County of Fresno

DEPARTMENT OF PUBLIC WORKS AND PLANNING
STEVEN E. WHITE, DIRECTOR

February 27, 2020

California Department of Fish and Wildlife Central Region
Attn: LSAA Permitting Section
Charles Walbridge
1234 East Shaw Avenue
Fresno, CA 93710

Subject: Response to Incomplete Notification Letter on April 17, 2019
Notification No. 1600-2019-0068-R4
Lost Lake Nature Trail San Joaquin River – County of Fresno

Dear Mr. Walbridge:

Respectfully submitting additional information in response to California Department of Fish and Wildlife's April 17, 2019, Incomplete Notification letter for the above referenced project. We hope that you will find the responses satisfactory.

Should you have any questions, please contact Nicolette Nobuhiro by telephone (559) 600-0524 or via email nnobuhiro@fresnocountyca.gov.

Sincerely,

Mohammad Alimi, PhD, PE
Design Engineer

Joseph C. Harrell, PE
Supervising Engineer, Design Division

Enclosures

- Copy of the original Incomplete Notification Letter
- Responses to Section 10, 11A-D, 11E-G, and 12
- Appendix A – Figures and Photos
- Appendix B – Biological Resources Memorandum
- Appendix C – Engineering Drawings
- Appendix D – Tree Map

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Central Region
1234 East Shaw Avenue
Fresno, California 93710
(559) 243-4593
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

April 17, 2019

Dale A. Siemer
County of Fresno
Department of Public Works and Planning
2220 Tulare Street, 7th Floor
Fresno, California 93721

Subject: Incomplete Notification of Lake or Streambed Alteration
Notification No. 1600-2019-0068-R4
Lost Lake Nature Trail
San Joaquin River – Fresno County

Dear Mr. Siemer:

On March 25, 2019, the California Department of Fish and Wildlife (Department) received your Notification of Lake or Streambed Alteration (Notification) and on April 16, 2019, the Department determined that your Notification was incomplete because the information checked below is either missing or insufficient. To complete your Notification, please review the Notification instructions and provide the following Notification sections, along with a copy of this letter, to the Department at the above address.

- ☐ *Section 4:* Agreement term requested
- ☐ *Section 5:* Agreement type
- ☐ *Section 6:* Notification fee
- ☐ *Section 7:* Prior notification order
- ☐ *Section 8:* Project location, map, and directions from nearest highway
- ☐ *Section 8:* USGS quad map name, township/range, section, and ¼ section
- ☒ *Section 10:* Complete project description
- ☒ *Section 10:* Project plans, photos, maps
- ☒ *Section 11A-D:* Project impacts
- ☒ *Sections 11E-G:* Biological or hydrologic studies, resource mapping
- ☒ *Section 12:* Measures to protect fish, wildlife, and plants
- ☐ *Section 13:* Permits issued
- ☐ *Section 14:* Environmental review documents
- ☐ *Section 17*: Signature and date

☐ Notification Attachment: A ☐ B ☐ C ☐ D ☐

Please note that the Notification of Lake or Streambed Alteration form that was submitted was an outdated version. The form was updated January 1, 2019 and is available at https://www.wildlife.ca.gov/Conservation/LSA/Forms. The comments below may include information that is needed according to the requirements of the current Notification.

Section 10: As indicated in the instructions to this section, please provide a detailed step-by-step description of all activities for the project. Also, specify the volumes and dimensions of all materials and features that will be used or installed. The additional information should include the following:

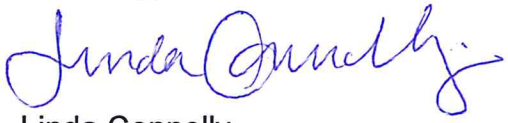
- A map (i.e., over an aerial photo) depicting all activities for the project, including demolition, construction, and other ground disturbance in addition to temporary activities such as staging, stockpiling, access, and storage areas.
- A description of demolition and preparation of the existing trail, including materials to be removed and methods.
- A detailed description of how the excavation and compaction of the trail will be done. Also, please clarify if the trail will be widened and describe this activity, if applicable.
- A detailed description for installation of river rock on the edges of the trail and clarification on the source of the material and approximate quantity.
- The quantities of decomposed granite, aggregate base, and Portland cement concrete that will be used.
- A description of the trimming of trees, such as whether trees will be limbed and to what height, etc. Pease provide photos as appropriate to illustrate how trees will be cut, and show on a map the locations of trees that will be cut.
- Pease provide any engineered designs for the construction project that specifies work areas, methods, specifications. and other details.

Sections 11 and 12: Please specify the nature of the temporary and permanent impacts that are noted in Section 11. As described, new, impervious surfaces will be installed (i.e., decomposed granite over concrete); this appears to be a permanent impact. In addition, a biological analysis is required to assess the habitat in the project area and the special status species that may potentially be affected during construction. This analysis should include threatened or endangered species, species of special concern, and other sensitive resources such as nesting birds. Also, please provide avoidance and minimization measures for wildlife and habitats that may be present, such as

special status or common species, habitats including specific features used by fish and wildlife, and nesting birds.

Please note that you may not proceed with your Project until your Notification is deemed complete, and you have obtained a Lake or Streambed Alteration Agreement, if required. If you have any questions regarding this matter or need additional information, please consult the "Notification Instructions" and/or "Questions and Answers" that are available online at: https://www.wildlife.ca.gov/Conservation/LSA. You may also contact Charles Walbridge, Environmental Scientist, at (559) 243-4014 extension 352 or by email at charles.walbridge@wildlife.ca.gov.

Sincerely,



Linda Connolly
Senior Environmental Scientist Supervisor

Section 10: Project Description

The proposed project will modify 2,700 feet of the existing Lost Lake Trail to improve accessibility and surface durability. No modifications will be made to the existing trail width, but it will be more enhanced and delineated by performing minor grading. The proposed project path varies in width from 3' to 8' and will consist of a structural section of 2" decomposed granite over 6" of 95% compacted native. This excavation and compaction comprise most of the 200 CY of roadway excavation found on the project. Side slopes will be graded at 2H:1V to reach existing grade. A portion of the path along the "W" Line from 10+00 to 28+95.74 and on the "E" line from 50+00 to 57+94 will have river rock from the project location placed along the edges to more clearly define the trail.

An ADA-accessible path would be constructed from the Trailhead parking lot to the existing picnic area. The ADA accessible path (Walkway 1) from the shade structure to the parking lot is 150 LF and the ADA accessible path from the trailhead to the shade structure (Walkway 2) is 65.5 LF. Both Walkway 1 & Walkway 2 are 5' wide paths made of 0.33' colored Portland cement concrete over 0.33' of class 2 aggregate base over 0.50' of 95% compacted native soil.

See Permanent and Temporary Impact Map next page.

Step by Step process of the project implementation:

1. Biological Monitor will conduct a preconstruction level survey.
2. The construction vehicles and equipment will enter the trail from the parking lot located on the north of the trail system. The paved parking lot will serve for a staging area.
3. Clearing and grubbing will occur before performing earthwork in the area.
4. Bulldozers will excavate 200 cubic yards (CY) of the existing sand and gravel trail and native soil.
5. A bulldozer will evenly grade the path to a maximum width of 8 feet, which matches the existing trail. A soil compactor will then compact soils on the trail to 95%.
6. Once the grading is complete, the trail material will be placed. The trail material will include 130 CY of decomposed granite, 13 CY of Class 2 Aggregate Base, and 13 CY of Portland cement concrete.
7. 3,290 linear feet (LF) or 160 tons of river rock about 8”-12” in diameter will be manually placed along the edge of the trail as shown on plans. River rock will be placed 50% embedded for stability. About 40% of required river rock will come from the project site itself and 60% of river rock material needed will be hauled from the Fresno County Avocado Lake location.
8. To minimize impacts to native vegetation wheelbarrows and hand shovels will be used in areas not easily accessible by larger construction equipment.
9. The adjacent native trees will be hand trimmed using mechanical vegetation cutters, shredders, string trimmers (a.k.a. weed-whacker, weed-whip, chainsaws). Approximately 25 trees will be trimmed. These trees will be limbed up about 6’ to 15’ from the ground for pedestrian clearance purposes only. No other impacts to riparian vegetation will occur.

11.A Project Impacts

Figure 3, Project temporary and permanent impacts shows vegetation types that will be impacted by the project. Permanent impacts include existing trail, riparian vegetation and mowed picnic area. Because of the large tree canopy cover the impacts to riparian vegetation are overcalculated. Permanent impacts would occur mostly on the existing gravel covered trail. No riparian trees or shrubs will be removed, only certain trees would be trimmed and the contractor will work around the trees. Approximately 25 trees would be trimmed: Sycamore, Valley Oak, Willow, Ash, and Cottonwood trees – refer to the Tree List and tree location map in Appendix D. The Project would trim tree branches not larger than 4 inches in diameter. Temporary impacts would include access and turn out points and would occur in the understory of the Riparian canopy- no trees or shrubs would be removed. Refer to Table below for impacts acreages. Approximately 260 CY of soils will be disturbed to construct the trail; all soils would remain on the site.

11.B Vegetation types affected by the project

Lost Lake Trails Impacts Summary		
Vegetation/Habitat Type	**Permanent Impacts**	**Temporary Impacts**
Developed, mowed picnic area	0.03	0.19
Existing Trail Footprint	0.43	0.09
Riparian Forest	0.23	1.08
Total	**0.69**	**1.36**

11.C The list of natural habitats near the site include:

The Lost Lake Park is used or potentially used by up to 11 special status wildlife and plant species, defined as Federally and State listed species and Species of Special Concern. Two types of habitats were identified in the Biological Resources Memorandum: Fremont cottonwood-valley oak-western sycamore riparian forest, and a developed, mowed picnic area.

- Riparian forest - The riparian forest canopy was dominated by Fremont cottonwood (*Populus fremontii*), red willow (*Salix laevigata*), valley oak (*Quercus lobata*), and western sycamore (*Platanus racemosa*). Dominant understory species in the riparian forest included mule fat (*Baccharis salicifolia*), Himalayan blackberry (*Rubus armeniacus*), stinging nettle (*Urtica dioica* ssp. *holosericea*), Oregon ash (*Fraxinus latifolia*), and mugwort (*Artemisia douglasiana*).
- Developed Mowed picnic area. The developed, mowed picnic area was dominated by bermudagrass (*Cynodon dactylon*).

The Special status species on the site and vicinity include one special status plant species which has a low potential to occur on onsite - Sanford's arrowhead (*Sagittaria sanfordii*).

Federally and State Listed Wildlife on site and vicinity include:

- Federally and state listed as threatened Central Valley spring-run Chinook salmon (*Onchorynchus tshawytscha*) - High. Although the species is known to occur in the San Joaquin River adjacent to the Lost Lake Trail, no impacts to the low-flow channel are anticipated.
- State-listed as threatened Swainson's hawk (*Buteo swainsoni*) - Moderate. Potential nest trees were found in the biological survey area and surrounding buffer, and foraging habitat is nearby.
- State-listed as endangered and fully-protected bald eagle (*Haliaeetus leucocephalus*) - Moderate. Potential nest trees were found in the biological survey area and surrounding buffer, and the San Joaquin River provides foraging habitat.

- State fully-protected white-tailed kite (*Elanus leucurus*) - Moderate. Potential nest trees were present in the biological survey area and buffer, and foraging habitat was nearby.

Special Status Wildlife Species include:

- Hardhead (*Mylopharodon conocephalus*) - Moderate. Although habitat is present in the San Joaquin River, no impacts to the low-flow channel of the river are anticipated.
- Western pond turtle (*Actinemys marmorata*) - Low. Aquatic breeding habitat may be present within the known dispersal distance of this species, and it could nest in the upland areas of the biological survey area.
- Western spadefoot (*Spea hammondii*) - Low. Aquatic breeding habitat could be present within the known dispersal distance of the species, and the burrows in the biological survey area could provide upland refugia habitat.
- Burrowing owl (*Athene cunicularia*) - Low. Four suitably sized ground squirrel burrows were found in the survey area. However, they are oriented toward the river and away from foraging habitat to the east, making them suboptimal.
- White-tailed kite (*Elanus leucurus*) - Moderate. Potential nest trees were present in the biological survey area and buffer, and foraging habitat was nearby.

Thirty-four bird species, four mammal species, and two reptile species were detected during the biological survey – see Biological Memorandum. No special-status plants or animals were found.

12.B Measures to protect fish, wildlife, and plant resources

The following is a list of avoidance and minimization measures that will be implemented before and during construction:

AMM 1. Pre-activity Surveys. Conduct pre-activity surveys for special-status species within 30 days prior to the start of project activities. Surveys shall be conducted within the biological survey area and all access routes to avoid incidental take, confirm previous observations, identify any areas occupied by special-status species, and clearly mark all resources to be avoided bythe project activities. If any state- or federally listed threatened or endangered species are found or could be impacted by the proposed work, notify the California Department of Fish and Wildlife (CDFW) of the discovery prior to starting project activities to determine whether work can occur without impacting the species.

AMM 2. California Tiger Salamander (CTS) and Western Spadefoot. Within all areas of potential upland habitat, flag all rodent burrows with a minimum 50-foot buffer. A qualified biologist shall be present if ground disturbing activity is within the 50-foot buffer of rodent burrows. Project activities shall be halted if a CTS or spadefoot is detected in or adjacent to the biological survey area until the individual leaves on its own. Notify the CDFW immediately if a CTS or spadefoot is detected. Consult CDFW if any ground-disturbing activity is proposed within 10 feet of the rodent burrows in CTS or spadefoot habitat.

AMM 3. Western Pond Turtle (WPT). To avoid direct impacts to WPT, a qualified biologist shall conduct pre-activity clearance surveys of the impact areas immediately prior to the start of work. If WPT nests are identified during pre-construction surveys, a 300-foot no disturbance buffer shall be established and flagged or marked by temporary fencing between the nest and any areas of potential disturbance. Construction shall not commence in the exclusion area until hatchlings have emerged from the nest, or the nest is deemed inactive by a qualified biologist.

AMM 4. Burrowing Owl (BUOW). A qualified biologist shall survey for burrowing owl within a 500-foot radius of Lost Lake Trail within 30 days prior to starting project activities. If any occupied burrowing owl burrows are observed, these burrows shall be protected and monitored by a qualified biologist during project activities. A minimum 500-foot

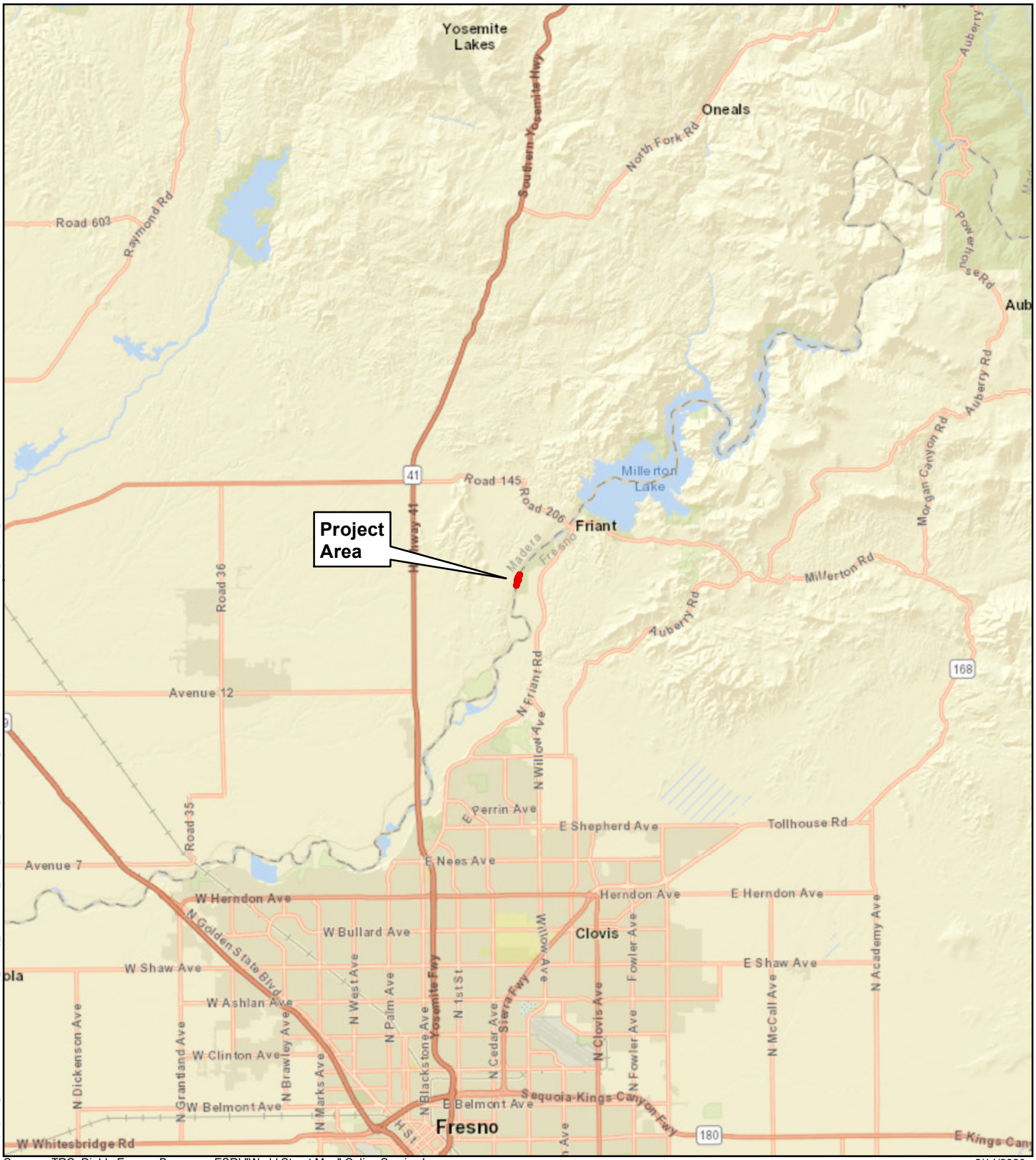
avoidance buffer shall be established and maintained around each owl burrow during the nesting season (February 1through August 31). If active burrowing owl burrows are observed outside of the nesting season, a minimum 150-foot no disturbance buffer shall be established around each burrow.

AMM 5. Swainson's Hawk, Bald Eagle, and White-tailed Kite. No project-related activities shall occur from March 1 through August 30 unless a qualified biologist conducts surveys for active nests of Swainson's hawk, bald eagle and white-tailed kite following the survey methods for Swainson's hawk developed by the Swainson's Hawk Technical Advisory Committee (SHTAC 2000) beginning prior to commencing project-related activities and continuing until the entire survey protocol is completed. A minimum no disturbance buffer of 0.5 mile shall be delineated around active nests until the breeding season has ended or until a qualified biologist has determined and CDFW has confirmed in writing that the birds have fledged and are no longer reliant upon the nest or parental care for survival. In addition, no project-related activities shall be completed from December 1 through March 31 unless a qualified biologist surveys for wintering activity of bald eagle within a 0.25-mile radius of Lost Lake Trail no more than two weeks prior to the start of project activities. If any wintering eagles are observed, a minimum 0.25-mile avoidance buffer shall be established and maintained around the roost site. A qualified biologist shall have the authority to stop project activities that could affect the foraging or feeding behavior of eagles.

AMM 7. Nesting Birds. No project-related activities shall occur from February 1 and August 30 unless a qualified biologist conducts surveys for active bird nests no more than 14 days prior to the start of construction activities. During this survey, the qualified biologist shall inspect all potential nest substrates in and immediately adjacent to the impact areas, including within 500 feet in the case of nests of non-listed raptors and within 250 feet for all other birds. If an active nest is found close enough to the construction area to be disturbed by these activities, the qualified biologist shall determine the extent of a construction-free buffer to be established around the nest. If work cannot proceed without disturbing the nesting birds, work may need to be halted or redirected to other areas until nesting and fledging are completed or the nest has failed for non- construction related reasons.

APPENDIX A

FIGURES AND PHOTOS



Sources: TRC, Diablo Energy; Basemap: ESRI "World Street Map" Online Service Layer

2/14/2020

Project Location

N

Lost Lake Trail
Fresno County, CA

Project Regional Location Map

1:250,000

Figure 1

0 1 2
Miles

TRC

Sources: TRC, ; Basemap: ESRI "World Imagery" Online Service Layer, Imagery Date 2018.

2/17/2020

-------- Existing Path

Biological Survey Area (BSA)

Vegetation Type:

Developed, mowed picnic area

Existing Trail Footprint

Riparian Forest

N

1:3,600

0 150 300

Feet

Lost Lake Trail
Fresno County, CA

Biological Study Area and Vegetation Types

Figure 2

TRC

Sources: TRC, ; Basemap: ESRI "World Imagery" Online Service Layer, Imagery Date 2018.

2/17/2020

- Biological Survey Area (BSA)
- Permanent Impacts
- Temporary Staging Area
- Temporary Construction Area
- ------- Existing Path
- ------- California Stream

Vegetation Type:

- Developed, mowed picnic area
- Existing Trail Footprint
- Riparian Forest

N

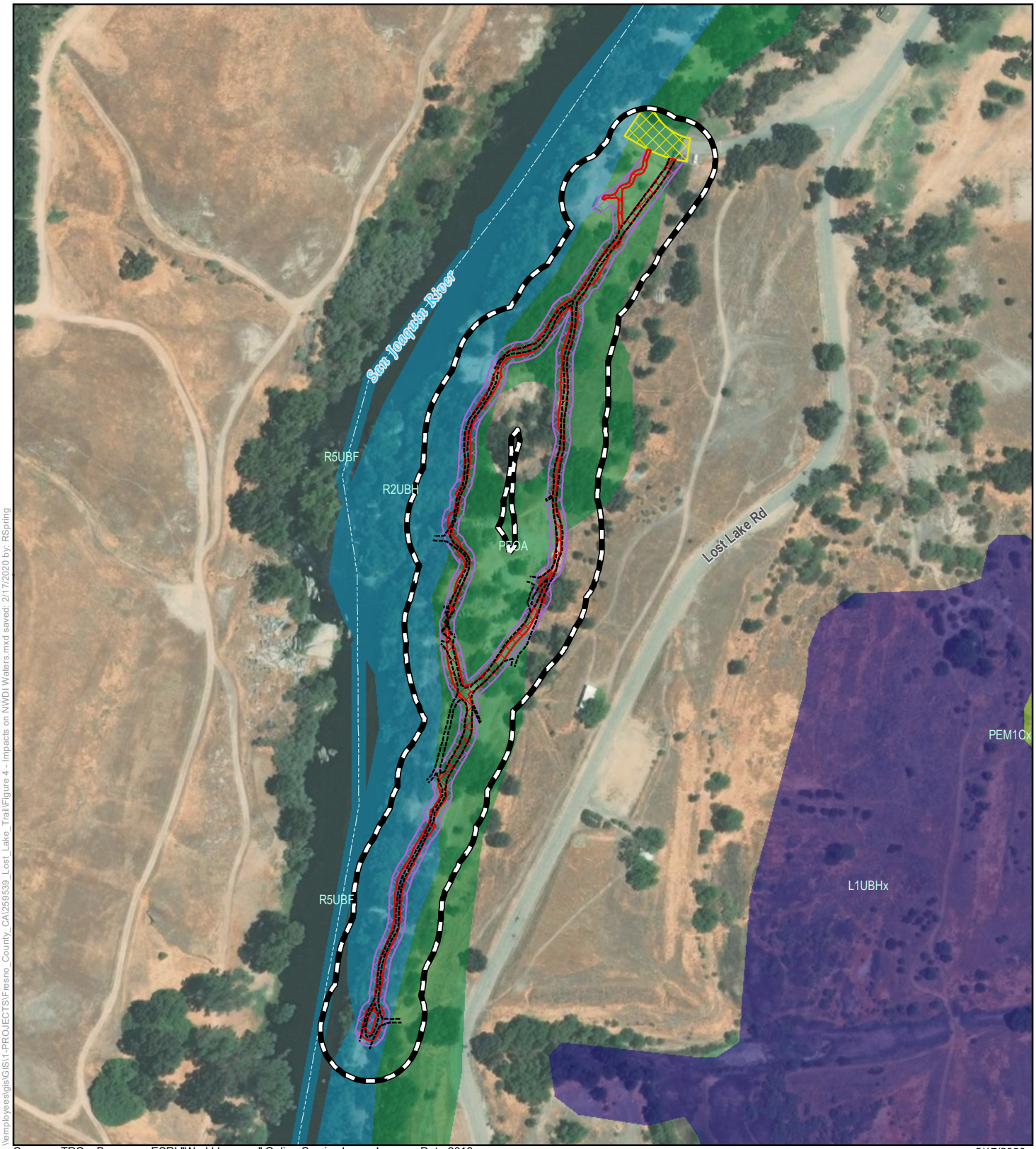
Lost Lake Trail
Fresno County, CA

Temporary and Permanent Impacts

1:3,600
1 inch = 300 feet
0 150 300
Feet

Figure 3

TRC



Sources: TRC, ; Basemap: ESRI "World Imagery" Online Service Layer, Imagery Date 2018.

