

4.3.23 Paleontological Resources

Impact PALEO-1: Destruction of Unique or Significant Paleontological Resources as a Result of Construction of Water Conveyance Facilities

The construction of water conveyance facilities and the extent of destruction of unique or significant paleontological resources under Alternative 4A would be identical to those described under Alternative 4. Construction activities that could result in adverse effects on paleontological resources include excavation for new intakes, pumping plants, new forebays, pipelines and tunnels, canals to the Jones and Banks pumping plants, an operable barrier at the head of Old River, other water facility components, roads, and borrow sites. The depth, extent, and location of excavation and other ground-disturbing activities vary greatly across the Plan Area and are provided in the description of the extent of impacts on paleontological resources in Alternative 4 and summarized in Table 27-14 of the Draft EIR/EIS.

NEPA Effects: The ground-disturbing activities that occur in geologic units sensitive for paleontological resources have the potential to damage or destroy those resources. Direct or indirect destruction of significant paleontological resources as defined by the Society of Vertebrate Paleontology (SVP) (2010) would represent an adverse effect because conveyance facility construction could directly or indirectly destroy unknown paleontological resources in geologic units known to be sensitive for these resources.

The shallow excavation and grading in surficial Holocene deposits that would take place for the construction of roads could be addressed through implementation of Mitigation Measures PALEO-1b and PALEO-1d.

Mitigation Measures PALEO-1a through PALEO-1d are available to mitigate the effects of the surface-related ground disturbance activities associated with Alternative 4A. However, while these measures could be applied to the excavation of the tunnel shafts, no mitigation is available for the boring activities because they would be conducted deep underground and could not be monitored. Moreover, although boring material could be examined by monitors, such work would be subsequent to boring, and the boring area could not be accessed even if fossils were encountered.

Excavation for new intakes, pumping plants, new/expanded forebays, pipelines and tunnels, canals to Jones and Banks pumping plants, and other water facility components necessary for Alternative 4A would most likely destroy unique or significant paleontological resources and would constitute an adverse effect under NEPA.

CEQA Conclusion: Construction of water conveyance facilities proposed under Alternative 4A could cause the destruction of unique paleontological resources. The ground-disturbing activities associated with Alternative 4A would occur in geologic units sensitive for paleontological resources and could therefore have the potential to damage or destroy those resources. Direct or indirect destruction of significant paleontological resources as defined by the SVP (2010) would constitute a significant impact under CEQA.

Implementation of Mitigation Measures PALEO-1a through PALEO-1d would reduce the effects of surface-related ground disturbance to a less-than-significant level, but excavation for the tunnels necessary for Alternative 4A would most likely destroy unique or significant paleontological resources in the Plan Area and would potentially cause a significant and unavoidable impact.

1 **Mitigation Measure PALEO-1a: Prepare a Monitoring and Mitigation Plan for**
2 **Paleontological Resources**

3 Please see Mitigation Measure PALEO-1a under Impact Paleo-1 in the discussion of Alternative 4
4 in Chapter 27, *Paleontological Resources*, of the Draft EIR/EIS.

5 **Mitigation Measure PALEO-1b: Review 90% Design Submittal and Develop Specific**
6 **Language Identifying How the Mitigation Measures Will Be Implemented along the**
7 **Alignment**

8 Please see Mitigation Measure PALEO-1a under Impact Paleo-1 in the discussion of Alternative 4
9 in Chapter 27, *Paleontological Resources*, of the Draft EIR/EIS.

10 **Mitigation Measure PALEO-1c: Educate Construction Personnel in Recognizing Fossil**
11 **Material**

12 Please see Mitigation Measure PALEO-1a under Impact Paleo-1 in the discussion of Alternative 4
13 in Chapter 27, *Paleontological Resources*, of the Draft EIR/EIS.

14 **Mitigation Measure PALEO-1d: Collect and Preserve Substantial Potentially Unique or**
15 **Significant Fossil Remains When Encountered**

16 Please see Mitigation Measure PALEO-1a under Impact Paleo-1 in the discussion of Alternative 4
17 in Chapter 27, *Paleontological Resources*, of the Draft EIR/EIS.

