use a routine determination procedure, comprehensive determination procedures will not be employed.

Premise for use of the manual

18. Three key provisions of the CE/EPA definition of wetlands include:

a. Inundated or saturated soil conditions resulting from permanent or periodic inundation by ground water or surface water.

b. A prevalence of vegetation typically adapted for life in saturated soil conditions (hydrophytic vegetation).

c. The presence of "normal circumstances."

19. Explicit in the definition is the consideration of three environmental parameters: hydrology, soil, and vegetation. Positive wetland indicators of all three parameters are normally present in wetlands. Although vegetation is often the most readily observed parameter, sole reliance on vegetation or either of the other parameters as the determinant of wetlands can sometimes be misleading. Many plant species can grow successfully in both wetlands and nonwetlands, and hydrophytic vegetation and hydric soils may persist for decades following alteration of hydrology that will render an area a nonwetland. The presence of hydric soils and wetland hydrology indicators in addition to vegetation indicators will provide a logical, easily defensible, and technical basis for the presence of wetlands. The combined use of indicators for all three parameters will enhance the technical accuracy, consistency, and credibility of wetland determinations. Therefore, all three parameters were used in developing the technical guideline for wetlands and all approaches for applying the technical guideline embody the multiparameter concept.

Approaches

20. The approach used for wetland delineations will vary, based primarily on the complexity of the area in question. Two basic approaches described in the manual are (a) routine and (b) comprehensive.

Part IV: Methods

Section A. Introduction

50. Part IV contains sections on preliminary data gathering, method selection, routine determination procedures, comprehensive determination procedures, methods for determinations in atypical situations, and guidance for wetland determinations in natural situations where the three-parameter approach may not always apply.

51. Significant flexibility has been incorporated into Part IV. The user is presented in Section B with various potential sources of information that may be helpful in making a determination, but not all identified sources of information may be applicable to a given situation. *NOTE: The user is not required to obtain information from all identified sources.* Flexibility is also provided in method selection (Section C). Three levels of routine determinations are available, depending on the complexity of the required determination and the quantity and quality of existing information. Application of methods presented in both Section D (routine determinations) and Section E (comprehensive determinations) may be tailored to meet site-specific requirements, especially with respect to sampling design.

52. Methods presented in Sections D and E vary with respect to the required level of technical knowledge and experience of the user. Application of the qualitative methods presented in Section D (routine determinations) requires considerably less technical knowledge and experience than does application of the quantitative methods presented in Section E (comprehensive determinations). The user must at least be able to identify the dominant plant species in the project area when making a routine determination (Section D), and should have some basic knowledge of hydric soils when employing routine methods that require soils examination. Comprehensive determinations require a basic understanding of sampling principles and the ability to identify all commonly occurring plant species in a project area, as well as a good understanding of indicators of hydric soils and wetland hydrology. The comprehensive method should only be employed by experienced field inspectors.

Section B. Preliminary Data Gathering and Synthesis

53. This section discusses potential sources of information that may be helpful in making a wetland determination. When the routine approach is used, it may often be possible to make a wetland determination based on available vegetation, soils, and hydrology data for the area. However, this section deals only with identifying potential information sources, extracting pertinent data, and synthesizing the data for use in making a determination. Based on the quantity and quality of available information and the approach selected for use (Section C), the user is referred to either Section D or Section E for the actual determination. Completion of Section B is not required, but is recommended because the available information may reduce or eliminate the need for field effort and decrease the time and cost of making a determination. However, there are instances in small project areas in which the time required to obtain the information may be prohibitive. In such cases PROCEED to paragraph 55, complete STEPS 1 through 3, and PROCEED to Section D or E.

Data sources

54. Obtain the following information, when available and applicable:

a. USGS quadrangle maps. USGS quadrangle maps are available at different scales. When possible, obtain maps at a scale of 1:24,000; otherwise, use maps at a scale of 1:62,500. Such maps are available from USGS in Reston, VA, and Menlo Park, CA, but they may already be available in the CE District Office. These maps provide several types of information:

(1) Assistance in locating field sites. Towns, minor roads, bridges, streams, and other landmark features (e.g., buildings, cemeteries, water bodies, etc.) not commonly found on road maps are shown on these maps.

(2) Topographic details, including contour lines (usually at 5- or 10-ft contour intervals).

(3) General delineation of wet areas (swamps and marshes). *NOTE: The actual wet area may be greater than that shown on the map because USGS generally maps these areas based on the driest season of the year.*

(4) Latitude, longitude, townships, ranges, and sections. These provide legal descriptions of the area.

(5) Directions, including both true and magnetic north.

(6) Drainage patterns.

(7) General land uses, such as cleared (agriculture or pasture), forested, or urban.

CAUTION: Obtain the most recent USGS maps. Older maps may show features that no longer exist and will not show new features that have developed since the map was constructed. Also, USGS is currently changing the mapping scale from 1:24,000 to 1:25,000.

b. National Wetlands Inventory products.

(1) *Wetland maps.* The standard NWI maps are at a scale of 1:24,000 or, where USGS base maps at this scale are not available, they are at 1:62,500 (1:63,350 in Alaska). Smaller scale maps ranging from 1:100,000 to 1:500,000 are also available for certain areas. Wetlands on NWI maps are classified in accordance with Cowardin et al. (1979). *CAUTION: Since not all delineated areas on NWI maps are wetlands under Department of Army jurisdiction, NWI maps should not be used as the sole basis for determining whether wetland vegetation is present.* NWI "User Notes" are available that correlate the classification system with local wetland community types. An important feature of this classification system is the water regime modifier, which describes the flooding or soil saturation characteristics. Wetlands classified as having a temporarily flooded or intermittently flooded water regime should be viewed with particular caution since this designation is indicative of plant communities that are transitional between wetland and nonwetland. These are among the most difficult plant communities to map accurately from aerial photography. For wetlands "wetter" than temporarily flooded and intermittently flooded, the probability of a designated map unit on recent NWI maps being a wetland (according to Cowardin et al. 1979) at the time of the photography is in excess of 90 percent. *CAUTION: Due to the scale of aerial photography used and other factors, all NWI map boundaries are approximate.* The optimum use of NWI maps is to plan field review (i.e., how wet, big, or diverse is the area?) and to assist during field review, particularly by showing the approximate areal extent of the wetland and its association with other communities. NWI maps are available either as a composite with, or an overlay for, USGS base maps and may be obtained from the NWI Central Office in St. Petersburg, FL, the Wetland Coordinator at each FWS regional office, or the USGS.

USER NOTES: NWI products and information are available over the World Wide Web.

(2) *Plant database*. This database of approximately 5,200 plant species that occur in wetlands provides information (e.g., ranges, habitat, etc.) about each plant species from the technical literature. The database served as a focal point for development of a national list of plants that occur in wetlands (~~Appendix C, Section 1~~).

c. *Soil Surveys.* Soil surveys are prepared by the SCS for political units (county, parish, etc.) in a state. Soil surveys contain several types of information:

(1) General information (e.g., climate, settlement, natural resources, farming, geology, general vegetation types).

(2) Soil maps for general and detailed planning purposes. These maps are usually generated from fairly recent aerial photography. *CAUTION: The smallest mapping unit is 3 acres, and a given soil series as mapped may contain small inclusions of other series.*

(3) Uses and management of soils. Any wetness characteristics of soils will be mentioned here.

(4) Soil properties. Soil and water features are provided that may be very helpful for wetland investigations. Frequency, duration, and timing of inundation (when present) are described for each soil type. Water table characteristics that provide valuable information about soil saturation are also described. Soil permeability coefficients may also be available.

(5) Soil classification. Soil series and phases are usually provided. Published soil surveys will not always be available for the area. If not, contact the county SCS office and determine whether the soils have been mapped.

d. *Stream and tidal gage data.* These documents provide records of tidal and stream flow events. They are available from either the USGS or CE District office.

e. *Environmental impact assessments (EIAs), environmental impact statements (EISs), general design memoranda (GDM), and other similar publications.* These documents may be available from Federal agencies for an area that includes the project area. They may contain some indication of the location and characteristics of wetlands consistent with the required criteria (vegetation, soils, and hydrology), and often contain flood frequency and duration data.

f. *Documents and maps from State, county, or local governments.* Regional maps that characterize certain areas (e.g., potholes, coastal areas, or basins) may be helpful because they indicate the type and character of wetlands.

g. *Remote sensing.* Remote sensing is one of the most useful information sources available for wetland identification and delineation. Recent aerial photography, particularly color infrared, provides a detailed view of an area; thus, recent land use and other features (e.g., general type and areal extent of plant communities and degree of inundation of the area when the photography was taken) can be determined. The multiagency cooperative National High Altitude Aerial Photography Program (HAP) has 1:59,000-scale color infrared photography for approximately 85 percent (December 1985) of the coterminous United States from 1980 to 1985. This photography has excellent resolution and can be ordered enlarged to 1:24,000 scale from USGS. Satellite images provide similar information as aerial photography, although the much smaller scale makes observation of detail more difficult without sophisticated equipment and extensive training. Satellite images provide more recent coverage than aerial photography (usually at 18-day intervals). Individual satellite images are more expensive than aerial photography, but are not as expensive as having an area flown and photographed at low altitudes. However, better resolution imagery is now available with remote sensing equipment mounted on fixed-wing aircraft.

h. *Local individuals and experts.* Individuals having personal knowledge of an area may sometimes provide a reliable and readily available source of information about the area, particularly information on the wetness of the area.

i. *USGS land use and land cover maps.* Maps created by USGS using remotely sensed data and a geographical information system provide a systematic and comprehensive collection and analysis of land use and land cover on a national basis. Maps at a scale of 1:250,000 are available as overlays that show land use and land cover according to nine basic levels. One level is wetlands (as determined by the FWS), which is further subdivided into forested and nonforested areas. Five other sets of maps show political units, hydrologic units, census subdivisions of counties, Federal land ownership, and State land ownership. These maps can be obtained from any USGS mapping center.

j. *Applicant's survey plans and engineering designs.* In many cases, the permit applicant will already have had the area surveyed (often at 1-ft contours or less) and will also have engineering designs for the proposed activity.

Data synthesis

55. When employing Section B procedures, use the above sources of information to complete the following steps:

- *STEP 1 - Identify the project area on a map.* Obtain a USGS quadrangle map (1:24,000) or other appropriate map, and locate the area identified in the permit application. PROCEED TO STEP 2.

- *STEP 2 - Prepare a base map.* Mark the project area boundaries on the map. Either use the selected map as the base map or trace the area on a mylar overlay, including prominent landscape features (e.g., roads, buildings, drainage patterns, etc.). If possible, obtain diazo copies of the resulting base map. PROCEED TO STEP 3.

- *STEP 3 - Determine size of the project area.* Measure the area boundaries and calculate the size of the area. PROCEED TO STEP 4 OR TO SECTION D OR E IF SECTION B IS NOT USED.

- *STEP 4 - Summarize available information on vegetation.* Examine available sources that contain information about the area vegetation. Consider the following:

    a. USGS quadrangle maps. Is the area shown as a marsh or swamp? *CAUTION: Do not use this as the sole basis for determining that hydrophytic vegetation is present.*

    b. NWI overlays or maps. Do the overlays or maps indicate that hydrophytic vegetation occurs in the area? If so, identify the vegetation type(s).

    c. EIAs, EISs, or GDMs that include the project area. Extract any vegetation data that pertain to the area.

    d. Federal, State, or local government documents that contain information about the area vegetation. Extract appropriate data.

    e. Recent (within last 5 years) aerial photography of the area. Can the area plant community type(s) be determined from the photography? Extract appropriate data.

    f. Individuals or experts having knowledge of the area vegetation. Contact them and obtain any appropriate information. *CAUTION: Ensure that the individual providing the information has firsthand knowledge of the area.*

    g. Any published scientific studies of the area plant communities. Extract any appropriate data.

    h. Previous wetland determinations made for the area. Extract any pertinent vegetation data.

    When the above have been considered, PROCEED TO STEP 5.

- *STEP 5 - Determine whether the vegetation in the project area is adequately characterized.* Examine the summarized data (STEP 4) and determine whether the area plant communities are adequately characterized. For routine determinations, the plant community type(s) and the dominant species in each vegetation layer of each community type must be known. Dominant species are those that have the largest relative basal area (overstory),[1] height (woody understory), number of stems (woody vines), or greatest areal cover (herbaceous understory). For comprehensive determinations, each plant community type present in the project area must have been quantitatively described within the past 5 years using accepted sampling and analytical procedures, and boundaries between community types must be known. Record information on DATA FORM 1.[2] In either case, PROCEED TO Section F if there is evidence of recent significant vegetation alteration due to human activities or natural events. Otherwise, PROCEED TO STEP 6.

- *STEP 6 - Summarize available information on area soils.* Examine available information and describe the area soils. Consider the following:

    a. County soil surveys. Determine the soil series present and extract characteristics for each. *CAUTION: Soil mapping units sometimes include more than one soil series.*

    b. Unpublished county soil maps. Contact the local SCS office and determine whether soil maps are available for the area. Determine the soil series of the area, and obtain any available information about possible hydric soil indicators (paragraph 44 or 45) for each soil series.

    c. Published EIAs, EISs, or GDMs that include soils information. Extract any pertinent information.

    d. Federal, State, and/or local government documents that contain descriptions of the area soils. Summarize these data.

    e. Published scientific studies that include area soils data. Summarize these data.

    f. Previous wetland determinations for the area. Extract any pertinent soils data.

    When the above have been considered, PROCEED TO STEP 7.

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[1] This term is used because species having the largest individuals may not be dominant when only a few are present. To use relative basal area, consider both the size and number of individuals of a species and subjectively compare with other species present.

[2] A separate DATA FORM 1 must be used for each plant community type.

- *STEP 7 - Determine whether soils of the project area have been adequately characterized.* Examine the summarized soils data and determine whether the soils have been adequately characterized. For routine determinations, the soil series must be known. For comprehensive determinations, both the soil series and the boundary of each soil series must be known. Record information on DATA FORM 1. In either case, if there is evidence of recent significant soils alteration due to human activities or natural events, PROCEED TO Section F. Otherwise, PROCEED TO STEP 8.

