Appendices

Appendix 1A
List of Parcels Within 300 Feet of Project

Appendix 1A
List of Parcels Within 300 Feet of Project

APN	SITE_ADDRESS	SITE_CITY	SITE_STATE	SITE_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
049-060-29	1101 E LODI AVE	LODI	CA	952403156	2181 N TRACY BLVD 170	TRACY	CA	953762424
049-090-12	5890 E PINE ST	LODI	CA	95240	15504 QUAIL RUN DR	NORTH POTOMAC	MD	208783401
049-090-13	1560 E PINE ST	LODI	CA	952400837	901 S CHEROKEE LN	LODI	CA	952404304
049-090-21			CA		920 SE QUINCY ST	TOPEKA	KS	666121116
049-090-26	5750 E PINE ST	LODI	CA	952400828	15504 QUAIL RUN DR	NORTH POTOMAC	MD	208783401
049-090-43	1303 E LODI AVE	LODI	CA	952400840	1303 E LODI AVE	LODI	CA	952400840
049-111-01	6058 E PINE ST	LODI	CA	952400816	6058 E PINE ST	LODI	CA	952400816
049-111-02	6195 E SARGENT RD	LODI	CA	952409342	PO BOX 247	ACAMPO	CA	952200247
049-111-03	6250 E PINE ST	LODI	CA	952400816	309 TIOGA DR	LODI	CA	952422649
049-111-04	6324 E PINE ST	LODI	CA	95240	15506 N CURRY AVE	LODI	CA	952409338
049-112-01	16463 N CURRY AVE	LODI	CA	95240	2204 ROCKWELL DR	DAVIS	CA	956187615
049-112-02	16141 N CURRY AVE	LODI	CA	952409105	901 S CHEROKEE LN	LODI	CA	952404304
049-112-03	15933 N CURRY AVE	LODI	CA	95240	1 N CHEROKEE LN	LODI	CA	952402411
049-113-07	16588 N CURRY AVE	LODI	CA	952409507	PO BOX 810	VICTOR	CA	952530810
049-114-01	6680 E SARGENT RD	LODI	CA	952409341	4 EVERGREEN DR	LODI	CA	952428307
049-120-34	6100 E STATE ROUTE 12	LODI	CA	95240	PO BOX 440	LODI	CA	952410440
049-120-39			CA		920 SE QUINCY ST	TOPEKA	KS	666121116
049-120-42	6093 E PINE ST	LODI	CA	952400815	PO BOX 350	LODI	CA	952410350
049-120-65	6011 E PINE ST	LODI	CA	952400815	PO BOX 350	LODI	CA	952410350
049-130-64	1649 E VICTOR RD	LODI	CA	952403217	PO BOX 700	VICTOR	CA	952530700
049-190-45	1377 E LODI AVE	LODI	CA	952400840	1377 E LODI AVE	LODI	CA	952400840
049-190-53	201 S GUILD AVE	LODI	CA	952403205	201 S GUILD AVE	LODI	CA	952403205
049-190-54	255 S GUILD AVE	LODI	CA	952403206	2137 PETER AVE	SOUTH LAKE TAHOE	CA	961504410
049-190-57	171 S GUILD AVE	LODI	CA	952403203	133 COMMERCE ST 103	LODI	CA	952400845
049-190-59	170 COMMERCE ST	LODI	CA	952403210	133 COMMERCE ST 103	LODI	CA	952400845
049-230-01	15661 N CURRY AVE	LODI	CA	952409338	10651 E HARNEY LN	LODI	CA	952409112
049-230-06	15505 N CURRY AVE	LODI	CA	952409338	13600 N CURRY AVE	LODI	CA	952409202
049-230-07	15403 N CURRY AVE	LODI	CA	952409338	15415 N CURRY AVE	LODI	CA	952409338
049-230-08	15415 N CURRY AVE	LODI	CA	952409338	15415 N CURRY AVE	LODI	CA	952409338

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APN	SITE_ADDRESS	SITE_CITY	SITE_STATE	SITE_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
049-230-11	6021 E KETTLEMAN LN	LODI	CA	952406400	6021 E KETTLEMAN LN	LODI	CA	952406400
049-230-12	15155 N CURRY AVE	LODI	CA	95240	3800 E ACAMPO RD	ACAMPO	CA	952208300
049-310-02			CA		920 SE QUINCY ST	TOPEKA	KS	666121116
049-310-05	5990 E SARGENT RD	LODI	CA	952409342	1510 SMITH GRADE	BONNY DOON	CA	950609774
049-310-08	1215 THURMAN ST	LODI	CA	95240	22 W PINE ST	LODI	CA	95240
049-310-09			CA		PO BOX 3006	LODI	CA	952411910
049-310-13	1330 THURMAN ST	LODI	CA	952403145	904 CARIBBEAN DR	SUNNYVALE	CA	94089
049-310-43			CA		920 SE QUINCY ST	TOPEKA	KS	666121116
049-310-78	590 S GUILD AVE	LODI	CA	95240	631 N CLUFF AVE	LODI	CA	952400756
049-310-79			CA		PO BOX 1420	LODI	CA	952411420
049-310-80			CA		PO BOX 1420	LODI	CA	952411420
049-340-36	350 N GUILD AVE	LODI	CA	952400803	PO BOX 1470	DECATUR	IL	625251820
051-260-07	15289 N JACK TONE RD	LODI	CA	95240	PO BOX 671	LODI	CA	952410671
051-260-08	15153 N JACK TONE RD	LODI	CA	952409708	PO BOX 671	LODI	CA	952410671
051-260-10	13211 E KETTLEMAN LN	LODI	CA	952409741	13211 E KETTLEMAN LN	LODI	CA	952409741
051-260-11	13137 E KETTLEMAN LN	LODI	CA	952409741	13137 E KETTLEMAN LN	LODI	CA	952409741
051-260-13	12971 E KETTLEMAN LN	LODI	CA	952409741	12971 E KETTLEMAN LN	LODI	CA	952409741
051-260-19	12401 E KETTLEMAN LN	LODI	CA	952409776	PO BOX 226	LINDEN	CA	952360226
051-260-22	12861 E KETTLEMAN LN	LODI	CA	95240	77 BEALE ST	SAN FRANCISCO	CA	941051814
051-260-23	12651 E KETTLEMAN LN	LODI	CA	95240	77 BEALE ST	SAN FRANCISCO	CA	941051814
051-260-32	12901 E KETTLEMAN LN	LODI	CA	95240	2033 GATEWAY CIR	LODI	CA	952406728
053-040-10	14901 E KETTLEMAN LN	LODI	CA	95240	PO BOX 226	LINDEN	CA	952360226
053-040-13	14049 E KETTLEMAN LN	LODI	CA	952409747	2571 ROBERTS RD	TURLOCK	CA	953829507
053-040-18	15510 N JACK TONE RD	LODI	CA	952409708	PO BOX 997	LODI	CA	952410997
053-040-19	14613 E KETTLEMAN LN	LODI	CA	952409743	14613 E KETTLEMAN LN	LODI	CA	952409743
053-040-20	14433 E KETTLEMAN LN	LODI	CA	952409747	14433 E KETTLEMAN LN	LODI	CA	952409747
053-040-27	15278 N JACK TONE RD	LODI	CA	952409708	10733 RIVERMONT DR	STOCKTON	CA	952094567
053-040-28	13749 E KETTLEMAN LN	LODI	CA	952409746	13749 E KETTLEMAN LN	LODI	CA	952409746
053-040-42	14239 E KETTLEMAN LN	LODI	CA	952409747	222 S 9TH ST 1600	MINNEAPOLIS	MN	554023382

APN	SITE_ADDRESS	SITE_CITY	SITE_STATE	SITE_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
053-080-10	15200 N JORY RD	LODI	CA	95240	15200 N JORDY RD	LODI	CA	95240
053-080-12								
053-080-13	15801 E KETTLEMAN LN	LODI	CA	952409753	15801 E KETTLEMAN LN	LODI	CA	952409753
053-080-17	15330 SMITH RD	LODI	CA	952409764	4169 SCOTTSDALE RD	LODI	CA	952406821
053-080-18	15265 E KETTLEMAN LN	LODI	CA	95240	PO BOX 62	WOODBRIDGE	CA	952580062
053-080-20	15467 E KETTLEMAN LN	LODI	CA	952409753	8075 WAYLAND RD	LOOMIS	CA	956509403
053-140-09	17535 E KETTLEMAN LN	LODI	CA	952409749	17535 E KETTLEMAN LN	LODI	CA	952409749
053-140-10	15250 LINN RD	LODI	CA	952409203	15250 LINN RD	LODI	CA	952409203
053-140-12	15465 LINN RD	LODI	CA	952409203	15465 LINN RD	LODI	CA	952409203
053-140-17	15151 LINN RD	LODI	CA	95240	16925 E KETTLEMAN LN	LODI	CA	952409727
053-140-18	16925 E KETTLEMAN LN	LODI	CA	952409727	16925 E KETTLEMAN LN	LODI	CA	952409727
053-140-20	15466 LINN RD	LODI	CA	952409203	15466 LINN RD	LODI	CA	952409203
053-160-09	16251 CLEMENTS RD	LODI	CA	952409615	16251 CLEMENTS RD	LODI	CA	952409615
061-030-41	14660 WELLS LN	LODI	CA	952406422	14660 WELLS LN	LODI	CA	952406422
061-050-05	6042 E KETTLEMAN LN	LODI	CA	95240	PO BOX 2607	LODI	CA	952412607
061-050-09	6312 E KETTLEMAN LN	LODI	CA	952409447	15299 N ALPINE RD	LODI	CA	952409331
061-050-13	6030 E KETTLEMAN LN	LODI	CA	952406410	PO BOX 2507	LODI	CA	952412507
061-131-02	14541 N CURRY AVE	LODI	CA	952409481	14541 N CURRY AVE	LODI	CA	952409481
061-131-17	14401 N CURRY AVE	LODI	CA	95240	15506 N CURRY AVE	LODI	CA	952409338
061-132-11	7106 E KETTLEMAN LN	LODI	CA	952409483	5631 E KETTLEMAN LN	LODI	CA	952406411
061-132-30	14550 N CURRY AVE	LODI	CA	952409481	14541 N CURRY AVE	LODI	CA	952409481
061-132-32	14750 N CURRY AVE	LODI	CA	95240	5490 BEAR CREEK RD	LODI	CA	952407213
061-132-42	14453 N VINTAGE RD	LODI	CA	952409435	PO BOX 401	VICTOR	CA	952530401
061-133-01	7150 E KETTLEMAN LN	LODI	CA	952409483	822 S ROSE ST	LODI	CA	952404625
061-133-02	7280 E KETTLEMAN LN	LODI	CA	952409483	7280 E KETTLEMAN LN	LODI	CA	952409483
061-133-03	7362 E KETTLEMAN LN	LODI	CA	952409483	PO BOX 836	WOODBRIDGE	CA	952580836
061-133-04	7452 E KETTLEMAN LN	LODI	CA	952409451	7319 E KETTLEMAN LN	LODI	CA	952409483
061-133-05	14496 N VINTAGE RD	LODI	CA	952409435	PO BOX 1358	LOCKEFORD	CA	952371358
061-133-19	14537 N ALPINE RD	LODI	CA	952409421	PO BOX 577	ACAMPO	CA	952200577

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APN	SITE_ADDRESS	SITE_CITY	SITE_STATE	SITE_ZIPCODE	MAIL_ADDRESS	MAIL_CITY	MAIL_STATE	MAIL_ZIPCODE
061-133-27	7540 E KETTLEMAN LN	LODI	CA	952409451	7540 E KETTLEMAN LN	LODI	CA	952409451
061-133-31	14415 N ALPINE RD	LODI	CA	952409421	51 MARIPOSA ST	BRISBANE	CA	940051532
061-133-32	14206 N VINTAGE RD	LODI	CA	952409435	14206 N VINTAGE RD	LODI	CA	952409435
063-070-22	14408 N ALPINE RD	LODI	CA	952409421	14408 N ALPINE RD	LODI	CA	952409421
063-070-50	14170 N ALPINE RD	LODI	CA	952409433	14170 N ALPINE RD	LODI	CA	952409433
063-070-62	14090 N ALPINE RD	LODI	CA	952409433	14000 N ALPINE RD	LODI	CA	952409433
063-070-66	14234 N ALPINE RD	LODI	CA	952409433	14234 N ALPINE RD	LODI	CA	952409433
063-070-68								
063-150-17	14262 N LOCUST TREE RD	LODI	CA	952409329	695 N PLUMAS DR	MOUNTAIN HOUSE	CA	953911229
063-150-35	14117 N LOCUST TREE RD	LODI	CA	952409329	14117 N LOCUST TREE RD	LODI	CA	952409329
063-150-36	14309 N LOCUST TREE RD	LODI	CA	952409219	PO BOX 816	VICTOR	CA	952530816
063-150-46	13915 N LOCUST TREE RD	LODI	CA	952409329	13915 N LOCUST TREE RD	LODI	CA	952409329
063-150-47	14051 N LOCUST TREE RD	LODI	CA	95240	10826 E KETTLEMAN LN	LODI	CA	952409701
063-150-50	14365 N LOCUST TREE RD	LODI	CA	95240	9816 FOLSOM DR	LAS VEGAS	NV	891347500
063-160-17	14345 N STATE ROUTE 88	LODI	CA	95240	14345 N HIGHWAY 88	LODI	CA	952409312
063-160-18	14300 N LOCUST TREE RD	LODI	CA	952409219	14300 N LOCUST TREE RD	LODI	CA	952409219
063-160-32			CA		21471 N DES MOINES RD	ACAMPO	CA	952209701
063-160-33	14051 N STATE ROUTE 88	LODI	CA	95240	55 NOBEL AVE	LODI	CA	952429734
063-160-34	14454 N STATE ROUTE 88	LODI	CA	95240	PO BOX 2244	LODI	CA	952412244
063-160-35	11891 E HARNEY LN	LODI	CA	95240	374 LINCOLN CTR	STOCKTON	CA	952072628
063-250-16	12021 E HARNEY LN	LODI	CA	952409313	12754 E HARNEY LN	LODI	CA	952409382
063-250-21	12371 E HARNEY LN	LODI	CA	952409375	12371 E HARNEY LN	LODI	CA	952409375
063-250-22	12385 E HARNEY LN	LODI	CA	952409375	12385 E HARNEY LN	LODI	CA	952409375
093-100-05	24340 E MILTON RD	LINDEN	CA	95236	24340 E MILTON RD	LINDEN	CA	95236
093-100-04	24350 E FLOOD RD	LINDEN	CA	952369429	24350 E FLOOD RD	LINDEN	CA	95236-9429
079-0310-037-0000	8180 FOLSOM BLVD	SACRAMENTO	CA	958265809	1 MARKET 400	SAN FRANCISCO	CA	94105-5103
075-160-008-1		PITTSBURG	CA	94565	PO BOX 5381	OAKLAND	CA	94605-0381
043-202-10	223 N CHEROKEE LN	LODI	CA	95240	135 N CENTER ST	TURLOCK	CA	95380-4505

Appendix 2A
Index to CPUC PEA Guidelines

Appendix A2: Index to CEQA Pre-Filing Guidelines PEA Checklist

Order	The format of the PEA is organized as follows:	PEA Section and Page Number	Applicant Notes, Comments
--	Cover	Cover	
--	Table of Contents, List of Tables, List of Figures, List of Appendices	i-xxv	
1	Executive Summary	1, page 1-1	
2	Introduction	2, page 2-1	
3	Proposed Project Description	3, page 3-1	
4	Description of Alternatives	4, page 4-1	
5	Environmental Analysis	5, page 5-1	
5.1	Aesthetics	5.1, page 5.1-1	
5.2	Agriculture and Forestry	5.2, page 5.2-1	
5.3	Air Quality	5.3, page 5.3-1	
5.4	Biological Resources	5.4, page 5.4-1	
5.5	Cultural Resources	5.5, page 5.5-1	
5.6	Energy	5.6, page 5.6-1	
5.7	Geology, Soils, and Paleontological Resources	5.7, page 5.7-1	
5.8	Greenhouse Gas Emissions	5.8, page 5.8-1	
5.9	Hazards, Hazardous Materials, and Public Safety	5.9, page 5.9-1	
5.10	Hydrology and Water Quality	5.10, page 5.10-1	
5.11	Land Use and Planning	5.11, page 5.11-1	
5.12	Mineral Resources	5.12, page 5.12-1	
5.13	Noise	5.13, page 5.13-1	
5.14	Population and Housing	5.14, page 5.14-1	
5.15	Public Services	5.15, page 5.15-1	
5.16	Recreation	5.16, page 5.16-1	
5.17	Transportation	5.17, page 5.17-1	
5.18	Tribal Cultural Resources	5.18, page 5.18-1	
5.19	Utilities and Service Systems	5.19, page 5.19-1	
5.20	Wildfire	5.20, page 5.20-1	
5.21	Mandatory Findings of Significance	5.21, page 5.21-1	

Order	The format of the PEA is organized as follows:	PEA Section and Page Number	Applicant Notes, Comments
6	Comparison of Alternatives	6, page 6-1	
7	Cumulative Impacts and Other CEQA Considerations	7, page 7-1	
8	List of Preparers	8, page 8-1	
9	References	9, page 9-1	
Order	**Title (As Provided in CPUC Pre-filing Guidelines PEA Checklist)**	**PEA Section and Page Number**	**Applicant Notes, Comments**
Appendix A	Detailed Maps and Design Drawings	Appendix A1	
Appendix B	Emissions Calculations, and Screening-level Health Risk Assessment	Appendix B1a Appendix B1b Appendix B2 Appendix E	
Appendix C	Biological Resources Technical Reports	Appendix C1 Appendix C2 Appendix C3 Appendix C4 Appendix C5 Appendix C6	
Appendix D	Cultural Resources Studies	Appendix D1 Appendix D2 – Confidential Appendix D3 – Confidential	Confidential – To be provided separately to the CPUC
Appendix E	Detailed Tribal Consultation Report	Appendix D4	
Appendix F	Environmental Data Resources Report, Phase I Environmental Site Assessment, or similar hazardous materials report	Appendix G1 Appendix G2	
Appendix G	Agency Consultation and Public Outreach Report and Records of Correspondence	Section 2.2 and online references	
Appendix H	Construction Fire Prevention Plan	To be provided pre-construction, post CPCN	APMs and BMPs provided in PEA address construction fire prevention
Appendix I	Noise Technical Studies	Section 5.13	

Order	The format of the PEA is organized as follows:	PEA Section and Page Number	Applicant Notes, Comments
Appendix J	Traffic Studies	n/a	Existing setting references support potential traffic impact discussion without project traffic studies
Appendix K	Geotechnical Investigations (may preliminary at time of PEA filing) Paleontological Resources Technical Report	Appendix F1 Appendix F2 Appendix F3 Appendix F4	
Appendix L	Hazardous Substance Control and Emergency Response Plan / Hazardous Waste and Spill Prevention Plan	To be provided pre-construction, post CPCN	APMs and BMPs provided in PEA address hazardous substance control and emergency response and hazardous waste and spill prevention
Appendix M	Erosion and Sedimentation Control Best Management Practice Plan / Draft Storm Water Pollution Prevention Plan	To be provided pre-construction, post CPCN	APMs and BMPs provided in PEA address erosion and sedimentation control best management practices and storm water pollution prevention plan contents
Appendix N	FAA Notice and Criteria Tool Results	Appendix G3	
Appendix O	Revegetation or Site Restoration Plan	n/a	Revegetation or site restoration not anticipated other than in future agreements between PG&E and agricultural landowners concerning site restoration and replanting of agricultural crops.
Appendix P	Health and Safety Plan	n/a	Project does not include natural gas or gas storage components
Appendix Q	Existing Easements	n/a	Refer to Section 3.4 for easement discussion. Where existing ROW will be used or new ROW or land acquisition will be required is unavailable in GIS until the project is approved by CPUC and final design and land survey occurs.

Appendix A2: Index to CEQA Pre-Filing Guidelines PEA Checklist

Order	The format of the PEA is organized as follows:	PEA Section and Page Number	Applicant Notes, Comments
Appendix R	Blasting Plan (may be preliminary at time of PEA filing)	n/a	Project does not include blasting
Appendix S	Traffic Control/Management Plan	To be provided pre-construction, post CPCN	APMs and BMPs provided in PEA address traffic control and management
Appendix T	Worker Environmental Awareness Program	To be provided pre-construction, post CPCN	APMs and BMPs provided in PEA address worker environmental awareness program content
Appendix U	Helicopter Use and Safety Plan	n/a	Refer to Section 3.5.1.5 for helicopter use and safety discussion
Appendix V	Electric and Magnetic Fields Management Plan	Appendix 3A EMF Discussion	PEA Appendix 3A is EMF Discussion Field Management Plan Provided as Exhibit G to CPCN Application

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
1 Executive Summary		
1.1: Proposed Project Summary. Provide a summary of the proposed project and its underlying purpose and basic objectives.	1.1 Page 1-1	
1.2: Land Ownership and Right-of-Way Requirements. Provide a summary of the existing and proposed land ownership and rights-of-way for the proposed project.	1.2 Page 1-2	
1.3: Areas of Controversy. Identify areas of anticipated controversy and public concern regarding the project.	1.3 Page 1-3	
1.4: Summary of Impacts a) Identify all impacts expected by the Applicant to be potentially significant. Identify and discuss Applicant Proposed Measures here and provide a reference to the full listing of Applicant Proposed Measures provided in the table described in Section 3.11 of this PEA Checklist. b) Identify any significant and unavoidable impacts that may occur.	1.4 Page 1-3	APMs and BMPs are considered part of the proposed project such as project design features, standard practices, and regulatory requirements. APMs and BMPs will be implemented to further avoid or minimize impacts on environmental resources, ensuring that any remaining impacts will be less than significant.
1.5: Summary of Alternatives. Summarize alternatives that were considered by the Applicant and the process and criteria that were used to select the proposed project.	1.5 Page 1-3	
1.6: Pre-filing Consultation and Public Outreach Summary. Briefly summarize Pre-filing consultation and public outreach efforts that occurred and identify any significant outcomes that were incorporated into the proposed project.	1.5 Page 1-3	
1.7: Conclusions. Provide a summary of the major PEA conclusions.	1.5 Page 1-3	
1.8: Remaining Issues. Describe any major issues that must still be resolved.	1.5 Page 1-3	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
2 Introduction 2.1 Project Background	PEA Section and Page Number	
2.1.1: Purpose and Need a) Explain why the proposed project is needed. b) Describe localities the proposed project would serve and how the project would fit into the local and regional utility system. c) If the proposed project was identified by the California Independent System Operator (CAISO), thoroughly describe the CAISO's consideration of the proposed project and provide the following information: i. Include references to all CAISO Transmission Planning Processes that considered the proposed project. ii. Explain if the proposed project is considered an economic, reliability, or policy-driven project or a combination thereof. iii. Identify whether and how the Participating Transmission Owner recommended the project in response to a CAISO identified need, if applicable. iv. Identify if the CAISO approved the original scope of the project or an alternative and the rationale for their approval either for the original scope or an alternative. v. Identify how and whether the proposed project would exceed, combine, or modify in any way the CAISO identified project need. vi. If the Applicant was selected as part of a competitive bid process, identify the factors that contributed to the selection and CAISO's requirements for in-service date. d) If the project was not considered by the CAISO, explain why.	2.1.4 Page 2-5	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
(Natural Gas Storage Only) e) Provide storage capacity or storage capacity increase in billion cubic feet. If the project does not increase capacity, make this statement. f) Describe how existing storage facilities will work in conjunction with the proposed project. Describe the purchasing process (injection, etc.) and transportation arrangements this facility will have with its customers.	n/a	Project does not include natural gas storage
2.1.2: Project Objectives a) Identify and describe the basic project objectives. The objectives will include reasons for constructing the project based on its purpose and need (i.e., address a specific reliability issue). The description of the project objectives will be sufficiently detailed to permit CPUC to independently evaluate the project need and benefits to accurately consider them in light of the potential environmental impacts. The basic project objectives will be used to guide the alternatives screening process, when applicable. b) Explain how implementing the project will achieve the basic project objectives and underlying purpose and need. c) Discuss the reasons why attainment of each basic objective is necessary or desirable.	2.1.5 Page 2-10 Table 2.1-1 Table 2.1-2 Table 2.1-3 Figure 2.1-1 Figure 2.1-2 Figure 2.1-3	
2.1.3: Project Applicant(s). Identify the project Applicant(s) and ownership of each component of the proposed project. Describe each Applicant's utility services and their local and regional service territories.	2.1.6 Page 2-11	
2.2 Pre-filing Consultation and Public Outreach	PEA Section and Page Number	
2.2.1: Pre-filing Consultation and Public Outreach a) Describe all Pre-filing consultation and public outreach that occurred, such as, but not limited to:	2.2.1 Page 2-12	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
i. CAISO ii. Public agencies with jurisdiction over project areas or resources that may occur in the project area iii. Native American tribes affiliated with the project area iv. Private landowners and homeowner associations v. Developers for large housing or commercial projects near the project area vi. Other utility owners and operators vii. Federal, state, and local fire management agencies b) Provide meeting dates, attendees, and discussion summaries, including any preliminary concerns and how they were addressed and any project alternatives that were suggested. c) Clearly identify any significant outcomes of consultation that were incorporated into the proposed project. d) Clearly identify any developments that could coincide or conflict with project activities (i.e., developments within or adjacent to a proposed ROW).		
2.2.2: Records of Consultation and Public Outreach. Provide contact information, notification materials, meeting dates and materials, meeting notes, and records of communication organized by entity as an Appendix to the PEA (Appendix G).	2.2.2 Page 2-15	
2.3 Environmental Review Process	PEA Section and Page Number	
2.3.1: Environmental Review Process. Provide a summary of the anticipated environmental review process and schedule.	2.3.1 Page 2-16	
2.3.2: CEQA Review a) Explain why CPUC is the appropriate CEQA Lead agency. b) Identify other state agencies and any federal agencies that may have	2.3.2 Page 2-16	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
discretionary permitting authority over any aspect of the proposed project. c) Identify all potential involvement by federal, state, and local agencies not expected to have discretionary permitting authority (i.e., ministerial actions). d) Summarize the results of any preliminary outreach with these agencies as well as future plans for outreach.		
2.3.3: NEPA Review (if applicable). If review according to the National Environmental Policy Act (NEPA) is expected, explain the portions of the project that will require the NEPA review process. Discuss which agency is anticipated to be the NEPA Lead agency if discretionary approval by more than one federal agency is required.	2.3.3 Page 2-16	NEPA Review not expected to be applicable to the proposed project
2.3.4: Pre-filing CEQA and NEPA Coordination. Describe the results of Pre-filing coordination with CEQA and NEPA review agencies (refer to CPUC's Pre-Filing Consultation Guidelines). Identify major outcomes of the Pre-filing coordination process and how the information was incorporated into the PEA, including suggestions on the type of environmental documents and joint or separate processes based on discussions with agency staff.	2.3.4 Page 2-16	
2.4 Document Organization	PEA Section and Page Number	
2.4: PEA Organization. Summarize the contents of the PEA and provide an annotated list of its sections.	2.4 Page 2-17	
3 Proposed Project Description 3.1 Project Overview	PEA Section and Page Number	
3.1: Project Overview a) Provide a concise summary of the proposed project and components in a few paragraphs. b) Described the geographical location of the proposed project (i.e., county, city, etc.).	3.1 Page 3-1 Figure 3.1-1	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
c) Provide an overview map of the proposed project location.		
3.2 Existing and Proposed System	PEA Section and Page Number	
3.2.1: Existing System a) Identify and describe the existing utility system that would be modified by the proposed project, including connected facilities to provide context. Include detailed information about substations, transmission lines, distribution lines, compressor stations, metering stations, valve stations, nearby renewable generation and energy storage facilities, telecommunications facilities, control systems, SCADA systems, etc. b) Provide information on users and the area served by the existing system features. c) Explain how the proposed project would fit into the existing local and regional systems. d) Provide a schematic diagram of the existing system features. e) Provide detailed maps and associated GIS data for existing facilities that would be modified by the proposed project.	3.2.1 Page 3-2	

3.2.2: Proposed Project System a) Describe the whole of the proposed project by component, including all new facilities and any modifications, upgrades, or expansions to existing facilities and any interrelated activities that are part of the whole of the action. b) Clearly identify system features that would be added, modified, removed, disconnected and left in place, etc. c) Identify the expected capacities of the proposed facilities, highlighting any changes from the existing system. If the project would not change existing capacities, make this statement. For electrical projects, provide the anticipated capacity increase in amps or megawatts or in the typical units for the types of facilities proposed. For gas projects, provide the total volume of gas to be delivered by the proposed facilities, anticipated system capacity increase (typically in million cubic feet per day), expected customers, delivery points and corresponding volumes, and the anticipated maximum allowable operating pressure(s). d) Describe the initial buildout and eventual full buildout of the proposed project facilities. For example, if an electrical substation or gas compressor station would be installed to accommodate additional demand in the future, then include the designs for both the initial construction based on current demand and the design for all infrastructure that could ultimately be installed within the planned footprint of an electric substation or compressor station. e) Explain whether the electric line or gas pipeline will create a second system tie or loop for reliability. f) Provide information on users and the area served by the proposed system features, highlighting any differences from the existing system. g) Provide a schematic diagram of the proposed system features. h) Provide detailed maps and associated GIS data for proposed facilities that would be installed, modified, or relocated by the proposed project.	3.2.2 Page 3-5	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
3.2.3: System Reliability. Explain whether the electric line or gas pipeline will create a second system tie or loop for reliability. Clearly explain and show how the proposed project relates to and supports the existing utility systems.	3.2.4 Page 3-7	
3.2.4: Planning Area. Describe the system planning area served or to be served by the project. Clearly define the Applicant's term for the planning area (e.g., Electrical Needs Area or Distribution Planning Area).	3.2.4 Page 3-7	
3.3 Project Components	PEA Section and Page Number	
Required for all Project Types		
3.3.1: Preliminary Design and Engineering a) Provide preliminary design and engineering information for all above-ground and below-ground facilities for the proposed project. The approximate locations, maximum dimensions of facilities, and limits of areas that would be needed to construct and operate the facilities should be clearly defined. b) Provide preliminary design drawings for project features and explain the level of completeness (i.e., percentage). c) Provide detailed project maps (approximately 1:3,000 scale) and associated GIS data of all facility locations and boundaries with attributes and spatial geometry that corresponds to information in the Project Description.	3.3.1 Page 3-8 Appendix A1	
3.3.2: Segments, Components, and Phases a) Define all project segments, components, and phases for the proposed project. b) Provide the length/area of each segment or component, and the timing of each development phase. c) Provide an overview map showing each segment and provide associated GIS data (may be combined with other mapping efforts).	3.3.2 Page 3-8 Appendix A1	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
3.3.3: Existing Facilities a) Identify the types of existing facilities that would be removed or modified by the proposed project (i.e., conductor/cable, poles/towers, substations, switching stations, gas storage facilities, gas pipelines, service buildings, communication systems, etc.). b) Describe the existing facilities by project segment and/or component, and provide information regarding existing dimensions, areas/footprints, quantities, locations, spans, etc. c) Distinguish between above-ground and below-ground facilities and provide both depth and height ranges for each type of facility. For poles/towers, provide the installation method (i.e., foundation type or direct bury), and maximum above-ground heights and below-ground depths. d) Explain what would happen to the existing facilities. Would they be replaced, completely removed, modified, or abandoned? Explain why. e) Identify the names, types, materials, and capacity/volumes ranges (i.e., minimum and maximum) of existing facilities that would be installed or modified by the proposed project. f) Provide diagrams with dimensions representing existing facilities to provide context on how the proposed facilities would be different. g) Briefly describe the surface colors, textures, light reflectivity, and any lighting of existing facilities.	3.3.3 Page 3-10 Table 3.3-1 Table 3.3-2 Table 3.3-3 Table 3.3-4 Table 3.3-5 Table 3.3-6 Table 3.3-7 Table 3.3-8 Table 3.3-9 Appendix A1 Figure 3.3-1a Figure 3.3-1b Figure 3.3-1c Figure 3.3-1d Figure 3.3-2a Figure 3.3-2b Figure 3.3-3a Figure 3.3-3b Figure 3.4-4 Figure 3.3-5	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
3.3.4: Proposed Facilities a) Identify the types of proposed facilities to be installed or modified by the proposed project (e.g., conductor/cable, poles/towers, substations, switching stations, gas storage facilities, gas pipelines, service buildings, communication systems). b) Describe the proposed facilities by project segment and/or component, and provide information regarding maximum dimensions, areas/footprints, quantities, locations, spans, etc. c) Distinguish between above-ground and below-ground facilities and provide both depth and height ranges for each type of facility. For poles/towers, provide the installation method (i.e., foundation type or direct bury), and maximum above-ground heights and below-ground depths. d) Identify where facilities would be different (e.g., where unique or larger poles would be located, large guy supports or snub poles). e) Provide details about civil engineering requirements (i.e., permanent roads, foundations, pads, drainage systems, detention basins, spill containment, etc.). f) Distinguish between permanent facilities and any temporary facilities (i.e., poles, shoo-fly lines, mobile substations, mobile compressors, transformers, capacitors, switch racks, compressors, valves, driveways, and lighting). g) Identify the names, types, materials, and capacity/volumes ranges (i.e., minimum and maximum) of proposed facilities that would be installed or modified by the proposed project. h) Provide diagrams with dimensions representing existing facilities. i) Briefly describe the surface colors, textures, light reflectivity, and any lighting of proposed facilities.	3.3.4 Page 3-32 Table 3.3-10 Table 3.3-11 Table 3.3-12 Table 3.3-13 Table 3.3-14 Appendix A1 Figure 3.3-6a Figure 3.3-6b Figure 3.3-6c Figure 3.3-7a Figure 3.3-7b Figure 3.3-7c Figure 3.3-8	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
3.3.5: Other Potentially Required Facilities a) Identify and describe in detail any other actions or facilities that may be required to complete the project. For example, consider the following questions: i. Could the project require the relocation (temporary or permanent), modification, or replacement of unconnected utilities or other types of infrastructure by the Applicant or any other entity? ii. Could the project require aviation lighting and/or marking? iii. Could the project require additional civil engineering requirements to address site conditions or slope stabilization issues, such as pads and retaining walls, etc.? b) Provide the location of each facility and a description of the facility.	3.3.5 Page 3-34	
3.3.6: Future Expansions and Equipment Lifespans a) Provide detailed information about the current and reasonably foreseeable plans for expansion and future phases of development. b) Provide the expected usable life of all facilities. c) Describe all reasonably foreseeable consequences of the proposed project (e.g., future ability to upgrade gas compressor station to match added pipeline capacity).	3.3.6 Page 3-34	
Required for Certain Project Types		
3.3.7: Below-ground Conductor/Cable Installations (as Applicable) a) Describe the type of line to be installed (e.g., single circuit cross-linked polyethylene-insulated solid-dielectric, copper-conductor cables). b) Describe the type of casing the cable would be installed in (e.g., concrete-encased duct bank system) and provide the dimensions of the casing.	3.3.7 Page 3-34	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
c) Describe the types of infrastructure would likely be installed within the duct bank (e.g., transmission, fiber optics, etc.).		
3.3.8: Electric Substations and Switching Stations (as Applicable) a) Provide the number of transformer banks that will be added at initial and full buildout of the substation. Identify the transformer voltage and number of each transformer type. b) Identify any gas insulated switchgear that will be installed within the substation. c) Describe any operation and maintenance facilities, telecommunications equipment, and SCADA equipment that would be installed within the substation.	3.3.8 Page 3-34 Table 3.3-15	
3.3.9: Gas Pipelines (as Applicable). For each segment: a) Identify pipe diameter, number and length of exposed sections, classes and types of pipe to be installed, pressure of pipe, and cathodic protection for each linear segment. b) Describe new and existing inspection facilities (e.g., pig launcher sites). c) Describe system cross ties and laterals/taps. d) Identify the spacing between each valve station. e) Describe the compressor station, if needed, for any new or existing pipeline. f) Describe all pipelines and interconnections with existing and proposed facilities: i. Number of interconnections and locations and sizes; ii. All below-ground and above-ground installations; and iii. All remote facility locations for metering, telemetry, control.	n/a	Gas pipelines are not part of the proposed project
3.3.10: Gas Storage Facilities – Background and Resource Information (as Applicable) a) Provide detailed background information on the natural gas formation contributing to the existing or proposed natural gas facility, including the following:	n/a	Gas storage facilities are not part of the proposed project

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
i. Description of overlying stratigraphy, especially caps ii. Description of production, injection, and intervening strata iii. Types of rock iv. Description of types of rocks in formation, including permeability or fractures v. Thickness of strata b) Provide a graphic and/or table showing formation thicknesses. c) Identify and describe any potential gas migration pathways, such as faults, permeable contacts, abandoned wells, underground water or other pipelines. d) Provide a summary and detailed cross-section diagrams of the geologic formations and structures of the oil/gas field or area. e) Provide the first well drilling and production history, abandonment procedures, inspections, etc. f) Describe production zones, including depth, types of formations, and characteristics of field/area. g) Describe the existing and proposed storage capacity and limiting factors, such as injection or withdrawal capacities. h) Describe existing simulation studies that were used to predict the reservoir pressure response under gas injection and withdrawal operations, and simulation studies for how the system would change as proposed. Provide the studies as a PEA Appendix. i) Provide the history of the oil/gas field or area.		
3.3.11: Gas Storage Facilities – Well-Head Sites (as Applicable). Describe the location, depth, size and completion information for all existing, abandoned, proposed production and injection, monitoring, and test wells.	n/a	Gas storage facilities are not part of the proposed project
3.3.12: Gas Storage Facilities – Production and Injection (as Applicable)	n/a	Gas storage facilities are not part of the proposed project

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
a) Provide the proposed storage capacity of production and injection wells. b) Provide production and injection pressures, depths, and rates. c) Provide production and injection cycles by day, week, and year. d) Describe existing and proposed withdrawal/production wells (i.e., size, depth, formations, etc.). e) Describe existing and proposed cushion gas requirements. f) Describe any cushion gas injection—formation the well is completed in (cushion gas formation), and injection information.		
3.3.13: Gas Storage Facilities – Electrical Energy (as Applicable). Describe all existing and proposed electric lines, telecommunications facilities, and other utilities/facilities (e.g., administrative offices, service buildings, and non-hazardous storage), and chemical storage associated with the proposed project.	n/a	Gas storage facilities are not part of the proposed project
3.3.14: Telecommunication Lines (as Applicable) a) Identify the type of cable that is proposed and length in linear miles by segment. b) Identify any antenna and node facilities that are part of the project. c) For below-ground telecommunication lines, provide the depth of cable and type of conduit. d) For above-ground telecommunication lines, provide: i. Types of poles that will be installed (if new poles are required) ii. Where existing poles will be used iii. Any additional infrastructure (e.g., guy wires) or pole changes required to support the additional cable on existing poles	3.3.9 Page 3-35 Table 3.3-16	
3.4 Land Ownership, Rights-of-Way, and Easements	PEA Section and Page Number	
3.4.1: Land Ownership. Describe existing land ownership where each project component would	3.4.1 Page 3-36	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
be located. State whether the proposed project would be located on property(ies) owned by the Applicant or if additional property would be required.		
3.4.2: Existing Rights-of-Way or Easements a) Identify and describe existing rights-of-way (ROWs) or easements where project components would be located. Provide the approximately lengths and widths in each project area. b) Clearly state if project facilities would be replaced, modified, or relocated within existing ROWs or easements.	3.4.2 Page 3-37 Table 3.4-1	
3.4.3: New or Modified Rights-of-Way or Easements a) Describe new permanent or modified ROWs or easements that would be required. Provide the approximately lengths and widths in each project area. b) Describe how any new permanent or modified ROWs or easements would be acquired. c) Provide site plans identifying all properties/parcels and partial properties/parcels that may require acquisition and the anticipated ROWs or easements. Provide associated GIS data. d) Describe any development restrictions within new ROWs or easements, e.g., building clearances and height restrictions, etc. e) Describe any relocation or demolition of commercial or residential property/structures that may be necessary.	3.4.3 Page 3-38 Table 3.4-2	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
3.4.4: Temporary Rights-of-Way or Easements f) Describe temporary ROWs or easements that would be required to access project areas, including ROWs or easements for temporary construction areas (i.e., staging areas or landing zones). g) Explain where temporary construction areas would be located with existing ROWs or easements for the project or otherwise available to the Applicant without a temporary ROW or easement. h) Describe how any temporary ROWs or easements would be acquired.	3.4.4 Page 3-40	
3.5 Construction	PEA Section and Page Number	
3.5.1 Construction Access (All Projects)		
3.5.1.1: Existing Access Roads a) Provide the lengths, widths, ownership details (both public and private roads), and surface characteristics (i.e., paved, graveled, bare soil) of existing access roads that would be used during construction. Provide the area of existing roads that would be used. b) Describe any road modifications or stabilization that would be required prior to construction, including on the adjacent road shoulders or slopes. Identify any roads that would be expanded and provide the proposed width increases. c) Describe any procedures to address incidental road damage cause by project activities following construction. d) Provide detailed maps and associated GIS data for all existing access roads.	3.5.1.1 Page 3-40 Table 3.5-1 Appendix A1 Figure 3.5-1	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
3.5.1.2: New Access Roads a) Identify any new access roads that would be developed for project construction purposes, such as where any blading, grading, or gravel placement could occur to provide equipment access outside of a designated workspace. b) Provide lengths, widths, and development methods for new access roads. c) Identify any temporary or permanent gates that would be installed. d) Clearly identify any roads that would be temporary and fully restored following construction. Otherwise it will be assumed the new access road is a permanent feature. e) Provide detailed maps and associated GIS data for all new access roads.	3.5.1.2 Page 3-41 Table 3.5-1 Appendix A1 Figure 3.5-1	No roads outside of fenced station areas are new permanent roads.
3.5.1.3: Overland Access Routes a) Identify any overland access routes that would be used during construction, such as where vehicles and equipment would travel over existing vegetation and where blading, grading, or gravel placement would occur. b) Provide lengths and widths for new access roads. c) Provide detailed maps and associated GIS data for all overland access routes.	3.5.1.3 Page 3-42 Table 3.5-1 Appendix A1 Figure 3.5-1	
3.5.1.4: Watercourse Crossings a) Identify all temporary watercourse crossings that would be required during construction. Provide specific methods and procedures for temporary watercourse crossings. b) Describe any bridges or culverts that replacement or installation of would be required for construction access. c) Provide details about the location, design and construction methods.	3.5.1.4 Page 3-42 Appendix A1 Figure 3.5-1	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
3.5.1.5: Helicopter Access. If helicopters would be used during construction: a) Describe the types and quantities of helicopters that would be used during construction (e.g., light, medium, heavy, or sky crane), and a description of the activities that each helicopter would be used for. b) Identify areas for helicopter takeoff and landing. c) Describe helicopter refueling procedures and locations. d) Describe flight paths, payloads, and expected hours and durations of helicopter operation. e) Describe any safety procedures or requirements unique to helicopter operations, such as but not limited to obtaining a Congested Area Plan from the Federal Aviation Administration (FAA).	3.5.1.5 Page 3-42 Appendix A1 Figure 3.5-1	
3.5.2 Staging Areas (All Projects)		
3.5.2.1: Staging Area Locations a) Identify the locations of all staging area(s). Provide a map and GIS data for each. b) Provide the size (in acres) for each staging area and the total staging area requirements for the project.	3.5.2.1 Page 3-43 Table 3.5-2 Appendix A1 Figure 3.5-1	
3.5.2.2: Staging Area Preparation a) Describe any site preparation required, if known, or generally describe what might be required (i.e., vegetation removal, new access road, installation of rock base, etc.). b) Describe what the staging area would be used for (i.e., material and equipment storage, field office, reporting location for workers, parking area for vehicles and equipment, etc.). c) Describe how the staging area would be secured. Would a fence be installed? If so, describe the type and extent of the fencing. d) Describe how power to the site would be provided if required (i.e., tap into existing distribution, use of diesel generators, etc.).	3.5.2.2 Page 3-44	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
e) Describe any temporary lightning facilities for the site. f) Describe any grading activities and/or slope stabilization issues.		
3.5.3 Construction Work Areas (All Projects)		
3.5.3.1: Construction Work Areas a) Describe known work areas that may be required for specific construction activities (e.g., pole assembly, hillside construction) b) Describe the types of activities that would be performed at each work area. Work areas may include but are not necessarily limited to: i. Helicopter landing zones and touchdown areas ii. Vehicle and equipment parking, passing, or turnaround areas iii. Railroad, bridge, or watercourse crossings iv. Temporary work pads for facility installation, modification, or removal v. Excavations and associated equipment work areas vi. Temporary guard structures vii. Pull-and-tension/stringing sites viii. Jack and bore pits, drilling areas and pull-back areas for horizontal directional drills ix. Retaining walls	3.5.3.1 Page 3-45	
3.5.3.2 Work Area Disturbance a) Provide the dimensions of each work area including the maximum area that would be disturbed during construction (e.g., 100 feet by 200 feet). b) Provide a table with temporary and permanent disturbance at each work area (in square feet or acres), and the total area of temporary and permanent disturbance for the entire project (in acres).	3.5.3.2 Page 3-46 Table 3.5-3	
3.5.3.3: Temporary Power. Identify how power would be provided at work area (i.e., tap into existing distribution, use of diesel generators,	3.5.3.3 Page 3-47	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
etc.). Provide the disturbance area for any temporary power lines.		
3.5.4 Site Preparation (All Projects)		
3.5.4.1: Surveying and Staking. Describe initial surveying and staking procedures for site preparation and access.	3.5.4.1 Page 3-48	
3.5.4.2: Utilities a) Describe the process for identifying any underground utilities prior to construction (i.e., underground service alerts, etc.). b) Describe the process for relocating any existing overhead or underground utilities that aren't directly connected to the project system. c) Describe the process for installing any temporary power or other utility lines for construction.	3.5.4.2 Page 3-48	
3.5.4.3: Vegetation Clearing a) Describe what types of vegetation clearing may be required (e.g., tree removal, brush removal, flammable fuels removal) and why (e.g., to provide access, etc.). b) Provide calculations of temporary and permanent disturbance of each vegetation community and include all areas of vegetation removal in the GIS database. Distinguish between disturbance that would occur in previously developed areas (i.e., paved, graveled, or otherwise urbanized), and naturally vegetated areas. c) Describe how each type of vegetation removal would be accomplished. d) Describe the types of equipment that would be used for vegetation removal.	3.5.4.3 Page 3-49 Table 3.5-4	
3.5.4.4: Tree Trimming Removal a) For electrical projects, distinguish between tree trimming as required under CPUC General Order 95-D and tree removal. b) Identify the types, locations, approximate numbers, and sizes of trees that may need to be removed or trimmed substantially.	3.5.4.4 Page 3-50 Table 3.5-5 Appendix A1 Figure 3.5-1	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
c) Identify potentially protected trees that may be removed or substantially trimmed, such as but not limited to riparian trees, oaks trees, Joshua trees, or palm trees. d) Describe the types of equipment that would typically be used for tree removal.		
3.5.4.5: Work Area Stabilization. Describe the processes to stabilize temporary work areas and access roads including the materials that would be used (e.g., gravel).	3.5.4.5 Page 3-51	
3.5.4.6: Grading a) Describe any earth moving or substantial grading activities (i.e., grading below a 6-inch depth) that would be required and identify locations where it would occur. b) Provide estimated volumes of grading (in cubic yards) including total cut, total fill, cut that would be reused, cut that would be hauled away, and clean fill that would be hauled to the site.	3.5.4.6 Page 3-51	
3.5.5 Transmission Line Construction (Above Ground)		
3.5.5.1: Poles/Towers a) Describe the process and equipment for removing poles, towers, and associated foundations for the proposed project (where applicable). Describe how they would be disconnected, demolished, and removed from the site. Describe backfilling procedures and where the material would be obtained. b) Describe the process and equipment for installing or otherwise modifying poles and towers for the proposed project. Describe how they would be put into place and connected to the system. Identify any special construction methods (e.g., helicopter installation) at specific locations or specific types of poles/towers. c) Describe how foundations, if any, would be installed. Provide a description of the construction method(s), approximate average depth and diameter of excavation, approximate volume of soil to be excavated,	3.5.5.1 Page 3-52	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
approximate volume of concrete or other backfill required, etc. for foundations. Describe what would be done with soil removed from a hole/foundation site. d) Describe how the poles/towers and associated hardware would be delivered to the site and assembled. e) Describe any pole topping procedures that would occur, identify specific locations and reasons, and describe how each facility would be modified. Describe any special methods that would be required to top poles that may be difficult to access.		

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
3.5.5.2: Aboveground and Underground Conductor/Cable a) Provide a process-based description of how new conductor/cable would be installed and how old conductor/cable would be removed, if applicable. b) Identify where conductor/cable stringing/installation activities would occur. c) Provide a diagram of the general sequencing and equipment that would be used. d) Describe the conductor/cable splicing process. e) Provide the general or average distance between pull-and-tension sites. Describe the approximate dimensions and where pull-and-tension sites would generally be required (as indicated by the designated work areas), such as the approximate distance to pole/tower height ratio, at set distances, or at significant direction changes. Describe the equipment that would be required at these sites. f) For underground conductor/cable installations, describe all specialized construction methods that would be used for installing underground conductor or cable. If vaults are required, provide their dimensions and location/spacing along the alignment. Provide a detailed description for how the vaults would be delivered to the site and installed. g) Describe any safety precautions or areas where special methodology would be required (e.g., crossing roadways, stream crossing).	3.5.5.2 Page 3-56 Figure 3.5-2	
3.5.5.3: Telecommunications. Identify the procedures for installation of proposed telecommunication cables and associated infrastructure.	3.5.5.3 Page 3-57	
3.5.5.4: Guard Structures. Identify the types of guard structures that would be used at crossings of utility lines, roads, railroads, highways, etc. Describe the different types of guard structures or methods that may be used (i.e., buried poles and netting, poles secured to a weighted object, bucket trucks, etc.). Describe any pole installation	3.5.5.4 Page 3-58 Figure 3.5-3	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
and removal procedures associated with guard structures. Describe guard structure installation and removal process and duration that guard structures would remain in place.		
3.5.5.5: Blasting a) Describe any blasting that may be required to construct the project. b) If blasting may be required, provide a Blasting Plan that identifies the blasting locations; types and amounts of blasting agent to be used at each location; estimated impact radii; and, noise estimates. The Blasting Plan should be provided as an Appendix to the PEA. c) Provide a map identifying the locations where blasting may be required with estimated impact radii. Provide associated GIS data.	n/a	Blasting is not an expected construction method
3.5.6 Transmission Line Construction (Below Ground)		
3.5.6.1: Trenching a) Describe the approximate dimensions of the trench (e.g., depth, width). b) Provide the total approximate volume of material to be removed from the trench, the amount to be used as backfill, and any amount to subsequently be removed/disposed of offsite in cubic yards. c) Describe the methods used for making the trench (e.g., saw cutter to cut the pavement, backhoe to remove, etc.). d) Provide off-site disposal location, if known, or describe possible option(s). e) Describe if dewatering would be anticipated and if so, how the trench would be dewatered, the anticipated flows of the water, whether there would be treatment, and how the water would be disposed of. f) Describe the process for testing excavated soil or groundwater for the presence of pre-existing environmental contaminants that could be exposed from trenching operations.	3.5.6.1 Page 3-58	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
g) If a pre-existing hazardous waste were encountered, describe the process of removal and disposal. h) Describe the state of the ground surface after backfilling the trench. i) Describe standard Best Management Practices to be implemented.		

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
3.5.6.2: Trenchless Techniques (Microtunnel, Jack and Bore, Horizontal Directional Drilling) a) Identify any locations/features for which the Applicant expects to use a trenchless (i.e., microtunneling, jack and bore, horizontal directional drilling) crossing method and which method is planned for each crossing. b) Describe the methodology of the trenchless technique. c) Provide the approximate location and dimensions of the sending and receiving pits. d) Describe the methodology of excavating and shoring the pits. e) Provide the total volume of material to be removed from the pits, the amount to be used as backfill, and the amount subsequently to be removed/disposed of offsite in cubic yards. f) Describe process for safe handling of drilling mud and bore lubricants. g) Describe the process for detecting and avoiding "fracturing-out" during horizontal directional drilling operations. h) Describe the process for avoiding contact between drilling mud/lubricants and stream beds. i) If engineered fill would be used as backfill, indicate the type of engineered backfill and the amount that would be typically used (e.g., the top 2 feet would be filled with thermal-select backfill). j) Describe if dewatering is anticipated and, if so, how the pits would be dewatered, the anticipated flows of the water, whether there would there be treatment, and how the water would be disposed of. k) Describe the process for testing excavated soil or groundwater for the presence of pre-existing environmental contaminants. Describe the process of disposing of any pre-existing hazardous waste that is encountered during excavation. l) Describe any standard BMPs that would be implemented for trenchless construction.	3.5.6.2 Page 3-59	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
3.5.7 Substation, Switching Stations, Gas Compressor Stations		
3.5.7.1: Installation or Facility Modification. Describe the process and equipment for removing, installing, or modifying any substations, switching stations, or compressor stations including: a) Transformers/ electric components b) Gas components c) Control and operation buildings d) Driveways e) Fences f) Gates g) Communication systems (SCADA) h) Grounding systems	3.5.7.1 Page 3-61	
3.5.7.2: Civil Works. Describe the process and equipment required to construct any slope stabilization, drainage, retention basins, and spill containment required for the facility.	3.5.7.2 Page 3-64	
3.5.8 Gas Pipelines		
3.5.8.1: Gas Pipeline Construction. Describe the process for proposed pipeline construction including site development, trenching and trenchless techniques, pipe installation, and backfilling.	n/a	Gas pipelines are not part of the proposed project
3.5.8.2: Water Crossings. Describe water feature crossings that will occur during trenching, the method of trenching through stream crossings, and the process for avoiding impacts to the water features required for pipeline construction. Identify all locations where the pipeline will cross water features. Cite to any associated geotechnical or hydrological investigations completed and provide a full copy of each report as an Appendix to the PEA.	n/a	Gas pipelines are not part of the proposed project
3.5.8.3: Gas Pipeline Other Requirements a) Describe hydrostatic testing process including pressures, timing, source of flushing water, discharge of water. b) Describe energy dissipation basin, and the size and length of segments to be tested.	n/a	Gas pipelines are not part of the proposed project

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
c) Describe pig launching locations and any inline inspection techniques used during or immediately post construction.		
3.5.9 Gas Storage Facilities		
3.5.9.1: Gas Storage Construction a) Describe the process for constructing the gas storage facility including constructing well pads and drilling wells. b) Describe the specific construction equipment that would be used, such as the type of drill rig (i.e., size, diesel, electric, etc.), depth of drilling, well-drilling schedule and equipment.	n/a	Gas storage facilities are not part of the proposed project
3.5.9.2: Drilling Muds and Fluids. Describe the use of any drilling muds, fluids, and other drilling materials. Provided estimated types and quantities.	n/a	Gas storage facilities are not part of the proposed project
3.5.10 Public Safety and Traffic Control (All Projects)		
3.5.10.1: Public Safety a) Describe specific public safety considerations during construction and best management practices to appropriately manage public safety. Clearly state when and where they each safety measure would be applied. b) Identify procedures for managing work sites in urban areas, covering open excavations securely, installing barriers, installing guard structures, etc. c) Identify specific project areas where public access may be restricted for safety purposes and provide the approximate durations and timing of restricted access at each location.	3.5.8.1 Page 3-66	
3.5.10.2: Traffic Control a) Describe traffic control procedures that would be implemented during construction. b) Identify the locations, process, and timing for closing any sidewalks, lanes, roads, trails, paths, or driveways to manage public access. c) Identify temporary detour routes and locations. d) Provide a preliminary Traffic Control Plan(s) for the project.	3.5.8.2 Page 3-66	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
3.5.10.3: Security. Describe any security measures, such as fencing, lighting, alarms, etc. that may be required. State if security personnel will be stationed at project areas and anticipated duration of security.	3.5.8.3 Page 3-68	
3.5.10.4: Livestock. Describe any livestock fencing or guards that may be necessary to prevent livestock from entering project areas. State if the fencing would be electrified and if so, how it would be powered.	3.5.8.4 Page 3-68	
3.5.11 Dust, Erosion, and Runoff Controls (All Projects)		
3.5.11.1: Dust. Describe specific best management practices that would be implemented to manage fugitive dust.	3.5.9.1 Page 3-68	
3.5.11.2: Erosion. Describe specific best management practices that would be implemented to manage erosion.	3.5.9.2 Page 3-68	
3.5.11.3: Runoff. Describe specific best management practices that would be implemented to manage stormwater runoff and sediment.	3.5.9.3 Page 3-69	
3.5.12 Water Use and Dewatering (All Projects)		
3.5.12.1: Water Use. Describe the estimated volumes of water that would be used by construction activity (e.g., dust control, compaction, etc.). State if recycled or reclaimed water would be used and provide estimated volumes. Identify the anticipated sources where the water would be acquired or purchased. Identify if the source of water is groundwater and the quantity of groundwater that could be used.	3.5.10.1 Page 3-69	
3.5.12.2: Dewatering a) Describe dewatering procedures during construction, including pumping, storing, testing, permitted discharging, and disposal requirements that would be followed. b) Describe the types of equipment and workspace considerations to be used to dewater, store, transport, or discharge extracted water.	3.5.10.2 Page 3-69	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
3.5.13 Hazardous Materials and Management (All Projects)		
3.5.13.1: Hazardous Materials a) Describe the types, uses, and volumes of all hazardous materials that would be used during construction. b) State if herbicides or pesticides may be used during construction. c) If a pre-existing hazardous waste were encountered, describe the process of removal and disposal.	3.5.11.1 Page 3-69 Table 3.5-6	
3.5.13.2: Hazardous Materials Management a) Identify specific best management practices that would be followed for transporting, storing, and handling hazardous materials. b) Identify specific best management practices that would be followed in the event of an incidental leak or spill of hazardous materials. c) Provide a Hazardous Substance Control and Emergency Response Plan / Hazardous Waste and Spill Prevention Plan as an Appendix to the PEA, if appropriate.	3.5.11.2 Page 3-70	The Hazardous Substance Control and Emergency Response Plan / Hazardous Waste and Spill Prevention Plan is not prepared until much later in the project development process and will not be attached to the PEA. The plan will include and expand on expand on regulatory requirements and typical best practices, such as the hazardous materials APMs and BMPs included in the PEA.
3.5.14 Waste Generation and Management (All Projects)		
3.5.14.1: Solid Waste a) Describe solid waste streams from existing and proposed facilities during construction. b) Identify procedures to be implemented to manage solid waste, including collection, containment, storage, treatment, and disposal. c) Provide estimated total volumes of solid waste by construction activity or project component. d) Describe the recycling potential of solid waste materials and provide estimated volumes of recyclable materials by construction activity or project component. e) Identify the locations of appropriate disposal and recycling facilities where solid wastes would be transported.	3.5.12.1 Page 3-71	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
3.5.14.2: Liquid Waste a) Describe liquid waste streams during construction (i.e., sanitary waste, drilling fluids, contaminated water, etc.) b) Describe procedures to be implemented to manage liquid waste, including collection, containment, storage, treatment, and disposal. c) Provide estimated volumes of liquid waste generated by construction activity or project component. d) Identify the locations of appropriate disposal facilities where liquid wastes would be transported.	3.5.12.2 Page 3-72	
3.5.14.3: Hazardous Waste a) Describe potentially hazardous waste streams during construction and procedures to be implemented to manage hazardous wastes, including collection, containment, storage, treatment, and disposal. b) If large volumes of hazardous waste are anticipated, such as from a pre-existing contaminant in the soil that must be collected and disposed of, provide estimated volumes of hazardous waste that would be generated by construction activity or project component. c) Identify the locations of appropriate disposal facilities where hazardous wastes would be transported.	3.5.12.3 Page 3-72	
3.5.15 Fire Prevention and Response (All Projects)		
3.5.15.1: Fire Prevention and Response Procedures. Describe fire prevention and response procedures that would be implemented during construction. Provide a Construction Fire Prevention Plan or specific procedures as an Appendix to the PEA.	3.5.13.1 Page 3-72	The Construction Fire Prevention Plan is not prepared until much later in the project development process and will not be attached to the PEA. The plan will include and expand on expand on regulatory requirements and typical best practices, such as the construction fire prevention APMs and BMPs included in the PEA.

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
3.5.15.2: Fire Breaks. Identify any fire breaks (i.e., vegetation clearance) requirements around specific project activities (i.e., hot work). Ensure that such clearance buffers are included in the limits of the defined work areas, and the vegetation removal in that area is attributed to Fire Prevention and Response (refer to 3.5.4.3: Vegetation Clearing).	3.5.13.2 Page 3-72	
3.6 Construction Workforce, Equipment, Traffic, and Schedule	PEA Section and Page Number	
3.6.1: Construction Workforce a) Provide the estimated number of construction crew members. In the absence of project-specific data, provide estimates based on past projects of a similar size and type. b) Describe the crew deployment. Would crews work concurrently (i.e., multiple crews at different sites); would they be phased? How many crews could be working at the same time and where? c) Describe the different types of activities to be undertaken during construction, the number of crew members for each activity (i.e. trenching, grading, etc.), and number and types of equipment expected to be used for the activity. Include a written description of the activity.	3.6.1 Page 3-73 Table 3.6-1	
3.6.2: Construction Equipment. Provide a tabular list of the types of equipment expected to be used during construction of the proposed project including the horsepower. Define the equipment that would be used by each phase.	3.6.2 Page 3-74 Table 3.6-1	
3.6.3: Construction Traffic a) Describe how the construction crews and their equipment would be transported to and from the proposed project site. b) Provide vehicle type, number of vehicles, and estimated hours of operation per day, week, and month for each construction activity and phase. c) Provide estimated vehicle trips and vehicles miles traveled (VMT) for each construction	3.6.3 Page 3-90 Table 3.6-2	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
activity and phase. Provide separate values for construction crews commuting, haul trips, and other types of construction traffic.		
3.6.4: Construction Schedule a) Provide the proposed construction schedule (e.g., month and year) for each segment or project component, and for each construction activity and phase. b) Provide and explain the sequencing of construction activities, and if they would or would not occur concurrently. c) Provide the total duration of each construction activity and phase in days or weeks. d) Identify seasonal considerations that may affect the construction schedule, such as weather or anticipated wildlife restrictions, etc. The proposed construction should account for such factors.	3.6.4 Page 3-91 Table 3.6-3	
3.6.5: Work Schedule a) Describe the anticipated work schedule, including the days of the week and hours of the day when work would occur. Clearly state if work would occur at night or on weekends and identify when and where this could occur. b) Provide the estimated number of days or weeks that construction activities would occur at each type of work area. For example, construction at a stationary facility or staging area may occur for the entire duration of construction, but construction at individual work areas along a linear project would be limited to a few hours, days or weeks, and only a fraction of the total construction period.	3.6.5 Page 3-92 Table 3.6-4	
3.7 Post-Construction	PEA Section and Page Number	
3.7.1: Configuring and Testing. Describe the process and duration for post-construction configuring and testing of facilities. Describe the number of personnel and types of equipment that would be involved.	3.7.1 Page 3-93	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
3.7.2: Landscaping. Describe any landscaping that would be installed. Provide a conceptual landscape plan that identifies the locations and types of plantings that will be used. Identify whether plantings will include container plants or seeds. Include any water required for landscaping in the description of water use above.	3.7.2 Page 3-94	
3.7.3 Demobilization and Site Restoration		
3.7.3.1: Demobilization. Describe the process for demobilization after construction activities, but prior to leaving the work site. For example, describe final processes for removing stationary equipment and materials, etc.	3.7.3.1 Page 3-94	
3.7.3.2: Site Restoration. Describe how cleanup and post-construction restoration would be performed (i.e., personnel, equipment, and methods) on all project ROWs, sites, and extra work areas. Things to consider include, but are not limited to, restoration of the following: a) Restoring natural drainage patterns b) Recontouring disturbed soil c) Removing construction debris d) Vegetation e) Permanent and semi-permanent erosion control measures f) Restoration of all disturbed areas and access roads, including restoration of any public trails that are used as access, as well as any damaged sidewalks, agricultural infrastructure, or landscaping, etc. g) Road repaving and striping, including proposed timing of road restoration for underground construction within public roadways	3.7.3.2 Page 3-94	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
3.8 Operation and Maintenance	PEA Section and Page Number	
3.8.1: Regulations and Standards a) Identify and describe all regulations and standards applicable to operation and maintenance of project facilities. b) Provide a copy of any applicable Wildfire Management Plan and describe any special procedures for wildfire management.	3.8.1 Page 3-94	
3.8.2: System Controls and Operation Staff a) Describe the systems and methods that the Applicant would use for monitoring and control of project facilities (e.g., on-site control rooms, remote facilities, standard monitoring and protection equipment, pressure sensors, automatic shut-off valves, and site and equipment specific for monitoring and control such as at natural gas well pads). b) If new full-time staff would be required for operation and/or maintenance, provide the number of positions and purpose.	3.8.2 Page 3-96	
3.8.3: Inspection Programs a) Describe the existing and proposed inspection programs for each project component, including the type, frequency, and timing of scheduled inspections (i.e., aerial inspection, ground inspection, pipeline inline inspections). b) Describe any enhanced inspections, such as within any High Fire Threat Districts consistent with applicable Wildfire Management Plan requirements. c) Describe the inspection processes, such as the methods, number of crew members, and how access would occur (i.e., walk, vehicle, all-terrain vehicle, helicopter, drone, etc.). If new access would be required, describe any restoration that would be provided for the access roads.	3.8.3 Page 3-96	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
3.8.4: Maintenance Programs a) Describe the existing and proposed maintenance programs for each project component. b) Describe scheduled maintenance or facility replacement after the designated lifespan of the equipment. c) Identify typical parts and materials that require regular maintenance and describe the repair procedures. d) Describe any access road maintenance that would occur. e) Describe maintenance for surface or color treatment. f) Describe cathodic protection maintenance that would occur. g) Describe ongoing landscaping maintenance that would occur.	3.8.4 Page 3-98	
3.8.5: Vegetation Management Programs a) Describe vegetation management programs within and surrounding project facilities. Distinguish between any different types of vegetation management. b) Describe any enhanced vegetation management, such as within any High Fire Threat Districts consistent with any applicable Wildfire Management Plan requirements. Identify the areas where enhanced vegetation management would be conducted.	3.8.5 Page 3-99	
3.9 Decommissioning	PEA Section and Page Number	
3.9.1: Decommissioning. Provide detailed information about the current and reasonably foreseeable plans for the disposal, recycling, or future abandonment of all project facilities.	3.9 Page 3-100	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
3.10 Anticipated Permits and Approvals	PEA Section and Page Number	
3.10.1: Anticipated Permits and Approvals. Identify all necessary federal, state, regional, and local permits that may be required for the project. For each permit, list the responsible agency and district/office representative with contact information, type of permit or approval, and status of each permit with date filed or planned to file. For example: a) Federal Permits and Approvals i. U.S. Fish and Wildlife Service ii. U.S. Army Corps of Engineers iii. Federal Aviation Administration iv. U.S. Forest Service v. U.S. Department of Transportation – Office of Pipeline Safety vi. U.S. Environmental Protection Agency (Resource Conservation and Recovery Act; Comprehensive Environmental Response, Compensation, and Liability Act) b) State and Regional Permits i. California Department of Fish and Wildlife ii. California Department of Transportation iii. California State Lands Commission iv. California Coastal Commission v. State Historic Preservation Office, Native American Heritage Commission vi. State Water Resources Control Board vii. California Division of Oil, Gas and Geothermal Resources viii. Regional Air Quality Management District ix. Regional Water Quality Control Board (National Pollutant Discharge Elimination System General Industrial Storm Water Discharge Permit) x. Habitat Conservation Plan Authority (if applicable) See also Error! Reference source not found. of example permitting requirements and processes.	3.10.1 Page 3-101 Table 3.10-1	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
3.10.2: Rights-of-Way or Easement Applications. Demonstrate that applications for ROWs or other proposed land use have been or soon will be filed with federal, state, or other land-managing agencies that have jurisdiction over land that would be affected by the project (if any). Discuss permitting plans and timeframes and provide the contact information at the federal agency(ies) approached.	3.10.2 Page 3-101	
3.11 Applicant Proposed Measures	PEA Section and Page Number	
3.11 Applicant Proposed Measures a) Provide a table with the full text of any Applicant Proposed Measure. Where applicable, provide a copy of Applicant procedures, plans, and standards referenced in the Applicant Proposed Measures. b) Within Chapter 5, describe the basis for selecting a particular Applicant Proposed Measure and how the Applicant Proposed Measure would reduce the impacts of the project.	3.11 Page 3-102 Table 3.11-1 Chapter 5 sections	
3.12 Project Description Graphics, Mapbook, and GIS Requirements	PEA Section and Page Number	
3.12.1: Graphics. Provide diagrams of the following as applicable: a) All pole, tower, pipe, vault, conduit, and retaining wall types b) For poles, provide typical drawings with approximate diameter at the base and tip; for towers, estimate the width at base and top. c) A typical detail for any proposed underground duct banks and vaults d) All substation, switchyard, building, and facility layouts e) Trenching, drilling, pole installation, pipe installation, vault installation, roadway construction, facility removal, helicopter uses, conductor installation, traffic control, and other construction activities where a diagram would assist the reader in	Appendix A1	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
visualizing the work area and construction approach f) Typical profile views of proposed aboveground facilities and existing facilities to be modified within the existing and proposed ROW (e.g., typical cross-section of existing and proposed facilities by project segment). g) Photos of representative existing and proposed structures		
3.12.2: Mapbook. Provide a detailed mapbook on an aerial imagery basemap at a scale between 1:3000 and 1:6000 (or as appropriate and legible) that show mileposts, roadways, and all project components and work areas including: a) All proposed above-ground and underground structure/facility locations (e.g., poles, conductor, substations, compressor stations, telecommunication lines, vaults, duct bank, lighting, markers, etc.) b) All existing structures/facilities that would be modified or removed c) Identify by milepost where existing ROW will be used and where new ROW or land acquisition will be required. d) All permanent work areas including permanent facility access e) All access roads including, existing, temporary, and new permanent access f) All temporary work areas including staging, material storage, field offices, material laydown, temporary work areas for above ground (e.g., pole installation) and underground facility construction (e.g., trenching and duct banks), helicopter landing zones, pull and tension sites, guard structures, shoo flys etc. g) Areas where special construction methods (e.g., jack and bore, HDD, blasting, retaining walls etc.) may need to be employed h) Areas where vegetation removal may occur i) Areas to be heavily graded and where slope stabilization measures would be employed including any retaining walls	Appendix A1	Where existing ROW will be used or new ROW or land acquisition will be required is unavailable in GIS until the project is approved by CPUC and final design and land survey occurs. Refer to Table 3.4-1 and Table 3.4-2 for approximate available easement or acquisition information.

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
3.12.3: GIS Data. Provide GIS data for all features and ROW shown on the detailed mapbook.	separate GIS submittal	
3.12.4: GIS Requirements. Provide the following information for each pole/tower that would be installed and for each pole/tower that would be removed: a) Unique ID number and type of pole (e.g., wood, steel, etc.) or tower (e.g., self-supporting lattice) both in a table and in the attributes of the GIS data provided b) Identify pole/tower heights and conductor sizes in the attributes of the GIS data provided.	separate GIS submittal	
3.12.5: Natural Gas Facilities GIS Data. For natural gas facilities, provide GIS data for system cross ties and all laterals/taps, valve stations, and new and existing inspection facilities (e.g., pig launcher sites).	n/a	Natural gas facilities are not part of the proposed project
4 Description of Alternatives	PEA Section and Page Number	
4.1 Alternatives Considered. Identify alternatives to the proposed project. Include the following: a) All alternatives to the proposed project that were suggested, considered, or studied by the CAISO or by CAISO stakeholders b) Alternatives suggested by the public or agencies during public outreach efforts conducted by the Applicant c) Reduced footprint alternatives, including, e.g., smaller diameter pipelines and space for fewer electric transformers d) Project phasing options (e.g., evaluate the full build out for environmental clearance but consider an initial, smaller buildout that would only be expanded [in phases] if needed) e) Alternative facility and construction activity sites (e.g., substation, compressor station, drilling sites, well-head sites, staging areas) f) Renewable, energy conservation, energy efficiency, demand response, distributed energy resources, and energy storage alternatives	4.2 Page 4-3 Table 4.1-1 Table 4.2-1 Appendix A1 Figure 4.1-1	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
g) Alternatives that would avoid or limit the construction of new transmission-voltage facilities or new gas transmission pipelines h) Other technological alternatives (e.g., conductor type) i) Route alternatives and route variations j) Alternative engineering or technological approaches (e.g., alternative types of facilities, or materials, or configurations) k) Assign an identification label and brief, descriptive title to each alternative described in this PEA chapter (e.g., Alternative A: No Project; Alterative B: Reduced Footprint 500/115-kV Substation; Alternative C: Ringo Hills 16-inch Pipeline Alignment; Alternative D1: Lincoln Street Route Variation; etc.). Each alternative will be easily identifiable by reading the brief title. Provide a description of each alternative. The description of each alternative will discuss to what extent it would be potentially feasible, meet the project's underlying purpose, meet most of the basic project objectives, and avoid or reduce one or more potentially significant impacts. If the Applicant believes that an alternative is infeasible or the implementation is remote and speculative (CEQA Guidelines Section 15126.6(f)(3), clearly explain why. If significant environmental effects are possible without mitigation, alternatives will be provided in the PEA that are capable of avoiding or reducing any potentially significant environmental effects, even if the alternative(s) substantially impede the attainment of some project objectives or are costlier.		
4.2 No Project Alternative. Include a thorough description of the No Project Alternative. The No Project Alternative needs to describe the range of actions that are reasonably foreseeable if the proposed project is not approved. The No Project Alternative will be described to meet the requirements of CEQA Guidelines Section15126.6(e).	4.3 Page 4-10	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
4.3 Rejected Alternatives. Provide a detailed discussion of all alternatives considered by the Applicant that were not selected by the Applicant for a full description in the PEA and analysis in PEA Chapter 5. The detailed discussion will include the following: a) Description of the alternative and its components b) Map of any alternative sites or routes c) Discussion about the extent to which the alternative would meet the underlying purpose of the project and its basic objectives d) Discussion about the feasibility of implementing the alternative e) Discussion of whether the alternative would reduce or avoid any significant environmental impacts of the proposed project f) Discussion of any new significant impacts that could occur from implementation of the alternative g) Description of why the alternative was rejected h) Any comments from the public or agencies about the alternative during PEA preparation	4.4 Page 4-10 Appendix A1 Figure 4.4-1	
For Natural Gas Storage Projects:		
4.4 Natural Gas Storage Alternatives. In addition to the requirements included above, alternatives to be considered for proposed natural gas storage projects include the following, where applicable: a) Alternative reservoir locations considered for gas storage including other field locations and other potential storage areas b) Alternative pipelines, road, and utility siting c) Alternative suction gas requirements, and injection/withdrawal options	n/a	Natural gas facilities are not part of the proposed project
5 Environmental Analysis 5.1 Aesthetics	PEA Section and Page Number	
5.1.1 Environmental Setting		
5.1.1.1: Landscape Setting. Briefly described the regional and local landscape setting.	5.1.1.1 Page 5.1-1	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
5.1.1.2: Scenic Resources. Identify and describe any vistas, scenic highways, national scenic areas, or other scenic resources within and surrounding the project area (approximately 5-mile buffer but may be greater if necessary). Scenic resources may also include but are not limited to historic structures, trees, or other resources that contribute to the scenic values where the project would be located.	5.1.1.2 Page 5.1-2	
5.1.1.3: Viewshed Analysis a) Conduct a viewshed analysis for the project area (approximately 5-mile buffer but may be greater if necessary). b) Describe the project viewshed, including important visibility characteristics for the project site, such as viewing distance, viewing angle, and intervening topography, vegetation, or structures. c) Provide a supporting map (or maps) showing project area, landscape units, topography (i.e., hillshade), and the results of the viewshed analysis. Provide associated GIS data.	5.1.1.3 Page 5.1-3 Appendix A2 Figure 5.1-1b	
5.1.1.4: Landscape Units. Identify and describe landscape units (geographic zones) within and surrounding the project area (approximately 5-mile buffer but may be greater if necessary) that categorizes different landscape types and visual characteristics, with consideration to topography, vegetation, and existing land uses. Landscape units should be developed based on the existing landscape characteristics rather than the project's features or segments.	5.1.1.4 Page 5.1-3	
5.1.1.5: Viewers and Viewer Sensitivity. Identify and describe the types of viewers expected within the viewshed and landscape units. Describe visual sensitivity to general visual change based on viewing conditions, use of the area, feedback from the public about the project, and landscape characteristics.	5.1.1.5 Page 5.1-4	
5.1.1.6: Representative Viewpoints a) Identify representative viewpoints from publicly accessible locations (up to	5.1.1.6 Page 5.1-5 Table 5.1-1	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
approximately 5-mile buffer but may be greater if appropriate). The number and location of the viewpoints must represent a range of views of the project site from major roads, highways, trails, parks, vistas, landmarks, and other scenic resources near the project site. Multiple viewpoints should be included where the project site would be visible from sensitive scenic resources to provide context on different viewing distances, perspectives, and directions. b) Provide the following information for each viewpoint: i. Number, title, and brief description of the location ii. Types of viewers iii. Viewing direction(s) and distance(s) to the nearest proposed project features iv. Description of the existing visual conditions and visibility of the project site as seen from the viewpoint and shown in the representative photographs c) Provide a supporting map (or maps) showing project features and representative viewpoints with arrows indicating the viewing direction(s). Provide associated GIS data (may be combined with GIS data request below for representative photographs).	Appendix A2 Figure 5.1-1a	
5.1.1.7: Representative Photographs a) Provide high resolution photographs taken from the representative viewpoints in the directions of all proposed project features. Multiple photographs should be provided where project features may be visible in different viewing directions from the same location. b) Provide the following information for each photograph: i. Capture time and date ii. Camera body and lens model	5.1.1.7 Page 5.1-5 Appendix A2 Figure 5.1-2	a)

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
iii. Lens focal length and camera height when taken c) Provide GIS data associated with each photograph location that includes coordinates (<1 meter resolution), elevations, and viewing directions, as well as the associated viewpoint.		
5.1.1.8: Visual Resource Management Areas a) Identify any visual resource management areas within and surrounding the project area (approximately 5-mile buffer). b) Describe any project areas within visual resource management areas. c) Provide a supporting map (or maps) showing project features and visual resource management areas. Provide associated GIS data.	5.1.1.8 Page 5.1-5	n/a
5.1.2 Regulatory Setting		
5.1.2.1: Regulatory Setting. Identify applicable federal, state, and local laws, policies, and standards regarding aesthetics and visual resource management.	5.1.2 Page 5-1.5	
5.1.3 Impact Questions		
5.1.3.1: Impact Questions. The impact questions include all aesthetic impact questions in the current version of CEQA Guidelines, Appendix G. 5.1.3.2: Additional CEQA Impact Questions: None.	5.1.3 Page 5.1-12	
5.1.4 Impact Analysis		
5.1.4.1: Visual Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines Appendix G for this resource area and any additional impact questions listed above.	5.1.4.3 Page 5.1-13	
The following information will be included in the PEA or a technical Appendix to support the aesthetic impact analysis:		
5.1.4.2: Analysis of Selected Viewpoints. Identify the methodology and assumptions that were applied in selecting key observation points for visual simulation. It is recommended that viewpoints are selected where viewers may be	5.1.4.4 Page 5.1-22 Appendix A2 Figure 5.1-3a	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
sensitive to visual change (public views) and in areas that are visually sensitive, or heavily trafficked or visited.	Figure 5.1-4a Figure 5.1-5a Figure 5.1-6a	
5.1.4.3: Visual Simulation a) Identify methodology and assumptions for completing the visual simulations. The simulations should include photorealistic 3-D models of project features and any land changes within the KOP view. The visual simulations should depict conditions: i. Immediately following construction, and ii. After vegetation establishment in all areas of temporary impact to illustrate the visual impact from vegetation removal. b) Provide high resolution images for the visual simulations.	5.1.4.5 Page 5.1-23 Table 5.1-3 Appendix A2 Figure 5.1-3b Figure 5.1-4b Figure 5.1-5b Figure 5.1-6b	
5.1.4.4: Analysis of Visual Change a) Identify the methodology and assumptions for completing the visual change analysis. The methodology should be consistent with applicable visual resource management criteria. b) Provide a description of the visual change for each selected viewpoint. Describe any conditions that would change over time, such as vegetation growth. c) Describe the effects of visual change that would result in the entire project area, as indicated by the selected viewpoints that were simulated and analyzed.	5.1.4.6 Page 5.1-23	
5.1.4.5: Lighting and Marking. Identify all new sources of permanent lighting. Identify any proposed structures or lines that could require FAA notification. Identify any structures or line segments that could require lighting and marking based on flight patterns and FAA or military requirements. Provide supporting documentation in an Appendix (e.g., FAA notice and criteria tool results).	5.1.4.7 Page 5.1-27	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
5.2 Agriculture and Forestry Resources	PEA Section and Page Number	
5.2.1 Environmental Setting		
5.2.1.1: Agricultural Resources and GIS a) Identify all agricultural resources that occur within the project area including: i. Areas designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance ii. Areas under Williamson Act contracts and provide information on the status of the Williamson Act contract iii. Any areas zoned for agricultural use in local plans iv. Areas subject to active agricultural use b) Provide GIS data for agricultural resources within the proposed project area.	5.2.1.3 Page 5.2-2 Figure 5.2-1 Figure 5.2-2 Figure 5.2-3 Table 5.2-2 Table 5.2-3	
5.2.1.2: Forestry Resources and GIS a) Identify all forestry resources within the project area including: i. Forest land as defined in Public Resources Code 12220(g) ii. Timberland as defined in Public Resource Code section 4526 iii. Timberland zoned Timberland Production as defined in Government Code section 51104(g) b) Provide GIS data for all forestry resources within the proposed project area.	5.2.1.4 Page 5.2-5	
5.2.2 Regulatory Setting		
5.2.2: Agriculture and Forestry Regulations. Identify all federal, state, and local policies for protection of agricultural and forestry resources that apply to the proposed project.	5.2.2 Page 5.2-6	
5.2.3 Impact Questions		
5.2.3.1: Agriculture and Forestry Impact Questions. The impact questions include all agriculture and forestry impact questions in the current version of CEQA Guidelines, Appendix G. 5.2.3.2: Additional CEQA Impact Questions: None.	5.2.3 Page 5.2-7	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
5.2.4 Impact Analyses		
5.2.4.1: Agriculture and Forestry Impacts. Provide an impact analysis for each checklist item identified in CEQA Guidelines Appendix G for this resource area and any additional impact questions listed above.	5.2.4.3 Page 5.2-9 Figure 5.2-1	
Incorporate the following discussions into the analysis of impacts:		
5.2.4.2: Prime Farmland Soil Impacts. Calculate the acreage of Prime Farmland soils that would be affected by construction and operation and maintenance.	5.2.4.3 Page 5.2-9	
5.2.4.3. Williamson Act Impacts. Describe the approach to resolve potential conflicts with Williamson Act contract (if applicable)	5.2.4.3 Page 5.2-10	
5.3 Air Quality	PEA Section and Page Number	
5.3.1 Environmental Setting		
5.3.1.1: Air Quality Plans Identify and describe all applicable air quality plans and attainment areas. Identify the air basin(s) for the project area. If the project is located in more than one attainment area and/or air basin, provide the extent in each attainment area and air basin.	5.3.2.3 Page 5.3-7	
5.3.1.2: Air Quality. Describe existing air quality in the project area. a) Identify existing air quality exceedance of National Ambient Air Quality Standards and California Ambient Air Quality Standards in the air basin. b) Provide the number of days that air quality in the area exceeds state and federal air standards for each criteria pollutant that where air quality standards are exceeded. c) Provide air quality data from the nearest representative air monitoring station(s).	5.3.2.2 Page 5.3-6 Table 5.3-1 Table 5.3-2 Table 5.3-3	
5.3.1.3: Sensitive Receptor Locations. Identify the location and types of each sensitive receptor locations within 1,000 feet of the project area. Provide GIS data for sensitive receptor locations.	5.3.2.4 Page 5.3-8 Figure 5.3-1	
5.3.2 Regulatory Setting		

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
5.3.2.1: Regulatory Setting. Identify applicable federal, state, and local laws, policies, and standards regarding air quality	5.3.1 Page 5.3-1	
5.3.2.2: Air Permits. Identify and list all necessary air permits.	5.3.1.5 Page 5.3-5	
5.3.3 Impact Questions		
5.3.3.1: Impact Questions. The impact questions include all air quality impact questions in the current version of CEQA Guidelines, Appendix G. 5.3.3.2: Additional CEQA Impact Questions: None.	5.3.3 Page 5.3-9	
5.3.4 Impact Analysis		
5.3.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines Appendix G for this resource area and any additional impact questions listed above.	5.3.4 Page 5.3-9	
5.3.4.2: Air Quality Emissions Modeling. Model project emissions using the most recent version of CalEEMod and/or a current version of other applicable modeling program. Provide all model input and output data sheets in Microsoft Excel format to allow CPUC to evaluate whether project data was entered into the modeling program accurately. The assumptions used in the air quality modeling must be consistent with all PEA information about the project's schedule, workforce, and equipment. The following information will be addressed in the emissions modeling, Air Quality Appendix, and PEA: a) Quantify the expected emissions of criteria pollutants from all project-related sources. Quantify emissions for both construction and operation (e.g., compressor equipment). b) Identify manufacturer's specifications for all proposed new emission sources. For proposed new, additional, or modified compressor units, include the horsepower, type, and energy source. c) Describe any emission control systems that are included in the air quality analysis (e.g., installation of filters, use of EPA Tier II, III, or IV equipment, use of electric engines, etc.).	5.3.4 Page 5.3-9 App B1a App B1b Table 5.3-5 Table 5.3-6 Table 5.3-7 Table 5.3-8 Table 5.3-9 Table 5.3-10 Table 5.3-11 Table 5.3-12	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
d) When multiple air basins may be affected by the project, model air emissions within each air basin and provide a narrative (supported by calculations) that clearly describes the assumptions around the project activities considered for each air basin. Provide modeled emissions by attainment area or air basin (supported by calculations).		
5.3.4.3: Air Quality Emissions Summary. Provide a table summarizing the air quality emissions for the project and applicable thresholds for each applicable attainment area. Include a summary of uncontrolled emissions (prior to application of any APMs) and controlled emissions (after application of APMs). Clearly identify the assumptions that were applied in the controlled emissions estimates.	5.3.4.4 Page 5.3-12	
5.3.4.4: Health Risk Assessment. Complete a Health Risk Assessment when air quality emissions have the potential to lead to human health impacts. If health impacts are not anticipated from project emissions, the analysis should clearly describe why emissions would not lead to health impacts.	Appendix B2 Table 5.3-13	
5.4 Biological Resources	PEA Section and Page Number	
5.4.1 Environmental Setting		
5.4.1.1: Biological Resources Technical Report. Provide a Biological Resources Technical Report as an Appendix to the PEA that includes all information specified in Attachment 2.	Appendix C3	
The following biological resources information will be presented in the PEA:		
5.4.1.2: Survey Area (Local Setting). Identify and describe the biological resources survey area as documented in the Biological Resources Technical Report. All temporary and permanent project areas must be within the survey area.	5.4.1.1 Page 5.4-1 Figure 5.4-1	
5.4.1.3: Vegetation Communities and Land Cover	Appendix C1	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
a) Identify, describe, and quantify vegetation communities and land cover types within the biological resources survey area. b) Clearly identify any sensitive natural vegetation communities that meet the definition of a biological resource under CEQA (i.e., rare, designated, or otherwise protected), such as, but not limited to, riparian habitat. c) Provide a supporting map (or maps) showing project features and vegetation communities and land cover type.	5.4.1.2 Page 5.4-5 Figure 5.4-2	
5.4.1.4: Aquatic Features a) Identify, describe, and quantify aquatic features within the biological resources survey area that may provide potentially suitable aquatic habitat for rare and special-status species. b) Identify and quantify potentially jurisdictional aquatic features and delineated wetlands, according to the Wetland Delineation Report and Biological Resources Technical Report. c) Provide a supporting map (or maps) showing project features and aquatic resources.	Appendix C2 5.4.1.3 Page 5.4-7 Figure 5.4-3	
5.4.1.5: Habitat Assessment. Identify rare and special-status species with potential to occur in the project region (approximately a 5-mile buffer but may be larger if necessary). For each species, provide the following information: a) Common and scientific name b) Status and/or rank c) Habitat characteristics (i.e., vegetation communities, elevations, seasonal changes, etc.) d) Blooming characteristics for plants e) Breeding and other dispersal (range) behavior for wildlife f) Potential to occur within the survey area (i.e., Present, High Potential, Moderate Potential, Low Potential, or Not Expected), with justification based on the results of the	5.4.1.4 Page 5.4-7 Table 5.4-1 Table 5.4-2	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
records search, survey findings, and presence of potentially suitable habitat g) Specific types and locations of potentially suitable habitat that correspond to the vegetation communities and land cover and aquatic features		
5.4.1.6: Critical Habitat a) Identify and describe any critical habitat for rare or special-status species within and surrounding the project area (approximately a 5-mile buffer). b) Provide a supporting map (or maps) showing project features and critical habitat.	5.4.1.4 Page 5.4-8	There is no designated critical habitat within the vicinity of the project.
5.4.1.7: Native Wildlife Corridors and Nursery Sites a) Identify and describe regional and local wildlife corridors within and surrounding the project area (approximately a 5-mile buffer), including but not limited to, landscape and aquatic features that connect suitable habitat in regions otherwise fragmented by terrain, changes in vegetation, or human development. b) Identify and describe regional and local native wildlife nursery sites within and surrounding the project area (approximately a 5-mile buffer), as identified through the records search, surveys, and habitat assessment. c) Provide a supporting map (or maps) showing project features, native wildlife corridors, and native nursery sites.	n/a	
5.4.1.8: Biological Resource Management Areas a) Identify any biological resource management areas (i.e., conservation or mitigation areas, HCP or NCCP boundaries, etc.) within and surrounding the project area (approximately 5-mile buffer). b) Identify and quantify any project areas within biological resource management areas.	5.4.1.5 Page 5.4-15	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
c) Provide a supporting map (or maps) showing project features and biological resource management areas.		
5.4.2 Regulatory Setting		
5.4.2.1: Regulatory Setting. Identify applicable federal, state, and local laws, policies, and standards regarding biological resources.	5.4.2 Page 5.4-15	
5.4.2.2: Habitat Conservation Plan. Provide a copy of any relevant Habitat Conservation Plan.	5.4.1.5 Page 5.4-15	
5.4.3 Impact Questions		
5.4.3.1: Impact Questions. The impact questions include all biological resource impact questions in the current version of CEQA Guidelines, Appendix G. 5.4.3.2: Additional CEQA Impact Question: Would the project create a substantial collision or electrocution risk for birds or bats?	5.4.3 Page 5.4-19	
5.4.4 Impact Analysis		
5.4.4.1: Impact Analysis Provide an impact analysis for each checklist item identified in CEQA Guidelines, Appendix G for Biological Resources and any additional impact questions listed above.	5.4.4 Page 5.4-12	
The following information will be included in the impact analysis:		
5.4.4.2: Quantify Habitat Impacts. Provide the area of impact in acres by each habitat type. Quantify temporary and permanent impacts. For all temporary impacts provide the following: a) Description of the restoration and revegetation approach b) Vegetation species that would be planted within the area of temporary disturbance c) Procedures to reduce invasive weed encroachment within areas of temporary disturbance d) Expected timeframe for restoration of the site	5.4.4.3 Page 5.4-28	
5.4.4.3: Special-Status Species Impacts. Identify anticipated impacts on special-status species. Identify any take permits that are anticipated for	5.4.4.3 Page 5.4-26	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
the project. If an existing habitat conservation plan (HCP) or natural communities conservation plan (NCCP) would be used for the project, provide current accounting of take coverage included in the HCP/NCCP to demonstrate that there is sufficient habitat coverage remaining under the existing permit.		
5.4.4.4: Wetland Impacts. Quantify the area (in acres) of temporary and permanent impacts on wetlands. Include the following details: a) Provide a table identifying all wetlands, by milepost and length, crossed by the project and the total acreage of each wetland type that would be affected by construction. b) Discuss construction and restoration methods proposed for crossing wetlands. c) If wetlands would be filled or permanently lost, describe proposed measures to compensate for permanent wetland losses. d) If forested wetlands would be affected, describe proposed measures to restore forested wetlands following construction.	5.4.4.3 Page 5.4-29	
5.4.4.5: Avian Impacts. Describe avian obstructions and risk of electrocution from the project. Describe any standards that will be implemented as part of the project to reduce the risk of collision and electrocution.	5.4.4.4 Page 5.4-31	
5.5 Cultural Resources	PEA Section and Page Number	
5.5.1 Environmental Setting		
5.5.1.1: Cultural Resource Reports. Provide a cultural resource inventory and evaluation report that addresses the technical requirement provided in Attachment 3.	App D	Appendix D1 – Architectural Identification and Evaluation Report, Appendix D2 – Cultural Resources Report, and Appendix D3 – Cultural Resources Report Addendum are confidential and will be filed separately with the CPUC
5.5.1.2: Cultural Resources Summary. Summarize cultural resource survey and inventory results and survey methods. Do not	5.5.1.1 Page 5.5-3 Table 5.5-1 Table 5.5-2	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
provide any confidential cultural resource information within the PEA chapter.	Table 5.5-3 Table 5.5-5	
5.5.1.3: Cultural Resource Survey Boundaries. Provide a map with mileposts showing the boundaries of all survey areas in the report. Provide the GIS data for the survey area. Provide confidential GIS data for the resource locations and boundaries separately under confidential cover.	Described in text.	Refer to Appendix D2 and Appendix D3 for mapped survey areas.
5.5.2 Regulatory Setting		
5.5.2.1: Regulatory Setting. Identify applicable federal and state regulations for protection of cultural resources.	5.5.2 Page 5.5-15	
5.5.3 Impact Questions		
5.5.3.1: Impact Questions. The impact questions include all cultural resource impact questions in the current version of CEQA Guidelines, Appendix G. 5.5.3.2: Additional CEQA Impact Questions: None.	5.5.3 Page 5.5-21	
5.5.4 Impact Analysis		
5.5.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines, Appendix G for this resource area and any additional impact questions listed above.	5.5.4 Page 5.5-21	
Include the following information in the impact analysis		
5.5.4.2: Human Remains. Describe the potential for encountering human remains or grave goods during the trenching or any other phase of construction. Describe the procedures that would be used if human remains are encountered.	5.5.4.3 Page 5.5-27 EPM CUL- 4a/b	
5.5.4.3: Resource Avoidance. Describe avoidance procedures that would be implemented to avoid known resources.	5.5.4 Pages 5.5-25-26	
5.6 Energy	PEA Section and Page Number	
5.6.1 Environmental Setting		

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
5.6.1.1: Existing Energy Use. Identify energy use of existing infrastructure if the proposed project would replace or upgrade an existing facility.	n/a	The project will not replace or upgrade an existing energy facility
5.6.2 Regulatory Setting		
5.6.2.1: Regulatory Setting. Identify applicable federal, state, or local regulations or policies applicable to energy use for the proposed project.	5.6.2 Page 5.6-2	
5.6.3 Impact Questions		
5.6.3.1: Impact Questions: The impact questions include all energy impact questions in the current version of CEQA Guidelines, Appendix G. 5.6.3.2: Additional CEQA Impact Question: Would the project add capacity for the purpose of serving a non-renewable energy resource?	5.6.3 Page 5.6-4	
5.6.4 Impact Analysis		
5.6.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines Appendix G for this resource area and any additional impact questions listed above.	5.6.4.3 Page 5.6-5	
Include the following information in the impact analysis:		
5.6.4.2: Nonrenewable Energy. Identify renewable and non-renewable energy projects that may interconnected to or be supplied by the proposed project.	5.6.4.4 Page 5.6-8	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
5.6.4.3: Fuels and Energy Use a) Provide an estimation of the amount of fuels (gasoline, diesel, helicopter fuel, etc.) that would be used during construction and operation and maintenance of the project. Fuel estimates should be consistent with Air Quality calculations supporting the PEA. b) Provide the following information on energy use: i. Total energy requirements of the project by fuel type and end use ii. Energy conservation equipment and design features iii. Identification of energy supplies that would serve the project	5.6.4.3 Page 5.6-6 Table 5.6-1 Table 5.6-4 Table 5.6-5 Appendix E	
5.7 Geology, Soils, and Paleontological Resources	PEA Section and Page Number	
5.7.1 Environmental Setting		
5.7.1.1: Regional and Local Geologic Setting. Briefly describe the regional and local physiography, topography, and geologic setting in the project area.	5.7.1.2 Page 5.7-1	Noted
5.7.1.2: Seismic Hazards a) Provide the following information on potential seismic hazards in the project area: i. Identify and describe regional and local seismic risk including any active faults within and surrounding the project area (will be a 10-mile buffer unless otherwise instructed in writing by CEQA Unit Staff during Pre-filing) ii. Identify any areas that are prone to seismic-induced landslides iii. Provide the liquefaction potential for the project area b) Provide a supporting map (or maps) showing project features and major faults, areas of landslide risk, and areas at high risk of liquefaction. Provide GIS data for all faults, landslides, and areas of high liquefaction potential.	5.7.1.3 Page 5.7-2 5.7.1.4 Page 5.7-3 Figure 5.7-1	The project area is relatively flat (0 to 1% slope) and is distant from hills, mountains, or slopes. For these reasons, the project area is not expected to be prone to seismic-induced landslides. The project site is not within a known area of liquefaction hazard per the California Geological Survey, as stated in the PEA.

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
5.7.1.3: Geologic Units. Identify and describe the types of geologic units in the project area. Include the following information for each geologic unit: a) Summarize the geologic units within the project area. b) Identify any previous landslides in the area and any areas that are at risk of landslide. c) Identify any unstable geologic units. d) Provide a supporting map (or maps) showing project features and geologic units. Clearly identify any areas with potentially hazardous geologic conditions. Provide associated GIS data.	5.7.1.5 Page 5.7-4 Figure 5.7-2	No geologic hazards were described in this section as being present so none identified on the geologic unit map.
5.7.1.4: Soils. Identify and describe the types of soils in the project area. a) Summarize the soils within the project area. b) Clearly identify any soils types that could be unstable (e.g., at risk of lateral spreading, subsidence, liquefaction, or collapse). c) Provide information on erosion susceptibility for each soil type that occurs in the project area. d) Provide a supporting map (or maps) showing project features and soils. Provide associated GIS data.	5.7.1.6 Page 5.7-5 Figure 5.7-3	
5.7.1.5: Paleontological Report. Provide a paleontological report that includes the following: a) Information on any documented fossil collection localities within the project area and a 500-foot buffer. b) A paleontological resource sensitivity analysis based on published geological mapping and the resource sensitivity of each rock type. c) Supporting maps and GIS data.	5.7.1.7 Page 5.7-6 Table 5.7-1 Appendix F4	
5.7.2 Regulatory Setting		
5.7.2.1: Regulatory Setting. Identify applicable federal, state, and local laws, policies, and standards regarding geology, soils, and paleontological resources.	5.7.2 Page 5.7-9	
5.7.3 Impact Questions		

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
5.7.3.1: Impact Questions. The impact questions include all geology, soils, and paleontological resource impact questions in the current version of CEQA Guidelines, Appendix G. 5.7.3.2: Additional CEQA Impact Questions: None.	5.7.3 Page 5.7-12	
5.7.4 Impact Analysis		
5.7.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines, Appendix G for this resource area and any additional impact questions listed above.	5.7.4.3 Page 5.7-16	
Include the following information in the impact analysis:		
5.7.4.2: Geotechnical Requirements. Identify any geotechnical requirements that would be implemented to address effects from unstable geologic units or soils. Describe how the recommendation would be applied (i.e., when and where).	5.7.4.3 Page 5.7-16	
5.7.4.3: Paleontological Resources. Identify the potential to disturb paleontological resources based on the depth of proposed excavation and paleontological sensitivity of geologic units within the project area.	5.7.4.3 Page 5.7-20	
5.8 Greenhouse Gas Emissions	PEA Section and Page Number	
5.8.1 Environmental Setting		
5.8.1.1: GHG Setting. Provide a description of the setting for greenhouse gases (GHGs). The setting should consider any GHG emissions from existing infrastructure that would be upgraded or replaced by the proposed project.	5.8.1 Page 5.8-1	
5.8.2 Regulatory Setting		
5.8.2.1: Regulatory Setting. Identify applicable federal, state, and local laws, policies, and standards for greenhouse gases.	5.8.2 Page 5.8-2	
5.8.3 Impact Questions		
5.8.3.1 Impact Questions. The impact questions include all greenhouse gas impact questions in	5.8.3 Page 5.8-4	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
the current version of CEQA Guidelines, Appendix G. 5.8.3.2: Additional CEQA Impact Questions: None.		
5.8.4 Impact Analysis		
5.8.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines, Appendix G for this resource area and any additional impact questions listed above.	5.8.4 Page 5.8-4	An explanation of the use of the SCAQMD thresholds is provided in the second paragraph of Section 5.8.4.1. The approach of using SCAQMD GHG threshold is consistent with the GHG analysis approach of other PG&E projects in SJVAPCD. In addition, in several recent CEQA documents, the CPUC has elected to use an approach to determine the significance of GHG construction emissions based on guidance developed by SCAQMD. The chapter includes baseline information and the annual GHG construction emissions from the project so that CPUC may compare them to its preferred thresholds.
Include the following information in the impact analysis:		
5.8.4.2: GHG Emissions. Provide a quantitative assessment of GHG emissions for construction and operation and maintenance of the proposed project. Provide model results and all model files. Modeling will be conducted using the latest version of the emissions model at the time of application filing (e.g., most recent version of CalEEMod). GHG emissions will be provided for the following conditions: a) Uncontrolled emissions (before APMs are applied) b) Controlled emissions considering application of APMs i. Based on the modeled GHG emissions, quantify the project's contribution to and analyze the project's effect on climate change. Identify and provide justification for	Appendix B1a Appendix B1b Table 5.8-2 Table 5.8-3 Table 5.8-4 Table 5.8-5 Table 5.8-6	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
the timeframe considered in the analysis. ii. Discuss any programs already in place to reduce GHG emissions on a system-wide level. This includes the Applicant's voluntary compliance with the EPA SF6 reduction program, reductions from energy efficiency, demand response, LTPP, etc. iii. For any significant impacts, identify potential strategies that could be employed by the project to reduce GHGs during construction or operation and maintenance consistent with OPR Advisory on CEQA and Climate Change.		
Natural Gas Storage		
5.8.4.3: Natural Gas Storage Accident Conditions. In addition to the requirements above, identify the potential GHG emissions that could result in the event of a gas leak.	n/a	Natural gas storage is not a component of the proposed project
5.8.4.4: Monitoring and Contingency Plan. Provide a comprehensive monitoring plan that would be implemented during project operation to monitor for gas leaks. The plan should identify a monitoring schedule, description of monitoring activities, and actions to be implemented if gas leaks are observed.	n/a	Natural gas storage is not a component of the proposed project
5.9 Hazards, Hazardous Materials, and Public Safety	PEA Section and Page Number	
5.9.1 Environmental Setting		
5.9.1.1: Hazardous Materials Report. Provide a Phase I Environmental Site Assessment or similar hazards report for the proposed project area. Describe any known hazardous materials locations within the project area and the status of the site.	Appendix G1 Appendix G2 Table 5.9-1	
5.9.1.2: Airport Land Use Plan. Identify any airport land use plan(s) within the project area.	n/a	
5.9.1.3: Fire Hazard. Identify if the project occurs within federal, state, or local fire responsibility areas and identify the fire hazard severity rating	5.9.1.4 Page 5.9-3	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
for all project areas, including temporary work areas and access roads.		
5.9.1.4: Metallic Objects. For electrical projects, identify any metallic pipelines or cables within 25 feet of the project.	5.9.1.5 Page 5.9-4	
5.9.1.5: Pipeline History (for Natural Gas Projects). Provide a narrative describing the history of the pipeline system(s) to which the project would connect, list of previous owner and operators, and detailed summary of the pipeline systems' safety and inspection history.	n/a	
5.9.2 Regulatory Setting		
5.9.2.1: Regulatory Setting. Identify applicable federal, state, and local laws, policies, and standards for hazards, hazardous materials, and public safety.	5.9.2 Page 5.9-7	
5.9.2.2: Touch Thresholds. Identify applicable standards for protection of workers and the public from shock hazards.	5.9.2.4 Page 5.9-11	
5.9.3 Impact Questions		
5.9.3.1: Impact Questions. The impact questions include all hazards and hazardous materials impact questions in the current version of CEQA Guidelines, Appendix G. 5.9.3.2: Additional CEQA Impact Questions: a) Would the project create a significant hazard to air traffic from the installation of new power lines and structures? b) Would the project create a significant hazard to the public or environment through the transport of heavy materials using helicopters? c) Would the project expose people to a significant risk of injury or death involving unexploded ordnance? d) Would the project expose workers or the public to excessive shock hazards?	5.9.3 Page 5.9-12	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
5.9.4 Impact Analysis		
5.9.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines Appendix G for this resource area and any additional impact questions listed above.	5.9.4 Page 5.9-13	
Include the following information in the impact analysis:		
5.9.4.2: Hazardous Materials. Identify the hazardous materials (i.e., chemicals, solvents, lubricants, and fuels) that would be used during construction and operation of the project. Estimate the quantity of each hazardous material that would be stored on site during construction and operation.	5.9.1.8 Page 5.9-5 Table 5.9-2 Table 5.9-3	
5.9.4.3: Air Traffic Hazards. If the project involves construction of above-ground structures (including structure replacement) within the airport land use plan area, provide a discussion of how the project would or would not conflict with height restrictions identified in the airport land use plan and how the project would comply with any FAA or military requirements for the above ground facilities.	5.9.4.4 Page 5.9-24 App G3	
5.9.4.4: Accident or Upset Conditions. Describe how the project facilities would be designed, constructed, operated, and maintained to minimize potential hazard to the public from the failure of project components as a result of accidents or natural catastrophes.	5.9.4.4 Page 5.9-19	
5.9.4.5: Shock Hazard. For electricity projects, identify infrastructure that may be susceptible to induced current from the proposed project. Describe strategies (e.g., cathodic protection) that the project would employ to reduce shock hazards and avoid electrocution of workers or the public.	5.9.4.4 Page 5.9-25	
For Natural Gas and Gas Storage:		
5.9.4.6: Health and Safety Plan. Include in the Health and Safety Plan, plans for addressing gas leaks, fires, etc. Identify sensitive receptors, methods of evacuation, and protection	n/a	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
measures. The Plan will be provided as an Appendix to the PEA.		
5.9.4.7: Health Risk Assessment. Provide a Health Risk Assessment including risk from potential gas leaks, fires, etc. Identify sensitive receptors that would be affected and potential impacts on them if there is a gas release.	n/a	
5.9.4.8: Gas Migration. Describe potential for and effects of gas migration through natural and manmade pathways. a) Provide Applicant Proposed Measures for avoiding gas emissions at the surface from gas migration pathways. b) Provide Applicant Proposed Measures for avoiding emissions of mercaptan and/or other odorizing agents.	n/a	
5.10 Hydrology and Water Quality	PEA Section and Page Number	
5.10.1 Environmental Setting		
5.10.1.1: Waterbodies. Identify by milepost all ephemeral, intermittent, and perennial surface waterbodies crossed by the project. For each, list its water quality classification, if applicable.	5.10.1.4 Page 5.10-2 Table 5.10-1 Figure 5.10-2 Figure 5.10-3	
5.10.1.2: Water Quality. Identify any downstream waters that are on the state 303(d) list and identify whether a total maximum daily load (TMDL) has been adopted or the date for adoption of a TMDL. Identify existing sources of impairment for downstream waters. Describe any management plans that are in place for downstream waters.	5.10.1.5 Page 5.10-4	
5.10.1.3: Groundwater Basin. Identify all known EPA and state groundwater basins and aquifers crossed by the project.	5.10.1.7 Page 5.10-5 Figure 5.10-1	
5.10.1.4: Groundwater Wells and Springs. Identify the locations of all known public and private groundwater supply wells and springs within 150 feet of the project area.	5.10.1.8 Page 5.10-6 Figure 5.10-5	The nearest spring is approximately 3.8 miles northeast of the project. Refer to Section 5.10.1.8.