2/17/2020

- Biological Survey Area (BSA)
- Existing Path
- Permanent Impacts
- Temporary Staging Area
- Temporary Construction Area
- California Stream

NWI Wetland Type:

- Freshwater Emergent Wetland
- Freshwater Forested/ Shrub Wetland
- Lake
- Riverine

N

1:3,000

1 inch = 250 feet

0 125 250 Feet

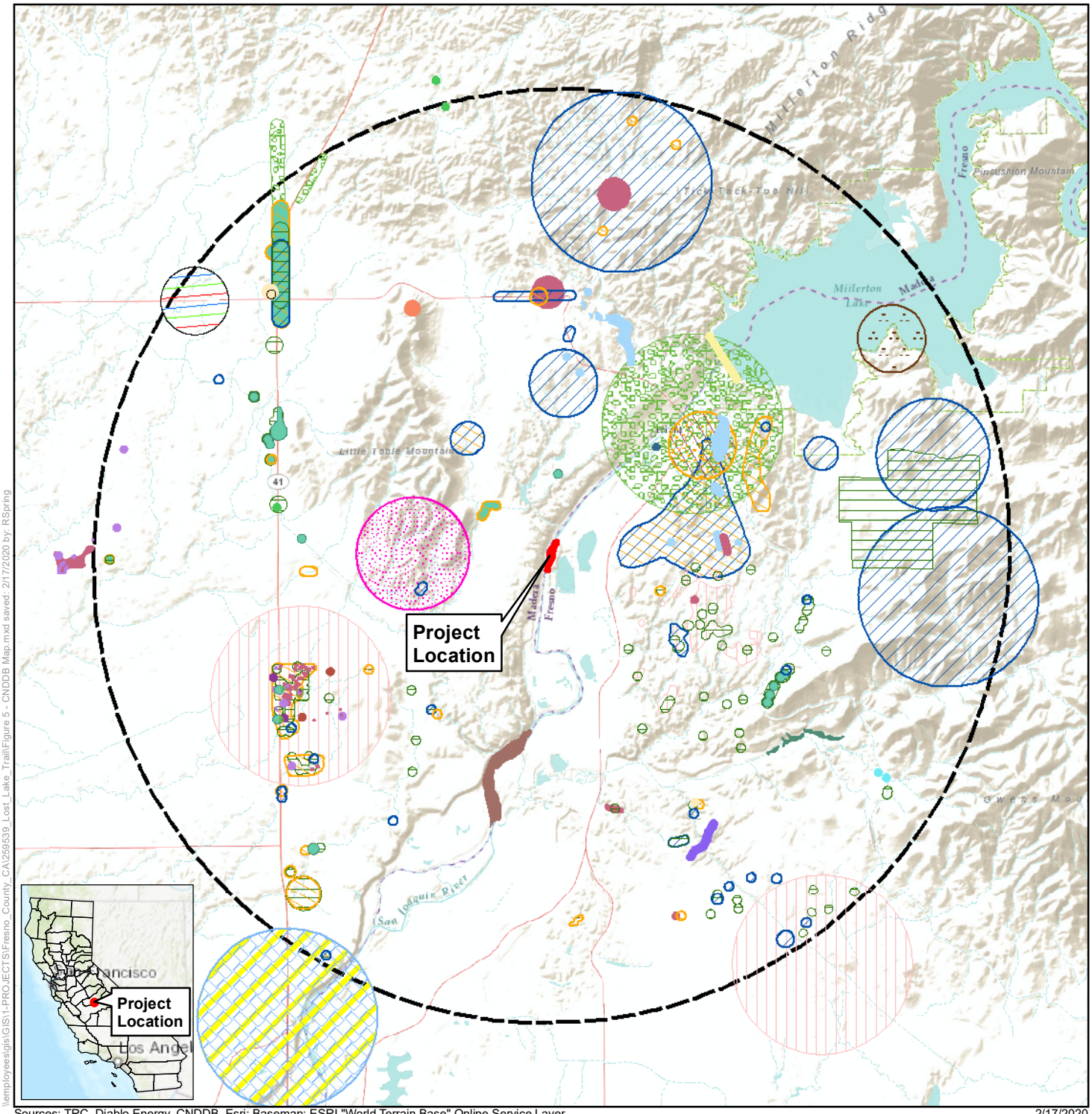
Lost Lake Trail
Fresno County, CA

Project Temporary and Permanent Impacts on NWDI Waters

Figure 4

TRC

\\employees\gis\GIS1-PROJECTS\Fresno_County_CA\259539_Lost_Lake_Trail\Figure 4 - Impacts on NWDI Waters.mxd saved: 2/17/2020 by: RSpring



\\employees\gis\GIS\1-PROJECTS\Fresno_County_CA\259539_Lost_Lake_Trail\Figure 5 - CNDDB Map.mxd saved: 2/17/2020 by: RSpring

Sources: TRC, Diablo Energy, CNDDB, Esri; Basemap: ESRI "World Terrain Base" Online Service Layer. 2/17/2020

- Lost Lake Trail Project Location
- 5-Mile Study Radius
- California horned lark
- California linderiella
- California tiger salamander
- Great Valley Mixed Riparian Forest
- Hartweg's golden sunburst
- Hoover's calycadenia
- Madera leptosiphon
- Northern Hardpan Vernal Pool
- San Joaquin Valley Orcutt grass
- San Joaquin kit fox
- Sanford's arrowhead
- Swainson's hawk
- Sycamore Alluvial Woodland
- burrowing owl
- dwarf downingia
- hairy Orcutt grass
- midvalley fairy shrimp
- moestan blister beetle
- spiny-sepaled button-celery
- spotted bat
- succulent owl's-clover
- tricolored blackbird
- vernal pool fairy shrimp
- western mastiff bat
- western pond turtle
- western spadefoot
- western yellow-billed cuckoo
- Water

Lost Lake Trail
Fresno County, CA

CNDDB Species Occurrences Map

Figure 5

N

1:100,000

0 ½ 1 Miles

TRC

Photo 1 Existing Picnic area - ADA Trail Area

Photo 2 New ADA Trailhead from picnic area

APPENDIX B

BIOLOGICAL RESOURCES MEMORANDUM

Colibri
Ecological Consulting, LLC

18 December 2019

Agnieszka Napiatek
Principal Project Manager
TRC Companies, Inc.
17911 Von Karman Avenue, Suite 400
Irvine, CA 92614

Subject: Biological reconnaissance survey for the Lost Lake Trail Improvement Project at Lost Lake Park, Fresno County, California

Dear Ms. Napiatek:

The County of Fresno proposes to improve an approximately 0.5-mile-long trail system at Lost Lake Park. Lost Lake Park, which is also known as Lost Lake Recreation Area, is about 2 miles south of Friant and 5 miles north of Fresno, in Fresno County, California. The project site is near the south end of the park, along a 0.32-mile section of the San Joaquin River. The proposed trail improvement project will involve minor grading of portions of the existing Lost Lake Trail, some tree branches trimming along the trail path, and constructing an ADA accessible path of travel from the parking lot to the existing picnic area.

In support of the Lost Lake Trail Improvement Project, we conducted a biological reconnaissance survey of the project site as part of the California Fish and Game Code Section 1602 notification process. The purpose of the survey was to identify any sensitive biological resources that could be impacted by project activities.

Methods. Colibri scientists Jacob Smith, Ryan Slezak, and Wendy Murillo conducted the survey on 06 December 2019, from 10:30am to 2:30pm, under mild (60–67 degrees Fahrenheit), mostly clear (25% cloud cover), and calm (1–5 mile per hour wind) conditions. The biological survey area, which included the Lost Lake Trail and a surrounding 75-foot buffer (Figure 1), was walked and thoroughly inspected to document general habitat conditions, burrows, and other habitat features that could support special-status species. The survey also included a visual inspection within a 500-foot buffer for habitat features that could support burrowing owl (*Athene cunicularia*), a California Species of Special Concern, and a visual assessment of a 0.5-mile buffer for potential nest trees for the state-listed as threatened Swainson's hawk (*Buteo swainsoni*), the state-listed as endangered and fully-protected bald eagle (*Haliaeetus leucocephalus*), and the state fully-protected white-tailed kite (*Elanus leucurus*). Dominant plant species were identified for all vegetation types present, and all vertebrate animals detected during the survey were identified to species.

As a framework for the reconnaissance survey, we reviewed the Unites States Fish and Wildlife Service (USFWS) species list for the project (USFWS 2019) as well as search results from the California Natural Diversity Data Base (CNDDB, CDFW 2019) and the California Native Plant

Society (CNPS) Inventory of Rare and Endangered Plants (CNPS 2019) for the Friant 7.5-minute United States Geological Survey (USGS) topographic quad, which encompasses the project site. In addition, we evaluated the potential for valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), Central Valley spring-run Chinook salmon (*Onchorynchus tshawytscha*), hardhead (*Mylopharodon conocephalus*), bald eagle, Swainson's hawk, white-tailed kite, and burrowing owl to occur in the biological survey area as these species are otherwise known to occur near the project site (Table 1).

We also reviewed aerial imagery from Google Earth (Google 2019) and other sources, USGS topographic maps, the Web Soil Survey (NRCS 2019), the National Wetlands Inventory (USFWS 2019b), and relevant literature. Species that lack a special-status designation by state or federal regulatory agencies or state conservation groups were omitted from the final species review list.

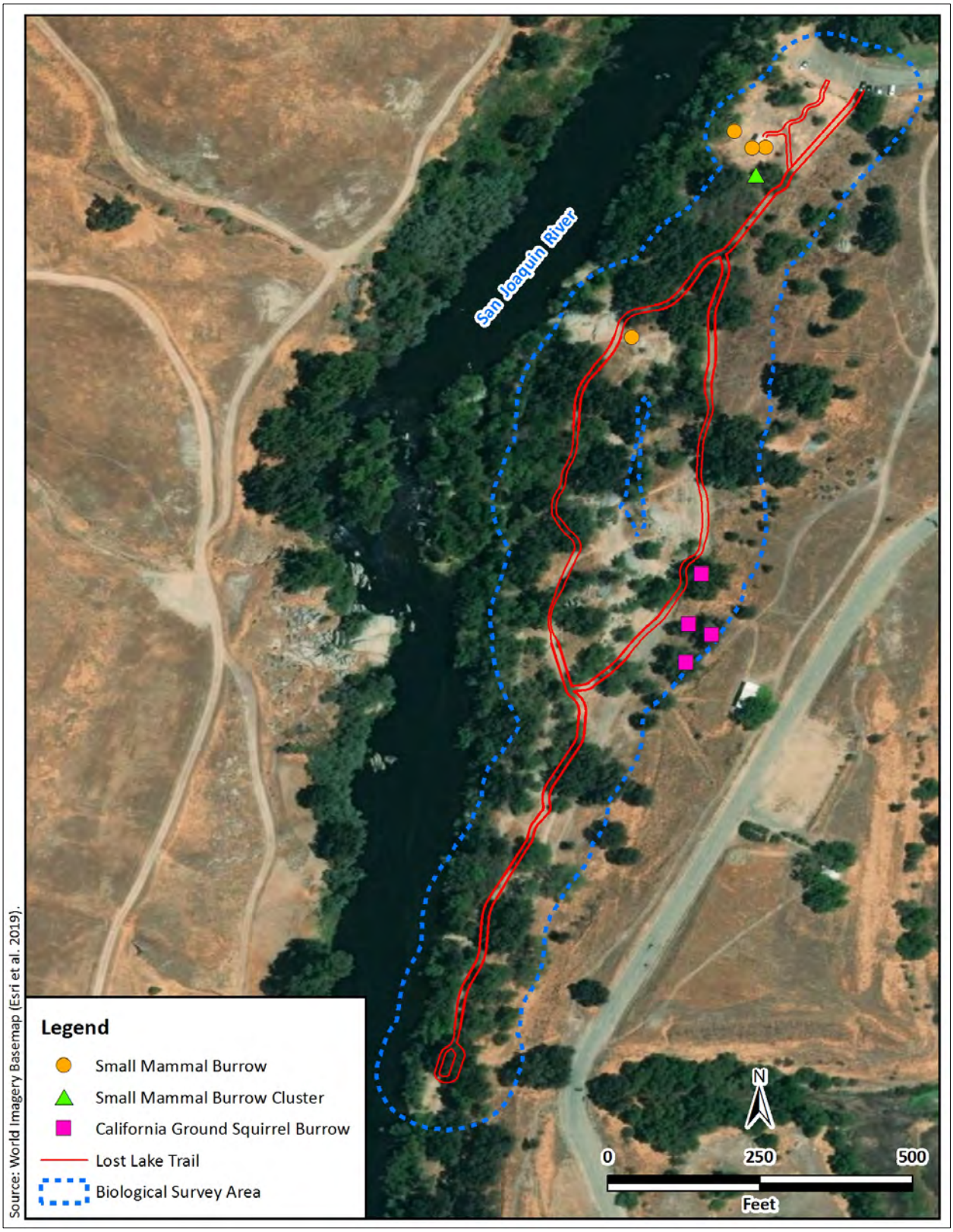


Figure 1. Survey area map.

Results. The USFWS species list for the project site (USFWS 2019a, Table 1, Appendix A) includes 12 species listed as threatened or endangered under the Federal Endangered Species Act. Searching the CNDDB (CDFW 2019) for records of special-status species from within the Friant 7.5-minute USGS topographic quad produced records of 16 species (Table 1, Figure 2, Appendix B), including three—the midvalley fairy shrimp (*Branchinecta mesovallensis*), California linderiella (*Linderiella occidentalis*), and moestan blister beetle (*Lytta moesta*)—that lack a special-status designation and are not discussed further. Searching the CNPS inventory of rare and endangered plants of California yielded seven species (CNPS 2019, Appendix C, Table 1). Based on the presence of habitat, a total of 10 special-status species could occur in the biological survey area (Table 1)

The biological survey area, which is at an elevation of about 300 feet above mean sea level, is underlain by Tujunga soils, channelized, 0 to 9 percent slopes (NRCS 2019).

Table 1. Special-status species, their listing status, habitats, and potential to occur in or near the biological survey area.

Species	Status[1]	Habitat	Potential to Occur[2]
Federally and State-Listed Endangered or Threatened Species			
Succulent owl's clover (*Castilleja campestris* ssp. *succulenta*)	FT, SE 1B.2	Vernal pools with heavy clay soils; elevations lower than 2500 feet.	**None.** Habitat lacking; no vernal pools were found in the biological survey area.
Hartweg's golden sunburst (*Pseudobahia bahiifolia*)	FE, SE, 1B.1	Grassland and oak woodland with clay soils at 300–700 feet elevation.	**None.** Habitat lacking; biological survey area is underlain by alluvial soils (NRCS 2019).
San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*)	FT, SE, 1B.1	Vernal pools below 2700 feet elevation.	**None.** Habitat lacking; no vernal pools were found in the biological survey area.
Conservancy fairy shrimp (*Branchinecta conservatio*)	FE	Vernal pools and depressions.	**None.** Habitat lacking; no vernal pools or depressions were found in the biological survey area.
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT	Elderberry (*Sambucus* sp.) plants having basal stem diameter greater than 1 inch at ground level.	**None.** Habitat lacking; no elderberry plants were found in the biological survey area; outside current known range.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	Vernal pools; some artificial depressions, stock ponds, vernal swales, ephemeral	**None.** Habitat lacking; no vernal pools were found in the biological survey area.

Species	Status[1]	Habitat	Potential to Occur[2]
		drainages, and seasonal wetlands.	
Delta smelt (*Hypomesus transpacificus*)	FT, SE	River channels and tidally influenced sloughs in the Sacramento-San Joaquin River Delta.	**None.** The biological survey area is outside the known range of the species; no impacts to the low-flow channel of the San Joaquin River are expected.
Central Valley spring-run Chinook salmon (*Onchorynchus tshawytscha*)	FT, ST	River channels in the Sacramento-San Joaquin River system.	**High.** Although the species is known to occur in the San Joaquin River adjacent to the Lost Lake Trail, no impacts to the low-flow channel are anticipated.
Blunt-nosed leopard lizard (*Gambelia sila*)	FE, SE, FP	Upland scrub and sparsely vegetated grassland with small mammal burrows.	**None.** Outside current known range; no records from within 5 miles (Figure 2).
California red-legged frog (*Rana draytonii*)	FT, SSSC	Creeks, ponds, and marshes for breeding; burrows for upland refuge.	**None.** Outside current known range; no records from within 5 miles (Figure 2).
California tiger salamander (*Amystoma californiense*)	FT, ST	Vernal pools or other seasonal water sources for breeding; underground refuges for non-breeding.	**Low.** The San Joaquin River represents a barrier to dispersal from the west, and Friant Road represents an impediment to dispersal from the east. Nevertheless, the numerous quarry ponds between the river and Friant Road within the known dispersal distance of the species provide potential aquatic breeding habitat, and the burrows in the biological survey area could provide upland refugia habitat.
Giant garter snake (*Thamnophis gigas*)	FT, ST	Marshes, sloughs, ponds, or other	**None.** Outside current known range; no records

Species	Status[1]	Habitat	Potential to Occur[2]
		permanent sources of water with emergent vegetation, and grassy banks or open areas during active season; uplands with underground refuges or crevices during inactive season.	from within 5 miles (Figure 2).
Bald eagle (*Haliaeetus leucocephalus*)	SE, FP	Large trees with open branches for nesting. Lakes, rivers, or other large water bodies for foraging.	**Moderate.** Potential nest trees were found in the biological survey area and surrounding buffer, and the San Joaquin River provides foraging habitat.
Swainson's hawk (*Buteo swainsoni*)	ST	Large trees for nesting with adjacent grasslands, wild prairie, or grain fields for foraging.	**Moderate.** Potential nest trees were found in the biological survey area and surrounding buffer, and foraging habitat is nearby.
Fresno kangaroo rat (*Dipodomys nitratoides exilis*)	FE, SE	Sandy, alkaline, saline, and clay soils in upland scrub and grassland.	**None.** Outside current known range; no records from within 5 miles.
San Joaquin kit fox (*Vulpes macrotis mutica*)	FE, ST	Grassland and upland scrub.	**None.** Outside current known range; only record from within 5 miles, from the early 1990s, is widely thought to be erroneous.
State Species of Special Concern and Fully Protected Species			
Hardhead (*Mylopharodon conocephalus*)	SSSC	Undisturbed areas of larger streams with high water quality.	**Moderate.** Although habitat is present in the San Joaquin River, no impacts to the low-flow channel of the river are anticipated.
Western pond turtle (*Actinemys marmorata*)	SSSC	Ponds, rivers, marshes, streams, and irrigation ditches, usually with aquatic vegetation. Basking sites and	**Low.** Aquatic breeding habitat may be present within the known dispersal distance of this species, and it could nest

Species	Status[1]	Habitat	Potential to Occur[2]
		suitable upland areas for egg laying.	in the upland areas of the biological survey area.
Western spadefoot (*Spea hammondii*)	SSSC	Rain pools for breeding; nearby areas with sandy gravelly soils and small mammal burrows for upland cover.	**Low.** Aquatic breeding habitat could be present within the known dispersal distance of the species, and the burrows in the biological survey area could provide upland refugia habitat.
Burrowing owl (*Athene cunicularia*)	SSSC	Grassland and upland scrub with friable soil; some agricultural or other developed and disturbed areas with ground squirrel burrows.	**Low.** Four suitably sized ground squirrel burrows were found in the survey area. However, they are oriented toward the river and away from foraging habitat to the east, making them suboptimal.
White-tailed kite (*Elanus leucurus*)	FP	Grassland, open woodland, marsh, and cultivated fields with large trees for nesting.	**Moderate.** Potential nest trees were present in the biological survey area and buffer, and foraging habitat was nearby.
Spotted bat (*Euderma maculatum*)	SSSC	Rock crevices, caves, and buildings for roosting; forages over waterbodies.	**None.** Although foraging habitat is present over the San Joaquin River, suitable roosting sites are absent.
California Rare Plants			
Dwarf downingia (*Downingia pusilla*)	2B.2	Vernal pools in valley and foothill grassland near 500 feet elevation.	**None.** Habitat lacking; no vernal pools were found in the biological survey area.
Ewan's larkspur (*Delphinium hansenii* ssp. *ewanianum*)	4.2	Cismontane woodland and valley and foothill grassland at 200–2000 feet elevation.	**None.** Outside known range; no records from within 5 miles (Figure 2).
Madera leptosiphon (*Leptosiphon serrulatus*)	1B.2	Woodland and chaparral openings at	**None.** Habitat lacking; below known elevation range.

Species	Status[1]	Habitat	Potential to Occur[2]
		980–4300 feet elevation.	
Sanford's arrowhead (*Sagittaria sanfordii*)	1B.2	Freshwater marsh and wetlands below 1000 feet elevation.	**Low.** Although habitat may be present along the San Joaquin River, no impacts to the low-flow channel are anticipated.
Spiny-sepaled button-celery (*Eryngium spinosepalum*)	1B.2	Vernal pools, swales, and roadside ditches at 330–4200 feet elevation.	**None.** Habitat lacking; no vernal pools, swales, or ditches were found in the biological survey area.

CDFW (2019), CNPS (2019), USFWS (2019a).

Status[1]

CNDDB = Recognized by the CNDDB, other state or federal agencies, or conservation groups as rare or imperiled.

FE = Federally listed as Endangered

FT = Federally listed as Threatened

FP = Fully Protected

SE = State-listed as Endangered

ST = State-listed as Threatened

SSSC = State Species of Special Concern

Potential to Occur[2]

None: Species or sign not observed; conditions unsuitable for occurrence.

Low: Neither species nor sign observed; conditions marginal for occurrence.

Moderate: Neither species nor sign observed, but conditions suitable for occurrence.

High: Neither species nor sign observed, but conditions highly suitable for occurrence.

CNPS California Rare Plant Rank[1]:

1A – plants presumed extirpated in California and either rare or extinct elsewhere.

1B – plants rare, threatened, or endangered in California and elsewhere.

2B – plants rare, threatened, or endangered in California but more common elsewhere.

4 – plants have limited distribution in California.

Threat Ranks[1]:

0.1 – seriously threatened in California (> 80% of occurrences).

0.2 – moderately threatened in California (20-80% of occurrences).

Vegetation types in the biological survey area included Fremont cottonwood-valley oak-western sycamore riparian forest and a developed, mowed picnic area (Figure 3). The riparian forest canopy was dominated by Fremont cottonwood (*Populus fremontii*), red willow (*Salix laevigata*), valley oak (*Quercus lobata*), and western sycamore (*Platanus racemosa*). Dominant understory

species in the riparian forest included mule fat (*Baccharis salicifolia*), Himalayan blackberry (*Rubus armeniacus*), stinging nettle (*Urtica dioica* ssp. *holosericea*), Oregon ash (*Fraxinus latifolia*), and mugwort (*Artemisia douglasiana*). The picnic area was dominated by bermudagrass (*Cynodon dactylon*). Sediment deposits, drift deposits, and drainage patterns (Figures 4 and 5) indicated that most of Lost Lake Trail is within the active floodplain of the San Joaquin River. The National Wetlands Inventory identifies the area occupied by the trail as Freshwater Forested/Shrub Wetland (USFWS 2019b, Appendix D). No vernal pools were found in the survey area.

Four California ground squirrel (*Otospermophilus beecheyi*) burrows were found within the biological survey area on a steep, vegetated slope east of Lost Lake Trail (Figures 1 and 6). These burrows, plus four additional small mammal burrows and one small mammal burrow cluster (Figure 1), could provide upland refugia habitat for the state- and federally listed as threatened California tiger salamander (*Ambystoma californiense*) and the western spadefoot (*Spea hammondii*), a California Species of Special Concern. The low-flow channels of the San Joaquin River (Figure 7), which were approximately 25–250 feet west of Lost Lake Trail, provide habitat for the state- and federally listed as threatened Central Valley spring-run Chinook salmon (*Onchorynchus tshawytscha*) and two California Species of Special Concern, hardhead (*Mylopharodon conocephalus*) and western pond turtle (*Actinemys marmorata*). The biological survey area and surrounding buffers supported numerous potential nest trees for Swainson's hawk, bald eagle, white-tailed kite, and other birds. Thirty-four bird species, four mammal species, and two reptile species were detected during the survey (Table 2). No special-status plants or animals were found.

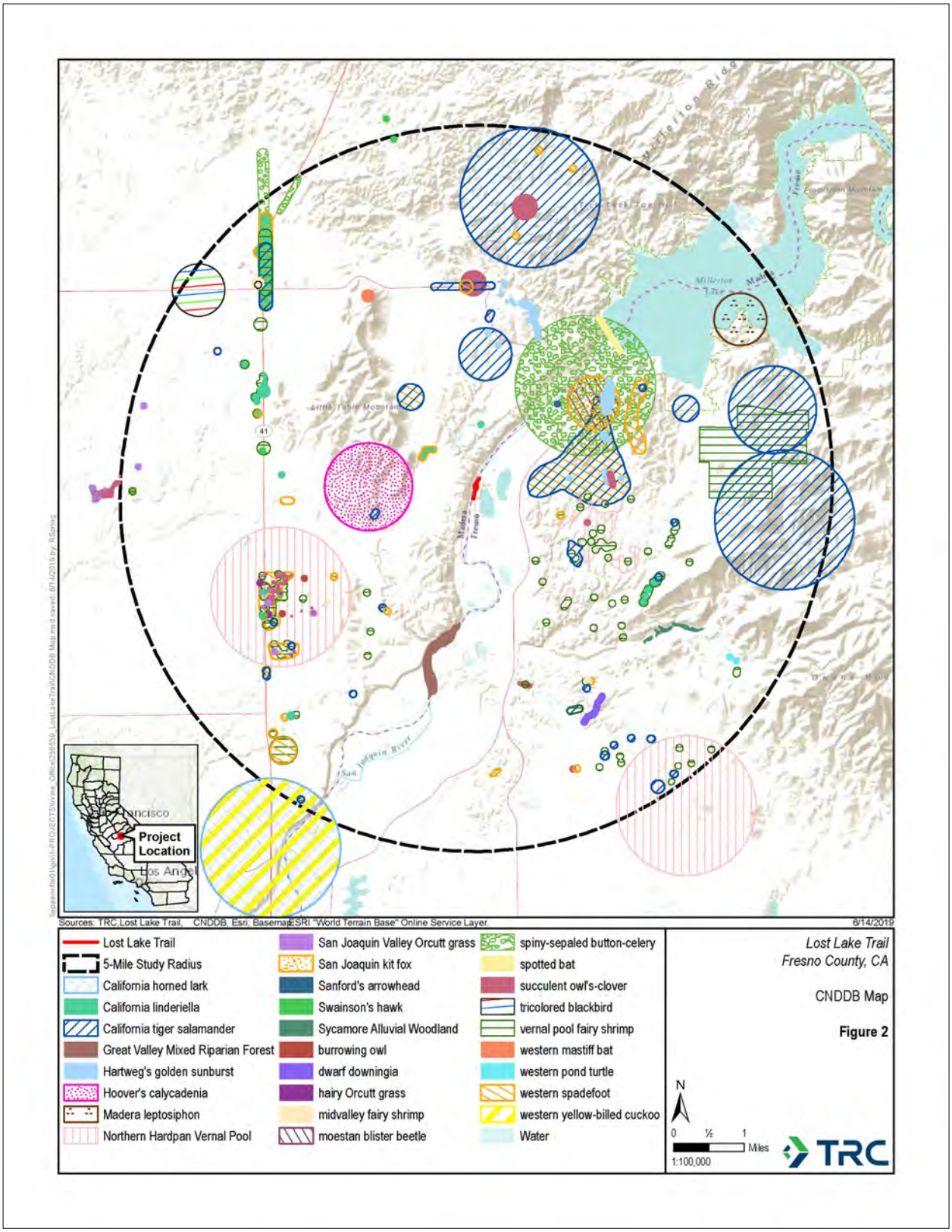


Figure 2. CNDDB map.

Figure 3. Photograph of the north end of the biological survey area, facing south, showing riparian forest in the background and the mowed picnic area in the foreground.

Figure 4. Photograph of the Lost Lake Trail, facing north, showing water marks along the embankment and gravel deposits along the trail.

Figure 5. Photograph of Lost Lake Trail, looking southeast, showing fine sediment deposits from inundation.

Figure 6. Photograph of a California ground squirrel burrow on a slope east of Lost Lake Trail in the biological survey area.

Figure 7. Photograph of the San Joaquin River in the biological survey area, facing northwest.

Table 2. Vertebrate animal species detected in the biological survey area.

Species	Status*
Birds	
Acorn woodpecker (*Melanerpes formicivorus*)	MBTA, CFGC
American crow (*Corvus brachyrynchos*)	MBTA, CFGC
American goldfinch (*Spinus tristis*)	MBTA, CFGC
American kestrel (*Falco sparverius*)	MBTA, CFGC
Anna's hummingbird (*Calypte anna*)	MBTA, CFGC
Belted kingfisher (*Megaceryle alcyon*)	MBTA, CFGC
Black phoebe (*Sayornis nigricans*)	MBTA, CFGC
Bufflehead (*Bucephala albeola*)	MBTA, CFGC
Bushtit (*Psaltriparus minimus*)	MBTA, CFGC
California scrub-jay (*Aphelocoma californica*)	MBTA, CFGC
California quail (*Callipepla californica*)	MBTA, CFGC
Canada goose (*Branta canadensis*)	MBTA, CFGC
Common goldeneye (*Bucephala clangula*)	MBTA, CFGC
Common raven (*Covus corax*)	MBTA, CFGC
Double-crested cormorant (*Phalacrocorax auritus*)	MBTA, CFGC
Eurasian collared-dove (*Streptopelia decaocto*)	--
European starling (*Sturnus vulgaris*)	--
Ferruginous hawk (*Buteo regalis*)	MBTA, CFGC
Golden-crowned sparrow (*Zonotrichia atricapilla*)	MBTA, CFGC
Great blue heron (*Ardea herodias*)	MBTA, CFGC

Great egret (*Ardea alba*)	MBTA, CFGC
Green heron (*Butorides virescens*)	MBTA, CFGC
House finch (*Haemorhous mexicanus*)	MBTA, CFGC
Mallard (*Anas platyrhynchos*)	MBTA, CFGC
Mourning dove (*Zenaida macroura*)	MBTA, CFGC
Northern mockingbird (*Mimus polyglottos*)	MBTA, CFGC
Phainopepla (*Phainopepla nitens*)	MBTA, CFGC
Red-tailed hawk (*Buteo jamaicensis*)	MBTA, CFGC
Red-winged blackbird (*Agelaius phoeniceus*)	MBTA, CFGC
Rock pigeon (*Columba livia*)	--
Say's phoebe (*Sayornis saya*)	MBTA, CFGC
Spotted towhee (*Pipilo maculatus*)	MBTA, CFGC
Turkey vulture (*Cathartes aura*)	MBTA, CFGC
White-crowned sparrow (*Zonotrichia leucophrys*)	MBTA, CFGC
Mammals	
California ground squirrel (*Otospermophilus beecheyi*)	--
Desert cottontail (*Sylvilagus audubonii*)	--
Fox squirrel (*Sciurus niger*)	--
Valley pocket gopher (*Thomomys bottae*)	--
Reptiles	
Common side-blotched lizard (*Uta stansburiana*)	--
Western fence lizard (*Sceloporus occidentalis*)	--

*MBTA = Protected under the Migratory Bird Treaty Act (16 U.S.C. § 703 et seq.); CFGC = Protected under California Fish and Game Code (FGC §§ 3503 and 3513).