- *STEP 8 - Summarize available hydrology data.* Examine available information and describe the area hydrology. Consider the following:

    a. USGS quadrangle maps. Is there a significant, well-defined drainage through the area? Is the area within a major floodplain or tidal area? What range of elevations occur in the area, especially in relation to the elevation of the nearest perennial watercourse?

    b. NWI overlays or maps. Is the area shown as a wetland or deepwater aquatic habitat? What is the water regime modifier?

    c. EIAs, EISs, or GDMs that describe the project area. Extract any pertinent hydrologic data.

    d. Floodplain management maps. These maps may be used to extrapolate elevations that can be expected to be inundated on a l-, 2-, 3-year, etc., basis. Compare the elevations of these features with the elevation range of the project area to determine the frequency of inundation.

    e. Federal, State, and local government documents (e.g., CE floodplain management maps and profiles) that contain hydrologic data. Summarize these data.

    f. Recent (within past 5 years) aerial photography that shows the area to be inundated. Record the date of the photographic mission.

    g. Newspaper accounts of flooding events that indicate periodic inundation of the area.

    h. SCS County Soil Surveys that indicate the frequency and duration of inundation and soil saturation for area soils. *CAUTION: Data provided only represent average conditions for a particular soil series in its natural undrained state, and cannot be used as a positive hydrologic indicator in areas that have significantly altered hydrology.*

i. Tidal or stream gage data for a nearby water body that apparently influences the area. Obtain the gage data and complete (1) below if the routine approach is used, or (2) below if the comprehensive approach is used (OMIT IF GAGING STATION DATA ARE UNAVAILABLE):

(1) *Routine approach.* Determine the highest water level elevation reached during the growing season for each of the most recent 10 years of gage data. Rank these elevations in descending order and select the fifth highest elevation. Combine this elevation with the mean sea level elevation of the gaging station to produce a mean sea level elevation for the highest water level reached every other year. *NOTE: Stream gage data are often presented as flow rates in cubic feet per second. In these cases, ask the CE District's Hydrology Branch to convert flow rates to corresponding mean sea level elevations and adjust gage data to the site.* Compare the resulting elevations reached biennially with the project area elevations. If the water level elevation exceeds the area elevation, the area is inundated during the growing season on average at least biennially.

(2) *Comprehensive approach.* Complete the following:

(a) *Decide whether hydrologic data reflect the apparent hydrology.* Data available from the gaging station may or may not accurately reflect the area hydrology. Answer the following questions:

- Does the water level of the area appear to fluctuate in a manner that differs from that of the water body on which the gaging station is located? (In ponded situations, the water level of the area is usually higher than the water level at the gaging station.)

- Are less than 10 years of daily readings available for the gaging station?

- Do other water sources that would not be reflected by readings at the gaging station appear to significantly affect the area? For example, do major tributaries enter the stream or tidal area between the area and gaging station?

If the answer to any of the above questions is YES, the area hydrology cannot be determined from the

gaging station data. If the answer to all of the above questions is NO, PROCEED TO (b).

(b) *Analyze hydrologic data.* Subject the hydrologic data to appropriate analytical procedures. Either use duration curves or a computer program developed by WES (available from the Environmental Laboratory upon request) for determining the mean sea level elevation representing the upper limits of wetland hydrology. In the latter case, when the site elevation is lower than the mean sea level elevation representing a 5-percent duration of inundation and saturation during the growing season, the area has a hydrologic regime that may occur in wetlands. *NOTE: Duration curves do not reflect the period of soil saturation following dewatering.*

When all of the above have been considered, PROCEED TO STEP 9.

- *STEP 9 - Determine whether hydrology is adequately characterized.* Examine the summarized data and determine whether the hydrology of the project area is adequately characterized. For routine determinations, there must be documented evidence of frequent inundation or soil saturation during the growing season. For comprehensive determinations, there must be documented quantitative evidence of frequent inundation or soil saturation during the growing season, based on at least 10 years of stream or tidal gage data. Record information on DATA FORM 1. In either case, if there is evidence of recent significant hydrologic alteration due to human activities or natural events, PROCEED TO Section F. Otherwise, PROCEED TO Section C.

Section C. Selection of Method

56. All wetland delineation methods described in this manual can be grouped into two general types: routine and comprehensive. Routine determinations (Section D) involve simple, rapidly applied methods that result in sufficient qualitative data for making a determination. Comprehensive methods (Section E) usually require significant time and effort to obtain the needed quantitative data. The primary factor influencing method selection will usually be the complexity of the required determination. However, comprehensive methods may sometimes be selected for use in relatively simple determinations when rigorous documentation is required.

57. Three levels of routine wetland determinations are described below. Complexity of the project area and the quality and quantity of available information will influence the level selected for use.

a. *Level 1 - Onsite Inspection Unnecessary*. This level may be employed when the information already obtained (Section B) is sufficient for making a determination for the entire project area (see Section D, Subsection 1).

b. *Level 2 - Onsite Inspection Necessary.* This level must be employed when there is insufficient information already available to characterize the vegetation, soils, and hydrology of the entire project area (see Section D, Subsection 2).

c. *Level 3 - Combination of Levels 1 and 2.* This level should be used when there is sufficient information already available to characterize the vegetation, soils, and hydrology of a portion, but not all, of the project area. Methods described for Level 1 may be applied to portions of the area for which adequate information already exists, and onsite methods (Level 2) must be applied to the remainder of the area (see Section D, Subsection 3).

58. After considering all available information, select a tentative method (see above) for use, and PROCEED TO EITHER Section D or E, as appropriate. *NOTE: Sometimes it may be necessary to change to another method described in the manual, depending on the quality of available information and/or recent changes in the project area.*

Section D. Routine Determinations

59. This section describes general procedures for making routine wetland determinations. It is assumed that the user has already completed all applicable steps in Section B,[1] and a routine method has been tentatively selected for use (Section C). Subsections 1 through 3 describe steps to be followed when making a routine determination using one of the three levels described in Section C. Each subsection contains a flowchart that defines the relationship of steps to be used for that level of routine determinations. *NOTE: The selected method must be considered tentative because the user may be required to change methods during the determination.*

Subsection 1 - Onsite Inspection Unnecessary

60. This subsection describes procedures for making wetland determinations when sufficient information is already available (Section B) on which to base

[1] If it has been determined that it is more expedient to conduct an onsite inspection than to search for available information, complete STEPS 1 through 3 of Section B, and PROCEED TO Subsection 2.

the determination. A flowchart of required steps to be completed is presented in Figure 13, and each step is described below.

Equipment and materials

61. No special equipment is needed for applying this method. The following materials will be needed:

a. Map of project area (Section B, STEP 2).

b. Copies of DATA FORM 1 (Appendix B).

c. Appendices C and D to this manual.

Procedure

62. Complete the following steps, as necessary:

- *STEP 1 - Determine whether available data are sufficient for entire project area.* Examine the summarized data (Section B, STEPS 5, 7, and 9) and determine whether the vegetation, soils, and hydrology of the entire project area are adequately characterized. If so, PROCEED TO STEP 2. If all three parameters are adequately characterized for a portion, but not all, of the project area, PROCEED TO Subsection 3. If the vegetation, soils, and hydrology are not adequately characterized for any portion of the area, PROCEED TO Subsection 2.

- *STEP 2 - Determine whether hydrophytic vegetation is present.* Examine the vegetation data and list on DATA FORM 1 the dominant plant species found in each vegetation layer of each community type. *NOTE: A separate DATA FORM 1 will be required for each community type.* Record the indicator status for each dominant species ~~(Appendix C, Section 1 or 2)~~. When more than 50 percent of the dominant species in a plant community have an indicator status of OBL, FACW, and/or FAC,[1] hydrophytic vegetation is present. If one or more plant communities comprise hydrophytic vegetation, PROCEED TO STEP 3. If none of the plant communities comprise hydrophytic vegetation, none of the area is a wetland. Complete the vegetation section for each DATA FORM 1.

[1] For the FAC-neutral option, see paragraph 35*a*.

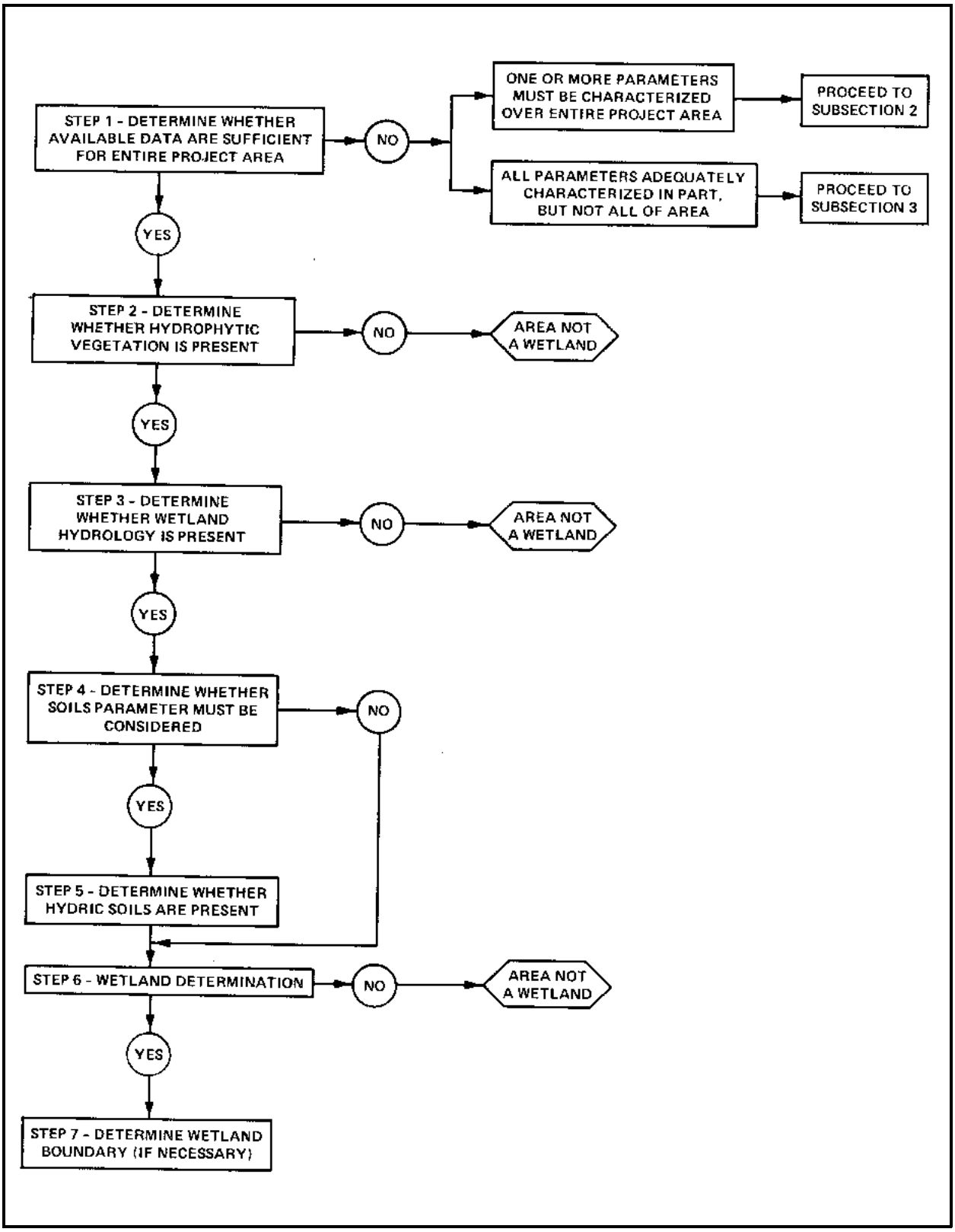

Figure 13. Flowchart of steps involved in making a wetland determination when an onsite inspection is unnecessary

- *STEP 3 - Determine whether wetland hydrology is present.* When one of the following conditions applies (STEP 2), it is only necessary to confirm that there has been no recent hydrologic alteration of the area:

    a. The entire project area is occupied by a plant community or communities in which all dominant species are OBL ~~(Appendix C, Section 1 or 2)~~.

    b. The project area contains two or more plant communities, all of which are dominated by OBL and/or FACW species, and the wetland-nonwetland boundary is abrupt[1] (e.g., a *Spartina alterniflora* marsh bordered by a road embankment).

  If either *a* or *b* applies, look for recorded evidence of recently constructed dikes, levees, impoundments, and drainage systems, or recent avalanches, mudslides, beaver dams, etc., that have significantly altered the area hydrology. If any significant hydrologic alteration is found, determine whether the area is still periodically inundated or has saturated soils for sufficient duration to support the documented vegetation (*a* or *b* above). When *a* or *b* applies and there is no evidence of recent hydrologic alteration, or when *a* or *b* do not apply and there is documented evidence that the area is periodically inundated or has saturated soils, wetland hydrology is present. Otherwise, wetland hydrology does not occur on the area. Complete the hydrology section of DATA FORM 1 and PROCEED TO STEP 4.

- *STEP 4 - Determine whether the soils parameter must be considered.* When either *a* or *b* of STEP 3 applies *and* there is either no evidence of recent hydrologic alteration of the project area or if wetland hydrology presently occurs on the area, hydric soils can be assumed to be present. If so, PROCEED TO STEP 6. Otherwise PROCEED TO STEP 5.

- *STEP 5 - Determine whether hydric soils are present.* Examine the soils data (Section B, STEP 7) and record the soil series or soil phase on DATA FORM 1 for each community type. Determine whether the soil is listed as a hydric soil ~~(Appendix D, Section 2)~~. If all community types have hydric soils, the entire project area has hydric soils. *(CAUTION: If the soil series description makes reference to inclusions of other soil types, data must be field verified).* Any portion of the area that lacks hydric soils is a nonwetland. Complete the soils section of each DATA FORM 1 and PROCEED TO STEP 6.

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[1] There must be documented evidence of periodic inundation or saturated soils when the project area: (a) has plant communities dominated by one or more FAC species; (b) has vegetation dominated by FACW species but no adjacent community dominated by OBL species; (c) has a gradual, nondistinct boundary between wetlands and nonwetlands; and/or (d) is known to have or is suspected of having significantly altered hydrology.

- *STEP 6 - Wetland determination.* Examine the DATA FORM 1 for each community type. Any portion of the project area is a wetland that has:

    a. Hydrophytic vegetation that conforms to one of the conditions identified in STEP 3*a* or 3*b* and has either no evidence of altered hydrology or confirmed wetland hydrology.

    b. Hydrophytic vegetation that does not conform to STEP 3*a* or 3*b*, has hydric soils, and has confirmed wetland hydrology.

    If STEP 6*a* or 6*b* applies to the entire project area, the entire area is a wetland. Complete a DATA FORM 1 for all plant community types. Portions of the area not qualifying as a wetland based on an office determination might or might not be wetlands. If the data used for the determination are considered to be highly reliable, portions of the area not qualifying as wetlands may properly be considered nonwetlands. PROCEED TO STEP 7. If the available data are incomplete or questionable, an onsite inspection (Subsection 2) will be required.

- *STEP 7 - Determine wetland boundary*. Mark on the base map all community types determined to be wetlands with a W and those determined to be nonwetlands with an N. Combine all wetland community types into a single mapping unit. The boundary of these community types is the interface between wetlands and nonwetlands.

Subsection 2 - Onsite Inspection Necessary

63. This subsection describes procedures for routine determinations in which the available information (Section B) is insufficient for one or more parameters. If only one or two parameters must be characterized, apply the appropriate steps and return to Subsection 1 and complete the determination. A flowchart of steps required for using this method is presented in Figure 14, and each step is described below.

Equipment and materials

64. The following equipment and materials will be needed:

a. Base map (Section B, STEP 2).

b. Copies of DATA FORM 1 (one for each community type and additional copies for boundary determinations).

c. Appendices C and D.

d. Compass.