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
5.10.1.5: Groundwater Management. Identify the groundwater management status of any groundwater resources in the project area and any groundwater resources that may be used by the project. Describe if groundwater resources in the basin have been adjudicated. Identify any sustainable groundwater management plan that has been adopted for groundwater resources in the project area or describe the status of groundwater management planning in the area.	5.10.1.9 Page 5.10-5	Project does not expect to use groundwater. Groundwater resources in the Eastern San Joaquin Groundwater Basin have not been adjudicated. Because the basin is not adjudicated and many private wells are drawing from the basin, typical annual yield or supply data is not available.
5.10.2 Regulatory Setting		
5.10.2.1: Regulatory Setting. Identify applicable federal, state, and local laws, policies, and standards regarding hydrologic and water quality.	5.10.2 Page 5.10-6	
5.10.3 Impact Questions		
5.10.3.1: Impact Questions. The impact questions include all hydrology and water quality impact questions in the current version of CEQA Guidelines, Appendix G. 5.10.3.2: Additional CEQA Impact Questions: None.	5.10.3 Page 5.10-9	
5.10.4 Impact Analysis		
5.10.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in the current version of CEQA Guidelines, Appendix G for this resource area and any additional impact questions listed above.	5.10.4 Page 5.10-10	
Include the following information in the impact analysis:		
5.10.4.2: Hydrostatic Testing. Identify all potential sources of hydrostatic test water, quantity of water required, withdrawal methods, treatment of discharge, and any waste products generated.	n/a	
5.10.4.3: Water Quality Impacts. Describe impacts to surface water quality, including the potential for accelerated soil erosion, downstream sedimentation, and reduced surface water quality.	5.10.4.4 Page 5.10-14	
5.10.4.4: Impermeable Surfaces. Describe increased run-off and impacts on groundwater	5.10.4.4 Page 5.10-17	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
recharge due to construction of impermeable surfaces. Provide the acreage of new impermeable surfaces that will be created as a result of the project.		
5.10.4.5: Waterbody Crossings. Identify by milepost all waterbody crossings. Provide the following information for crossing: a) Identify whether the waterbody has contaminated waters or sediments. b) Describe the waterbody crossing method and any approaches to avoid the waterbody. c) Describe typical additional work area and staging area requirements at waterbody and wetland crossings. d) Describe any dewatering or water diversion that will be required during construction near the waterbody. Identify treatment methods for any dewatering. e) Describe any proposed restoration methods for work near or within the waterbody.	5.10.4.4 Page 5.10-14	
5.10.4.6: Groundwater Impacts. If water would be obtained from groundwater supplies, evaluate the project's consistency with any applicable sustainable groundwater management plan.	5.10.4.4 Page 5.10-16	
5.11 Land Use and Planning	PEA Section and Page Number	
5.11.1 Environmental Setting		
5.11.1.1: Land Use. Provide a description of land uses within the area traversed by the project route as designated in the local General Plan (e.g., residential, commercial, agricultural, open space, etc.).	5.11.1.2 5.11.1.3 Page 5.11-1 Figure 5.11-1 Figure 5.11-2 Figure 5.11-3 Figure 5.11-4	
5.11.1.2: Special Land Uses. Identify by milepost and segment all special land uses within the project area including: a) All land administered by federal, state, or local agencies, or private conservation organizations b) Any designated coastal zone management areas	5.11.1.4 Page 5.11-5	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
c) Any designated or proposed candidate National or State Wild and Scenic Rivers crossed by the project d) Any national landmarks		
5.11.1.3: Habitat Conservation Plan. Provide a copy of any Habitat Conservation Plan applicable to the project area or proposed project. Also required for Section 5.4, Biological Resources.	5.11.1.5 Page 5.11-5	
5.11.2 Regulatory Setting		
5.11.2.1: Regulatory Setting. Identify applicable federal, state, and local laws, policies, and standards for land use and planning.	5.11.2 Page 5.11-6	
5.11.3 Impact Questions		
5.11.3.1: Impact Questions. The impact questions include all land use questions in the current version of CEQA Guidelines, Appendix G. 5.11.3.2: Additional CEQA Impact Questions: None.	5.11.3 Page 5.11-6	
5.11.4 Impact Analysis		
5.11.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines, Appendix G for this resource area and any additional impact questions listed above.	5.11.4 Page 5.11-7	
5.12 Mineral Resources	PEA Section and Page Number	
5.12.1 Environmental Setting		
5.12.1.1: Mineral Resources. Provide information on the following mineral resources within 0.5 mile of the proposed project area: a) Known mineral resources b) Active mining claims c) Active mines d) Resource recovery sites	5.12.1 Page 5.12-1	
5.12.2 Regulatory Setting		
5.12.2.1: Regulatory Setting. Identify applicable federal, state, and local laws, policies, and standards for minerals.	5.12.2 Page 5.12-1	
5.12.3 Impact Questions		

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
5.12.3.1: Impact Questions. The impact questions include all mineral resource impact questions in the current version of CEQA Guidelines, Appendix G. 5.12.3.2: Additional CEQA Impact Questions: None.	5.12.3 Page 5.12-2	
5.12.4 Impact Analysis		
5.12.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines, Appendix G for this resource area and any additional impact questions listed above.	5.12.3 Page 5.12-4	
5.13 Noise	PEA Section and Page Number	
5.13.1 Environmental Setting		
5.13.1.1: Noise Sensitive Land Uses. Identify all noise sensitive land uses within 1,000 feet of the proposed project. Provide GIS data for sensitive receptors within 1,000 feet of the project.	5.13.1.2 Page 5.13-8 Figure 5.13-1	Figure 5.13-1 focuses on the area within the City of Lodi. Refer to Figure 5.3-1 for the entirely of the project alignment.
5.13.1.2: Noise Setting. Provide the existing noise levels (Lmax, Lmin, Leq, and Ldn sound level and other applicable noise parameters) at noise sensitive areas near the proposed project. All noise measurement data and the methodology for collecting the data will be provided in a noise study as an Appendix to the PEA.	5.13.1.2 Page 5.13-10 Figure 5.13-2	
5.13.2 Regulatory Setting		
5.13.2.1: Regulatory Setting. Identify applicable state, and local laws, policies, and standards for noise.	5.13.2 Page 5.13-11	
5.13.3 Impact Questions		
5.13.3.1 Impact Questions. The impact questions include all noise questions in the current version of CEQA Guidelines, Appendix G. 5.13.3.2: Additional CEQA Impact Questions: None.	5.13.3 Page 5.13-12	
5.13.4 Impact Analysis		
5.13.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines, Appendix G for this resource	5.13.4 Page 5.13-18	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
area and any additional impact questions listed above.		
Include the following information in the impact analysis:		
5.13.4.2: Noise Levels a) Identify noise levels for each piece of equipment that could be used during construction. b) Provide a table that identifies each phase of construction, the equipment used in each construction phase, and the length of each phase at any single location (see example in Error! Reference source not found. below). c) Estimate cumulative equipment noise levels for each phase of construction. d) Include phases of operation if noise levels during operation have the potential to frequently exceed pre-project existing conditions. e) Identify manufacturer's specifications for equipment and describe approaches to reduce impacts from noise.	Table 5.13-1 5.13.4.3 Page 5.13-22	The noise analysis makes conservative assumptions about the number and type of equipment that would be used at any given location to provide a conservative estimate of construction noise at any location.
For Natural Gas:		
5.13.4.3: Compressor Station Noise. Provide site plans of compressor stations or other noisy, permanent equipment, showing the location of the nearest noise sensitive areas within 1 mile of the proposed ROW. If new compressor station sites are proposed, measure or estimate the existing ambient sound environment based on current land uses and activities. For existing compressor stations (operated at full load), include the results of a sound level survey at the site property line and nearby noise-sensitive areas. Include a plot plan that identifies the locations and duration of noise measurements.	n/a	Compressor station not a component of the proposed project.
5.14 Population and Housing	PEA Section and Page Number	
5.14.1 Environmental Setting		
5.14.1.1: Population Estimates. Identify population trends for the areas (county, city,	5.14.1 Page 5.14-1	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
town, census designated place) where the project would take place.		
5.14.1.2: Housing Estimates. Identify housing estimates and projections in areas where the project would take place.	5.14.1.2 Page 5.14-1	
5.14.1.3: Approved Housing Developments a) Provide the following information for all housing development projects within 1 mile of the proposed project that have been recently approved or may be approved around the PEA and application filing date: i. Project name ii. Location iii. Number of units and estimated population increase iv. Approval date and construction status v. Contact information for developer (provided in the public outreach Appendix) b) Ensure that the project information provided above is consistent with the PEA analysis of cumulative project impacts.	None 5.14.1.2 Page 5.14-2	There are no approved housing developments within approximately 1 mile of the project, including both PG&E and LEU portions of the project.
5.14.2 Regulatory Setting		
5.14.2.1: Regulatory Setting. Identify any applicable federal, state or local laws or regulations that apply to the project.	5.14.2 Page 5.14-2	
5.14.3 Impact Questions		
5.14.3.1: Impact Questions. The impact questions include all population and housing impact questions in the current version of CEQA Guidelines, Appendix G. 5.14.3.2: Additional CEQA Impact Questions: None.	5.14.3 Page 5.14-2	
5.14.4 Impact Analysis		
5.14.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines, Appendix G for this resource area and any additional impact questions listed above.	5.14.4 Page 5.14-2	
Include the following information in the impact analysis:		

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
5.14.4.2: Impacts to Housing. Identify if any existing or proposed homes occur within the footprint of any proposed project elements or right-of-way. Describe housing impacts (e.g., demolition and relocation of residents) that may occur as a result of the proposed project.	5.14.4.3 Page 5.14-3	
5.14.4.3: Workforce Impacts. Describe on-site manpower requirements, including the number of construction personnel who currently reside within the impact area, who would commute daily to the site from outside the impact area or would relocate temporarily within the impact area. Chapter 4 of this document can be referenced as applicable. Identify any permanent employment opportunities that would be create by the project and the workforce conditions in the area that the jobs would be created.	5.14.4.3 Page 5.14-3	
5.14.4.4: Population Growth Inducing. Provide information on the project's growth inducing impacts, if any. The information will include, but is not necessarily limited to, the following: a) Any economic or population growth in the surrounding environment that will directly or indirectly result from the project b) Any obstacles to population growth that the project would remove c) Any other activities directly or indirectly encouraged or facilitated by the project that would cause population growth leading to a significant effect on the environment, either individually or cumulatively	5.14.4.3 Page 5.14-3	
5.15 Public Services	PEA Section and Page Number	
5.15.1 Environmental Setting		
5.15.1.1 Service Providers a) Identify the following service providers that serve the project area and provide a map showing the service facilities that could serve the project: i. Police ii. Fire (identify service providers within local and state responsibility areas)	5.15.1.1 Page 5.15-1 Figure 5.15-1	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
iii. Schools iv. Parks v. Hospitals b) Provide the documented performance objectives and data on existing emergency response times for service providers in the area (e.g., police or fire department response times).		
5.15.2 Regulatory Setting		
5.15.2.1 Regulatory Setting. Identify any applicable federal, state or local laws or regulations for public services that apply to the project.	5.15.2 Page 5.15-3	
5.15.3 Impact Questions		
5.15.3.1: Impact Questions. The impact questions include all public services impact questions in the current version of CEQA Guidelines, Appendix G. 5.15.3.2: Additional CEQA Impact Questions: None.	5.15.3 Page 5.15-4	
5.15.4 Impact Analysis		
5.15.4.1 Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines, Appendix G for this resource area and any additional impact questions listed above.	5.15.4 Page 5.15-4	
Include the following information in the impact analysis:		
5.15.4.2: Emergency Response Times a) Describe whether the project would impede ingress and egress of emergency vehicles during construction and operation. b) Include an analysis of impacts on emergency response times during project construction and operation, including impacts during any temporary road closures. Describe approaches to address impacts on emergency response times.	5.15.4.3 Page 5.15-5	
5.15.4.3: Displaced Population. If the project would create permanent employment or displace people, evaluate the impact of the new employment or relocated people on	n/a	The project would not create permanent employment or displace people.

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
governmental facilities and services and describe plans to reduce the impact on public services.		
5.16 Recreation	PEA Section and Page Number	
5.16.1 Environmental Setting		
5.16.1.1: Recreational Setting a) Describe the regional and local recreation setting in the project area including: i. Any recreational facilities or areas within and surrounding the project area (approximately 0.5-mile buffer) including the recreational uses of each facility or area ii. Any available data on use of the recreational facilities including volume of use b) Provide a map (or maps) showing project features and recreational facilities and provide associated GIS data.	5.16.1 Page 5.16-1 Figure 5.16-1	
5.16.2 Regulatory Setting		
5.16.2.1: Regulatory Setting. Identify applicable federal, state, and local laws, policies, and standards regarding recreation.	5.16.2 Page 5.16-2	
5.16.3 Impact Questions		
5.16.3.1: Impact Questions. The impact questions include all recreation impact questions in the current version of CEQA Guidelines, Appendix G. 5.16.3.2: Additional CEQA Impact Questions: a) Would the project reduce or prevent access to a designated recreation facility or area? b) Would the project substantially change the character of a recreational area by reducing the scenic, biological, cultural, geologic, or other important characteristics that contribute to the value of recreational facilities or areas? c) Would the project damage recreational trails or facilities?	5.16.3 Page 5.16-2	
5.16.4 Impact Analysis		

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
5.16.4.1: Impact Analysis: Provide an impact analysis for each checklist item identified in CEQA Guidelines, Appendix G for this resource area and any additional impact questions listed above.	5.16.4 Page 5.16-3	
5.16.4.2: Impact Details. Clearly identify the maximum extent of each impact, and when and where the impacts would or would not occur. Organize the impact assessment by project phase, project component, and/or geographic area, as necessary.	5.16.4.4 Page 5.16-5	
5.17 Transportation	PEA Section and Page Number	
5.17.1 Environmental Setting		
5.17.1.1: Circulation System. Briefly describe the regional and local circulation system in the project area, including modes of transportation, types of roadways, and other facilities that contribute to the circulation system.	5.17.1.1 Page 5.17-1	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
5.17.1.2: Existing Roadways and Circulation a) Identify and describe existing roadways that may be used to access the project site and transport materials during construction or are otherwise adjacent to or crossed by linear project features. Provide the following information for each road: i. Name of the road ii. Jurisdiction or ownership (i.e., State, County, City, private, etc.) iii. Number of lanes in both directions of travel iv. Existing traffic volume (if publicly available data is unavailable or significantly outdated, then it may be necessary to collect existing traffic counts for road segments where large volumes of construction traffic would be routed or where lane or road closures would occur) v. Closest project feature name and distance Provide a supporting map (or maps) showing project features and the existing roadway network identifying each road described above. Provide associated GIS data. The GIS data should include all connected road segments within at least 5 miles of the project.	5.17.1.2 Page 5.17-1 Figure 5.17-1	
5.17.1.3: Transit and Rail Services a) Identify and describe transit and rail service providers in the region. b) Identify any rail or transit lines within 1,000 feet of the project area. c) Identify specific transit stops, and stations within 0.5 mile of the project. Provide the frequency of transit service. Provide a supporting map (or maps) showing project features and transit and rail services within 0.5 mile of the project area. Provide associated GIS data.	5.17.1.3 Page 5.17-4 Figure 5.17-2 Figure 5.17-3	
5.17.1.4: Bicycle Facilities a) Identify and describe any bicycle plans for the region.	5.17.1.4 Page 5.17-4	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
b) Identify specific bicycle facilities within 1,000 feet of the project area. Provide a supporting map (or maps) showing project features and bicycle facilities. Provide associated GIS data.	Figure 5.17-2 Figure 5.17-3	
5.17.1.5: Pedestrian Facilities a) Identify and describe important pedestrian facilities near the project area that contribute to the circulation system, such as important walkways. b) Identify specific pedestrian facilities that would be near the project, including on the road segments identified per 5.17.1.2. Provide a supporting map (or maps) showing project features and important pedestrian facilities. Provide associated GIS data.	5.17.1.5 Page 5.17-5	
5.17.1.6: Vehicle Miles Traveled (VMT). Provide the average VMT for the county(s) where the project is located.	Not available	
5.17.2 Regulatory Setting		
5.17.2.1: Regulatory Setting. Identify applicable federal, state, and local laws, policies, and standards regarding transportation.	5.17.2 Page 5.17-5	
5.17.3 Impact Questions		
5.17.3.1: Impact Questions. All impact questions for this resource area in the current version of CEQA Guidelines, Appendix G. 5.17.3.2: Additional CEQA Impact Questions: a) Would the project create potentially hazardous conditions for people walking, bicycling, or driving or for public transit operations? b) Would the project interfere with walking or bicycling accessibility? Would the project substantially delay public transit?	5.17.3 Page 5.17-6	
5.17.4 Impact Analysis		
5.17.4.1: Impact Analysis. Provide an impact analysis for each significance criteria identified in Appendix G of the CEQA Guidelines for transportation and any additional impact questions listed above.	5.17.4 Page 5.17-7	
Include the following information in the impact analysis:		

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
5.17.4.2: Vehicle Miles Traveled (VMT) a) Identify whether the project is within 0.5 mile of a major transit stop or a high-quality transit corridor. b) Identify the number of vehicle daily trips that would be generated by the project during construction and operation by light duty (e.g., worker vehicles) and heavy-duty vehicles (e.g., trucks). Provide the frequency of trip generation during operation. c) Quantify VMT generation for both project construction and operation. d) Provide an excel file with the VMT assumptions and model calculations, including all formulas and values. e) Evaluate the project VMT relative to the average VMT for the area in which the project is located.	5.17.4.3 Page 5.17-10 Table 5.17-4	Noted
5.17.4.3: Traffic Impact Analysis. Provide a traffic impact study. The traffic impact study should be prepared in accordance with guidance from the relevant local jurisdiction or Caltrans, where appropriate.	5.17.4.3 Page 5.17-12	Qualitative analysis being utilized. No traffic impact study occurred.
5.17.4.4: Hazards. Identify any traffic hazards that could result from construction and operation of the project. Identify any lane closures and traffic management that would be required to construct the project.	5.17.4.3 Page 5.17-15 5.17.4.4 Page 5.17-16	
5.17.4.5: Accessibility. Identify any closures of bicycle lanes, pedestrian walkways, or transit stops during construction or operation of the project.	5.17.4.3 Page 5.17-12	
5.17.4.6: Transit Delay. Identify any transit lines that could be delayed by construction and operation of the project. Provide the maximum extent of the delay in minutes and the duration of the delay.	5.17.4.4 Page 5.17-17	
5.18 Tribal Cultural Resources	PEA Section and Page Number	
5.18.1 Environmental Setting		

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
5.18.1.1: Outreach to Tribes. Provide a list of all tribes that are on the Native American Heritage Commission (NAHC) list of tribes that are affiliated with the project area. Provide a discussion of outreach to Native American tribes, including tribes notified, responses received from tribes, and information of potential tribal cultural resources provided by tribes. Any information of potential locations of tribal cultural resources should be submitted in an Appendix under clearly marked confidential cover. Provide copies of all correspondence with tribes in an Appendix.	Table 5.18-1 Page 5.18-2 Appendix D4	Refer to Appendix D4 for correspondence.
5.18.1.2: Tribal Cultural Resources. Describe tribal cultural resources (TCRs) that are within the project area. f) Summarize the results of attempts to identify possible TCRs using publicly available documentary resources. The identification of TCRs using documentary sources should include review of archaeological site records and should begin during the preparation of the records search report (see Attachment 3). During the inventory phase, a formal site record would be prepared for any resource identified unless tribes object. g) Summarize attempts to identify TCRs by speaking directly with tribal representatives.	5.18.1.2 Page 5.18-3	
5.18.1.3: Ethnographic Study. The ethnographic study should document the history of Native American use of the area and oral history of the area.	None	Study is not included. Native American stakeholders have not indicated a need for an ethnography to be produced.
5.18.2 Regulatory Setting		
5.18.2.1: Regulatory Setting. Identify any applicable federal, state or local laws or regulations for tribal cultural resources that apply to the project.	5.18.2 Page 5.18-5	
5.18.3 Impact Questions		
5.18.3.1: Impact Questions. The impact questions include all tribal cultural resources impact questions in the current version of CEQA Guidelines, Appendix G.	5.18.3 Page 5.18-6	To be completed under AB 52 by the CPUC

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
5.18.3.2: Additional CEQA Impact Questions: None.		
5.18.4 Impact Analysis		
5.18.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines, Appendix G for this resource area and any additional impact questions listed above.	5.18.4 Page 5.18-6	No tribal resources have been identified ahead of the AB 52 process and there is an inadvertent discovery clause in APM TRC-1 and in BMP TRC-1.
Include the following information in the impact analysis:		
5.18.4.2: Information Provided by Tribes. Include an analysis of any impacts that were identified by the tribes during the Applicant's outreach.	5.18.4.4 Page 5.18-8 TBD	To be completed under AB 52 by the CPUC. No tribal resources have been identified ahead of the AB 52 process.
5.19: Utilities and Service Systems	PEA Section and Page Number	
5.19.1 Environmental Setting		
5.19.1.1: Utility Providers. Identify existing utility providers and the associated infrastructure that serves the project area.	5.19.1.2 Page 5.19-1	
5.19.1.2: Utility Lines. Describe existing utility infrastructure (e.g., water, gas, sewer, electrical, stormwater, telecommunications, etc.) that occurs in the project ROW. Provide GIS data and/or as-built engineering drawings to support the description of existing utilities and their locations.	5.19.1.3 Page 5.19-3 Figure 5.19-1	
5.19.1.3: Approved Utility Projects. Identify utility projects that have been approved for construction within the project ROW but that have not yet been constructed.	5.19.1.4 Page 5.19-3	
5.19.1.4: Water Supplies. Identify water suppliers and the water source (e.g., aqueduct, well, recycled water, etc.). For each potential water supplier, provide data on the existing water capacity, supply, and demand.	5.19.1.5 Page 5.19-4	
5.19.1.5: Landfills and Recycling. Identify local landfills that can accept construction waste and may service the project. Provide documentation of landfill capacity and estimated closure date.	5.19.1.6 Page 5.19-4 Table 5.19-1	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
Identify any recycling centers in the area and opportunities for construction and demolition waste recycling.		
5.19.2 Regulatory Setting		
5.19.2.1: Regulatory Setting. Identify any applicable federal, state or local laws or regulations for utilities that apply to the project.	5.19.2 Page 5.19-5	
5.19.3 Impact Questions		
5.19.3.1: Impact Questions. All impact questions for this resource area in the current version of CEQA Guidelines, Appendix G. 5.19.3.2: Additional CEQA Impact Question: Would the project increase the rate of corrosion of adjacent utility lines as a result of alternating current impacts?	5.19-3 Page 5.19-6	
5.19.4 Impact Analysis		
5.19.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines, Appendix G for this resource area and any additional impact questions listed above.	5.19.4 Page 5.19-7	
Include the following information in the impact analysis:		
5.19.4.2: Utility Relocation. Identify any project conflicts with existing utility lines. If the project may require relocation of existing utilities, identify potential relocation areas and analyze the impacts of relocating the utilities. Provide a map showing the relocated utility lines and GIS data for all relocations.	5.19.4.3 Page 5.19-8	
5.19.4.3: Waste a) Identify the waste generated by construction, operation, and demolition of the project. b) Describe how treated wood poles would be disposed of after removal, if applicable. c) Provide estimates for the total amount of waste materials to be generated by waste type and how much of it would be disposed of, reused, or recycled.	5.19.4.3 Page 5.19-10, -11	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
5.19.4.4: Water Supply a) Estimate the amount of water required for project construction and operation. Provide the potential water supply source(s). b) Evaluate the ability of the water supplier to meet the project demand under a multiple dry year scenario. c) Provide a discussion as to whether the proposed project meets the criteria for consideration as a project subject to Water Supply Assessment Requirements under Water Code Section 10912. d) If determined to be necessary under Water Code Section 10912, submit a Water Supply Assessment to support conclusions that the proposed water source can meet the project's anticipated water demand, even in multiple dry year scenarios. Water Supply Assessments should be approved by the water supplier and consider normal, single-dry, and multiple-dry year conditions.	5.19.4.3 Page 5.19-7 Page 5.19-12	A water supply assessment is not required for the project type and expected water use. Refer to discussion beginning on page 5.19-12.
5.19.4.5: Cathodic Protection. Analyze the potential for existing utilities to experience corrosion due to proximity to the proposed project. Identify cathodic protection measures that could be implemented to reduce corrosion issues and where the measures may be applied.	5.19.4.4 Page 5.19-12	
5.20 Wildfire	PEA Section and Page Number	
5.20.1 Environmental Setting		
5.20.1.1: High Fire Risk Areas and State Responsibility Areas a) Identify areas of high fire risk or State Responsibility Areas (SRAs) within the project area. Provide GIS data for the Wildland Urban Interface (WUI) and Fire Hazard Severity Zones (FHSZ) mapping along the project alignment. Include areas mapped by CPUC as moderate and high fire threat districts as well as areas mapped by CalFire.	5.20.1.1 Page 5.20-1	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
b) Identify any areas the utility has independently identified as High FHSZ known to occur within the proposed project vicinity.		
5.20.1.2: Fire Occurrence. Identify all recent (within the last 10 years) large fires that have occurred within the project vicinity. For each fire, identify the following: a) Name of the fire b) Location of fire c) Ignition source and location of ignition d) Amount of land burned Boundary of fire area in GIS	5.20.1.2 Page 5.20-2	
5.20.1.3: Fire Risk. Provide the following information for assessment of baseline fire risk in the area: a) Provide fuel modeling using Scott Burgan fuel models, or other model of similar quality. b) Provide values of wind direction and speed, relative humidity, and temperature for representative weather stations along the alignment for the previous 10 years, gathered hourly. c) Digital elevation models for the topography in the project region showing the relationship between terrain and wind patterns, as well as localized topography to show the effects of terrain on wind flow, and on a more local area to show effect of slope on fire spread. d) Describe vegetation fuels within the project vicinity and provide data in map format for the project vicinity. USDA Fire Effects Information System or similar data source should be consulted to determine high-risk vegetation types. Provide the mapped vegetation fuels data in GIS format.	5.20.1.3 Page 5.20-2	The project is in an area of low fire risk and does not require modeling to determine significance of potential impacts.
5.20.1.4: Values at Risk. Identify values at risk along the proposed alignment. Values at risk may include: Structures, improvements, rare habitat, other values at risk, (including utility-owned infrastructure) within 1000 feet of the project.	5.20.1.4 Page 5.20-4 Figure 5.20-1	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
Provide some indication as to its vulnerability (wood structures vs. all steel features). Communities and/or populations near the project should be identified with their proximity to the project defined.		
5.20.1.5: Evacuation Routes. Identify all evacuation routes that are adjacent to or within the project area. Identify any roads that lack a secondary point of access or exit (e.g., cul-de-sacs).	5.20.1.5 Page 5.20-6	The evacuation routes listed all have multiple points of access.
5.20.2: Regulatory Setting		
5.20.2.1: Regulatory Setting. Identify applicable federal, state, and local laws, policies, and standards for wildfire.	5.20.2 Page 5.20-8	
5.20.2.2: CPUC Standards. Identify any CPUC standards that apply to wildfire management of the new facilities.	5.20.2 Page 5.20-9	
5.20.3 Impact Questions		
5.20.3.1: Impact Questions. All impact questions for this resource area in the current version of CEQA Guidelines, Appendix G. 5.20.3.2: Additional CEQA Impact Questions: None.	5.20.3 Page 5.20-10	
5.20.4 Impact Analysis		
5.20.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines, Appendix G for this resource area and any additional impact questions listed above.	5.20.3 Page 5.20-11	
Include the following information in the impact analysis:		
5.20.4.2: Fire Behavior Modeling. For any new electrical lines, provide modeling to support the analysis of wildfire risk.	5.20.1.6 Page 5.20-7	The project is in an area of low fire risk and does not require modeling to determine significance of potential impacts.
5.20.4.3: Wildfire Management. Describe approaches that would be implemented during operation and maintenance to manage wildfire risk in the area. Provide a copy of any Wildfire Management Plan.	5.20.1.6 Page 5.20-7	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
5.21 Mandatory Findings of Significance	PEA Section and Page Number	
5.21.1: Impact Assessment for Mandatory Findings of Significance. Provide an impact analysis for each of the mandatory findings of significance provided in Appendix G of the CEQA Guidelines. The impact analysis can reference relevant information and conclusion from the biological resources, cultural resources, air quality, hazards, and cumulative sections of the PEA, where applicable.	5.21.1 Page 5.21-1	
6 Comparison of Alternatives	PEA Section and Page Number	
6.1: Alternatives Comparison a) Compare the ability of each alternative described in Chapter 4 against the proposed project in terms of its ability to avoid or reduce a potentially significant impact. The alternatives addressed in this section will each be: i. Potentially feasible ii. Meet the underlying purpose of the proposed project iii. Meet most of the basic project objectives, and iv. Avoid or reduce one or more potentially significant impacts. b) The relative effect of the various potentially significant impacts may be compared using the following or similar descriptors and an accompanying analysis: i. Short-term versus long-term impacts ii. Localized versus widespread impacts iii. Ability to fully mitigate impacts c) Impacts that the Applicant believes would be less than significant with mitigation may also be included in the analysis, but only if the steps listed above fail to distinguish among the remaining few alternatives.	6.1 Page 6-1 Table 6.1-1 Table 6.1-2 Table 6.1-3 Table 6.1-4 Table 6.1-5	
6.2: Alternatives Ranking. Provide a detailed table that summarizes the Applicant's	6.2 Page 6-16	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
comparison results and ranks the alternatives in order of environmental superiority.	Table 6.2-1	
7 Cumulative and Other CEQA Considerations	PEA Section and Page Number	
7.1 Cumulative Impacts		
7.1.1: List of Cumulative Projects a) Provide a detailed table listing past, present, and reasonably foreseeable future projects within and surrounding the project area (approximately 2-mile buffer). The following information should be provided for each project in the table: i. Project name and type ii. Brief description of the project location(s) and associated actions iii. Distance to and name of the nearest project component iv. Project status and anticipated construction schedule v. Source of the project information and date last checked (for each individual project), including links to any public websites where the information was obtained so it can be reviewed and updated (the project information should be current when the PEA is filed) b) Provide a supporting map (or maps) showing project features and cumulative project locations and/or linear features. Provide associated GIS data.	7.1.1 Page 7-1 Table 7.1-1 Figure 7.1-1	
7.1.2: Geographic Scope. Define the geographic scope of analysis for each resource topic. The geographic scope of analysis for each resource topic should consider the extent to which impacts can be cumulative. For example, the geographic scope for cumulative noise impacts would be more limited in scale than the geographic scope for biological resource impacts because noise attenuates rapidly with distance. Explain why the geographic scope is appropriate for each resource.	7.1.1 Table 7.1-2 Page 7-5	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
7.1.3: Cumulative Impact Analysis. Provide an analysis of cumulative impacts for each resource topic included in Chapter 5. Evaluate whether the proposed project impacts are cumulatively considerable for any significant cumulative impacts.	7.1.2 Page 7-6	
7.2 Growth-Inducing Impacts		
7.2.1: Growth-Inducing Impacts. Provide an evaluation of the following potential growth-inducing impacts: a) Would the proposed project foster any economic or population growth, either directly or indirectly, in the surrounding environment? b) Would the proposed project cause any increase in population that could further tax existing community service facilities (i.e., schools, hospitals, fire, police, etc.)? c) Would the proposed project remove any obstacles to population growth? d) Would the proposed project encourage and facilitate other activities that would cause population growth that could significantly affect the environment, either individually or cumulatively?	7.2 Page 7-20	
8 List of Preparers	PEA Section and Page Number	
8.1: List of Preparers. Provide a list of persons, their organizations, and their qualifications for all authors and reviewers of each section of the PEA.	8 8-1	
9 References	PEA Section and Page Number	
9.1: Reference List a) Organize all references cited in the PEA by section within a single chapter called "References." b) Within the References chapter, organize all of the Chapter 5 references under subheadings for each resource area section.	9 9-1	

Chapter or Section	PEA Section and Page Number	Applicant Notes, Comments
9.2: Electronic References a) Provide complete electronic copies of all references cited in the PEA that cannot be readily obtained for free on the Internet. This includes any company-specific documentation (e.g., standards, policies, and other documents). b) If the reference can be obtained on the Internet, the Internet address will be provided.	9 9-1	

Appendix 3A
EMF Discussion

Electric and Magnetic Fields (EMF) Discussion

The California Public Utilities Commission (CPUC) and the California Department of Health Services (CDHS) have not concluded that exposure to magnetic fields from utility electric facilities is a health hazard. Many reports have concluded that the potential for health effects associated with electric and magnetic field (EMF) exposure is too speculative to allow the evaluation of impacts or the preparation of mitigation measures.

EMF is a term used to describe electric and magnetic fields that are created by electric voltage (electric field) and electric current (magnetic field). Power frequency EMF is a natural consequence of electrical circuits, and can be either directly measured using the appropriate measuring instruments or calculated using appropriate information.

Electric Fields

Electric fields are present whenever voltage exists on a wire, and are not dependent on current. The magnitude of the electric field is primarily a function of the configuration and operating voltage of the line and decreases with the distance from the source (line). The electric field can be shielded (i.e., the strength can be reduced) by any conducting surface, such as trees, fences, walls, buildings, and most types of structures. The strength of an electric field is measured in volts per meter (V/m) or kilovolts per meter (kV/m).

Magnetic Fields

Magnetic fields are present whenever current flows in a conductor, and are not dependent on the voltage present on the conductor. The strength of these fields also decreases with distance from the source. However, unlike electric fields, most common materials have little shielding effect on magnetic fields.

The magnetic field strength is a function of both the current on the conductor and the design of the system. Magnetic fields are measured in units called Gauss. However, for the low levels normally encountered near power systems, the field strength is expressed in a much smaller unit, the milligauss (mG), which is one thousandth of a Gauss.

Power frequency EMF is present where electricity is used. This includes not only utility transmission lines, distribution lines, and substations, but also the building wiring in homes, offices, and schools, and in the appliances and machinery used in these locations. Typical magnetic fields from these sources can range from below 1 mG to above 1,000 mG (1 Gauss).

Magnetic field strengths diminish with distance. Fields from compact sources (i.e., those containing coils such as small appliances and transformers) decrease in inverse proportion to the distance from the source cubed. For three-phase power lines with balanced currents, the magnetic field strength drops off inversely proportional to the distance from the line squared. Fields from unbalanced currents, which flow in paths such as neutral or ground conductors, fall off inversely proportional to the distance from the source. Conductor spacing and configuration also affect the rate at which the magnetic field strength decreases.

The magnetic field levels of PG&E's overhead and underground transmission lines will vary depending upon customer power usage. Magnetic field strengths for typical PG&E transmission line loadings at the edge of rights-of-way are approximately 10 to 90 mG. Under peak load

conditions, the magnetic fields at the edge of the right-of-way would not likely exceed 150 mG. There are no long-term, health-based state or federal government EMF exposure standards. State regulations for magnetic fields have been developed in New York and Florida (150 mG and 200 mG at the edge of the right-of-way). However, these are based on limiting exposure from new facilities to levels no greater than existing facilities.

The strongest magnetic fields around the outside of a substation come from the power lines entering and leaving the station. The strength of the magnetic fields from transformers and other equipment decreases quickly with distance. Beyond the substation fence, the magnetic fields produced by the equipment within the station are typically indistinguishable from background levels.

Possible Health Effects

The possible effects of EMF on human health have come under scientific scrutiny. Concern about EMF originally focused on electric fields; however, much of the recent research has focused on magnetic fields. Uncertainty exists as to what characteristics of magnetic field exposure need to be considered to assess human exposure effects. Among the characteristics considered are field intensity, transients, harmonics, and changes in intensity over time. These characteristics may vary from power lines to appliances to home wiring, and this may create different types of exposures. The exposure most often considered is intensity or magnitude of the field.

There is a consensus among the medical and scientific communities that there is insufficient evidence to conclude that EMF causes adverse health effects. Neither the medical nor scientific communities have been able to provide any foundation upon which regulatory bodies could establish a standard or level of exposure that is known to be either safe or harmful. Laboratory experiments have shown that magnetic fields can cause biologic changes in living cells, but scientists are not sure whether any risk to human health can be associated with them. Some studies have suggested an association between surrogate measures of magnetic fields and certain cancers while others have not.

California Public Utilities Commission Decision Summary

Background

On January 15, 1991, the CPUC initiated an investigation to consider its role in mitigating the health effects, if any, of electric and magnetic fields from utility facilities and power lines. A working group of interested parties, called the California EMF Consensus Group, was created by the CPUC to advise it on this issue. It consisted of 17 stakeholders representing citizens groups, consumer groups, environmental groups, state agencies, unions, and utilities. The Consensus Group's fact-finding process was open to the public, and its report incorporated concerns expressed by the public. Its recommendations were filed with the Commission in March 1992.

In August 2004 the CPUC began a proceeding known as a “rulemaking” (R.04-08-020) to explore whether changes should be made to existing CPUC policies and rules concerning EMF from electric transmission lines and other utility facilities.

Through a series of hearings and conferences, the Commission evaluated the results of its existing EMF mitigation policies and addressed possible improvements in implementation of these policies. The CPUC also explored whether new policies are warranted in light of recent scientific findings on the possible health effects of EMF exposure.

The CPUC completed the EMF rulemaking in January 2006 and presented these conclusions in Decision D.06-01-042:

- The CPUC affirmed its existing policy of requiring no-cost and low-cost mitigation measures to reduce EMF levels from new utility transmission lines and substation projects.
- The CPUC adopted rules and policies to improve utility design guidelines for reducing EMF, and provides for a utility workshop to implement these policies and standardize design guidelines.
- Despite numerous studies, including one ordered by the Commission and conducted by the California Department of Health Services, the CPUC stated "we are unable to determine whether there is a significant scientifically verifiable relationship between EMF exposure and negative health consequences."
- The CPUC said it will "remain vigilant" regarding new scientific studies on EMF, and if these studies indicate negative EMF health impacts, the Commission will reconsider its EMF policies and open a new rulemaking if necessary.

In response to a situation of scientific uncertainty and public concern, the decision specifically requires PG&E to consider "no-cost" and "low-cost" measures, where feasible, to reduce exposure from new or upgraded utility facilities. It directs that no-cost mitigation measures be undertaken, and that low-cost options, when they meet certain guidelines for field reduction and cost, be adopted through the project certification process. PG&E was directed to develop, submit and follow EMF guidelines to implement the CPUC decision. Four percent of total project budgeted cost is the benchmark in implementing EMF mitigation, and mitigation measures should achieve incremental magnetic field reductions of at least 15%.

Reviews of EMF Studies

Hundreds of EMF studies have been conducted over the last 20 years in the areas of epidemiology, animal research, cellular studies, and exposure assessment. A number of nationally recognized multi-discipline panels have performed comprehensive reviews of the body of scientific knowledge on EMF. These panels' ability to bring experts from a variety of disciplines together to review the research gives their reports recognized credibility. It is standard practice in risk assessment and policymaking to rely on the findings and consensus opinions of these distinguished panels. None of these groups have concluded that EMF causes adverse health effects or that the development of standards were appropriate or would have a scientific basis.

Reports by the National Research Council/National Academy of Sciences, American Medical Association, American Cancer Society, National Institute of Environmental Health Sciences, World Health Organization, International Agency for Research on Cancer, and California Department of Health Services conclude that insufficient scientific evidence exists to warrant the adoption of specific health-based EMF mitigation measures. The potential for adverse health effects associated with EMF exposure is too speculative to allow the evaluation of impacts or the preparation of mitigation measures.

National Institute of Environmental Health Sciences

In June of 1999, the federal government completed a $60-million EMF research program managed by the National Institute of Environmental Health Sciences (NIEHS) and the

Department of Energy (DOE). Known as the EMF RAPID (Research And Public Information Dissemination) Program. In their report to the U.S. Congress, the NIEHS concluded that:

> *The NIEHS believes that the probability that ELF-EMF exposure is truly a health hazard is currently small. The weak epidemiological associations and lack of any laboratory support for these associations provide only marginal, scientific support that exposure to this agent is causing any degree of harm.*

The NIEHS report also included the following conclusions:

> *The National Toxicology Program routinely examines environmental exposures to determine the degree to which they constitute a human cancer risk and produces the 'Report on Carcinogens' listing agents that are 'known human carcinogens' or 'reasonably anticipated to be human carcinogens.' It is our opinion that based on evidence to date, ELF-EMF exposure would not be listed in the 'Report on Carcinogens' as an agent 'reasonably anticipated to be a human carcinogen.' This is based on the limited epidemiological evidence and the findings from the EMF-RAPID Program that did not indicate an effect of ELF-EMF exposure in experimental animals or a mechanistic basis for carcinogenicity.*
>
> *The NIEHS agrees that the associations reported for childhood leukemia and adult chronic lymphocytic leukemia cannot be dismissed easily as random or negative findings. The lack of positive findings in animals or in mechanistic studies weakens the belief that this association is actually due to ELF-EMF, but cannot completely discount the finding. The NIEHS also agrees with the conclusion that no other cancers or non-cancer health outcomes provide sufficient evidence of a risk to warrant concern.*
>
> *Epidemiological studies have serious limitations in their ability to demonstrate a cause and effect relationship whereas laboratory studies, by design, can clearly show that cause and effect are possible. Virtually all of the laboratory evidence in animals and humans and most of the mechanistic work done in cells fail to support a causal relationship between exposure to ELF-EMF at environmental levels and changes in biological function or disease status. The lack of consistent, positive findings in animal or mechanistic studies weakens the belief that this association is actually due to ELF-EMF, but it cannot completely discount the epidemiological findings.*
>
> *The NIEHS suggests that the level and strength of evidence supporting ELF-EMF exposure as a human health hazard are insufficient to warrant aggressive regulatory actions; thus, we do not recommend actions such as stringent standards on electric appliances and a national program to bury all transmission and distribution lines. Instead, the evidence suggests passive measures such as a continued emphasis on educating both the public and the regulated community on means aimed at reducing exposures. NIEHS suggests that the power industry continue its current practice of siting power lines to reduce exposures and continue to explore ways to reduce the creation of magnetic fields around transmission and distribution lines without creating new hazards. We also encourage technologies that lower exposures from neighborhood distribution lines provided that they do not increase other risks, such as those from accidental electrocution or fire.*

U.S. National Research Council/National Academy of Sciences

In May 1999, the National Research Council/ National Academy of Sciences, an independent scientific agency responsible for advising the federal government on science, technology, and medicine, released its evaluation of the scientific and technical content of research projects conducted under the U.S. EMF RAPID Program, concluding that:

> *The results of the EMF-RAPID program do not support the contention that the use of electricity poses a major unrecognized public-health danger. Basic research on the effects of power-frequency magnetic fields on cells and animals should continue, but a special research-funding effort is not required. Investigators should compete for funding through traditional research-funding mechanisms. If future research on this subject is funded through such mechanisms, it should be limited to tests of well-defined mechanistic hypotheses or replications of reported positive effects. If carefully performed, such experiments will have value even if their results are negative. Special efforts should be made to communicate the conclusions of this effort to the general public effectively.*

The following specific recommendations are made by the committee:

1. The committee recommends that no further special research program focused on possible health effects of power-frequency magnetic fields be funded. Basic research on the effects of power-frequency magnetic fields on cells and animals should continue but investigators should compete for funding through traditional research funding mechanisms.
2. If, however, Congress determines that another time-limited, focused research program on the health effects of power-frequency magnetic fields is warranted, the committee recommends that emphasis be placed on replications of studies that have yielded scientifically promising claims of effects and that have been reported in peer-reviewed journals. Such a program would benefit from the use of a contract-funding mechanism with a requirement for complete reports and/or peer-reviewed publications at program's end.
3. The engineering studies were initiated without the guidance of a clearly established biologic effect. The committee recommends that no further engineering studies be funded unless a biologic effect that can be used to plan the engineering studies has been determined.
4. Much of the information from the EMF-RAPID biology program has not been published in peer-reviewed journals. NIEHS should collect all future peer-reviewed information resulting from the EMF-RAPID biology projects and publish a summary report of such information periodically on the NIEHS Web site.
5. The communication effort initiated by EMF-RAPID is reasonable. The two booklets and the telephone information line are useful, as is the EMF-RAPID Internet site. There are two limitations to the effort. First, it is largely passive, responding to inquiries and providing information, rather than being active. Second, much of the information produced is in a scientific format not readily understandable by the public. The committee recommends that further material produced to disseminate information on power-frequency magnetic fields be written for the general public in a clear fashion. The Web site should be made more user-friendly. The booklet *Questions and Answers about EMF* should be updated periodically and made available to the public.

World Health Organization

The World Health Organization (WHO) established the International EMF Project in 1996 to investigate potential health risks associated with exposure to electric and magnetic fields (EMF). A WHO Task Group recently concluded a review of the health implications of extremely low frequency (ELF) EMF.

A Task Group of scientific experts was convened in 2005 to assess any risks to health that might exist from exposure to ELF electric and magnetic fields. Previously in 2002, the International Agency for Research on Cancer (IARC) examined the evidence regarding cancer; this Task Group reviewed evidence for a number of health effects, and updated the evidence regarding cancer. The conclusions and recommendations of the Task Group are presented in a WHO report titled: "Extremely Low Frequency Fields Environmental Health Criteria Monograph No.238" and Factsheet No 322.

> *"New human, animal and in vitro studies, published since the 2002 IARC monograph, do not change the overall classification of ELF magnetic fields as a possible human carcinogen."*
>
> *"A number of other diseases have been investigated for possible association with ELF magnetic field exposure. These include cancers in both children and adults, depression, suicide, reproductive dysfunction, developmental disorders, immunological modifications and neurological disease. The scientific evidence supporting a linkage between ELF magnetic fields and any of these diseases is much weaker than for childhood leukaemia and in some cases (for example, for cardiovascular disease or breast cancer) the evidence is sufficient to give confidence that magnetic fields do not cause the disease."*
>
> *"the epidemiological evidence is weakened by methodological problems, such as potential selection bias. In addition, there are no accepted biophysical mechanisms that would suggest that low-level exposures are involved in cancer development. Thus, if there were any effects from exposures to these low-level fields, it would have to be through a biological mechanism that is as yet unknown. Additionally, animal studies have been largely negative. Thus, on balance, the evidence related to childhood leukaemia is not strong enough to be considered causal."*
>
> *"Policy-makers should establish an ELF EMF protection programme that includes measurements of fields from all sources to ensure that the exposure limits are not exceeded either for the general public or workers."*
>
> *"Government and industry should monitor science and promote research programmes to further reduce the uncertainty of the scientific evidence on the health effects of ELF field exposure."*
>
> *"Policy-makers, community planners and manufacturers should implement very low-cost measures when constructing new facilities and designing new equipment including appliances."*
>
> *"Changes to engineering practice to reduce ELF exposure from equipment or devices should be considered, provided that they yield other additional benefits, such as greater safety, or little or no cost."*

"When changes to existing ELF sources are contemplated, ELF field reduction should be considered alongside safety, reliability and economic aspects."

International Agency for Research on Cancer

In June of 2001, the International Agency for Research on Cancer (IARC), a branch of the World Health Organization (WHO), evaluated the carcinogenic risk to humans of static and extremely low-frequency EMF. In October of 2001, the WHO published a Fact Sheet that summarized the IARC findings. Below is an excerpt from the fact sheet:

In June 2001, an expert scientific working group of IARC reviewed studies related to the carcinogenicity of static and ELF electric and magnetic fields. Using the standard IARC classification that weighs human, animal and laboratory evidence, ELF magnetic fields were classified as possibly carcinogenic to humans based on epidemiological studies of childhood leukaemia. Evidence for all other cancers in children and adults, as well as other types of exposures (i.e. static fields and ELF electric fields) was considered not classifiable either due to insufficient or inconsistent scientific information.

"Possibly carcinogenic to humans" is a classification used to denote an agent for which there is limited evidence of carcinogenicity in humans and less than sufficient evidence for carcinogenicity in experimental animals.

This classification is the weakest of three categories ("is carcinogenic to humans", "probably carcinogenic to humans" and "possibly carcinogenic to humans") used by IARC to classify potential carcinogens based on published scientific evidence. Some examples of well-known agents that have been classified by IARC are listed below:

Classification	***Examples of Agents***
Carcinogenic to humans (usually based on strong evidence of carcinogenicity in humans)	*Asbestos* *Mustard gas* *Tobacco (smoked and smokeless)* *Gamma radiation*
Probably carcinogenic to humans (usually based on strong evidence of carcinogenicity in animals)	*Diesel engine exhaust* *Sun lamps* *UV radiation* *Formaldehyde*
Possibly carcinogenic to humans (usually based on evidence in humans which is considered credible, but for which other explanations could not be ruled out)	*Coffee* *Styrene* *Gasoline engine exhaust* *Pickled Vegetables* *ELF magnetic fields*

DO ELF FIELDS CAUSE CANCER?

ELF fields are known to interact with tissues by inducing electric fields and currents in them. This is the only established mechanism of action of these fields. However, the electric currents induced by ELF fields commonly found in our environment are normally much lower than the strongest electric currents naturally occurring in the body such as those that control the beating of the heart.

> *Since 1979 when epidemiological studies first raised a concern about exposures to power line frequency magnetic fields and childhood cancer, a large number of studies have been conducted to determine if measured ELF exposure can influence cancer development, especially leukaemia in children.*
>
> *There is no consistent evidence that exposure to ELF fields experienced in our living environment causes direct damage to biological molecules, including DNA. Since it seems unlikely that ELF fields could initiate cancer, a large number of investigations have been conducted to determine if ELF exposure can influence cancer promotion or co-promotion. Results from animal studies conducted so far suggest that ELF fields do not initiate or promote cancer.*

However, two recent pooled analyses of epidemiological studies provide insight into the epidemiological evidence that played a pivotal role in the IARC evaluation. These studies suggest that, in a population exposed to average magnetic fields in excess of 0.3 to 0.4 μT, twice as many children might develop leukaemia compared to a population with lower exposures. In spite of the large number data base, some uncertainty remains as to whether magnetic field exposure or some other factor(s) might have accounted for the increased leukaemia incidence.

> *Childhood leukaemia is a rare disease with 4 out of 100,000 children between the age of 0 to 14 diagnosed every year. Also average magnetic field exposures above 0.3 or 0.4 μT in residences are rare. It can be estimated from the epidemiological study results that less than 1% of populations using 240 volt power supplies are exposed to these levels, although this may be higher in countries using 120 volt supplies.*
>
> *The IARC review addresses the issue of whether it is feasible that ELF-EMF pose a cancer risk. The next step in the process is to estimate the likelihood of cancers in the general population from the usual exposures and to evaluate evidence for other (non-cancer) diseases. This part of the risk assessment should be finished by WHO in the next 18 months.*

American Cancer Society

In the journal, *A Cancer Journal for Clinicians*, the American Cancer Society (ACS) reviewed EMF residential and occupational epidemiologic research in an article written by Dr. Clark W. Heath, Jr., ACS's vice president of epidemiology and surveillance research. Dr. Heath reviews 13 residential epidemiologic studies of adult and childhood cancer. Dr. Heath wrote:

> *Evidence suggesting that exposure to EMF may or may not promote human carcinogenesis is mostly based on...epidemiologic observations.... While those observations may suggest such a relationship for leukemia and brain cancer in particular, the findings are weak, inconsistent, and inconclusive.... The weakness and inconsistent nature of epidemiologic data, combined with the continued dearth of coherent and reproducible findings from experimental laboratory research, leave one uncertain and rather doubtful that any real biologic link exists between EMF exposure and carcinogenicity.*

American Medical Association

The AMA adopted recommendations of its Council on Scientific Affairs (CSA) regarding EMF health effects. The report was prepared as a result of a resolution passed by AMA's membership

at its 1993 annual meeting. The following recommendations are based on the CSA's review of EMF epidemiologic and laboratory studies to date, as well as on several major literature reviews:

- Although no scientifically documented health risk has been associated with the usually occurring levels of electromagnetic fields, the AMA should continue to monitor developments and issues related to the subject.
- The AMA should encourage research efforts sponsored by agencies such as the National Institutes of Health, the U.S. Department of Energy, and the National Science Foundation. Continuing research should include study of exposures to EMF and its effects, average public exposures, occupational exposures, and the effects of field surges and harmonics.
- The AMA should support the meeting of an authoritative, multidisciplinary committee under the auspices of the National Academy of Sciences or the National Council on Radiation Protection and Measurements to make recommendations about exposure levels of the public and workers to EMF and radiation.

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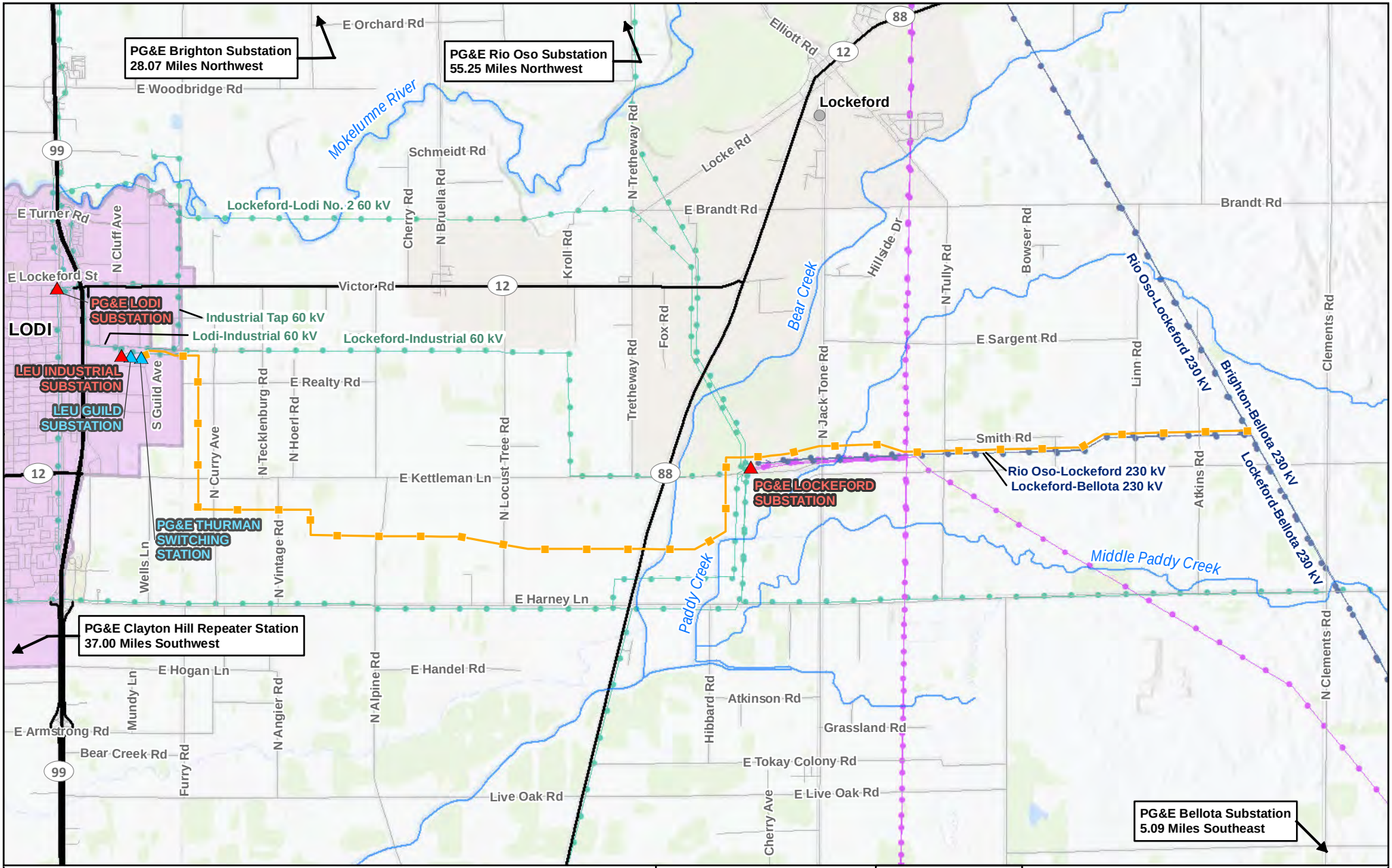
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Appendix A1
Figures



Legend

- Exsting Substation
- New Substation/ Switching Station
- PG&E New 230 kV Transmission Line

Existing PG&E Power and Transmission Lines

- 60
- 115
- 230

- Major_Roads
- Local Road
- River/Stream
- City Boundary

Source:
1) Base Map Source: ESRI World Topo

Scale:
1:65,000

0 0.5 1 Miles

N

Project Location

FIGURE 3.1-1
Project Location Overview
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\GISProj\P\PGE\NSJPC\MapFiles\PEA\WorkStagingAreas\Figure3.1-1_Project_Location_Overview_220830.mxd kgrant1 7/27/2023



Legend

- Existing PG&E 230 kV Transmission Line
- Existing PG&E 115 kV Transmission Line
- Existing PG&E 60 kV Power Line
- Approximate Existing Gate
- Approximate Existing Fenceline
- Existing PG&E Rio Oso-Lockeford | Lockeford-Bellota Structure (RO1)
- Parcel Boundary
- 6325033 Parcel Number
- Existing Substation Drainage Ditch

Source:
1) Esri World Imagery

N

0 80 160 Feet

Scale: 1:1,673

Project Location

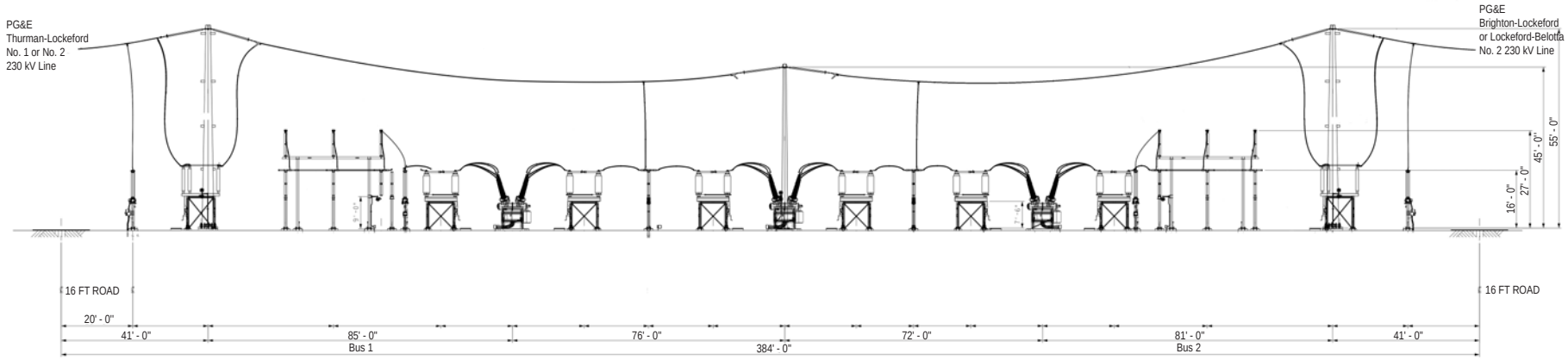
FIGURE 3.3-1a
Existing PG&E Lockeford Substation Aerial View
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\GISProj\P\PGE\NSJPC\MapFiles\PEA\ProjectDescription\Figure3.3-1a_ExistingLockefordStation_Aerial_220830.mxd kgrant1 7/27/2023



FIGURE 3.3-1b
Proposed PG&E Lockeford Substation Aerial View
Northern San Joaquin 230 kV Transmission Project

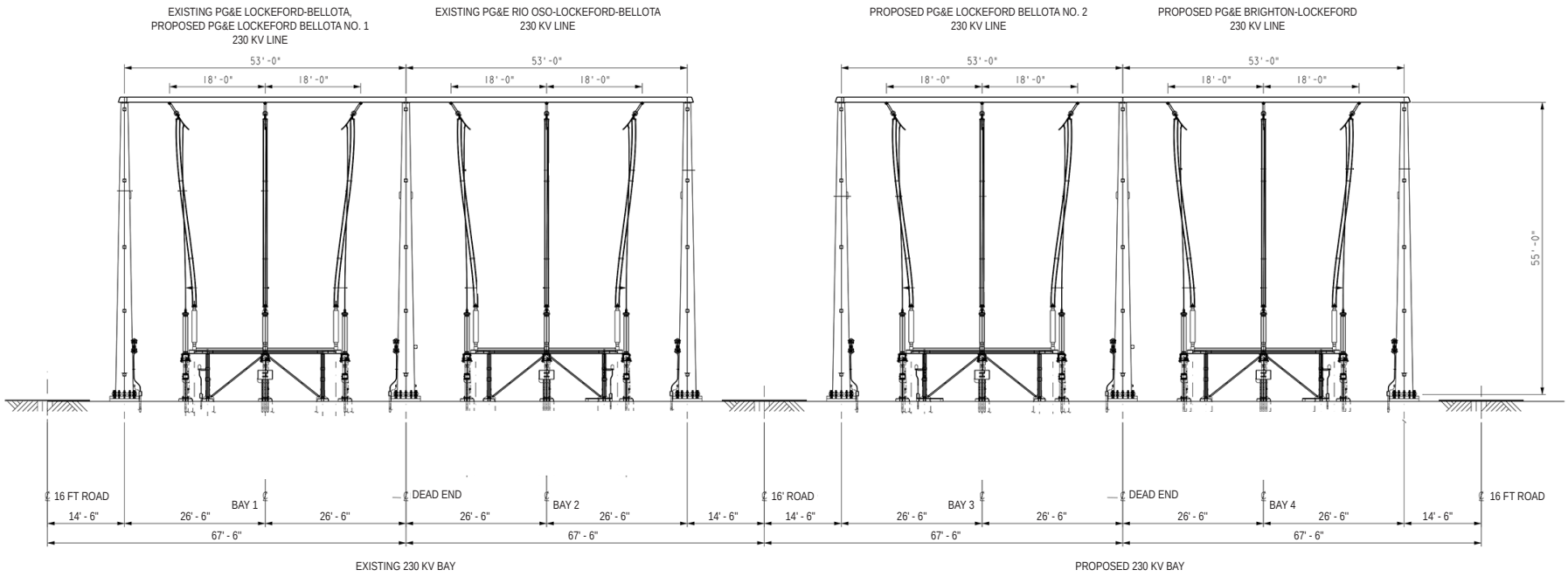
\\dc1vs01\GISProj\P\PGE\NSJPC\MapFiles\PEA\ProjectDescription\Figure3.3-1b_ProposedLockefordStation_Aerial_220830.mxd kgrant1 7/27/2023



Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.

Figure 3.3-1c
Proposed PG&E Lockeford Substation New Bay 4 Profile - North View
PG&E Northern San Joaquin 230 kV Transmission Project

Preliminary and Subject to Change Based on CPUC Requirements, Final Engineering, and Other Factors



Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.

Figure 3.3-1d
Proposed PG&E Lockeford Substation Profile - West View
PG&E Northern San Joaquin 230 kV Transmission Project

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Legend

- Parcel Boundary
- City of Lodi Boundary
- Railroad

Existing PG&E 60 kV Power Lines

- Existing PG&E Structure
- Existing PG&E 60 kV Power Line
- Existing Guy Stub Pole: Remove
- Existing PG&E 12 kV Distribution Pole
- Existing LEU 12 kV Distribution Pole
- Existing LEU 12 kV Underbuild
- Existing LEU 12 kV Underground
- Existing Communication Pole
- Existing Comcast Communication Underbuild

Source:
1) ESRI World Imagery

0 100 200 Feet

N

Scale: 1:3,600

Project Location

FIGURE 3.3-2a
Existing Project Area within City of Lodi
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\ProjectDescription\Figure3.3-2a_ExistingIndustrialStation_Aerial_220906.mxd kgrant1 8/17/2023

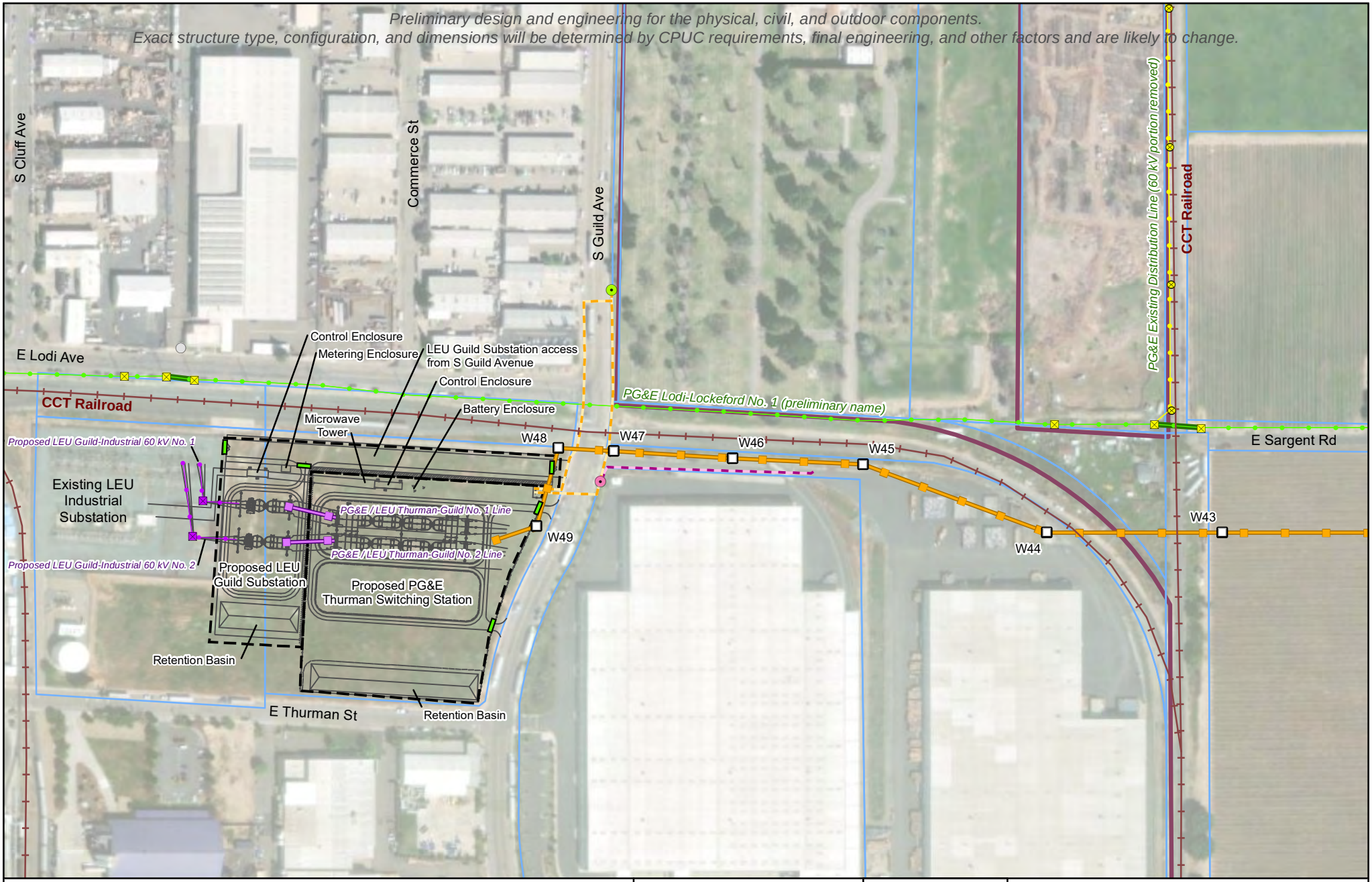


FIGURE 3.3-2b
Proposed Project Area within City of Lodi
Northern San Joaquin 230 kV Transmission Project

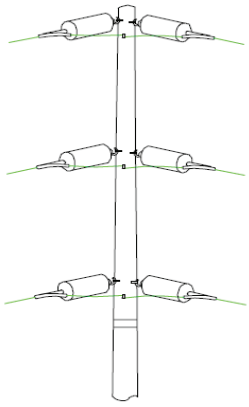
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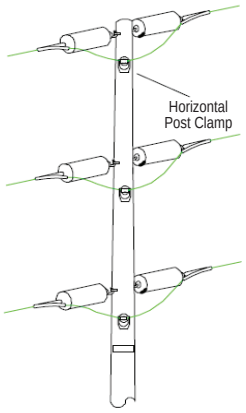
Figure 3.3-3a
Example PG&E light-duty steel 60 kV power pole with weathered finish (rusty color)
PG&E Northern San Joaquin 230 kV Transmission Project

Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.

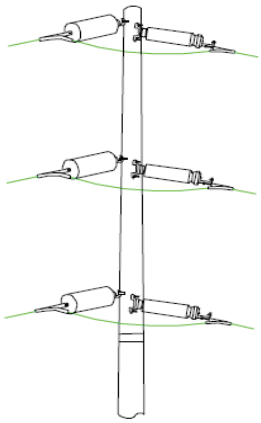
Double Vertical Dead End, DV-DE



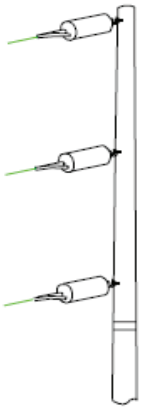
Double Vertical Post Jumper, DV-PJ



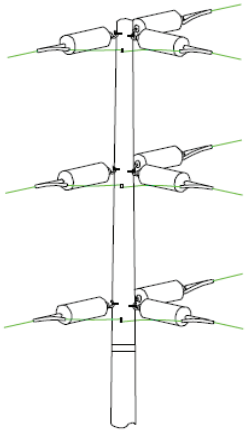
Single Vertical Post Jumper, SV-PJ



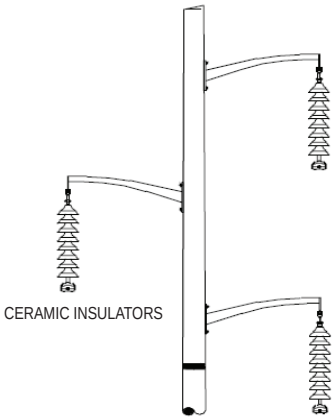
Single Vertical Dead End, SV-DE



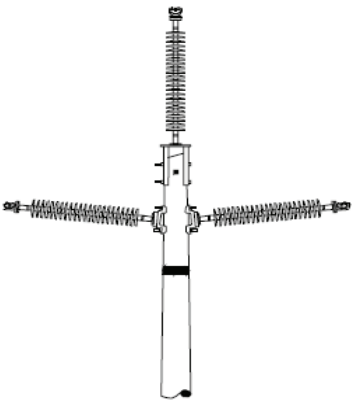
3-Way Vertical Tap, 3WV-T



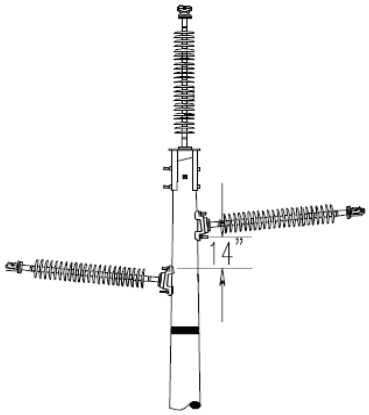
Suspension Steel, SS-1



Triangular, T1



Triangular Alternate, T1-1A



Delta Post, 3-HPD

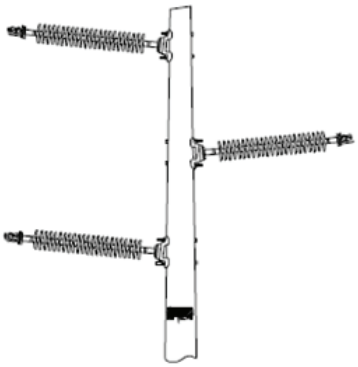


Figure 3.3-3b
Typical PG&E 60 kV power pole framing types
PG&E Northern San Joaquin 230 kV Transmission Project

Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.

PPS0831220856BAO





Figure 3.3-4
Example Photos of Line Tuner and Wave Trap Equipment at PG&E Remote End Substations





Figure 3.3-5
Existing PG&E Clayton Hill Repeater Station South Tower - Northwest and West Views
PG&E Northern San Joaquin 230 kV Transmission Project



Figure 3.3-6a
Example 230 kV Monopole Structures
PG&E Northern San Joaquin 230 kV Transmission Project

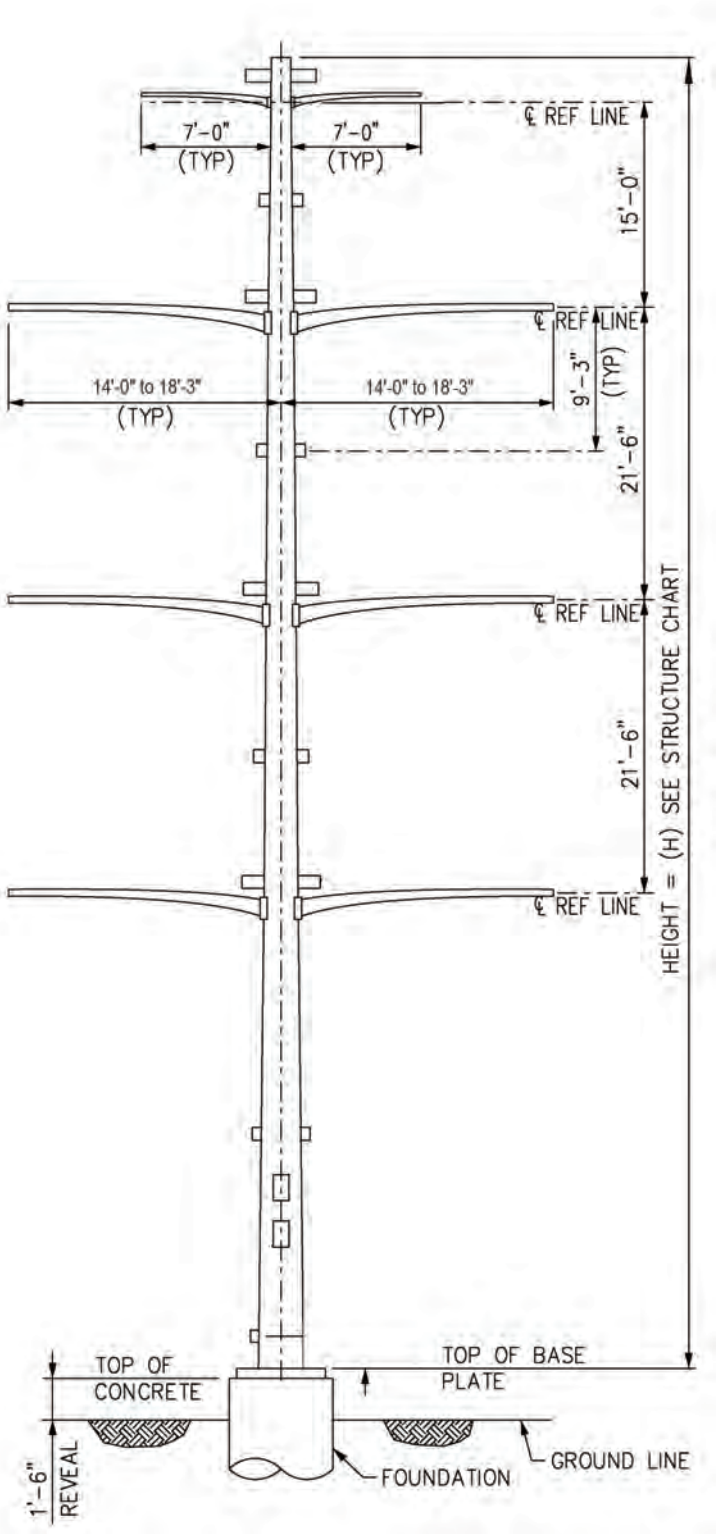


Figure 3.3-6b
Typical Dead-end 230 kV Tubular Steel Pole Structure Drawing
PG&E Northern San Joaquin 230 kV Transmission Project

Typical Structure is 60% design. Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.

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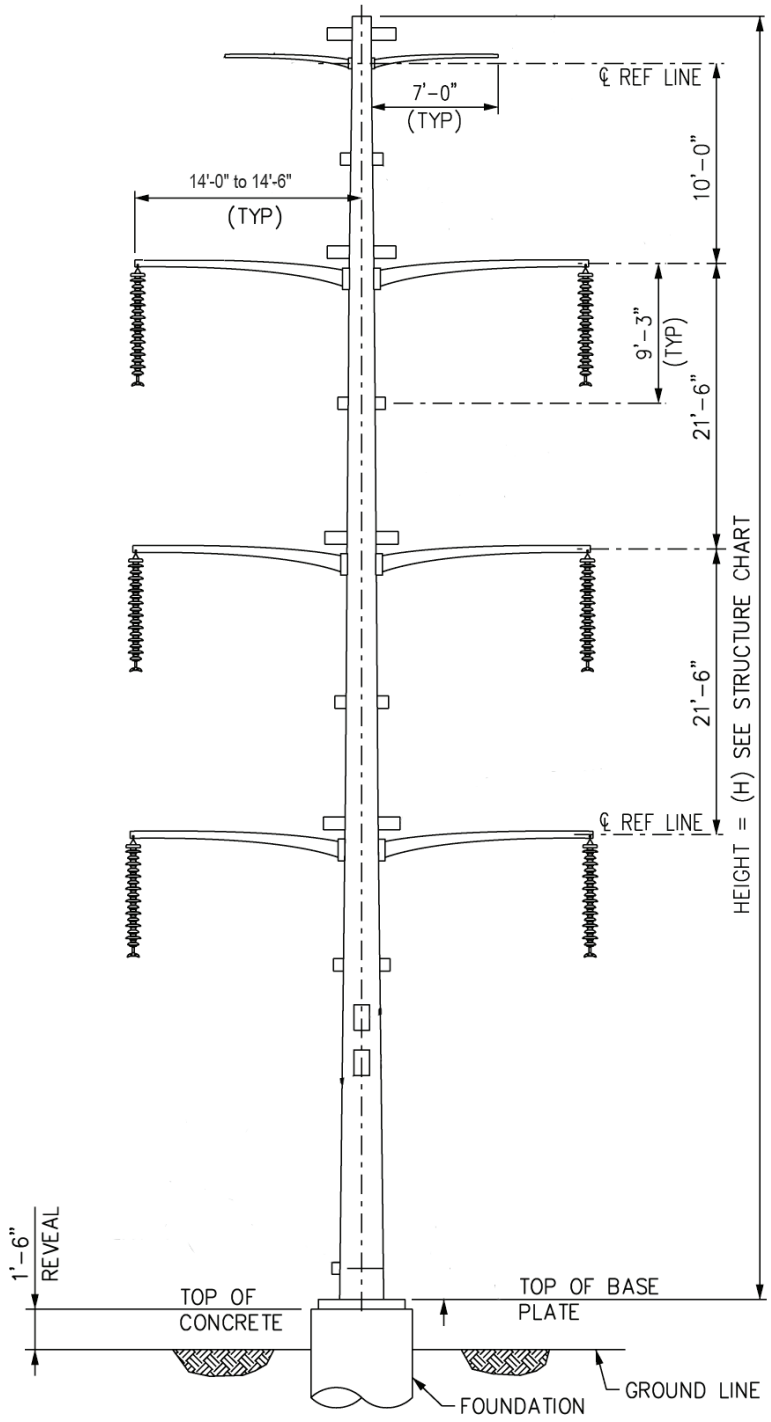
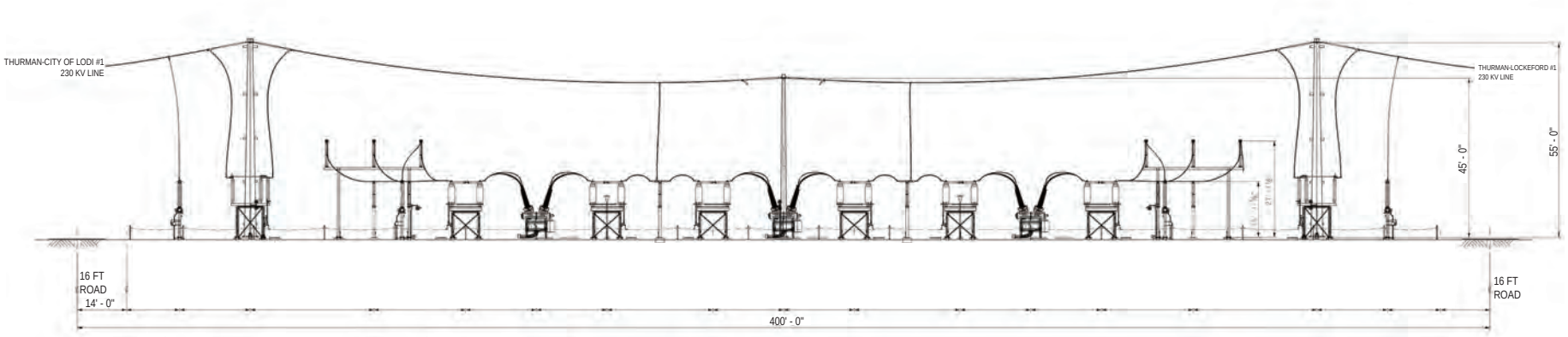


Figure 3.3-6c
Typical Tangent 230 kV Tubular Steel Pole Structure Drawing
PG&E Northern San Joaquin 230 kV Transmission Project

Typical Structure is 60% design. Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.

Preliminary and Subject to Change Based on CPUC Requirements, Final Engineering, and Other Factors

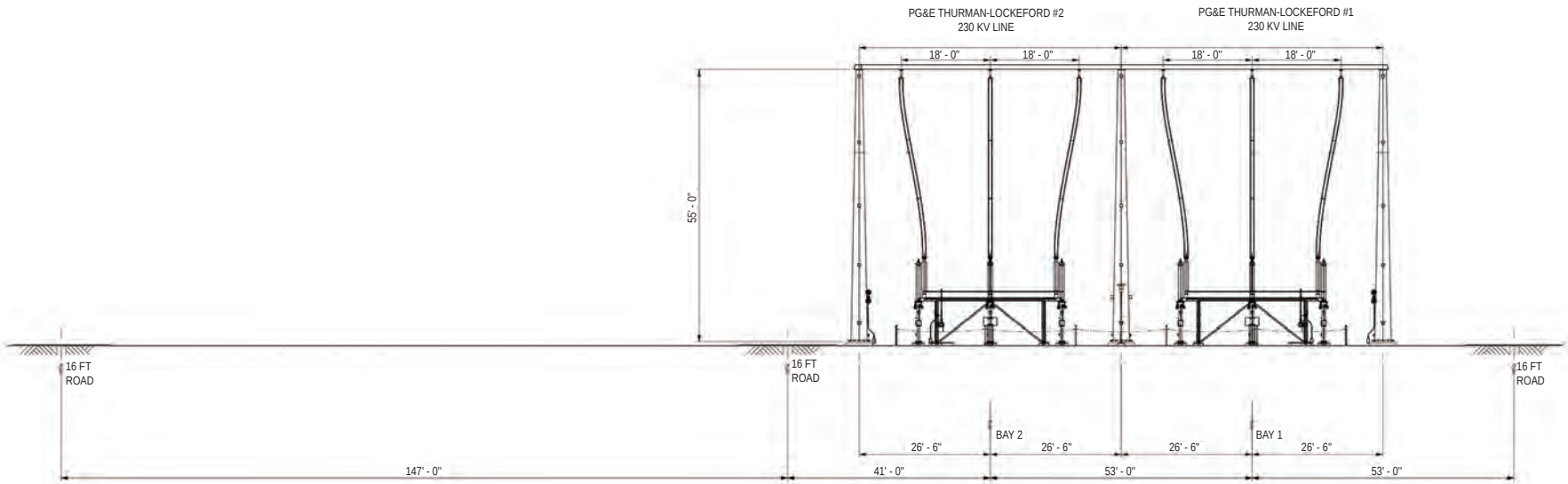


Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.

Figure 3.3-7a
Proposed PG&E Thurman Switching Station Bay 1 Profile - North View
PG&E Northern San Joaquin 230 kV Transmission Project

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Preliminary and Subject to Change Based on CPUC Requirements, Final Engineering, and Other Factors



Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.

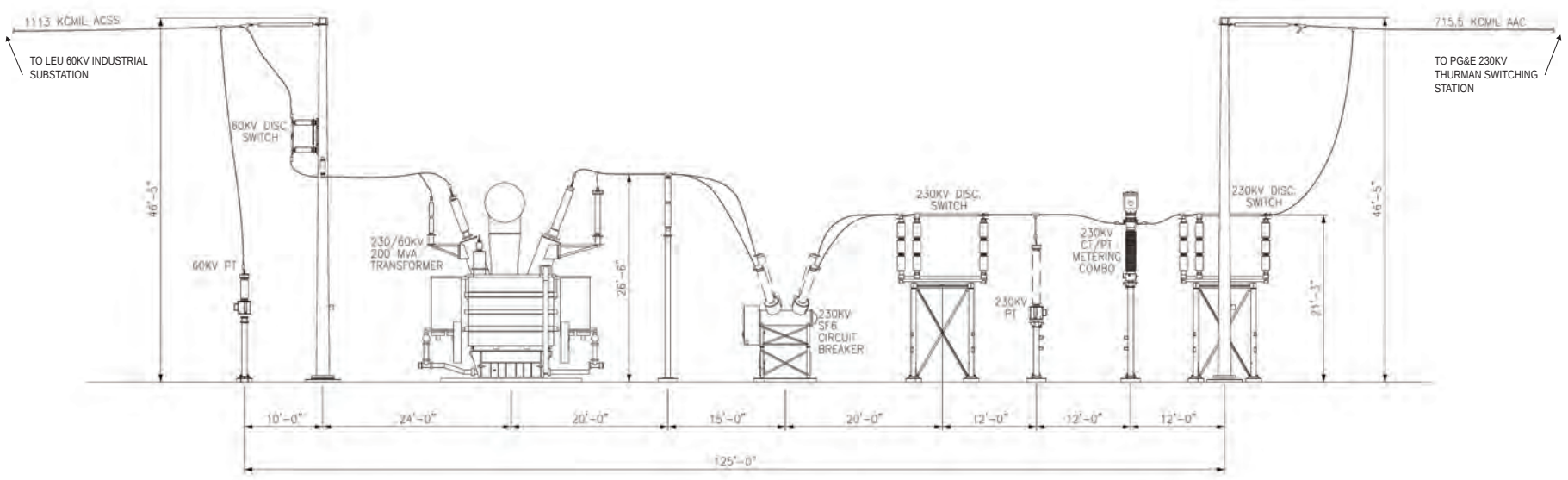
Figure 3.3-7b
Proposed PG&E Thurman Switching Station Profile - West View
PG&E Northern San Joaquin 230 kV Transmission Project

PPS0831220856BAO



Figure 3.3-7c
Example 150-foot Microwave Tower
PG&E Northern San Joaquin 230 kV Transmission Project

Preliminary and Subject to Change Based on CPUC Requirements, Final Engineering, and Other Factors

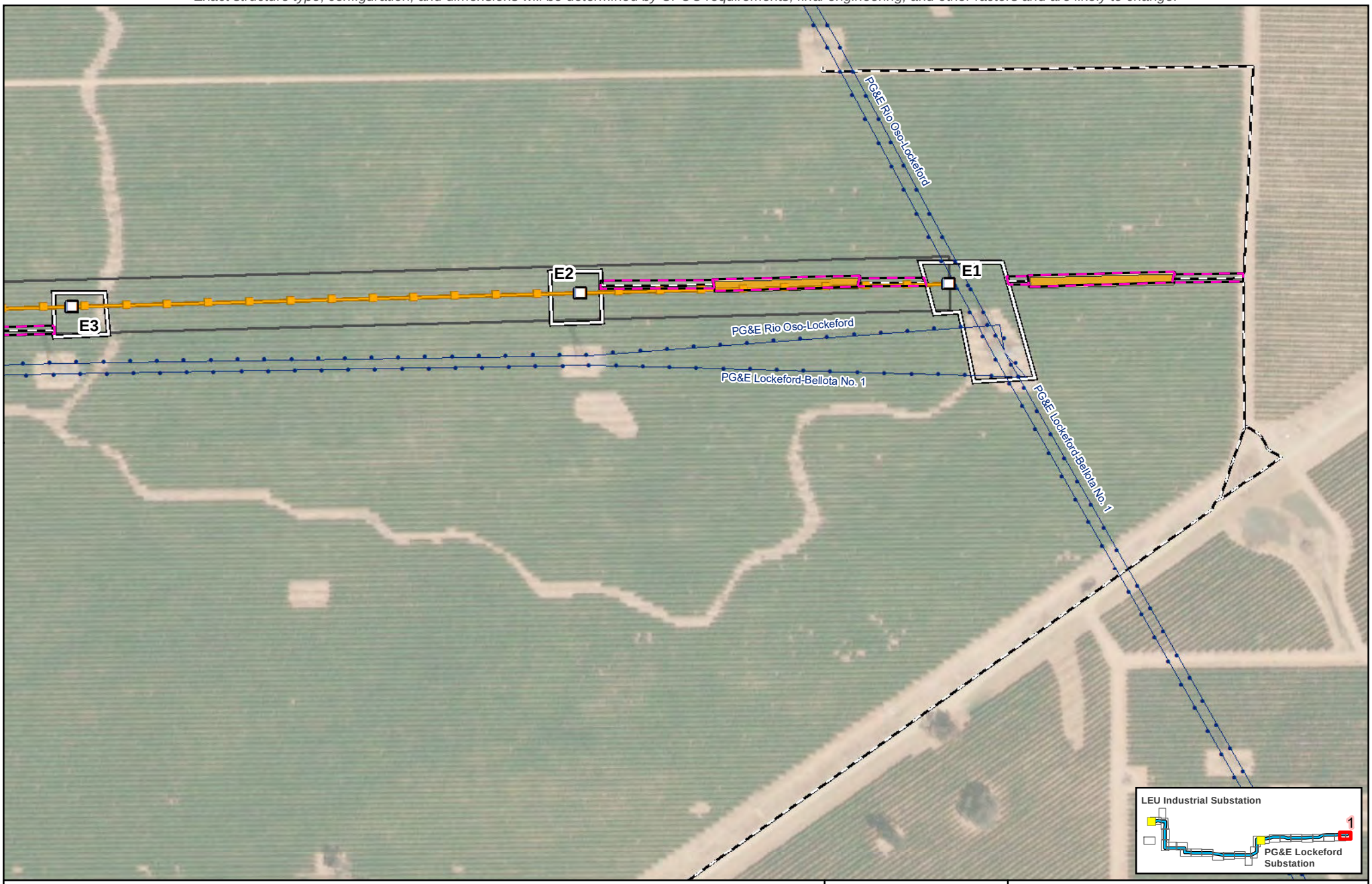


Typical Structure is 60% design. Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.