Discussion. As project activities are not expected to impact the low-flow channels of the San Joaquin River, no effects to Sanford's arrowhead (*Sagittaria sanfordii*), spring-run Chinook salmon, or hardhead are anticipated. Therefore, the measures below do not address those species.

Recommended Avoidance and Minimization Measures (AMMs). To avoid or minimize impacts to sensitive species, we recommend the following:

AMM 1. Pre-activity Surveys. Conduct pre-activity surveys for special-status species within 30 days prior to the start of project activities. Surveys shall be conducted within the biological survey area and all access routes to avoid incidental take, confirm previous observations, identify any areas occupied by special-status species, and clearly mark all resources to be avoided by project activities. If any state- or federally listed threatened or endangered species are found or could be impacted by the proposed work, notify the California Department of Fish and Wildlife (CDFW) of the discovery prior to starting project activities to determine whether work can occur without impacting the species.

AMM 2. California Tiger Salamander (CTS) and Western Spadefoot. Within all areas of potential upland habitat, flag all rodent burrows with a minimum 50-foot buffer. A qualified biologist shall be present if ground disturbing activity is within the 50-foot buffer of rodent burrows. Project activities shall be halted if a CTS or spadefoot is detected in or adjacent to the biological survey area until the individual leaves on its own. Notify the CDFW immediately if a CTS or spadefoot is detected. Consult CDFW if any ground-disturbing activity is proposed within

10 feet of the rodent burrows in CTS or spadefoot habitat.

AMM 3. Western Pond Turtle (WPT). To avoid direct impacts to WPT, a qualified biologist shall conduct pre-activity clearance surveys of the impact areas immediately prior to the start of work. If WPT nests are identified during pre-construction surveys, a 300-foot no disturbance buffer shall be established and flagged or marked by temporary fencing between the nest and any areas of potential disturbance. Construction shall not commence in the exclusion area until hatchlings have emerged from the nest, or the nest is deemed inactive by a qualified biologist.

AMM 4. Burrowing Owl. A qualified biologist shall survey for burrowing owl within a 500-foot radius of Lost Lake Trail within 30 days prior to starting project activities. If any occupied burrowing owl burrows are observed, these burrows shall be protected and monitored by a qualified biologist during project activities. A minimum 500-foot avoidance buffer shall be established and maintained around each owl burrow during the nesting season (February 1 through August 31). If active burrowing owl burrows are observed outside of the nesting season, a minimum 150-foot no disturbance buffer shall be established around each burrow.

AMM 5. Swainson's Hawk, Bald Eagle, and White-tailed Kite. No project-related activities shall occur from March 1 through August 30 unless a qualified biologist conducts surveys for active nests of Swainson's hawk, bald eagle and white-tailed kite following the survey methods for Swainson's hawk developed by the Swainson's Hawk Technical Advisory Committee (SHTAC 2000) beginning prior to commencing project-related activities and continuing until the entire survey protocol is completed. A minimum no disturbance buffer of 0.5 mile shall be delineated around active nests until the breeding season has ended or until a qualified biologist has determined and CDFW has confirmed in writing that the birds have fledged and are no longer reliant upon the nest or parental care for survival. In addition, no project-related activities shall be completed from December 1 through March 31 unless a qualified biologist surveys for wintering activity of bald eagle within a 0.25-mile radius of Lost Lake Trail no more than two weeks prior to the start of project activities. If any wintering eagles are observed, a minimum 0.25-mile avoidance buffer shall be established and maintained around the roost site. A qualified ·biologist shall have the authority to stop project activities that could affect the foraging or feeding behavior of eagles.

AMM 7. Nesting Birds. No project-related activities shall occur from February 1 and August 30 unless a qualified biologist conducts surveys for active bird nests no more than 14 days prior to the start of construction activities. During this survey, the qualified biologist shall inspect all potential nest substrates in and immediately adjacent to the impact areas, including within 500 feet in the case of nests of non-listed raptors and within 250 feet for all other birds. If an active nest is found close enough to the construction area to be disturbed by these activities, the qualified biologist shall determine the extent of a construction-free buffer to be established around the nest. If work cannot proceed without disturbing the nesting birds, work may need to be halted or redirected to other areas until nesting and fledging are completed or the nest has failed for non-construction related reasons.

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California Native Plant Society (CNPS). 2019 (December). Locational Inventory of Rare and Endangered Plants (online edition, v8-02). Records of occurrence for the USGS Friant 7.5-minute quadrangle maps. Sacramento, CA: CNPS.

Google. 2019. Google Earth Pro. Version 7.3.2.5776 (https://www.google.com/earth/download/gep/agree.html), accessed December 2019.

Natural Resources Conservation Service (NRCS), U.S. Department of Agriculture. 2019. Web Soil Survey, National Cooperative Soil Survey: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Accessed December 2019.

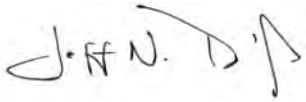
Swainson's Hawk Technical Advisory Committee (SHTAC). 2000 (May 31). Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley. Sacramento, CA: SHTAC

United States Fish and Wildlife Service (USFWS). 2019a (December). List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project (Project Name: Lost Lake Trail Improvement Project).

United States Fish and Wildlife Service (USFWS). 2019b. National Wetlands Inventory Wetlands Mapper: https://www.fws.gov/wetlands/data/Mapper.html. Accessed December 2019.

Please call or email me with any questions.

Best regards,



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Appendix A. USFWS list of threatened and endangered species.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: December 18, 2019
Consultation Code: 08ESMF00-2020-SLI-0576
Event Code: 08ESMF00-2020-E-01805
Project Name: Lost Lake Trail improvement project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2020-SLI-0576

Event Code: 08ESMF00-2020-E-01805

Project Name: Lost Lake Trail improvement project

Project Type: RECREATION CONSTRUCTION / MAINTENANCE

Project Description: The county of Fresno proposes to improve 2,700 feet of the existing Lost Lake Trail with gravel to improve accessibility and surface durability. To improve access, the trail will be better delineated and minor grading will be performed. Decomposed granite will be used for the new trail surface to provide a stable and durable surface. An ADA-accessible path would be constructed from the Trailhead parking lot to the existing picnic area.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/36.96782821451374N119.74022290848734W

Counties: Fresno, CA

Endangered Species Act Species

There is a total of 12 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Fresno Kangaroo Rat *Dipodomys nitratoides exilis* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5150 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/37/office/11420.pdf	Endangered
San Joaquin Kit Fox *Vulpes macrotis mutica* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered

Reptiles

NAME	STATUS
Blunt-nosed Leopard Lizard *Gambelia silus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/625	Endangered
Giant Garter Snake *Thamnophis gigas* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/205/office/11420.pdf	Threatened
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp *Branchinecta conservatio* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened

Flowering Plants

NAME	STATUS
Fleshy Owl's-clover *Castilleja campestris ssp. succulenta* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8095	Threatened
Hartweg's Golden Sunburst *Pseudobahia bahiifolia* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1704	Endangered
San Joaquin Orcutt Grass *Orcuttia inaequalis* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5506	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Appendix B. CNDDB occurrence records.

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Friant (3611986))

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Ambystoma californiense California tiger salamander	G2G3 S2S3	Threatened Threatened	CDFW_WL-Watch List IUCN_VU-Vulnerable	330 680	1199 S:18	3	3	4	0	2	6	7	11	16	2	0
Branchinecta lynchi vernal pool fairy shrimp	G3 S3	Threatened None	IUCN_VU-Vulnerable	350 600	769 S:20	5	1	1	0	1	12	2	18	19	1	0
Branchinecta mesovallensis midvalley fairy shrimp	G2 S2S3	None None		335 430	128 S:2	1	0	0	0	0	1	1	1	2	0	0
Castilleja campestris var. succulenta succulent owl's-clover	G4?T2T3 S2S3	Threatened Endangered	Rare Plant Rank - 1B.2	400 407	95 S:4	3	0	0	0	1	0	4	0	3	1	0
Downingia pusilla dwarf downingia	GU S2	None None	Rare Plant Rank - 2B.2	300 300	132 S:1	0	0	0	0	0	1	1	0	1	0	0
Emys marmorata western pond turtle	G3G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	470 470	1376 S:1	0	0	0	0	0	1	0	1	1	0	0
Eryngium spinosepalum spiny-sepaled button-celery	G2 S2	None None	Rare Plant Rank - 1B.2		108 S:1	0	0	0	0	0	1	1	0	1	0	0
Euderma maculatum spotted bat	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern WBWG_H-High Priority	500 500	68 S:1	0	0	0	0	0	1	1	0	1	0	0
Great Valley Mixed Riparian Forest Great Valley Mixed Riparian Forest	G2 S2.2	None None		280 280	68 S:1	0	0	0	0	0	1	1	0	1	0	0
Leptosiphon serrulatus Madera leptosiphon	G3 S3	None None	Rare Plant Rank - 1B.2 USFS_S-Sensitive	600 600	27 S:1	0	0	0	0	0	1	1	0	1	0	0
Linderiella occidentalis California linderiella	G2G3 S2S3	None None	IUCN_NT-Near Threatened	435 642	438 S:5	0	2	0	0	0	3	1	4	5	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Lytta moesta	G2	None		410	12	0	0	0	0	1	0	1	0	0	1	0
moestan blister beetle	S2	None		410	S:1											
Northern Hardpan Vernal Pool	G3	None		380	126	1	0	0	0	0	1	2	0	2	0	0
Northern Hardpan Vernal Pool	S3.1	None		400	S:2											
Orcuttia inaequalis	G1	Threatened	Rare Plant Rank - 1B.1	395	47	1	0	0	0	1	0	2	0	1	0	1
San Joaquin Valley Orcutt grass	S1	Endangered		400	S:2											
Pseudobahia bahiifolia	G2	Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	440	27	0	4	0	0	1	0	1	4	4	1	0
Hartweg's golden sunburst	S2	Endangered		500	S:5											
Sagittaria sanfordii	G3	None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	310	126	0	1	0	0	0	0	0	1	1	0	0
Sanford's arrowhead	S3	None		310	S:1											
Spea hammondii	G3	None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	360	935	1	3	1	0	1	2	4	4	7	1	0
western spadefoot	S3	None		660	S:8											
Sycamore Alluvial Woodland	G1	None		360	17	0	0	1	0	0	0	1	0	1	0	0
Sycamore Alluvial Woodland	S1.1	None		360	S:1											
Vulpes macrotis mutica	G4T2	Endangered		410	1018	0	0	0	0	0	1	1	0	1	0	0
San Joaquin kit fox	S2	Threatened		410	S:1											

Appendix C. CNPS plant list.

CNPS California Native Plant Society

Inventory of Rare and Endangered Plants

*The database used to provide updates to the Online Inventory is under construction. View updates and changes made since May 2019 here.

Plant List

7 matches found. *Click on scientific name for details*

Search Criteria

Found in Quad 3611986

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Castilleja campestris var. succulenta	succulent owl's-clover	Orobanchaceae	annual herb (hemiparasitic)	(Mar)Apr-May	1B.2	S2S3	G4?T2T3
Delphinium hansenii ssp. ewanianum	Ewan's larkspur	Ranunculaceae	perennial herb	Mar-May	4.2	S3	G4T3
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	Mar-May	2B.2	S2	GU
Eryngium spinosepalum	spiny-sepaled button-celery	Apiaceae	annual / perennial herb	Apr-Jun	1B.2	S2	G2
Orcuttia inaequalis	San Joaquin Valley Orcutt grass	Poaceae	annual herb	Apr-Sep	1B.1	S1	G1
Pseudobahia bahiifolia	Hartweg's golden sunburst	Asteraceae	annual herb	Mar-Apr	1B.1	S2	G2
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	1B.2	S3	G3

Suggested Citation

California Native Plant Society, Rare Plant Program. 2019. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 18 December 2019].

Search the Inventory
Simple Search
Advanced Search
Glossary

Information
About the Inventory
About the Rare Plant Program
CNPS Home Page
About CNPS
Join CNPS

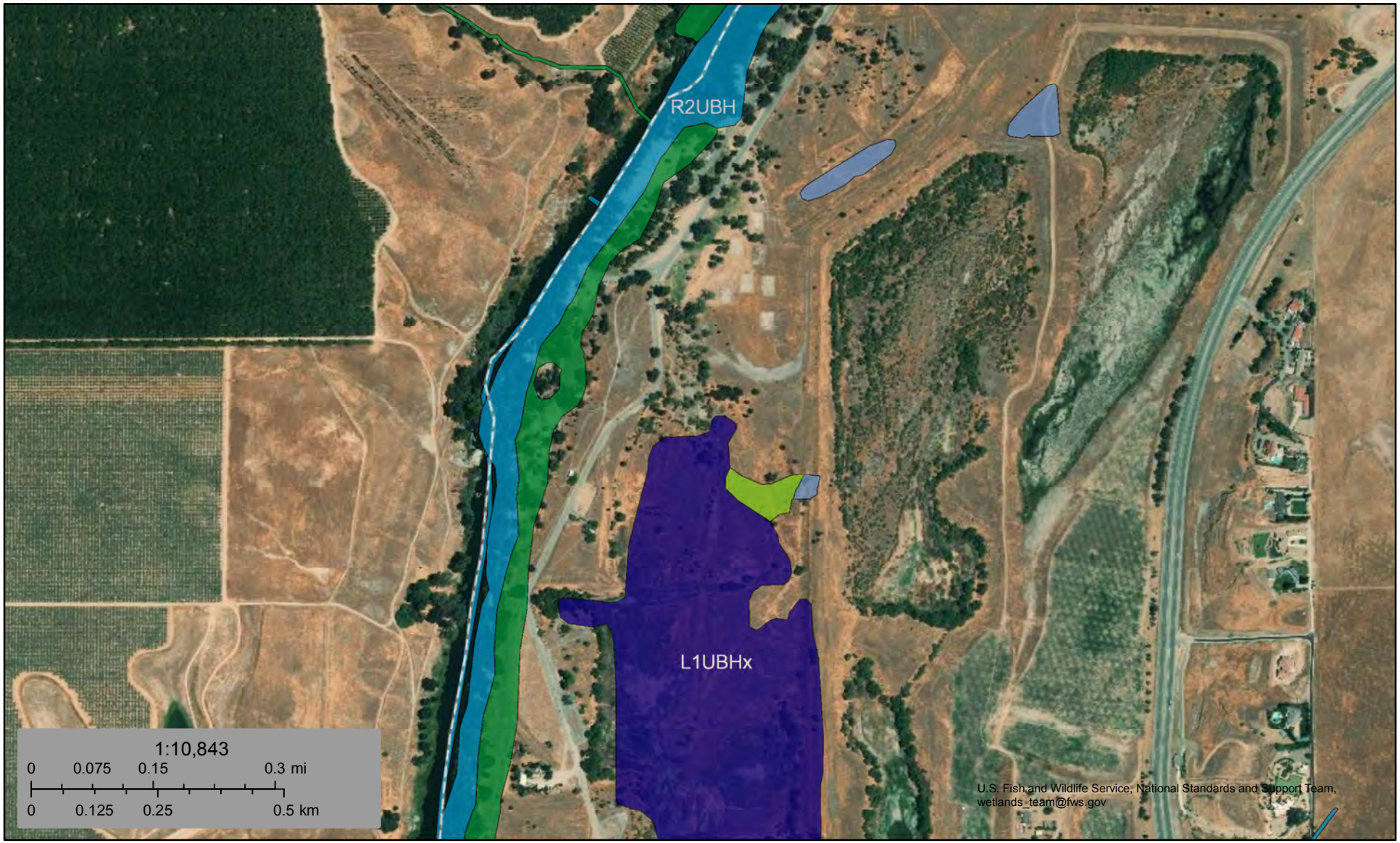
Contributors
The Calflora Database
The California Lichen Society
California Natural Diversity Database
The Jepson Flora Project
The Consortium of California Herbaria
CalPhotos

Questions and Comments
rareplants@cnps.org

Appendix D. National Wetlands Inventory wetland map.

U.S. Fish and Wildlife Service
National Wetlands Inventory

Lost Lake Trail Improvement Project



December 18, 2019

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

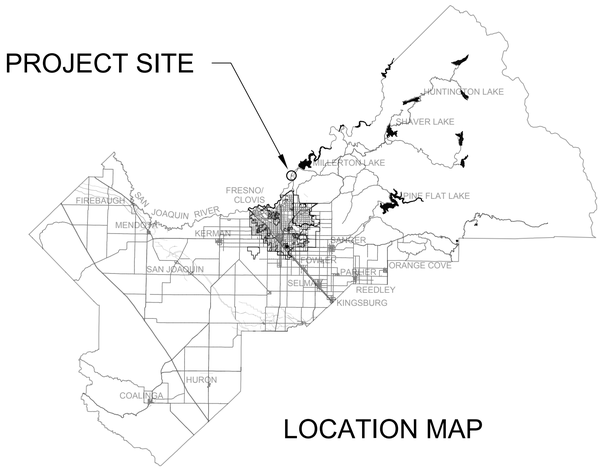
National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

PLANS FOR CONSTRUCTION

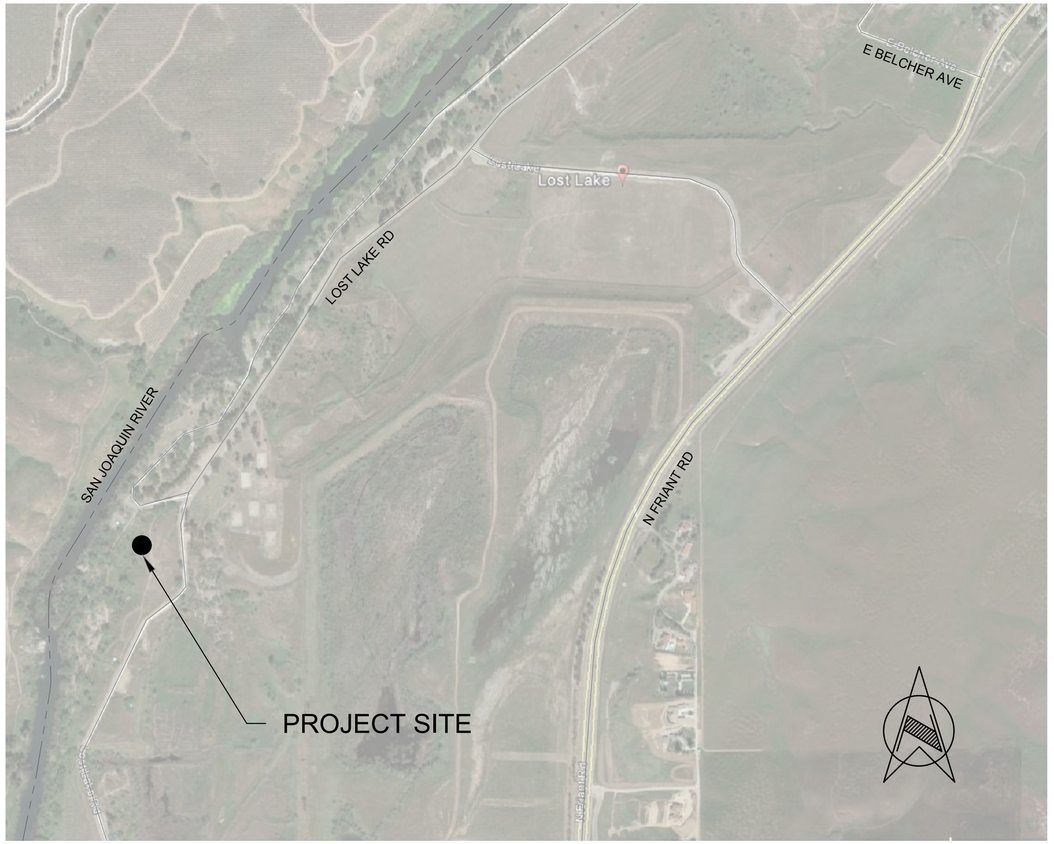
LOST LAKE NATURE TRAIL

LENGTH OF PROJECT - 0.35 MILES

100% DESIGN PHASE



LOCATION MAP



INDEX OF SHEETS

TENTATIVE PLANS FOR DESIGN STUDY ONLY

Nathan Magsig	Chairman	5th	District
Ernest Buddy Mendes	Vice Chairman	4th	District
Brian Pacheco		1st	District
Steve Brandau		2nd	District
Sal Quintero		3rd	District

Jean M. Rousseau
County Administrative Officer

APPROVED _____

Steven E. White, Director
Department of Public Works and Planning

CALIFORNIA CONTRACTOR'S LICENSES REQUIRED FOR THIS PROJECT					
C-12, EARTHWORK AND PAVING					
DRAWING NO.	ROAD NO.	BRIDGE NO.	FISCAL YR.	SHEET NO.	TOTAL
11294		N/A	19 / 20	1	15
CONTRACT NO. #######					

RECORD DRAWING		
DATE ADOPTED		
CONTRACTOR		
NAME		
ADDRESS		
CITY	STATE	ZIP
DATE AWARDED		
DATE STARTED		
DATE COMPLETED		
RESIDENT ENGINEER		
NAME	SIGNATURE	
NAME	SIGNATURE	

THE COUNTY OF FRESNO

DEPARTMENT OF PUBLIC WORKS AND PLANNING

ABBREVIATIONS:

AB	AGGREGATE BASE		
ABUT	ABUTMENT(S)	MP	MILE POST
AC	ASPHALTIC CONCRETE	MTL	MATERIAL
ALIGN	ALIGNMENT	NBL	NORTHBOUND LANE
AP	ANGLE POINT	NS	NATIVE SOIL
AS	AGGREGATE SUBBASE	OC	ON CENTER
BB	BEGINNING OF BRIDGE	OG	ORIGINAL GROUND
BC	BEGIN HORIZONTAL CURVE	PB	PULL BOX
BCM	BRASS CAP MONUMENT	PBS	PULVERIZED BITUMINOUS SURFACE
BCR	BEGIN CURB RETURN	PE	POLYETHYLENE
BD	BEGIN DITCH	PCC	PORTLAND CEMENT CONCRETE
BIT	BITUMINOUS	PRC	POINT OF REVERSING CURVE
BKF	BACKFILL	PERM	PERMEABLE
BM	BENCH MARK	PG	PROFILE GRADE
BR	BRIDGE	PI	POINT OF INTERSECTION
BVC	BEGIN VERTICAL CURVE	PL	PLATE
BW	BARBED WIRE	P/L	PROPERTY LINE
CF	CUBIC FEET	POC	POINT ON CURVE
CFS	CUBIC FEET PER SECOND	POT	POINT ON TANGENT
C&G	CURB AND GUTTER	PP	POWER POLE
CIP	CAST IRON PIPE	PPP	PERFORATED PLASTIC PIPE
C/L	CENTER LINE	PRF	PAVEMENT REINFORCING FABRIC
CL	CHAIN LINK	PT	PEDESTAL TELEPHONE
CLR	CLEAR	PNT	POINT
CIP	CAST IRON PIPE	PULV	PULVERIZED
CMP	CORRUGATED METAL PIPE	PVC	POLYVINYL CHLORIDE
COL	COLUMN	PVMT	PAVEMENT
CONC	CONCRETE	RCB	REINFORCED CONCRETE BOX
CS	COTTON SPINDLE	RCP	REINFORCED CONCRETE PIPE
CSP	CONCRETE SLOPE PROTECTION	R&D	REMOVE AND DISPOSE
CATV	CABLE TELEVISION	REL	RELOCATE
CULV	CULVERT	RES	RESIDENTIAL
CY	CUBIC YARD(S)	RET	RETAINING
DG	DECOMPOSED GRANITE	RG	RUBBER GASKET
DI	DRAINAGE INLET	RLG	ROCK LINED GUTTER
DO	DRAINAGE OUTLET	RMS	ROAD MIX SURFACE
DRWY	DRIVEWAY	R&S	REMOVE AND SALVAGE
EASE	EASEMENT	RSP	ROCK SLOPE PROTECTION
EB	END OF BRIDGE	RTE	ROUTE
EBL	EAST BOUND LANE	R/W	RIGHT OF WAY
EC	END HORIZONTAL CURVE	RW	RETAINING WALL
ECR	END OF CURB RETURN	SL	SLOPE
ED	END DITCH	SBL	SOUTHBOUND LANE
ELEV	ELEVATION	SEC	SECTION
EMB	EMBANKMENT	SR	STATE ROUTE
EP	EDGE OF PAVEMENT	SHR	SHOULDER
EPS	EDGE OF PAVED SHOULDER	S/L	SECTION LINE
ES	EDGE OF SHOULDER	SP	STANDPIPE
ET	EDGE OF TRAIL	STA	STATION
ETL	EDGE OF TRAVELED LANE	STD	STANDARD
EVC	END VERTICAL CURVE	STR	STRUCTURE
EXC	EXCAVATION	SURF	SURFACING
(E)	EXISTING	SDWK	SIDEWALK
EXP	EXPANSION JOINT	SWR	SEWER
FCBCM	FRESNO COUNTY BCM	TAN	TANGENT
FCBM	FRESNO COUNTY BM	TAN OFF	TANGENT OFFSET
FG	FINISHED GRADE	TBM	TEMPORARY BENCHMARK
FH	FIRE HYDRANT	TBR	TO BE REMOVED
FL	FLOW LINE	TC	TOP OF CURVE
GALV	GALVANIZED	TD	TOP OF DIKE
GP	GRADING PLANE	TOB	TOP OF BANK
GR	GUARD RAILING	TCB	TRAFFIC CONTROL BOX
GW	GUY WIRE	TRANS	TRANSITION
HMA	HOT MIXED ASPHALT	TS	TRAFFIC SIGNAL
HP	HINGE POINT	TYP	TYPICAL
HW	HEAD WALL	UC	UNDERCROSSING
HWM	HIGH WATER MARK	UG	UNDERGROUND
IB	IMPORTED BORROW	UD	UNDERDRAIN
IP	IRON PIPE	UDR	UNDERDRAIN RISER
IRR	IRRIGATION	UP	UNDERPASS
IV	IRRIGATION VALVE	VC	VERTICAL CURVE
JP	JOINT POLE	VCP	VITRIFIED CLAY PIPE
JT	JOINT	VG	VALLEY GUTTER
LF	LINEAR FEET	VP	VENTPIPE
LOC	LOCATION	WBL	WESTBOUND LANE
LOL	LAYOUT LINE	WP	WEAKENED PLANE
LP	LIMIT OF PAYMENT	WV	WATER VALVE
EASE	EASEMENT	WW	WINGWALL
EB	END OF BRIDGE	XING	CROSSING
MB	METAL BEAM	X SEC	CROSS SECTION
MBGR	METAL BEAM GUARD RAILING		
MH	MANHOLE		