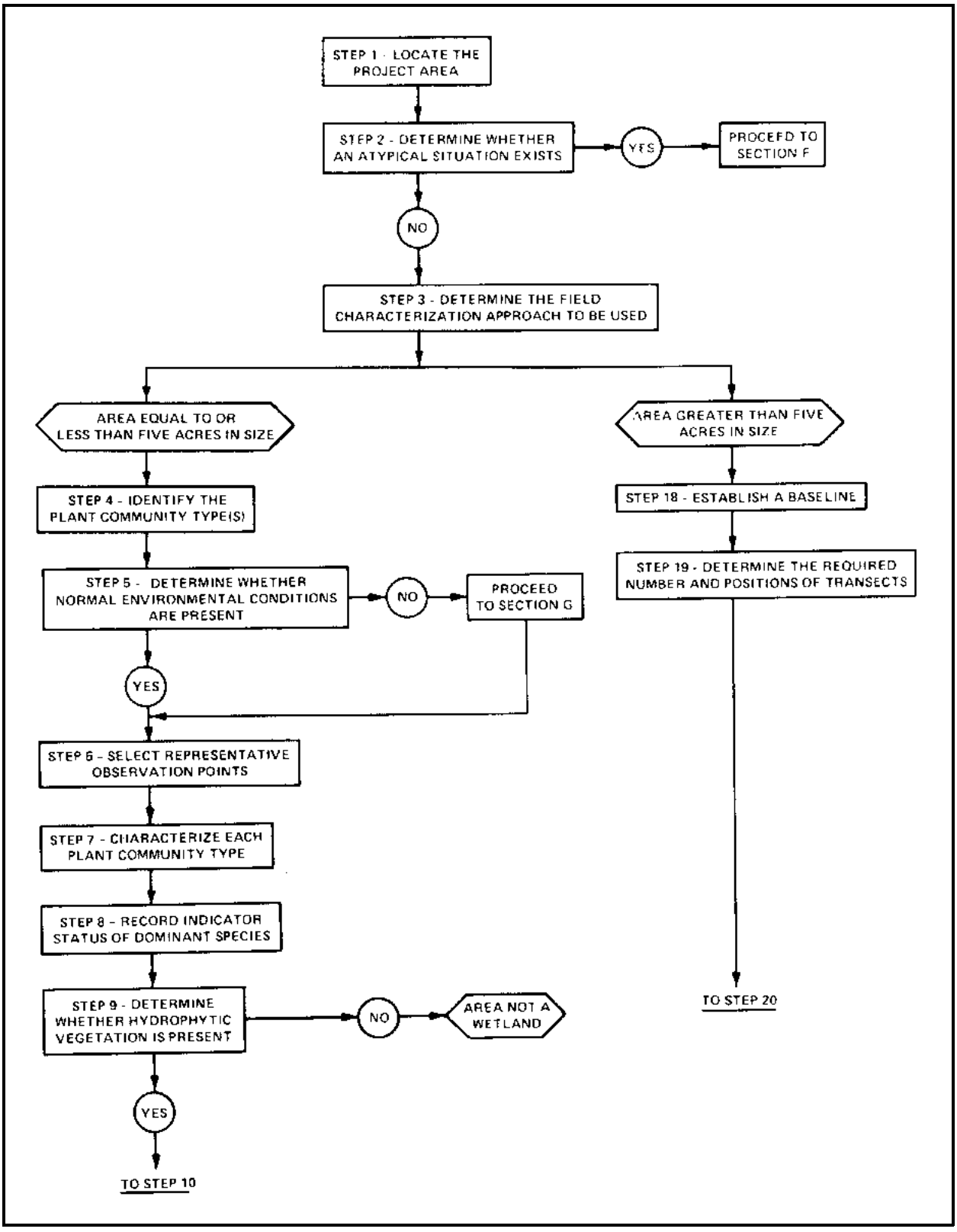

Figure 14. Flowchart of steps involved in making a routine wetland determination when an onsite visit is necessary (Continued)

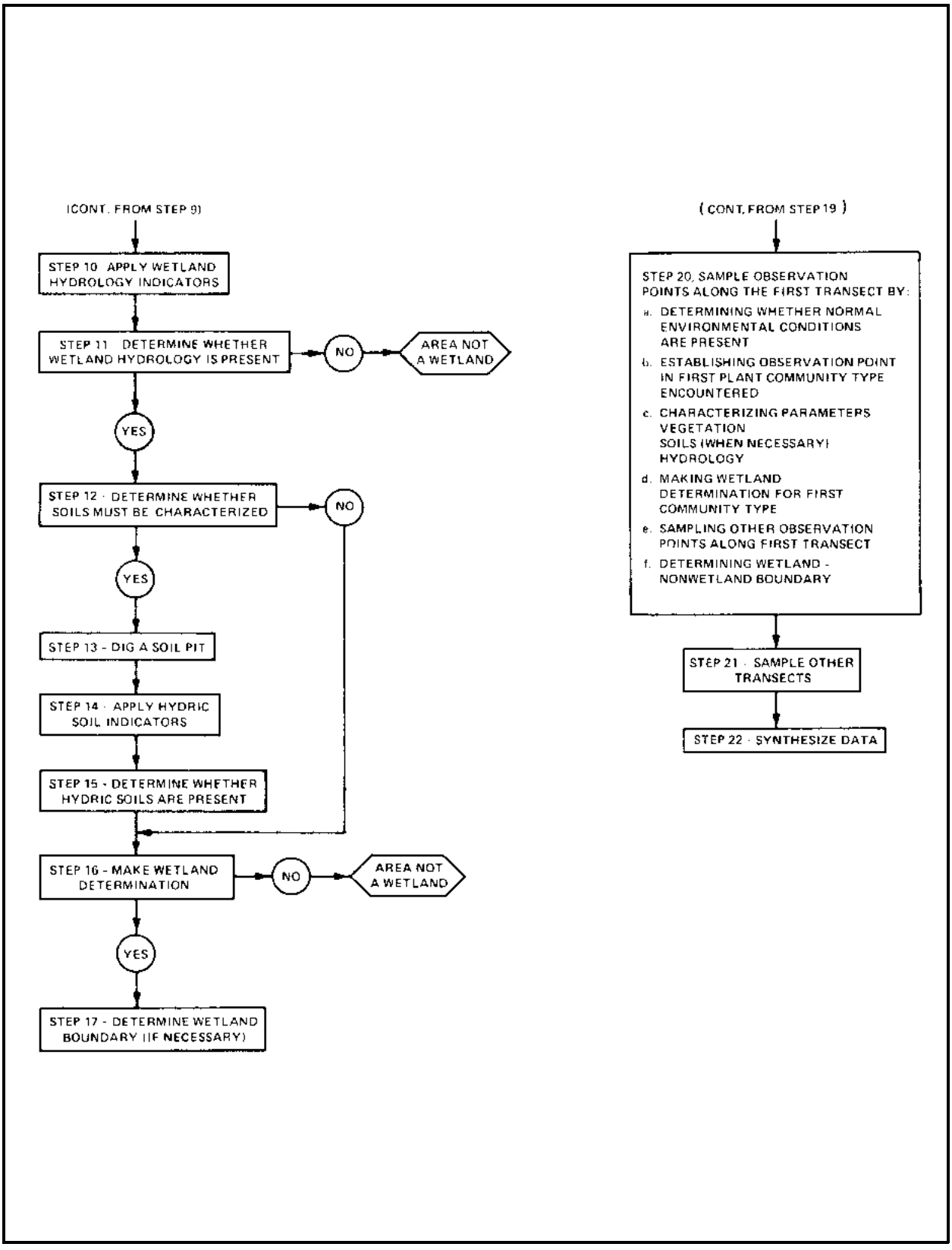

Figure 14. (Concluded)

e. Soil auger or spade (soils only).

f. Tape (300 ft).

g. Munsell Color Charts (Munsell Color 1975) (soils only).

Procedure

65. Complete the following steps, as necessary:

- *STEP 1 - Locate the project area.* Determine the spatial boundaries of the project area using information from a USGS quadrangle map or other appropriate map, aerial photography, and/or the project survey plan (when available). PROCEED TO STEP 2.

- *STEP 2 - Determine whether an atypical situation exists.* Examine the area and determine whether there is evidence of sufficient natural or human-induced alteration to significantly alter the area vegetation, soils, and/or hydrology. *NOTE: Include possible offsite modifications that may affect the area hydrology.* If not, PROCEED TO STEP 3.

  If one or more parameters have been significantly altered by an activity that would normally require a permit, PROCEED TO Section F and determine whether there is sufficient evidence that hydrophytic vegetation, hydric soils, and/or wetland hydrology were present prior to this alteration. Then, return to this subsection and characterize parameters not significantly influenced by human activities. PROCEED TO STEP 3.

- *STEP 3 - Determine the field characterization approach to be used.* Considering the size and complexity of the area, determine the field characterization approach to be used. When the area is equal to or less than 5 acres in size (Section B, STEP 3) and the area is thought to be relatively homogeneous with respect to vegetation, soils, and/or hydrologic regime, PROCEED TO STEP 4. When the area is greater than 5 acres in size (Section B, STEP 3) or appears to be highly diverse with respect to vegetation, PROCEED TO STEP 18.

Areas Equal To or Less Than 5 Acres in Size

- *STEP 4 - Identify the plant community type(s).* Traverse the area and determine the number and locations of plant community types. Sketch the location of each on the base map (Section B, STEP 2), and give each community type a name. PROCEED TO STEP 5.

- *STEP 5 - Determine whether normal environmental conditions are present.* Determine whether normal environmental conditions are present by considering the following:

    a. Is the area presently lacking hydrophytic vegetation or hydrologic indicators due to annual or seasonal fluctuations in precipitation or ground-water levels?

    b. Are hydrophytic vegetation indicators lacking due to seasonal fluctuations in temperature?

  If the answer to either of these questions is thought to be YES, PROCEED TO Section G. If the answer to both questions is NO, PROCEED TO STEP 6.

- *STEP 6 - Select representative observation points.* Select a representative observation point in each community type. A representative observation point is one in which the apparent characteristics (determine visually) best represent characteristics of the entire community. Mark on the base map the approximate location of the observation point. PROCEED TO STEP 7.

- *STEP 7 - Characterize each plant community type.* Visually determine the dominant plant species in each vegetation layer of each community type and record them on DATA FORM 1 (use a separate DATA FORM 1 for each community type). Dominant species are those having the greatest relative basal area (woody overstory),[1] greatest height (woody understory), greatest percentage of areal cover (herbaceous understory), and/or greatest number of stems (woody vines). PROCEED TO STEP 8.

- *STEP 8 - Record indicator status of dominant species.* Record on DATA FORM 1 the indicator status ~~(Appendix C, Section 1 or 2)~~ of each dominant species in each community type. PROCEED TO STEP 9.

- *STEP 9 - Determine whether hydrophytic vegetation is present.* Examine each DATA FORM 1. When more than 50 percent of the dominant species in a community type have an indicator status (STEP 8) of OBL, FACW, and/or FAC,[2] hydrophytic vegetation is present. Complete the vegetation section of each DATA FORM 1. Portions of the area failing this test are not wetlands. PROCEED TO STEP 10.

- *STEP 10 - Apply wetland hydrologic indicators.* Examine the portion of the area occupied by each plant community type for positive indicators

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[1] This term is used because species having the largest individuals may not be dominant when only a few are present. To determine relative basal area, consider both the size and number of individuals of a species and subjectively compare with other species present.

[2] For the FAC-neutral option, see paragraph 35*a*.

of wetland hydrology (Part III, paragraph 49). Record findings on the appropriate DATA FORM 1. PROCEED TO STEP 11.

- *STEP 11 - Determine whether wetland hydrology is present.* Examine the hydrologic information on DATA FORM 1 for each plant community type. Any portion of the area having a positive wetland hydrology indicator has wetland hydrology. If positive wetland hydrology indicators are present in all community types, the entire area has wetland hydrology. If no plant community type has a wetland hydrology indicator, none of the area has wetland hydrology. Complete the hydrology portion of each DATA FORM 1. PROCEED TO STEP 12.

- *STEP 12 - Determine whether soils must be characterized.* Examine the vegetation section of each DATA FORM 1. Hydric soils are assumed to be present in any plant community type in which:

    a. All dominant species have an indicator status of OBL.

    b. All dominant species have an indicator status of OBL or FACW, and the wetland boundary (when present) is abrupt.[1]

  When either *a* or *b* occurs and wetland hydrology is present, check the hydric soils blank as positive on DATA FORM 1 and PROCEED TO STEP 16. If neither *a* nor *b* applies, PROCEED TO STEP 13.

- *STEP 13 - Dig a soil pit.* Using a soil auger or spade, dig a soil pit at the representative location in each community type. The procedure for digging a soil pit is described in Appendix D, Section 1. When completed, approximately 16 inches of the soil profile will be available for examination. PROCEED TO STEP 14.

- *STEP 14 - Apply hydric soil indicators.* Examine the soil at each location and compare its characteristics immediately below the A-horizon or 10 inches (whichever is shallower) with the hydric soil indicators described in Part III, paragraph 44 and/or 45. Record findings on the appropriate DATA FORM 1's. PROCEED TO STEP 15.

- *STEP 15 - Determine whether hydric soils are present.* Examine each DATA FORM 1 and determine whether a positive hydric soil indicator was found. If so, the area at that location has hydric soil. If soils at all sampling locations have positive hydric soil indicators, the entire area has hydric soils. If soils at all sampling locations lack positive hydric soil indicators, none of the area is a wetland. Complete the soil section of each DATA FORM 1. PROCEED TO STEP 16.

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[1] The soils parameter must be considered in any plant community in which: (a) the community is dominated by one or more FAC species; (b) no community type dominated by OBL species is present; (c) the boundary between wetlands and nonwetlands is gradual or nondistinct; (d) the area is known to or is suspected of having significantly altered hydrology.

- *STEP 16 - Make wetland determination.* Examine DATA FORM 1. If the entire area presently or normally has wetland indicators of all three parameters (STEPS 9, 11, and 15), the entire area is a wetland. If the entire area presently or normally lacks wetland indicators of one or more parameters, the entire area is a nonwetland. If only a portion of the area presently or normally has wetland indicators for all three parameters, PROCEED TO STEP 17.

- *STEP 17 - Determine wetland-nonwetland boundary.* Mark each plant community type on the base map with a W if wetland or an N if nonwetland. Combine all wetland plant communities into one mapping unit and all nonwetland plant communities into another mapping unit. The wetland-nonwetland boundary will be represented by the interface of these two mapping units.

Areas Greater Than 5 Acres in Size

- *STEP 18 - Establish a baseline.* Select one project boundary as a baseline. The baseline should parallel the major watercourse through the area or should be perpendicular to the hydrologic gradient (Figure 15). Determine the approximate baseline length. PROCEED TO STEP 19.

- *STEP 19 - Determine the required number and position of transects.* Use the following to determine the required number and position of transects (specific site conditions may necessitate changes in intervals):

Baseline Length, Miles	**Number of Required Transects**
≤0.25	3
>0.25 - 0.50	3
>0.50 - 0.75	3
>0.75 - 1.00	3
>1.00 - 2.00	3-5
>2.00 - 4.00	5-8
>4.00	8 or more[1]

[1] Transect intervals should not exceed 0.5 mile.