Figure 3.3-8
Proposed LEU Guild Substation 230/60 KV Bay Profile - North View
PG&E Northern San Joaquin 230 kV Transmission Project

PPS0831220856BAO

Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Proposed Structure
- PG&E New 230 kV Transmission Line
- Existing PG&E 230 kV Transmission Line
- Proposed PG&E 230 kV ROW
- Proposed Access Route
- Proposed Pull Site
- New Impact - Crop removal
- Proposed Work Area

Source:
1) Esri World Imagery

N

0 100 Feet

Scale: 1:3,000

FIGURE 3.5-1
Project Components and Construction Elements
Page 1 of 26
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\ProjectDescription\Figure3.5-1_Project_Components_220901.mxd kgrant1 8/1/2023

Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Proposed Structure
- PG&E New 230 kV Transmission Line
- Existing PG&E 230 kV Transmission Line
- Proposed PG&E 230 kV ROW
- Proposed Access Route
- Proposed Pull Site
- New Impact - Crop removal
- Proposed Work Area
- Existing Line Crossing

Source:
1) Esri World Imagery

N

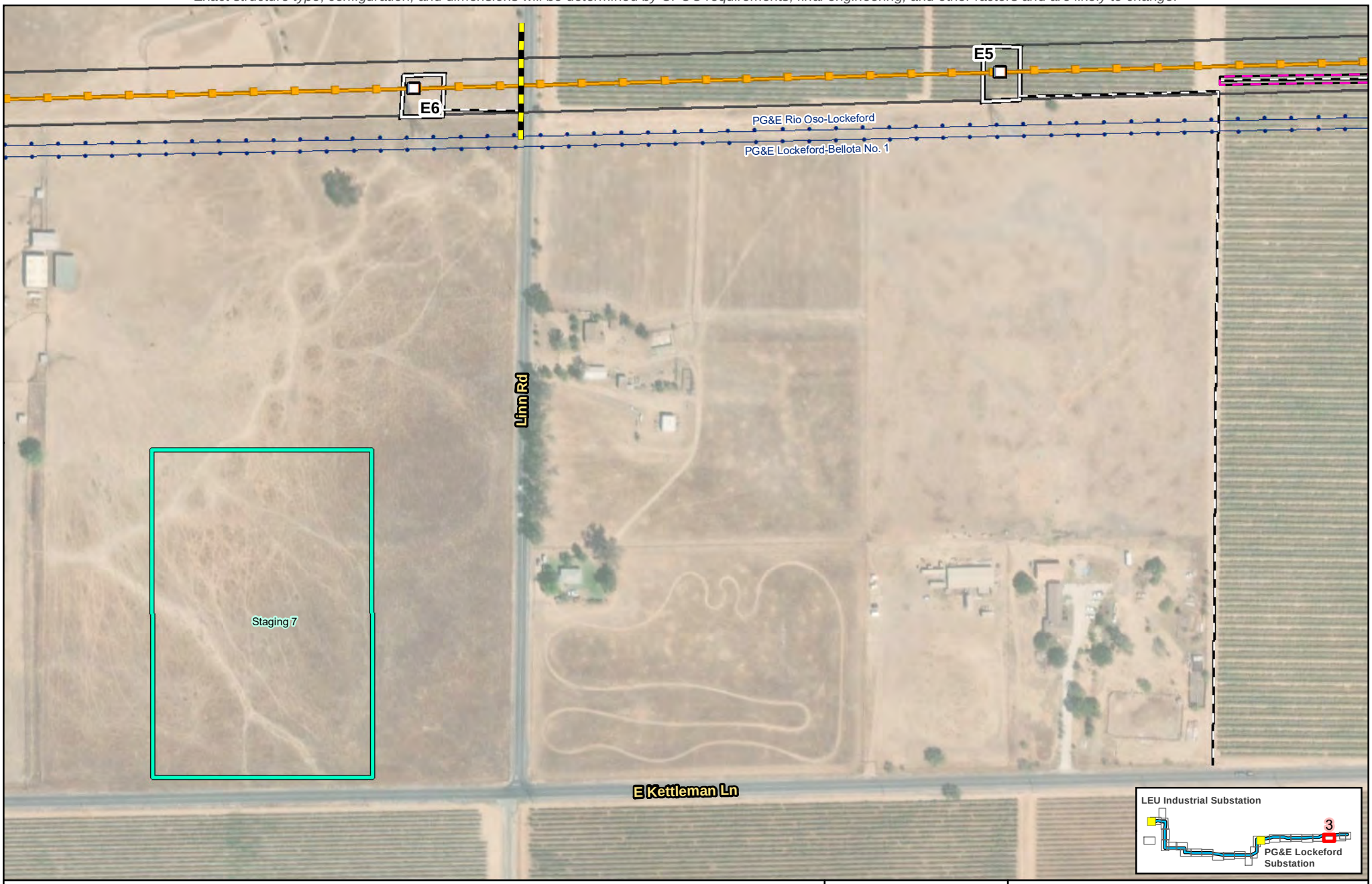
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Scale: 1:3,000

FIGURE 3.5-1
Project Components and Construction Elements
Page 2 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Proposed Structure
- PG&E New 230 kV Transmission Line
- Existing PG&E 230 kV Transmission Line
- Proposed PG&E 230 kV ROW
- Proposed Access Route
- New Impact - Crop removal
- Proposed Work Area
- Potential Staging Area
- Existing Line Crossing

Source:
1) Esri World Imagery

N

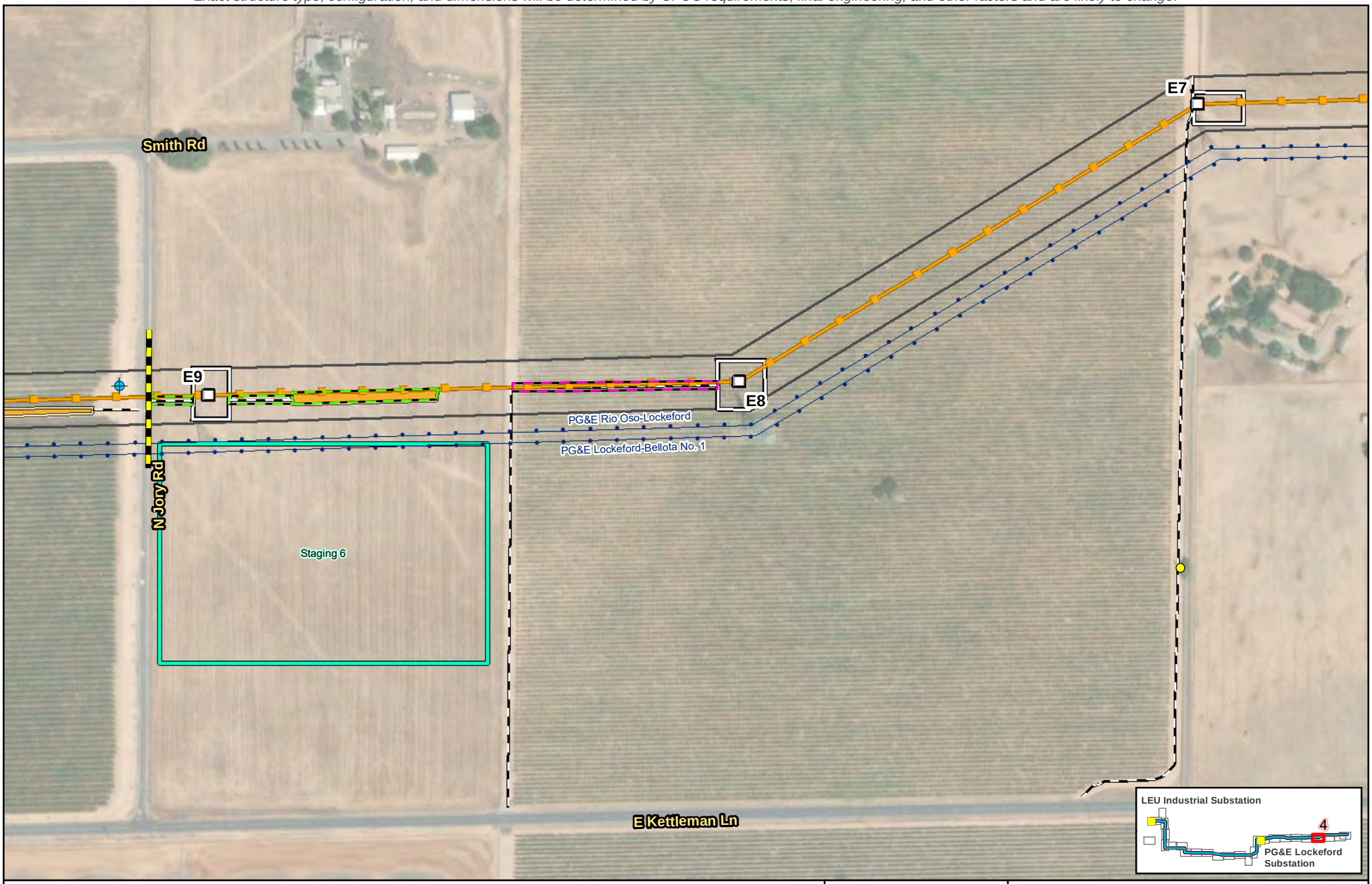
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Scale: 1:3,000

FIGURE 3.5-1
Project Components and Construction Elements
Page 3 of 26
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\ProjectDescription\Figure3.5-1_Project_Components_220901.mxd kgrant1 8/1/2023

Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Proposed Structure
- PG&E New 230 kV Transmission Line
- Existing PG&E 230 kV Transmission Line
- Proposed PG&E 230 kV ROW
- Proposed Access Route
- Proposed Pull Site
- New Impact - Crop removal
- New Impact - Overland
- Proposed Work Area
- Potential Staging Area
- Potential Tree Trimming or Removal
- Existing Line Crossing
- Agricultural Well

Source:
1) Esri World Imagery

N

0 100 Feet

Scale: 1:3,000

FIGURE 3.5-1
Project Components and Construction Elements
Page 4 of 26
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\ProjectDescription\Figure3.5-1_Project_Components_220901.mxd kgrant1 8/1/2023

Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Proposed Structure
- PG&E New 230 kV Transmission Line
- Existing PG&E 230 kV Transmission Line
- Proposed PG&E 230 kV ROW
- Proposed Access Route
- Proposed Pull Site
- Proposed Work Area
- Potential Tree Trimming or Removal
- Existing Line Crossing

Source:
1) Esri World Imagery

N

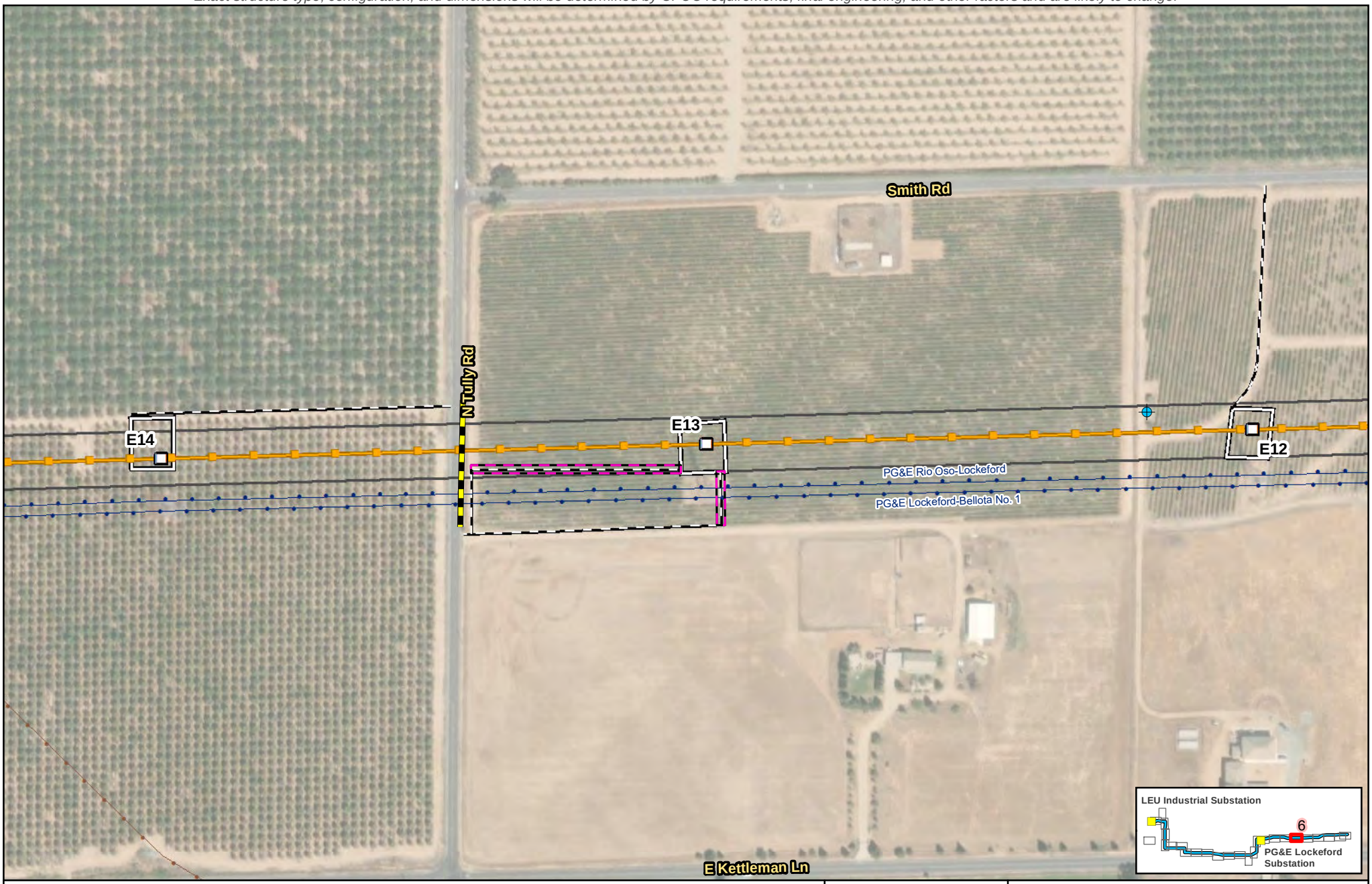
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Scale: 1:3,000

FIGURE 3.5-1
Project Components and Construction Elements
Page 5 of 26
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\ProjectDescription\Figure3.5-1_Project_Components_220901.mxd kgrant1 8/1/2023

Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Proposed Structure
- PG&E New 230 kV Transmission Line
- Existing PG&E 230 kV Transmission Line
- Existing PG&E 115 kV Transmission Line
- Proposed PG&E 230 kV ROW
- Proposed Access Route
- New Impact - Crop removal
- Proposed Work Area
- Existing Line Crossing
- Agricultural Well

Source:
1) Esri World Imagery

N

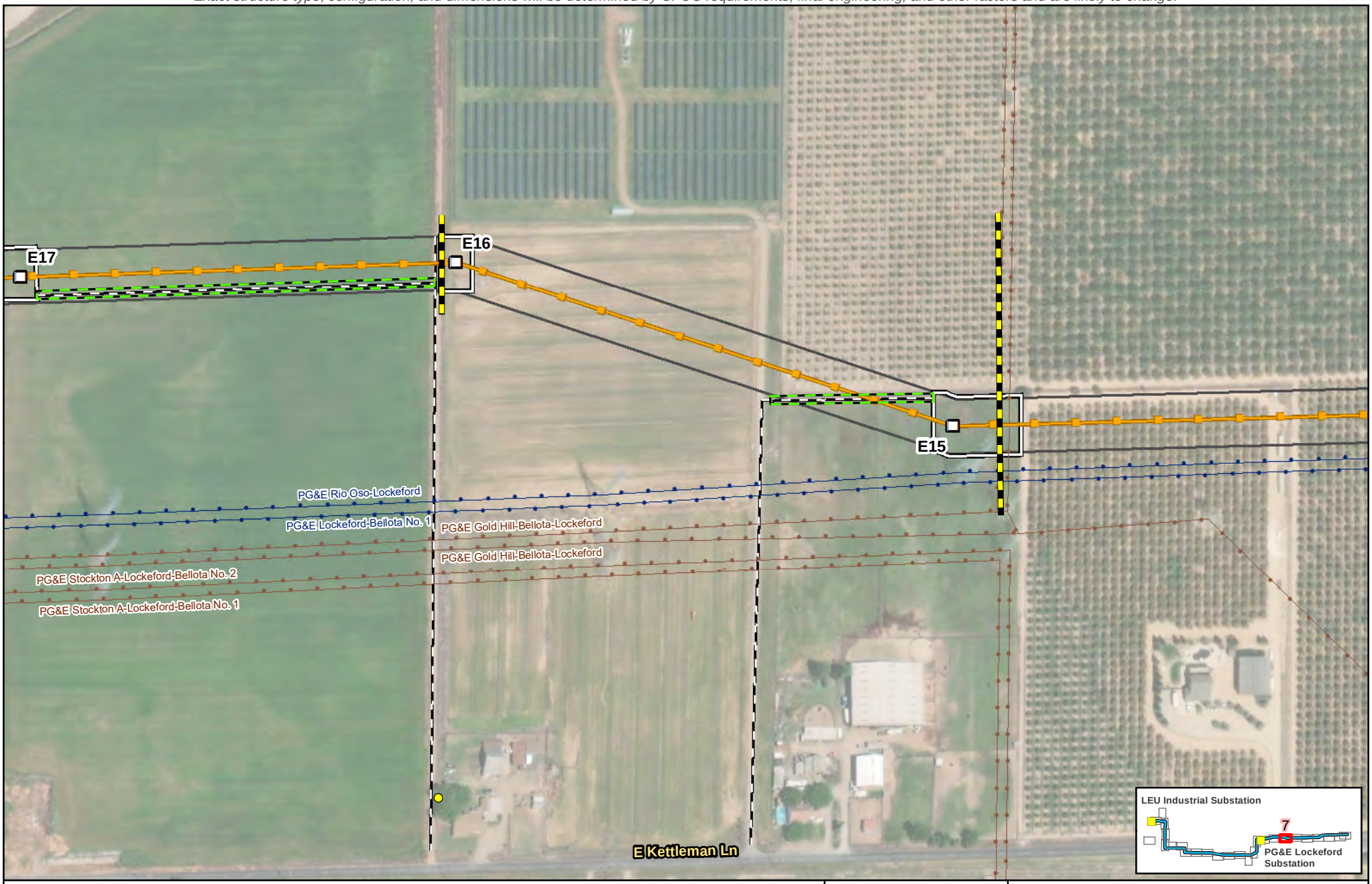
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Scale: 1:3,000

FIGURE 3.5-1
Project Components and Construction Elements
Page 6 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Proposed Structure
- PG&E New 230 kV Transmission Line
- Existing PG&E 230 kV Transmission Line
- Existing PG&E 115 kV Transmission Line
- Proposed PG&E 230 kV ROW
- Proposed Access Route
- New Impact - Overland
- Proposed Work Area
- Potential Tree Trimming or Removal
- Existing Line Crossing

Source:
1) Esri World Imagery

N

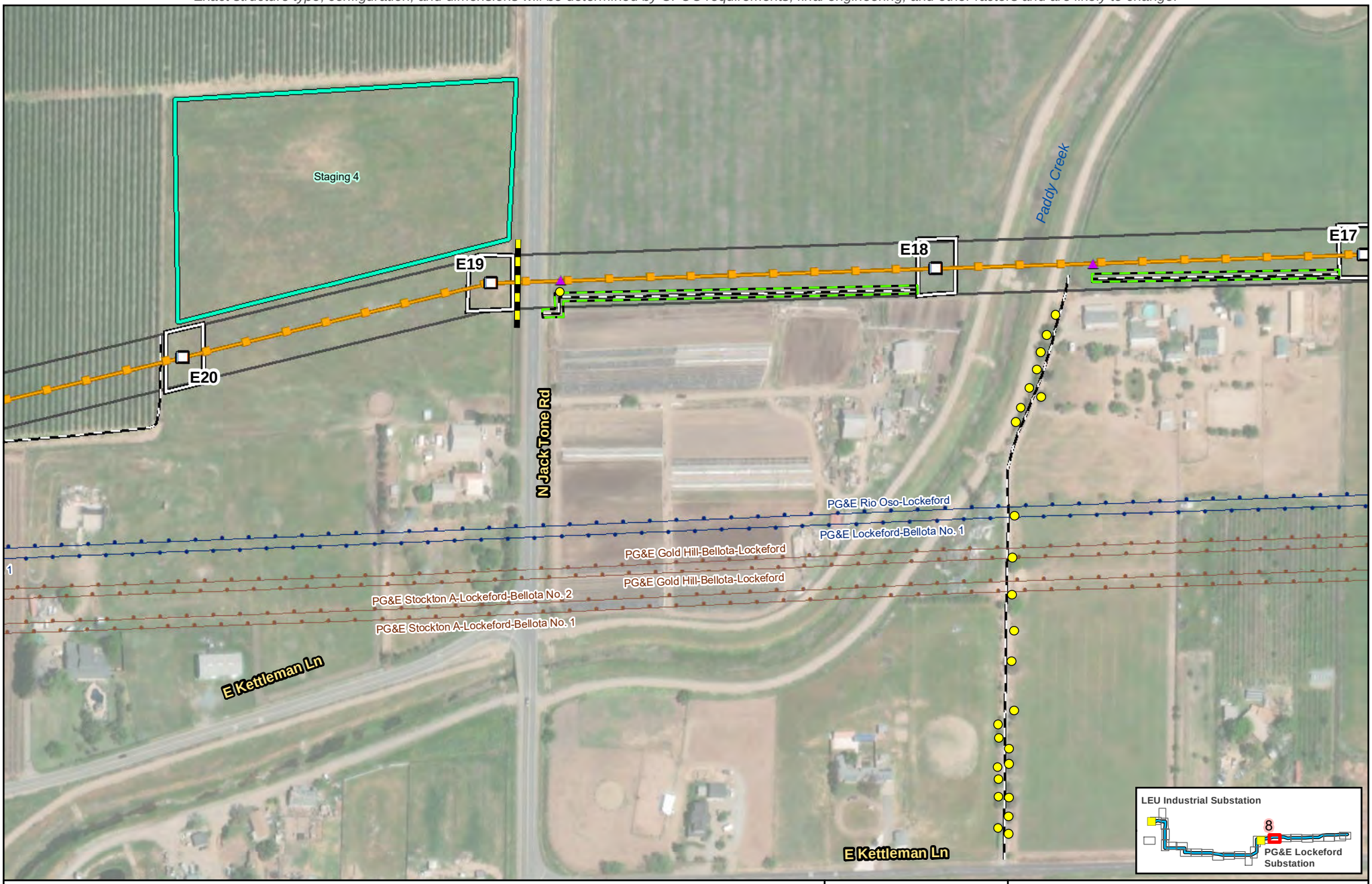
0 100 Feet

Scale: 1:3,000

FIGURE 3.5-1
Project Components and Construction Elements
Page 7 of 26
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\ProjectDescription\Figure3.5-1_Project_Components_220901.mxd kgrant1 8/1/2023

Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Proposed Structure
- PG&E New 230 kV Transmission Line
- Existing PG&E 230 kV Transmission Line
- Existing PG&E 115 kV Transmission Line
- Proposed PG&E 230 kV ROW
- Potential Guard Structure Area
- Proposed Access Route
- New Impact - Overland
- Proposed Work Area
- Potential Staging Area
- Potential Tree Trimming or Removal
- Existing Line Crossing

Source:
1) Esri World Imagery

N

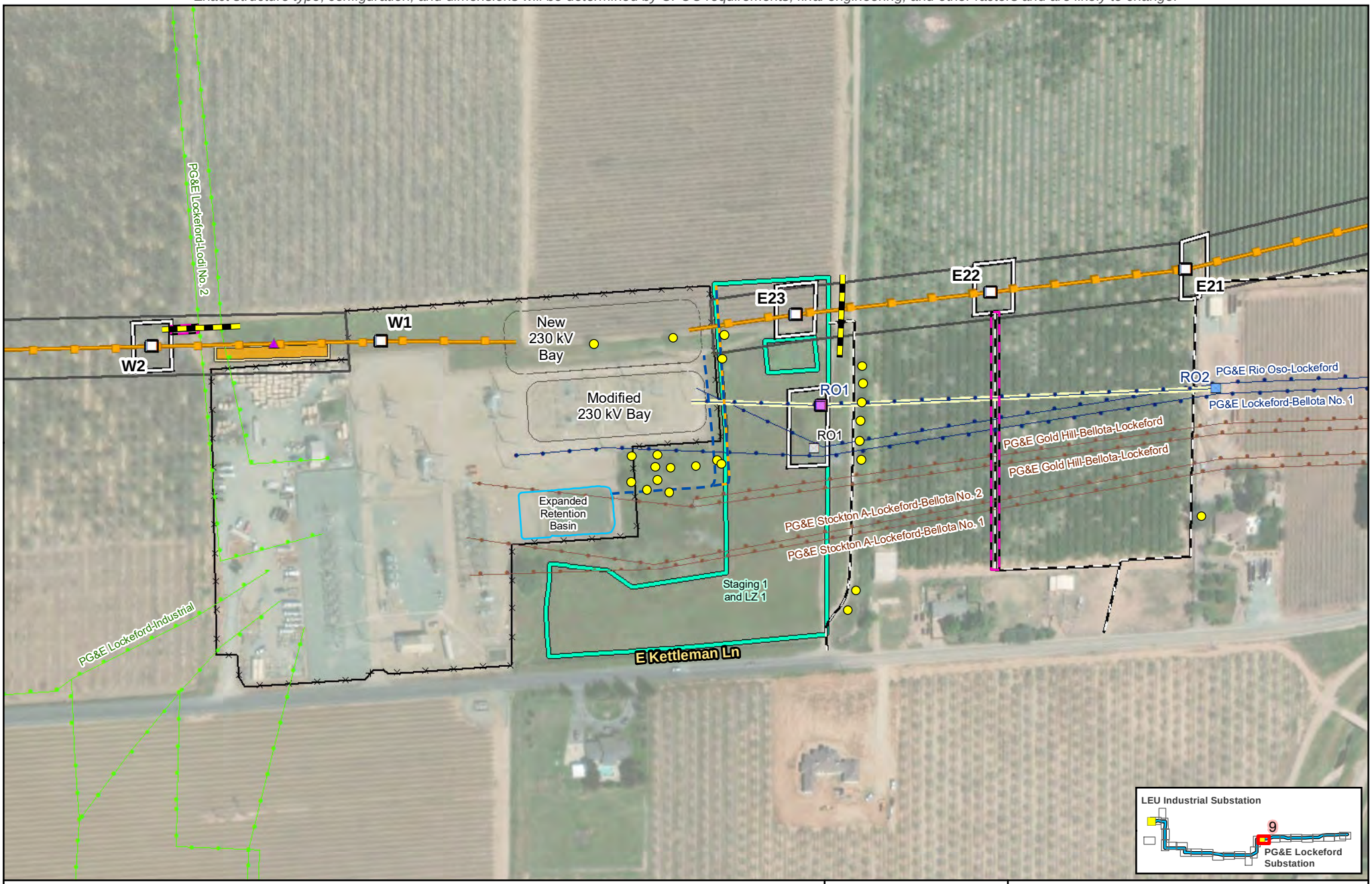
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Scale: 1:3,000

FIGURE 3.5-1
Project Components and Construction Elements
Page 8 of 26
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\ProjectDescription\Figure3.5-1_Project_Components_220901.mxd kgrant1 8/1/2023

Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Proposed Structure
- Proposed PG&E Rio Oso-Lockeford | Lockeford-Bellota (RO1) TSP
- PG&E New 230 kV Transmission Line
- Existing PG&E 230 kV Transmission Line
- Proposed PG&E Rio Oso-Lockeford | Lockeford-Bellota Realignment
- Existing PG&E 115 kV Transmission Line
- Proposed PG&E 230 kV ROW
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Pull Site
- New Impact - Crop removal
- Proposed Work Area
- Proposed Fenceline
- Modified Substation Drainage Ditch
- Existing Substation Drainage Ditch
- Potential Staging Area
- Existing PG&E 60 kV Power Line
- PG&E 230 kV Structure: Remove
- Existing PG&E 230 kV Structure
- Potential Tree Trimming or Removal
- Existing Line Crossing

Source:
1) Esri World Imagery

0 100 Feet

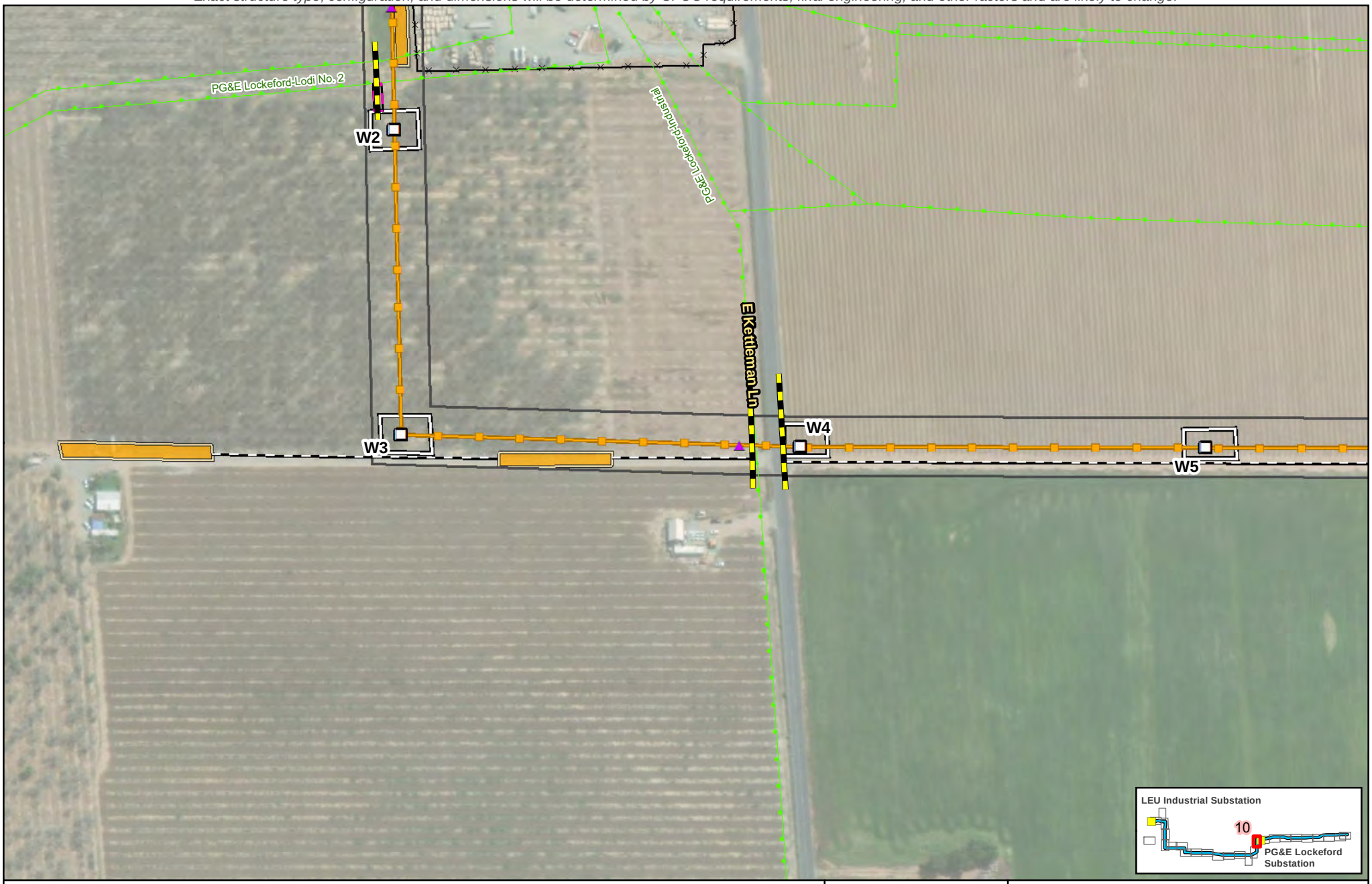
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Scale: 1:3,000

FIGURE 3.5-1
Project Components and Construction Elements
Page 9 of 26
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\ProjectDescription\Figure3.5-1_Project_Components_220901.mxd kgrant1 8/1/2023

Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Proposed Structure
- PG&E New 230 kV Transmission Line
- Proposed PG&E 230 kV ROW
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Pull Site
- New Impact - Crop removal
- Proposed Work Area
- Proposed Fenceline
- Existing PG&E 60 kV Power Line
- Existing Line Crossing

Source:
1) Esri World Imagery

N

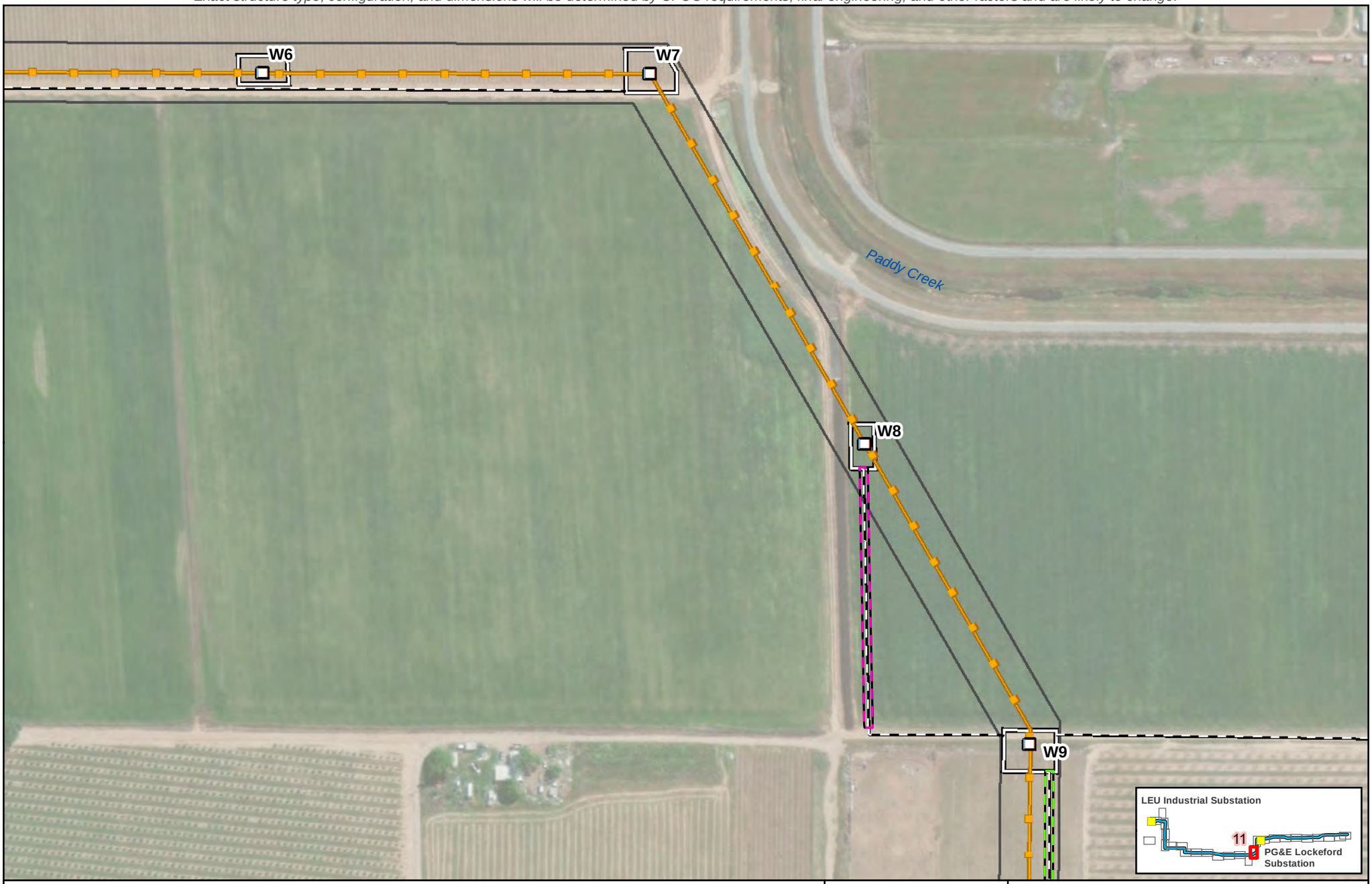
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Scale: 1:3,000

FIGURE 3.5-1
Project Components and Construction Elements
Page 10 of 26
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\ProjectDescription\Figure3.5-1_Project_Components_220901.mxd kgrant1 8/1/2023

Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend
- Proposed Structure
- PG&E New 230 kV Transmission Line
- Proposed PG&E 230 kV ROW
- Proposed Access Route
- New Impact - Crop removal
- New Impact - Overland
- Proposed Work Area

Source:
1) Esri World Imagery

N

0 100 Feet

Scale: 1:3,000

FIGURE 3.5-1
Project Components and Construction Elements
Page 11 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Proposed Structure
- PG&E New 230 kV Transmission Line
- Proposed PG&E 230 kV ROW
- Potential Guard Structure Area
- Proposed Access Route
- New Impact - Crop removal
- New Impact - Overland
- Proposed Work Area
- Existing PG&E 60 kV Power Line
- Potential Tree Trimming or Removal

Source:
1) Esri World Imagery

N

0 100 Feet

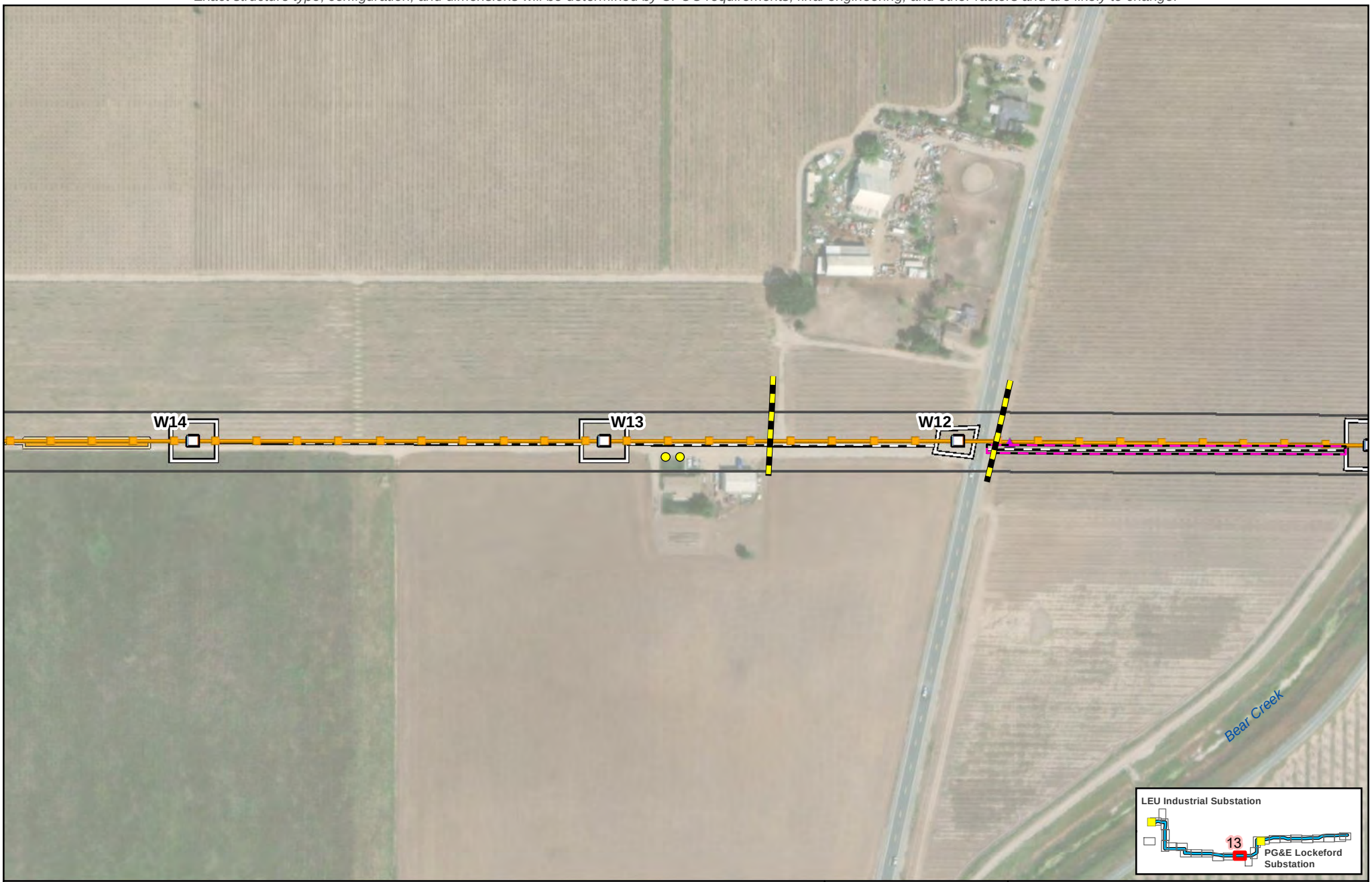
Scale: 1:3,000

FIGURE 3.5-1
Project Components and Construction Elements

Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Proposed Structure
- PG&E New 230 kV Transmission Line
- Proposed PG&E 230 kV ROW
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Pull Site
- New Impact - Crop removal
- Proposed Work Area
- Potential Tree Trimming or Removal
- Existing Line Crossing

Source:
1) Esri World Imagery

N

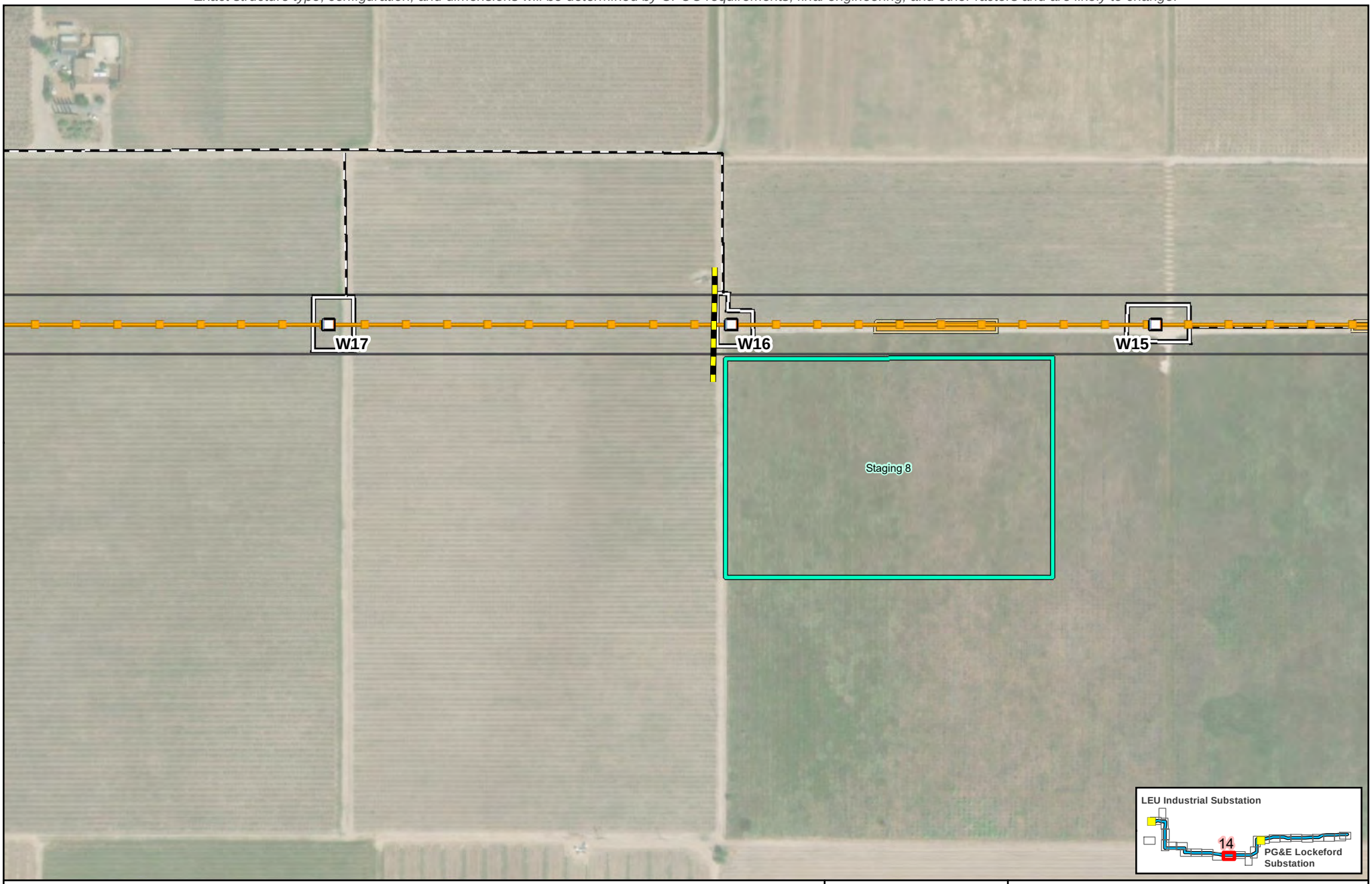
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Scale: 1:3,000

FIGURE 3.5-1
Project Components and Construction Elements
Page 13 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Proposed Structure
- PG&E New 230 kV Transmission Line
- Proposed PG&E 230 kV ROW
- Proposed Access Route
- Proposed Pull Site
- Proposed Work Area
- Potential Staging Area
- Existing Line Crossing

Source:
1) Esri World Imagery

N

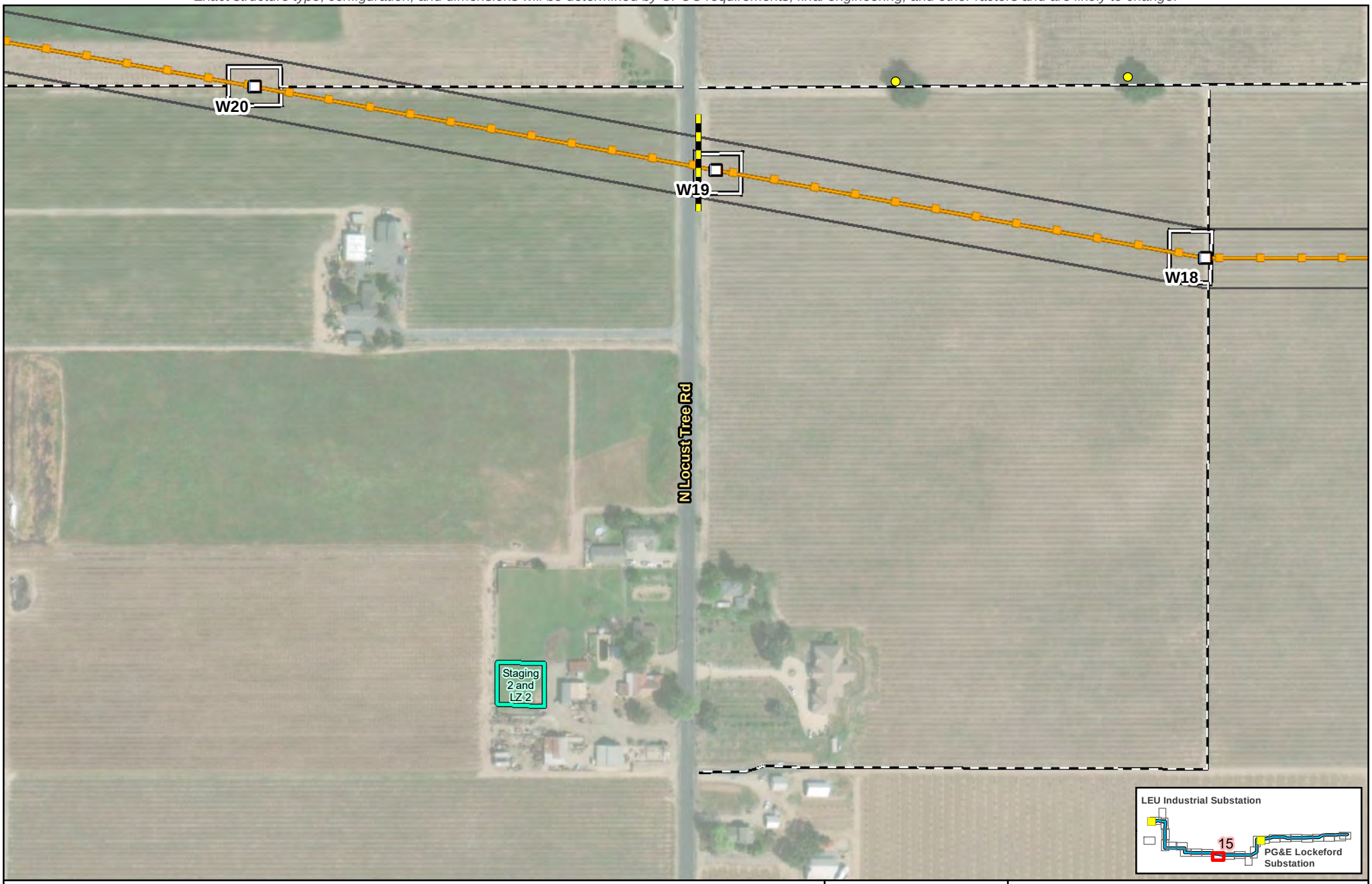
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Scale: 1:3,000

FIGURE 3.5-1
Project Components and Construction Elements
Page 14 of 26
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\ProjectDescription\Figure3.5-1_Project_Components_220901.mxd kgrant1 8/1/2023

Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Proposed Structure
- PG&E New 230 kV Transmission Line
- Proposed PG&E 230 kV ROW
- Proposed Access Route
- Proposed Work Area
- Potential Staging Area
- Potential Tree Trimming or Removal
- Existing Line Crossing

Source:
1) Esri World Imagery

N

0 100 Feet

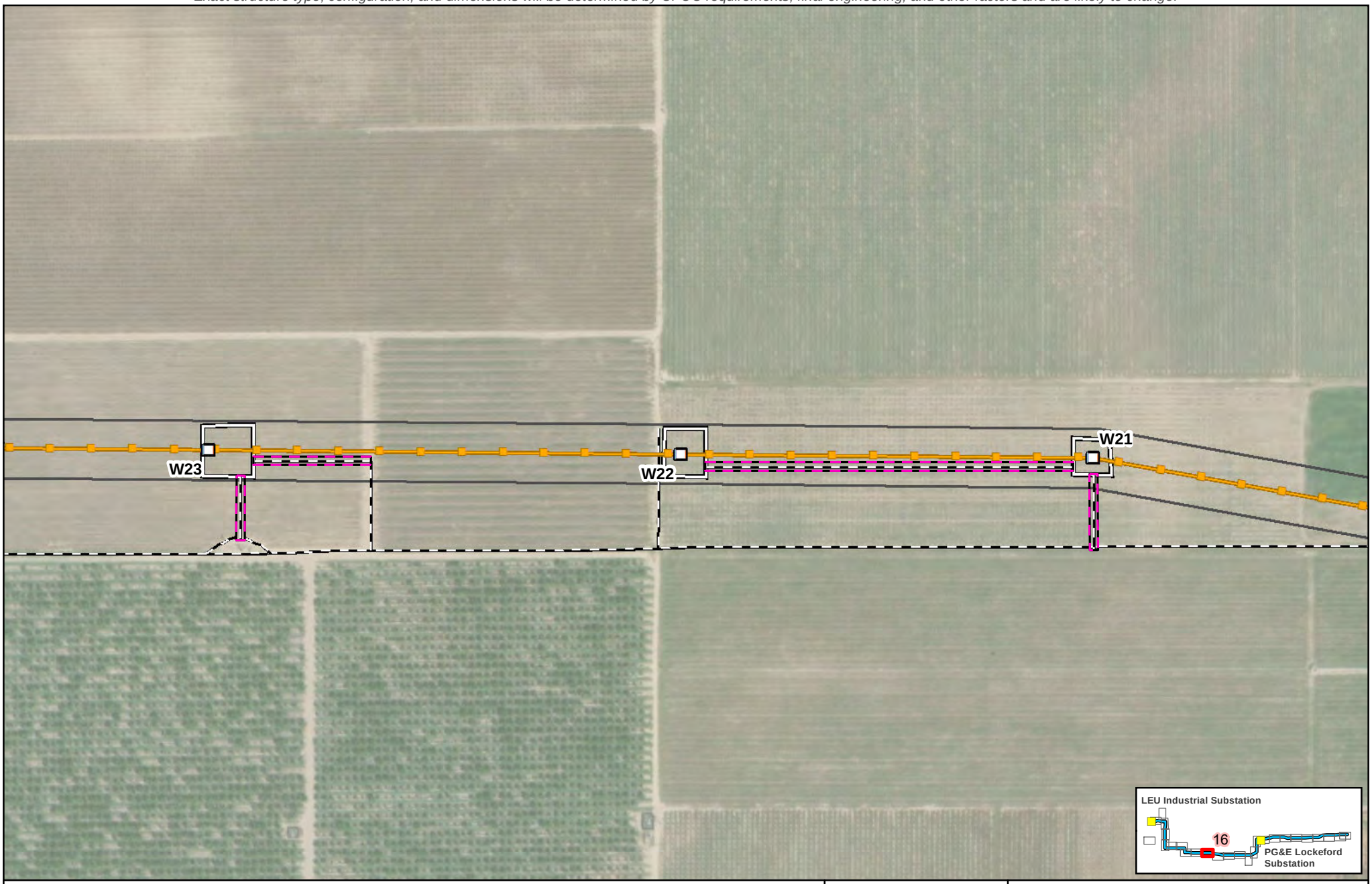
Scale: 1:3,000

FIGURE 3.5-1
Project Components and Construction Elements

Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend
- Proposed Structure
- PG&E New 230 kV Transmission Line
- Proposed PG&E 230 kV ROW
- Proposed Access Route
- New Impact - Crop removal
- Proposed Work Area

Source:
1) Esri World Imagery

N

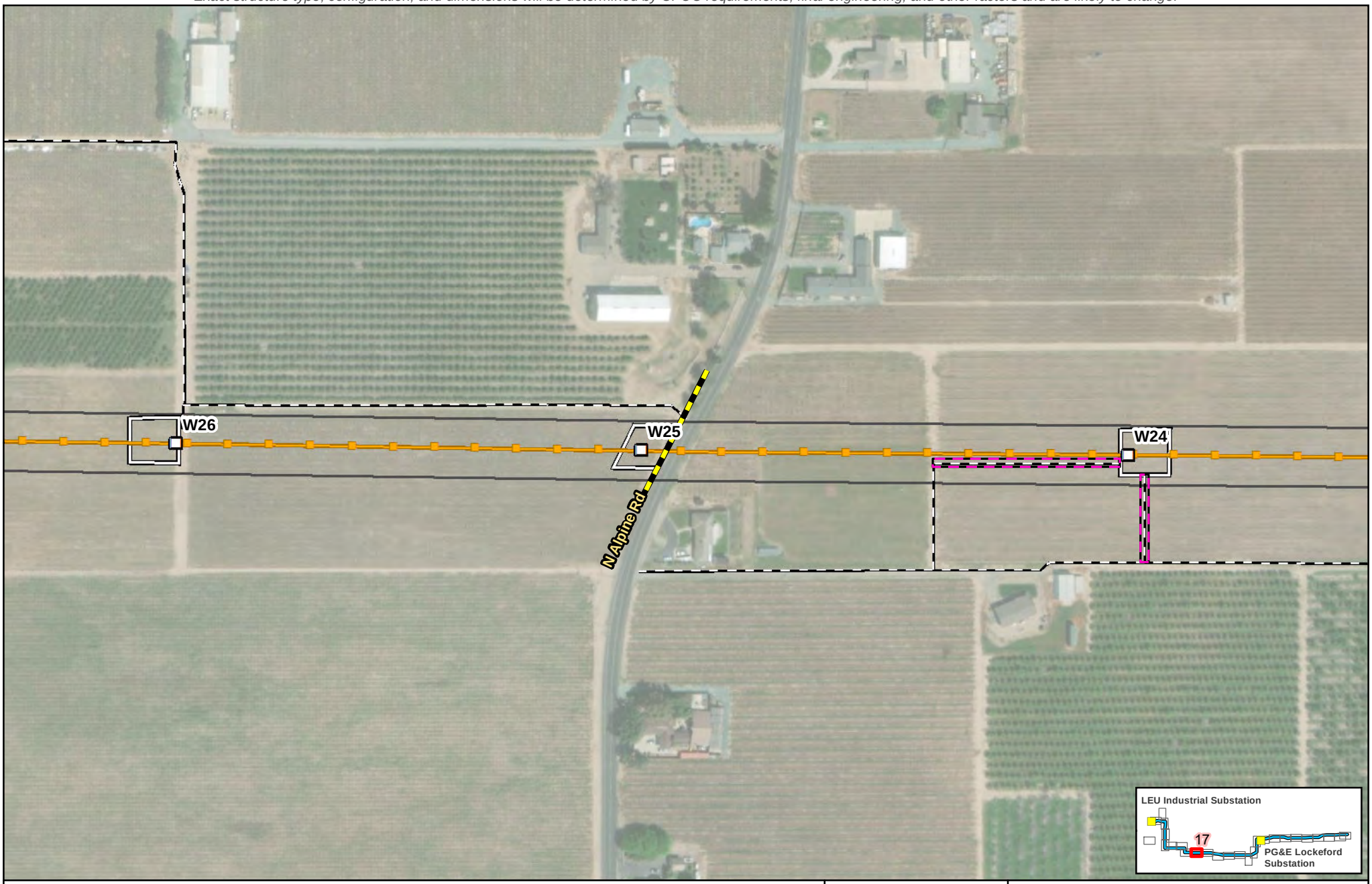
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Scale: 1:3,000

FIGURE 3.5-1
Project Components and Construction Elements
Page 16 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend
- Proposed Structure
- PG&E New 230 kV Transmission Line
- Proposed PG&E 230 kV ROW
- Proposed Access Route
- New Impact - Crop removal
- Proposed Work Area
- Existing Line Crossing

Source:
1) Esri World Imagery

N

0 100 Feet

Scale: 1:3,000

FIGURE 3.5-1
Project Components and Construction Elements

Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\ProjectDescription\Figure3.5-1_Project_Components_220901.mxd kgrant1 8/1/2023

Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend
- Proposed Structure
- PG&E New 230 kV Transmission Line
- Proposed PG&E 230 kV ROW
- Proposed Access Route
- Proposed Pull Site
- New Impact - Crop removal
- Proposed Work Area

Source:
1) Esri World Imagery

N

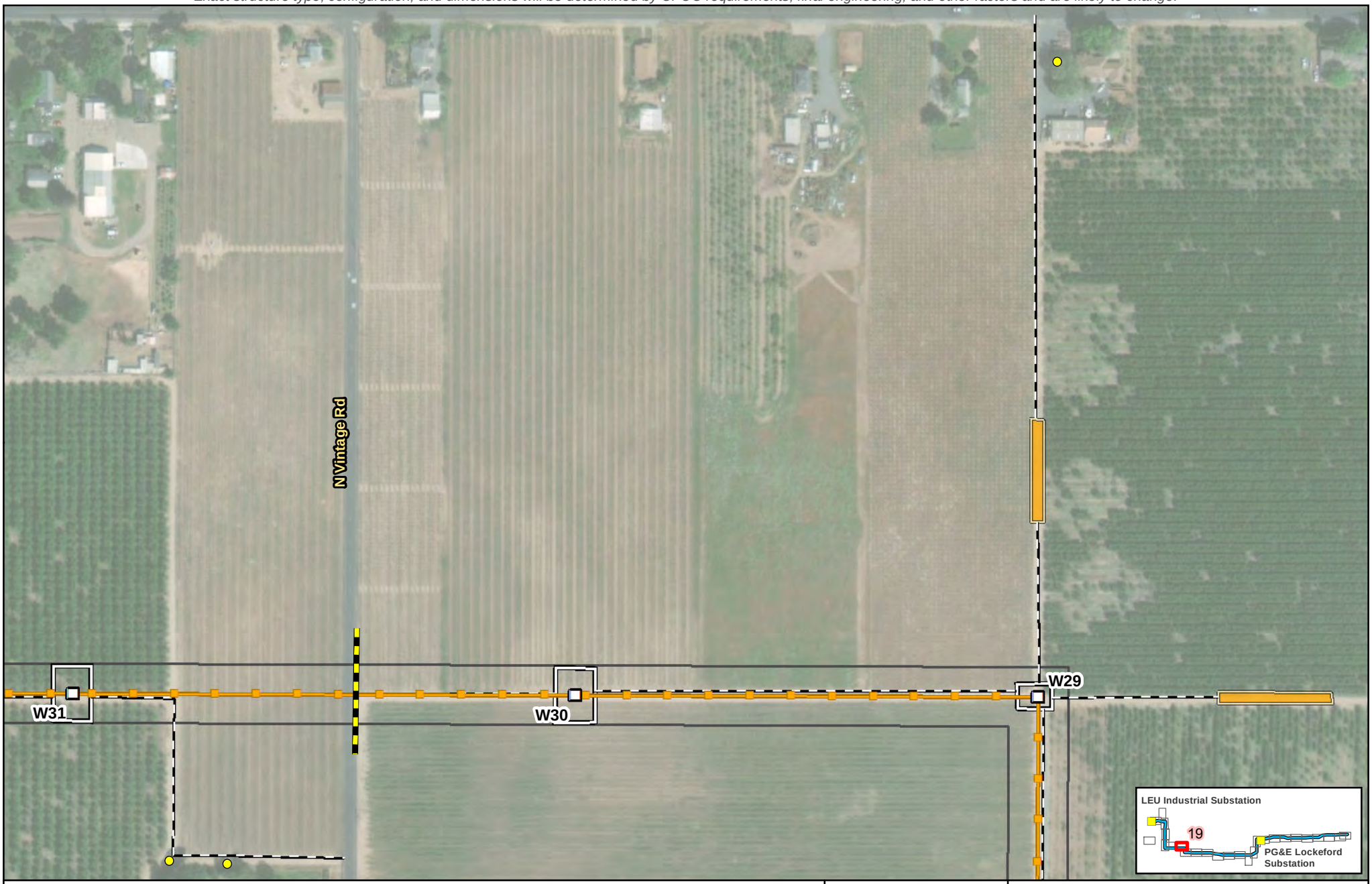
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Scale: 1:3,000

FIGURE 3.5-1
Project Components and Construction Elements
Page 18 of 26
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\ProjectDescription\Figure3.5-1_Project_Components_220901.mxd kgrant1 8/1/2023

Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Proposed Structure
- PG&E New 230 kV Transmission Line
- Proposed PG&E 230 kV ROW
- Proposed Access Route
- Proposed Pull Site
- Proposed Work Area
- Potential Tree Trimming or Removal
- Existing Line Crossing

Source:
1) Esri World Imagery

N

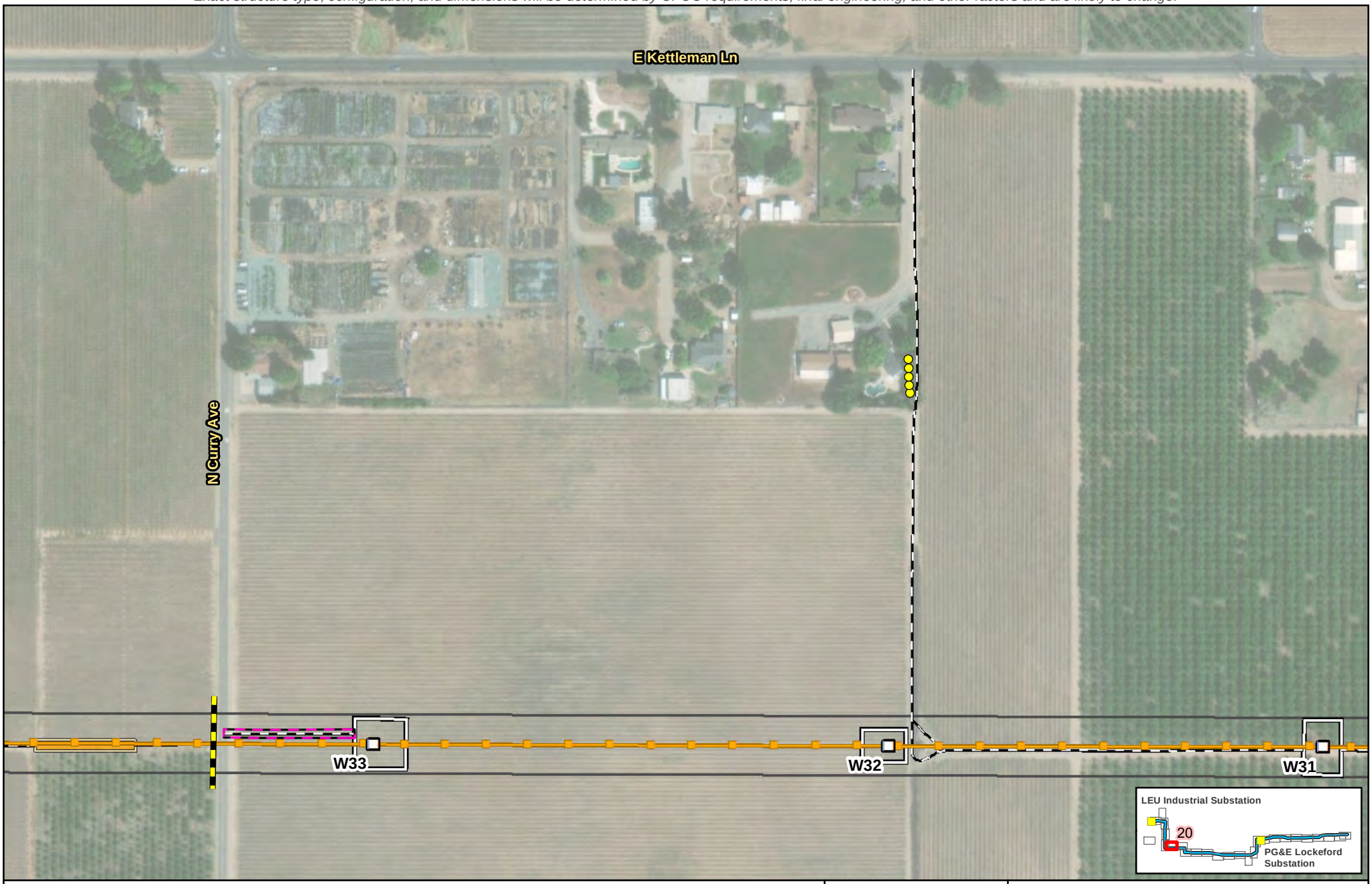
0 100 Feet

Scale: 1:3,000

FIGURE 3.5-1
Project Components and Construction Elements
Page 19 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Proposed Structure
- PG&E New 230 kV Transmission Line
- Proposed PG&E 230 kV ROW
- Proposed Access Route
- Proposed Pull Site
- New Impact - Crop removal
- Proposed Work Area
- Potential Tree Trimming or Removal
- Existing Line Crossing

Source:
1) Esri World Imagery

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0 100 Feet

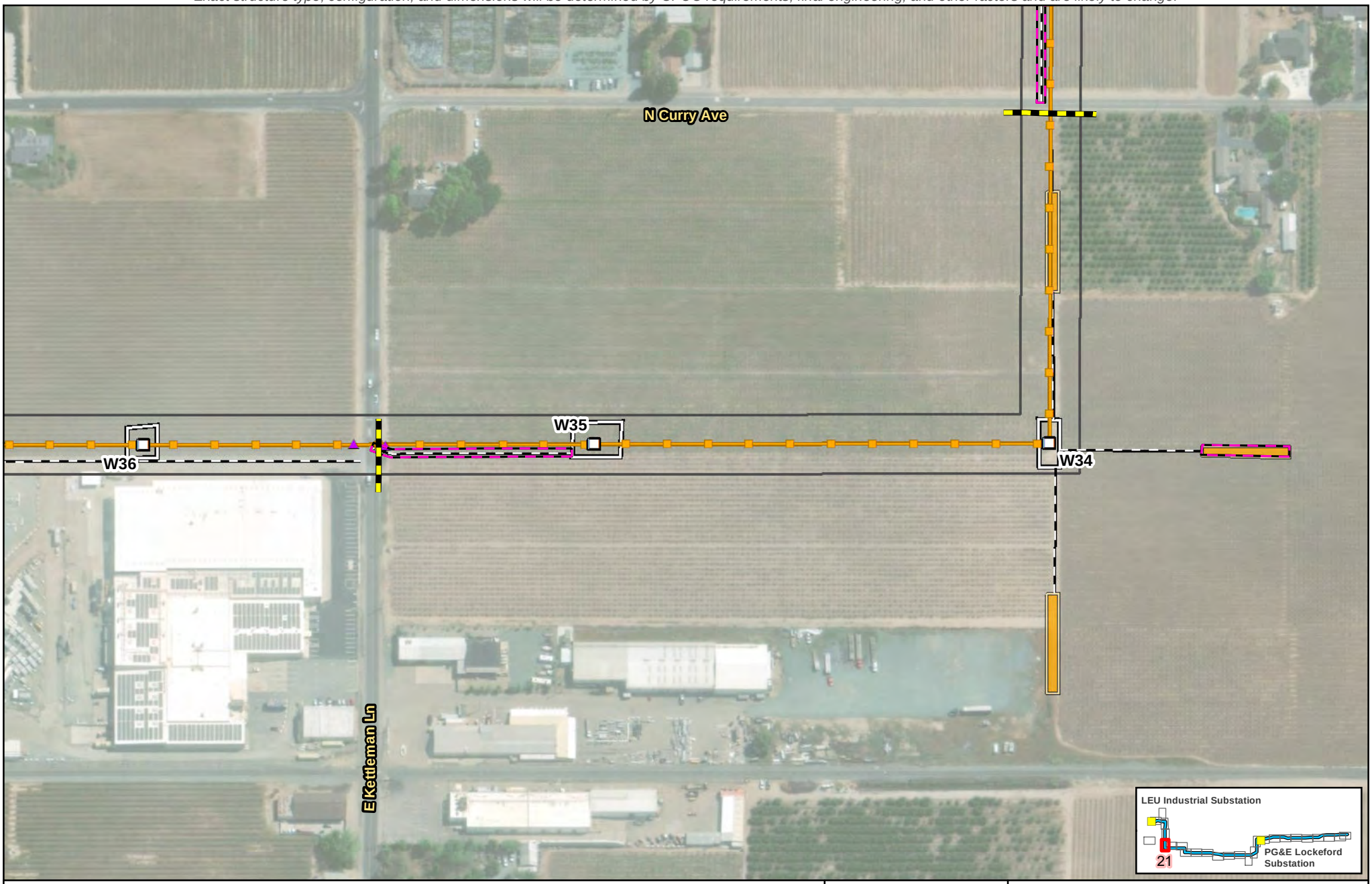
Scale: 1:3,000

FIGURE 3.5-1
Project Components and Construction Elements

Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\ProjectDescription\Figure3.5-1_Project_Components_220901.mxd kgrant1 8/1/2023

Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Proposed Structure
- PG&E New 230 kV Transmission Line
- Proposed PG&E 230 kV ROW
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Pull Site
- New Impact - Crop removal
- Proposed Work Area
- Existing Line Crossing

Source:
1) Esri World Imagery

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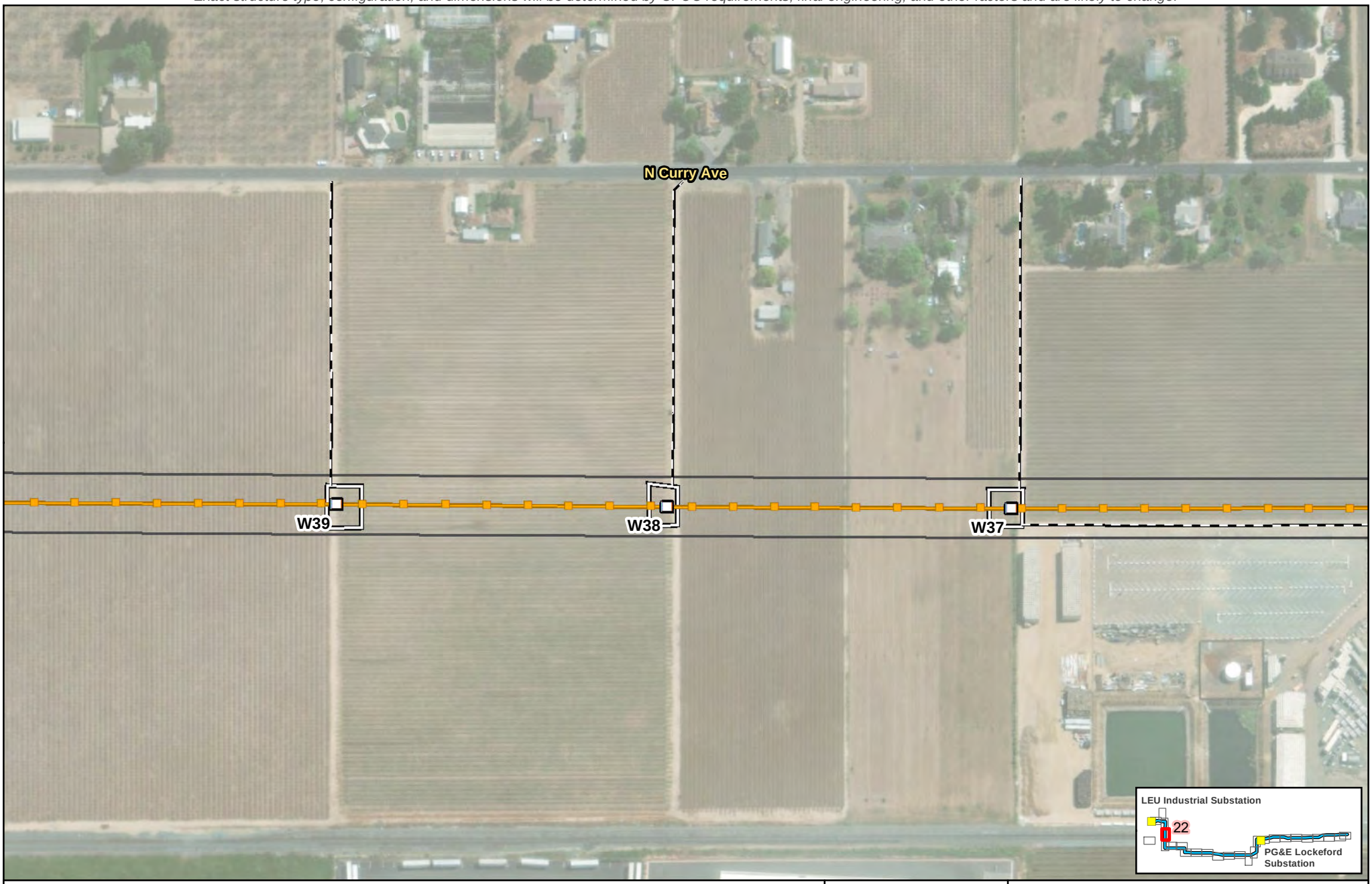
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Scale: 1:3,000

FIGURE 3.5-1
Project Components and Construction Elements
Page 21 of 26
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\ProjectDescription\Figure3.5-1_Project_Components_220901.mxd kgrant1 8/1/2023

Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend
- Proposed Structure
- PG&E New 230 kV Transmission Line
- Proposed PG&E 230 kV ROW
- Proposed Access Route
- Proposed Work Area

Source:
1) Esri World Imagery

N

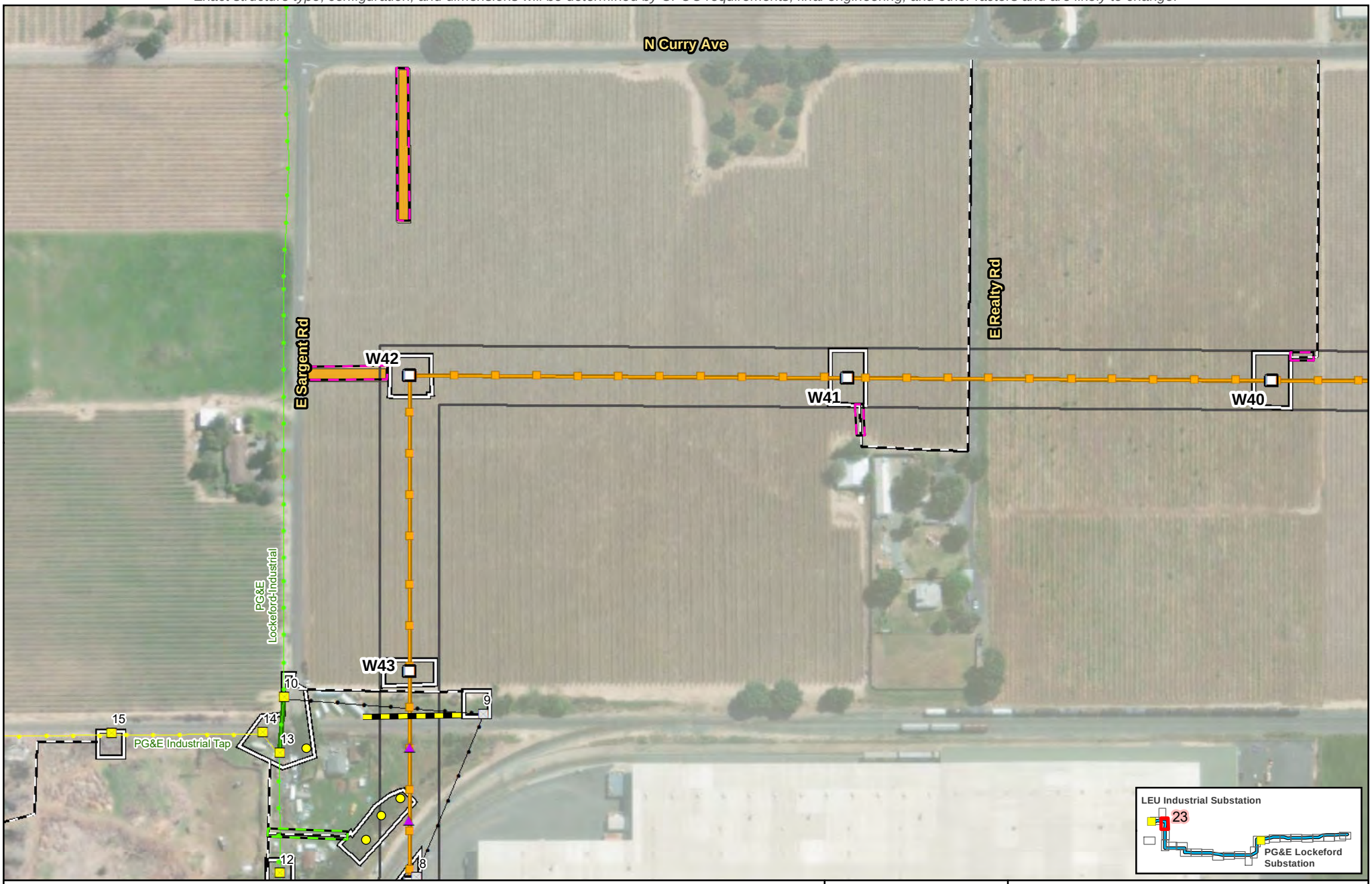
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Scale: 1:3,000

FIGURE 3.5-1
Project Components and Construction Elements
Page 22 of 26
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\ProjectDescription\Figure3.5-1_Project_Components_220901.mxd kgrant1 8/1/2023

Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Proposed Structure
- PG&E New 230 kV Transmission Line
- Proposed PG&E 230 kV ROW
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Pull Site
- New Impact - Crop removal
- New Impact - Overland
- Proposed Work Area
- Existing PG&E 60 kV Power Line
- New PG&E 60 kV Span
- Existing PG&E Distribution Line (60 kV portion removed)
- Existing PG&E 60 kV Power Line: Remove
- 60 kV Structure: Modify or Replace
- 60 kV Structure: Remove
- Potential Tree Trimming or Removal
- Existing Line Crossing

Source:
1) Esri World Imagery

N

0 100 Feet

Scale: 1:3,000

FIGURE 3.5-1
Project Components and Construction Elements
Page 23 of 26
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\ProjectDescription\Figure3.5-1_Project_Components_220901.mxd kgrant1 8/1/2023

Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend
- Proposed Access Route
- Proposed Work Area
- Existing PG&E 60 kV Power Line
- Existing PG&E Distribution Line (60 kV portion removed)
- 60 kV Structure: Modify or Replace
- Existing PG&E 12 kV Distribution Pole
- New Horizontal Guy Wire

Source:
1) Esri World Imagery

N

0 100 Feet

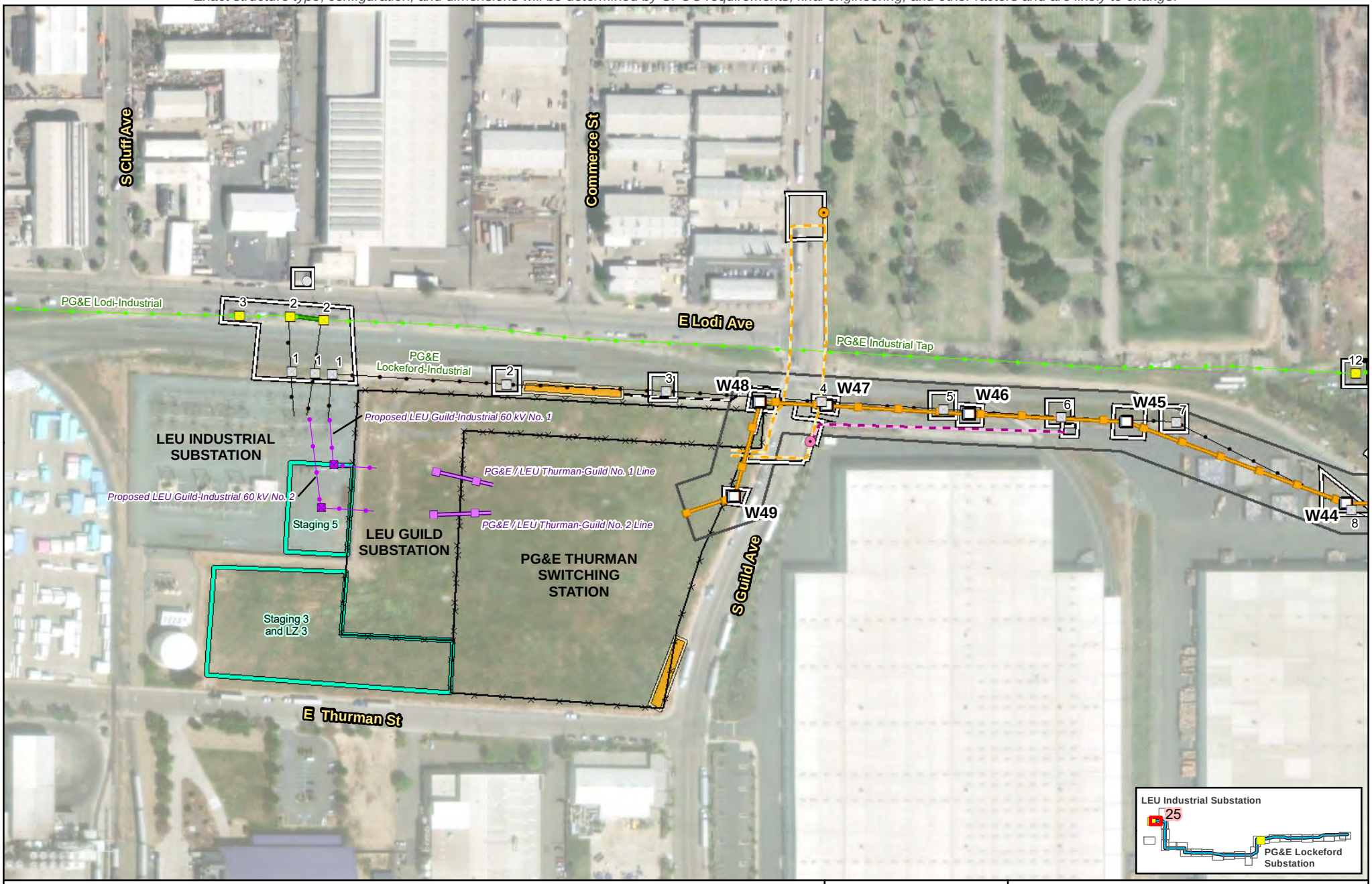
Scale: 1:3,000

FIGURE 3.5-1
Project Components and Construction Elements

Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\ProjectDescription\Figure3.5-1_Project_Components_220901.mxd kgrant1 8/1/2023

Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Proposed Structure
- PG&E New 230 kV Transmission Line
- Proposed PG&E / LEU Thurman-Guild 230 kV
- Proposed LEU Guild-Industrial 60 kV
- Proposed LEU 60 kV Pole
- Proposed PG&E 230 kV ROW
- Proposed Access Route
- Proposed Pull Site
- Proposed Work Area
- Proposed Fenceline
- Potential Staging Area
- Existing PG&E 60 kV Power Line
- New PG&E 60 kV Span
- Existing PG&E 60 kV Power Line: Remove
- 60 kV Structure: Modify or Replace
- 60 kV Structure: Remove
- Existing Guy Stub Pole: Remove
- Existing PG&E 12 kV Distribution Pole
- PG&E Thurman Switching Station Underground 12 kV Route Option
- Existing LEU 12 kV Distribution Pole
- Proposed LEU 12 kV Relocated Underground

Source:
1) Esri World Imagery

0 100 Feet

N

Scale: 1:3,000

FIGURE 3.5-1
Project Components and Construction Elements
Page 25 of 26
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\ProjectDescription\Figure3.5-1_Project_Components_220901.mxd kgrant1 8/1/2023

Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend
Potential Staging Area

Source:
1) Esri World Imagery

N

0 100 Feet

Scale: 1:3,000

FIGURE 3.5-1
Project Components and Construction Elements
Page 26 of 26
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\ProjectDescription\Figure3.5-1_Project_Components_220901.mxd kgrant1 8/1/2023

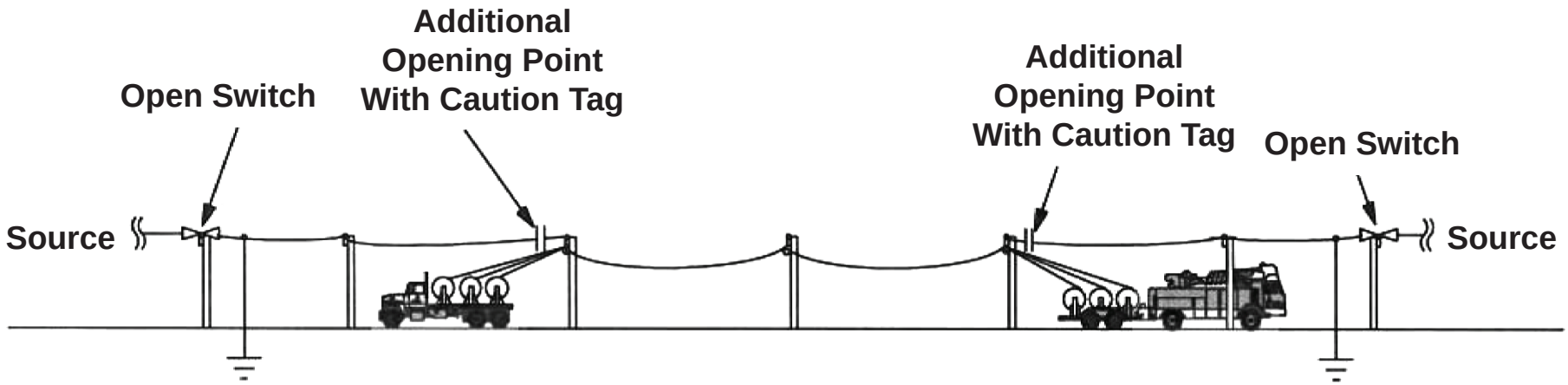
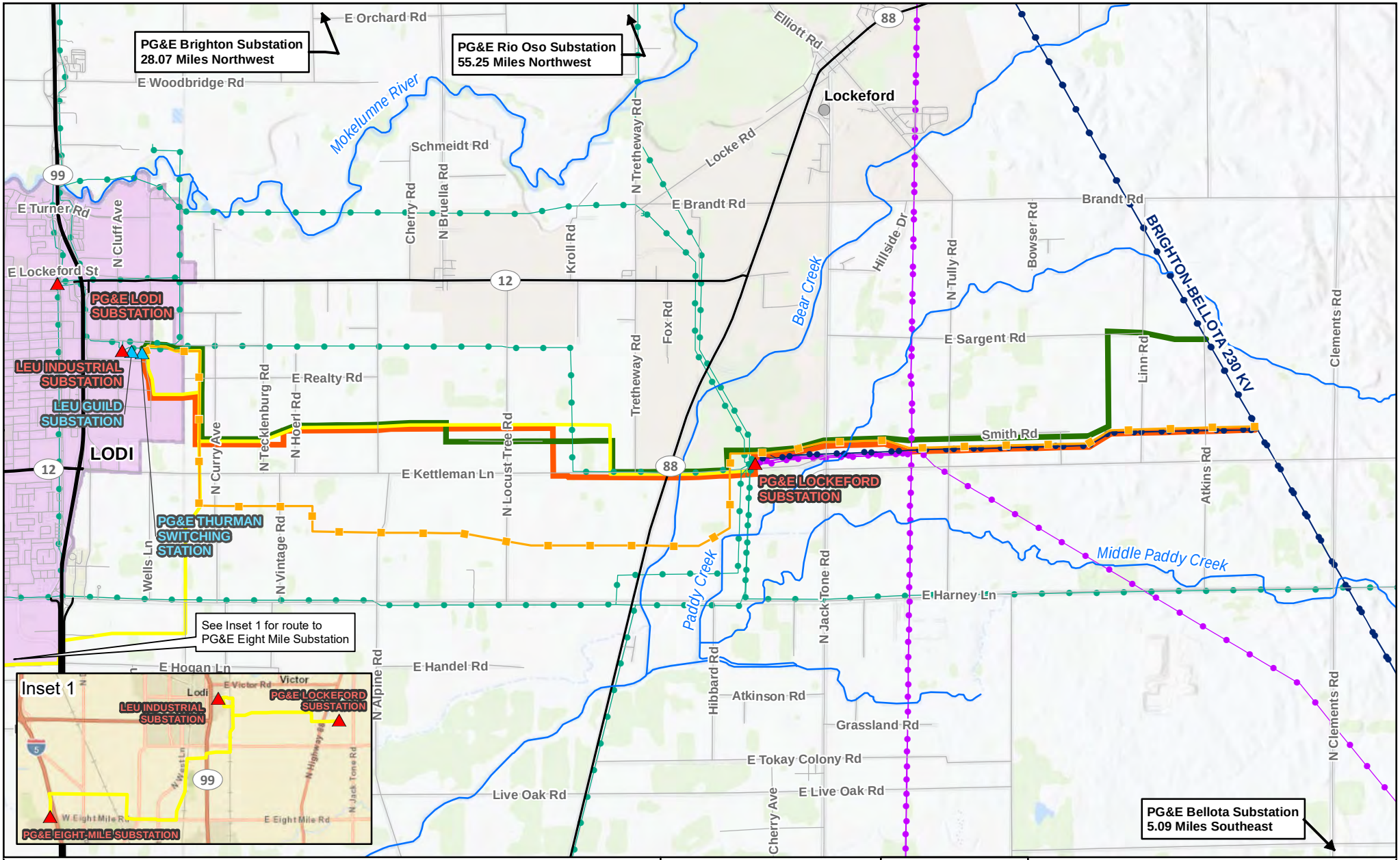


Figure 3.5-2
Typical Conductor Stringing
Northern San Joaquin 230 kV Transmission Project





Figure 3.5-3
Example Photos of Guard Structures
PG&E Northern San Joaquin 230 kV Transmission Project



Legend

- Exsting Substation
- New Substation/ Switch
- PG&E New 230 kV Transmission Line
- Major_Roads
- Local Road
- River/Stream
- City Boundary

Existing PG&E Power and Transmission Lines

- 60
- 115
- 230

Project Route Alternatives

- Central Route
- Northern Route
- Lockeford-Lodi Area 230 kV Development (Eight-Mile Substation)

Source:
1) Base Map Source: ESRI World Topo

Scale:
1:65,000

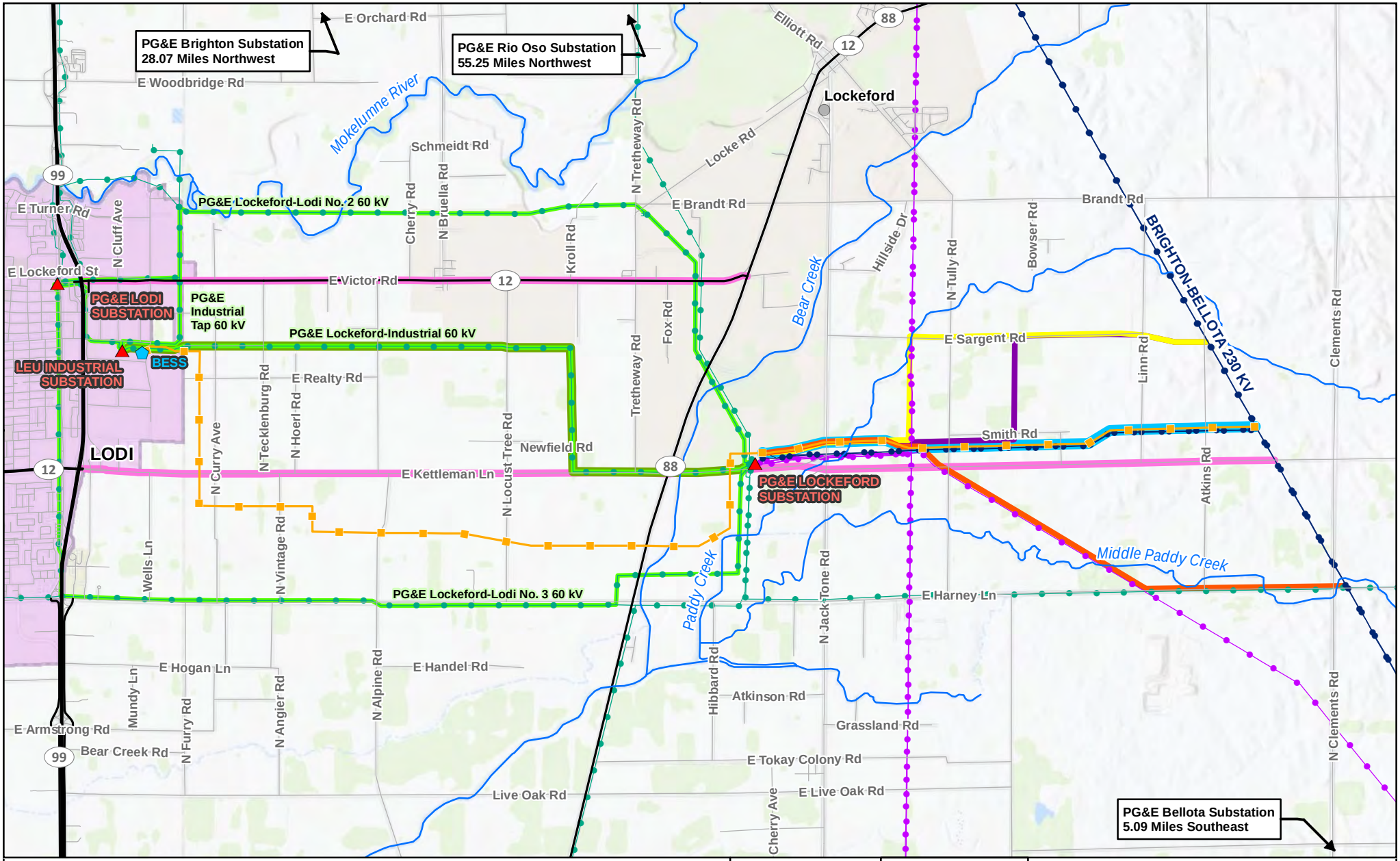
N

0 0.5 1 Miles

Project Location

FIGURE 4.1-1
Project Route Alternatives
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\Alternatives\Figure4.2-1_221212.mxd kgrant1 7/27/2023



Legend

- Exsting Substation
- PG&E New 230 kV Transmission Line
- Major_Roads
- Local Road
- River/Stream
- City Boundary

Existing PG&E Power and Transmission Lines

- 60
- 115
- 230

Project and Route Alternatives

- 60 kV Reconductoring
- 60 kV Upgrade to 115 kV
- Southern Route East
- Nothern Route East
- Tully Road Option

- Battery Energy Storage Solution (BESS)
- Hybrid BESS: New PG&E 230 kV Transmission Line
- Road Alignment Alternatives

Source:
1) Base Map Source: ESRI World Topo

N

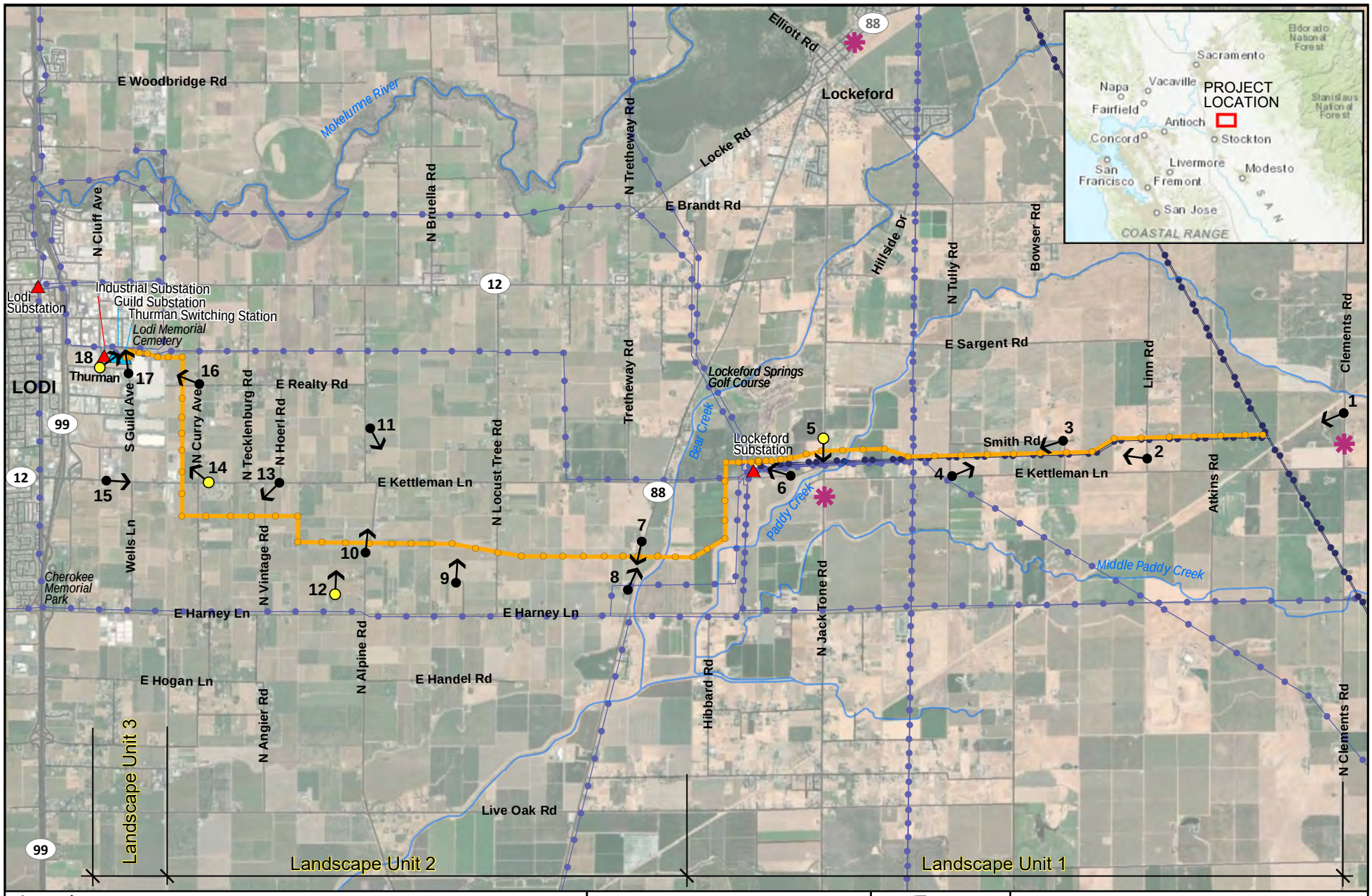
0 0.25 0.5
Miles

Scale: 1:65,000

Project Location

FIGURE 4.4-1
Rejected Project Alternatives
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\Alternatives\Figure4.4-1_221228.mxd kgrant1 7/27/2023



Legend

- Northern San Joaquin 230 kV
- Existing Transmission Lines
- Existing Power Lines
- Existing Substation
- New Substation/ Switching Station
- 1 Photograph Viewpoint Location and Direction
- 5 KOP Simulation Viewpoint Location and Direction
- County Scenic Route

Base Map Source: ESRI 2021

0 0.5 1 Miles

N

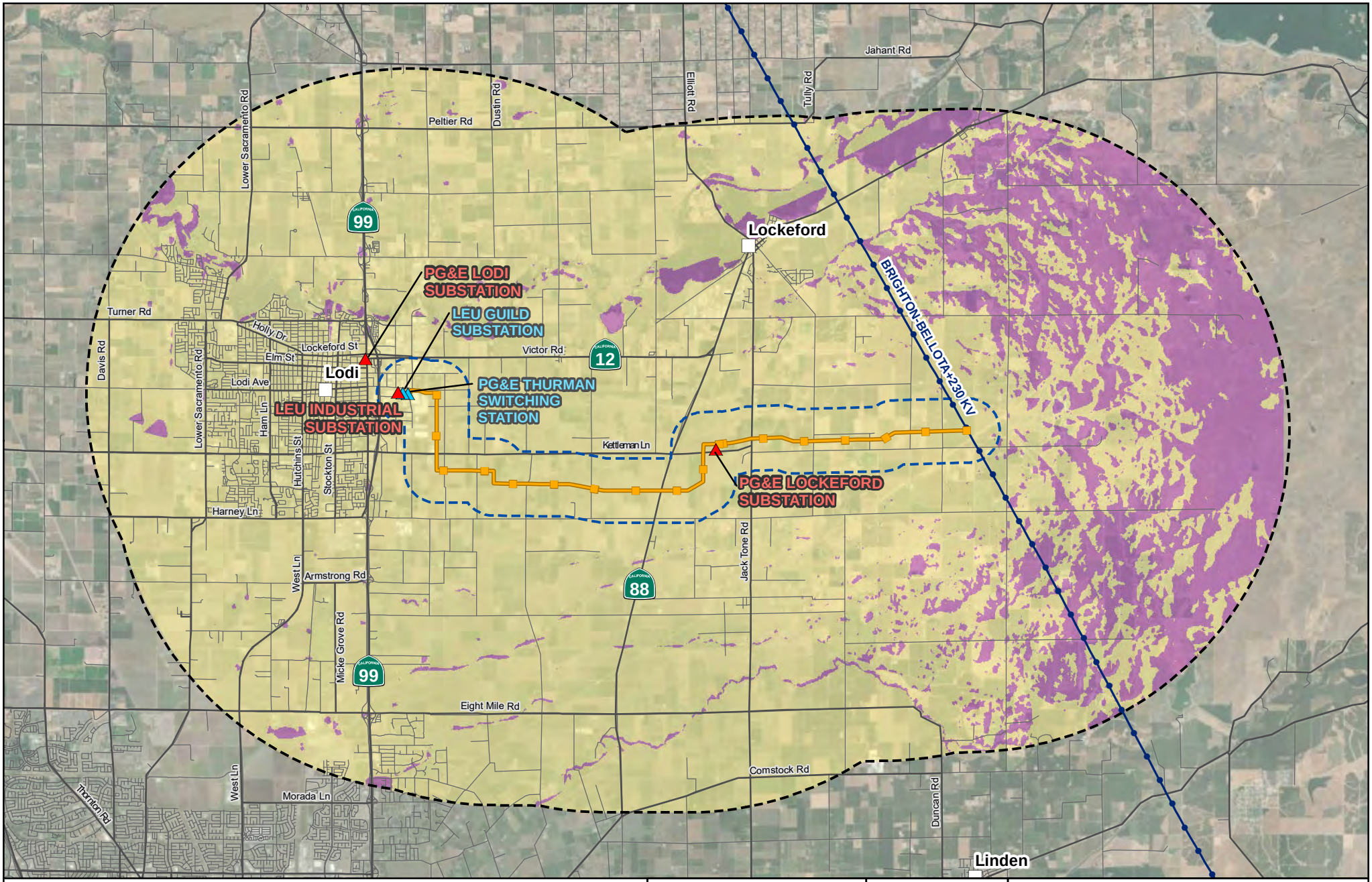
ENVIRONMENTAL VISION

Project Location

Figure 5.1-1a
Photograph Viewpoint Locations
Northern San Joaquin 230 kV Transmission Project

Jacobs

111521



Legend

- Existing Substation
- New Substation/ Switch
- Northern San Joaquin 230 kV
- Existing 230 kV Transmission Line

Potential Project Visibility

- Project Structures Not Visible
- Project Structures Potentially Visible

Distance Zones

- 0.5-mile Project Radius
- 5-mile Project Radius

Source:
1) ESRI World Imagery

N

0 1 2 Miles

Project Location

FIGURE 5.1-1b
Viewshed Analysis
Northern San Joaquin 230 kV Transmission Project



Existing view from North Jack Tone Road near East Kettleman Lane looking south (KOP 5)

Refer to Figure 5.1-1a for viewpoint location

Figure 5.1-3a
Existing View - Jack Tone Road
Northern San Joaquin 230 kV Transmission Project

ENVIRONMENTAL VISION
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Visual simulation of proposed project (KOP 5)

Refer to Figure 5.1-1a for viewpoint location

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Figure 5.1-3b
Visual Simulation - Jack Tone Road
Northern San Joaquin 230 kV Transmission Project



Existing view from 12. Mettler Family Vineyards at East Harney Lane looking north (KOP 12)

Refer to Figure 5.1-1a for viewpoint location

Figure 5.1-4a
Existing View - Mettler Vineyards
Northern San Joaquin 230 kV Transmission Project

ENVIRONMENTAL VISION
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Visual simulation of proposed project (KOP 12)

Refer to Figure 5.1-1a for viewpoint location

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Figure 5.1-4b
Visual Simulation - Mettler Vineyards
Northern San Joaquin 230 kV Transmission Project



Existing view from East Kettleman Lane near North Curry Avenue looking northwest (KOP 14)

Refer to Figure 5.1-1a for viewpoint location

Figure 5.1-5a
Existing View - Kettleman Lane
Northern San Joaquin 230 kV Transmission Project

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Visual simulation of proposed project (KOP 14)

Refer to Figure 5.1-1a for viewpoint location

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Figure 5.1-5b
Visual Simulation - Kettleman Lane
Northern San Joaquin 230 kV Transmission Project



Existing view from East Thurman Road looking northeast (KOP 18)

Refer to Figure 5.1-1a for viewpoint location

Figure 5.1-6a
Existing View - Thurman Road
Northern San Joaquin 230 kV Transmission Project

ENVIRONMENTAL VISION
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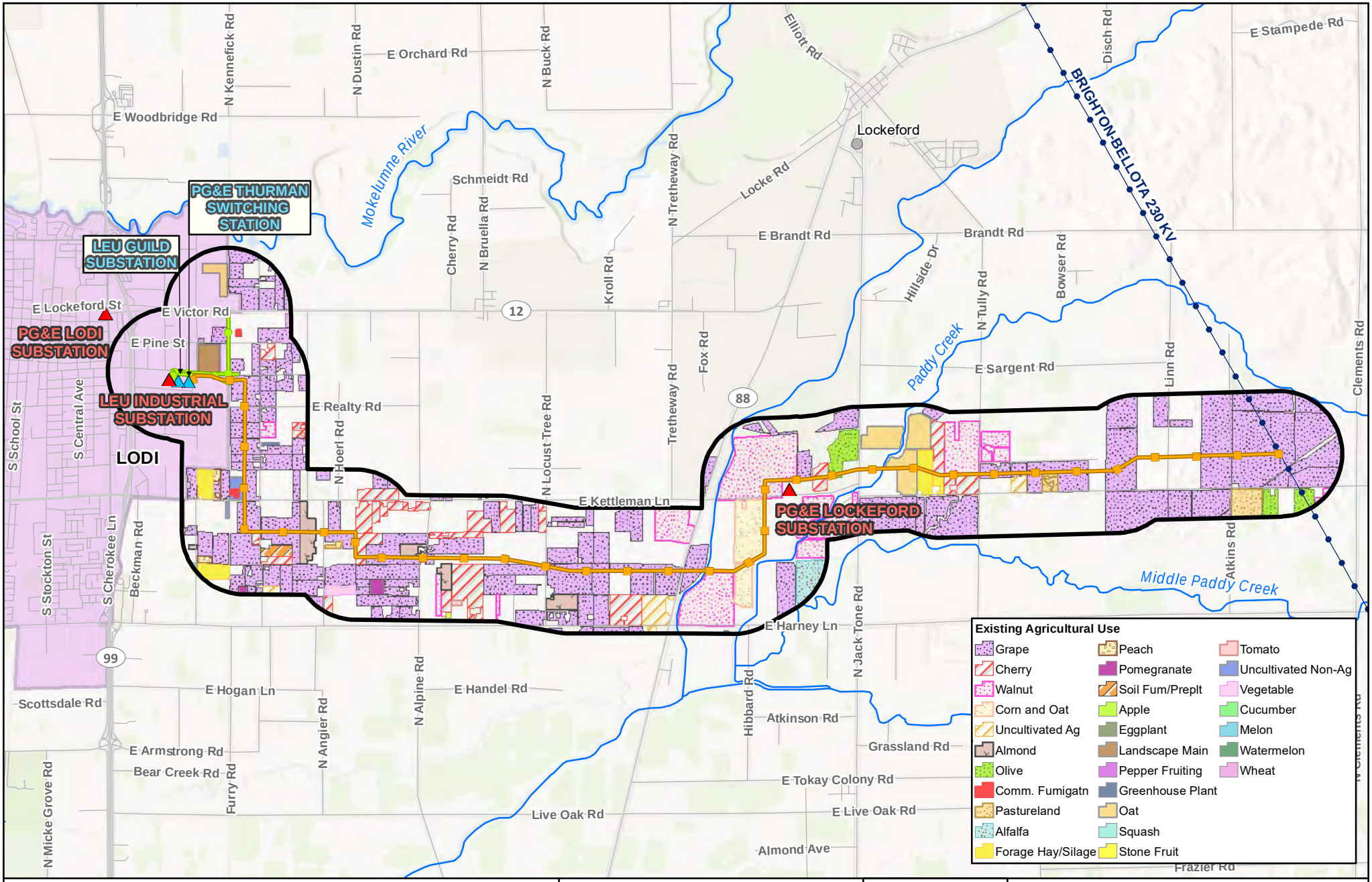


Visual simulation of proposed project (KOP 18)