CALLOUTS – USE ON PLANS AS NEEDED

- XX — AC OR CONC CALLOUT – EXISTING
- XX — AC OR CONC CALLOUT – NEW
- XX — DIRT OR GRAVEL CALLOUT – EXISTING
- XX — DIRT OR GRAVEL CALLOUT – NEW
- XX — IRRIG OR FL OR DIKE OR DI CALLOUT – EXISTING
- XX — IRRIG OR FL OR DIKE OR DI CALLOUT – NEW
- XX — CURVE TABLE OR RADIUS CALLOUT – EXISTING
- XX — CURVE TABLE OR RADIUS CALLOUT – NEW
- XX — LANDSCAPING CALLOUT – EXISTING
- XX — LANDSCAPING CALLOUT – NEW

LINETYPE LEGEND

LINETYPE EXAMPLE	LINETYPE DESCRIPTION
x — x — x	BARBED WIRE FENCE
O — O — O	CHAIN LINK FENCE
— [ ] — [ ] — [ ]	WOODEN FENCE
[ ] — [ ] — [ ]	METAL FENCE
LNDSCP — LNDSCP	EDGE OF LANDSCAPED AREA
– | – | – | – | – | – | – | – |	RAILROAD TRACKS
	SECTION LINES
ALIGN–E	EXISTING ALIGNMENT
	AC CENTERLINE – EXISTING
	AC CROWN – EXISTING
YS	EXISTING YELLOW STRIPED LINES
WS	EXISTING WHITE STRIPED LINE
~ — ~ — ~	AC GRADE BREAK – EXISTING
	AC EDGE OF PAVEMENT – EXISTING
TOE	TOE OF THE SLOPE
AC–DRV — AC–DRV	AC – EDGE OF DRIVEWAY
DRT–DRV	DIRT – EDGE OF DRIVEWAY
GRV–DRV	GRAVEL – EDGE OF DRIVEWAY
CONC–DRV — CONC–DRV	CONCRETE – EDGE OF DRIVEWAY
CMP	CORREGATED METAL PIPE
HDPE	HIGH DENSITY POLYETHYLENE
STP	STEEL PIPE
PVC	POLYVINYL CHLORIDE
P–R/W	PRESCRIPTIVE RIGHT OF WAY
P/L	PROPERTY LINE
R/W	RIGHT OF WAY
R/W–P	RIGHT OF WAY – PROPOSED
W	WATER LINES
IRR	IRRIGATION LINE
SD	STORM DRAIN
S	SEWER LINE
FL	MISC FLOW LINE
GFL	GUTTER FLOW LINE
CONC	EDGE OF CONCRETE STRUCTURES
TFC	TOP FACE OF CURB
SDWK	EDGE OF CONCRETE SIDEWALK
E	UNDERGROUND ELECTRIC
T	UNDERGROUND TELEPHONE
FO	FIBER OPTIC
G	GAS LINE
OHCATV — OHCATV	OVERHEAD CABLE TELEVISION
OHE	OVERHEAD ELECTRIC
OHT	OVERHEAD TELEPHONE
CATV	UNDERGROUND CABLE TELEVISION
	PROFILE STYLE – EXISTING GROUND
D	PROFILE STYLE – DESIGN
	DESIGN ALIGNMENT
ETL	EDGE OF THE TRAVELED LANE
EP–D	EDGE OF PAVEMENT – DESIGN
HP	HINGE POINT LINE
DYLT	DAYLIGHTING LINE

GENERAL NOTES:

1. DIMENSIONS SHOWN ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.
2. THE FOLLOWING APPLY TO EARTHWORK QUANTITIES:
   - A. ROADWAY EXCAVATION QUANTITIES ARE IN PLACE VOLUMES OF EXCAVATION. THESE QUANTITIES INCLUDE WASTE MATERIAL AND EXCAVATION FOR ROAD APPROACHES AND DRIVEWAYS. NO ALLOWANCE FOR SUBSIDENCE AND SHRINKAGE.
   - B. WASTE MATERIAL IS ROADWAY EXCAVATION UNSUITABLE FOR OR NOT NEEDED IN EMBANKMENT CONSTRUCTION.
   - C. EMBANKMENT QUANTITIES ARE IN PLACE VOLUMES REQUIRED TO CONSTRUCT THE ROADBED TO THE GRADING PLANE. THESE QUANTITIES INCLUDE AN ALLOWANCE FOR ROAD APPROACHES AND DRIVEWAYS.
3. ALL PIPE JOINTS ARE TO BE POSITIVE JOINT SYSTEMS.
4. ALL TREES TO REMAIN UNLESS OTHERWISE SPECIFIED BY ENGINEER.
5. STATE STANDARD SPECS – 2015 EDITION.

SYMBOL LEGEND

SYMBOL	BLOCK DESCRIPTION
	SECTION CORNER
	BENCHMARK
	SURVEY CONTROL POINT
	PROPERTY CORNER OR RW MONUMENT
	FLIGHT TARGET AT SECTION CORNER
	FLIGHT TARGET AT P LINE STATION
	FLIGHT TARGET AT P LINE ANGLE POINT
	MISCELANEOUS PALM TREE
	MISCELANEOUS TREE
	MISCELANEOUS TREE
	MISCELANEOUS BUSH
	MISCELANEOUS BUSH
	MISCELANEOUS VINE
	MISCELANEOUS STUMP
	STEEL IRRIGATION SCREWGATE
	STEEL IRRIGATION INLET SCREEN
	ELECTRIC TRANSMISSION TOWER
	RIVER ROCK

HATCHING LEGEND

HATCH	HATCH DESCRIPTION
	ASPHALTIC CONCRETE
	AGGREGATE BASE
	NATIVE EARTH – COMPACTED 95%
	DECOMPOSED GRANITE

CALLOUTS AND MISC SYMBOLS

- 1 / 101 — DETAIL NUMBER / SHEET NUMBER (STATE STANDARD PLANS)
- 1 / 101 — DETAIL NUMBER / SHEET NUMBER (AUTOCAD SECTION STANDARD)
- 1 / 25 — DETAIL NUMBER / DWG SHEET NUMBER (PLAN SET CALLOUT)
- T 16 S R 22 E — TOWNSHIP / RANGE
- 10 11 / 15 14 — SECTION

UTILITY NOTES:

LOCATIONS FOR EXISTING UNDERGROUND FACILITIES ARE APPROXIMATE. EXACT DEPTH AND LOCATIONS ARE UNKNOWN. FIELD LOCATE PRIOR TO THE START OF CONSTRUCTION.

**CALL UNDERGROUND SERVICE ALERT (USA) 811

SYMBOL	BLOCK DESCRIPTION (EXISTING)	SYMBOL	BLOCK DESCRIPTION (INSTALL NEW)
W	WATER MANHOLE	W	WATER MANHOLE
	FIRE HYDRANT		FIRE HYDRANT
WM	WATER METER	WM	WATER METER
WV	WATER VALVE	WV	WATER VALVE
W	WATER VAULT	W	WATER VAULT
W	WATER WELL PAD	W	WATER WELL PAD
	BUTTERFLY OR GATE VALVE		BUTTERFLY OR GATE VALVE
EM W	ELECTRIC MOTOR WATER WELL PAD	EM W	ELECTRIC MOTOR WATER WELL PAD
DM W	DEISEL MOTOR WATER WELL PAD	DM W	DEISEL MOTOR WATER WELL PAD
	CONCRETE IRRIGATION TURNOUT BOX		CONCRETE IRRIGATION TURNOUT BOX
	CONCRETE IRRIGATION STANDPIPE		CONCRETE IRRIGATION STANDPIPE
	STEEL OR PVC IRRIGATION VENTPIPE		STEEL OR PVC IRRIGATION VENTPIPE
SPR	SPRINKLER VALVES / CONTROL BOXES	SPR	SPRINKLER VALVES / CONTROL BOXES
SD	STORM DRAIN MANHOLE	SD	STORM DRAIN MANHOLE
	STORM DRAIN INLET		STORM DRAIN INLET
S	SEWER MANHOLE	S	SEWER MANHOLE
S	SEWER VAULT	S	SEWER VAULT
ET	ELECTRIC TRANSFORMER PAD	ET	ELECTRIC TRANSFORMER PAD
E	ELECTRIC VAULT	E	ELECTRIC VAULT
E	ELECTRIC MANHOLE	E	ELECTRIC MANHOLE
UE	UNDERGROUND ELECTRIC WARNING POST	UE	UNDERGROUND ELECTRIC WARNING POST
	POWER POLE		POWER POLE
	JOINT POLE		JOINT POLE
EM	ELECTRIC METER	EM	ELECTRIC METER
	JOINT TRANSFORMER POLE		JOINT TRANSFORMER POLE
	GUY POLE		GUY POLE
	GUY WIRE		GUY WIRE
	SERVICE POLE		SERVICE POLE
	TRANSFORMER POLE		TRANSFORMER POLE
GM	GAS METER	GM	GAS METER
G	GAS VAULT	G	GAS VAULT
GV	GAS VALVE	GV	GAS VALVE
G	GAS MANHOLE	G	GAS MANHOLE
UG	UNDERGROUND GAS WARNING POST	UG	UNDERGROUND GAS WARNING POST
FO	FIBER OPTIC MANHOLE	FO	FIBER OPTIC MANHOLE
PT	TELEPHONE PEDESTAL	PT	TELEPHONE PEDESTAL
UFO	UNDERGROUND FIBER OPTIC WARNING POST	UFO	UNDERGROUND FIBER OPTIC WARNING POST
FO	FIBER OPTIC VAULT	FO	FIBER OPTIC VAULT
T	TELEPHONE VAULT	T	TELEPHONE VAULT
T	TELEPHONE MANHOLE	T	TELEPHONE MANHOLE
UT	UNDERGROUND TELEPHONE WARNING POST	UT	UNDERGROUND TELEPHONE WARNING POST
	TELEPHONE POLE		TELEPHONE POLE
PB	VARIOUS PULL BOXES	PB	VARIOUS PULL BOXES
SL	STREET LIGHT POLE	SL	STREET LIGHT POLE
TL	TRAFFIC LIGHT POLE	TL	TRAFFIC LIGHT POLE
S	MISC TRAFFIC SIGNS	S	MISC TRAFFIC SIGNS
SS	STOP SIGN	SS	STOP SIGN
RXR	RAILROAD CROSSING AHEAD SIGN	RXR	RAILROAD CROSSING AHEAD SIGN
TSL	TURN SIGNAL LOOP DETECTOR	TSL	TURN SIGNAL LOOP DETECTOR
RXR	RAILROAD CROSSING ARM	RXR	RAILROAD CROSSING ARM
CB	SIGNAL CONTROL BOX PAD	CB	SIGNAL CONTROL BOX PAD

100% SUBMITTAL
NOT FOR CONSTRUCTION

	DATE	RECORD DRAWING	
DESIGNED: A. BEDAL	11/25/2019	RESIDENT ENGINEER	DATE
DRAWN: A. BEDAL	11/25/2019		
CHECKED: J. CONKLIN	11/25/2019		

FOR RIGHT OF WAY DATA AND ACCURATE ACCESS DETERMINATION, SEE DOCUMENTS IN THE DEPARTMENT OF PUBLIC WORKS AND PLANNING.

TRC
575 E. Locust Ave., Suite 105
Fresno, California 93720

SUPERVISING ENGINEER — DATE

TENTATIVE PLANS FOR DESIGN REVIEW ONLY

REGISTERED PROFESSIONAL ENGINEER — JUSTINA L. CONKLIN — No. 53183 — Exp. 06-30-20 — CIVIL — STATE OF CALIFORNIA

PROJECT

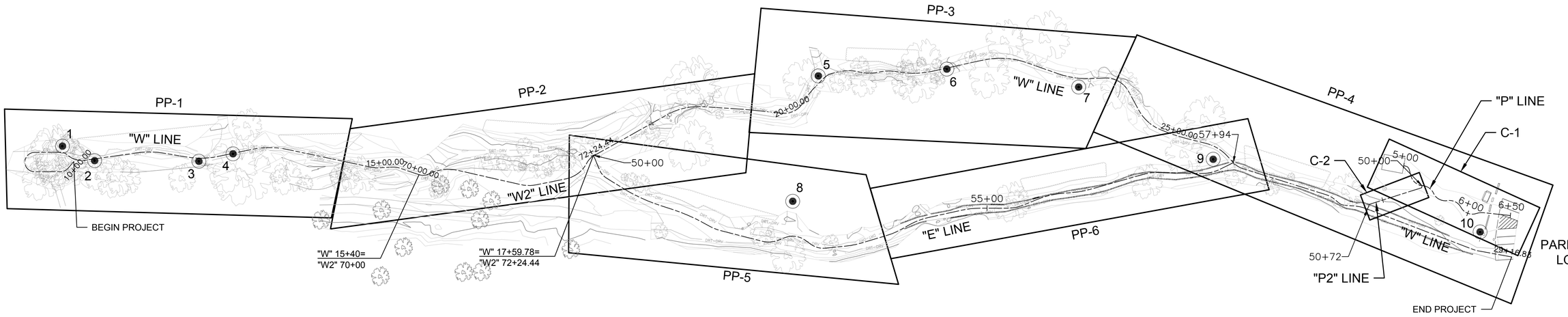
LOST LAKE NATURE TRAIL

ROAD NO. --- BRIDGE NO. ---

DEPARTMENT OF PUBLIC WORKS AND PLANNING

GENERAL LEGEND AND GENERAL NOTES

DRAWING NO. --- SHEET ID T-2 SHEET No. 2 of 15



SURVEY CONTROL POINTS / BENCHMARKS			
◉ #	NORTHING	EASTING	ELEVATION
1	2235996.6000'	6345335.8800'	296.10'
2	2236028.0400'	6345362.0700'	296.65'
3	2236144.4100'	6345395.2500'	296.66'
4	2236184.9400'	6345397.5400'	296.82'
5	2236863.5200'	6345492.7700'	296.55'
6	2237009.3600'	6345525.2700'	298.40'
7	2237151.1600'	6345586.2900'	302.10'
8	2236795.9600'	6345624.8200'	296.98'
9	2237279.0900'	6345708.8800'	300.29'
10 (SITE BENCHMARK)	2237554.9400'	6345873.2400'	300.81'

LEGEND

◉ SURVEY CONTROL POINT / BENCH MARK

COORDINATE SYSTEM

THE COORDINATES SHOWN HERE ON ARE CSS ZONE 4 (STATE PLANE) COORDINATES BASED ON AN "OPUS SOLUTION" OF POINT #101

VERTICAL DATUM

THE VERTICAL DATUM USED HEREON IS NAVD 88 (NORTH AMERICAN VERTICAL DATUM OF 1988) BASED ON GPS OBSERVATION.

BENCHMARKS

SET 3/4" IRON PIPE WITH PLASTIC CAP MARKED "SURVEY CONTROL", DOWN 6"
ELEVATION = 300.81'

100% SUBMITTAL
NOT FOR CONSTRUCTION

	DATE	RECORD DRAWING	
DESIGNED: A. BEDAL	11/25/2019	RESIDENT ENGINEER	DATE
DRAWN: A. BEDAL	11/25/2019		
CHECKED: J. CONKLIN	11/25/2019		

FOR RIGHT OF WAY DATA AND ACCURATE ACCESS DETERMINATION, SEE DOCUMENTS IN THE DEPARTMENT OF PUBLIC WORKS AND PLANNING.

NO SCALE

TRC
575 E. Locust Ave., Suite 105
Fresno, California 93720
SUPERVISING ENGINEER DATE

TENTATIVE PLAN FOR DESIGN ONLY

REGISTERED PROFESSIONAL ENGINEER
JUSTINA L. CONKLIN
No. 53183
Exp. 06-30-20
CIVIL
STATE OF CALIFORNIA

PROJECT

LOST LAKE NATURE TRAIL

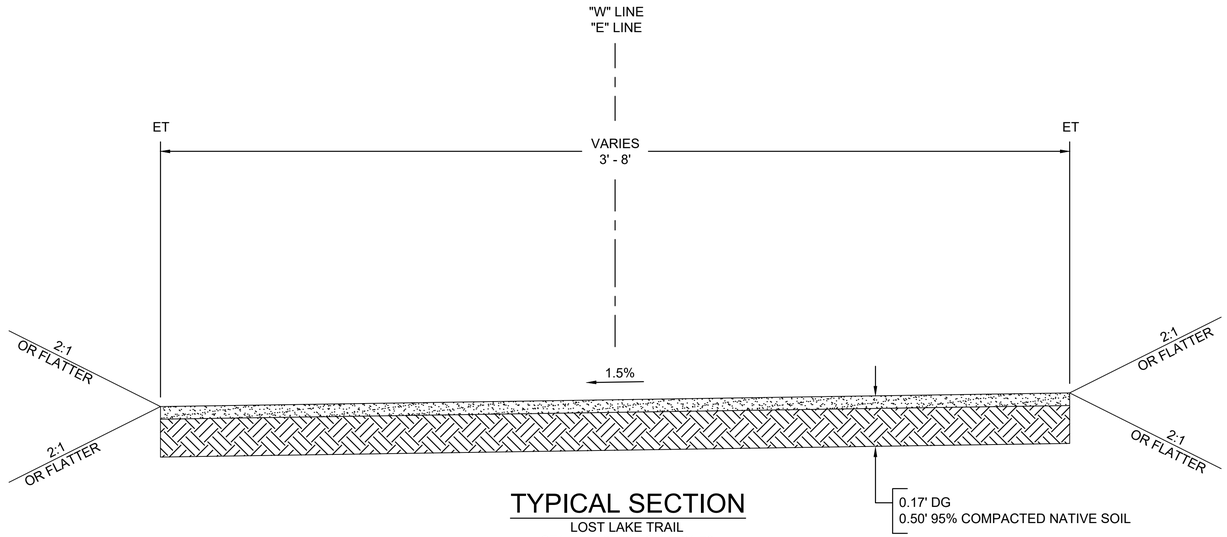
ROAD NO. --- BRIDGE NO. ---

THE COUNTY OF FRESNO 1856

DEPARTMENT OF PUBLIC WORKS AND PLANNING

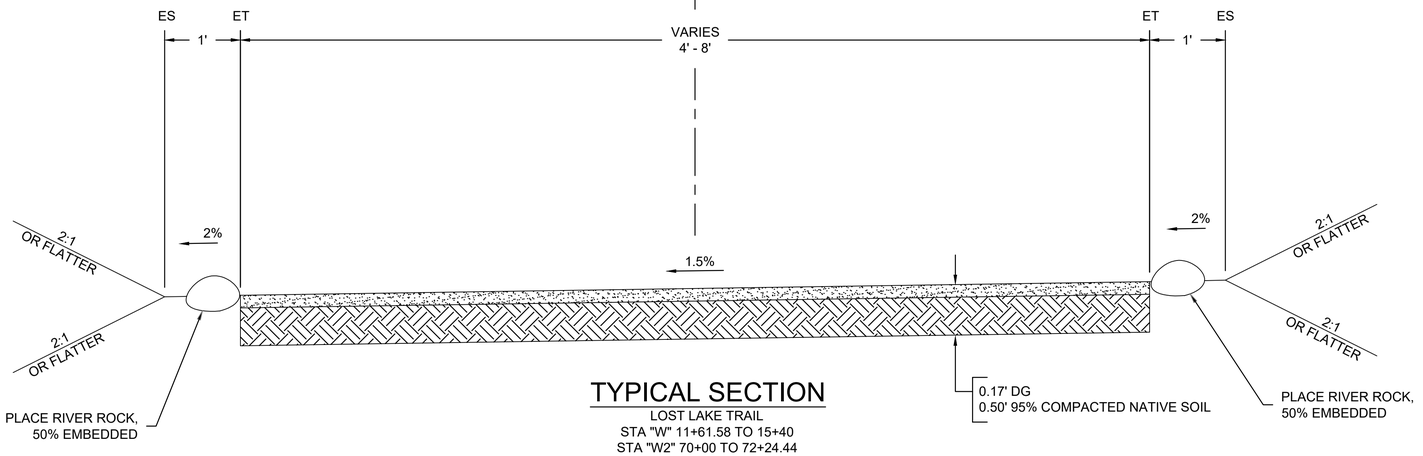
KEY MAP AND LINE INDEX

DRAWING NO. --- SHEET ID K-1 SHEET No. 3 of 15



TYPICAL SECTION

LOST LAKE TRAIL
STA "W" 10+00 TO 11+61.58
STA "W" 18+32.05 TO 22+00.79
STA "W" 23+68.25 TO 24+44.12
STA "E" 52+02.09 TO 55+59.95



TYPICAL SECTION

LOST LAKE TRAIL
STA "W" 11+61.58 TO 15+40
STA "W2" 70+00 TO 72+24.44
STA "W" 17+59.78 TO 18+32.05
STA "W" 22+00.79 TO 23+68.25
STA "W" 24+44.12 TO 28+95.74
STA "E" 50+00 TO 52+02.09
STA "E" 55+59.95 TO 57+94.15

NOTES:

1. FOR EXACT LOCATION OF RIVER ROCK, SEE SHEETS PP-1 TO PP-6.

100% SUBMITTAL
NOT FOR CONSTRUCTION

	DATE	RECORD DRAWING	
DESIGNED: A. BEDAL	11/25/2019	RESIDENT ENGINEER	DATE
DRAWN: A. BEDAL	11/25/2019		
CHECKED: J. CONKLIN	11/25/2019		

FOR RIGHT OF WAY DATA AND ACCURATE ACCESS DETERMINATION, SEE DOCUMENTS IN THE DEPARTMENT OF PUBLIC WORKS AND PLANNING.

NO SCALE

TRC
575 E. Locust Ave., Suite 105
Fresno, California 93720
SUPERVISING ENGINEER DATE

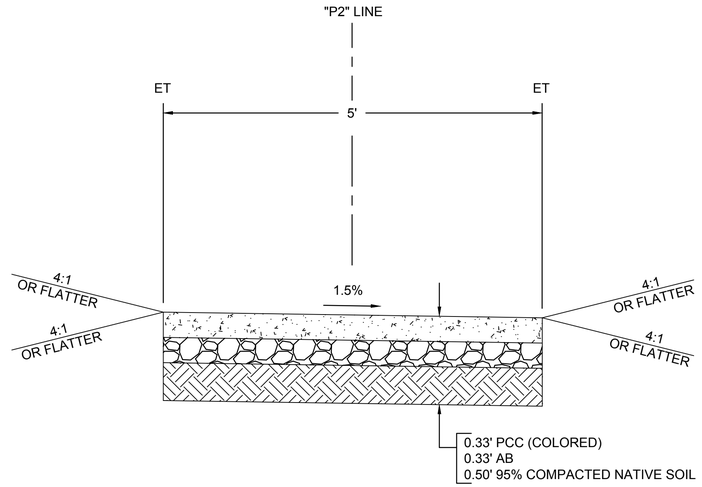
TENTATIVE PLAN FOR DESIGN REVIEW ONLY

REGISTERED PROFESSIONAL ENGINEER
JUSTINA L. CONKLIN
No. 53183
Exp. 06-30-21
CIVIL
STATE OF CALIFORNIA

PROJECT
LOST LAKE NATURE TRAIL
ROAD NO. --- BRIDGE NO. ---

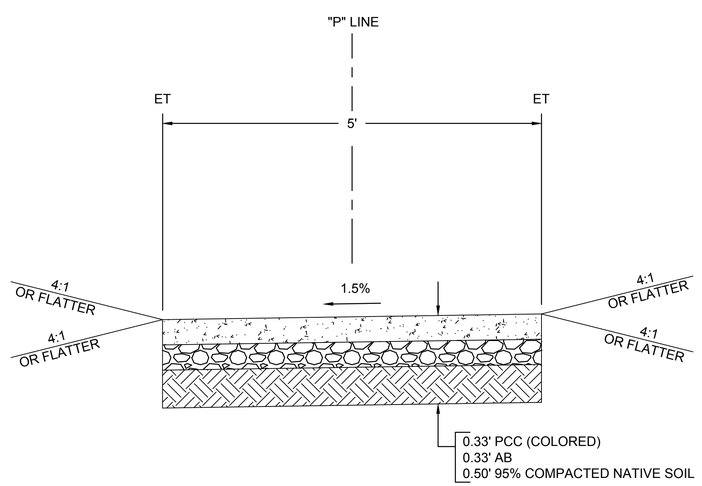
THE COUNTY OF FRESNO

DEPARTMENT OF PUBLIC WORKS AND PLANNING
TYPICAL SECTIONS
DRAWING NO. --- SHEET ID X-1 SHEET No. 4 of 15



TYPICAL SECTION

WALKWAY 2
STA "P2" 50+02.50 TO 50+68.22



TYPICAL SECTION

WALKWAY
STA "P" 5+00 TO 6+50

100% SUBMITTAL
NOT FOR CONSTRUCTION

	DATE	RECORD DRAWING	
DESIGNED: A. BEDAL	11/25/2019	RESIDENT ENGINEER	DATE
DRAWN: A. BEDAL	11/25/2019		
CHECKED: J. CONKLIN	11/25/2019		

FOR RIGHT OF WAY DATA AND ACCURATE ACCESS DETERMINATION, SEE DOCUMENTS IN THE DEPARTMENT OF PUBLIC WORKS AND PLANNING.