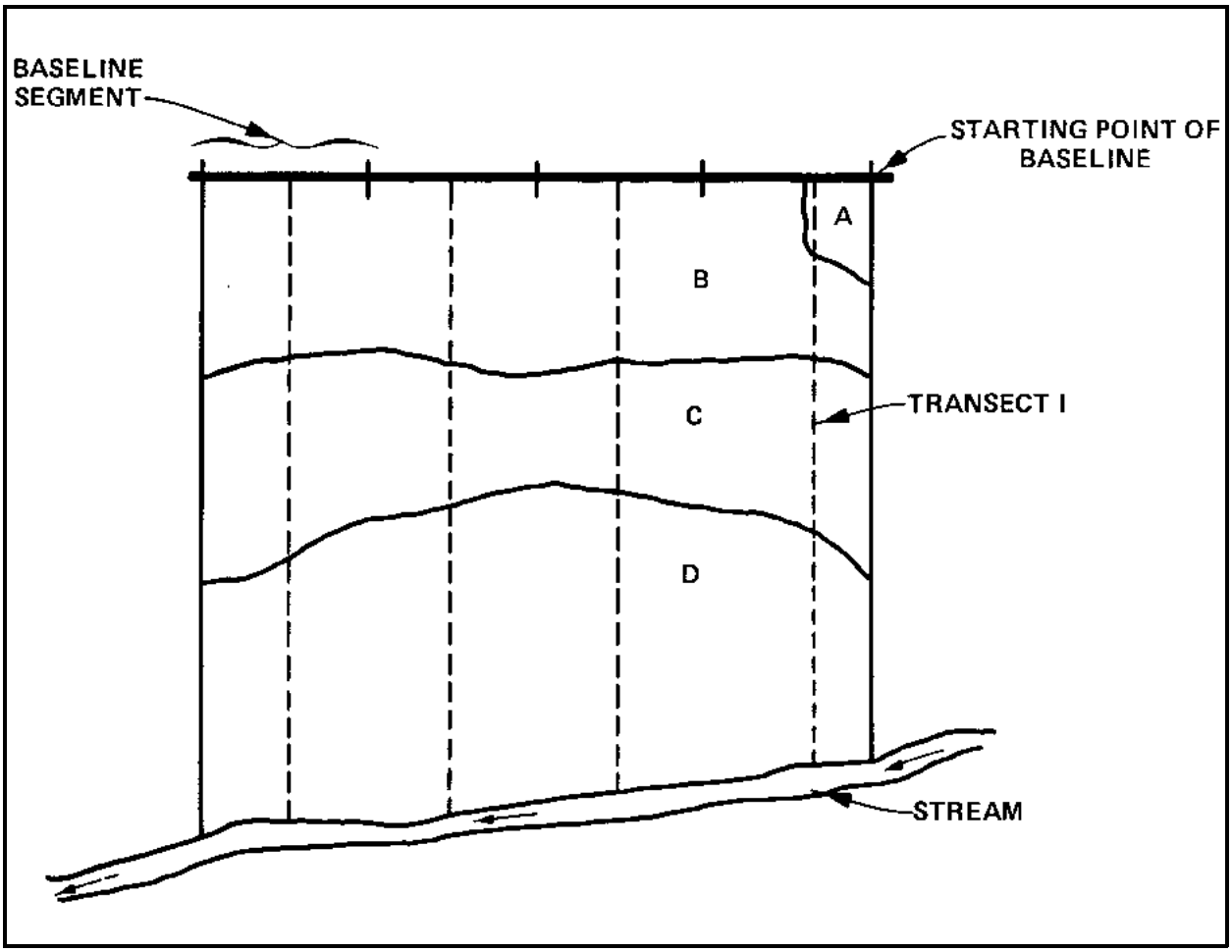

Figure 15. General orientation of baseline and transects (dotted lines) in a hypothetical project area. Alpha characters represent different plant communities. All transects start at the midpoint of a baseline segment except the first, which was repositioned to include community type A

Divide the baseline length by the number of required transects. Establish one transect in each resulting baseline increment. Use the midpoint of each baseline increment as a transect starting point. For example, if the baseline is 1,200 ft in length, three transects would be established—one at 200 ft, one at 600 ft, and one at 1,000 ft from the baseline starting point. *CAUTION: All plant community types must be included. This may necessitate relocation of one or more transect lines. PROCEED TO STEP 20.*

- *STEP 20 - Sample observation points along the first transect.* Beginning at the starting point of the first transect, extend the transect at a 90-deg angle to the baseline. Use the following procedure as appropriate to simultaneously characterize the parameters at each observation point. Combine field-collected data with information already available and make a wetland determination at each observation point. A DATA FORM 1 must be completed for each observation point.

a. *Determine whether normal environmental conditions are present.* Determine whether normal environmental conditions are present by considering the following:

(1) Is the area presently lacking hydrophytic vegetation and/or hydrologic indicators due to annual or seasonal fluctuations in precipitation or ground-water levels?

(2) Are hydrophytic vegetation indicators lacking due to seasonal fluctuations in temperature?

If the answer to either of these questions is thought to be YES, PROCEED TO Section G. If the answer to both questions is NO, PROCEED TO STEP 20*b*.

b. *Establish an observation point in the first plant community type encountered.* Select a representative location along the transect in the first plant community type encountered. When the first plant community type is large and covers a significant distance along the transect, select an area that is no closer than 300 ft to a perceptible change in plant community type. PROCEED TO STEP 20*c*.

c. *Characterize parameters.* Characterize the parameters at the observation point by completing (1), (2), and (3) below:

(1) *Vegetation.* Record on DATA FORM 1 the dominant plant species in each vegetation layer occurring in the immediate vicinity of the observation point. Use a 5-ft radius for herbs and saplings/shrubs, and a 30-ft radius for trees and woody vines (when present). Subjectively determine the dominant species by estimating those having the largest relative basal area[1] (woody overstory), greatest height (woody understory), greatest percentage of areal cover (herbaceous understory), and/or greatest number of stems (woody vines). *NOTE: Plot size may be estimated, and plot size may also be varied when site conditions warrant.* Record on DATA FORM 1 any dominant species observed to have morphological adaptations (Appendix C, Section 3) for occurrence in wetlands, and determine and record dominant species that have known physiological adaptations for occurrence in wetlands (Appendix C, Section 3). Record on DATA FORM 1 the indicator status ~~(Appendix C, Section 1 or 2)~~ of each dominant species. Hydrophytic

[1] This term is used because species having the largest individuals may not be dominant when only a few are present. To use relative basal area, consider both the size and number of individuals of a species and subjectively compare with other species present.

vegetation is present at the observation point when more than 50 percent of the dominant species have an indicator status of OBL, FACW, and/or FAC;[1] when two or more dominant species have observed morphological or known physiological adaptations for occurrence in wetlands; or when other indicators of hydrophytic vegetation (Part III, paragraph 35) are present. Complete the vegetation section of DATA FORM 1. PROCEED TO (2).

(2) *Soils.* In some cases, it is not necessary to characterize the soils. Examine the vegetation of DATA FORM 1. Hydric soils can be assumed to be present when:

(a) All dominant plant species have an indicator status of OBL.

(b) All dominant plant species have an indicator status of OBL and/or FACW (at least one dominant species must be OBL).[2]

When either (a) or (b) applies, check the hydric soils blank as positive and PROCEED TO (3). If neither (a) nor (b) applies but the vegetation qualifies as hydrophytic, dig a soil pit at the observation point using the procedure described in Appendix D, Section 1. Examine the soil immediately below the A-horizon or 10-inches (whichever is shallower) and compare its characteristics (Appendix D, Section 1) with the hydric soil indicators described in Part III, paragraph 44 and/or 45. Record findings on DATA FORM 1. If a positive hydric soil indicator is present, the soil at the observation point is a hydric soil. If no positive hydric soil indicator is found, the area at the observation point does not have hydric soils and the area at the observation point is not a wetland. Complete the soils section of DATA FORM 1 for the observation point. PROCEED TO (3) if hydrophytic vegetation (1) and hydric soils (2) are present. Otherwise, PROCEED TO STEP 20*d*.

(3) *Hydrology*. Examine the observation point for indicators of wetland hydrology (Part III, paragraph 49) and record observations on DATA FORM 1. Consider the indicators in the same sequence as presented in Part III, paragraph 49. If a positive wetland hydrology indicator

[1] For the FAC-neutral option, see paragraph 35*a*.
[2] Soils must be characterized when any dominant species has an indicator status of FAC.

is present, the area at the observation point has wetland hydrology. If no positive wetland hydrologic indicator is present, the area at the observation point is not a wetland. Complete the hydrology section of DATA FORM 1 for the observation point. PROCEED TO STEP 20*d*.

d. *Wetland determination.* Examine DATA FORM 1 for the observation point. Determine whether wetland indicators of all three parameters are or would normally be present during a significant portion of the growing season. If so, the area at the observation point is a wetland. If no evidence can be found that the area at the observation point normally has wetland indicators for all three parameters, the area is a nonwetland. PROCEED TO STEP 20*e*.

e. *Sample other observation points along the first transect.* Continue along the first transect until a different community type is encountered. Establish a representative observation point within this community type and repeat STEP 20*c* and 20*d*. If the areas at both observation points are either wetlands or nonwetlands, continue along the transect and repeat STEP 20*c* and 20*d* for the next community type encountered. Repeat for all other community types along the first transect. If the area at one observation point is wetlands and the next observation point is nonwetlands (or vice versa), PROCEED TO STEP 20*f*.

f. *Determine wetland-nonwetland boundary.* Proceed along the transect from the wetland observation point toward the nonwetland observation point. Look for subtle changes in the plant community (e.g., the first appearance of upland species, disappearance of apparent hydrology indicators, or slight changes in topography). When such features are noted, establish an observation point and repeat the procedures described in STEP 20*c* through 20*d*. *NOTE: A new DATA FORM 1 must be completed for this observation point, and all three parameters must be characterized by field observation.* If the area at this observation point is a wetland, proceed along the transect toward the nonwetland observation point until upland indicators are more apparent. Repeat the procedures described in STEP 20*c* through 20*d*. If the area at this observation point is a nonwetland, move halfway back along the transect toward the last documented wetland observation point and repeat the procedure described in STEP 20*c* through 20*d*. Continue this procedure until the wetland-nonwetland boundary is found. It is not necessary to complete a DATA FORM 1 for all intermediate points, but a DATA FORM 1 should be completed for the wetland-nonwetland boundary. Mark the position of the wetland boundary on the base map, and continue along the first transect until all community types have been sampled and

all wetland boundaries located. *CAUTION: In areas where wetlands are interspersed among nonwetlands (or vice versa), several boundary determinations will be required.* When all necessary wetland determinations have been completed for the first transect, PROCEED TO STEP 21.

- *STEP 21 - Sample other transects.* Repeat procedures described in STEP 21 for all other transects. When completed, a wetland determination will have been made for one observation point in each community type along each transect, and all wetland-nonwetland boundaries along each transect will have been determined. PROCEED TO STEP 22.

- *STEP 22 - Synthesize data.* Examine all completed copies of DATA FORM 1, and mark each plant community type on the base map. Identify each plant community type as either a wetland (W) or nonwetland (N). If all plant community types are identified as wetlands, the entire area is wetlands. If all plant community types are identified as nonwetlands, the entire area is nonwetlands. If both wetlands and nonwetlands are present, identify observation points that represent wetland boundaries on the base map. Connect these points on the map by generally following contour lines to separate wetlands from nonwetlands. Walk the contour line between transects to confirm the wetland boundary. Should anomalies be encountered, it will be necessary to establish short transects in these areas, apply the procedures described in STEP 20*f*, and make any necessary adjustments on the base map.

Subsection 3 - Combination of Levels I and 2

66. In some cases, especially for large projects, adequate information may already be available (Section B) to enable a wetland determination for a portion of the project area, while an onsite visit will be required for the remainder of the area. Since procedures for each situation have already been described in Subsections 1 and 2, they will not be repeated. Apply the following steps:

- *STEP 1 - Make wetland determination for portions of the project area that are already adequately characterized.* Apply procedures described in Subsection 1. When completed, a DATA FORM 1 will have been completed for each community type, and a map will have been prepared identifying each community type as wetland or nonwetland and showing any wetland boundary occurring in this portion of the project area. PROCEED TO STEP 2.

- *STEP 2 - Make wetland determination for portions of the project area that require an onsite visit.* Apply procedures described in Subsection 2. When completed, a DATA FORM 1 will have been completed for each plant community type or for a number of observation points (including

wetland boundary determinations). A map of the wetland (if present) will also be available. PROCEED TO STEP 3.

- *STEP 3 - Synthesize data.* Using the maps resulting from STEPS 1 and 2, prepare a summary map that shows the wetlands of the entire project area. *CAUTION: Wetland boundaries for the two maps will not always match exactly. When this occurs, an additional site visit will be required to refine the wetland boundaries. Since the degree of resolution of wetland boundaries will be greater when determined onsite, it may be necessary to employ procedures described in Subsection 2 in the vicinity of the boundaries determined from Subsection 1 to refine these boundaries.*

Section E. Comprehensive Determinations

67. This section describes procedures for making comprehensive wetland determinations. Unlike procedures for making routine determinations (Section D), application of procedures described in this section will result in maximum information for use in making determinations, and the information usually will be quantitatively expressed. Comprehensive determinations should only be used when the project area is very complex and/or when the determination requires rigorous documentation. This type of determination may be required in areas of any size, but will be especially useful in large areas. There may be instances in which only one parameter (vegetation, soil, or hydrology) is disputed. In such cases, only procedures described in this section that pertain to the disputed parameter need be completed. It is assumed that the user has already completed all applicable steps in Section B. *NOTE: Depending on site characteristics, it may be necessary to alter the sampling design and/or data collection procedures.*

68. This section is divided into five basic types of activities. The first consists of preliminary field activities that must be completed prior to making a determination (STEPS 1 through 5). The second outlines procedures for determining the number and locations of required determinations (STEPS 6 through 8). The third describes the basic procedure for making a comprehensive wetland determination at any given point (STEPS 9 through 17). The fourth describes a procedure for determining wetland boundaries (STEP 18). The fifth describes a procedure for synthesizing the collected data to determine the extent of wetlands in the area (STEPS 20 and 21). A flowchart showing the relationship of various steps required for making a comprehensive determination is presented in Figure 16.

Equipment and materials

69. Equipment and materials needed for making a comprehensive determination include:

a. Base map (Section B, STEP 2).

b. Copies of DATA FORMS 1 and 2.

c. Appendices C and D.

d. Compass.

e. Tape (300 ft).

f. Soil auger or spade.

g. Munsell Color Charts (Munsell Color 1975).

h. Quadrat (3.28 ft by 3.28 ft).

i. Diameter or basal area tape (for woody overstory).

Field procedures

70. Complete the following steps:

- *STEP 1 - Identify the project area.* Using information from the USGS quadrangle or other appropriate map (Section B), locate and measure the spatial boundaries of the project area. Determine the compass heading of each boundary and record on the base map (Section B, STEP 2). The applicant's survey plan may be helpful in locating the project boundaries. PROCEED TO STEP 2.