Refer to Figure 5.1-1a for viewpoint location

ENVIRONMENTAL VISION
111521

Figure 5.1-6b
Visual Simulation - Thurman Road
Northern San Joaquin 230 kV Transmission Project



Legend

- Exsting Substation
- New Substation/ Switching Station
- Northern San Joaquin 230 kV
- Existing 60 kV Power Line Modification
- 230 kV Existing Transmission Line
- Half-mile Radius Around Project Components
- City Boundary
- State Highway
- Local Road
- River/Stream

Source:
1) San Joaquin County Office of the Agricultural Commissioner 2021 agricultural crop data

0 1 Miles

N

Scale: 1:65,000

Project Location

FIGURE 5.2-1
Agricultural Resources
Northern San Joaquin 230 kV Transmission Project

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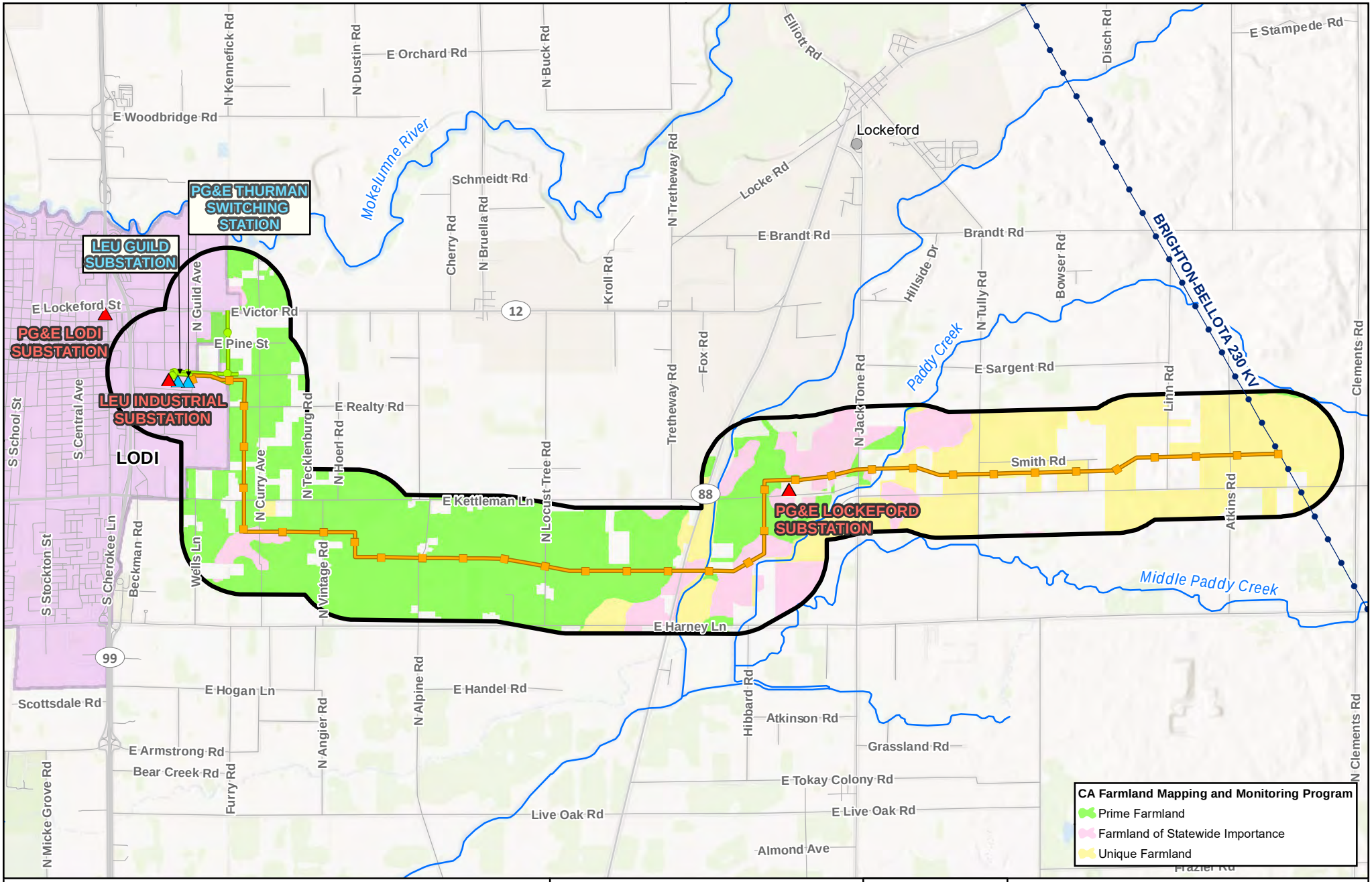
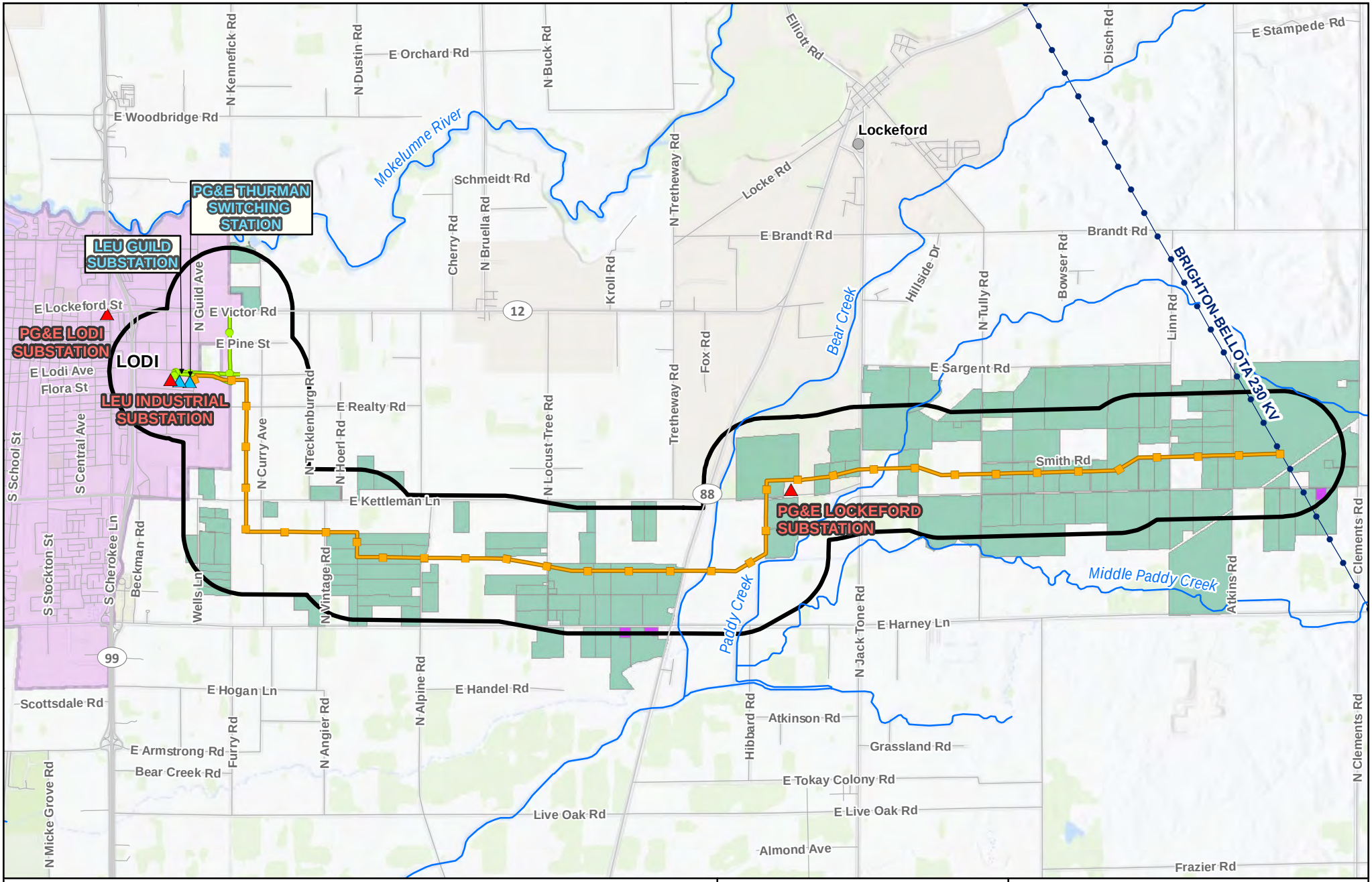


FIGURE 5.2-2
Important Farmland
Northern San Joaquin 230 kV Transmission Project

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Legend

- New Substation/Switch
- Existing Substation
- Northern San Joaquin 230 kV
- Existing 60 kV Power Line Modification
- 230 kV Existing Transmission Line
- Half-mile Radius Around Project Components
- Williamson Act (WA) Parcel
- WA Parcel (Non-renewal)
- City Boundary
- State Highway
- Local Road
- River/Stream

Sources:
1) Base Map Source: ESRI World Topo
2) San Joaquin County Assessor, 2021

N

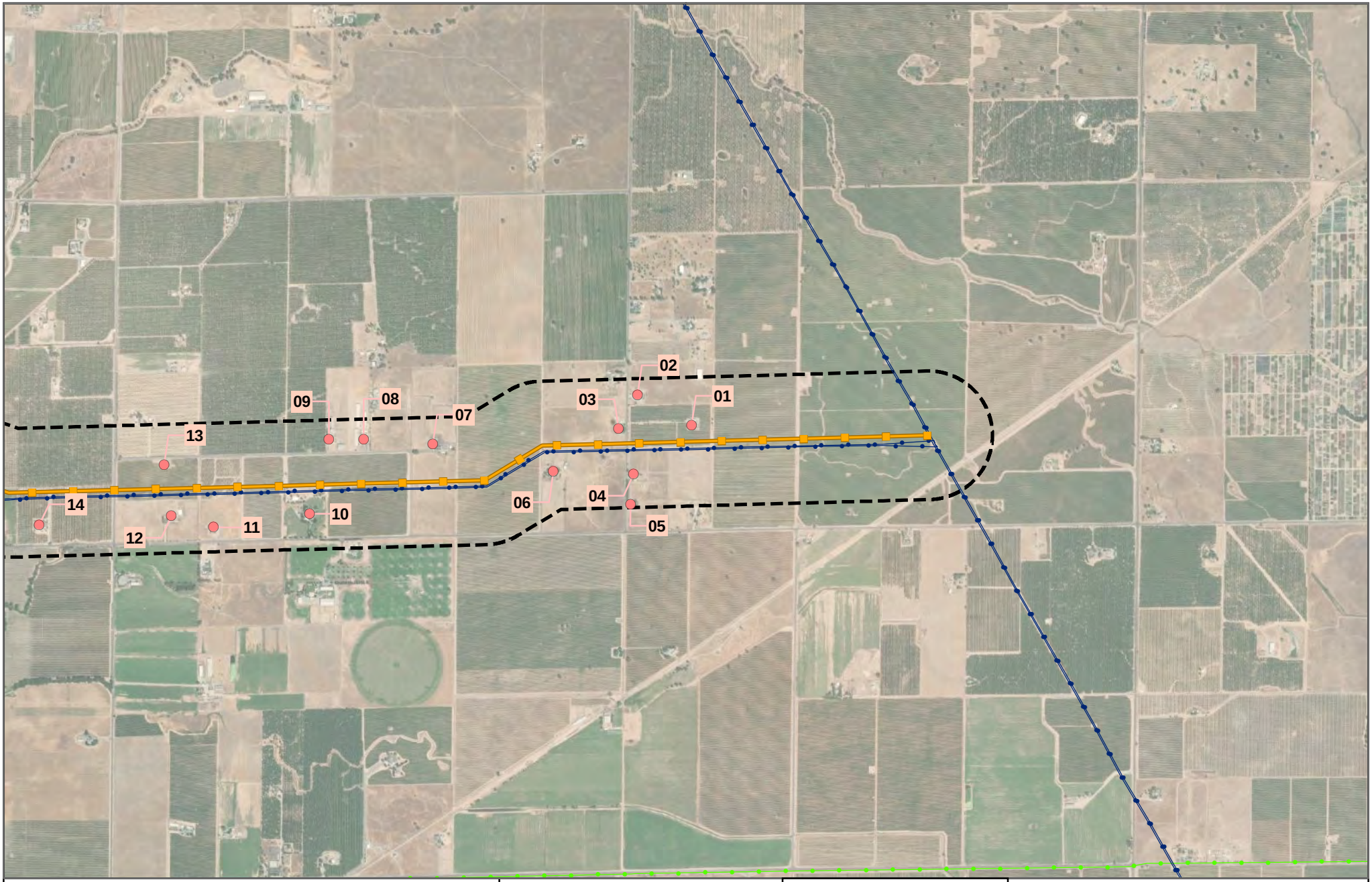
0 0.5 1 Miles

Scale: 1:65,000

FIGURE 5.2-3
Williamson Act Parcels Map
Northern San Joaquin 230 kV Transmission Project

PG&E

\\Dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\Agricultural\Figure5.2-3_Williamson_Act.mxd kgrant1 7/27/2023



Legend

- PG&E New 230 kV Transmission Line
- Existing 230 kV Transmission Line
- Existing 60 kV Power Line
- 1,000-foot Radius Around Alignment

Sensitive Receptors

- Residential

Source:
1) ESRI World Imagery

0 1,000 2,000 Feet

N

Scale:
1:24,000

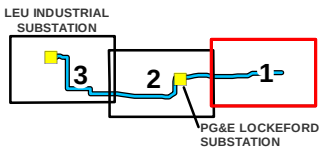


FIGURE 5.3-1
Sensitive Receptor Locations
Northern San Joaquin 230 kV Transmission Project

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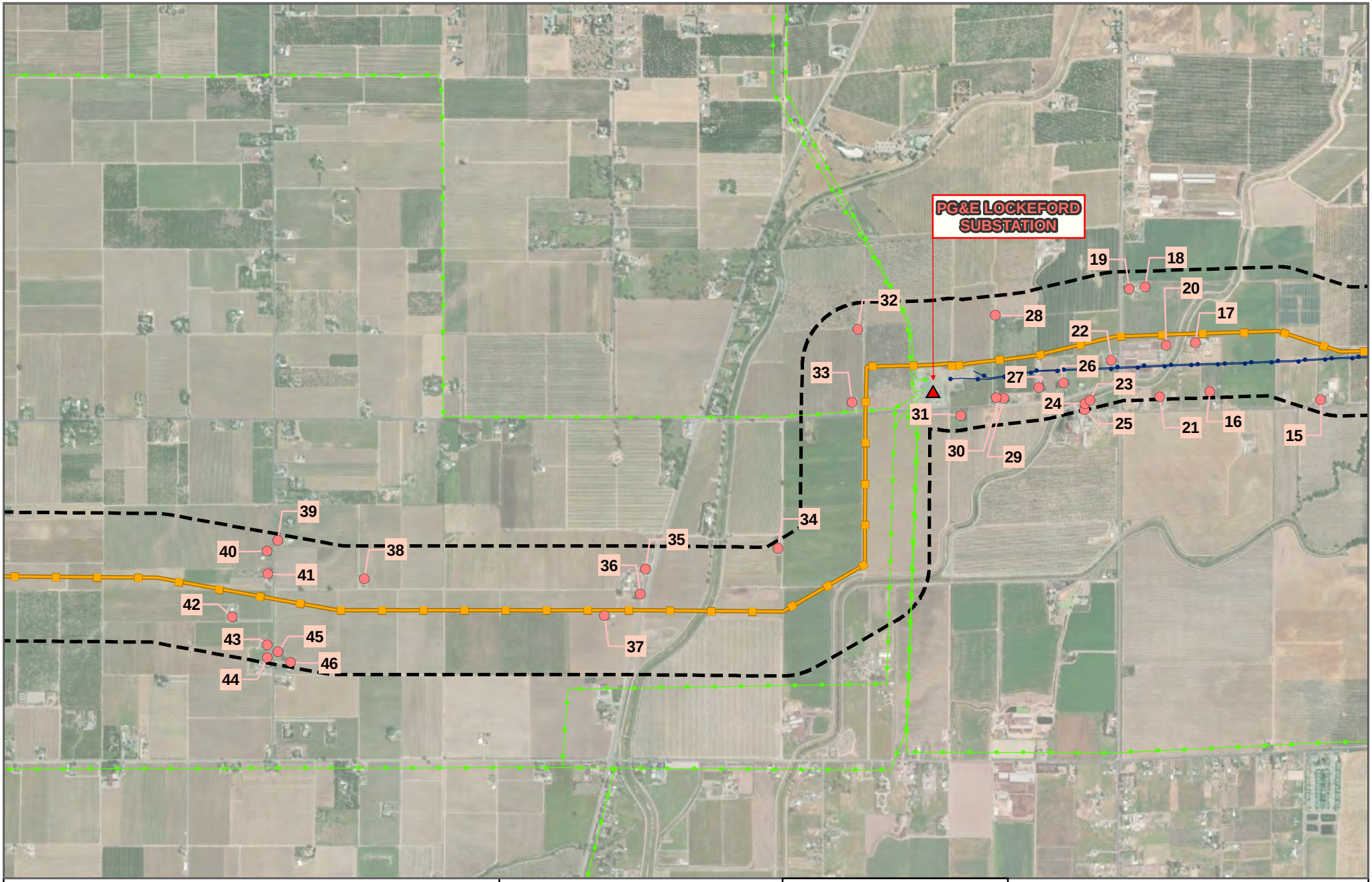
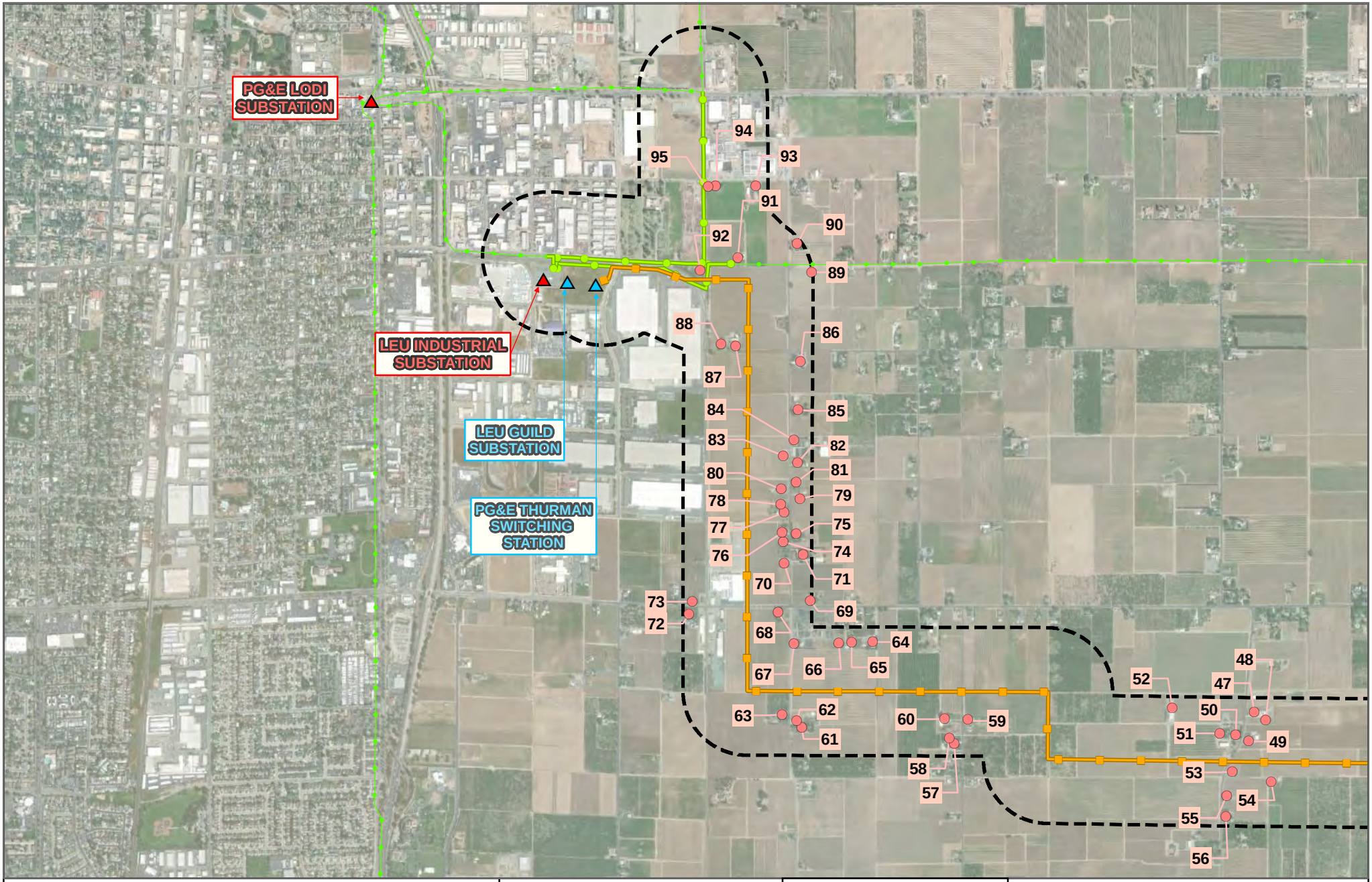


FIGURE 5.3-1
Sensitive Receptor Locations
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\GISProj\P\PGE\NSJPC\MapFiles\PEA\Sensitive_Receptors\5.3-1_Sensitive_Receptor_Locations_220828.mxd kgrant1 7/27/2023



Legend

- Exsting Substation
- New Substation/ Switching Station
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line Modification
- Existing 60 kV Power Line
- 1,000-foot Radius Around Alignment

Sensitive Receptors

- Residential

Source:
1) ESRI World Imagery

0 1,000 2,000 Feet

N

Scale: 1:24,000

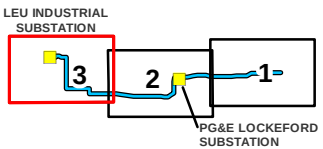
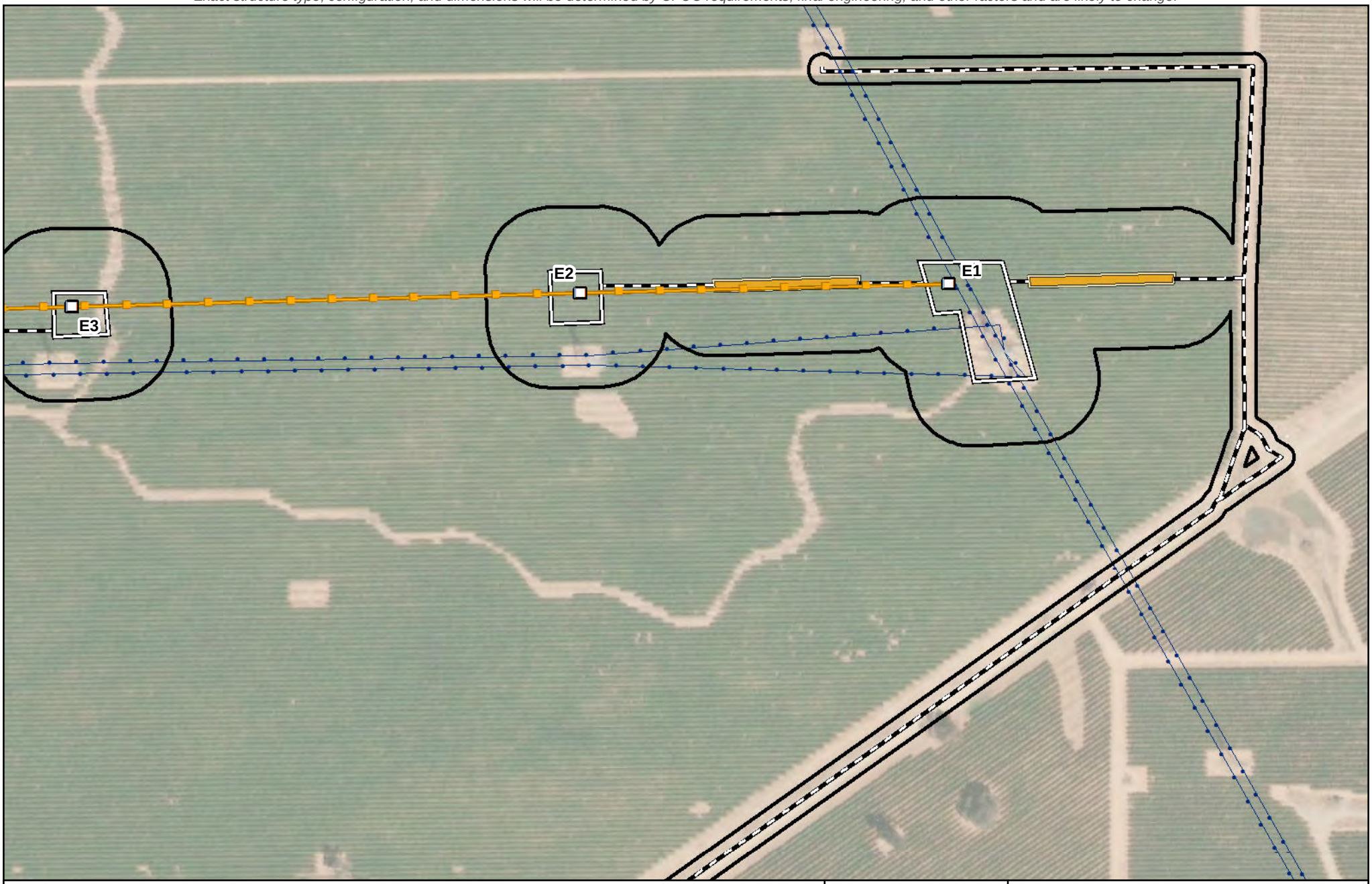


FIGURE 5.3-1
Sensitive Receptor Locations
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.

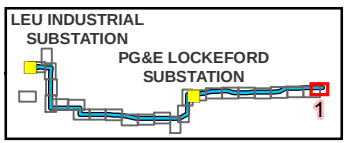


Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area



Source:
1) Esri World Imagery

N

0 100 Feet

Scale: 1:3,000

FIGURE 5.4-1
Project Components and Biological Study Area
Page 1 of 26
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\BiologicalResources\Figure_5.4-1_230730.mxd kgrant1 8/1/2023

Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.

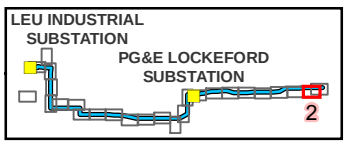


Legend

- Biological Study Area (387.06 acres)
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- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
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- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area



Source:
1) Esri World Imagery

0 100 Feet

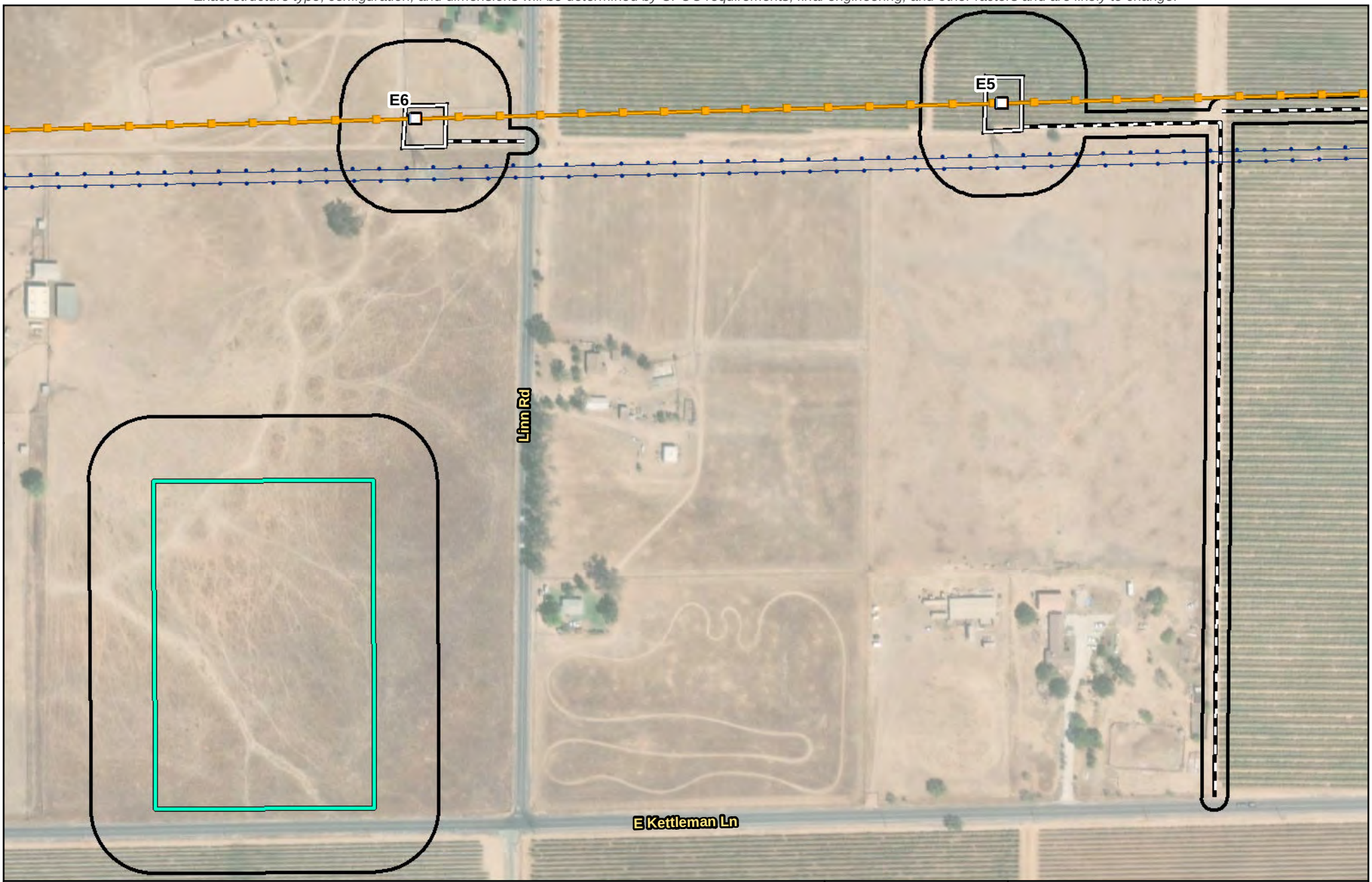
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Scale: 1:3,000

FIGURE 5.4-1
Project Components and Biological Study Area
Page 2 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

LEU INDUSTRIAL SUBSTATION
PG&E LOCKEFORD SUBSTATION
3

Source:
1) Esri World Imagery

N

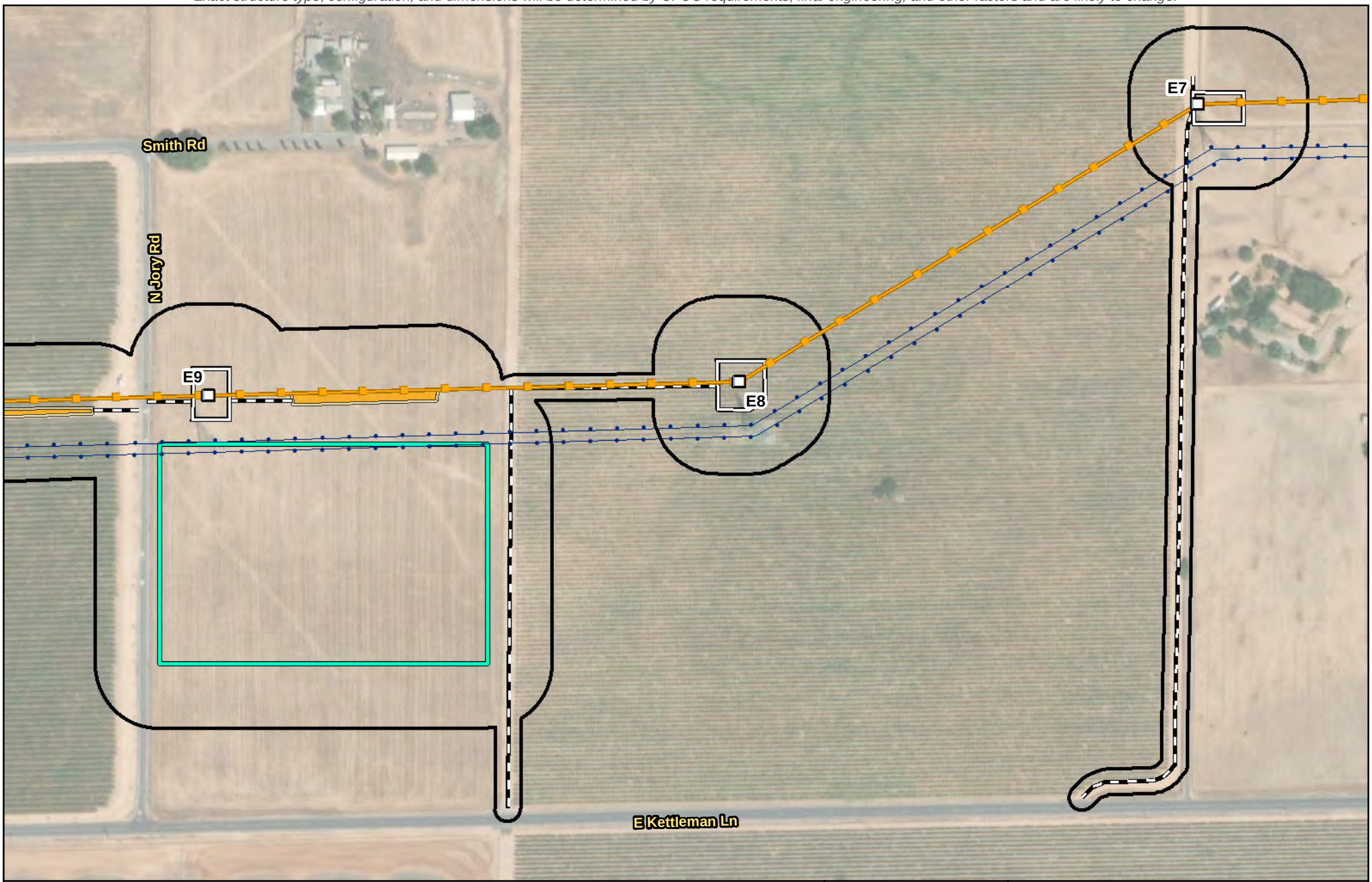
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Scale: 1:3,000

FIGURE 5.4-1
Project Components and Biological Study Area
Page 3 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.

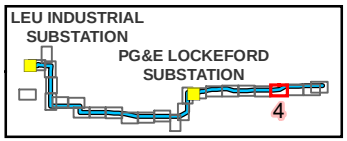


Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area



Source:
1) Esri World Imagery

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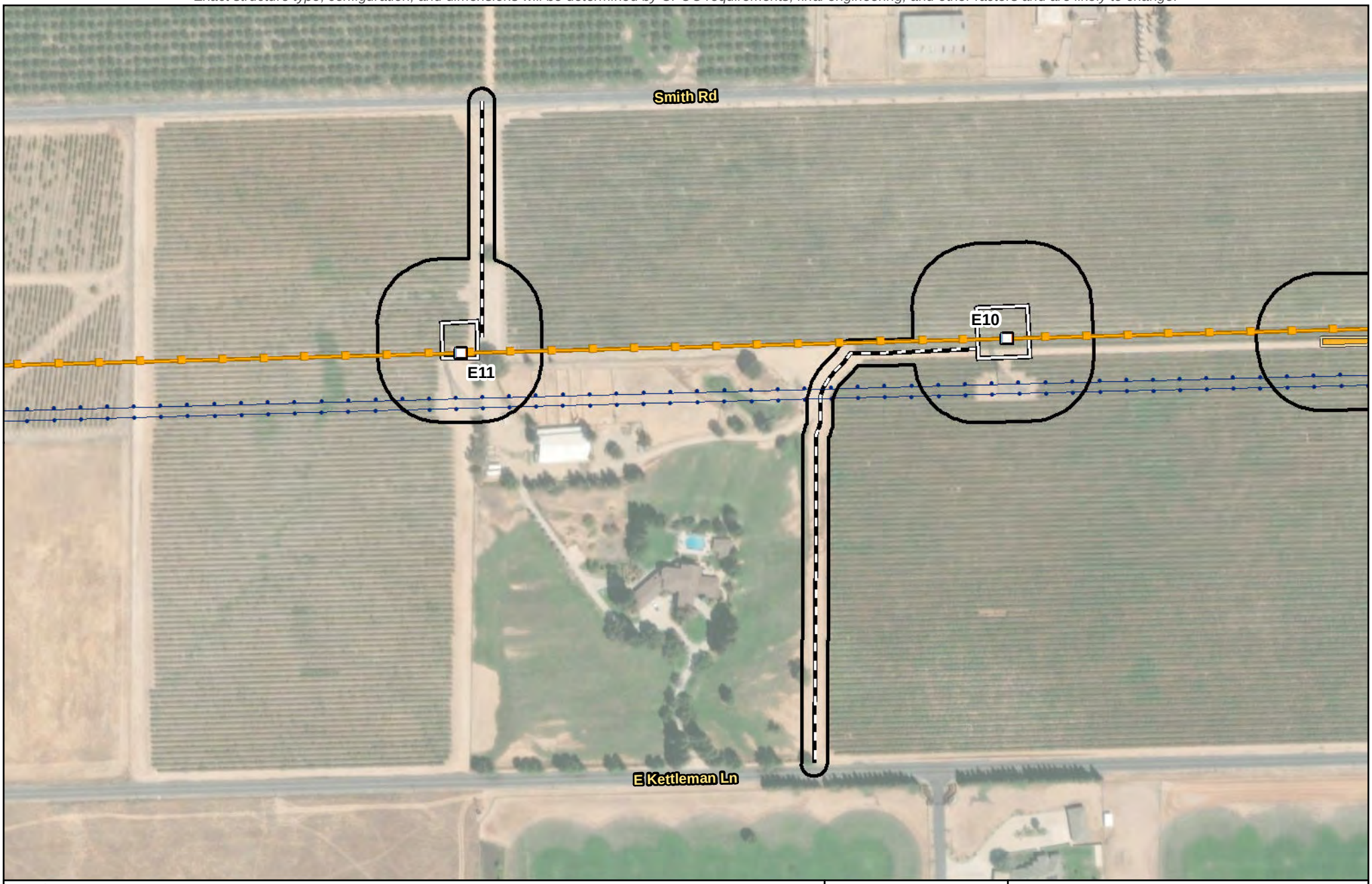
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Scale: 1:3,000

FIGURE 5.4-1
Project Components and Biological Study Area
Page 4 of 26
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\BiologicalResources\Figure_5.4-1_230730.mxd kgrant1 8/1/2023

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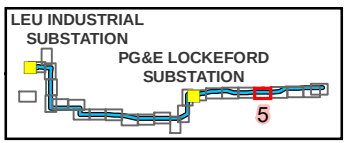


Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area



Source:
1) Esri World Imagery

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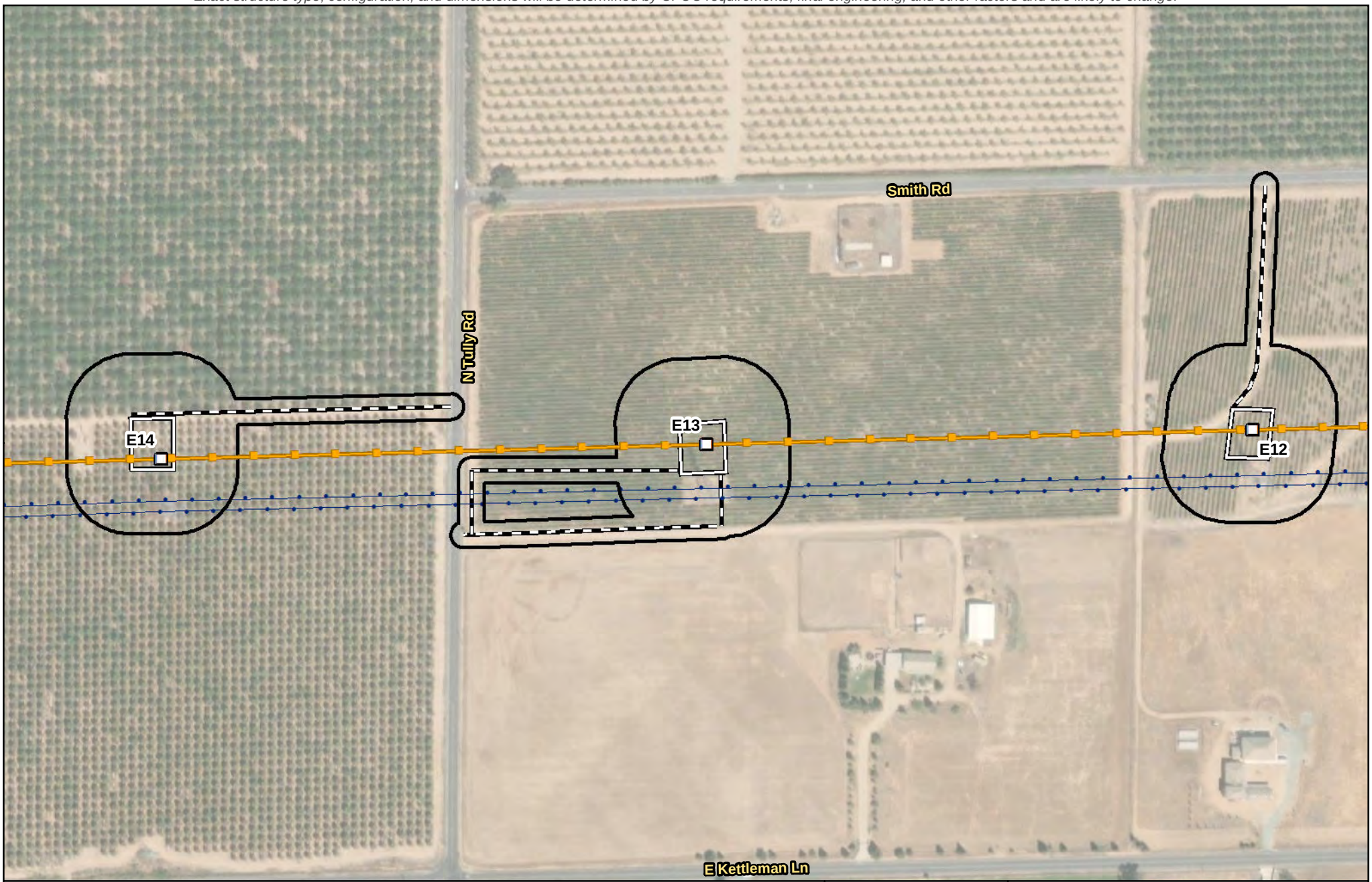
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Scale: 1:3,000

FIGURE 5.4-1
Project Components and Biological Study Area
Page 5 of 26
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\BiologicalResources\Figure_5.4-1_230730.mxd kgrant1 8/1/2023

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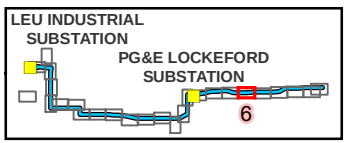


Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area



Source:
1) Esri World Imagery

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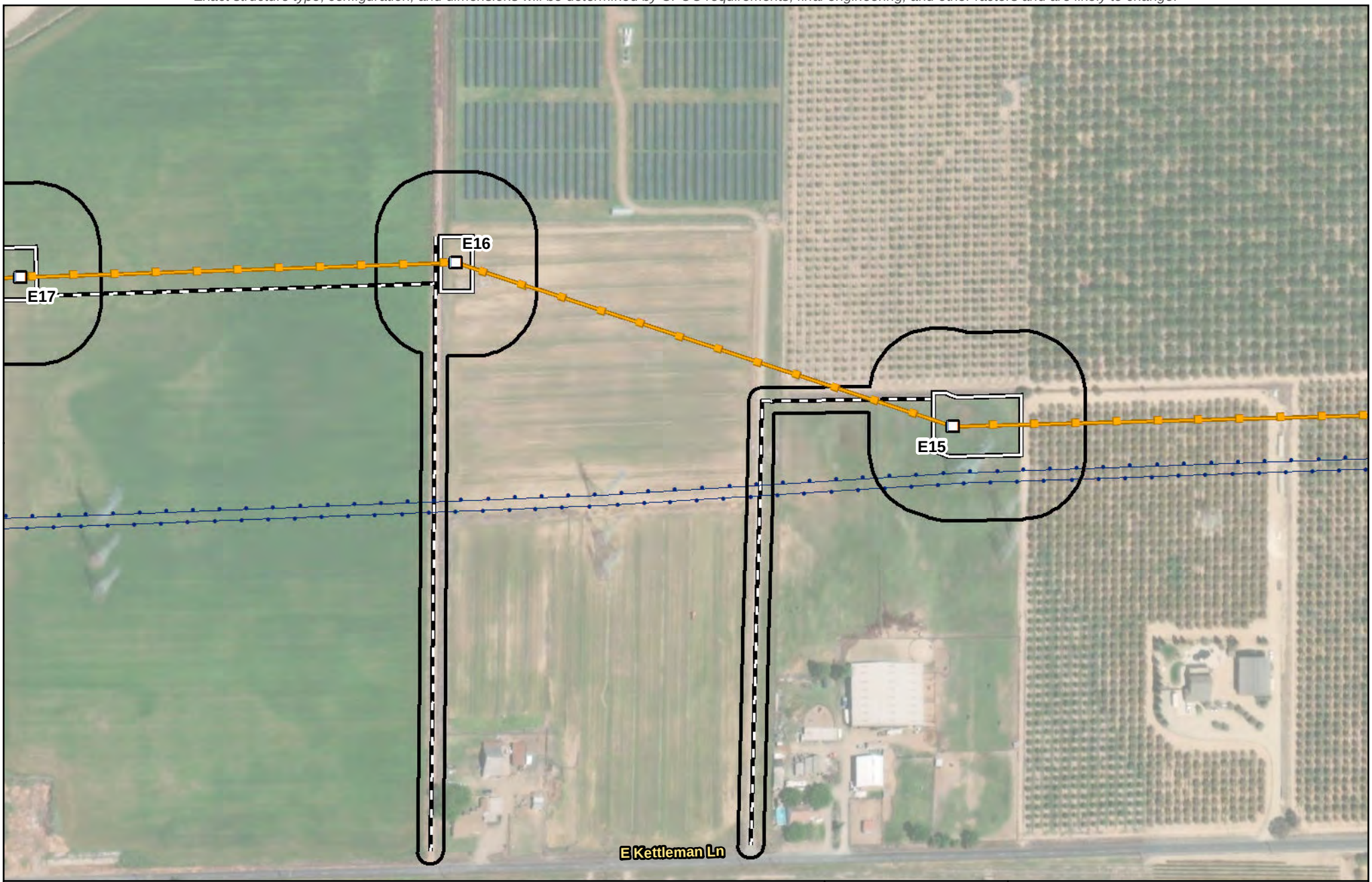
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Scale: 1:3,000

FIGURE 5.4-1
Project Components and Biological Study Area
Page 6 of 26
Northern San Joaquin 230 kV Transmission Project

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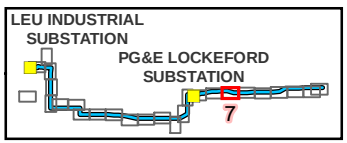


Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area



Source:
1) Esri World Imagery

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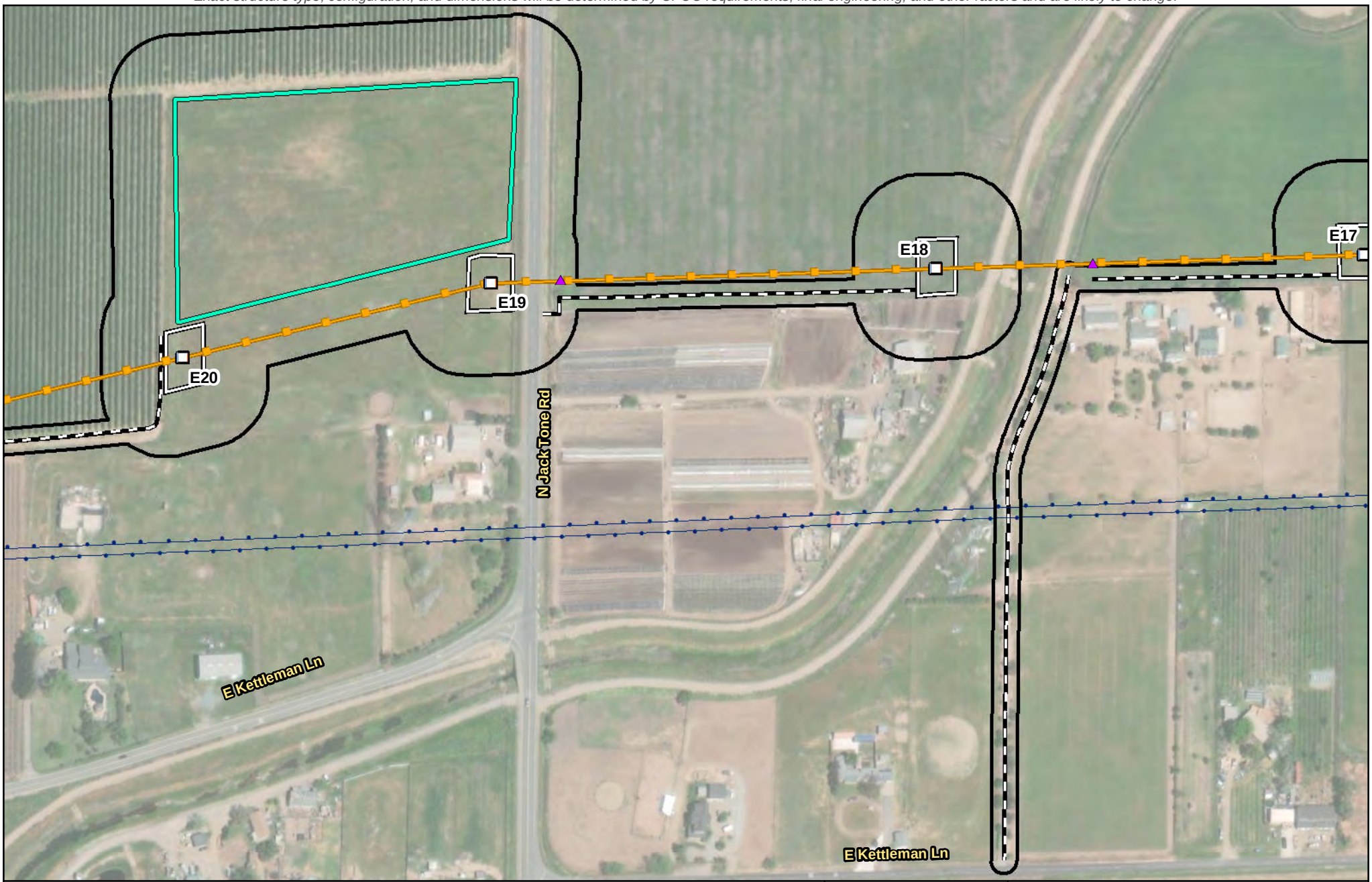
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Scale: 1:3,000

FIGURE 5.4-1
Project Components and Biological Study Area
Page 7 of 26
Northern San Joaquin 230 kV Transmission Project

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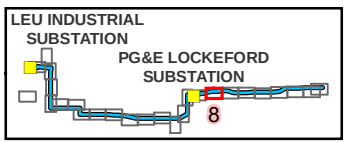


Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area



Source:
1) Esri World Imagery

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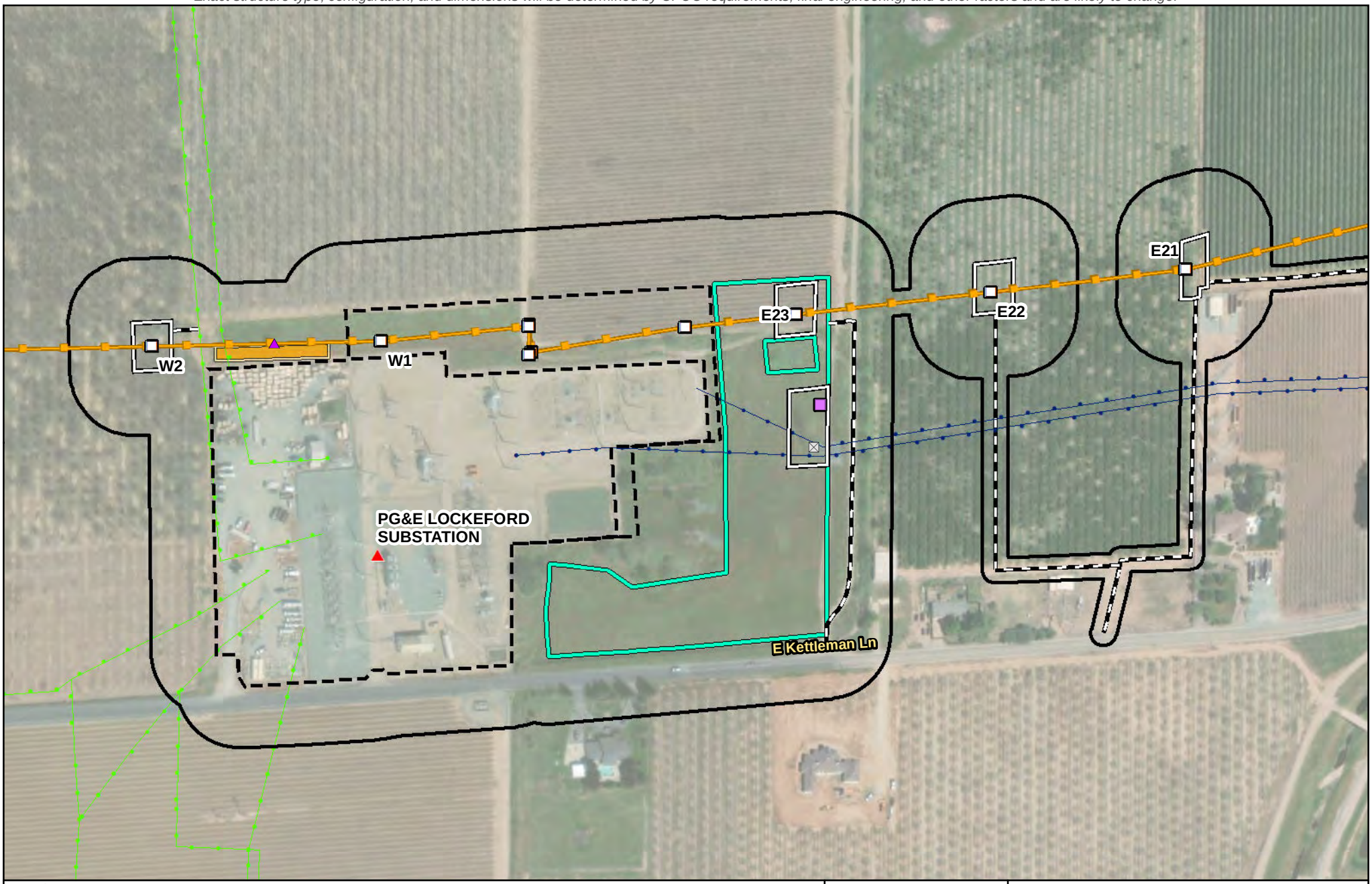
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Scale: 1:3,000

FIGURE 5.4-1
Project Components and Biological Study Area
Page 8 of 26
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\BiologicalResources\Figure_5.4-1_230730.mxd kgrant1 8/1/2023

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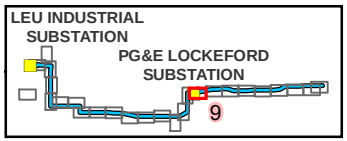


Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
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- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area



Source:
1) Esri World Imagery

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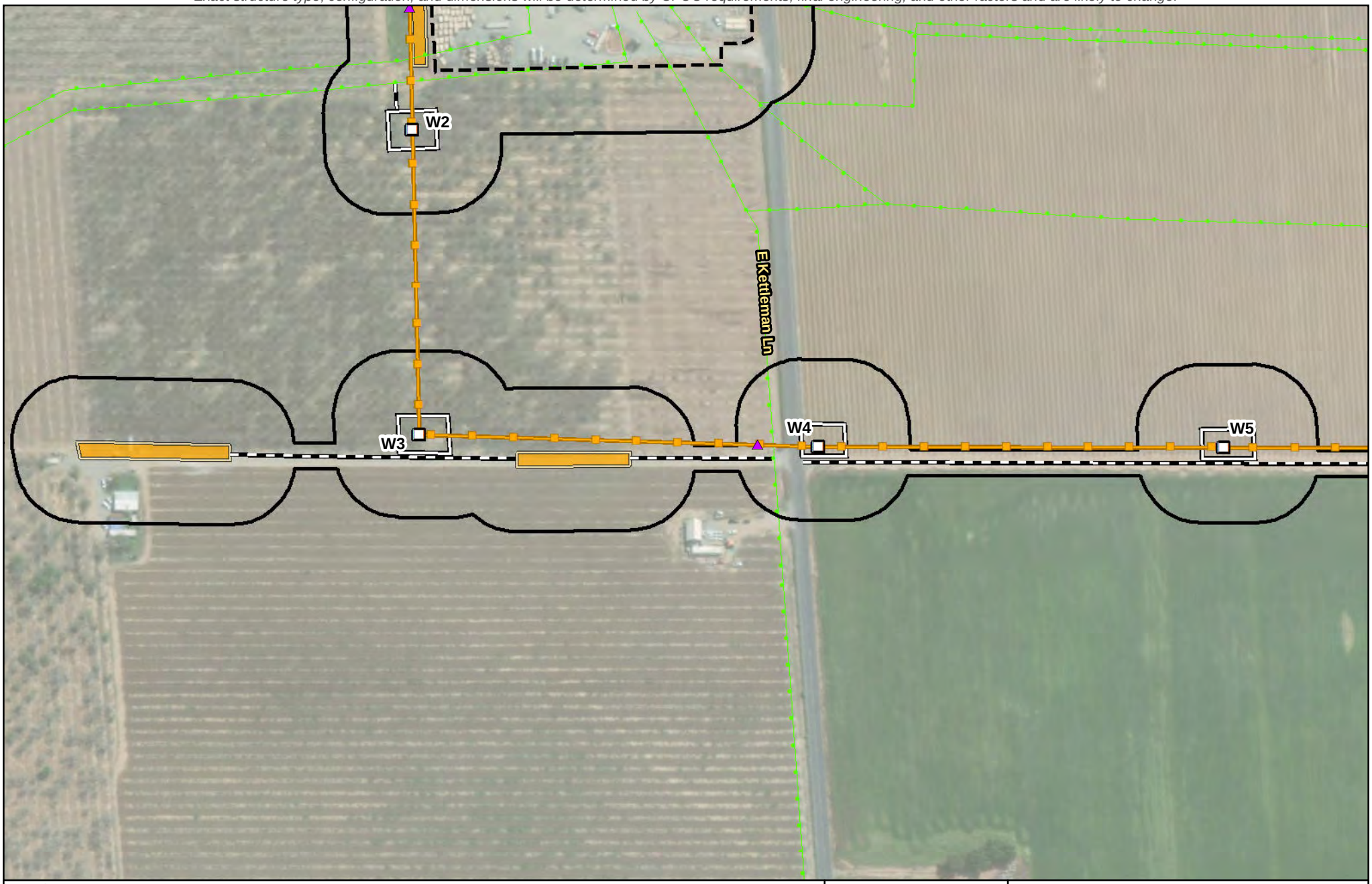
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Scale: 1:3,000

FIGURE 5.4-1
Project Components and Biological Study Area
Page 9 of 26
Northern San Joaquin 230 kV Transmission Project

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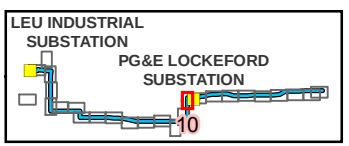


Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
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- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area



Source:
1) Esri World Imagery

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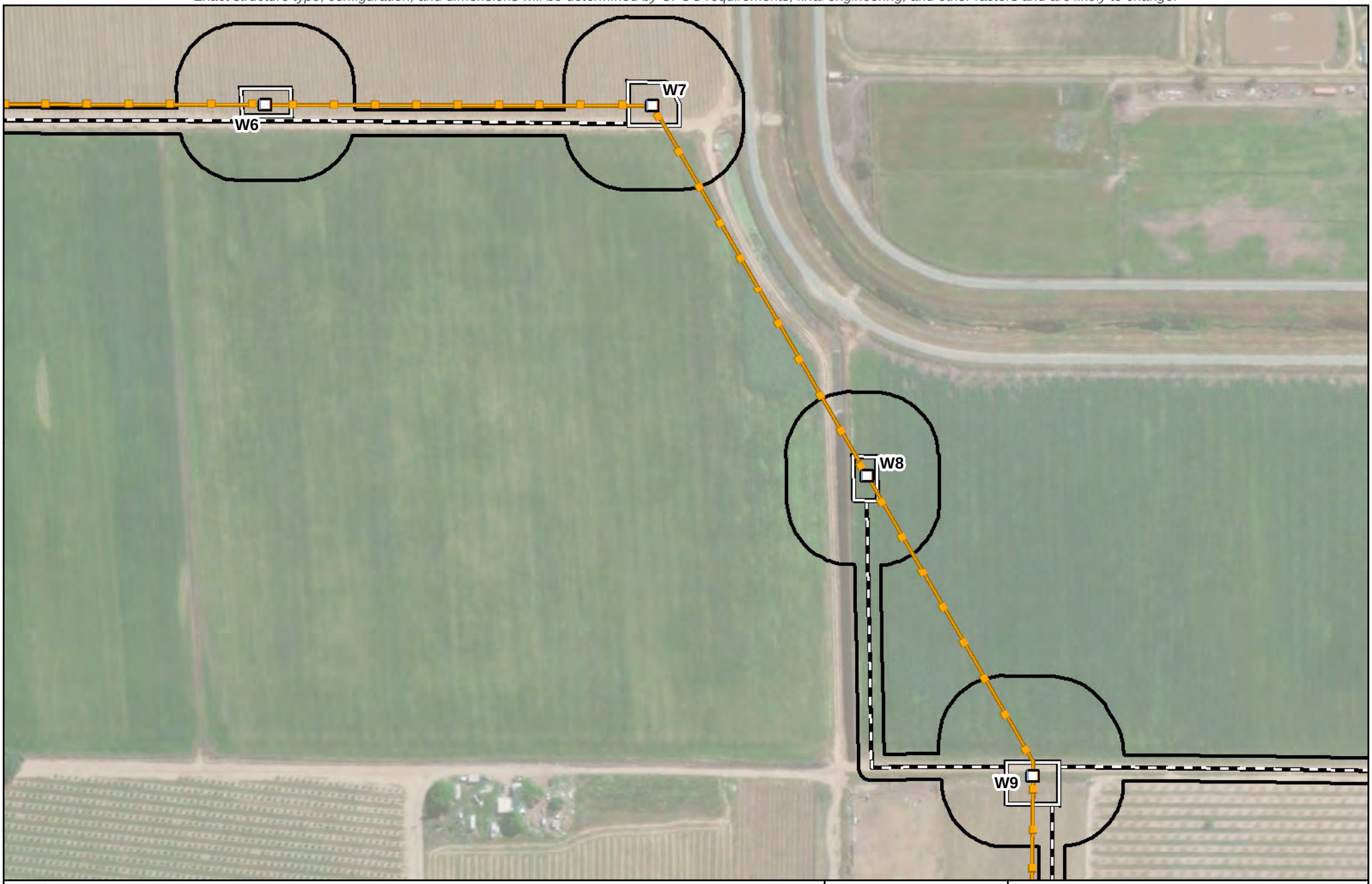
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Scale: 1:3,000

FIGURE 5.4-1
Project Components and Biological Study Area
Page 10 of 26
Northern San Joaquin 230 kV Transmission Project

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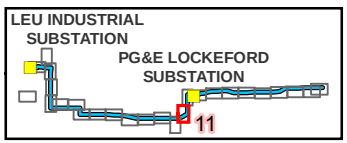


Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
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- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area



Source:
1) Esri World Imagery

N

0 100 Feet

Scale: 1:3,000

FIGURE 5.4-1
Project Components and Biological Study Area

Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\BiologicalResources\Figure_5.4-1_230730.mxd kgrant1 8/1/2023

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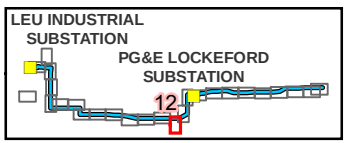


Legend

- Biological Study Area (387.06 acres)
- Substation
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- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

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- Structure: Remove
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- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area



Source:
1) Esri World Imagery

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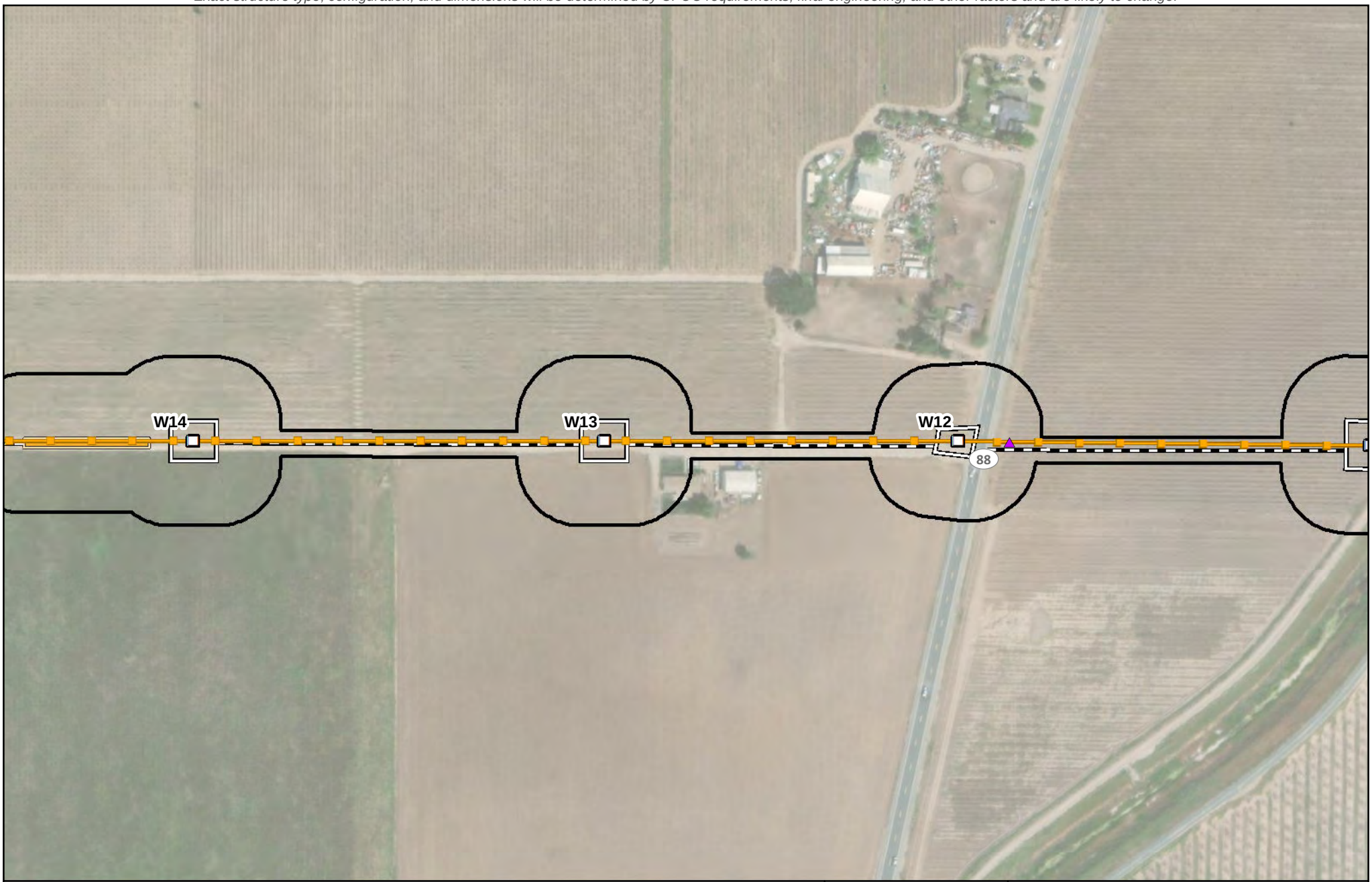
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Scale: 1:3,000

FIGURE 5.4-1
Project Components and Biological Study Area
Page 12 of 26
Northern San Joaquin 230 kV Transmission Project

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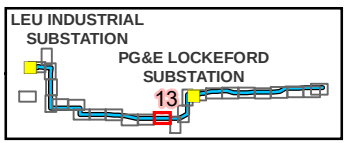


Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area



Source:
1) Esri World Imagery

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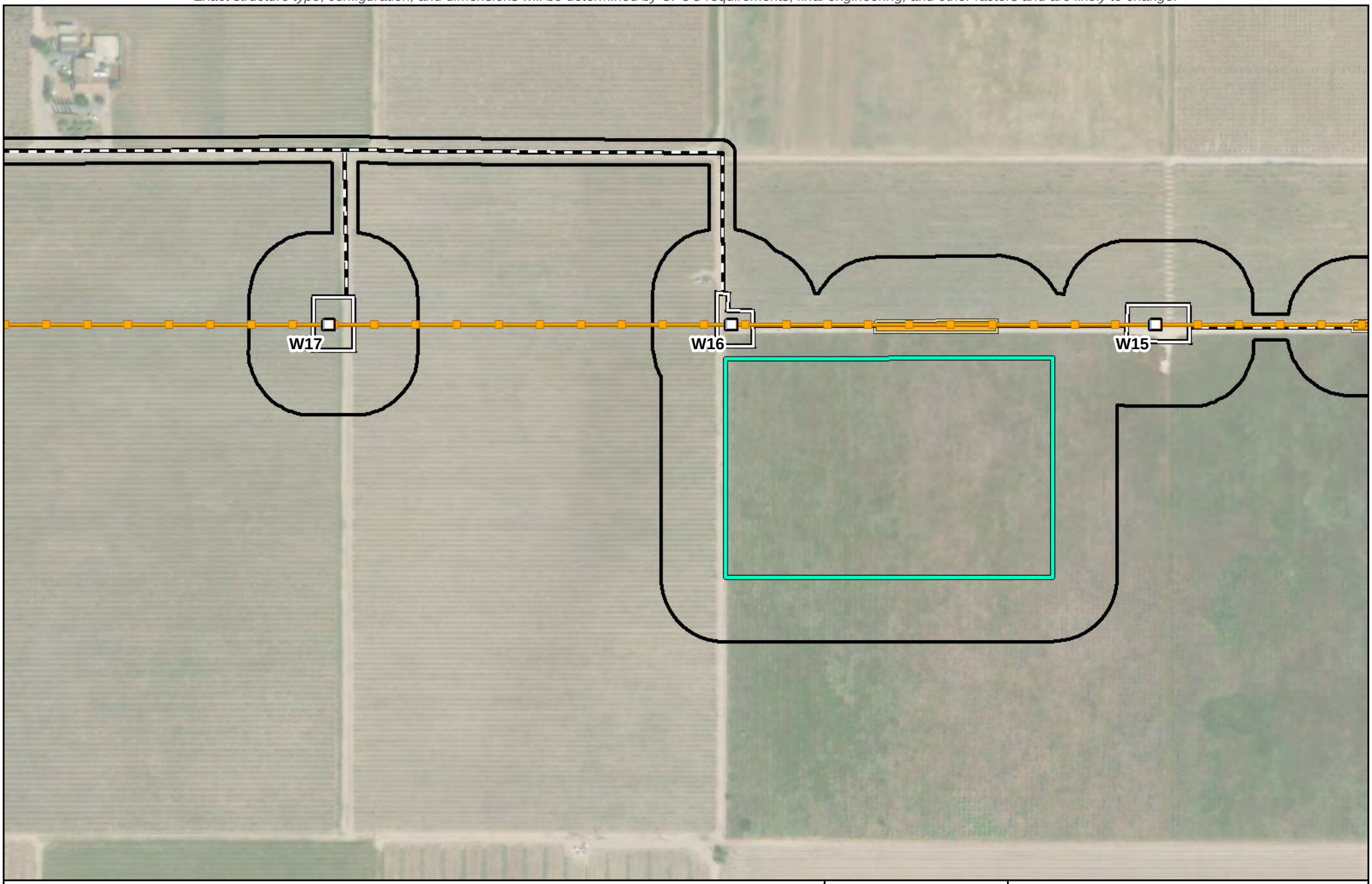
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FIGURE 5.4-1
Project Components and Biological Study Area
Page 13 of 26
Northern San Joaquin 230 kV Transmission Project

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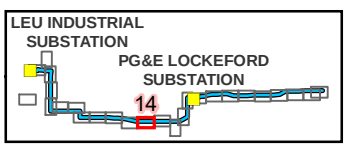


Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
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- Proposed Fenceline
- Proposed Staging Area



Source:
1) Esri World Imagery

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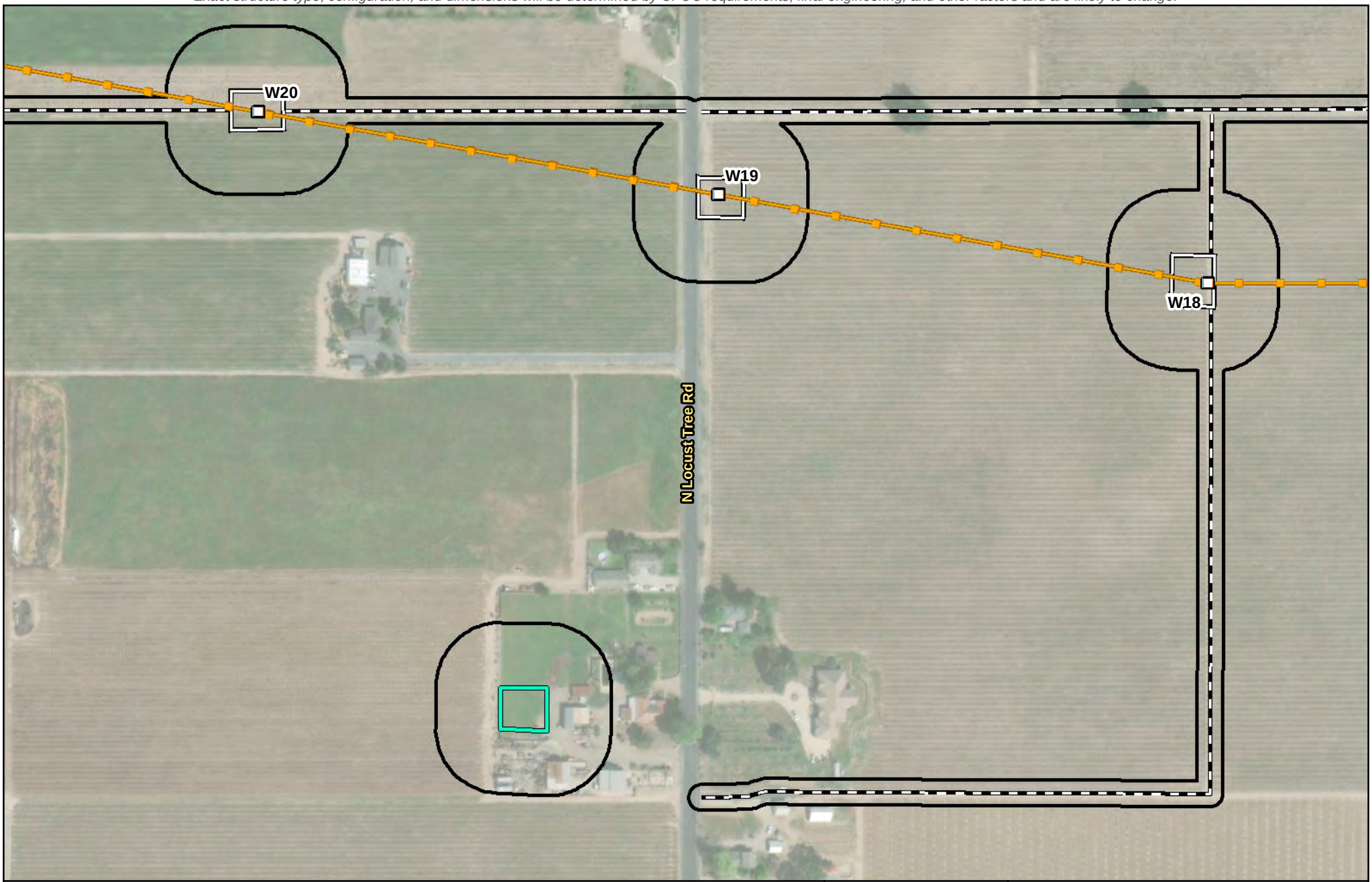
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FIGURE 5.4-1
Project Components and Biological Study Area
Page 14 of 26
Northern San Joaquin 230 kV Transmission Project

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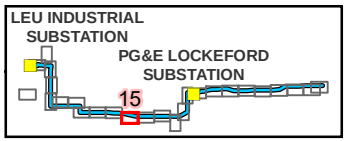


Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
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Source:
1) Esri World Imagery

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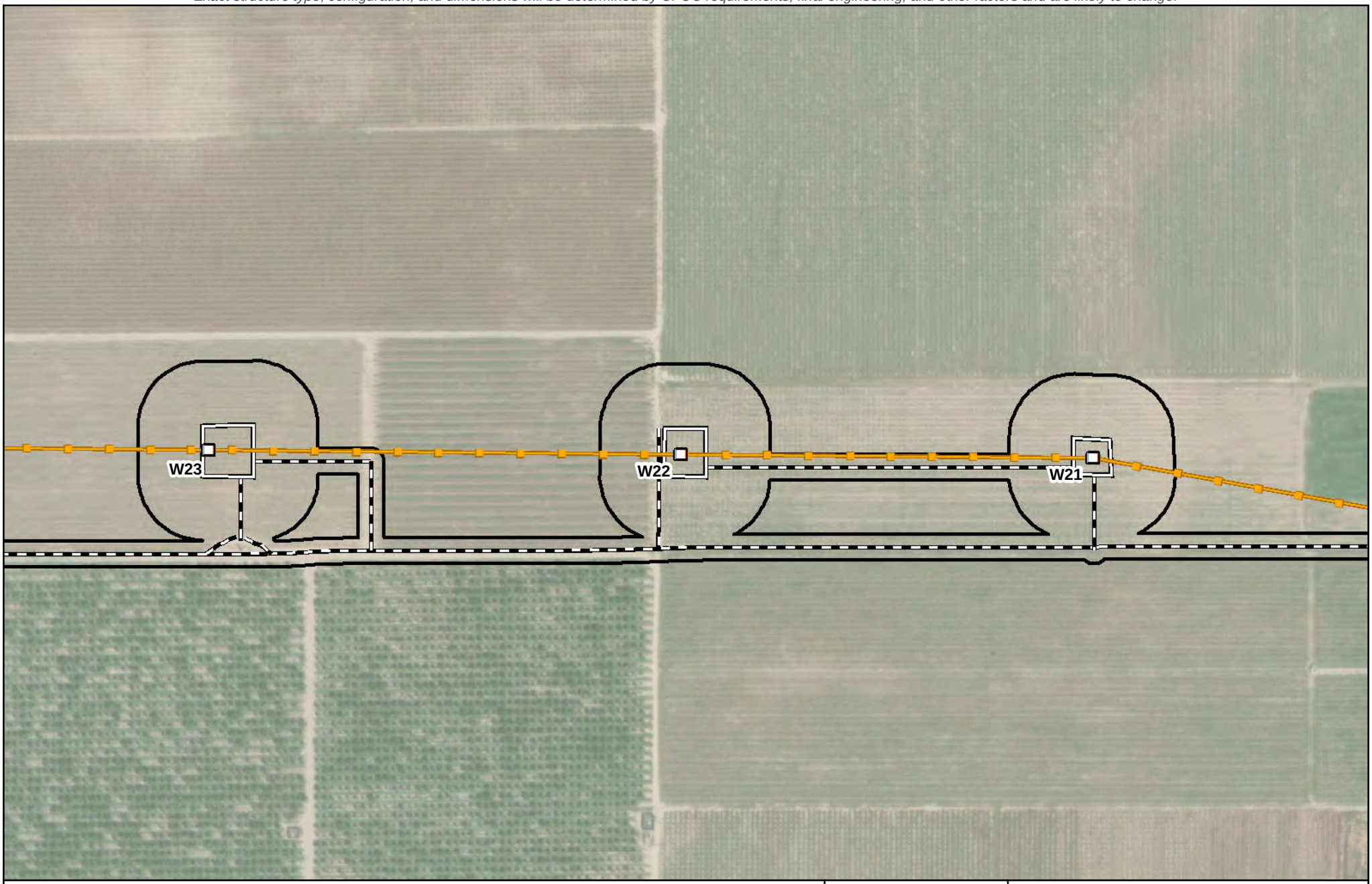
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Scale: 1:3,000

FIGURE 5.4-1
Project Components and Biological Study Area
Page 15 of 26
Northern San Joaquin 230 kV Transmission Project

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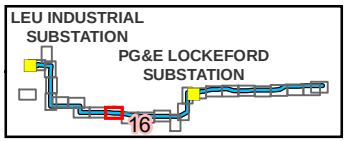


Legend

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- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

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- Proposed Fenceline
- Proposed Staging Area



Source:
1) Esri World Imagery

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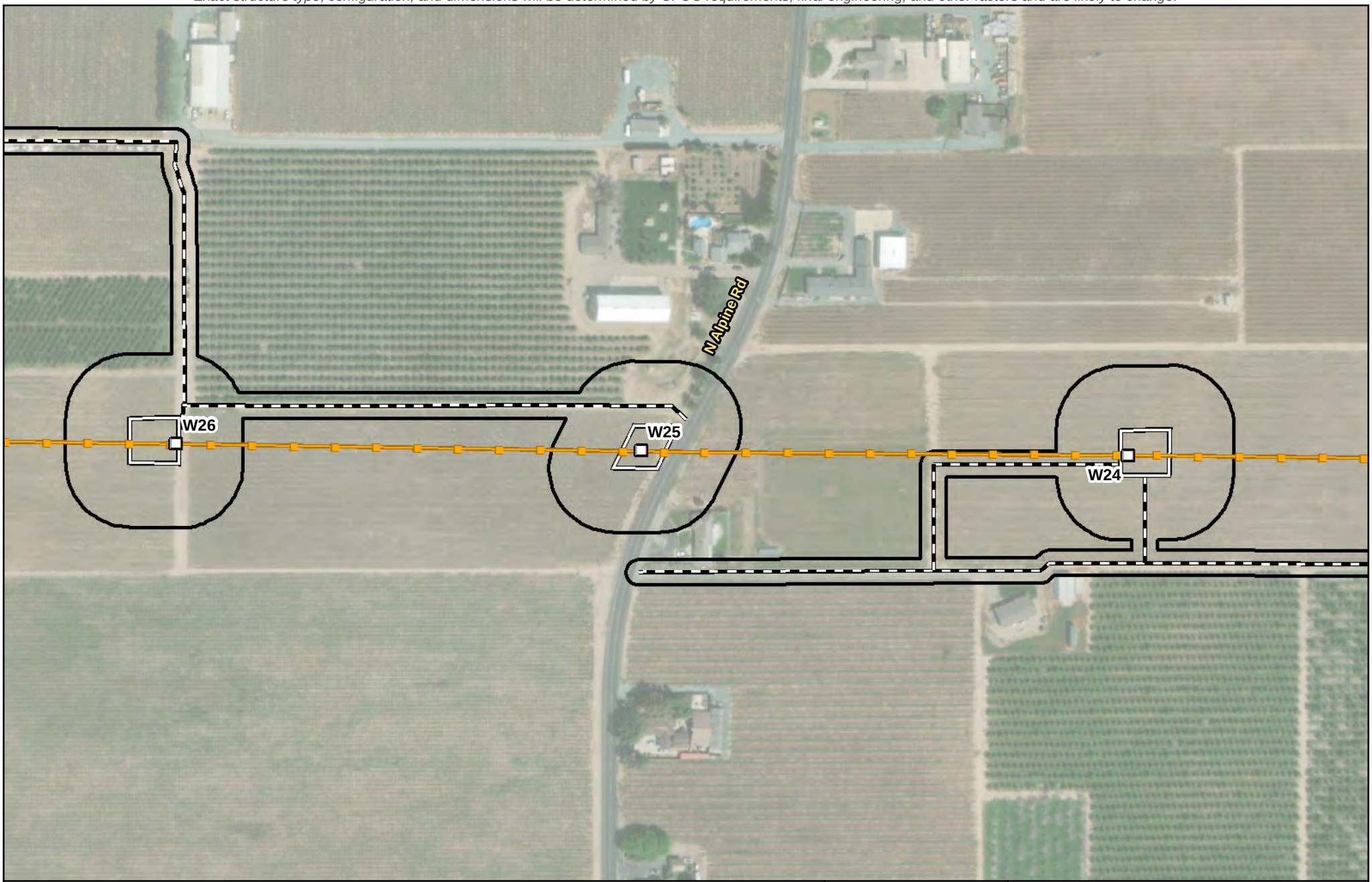
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Scale: 1:3,000

FIGURE 5.4-1
Project Components and Biological Study Area
Page 16 of 26
Northern San Joaquin 230 kV Transmission Project

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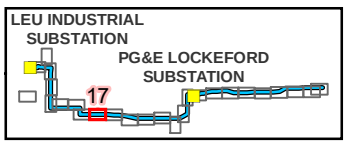


Legend

- Biological Study Area (387.06 acres)
- Substation
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- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
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- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area



Source:
1) Esri World Imagery

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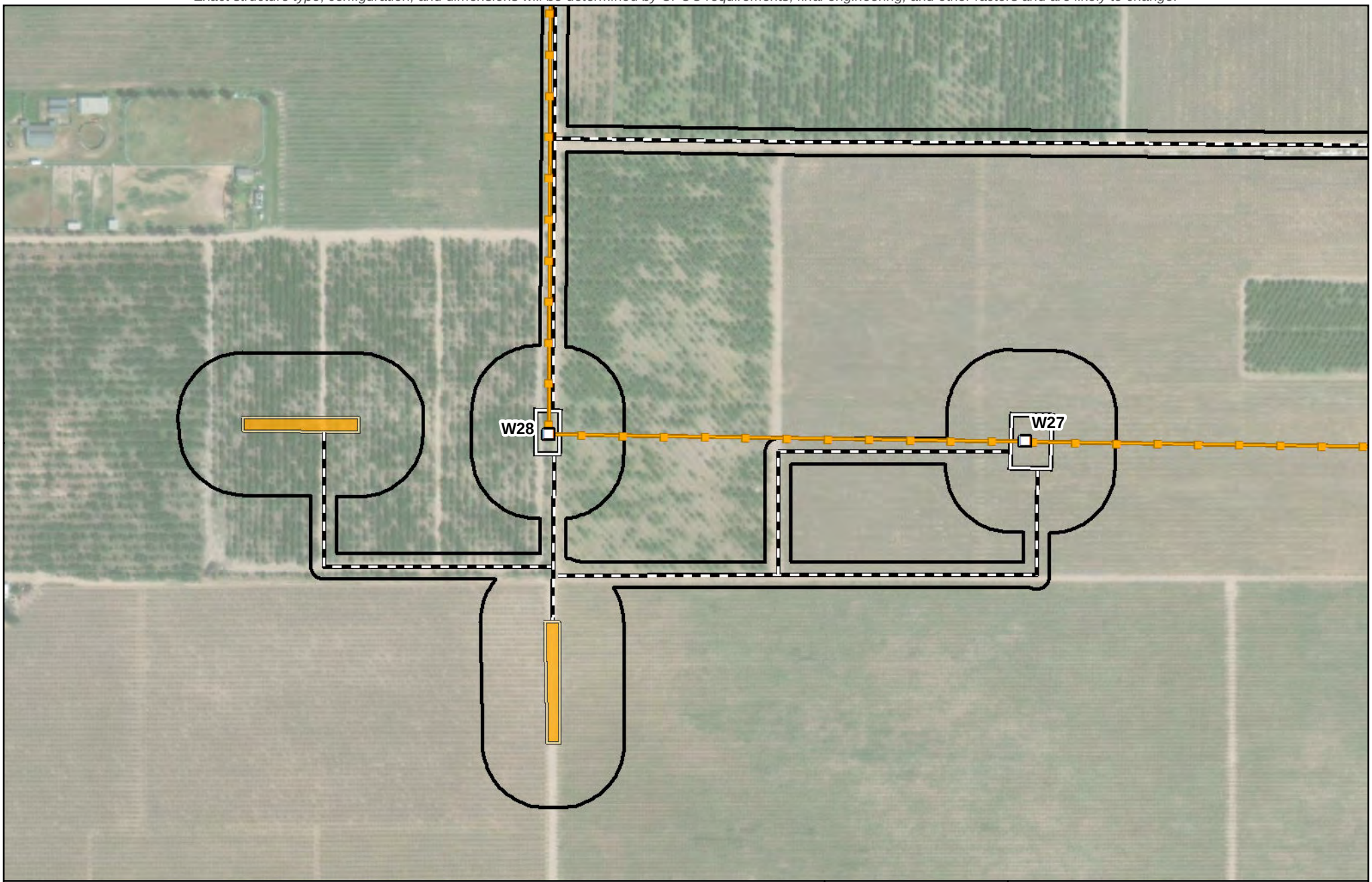
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FIGURE 5.4-1
Project Components and Biological Study Area
Page 17 of 26
Northern San Joaquin 230 kV Transmission Project

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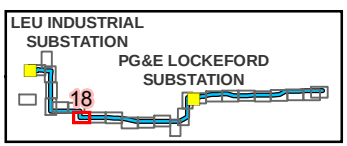


Legend

- Biological Study Area (387.06 acres)
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- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

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- Proposed Staging Area



Source:
1) Esri World Imagery

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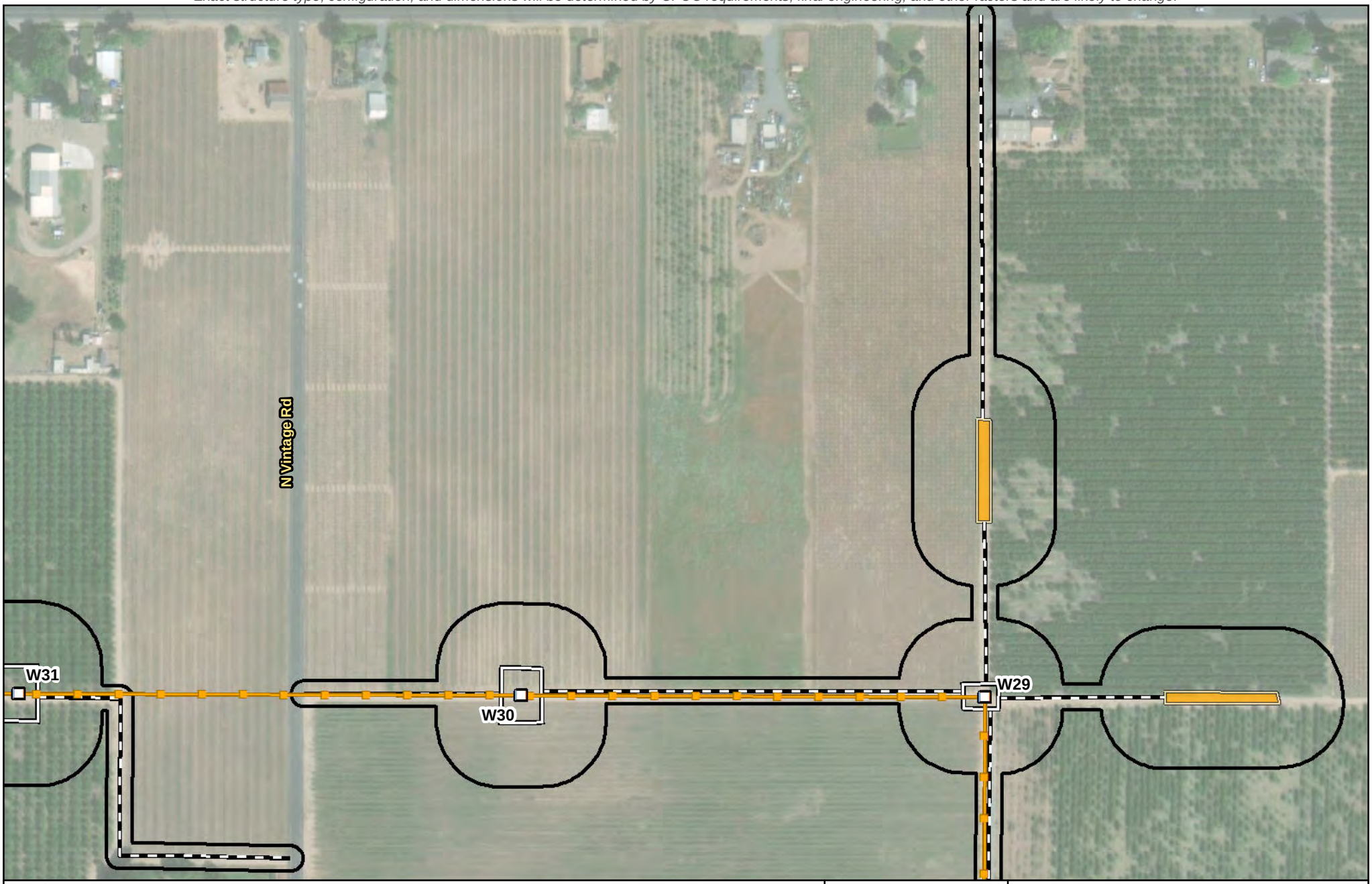
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FIGURE 5.4-1
Project Components and Biological Study Area
Page 18 of 26
Northern San Joaquin 230 kV Transmission Project

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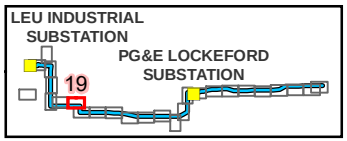


Legend

- Biological Study Area (387.06 acres)
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- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

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- Proposed Fenceline
- Proposed Staging Area



Source:
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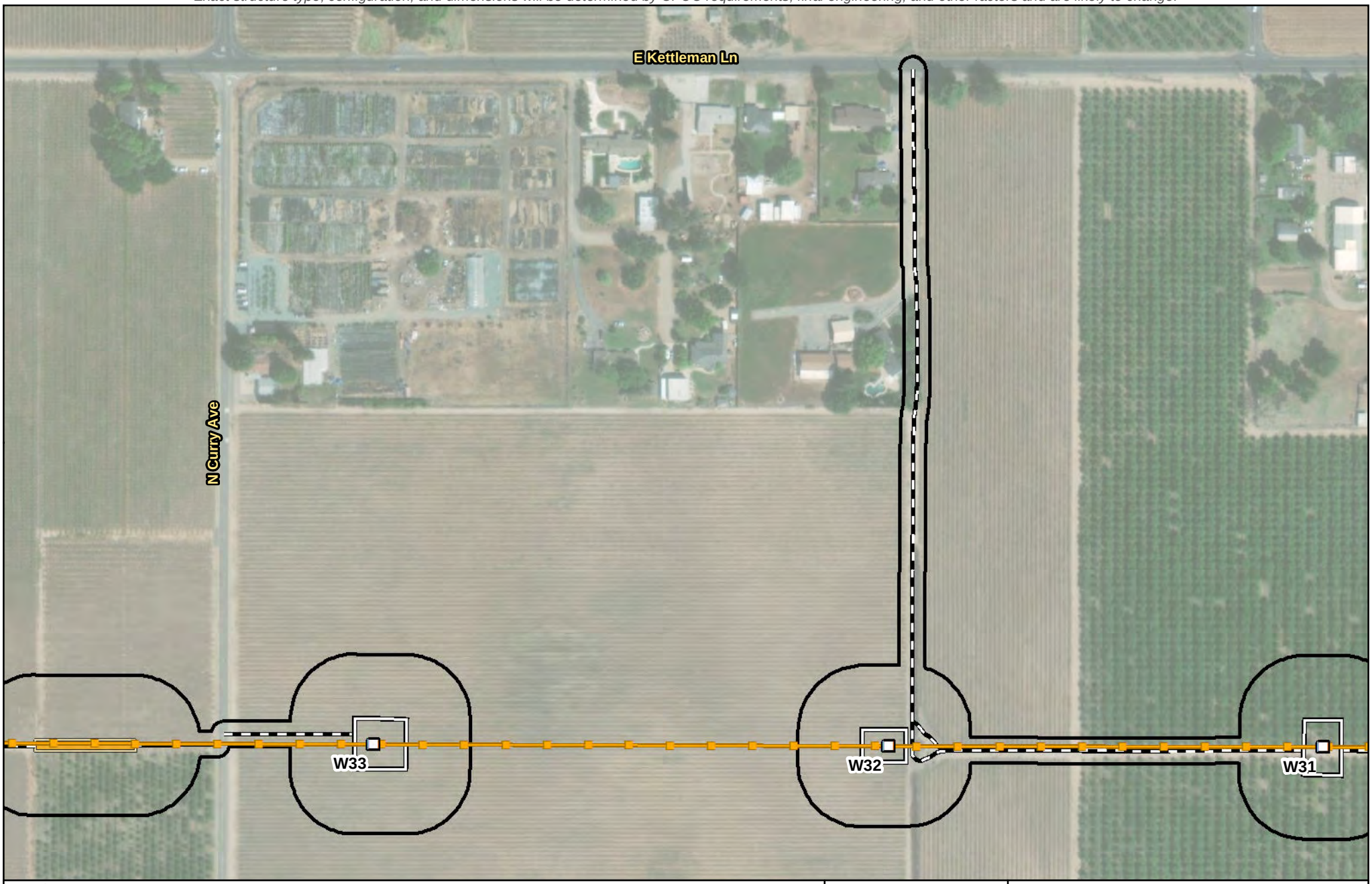
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FIGURE 5.4-1
Project Components and Biological Study Area
Page 19 of 26
Northern San Joaquin 230 kV Transmission Project

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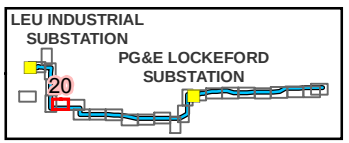


Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
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- Proposed Fenceline
- Proposed Staging Area



Source:
1) Esri World Imagery

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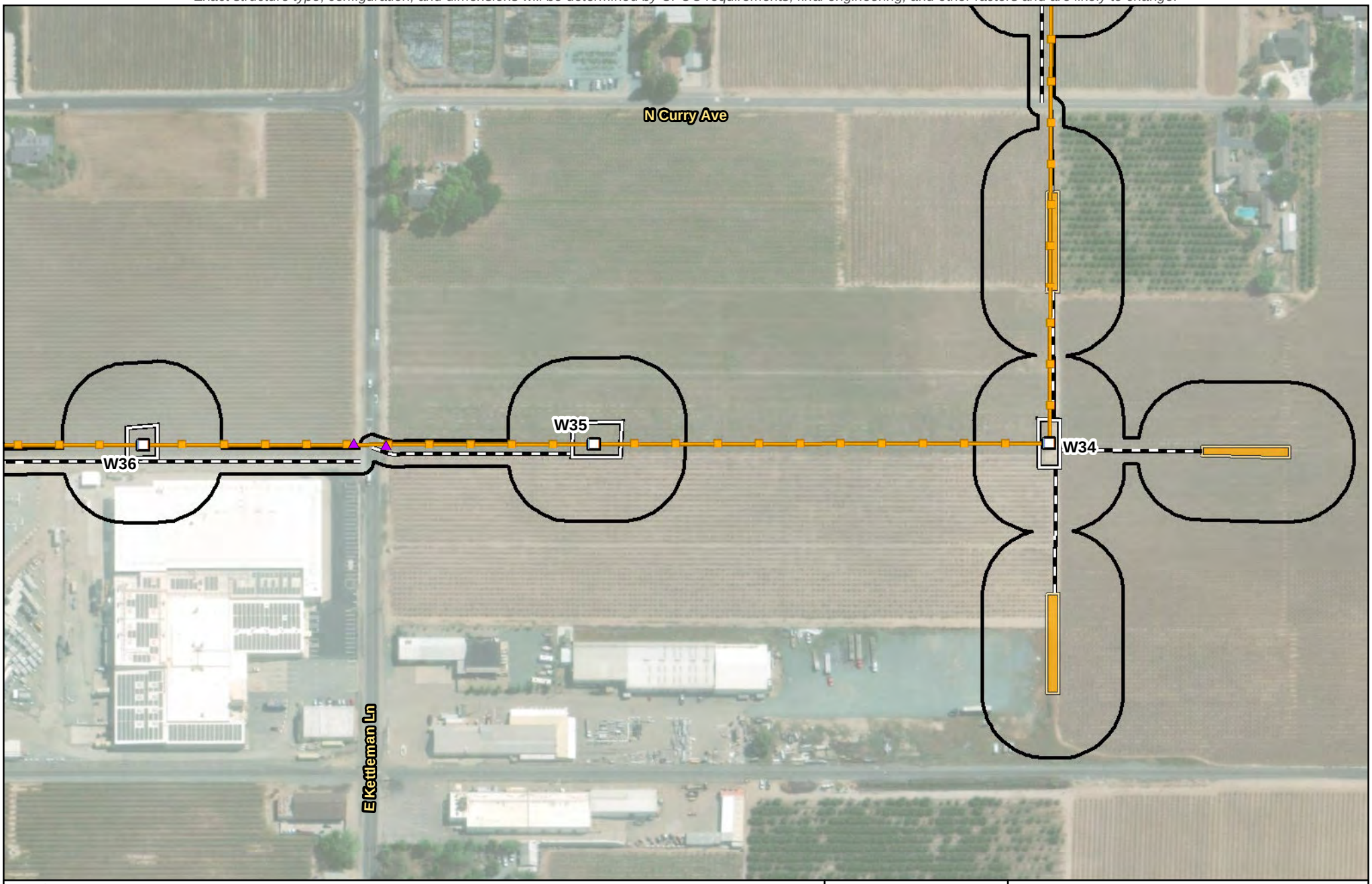
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FIGURE 5.4-1
Project Components and Biological Study Area
Page 20 of 26
Northern San Joaquin 230 kV Transmission Project

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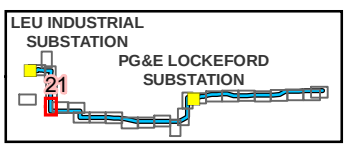


Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area



Source:
1) Esri World Imagery

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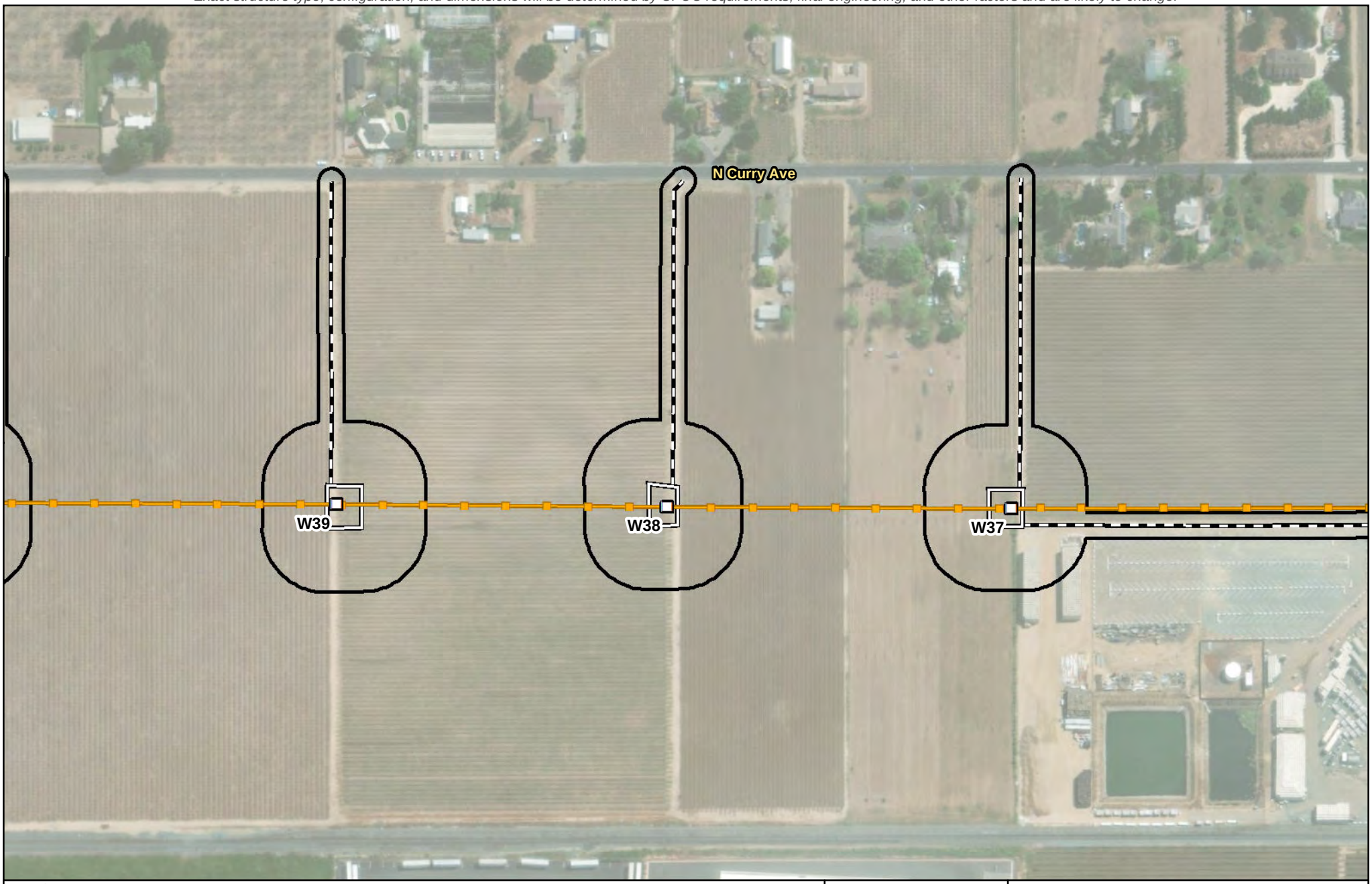
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Scale: 1:3,000

FIGURE 5.4-1
Project Components and Biological Study Area
Page 21 of 26
Northern San Joaquin 230 kV Transmission Project

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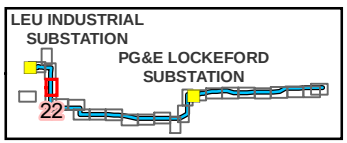


Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
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- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area



Source:
1) Esri World Imagery

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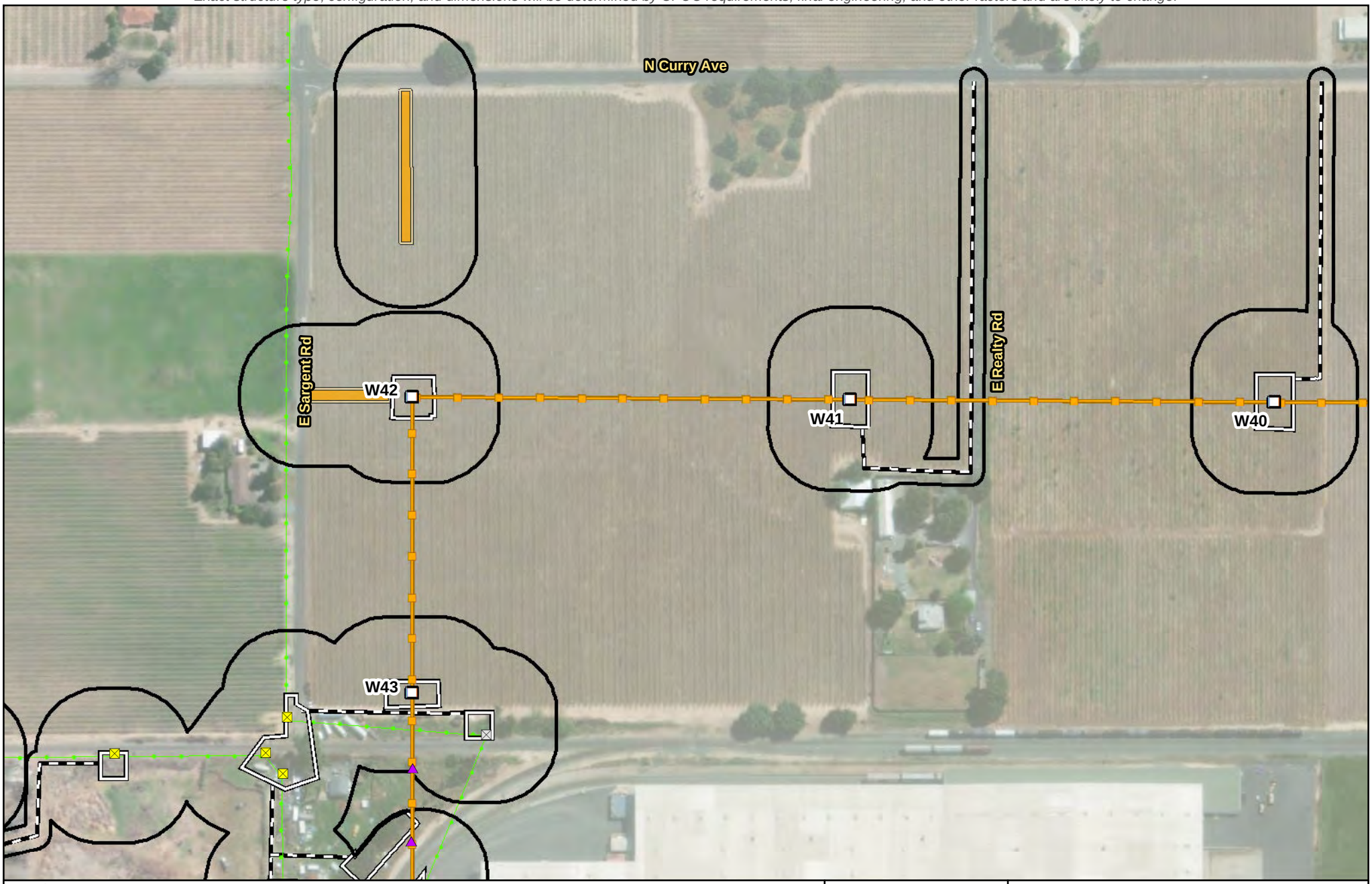
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Scale: 1:3,000

FIGURE 5.4-1
Project Components and Biological Study Area
Page 22 of 26
Northern San Joaquin 230 kV Transmission Project

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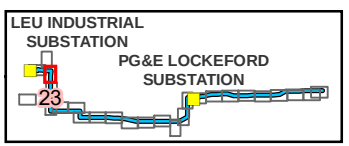


Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
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- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area



Source:
1) Esri World Imagery

N

0 100 Feet

Scale: 1:3,000

FIGURE 5.4-1
Project Components and Biological Study Area
Page 23 of 26
Northern San Joaquin 230 kV Transmission Project

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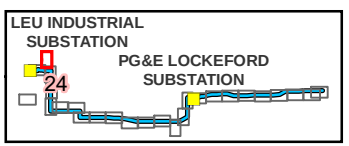


Legend

- Biological Study Area (387.06 acres)
- Substation
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- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
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Source:
1) Esri World Imagery

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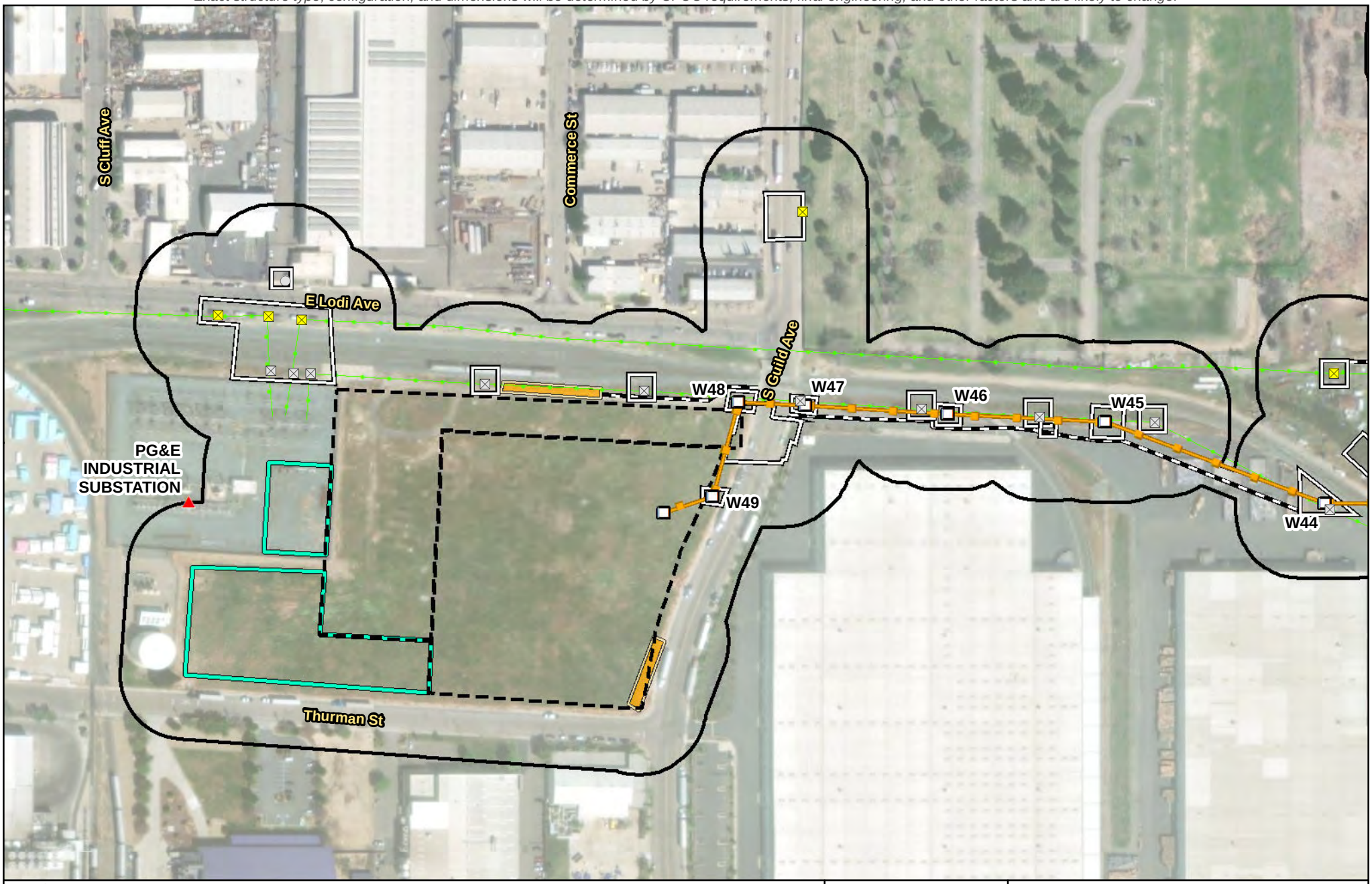
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FIGURE 5.4-1
Project Components and Biological Study Area
Page 24 of 26
Northern San Joaquin 230 kV Transmission Project

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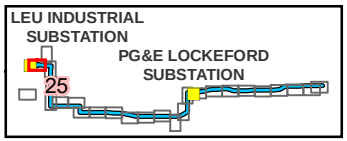


Legend

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- Proposed Staging Area



Source:
1) Esri World Imagery

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0 100 Feet

Scale: 1:3,000

FIGURE 5.4-1
Project Components and Biological Study Area
Page 25 of 26
Northern San Joaquin 230 kV Transmission Project

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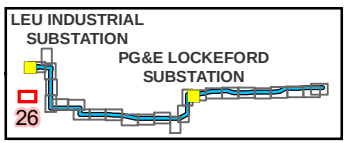


Legend

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- Proposed Staging Area



Source:
1) Esri World Imagery

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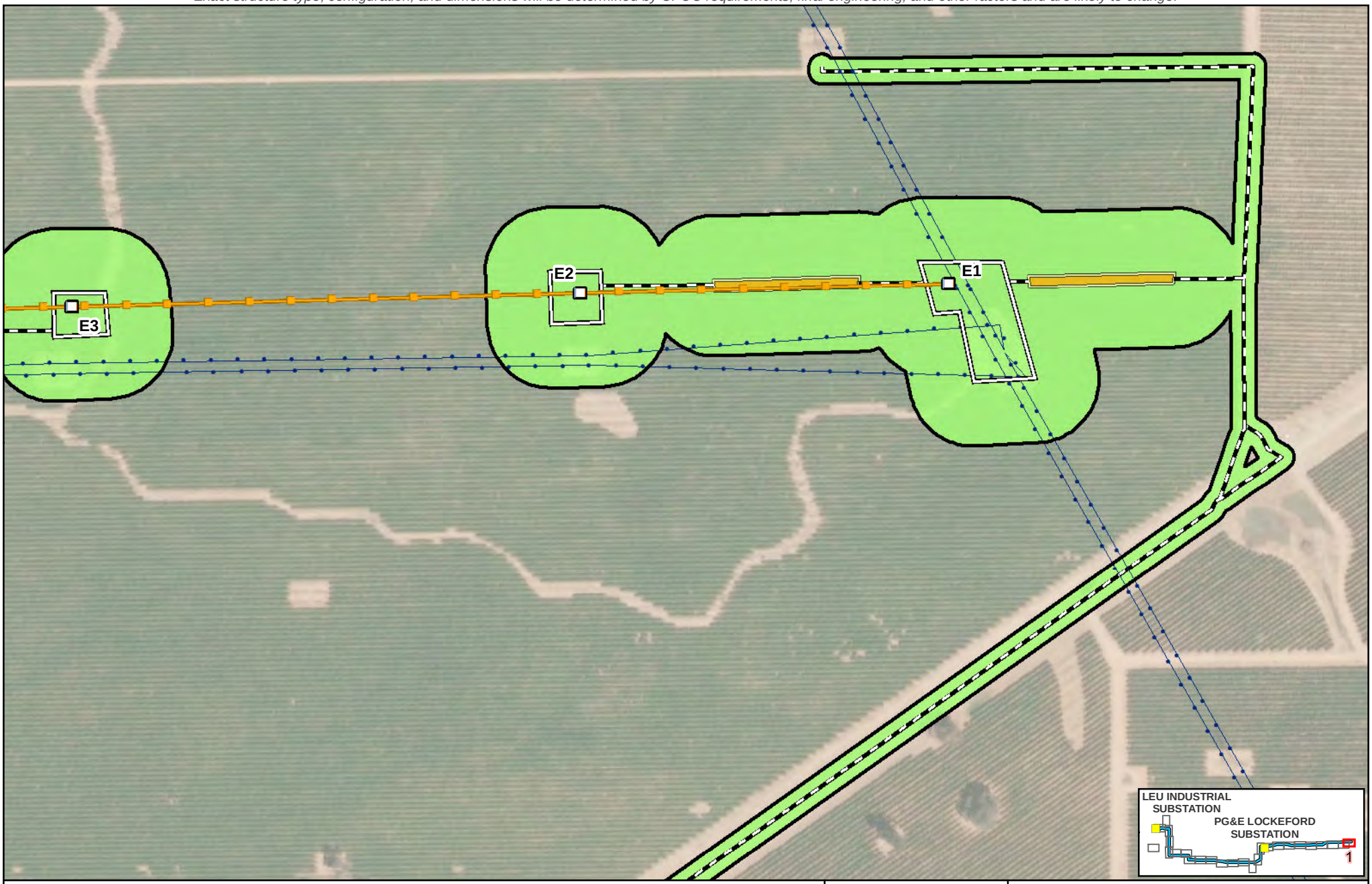
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FIGURE 5.4-1
Project Components and Biological Study Area
Page 26 of 26
Northern San Joaquin 230 kV Transmission Project

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Legend

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- Proposed Staging Area

Land Cover

- Agriculture

Source:
1) Esri World Imagery

N

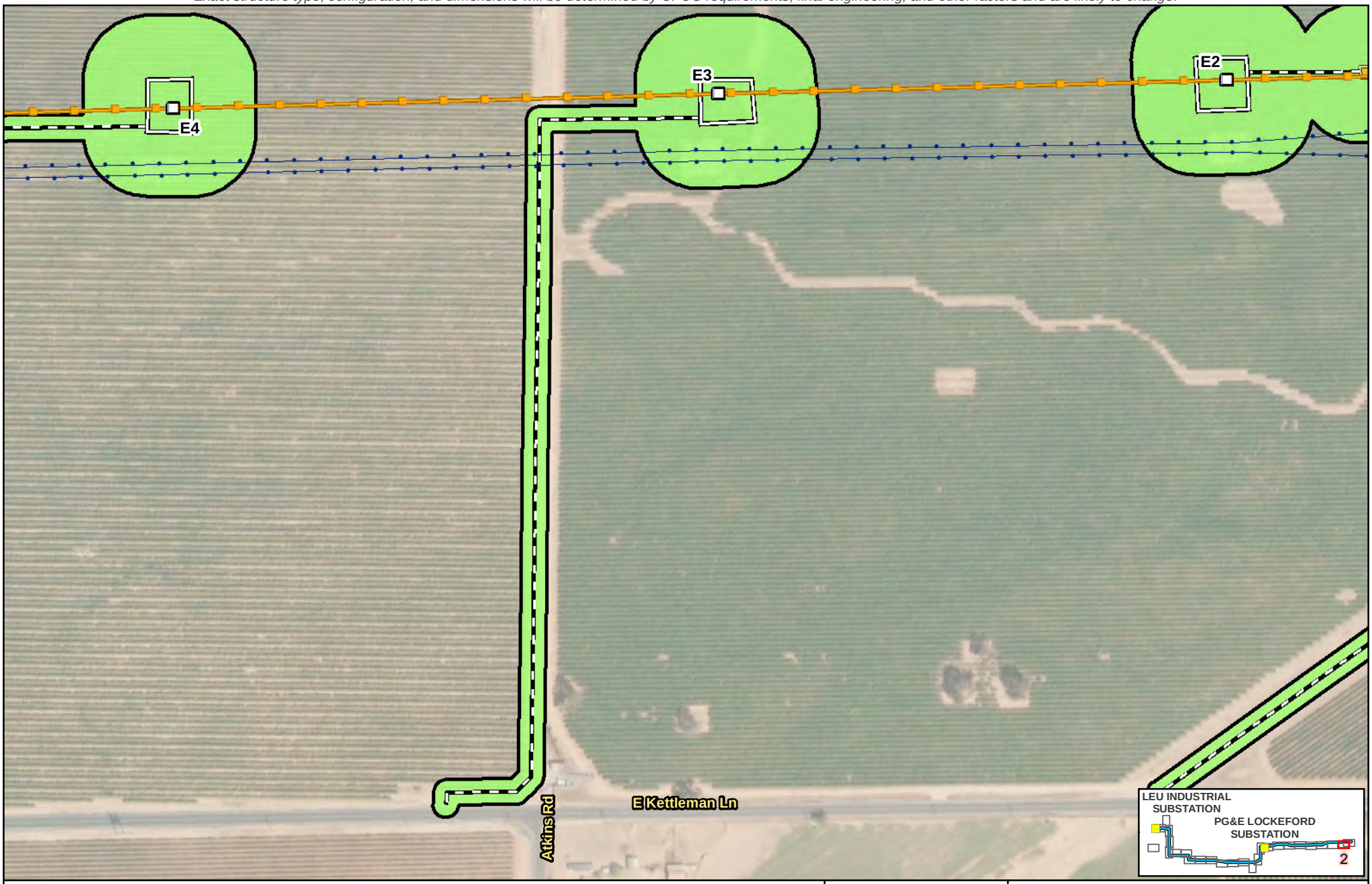
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FIGURE 5.4-2
Land Cover within the Biological Study Area
Page 1 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Land Cover

- Agriculture

Source:
1) Esri World Imagery

N

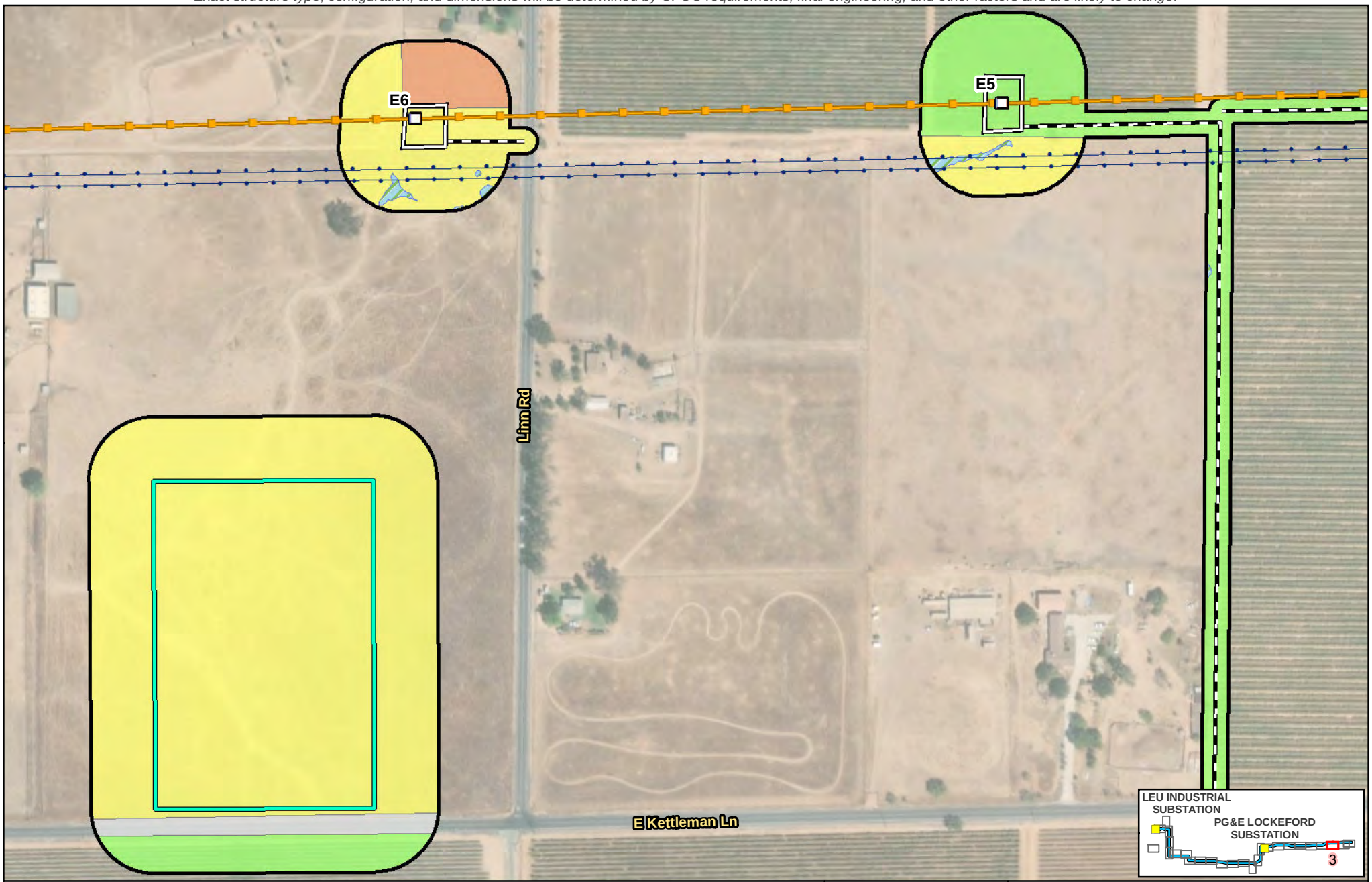
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FIGURE 5.4-2
Land Cover within the Biological Study Area
Page 2 of 26
Northern San Joaquin 230 kV Transmission Project

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Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Land Cover

- Agriculture
- Developed/Disturbed
- Grassland
- Ruderal
- Wetlands

Source:
1) Esri World Imagery

0 100 Feet

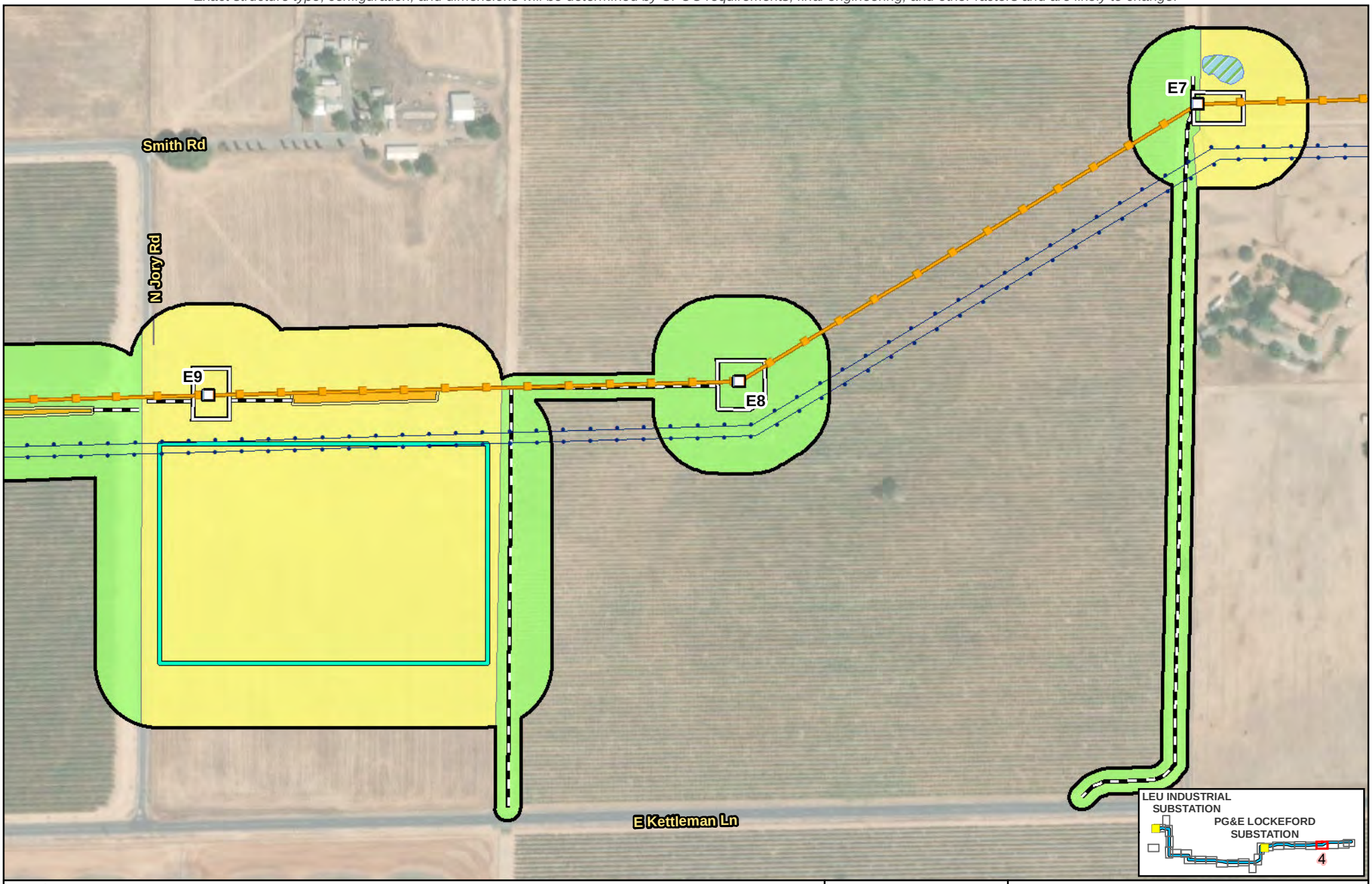
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Scale: 1:3,000

FIGURE 5.4-2
Land Cover within the Biological Study Area
Page 3 of 26
Northern San Joaquin 230 kV Transmission Project

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Legend

- Biological Study Area (387.06 acres)
- Substation
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- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
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- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Land Cover

- Agriculture
- Grassland
- Other Waters
- Wetlands

Source:
1) Esri World Imagery

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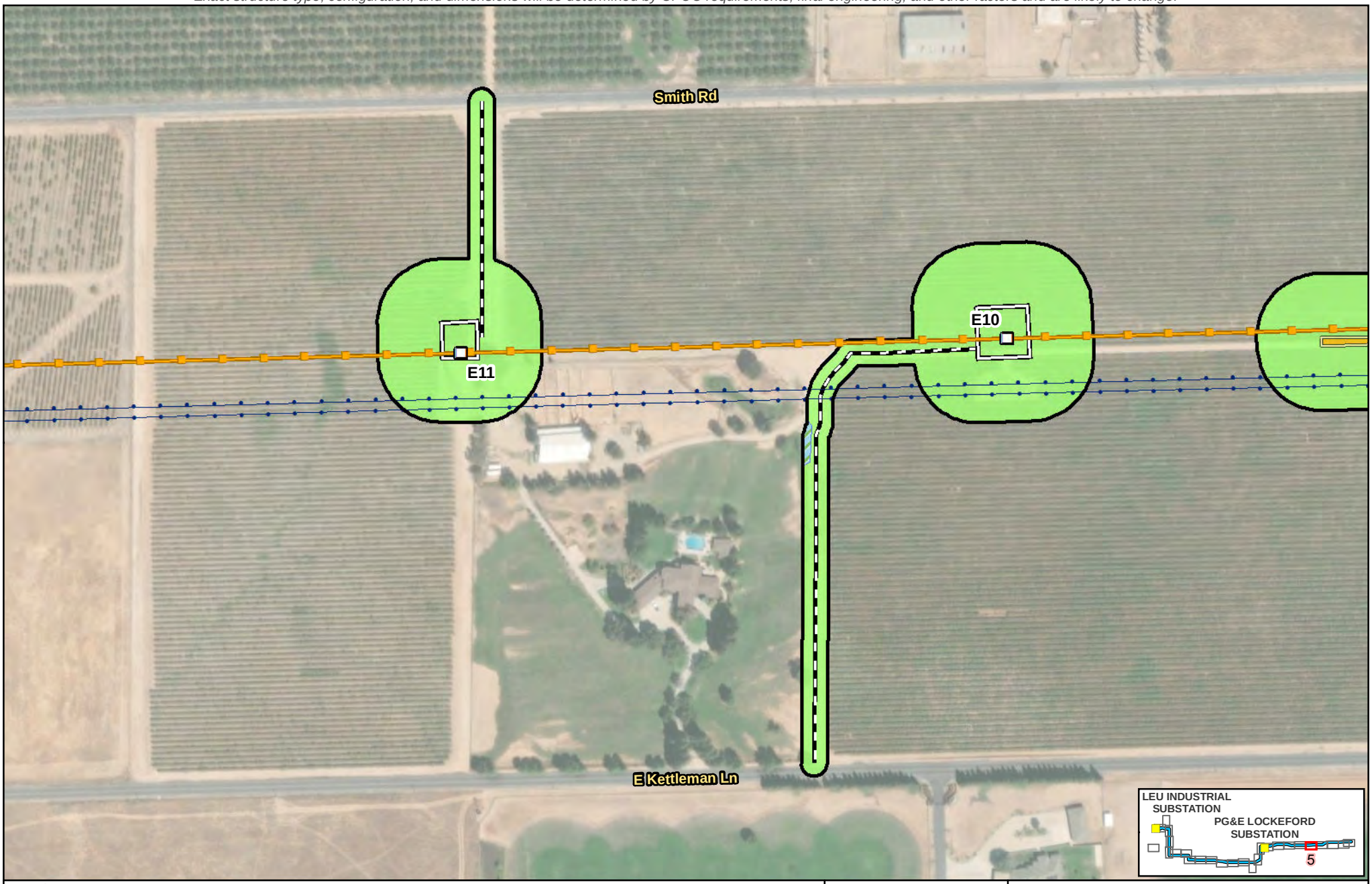
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Scale: 1:3,000

FIGURE 5.4-2
Land Cover within the Biological Study Area
Page 4 of 26
Northern San Joaquin 230 kV Transmission Project

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Legend

- Biological Study Area (387.06 acres)
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- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
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- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Land Cover

- Agriculture
- Wetlands

Source:
1) Esri World Imagery

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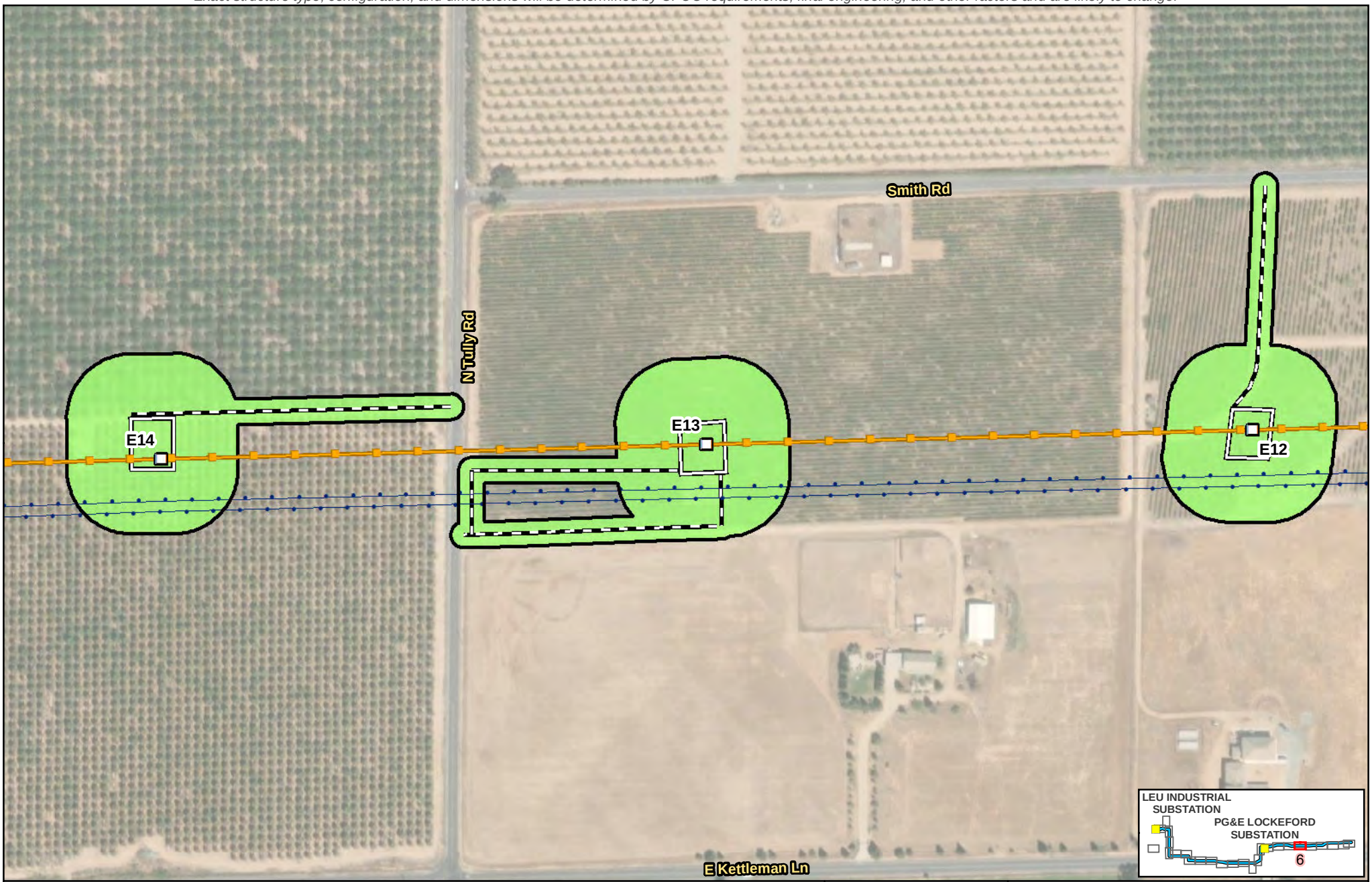
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Scale: 1:3,000

FIGURE 5.4-2
Land Cover within the Biological Study Area
Page 5 of 26
Northern San Joaquin 230 kV Transmission Project

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- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Land Cover

- Agriculture

Source:
1) Esri World Imagery

N

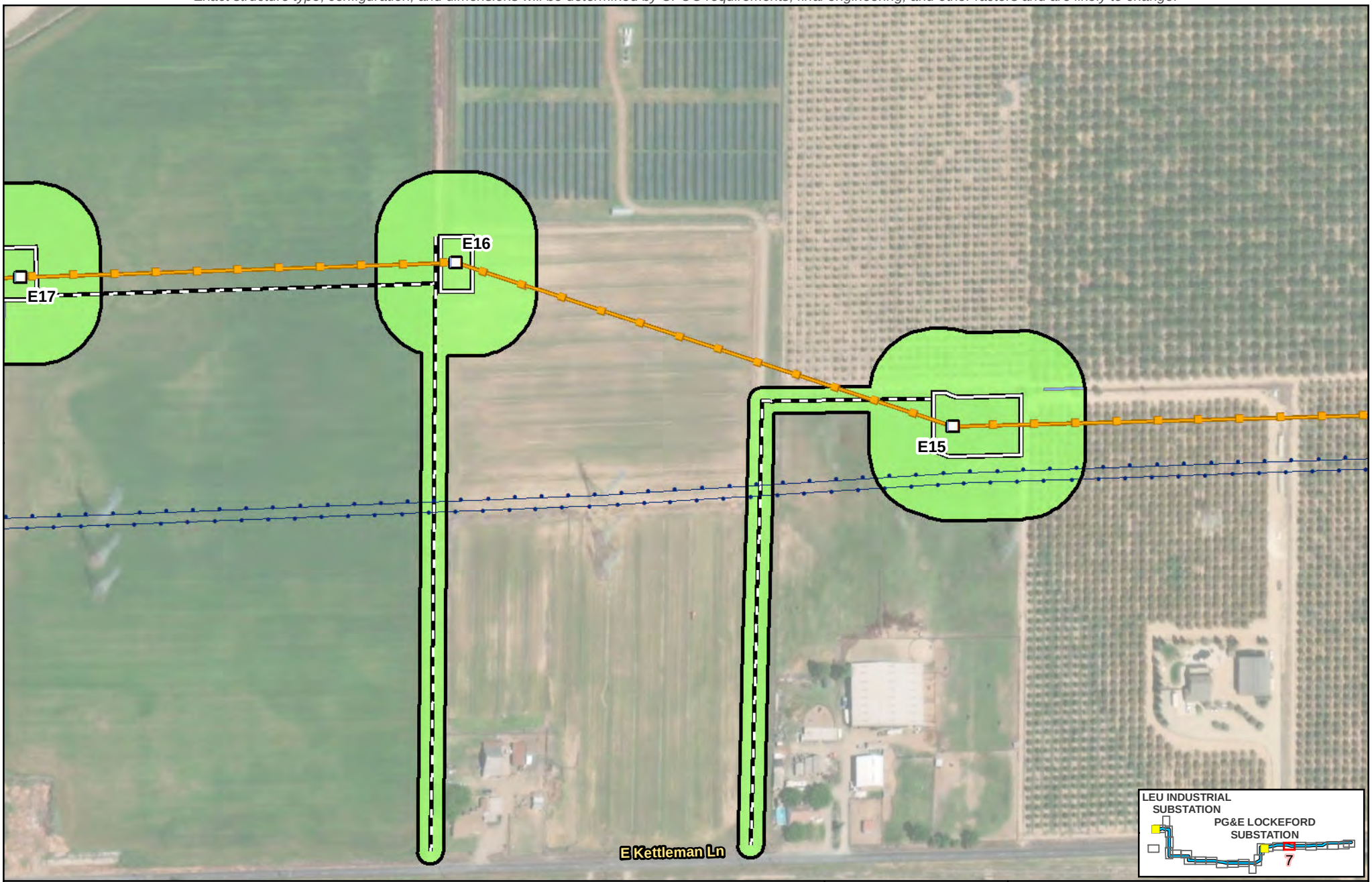
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Scale: 1:3,000

FIGURE 5.4-2
Land Cover within the Biological Study Area
Page 6 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
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- Proposed Structure
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- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Land Cover

- Agriculture
- Other Waters

Source:
1) Esri World Imagery

N

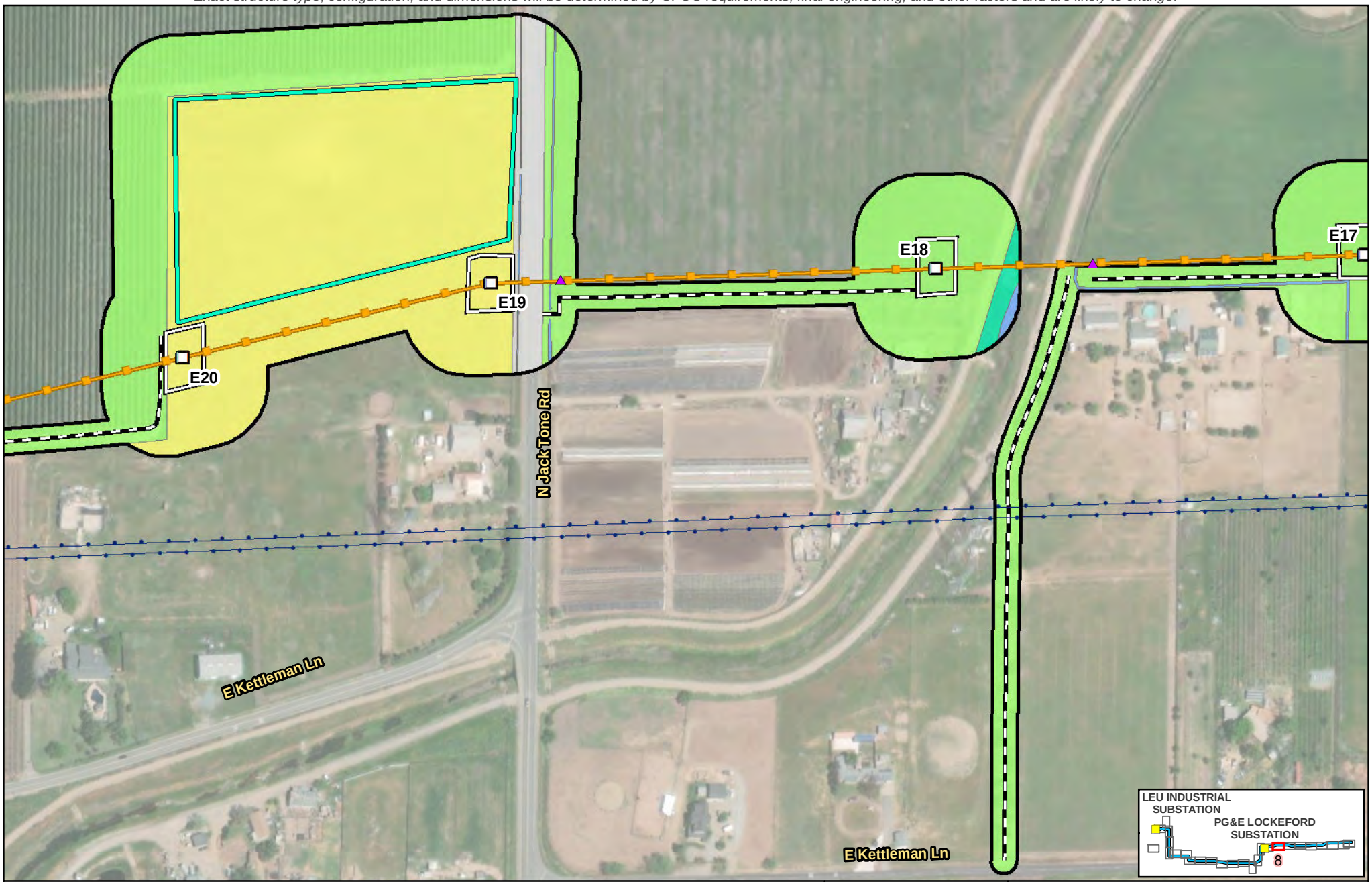
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Scale: 1:3,000

FIGURE 5.4-2
Land Cover within the Biological Study Area

Northern San Joaquin 230 kV Transmission Project

Preliminary design and engineering for the physical, civil, and outdoor components.
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Legend

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- Existing 230 kV Transmission Line

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- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Land Cover

- Agriculture
- Developed/Disturbed
- Grassland
- Other Waters
- Riparian

Source:
1) Esri World Imagery

N

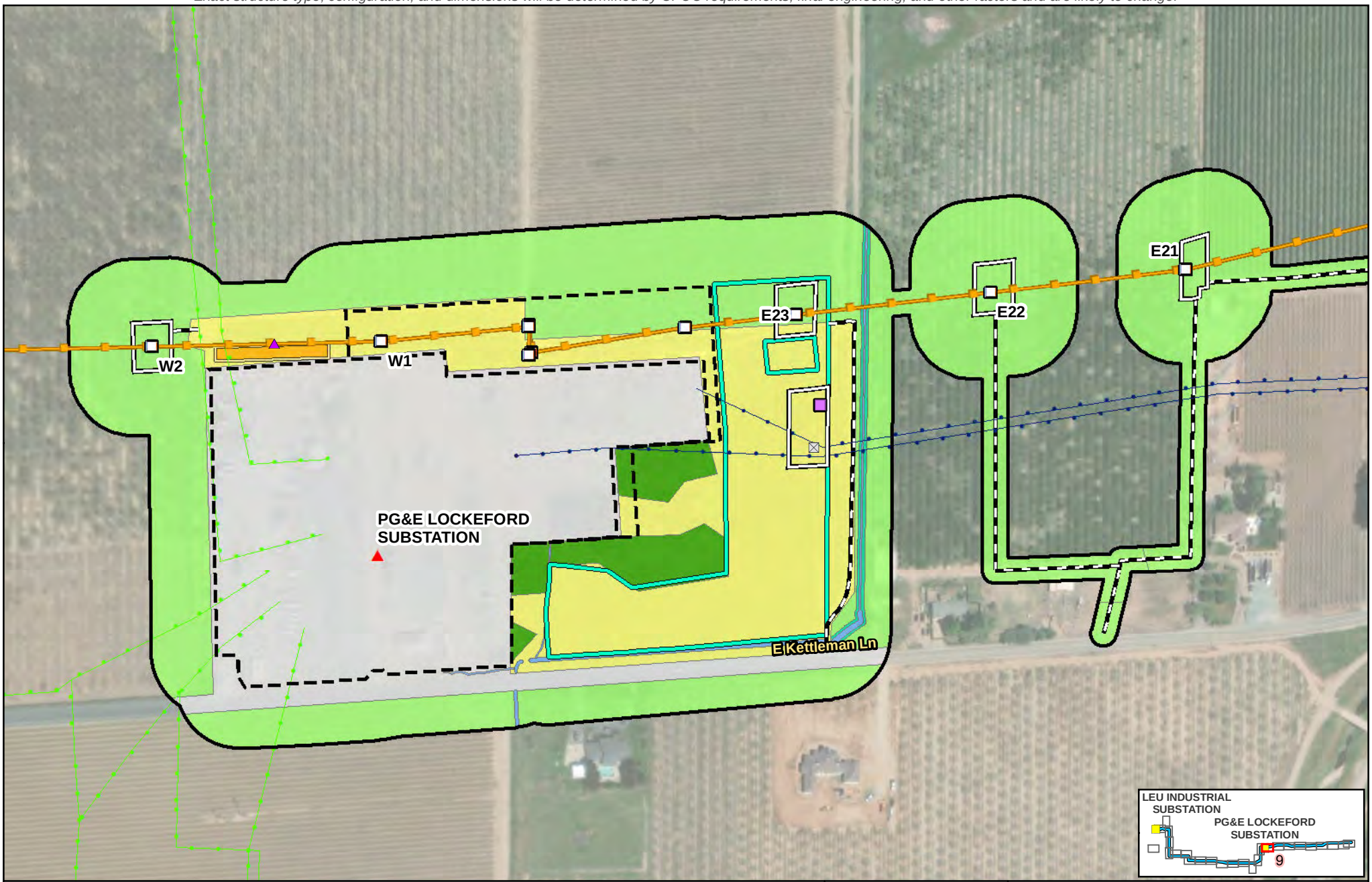
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Scale: 1:3,000

FIGURE 5.4-2
Land Cover within the Biological Study Area
Page 8 of 26
Northern San Joaquin 230 kV Transmission Project

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Legend

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- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Land Cover

- Agriculture
- Developed/Disturbed
- Grassland
- Other Waters
- Riparian
- Tree Cover

Source:
1) Esri World Imagery

N

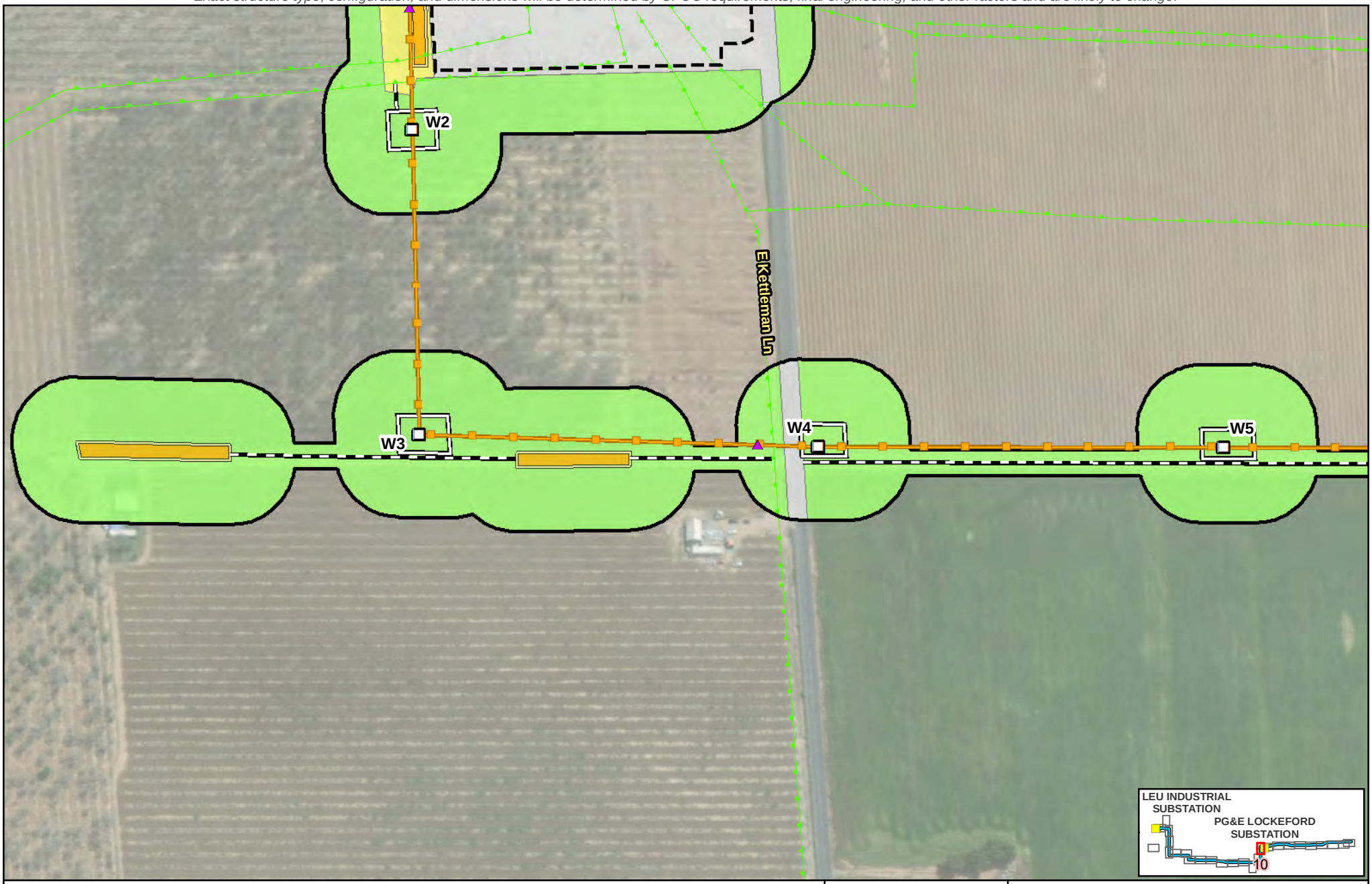
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Scale: 1:3,000

FIGURE 5.4-2
Land Cover within the Biological Study Area
Page 9 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Land Cover

- Agriculture
- Developed/Disturbed
- Grassland

Source:
1) Esri World Imagery

N

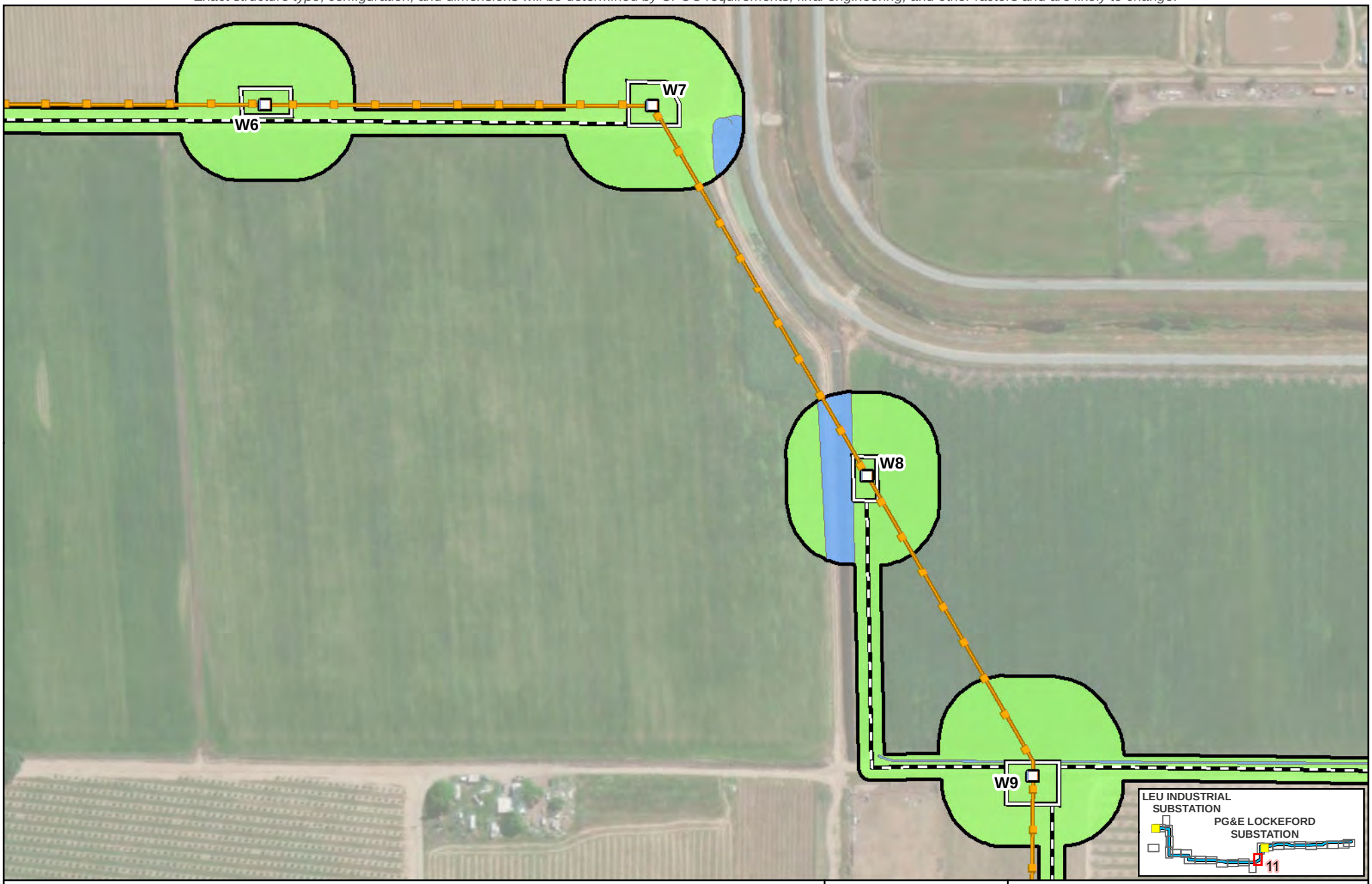
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FIGURE 5.4-2
Land Cover within the Biological Study Area
Page 10 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Land Cover

- Agriculture
- Other Waters

Source:
1) Esri World Imagery

N

0 100 Feet

Scale: 1:3,000

FIGURE 5.4-2
Land Cover within the Biological Study Area
Page 11 of 26
Northern San Joaquin 230 kV Transmission Project

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Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Land Cover

- Agriculture
- Other Waters
- Riparian

Source:
1) Esri World Imagery

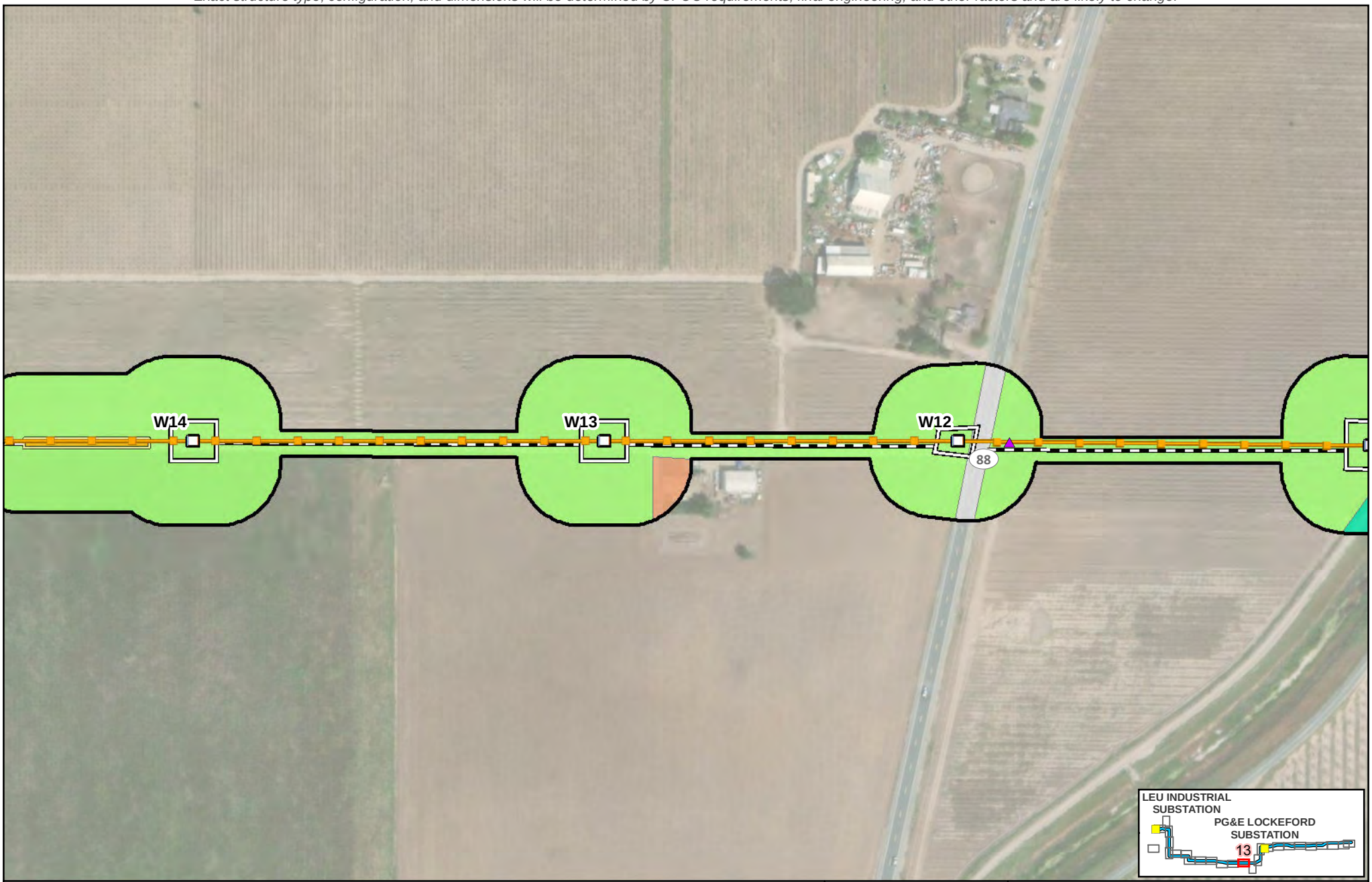
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Scale: 1:3,000

FIGURE 5.4-2
Land Cover within the Biological Study Area
Page 12 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Land Cover

- Agriculture
- Developed/Disturbed
- Riparian
- Ruderal

Source:
1) Esri World Imagery

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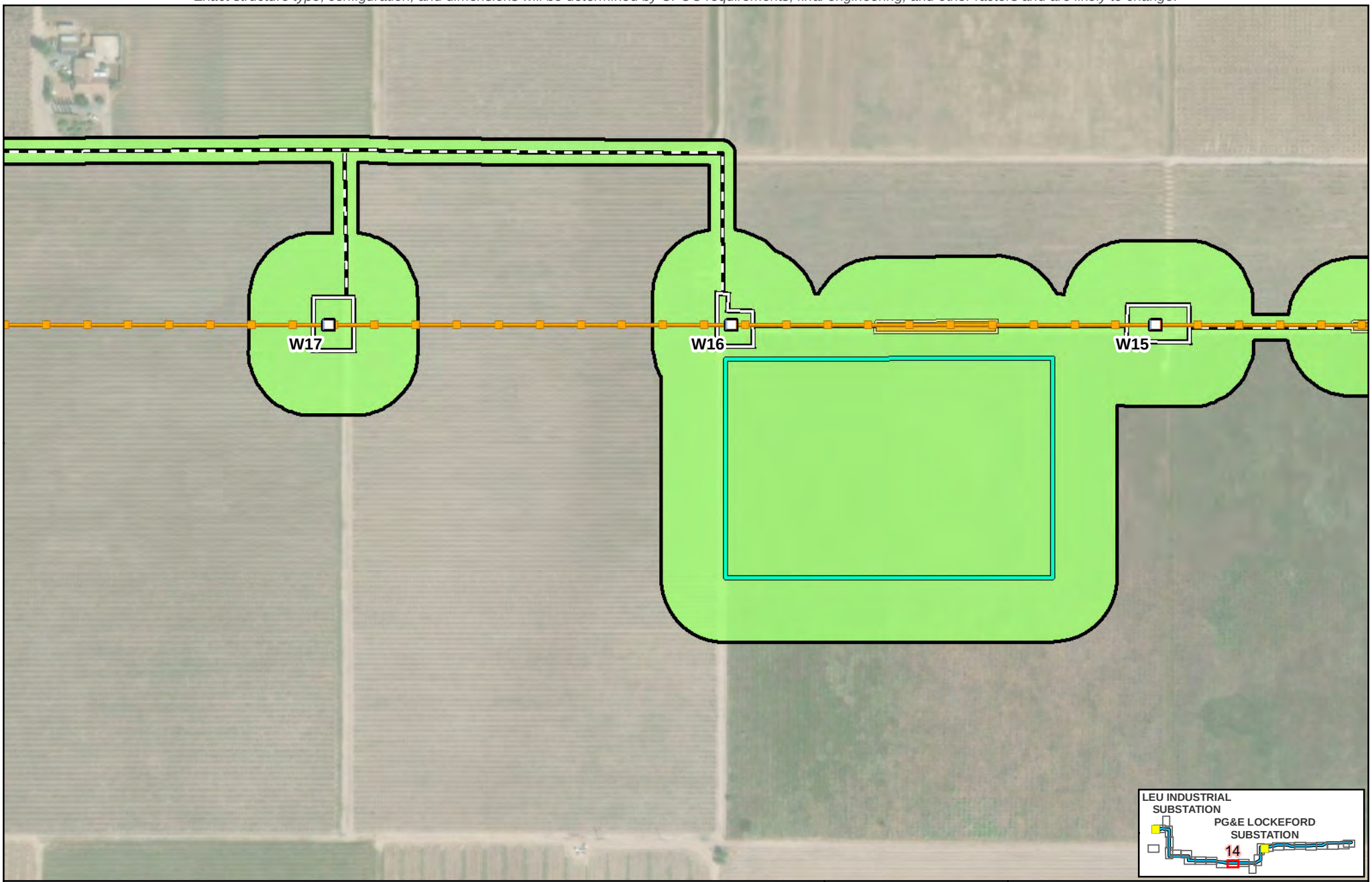
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Scale: 1:3,000

FIGURE 5.4-2
Land Cover within the Biological Study Area
Page 13 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Land Cover

- Agriculture

Source:
1) Esri World Imagery

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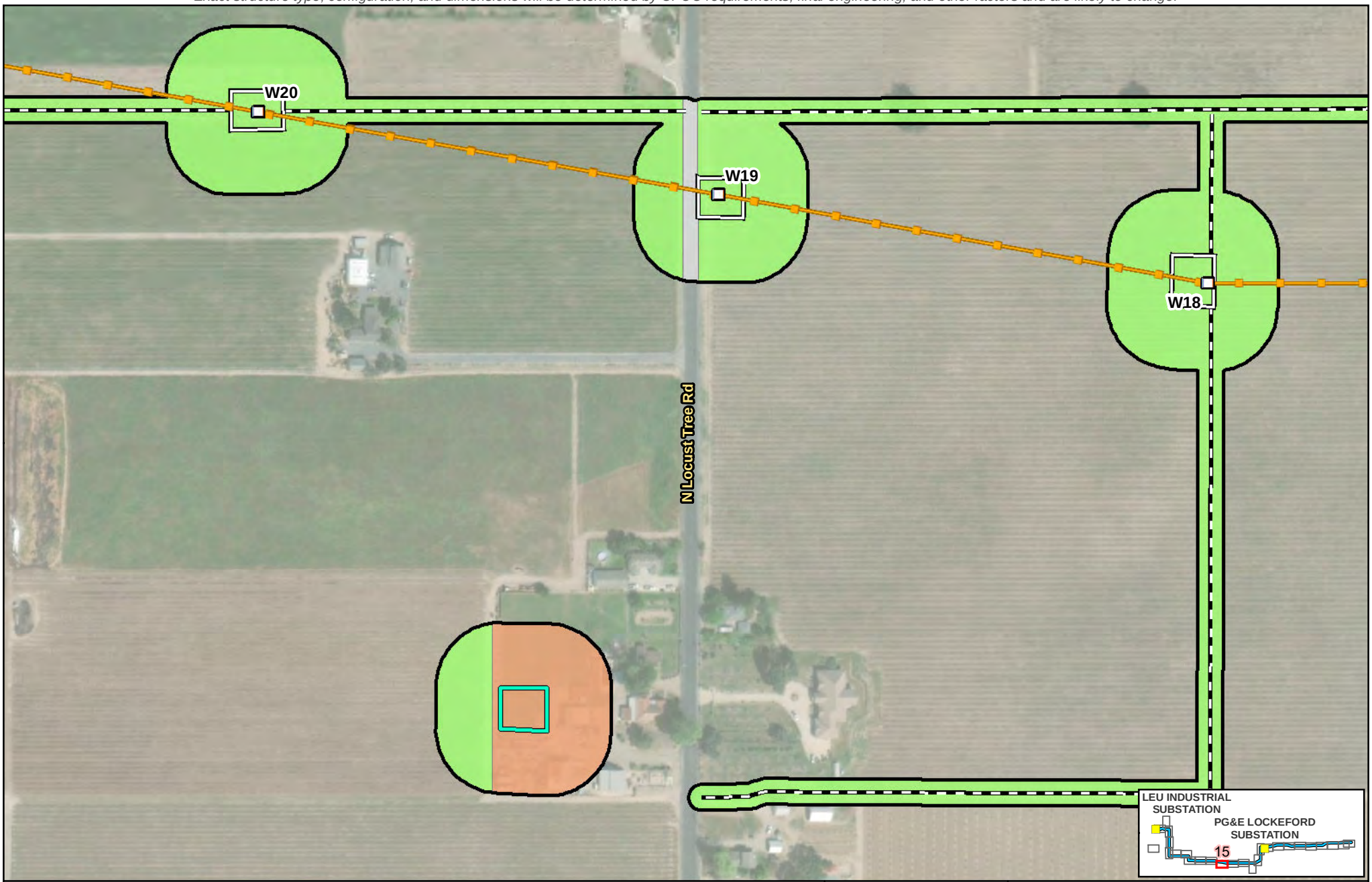
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Scale: 1:3,000

FIGURE 5.4-2
Land Cover within the Biological Study Area
Page 14 of 26
Northern San Joaquin 230 kV Transmission Project

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Legend

- Biological Study Area (387.06 acres)
- Substation
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Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
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- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Land Cover

- Agriculture
- Developed/Disturbed
- Ruderal

Source:
1) Esri World Imagery

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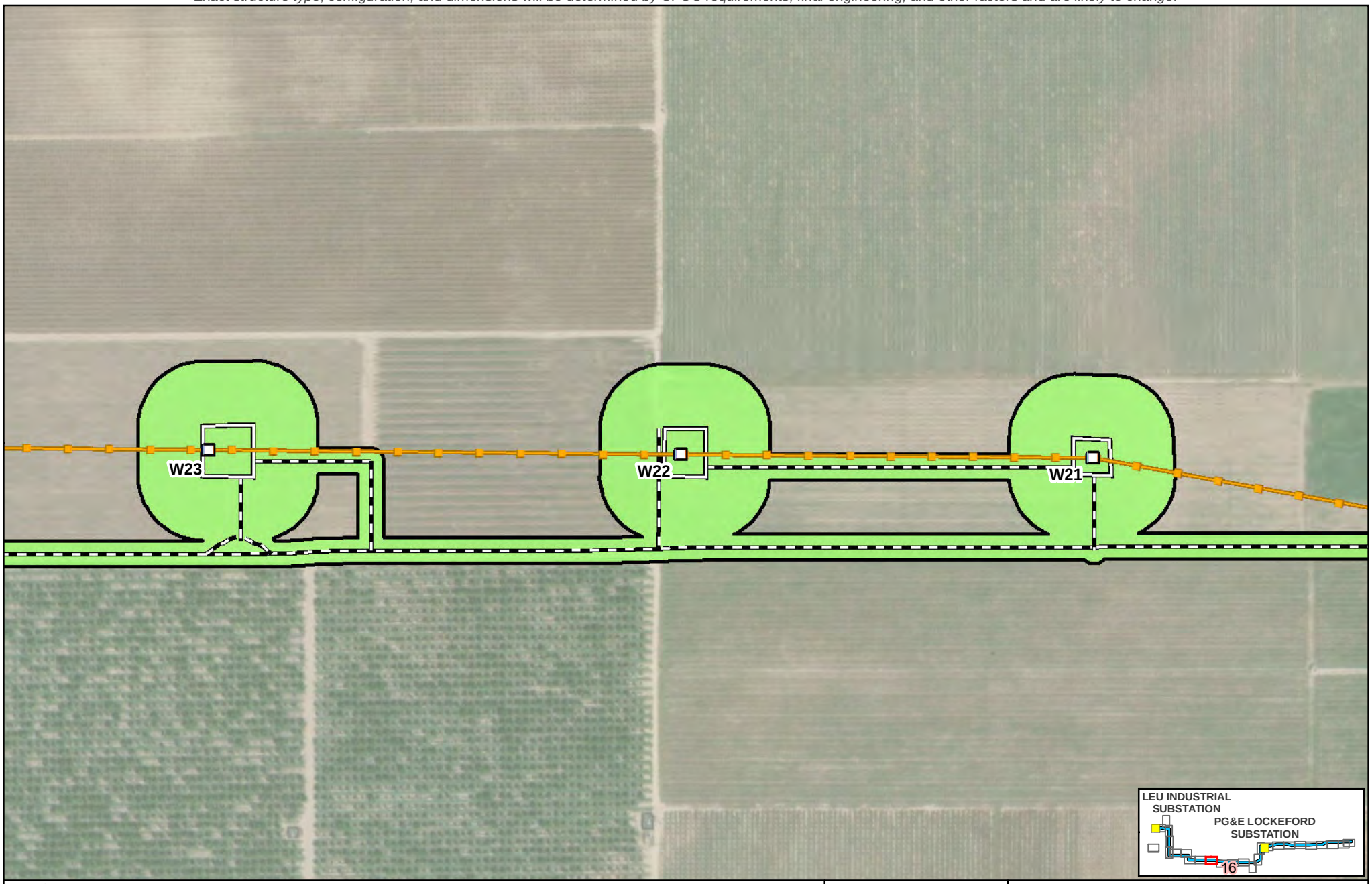
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Scale: 1:3,000

FIGURE 5.4-2
Land Cover within the Biological Study Area
Page 15 of 26
Northern San Joaquin 230 kV Transmission Project

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Legend

- Biological Study Area (387.06 acres)
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Proposed Impact Areas

- Proposed Structure
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- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Land Cover

- Agriculture

Source:
1) Esri World Imagery

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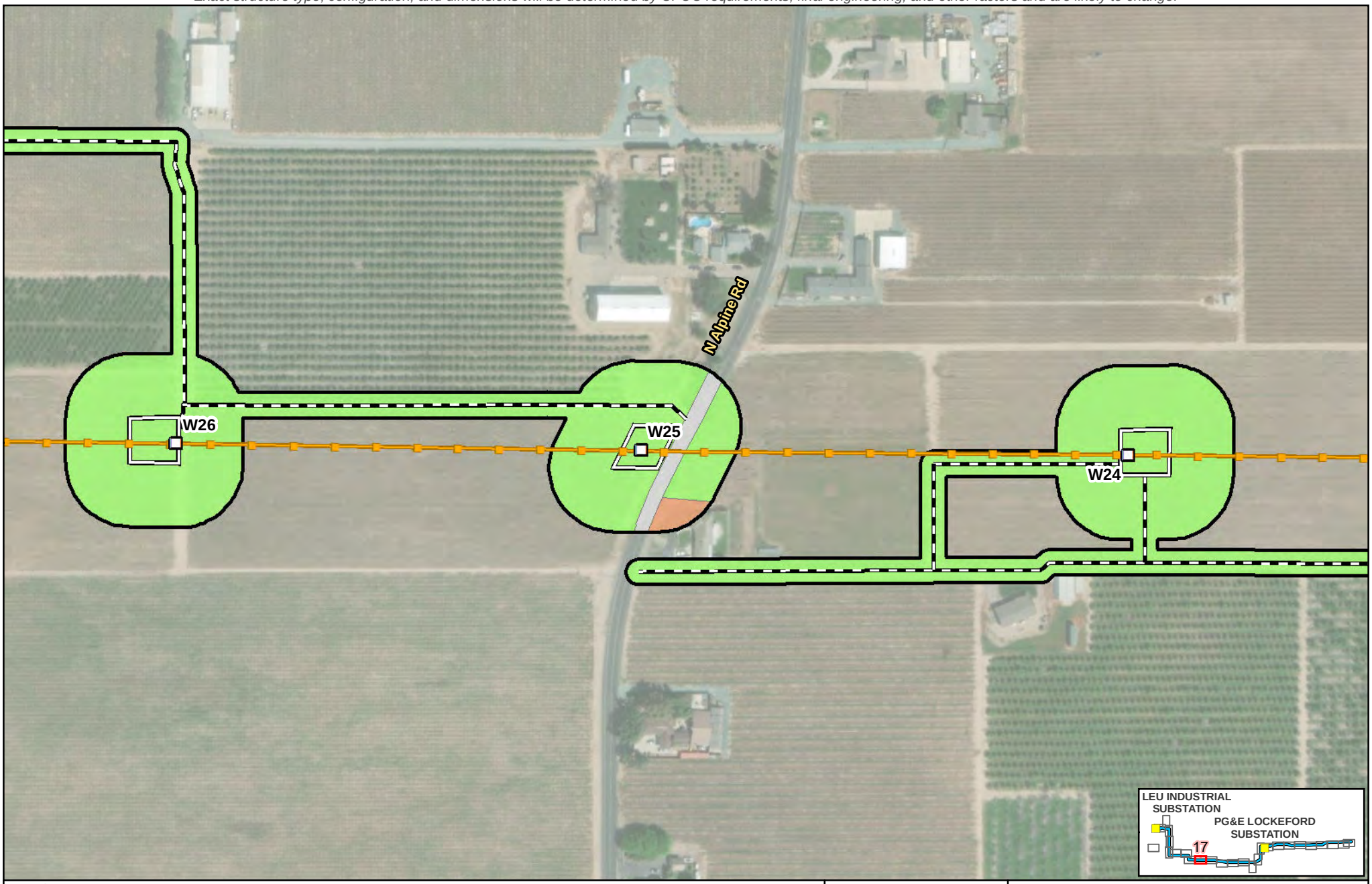
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FIGURE 5.4-2
Land Cover within the Biological Study Area
Page 16 of 26
Northern San Joaquin 230 kV Transmission Project

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Legend

- Biological Study Area (387.06 acres)
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- Proposed Pull Site
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- Proposed Staging Area

Land Cover

- Agriculture
- Developed/Disturbed
- Ruderal

Source:
1) Esri World Imagery

0 100 Feet

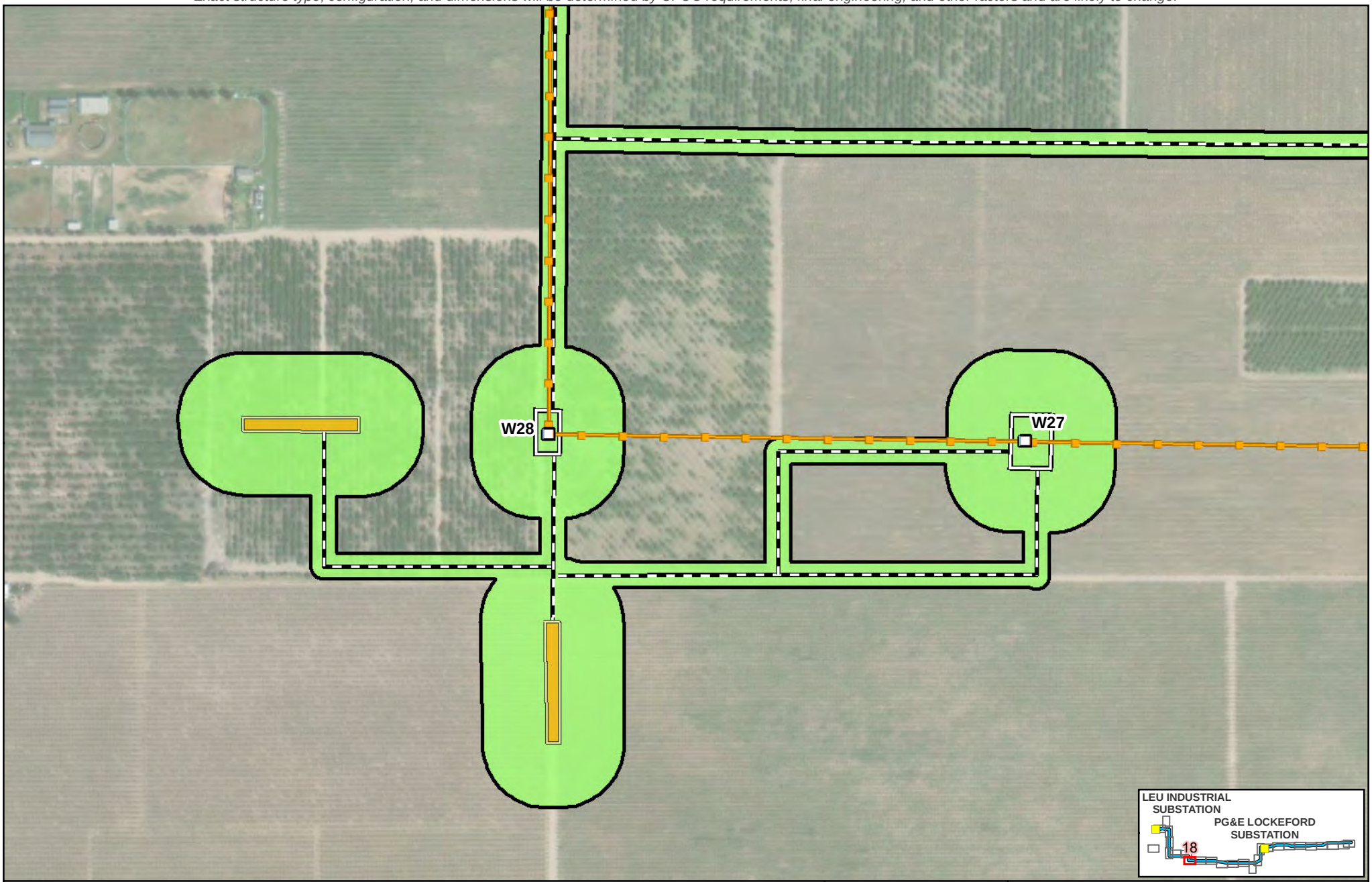
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Scale: 1:3,000

FIGURE 5.4-2
Land Cover within the Biological Study Area
Page 17 of 26
Northern San Joaquin 230 kV Transmission Project

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- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Land Cover

- Agriculture

Source:
1) Esri World Imagery

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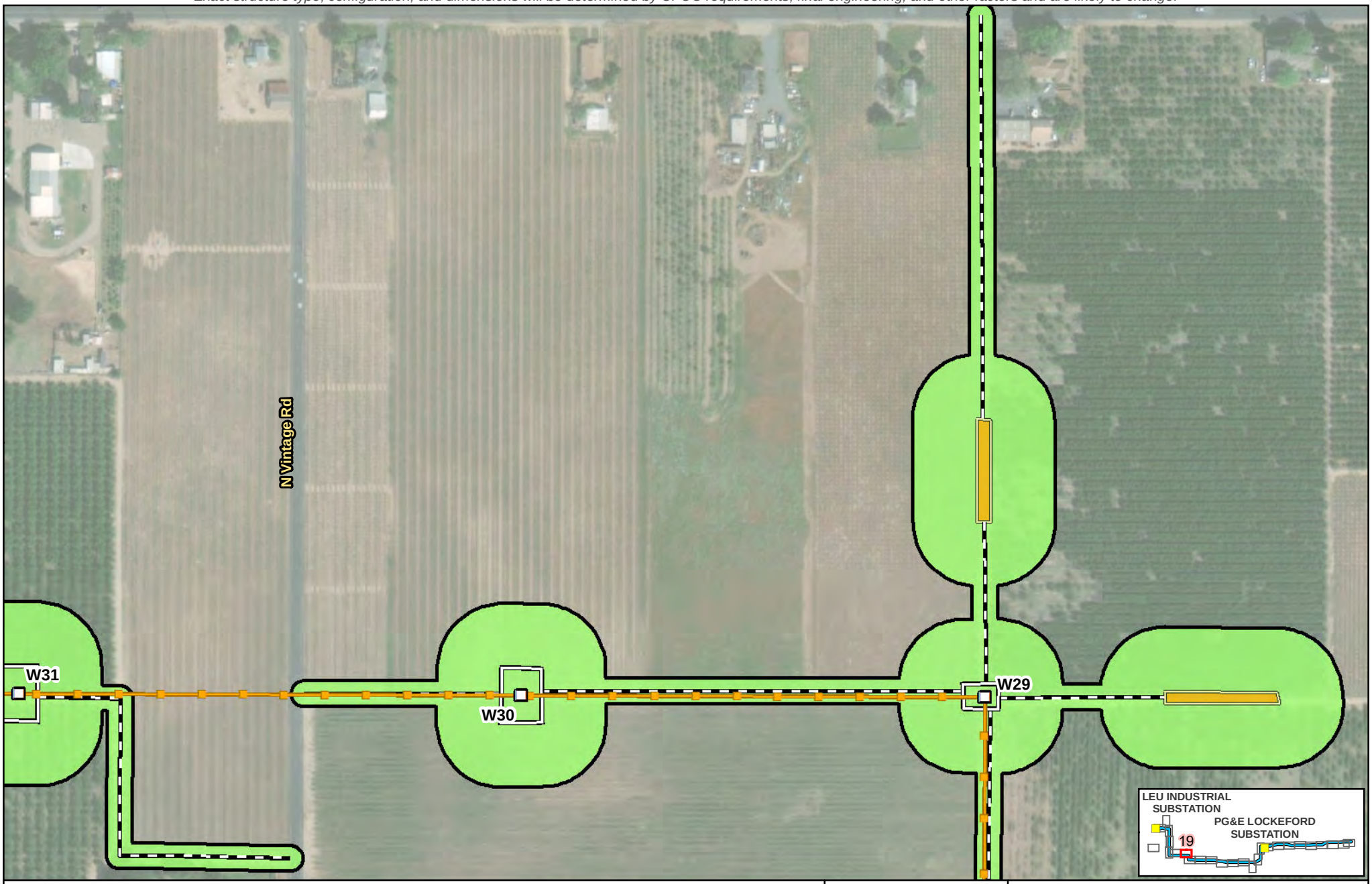
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FIGURE 5.4-2
Land Cover within the Biological Study Area
Page 18 of 26
Northern San Joaquin 230 kV Transmission Project

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- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Land Cover

- Agriculture

Source:
1) Esri World Imagery

N

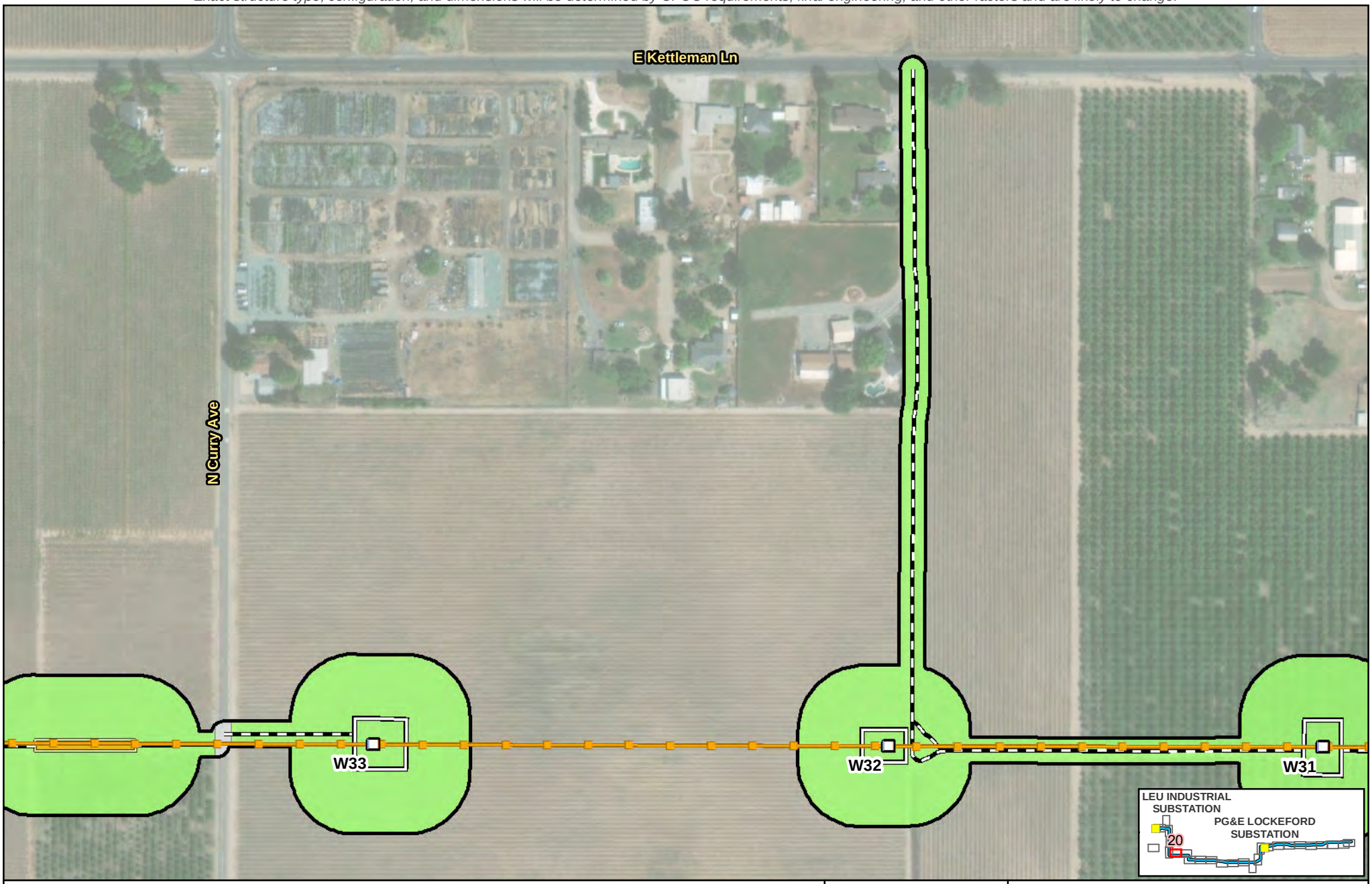
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Scale: 1:3,000

FIGURE 5.4-2
Land Cover within the Biological Study Area
Page 19 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Land Cover

- Agriculture
- Developed/Disturbed

Source:
1) Esri World Imagery

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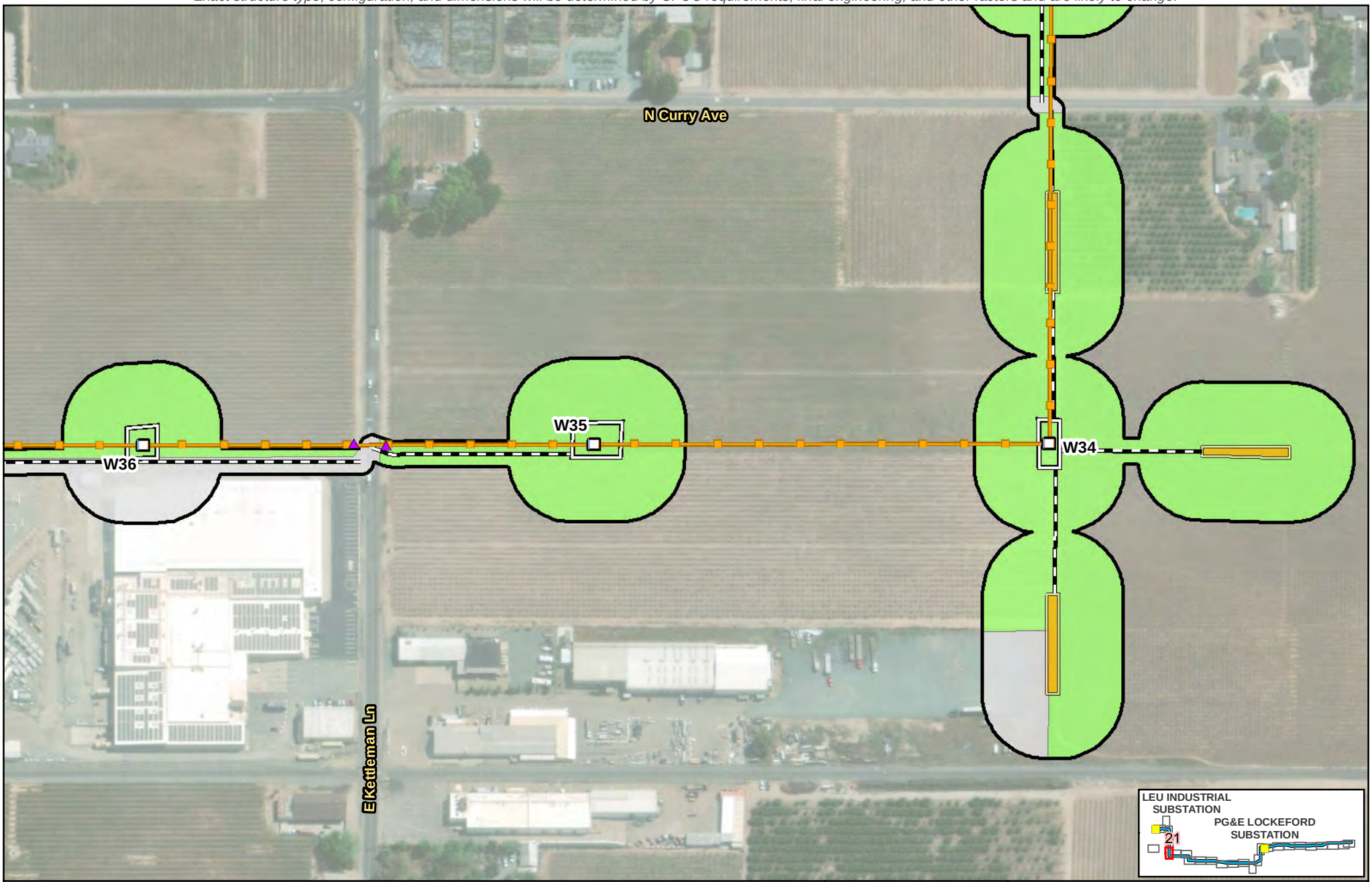
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Scale: 1:3,000

FIGURE 5.4-2
Land Cover within the Biological Study Area
Page 20 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Land Cover

- Agriculture
- Developed/Disturbed

Source:
1) Esri World Imagery

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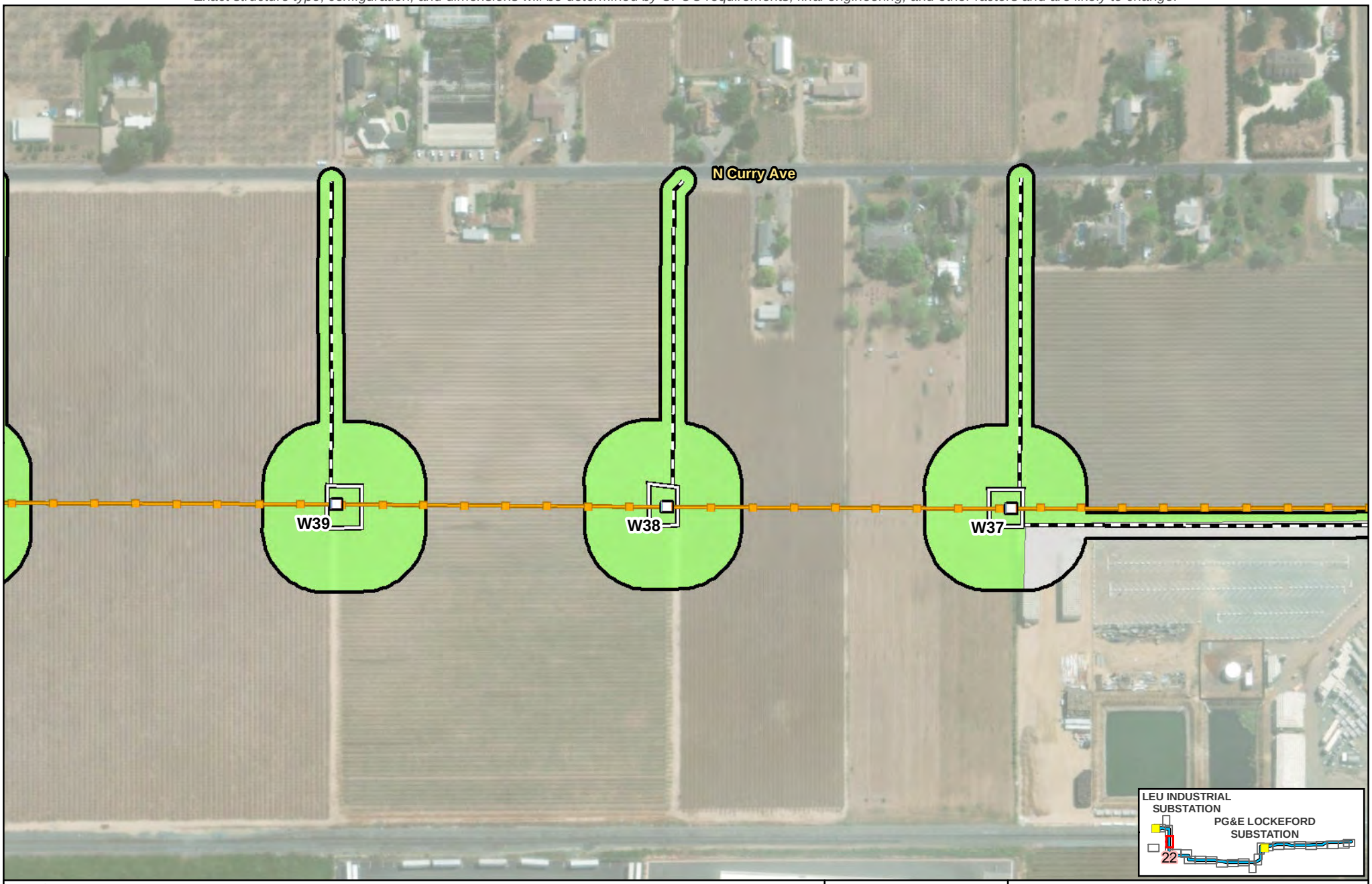
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Scale: 1:3,000

FIGURE 5.4-2
Land Cover within the Biological Study Area
Page 21 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Land Cover

- Agriculture
- Developed/Disturbed

Source:
1) Esri World Imagery

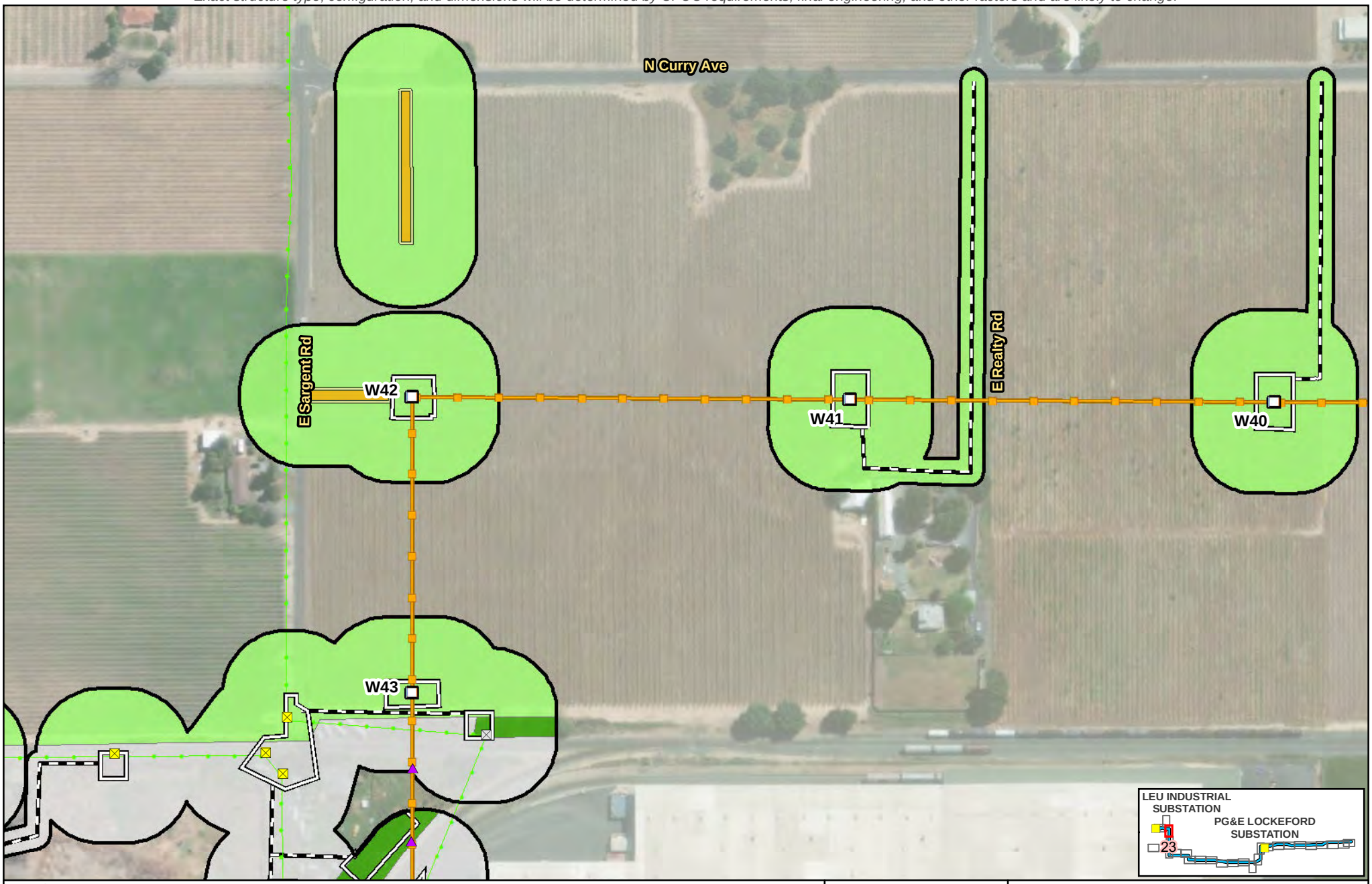
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FIGURE 5.4-2
Land Cover within the Biological Study Area
Page 22 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Land Cover