NO SCALE

TRC
575 E. Locust Ave., Suite 105
Fresno, California 93720
SUPERVISING ENGINEER DATE

TENTATIVE PLAN FOR DESIGN ONLY

REGISTERED PROFESSIONAL ENGINEER
JUSTINA L. CONKLIN
No. 53183
Exp. 06-30-20
CIVIL
STATE OF CALIFORNIA

SIGNED

PROJECT
LOST LAKE NATURE TRAIL
ROAD NO. --- BRIDGE NO. ---

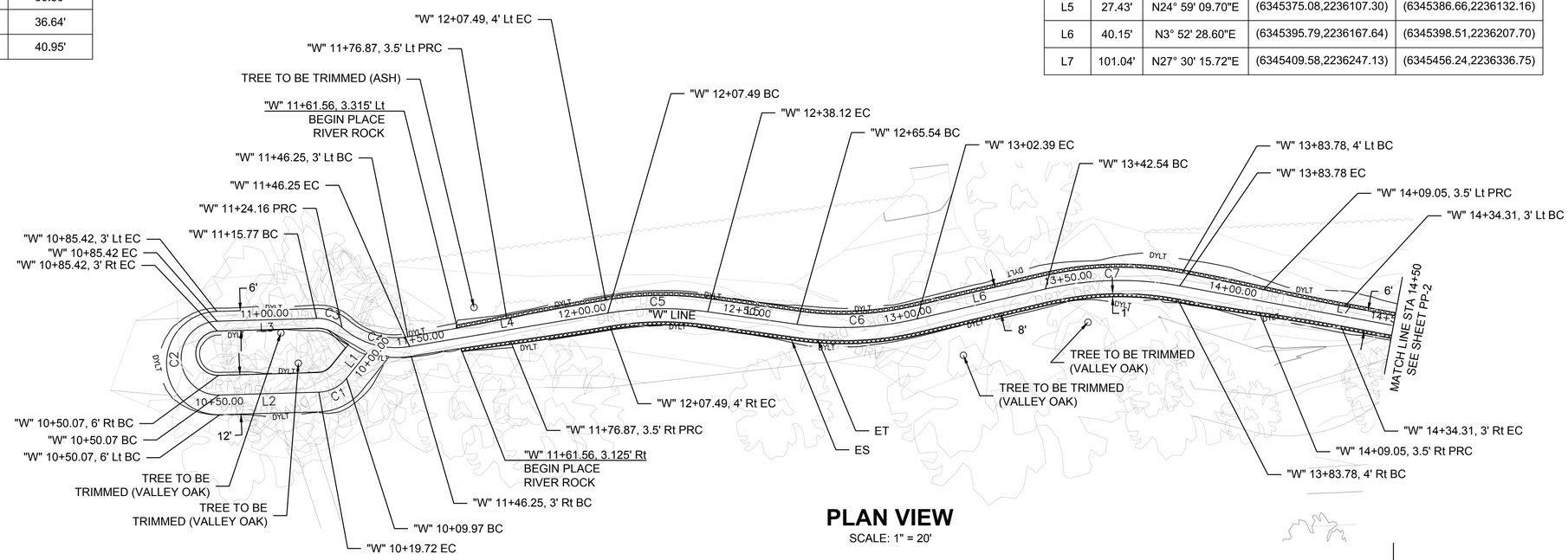
THE COUNTY OF FRESNO 1856

DEPARTMENT OF PUBLIC WORKS AND PLANNING
TYPICAL SECTIONS
DRAWING NO. --- SHEET ID X-2 SHEET No. 5 of 15

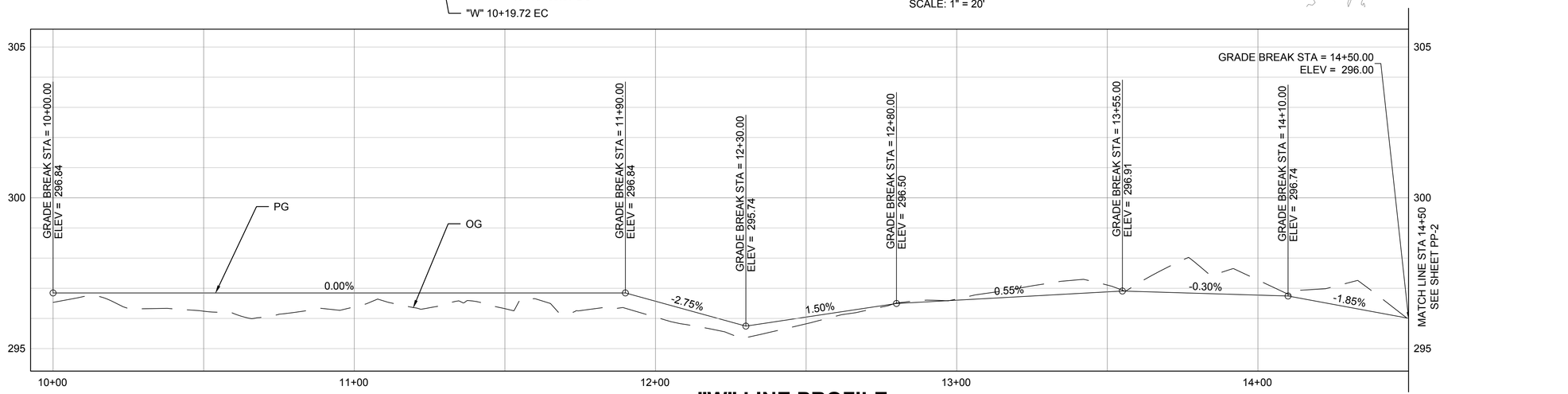
Curve Table					
Curve #	Radius	Length	Delta	Chord Direction	Chord Length
C1	11.25'	9.75'	49.67	S09° 28' 15.97"E	9.45'
C2	11.25'	35.34'	180.00	N74° 38' 07.92"W	22.50'
C3	11.25'	8.39'	42.71	N36° 43' 15.67"E	8.19'
C4	25.00'	22.09'	50.64	N32° 45' 31.73"E	21.38'
C5	100.00'	30.62'	17.55	N16° 12' 46.96"E	30.50'
C6	100.00'	36.85'	21.11	N14° 25' 49.15"E	36.64'
C7	100.00'	41.24'	23.63	N15° 41' 22.16"E	40.95'

NOTES:
1. EXISTING CONTOURS AND ELEVATIONS ARE BASED ON TOPOGRAPHIC SURVEY PERFORMED IN AUGUST, 2016. SITE CONDITIONS MAY HAVE CHANGED SINCE THAT TIME. THE CONTRACTOR SHALL VERIFY ELEVATIONS AND MAY ADJUST THE FINISHED GRADE ELEVATIONS UP TO ±0.2 FEET, AS APPROVED BY THE ENGINEER TO COMPENSATE FOR MINOR GRADE VARIATIONS.
2. STATION OFFSETS FOR RIVER ROCKS REFER TO EDGE OF TRAIL.
3. VERIFY TREES TO BE TRIMMED WITH RESIDENT ENGINEER.

Line Table				
Line #	Length	Direction	Start Point	End Point
L1	9.97'	S34° 18' 24.02"E	(6345356.68,2236004.33)	(6345362.30,2235996.09)
L2	30.35'	S15° 21' 52.08"W	(6345363.86,2235986.77)	(6345355.82,2235957.50)
L3	30.35'	N15° 21' 52.08"E	(6345334.12,2235963.47)	(6345342.16,2235992.73)
L4	61.24'	N7° 26' 24.22"E	(6345358.63,2236017.28)	(6345366.56,2236078.01)
L5	27.43'	N24° 59' 09.70"E	(6345375.08,2236107.30)	(6345386.66,2236132.16)
L6	40.15'	N3° 52' 28.60"E	(6345395.79,2236167.64)	(6345398.51,2236207.70)
L7	101.04'	N27° 30' 15.72"E	(6345409.58,2236247.13)	(6345456.24,2236336.75)



PLAN VIEW
SCALE: 1" = 20'



"W" LINE PROFILE
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'

100% SUBMITTAL
NOT FOR CONSTRUCTION

	DATE	RECORD DRAWING	
DESIGNED: A. BEDAL	11/25/2019	RESIDENT ENGINEER	DATE
DRAWN: A. BEDAL	11/25/2019		
CHECKED: J. CONKLIN	11/25/2019		

FOR RIGHT OF WAY DATA AND ACCURATE ACCESS DETERMINATION, SEE DOCUMENTS IN THE DEPARTMENT OF PUBLIC WORKS AND PLANNING.

AS SHOWN

TRC
575 E. Locust Ave., Suite 105
Fresno, California 93720
SUPERVISING ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER
JUSTINA L. CONKLIN
No. 53183
Exp. 06-30-20
CIVIL
STATE OF CALIFORNIA

PROJECT
LOST LAKE NATURE TRAIL
ROAD NO. --- BRIDGE NO. ---

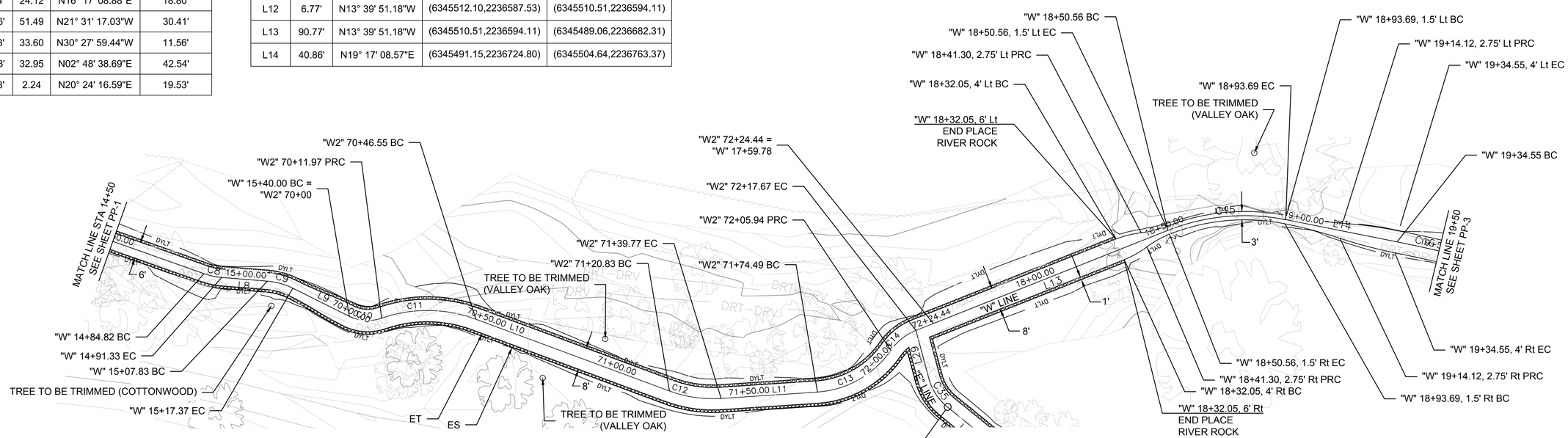
THE COUNTY OF FRESNO

DEPARTMENT OF PUBLIC WORKS AND PLANNING
WESTERN ALIGNMENT
STA 10+00.00 TO 14+50.00
DRAWING NO. --- SHEET ID PP-1 SHEET No. 6 of 15

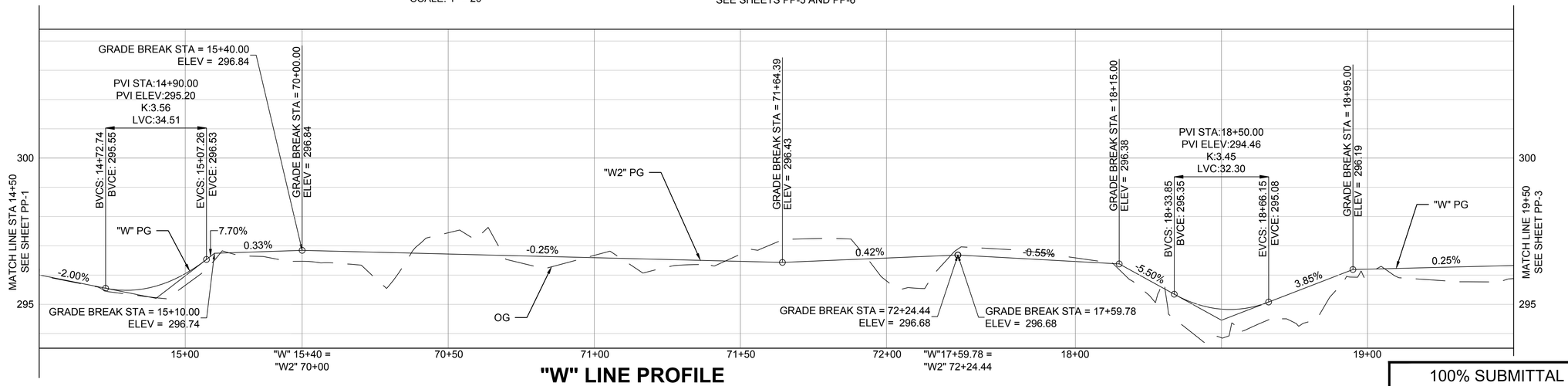
Curve Table					
Curve #	Radius	Length	Delta	Chord Direction	Chord Length
C8	25.00'	6.51'	14.91	N20° 02' 56.24"E	6.49'
C9	25.00'	9.54'	21.87	N23° 31' 36.98"E	9.48'
C10	15.00'	11.97'	45.74	N11° 35' 26.29"E	11.66'
C11	50.00'	34.58'	39.62	N08° 31' 59.76"E	33.89'
C12	45.00'	18.94'	24.12	N16° 17' 08.88"E	18.80'
C13	35.00'	31.46'	51.49	N21° 31' 17.03"W	30.41'
C14	20.00'	11.73'	33.60	N30° 27' 59.44"W	11.56'
C15	75.00'	43.13'	32.95	N02° 48' 38.69"E	42.54'
C16	500.00'	19.53'	2.24	N20° 24' 16.59"E	19.53'

Line Table				
Line #	Length	Direction	Start Point	End Point
L8	16.50'	N12° 35' 36.76"E	(6345458.47,2236342.84)	(6345462.06,2236358.95)
L9	22.71'	N34° 27' 37.19"E	(6345465.85,2236367.64)	(6345478.70,2236386.37)
L10	74.28'	N28° 20' 44.14"E	(6345486.03,2236431.24)	(6345521.29,2236496.61)
L11	34.71'	N4° 13' 33.62"E	(6345526.56,2236514.66)	(6345529.12,2236549.28)
L12	6.77'	N13° 39' 51.18"W	(6345512.10,2236587.53)	(6345510.51,2236594.11)
L13	90.77'	N13° 39' 51.18"W	(6345510.51,2236594.11)	(6345489.06,2236682.31)
L14	40.86'	N19° 17' 08.57"E	(6345491.15,2236724.80)	(6345504.64,2236763.37)

NOTES:
1. EXISTING CONTOURS AND ELEVATIONS ARE BASED ON TOPOGRAPHIC SURVEY PERFORMED IN AUGUST, 2016. SITE CONDITIONS MAY HAVE CHANGED SINCE THAT TIME. THE CONTRACTOR SHALL VERIFY ELEVATIONS AND MAY ADJUST THE FINISHED GRADE ELEVATIONS UP TO ±0.2 FEET, AS APPROVED BY THE ENGINEER TO COMPENSATE FOR MINOR GRADE VARIATIONS.
2. STATION OFFSETS FOR RIVER ROCKS REFER TO EDGE OF TRAIL.
3. VERIFY TREES TO BE TRIMMED WITH RESIDENT ENGINEER.
4. SEE SHEETS PP-5 AND PP-6 FOR "E" LINE DETAILS



PLAN VIEW
SCALE: 1" = 20'



"W" LINE PROFILE
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'

100% SUBMITTAL
NOT FOR CONSTRUCTION

	DATE	RECORD DRAWING	
DESIGNED: A. BEDAL	11/25/2019	RESIDENT ENGINEER	DATE
DRAWN: A. BEDAL	11/25/2019		
CHECKED: J. CONKLIN	11/25/2019		

FOR RIGHT OF WAY DATA AND ACCURATE ACCESS DETERMINATION, SEE DOCUMENTS IN THE DEPARTMENT OF PUBLIC WORKS AND PLANNING.

AS SHOWN

TRC
575 E. Locust Ave., Suite 105
Fresno, California 93720
SUPERVISING ENGINEER DATE

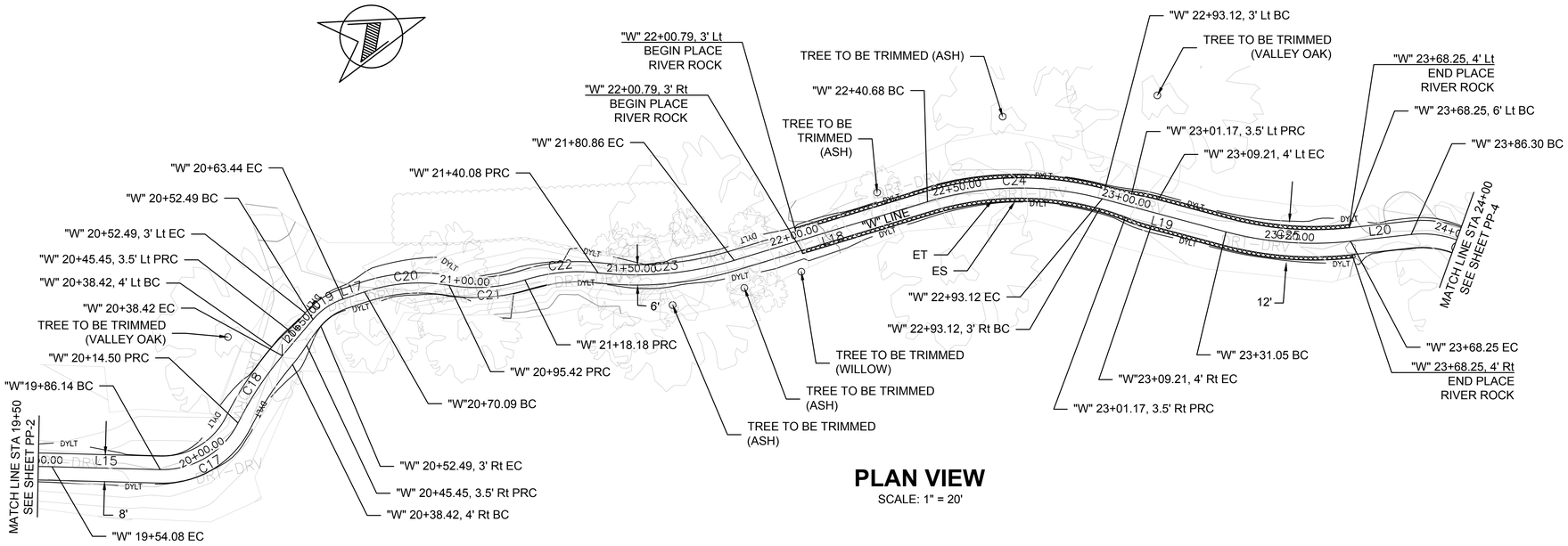
TENTATIVE PLAN FOR DESIGN REVIEW ONLY

REGISTERED PROFESSIONAL ENGINEER
JUSTINA L. CONKLIN
No. 53183
Exp. 06-30-21
CIVIL
STATE OF CALIFORNIA

PROJECT
LOST LAKE NATURE TRAIL
ROAD NO. --- BRIDGE NO. ---

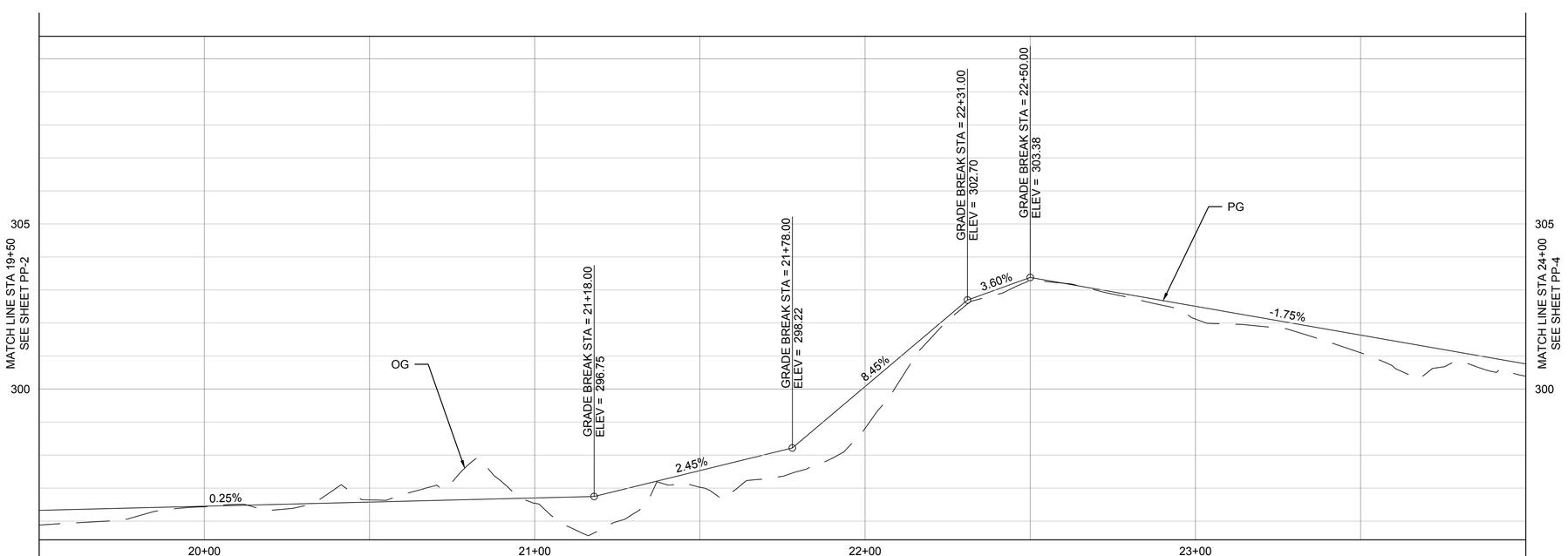
THE COUNTY OF FRESNO

DEPARTMENT OF PUBLIC WORKS AND PLANNING
WESTERN ALIGNMENT
STA 14+50.00 TO 19+50.00
DRAWING NO. --- SHEET ID PP-2 SHEET No. 7 of 15



PLAN VIEW

SCALE: 1" = 20'



"W" LINE PROFILE

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'

NOTES:

1. EXISTING CONTOURS AND ELEVATIONS ARE BASED ON TOPOGRAPHIC SURVEY PERFORMED IN AUGUST, 2016. SITE CONDITIONS MAY HAVE CHANGED SINCE THAT TIME. THE CONTRACTOR SHALL VERIFY ELEVATIONS AND MAY ADJUST THE FINISHED GRADE ELEVATIONS UP TO ±0.2 FEET, AS APPROVED BY THE ENGINEER TO COMPENSATE FOR MINOR GRADE VARIATIONS.
2. STATION OFFSETS FOR RIVER ROCKS REFER TO EDGE OF TRAIL.
3. VERIFY TREES TO BE TRIMMED WITH RESIDENT ENGINEER.

Line Table				
Line #	Length	Direction	Start Point	End Point
L15	32.06'	N21° 31' 24.60"E	(6345511.45,2236781.67)	(6345523.21,2236811.50)
L16	14.07'	N29° 46' 43.55"W	(6345503.86,2236857.02)	(6345496.87,2236869.23)
L17	6.65'	N1° 35' 32.77"E	(6345494.24,2236879.72)	(6345494.43,2236886.37)
L18	59.82'	N3° 06' 51.94"E	(6345523.09,2236992.43)	(6345526.34,2237052.16)
L19	37.93'	N34° 57' 47.42"E	(6345543.22,2237101.09)	(6345564.96,2237132.18)
L20	18.05'	N13° 38' 57.34"E	(6345580.18,2237165.89)	(6345584.44,2237183.43)

Curve Table					
Curve #	Radius	Length	Delta	Chord Direction	Chord Length
C17	25.00'	28.36'	65.01	N10° 58' 45.15"W	26.87'
C18	100.00'	23.92'	13.70	N36° 37' 49.23"W	23.86'
C19	20.00'	10.95'	31.37	N14° 05' 35.39"W	10.81'
C20	52.00'	25.33'	27.91	N15° 32' 51.34"E	25.08'
C21	48.00'	22.75'	27.16	N15° 55' 20.15"E	22.54'
C22	52.00'	21.91'	24.14	N14° 24' 37.60"E	21.74'
C23	100.00'	40.78'	23.36	N14° 47' 48.37"E	40.50'
C24	94.34'	52.44'	31.85	N19° 02' 19.68"E	51.77'
C25	100.00'	37.20'	21.31	N24° 18' 22.38"E	36.99'

100% SUBMITTAL
NOT FOR CONSTRUCTION

	DATE	RECORD DRAWING	
DESIGNED: A. BEDAL	11/25/2019	RESIDENT ENGINEER	DATE
DRAWN: A. BEDAL	11/25/2019		
CHECKED: J. CONKLIN	11/25/2019		

FOR RIGHT OF WAY DATA AND ACCURATE ACCESS DETERMINATION, SEE DOCUMENTS IN THE DEPARTMENT OF PUBLIC WORKS AND PLANNING.

AS SHOWN

TRC
575 E. Locust Ave., Suite 105
Fresno, California 93720
SUPERVISING ENGINEER DATE

TENTATIVE PLAN FOR DESIGN

REGISTERED PROFESSIONAL ENGINEER JUSTINA L. CONKLIN No. 53183 Exp. 06-30-20 CIVIL STATE OF CALIFORNIA

SIGNED DOCUMENT

PROJECT
LOST LAKE NATURE TRAIL
ROAD NO. --- BRIDGE NO. ---

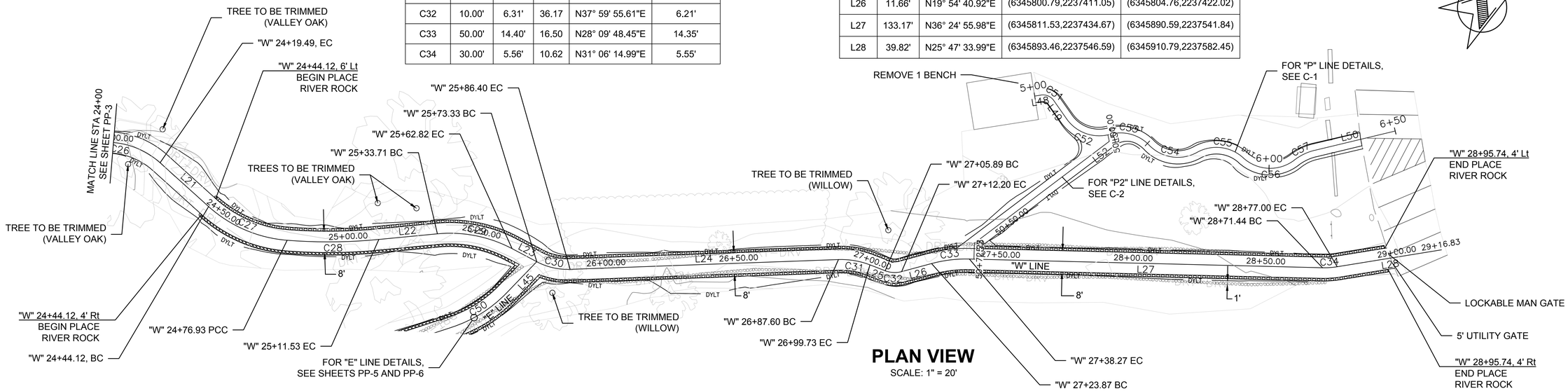
THE COUNTY OF FRESNO

DEPARTMENT OF PUBLIC WORKS AND PLANNING
WESTERN ALIGNMENT
STA 19+50.00 TO 24+00.00
DRAWING NO. --- SHEET ID PP-3 SHEET No. 8 of 15

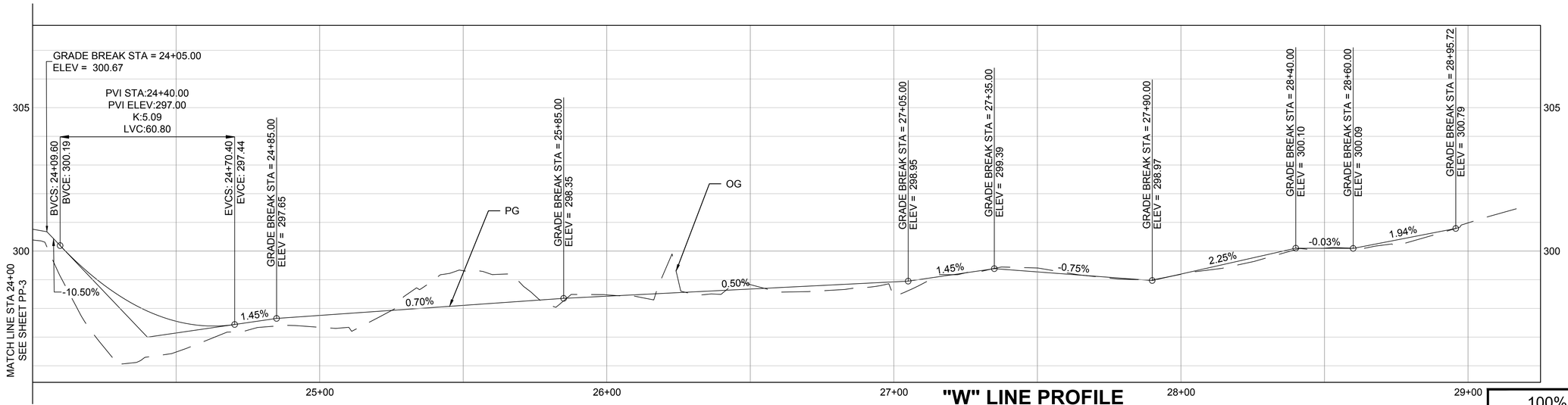
Curve Table					
Curve #	Radius	Length	Delta	Chord Direction	Chord Length
C26	30.00'	33.19'	63.39	N45° 20' 34.22"E	31.52'
C27	50.00'	32.82'	37.60	N58° 14' 03.43"E	32.23'
C28	200.00'	34.60'	9.91	N34° 28' 33.21"E	34.56'
C29	50.00'	29.11'	33.36	N46° 11' 56.36"E	28.70'
C30	25.00'	13.07'	29.96	N47° 53' 58.18"E	12.92'
C31	30.00'	12.13'	23.17	N44° 30' 12.29"E	12.05'
C32	10.00'	6.31'	36.17	N37° 59' 55.61"E	6.21'
C33	50.00'	14.40'	16.50	N28° 09' 48.45"E	14.35'
C34	30.00'	5.56'	10.62	N31° 06' 14.99"E	5.55'

Line Table				
Line #	Length	Direction	Start Point	End Point
L21	24.62'	N77° 02' 11.09"E	(6345606.87,2237205.58)	(6345630.86,2237211.11)
L22	22.18'	N29° 31' 10.65"E	(6345677.83,2237256.56)	(6345688.75,2237275.86)
L23	10.51'	N62° 52' 42.07"E	(6345709.47,2237295.73)	(6345718.82,2237300.51)
L24	101.20'	N32° 55' 14.28"E	(6345728.41,2237309.18)	(6345783.41,2237394.13)
L25	6.16'	N56° 05' 10.30"E	(6345791.85,2237402.72)	(6345796.96,2237406.16)
L26	11.66'	N19° 54' 40.92"E	(6345800.79,2237411.05)	(6345804.76,2237422.02)
L27	133.17'	N36° 24' 55.98"E	(6345811.53,2237434.67)	(6345890.59,2237541.84)
L28	39.82'	N25° 47' 33.99"E	(6345893.46,2237546.59)	(6345910.79,2237582.45)

NOTES:
1. EXISTING CONTOURS AND ELEVATIONS ARE BASED ON TOPOGRAPHIC SURVEY PERFORMED IN AUGUST, 2016. SITE CONDITIONS MAY HAVE CHANGED SINCE THAT TIME. THE CONTRACTOR SHALL VERIFY ELEVATIONS AND MAY ADJUST THE FINISHED GRADE ELEVATIONS UP TO ±0.2 FEET, AS APPROVED BY THE ENGINEER TO COMPENSATE FOR MINOR GRADE VARIATIONS.
2. STATION OFFSETS FOR RIVER ROCKS REFER TO EDGE OF TRAIL.
3. VERIFY TREES TO BE TRIMMED WITH RESIDENT ENGINEER.
4. SEE SHEET C-1 FOR "P" LINE DETAILS



PLAN VIEW
SCALE: 1" = 20'



"W" LINE PROFILE
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'

100% SUBMITTAL
NOT FOR CONSTRUCTION

	DATE	RECORD DRAWING	
DESIGNED: A. BEDAL	11/25/2019	RESIDENT ENGINEER	DATE
DRAWN: A. BEDAL	11/25/2019		
CHECKED: J. CONKLIN	11/25/2019		

FOR RIGHT OF WAY DATA AND ACCURATE ACCESS DETERMINATION, SEE DOCUMENTS IN THE DEPARTMENT OF PUBLIC WORKS AND PLANNING.