- *STEP 2 - Determine whether an atypical situation exists.* Examine the area and determine whether there is sufficient natural or human-induced alteration to significantly change the area vegetation, soils, and/or hydrology. If not, PROCEED TO STEP 3. If one or more parameters have been recently altered significantly, PROCEED TO Section F and determine whether there is sufficient evidence that hydrophytic vegetation, hydric soils, and/or wetland hydrology were present on the area prior to alteration. Then return to this section and characterize parameters not significantly influenced by human activities. PROCEED TO STEP 3.

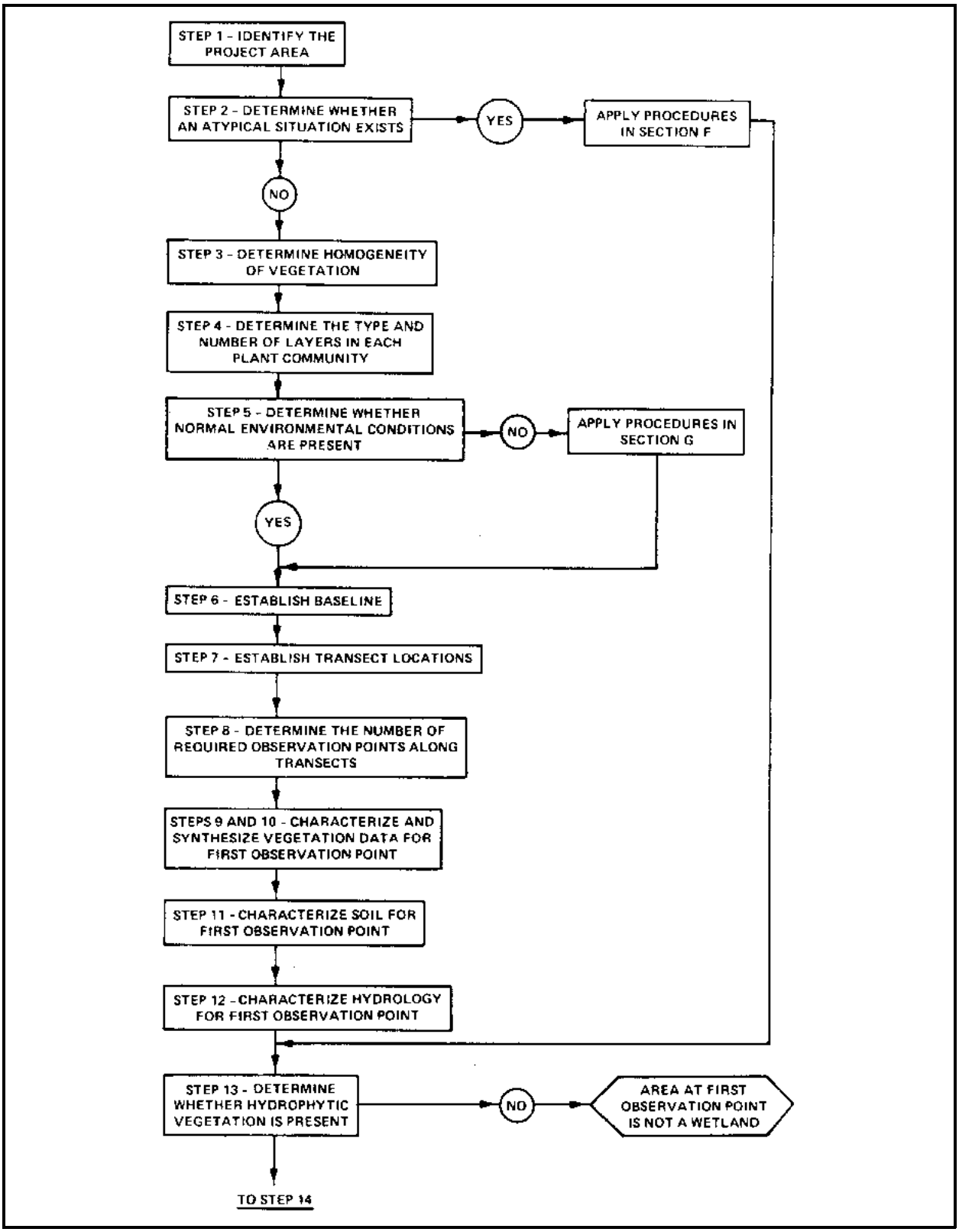

Figure 16. Flowchart of steps involved in making a comprehensive wetland determination (Section E) (Continued)

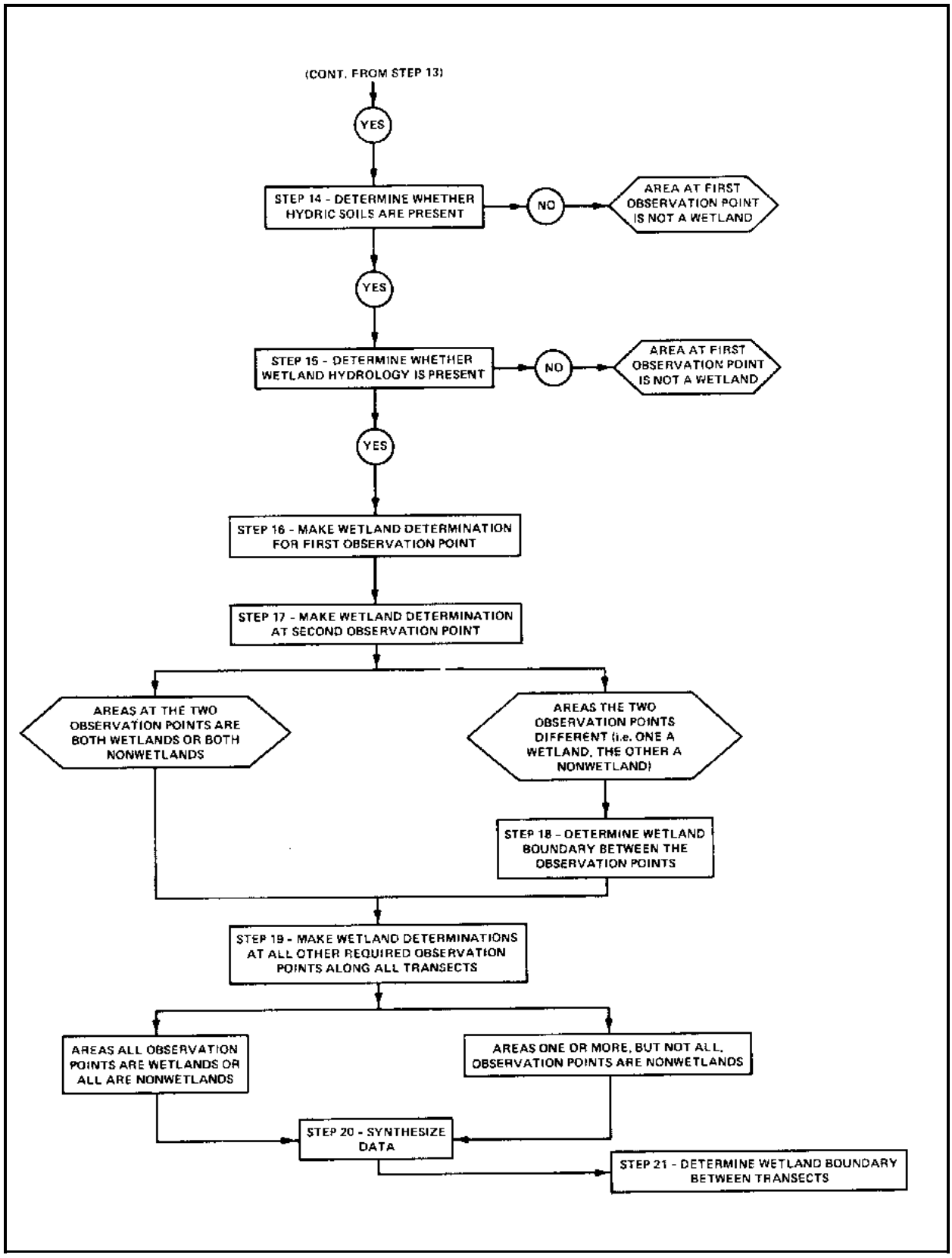

Figure 16. (Concluded)

- *STEP 3 - Determine homogeneity of vegetation.* While completing STEP 2, determine the number of plant community types present. Mark the approximate location of each community type on the base map. The number and locations of required wetland determinations will be strongly influenced by both the size of the area and the number and distribution of plant community types; the larger the area and greater the number of plant community types, the greater the number of required wetland determinations. It is imperative that all plant community types occurring in all portions of the area be included in the investigation. PROCEED TO STEP 4.

- *STEP 4 - Determine the type and number of layers in each plant community.* Examine each identified plant community type and determine the type(s) and number of layers in each community. Potential layers include trees (woody overstory), saplings/shrubs (woody understory), herbs (herbaceous understory), and/or woody vines. PROCEED TO STEP 5.

- *STEP 5 - Determine whether normal environmental conditions are present.* Determine whether normal environmental conditions are present at the observation point by considering the following:

    a. Is the area at the observation point presently lacking hydrophytic vegetation and/or hydrologic indicators due to annual or seasonal fluctuations in precipitation or groundwater levels?

    b. Are hydrophytic vegetation indicators lacking due to seasonal fluctuations in temperature?

    If the answer to either of these questions is thought to be YES, PROCEED TO Section G. If the answer to both questions is NO, PROCEED TO STEP 6.

- *STEP 6 - Establish a baseline.* Select one project boundary area as a baseline. The baseline should extend parallel to any major watercourse and/or perpendicular to a topographic gradient (see Figure 17). Determine the baseline length and record on the base map both the baseline length and its compass heading. PROCEED TO STEP 7.

- *STEP 7 - Establish transect locations.* Divide the baseline into a number of equal segments (Figure 17). Use the following as a guide to determine the appropriate number of baseline segments:

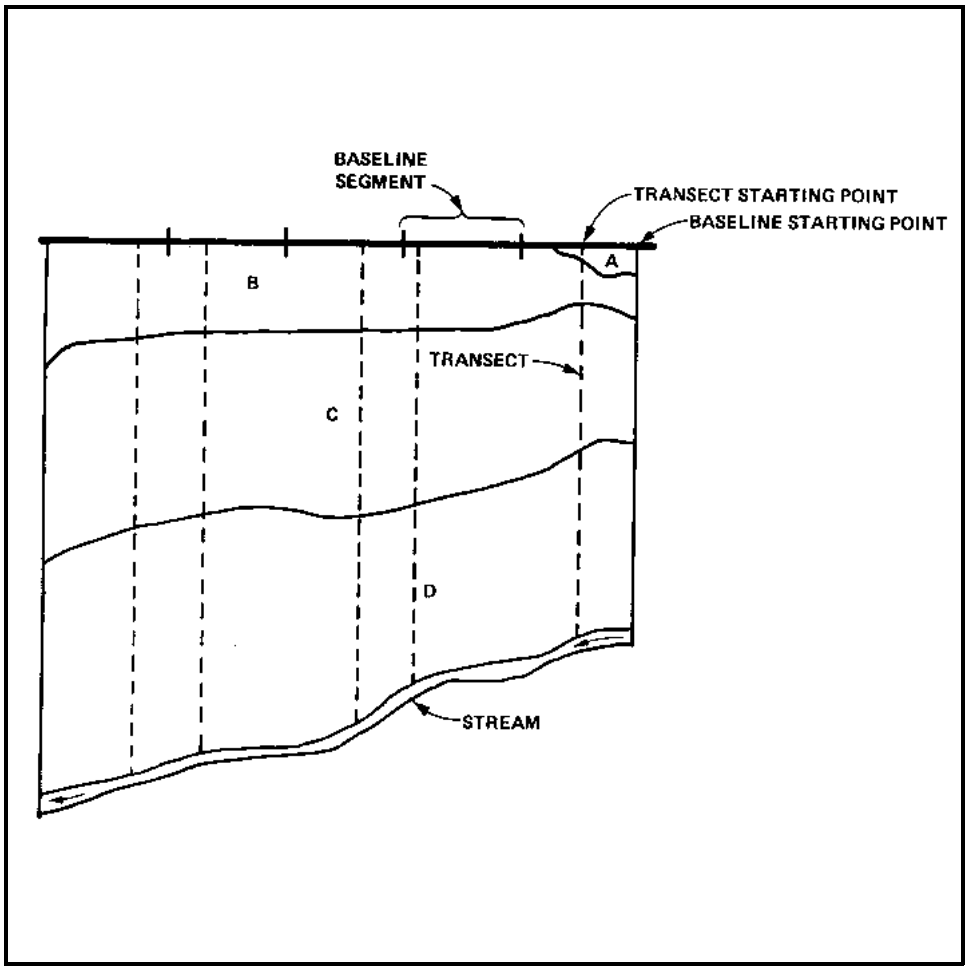

Figure 17. General orientation of baseline and transects in a hypothetical project area. Alpha characters represent different plant communities. Transect positions were determined using a random numbers table

Baseline Length, ft	Number of Segments	Length of Baseline Segment, ft
>50 - 500	3	18 - 167
>500 - 1,000	3	167 - 333
>1,000 - 5,000	5	200 - 1,000
>5,000 - 10,000	7	700 - 1,400
>10,000[1]	Variable	2,000

[1] If the baseline exceeds 5 miles, baseline segments should be 0.5 mile in length.

Use a random numbers table or a calculator with a random numbers generation feature to determine the position of a transect starting point within each baseline segment. For example, when the baseline is 4,000 ft, the number of baseline segments will be five, and the baseline segment length will be 4,000/5 = 800 ft. Locate the first transect within the first 800 ft of the baseline. If the random numbers table yields 264 as the

distance from the baseline starting point, measure 264 ft from the baseline starting point and establish the starting point of the first transect. If the second random number selected is 530, the starting point of the second transect will be located at a distance of 1,330 ft (800 + 530 ft) from the baseline starting point. *CAUTION: Make sure that each plant community type is included in at least one transect. If not, modify the sampling design accordingly.* When the starting point locations for all required transects have been determined, PROCEED TO STEP 8.