18 **Impact PALEO-2: Destruction of Unique or Significant Paleontological Resources Associated**
19 **with the Implementation of Environmental Commitments 3, 4, 6-12, 15, and 16**

20 Ground-disturbing activities associated with restoration actions under Alternative 4A would result
21 in impacts that would be similar in nature to those described under Alternative 4. However, the
22 extent of these impacts would be much less under Alternative 4A because less ground-disturbing
23 activity would occur. The environmental commitments are described in Section 4.1.2.3,
24 *Environmental Commitments*, of this RDEIR/SDEIS and include natural communities protection and
25 restoration, tidal natural communities restoration, channel margin enhancement, riparian natural
26 community restoration, vernal pool and alkali seasonal wetland complex restoration, and nontidal
27 marsh restoration. Land-disturbing activities would be required to implement each of the
28 conservation and stressor reduction measures.

29 **NEPA Effects:** If fossils are present in the Plan Area, they could be damaged during excavation
30 required to implement the conservation and stressor reduction components. The greater the extent
31 of excavation, the greater the potential effect, although even localized excavation could damage or
32 destroy paleontological resources. Direct or indirect destruction of vertebrate or otherwise
33 scientifically significant paleontological resources as defined by the SVP (2010) would be an adverse
34 effect.

35 Mitigation Measures PALEO-1b and PALEO-1d are available to mitigate all shallow ground-
36 disturbing environmental commitments. Mitigation Measures PALEO-1a through PALEO-1d would
37 address all deeper ground-disturbing environmental commitments.

38 **CEQA Conclusion:** Ground-disturbing activities associated with implementing the conservation and
39 stressor reduction components under Alternative 4A could affect paleontological resources. If fossils

1 are present in the Plan Area, they could be damaged during excavation associated with these
2 environmental commitments. The greater the extent of excavation, the greater the potential impact,
3 although even localized excavation could damage or destroy paleontological resources. Direct or
4 indirect destruction of significant paleontological resources as defined by the SVP (2010) would
5 constitute a significant impact.

6 Implementation of Mitigation Measures PALEO-1b and PALEO-1d for all shallow ground-disturbing
7 environmental commitments and Mitigation Measures PALEO-1a through PALEO-1d for all deeper
8 ground-disturbing environmental commitments ensure that unique or significant paleontological
9 resources in the alternative footprint are systematically identified, documented, avoided or
10 protected from damage where feasible, or recovered and curated so they remain available for
11 scientific study and would reduce these impacts to a less-than-significant level.

12 **Mitigation Measure PALEO-1a: Prepare a Monitoring and Mitigation Plan for**
13 **Paleontological Resources**

14 Please see Mitigation Measure PALEO-1a under Impact Paleo-1 in the discussion of Alternative 4
15 in Chapter 27, *Paleontological Resources*, of the Draft EIR/EIS.

16 **Mitigation Measure PALEO-1b: Review 90% Design Submittal and Develop Specific**
17 **Language Identifying How the Mitigation Measures Will Be Implemented along the**
18 **Alignment**

19 Please see Mitigation Measure PALEO-1b under Impact Paleo-1 in the discussion of Alternative 4
20 in Chapter 27, *Paleontological Resources*, of the Draft EIR/EIS.

21 **Mitigation Measure PALEO-1c: Educate Construction Personnel in Recognizing Fossil**
22 **Material**

23 Please see Mitigation Measure PALEO-1c under Impact Paleo-1 in the discussion of Alternative 4
24 in Chapter 27, *Paleontological Resources*, of the Draft EIR/EIS.

25 **Mitigation Measure PALEO-1d: Collect and Preserve Substantial Potentially Unique or**
26 **Significant Fossil Remains When Encountered**

27 Please see Mitigation Measure PALEO-1d under Impact Paleo-1 in the discussion of Alternative 4
28 in Chapter 27, *Paleontological Resources*, of the Draft EIR/EIS.