AS SHOWN

TRC
575 E. Locust Ave., Suite 105
Fresno, California 93720

TENTATIVE PLANS FOR DESIGN REVIEW ONLY

SUPERVISING ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER JUSTINA L. CONKLIN No. 53183 Exp. 06-30-20 CIVIL STATE OF CALIFORNIA

SIGNED 11/25/19

PROJECT

LOST LAKE NATURE TRAIL

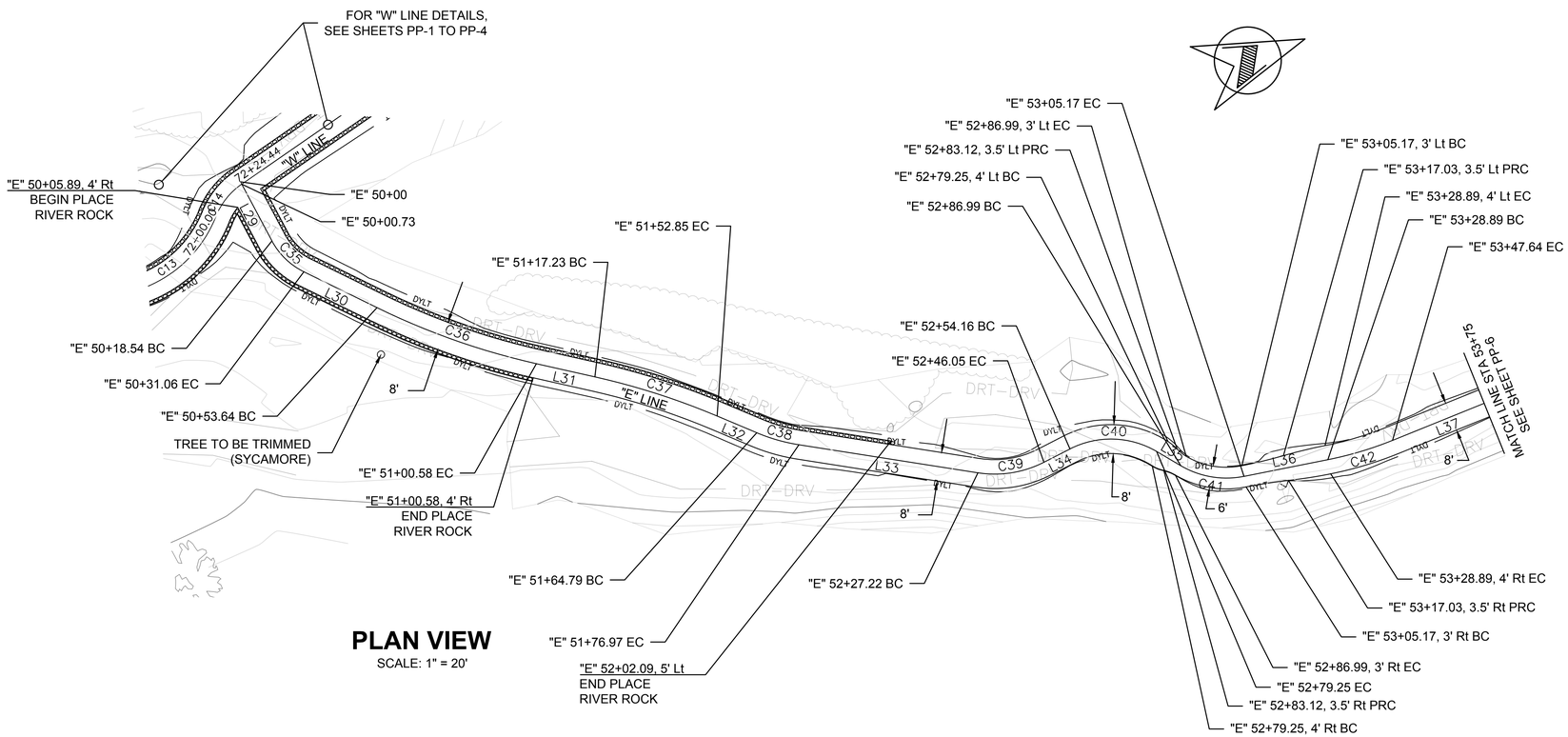
ROAD NO. --- BRIDGE NO. ---

THE COUNTY OF FRESNO

DEPARTMENT OF PUBLIC WORKS AND PLANNING

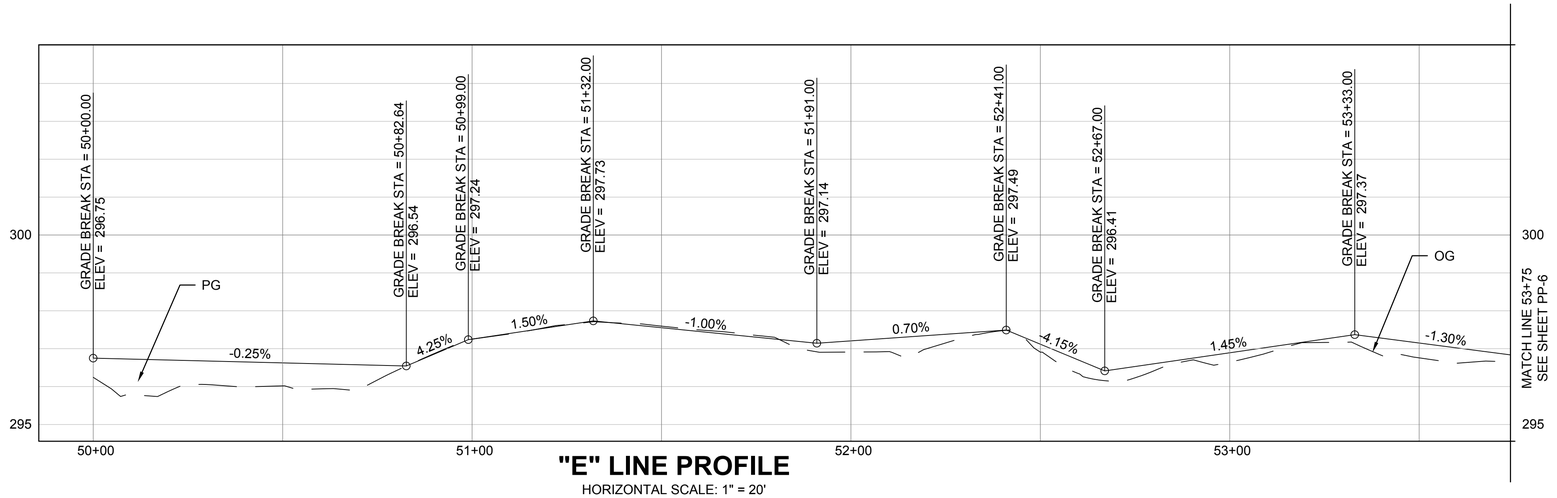
WESTERN ALIGNMENT
STA 24+00.00 TO 29+17.00

DRAWING NO. --- SHEET ID PP-4 SHEET No. 9 of 15



PLAN VIEW

SCALE: 1" = 20'



"E" LINE PROFILE

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'

NOTES:

1. EXISTING CONTOURS AND ELEVATIONS ARE BASED ON TOPOGRAPHIC SURVEY PERFORMED IN AUGUST, 2016. SITE CONDITIONS MAY HAVE CHANGED SINCE THAT TIME. THE CONTRACTOR SHALL VERIFY ELEVATIONS AND MAY ADJUST THE FINISHED GRADE ELEVATIONS UP TO ±0.2 FEET, AS APPROVED BY THE ENGINEER TO COMPENSATE FOR MINOR GRADE VARIATIONS.
2. STATION OFFSETS FOR RIVER ROCKS REFER TO EDGE OF TRAIL.
3. VERIFY TREES TO BE TRIMMED WITH RESIDENT ENGINEER.
4. SEE SHEETS PP-1 TO PP-4 FOR "W" LINE DETAILS

Curve Table					
Curve #	Radius	Length	Delta	Chord Direction	Chord Length
C35	20.00'	12.52'	35.87	N65° 02' 30.30"E	12.32'
C36	200.00'	46.94'	13.45	N40° 22' 56.99"E	46.83'
C37	200.00'	35.62'	10.20	N38° 45' 39.43"E	35.57'
C38	50.00'	12.18'	13.95	N36° 53' 11.82"E	12.15'
C39	30.00'	18.84'	35.98	N11° 55' 17.42"E	18.53'
C40	25.00'	25.08'	57.49	N22° 40' 37.32"E	24.05'
C41	25.00'	18.17'	41.65	N30° 35' 48.90"E	17.78'
C42	99.42'	18.75'	10.80	N04° 22' 12.92"E	18.72'

Line Table				
Line #	Length	Direction	Start Point	End Point
L29	18.54'	N82° 58' 40.16"E	(6345511.38,2236587.45)	(6345529.78,2236589.71)
L30	22.59'	N47° 06' 20.44"E	(6345540.95,2236594.91)	(6345557.49,2236610.28)
L31	16.65'	N33° 39' 33.54"E	(6345587.83,2236645.95)	(6345597.06,2236659.82)
L32	11.94'	N43° 51' 45.31"E	(6345619.33,2236687.55)	(6345627.61,2236696.16)
L33	50.25'	N29° 54' 38.32"E	(6345634.90,2236705.88)	(6345659.95,2236749.43)
L34	8.11'	N6° 04' 03.48"W	(6345663.78,2236767.56)	(6345662.92,2236775.62)
L35	7.75'	N51° 25' 18.12"E	(6345672.19,2236797.81)	(6345678.25,2236802.64)
L36	23.73'	N9° 46' 19.68"E	(6345687.30,2236817.94)	(6345691.33,2236841.32)
L37	31.28'	N1° 01' 53.84"W	(6345692.75,2236859.99)	(6345692.19,2236891.27)

100% SUBMITTAL
NOT FOR CONSTRUCTION

	DATE	RECORD DRAWING		
DESIGNED: A. BEDAL	11/25/2019	RESIDENT ENGINEER	DATE	
DRAWN: A. BEDAL	11/25/2019			
CHECKED: J. CONKLIN	11/25/2019			

FOR RIGHT OF WAY DATA AND ACCURATE ACCESS DETERMINATION, SEE DOCUMENTS IN THE DEPARTMENT OF PUBLIC WORKS AND PLANNING.

AS SHOWN

TRC
575 E. Locust Ave., Suite 105
Fresno, California 93720
SUPERVISING ENGINEER DATE

TENTATIVE PLAN FOR DESIGN REVIEW ONLY

REGISTERED PROFESSIONAL ENGINEER
JUSTINA L. CONKLIN
No. 53183
Exp. 06-30-20
CIVIL
STATE OF CALIFORNIA

PROJECT

LOST LAKE NATURE TRAIL

ROAD NO. --- BRIDGE NO. ---

THE COUNTY OF FRESNO

DEPARTMENT OF PUBLIC WORKS AND PLANNING

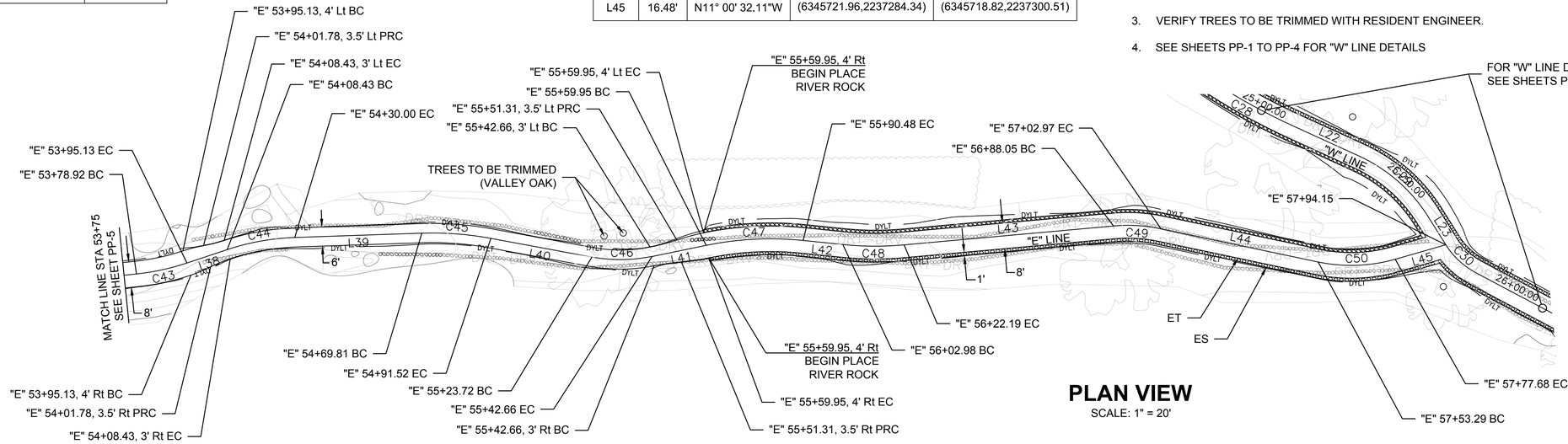
EASTERN ALIGNMENT
STA 50+00.00 TO 53+75.00

DRAWING NO. --- SHEET ID PP-5 SHEET No. 10 of 15

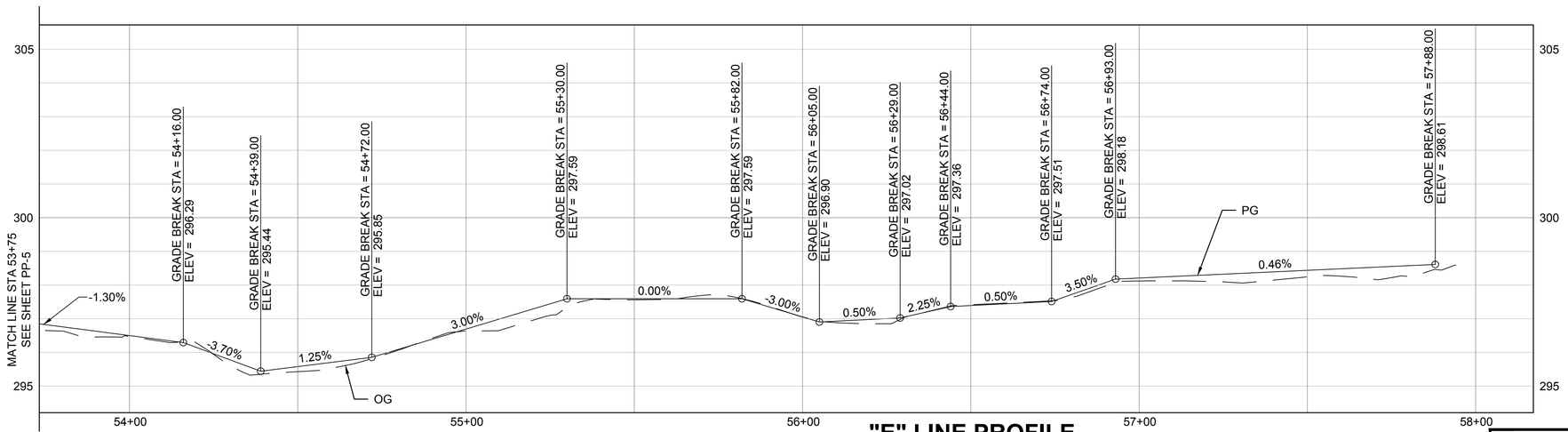
Curve Table					
Curve #	Radius	Length	Delta	Chord Direction	Chord Length
C43	75.00'	16.21'	12.38	N07° 13' 20.55"W	16.18'
C44	75.00'	21.57'	16.48	N05° 10' 31.64"W	21.49'
C45	100.00'	21.72'	12.44	N09° 16' 59.85"E	21.67'
C46	49.00'	18.94'	22.15	N04° 25' 53.56"E	18.82'
C47	100.00'	30.52'	17.49	N02° 06' 11.88"E	30.41'
C48	100.00'	19.21'	11.01	N05° 20' 36.44"E	19.18'
C49	50.00'	14.92'	17.10	N08° 23' 22.14"E	14.87'
C50	50.00'	24.39'	27.95	N02° 57' 55.84"E	24.15'

Line Table				
Line #	Length	Direction	Start Point	End Point
L38	13.30'	N13° 24' 47.26"W	(6345690.16,2236907.31)	(6345687.07,2236920.25)
L39	39.81'	N3° 03' 43.97"E	(6345685.13,2236941.66)	(6345687.26,2236981.41)
L40	32.20'	N15° 30' 15.72"E	(6345690.75,2237002.80)	(6345699.36,2237033.82)
L41	17.29'	N6° 38' 28.61"W	(6345700.82,2237052.59)	(6345698.82,2237069.76)
L42	12.50'	N10° 50' 52.37"E	(6345699.93,2237100.15)	(6345702.29,2237112.43)
L43	65.86'	N0° 09' 39.49"W	(6345704.07,2237131.53)	(6345703.89,2237197.39)
L44	50.31'	N16° 56' 23.78"E	(6345706.06,2237212.10)	(6345720.72,2237260.23)
L45	16.48'	N11° 00' 32.11"W	(6345721.96,2237284.34)	(6345718.82,2237300.51)

NOTES:
1. EXISTING CONTOURS AND ELEVATIONS ARE BASED ON TOPOGRAPHIC SURVEY PERFORMED IN AUGUST, 2016. SITE CONDITIONS MAY HAVE CHANGED SINCE THAT TIME. THE CONTRACTOR SHALL VERIFY ELEVATIONS AND MAY ADJUST THE FINISHED GRADE ELEVATIONS UP TO ±0.2 FEET, AS APPROVED BY THE ENGINEER TO COMPENSATE FOR MINOR GRADE VARIATIONS.
2. STATION OFFSETS FOR RIVER ROCKS REFER TO EDGE OF TRAIL.
3. VERIFY TREES TO BE TRIMMED WITH RESIDENT ENGINEER.
4. SEE SHEETS PP-1 TO PP-4 FOR "W" LINE DETAILS



PLAN VIEW
SCALE: 1" = 20'



"E" LINE PROFILE
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'

100% SUBMITTAL
NOT FOR CONSTRUCTION

	DATE	RECORD DRAWING	
DESIGNED: A. BEDAL	11/25/2019	RESIDENT ENGINEER	DATE
DRAWN: A. BEDAL	11/25/2019		
CHECKED: J. CONKLIN	11/25/2019		

FOR RIGHT OF WAY DATA AND ACCURATE ACCESS DETERMINATION, SEE DOCUMENTS IN THE DEPARTMENT OF PUBLIC WORKS AND PLANNING.

AS SHOWN

TRC
575 E. Locust Ave., Suite 105
Fresno, California 93720
SUPERVISING ENGINEER DATE

TEN STATES PLANS FOR DESIGN

REGISTERED PROFESSIONAL ENGINEER
JUSTINA L. CONKLIN
No. 53183
Exp. 06-30-20
CIVIL
STATE OF CALIFORNIA

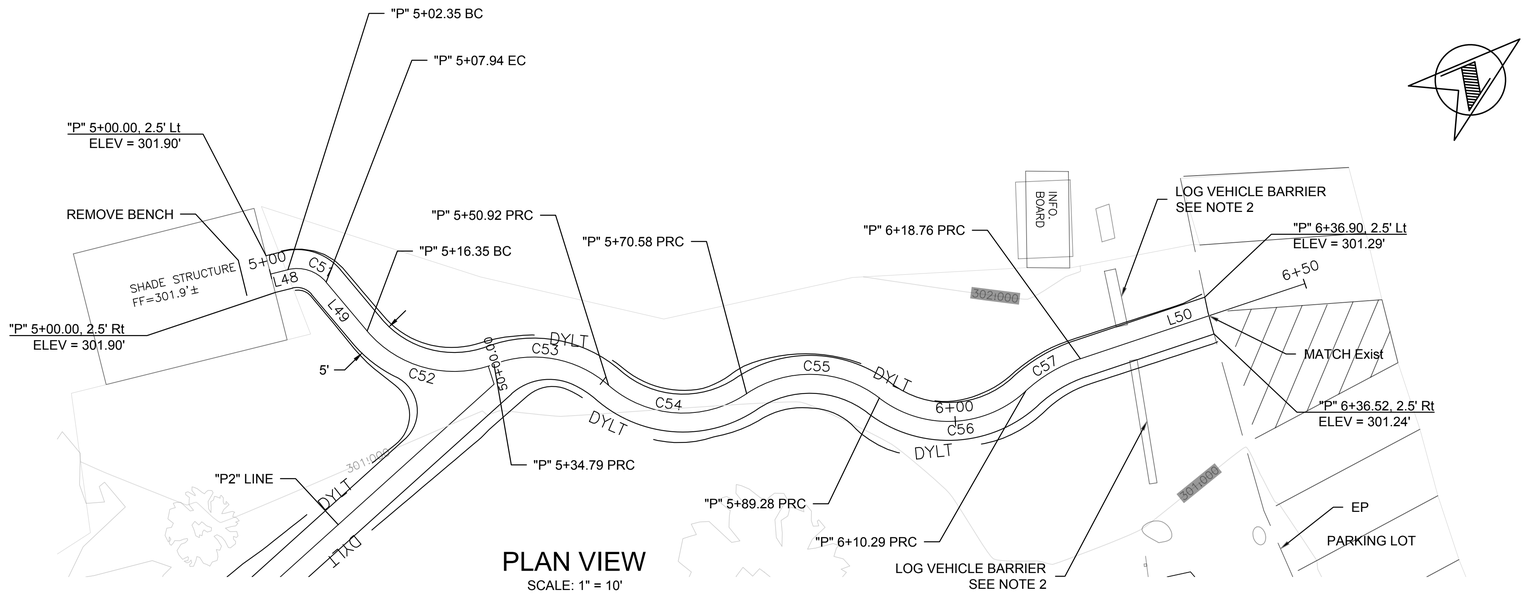
PROJECT
LOST LAKE NATURE TRAIL
ROAD NO. --- BRIDGE NO. ---

THE COUNTY OF FRESNO

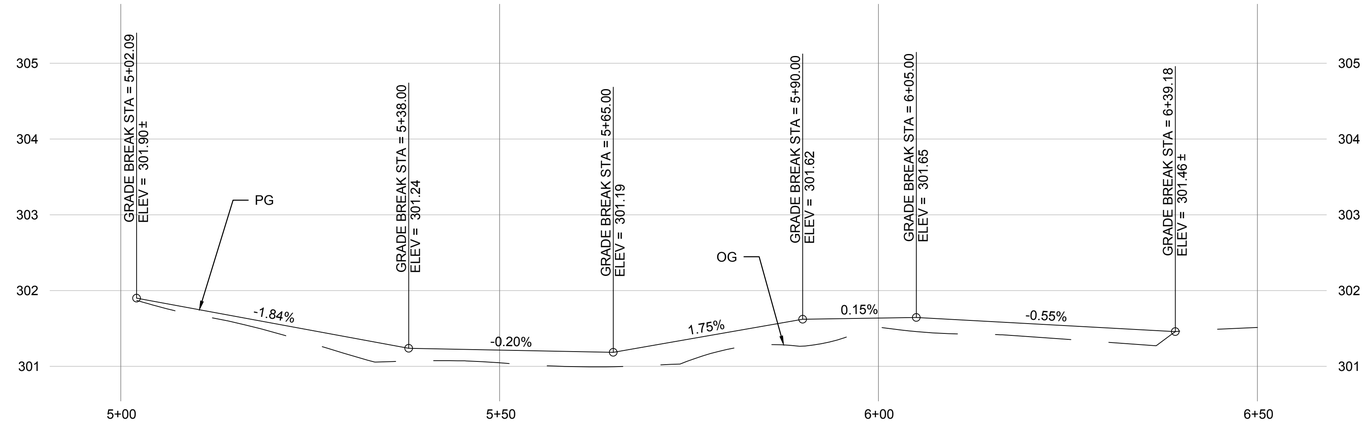
DEPARTMENT OF PUBLIC WORKS AND PLANNING
EASTERN ALIGNMENT
STA 53+75.00 TO 57+94.00
DRAWING NO. --- SHEET ID PP-6 SHEET No. 11 of 15

Curve Table					
Curve #	Radius	Length	Delta	Chord Direction	Chord Length
C51	5.00'	5.59'	64.06	N57° 54' 38.36"E	5.30'
C52	15.00'	18.44'	70.44	N54° 43' 22.51"E	17.30'
C53	15.00'	16.13'	61.62	N50° 18' 55.08"E	15.37'
C54	15.00'	19.65'	75.07	N43° 35' 19.96"E	18.28'
C55	15.00'	18.71'	71.45	N41° 46' 36.40"E	17.52'
C56	15.00'	21.01'	80.25	N37° 22' 41.33"E	19.33'
C57	20.00'	8.47'	24.26	N09° 22' 58.55"E	8.40'

Line Table				
Line #	Length	Direction	Start Point	End Point
L48	2.35'	N25° 52' 47.47"E	(6345775.39,2237490.05)	(6345776.42,2237492.16)
L49	8.41'	N89° 56' 29.25"E	(6345780.91,2237494.97)	(6345789.32,2237494.98)
L50	31.24'	N21° 30' 41.72"E	(6345852.65,2237564.74)	(6345864.11,2237593.81)



PLAN VIEW
SCALE: 1" = 10'



NOTES:
1. STATION OFFSETS FOR RIVER ROCKS REFER TO EDGE OF TRAIL
2. LOG VEHICLE BARRIERS TO BE MOVED TO PROVIDE MIN PATH WIDTH OF 5'.