- *STEP 8 - Determine the number of required observation points along transects.* The number of required observation points along each transect will be largely dependent on transect length. Establish observation points along each transect using the following as a guide:

Transect Length, ft	Number of Observation Points	Interval Between Observation Points, ft
<1,000	2-10	100
1,000 - <5,000	10	100 - 500
5,000 - <10,000	10	500 - 1,000
≥ 10,000	>10	1,000

Establish the first observation point at a distance of 50 ft from the baseline (Figure 17). When obvious nonwetlands occupy a long portion of the transect from the baseline starting point, establish the first observation point in the obvious nonwetland at a distance of approximately 300 ft from the point that the obvious nonwetland begins to intergrade into a potential wetland community type. Additional observation points must also be established to determine the wetland boundary between successive regular observation points when one of the points is a wetland and the other is a nonwetland. *CAUTION: In large areas having a mosaic of plant community types, several wetland boundaries may occur along the same transect.* PROCEED TO STEP 9 and apply the comprehensive wetland determination procedure at each required observation point. Use the described procedure to simultaneously characterize the vegetation, soil, and hydrology at each required observation point along each transect, and use the resulting characterization to make a wetland determination at each point. *NOTE: ALL required wetland boundary determinations should be made while proceeding along a transect.*

- *STEP 9 - Characterize the vegetation at the first observation point along the first transect.*[1] Record on DATA FORM 2 the vegetation occurring

[1] There is no single best procedure for characterizing vegetation. Methods described in STEP 9 afford standardization of the procedure. However, plot size and descriptors for determining dominance may vary.

at the first observation point along the first transect by completing the following (as appropriate):

a. *Trees.* Identify each tree occurring within a 30-ft radius[1] of the observation point, measure its basal area (square inches) or diameter at breast height (DBH) using a basal area tape or diameter tape, respectively, and record. *NOTE: If DBH is measured, convert values to basal area by applying the formula* $A = \pi r^2$. *This must be done on an individual basis.* A tree is any nonclimbing, woody plant that has a DBH of ≥ 3.0 in., regardless of height.

b. *Saplings/shrubs.* Identify each sapling/shrub occurring within a 10-ft radius of the observation point, estimate its height, and record the midpoint of its class range using the following height classes (height is used as an indication of dominance; taller individuals exert a greater influence on the plant community):

Height Class	Height Class Range, ft	Midpoint of Range, ft
1	1-3	2
2	3-5	4
3	5-7	6
4	7-9	8
5	9-11	10
6	>11	12

A sapling/shrub is any woody plant having a height >3.2 ft but a stem diameter of <3.0 in., exclusive of woody vines.

c. *Herbs.* Place a 3.28- by 3.28-ft quadrat with one corner touching the observation point and one edge adjacent to the transect line. As an alternative, a 1.64-ft-radius plot with the center of the plot representing the observation point position may be used. Identify each plant species with foliage extending into the quadrat and estimate its percent cover by applying the following cover classes:

[1] A larger sampling plot may be necessary when trees are large and widely spaced.

Cover Class	Class Range, Percent	Midpoint of Class Range, Percent
1	0-5	2.5
2	>5-25	15.0
3	>25-50	37.5
4	>50-75	62.5
5	>75-95	85.0
6	>95-100	97.5

Include all nonwoody plants and woody plants <3.2 ft in height. *NOTE: Total percent cover for all species will often exceed 100 percent.*

d. *Woody vines (lianas).* Identify species of woody vines climbing each tree and sapling/shrub sampled in STEPS 9*a* and 9*b* above, and record the number of stems of each. Since many woody vines branch profusely, count or estimate the number of stems at the ground surface. Include only individuals rooted in the 10-ft radius plot. Do not include individuals <3.2 ft in height. PROCEED TO STEP 10.

- *STEP 10 - Analyze field vegetation data.* Examine the vegetation data (STEP 9) and determine the dominant species in each vegetation layer[1] by completing the following:

a. *Trees.* Obtain the total basal area (square inches) for each tree species identified in STEP 9*a* by summing the basal area of all individuals of a species found in the sample plot. Rank the species in descending order of dominance based on total basal area. Complete DATA FORM 2 for the tree layer.

b. *Saplings/shrubs.* Obtain the total height for each sapling/shrub species identified in STEP 9*b*. Total height, which is an estimate of dominance, is obtained by summing the midpoints of height classes for all individuals of a species found in the sample plot. Rank the species in descending order of dominance based on sums of midpoints of height class ranges. Complete DATA FORM 2 for the sapling/shrub layer.

c. *Herbs.* Obtain the total cover for each herbaceous and woody seedling species identified in STEP 9*c*. Total cover is obtained by using the midpoints of the cover class range as-

[1] The same species may occur as a dominant in more than one vegetation layer.

signed to each species (only one estimate of cover is made for a species in a given plot). Rank herbs and woody seedlings in descending order of dominance based on percent cover. Complete DATA FORM 2 for the herbaceous layer.

d. *Woody vines (lianas).* Obtain the total number of individuals of each species of woody vine identified in STEP 9*d*. Rank the species in descending order of dominance based on number of stems. Complete DATA FORM 2 for the woody vine layer. PROCEED TO STEP 11.

- *STEP 11 - Characterize soil.* If a soil survey is available (Section B), the soil type may already be known. Have a soil scientist confirm that the soil type is correct, and determine whether the soil series is a hydric soil ~~(Appendix D, Section 2)~~. *CAUTION: Mapping units on soil surveys sometimes have inclusions of soil series or phases not shown on the soil survey map.* If a hydric soil type is confirmed, record on DATA FORM 1 and PROCEED TO STEP 12. If not, dig a soil pit using a soil auger or spade (See Appendix D, Section 1) and look for indicators of hydric soils immediately below the A-horizon or 10 inches (whichever is shallower) (Part III, paragraphs 44 and/or 45). Record findings on DATA FORM 1. PROCEED TO STEP 12.

- *STEP 12 - Characterize hydrology.* Examine the observation point for indicators of wetland hydrology (Part III, paragraph 49) and record observations on DATA FORM 1. Consider indicators in the same sequence as listed in paragraph 49. PROCEED TO STEP 13.

- *STEP 13 - Determine whether hydrophytic vegetation is present.* Record the three dominant species from each vegetation layer (five species if only one or two layers are present) on DATA FORM 1.[1] Determine whether these species occur in wetlands by considering the following:

  a. *More than 50 percent of the dominant plant species are OBL, FACW, and/or FAC[2] on lists of plant species that occur in wetlands.* Record the indicator status of all dominant species ~~(Appendix C, Section 1 or 2)~~ on DATA FORM 1. Hydrophytic vegetation is present when the majority of the dominant species have an indicator status of OBL, FACW, or FAC. *CAUTION: Not necessarily all plant communities composed of only FAC species are hydrophytic communities. They are hydrophytic communities only when positive indicators of hydric soils and wetland hydrology are also found.* If this indicator is satisfied, complete the vegetation portion of

[1] Record all dominant species when less than three are present in a vegetation layer.
[2] For the FAC-neutral option, see paragraph 35*a*.

DATA FORM 1 and PROCEED TO STEP 14. If not, consider other indicators of hydrophytic vegetation.

b. *Presence of adaptations for occurrence in wetlands.* Do any of the species listed on DATA FORM 1 have observed morphological or known physiological adaptations (Appendix C, Section 3) for occurrence in wetlands? If so, record species having such adaptations on DATA FORM 1. When two or more dominant species have observed morphological adaptations or known physiological adaptations for occurrence in wetlands, hydrophytic vegetation is present. If so, complete the vegetation portion of DATA FORM 1 and PROCEED TO STEP 14. If not, consider other indicators of hydrophytic vegetation.

c. *Other indicators of hydrophytic vegetation.* Consider other indicators (see Part III, paragraph 35) that the species listed on DATA FORM 1 are commonly found in wetlands. If so, complete the vegetation portion of DATA FORM 1 by recording sources of supporting information, and PROCEED TO STEP 14. If no indicator of hydrophytic vegetation is present, the area at the observation point is not a wetland. In such cases, it is unnecessary to consider soil and hydrology at that observation point. PROCEED TO STEP 17.

- *STEP 14 - Determine whether hydric soils are present.* Examine DATA FORM 1 and determine whether any indicator of hydric soils is present. If so, complete the soils portion of DATA FORM 1 and PROCEED TO STEP 15. If not, the area at the observation point is not a wetland. PROCEED TO STEP 17.

- *STEP 15 - Determine whether wetland hydrology is present.* Examine DATA FORM 1 and determine whether any indicator of wetland hydrology is present. Complete the hydrology portion of DATA FORM 1 and PROCEED TO STEP 16.

- *STEP 16 - Make wetland determination.* When the area at the observation point presently or normally has wetland indicators of all three parameters, it is a wetland. When the area at the observation point presently or normally lacks wetland indicators of one or more parameters, it is a nonwetland. PROCEED TO STEP 17.

- *STEP 17 - Make wetland determination at second observation point.* Locate the second observation point along the first transect and make a wetland determination by repeating procedures described in STEPS 9 through 16. When the area at the second observation point is the same as the area at the first observation point (i.e., both wetlands or both nonwetlands), PROCEED TO STEP 19. When the areas at the two ob-

servation points are different (i.e., one wetlands, the other nonwetlands), PROCEED TO STEP 18.

- *STEP 18 - Determine the wetland boundary between observation points.* Determine the position of the wetland boundary by applying the following procedure:

    a. Look for a change in vegetation or topography. *NOTE: The changes may sometimes be very subtle.* If a change is noted, establish an observation point and repeat STEPS 9 through 16. Complete a DATA FORM 1. If the area at this point is a wetland, proceed toward the nonwetland observation point until a more obvious change in vegetation or topography is noted and repeat the procedure. If there is no obvious change, establish the next observation point approximately halfway between the last observation point and the nonwetland observation point and repeat STEPS 9 through 16.

    b. Make as many additional wetland determinations as necessary to find the wetland boundary. *NOTE: The completed DATA FORM 1's for the original two observation points often will provide a clue as to the parameters that change between the two points.*

    c. When the wetland boundary is found, mark the boundary location on the base map and indicate on the DATA FORM 1 that this represents a wetland boundary. Record the distance of the boundary from one of the two regular observation points. Since the regular observation points represent known distances from the baseline, it will be possible to accurately pinpoint the boundary location on the base map. PROCEED TO STEP 19.

- *STEP 19 - Make wetland determinations at all other required observation points along all transects.* Continue to locate and sample all required observation points along all transects. *NOTE: The procedure described in STEP 18 must be applied at every position where a wetland boundary occurs between successive observation points.* Complete a DATA FORM 1 for each observation point and PROCEED TO STEP 20.

- *STEP 20 - Synthesize data to determine the portion of the area containing wetlands.* Examine all completed copies of DATA FORM 1 (STEP 19), and mark on a copy of the base map the locations of all observation points that are wetlands with a W and all observation points that are nonwetlands with an N. Also, mark all wetland boundaries occurring along transects with an X. If all the observation points are wetlands, the entire area is wetlands. If all observation points are nonwetlands, none of the area is wetlands. If some wetlands and some nonwetlands are present, connect the wetland boundaries (X) by following contour lines between transects. *CAUTION: If the determination is considered to be*

highly controversial, it may be necessary to be more precise in determining the wetland boundary between transects. This is also true for very large areas where the distance between transects is greater. If this is necessary, PROCEED TO STEP 21.

- *STEP 21 - Determine wetland boundary between transects.* Two procedures may be used to determine the wetland boundary between transects, both of which involve surveying:

    a. *Survey contour from wetland boundary along transects.* The first method involves surveying the elevation of the wetland boundaries along transects and then extending the survey to determine the same contour between transects. This procedure will be adequate in areas where there is no significant elevational change between transects. However, if a significant elevational change occurs between transects, either the surveyor must adjust elevational readings to accommodate such changes or the second method must be used. *NOTE: The surveyed wetland boundary must be examined to ensure that no anomalies exist. If these occur, additional wetland determinations will be required in the portion of the area where the anomalies occur, and the wetland boundary must be adjusted accordingly.*

    b. *Additional wetland determinations between transects.* This procedure consists of traversing the area between transects and making additional wetland determinations to locate the wetland boundary at sufficiently close intervals (not necessarily standard intervals) so that the area can be surveyed. Place surveyor flags at each wetland boundary location. Enlist a surveyor to survey the points between transects. From the resulting survey data, produce a map that separates wetlands from nonwetlands.

Section F. Atypical Situations

71. Methods described in this section should be used only when a determination has already been made in Section D or E that positive indicators of hydrophytic vegetation, hydric soils, and/or wetland hydrology could not be found due to effects of recent human activities or natural events. This section is applicable to delineations made in the following types of situations:

a. *Unauthorized activities.* Unauthorized discharges requiring enforcement actions may result in removal or covering of indicators of one or more wetland parameters. Examples include, but are not limited to: (1) alteration or removal of vegetation; (2) placement of dredged or fill material over hydric soils; and/or (3) construction of levees, drainage systems, or

dams that significantly alter the area hydrology. NOTE: This section should not be used for activities that have been previously authorized or those that are exempted from CE regulation. For example, this section is not applicable to areas that have been drained under CE authorization or that did not require CE authorization. Some of these areas may still be wetlands, but procedures described in Section D or E must be used in these cases.

b. *Natural events.* Naturally occurring events may result in either creation or alteration of wetlands. For example, recent beaver dams may impound water, thereby resulting in a shift of hydrology and vegetation to wetlands. However, hydric soil indicators may not have developed due to insufficient time having passed to allow their development. Fire, avalanches, volcanic activity, and changing river courses are other examples. *NOTE: It is necessary to determine whether alterations to an area have resulted in changes that are now the "normal circumstances."* The relative permanence of the change and whether the area is now functioning as a wetland must be considered.

c. *Man-induced wetlands.* Procedures described in Subsection 4 are for use in delineating wetlands that have been purposely or incidentally created by human activities, but in which wetland indicators of one or more parameters are absent. For example, road construction may have resulted in impoundment of water in an area that previously was nonwetland, thereby effecting hydrophytic vegetation and wetland hydrology in the area. However, the area may lack hydric soil indicators. *NOTE: Subsection D is not intended to bring into CE jurisdiction those manmade wetlands that are exempted under CE regulations or policy.* It is also important to consider whether the man-induced changes are now the "normal circumstances" for the area. Both the relative permanence of the change and the functioning of the area as a wetland are implied.

72. When any of the three types of situations described in paragraph 71 occurs, application of methods described in Sections D and/or E will lead to the conclusion that the area is not a wetland because positive wetland indicators for at least one of the three parameters will be absent. Therefore, apply procedures described in one of the following subsections (as appropriate) to determine whether positive indicators of hydrophytic vegetation, hydric soils, and/or wetland hydrology existed prior to alteration of the area. Once these procedures have been employed, RETURN TO Section D or E to make a wetland determination. PROCEED TO the appropriate subsection.

Subsection 1 - Vegetation

73. Employ the following steps to determine whether hydrophytic vegetation previously occurred:

- *STEP 1 - Describe the type of alteration.* Examine the area and describe the type of alteration that occurred. Look for evidence of selective harvesting, clear cutting, bulldozing, recent conversion to agriculture, or other activities (e.g., burning, discing, or presence of buildings, dams, levees, roads, parking lots, etc.). Determine the approximate date[1] when the alteration occurred. Record observations on DATA FORM 3, and PROCEED TO STEP 2.

- *STEP 2 - Describe effects on vegetation.* Record on DATA FORM 3 a general description of how the activities (STEP 1) have affected the plant communities. Consider the following:

    a. Has all or a portion of the area been cleared of vegetation?

    b. Has only one layer of the plant community (e.g., trees) been removed?

    c. Has selective harvesting resulted in removal of some species?

    d. Has all vegetation been covered by fill, dredged material, or structures?

    e. Have increased water levels resulted in the death of some individuals?

    PROCEED TO STEP 3.