- Agriculture
- Developed/Disturbed
- Tree Cover

Source:
1) Esri World Imagery

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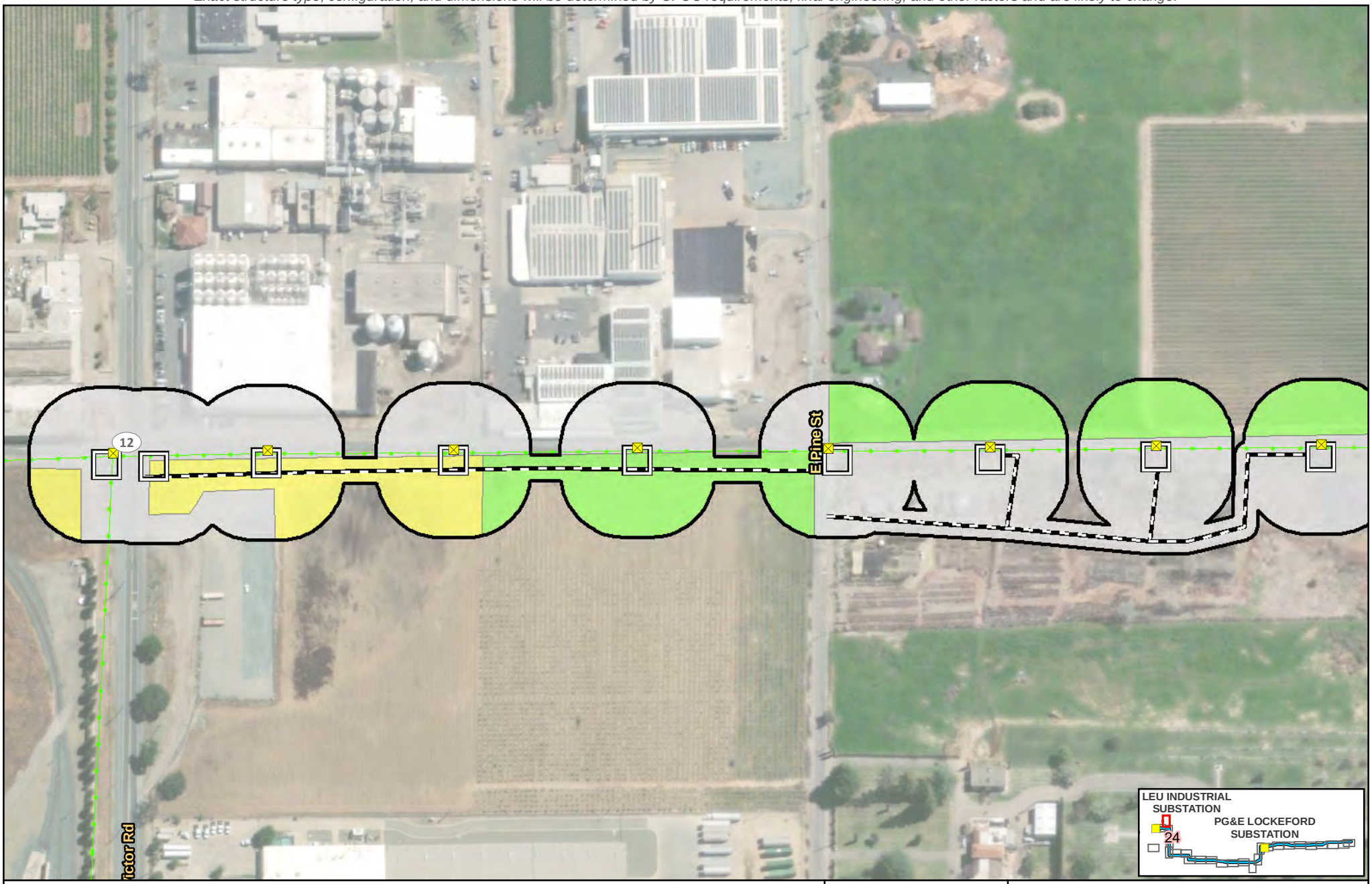
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Scale: 1:3,000

FIGURE 5.4-2
Land Cover within the Biological Study Area
Page 23 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Land Cover

- Agriculture
- Developed/Disturbed
- Grassland

Source:
1) Esri World Imagery

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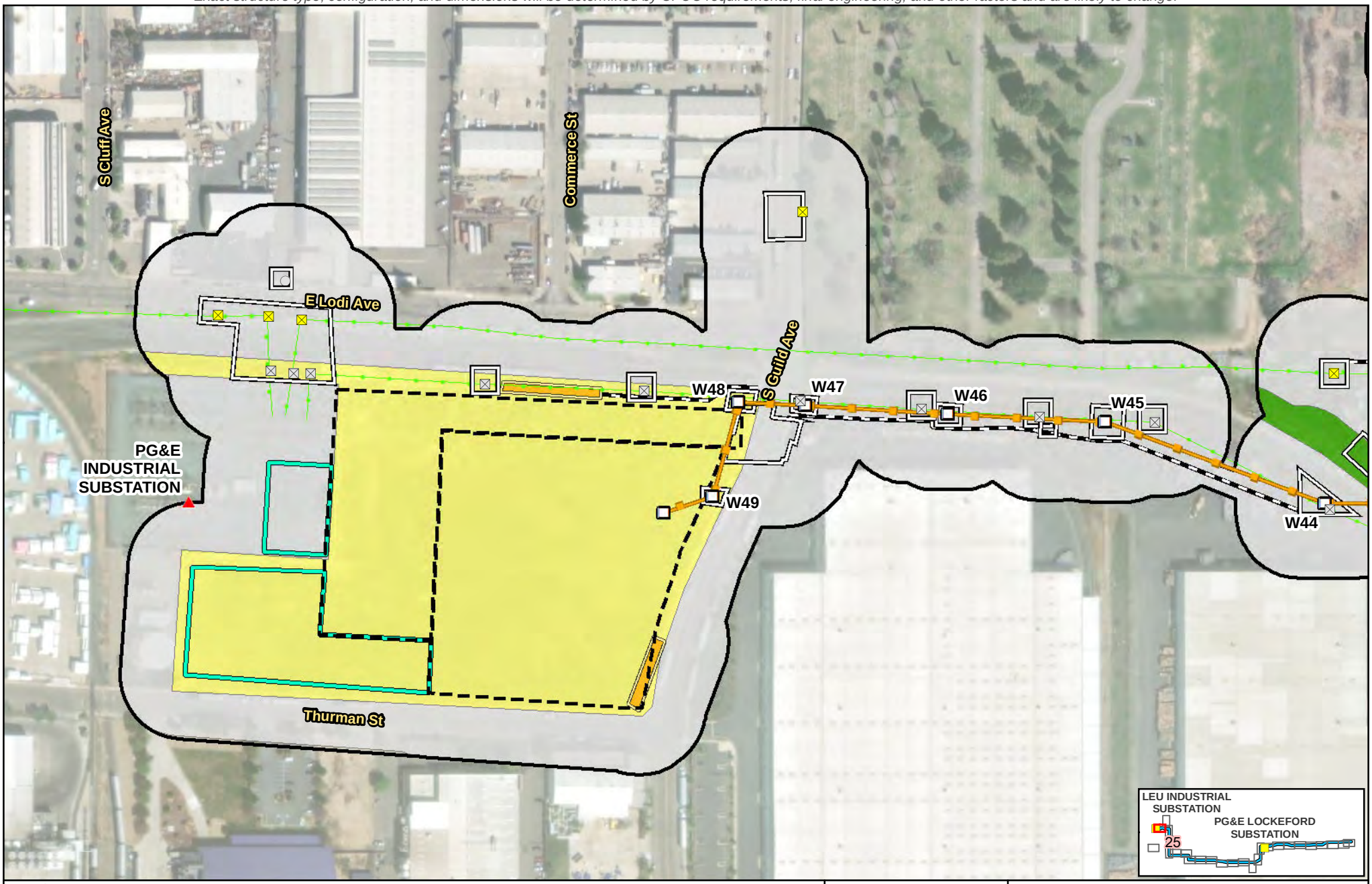
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FIGURE 5.4-2
Land Cover within the Biological Study Area
Page 24 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Land Cover

- Developed/Disturbed
- Grassland
- Tree Cover

Source:
1) Esri World Imagery

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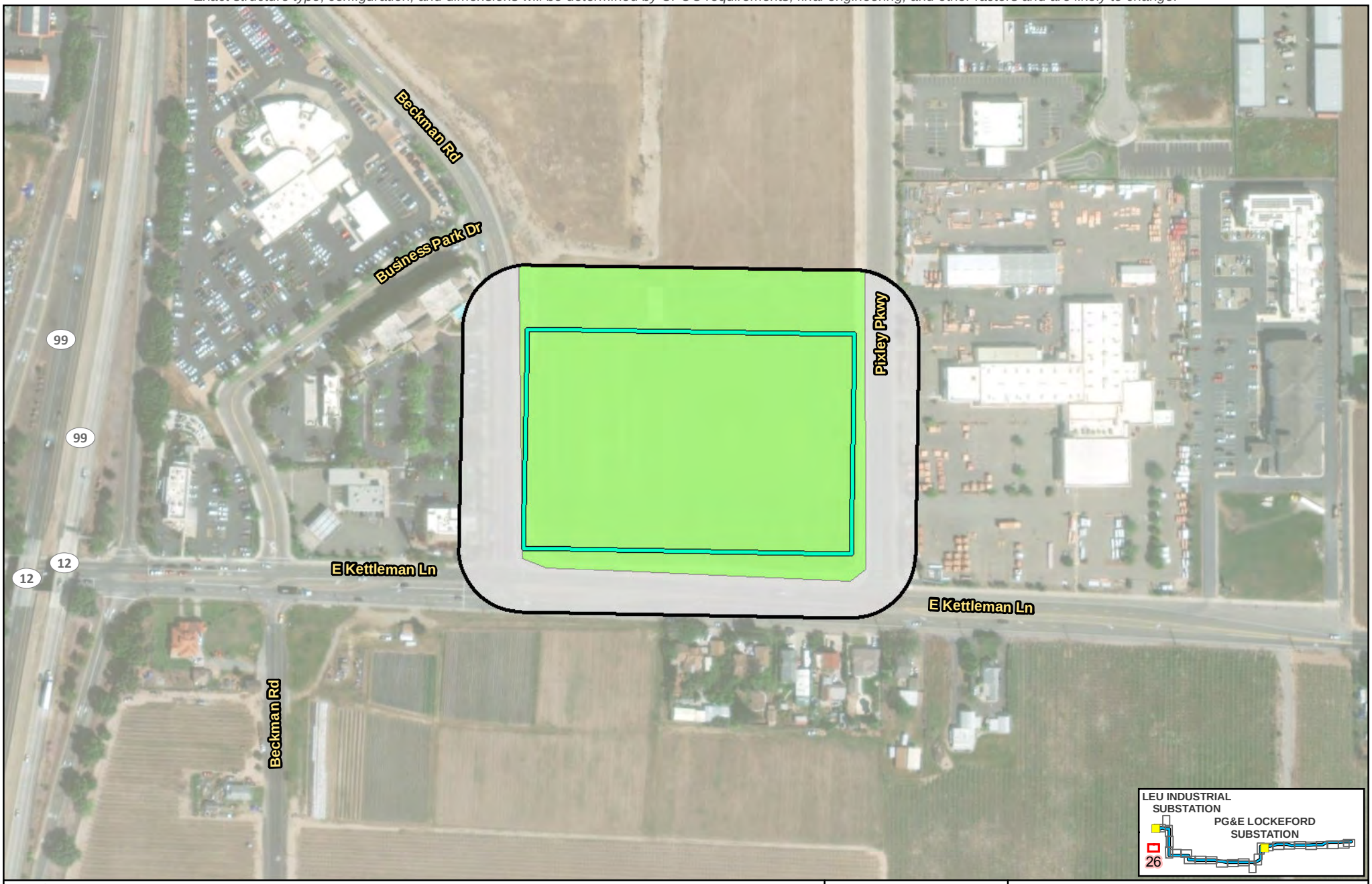
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Scale: 1:3,000

FIGURE 5.4-2
Land Cover within the Biological Study Area
Page 25 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Land Cover

- Agriculture
- Developed/Disturbed

Source:
1) Esri World Imagery

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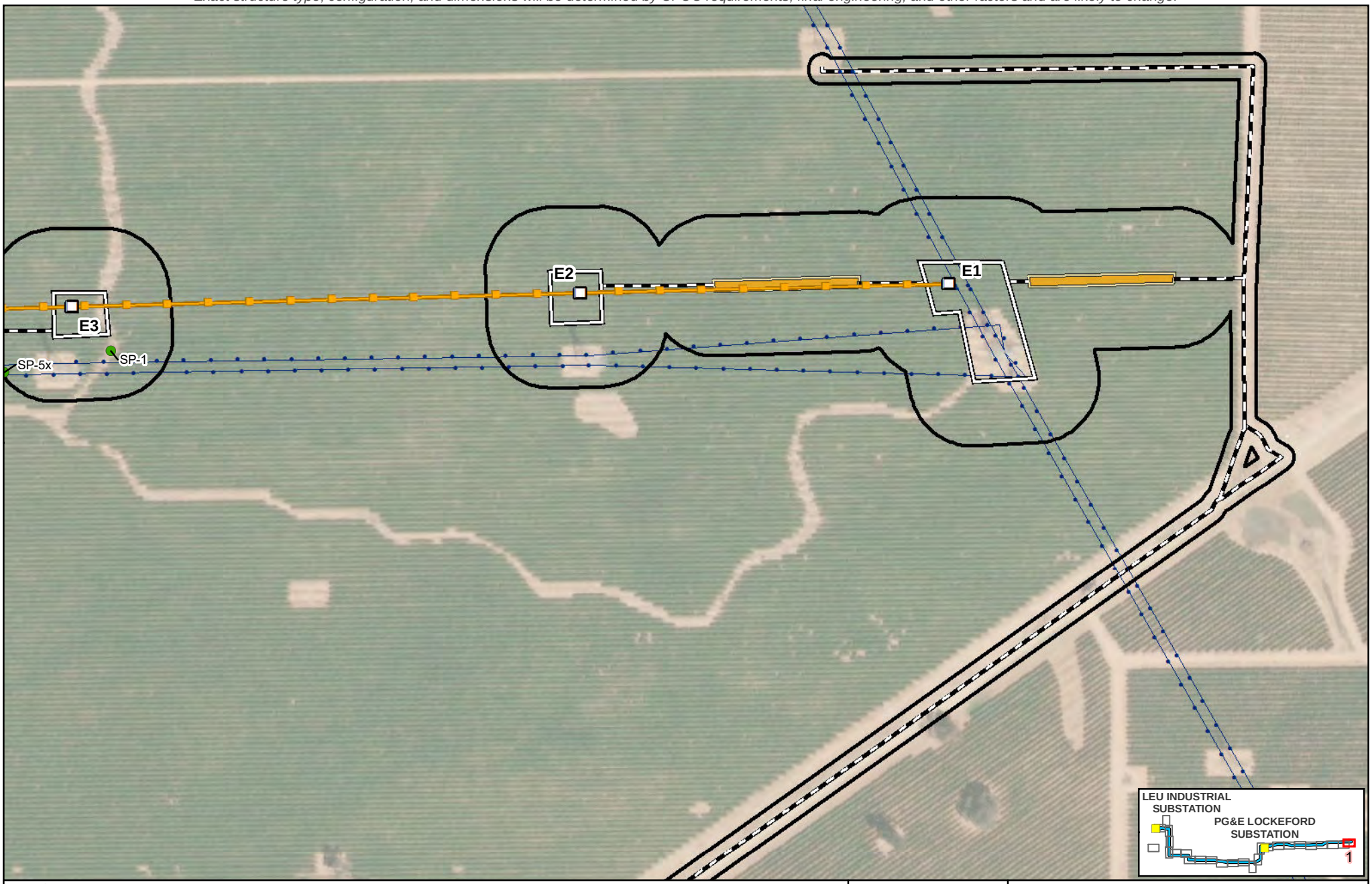
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Scale: 1:3,000

FIGURE 5.4-2
Land Cover within the Biological Study Area
Page 26 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area
- Wetland Sample Point

Source:
1) Esri World Imagery

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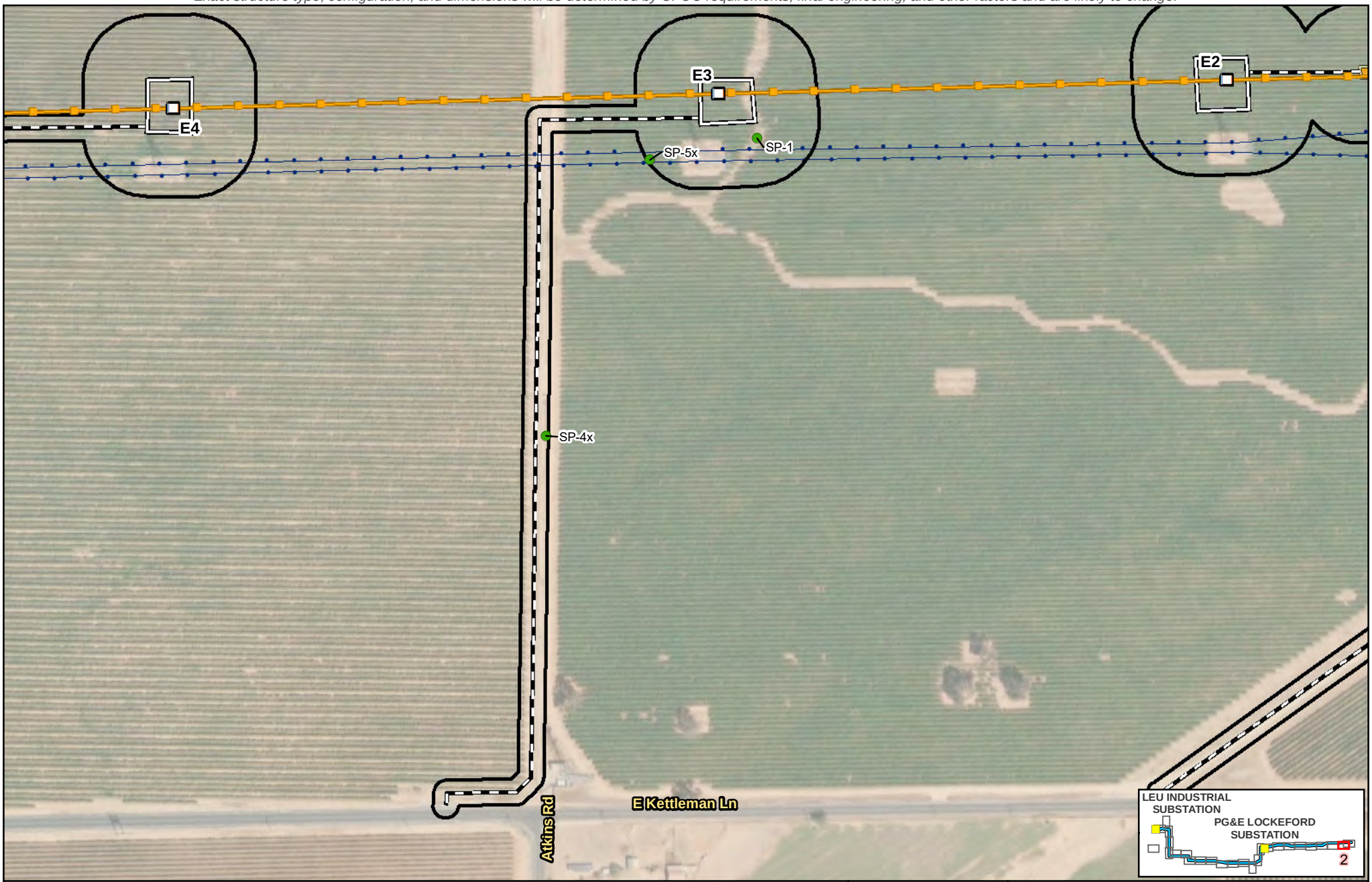
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FIGURE 5.4-3
Aquatic Resources within the Biological Study Area
Page 1 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area
- Wetland Sample Point

Source: 1) Esri World Imagery

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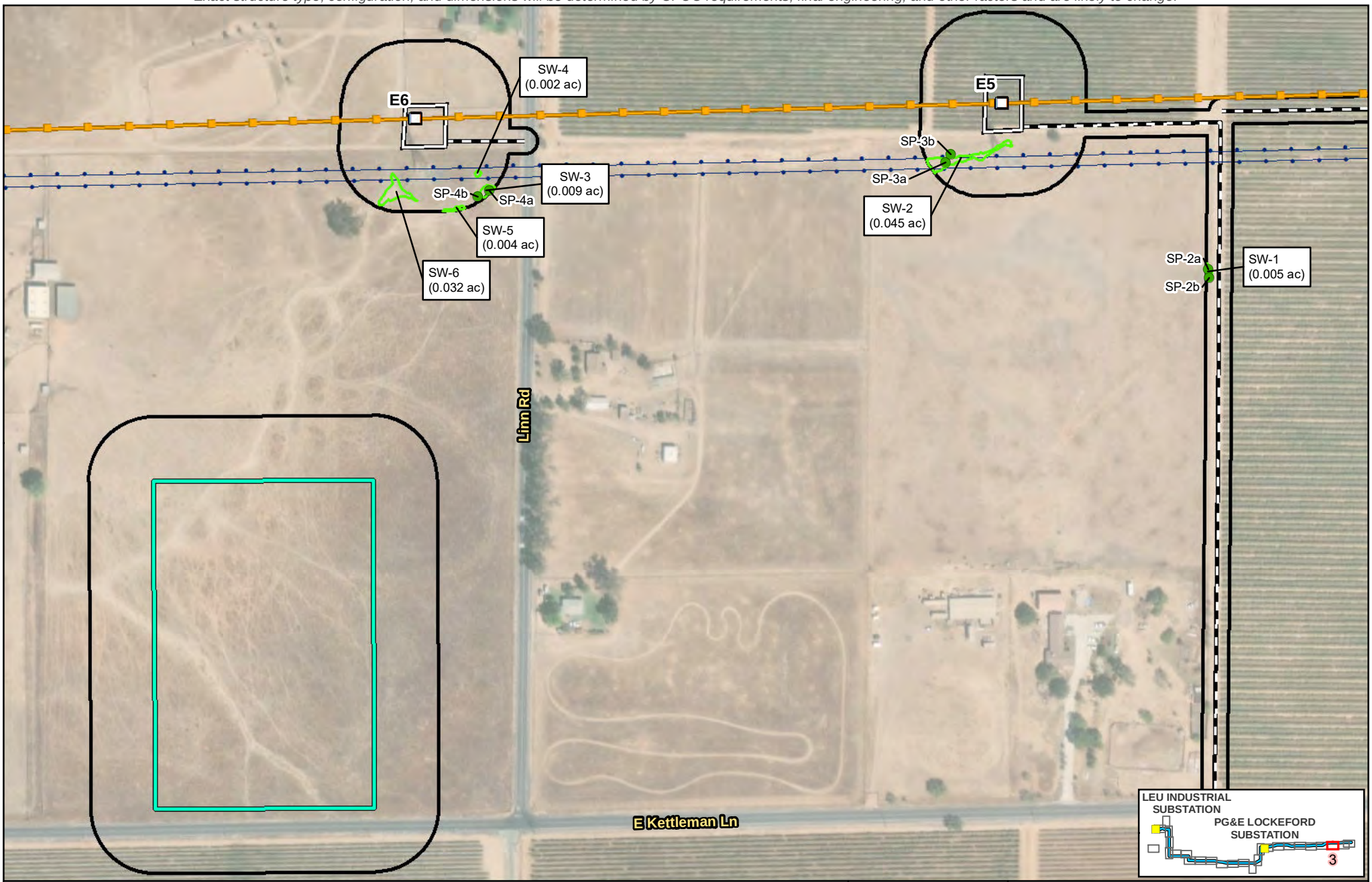
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FIGURE 5.4-3
Aquatic Resources within the Biological Study Area
Page 2 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Potentially Jurisdictional Aquatic Resources and Riparian Habitat

- Seasonal Wetland (SW) (0.2 ac)
- Wetland Sample Point

Source:
1) Esri World Imagery

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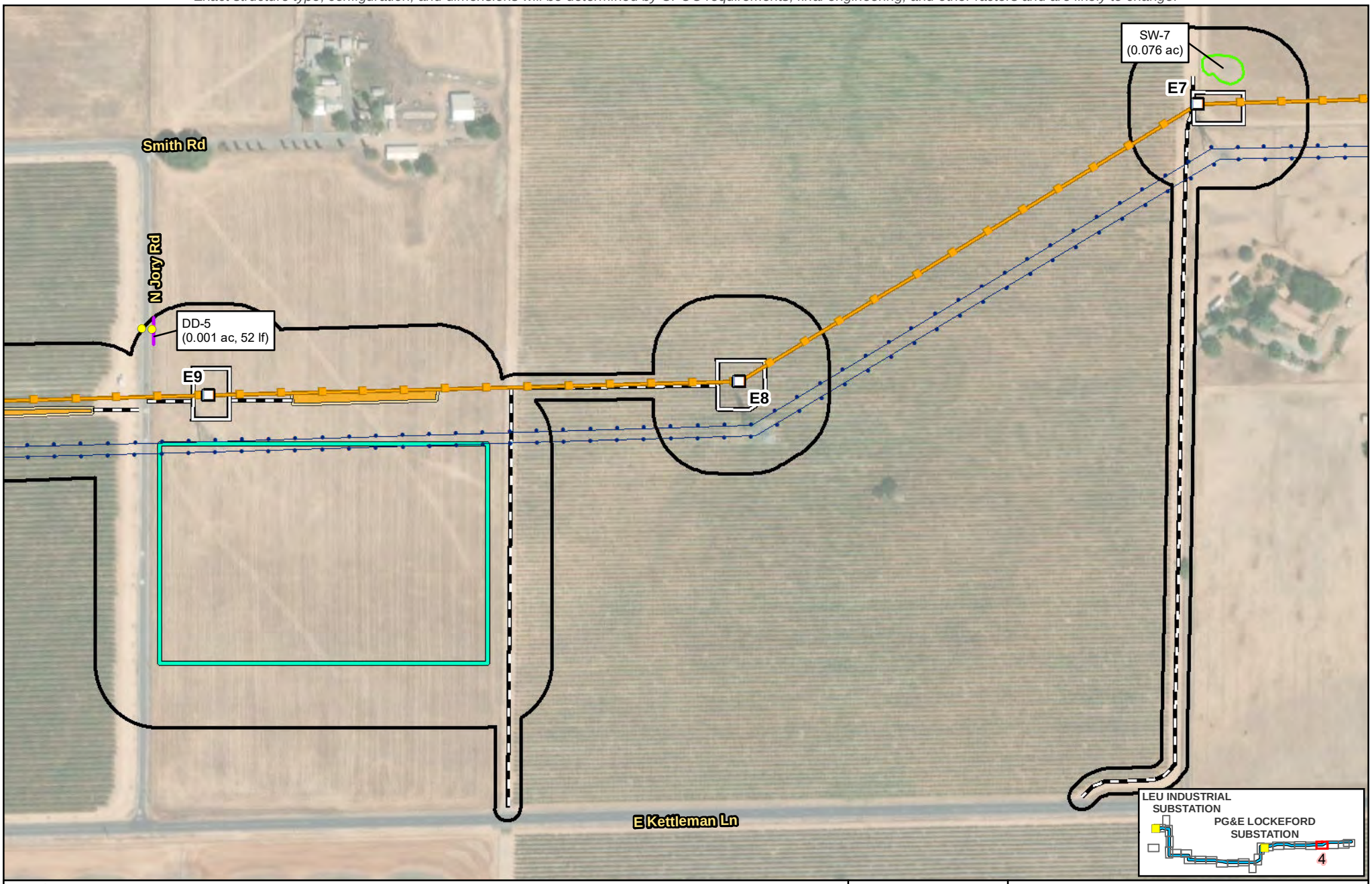
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FIGURE 5.4-3
Aquatic Resources within the Biological Study Area
Page 3 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Potentially Jurisdictional Aquatic Resources and Riparian Habitat

- Seasonal Wetland (SW) (0.2 ac)
- Drainage Ditch (DD) (0.127 ac, 1,805 lf)
- Culvert

Source: 1) Esri World Imagery

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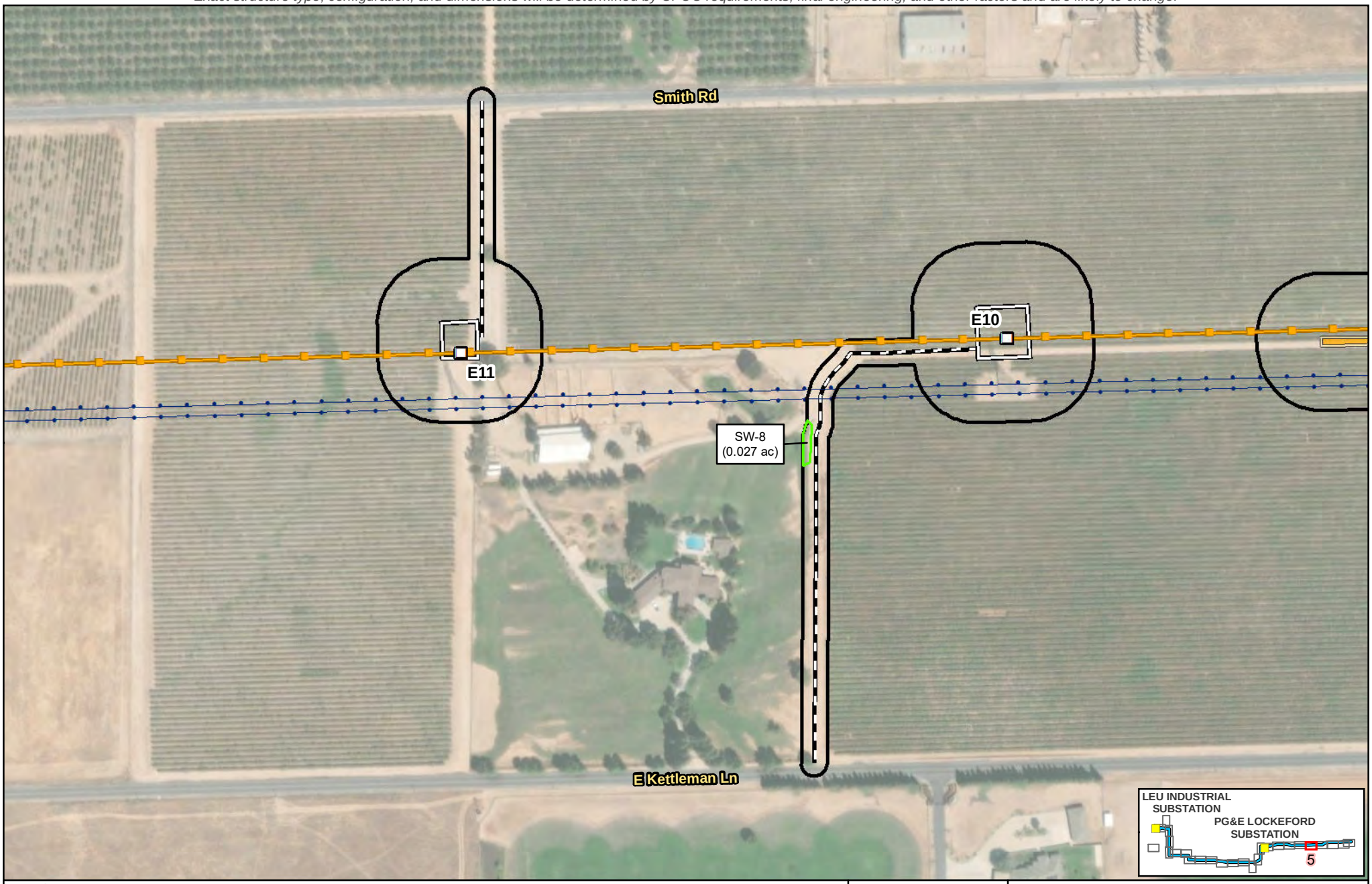
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FIGURE 5.4-3
Aquatic Resources within the Biological Study Area
Page 4 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Potentially Jurisdictional Aquatic Resources and Riparian Habitat

- Seasonal Wetland (SW) (0.2 ac)

Source:
1) Esri World Imagery

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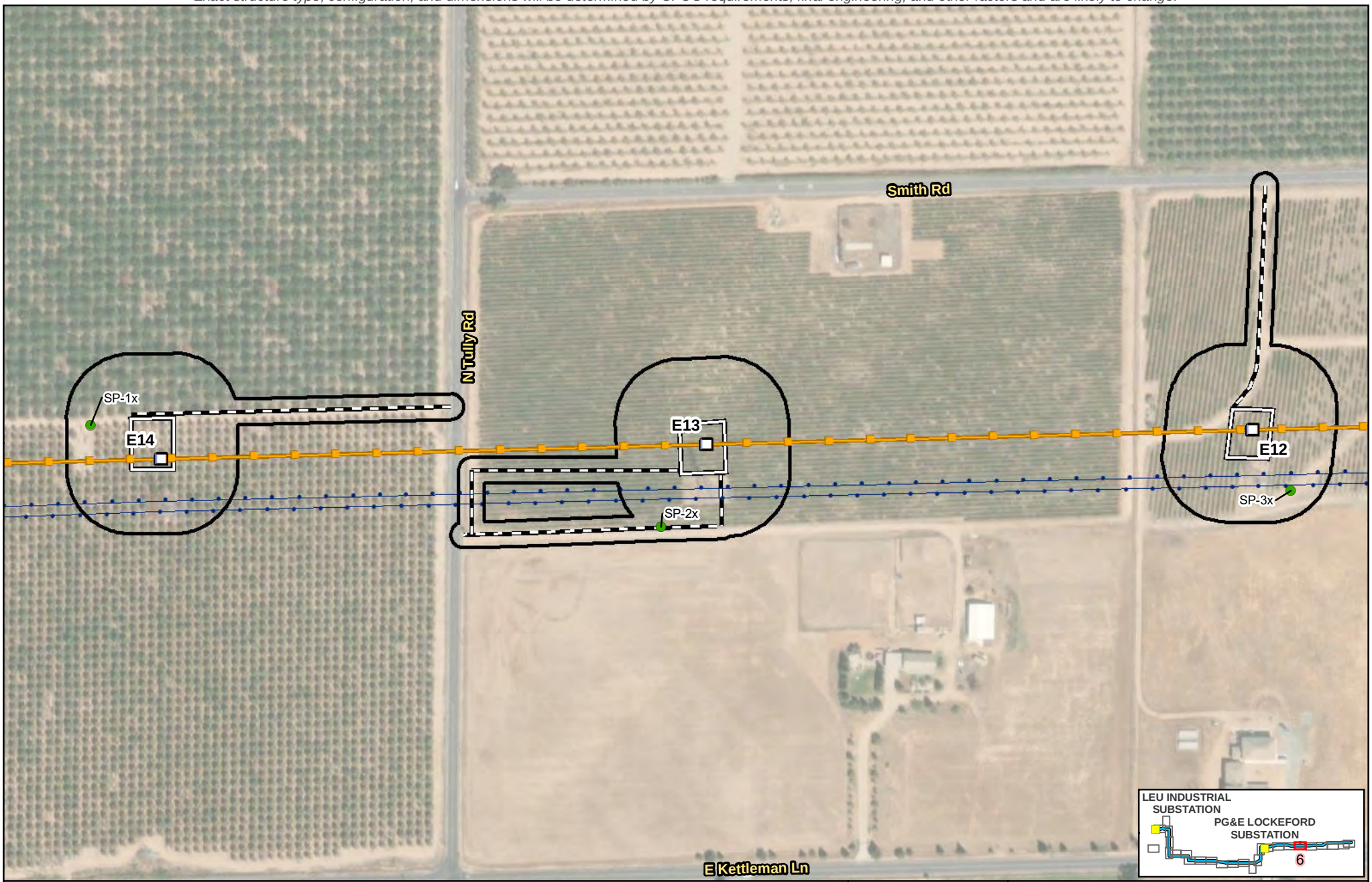
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FIGURE 5.4-3
Aquatic Resources within the Biological Study Area
Page 5 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area
- Wetland Sample Point

Source:
1) Esri World Imagery

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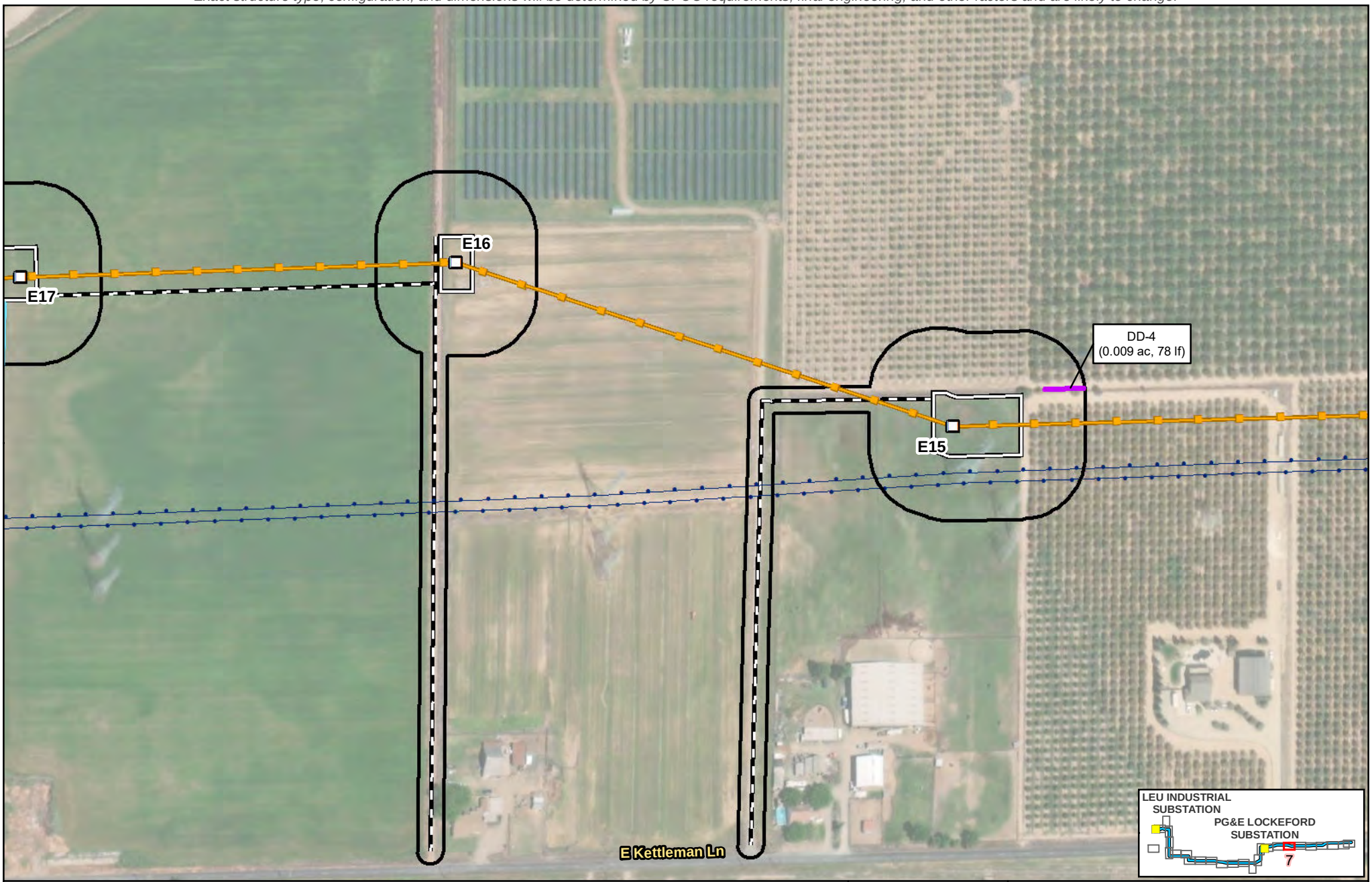
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FIGURE 5.4-3
Aquatic Resources within the Biological Study Area
Page 6 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Potentially Jurisdictional Aquatic Resources and Riparian Habitat

- Constructed Watercourse (CW) (0.545 ac, 2,775 lf)
- Drainage Ditch (DD) (0.127 ac, 1,805 lf)

Source: 1) Esri World Imagery

N

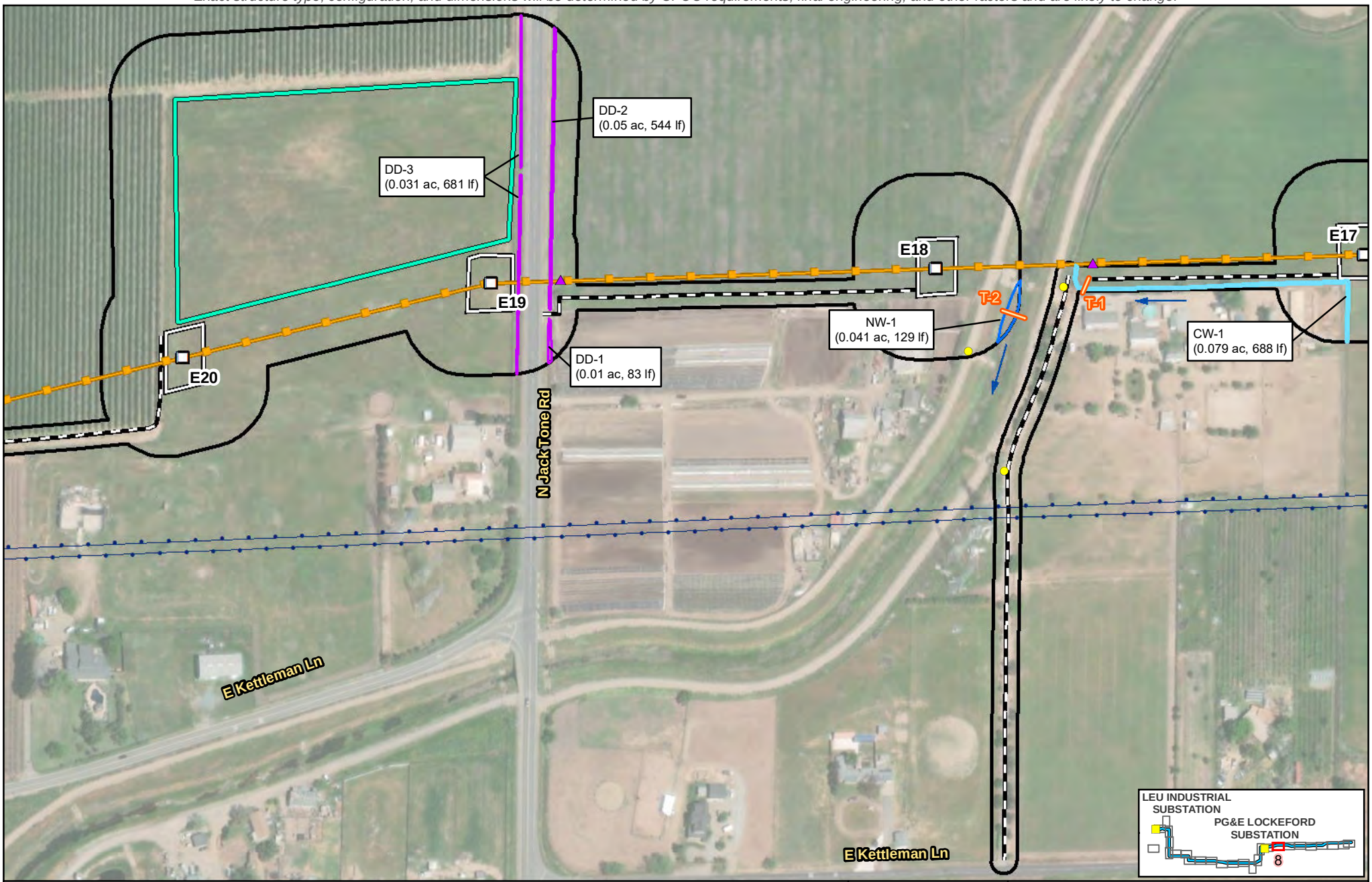
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FIGURE 5.4-3
Aquatic Resources within the Biological Study Area
Page 7 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Potentially Jurisdictional Aquatic Resources and Riparian Habitat

- Natural Watercourse (NW) (0.247 ac, 359 lf)
- Constructed Watercourse (CW) (0.545 ac, 2,775 lf)
- Drainage Ditch (DD) (0.127 ac, 1,805 lf)
- Culvert
- Flow Direction
- Transect

Source:
1) Esri World Imagery

N

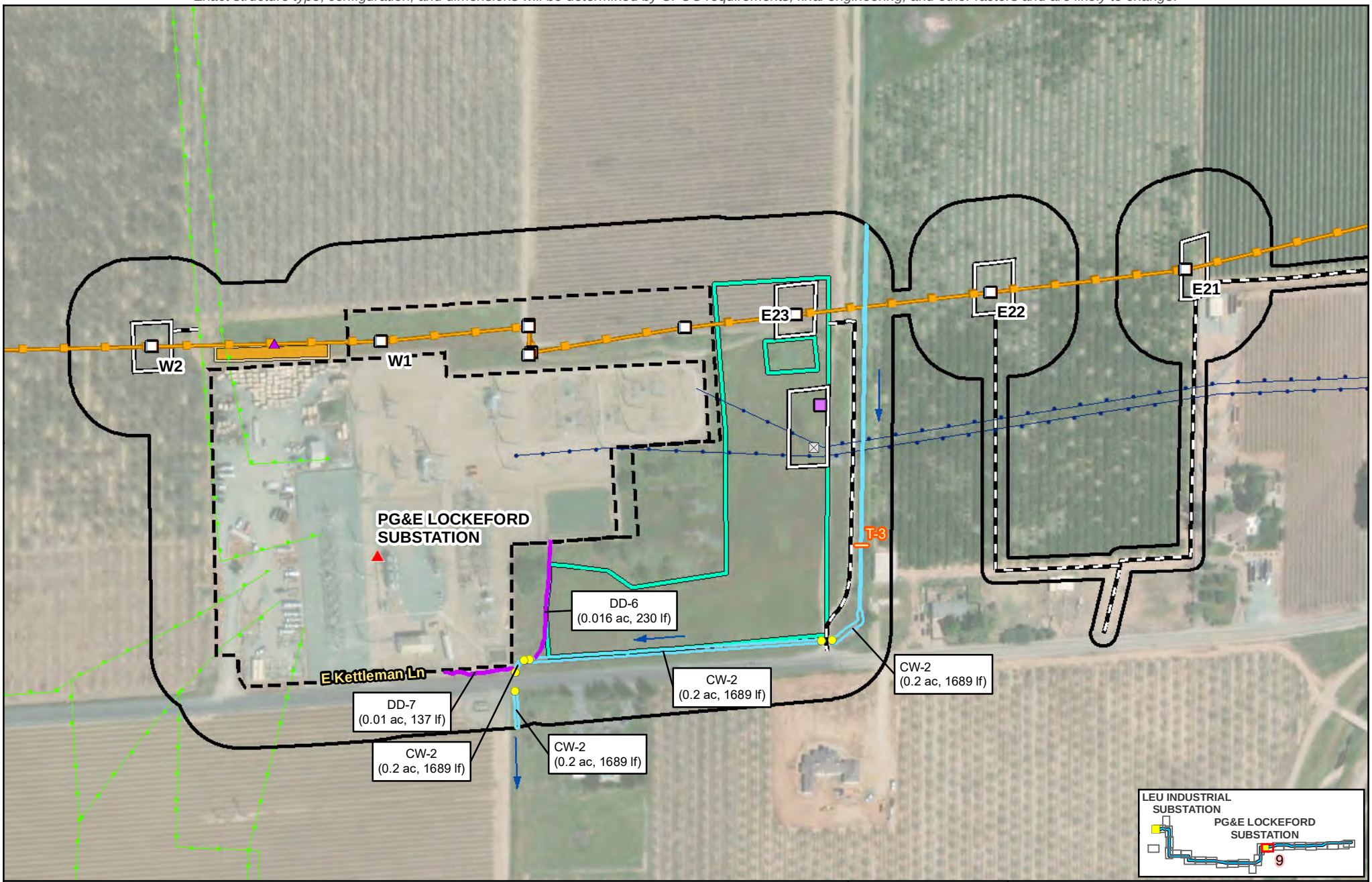
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FIGURE 5.4-3
Aquatic Resources within the Biological Study Area
Page 8 of 26
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\BiologicalResources\Figure_5.4-3_230730.mxd kgrant1 8/1/2023

Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Potentially Jurisdictional Aquatic Resources and Riparian Habitat

- Constructed Watercourse (CW) (0.545 ac, 2,775 lf)
- Drainage Ditch (DD) (0.127 ac, 1,805 lf)
- Culvert
- Flow Direction
- Transect

Source: 1) Esri World Imagery

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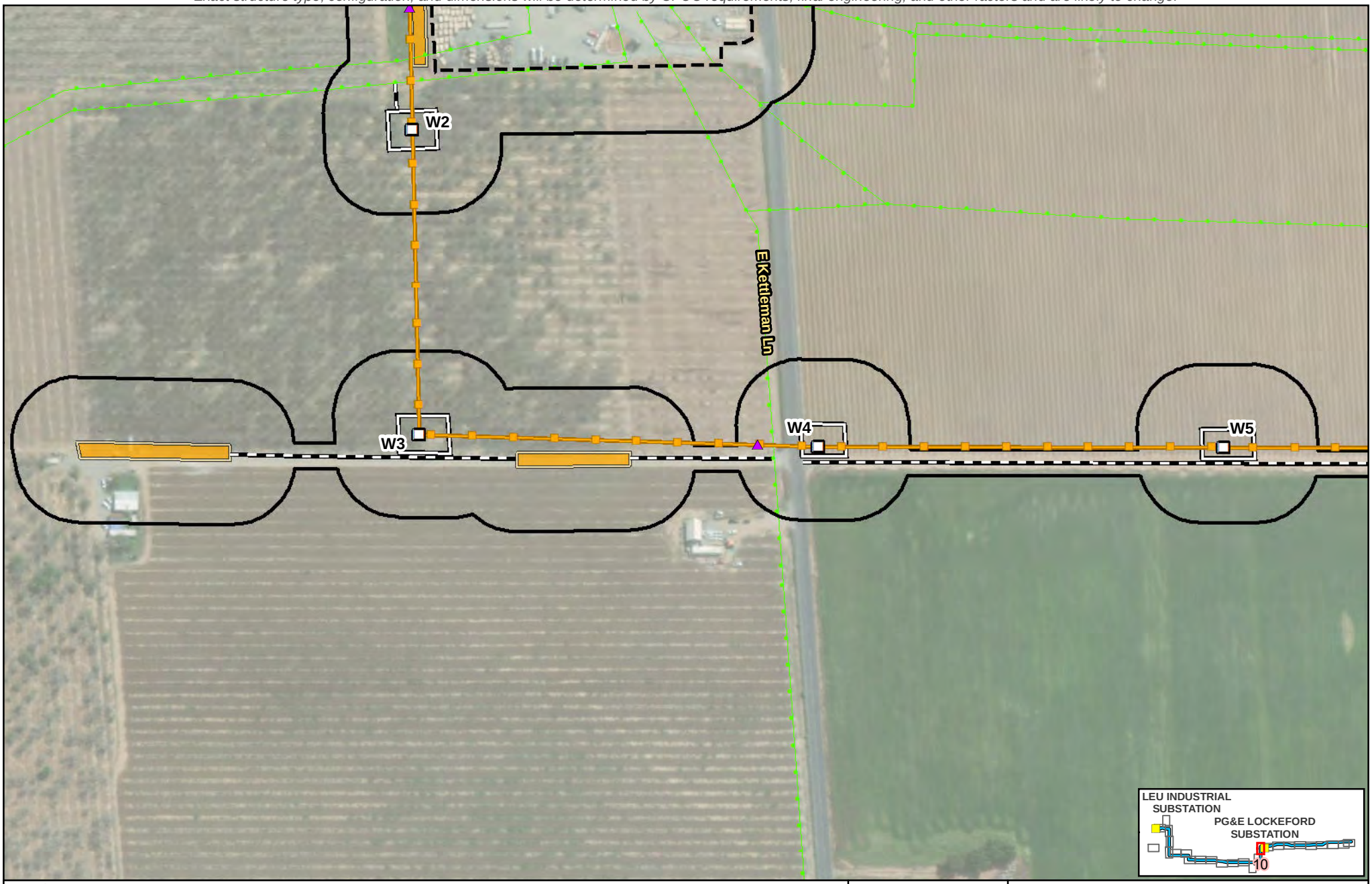
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FIGURE 5.4-3
Aquatic Resources within the Biological Study Area
Page 9 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Source:
1) Esri World Imagery

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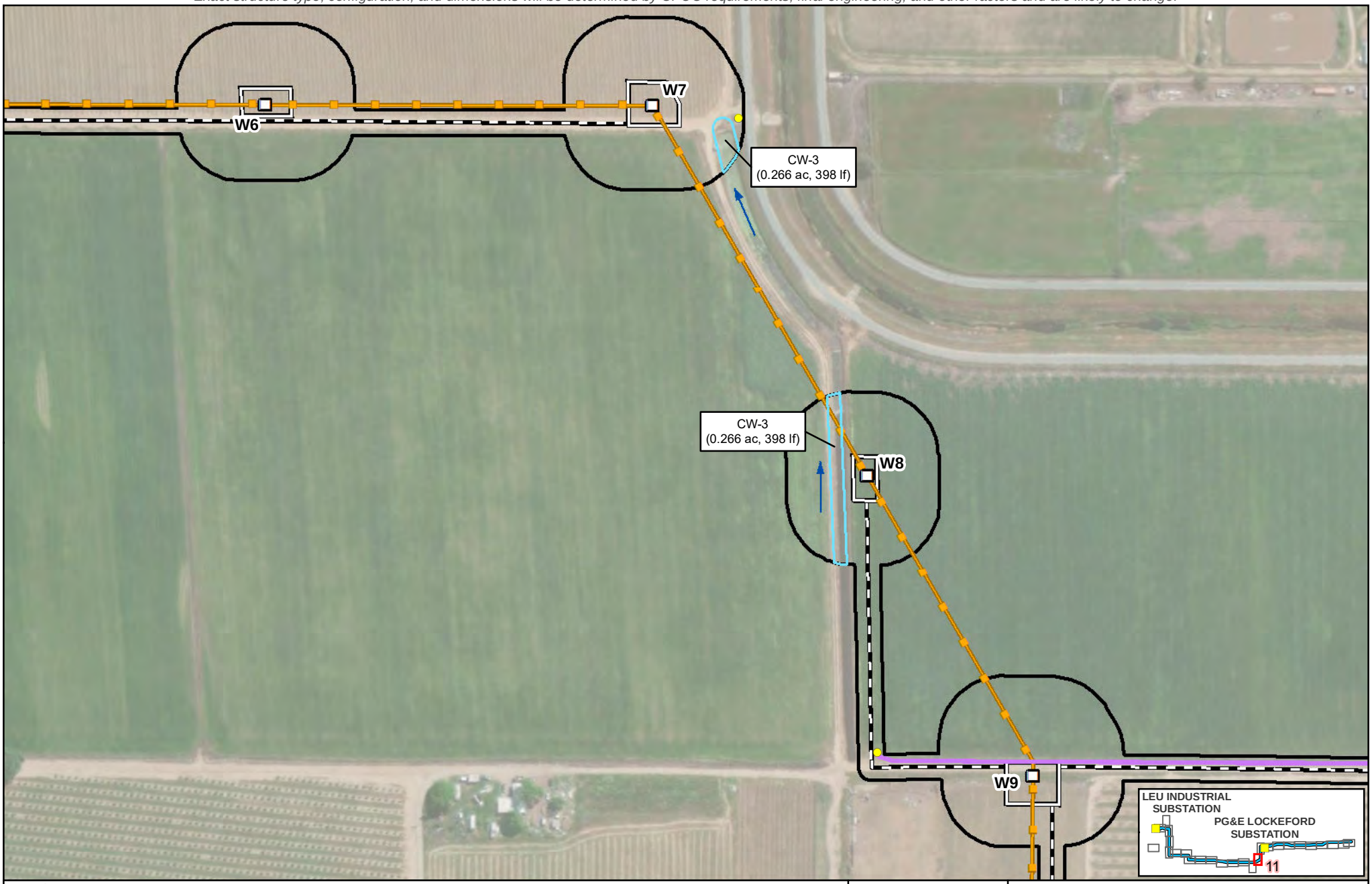
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0 100 Feet

FIGURE 5.4-3
Aquatic Resources within the Biological Study Area
Page 10 of 26
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\BiologicalResources\Figure_5.4-3_230730.mxd kgrant1 8/1/2023

Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Potentially Jurisdictional Aquatic Resources and Riparian Habitat

- Constructed Watercourse (CW) (0.545 ac, 2,775 lf)
- Irrigation Ditch (ID) (0.152 ac, 1,654 lf)
- Culvert
- Flow Direction

Source:
1) Esri World Imagery

N

Scale: 1:3,000

0 100 Feet

FIGURE 5.4-3
Aquatic Resources within the Biological Study Area
Page 11 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Potentially Jurisdictional Aquatic Resources and Riparian Habitat

- Natural Watercourse (NW) (0.247 ac, 359 lf)
- Irrigation Ditch (ID) (0.152 ac, 1,654 lf)
- Flow Direction
- Transect

Source:
1) Esri World Imagery

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Scale: 1:3,000

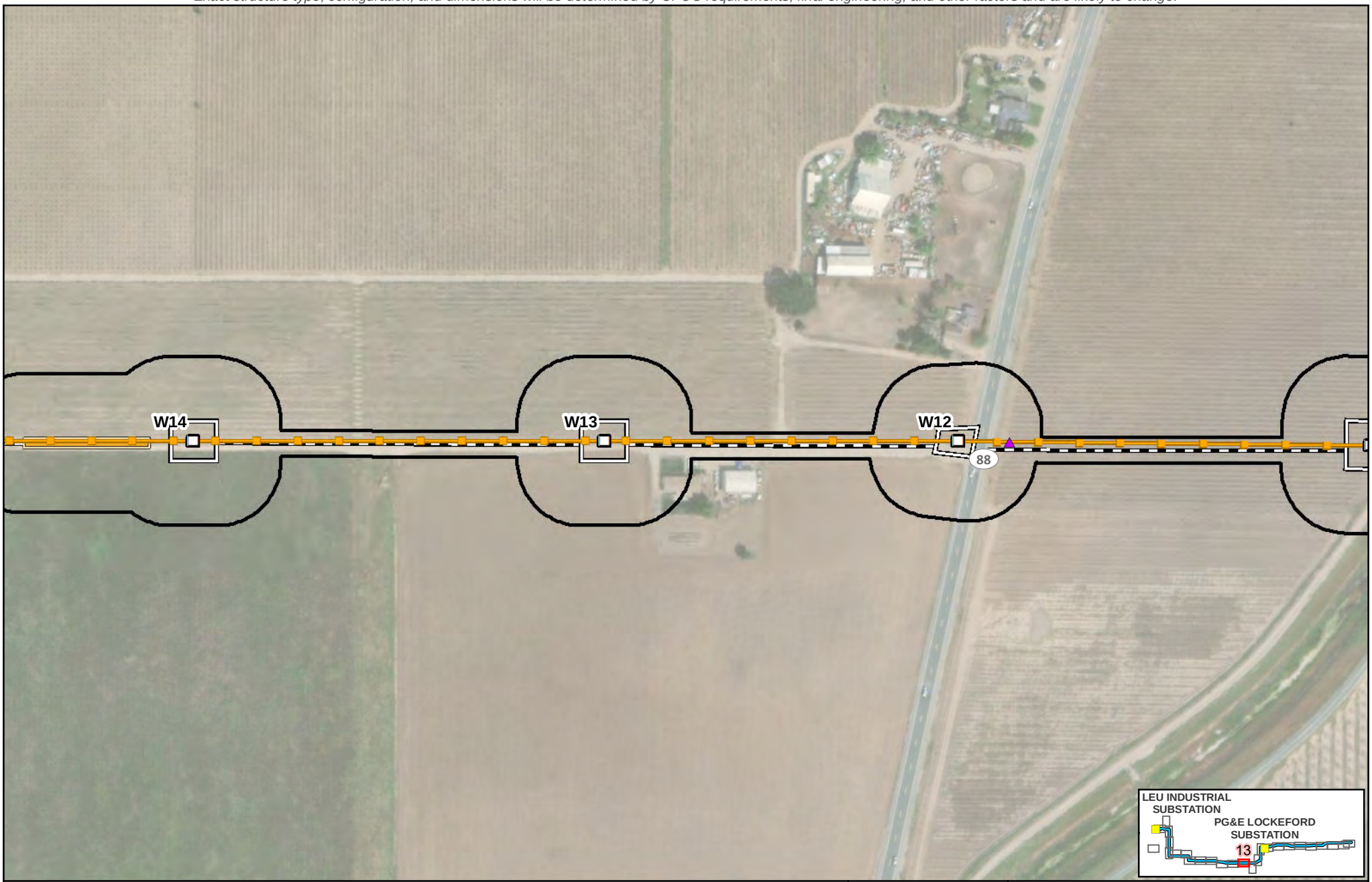
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FIGURE 5.4-3
Aquatic Resources within the Biological Study Area

Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
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- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Source:
1) Esri World Imagery

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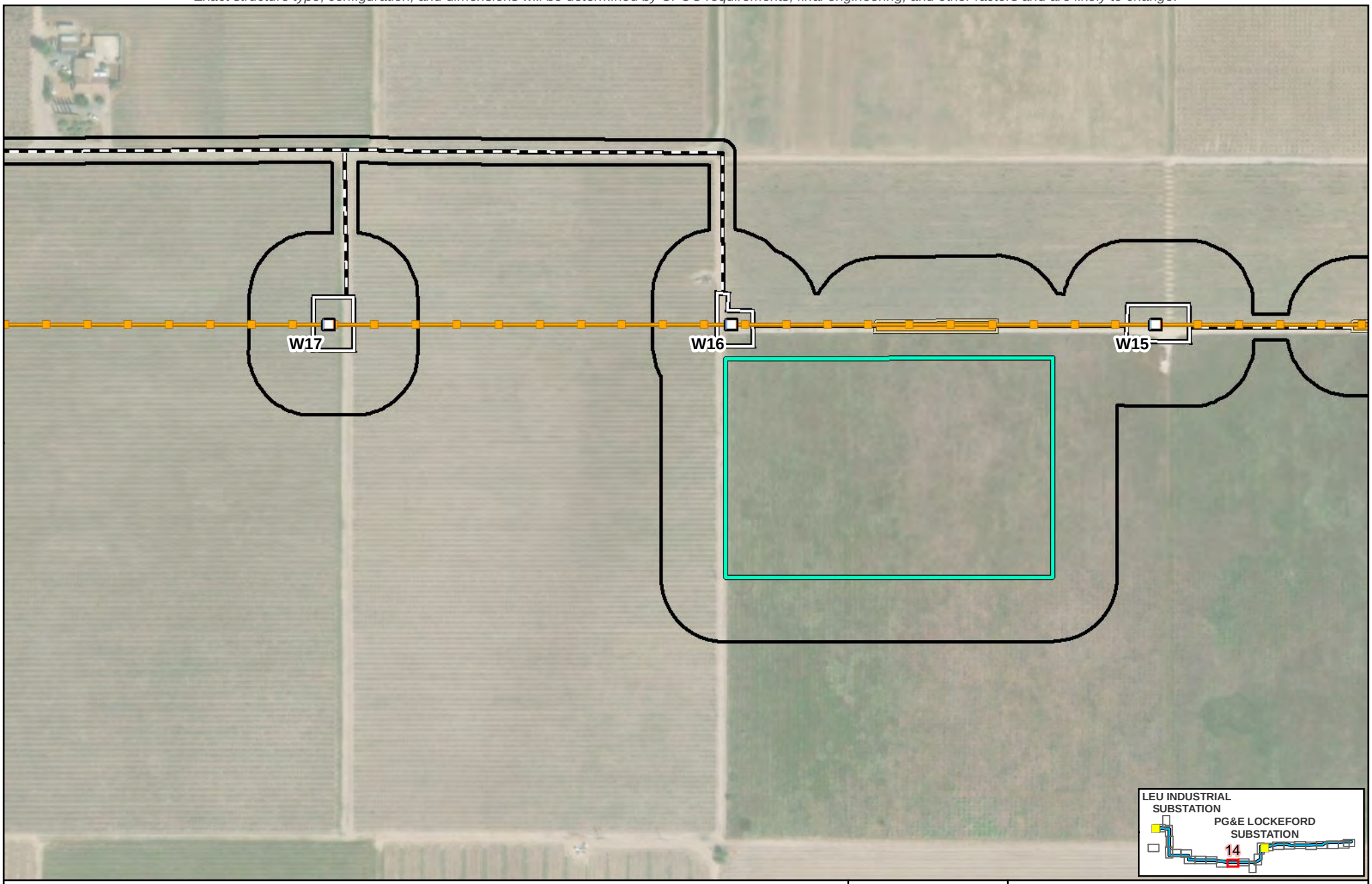
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FIGURE 5.4-3
Aquatic Resources within the Biological Study Area
Page 13 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
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- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Source:
1) Esri World Imagery

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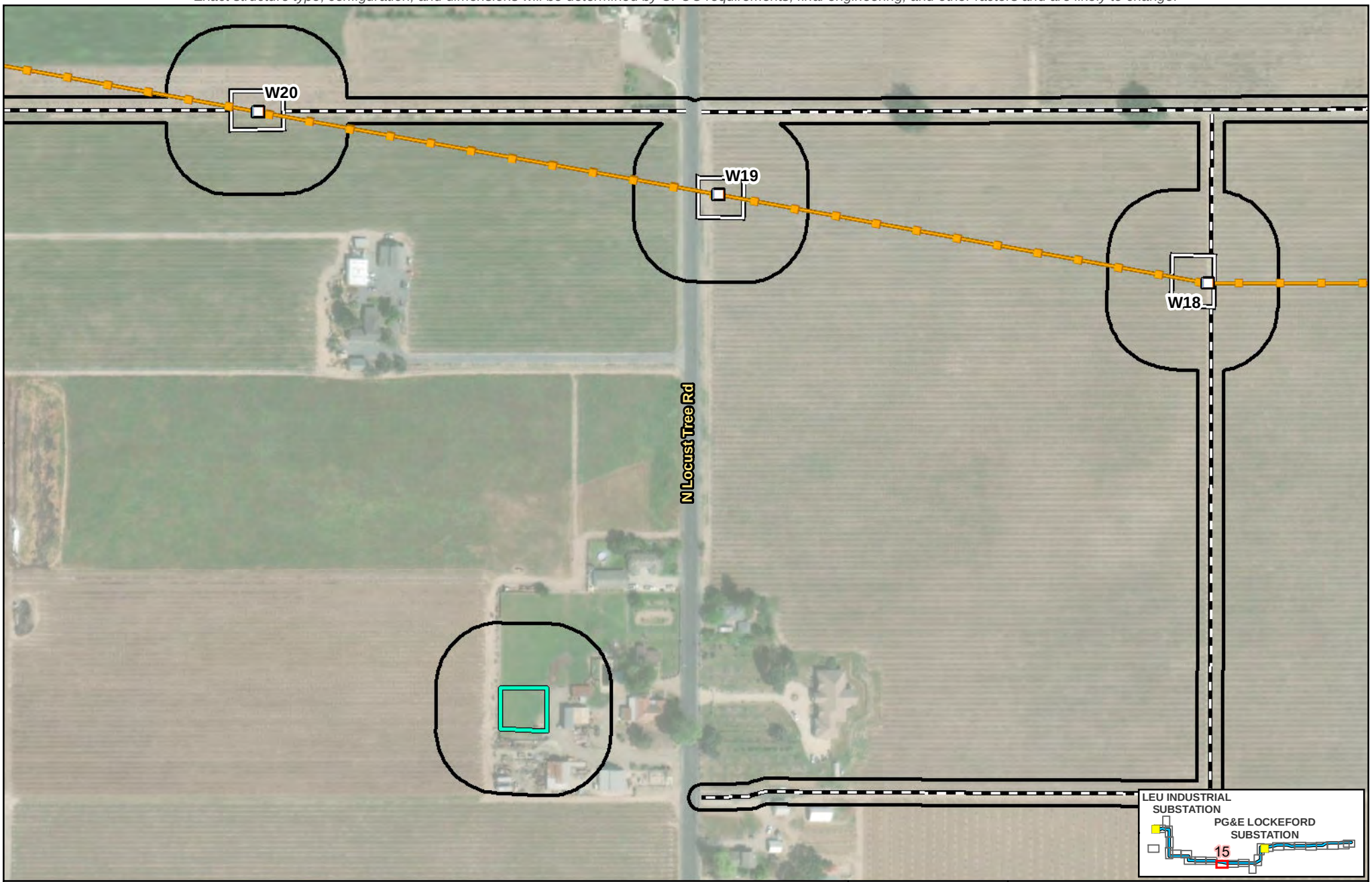
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FIGURE 5.4-3
Aquatic Resources within the Biological Study Area
Page 14 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

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- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
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- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Source:
1) Esri World Imagery

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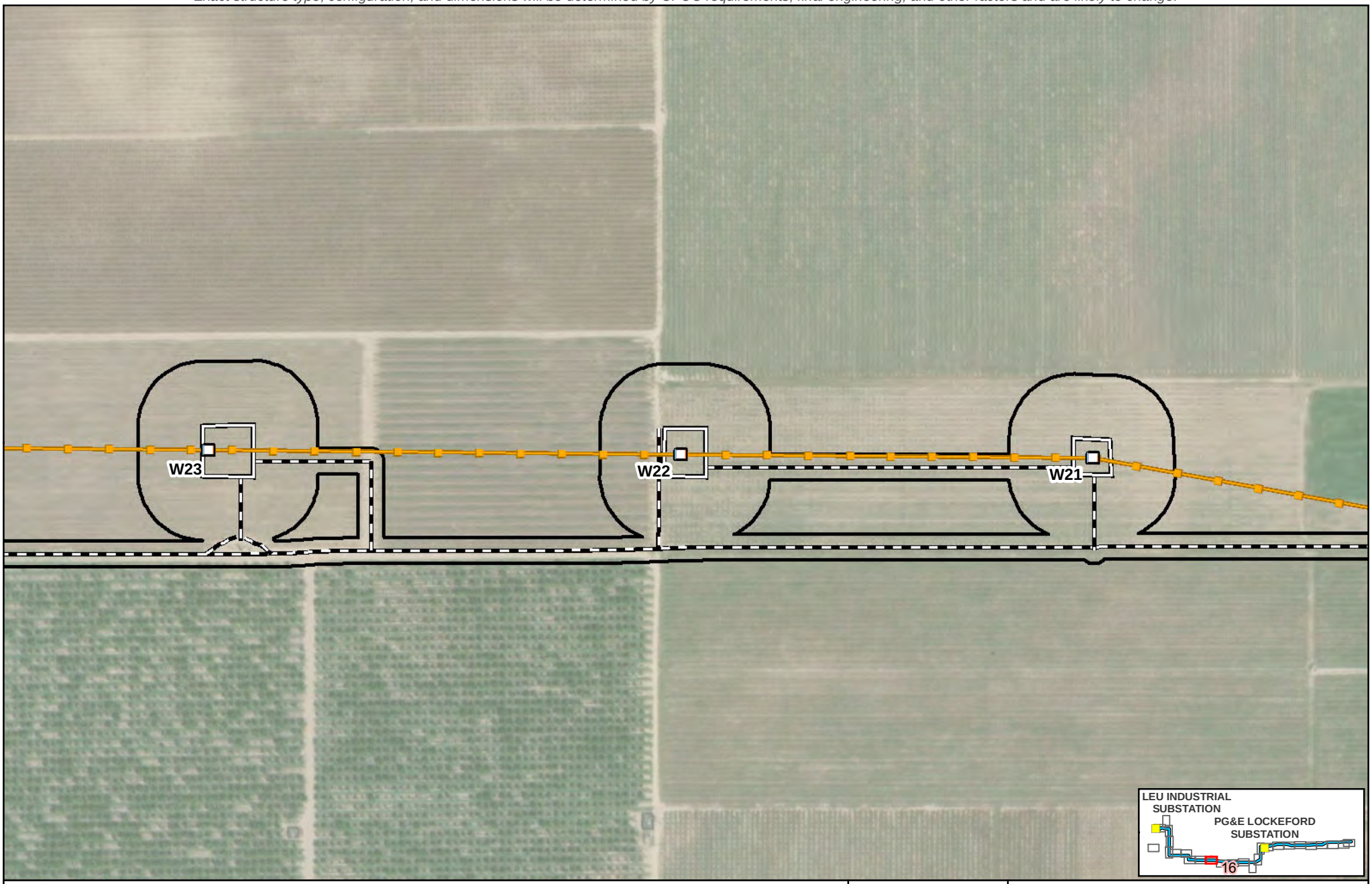
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FIGURE 5.4-3
Aquatic Resources within the Biological Study Area
Page 15 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
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- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Source:
1) Esri World Imagery

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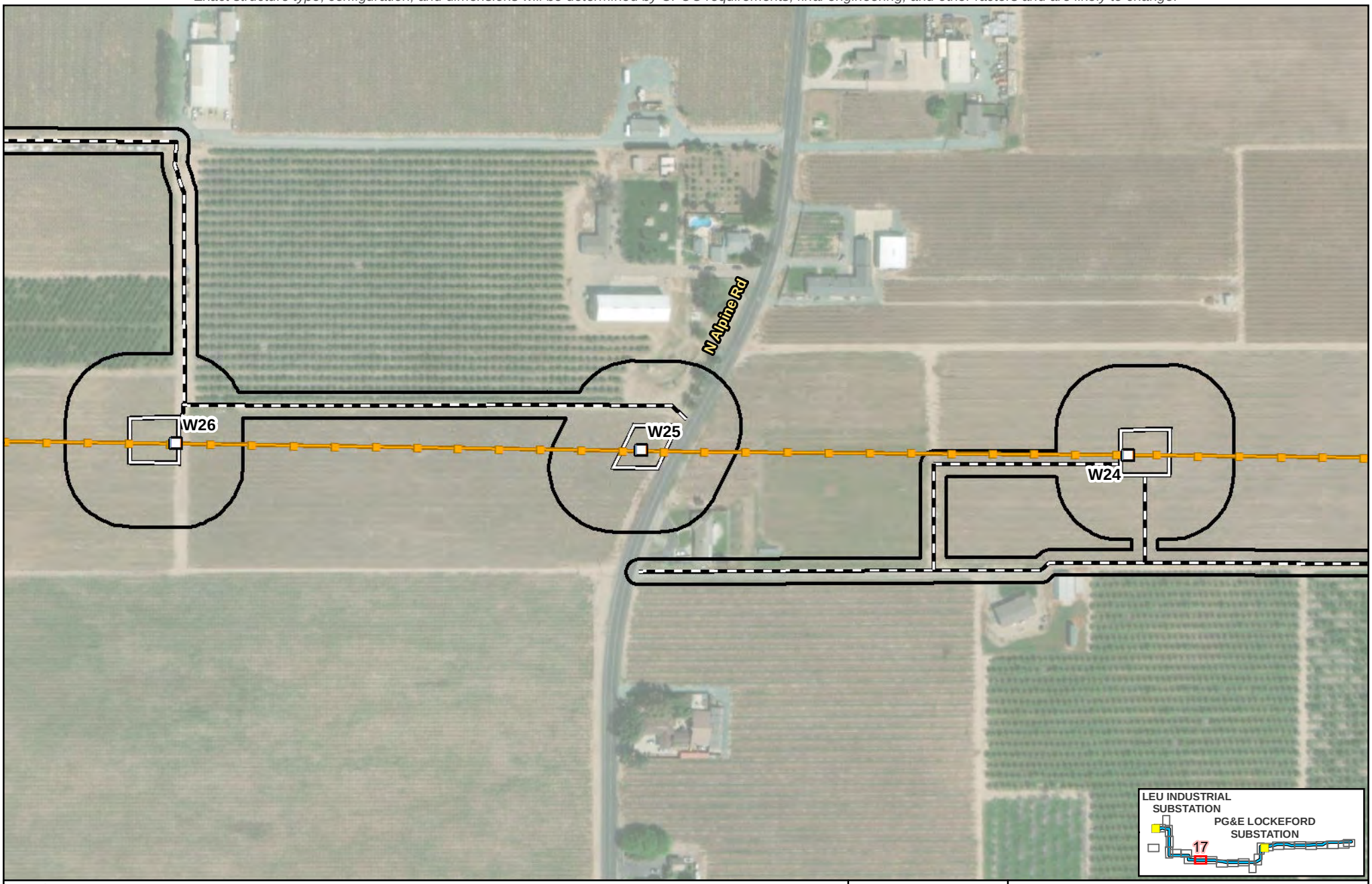
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FIGURE 5.4-3
Aquatic Resources within the Biological Study Area
Page 16 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Source: 1) Esri World Imagery

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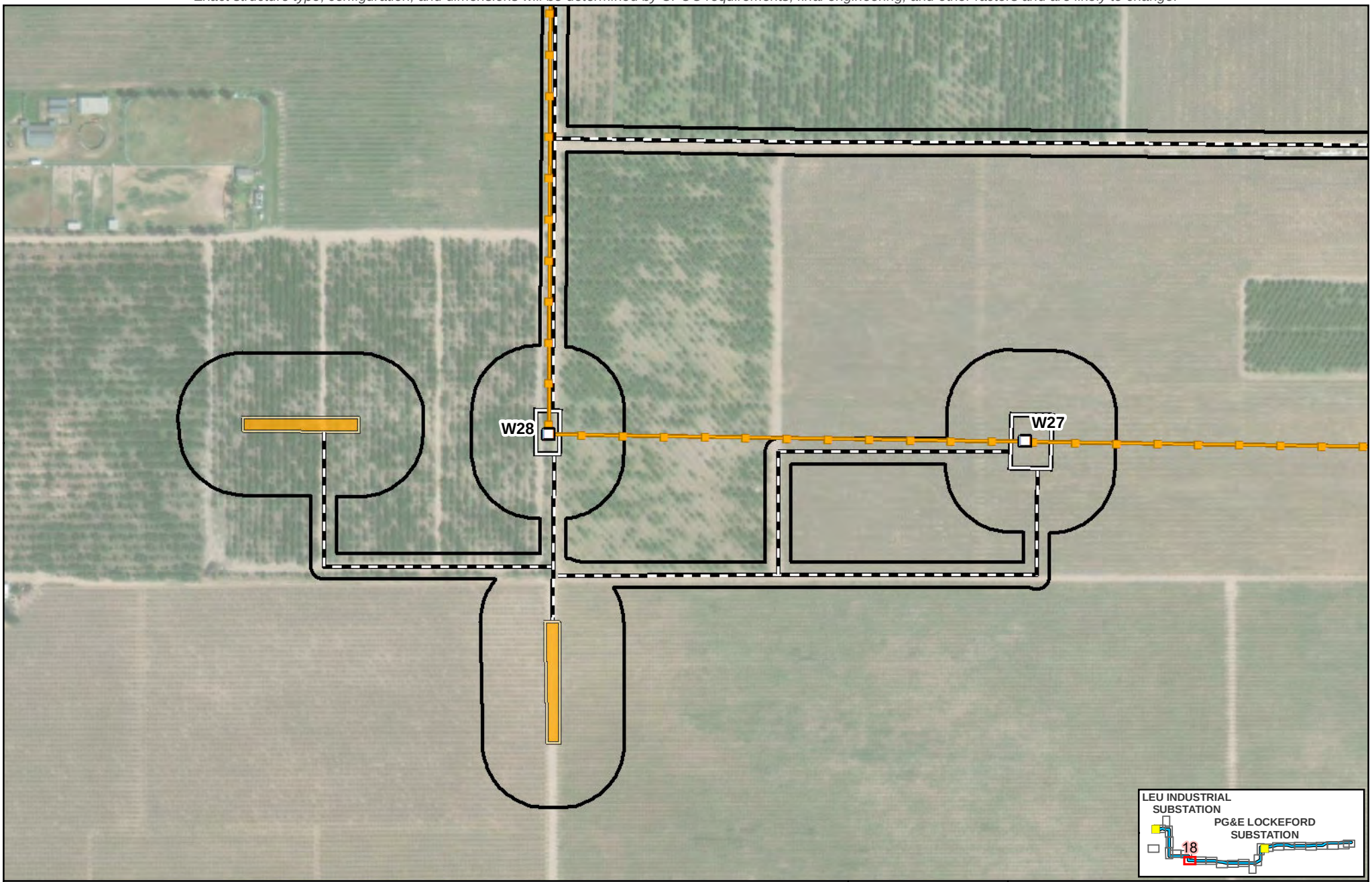
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FIGURE 5.4-3
Aquatic Resources within the Biological Study Area
Page 17 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
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- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Source:
1) Esri World Imagery

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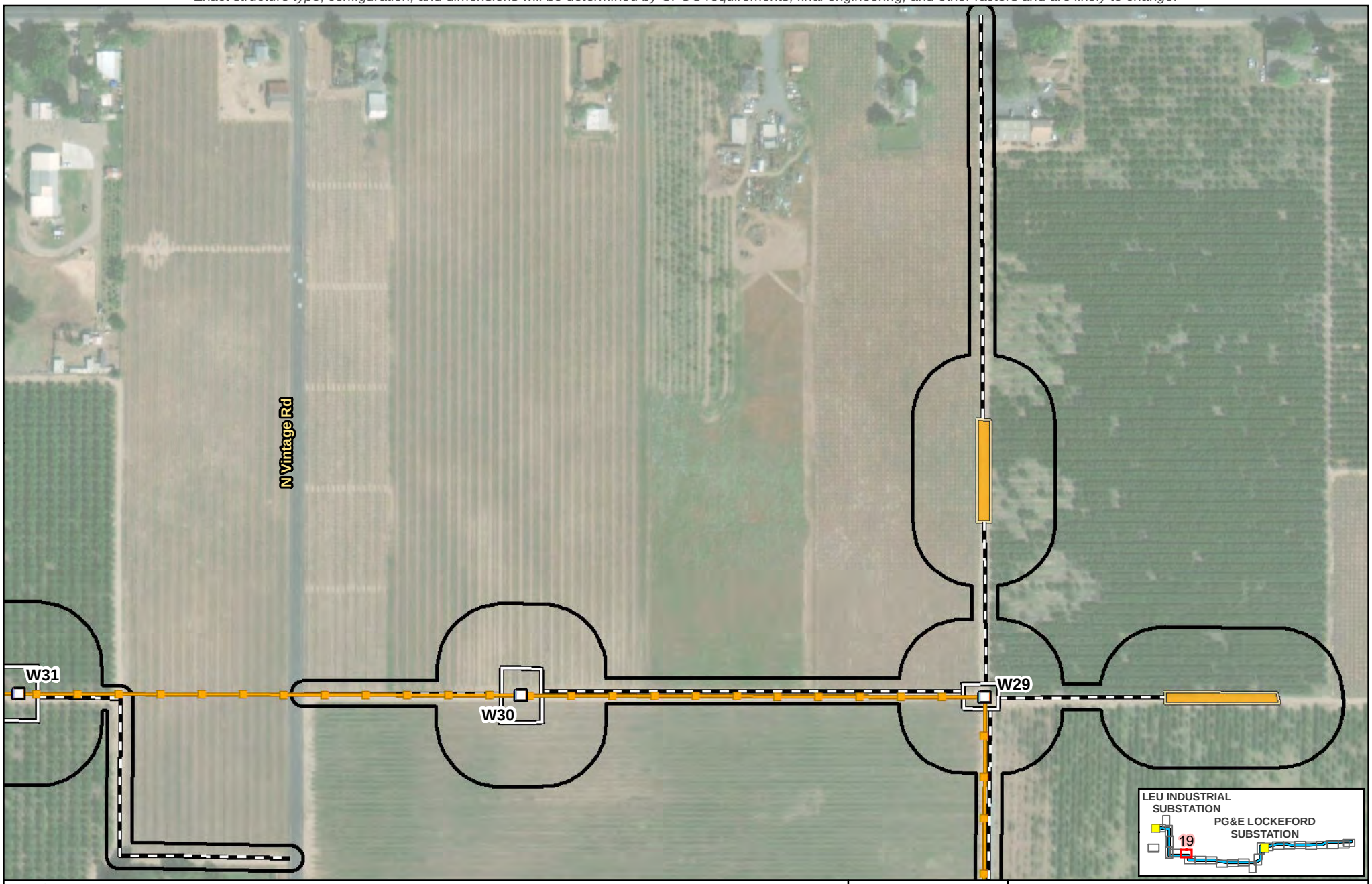
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FIGURE 5.4-3
Aquatic Resources within the Biological Study Area
Page 18 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Source:
1) Esri World Imagery

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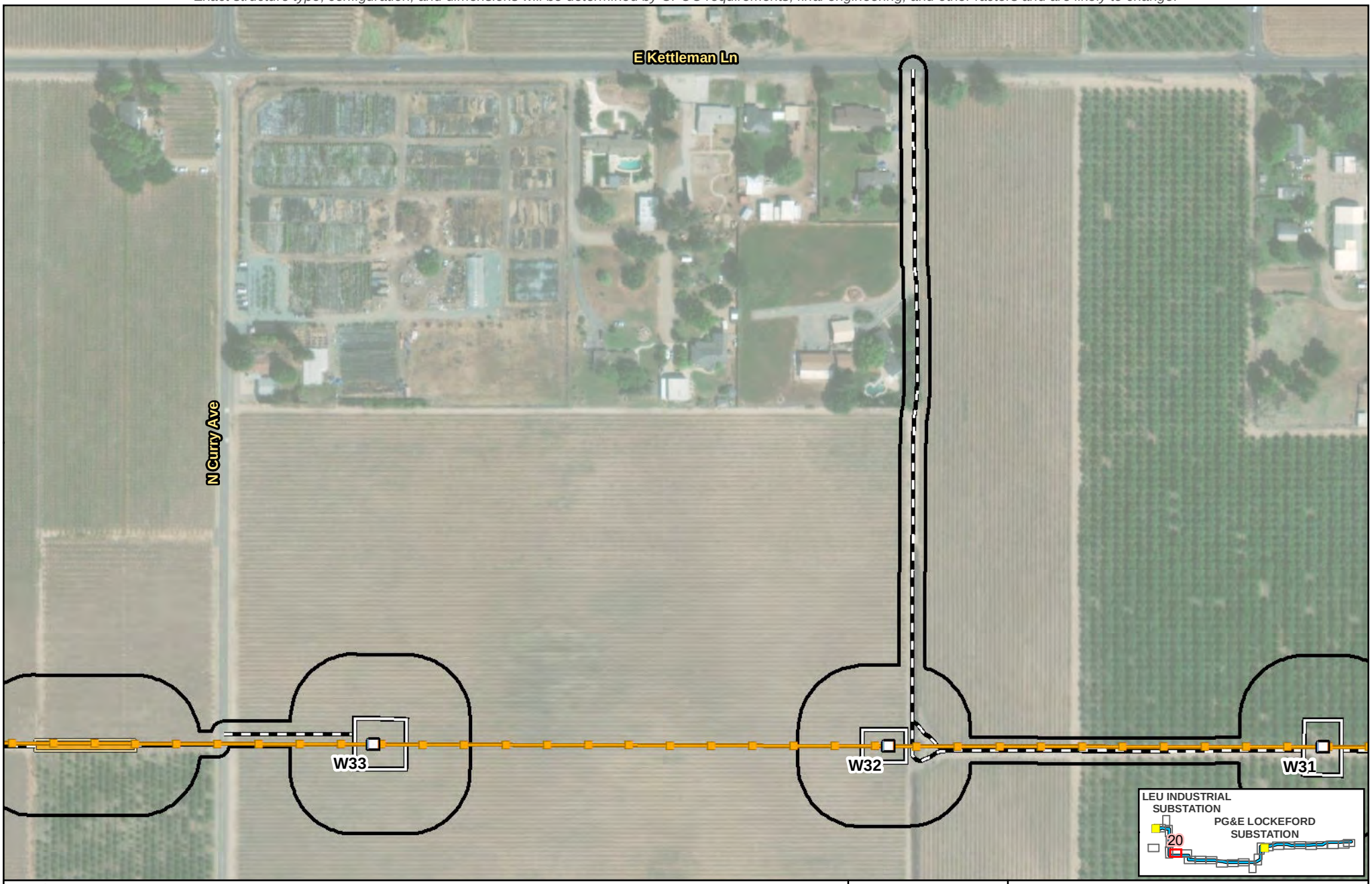
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FIGURE 5.4-3
Aquatic Resources within the Biological Study Area
Page 19 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
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- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Source:
1) Esri World Imagery

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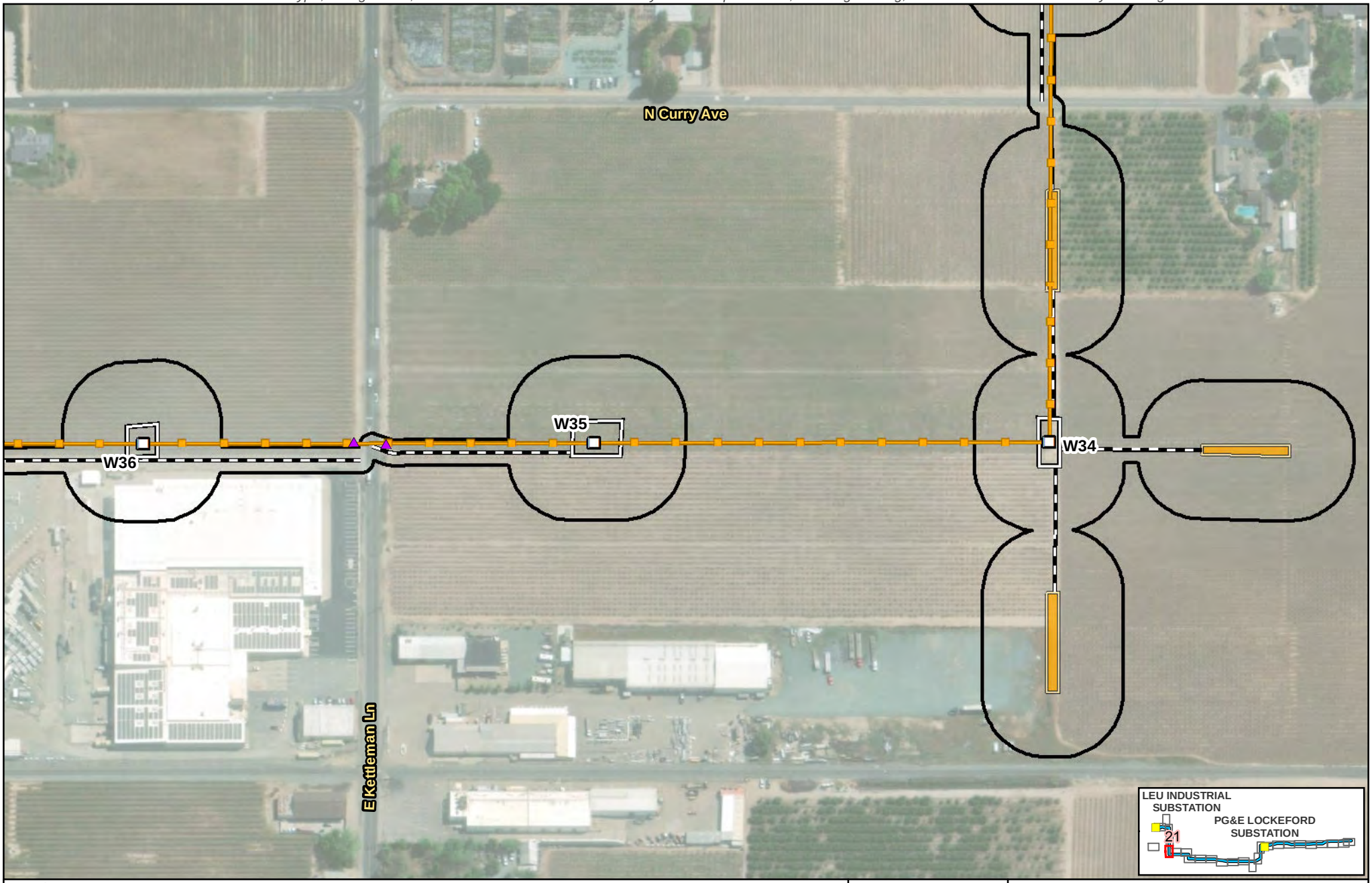
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FIGURE 5.4-3
Aquatic Resources within the Biological Study Area
Page 20 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Source:
1) Esri World Imagery

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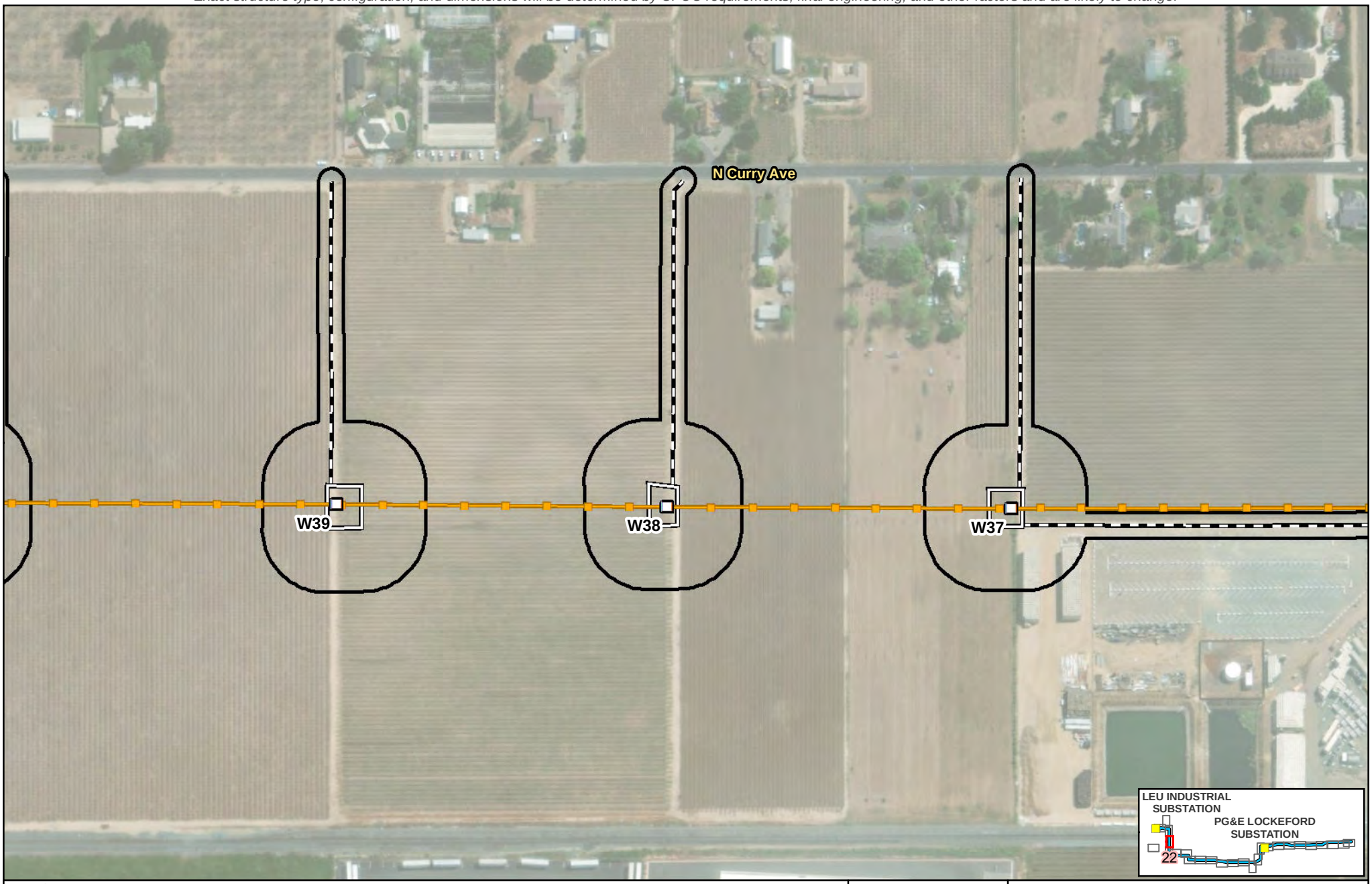
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FIGURE 5.4-3
Aquatic Resources within the Biological Study Area
Page 21 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Source:
1) Esri World Imagery

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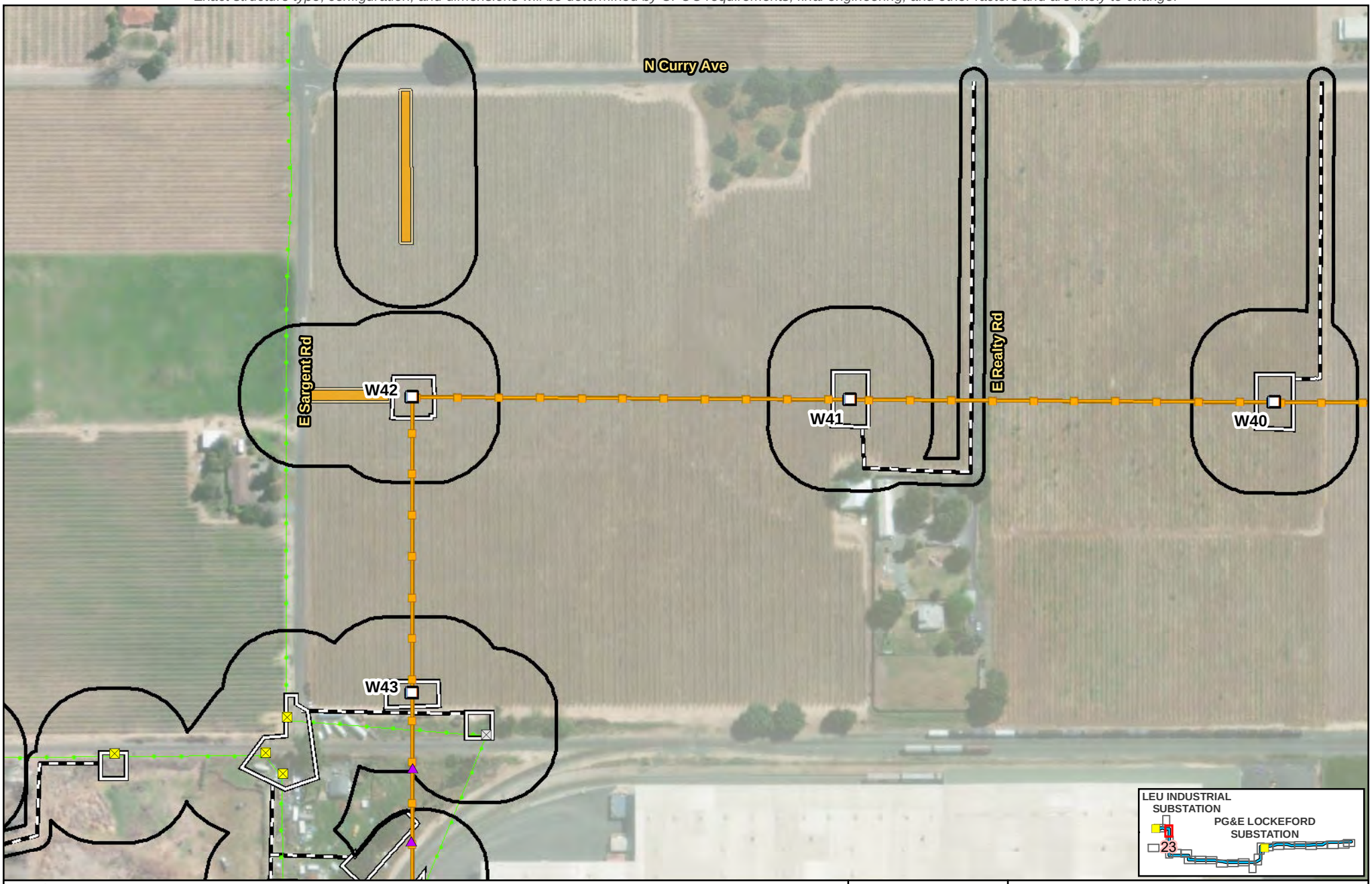
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FIGURE 5.4-3
Aquatic Resources within the Biological Study Area
Page 22 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Source:
1) Esri World Imagery

N

Scale: 1:3,000

0 100 Feet

FIGURE 5.4-3
Aquatic Resources within the Biological Study Area
Page 23 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Biological Study Area (387.06 acres)
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- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Source:
1) Esri World Imagery

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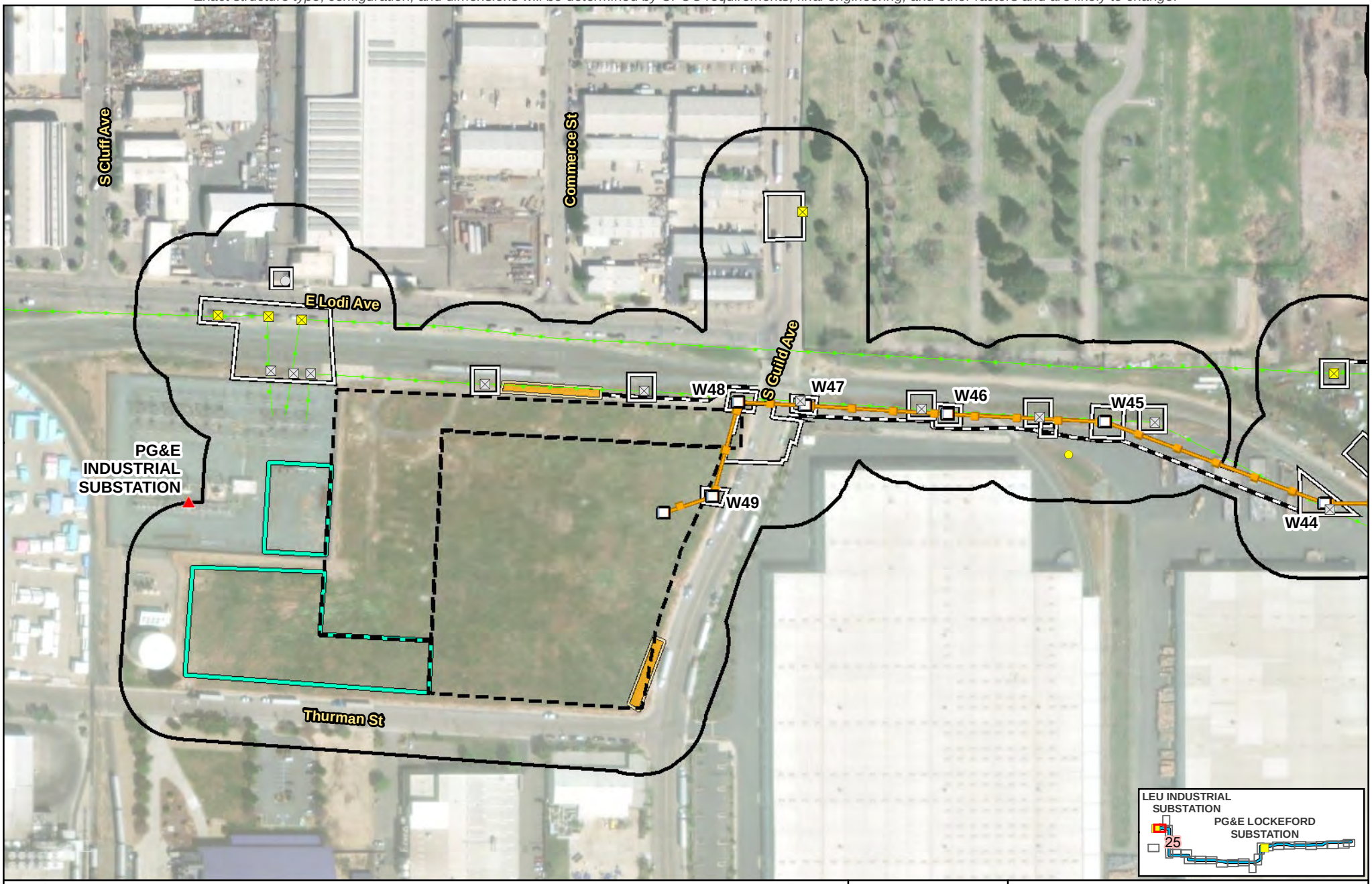
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FIGURE 5.4-3
Aquatic Resources within the Biological Study Area
Page 24 of 26
Northern San Joaquin 230 kV Transmission Project

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Legend

- Biological Study Area (387.06 acres)
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- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
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- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area
- Culvert