100% SUBMITTAL
NOT FOR CONSTRUCTION

	DATE	RECORD DRAWING	
DESIGNED: A. BEDAL	11/25/2019	RESIDENT ENGINEER	DATE
DRAWN: A. BEDAL	11/25/2019		
CHECKED: J. CONKLIN	11/25/2019		

FOR RIGHT OF WAY DATA AND ACCURATE ACCESS DETERMINATION, SEE DOCUMENTS IN THE DEPARTMENT OF PUBLIC WORKS AND PLANNING.

AS SHOWN

TRC
575 E. Locust Ave., Suite 105
Fresno, California 93720
SUPERVISING ENGINEER DATE

TENTATIVE PLAN FOR DESIGN REVIEW ONLY

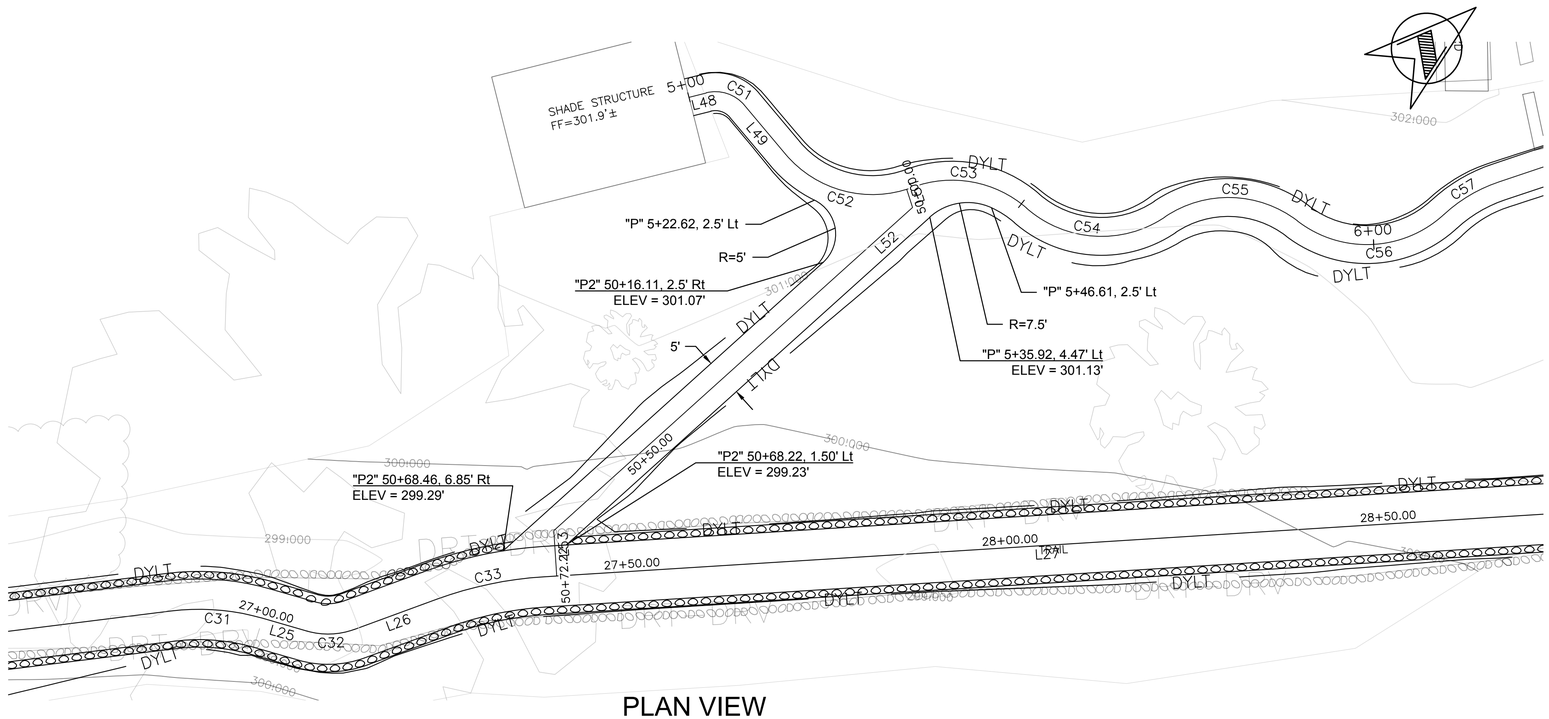
REGISTERED PROFESSIONAL ENGINEER
JUSTINA L. CONKLIN
No. 53183
Exp. 06-30-21
CIVIL
STATE OF CALIFORNIA

PROJECT
LOST LAKE NATURE TRAIL
ROAD NO. --- BRIDGE NO. ---

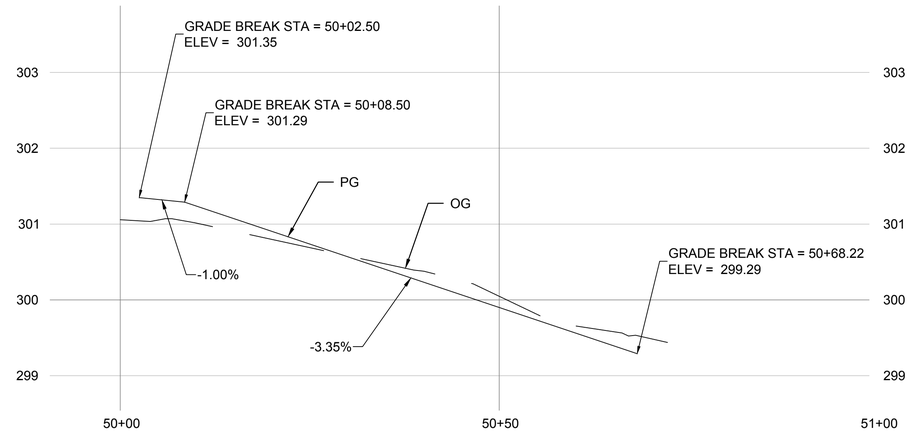
THE COUNTY OF FRESNO

DEPARTMENT OF PUBLIC WORKS AND PLANNING
CONSTRUCTION DETAILS
WALKWAY
DRAWING NO. --- SHEET ID C-1 SHEET No. 12 of 15

Line Table				
Line #	Length	Direction	Start Point	End Point
L51	2.50'	S67° 33' 42.01"E	(6345803.17,2237504.26)	(6345805.48,2237503.30)
L52	63.72'	S2° 01' 30.72"E	(6345805.48,2237503.30)	(6345807.73,2237439.63)
L53	6.00'	S53° 35' 04.02"E	(6345807.73,2237439.63)	(6345812.56,2237436.07)



PLAN VIEW
SCALE: 1" = 10'



NOTES:
1. STATION OFFSETS FOR RIVER ROCKS REFER TO EDGE OF TRAIL

100% SUBMITTAL
NOT FOR CONSTRUCTION

	DATE	RECORD DRAWING	
DESIGNED: A. BEDAL	11/25/2019	RESIDENT ENGINEER	DATE
DRAWN: A. BEDAL	11/25/2019		
CHECKED: J. CONKLIN	11/25/2019		

FOR RIGHT OF WAY DATA AND ACCURATE ACCESS DETERMINATION, SEE DOCUMENTS IN THE DEPARTMENT OF PUBLIC WORKS AND PLANNING.

AS SHOWN

TRC
575 E. Locust Ave., Suite 105
Fresno, California 93720
SUPERVISING ENGINEER DATE

TENTATIVE PLAN FOR DESIGN REVIEW ONLY

REGISTERED PROFESSIONAL ENGINEER
JUSTINA L. CONKLIN
No. 53183
Exp. 06-30-20
CIVIL
STATE OF CALIFORNIA

PROJECT
LOST LAKE NATURE TRAIL
ROAD NO. --- BRIDGE NO. ---

THE COUNTY OF FRESNO

DEPARTMENT OF PUBLIC WORKS AND PLANNING
CONSTRUCTION DETAILS
WALKWAY 2
DRAWING NO. --- SHEET ID C-2 SHEET No. 13 of 15

APPENDIX D

TREE INVENTORY

Lost Lake, Nature Trail

Tree Identification

Picture #	Tree species
1	Willow
2	Willow
3	Valley Oak
4	Valley Oak
5	Valley Oak
6	Valley Oak
7	Valley Oak
8	Ash
9	Ash
10	Willow
11	Ash
12	Ash
13	Valley Oak
14	Valley Oak
15	Cottonwood
16	Ash
17	Valley Oak
18	Valley Oak
19	Valley Oak
20	Valley Oak
21	Valley Oak
22	Valley Oak
23	Sycamore
24	Valley Oak
25	Valley Oak

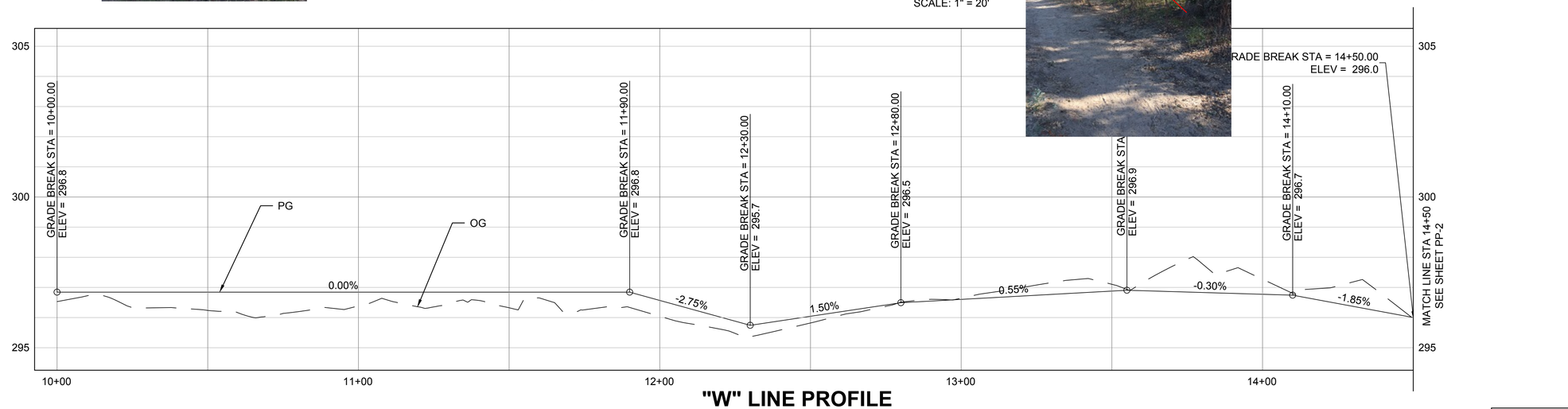
Curve Table					
Curve #	Radius	Length	Delta	Chord Direction	Chord Length
C1	11.25'	9.75'	49.67	S09° 28' 15.97"E	9.45'
C2	11.25'	35.34'	180.00	N74° 38' 07.92"W	22.50'
C3	11.25'	8.39'	42.71	N36° 43' 15.67"E	8.19'
C4	25.00'	22.09'	50.64	N32° 45' 31.73"E	21.38'
C5	100.00'	30.62'	17.55	N16° 12' 46.96"E	30.50'
C6	100.00'	36.85'	21.11	N14° 25' 49.15"E	36.64'
C7	100.00'	41.24'	23.63	N15° 41' 22.16"E	40.95'

NOTES:
1. EXISTING CONTOURS AND ELEVATIONS ARE BASED ON TOPOGRAPHIC SURVEY PERFORMED IN AUGUST, 2016. SITE CONDITIONS MAY HAVE CHANGED SINCE THAT TIME. THE CONTRACTOR SHALL VERIFY ELEVATIONS AND MAY ADJUST THE FINISHED GRADE ELEVATIONS UP TO ±0.2 FEET, AS APPROVED BY THE ENGINEER TO COMPENSATE FOR MINOR GRADE VARIATIONS.

2. STATION OFFSETS FOR RIVER ROCKS REFER TO EDGE OF TRAIL

Line Table				
Line #	Length	Direction	Start Point	End Point
L1	9.97'	S34° 18' 24.02"E	(6345356.68,2236004.33)	(6345362.30,2235996.09)
L2	30.35'	S15° 21' 52.08"W	(6345363.86,2235986.77)	(6345355.82,2235957.50)
L3	30.35'	N15° 21' 52.08"E	(6345334.12,2235963.47)	(6345342.16,2235992.73)
L4	61.24'	N7° 26' 24.22"E	(6345358.63,2236017.28)	(6345366.56,2236078.01)
L5	27.43'	N24° 59' 09.70"E	(6345375.08,2236107.30)	(6345386.66,2236132.16)
L6	40.15'	N3° 52' 28.60"E	(6345395.79,2236167.64)	(6345398.51,2236207.70)
L7	101.04'	N27° 30' 15.72"E	(6345409.58,2236247.13)	(6345456.24,2236336.75)

PLAN VIEW
SCALE: 1" = 20'



"W" LINE PROFILE
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'

90% SUBMITTAL
NOT FOR CONSTRUCTION

	DATE	RECORD DRAWING	
DESIGNED: A. BEDAL	05/31/2018	RESIDENT ENGINEER	DATE
DRAWN: A. BEDAL	05/31/2018		
CHECKED: T. TRACY	05/31/2018		

FOR RIGHT OF WAY DATA AND ACCURATE ACCESS DETERMINATION, SEE DOCUMENTS IN THE DEPARTMENT OF PUBLIC WORKS AND PLANNING.

AS SHOWN

TRC
575 E. Locust Ave., Suite 105
Fresno, California 93720
SUPERVISING ENGINEER DATE

TENTATIVE PLAN FOR DESIGN PURPOSES ONLY

REGISTERED PROFESSIONAL ENGINEER
CIVIL
STATE OF CALIFORNIA

PROJECT
LOST LAKE NATURE TRAIL
ROAD NO. --- BRIDGE NO. ---

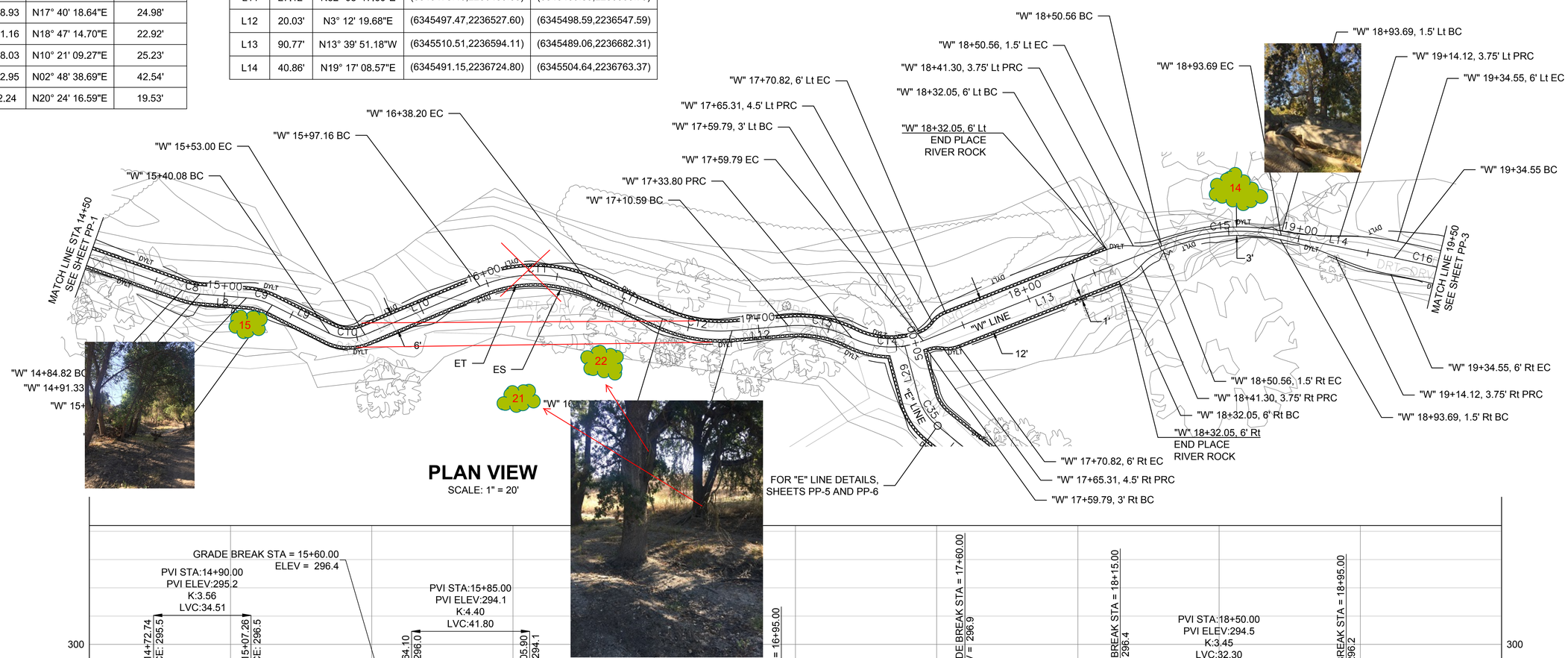
COUNTY OF FRESNO

DEPARTMENT OF PUBLIC WORKS AND PLANNING
WESTERN ALIGNMENT
STA 10+00.00 TO 14+50.00
DRAWING NO. --- SHEET NO. PP-1 TOTAL 6 of 15

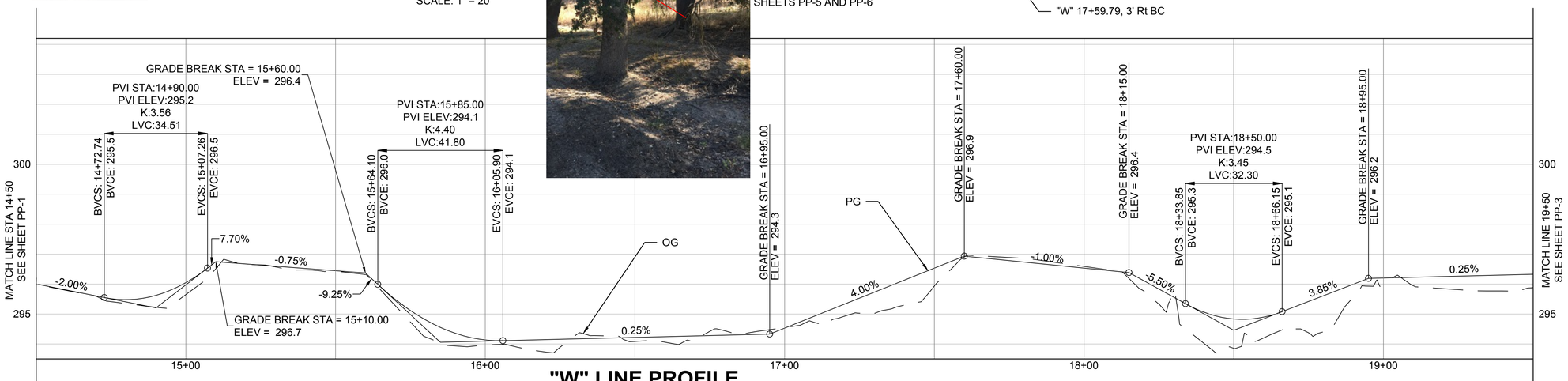
Curve Table					
Curve #	Radius	Length	Delta	Chord Direction	Chord Length
C8	25.00'	6.51'	14.91	N20° 02' 56.24"E	6.49'
C9	25.00'	9.54'	21.87	N23° 31' 36.98"E	9.48'
C10	15.00'	12.92'	49.35	N09° 47' 06.10"E	12.52'
C11	50.00'	41.04'	47.03	N08° 37' 26.31"E	39.90'
C12	50.00'	25.25'	28.93	N17° 40' 18.64"E	24.98'
C13	42.66'	23.20'	31.16	N18° 47' 14.70"E	22.92'
C14	31.00'	25.99'	48.03	N10° 21' 09.27"E	25.23'
C15	75.00'	43.13'	32.95	N02° 48' 38.69"E	42.54'
C16	500.00'	19.53'	2.24	N20° 24' 16.59"E	19.53'

Line Table				
Line #	Length	Direction	Start Point	End Point
L8	16.50'	N12° 35' 36.76"E	(6345458.47,2236342.84)	(6345462.06,2236358.95)
L9	22.71'	N34° 27' 37.19"E	(6345465.85,2236367.64)	(6345478.70,2236386.37)
L10	44.16'	N14° 53' 24.99"W	(6345480.83,2236398.71)	(6345469.48,2236441.39)
L11	27.12'	N32° 08' 17.60"E	(6345475.46,2236480.83)	(6345489.89,2236503.79)
L12	20.03'	N3° 12' 19.68"E	(6345497.47,2236527.60)	(6345498.59,2236547.59)
L13	90.77'	N13° 39' 51.18"W	(6345510.51,2236594.11)	(6345489.06,2236682.31)
L14	40.86'	N19° 17' 08.57"E	(6345491.15,2236724.80)	(6345504.64,2236763.37)

NOTES:
1. EXISTING CONTOURS AND ELEVATIONS ARE BASED ON TOPOGRAPHIC SURVEY PERFORMED IN AUGUST, 2016. SITE CONDITIONS MAY HAVE CHANGED SINCE THAT TIME. THE CONTRACTOR SHALL VERIFY ELEVATIONS AND MAY ADJUST THE FINISHED GRADE ELEVATIONS UP TO ±0.2 FEET, AS APPROVED BY THE ENGINEER TO COMPENSATE FOR MINOR GRADE VARIATIONS.
2. STATION OFFSETS FOR RIVER ROCKS REFER TO EDGE OF TRAIL.
3. SEE SHEETS PP-5 AND PP-6 FOR "E" LINE DETAILS



PLAN VIEW
SCALE: 1" = 20'



"W" LINE PROFILE
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'

90% SUBMITTAL
NOT FOR CONSTRUCTION

	DATE	RECORD DRAWING		
DESIGNED: A. BEDAL	05/31/2018	RESIDENT ENGINEER	DATE	
DRAWN: A. BEDAL	05/31/2018			
CHECKED: T. TRACY	05/31/2018			

FOR RIGHT OF WAY DATA AND ACCURATE ACCESS DETERMINATION, SEE DOCUMENTS IN THE DEPARTMENT OF PUBLIC WORKS AND PLANNING.

AS SHOWN

TRC
575 E. Locust Ave., Suite 105
Fresno, California 93720
SUPERVISING ENGINEER DATE

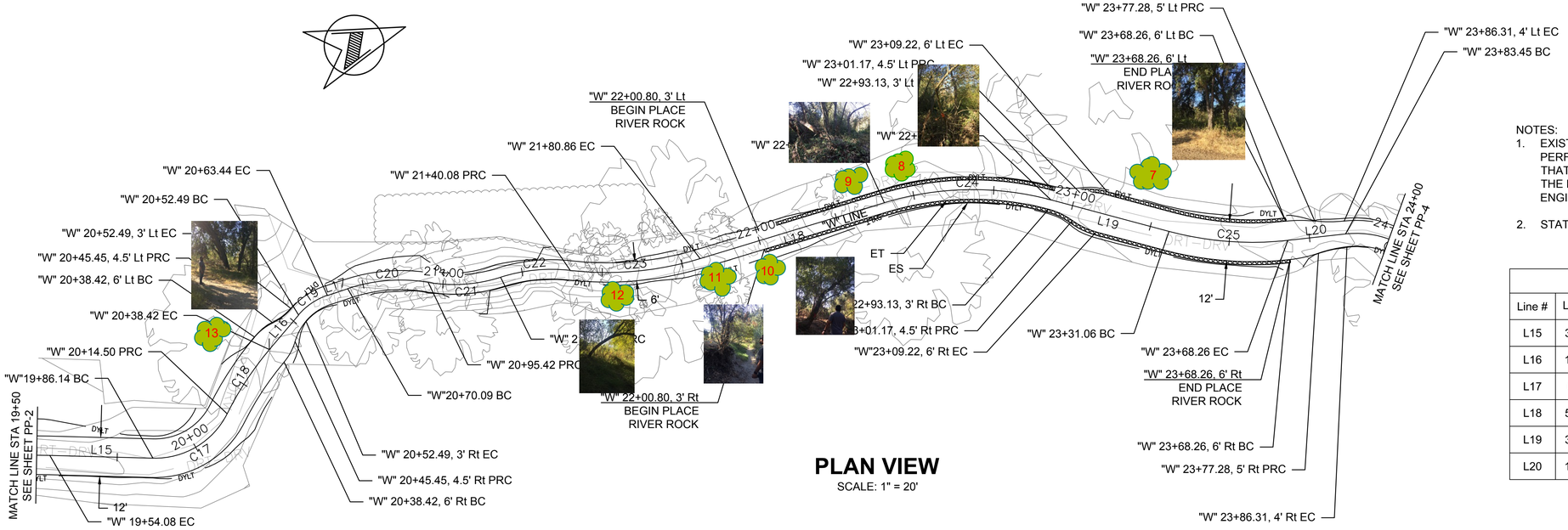
TENTATIVE PLAN FOR DESIGN ONLY

LICENSED PROFESSIONAL ENGINEER
CIVIL
STATE OF CALIFORNIA

PROJECT
LOST LAKE NATURE TRAIL
ROAD NO. --- BRIDGE NO. ---

THE COUNTY OF FRESNO

DEPARTMENT OF PUBLIC WORKS AND PLANNING
WESTERN ALIGNMENT
STA 14+50.00 TO 19+50.00
DRAWING NO. --- SHEET NO. PP-2 TOTAL 7 of 15



PLAN VIEW

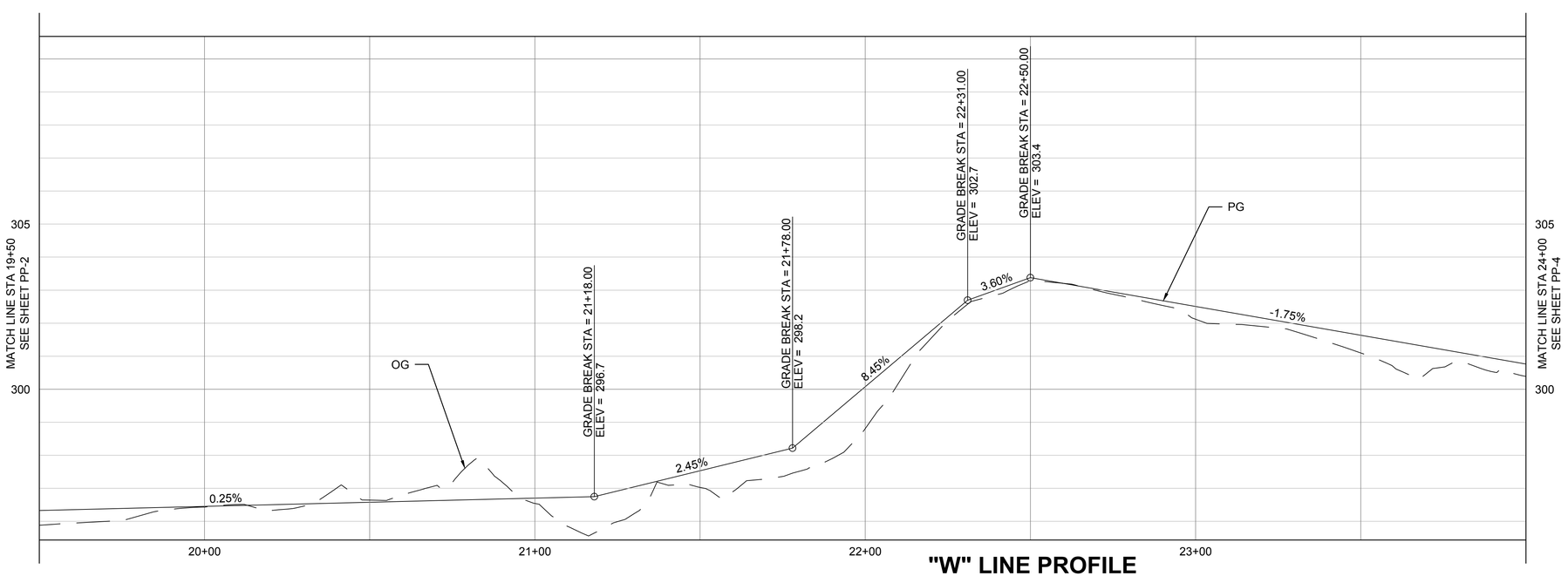
SCALE: 1" = 20'

NOTES:

1. EXISTING CONTOURS AND ELEVATIONS ARE BASED ON TOPOGRAPHIC SURVEY PERFORMED IN AUGUST, 2016. SITE CONDITIONS MAY HAVE CHANGED SINCE THAT TIME. THE CONTRACTOR SHALL VERIFY ELEVATIONS AND MAY ADJUST THE FINISHED GRADE ELEVATIONS UP TO ±0.2 FEET, AS APPROVED BY THE ENGINEER TO COMPENSATE FOR MINOR GRADE VARIATIONS.
2. STATION OFFSETS FOR RIVER ROCKS REFER TO EDGE OF TRAIL.