- *STEP 3 - Determine the type of vegetation that previously occurred.* Obtain all possible evidence of the type of plant communities that occurred in the area prior to alteration. Potential sources of such evidence include:

    a. *Aerial photography*. Recent (within 5 years) aerial photography can often be used to document the type of previous vegetation. The general type of plant communities formerly present can usually be determined, and species identification is sometimes possible.

    b. *Onsite inspection.* Many types of activities result in only partial removal of the previous plant communities, and remaining species may be indicative of hydrophytic vegetation. In other cases, plant fragments (e.g., stumps, roots) may be used to reconstruct the plant community types that occurred prior to site alteration. Sometimes, this can be determined by examining piles of debris resulting from land-clearing opera-

[1] It is especially important to determine whether the alteration occurred prior to implementation of Section 404.

tions or excavation to uncover identifiable remains of the previous plant community.

c. *Previous site inspections.* Documented evidence from previous inspections of the area may describe the previous plant communities, particularly in cases where the area was altered after a permit application was denied.

d. *Adjacent vegetation.* Circumstantial evidence of the type of plant communities that previously occurred may sometimes be obtained by examining the vegetation in adjacent areas. If adjacent areas have the same topographic position, soils, and hydrology as the altered area, the plant community types on the altered area were probably similar to those of the adjacent areas.

e. *SCS records.* Most SCS soil surveys include a description of the plant community types associated with each soil type. If the soil type on the altered area can be determined, it may be possible to generally determine the type of plant communities that previously occurred.

f. *Permit applicant.* In some cases, the permit applicant may provide important information about the type of plant communities that occurred prior to alteration.

g. *Public.* Individuals familiar with the area may provide a good general description of the previously occurring plant communities.

h. *NWI wetland maps.* The NWI has developed wetland type maps for many areas. These may be useful in determining the type of plant communities that occurred prior to alteration.

To develop the strongest possible record, all of the above sources should be considered. If the plant community types that occurred prior to alteration can be determined, record them on DATA FORM 3 and also record the basis used for the determination. PROCEED TO STEP 4. If it is impossible to determine the plant community types that occurred on the area prior to alteration, a determination cannot be made using all three parameters. In such cases, the determination must be based on the other two parameters. PROCEED TO Subsection 2 or 3 if one of the other parameters has been altered, or return to the appropriate Subsection of Section D or to Section E, as appropriate.

- *STEP 4 - Determine whether plant community types constitute hydrophytic vegetation.* Develop a list of species that previously occurred on the site (DATA FORM 3). Subject the species list to applicable indicators of hydrophytic vegetation (Part III, paragraph 35). If none of the

indicators are met, the plant communities that previously occurred did not constitute hydrophytic vegetation. If hydrophytic vegetation was present and no other parameter was in question, record appropriate data on the vegetation portion of DATA FORM 3, and return to either the appropriate subsection of Section D or to Section E. If either of the other parameters was also in question, PROCEED TO Subsection 2 or 3.

Subsection 2 - Soils

74. Employ the following steps to determine whether hydric soils previously occurred:

- *STEP 1 - Describe the type of alteration.* Examine the area and describe the type of alteration that occurred. Look for evidence of:

    a. *Deposition of dredged or fill material or natural sedimentation.* In many cases the presence of fill material will be obvious. If so, it will be necessary to dig a hole to reach the original soil (sometimes several feet deep). Fill material will usually be a different color or texture than the original soil (except when fill material has been obtained from like areas onsite). Look for decomposing vegetation between soil layers and the presence of buried organic or hydric soil layers. In accreting or recently formed sandbars in riverine situations, the soils may support hydrophytic vegetation but lack hydric soil characteristics.

    b. *Presence of nonwoody debris at the surface.* This can only be applied in areas where the original soils do not contain rocks. Nonwoody debris includes items such as rocks, bricks, and concrete fragments.

    c. *Subsurface plowing.* Has the area recently been plowed below the A-horizon or to depths of greater than 10 in.?

    d. *Removal of surface layers.* Has the surface soil layer been removed by scraping or natural landslides? Look for bare soil surfaces with exposed plant roots or scrape scars on the surface.

    e. *Presence of man-made structures.* Are buildings, dams, levees, roads, or parking lots present?

Determine the approximate date[1] when the alteration occurred. This may require checking aerial photography, examining building permits, etc. Record on DATA FORM 3, and PROCEED TO STEP 2.

- *STEP 2 - Describe effects on soils.* Record on DATA FORM 3 a general description of how identified activities in STEP 1 have affected the soils. Consider the following:

    a. Has the soil been buried? If so, record the depth of fill and determine whether the original soil is intact.

    b. Has the soil been mixed at a depth below the A-horizon or 10 inches? If so, it will be necessary to examine soil at a depth immediately below the plowed zone. Record supporting evidence.

    c. Has the soil been sufficiently altered to change the soil phase? Describe these changes.

    PROCEED TO STEP 3.

- *STEP 3 - Characterize soils that previously occurred.* Obtain all possible evidence that may be used to characterize soils that previously occurred on the area. Consider the following potential sources of information:

    a. Soil surveys. In many cases, recent soil surveys will be available. If so, determine the soil series that were mapped for the area, and compare these soil series with the list of hydric soils ~~(Appendix D, Section 2)~~. If all soil series are listed as hydric soils, the entire area had hydric soils prior to alteration.

    b. Characterization of buried soils. When fill material has been placed over the original soil without physically disturbing the soil, examine and characterize the buried soils. To accomplish this, dig a hole through the fill material until the original soil is encountered. Determine the point at which the original soil material begins. Remove 12 inches of the original soil from the hole and look for indicators of hydric soils (Part III, paragraphs 44 and/or 45) immediately below the A-horizon or 10 inches (whichever is shallower). Record on DATA FORM 3 the color of the soil matrix, presence of an organic layer, presence of mottles or gleying, and/or presence of iron and manganese concretions. If the original soil is mottled and the

[1] It is especially important to determine whether the alteration occurred prior to implementation of Section 404.

chroma of the soil matrix is 2 or less,[1] a hydric soil was formerly present on the site. If any of these indicators are found, the original soil was a hydric soil. *(NOTE: When the fill material is a thick layer, it might be necessary to use a backhoe or posthole digger to excavate the soil pit.)* If USGS quadrangle maps indicate distinct variation in area topography, this procedure must be applied in each portion of the area that originally had a different surface elevation. Record findings on DATA FORM 3.

c. *Characterization of plowed soils.* Determine the depth to which the soil has been disturbed by plowing. Look for hydric soil characteristics (Part III, paragraphs 44 and/or 45) immediately below this depth. Record findings on DATA FORM 3.

d. *Removal of surface layers.* Dig a hole (Appendix D, Section 1) and determine whether the entire surface layer (A-horizon) has been removed. If so, examine the soil immediately below the top of the subsurface layer (B-horizon) for hydric soil characteristics. As an alternative, examine an undisturbed soil of the same soil series occurring in the same topographic position in an immediately adjacent area that has not been altered. Look for hydric soil indicators immediately below the A-horizon or 10 inches (whichever is shallower), and record findings on DATA FORM 3.

If sufficient data on soils that existed prior to alteration can be obtained to determine whether a hydric soil was present, PROCEED TO STEP 4. If not, a determination cannot be made using soils. Use the other parameters (Subsections 1 and 3) for the determination.

- *STEP 4 - Determine whether hydric soils were formerly present.* Examine the available data and determine whether indicators of hydric soils (Part III, paragraphs 44 and/or 45) were formerly present. If no indicators of hydric soils were found, the original soils were not hydric soils. If indicators of hydric soils were found, record the appropriate indicators on DATA FORM 3 and PROCEED TO Subsection 3 if the hydrology of the area has been significantly altered or return either to the appropriate subsection of Section D or to Section E and characterize the area hydrology.

[1] The matrix chroma must be 1 or less if no mottles are present. The soil must be moist when colors are determined.

Subsection 3 - Hydrology

75. Apply the following steps to determine whether wetland hydrology previously occurred:

- *STEP 1 - Describe the type of alteration.* Examine the area and describe the type of alteration that occurred. Look for evidence of:

    a. *Dams.* Has recent construction of a dam or some natural event (e.g., beaver activity or landslide) caused the area to become increasingly wetter or drier? *NOTE: This activity could have occurred a considerable distance away from the site in question.*

    b. *Levees, dikes, and similar structures.* Have levees or dikes recently been constructed that prevent the area from becoming periodically inundated by overbank flooding?

    c. *Ditching.* Have ditches been constructed recently that cause the area to drain more rapidly following inundation?

    d. *Filling of channels or depressions (land-leveling).* Have natural channels or depressions been recently filled?

    e. *Diversion of water.* Has an upstream drainage pattern been altered that results in water being diverted from the area?

    f. *Ground-water extraction.* Has prolonged and intensive pumping of ground water for irrigation or other purposes significantly lowered the water table and/or altered drainage patterns?

    g. *Channelization.* Have feeder streams recently been channelized sufficiently to alter the frequency and/or duration of inundation?

    Determine the approximate date[1] when the alteration occurred. Record observations on DATA FORM 3 and PROCEED TO STEP 2.

- *STEP 2 - Describe effects of alteration on area hydrology.* Record on DATA FORM 3 a general description of how the observed alteration (STEP 1) has affected the area. Consider the following:

    a. Is the area more frequently or less frequently inundated than prior to alteration? To what degree and why?

[1] It is especially important to determine whether the alteration occurred prior to implementation of Section 404.

b. Is the duration of inundation and soil saturation different than prior to alteration? How much different and why?

PROCEED TO STEP 3.

- *STEP 3 - Characterize the hydrology that previously existed in the area.* Obtain all possible evidence that may be used to characterize the hydrology that previously occurred. Potential sources of information include:

  a. *Stream or tidal gage data.* If a stream or tidal gaging station is located near the area, it may be possible to calculate elevations representing the upper limit of wetlands hydrology based on duration of inundation. Consult hydrologists from the local CE District Office for assistance. The resulting mean sea level elevation will represent the upper limit of inundation for the area in the absence of any alteration. If fill material has not been placed on the area, survey this elevation from the nearest USGS benchmark. Record elevations representing zone boundaries on DATA FORM 3. If fill material has been placed on the area, compare the calculated elevation with elevations shown on a USGS quadrangle or any other survey map that predated site alteration.

  b. *Field hydrologic indicators.* Certain field indicators of wetland hydrology (Part III, paragraph 49) may still be present. Look for watermarks on trees or other structures, drift lines, and debris deposits. Record these on DATA FORM 3. If adjacent undisturbed areas are in the same topographic position and are similarly influenced by the same sources of inundation, look for wetland indicators in these areas.

  c. *Aerial photography.* Examine any available aerial photography and determine whether the area was inundated at the time of the photographic mission. Consider the time of the year that the aerial photography was taken and use only photography taken during the growing season and prior to site alteration.

  d. *Historical records.* Examine any available historical records for evidence that the area has been periodically inundated. Obtain copies of any such information and record findings on DATA FORM 3.

  e. *Floodplain management maps.* Determine the previous frequency of inundation of the area from Floodplain Management Maps (if available). Record flood frequency on DATA FORM 3.

f. *Public or local government officials.* Contact individuals who might have knowledge that the area was periodically inundated.

If sufficient data on hydrology that existed prior to site alteration can be obtained to determine whether wetland hydrology was previously present, PROCEED TO STEP 4. If not, a determination involving hydrology cannot be made. Use other parameters (Subsections 1 and 2) for the wetland determination. Return to either the appropriate subsection of Section D or to Section E and complete the necessary data forms. PROCEED TO STEP 4 if the previous hydrology can be characterized.

- *STEP 4 - Determine whether wetland hydrology previously occurred.* Examine the available data and determine whether indicators of wetland hydrology (Part III, paragraph 49) were present prior to site alteration. If no indicators of wetland hydrology were found, the original hydrology of the area was not wetland hydrology. If indicators of wetland hydrology were found, record the appropriate indicators on DATA FORM 3 and return either to the appropriate subsection of Section D or to Section E and complete the wetland determination.

Subsection 4 - Man-Induced Wetlands

76. A man-induced wetland is an area that has developed at least some characteristics of naturally occurring wetlands due to either intentional or incidental human activities. Examples of man-induced wetlands include irrigated wetlands, wetlands resulting from impoundment (e.g., reservoir shorelines), wetlands resulting from filling of formerly deepwater habitats, dredged material disposal areas, and wetlands resulting from stream channel realignment. Some man-induced wetlands may be subject to Section 404. In virtually all cases, man-induced wetlands involve a significant change in the hydrologic regime, which may either increase or decrease the wetness of the area. Although wetland indicators of all three parameters (i.e., vegetation, soils, and hydrology) may be found in some man-induced wetlands, indicators of hydric soils are usually absent. Hydric soils require long periods (hundreds of years) for development of wetness characteristics, and most man-induced wetlands have not been in existence for a sufficient period to allow development of hydric soil characteristics. Therefore, application of the multiparameter approach in making wetland determinations in man-induced wetlands must be based on the presence of hydrophytic vegetation and wetland hydrology. [1] There must also be documented evidence that the wetland resulted from human activities. Employ the following steps to determine whether an area consists of wetlands resulting from human activities:

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[1] Uplands that support hydrophytic vegetation due to agricultural irrigation and that have an obvious hydrologic connection to other "waters of the United States" should not be delineated as wetlands under this subsection.

- *STEP 1 - Determine whether the area represents a potential man-induced wetland.* Consider the following questions:

    a. Has a recent man-induced change in hydrology occurred that caused the area to become significantly wetter?

    b. Has a major man-induced change in hydrology that occurred in the past caused a former deepwater aquatic habitat to become significantly drier?

    c. Has man-induced stream channel realignment significantly altered the area hydrology?

    d. Has the area been subjected to long-term irrigation practices?

    If the answer to any of the above questions is YES, document the approximate time during which the change in hydrology occurred, and PROCEED TO STEP 2. If the answer to all of the questions is NO, procedures described in Section D or E must be used.

- *STEP 2 - Determine whether a permit will be needed if the area is found to be a wetland.* Consider the current CE regulations and policy regarding man-induced wetlands. If the type of activity resulting in the area being a potential man-induced wetland is exempted by regulation or policy, no further action is needed. If not exempt, PROCEED TO STEP 3.

- *STEP 3 - Characterize the area vegetation, soils, and hydrology.* Apply procedures described in Section D (routine determinations) or Section E (comprehensive determinations) to the area. Complete the appropriate data forms and PROCEED TO STEP 4.

- *STEP 4 - Wetland determination.* Based on information resulting from STEP 3, determine whether the area is a wetland. When wetland indicators of all three parameters are found, the area is a wetland. When indicators of hydrophytic vegetation and wetland hydrology are found *and* there is documented evidence that the change in hydrology occurred so recently that soils could not have developed hydric characteristics, the area is a wetland. In such cases, it is assumed that the soils are functioning as hydric soils. *CAUTION: If hydrophytic vegetation is being maintained only because of man-induced wetland hydrology that would no longer exist if the activity (e.g., irrigation) were to be terminated, the area should not be considered a wetland.*

Section G - Problem Areas

77. There are certain wetland types and/or conditions that may make application of indicators of one or more parameters difficult, at least at certain times of the year. These are not considered to be atypical situations. Instead, they are wetland types in which wetland indicators of one or more parameters may be periodically lacking due to *normal* seasonal or annual variations in environmental conditions that result from causes other than human activities or catastrophic natural events.