Source:
1) Esri World Imagery

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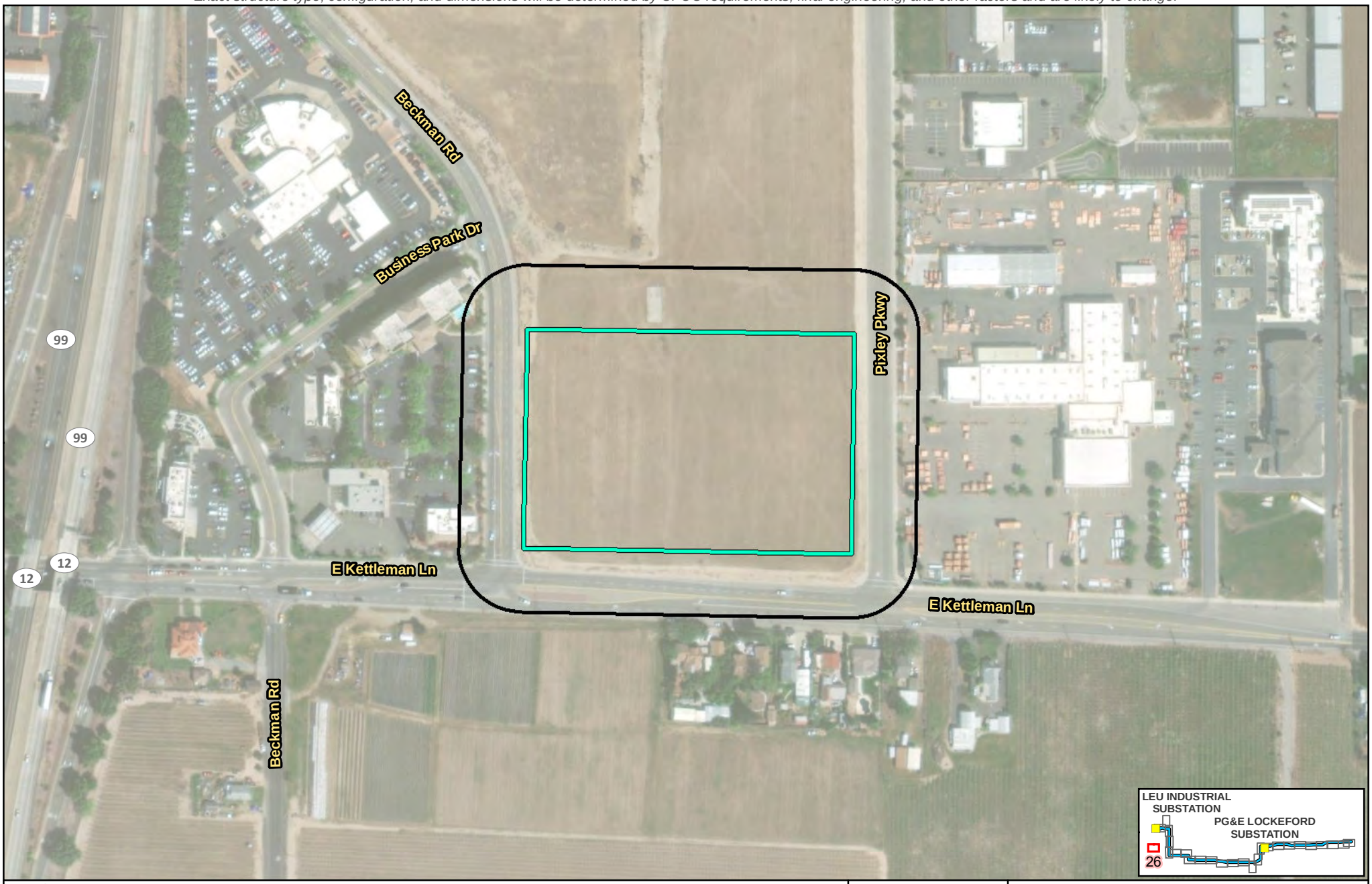
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FIGURE 5.4-3
Aquatic Resources within the Biological Study Area
Page 25 of 26
Northern San Joaquin 230 kV Transmission Project

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Preliminary design and engineering for the physical, civil, and outdoor components.
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Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
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- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area

Source: 1) Esri World Imagery

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Scale: 1:3,000

0 100 Feet

FIGURE 5.4-3
Aquatic Resources within the Biological Study Area
Page 26 of 26
Northern San Joaquin 230 kV Transmission Project

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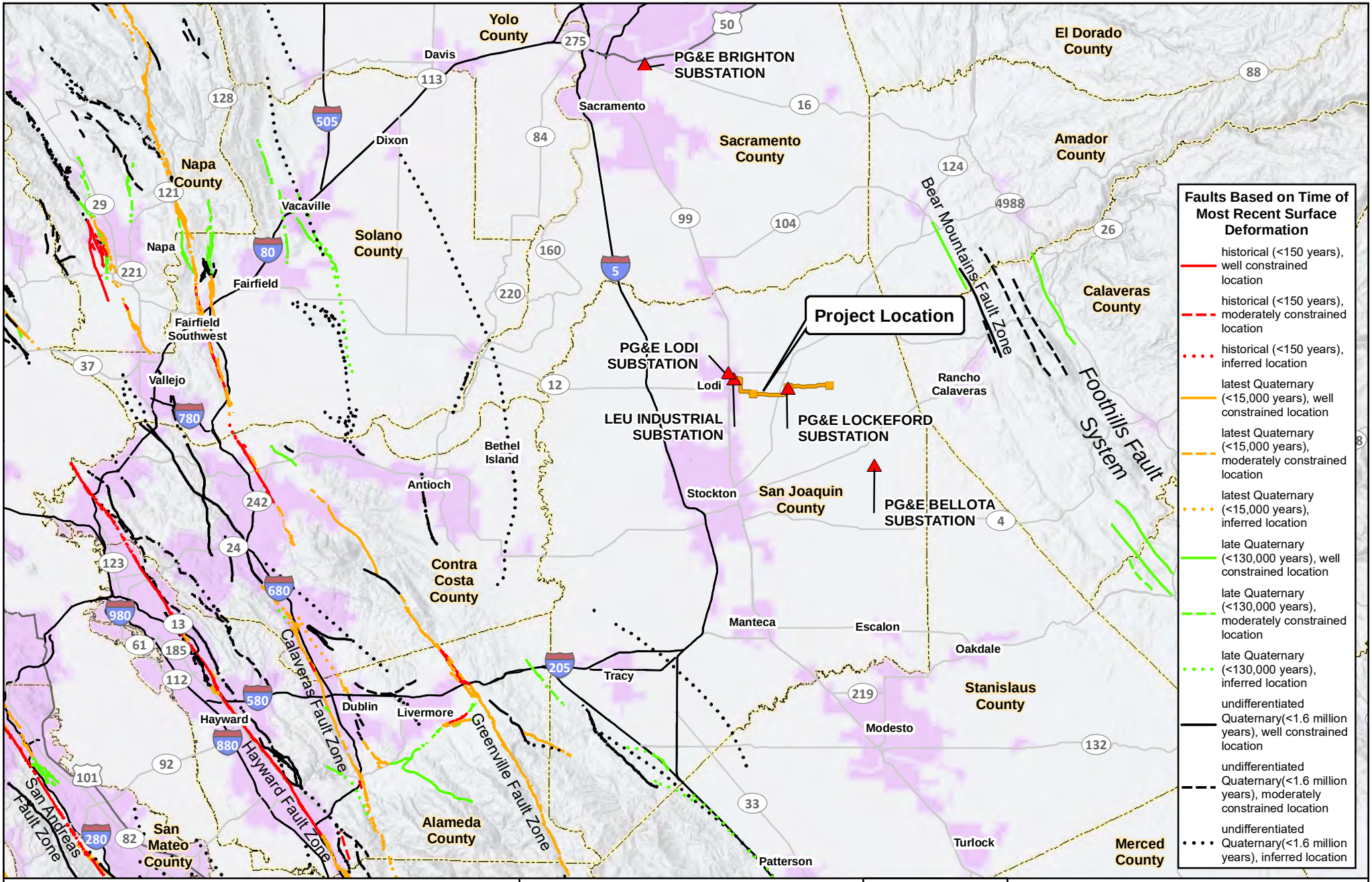
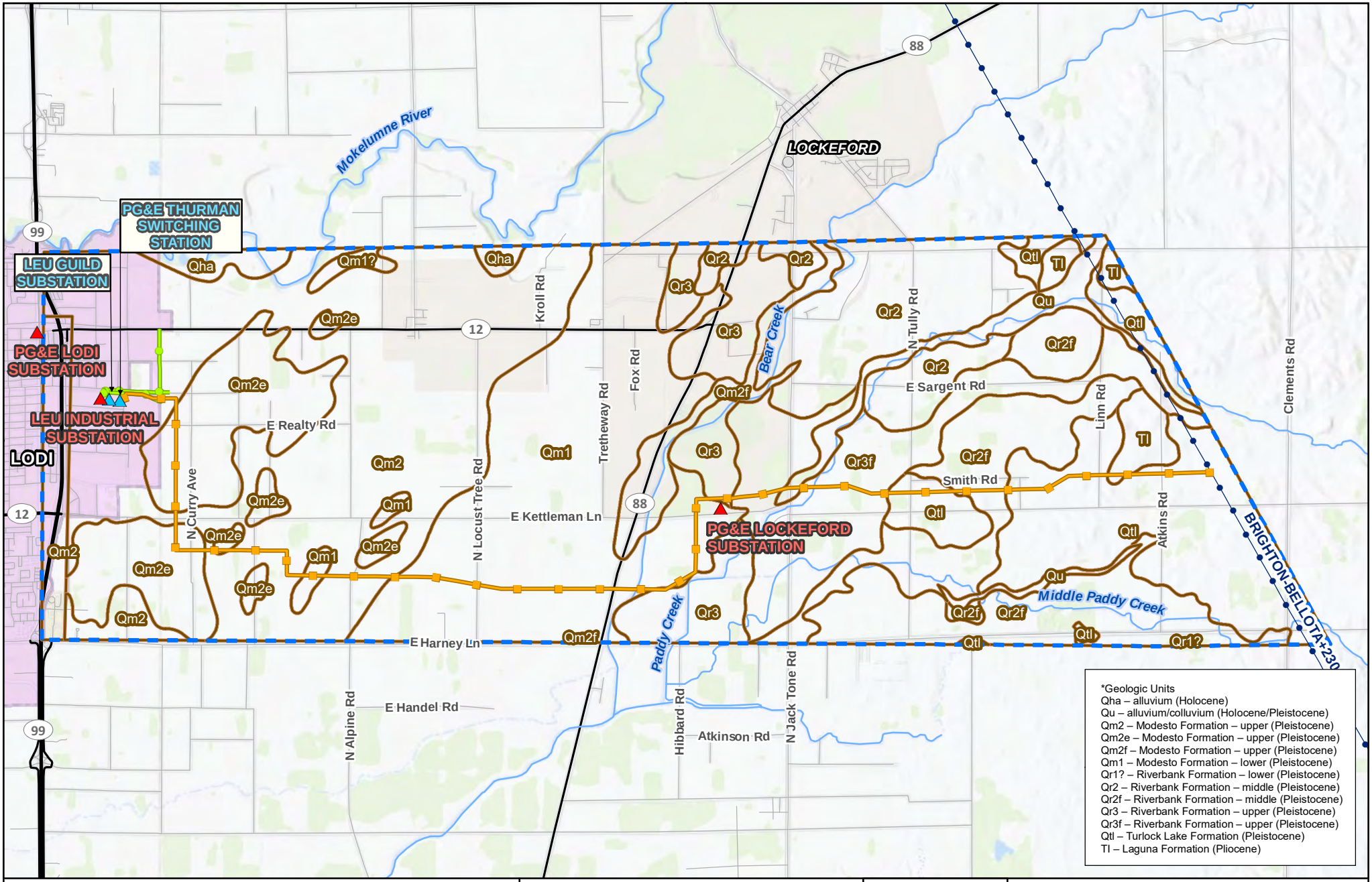


FIGURE 5.7-1
Regional Fault Map
Northern San Joaquin 230 kV Transmission Project

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Legend

- Exsting Substation
- New Substation/ Switch
- Northern San Joaquin 230 kV
- Existing 60 kV Power Line Modification
- 230 kV Existing Transmission Line
- Major_Roads
- Local Road
- River/Stream
- City Boundary
- Geologic Study Area
- Geologic Unit*

Sources:
1) ESRI World Topo Base
2) Marchand and Atwater, 1979; Marchand and Bartow, 1979

0 0.5 1 Miles

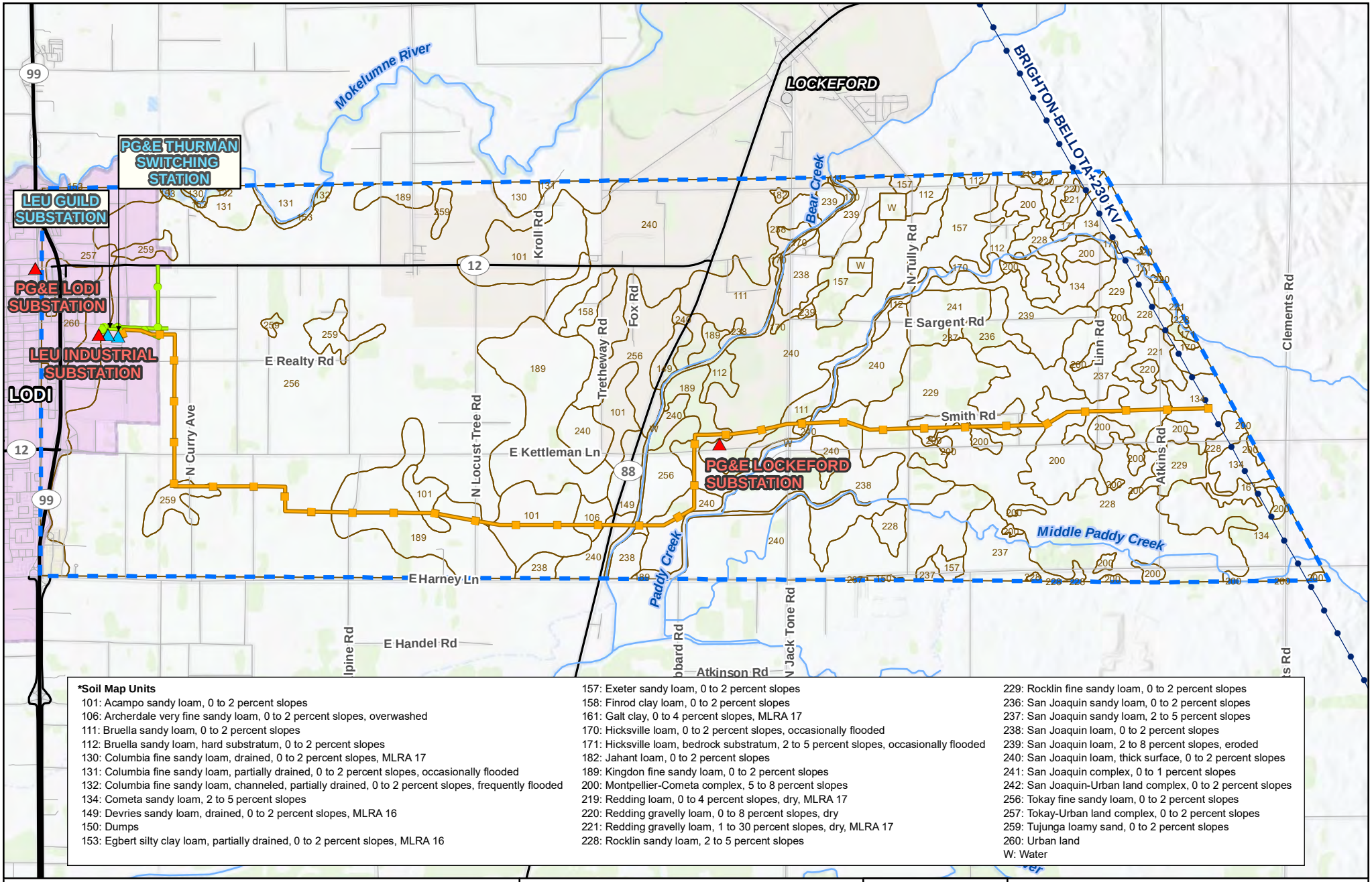
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Scale: 1:65,000

Project Location

FIGURE 5.7-2
Geologic Units
Northern San Joaquin 230 kV Transmission Project

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***Soil Map Units**

101: Acampo sandy loam, 0 to 2 percent slopes
106: Archerdale very fine sandy loam, 0 to 2 percent slopes, overwashed
111: Bruella sandy loam, 0 to 2 percent slopes
112: Bruella sandy loam, hard substratum, 0 to 2 percent slopes
130: Columbia fine sandy loam, drained, 0 to 2 percent slopes, MLRA 17
131: Columbia fine sandy loam, partially drained, 0 to 2 percent slopes, occasionally flooded
132: Columbia fine sandy loam, channeled, partially drained, 0 to 2 percent slopes, frequently flooded
134: Cometa sandy loam, 2 to 5 percent slopes
149: Devries sandy loam, drained, 0 to 2 percent slopes, MLRA 16
150: Dumps
153: Egbert silty clay loam, partially drained, 0 to 2 percent slopes, MLRA 16
157: Exeter sandy loam, 0 to 2 percent slopes
158: Finrod clay loam, 0 to 2 percent slopes
161: Galt clay, 0 to 4 percent slopes, MLRA 17
170: Hicksville loam, 0 to 2 percent slopes, occasionally flooded
171: Hicksville loam, bedrock substratum, 2 to 5 percent slopes, occasionally flooded
182: Jahant loam, 0 to 2 percent slopes
189: Kingdon fine sandy loam, 0 to 2 percent slopes
200: Montpellier-Cometa complex, 5 to 8 percent slopes
219: Redding loam, 0 to 4 percent slopes, dry, MLRA 17
220: Redding gravelly loam, 0 to 8 percent slopes, dry
221: Redding gravelly loam, 1 to 30 percent slopes, dry, MLRA 17
228: Rocklin sandy loam, 2 to 5 percent slopes
229: Rocklin fine sandy loam, 0 to 2 percent slopes
236: San Joaquin sandy loam, 0 to 2 percent slopes
237: San Joaquin sandy loam, 2 to 5 percent slopes
238: San Joaquin loam, 0 to 2 percent slopes
239: San Joaquin loam, 2 to 8 percent slopes, eroded
240: San Joaquin loam, thick surface, 0 to 2 percent slopes
241: San Joaquin complex, 0 to 1 percent slopes
242: San Joaquin-Urban land complex, 0 to 2 percent slopes
256: Tokay fine sandy loam, 0 to 2 percent slopes
257: Tokay-Urban land complex, 0 to 2 percent slopes
259: Tujunga loamy sand, 0 to 2 percent slopes
260: Urban land
W: Water

Legend

- Exsting Substation
- New Substation/ Switch
- Northern San Joaquin 230 kV
- Existing 60 kV Power Line Modification
- 230 kV Existing Transmission Line
- Major_Roads
- Local Road
- River/Stream
- City Boundary
- Soils Study Area
- Soil Map Unit*

Sources:
1) ESRI World Topo Base
2) U.S. Department of Agriculture, Natural Resources Conservation Service, 2022

0 0.5 1 Miles

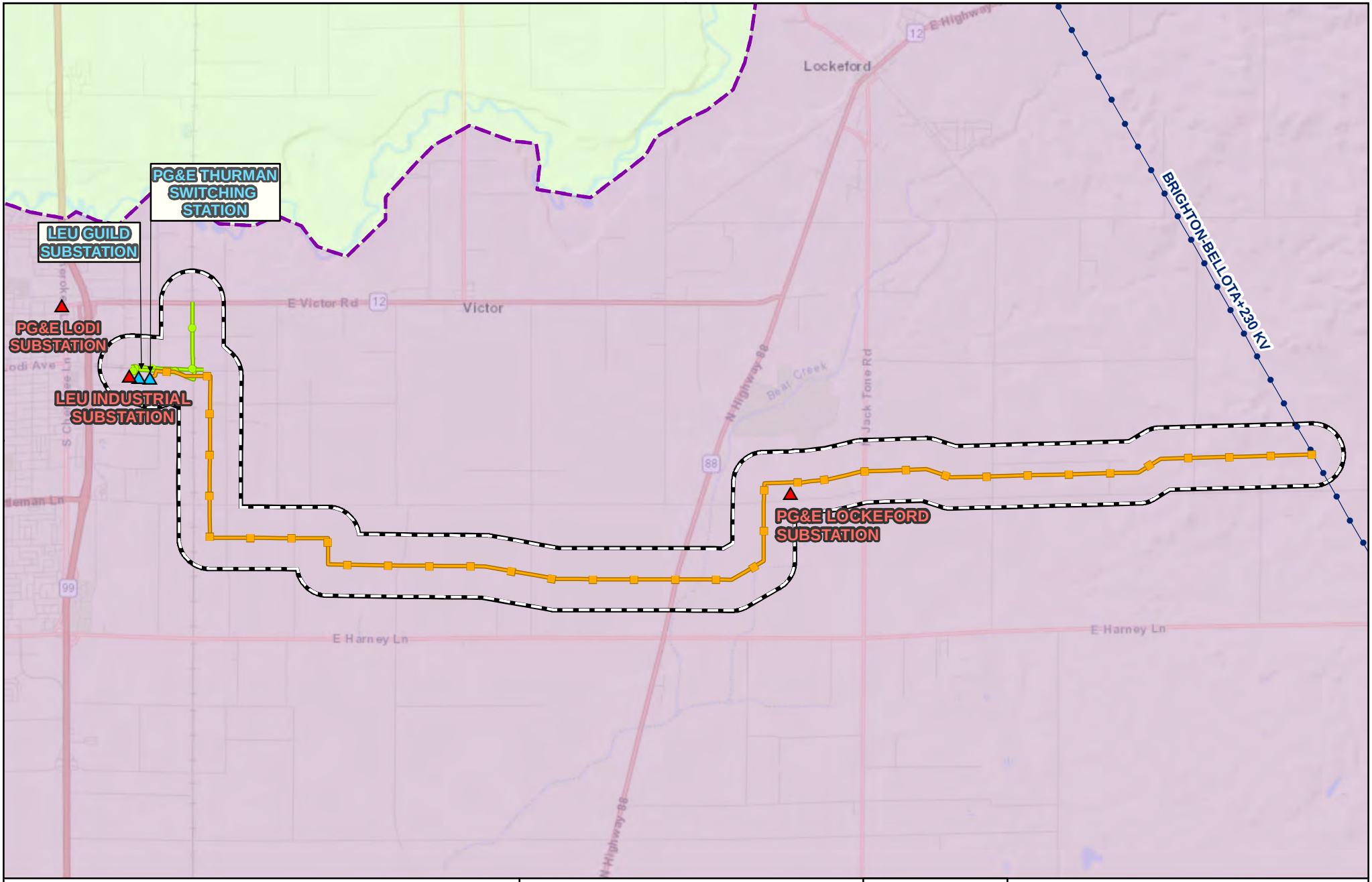
N

Scale: 1:65,000



FIGURE 5.7-3
NRCS Soils Map
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\GISProj\P\PGE\NSJPC\MapFiles\PEA\Geology\Figure5.7-3_Soil_Types_220722.mxd kgrant1 7/27/2023



Legend

- Exsting Substation
- New Substation/ Switching Station
- Northern San Joaquin 230 kV
- Existing 60 kV Power Line Modification
- 230 kV Existing Transmission Line
- Quarter-mile Radius Around Project Components

Groundwater Basin Boundary

- San Joaquin Valley

Basin: Sub-basin

- Cosumnes
- Eastern San Joaquin

Source:
1) ESRI World Street Map
2) California Open data - California Department of Water Resources

0 4,100 8,200 Feet

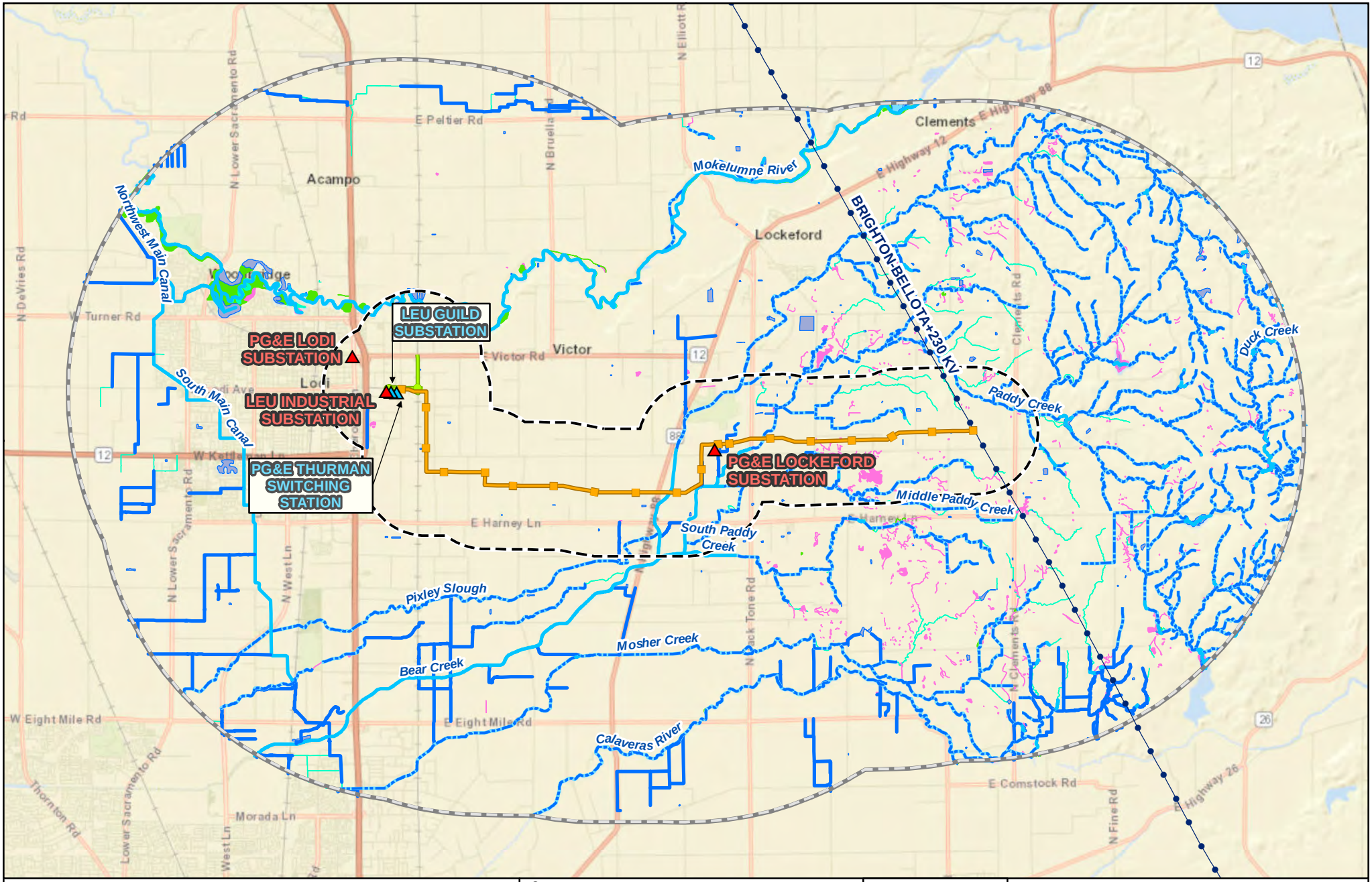
N

Scale: 1:61,000

Project Location

FIGURE 5.10-1
Groundwater Basins
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\HydrologyWaterQuality\Figure_5.10-1_Groundwater_Basins_In_Project_Area.mxd kgrant1 7/27/2023



Legend

- Exsting Substation
- New Substation/ Switching Station
- Northern San Joaquin 230 kV
- Existing 60 kV Power Line Modification
- 230 kV Existing Transmission Line
- 1-mile Radius Around Project Components
- 5-mile Radius Around Project Components
- Artificial Path
- Canal/Ditch
- Stream/River

National Wetlands Inventory

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

Source:
1) ESRI World Street Map
2) USGS National Hydrography Dataset (NHD), Published 6/19/2020.
3) USFWS, National Wetlands Inventory, Accessed January 2021.

0 8,200 16,400 Feet

N

Scale: 1:122,769

Project Location

FIGURE 5.10-2
Waterbodies in Project Area
Northern San Joaquin 230 kV Transmission Project

PG&E

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\HydrologyWaterQuality\Figure_5.10-2_Waterbodies_In_Project_Area.mxd kgrant1 7/27/2023

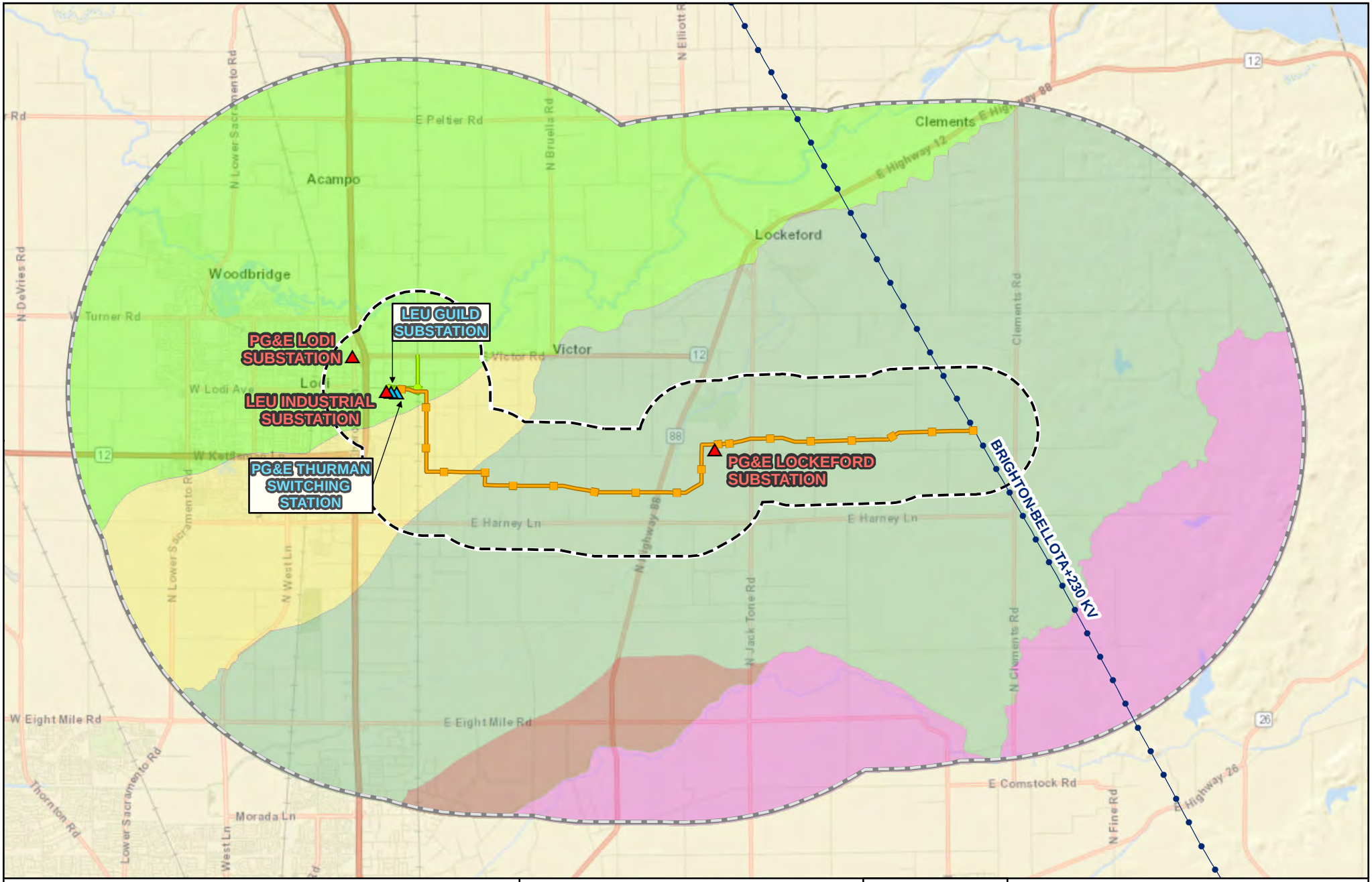
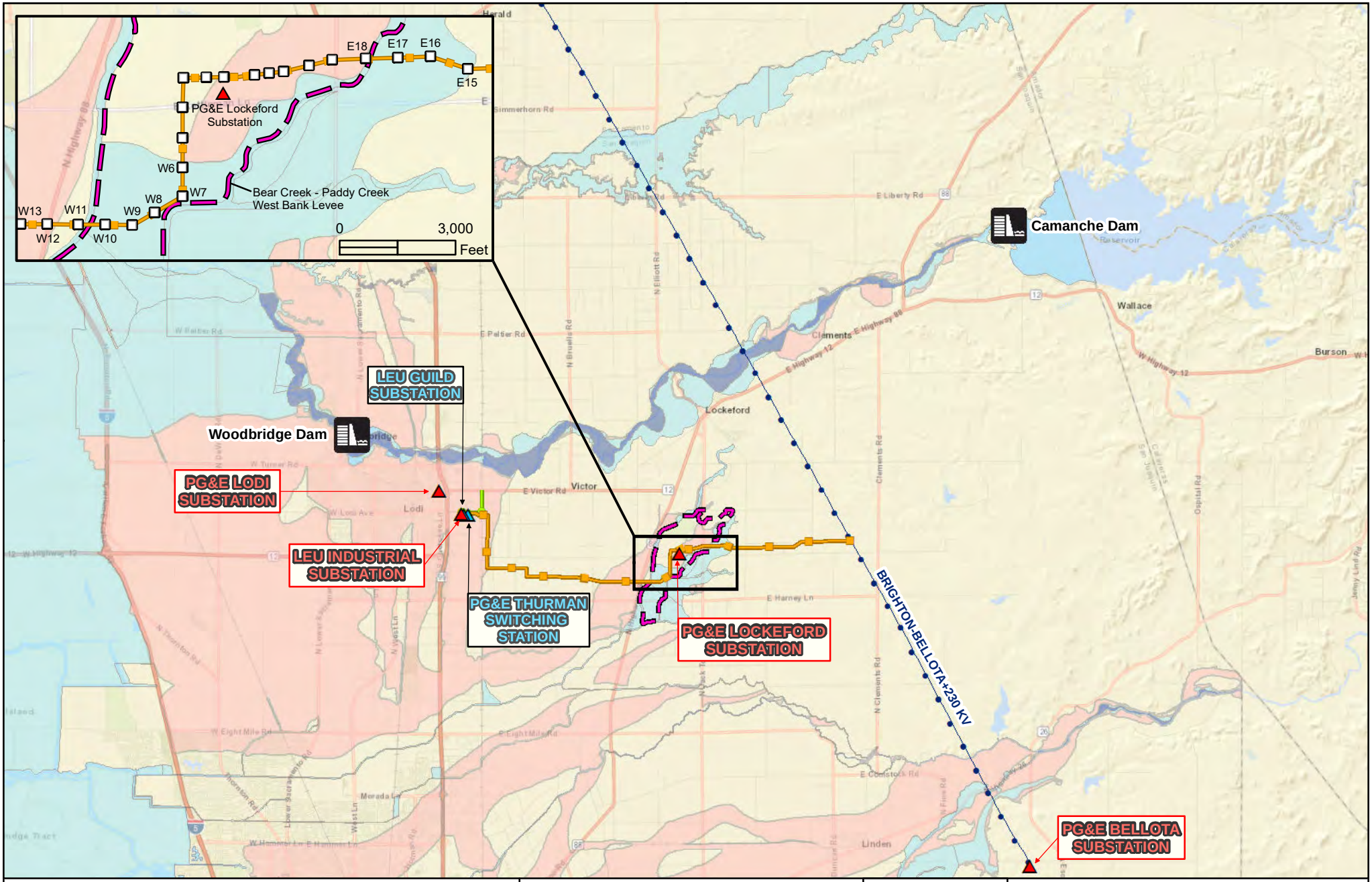


FIGURE 5.10-3
Watersheds in Project Area
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\HydrologyWaterQuality\Figure_5.10-3_Watersheds_In_Project_Area.mxd kgrant1 7/27/2023



Legend

- Exsting Substation
- New Substation/ Switching Station
- Dam
- Northern San Joaquin 230 kV
- Existing 60 kV Power Line Modification
- 230 kV Existing Transmission Line
- Floodway (FEMA Zone A)
- 100-year flood hazard zones (FEMA Zone A)
- 500-year flood hazard zones (FEMA Zone X)
- Bear Creek - Paddy Creek west bank Levee

Source:
1) ESRI World Street Map
2) FEMA National Flood Hazard Layer, Published 6/25/2020.

0 12,000 24,000 Feet

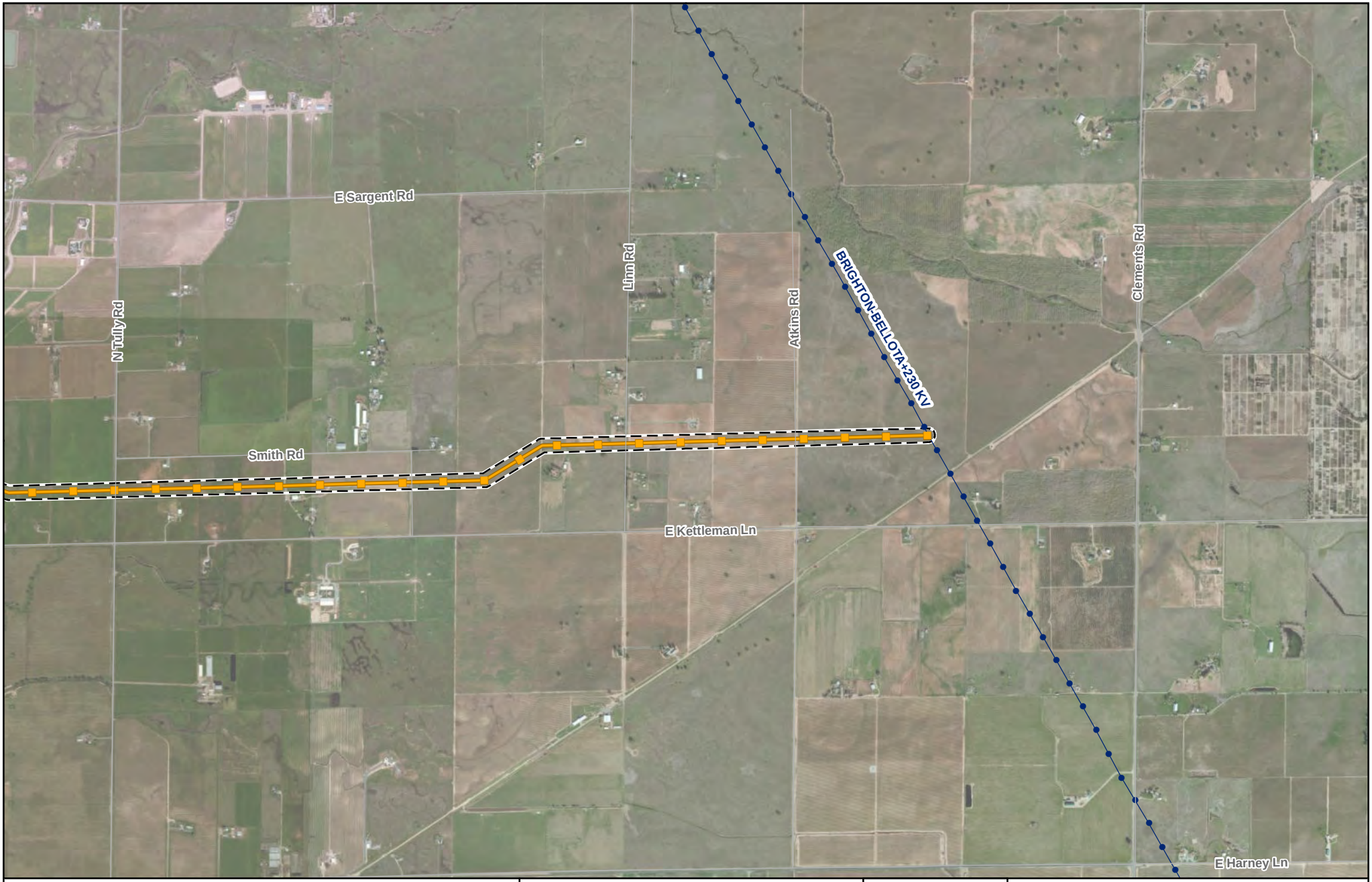
N

Scale: 1:185,000



FIGURE 5.10-4
Potential Flood Zones (FEMA Flood Zones)
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\HydrologyWaterQuality\Figure_5.10-4_Potential_Flood_Zones_FEMA.mxd kgrant1 8/17/2023



Legend

- Exsting Substation
- New Substation/ Switching Station
- Northern San Joaquin 230 kV
- Existing 60 kV Power Line Modification
- 230 kV Existing Transmission Line
- Groundwater Well
- Major_Roads
- Local Road
- 150-foot Radius Around Project Components

Source:
1) ESRI World Imagery
2) GAMA Ground Water Information System, Accessed April 2021.

0 1,600 3,200 Feet

N

Scale: 1:24,000

Project Location

FIGURE 5.10-5
Groundwater Wells and Springs within 150 feet of the Project Area
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\HydrologyWaterQuality\Figure_5.10-5_Groundwater_Wells_and_Springs_within_150_feet_of_the_Project_Area_v02.mxd kgrant1 7/27/2023



Legend

- Exsting Substation
- New Substation/ Switching Station
- Northern San Joaquin 230 kV
- Existing 60 kV Power Line Modification
- 230 kV Existing Transmission Line
- Groundwater Well
- Major_Roads
- Local Road
- 150-foot Radius Around Project Components

Source:
1) ESRI World Imagery
2) GAMA Ground Water Information System, Accessed April 2021.

0 1,600 3,200 Feet

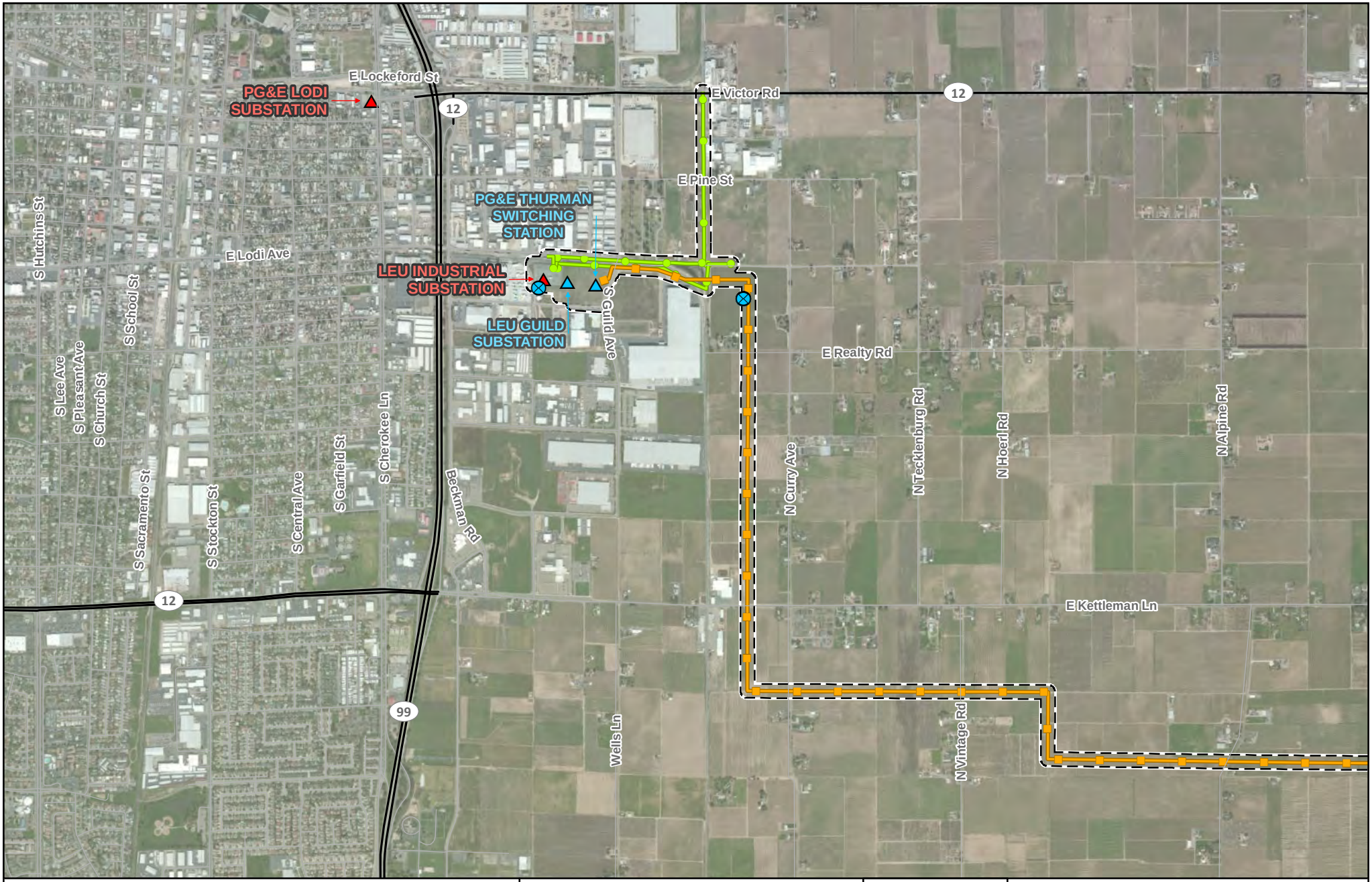
N

Scale: 1:24,000



FIGURE 5.10-5
Groundwater Wells and Springs within 150 feet of the Project Area
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\HydrologyWaterQuality\Figure_5.10-5_Groundwater_Wells_and_Springs_within_150_feet_of_the_Project_Area_v02.mxd kgrant1 7/27/2023



Legend

- Exsting Substation
- New Substation/ Switching Station
- Northern San Joaquin 230 kV
- Existing 60 kV Power Line Modification
- 230 kV Existing Transmission Line
- Groundwater Well
- Major_Roads
- Local Road
- 150-foot Radius Around Project Components

Source:
1) ESRI World Imagery
2) GAMA Ground Water Information System, Accessed April 2021.

0 1,600 3,200 Feet

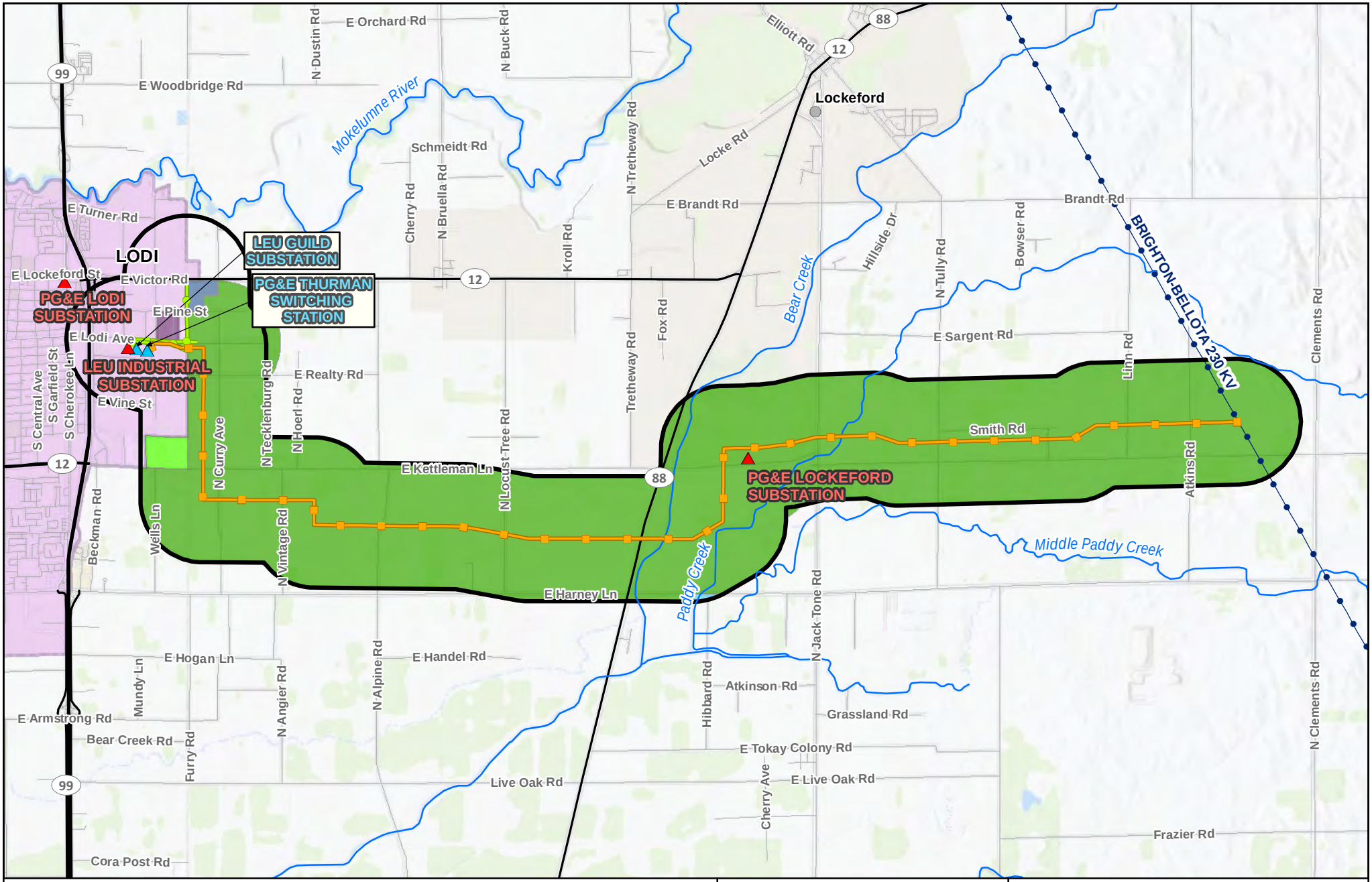
N

Scale: 1:24,000



FIGURE 5.10-5
Groundwater Wells and Springs within 150 feet of the Project Area
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\HydrologyWaterQuality\Figure_5.10-5_Groundwater_Wells_and_Springs_within_150_feet_of_the_Project_Area_v02.mxd kgrant1 7/27/2023



Legend

- New Substation/ Switch
- Existing Substation
- Northern San Joaquin 230 kV
- Existing 60 kV Power Line Modification
- 230 kV Existing Transmission Line
- Half-mile Radius Around Project Components
- City Boundary
- Major_Roads
- Local Road
- River/Stream

San Joaquin County Zoning

- Agriculture-Urban Reserve
- Crossroads Commercial
- General Agriculture
- Limited Agriculture
- Limited Industrial
- Public Facilities

Sources:
1) Base Map Source: ESRI World Topo
2) San Joaquin County

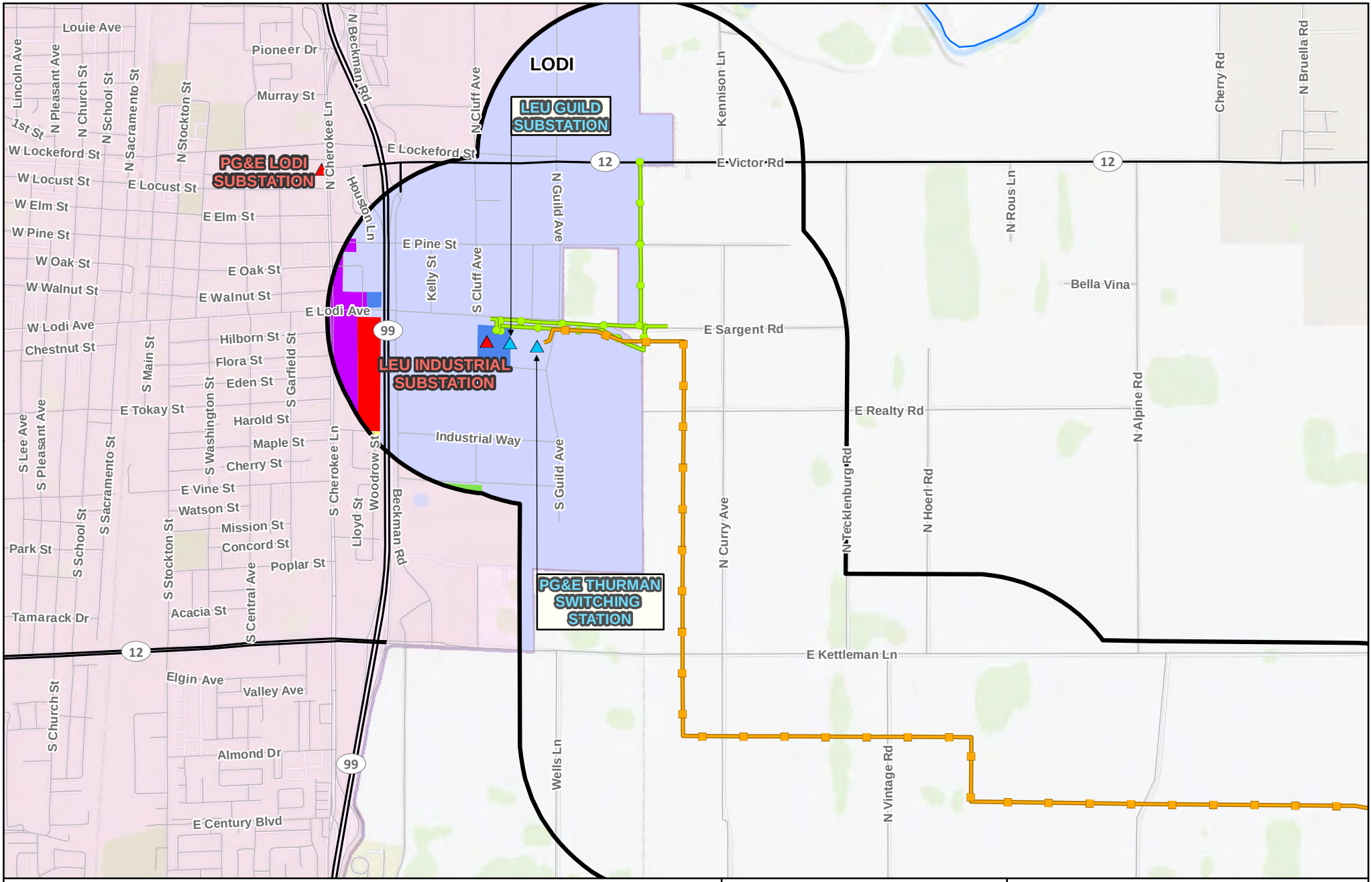
0 0.5 1 Miles

N

Scale: 1:65,000

FIGURE 5.11-1
San Joaquin County Zoning
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\GISProj\P\PGE\NSJPC\MapFiles\PEA\LandUse\Figure5.11-1_211018.mxd kgrant1 7/27/2023



Legend

- Exsting Substation
- New Substation/Switch
- Northern San Joaquin 230 kV
- Existing 60 kV Power Line Modification
- Major_Roads
- Local Road
- River/Stream
- Half-mile Radius Around Project Components
- City Boundary

City of Lodi Zoning

- General Commercial (GC)
- Industrial (M)
- Low Density Residential (RLD)
- Mixed Use (MCO)
- Open Space (OS)
- Public/Quasi-Public (PQP)

Source:
1) Base Map Source: ESRI World Topo
2) City of Lodi General Plan, Planning Divison

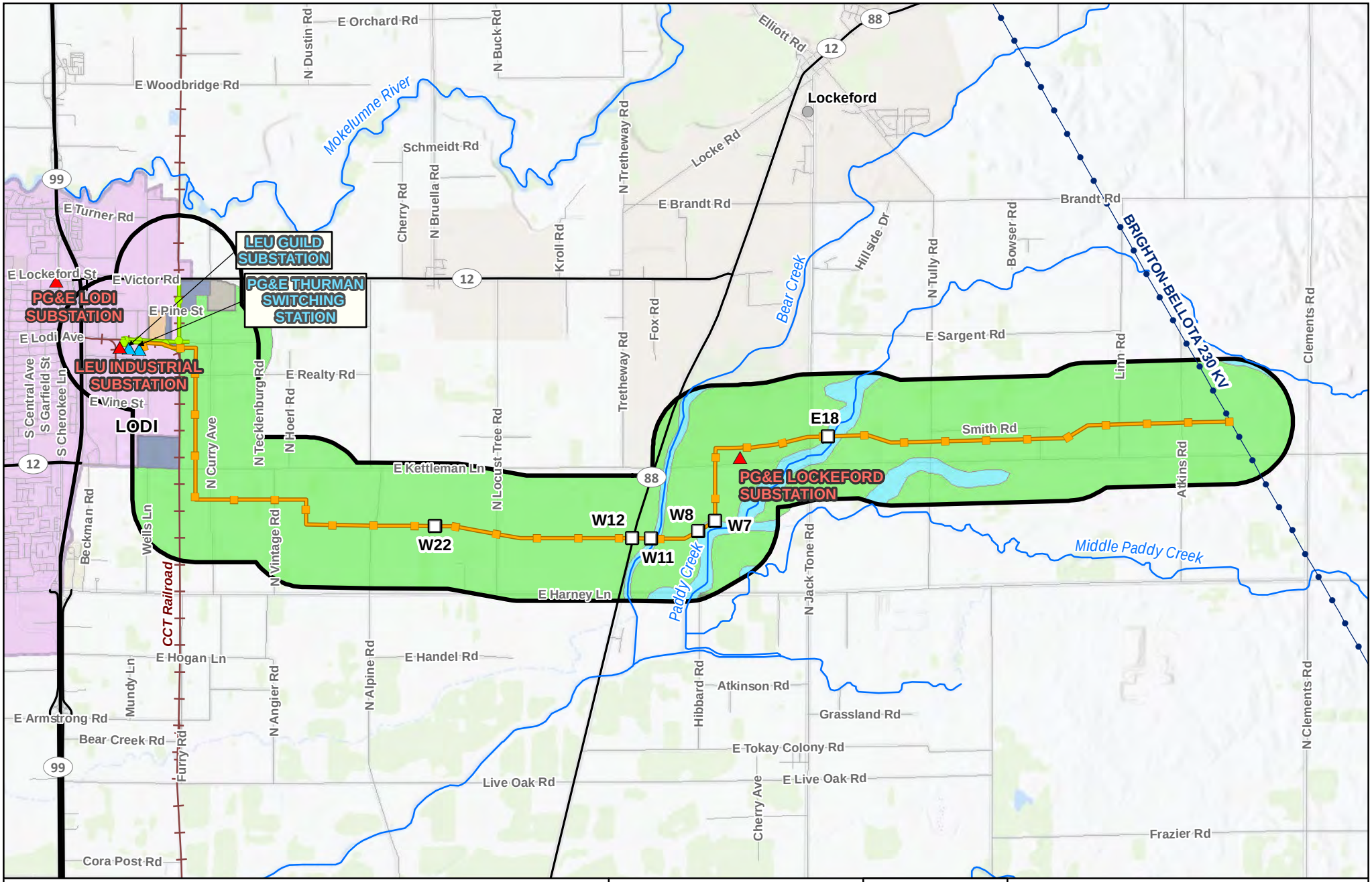
0 0.25 0.5 Miles

N

Scale: 1:25,000

FIGURE 5.11-2
City of Lodi Zoning
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\GISProj\P\PGE\NSJPC\MapFiles\PEA\LandUse\Figure5.11-2_211029.mxd kgrant1 7/27/2023



Legend

- Exsting Substation
- New Substation/ Switch
- Proposed Structure
- Northern San Joaquin 230 kV
- Existing 60 kV Power Line Modification
- 230 kV Existing Transmission Line
- Half-mile Radius Around Project Components
- City Boundary
- Local Road
- Major_Roads
- Railroad
- River/Stream

General Plan Land Use

- Agriculture/General (A/G)
- Agriculture/Limited (A/L)
- Industrial/Limited (I/L)
- Industrial/Truck Terminal (I/T)
- Open Space/Parks & Recreation (OS/PR)
- Open Space/ Resource Conservation (OS/RC)

Source:
1) Base Map Source: ESRI World Topo
2) San Joaquin County General Plan, Community Development Department

N

0 0.5 1 Miles

Scale: 1:65,000

Project Location

FIGURE 5.11-3
San Joaquin County Existing General Plan Land Use
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\GISProj\P\PGE\NSJPC\MapFiles\PEA\LandUse\General_Plan\Figure5.11-3_211029.mxd kgrant1 7/27/2023

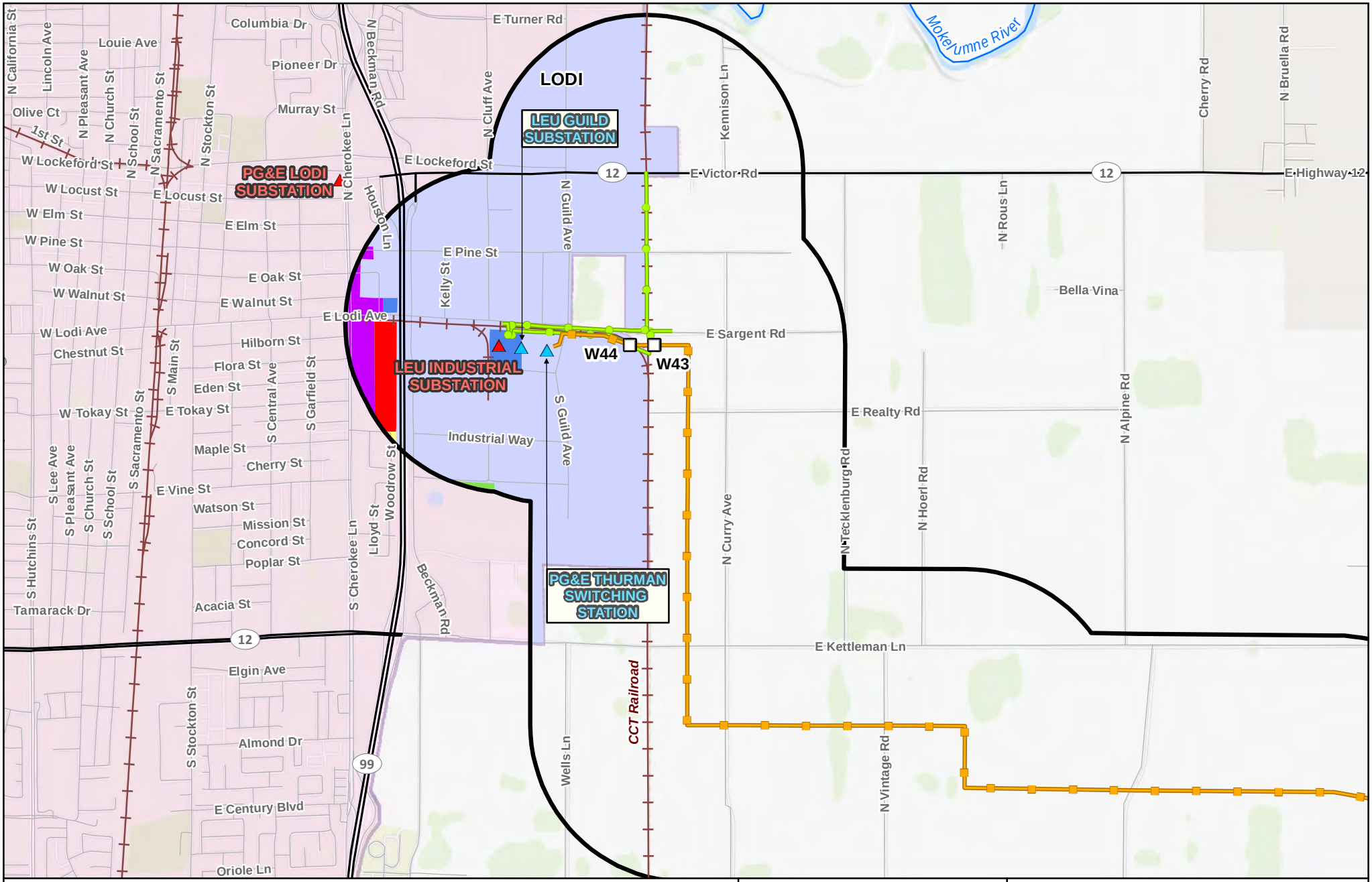
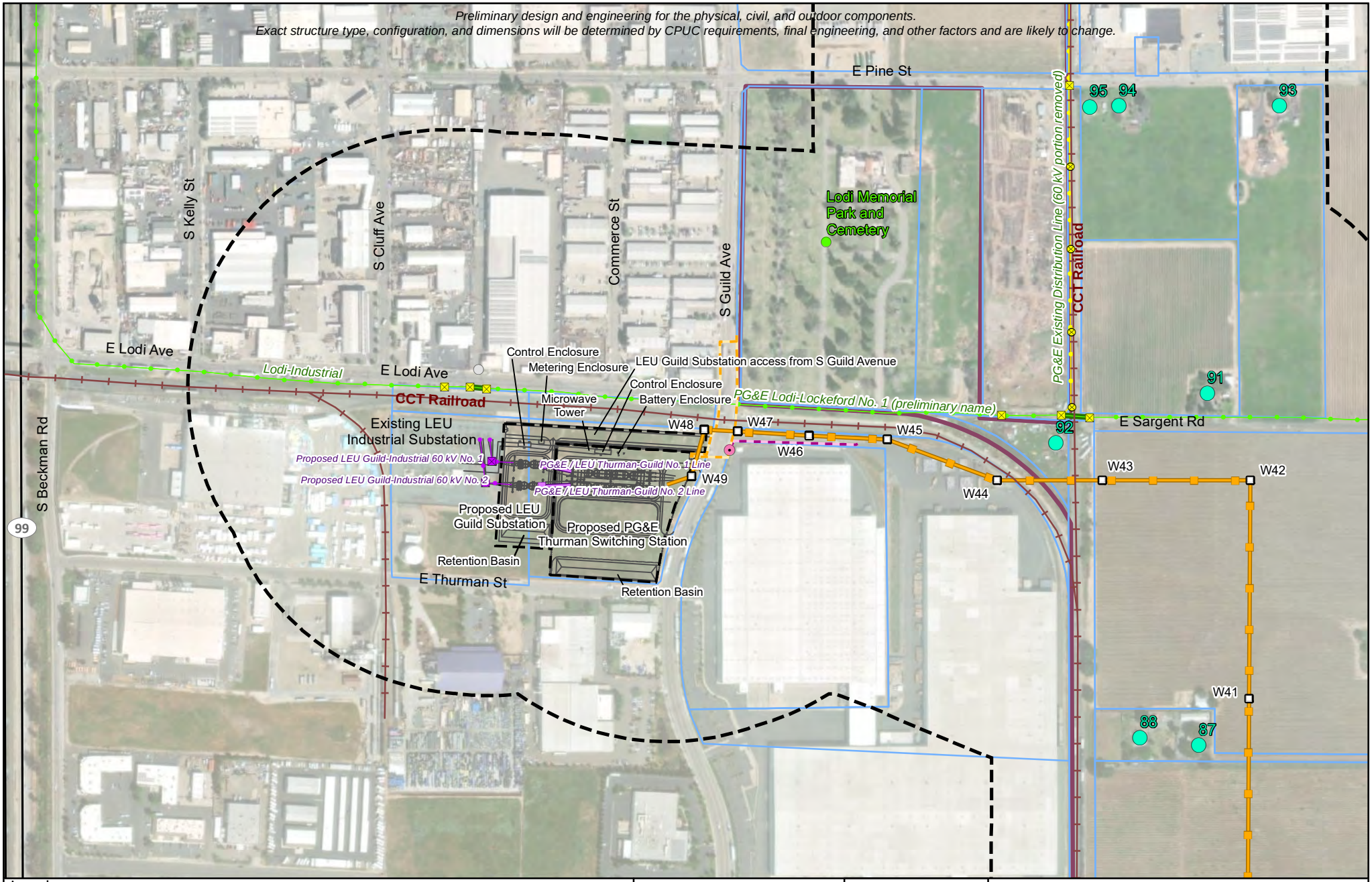


FIGURE 5.11-4
City of Lodi Existing General Plan Land Use
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\GISProj\P\PGE\NSJPC\MapFiles\PEA\LandUse\General_Plan\Figure5.11-4_211029.mxd kgrant1 7/27/2023



Legend

- 1,000-foot Radius Around Alignment
- Residential
- Lodi Memorial Park and Cemetery
- Northern San Joaquin 230 kV
- Proposed PG&E / LEU Thurman-Guild 230 kV
- Proposed LEU Guild-Industrial 60 kV
- Proposed LEU 60 kV Pole
- Proposed Structure
- Existing PG&E 60 kV Power Line
- New PG&E 60 kV Span
- Modified PG&E Line - Existing 12 kV Only
- PG&E Structure: Modify or Replace
- PG&E Structure: Topped
- Existing Guy Stub Pole: Remove
- Existing LEU 12 kV Distribution Pole
- Proposed LEU 12 kV Relocated Underground
- PG&E Thurman Switching Station Underground 12 kV Route Option
- Railroad
- Parcel Boundary
- City of Lodi Boundary

Source:
1) ESRI World Imagery

0 100 200
Feet

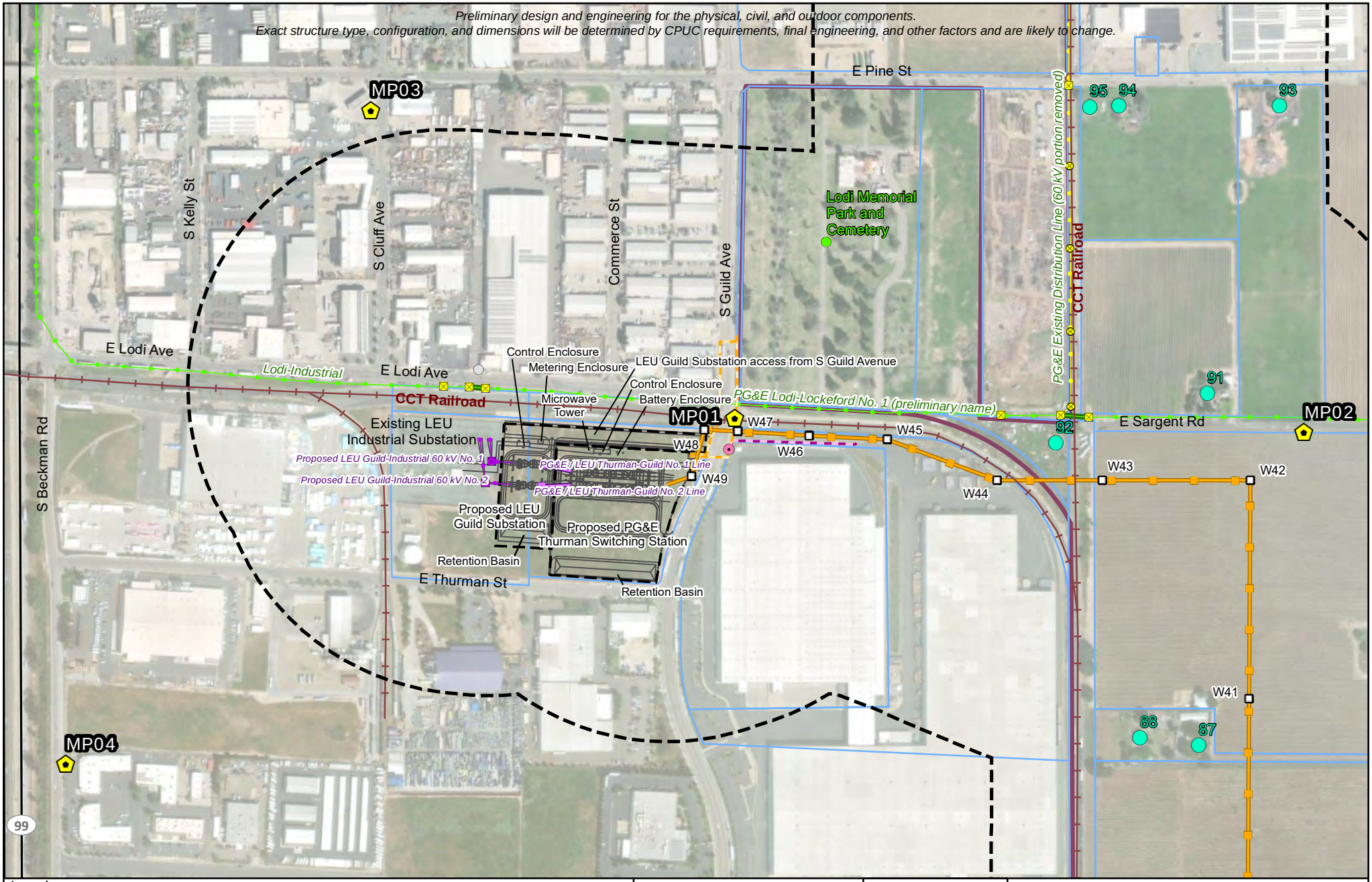
N

Scale:
1:6,010

Project Location

FIGURE 5.13-1
Noise Sensitive Land Uses within 1,000 feet of Work Near PG&E Thurman Switching Station
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\GISProj\P\PGE\NSJPC\MapFiles\PEA\Noise\Figure5.13-1_NoiseReceptorsThurman.mxd kgrant1 7/27/2023



Legend

- Noise Measurement Location
- Residential
- Lodi Memorial Park and Cemetery
- Northern San Joaquin 230 kV
- Proposed PG&E / LEU Thurman-Guild 230 kV
- Proposed LEU Guild-Industrial 60 kV
- Proposed LEU 60 kV Pole
- Proposed Structure
- Existing PG&E 60 kV Power Line
- New PG&E 60 kV Span
- Modified PG&E Line - Existing 12 kV Only
- PG&E Structure: Modify or Replace
- PG&E Structure: Topped
- Existing Guy Stub Pole: Remove
- Existing LEU 12 kV Distribution Pole
- Proposed LEU 12 kV Relocated Underground
- PG&E Thurman Switching Station Underground 12 kV Route Option
- Railroad
- Parcel Boundary
- City of Lodi Boundary
- 1,000-foot Radius Around Alignment

Source:
1) ESRI World Imagery

0 100 200
Feet

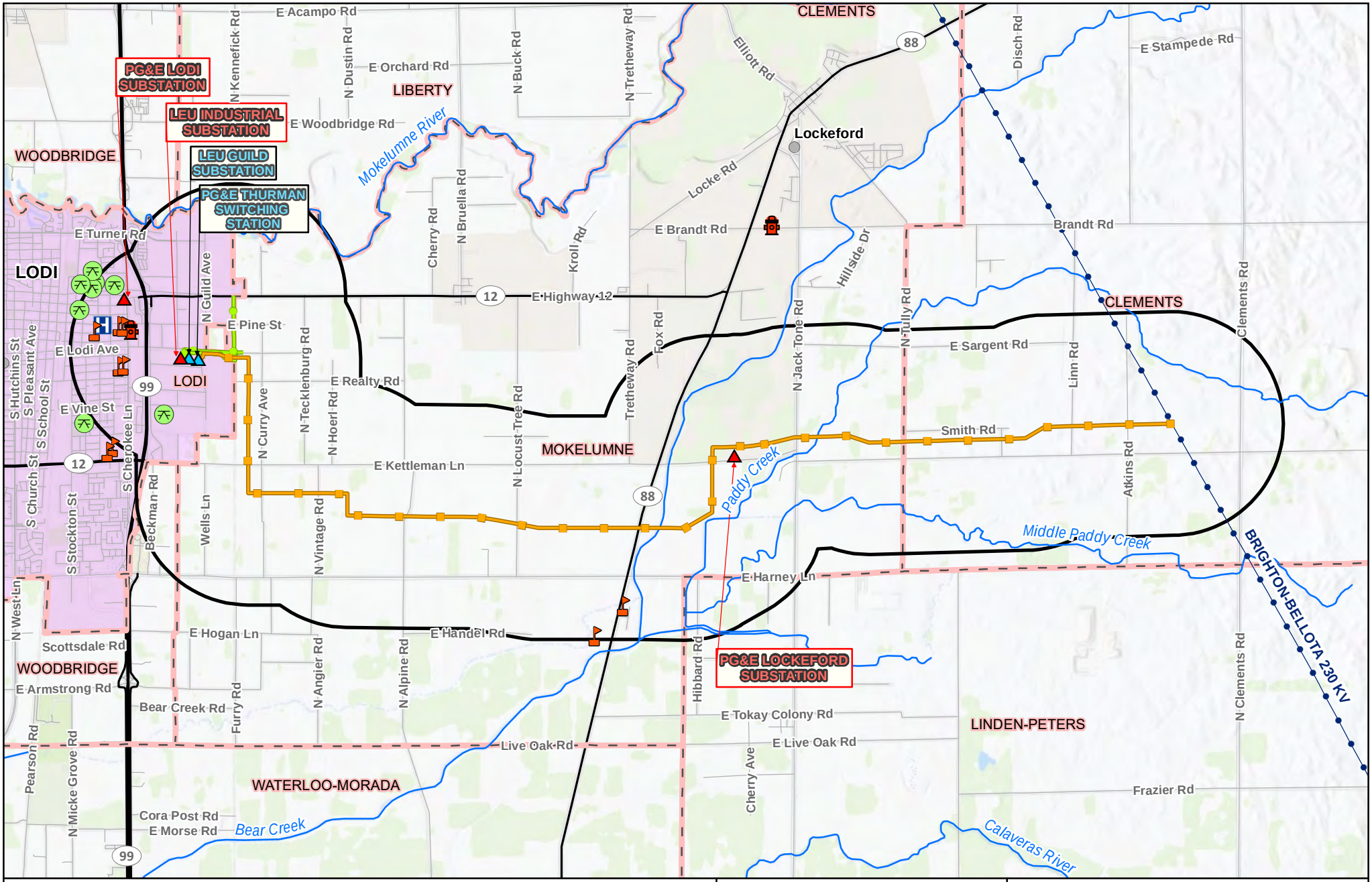
N

Scale:
1:6,010

Project Location

FIGURE 5.13-2
Noise Measurement Locations Near PG&E Thurman Switching Station
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\GISProj\P\PGE\NSJPC\MapFiles\PEA\Noise\Figure5.13-2_MonitoringPts-121922.mxd kgrant1 7/27/2023



Legend

- Exsting Substation
- New Substation/ Switching Station
- PG&E New 230 kV Transmission Line
- Existing PG&E 60 kV Power Line Modification
- Existing PG&E 230 kV Transmission Line
- One-mile Radius Around Project Components
- Park/Recreation Area
- School
- Fire Department
- Hospital
- Fire District Boundary
- City Boundary
- Major_Roads
- Local Road
- River/Stream

Source:
1) Base Map Source: ESRI World Topo
2) San Joaquin County General Plan, Community Development Department

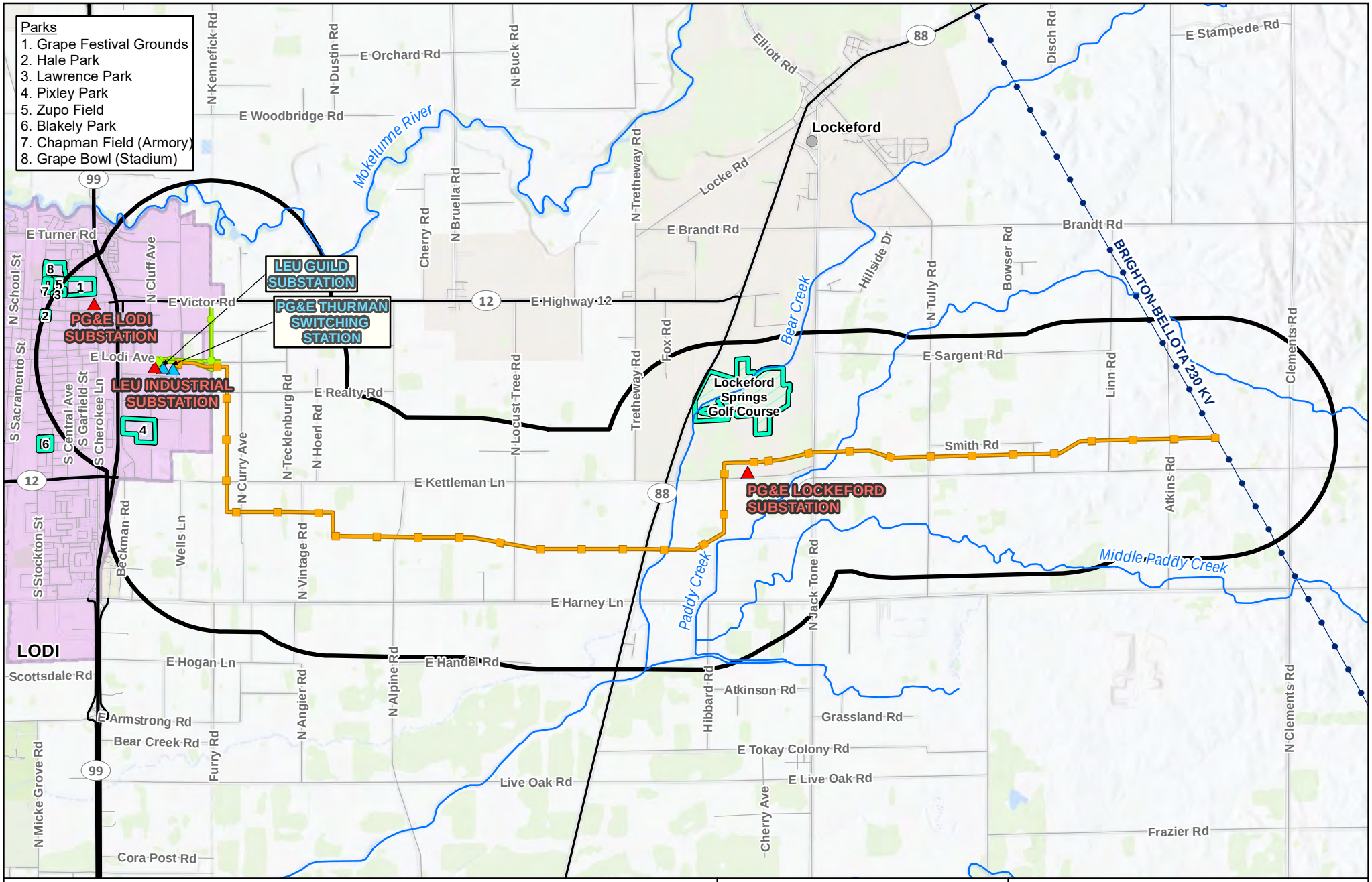
0 0.5 1 Miles

N

Scale: 1:72,865

FIGURE 5.15-1
Service Providers
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\GISProj\P\PGE\NSJPC\MapFiles\PEA\LandUse\Service_Providers\Figure5.15-1_211029.mxd kgrant1 7/27/2023



Legend

- New Substation/ Switch
- Existing Substation
- Northern San Joaquin 230 kV
- Existing 60 kV Power Line Modification
- 230 kV Existing Transmission Line
- One-mile Radius Around Project Components
- Park/Recreation Area within 1 mile of project
- City Boundary
- Major_Roads
- Local Road
- River/Stream

Sources:
1) Base Map Source: ESRI World Topo
2) San Joaquin County

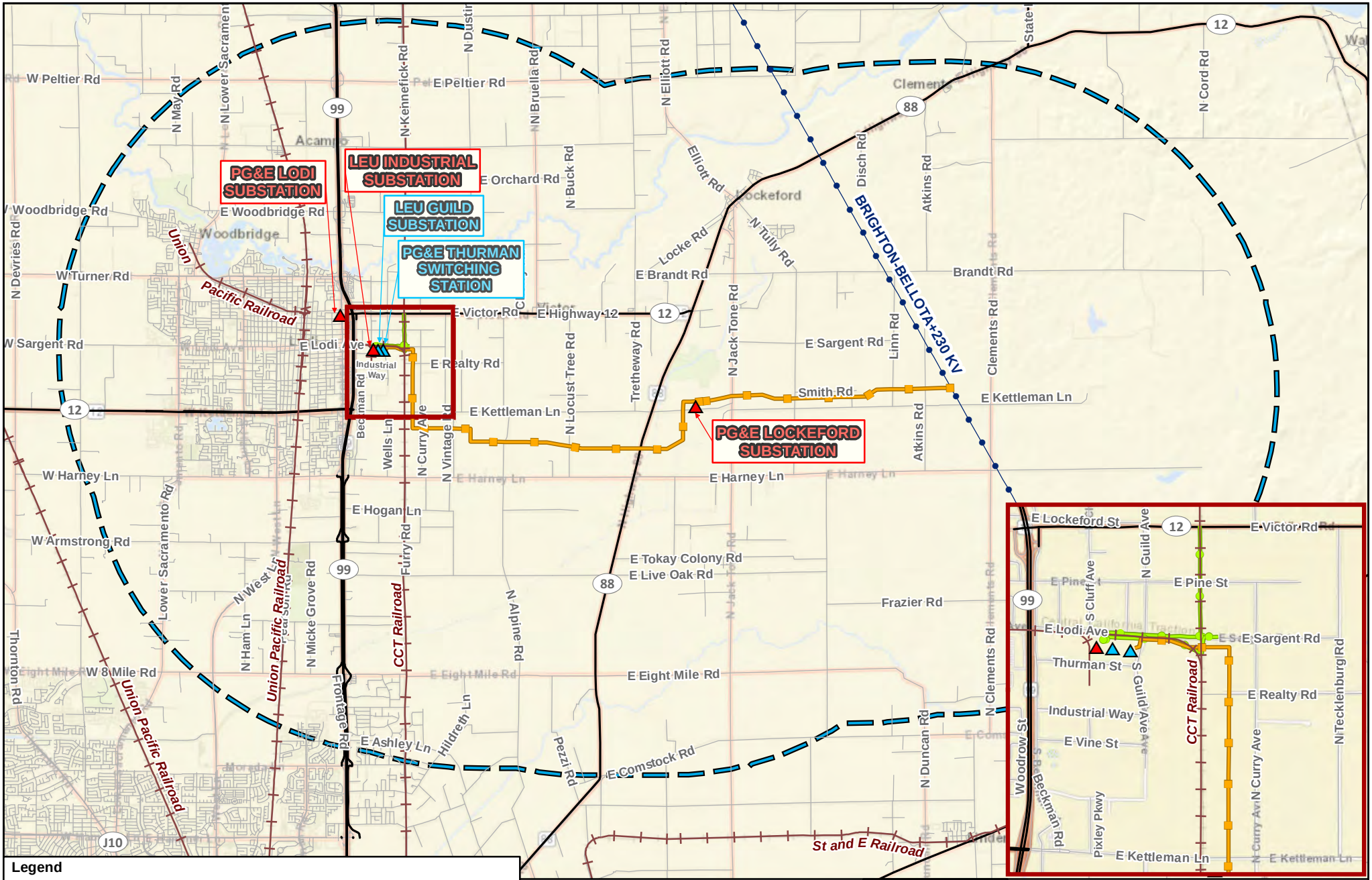
0 0.5 1 Miles

N

Scale: 1:68,000

FIGURE 5.16-1
Parks and Recreation Areas
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\Recreation\Figure5.16-1_211029.mxd kgrant1 7/27/2023



Legend

- Exsting Substation
- New Substation/ Switching Station
- PG&E New 230 kV Transmission Line
- Existing PG&E 60 kV Power Line Modification
- Existing PG&E 230 kV Transmission Line
- 5-mile Radius Around Project Components
- Major_Roads
- Railroad
- Local Road

Source:
1) ESRI World Street Map

0 8,400 16,800 Feet

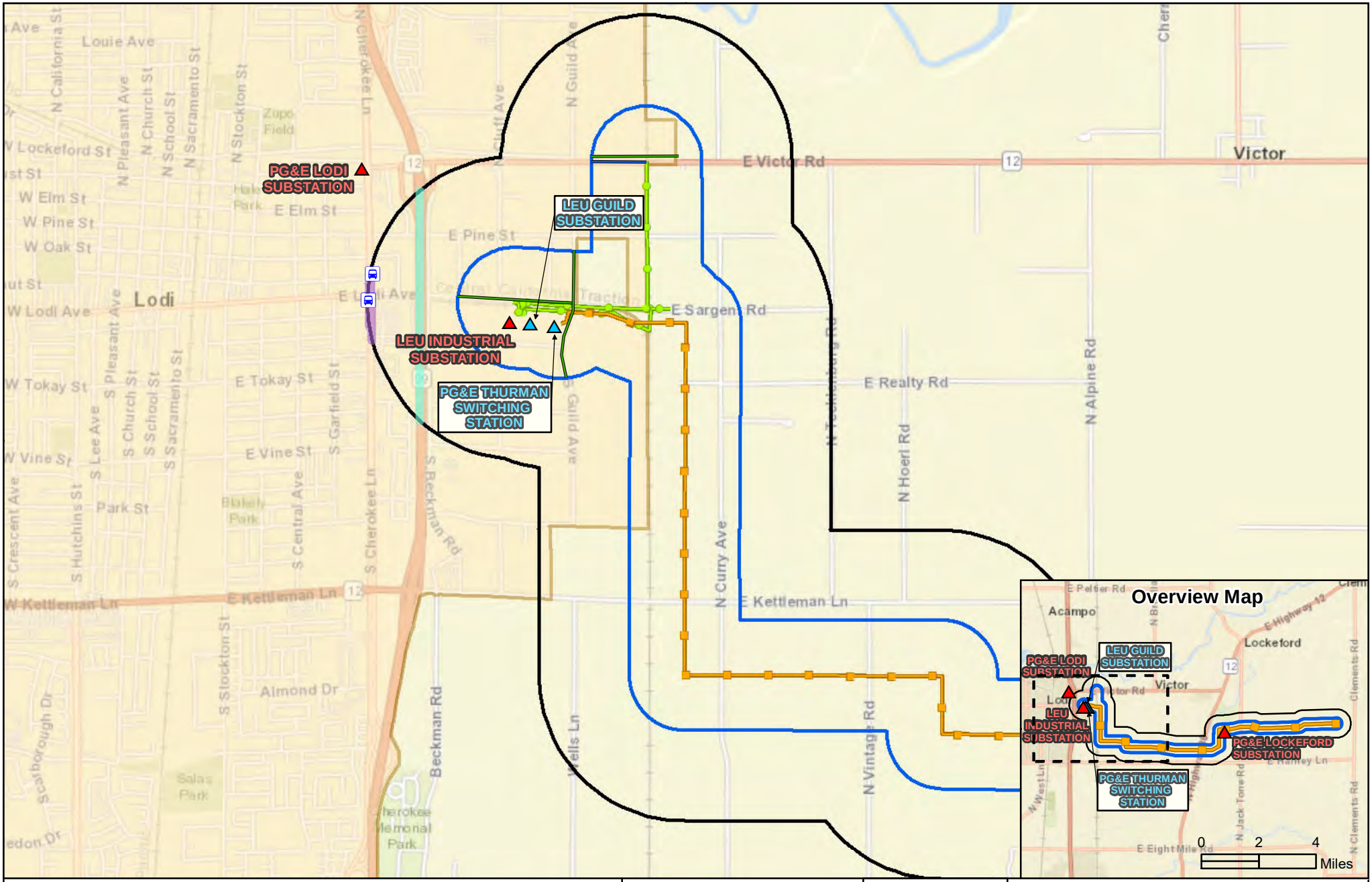
N

Scale: 1:125,000

Project Location

FIGURE 5.17-1
Existing Roadway Network
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\GISProj\P\PGE\NSJPC\MapFiles\PEA\Transportation\Figure5.17-1_Existing_Roadway_Networkv02.mxd kgrant1 7/27/2023



Legend

- Exsting Substation
- New Substation/ Switching Station
- PG&E New 230 kV Transmission Line
- Existing PG&E 60 kV Power Line Modification
- 0.5-mile Radius Around Project Components
- 1,000-foot Radius Around Project Components
- City of Lodi Boundary
- Lodi Transit Stop
- Lodi Transit Route 5
- San Joaquin Regional Transit District Commuter Route 163

Lodi Bike Plan

- Bike Path (Proposed)
- Bike Lane (Proposed)

Source:
1) ESRI World Street Map

0 0.25 Miles

N

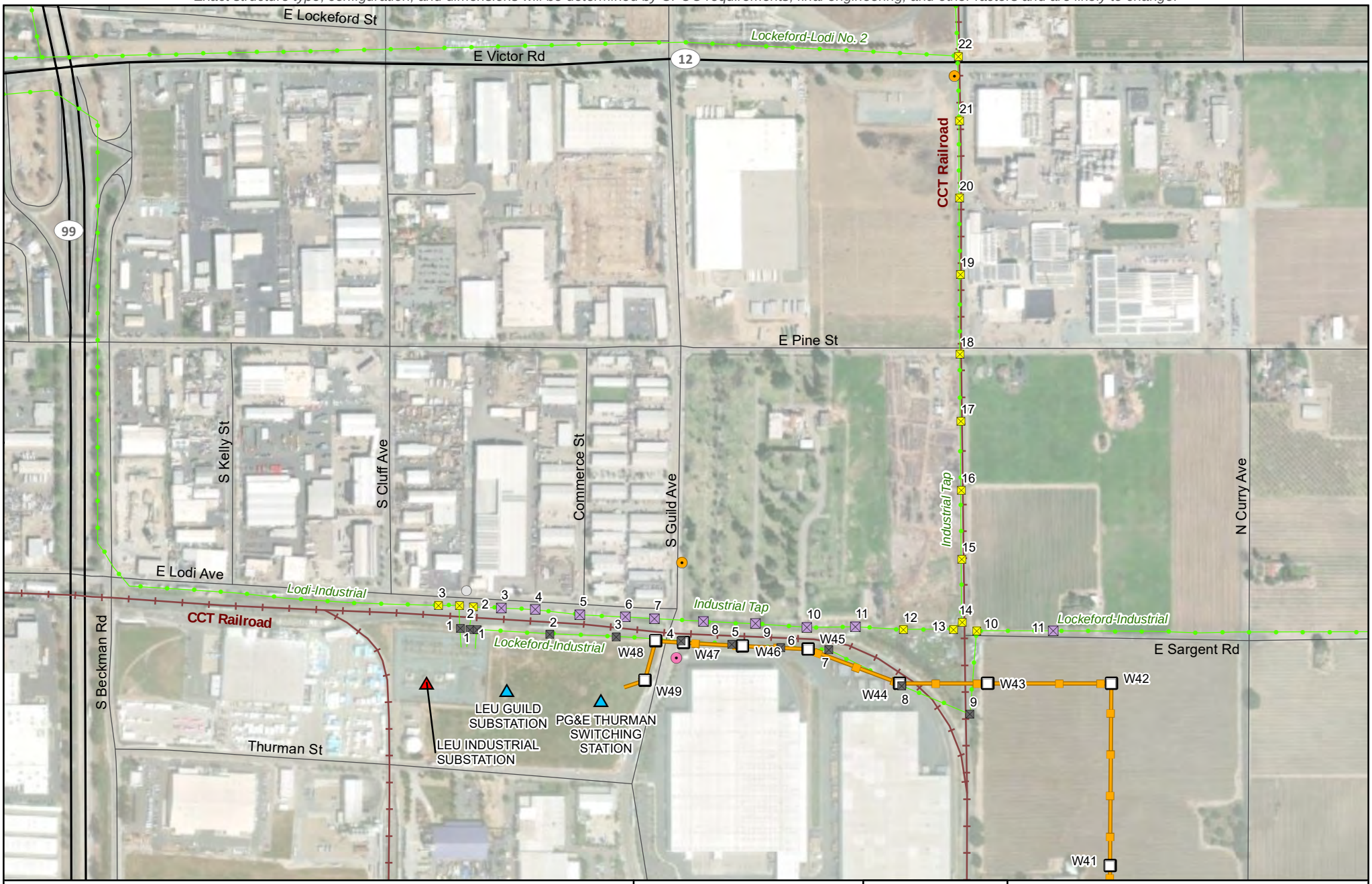
Scale: 1:28,000

Project Location

FIGURE 5.17-2
Transit, Rail, and Bicycle Services
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\GISProj\P\PGE\NSJPC\MapFiles\PEA\Transportation\Figure5.17-2_Transit_and_Bicycle_Services_211029.mxd kgrant1 7/27/2023

Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.