Line Table				
Line #	Length	Direction	Start Point	End Point
L15	32.06'	N21° 31' 24.60"E	(6345511.45,2236781.67)	(6345523.21,2236811.50)
L16	14.07'	N29° 46' 43.55"W	(6345503.86,2236857.02)	(6345496.87,2236869.23)
L17	6.65'	N1° 35' 32.77"E	(6345494.24,2236879.72)	(6345494.43,2236886.37)
L18	59.82'	N3° 06' 51.94"E	(6345523.09,2236992.43)	(6345526.34,2237052.16)
L19	37.93'	N34° 57' 47.42"E	(6345543.22,2237101.09)	(6345564.96,2237132.18)
L20	18.05'	N13° 38' 57.34"E	(6345580.18,2237165.89)	(6345584.44,2237183.43)

Curve Table					
Curve #	Radius	Length	Delta	Chord Direction	Chord Length
C17	25.00'	28.36'	65.01	N10° 58' 45.15"W	26.87'
C18	100.00'	23.92'	13.70	N36° 37' 49.23"W	23.86'
C19	20.00'	10.95'	31.37	N14° 05' 35.39"W	10.81'
C20	52.00'	25.33'	27.91	N15° 32' 51.34"E	25.08'
C21	48.00'	22.75'	27.16	N15° 55' 20.15"E	22.54'
C22	52.00'	21.91'	24.14	N14° 24' 37.60"E	21.74'
C23	100.00'	40.78'	23.36	N14° 47' 48.37"E	40.50'
C24	94.34'	52.44'	31.85	N19° 02' 19.68"E	51.77'
C25	100.00'	37.20'	21.31	N24° 18' 22.38"E	36.99'



"W" LINE PROFILE

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'

90% SUBMITTAL
NOT FOR CONSTRUCTION

	DATE	RECORD DRAWING	
DESIGNED: A. BEDAL	05/31/2018	RESIDENT ENGINEER	DATE
DRAWN: A. BEDAL	05/31/2018		
CHECKED: T. TRACY	05/31/2018		

FOR RIGHT OF WAY DATA AND ACCURATE ACCESS DETERMINATION, SEE DOCUMENTS IN THE DEPARTMENT OF PUBLIC WORKS AND PLANNING.

AS SHOWN

TRC
575 E. Locust Ave., Suite 105
Fresno, California 93720
SUPERVISING ENGINEER DATE

TENTATIVE PLAN FOR DESIGN ONLY

REGISTERED PROFESSIONAL ENGINEER
CIVIL
STATE OF CALIFORNIA

PROJECT

LOST LAKE NATURE TRAIL

ROAD NO. --- BRIDGE NO. ---

THE COUNTY OF FRESNO

DEPARTMENT OF PUBLIC WORKS AND PLANNING

WESTERN ALIGNMENT
STA 19+50.00 TO 24+00.00

DRAWING NO. --- SHEET NO. PP-3 TOTAL 8 of 15

Curve Table					
Curve #	Radius	Length	Delta	Chord Direction	Chord Length
C26	30.00'	33.19'	63.39	N45° 20' 34.22"E	31.52'
C27	50.00'	32.82'	37.60	N58° 14' 03.43"E	32.23'
C28	200.00'	34.60'	9.91	N34° 28' 33.21"E	34.56'
C29	50.00'	29.11'	33.36	N46° 11' 56.36"E	28.70'
C30	25.00'	13.07'	29.96	N47° 53' 58.18"E	12.92'
C31	30.00'	12.13'	23.17	N44° 30' 12.29"E	12.05'
C32	10.00'	6.31'	36.17	N37° 59' 55.61"E	6.21'
C33	50.00'	14.40'	16.50	N28° 09' 48.45"E	14.35'
C34	30.00'	5.56'	10.62	N31° 06' 14.99"E	5.55'

Line Table				
Line #	Length	Direction	Start Point	End Point
L21	24.62'	N77° 02' 11.09"E	(6345606.87,2237205.58)	(6345630.86,2237211.11)
L22	22.18'	N29° 31' 10.65"E	(6345677.83,2237256.56)	(6345688.75,2237275.86)
L23	10.51'	N62° 52' 42.07"E	(6345709.47,2237295.73)	(6345718.82,2237300.51)
L24	101.20'	N32° 55' 14.28"E	(6345728.41,2237309.18)	(6345783.41,2237394.13)
L25	6.16'	N56° 05' 10.30"E	(6345791.85,2237402.72)	(6345796.96,2237406.16)
L26	11.66'	N19° 54' 40.92"E	(6345800.79,2237411.05)	(6345804.76,2237422.02)
L27	133.17'	N36° 24' 55.98"E	(6345811.53,2237434.67)	(6345890.59,2237541.84)
L28	39.82'	N25° 47' 33.99"E	(6345893.46,2237546.59)	(6345910.79,2237582.45)

NOTES:
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2. STATION OFFSETS FOR RIVER ROCKS REFER TO EDGE OF TRAIL.
3. SEE SHEET C-1 FOR "P" LINE DETAILS

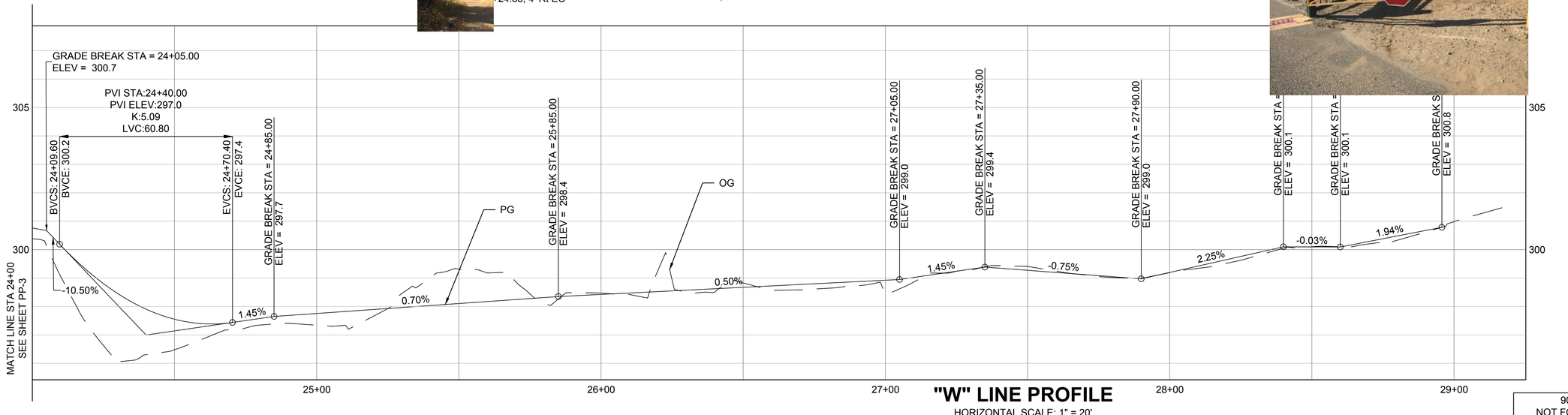






"W" 24+19.49, EC
"W" 24+19.49, 4' Lt BC
"W"24+31.81, 5' Lt PRC
"W" 24+44.12, 6' Lt EC
"W" 24+44.12, BC
"W" 24+76.93 PCC
"W" 25+11.54 EC
"W" 25+33.71 BC
"W" 25+86.4
25+73.33 BC
"W" 26+87.60, 6' Lt EC
"W" 26+82.60, 5' Lt PRC
"W" 26+77.60, 4' Lt BC
"W" 26+87.60 BC
"W" 26+99.73 EC
"W" 27+05.89 BC
"W" 27+12.20 EC
"W" 27+38.27 EC
"W" 27+23.87 BC
"W" 26+77.60, 4' Rt BC
"W" 26+82.60, 5' Rt PRC
"W" 26+87.60, 6' Rt EC
"W" 28+77.00 EC
"W" 28+71.44 BC
"W" 28+95.74, 6' Lt
END PLACE
RIVER ROCK
BEGIN PLACE
RIVER ROCK
"W" LINE
MATCH LINE STA 24+00
SEE SHEET PP-3
FOR "E" LINE DETAILS,
SEE SHEETS PP-5 AND PP-6
FOR "P" LINE DETAILS,
SEE C-1
FOR "P2" LINE DETAILS,
SEE C-2
8'
12'
1'
25+00
26+00
27+00
28+00
29+00
29+17
6+00
6+50
5+00
50+00
50+72

PLAN VIEW
SCALE: 1" = 20'



"W" LINE PROFILE
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'

90% SUBMITTAL
NOT FOR CONSTRUCTION

	DATE	RECORD DRAWING		
DESIGNED: A. BEDAL	05/31/2018	RESIDENT ENGINEER	DATE	
DRAWN: A. BEDAL	05/31/2018			
CHECKED: T. TRACY	05/31/2018			

FOR RIGHT OF WAY DATA AND ACCURATE ACCESS DETERMINATION, SEE DOCUMENTS IN THE DEPARTMENT OF PUBLIC WORKS AND PLANNING.

AS SHOWN

TRC
575 E. Locust Ave., Suite 105
Fresno, California 93720
SUPERVISING ENGINEER DATE

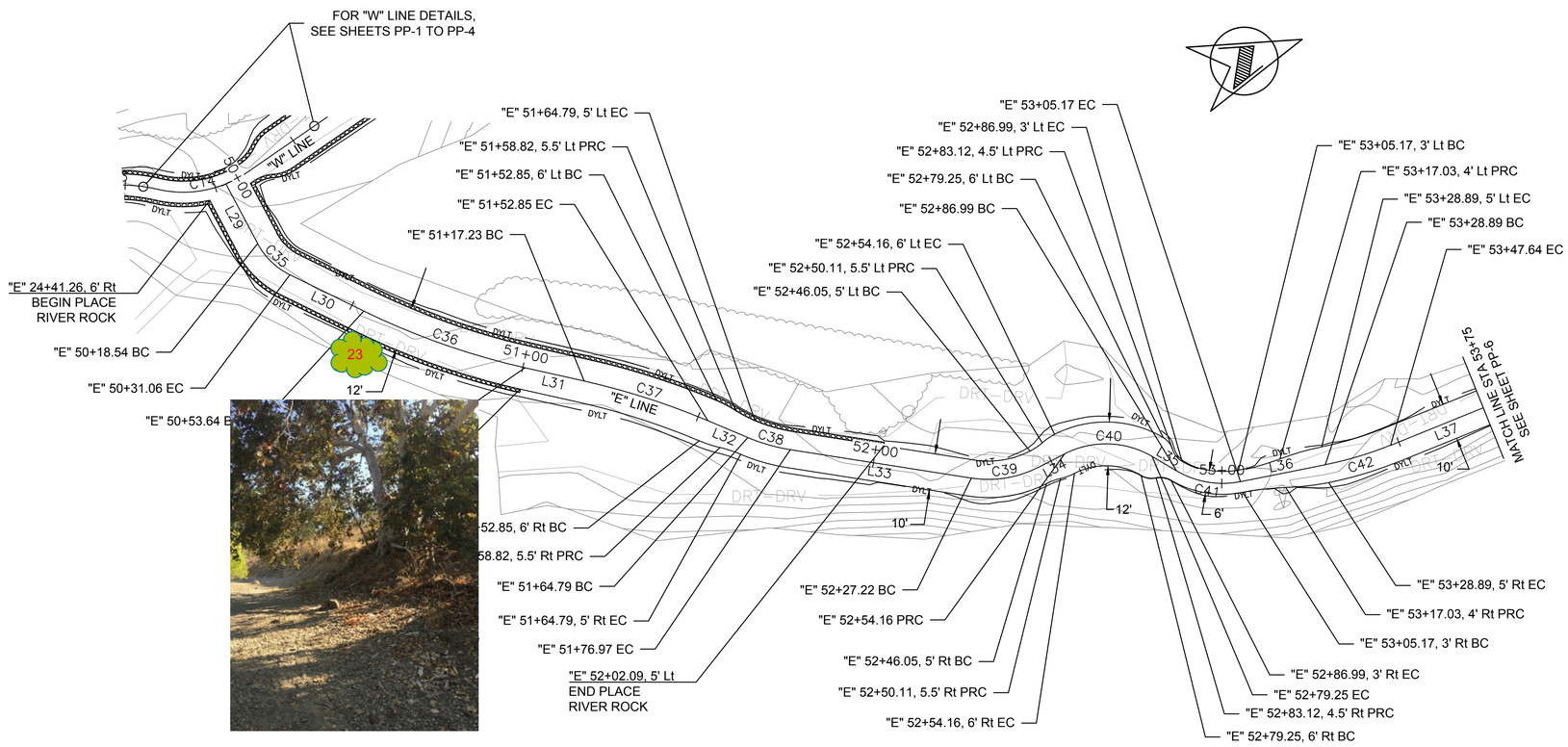
TENTATIVE PLAT FOR DESIGN STUDY ONLY

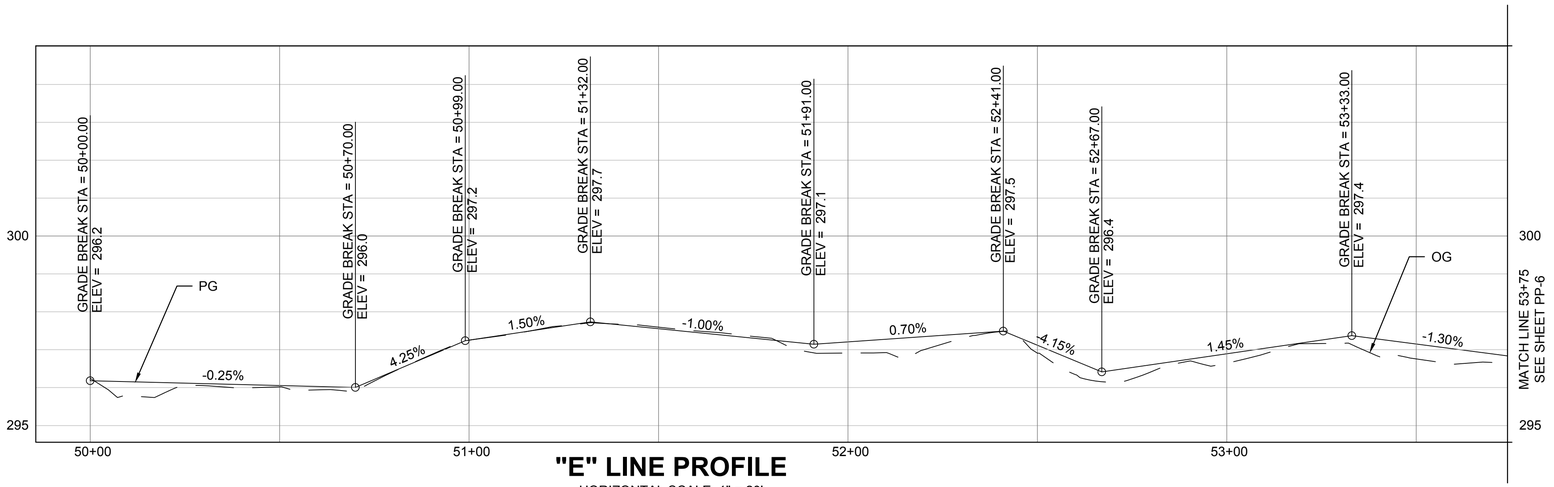
REGISTERED PROFESSIONAL ENGINEER
CIVIL
STATE OF CALIFORNIA

PROJECT
LOST LAKE NATURE TRAIL
ROAD NO. --- BRIDGE NO. ---

THE COUNTY OF FRESNO

DEPARTMENT OF PUBLIC WORKS AND PLANNING
WESTERN ALIGNMENT
STA 24+00.00 TO 29+17.00
DRAWING NO. --- SHEET NO. PP-4 TOTAL 9 of 15





"E" LINE PROFILE

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'

NOTES:

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2. STATION OFFSETS FOR RIVER ROCKS REFER TO EDGE OF TRAIL.
3. SEE SHEETS PP-1 TO PP-4 FOR "W" LINE DETAILS

Curve Table					
Curve #	Radius	Length	Delta	Chord Direction	Chord Length
C35	20.00'	12.52'	35.87	N65° 02' 30.30"E	12.32'
C36	200.00'	46.94'	13.45	N40° 22' 56.99"E	46.83'
C37	200.00'	35.62'	10.20	N38° 45' 39.43"E	35.57'
C38	50.00'	12.18'	13.95	N36° 53' 11.82"E	12.15'
C39	30.00'	18.84'	35.98	N11° 55' 17.42"E	18.53'
C40	25.00'	25.08'	57.49	N22° 40' 37.32"E	24.05'
C41	25.00'	18.17'	41.65	N30° 35' 48.90"E	17.78'
C42	99.42'	18.75'	10.80	N04° 22' 12.92"E	18.72'

Line Table				
Line #	Length	Direction	Start Point	End Point
L29	18.54'	N82° 58' 40.16"E	(6345511.38,2236587.45)	(6345529.78,2236589.71)
L30	22.59'	N47° 06' 20.44"E	(6345540.95,2236594.91)	(6345557.49,2236610.28)
L31	16.65'	N33° 39' 33.54"E	(6345587.83,2236645.95)	(6345597.06,2236659.82)
L32	11.94'	N43° 51' 45.31"E	(6345619.33,2236687.55)	(6345627.61,2236696.16)
L33	50.25'	N29° 54' 38.32"E	(6345634.90,2236705.88)	(6345659.95,2236749.43)
L34	8.11'	N6° 04' 03.48"W	(6345663.78,2236767.56)	(6345662.92,2236775.62)
L35	7.75'	N51° 25' 18.12"E	(6345672.19,2236797.81)	(6345678.25,2236802.64)
L36	23.73'	N9° 46' 19.68"E	(6345687.30,2236817.94)	(6345691.33,2236841.32)
L37	31.28'	N1° 01' 53.84"W	(6345692.75,2236859.99)	(6345692.19,2236891.27)

90% SUBMITTAL
NOT FOR CONSTRUCTION

	DATE	RECORD DRAWING		
DESIGNED: A. BEDAL	05/31/2018	RESIDENT ENGINEER	DATE	
DRAWN: A. BEDAL	05/31/2018			
CHECKED: T. TRACY	05/31/2018			

FOR RIGHT OF WAY DATA AND ACCURATE ACCESS DETERMINATION, SEE DOCUMENTS IN THE DEPARTMENT OF PUBLIC WORKS AND PLANNING.

AS SHOWN

TRC
575 E. Locust Ave., Suite 105
Fresno, California 93720
SUPERVISING ENGINEER DATE

TENTATIVE PLAN FOR DESIGN ONLY

REGISTERED PROFESSIONAL ENGINEER
SCOTT A. CIVIL STATE OF CALIFORNIA

PROJECT
LOST LAKE NATURE TRAIL
ROAD NO. --- BRIDGE NO. ---

THE COUNTY OF FRESNO

DEPARTMENT OF PUBLIC WORKS AND PLANNING
EASTERN ALIGNMENT
STA 50+00.00 TO 53+75.00
DRAWING NO. --- SHEET NO. PP-5 TOTAL 10 of 15

Curve Table					
Curve #	Radius	Length	Delta	Chord Direction	Chord Length
C43	75.00'	16.21'	12.38	N07° 13' 20.55"W	16.18'
C44	75.00'	21.57'	16.48	N05° 10' 31.64"W	21.49'
C45	100.00'	21.72'	12.44	N09° 16' 59.85"E	21.67'
C46	49.00'	18.94'	22.15	N04° 25' 53.56"E	18.82'
C47	100.00'	30.52'	17.49	N02° 06' 11.88"E	30.41'
C48	100.00'	19.21'	11.01	N05° 20' 36.44"E	19.18'
C49	50.00'	14.92'	17.10	N08° 23' 22.14"E	14.87'
C50	50.00'	24.39'	27.95	N02° 57' 55.84"E	24.15'

Line Table				
Line #	Length	Direction	Start Point	End Point
L38	13.30'	N13° 24' 47.26"W	(6345690.16,2236907.31)	(6345687.07,2236920.25)
L39	39.81'	N3° 03' 43.97"E	(6345685.13,2236941.66)	(6345687.26,2236981.41)
L40	32.20'	N15° 30' 15.72"E	(6345690.75,2237002.80)	(6345699.36,2237033.82)
L41	17.29'	N6° 38' 28.61"W	(6345700.82,2237052.59)	(6345698.82,2237069.76)
L42	12.50'	N10° 50' 52.37"E	(6345699.93,2237100.15)	(6345702.29,2237112.43)
L43	65.86'	N0° 09' 39.49"W	(6345704.07,2237131.53)	(6345703.89,2237197.39)
L44	50.31'	N16° 56' 23.78"E	(6345706.06,2237212.10)	(6345720.72,2237260.23)
L45	16.48'	N11° 00' 32.11"W	(6345721.96,2237284.34)	(6345718.82,2237300.51)

NOTES:
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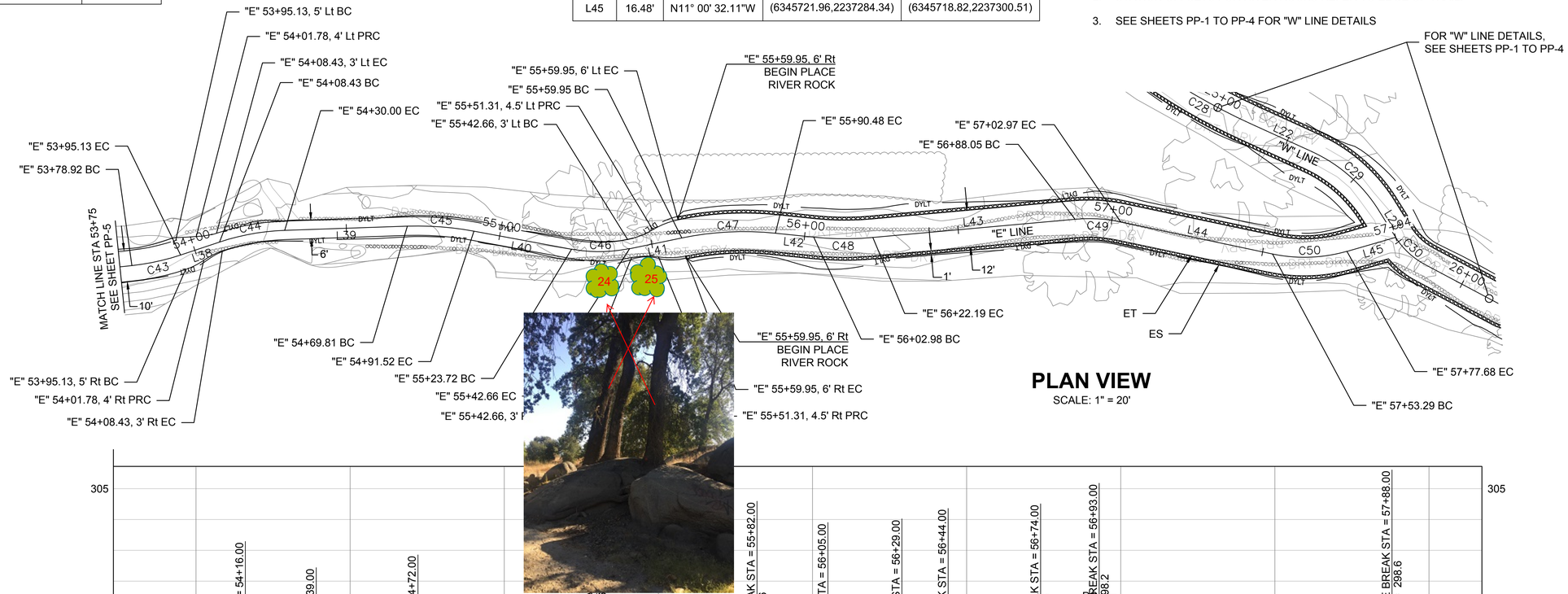
2. STATION OFFSETS FOR RIVER ROCKS REFER TO EDGE OF TRAIL.
3. SEE SHEETS PP-1 TO PP-4 FOR "W" LINE DETAILS



PLAN VIEW
SCALE: 1" = 20'

"E" LINE PROFILE
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'

90% SUBMITTAL
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	DATE	RECORD DRAWING	
DESIGNED: A. BEDAL	05/31/2018	RESIDENT ENGINEER	DATE
DRAWN: A. BEDAL	05/31/2018		
CHECKED: T. TRACY	05/31/2018		

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AS SHOWN

TRC
575 E. Locust Ave., Suite 105
Fresno, California 93720
SUPERVISING ENGINEER DATE

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REGISTERED PROFESSIONAL ENGINEER
CIVIL
STATE OF CALIFORNIA

PROJECT
LOST LAKE NATURE TRAIL
ROAD NO. --- BRIDGE NO. ---

THE COUNTY OF FRESNO

DEPARTMENT OF PUBLIC WORKS AND PLANNING
EASTERN ALIGNMENT
STA 53+75.00 TO 57+94.00
DRAWING NO. --- SHEET NO. PP-6 TOTAL 11 of 15