Types of problem areas

78. Representative examples of potential problem areas, types of variations that occur, and their effects on wetland indicators are presented in the following subparagraphs. Similar situations may sometimes occur in other wetland types. *NOTE: This section is not intended to bring nonwetland areas having wetland indicators of two, but not all three, parameters into Section 404 jurisdiction.*

a. *Wetlands on drumlins.* Slope wetlands occur in glaciated areas in which thin soils cover relatively impermeable glacial till or in which layers of glacial till have different hydraulic conditions that produce a broad zone of ground-water seepage. Such areas are seldom, if ever, flooded, but downslope groundwater movement keeps the soils saturated for a sufficient portion of the growing season to produce anaerobic and reducing soil conditions. This fosters development of hydric soil characteristics and selects for hydrophytic vegetation. Indicators of wetland hydrology may be lacking during the drier portion of the growing season.

b. *Seasonal wetlands.* In many regions (especially in western states), depressional areas occur that have wetland indicators of all three parameters during the wetter portion of the growing season, but normally lack wetland indicators of hydrology and/or vegetation during the drier portion of the growing season. Obligate hydrophytes and facultative wetland plant species ~~(Appendix C, Section 1 or 2)~~ normally are dominant during the wetter portion of the growing season, while upland species (annuals) may be dominant during the drier portion of the growing season. These areas may be inundated during the wetter portion of the growing season, but wetland hydrology indicators may be totally lacking during the drier portion of the growing season. It is important to establish that an area truly is a water body. Water in a depression normally must be sufficiently persistent to exhibit an ordinary high-water mark or the presence of wetland characteristics before it can be considered as a water body potentially subject to Clean Water Act jurisdiction. The determination that an area exhibits wetland characteristics for a sufficient portion of the growing season to qualify as a wetland under the Clean Water Act must be made on a case-by-case basis. Such determinations should consider the respective length of time that the area exhibits upland and wetland characteristics, and the manner in which the area fits

into the overall ecological system as a wetland. Evidence concerning the persistence of an area's wetness can be obtained from its history, vegetation, soil, drainage characteristics, uses to which it has been subjected, and weather or hydrologic records.

c. *Prairie potholes.* Prairie potholes normally occur as shallow depressions in glaciated portions of the north-central United States. Many are landlocked, while others have a drainage outlet to streams or other potholes. Most have standing water for much of the growing season in years of normal or above normal precipitation, but are neither inundated nor have saturated soils during most of the growing season in years of below normal precipitation. During dry years, potholes often become incorporated into farming plans, and are either planted to row crops (e.g., soybeans) or are mowed as part of a haying operation. When this occurs, wetland indicators of one or more parameters may be lacking. For example, tillage would eliminate any onsite hydrologic indicator, and would make detection of soil and vegetation indicators much more difficult.

d. *Vegetated flats.* In both coastal and interior areas throughout the Nation, vegetated flats are often dominated by annual species that are categorized as OBL. Application of procedures described in Sections D and E during the growing season will clearly result in a positive wetland determination. However, these areas will appear to be unvegetated mudflats when examined during the nongrowing season, and the area would not qualify at that time as a wetland due to an apparent lack of vegetation.

Wetland determinations in problem areas

79. Procedures for making wetland determinations in problem areas are presented below. Application of these procedures is appropriate only when a decision has been made in Section D or E that wetland indicators of one or more parameters were lacking, probably due to normal seasonal or annual variations in environmental conditions. Specific procedures to be used will vary according to the nature of the area, site conditions, and parameter(s) affected by the variations in environmental conditions. A determination must be based on the best evidence available to the field inspector, including:

a. Available information (Section B).

b. Field data resulting from an onsite inspection.

c. Basic knowledge of the ecology of the particular community type(s) and environmental conditions associated with the community type.

NOTE: The procedures described below should only be applied to parameters not adequately characterized in Section D or E. Complete the following steps:

- *STEP 1 - Identify the parameter(s) to be considered.* Examine the DATA FORM 1 (Section D or E) and identify the parameter(s) that must be given additional consideration. PROCEED TO STEP 2.

- *STEP 2 - Determine the reason for further consideration.* Determine the reason why the parameter(s) identified in STEP 1 should be given further consideration. This will require a consideration and documentation of:

    a. Environmental condition(s) that have impacted the parameter(s).

    b. Impacts of the identified environmental condition(s) on the parameter(s) in question.

  Record findings in the comments section of DATA FORM 1. PROCEED TO STEP 3.

- *STEP 3 - Document available information for parameter(s) in question.* Examine the available information and consider personal ecological knowledge of the range of normal environmental conditions of the area. Local experts (e.g., university personnel) may provide additional information. Record information on DATA FORM 1. PROCEED TO STEP 4.

- *STEP 4 - Determine whether wetland indicators are normally present during a portion of the growing season.* Examine the information resulting from STEP 3 and determine whether wetland indicators are *normally* present during part of the growing season. If so, record on DATA FORM 1 the indicators normally present and return to Section D or Section E and make a wetland determination. If no information can be found that wetland indicators of all three parameters are normally present during part of the growing season, the determination must be made using procedures described in Section D or Section E.

California Wetland and Riparian Area Protection Policy

Technical Advisory Team
Josh Collins, Chair

Technical Memorandum No. 4: Wetland Identification and Delineation

Version 14.2
March 1, 2011

Version 14.2 corrects several minor typographical errors, updates bibliographic citations, and removes an erroneous citation from section 3.3.2

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Technical Advisory Team
California Wetland and Riparian Area Protection Policy
Technical Memorandum No. 4: Wetland Identification and Delineation
March 1, 2011
(minor revisions June 24, 2011)

1.0 Purpose

This is the fourth in a series of technical memoranda developed by the Technical Advisory Team (TAT)[1] for the California Wetland and Riparian Area Protection Policy (WRAPP) Development Team (PDT) of the State Water Resources Control Board (Water Board). The first memorandum describes the TAT, including why and how it was formed, its membership, and its workplan (TAT 2009). The second memorandum recommends a wetland definition (TAT 2010a). The third memorandum describes California wetlands in the watershed context (TAT 2010b).

The purpose of this memorandum is twofold. It describes and recommends a methodology for identifying and delineating wetlands based on the recommended wetland definition (TAT 2010a), and it explains differences between the recommended methodology and that used by the US Army Corps of Engineers (USACE) and US Environmental Protection Agency (USEPA) under Section 404 of the Federal Clean Water Act. It does not include any detailed description of the procedures of any method and it is not a manual for applying the recommended method.

Riparian areas are not addressed in this memorandum. A method for identifying and delineating riparian areas must focus on riparian processes based on field indicators that may or may not be the same as the indicators used for identifying and delineating aquatic areas. A forthcoming TAT technical memorandum will focus on the definition and identification of riparian areas.

The TAT reserves the opportunity to revise its memoranda as necessary to make sure they are consistent with each other, consistent with the current status of relevant science, and that they meet the needs of the PDT for technical information and advice.

2.0 Considerations for Recommending a California Methodology

The TAT emphasizes that the identification and delineation of wetlands and other aquatic areas are technical, fact-based procedures that can be separated from policy-based decisions about either the extent of government jurisdiction or the acceptability of potential actions that may be authorized in these aquatic areas subject to such jurisdiction. Simply stated, the TAT is recommending a methodology to identify and delineate wetland areas without regard for how such areas might be governed or managed.

[1]This technical memorandum was developed by TAT members RC Roberts, RT Huffman, JN Collins, BC Livsey and CN Harvey. Technical review regarding consistency with existing USACE delineation methodology was provided by TAT members AO Allen, Los Angeles District USACE; MC Finan, Sacramento District USACE, and DJ Martel, San Francisco District USACE. The memorandum represents a consensus among TAT members regarding state-of-the-art technical knowledge about wetland delineation methodology, but does not necessarily represent the individual views of any author or reviewer, or the positions of any State or Federal agency.

Pursuant to State Water Board Resolution 2008-0026, the PDT asked the TAT to recommend a wetland definition that would reliably represent the diverse array of California wetlands based on the USACE wetland delineation methodology, to the extent feasible. The TAT has recommended a "three-parameter[2]" wetland definition, based on the same three parameters used by the USACE: vegetation, substrate, and hydrology (TAT 2010a). The recommended Water Board definition is functionally similar to the USACE definition, and the recommended methodology to identify and delineate wetlands is similar to the USACE methodology.

The recommended Water Board methodology uses the three-parameter approach in the following way. In every instance, field conditions are examined with regard to all three parameters. With regard to vegetation, there are two indicators of wetland conditions: either the vegetation cover is dominated by wetland species; or vegetation is absent. If either of these conditions exists, and if the substrate and hydrology indicators of wetland condition are also evident, then the area is determined to be wetland.

The TAT recognizes that the State would benefit from a wetland identification and delineation methodology that is similar to the methodology used by the USACE. The basic USACE methodology (Environmental Laboratory 1987) has been found to be scientifically and legally defensible. As part of its continuing development, the USACE methodology has been augmented recently with two "regional supplements" that together cover all of California, providing additional specific guidance for delineations in arid regions (USACE 2008a), and the more mesic region in the northern mountains, valleys, and coastal regions (USACE 2010). A variety of additional technical materials has been issued by the USACE to assist in interpreting field conditions. Finally, there is a large community of wetland scientists familiar with the USACE methodology, and the TAT expects that this community would more readily understand and adopt a State methodology that, to the extent appropriate, is the same as the USACE methodology.

Clear distinctions must be made between defining, identifying, delineating, and mapping wetland areas. *Defining* wetland areas means providing a written description of the particular conditions of essential parameters for determining whether or not an area is wetland. *Identifying* wetland areas involves the application of the definition. That is, an area is identified as a wetland if it exhibits the wetland condition of the parameters as stated by the definition. Identification is based on field indicators of the wetland conditions. *Delineating* a wetland area involves determining its spatial limits on the ground, based on the field indicators of wetland conditions for the wetland parameters. In other words, delineation is the process of demarcating wetland areas from other adjoining areas that do not satisfy the wetland definition, based on field investigation. In practice, these three steps occur in sequence as follows: (1) the conditions of environmental parameters indicating that an area is a wetland area are incorporated into a wetland definition; (2) an area is identified as being wetland or not based on field indicators of the requisite conditions of the wetland parameters; (3) if the area is identified as a wetland area,

[2] "Parameter," as used here, is not a statistical or mathematical term. Instead, it refers to each of the three primary aspects of the recommended wetland definition (i.e., wetland hydrology, wetland substrate, and dominant wetland vegetation) that are the basis for the recommended wetland identification and delineation methodology. The essence of the methodology is the determination of whether or not the status or condition of each parameter meets the requirements of the definition, based on expert use of one or more field indicators (see Glossary).

the field indicators are used to determine the spatial limits of the wetland conditions (i.e., the boundary of the wetland area on the ground). For the purposes of the WRAPP, the process of wetland *mapping* usually involves the interpretation of aerial imagery or other remotely sensed data to estimate the boundaries of wetland areas without field investigations, except to calibrate the mapping method and to validate the resulting map. In effect, delineation is an especially accurate method of wetland mapping that relies on field indicators and can contribute to an understanding of wetland extent within a watershed, region, and statewide.

Technical Memorandum No. 3 (TAT 2010b) describes wetlands in the context of watersheds and their landscape moisture gradients. It explains that the moisture gradients can be subdivided into four fundamental parts (deepwater areas, wetlands, aquatic support areas, and uplands), based on the indicators used to identify wetlands. It discusses functional relationships among wetland areas and other aquatic areas along landscape moisture gradients, and it suggests that aquatic support areas are important for protecting and conserving the functions and services of wetlands.

Based on these considerations, and in the context of State Water Board Resolution 2008-0026, the TAT developed the following set of criteria for selecting or developing a methodology that the Water Board could implement to identify and delineate wetland areas.

Criteria for Developing a California Water Board Methodology For Wetland Identification and Delineation

- The Water Board methodology should be consistent with the wetland definition recommended by the TAT. It should be able to identify areas that satisfy the recommended wetland definition, based on field investigation.
- The Water Board methodology should be able to delineate (draw or establish) wetland boundaries in the field.
- To the extent feasible, the Water Board methodology should be consistent with the USACE methodology. More specifically, the Water Board methodology should be based on the USACE methods of identifying and delineating wetland areas based on field indicators of three wetland parameters: hydrology, substrate, and vegetation.
- The Water Board methodology should apply equally well to deepwater areas, wetlands, and aquatic support areas.
- The Water Board methodology, to the extent possible, should support California's efforts to map and classify deepwater areas, wetlands, aquatic support areas, and riparian areas.

3.0 Recommended Methodology

3.1 Overview of Recommendations

The TAT recommends that the Water Board adopt the USACE methodology for wetland identification and delineation, subject to the modifications recommended in section 4. Experts who currently use the USACE methodology will also be able to readily use the recommended methodology.

The TAT also recommends that the Water Board adopt the relevant USACE manuals and other materials that have been developed to support the USACE methodology, pending the development of appropriate State guidance documents. The Water Board should also adopt the existing data forms included in the USACE methodology.

An extensive library of technical information underlies the USACE methodology. The TAT recommends that the Water Board recognize that this underlying information supports the designated technical sources (i.e., the 1987 manual and the regional supplements for the Arid West and the Western Mountains, Valleys, and Coast as identified on page 2 above) on which the recommended Water Board methodology is based. However, the TAT also recommends that the Water Board not implement all directions and guidance (e.g., all Regulatory Guidance Letters) relating to the USACE regulatory process as incorporated into the USACE methodology, as these elements are specifically directed at USACE implementation of Federal regulatory processes that may not apply to Water Board implementation.[3]

The TAT recommends that the Water Board methodology include provisions for requiring supplemental field data from the wet season to substantiate wetland identifications and delineations conducted in the dry season. The TAT further recommends that the Water Board work closely with the USACE and USEPA to determine the circumstances requiring such supplemental data and to minimize inter-agency disagreements relating to differences in wetland delineations due to differences in their timing or vintage.

The TAT recommends that the delineation methodology described in this memorandum also be used to delineate the aquatic support areas adjoining wetlands in all delineations provided under the WRAPP. This approach is a straightforward extension of the recommended Water Board methodology as applied to wetlands, since the same field indicators are used to identify and delineate wetlands and aquatic support areas (TAT 2010b).

The TAT recommends that the Water Board methodology for identifying and delineating wetland areas (and aquatic support areas) incorporate the collection of certain additional data not included in the existing USACE methodology in order to help the Water Board identify the beneficial uses of wetlands and assist in achieving broader State wetland management goals. For example, recording the landscape position of wetland areas and aquatic support areas will help validate their delineations by identifying their supporting landscape processes, and will also help identify their likely services or beneficial uses. A forthcoming TAT memorandum will focus on wetland classification and its relationship to wetland identification, delineation, and assessment.[4]

3.2 Basic Comparison to USACE Methodology

[3] The TAT notes that the Water Board might modify the USACE technical materials and forms to better reflect State experiences under its own regulatory programs. At that time, the Water Board might also identify any USACE technical documents on which the State's methodology is based, as well as any specifically excluded documents.

[4] Some of this information may be obtained from existing data bases (e.g., the National Wetland Inventory). The California Wetland Monitoring Workgroup (CWMW, a subcommittee of the SB 1070 Water Quality Monitoring Council) has recommended that the State develop the California Aquatic Resource Inventory (CARI).