Legend

- Exsting Substation
- New Substation/ Switching Station
- Proposed Structure
- PG&E New 230 kV Transmission Line
- Existing LEU 12 kV Distribution Pole
- Existing PG&E 60 kV Power Line
- 60 kV Structure: Modify or Replace
- 60 kV Structure: Remove
- Existing 60 KV Structure
- Existing Guy Stub Pole: Remove
- Existing PG&E 12 kV Distribution Pole
- Railroad
- Major_Roads
- Local Road

Source:
1) ESRI World Imagery

0 250 500 Feet

N

Scale: 1:7,200



FIGURE 5.17-3
Existing Transportation - Lodi Project Area
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\GISProj\P\PGE\NSJPC\MapFiles\PEA\Transportation\Figure5.17-3_60kV_Lines_220924.mxd kgrant1 7/27/2023

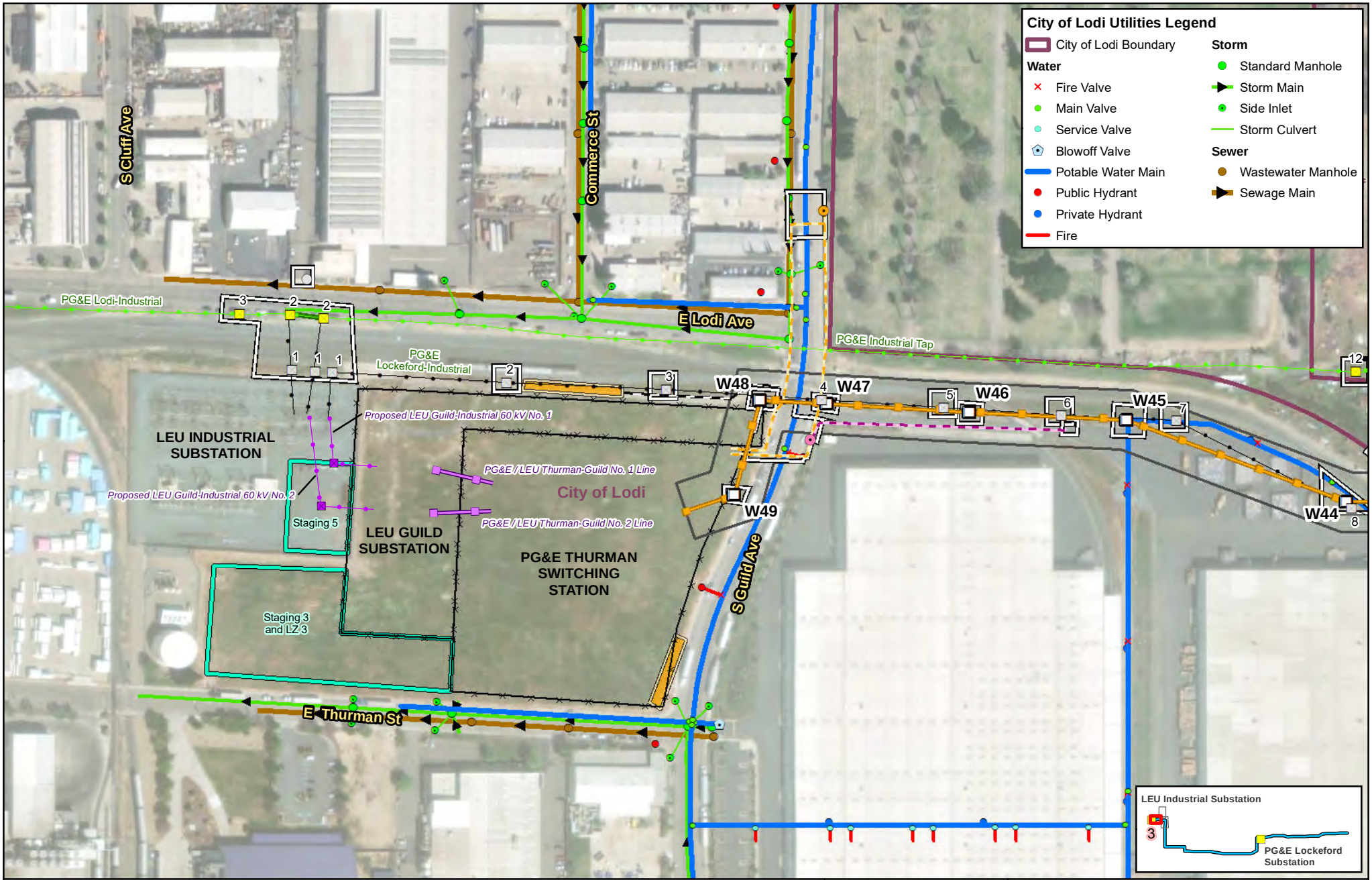
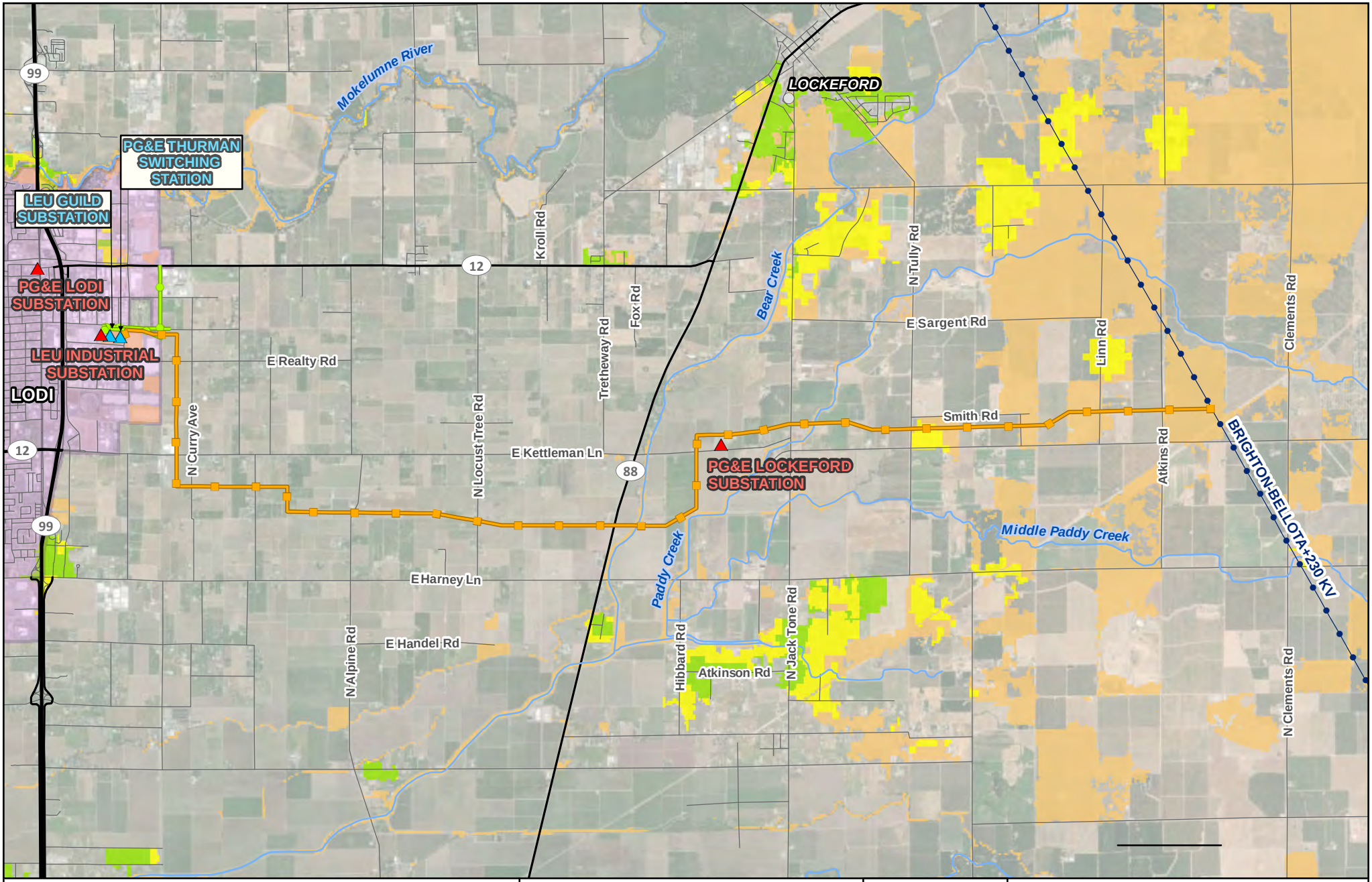


FIGURE 5.19-1
Existing City of Lodi Water, Storm and Sewer Utilities
Page 3 of 3
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\Utilities\Figure5.19-1_Lodi_Utilities_230616.mxd kgrant1 7/27/2023



Legend

- Exsting Substation
- New Substation/ Switch
- Northern San Joaquin 230 kV
- Existing 60 kV Power Line Modification
- 230 kV Existing Transmission Line
- Major_Roads
- Local Road
- River/Stream
- City Boundary

Wildland Urban Interface (WUI)

- Intermix
- Interface
- Influence Zone

Source:
1) Base Map Source: ESRI World Imagery

0 0.5 1 Miles

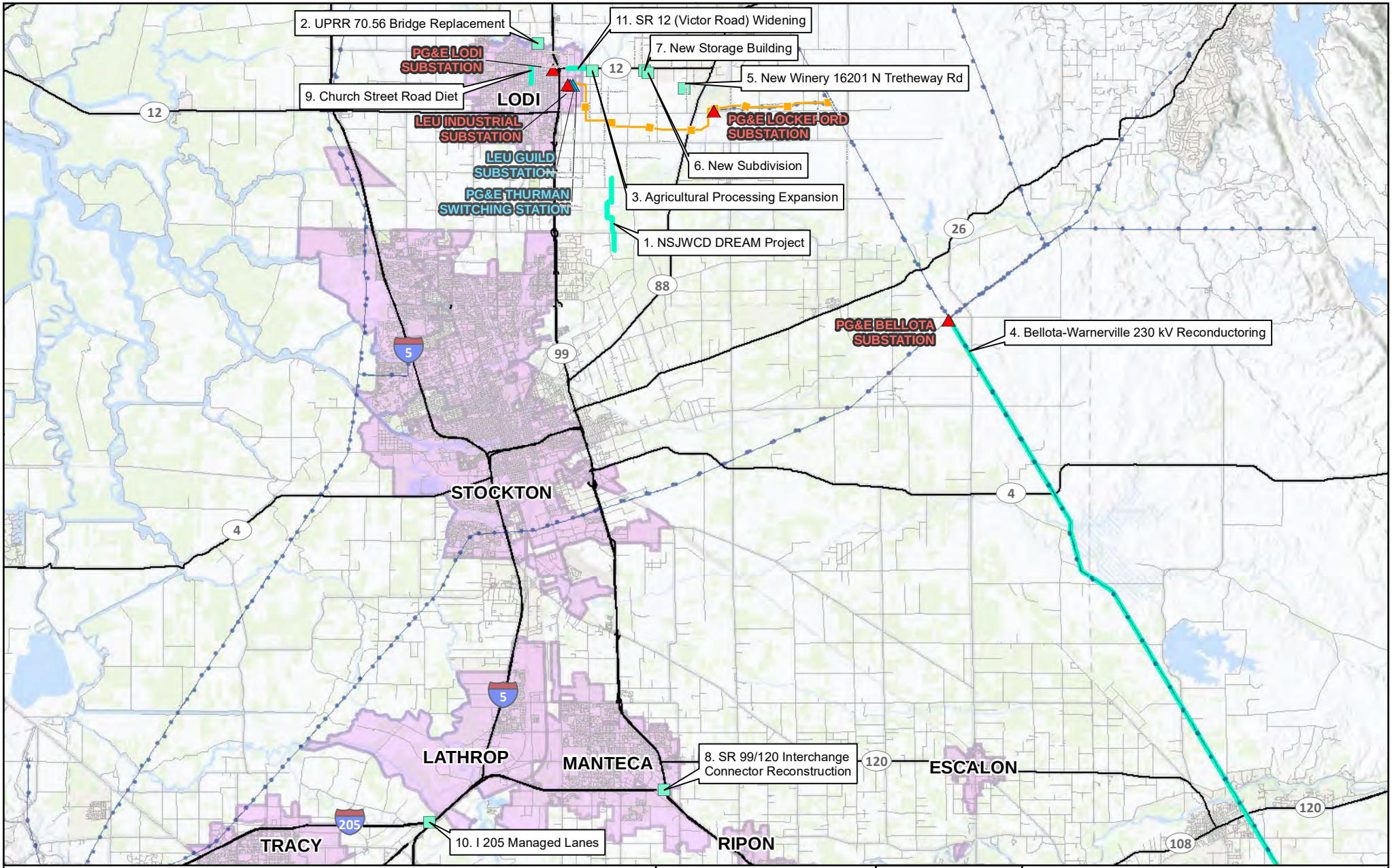
N

Scale: 1:65,000

Project Location

FIGURE 5.20-1
Wildland Urban Interface
Northern San Joaquin 230 kV Transmission Project

\\Dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\Temp\WUI_Fire_Hazards_220627.mxd kgrant1 7/27/2023



Legend

- Exsting Substation
- New Substation/ Switching Station
- PG&E New 230 kV Transmission Line

Existing PG&E Power and Transmission Lines

- 230
- Cumulative Project Location
- Cumulative Project (Linear)
- Major_Roads
- Local Road
- City Boundary

Source:
1) Base Map Source: ESRI World Topo

Scale:
1:280,256

0 2 4 Miles

N

Project Location

FIGURE 7.1-1
Cumulative Projects in the Project Vicinity
Northern San Joaquin 230 kV Transmission Project

\\dc1vs01\gisproj\P\PGE\NSJPC\MapFiles\PEA\Cumulative\Cumulative_221229.mxd kgrant1 7/27/2023

Appendix A2
Representative Photographs Table and Figures 5.1-2a through 5.1-2f

A.2 Representative Photographs Table

Pacific Gas and Electric Company
Northern San Joaquin 230 kV Transmission Project

Photograph Number and Location * denotes Key Observation Point	Viewing Direction	Capture Date and Time	Location Coordinates (Lat, Long)	Approximate Elevation (feet)
1. Clements Road	Southwest	3/12/2021 11:38 AM	N38.124311, W121.078077	144
2. North Linn Road near East Kettleman Lane	West	3/12/2021 11:03 AM	N38.119185, W121.105677	135
3. Smith Road at North Jory Road	Southwest	3/12/2021 10:48 AM	N38.121274, W121.117364	106
4. East Kettleman Lane at North Tully Road	Northeast	3/12/2021 10:38 AM	N38.117217, W121.132934	92
5. North Jack Tone Road near East Kettleman Lane*	South	3/12/2021 10:29 AM	N38.121163, W121.150929	89
6. East Kettleman Lane near PG&E Lockeford Substation	Northwest	4/2/2021 12:49 PM	N38.117085, W121.155345	86
7. SR 88	South	3/12/2021 9:41 AM	N38.109634, W121.176186	78
8. Intercoastal Vineyard at SR 88	North	4/2/2021 1:15 PM	N38.104306, W121.178310	71
9. Harmony Wynelands winery near East Harney Lane	North	3/12/2021 12:35 PM	N38.104934, W121.202590	72
10. North Alpine Road	North	7/22/2021 11:38 AM	N38.107886, W121.214992	67
11. Prie Vineyard and Winery at Alpine Road	Southeast	7/22/2021 1:48 PM	N38.122020, W121.214319	74
12. Mettler Family Vineyards at East Harney Lane*	North	7/22/2021 11:16 AM	N38.103605, W121.219225	60
13. East Kettleman Lane at Hoerl Road	Southwest	4/2/2021 11:38 AM	N38.115935, W121.227076	65
14. East Kettleman Lane near North Curry Avenue*	Northwest	7/22/2021 2:15 PM	N38.115804, W121.237184	63
15. East Kettleman Lane at Pixley Parkway	East	3/12/2021 4:07 PM	N38.116014, W121.251494	58
16. East Realty Road at North Curry Avenue	Northwest	3/12/2021 1:53 PM	N38.126759, W121.238442	64
17. South Guild Avenue near East Thurman Road	North	3/12/2021 3:42 PM	N38.127964, W121.248566	59
18. East Thurman Road*	Northeast	4/2/2021 10:54 AM	N38.128568, W121.252190	59

Notes:

Lat, Long = Latitude, Longitude

All photographs were taken with Nikon Z-5 full-frame digital camera and a 50-millimeter lens. Elevation height includes camera height of 5.5 feet.

1

1. Clements Road looking southwest towards eastern end of project



2

2. North Linn Road near East Kettleman Lane looking west



3

3. Smith Road at North Jory Road looking southwest



Refer to Figure 5.1-1a for photograph viewpoint locations

Figure 5.1-2a
Representative Photographs
PG&E Northern San Joaquin 230 kV Transmission Project

4. East Kettleman Lane at North Tully Road looking northeast



5. North Jack Tone Road near East Kettleman Lane looking south*



6. East Kettleman Lane near Lockeford Substation looking northwest



* KOP; see Figure 5.1-3 for visual simulation
Refer to Figure 5.1-1a for photograph viewpoint locations

Figure 5.1-2b
Representative Photographs
PG&E Northern San Joaquin 230 kV Transmission Project

ENVIRONMENTAL VISION
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7

7. State Route 88 looking south



8

8. Intercoastal Vineyard at State Route 88 looking north



9

9. Harmony Wynelands winery near East Harney Lane looking north



Refer to Figure 5.1-1a for photograph viewpoint locations

Figure 5.1-2c
Representative Photographs
PG&E Northern San Joaquin 230 kV Transmission Project

10



10. North Alpine Road looking north

11



11. Prie Winery at North Alpine Road looking southeast

12*



12. Mettler Family Vineyards at East Harney Lane looking north*

* KOP; see Figure 5.1-4 for visual simulation
Refer to Figure 5.1-1a for photograph viewpoint locations

Figure 5.1-2d
Representative Photographs
PG&E Northern San Joaquin 230 kV Transmission Project

13



13. East Kettleman Lane at Hoerl Road looking southwest

14*



14. East Kettleman Lane near North Curry Avenue looking northwest*

15



15. East Kettleman Lane at Pixley Parkway looking east

* KOP; see Figure 5.1-5 for visual simulation
Refer to Figure 5.1-1a for photograph viewpoint locations

Figure 5.1-2e
Representative Photographs
PG&E Northern San Joaquin 230 kV Transmission Project

16



16. East Realty Road at North Curry Avenue looking northwest

17



17 South Guild Avenue near East Thurman Road looking north

18*



18 East Thurman Road looking northeast*

* KOP; see Figure 5.1-6 for visual simulation
Refer to Figure 5.1-1a for photograph viewpoint locations

Figure 5.1-2f
Representative Photographs
PG&E Northern San Joaquin 230 kV Transmission Project

Appendix B1a
Construction Emissions Calculations for PG&E Sites

Table 1
Project Emissions Summary - Criteria Pollutants
PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Annual Construction Emissions (2026-2029)

		Annual Emissions (ton/year)					
	Construction Phase	**ROG**	**CO**	**NOx**	**SOx**	**PM_{10}** [b]	**$PM_{2.5}$** [b]
PG&E 230 kV Transmission Lines Construction	Construction Year 2026	0.05	0.56	0.51	0.00	0.46	0.05
	Construction Year 2027	0.69	2.90	1.88	0.04	0.92	0.12
	Construction Year 2028	0.00	0.01	0.00	0.00	0.03	0.00
	Construction Year 2029	0.00	0.00	0.00	0.00	0.00	0.00
PG&E Lockeford Substation Expansion	Construction Year 2026	0.11	1.10	1.72	0.01	3.15	0.39
	Construction Year 2027	0.08	1.04	0.72	0.00	0.38	0.06
	Construction Year 2028	0.10	1.25	0.91	0.00	0.50	0.07
	Construction Year 2029	0.03	0.41	0.30	0.00	0.16	0.02
PG&E 12 kV Service Line Extension (to PG&E Thurman Switching Station)	Construction Year 2026	0.00	0.00	0.00	0.00	0.00	0.00
	Construction Year 2027	0.01	0.17	0.12	0.00	0.04	0.01
	Construction Year 2028	0.00	0.00	0.00	0.00	0.00	0.00
	Construction Year 2029	0.00	0.00	0.00	0.00	0.00	0.00
PG&E Remote End Substations Construction	Construction Year 2026	0.00	0.00	0.00	0.00	0.00	0.00
	Construction Year 2027	0.00	0.01	0.00	0.00	0.00	0.00
	Construction Year 2028	0.00	0.04	0.02	0.00	0.01	0.00
	Construction Year 2029	0.00	0.02	0.01	0.00	0.00	0.00
PG&E Thurman Switching Station Construction	Construction Year 2026	0.03	0.29	0.29	0.00	0.11	0.02
	Construction Year 2027	0.12	1.33	1.73	0.01	2.87	0.36
	Construction Year 2028	0.00	0.00	0.00	0.00	0.00	0.00
	Construction Year 2029	0.00	0.00	0.00	0.00	0.00	0.00
PG&E Microwave Tower Construction (within Thurman Switching Station)	Construction Year 2026	0.00	0.00	0.00	0.00	0.00	0.00
	Construction Year 2027	0.02	0.27	0.25	0.00	0.29	0.04
	Construction Year 2028	0.00	0.00	0.00	0.00	0.00	0.00
	Construction Year 2029	0.00	0.00	0.00	0.00	0.00	0.00
PG&E 60 kV Power Lines Reconfiguration	Construction Year 2026	0.00	0.00	0.00	0.00	0.00	0.00
	Construction Year 2027	0.01	0.07	0.05	0.00	0.07	0.00
	Construction Year 2028	0.01	0.08	0.06	0.00	0.10	0.01
	Construction Year 2029	0.00	0.00	0.00	0.00	0.00	0.00
Sub Total PG&E Construction Sites	Construction Year 2026	0.19	1.95	2.51	0.01	3.72	0.46
	Construction Year 2027	0.93	5.79	4.74	0.06	4.57	0.58
	Construction Year 2028	0.11	1.37	1.00	0.00	0.63	0.08
	Construction Year 2029	0.03	0.43	0.31	0.00	0.17	0.02
LEU Site (Industrial and Guild substations and 12 kV feeder line)	Construction Year 2026	0.00	0.00	0.00	0.00	0.00	0.00
	Construction Year 2027	0.20	1.37	1.45	0.01	1.30	0.26
	Construction Year 2028	0.01	0.10	0.12	0.00	0.00	0.00
	Construction Year 2029	0.00	0.00	0.00	0.00	0.00	0.00
Total PG&E and LEU Construction	Construction Year 2026	0.19	1.95	2.51	0.01	3.72	0.46
	Construction Year 2027	1.12	7.16	6.19	0.06	5.87	0.84
	Construction Year 2028	0.12	1.46	1.12	0.00	0.64	0.09
	Construction Year 2029	0.03	0.43	0.31	0.00	0.17	0.02
SJVAPCD CEQA Significance Threshold		**10**	**100**	**10**	**27**	**15**	**15**

Note:

Emissions from LEU Construction were obtained from the City of Lodi 2022

Operation and Maintenance Emissions - 2030 and beyond

	Annual Emissions (ton/year)					
Sites	**ROG**	**CO**	**NOx**	**SOx**	**PM_{10}**	**$PM_{2.5}$**
PG&E	0.017	0.035	0.020	0.001	0.005	0.002
LEU	0.530	0.110	0.130	0.001	0.009	0.009
Total	0.547	0.145	0.150	0.002	0.014	0.011
SJVAPCD CEQA Significance Threshold	**10**	**100**	**10**	**27**	**15**	**15**

Note:

Emissions from LEU Construction were obtained from the City of Lodi 2022

Table 2
Project Emissions Summary - Criteria Pollutants
PG&E: Northern San Joaquin 230 kV Transmission Project PEA

PGE Site Onsite Construction Emissions (2026-2029)

Construction Sites	Construction Phase	Onsite Emissions						
		ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	DPM
		lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/year
PG&E 230 kV Transmission Lines Construction	Construction Year 2026	3.79	36.93	31.67	0.10	3.04	1.30	33.68
	Construction Year 2027	25.62	86.47	55.56	1.59	3.37	2.06	132.37
	Construction Year 2028	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Construction Year 2029	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PG&E Lockeford Substation Expansion	Construction Year 2026	6.95	65.35	62.19	0.14	2.50	2.35	68.78
	Construction Year 2027	2.19	27.43	19.03	0.05	1.33	0.76	49.14
	Construction Year 2028	1.24	14.55	10.87	0.03	1.03	0.47	64.11
	Construction Year 2029	0.87	10.73	7.35	0.02	0.28	0.27	21.16
PG&E 12 kV Service Line Extension (to PG&E Thurman Switching Station)	Construction Year 2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Construction Year 2027	2.31	26.74	19.61	0.06	1.48	0.79	8.40
	Construction Year 2028	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Construction Year 2029	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PG&E Remote End Substations Construction	Construction Year 2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Construction Year 2027	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Construction Year 2028	1.55	19.76	13.57	0.04	0.57	0.53	1.91
	Construction Year 2029	1.55	19.76	13.57	0.04	0.57	0.53	0.96
PG&E Thurman Switching Station Construction [1]	Construction Year 2026	2.87	28.26	26.16	0.05	1.11	1.04	22.15
	Construction Year 2027	3.62	33.69	33.33	0.07	1.34	1.26	74.37
	Construction Year 2028	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Construction Year 2029	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PG&E Microwave Tower Construction (within Thurman Switching Station) [1]	Construction Year 2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Construction Year 2027	0.85	8.90	6.80	0.02	0.26	0.25	13.53
	Construction Year 2028	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Construction Year 2029	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PG&E 60 kV Power Lines Reconfiguration	Construction Year 2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Construction Year 2027	0.95	9.16	8.42	0.03	0.91	0.35	3.41
	Construction Year 2028	0.95	9.16	8.42	0.03	0.91	0.35	3.41
	Construction Year 2029	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Combined for areas near Thurman Switching Station (including Thurman Switching Station, Microwave Tower, and 12kV Service Line Extension)	Construction Year 2026	2.87	28.26	26.16	0.05	1.11	1.04	22.15
	Construction Year 2027	4.21	49.04	35.76	0.11	2.10	1.38	96.30
	Construction Year 2028	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Construction Year 2029	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worst-case Onsite Emissions from PG&E Sites	Construction Year 2026	6.95	65.35	62.19	0.14	3.04	2.35	68.78
	Construction Year 2027	25.62	86.47	55.56	1.59	3.37	2.06	132.37
	Construction Year 2028	1.55	19.76	13.57	0.04	1.03	0.53	64.11
	Construction Year 2029	1.55	19.76	13.57	0.04	0.57	0.53	21.16
SJVAPCD Air Quality Screening Thresholds		**100**	**100**	**100**	**100**	**100**	**100**	NA

Note:
1. Daily emissions of from Thurman station, the microwave tower, and PG&E 12 kV Service Line Extension construction are combined as from one site when evaluating the maximum daily emissions from each site.

Table 2

Project Emissions Summary - Criteria Pollutants

PG&E: Northern San Joaquin 230 kV Transmission Project PEA

LEU Maximum Onsite Daily Emissions

		Onsite Emissions (lb/day)					
		ROG	**CO**	**NOx**	**SOx**	**PM_{10}**	**$PM_{2.5}$**
LEU Site	Construction Year 2026	0.00	0.00	0.00	0.00	0.00	0.00
	Construction Year 2027	6.01	41.53	44.35	0.15	9.92	6.06
	Construction Year 2028	1.96	12.10	16.21	0.04	0.62	0.57
	Construction Year 2029	0.00	0.00	0.00	0.00	0.00	0.00
Combined Onsite Emissions of LEU Guild Substation, PGE's Thurman Switching Station, PGE's Microwave Tower at Thurman Switching Station, 12kV Service Line Extension)	Construction Year 2026	2.87	28.26	26.16	0.05	1.11	1.04
	Construction Year 2027	6.89	67.93	54.12	0.17	9.92	6.06
	Construction Year 2028	1.96	12.10	16.21	0.04	0.62	0.57
	Construction Year 2029	0.00	0.00	0.00	0.00	0.00	0.00
SJVAPCD Air Quality Screening Thresholds		**100**	**100**	**100**	**100**	**100**	**100**

Note:

Emissions from LEU Construction were obtained from the City of Lodi 2022

Daily emissions from LEU Guild Substation, PG&E's Thurman Switching Station, and PGE's Microwave Tower at Thurman switching station were combined to compare with the thresholds because these two sites are next to each other.

Operation and Maintenance Emissions - 2030 and beyond

	Daily Emissions (lb/day)					
Sites	**ROG**	**CO**	**NOx**	**SOx**	**PM_{10}**	**$PM_{2.5}$**
PGE	32.53	46.98	18.57	2.34	1.19	0.71
LEU	3.15	2.16	2.10	0.01	0.10	0.10
SJVAPCD Air Quality Screening Thresholds	**100**	**100**	**100**	**100**	**100**	**100**

Note:

Emissions from LEU Construction were obtained from the City of Lodi 2022

Table 3
Project Emissions Summary - GHG
PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Construction Emissions (2026-2029)

		Annual Emissions (metric ton/year
	Construction Phase	**CO2e**
PG&E 230 kV Transmission Lines Construction	Construction Year 2026	209.64
	Construction Year 2027	566.73
	Construction Year 2028	2.17
	Construction Year 2029	0.00
PG&E Lockeford Substation Expansion	Construction Year 2026	976.71
	Construction Year 2027	234.79
	Construction Year 2028	299.75
	Construction Year 2029	0.05
PG&E 12 kV Service Line Extension (to PG&E Thurman Switching Station)	Construction Year 2026	0.00
	Construction Year 2027	38.50
	Construction Year 2028	0.00
	Construction Year 2029	0.00
PG&E Remote End Substations Construction	Construction Year 2026	0.00
	Construction Year 2027	3.30
	Construction Year 2028	6.93
	Construction Year 2029	3.77
PG&E Thurman Switching Station Construction	Construction Year 2026	69.27
	Construction Year 2027	934.13
	Construction Year 2028	0.00
	Construction Year 2029	0.00
PG&E Microwave Tower Construction (within Thurman Switching Station)	Construction Year 2026	0.00
	Construction Year 2027	116.23
	Construction Year 2028	0.00
	Construction Year 2029	0.00
PG&E 60 kV Power Lines Reconfiguration	Construction Year 2026	0.00
	Construction Year 2027	24.65
	Construction Year 2028	32.90
	Construction Year 2029	0.00
Sub Total PGE Construction	Construction Year 2026	1,255.63
	Construction Year 2027	1,918.33
	Construction Year 2028	341.75
	Construction Year 2029	3.82
LEU Construction	Construction Year 2026	0.00
	Construction Year 2027	471.55
	Construction Year 2028	31.00
	Construction Year 2029	0.00
Total PG&E and LEU Construction	Construction Year 2026	1,255.63
	Construction Year 2027	2,389.88
	Construction Year 2028	372.75
	Construction Year 2029	3.82
Total Construction		4,022.07

Note:

Emissions from LEU Construction were obtained from the City of Lodi 2022

Table 3
Project Emissions Summary - GHG
PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Operation and Maintenance Emissions (2030 and beyond)

Location	Activity	Annual Emissions (metric ton/year) CO2e
PG&E Operation	Operation and Maintenance Emissions	11.97
	SF6 Leakage	80.17
LEU Operation	Operation and Maintenance Emissions	455.63
	SF6 Leakage	28.86
Total		**576.64**

Note:
Emissions from LEU Construction were obtained from the Air Quality and Greenhouse Gas Emissions Technical Analysis (City of Lodi Electric Utility 2022). SF6 Leakage was recalculated with updated data from Burns & McDonnell in Table 13.

Total GHG Emissions

	Annual Emissions (metric ton/year)
PG&E Construction (Amortized)	117.32
PG&E Operation	92.15
LEU Construction (Amortized)	16.75
LEU Operation	484.49
Total GHG Emissions	**710.71**

Table 4

Preliminary Construction Schedule [a]

PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Typical Outage Windows

Construction Phase	2026						2027											
	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
PG&E 230 kV Transmission Lines																		
General Construction NTP by CPUC																		
Mobilization																		
Survey (Construction Staking)																		
Soil Borings																		
ROW Clearing																		
Roads and Access																		
Guard Structures (in parallel with Roads improvements)																		
Foundations (East to West)																		
Structure Assembly / Erection																		
Conductor Installation / Clipping / OPGW installation																		
Restoration and Removal of Guard Structures																		
Truck Drivers (material haul)																		
Inspectors (Civil, Foundation and Electrical)																		
PG&E Lockeford Substation																		
General Construction NTP by CPUC																		
(Phase 1) 20 days Civil Site Preparation + (Phase 1a) 20 day for Exterior fencing, paving, final grade surface																		
(Phase 1b) Foundations, Excavation, and Installation																		
(Phase 2) Equipment Installation (New Bays first, then existing Bays)																		
(Phase 3) Dress/Test/Wire Equipment (New Bays then Existing Bays)																		
(Phase 3) Transmission Line re-arrangement inside the substation																		
(Phase 3) Cleaning and Restoration / Landscaping																		
New 230 kV Lines In-Service Date																		
(Phase 4A) Foundation (tower & Xfrmr) work (Rio Oso-Lockeford 230 kV)																		
(Phase 4B) Foundation work (Lockeford-Bellota #1 230 kV)																		
(Phase 4C) Re-energize Lockeford & Foundation curing (no crews)																		
(Phase 4D) 230kV Bus #1 Reconfiguration (Rio Oso-Lockeford)																		
(Phase 4E & 4F) 230kV Bus #1 Reconfiguration (Lockeford-Bellota #1)																		
(Phase 5A) 230kV Bus #2 Reconfiguration / Installation / Demo																		
(Phase 5B) Bus Reconfiguration																		
(Phase 5C) Energize & Complete Lockeford Work																		
Cleaning and Landscaping																		
Truck Drivers																		
Inspectors																		
PG&E 12 kV Service Line Extension to PG&E Thurman Switching Station																		
General Construction: Average commute from Hotels to job site.																		
Mobilization: Thurman Yard or Staging Area																		
PG&E Remote End Substations																		
System Construction for New 230 kV Lines at Brighton and Rio Oso																		
System Construction for New 230 kV Lines at Bellota																		
General Construction for Existing 230 kV Lines																		
Communication Modification at Clayton Hill Repeater Station																		

Table 4

Preliminary Construction Schedule [a]

PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Typical Outage Windows

Construction Phase	2028												2029			
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
PG&E 230 kV Transmission Lines																
General Construction NTP by CPUC																
Mobilization																
Survey (Construction Staking)																
Soil Borings																
ROW Clearing																
Roads and Access																
Guard Structures (in parallel with Roads improvements)																
Foundations (East to West)																
Structure Assembly / Erection																
Conductor Installation / Clipping / OPGW installation																
Restoration and Removal of Guard Structures																
Truck Drivers (material haul)																
Inspectors (Civil, Foundation and Electrical)																
PG&E Lockeford Substation																
General Construction NTP by CPUC																
(Phase 1) 20 days Civil Site Preparation + (Phase 1a) 20 day for Exterior fencing, paving, final grade surface																
(Phase 1b) Foundations, Excavation, and Installation																
(Phase 2) Equipment Installation (New Bays first, then existing Bays)																
(Phase 3) Dress/Test/Wire Equipment (New Bays then Existing Bays)																
(Phase 3) Transmission Line re-arrangement inside the substation																
(Phase 3) Cleaning and Restoration / Landscaping																
New 230 kV Lines In-Service Date																
(Phase 4A) Foundation (tower & Xfrmr) work (Rio Oso-Lockeford 230 kV)																
(Phase 4B) Foundation work (Lockeford-Bellota #1 230 kV)																
(Phase 4C) Re-energize Lockeford & Foundation curing (no crews)																
(Phase 4D) 230kV Bus #1 Reconfiguration (Rio Oso-Lockeford)																
(Phase 4E & 4F) 230kV Bus #1 Reconfiguration (Lockeford-Bellota #1)																
(Phase 5A) 230kV Bus #2 Reconfiguration / Installation / Demo																
(Phase 5B) Bus Reconfiguration																
(Phase 5C) Energize & Complete Lockeford Work																
Cleaning and Landscaping																
Truck Drivers																
Inspectors																
PG&E 12 kV Service Line Extension to PG&E Thurman Switching Station																
General Construction: Average commute from Hotels to job site.																
Mobilization: Thurman Yard or Staging Area																
PG&E Remote End Substations																
System Construction for New 230 kV Lines at Brighton and Rio Oso																
System Construction for New 230 kV Lines at Bellota																
General Construction for Existing 230 kV Lines																
Communication Modification at Clayton Hill Repeater Station																

Table 4

Preliminary Construction Schedule [a]

PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Typical Outage Windows

Construction Phase	2026						2027											
	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
PG&E 230 kV Transmission Lines																		
PG&E Thurman Switching Station																		
General Construction NTP by CPUC																		
Civil Site Preparation																		
Structure Foundations, Excavation, and Installation																		
Equipment Foundations																		
Structure Delivery and Setup																		
Equipment Installation																		
Dress/Test/Wire Equipment																		
Exterior Walls, Final Grading, and Paving																		
Cleaning and Landscaping																		
Truck Drivers																		
Inspectors																		
PG&E Microwave Tower within Thurman Switching Station																		
General Construction																		
Tower Foundation Installation																		
Structure Delivery and Set Up																		
Tower Installation																		
Communication Equipment Installation & Testing																		
Cleaning and Landscaping																		
Truck Drivers																		
Inspectors																		
LEU Construction																		
Survey																		
Access Roads																		
Site Preparation																		
Underground 12 kV Line Installation																		
Fence and Gate Installation																		
Foundation																		
Ground/Grid Circuit Installation																		
Transformer Installation																		
Steel/Bus Erection																		
Yard Rock Installation																		
Cleaning and Restoration 1																		
Remaining Deliveries, Installations, Testing and Commissioning 1																		
Cleaning and Restoration 2																		
Remaining Deliveries, Installations, Testing and Commissioning 2																		

Table 4

Preliminary Construction Schedule [a]

PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Typical Outage Windows

Construction Phase	2028												2029			
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
PG&E 230 kV Transmission Lines																
PG&E Thurman Switching Station																
General Construction NTP by CPUC																
Civil Site Preparation																
Structure Foundations, Excavation, and Installation																
Equipment Foundations																
Structure Delivery and Setup																
Equipment Installation																
Dress/Test/Wire Equipment																
Exterior Walls, Final Grading, and Paving																
Cleaning and Landscaping																
Truck Drivers																
Inspectors																
PG&E Microwave Tower within Thurman Switching Station																
General Construction																
Tower Foundation Installation																
Structure Delivery and Set Up																
Tower Installation																
Communication Equipment Installation & Testing																
Cleaning and Landscaping																
Truck Drivers																
Inspectors																
LEU Construction																
Survey																
Access Roads																
Site Preparation																
Underground 12 kV Line Installation																
Fence and Gate Installation																
Foundation																
Ground/Grid Circuit Installation																
Transformer Installation																
Steel/Bus Erection																
Yard Rock Installation																
Cleaning and Restoration 1																
Remaining Deliveries, Installations, Testing and Commissioning 1																
Cleaning and Restoration 2																
Remaining Deliveries, Installations, Testing and Commissioning 2																

Table 4

Preliminary Construction Schedule [a]

PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Typical Outage Windows

Construction Phase	2026						2027											
	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
PG&E 230 kV Transmission Lines																		
PG&E 60 kV Lines Reconfiguration																		
Typical Outage Windows																		
General																		
Lockeford-Industrial Western End Removal and Restoration																		
Industrial Tap and **Lodi-Industrial** Reconfiguration / Restoration																		
Remote end - Terminal testing																		
Inspectors																		

[a] This schedule depicts the periods during which construction activities could occur. It is expected that construction activities will actually occur intermittently within the identified periods. The final project construction schedule can only be determined once the Commission's staff issue a full Notice to Proceed, all environmental protection measures and any other environmental mitigation measures have been taken into account, materials needed for construction have been delivered and are ready for installation, and PG&E's contractors and LEU's contractors have mobilized and are ready to initiate construction.

Table 4

Preliminary Construction Schedule [a]

PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Typical Outage Windows

Construction Phase	2028												2029			
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
PG&E 230 kV Transmission Lines																
PG&E 60 kV Lines Reconfiguration																
Typical Outage Windows																
General																
Lockeford-Industrial Western End Removal and Restoration																
Industrial Tap and **Lodi-Industrial** Reconfiguration / Restoration																
Remote end - Terminal testing																
Inspectors																

[a] This schedule depicts the periods during which construction activities could occur
construction schedule can only be determined once the Commission's staff issue a
into account, materials needed for construction have been delivered and are ready

Table 5

PG&E 230 kV Transmission Lines Construction Emissions [a]

PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Vehicle and Equipment Emissions

Equipment / Vehicle List	Equipment / Vehicle Type	HP	Equipment Load Factor	Daily Equipment Quantity/Vehicle Trips	Number of Days Used	Hours per Day	Miles per day/ vehicles [b]	Number of Months with Activities				Emission factors (g/hp/hr) for equipment, g/mile for vehicles, lb/hr for Helicopter						
								2026	2027	2028	2029	ROG	CO	NOx	SOx	PM_{10} [d]	$PM_{2.5}$ [d]	CO_2
General Construction																		
street sweeper	Heavy-duty Diesel	NA	NA	1	300	NA	50	6	8	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Jet A Fuel Truck	Heavy-duty Diesel	NA	NA	1	50	NA	50	6	8	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Mobilization: Thurman/Lodi yard and Lockeford yards.																		
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	2	10	NA	60	1	0	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Water Truck	Heavy-duty Diesel	NA	NA	2	10	NA	60	1	0	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Backhoe/Front Loader	Tractors/Loaders/Backhoe	97	0.37	2	10	8	NA	1	0	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
Road Grader	Graders	187	0.41	1	10	8	NA	1	0	0	0	0.227	1.173	2.182	0.005	0.070	0.066	495.591
Drum Type Compactor	Plate Compactors	8	0.43	1	10	8	NA	1	0	0	0	0.661	3.469	4.142	0.008	0.161	0.161	569.774
10k LB Forklift	Forklifts	89	0.2	2	150	5	NA	6	8	0	0	0.278	3.649	2.397	0.005	0.116	0.107	494.068
30 Ton Crane	Cranes	231	0.29	2	150	5	NA	6	8	0	0	0.219	1.685	1.863	0.005	0.075	0.069	494.393
¾-Ton Pick-up Truck, 4 × 4	Light-duty Truck	NA	NA	2	10	NA	15	1	0	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
1-Ton Crew Cab Flatbed, 4 × 4	Light-duty Truck	NA	NA	1	300	NA	15	6	8	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	10	NA	2	1	0	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Worker Commutes	Light-duty Auto/Truck	NA	NA	8	300	NA	25	6	8	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Survey (Construction Staking) 72 locations (3 person crew) x 2 PreConstruction 1 month.																		
Pick-up Truck	Light-duty Truck	NA	NA	2	24	NA	25	1	0	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	24	NA	25	1	0	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Soil Borings: 30 locations (3 person crew) - PreConstruction 1 month.		NA	NA															
Pick-up Truck	Light-duty Truck	NA	NA	1	24	NA	25	1	0	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Drill Rig	Bore/Drill Rigs	221	0.5	1	24	8	NA	1	0	0	0	0.111	1.043	0.821	0.005	0.027	0.025	493.278
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	24	NA	25	1	0	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
ROW Clearing: (rock construction entrances - shaker plates, vegetation, tree trimming. SWPPP.																		
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	15	NA	45	1	0	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Backhoe/Front Loader	Tractors/Loaders/Backhoe	97	0.37	1	15	8	NA	1	0	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
Road Grader	Graders	187	0.41	1	15	5	NA	1	0	0	0	0.227	1.173	2.182	0.005	0.070	0.066	495.591
Boom truck	Cranes	231	0.29	1	15	5	NA	1	0	0	0	0.219	1.685	1.863	0.005	0.075	0.069	494.393
¾-Ton Pick-up Truck, 4 × 4	Light-duty Truck	NA	NA	2	15	NA	30	1	0	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	15	NA	30	1	0	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	15	NA	25	1	0	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Roads and Access: Construction Areas, Pulling Sites, Light Road Improvements for 3 of 12 miles																		
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	15	NA	45	1	0	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Water Truck	Heavy-duty Diesel	NA	NA	1	300	NA	60	1	0	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Backhoe/Front Loader	Tractors/Loaders/Backhoe	97	0.37	1	15	8	NA	1	0	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
Road Grader	Graders	187	0.41	1	15	5	NA	1	0	0	0	0.227	1.173	2.182	0.005	0.070	0.066	495.591
Drum Type Compactor	Plate Compactors	8	0.43	1	15	5	NA	1	0	0	0	0.661	3.469	4.142	0.008	0.161	0.161	569.774
¾-Ton Pick-up Truck, 4 × 4	Light-duty Truck	NA	NA	2	15	NA	30	1	0	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	15	NA	30	1	0	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	15	NA	25	1	0	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Guard Structures 15 (Double side wood pole H frames)																		
Auger Truck	Bore/Drill Rigs	221	0.5	1	25	8	NA	1	1	0	0	0.111	1.043	0.821	0.005	0.027	0.025	493.278
Backhoe/Front Loader	Tractors/Loaders/Backhoe	97	0.37	1	25	8	NA	1	1	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
boom truck	Cranes	231	0.29	1	25	8	NA	1	1	0	0	0.219	1.685	1.863	0.005	0.075	0.069	494.393
bucket truck	Heavy-duty Diesel	NA	NA	1	25	NA	1	1	1	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
¾-Ton Pick-up Truck, 4 × 4	Light-duty Truck	NA	NA	2	25	NA	20	1	1	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Lowboy Truck/Trailer Pole Truck	Heavy-duty Diesel	NA	NA	1	25	NA	15	1	1	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Worker Commutes	Light-duty Auto/Truck	NA	NA	5	25	NA	25	1	1	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Foundations: Tangents 49 (Hole Digging, Foundation Setup/Cage, Pour Concrete, Finish/Removal of set up) - assumes parallel crews																		
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	2	60	NA	50	3	4	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Backhoe - Front Loader	Tractors/Loaders/Backhoe	97	0.37	2	60	5	NA	3	4	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
Drill Rig/Auger Truck	Bore/Drill Rigs	221	0.5	2	60	5	NA	3	4	0	0	0.111	1.043	0.821	0.005	0.027	0.025	493.278
Truck Cranes - 20 - 30 Ton	Cranes	231	0.29	2	60	5	NA	3	4	0	0	0.219	1.685	1.863	0.005	0.075	0.069	494.393
Truck - 40 'flat trailer	Heavy-duty Diesel	NA	NA	2	60	NA	25	3	4	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
F250 4X4 Crewcab (3/4 T) Foreman	Light-duty Truck	NA	NA	2	60	NA	25	3	4	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
10 Cu Concrete Mixer Truck	Heavy-duty Diesel	NA	NA	2	60	NA	25	3	4	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
¾-Ton Pick-up Truck, 4 × 4	Light-duty Truck	NA	NA	2	60	NA	25	3	4	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Worker Commutes	Light-duty Auto/Truck	NA	NA	7	60	NA	25	3	4	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621

Table 5

PG&E 230 kV Transmission Lines Construction Emissions [a]

PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Vehicle and Equipment Emissions

Equipment / Vehicle List	Equipment / Vehicle Type	Emissions (lbs/phase) [c]						Emissions (metric tons/phase) [c]	DPM Emission Factors, (g/hp/hr) for equipment,	Onsite DPM Emissions (lb/phase)	Activity	Onsite Emissions (lbs/day)					
		ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e	DPM	DPM		ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
General Construction																	
street sweeper	Heavy-duty Diesel	0.447	2.024	52.138	0.476	185.331	21.580	23.856	0.029	0.000	1	0.000	0.000	0.000	0.000	0.000	0.000
Jet A Fuel Truck	Heavy-duty Diesel	0.075	0.337	8.690	0.079	30.889	3.597	3.976	0.029	0.000	1	0.000	0.000	0.000	0.000	0.000	0.000
Mobilization: Thurman/Lodi yard and Lockeford yards.																	
10-Cu Dump Truck	Heavy-duty Diesel	0.036	0.162	4.171	0.038	14.827	1.726	1.909	0.029	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Water Truck	Heavy-duty Diesel	0.036	0.162	4.171	0.038	14.827	1.726	1.909	0.029	0.076	2	0.004	0.016	0.417	0.004	1.483	0.173
Backhoe/Front Loader	Tractors/Loaders/Backhoe	2.805	45.055	25.473	0.066	0.937	0.876	2.863	0.074	0.937	2	0.281	4.505	2.547	0.007	0.094	0.088
Road Grader	Graders	3.072	15.857	29.503	0.070	0.952	0.887	3.040	0.070	0.952	2	0.307	1.586	2.950	0.007	0.095	0.089
Drum Type Compactor	Plate Compactors	0.401	2.105	2.513	0.005	0.098	0.098	0.157	0.161	0.098	2	0.040	0.210	0.251	0.000	0.010	0.010
10k LB Forklift	Forklifts	16.376	214.783	141.085	0.306	6.840	6.275	13.192	0.116	6.840	2	0.109	1.432	0.941	0.002	0.046	0.042
30 Ton Crane	Cranes	48.470	373.253	412.660	1.108	16.615	15.374	49.679	0.075	16.615	2	0.323	2.488	2.751	0.007	0.111	0.102
¾-Ton Pick-up Truck, 4 × 4	Light-duty Truck	0.019	0.702	0.137	0.003	3.635	0.058	0.132	0.004	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
1-Ton Crew Cab Flatbed, 4 × 4	Light-duty Truck	0.285	10.530	2.059	0.043	54.528	0.877	1.982	0.004	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Lowboy Truck/Trailer	Heavy-duty Diesel	0.001	0.003	0.070	0.001	0.247	0.029	0.032	0.029	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	1.742	98.825	11.360	0.388	42.481	10.949	17.977	0.002	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Survey (Construction Staking) 72 locations (3 person crew) x 2 PreCo																	
Pick-up Truck	Light-duty Truck	0.076	2.808	0.549	0.011	14.541	0.234	0.529	0.004	0.000	3	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	0.105	5.929	0.682	0.023	2.549	0.657	1.079	0.002	0.000	3	0.000	0.000	0.000	0.000	0.000	0.000
Soil Borings: 30 locations (3 person crew) - PreConstruction 1 month.																	
Pick-up Truck	Light-duty Truck	0.038	1.404	0.275	0.006	7.270	0.117	0.264	0.004	0.000	4	0.000	0.000	0.000	0.000	0.000	0.000
Drill Rig	Bore/Drill Rigs	5.192	48.778	38.379	0.243	1.254	1.179	10.465	0.027	1.254	4	0.216	2.032	1.599	0.010	0.052	0.049
Worker Commutes	Light-duty Auto/Truck	0.052	2.965	0.341	0.012	1.274	0.328	0.539	0.002	0.000	4	0.000	0.000	0.000	0.000	0.000	0.000
ROW Clearing: (rock construction entrances - shaker plates, vegetatior																	
10-Cu Dump Truck	Heavy-duty Diesel	0.020	0.091	2.346	0.021	8.340	0.971	1.074	0.029	0.000	5	0.000	0.000	0.000	0.000	0.000	0.000
Backhoe/Front Loader	Tractors/Loaders/Backhoe	2.104	33.791	19.105	0.049	0.703	0.657	2.147	0.074	0.703	5	0.140	2.253	1.274	0.003	0.047	0.044
Road Grader	Graders	2.880	14.866	27.659	0.066	0.892	0.832	2.850	0.070	0.892	5	0.192	0.991	1.844	0.004	0.059	0.055
Boom truck	Cranes	2.424	18.663	20.633	0.055	0.831	0.769	2.484	0.075	0.831	5	0.162	1.244	1.376	0.004	0.055	0.051
¾-Ton Pick-up Truck, 4 × 4	Light-duty Truck	0.057	2.106	0.412	0.009	10.906	0.175	0.396	0.004	0.000	5	0.000	0.000	0.000	0.000	0.000	0.000
Lowboy Truck/Trailer	Heavy-duty Diesel	0.013	0.061	1.564	0.014	5.560	0.647	0.716	0.029	0.000	5	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	0.065	3.706	0.426	0.015	1.593	0.411	0.674	0.002	0.000	5	0.000	0.000	0.000	0.000	0.000	0.000
Roads and Access: Construction Areas, Pulling Sites, Light Road Impro																	
10-Cu Dump Truck	Heavy-duty Diesel	0.020	0.091	2.346	0.021	8.340	0.971	1.074	0.029	0.000	6	0.000	0.000	0.000	0.000	0.000	0.000
Water Truck	Heavy-duty Diesel	0.536	2.429	62.566	0.571	222.398	25.896	28.628	0.029	1.136	6	0.002	0.008	0.209	0.002	0.741	0.086
Backhoe/Front Loader	Tractors/Loaders/Backhoe	2.104	33.791	19.105	0.049	0.703	0.657	2.147	0.074	0.703	6	0.140	2.253	1.274	0.003	0.047	0.044
Road Grader	Graders	2.880	14.866	27.659	0.066	0.892	0.832	2.850	0.070	0.892	6	0.192	0.991	1.844	0.004	0.059	0.055
Drum Type Compactor	Plate Compactors	0.376	1.973	2.356	0.005	0.092	0.092	0.147	0.161	0.092	6	0.025	0.132	0.157	0.000	0.006	0.006
¾-Ton Pick-up Truck, 4 × 4	Light-duty Truck	0.057	2.106	0.412	0.009	10.906	0.175	0.396	0.004	0.000	6	0.000	0.000	0.000	0.000	0.000	0.000
Lowboy Truck/Trailer	Heavy-duty Diesel	0.013	0.061	1.564	0.014	5.560	0.647	0.716	0.029	0.000	6	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	0.065	3.706	0.426	0.015	1.593	0.411	0.674	0.002	0.000	6	0.000	0.000	0.000	0.000	0.000	0.000
Guard Structures 15 (Double side wood pole H frames)																	
Auger Truck	Bore/Drill Rigs	5.408	50.810	39.978	0.253	1.306	1.228	10.901	0.027	1.306	7	0.216	2.032	1.599	0.010	0.052	0.049
Backhoe/Front Loader	Tractors/Loaders/Backhoe	3.507	56.318	31.841	0.082	1.171	1.095	3.579	0.074	1.171	7	0.140	2.253	1.274	0.003	0.047	0.044
boom truck	Cranes	6.463	49.767	55.021	0.148	2.215	2.050	6.624	0.075	2.215	7	0.259	1.991	2.201	0.006	0.089	0.082
bucket truck	Heavy-duty Diesel	0.001	0.003	0.087	0.001	0.309	0.036	0.040	0.029	0.000	7	0.000	0.000	0.000	0.000	0.000	0.000
¾-Ton Pick-up Truck, 4 × 4	Light-duty Truck	0.063	2.340	0.458	0.009	12.117	0.195	0.440	0.004	0.000	7	0.000	0.000	0.000	0.000	0.000	0.000
Lowboy Truck/Trailer Pole Truck	Heavy-duty Diesel	0.011	0.051	1.303	0.012	4.633	0.540	0.596	0.029	0.000	7	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	0.091	5.147	0.592	0.020	2.213	0.570	0.936	0.002	0.000	7	0.000	0.000	0.000	0.000	0.000	0.000
Foundations: Tangents 49 (Hole Digging, Foundation Setup/Cage, Pou																	
10-Cu Dump Truck	Heavy-duty Diesel	0.179	0.810	20.855	0.190	74.133	8.632	9.543	0.029	0.000	8	0.000	0.000	0.000	0.000	0.000	0.000
Backhoe - Front Loader	Tractors/Loaders/Backhoe	10.520	168.955	95.524	0.247	3.513	3.285	10.737	0.074	3.513	8	0.175	2.816	1.592	0.004	0.059	0.055
Drill Rig/Auger Truck	Bore/Drill Rigs	16.224	152.430	119.933	0.760	3.917	3.683	32.704	0.027	3.917	8	0.270	2.541	1.999	0.013	0.065	0.061
Truck Cranes - 20 - 30 Ton	Cranes	19.388	149.301	165.064	0.443	6.646	6.150	19.872	0.075	6.646	8	0.323	2.488	2.751	0.007	0.111	0.102
Truck - 40 'flat trailer	Heavy-duty Diesel	0.089	0.405	10.428	0.095	37.066	4.316	4.771	0.029	0.000	8	0.000	0.000	0.000	0.000	0.000	0.000
F250 4X4 Crewcab (3/4 T) Foreman	Light-duty Truck	0.190	7.020	1.373	0.028	36.352	0.585	1.321	0.004	0.000	8	0.000	0.000	0.000	0.000	0.000	0.000
10 Cu Concrete Mixer Truck	Heavy-duty Diesel	0.089	0.405	10.428	0.095	37.066	4.316	4.771	0.029	0.000	8	0.000	0.000	0.000	0.000	0.000	0.000
¾-Ton Pick-up Truck, 4 × 4	Light-duty Truck	0.190	7.020	1.373	0.028	36.352	0.585	1.321	0.004	0.000	8	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	0.305	17.294	1.988	0.068	7.434	1.916	3.146	0.002	0.000	8	0.000	0.000	0.000	0.000	0.000	0.000

Table 5

PG&E 230 kV Transmission Lines Construction Emissions [a]

PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Vehicle and Equipment Emissions

Equipment / Vehicle List	Equipment / Vehicle Type	HP	Equipment Load Factor	Daily Equipment Quantity/Vehicle Trips	Number of Days Used	Hours per Day	Miles per day/ vehicles [b]	Number of Months with Activities				Emission factors (g/hp/hr) for equipment, g/mile for vehicles, lb/hr for Helicopter						
								2026	2027	2028	2029	ROG	CO	NOx	SOx	PM_{10} [d]	$PM_{2.5}$ [d]	CO_2
Foundations: Dead Ends 24 (Hole Digging, Foundation Setup/Cage, Pour Concrete, Finish/Removal of set up) assumes parallel crews																		
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	40	NA	75	3	4	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Backhoe - Front Loader	Tractors/Loaders/Backhoe	97	0.37	2	40	5	NA	3	4	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
Drill Rig/Auger Truck	Bore/Drill Rigs	221	0.5	2	40	5	NA	3	4	0	0	0.111	1.043	0.821	0.005	0.027	0.025	493.278
Truck Cranes - 20 - 30 Ton	Cranes	231	0.29	2	40	5	NA	3	4	0	0	0.219	1.685	1.863	0.005	0.075	0.069	494.393
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	40	NA	25	3	4	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
F250 4X4 Crewcab (3/4 T) Foreman	Light-duty Truck	NA	NA	2	40	NA	25	3	4	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
10 Cu Concrete Mixer Truck	Heavy-duty Diesel	NA	NA	2	40	NA	75	3	4	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
¾-Ton Pick-up Truck, 4 × 4	Light-duty Truck	NA	NA	2	40	NA	25	3	4	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	40	NA	25	3	4	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Structure Assembly / Erection: Steel Pole Hauling, Assembly, Erection Tangents 49																		
¾-Ton Pick-up Truck, 4 × 4	Light-duty Truck	NA	NA	2	50	NA	25	1	6	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
F250 4X4 Crewcab (3/4 T) Foreman	Light-duty Truck	NA	NA	2	50	NA	25	1	6	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Compressor Trailer	air compressors	78	0.48	2	50	5	NA	1	6	0	0	0.329	3.648	2.196	0.006	0.091	0.091	569.034
All Terrain Crane - 180 Ton	Cranes	231	0.29	2	50	5	NA	1	6	0	0	0.219	1.685	1.863	0.005	0.075	0.069	494.393
Truck - 40 'flat trailer	Heavy-duty Diesel	NA	NA	2	50	NA	25	1	6	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Worker Commutes	Light-duty Auto/Truck	NA	NA	7	50	NA	25	1	6	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Structure Assembly / Erection: Steel Pole Hauling, Assembly & Erection Dead-Ends 24																		
¾-Ton Pick-up Truck, 4 × 4	Light-duty Truck	NA	NA	2	50	NA	25	1	6	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
F250 4X4 Crewcab (3/4 T) Foreman	Light-duty Truck	NA	NA	2	50	NA	25	1	6	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Compressor Trailer	air compressors	78	0.48	2	50	5	NA	1	6	0	0	0.329	3.648	2.196	0.006	0.091	0.091	569.034
All Terrain Crane - 180 Ton	Cranes	231	0.29	2	50	5	NA	1	6	0	0	0.219	1.685	1.863	0.005	0.075	0.069	494.393
Truck - 40 'flat trailer	Heavy-duty Diesel	NA	NA	2	50	NA	25	1	6	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Worker Commutes	Light-duty Auto/Truck	NA	NA	8	50	NA	25	1	6	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Conductor (1113 AAC) Installation + OPGW, pull and sag and tension (per Pull) Assume 12 miles of Circuit feet)																		
F250 4X4 Crewcab (3/4 T) Foreman	Light-duty Truck	NA	NA	3	100	NA	25	0	7	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
reel trailer	Heavy-duty Diesel	NA	NA	2	100	NA	25	0	7	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
1 Ton Crew Cab Flat Bed	Light-duty Truck	NA	NA	3	100	NA	25	0	7	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
30 Ton Manitex	Cranes	231	0.29	4	100	5	NA	0	7	0	0	0.219	1.685	1.863	0.005	0.075	0.069	494.393
22 Ton Manitex	Cranes	231	0.29	1	100	5	NA	0	7	0	0	0.219	1.685	1.863	0.005	0.075	0.069	494.393
20,000 lbs, Fork Lift	Forklifts	89	0.2	2	100	5	NA	0	7	0	0	0.278	3.649	2.397	0.005	0.116	0.107	494.068
580 Case Backhoe	Tractors/Loaders/Backhoe	97	0.37	2	100	5	NA	0	7	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
sock line puller	Other Construction Equipm	172	0.42	2	100	5	NA	0	7	0	0	0.220	3.135	1.826	0.005	0.093	0.086	492.644
4 Drum rope Puller	Other Construction Equipm	172	0.42	1	100	5	NA	0	7	0	0	0.220	3.135	1.826	0.005	0.093	0.086	492.644
60,000 lbs Puller	Other Construction Equipm	172	0.42	2	100	5	NA	0	7	0	0	0.220	3.135	1.826	0.005	0.093	0.086	492.644
Sag Cat Winch	Other Construction Equipm	172	0.42	1	100	5	NA	0	7	0	0	0.220	3.135	1.826	0.005	0.093	0.086	492.644
D8 Cat	Tractors/Loaders/Backhoe	97	0.37	1	100	5	NA	0	7	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
Hughes 500 Helicopter	Helicopter	Heli	NA	1	50	5	NA	0	7	0	0	4.010	5.330	1.950	0.290	0.060	0.060	424.200
Fuel Helicopter Support	Heavy-duty Diesel	NA	NA	1	100	NA	50	0	7	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Low boy Truck and Trailer	Heavy-duty Diesel	NA	NA	1	100	NA	25	0	7	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Worker Commutes	Light-duty Auto/Truck	NA	NA	18	100	NA	25	0	7	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Restoration: 6 of 12 miles of dirt road (Crew size of 4)											0							
Light-duty Truck	Light-duty Truck	NA	NA	2	15	NA	25	0	2	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Road Grader	Graders	187	0.41	1	15	6	NA	0	2	0	0	0.227	1.173	2.182	0.005	0.070	0.066	495.591
Backhoe and Trailer	Tractors/Loaders/Backhoe	97	0.37	1	15	6	NA	0	2	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
Other																		
Material Haul Trucks (10 trucks, used first 60	Light-duty Truck	NA	NA	10	60	NA	75	3	12	1	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Inspector Vehicles (Civil, Structural, Wire)	Light-duty Truck	NA	NA	3	150	NA	75	3	12	1	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471

Table 5

PG&E 230 kV Transmission Lines Construction Emissions [a]

PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Vehicle and Equipment Emissions

Equipment / Vehicle List	Equipment / Vehicle Type	Emissions (lbs/phase) [c]						Emissions (metric tons/phase) [c]	DPM Emission Factors, (g/hp/hr) for equipment,	Onsite DPM Emissions (lb/phase)	Activity	Onsite Emissions (lbs/day)					
		ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e	DPM	DPM		ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
Foundations: Dead Ends 24 (Hole Digging,	**Foundation Setup/Cage, P**																
10-Cu Dump Truck	Heavy-duty Diesel	0.089	0.405	10.428	0.095	37.066	4.316	4.771	0.029	0.000	8	0.000	0.000	0.000	0.000	0.000	0.000
Backhoe - Front Loader	Tractors/Loaders/Backhoe	7.013	112.637	63.682	0.165	2.342	2.190	7.158	0.074	2.342	8	0.175	2.816	1.592	0.004	0.059	0.055
Drill Rig/Auger Truck	Bore/Drill Rigs	10.816	101.620	79.955	0.507	2.611	2.456	21.803	0.027	2.611	8	0.270	2.541	1.999	0.013	0.065	0.061
Truck Cranes - 20 - 30 Ton	Cranes	12.925	99.534	110.043	0.295	4.431	4.100	13.248	0.075	4.431	8	0.323	2.488	2.751	0.007	0.111	0.102
Truck - Framer (Crew Pick Up)	Light-duty Truck	0.127	4.680	0.915	0.019	24.235	0.390	0.881	0.004	0.000	8	0.000	0.000	0.000	0.000	0.000	0.000
F250 4X4 Crewcab (3/4 T) Foreman	Light-duty Truck	0.127	4.680	0.915	0.019	24.235	0.390	0.881	0.004	0.000	8	0.000	0.000	0.000	0.000	0.000	0.000
10 Cu Concrete Mixer Truck	Heavy-duty Diesel	0.179	0.810	20.855	0.190	74.133	8.632	9.543	0.029	0.000	8	0.000	0.000	0.000	0.000	0.000	0.000
¾-Ton Pick-up Truck, 4 × 4	Light-duty Truck	0.127	4.680	0.915	0.019	24.235	0.390	0.881	0.004	0.000	8	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	0.174	9.882	1.136	0.039	4.248	1.095	1.798	0.002	0.000	8	0.000	0.000	0.000	0.000	0.000	0.000
Structure Assembly / Erection: Steel Pole	**Hauling, Assembly, Erection**																
¾-Ton Pick-up Truck, 4 × 4	Light-duty Truck	0.158	5.850	1.144	0.024	30.293	0.487	1.101	0.004	0.000	9	0.000	0.000	0.000	0.000	0.000	0.000
F250 4X4 Crewcab (3/4 T) Foreman	Light-duty Truck	0.158	5.850	1.144	0.024	30.293	0.487	1.101	0.004	0.000	9	0.000	0.000	0.000	0.000	0.000	0.000
Compressor Trailer	air compressors	13.570	150.569	90.637	0.248	3.772	3.772	10.652	0.091	3.772	9	0.271	3.011	1.813	0.005	0.075	0.075
All Terrain Crane - 180 Ton	Cranes	16.157	124.418	137.553	0.369	5.538	5.125	16.560	0.075	5.538	9	0.323	2.488	2.751	0.007	0.111	0.102
Truck - 40 'flat trailer	Heavy-duty Diesel	0.075	0.337	8.690	0.079	30.889	3.597	3.976	0.029	0.000	9	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	0.254	14.412	1.657	0.057	6.195	1.597	2.622	0.002	0.000	9	0.000	0.000	0.000	0.000	0.000	0.000
Structure Assembly / Erection: Steel Pole	**Hauling, Assembly & Erectio**																
¾-Ton Pick-up Truck, 4 × 4	Light-duty Truck	0.158	5.850	1.144	0.024	30.293	0.487	1.101	0.004	0.000	9	0.000	0.000	0.000	0.000	0.000	0.000
F250 4X4 Crewcab (3/4 T) Foreman	Light-duty Truck	0.158	5.850	1.144	0.024	30.293	0.487	1.101	0.004	0.000	9	0.000	0.000	0.000	0.000	0.000	0.000
Compressor Trailer	air compressors	13.570	150.569	90.637	0.248	3.772	3.772	10.652	0.091	3.772	9	0.271	3.011	1.813	0.005	0.075	0.075
All Terrain Crane - 180 Ton	Cranes	16.157	124.418	137.553	0.369	5.538	5.125	16.560	0.075	5.538	9	0.323	2.488	2.751	0.007	0.111	0.102
Truck - 40 'flat trailer	Heavy-duty Diesel	0.075	0.337	8.690	0.079	30.889	3.597	3.976	0.029	0.000	9	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	0.290	16.471	1.893	0.065	7.080	1.825	2.996	0.002	0.000	9	0.000	0.000	0.000	0.000	0.000	0.000
Conductor (1113 AAC) Installation + OPGW,	**pull and sag and tension (**																
F250 4X4 Crewcab (3/4 T) Foreman	Light-duty Truck	0.475	17.550	3.432	0.071	90.880	1.461	3.304	0.004	0.000	10	0.000	0.000	0.000	0.000	0.000	0.000
reel trailer	Heavy-duty Diesel	0.149	0.675	17.379	0.159	61.777	7.193	7.952	0.029	0.000	10	0.000	0.000	0.000	0.000	0.000	0.000
1 Ton Crew Cab Flat Bed	Light-duty Truck	0.475	17.550	3.432	0.071	90.880	1.461	3.304	0.004	0.000	10	0.000	0.000	0.000	0.000	0.000	0.000
30 Ton Manitex	Cranes	64.627	497.671	550.214	1.477	22.153	20.499	66.239	0.075	22.153	10	0.646	4.977	5.502	0.015	0.222	0.205
22 Ton Manitex	Cranes	16.157	124.418	137.553	0.369	5.538	5.125	16.560	0.075	5.538	10	0.162	1.244	1.376	0.004	0.055	0.051
20,000 lbs, Fork Lift	Forklifts	10.917	143.189	94.057	0.204	4.560	4.183	8.794	0.116	4.560	10	0.109	1.432	0.941	0.002	0.046	0.042
580 Case Backhoe	Tractors/Loaders/Backhoe	17.534	281.592	159.206	0.411	5.855	5.475	17.895	0.074	5.855	10	0.175	2.816	1.592	0.004	0.059	0.055
sock line puller	Other Construction Equipm	35.069	499.210	290.765	0.828	14.875	13.728	35.589	0.093	14.875	10	0.351	4.992	2.908	0.008	0.149	0.137
4 Drum rope Puller	Other Construction Equipm	17.534	249.605	145.383	0.414	7.437	6.864	17.794	0.093	7.437	10	0.175	2.496	1.454	0.004	0.074	0.069
60,000 lbs Puller	Other Construction Equipm	35.069	499.210	290.765	0.828	14.875	13.728	35.589	0.093	14.875	10	0.351	4.992	2.908	0.008	0.149	0.137
Sag Cat Winch	Other Construction Equipm	17.534	249.605	145.383	0.414	7.437	6.864	17.794	0.093	7.437	10	0.175	2.496	1.454	0.004	0.074	0.069
D8 Cat	Tractors/Loaders/Backhoe	8.767	140.796	79.603	0.206	2.928	2.738	8.948	0.074	2.928	10	0.088	1.408	0.796	0.002	0.029	0.027
Hughes 500 Helicopter	Helicopter	1002.500	1332.500	487.500	72.500	15.000	15.000	48.104	NA	NA	10	20.050	26.650	9.750	1.450	0.300	0.300
Fuel Helicopter Support	Heavy-duty Diesel	0.149	0.675	17.379	0.159	61.777	7.193	7.952	0.029	0.000	10	0.000	0.000	0.000	0.000	0.000	0.000
Low boy Truck and Trailer	Heavy-duty Diesel	0.075	0.337	8.690	0.079	30.889	3.597	3.976	0.029	0.000	10	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	1.307	74.119	8.520	0.291	31.861	8.212	13.483	0.002	0.000	10	0.000	0.000	0.000	0.000	0.000	0.000
Restoration: 6 of 12 miles of dirt road (Crew size of 4)																	
Light-duty Truck	Light-duty Truck	0.048	1.755	0.343	0.007	9.088	0.146	0.330	0.004	0.000	11	0.000	0.000	0.000	0.000	0.000	0.000
Road Grader	Graders	3.456	17.840	33.191	0.079	1.071	0.998	3.420	0.070	1.071	11	0.230	1.189	2.213	0.005	0.071	0.067
Backhoe and Trailer	Tractors/Loaders/Backhoe	1.578	25.343	14.329	0.037	0.527	0.493	1.611	0.074	0.527	11	0.105	1.690	0.955	0.002	0.035	0.033
Other																	
Material Haul Trucks (10 trucks, used first 60	Light-duty Truck	2.852	105.298	20.592	0.426	545.282	8.769	19.821	0.004	0.000	12	0.000	0.000	0.000	0.000	0.000	0.000
Inspector Vehicles (Civil, Structural, Wire)	Light-duty Truck	2.139	78.973	15.444	0.320	408.961	6.577	14.866	0.004	0.000	13	0.000	0.000	0.000	0.000	0.000	0.000

Table 5

PG&E 230 kV Transmission Lines Construction Emissions [a]

PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Overlapping Emissions	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day
2026						
Activities 1,2,3,4	1.280	12.271	11.457	0.037	1.890	0.552
Activities 1,2,5,6,7	2.532	24.385	22.908	0.068	3.041	1.020
Activities 1,2,8,9,12,13	3.791	36.927	31.669	0.100	2.679	1.296
2027						
Activities 1,2,8,9,12,13	3.791	36.927	31.669	0.100	2.679	1.296
Activities 1,2, 9,10,12,13	24.535	74.741	47.665	1.554	3.367	1.951
Activities 1,2,11,12,13	1.399	13.117	13.026	0.035	1.944	0.602
Activities 7,8,9,10,12,13	25.624	86.468	55.565	1.594	2.186	2.060
Activities 8,9,10,11,12,13	25.344	83.071	53.659	1.582	2.105	1.985
2028						
Activities 12,13	0.000	0.000	0.000	0.000	0.000	0.000
Worst-Case Daily						
2026	3.791	36.927	31.669	0.100	3.041	1.296
2027	25.624	86.468	55.565	1.594	3.367	2.060
2028	0.000	0.000	0.000	0.000	0.000	0.000
2029	0	0	0	0	0	0

Notes:

NA = Parameter not required for computing emissions.

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] Helicopter operation assumes 1 LTO/hr, medium lift helicopters

[c] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs
1 yd^3 =	1.2641662	tons
Blade width of grading equipment =	12	ft
1 acre =	43,560	ft^2
1 mile =	5,280	ft

[d] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel.

Earthmoving Emissions

Fugitive Dust emissions from Truck Dumping/Loading activities:

Activity	Year	olume (yd	Veight (ton	Emission Factors (lb/ton		Emissions (lb/phase	
				PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Soil Loaded/Unloaded	2026	5,605	7,086	0.000041	#######	0.3	0.0
Soil Loaded/Unloaded	2027	0	0	0.000041	#######	0.0	0.0
Soil Loaded/Unloaded	2028	0	0	0.000041	#######	0.0	0.0
Soil Loaded/Unloaded	2029	0	0	0.000041	#######	0.0	0.0

Note:

Material density (CalEEMod default) 1.264 ton/CY

Total amount of soil loaded/unloaded (cy): 5,605

Fugitive Dust emissions from Grading

Activity	Year	Area (acre	Grader VMT	Emission Factors		Emissions (lb/phase	
				PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Grading	2026	22.5	15.47	1.543	0.167	23.9	2.6
Grading	2027	0	0.00	0.000	0.000	0.0	0.0
Grading	2028	0	0.00	0.000	0.000	0.0	0.0
Grading	2029	0	0.00	0.000	0.000	0.0	0.0

Note:

VMT = As / Wb X 43,560 (sqft/acre) /5280 (ft/mile)

VMT: vehicle miles traveled

As: the acreage of the grading site (0.5 acres per grader, 1 acre for scraper, CalEEMod defaults)

Wb: blade width of the grader. CalEEMod default Wb = 12 ft.

Total acres to be graded (acres): 22.5

Annual Emissions Summary

Year	Emissions (ton/year)						Emissions (metric tons/year)	Onsite DPM (lb/year)
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2	
2026	0.053	0.561	0.505	0.002	0.460	0.052	209.643	33.676
2027	0.690	2.897	1.880	0.042	0.918	0.116	566.731	132.371
2028	0.000	0.006	0.001	0.000	0.030	0.000	2.168	0.000
2029	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table 6
PG&E Lockeford Substation Construction Emissions
PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Vehicle and Equipment Emissions

Equipment / Vehicle List	Equipment / Vehicle Type	HP	Equipment Load Factor	Quantity	Number of Days Used	Hours per Day	Miles per day/vehicle	Months with Activities				Emission factors (g/hp/hr) for equipment, g/mile for vehicles, lb/hr for Helicopter						
								2026	2027	2028	2029	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2
General Construction: General construction schedule for Lockeford is now at 24-36 months. The project will be constructed in various phases. Phases 1 -5																		
Water Truck	Heavy-duty Diesel	NA	NA	1	450	NA	50	5	12	7	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Street Sweeper	Heavy-duty Diesel	NA	NA	1	450	NA	50	5	12	7	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Phase 1: Civil Site Preparation (10 people for 4 weeks, and work schedule 5-10)																		
Pick-up Truck	Light-duty Truck	NA	NA	3	20	NA	25	2	0	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
1-Ton Truck	Light-duty Truck	NA	NA	2	20	NA	25	2	0	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Office Trailer	Generator sets	84	0.74	1	20	8	NA	2	0	0	0	0.230	3.334	2.077	0.006	0.076	0.076	568.799
Crawler Backhoe	Tractors/Loaders/Backhoes	97	0.37	2	20	8	NA	2	0	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
Bulldozer	rubber tired dozers	247	0.4	2	20	8	NA	2	0	0	0	0.365	1.641	3.410	0.005	0.147	0.136	496.529
Front Loader	Tractors/Loaders/Backhoes	97	0.37	2	20	8	NA	2	0	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
Dump Truck	Heavy-duty Diesel	NA	NA	6	20	NA	90	2	0	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Compactor / Roller	Rollers	80	0.38	4	20	4	NA	2	0	0	0	0.264	3.483	2.543	0.005	0.121	0.113	495.936
Air Compressor	air compressors	78	0.48	2	20	4	NA	2	0	0	0	0.329	3.648	2.196	0.006	0.091	0.091	569.034
Flat Bed Truck	Heavy-duty Diesel	NA	NA	3	2	NA	150	2	0	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Worker Commutes	Light-duty Auto/Truck	NA	NA	10	20	NA	25	2	0	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Phase 1a: Exterior Fence, Final Grading, and Paving (10 people for 4 weeks, and work schedule 5-10)																		
Concrete Truck	heavy-duty diesel	NA	NA	80	20	NA	90	2	0	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Pick-up Truck	Light-duty Truck	NA	NA	3	20	NA	25	2	0	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
1-Ton Truck	Light-duty Truck	NA	NA	2	20	NA	25	2	0	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Office Trailer	Generator sets	84	0.74	1	20	8	NA	2	0	0	0	0.230	3.334	2.077	0.006	0.076	0.076	568.799
Crawler Backhoe	Tractors/Loaders/Backhoes	97	0.37	2	20	8	NA	2	0	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
Bulldozer	rubber tired dozers	247	0.4	2	20	8	NA	2	0	0	0	0.365	1.641	3.410	0.005	0.147	0.136	496.529
Front Loader	Tractors/Loaders/Backhoes	97	0.37	2	20	8	NA	2	0	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
Dump Truck	Heavy-duty Diesel	NA	NA	6	20	NA	90	2	0	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Compactor / Roller	Rollers	80	0.38	4	20	4	NA	2	0	0	0	0.264	3.483	2.543	0.005	0.121	0.113	495.936
Air Compressor	air compressors	78	0.48	2	20	4	NA	2	0	0	0	0.329	3.648	2.196	0.006	0.091	0.091	569.034
Flat Bed Truck	Heavy-duty Diesel	NA	NA	3	2	NA	150	2	0	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Grader	Graders	187	0.41	2	20	8	NA	2	0	0	0	0.227	1.173	2.182	0.005	0.070	0.066	495.591
Worker Commutes	Light-duty Auto/Truck	NA	NA	10	20	NA	25	2	0	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Phase 1b: All Foundations, Excavation, and Installation for new control enclosure, 2 bay BAAH, 10 people for 8 weeks, and work schedule 5-10)																		
Pick-up Truck	Light-duty Truck	NA	NA	3	40	NA	25	3	0	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
1-Ton Truck	Light-duty Truck	NA	NA	2	40	NA	25	3	0	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Office Trailer	Generator sets	84	0.74	1	40	8	NA	3	0	0	0	0.230	3.334	2.077	0.006	0.076	0.076	568.799
22 Ton Crane	Cranes	231	0.29	1	40	8	NA	3	0	0	0	0.219	1.685	1.863	0.005	0.075	0.069	494.393
Concrete Truck	heavy-duty diesel	NA	NA	80	40	NA	90	3	0	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Front Loader	Tractors/Loaders/Backhoes	97	0.37	1	40	8	NA	3	0	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
Dump Truck	Heavy-duty Diesel	NA	NA	1	40	NA	90	3	0	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Compactor	plate compactors	8	0.43	2	40	4	NA	3	0	0	0	0.661	3.469	4.142	0.008	0.161	0.161	569.774
Air Compressor	air compressors	78	0.48	2	40	4	NA	3	0	0	0	0.329	3.648	2.196	0.006	0.091	0.091	569.034
Forklift	Forklifts	89	0.2	1	40	4	NA	3	0	0	0	0.278	3.649	2.397	0.005	0.116	0.107	494.068
Foundation Drill Rig	Bore/Drill Rigs	221	0.5	1	40	8	NA	3	0	0	0	0.111	1.043	0.821	0.005	0.027	0.025	493.278
Flat Bed Truck	Heavy-duty Diesel	NA	NA	3	2	NA	150	3	0	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Worker Commutes	Light-duty Auto/Truck	NA	NA	10	40	NA	25	3	0	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Structure Delivery and Setup (disconnect switches, H-frame deadend structure, station service, single phase CCVT, high bus, and bay low bus)																		
Flat Bed Truck	Heavy-duty Diesel	NA	NA	12	4	NA	150	3	0	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Phase 2: Equipment Installation (10 people for 30 weeks, and work schedule 5-10). Greenfield construction next to existing 230kV substation equipment																		
Pick-up Truck	Light-duty Truck	NA	NA	3	150	NA	25	1	3	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
1-Ton Truck	Light-duty Truck	NA	NA	2	150	NA	25	1	3	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Office Trailer	Generator sets	84	0.74	1	150	8	NA	1	3	0	0	0.230	3.334	2.077	0.006	0.076	0.076	568.799
30 Ton Crane	Cranes	231	0.29	1	150	4	NA	1	3	0	0	0.219	1.685	1.863	0.005	0.075	0.069	494.393
Front Loader	Tractors/Loaders/Backhoes	97	0.37	2	150	4	NA	1	3	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
80' Aerial Lifts	Aerial lifts	63	0.31	2	150	4	NA	1	3	0	0	0.117	3.204	1.540	0.005	0.028	0.026	494.496
40' Aerial Lifts	Aerial lifts	63	0.31	2	150	4	NA	1	3	0	0	0.117	3.204	1.540	0.005	0.028	0.026	494.496
Dump Truck	Heavy-duty Diesel	NA	NA	1	150	NA	90	1	3	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Compactor	plate compactors	8	0.43	2	150	4	NA	1	3	0	0	0.661	3.469	4.142	0.008	0.161	0.161	569.774
Air Compressor	air compressors	78	0.48	2	150	4	NA	1	3	0	0	0.329	3.648	2.196	0.006	0.091	0.091	569.034
Forklift	Forklifts	89	0.2	2	150	4	NA	1	3	0	0	0.278	3.649	2.397	0.005	0.116	0.107	494.068
Flat Bed Truck	Heavy-duty Diesel	NA	NA	3	2	NA	150	1	3	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Worker Commutes	Light-duty Auto/Truck	NA	NA	10	150	NA	25	1	3	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621

Table 6
PG&E Lockeford Substation Construction Emissions
PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Vehicle and Equipment Emissions

Equipment / Vehicle List	Equipment / Vehicle Type	HP	Equipment Load Factor	Quantity	Number of Days Used	Hours per Day	Miles per day/vehicle	Months with Activities				Emission factors (g/hp/hr) for equipment, g/mile for vehicles, lb/hr for Helicopter						
								2026	2027	2028	2029	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2
Phase 3: Dress/Test/Wire Equipment (10 people for 8 weeks, and work schedule 5-10).																		
Rigging Truck	Heavy-duty Diesel	NA	NA	2	40	NA	25	0	7	1	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Forklift	Forklifts	89	0.2	2	40	8	NA	0	7	1	0	0.278	3.649	2.397	0.005	0.116	0.107	494.068
Manlift	Aerial lifts	63	0.31	2	40	8	NA	0	7	1	0	0.117	3.204	1.540	0.005	0.028	0.026	494.496
Boom Truck	Cranes	231	0.29	2	40	8	NA	0	7	1	0	0.219	1.685	1.863	0.005	0.075	0.069	494.393
1-Ton Truck	Light-duty Truck	NA	NA	2	40	NA	25	0	7	1	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Pick-up Truck	Light-duty Truck	NA	NA	3	40	NA	25	0	7	1	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Office Trailer	Generator sets	84	0.74	1	40	8	NA	0	7	1	0	0.230	3.334	2.077	0.006	0.076	0.076	568.799
Flat Bed Truck	Heavy-duty Diesel	NA	NA	3	2	NA	150	0	7	1	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Dump Truck	Heavy-duty Diesel	NA	NA	1	20	NA	90	0	7	1	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Air Compressor	air compressors	78	0.48	2	40	4	NA	0	7	1	0	0.329	3.648	2.196	0.006	0.091	0.091	569.034
Worker Commutes	Light-duty Auto/Truck	NA	NA	10	40	NA	25	0	7	1	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Phase 4A-4C: Rebuild existing Substation. Install foundations for bay reconfiguation and RO1 TSP foundation.																	#N/A	
Rigging Truck	Heavy-duty Diesel	NA	NA	2	21	NA	25	0	0	2	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Forklift	Forklifts	89	0.2	2	21	8	NA	0	0	2	0	0.278	3.649	2.397	0.005	0.116	0.107	494.068
Manlift	Aerial lifts	63	0.31	2	21	8	NA	0	0	2	0	0.117	3.204	1.540	0.005	0.028	0.026	494.496
Boom Truck	Cranes	231	0.29	2	21	8	NA	0	0	2	0	0.219	1.685	1.863	0.005	0.075	0.069	494.393
1-Ton Truck	Light-duty Truck	NA	NA	2	21	NA	25	0	0	2	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Pick-up Truck	Light-duty Truck	NA	NA	3	21	NA	25	0	0	2	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Office Trailer	Generator sets	84	0.74	1	21	8	--	0	0	2	0	0.230	3.334	2.077	0.006	0.076	0.076	568.799
Flat Bed Truck	Heavy-duty Diesel	NA	NA	3	2	NA	150	0	0	2	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Dump Truck	Heavy-duty Diesel	NA	NA	1	21	NA	90	0	0	2	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Air Compressor	air compressors	78	0.48	2	21	4	NA	0	0	2	0	0.329	3.648	2.196	0.006	0.091	0.091	569.034
Worker Commutes	Light-duty Auto/Truck	NA	NA	10	21	NA	25	0	0	2	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Phase 4D - 4F: Rebuild existing Substation. Replace or remove replaced equipment. Re-energize.																		
Rigging Truck	Heavy-duty Diesel	NA	NA	2	171	NA	25	0	0	8	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Forklift	Forklifts	89	0.2	2	171	4	NA	0	0	8	0	0.278	3.649	2.397	0.005	0.116	0.107	494.068
Manlift	Aerial lifts	63	0.31	2	171	4	NA	0	0	8	0	0.117	3.204	1.540	0.005	0.028	0.026	494.496
Boom Truck	Cranes	231	0.29	2	171	4	NA	0	0	8	0	0.219	1.685	1.863	0.005	0.075	0.069	494.393
1-Ton Truck	Light-duty Truck	NA	NA	2	171	NA	25	0	0	8	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Pick-up Truck	Light-duty Truck	NA	NA	3	171	NA	25	0	0	8	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Office Trailer	Generator sets	84	0.74	1	171	8	NA	0	0	8	0	0.230	3.334	2.077	0.006	0.076	0.076	568.799
Flat Bed Truck	Heavy-duty Diesel	NA	NA	3	2	NA	150	0	0	8	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Dump Truck	Heavy-duty Diesel	NA	NA	1	171	NA	90	0	0	8	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Air Compressor	air compressors	78	0.48	2	171	4	NA	0	0	8	0	0.329	3.648	2.196	0.006	0.091	0.091	569.034
Worker Commutes	Light-duty Auto/Truck	NA	NA	10	171	NA	25	0	0	8	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Phase 5A -5C: Rebuild existing Substation - Total of 34 weeks worth of work.																		
Rigging Truck	Heavy-duty Diesel	NA	NA	2	111	NA	25	0	0	1	4	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Forklift	Forklifts	89	0.2	2	111	4	NA	0	0	1	4	0.278	3.649	2.397	0.005	0.116	0.107	494.068
Manlift	Aerial lifts	63	0.31	2	111	4	NA	0	0	1	4	0.117	3.204	1.540	0.005	0.028	0.026	494.496
Boom Truck	Cranes	231	0.29	2	111	4	NA	0	0	1	4	0.219	1.685	1.863	0.005	0.075	0.069	494.393
1-Ton Truck	Light-duty Truck	NA	NA	2	111	NA	25	0	0	1	4	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Pick-up Truck	Light-duty Truck	NA	NA	3	111	NA	25	0	0	1	4	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Office Trailer	Generator sets	84	0.74	1	111	4	NA	0	0	1	4	0.230	3.334	2.077	0.006	0.076	0.076	568.799
Flat Bed Truck	Heavy-duty Diesel	NA	NA	3	2	NA	150	0	0	1	4	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Dump Truck	Heavy-duty Diesel	NA	NA	1	111	NA	90	0	0	1	4	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Air Compressor	air compressors	78	0.48	2	111	4	NA	0	0	1	4	0.329	3.648	2.196	0.006	0.091	0.091	569.034
Worker Commutes	Light-duty Auto/Truck	NA	NA	10	111	NA	25	0	0	1	4	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Cleaning and Landscaping (Assume 4 people for 1 week and work schedule 5-10)																		
Flat Bed Truck	Heavy-duty Diesel	NA	NA	1	2	NA	150	0	1	0	1	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Pick-up Truck	Light-duty Truck	NA	NA	1	5	NA	25	0	1	0	1	0.029	1.061	0.208	0.004	5.496	0.088	440.471
1-Ton Truck	Light-duty Truck	NA	NA	1	5	NA	25	0	1	0	1	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Small Backhoe	Tractors/Loaders/Backhoes	97	0.37	1	5	8	NA	0	1	0	1	0.222	3.559	2.012	0.005	0.074	0.069	498.610
Dump Truck	Heavy-duty Diesel	NA	NA	1	5	NA	90	0	1	0	1	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Worker Commutes	Light-duty Auto/Truck	NA	NA	4	5	NA	25	0	1	0	1	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Other																		
Inspectors	light-duty auto/truck	NA	NA	1	450	NA	25	5	12	12	4	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Material Haul Trucks	Heavy-duty Diesel	NA	NA	27	2	NA	150	1	0	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419

Table 6
PG&E Lockeford Substation Construction Emissions
PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Vehicle and Equipment Emissions

		Emissions (lbs/phase)						Emissions (metric tons/phase)	DPM Emission Factors, (g/hp/hr) for equipment, g/mile for vehicles,	Onsite DPM Emissions (lb/phase)		Onsite Emissions (lbs/day)					
Equipment / Vehicle List	Equipment / Vehicle Type	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e	DPM	DPM	Activity	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
General Construction: General construction schedule for Lock																	
Water Truck	Heavy-duty Diesel	0.671	3.036	78.207	0.714	277.997	32.370	35.784	0.029	1.419	1	0.001	0.007	0.174	0.002	0.618	0.072
Street Sweeper	Heavy-duty Diesel	0.671	3.036	78.207	0.714	277.997	32.370	35.784	0.029	0.000	1	0.000	0.000	0.000	0.000	0.000	0.000
Phase 1: Civil Site Preparation (10 people for 4 weeks, and wo																	
Pick-up Truck	Light-duty Truck	0.095	3.510	0.686	0.014	18.176	0.292	0.661	0.004	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
1-Ton Truck	Light-duty Truck	0.063	2.340	0.458	0.009	12.117	0.195	0.440	0.004	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Office Trailer	Generator sets	5.043	73.092	45.540	0.132	1.675	1.675	5.657	0.076	1.675	2	0.252	3.655	2.277	0.007	0.084	0.084
Crawler Backhoe	Tractors/Loaders/Backhoes	5.611	90.109	50.946	0.132	1.874	1.752	5.726	0.074	1.874	2	0.281	4.505	2.547	0.007	0.094	0.088
Bulldozer	rubber tired dozers	25.413	114.354	237.676	0.362	10.274	9.493	15.698	0.147	10.274	2	1.271	5.718	11.884	0.018	0.514	0.475
Front Loader	Tractors/Loaders/Backhoes	5.611	90.109	50.946	0.132	1.874	1.752	5.726	0.074	1.874	2	0.281	4.505	2.547	0.007	0.094	0.088
Dump Truck	Heavy-duty Diesel	0.322	1.457	37.539	0.342	133.439	15.538	17.177	0.029	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Compactor / Roller	Rollers	5.658	74.703	54.540	0.112	2.599	2.428	4.824	0.121	2.599	2	0.283	3.735	2.727	0.006	0.130	0.121
Air Compressor	air compressors	4.342	48.182	29.004	0.079	1.207	1.207	3.409	0.091	1.207	2	0.217	2.409	1.450	0.004	0.060	0.060
Flat Bed Truck	Heavy-duty Diesel	0.027	0.121	3.128	0.029	11.120	1.295	1.431	0.029	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	0.145	8.235	0.947	0.032	3.540	0.912	1.498	0.002	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Phase 1a: Exterior Fence, Final Grading, and Paving (10 peopl																	
Concrete Truck	heavy-duty diesel	4.292	19.430	500.526	4.567	1779.182	207.169	229.020	0.029	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Pick-up Truck	Light-duty Truck	0.095	3.510	0.686	0.014	18.176	0.292	0.661	0.004	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
1-Ton Truck	Light-duty Truck	0.063	2.340	0.458	0.009	12.117	0.195	0.440	0.004	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Office Trailer	Generator sets	5.043	73.092	45.540	0.132	1.675	1.675	5.657	0.076	1.675	2	0.252	3.655	2.277	0.007	0.084	0.084
Crawler Backhoe	Tractors/Loaders/Backhoes	5.611	90.109	50.946	0.132	1.874	1.752	5.726	0.074	1.874	2	0.281	4.505	2.547	0.007	0.094	0.088
Bulldozer	rubber tired dozers	25.413	114.354	237.676	0.362	10.274	9.493	15.698	0.147	10.274	2	1.271	5.718	11.884	0.018	0.514	0.475
Front Loader	Tractors/Loaders/Backhoes	5.611	90.109	50.946	0.132	1.874	1.752	5.726	0.074	1.874	2	0.281	4.505	2.547	0.007	0.094	0.088
Dump Truck	Heavy-duty Diesel	0.322	1.457	37.539	0.342	133.439	15.538	17.177	0.029	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Compactor / Roller	Rollers	5.658	74.703	54.540	0.112	2.599	2.428	4.824	0.121	2.599	2	0.283	3.735	2.727	0.006	0.130	0.121
Air Compressor	air compressors	4.342	48.182	29.004	0.079	1.207	1.207	3.409	0.091	1.207	2	0.217	2.409	1.450	0.004	0.060	0.060
Flat Bed Truck	Heavy-duty Diesel	0.027	0.121	3.128	0.029	11.120	1.295	1.431	0.029	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Grader	Graders	12.289	63.429	118.011	0.281	3.808	3.548	12.159	0.070	3.808	2	0.614	3.171	5.901	0.014	0.190	0.177
Worker Commutes	Light-duty Auto/Truck	0.145	8.235	0.947	0.032	3.540	0.912	1.498	0.002	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Phase 1b: All Foundations, Excavation, and Installation for ne																	
Pick-up Truck	Light-duty Truck	0.190	7.020	1.373	0.028	36.352	0.585	1.321	0.004	0.000	3	0.000	0.000	0.000	0.000	0.000	0.000
1-Ton Truck	Light-duty Truck	0.127	4.680	0.915	0.019	24.235	0.390	0.881	0.004	0.000	3	0.000	0.000	0.000	0.000	0.000	0.000
Office Trailer	Generator sets	10.086	146.185	91.080	0.263	3.350	3.350	11.314	0.076	3.350	3	0.252	3.655	2.277	0.007	0.084	0.084
22 Ton Crane	Cranes	10.340	79.627	88.034	0.236	3.544	3.280	10.598	0.075	3.544	3	0.259	1.991	2.201	0.006	0.089	0.082
Concrete Truck	heavy-duty diesel	8.584	38.860	1001.053	9.133	3558.365	414.339	458.041	0.029	0.000	3	0.000	0.000	0.000	0.000	0.000	0.000
Front Loader	Tractors/Loaders/Backhoes	5.611	90.109	50.946	0.132	1.874	1.752	5.726	0.074	1.874	3	0.140	2.253	1.274	0.003	0.047	0.044
Dump Truck	Heavy-duty Diesel	0.107	0.486	12.513	0.114	44.480	5.179	5.726	0.029	0.000	3	0.000	0.000	0.000	0.000	0.000	0.000
Compactor	plate compactors	1.604	8.419	10.052	0.019	0.391	0.391	0.627	0.161	0.391	3	0.040	0.210	0.251	0.000	0.010	0.010
Air Compressor	air compressors	8.684	96.364	58.008	0.158	2.414	2.414	6.817	0.091	2.414	3	0.217	2.409	1.450	0.004	0.060	0.060
Forklift	Forklifts	1.747	22.910	15.049	0.033	0.730	0.669	1.407	0.116	0.730	3	0.044	0.573	0.376	0.001	0.018	0.017
Foundation Drill Rig	Bore/Drill Rigs	8.653	81.296	63.964	0.405	2.089	1.964	17.442	0.027	2.089	3	0.216	2.032	1.599	0.010	0.052	0.049
Flat Bed Truck	Heavy-duty Diesel	0.027	0.121	3.128	0.029	11.120	1.295	1.431	0.029	0.000	3	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	0.290	16.471	1.893	0.065	7.080	1.825	2.996	0.002	0.000	3	0.000	0.000	0.000	0.000	0.000	0.000
Structure Delivery and Setup (disconnect switches, H-frame d																	
Flat Bed Truck	Heavy-duty Diesel	0.215	0.971	25.026	0.228	88.959	10.358	11.451	0.029	0.000	3	0.000	0.000	0.000	0.000	0.000	0.000
Phase 2: Equipment Installation (10 people for 30 weeks, and																	
Pick-up Truck	Light-duty Truck	0.713	26.324	5.148	0.107	136.320	2.192	4.955	0.004	0.000	4	0.000	0.000	0.000	0.000	0.000	0.000
1-Ton Truck	Light-duty Truck	0.475	17.550	3.432	0.071	90.880	1.461	3.304	0.004	0.000	4	0.000	0.000	0.000	0.000	0.000	0.000
Office Trailer	Generator sets	37.822	548.192	341.551	0.987	12.564	12.564	42.428	0.076	12.564	4	0.252	3.655	2.277	0.007	0.084	0.084
30 Ton Crane	Cranes	19.388	149.301	165.064	0.443	6.646	6.150	19.872	0.075	6.646	4	0.129	0.995	1.100	0.003	0.044	0.041
Front Loader	Tractors/Loaders/Backhoes	21.040	337.911	191.047	0.494	7.026	6.570	21.474	0.074	7.026	4	0.140	2.253	1.274	0.003	0.047	0.044
80' Aerial Lifts	Aerial lifts	6.035	165.557	79.567	0.269	1.447	1.364	11.589	0.028	1.447	4	0.040	1.104	0.530	0.002	0.010	0.009
40' Aerial Lifts	Aerial lifts	6.035	165.557	79.567	0.269	1.447	1.364	11.589	0.028	1.447	4	0.040	1.104	0.530	0.002	0.010	0.009
Dump Truck	Heavy-duty Diesel	0.402	1.822	46.924	0.428	166.798	19.422	21.471	0.029	0.000	4	0.000	0.000	0.000	0.000	0.000	0.000
Compactor	plate compactors	6.015	31.570	37.694	0.073	1.465	1.465	2.352	0.161	1.465	4	0.040	0.210	0.251	0.000	0.010	0.010
Air Compressor	air compressors	32.567	361.365	217.528	0.594	9.053	9.053	25.566	0.091	9.053	4	0.217	2.409	1.450	0.004	0.060	0.060
Forklift	Forklifts	13.100	171.827	112.868	0.245	5.472	5.020	10.553	0.116	5.472	4	0.087	1.146	0.752	0.002	0.036	0.033
Flat Bed Truck	Heavy-duty Diesel	0.027	0.121	3.128	0.029	11.120	1.295	1.431	0.029	0.000	4	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	1.089	61.766	7.100	0.243	26.551	6.843	11.236	0.002	0.000	4	0.000	0.000	0.000	0.000	0.000	0.000

Table 6
PG&E Lockeford Substation Construction Emissions
PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Vehicle and Equipment Emissions

Equipment / Vehicle List	Equipment / Vehicle Type	Emissions (lbs/phase)						Emissions (metric tons/phase)	DPM Emission Factors, (g/hp/hr) for equipment, g/mile for vehicles,	Onsite DPM Emissions (lb/phase)	Activity	Onsite Emissions (lbs/day)					
		ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e	DPM	DPM		ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
Phase 3: Dress/Test/Wire Equipment (10 people for 8 weeks																	
Rigging Truck	Heavy-duty Diesel	0.060	0.270	6.952	0.063	24.711	2.877	3.181	0.029	0.000	5	0.000	0.000	0.000	0.000	0.000	0.000
Forklift	Forklifts	6.987	91.641	60.196	0.131	2.918	2.677	5.628	0.116	2.918	5	0.175	2.291	1.505	0.003	0.073	0.067
Manlift	Aerial lifts	3.218	88.297	42.436	0.143	0.772	0.727	6.181	0.028	0.772	5	0.080	2.207	1.061	0.004	0.019	0.018
Boom Truck	Cranes	20.681	159.255	176.068	0.473	7.089	6.560	21.196	0.075	7.089	5	0.517	3.981	4.402	0.012	0.177	0.164
1-Ton Truck	Light-duty Truck	0.127	4.680	0.915	0.019	24.235	0.390	0.881	0.004	0.000	5	0.000	0.000	0.000	0.000	0.000	0.000
Pick-up Truck	Light-duty Truck	0.190	7.020	1.373	0.028	36.352	0.585	1.321	0.004	0.000	5	0.000	0.000	0.000	0.000	0.000	0.000
Office Trailer	Generator sets	10.086	146.185	91.080	0.263	3.350	3.350	11.314	0.076	3.350	5	0.252	3.655	2.277	0.007	0.084	0.084
Flat Bed Truck	Heavy-duty Diesel	0.027	0.121	3.128	0.029	11.120	1.295	1.431	0.029	0.000	5	0.000	0.000	0.000	0.000	0.000	0.000
Dump Truck	Heavy-duty Diesel	0.054	0.243	6.257	0.057	22.240	2.590	2.863	0.029	0.000	5	0.000	0.000	0.000	0.000	0.000	0.000
Air Compressor	air compressors	8.684	96.364	58.008	0.158	2.414	2.414	6.817	0.091	2.414	5	0.217	2.409	1.450	0.004	0.060	0.060
Worker Commutes	Light-duty Auto/Truck	0.290	16.471	1.893	0.065	7.080	1.825	2.996	0.002	0.000	5	0.000	0.000	0.000	0.000	0.000	0.000
Phase 4A-4C: Rebuild existing Substation. Install foundations																	
Rigging Truck	Heavy-duty Diesel	0.031	0.142	3.650	0.033	12.973	1.511	1.670	0.029	0.000	6	0.000	0.000	0.000	0.000	0.000	0.000
Forklift	Forklifts	3.668	48.111	31.603	0.069	1.532	1.406	2.955	0.116	1.532	6	0.175	2.291	1.505	0.003	0.073	0.067
Manlift	Aerial lifts	1.690	46.356	22.279	0.075	0.405	0.382	3.245	0.028	0.405	6	0.080	2.207	1.061	0.004	0.019	0.018
Boom Truck	Cranes	10.857	83.609	92.436	0.248	3.722	3.444	11.128	0.075	3.722	6	0.517	3.981	4.402	0.012	0.177	0.164
1-Ton Truck	Light-duty Truck	0.067	2.457	0.480	0.010	12.723	0.205	0.462	0.004	0.000	6	0.000	0.000	0.000	0.000	0.000	0.000
Pick-up Truck	Light-duty Truck	0.100	3.685	0.721	0.015	19.085	0.307	0.694	0.004	0.000	6	0.000	0.000	0.000	0.000	0.000	0.000
Office Trailer	Generator sets	5.295	76.747	47.817	0.138	1.759	1.759	5.940	0.076	1.759	6	0.252	3.655	2.277	0.007	0.084	0.084
Flat Bed Truck	Heavy-duty Diesel	0.027	0.121	3.128	0.029	11.120	1.295	1.431	0.029	0.000	6	0.000	0.000	0.000	0.000	0.000	0.000
Dump Truck	Heavy-duty Diesel	0.056	0.255	6.569	0.060	23.352	2.719	3.006	0.029	0.000	6	0.000	0.000	0.000	0.000	0.000	0.000
Air Compressor	air compressors	4.559	50.591	30.454	0.083	1.267	1.267	3.579	0.091	1.267	6	0.217	2.409	1.450	0.004	0.060	0.060
Worker Commutes	Light-duty Auto/Truck	0.152	8.647	0.994	0.034	3.717	0.958	1.573	0.002	0.000	6	0.000	0.000	0.000	0.000	0.000	0.000
Phase 4D - 4F: Rebuild existing Substation. Replace or remov																	
Rigging Truck	Heavy-duty Diesel	0.255	1.154	29.719	0.271	105.639	12.301	13.598	0.029	0.000	7	0.000	0.000	0.000	0.000	0.000	0.000
Forklift	Forklifts	14.934	195.882	128.669	0.279	6.238	5.723	12.031	0.116	6.238	7	0.087	1.146	0.752	0.002	0.036	0.033
Manlift	Aerial lifts	6.880	188.735	90.707	0.306	1.649	1.555	13.211	0.028	1.649	7	0.040	1.104	0.530	0.002	0.010	0.009
Boom Truck	Cranes	44.205	340.407	376.346	1.010	15.153	14.021	45.307	0.075	15.153	7	0.259	1.991	2.201	0.006	0.089	0.082
1-Ton Truck	Light-duty Truck	0.542	20.007	3.912	0.081	103.604	1.666	3.766	0.004	0.000	7	0.000	0.000	0.000	0.000	0.000	0.000
Pick-up Truck	Light-duty Truck	0.813	30.010	5.869	0.121	155.405	2.499	5.649	0.004	0.000	7	0.000	0.000	0.000	0.000	0.000	0.000
Office Trailer	Generator sets	43.117	624.939	389.368	1.125	14.322	14.322	48.368	0.076	14.322	7	0.252	3.655	2.277	0.007	0.084	0.084
Flat Bed Truck	Heavy-duty Diesel	0.027	0.121	3.128	0.029	11.120	1.295	1.431	0.029	0.000	7	0.000	0.000	0.000	0.000	0.000	0.000
Dump Truck	Heavy-duty Diesel	0.459	2.077	53.494	0.488	190.150	22.141	24.477	0.029	0.000	7	0.000	0.000	0.000	0.000	0.000	0.000
Air Compressor	air compressors	37.126	411.956	247.982	0.677	10.320	10.320	29.145	0.091	10.320	7	0.217	2.409	1.450	0.004	0.060	0.060
Worker Commutes	Light-duty Auto/Truck	1.241	70.413	8.094	0.277	30.268	7.801	12.809	0.002	0.000	7	0.000	0.000	0.000	0.000	0.000	0.000
Phase 5A -5C: Rebuild existing Substation - Total of 34 week																	
Rigging Truck	Heavy-duty Diesel	0.165	0.749	19.291	0.176	68.573	7.985	8.827	0.029	0.000	8	0.000	0.000	0.000	0.000	0.000	0.000
Forklift	Forklifts	9.694	127.152	83.522	0.181	4.049	3.715	7.809	0.116	4.049	8	0.087	1.146	0.752	0.002	0.036	0.033
Manlift	Aerial lifts	4.466	122.512	58.880	0.199	1.071	1.009	8.576	0.028	1.071	8	0.040	1.104	0.530	0.002	0.010	0.009
Boom Truck	Cranes	28.694	220.966	244.295	0.656	9.836	9.101	29.410	0.075	9.836	8	0.259	1.991	2.201	0.006	0.089	0.082
1-Ton Truck	Light-duty Truck	0.352	12.987	2.540	0.053	67.251	1.081	2.445	0.004	0.000	8	0.000	0.000	0.000	0.000	0.000	0.000
Pick-up Truck	Light-duty Truck	0.528	19.480	3.809	0.079	100.877	1.622	3.667	0.004	0.000	8	0.000	0.000	0.000	0.000	0.000	0.000
Office Trailer	Generator sets	13.994	202.831	126.374	0.365	4.649	4.649	15.698	0.076	4.649	8	0.126	1.827	1.139	0.003	0.042	0.042
Flat Bed Truck	Heavy-duty Diesel	0.027	0.121	3.128	0.029	11.120	1.295	1.431	0.029	0.000	8	0.000	0.000	0.000	0.000	0.000	0.000
Dump Truck	Heavy-duty Diesel	0.298	1.348	34.724	0.317	123.431	14.372	15.888	0.029	0.000	8	0.000	0.000	0.000	0.000	0.000	0.000
Air Compressor	air compressors	24.099	267.410	160.971	0.440	6.699	6.699	18.919	0.091	6.699	8	0.217	2.409	1.450	0.004	0.060	0.060
Worker Commutes	Light-duty Auto/Truck	0.806	45.706	5.254	0.180	19.647	5.064	8.314	0.002	0.000	8	0.000	0.000	0.000	0.000	0.000	0.000
Cleaning and Landscaping (Assume 4 people for 1 week and v																	
Flat Bed Truck	Heavy-duty Diesel	0.009	0.040	1.043	0.010	3.707	0.432	0.477	0.029	0.000	9	0.000	0.000	0.000	0.000	0.000	0.000
Pick-up Truck	Light-duty Truck	0.008	0.292	0.057	0.001	1.515	0.024	0.055	0.004	0.000	9	0.000	0.000	0.000	0.000	0.000	0.000
1-Ton Truck	Light-duty Truck	0.008	0.292	0.057	0.001	1.515	0.024	0.055	0.004	0.000	9	0.000	0.000	0.000	0.000	0.000	0.000
Small Backhoe	Tractors/Loaders/Backhoes	0.701	11.264	6.368	0.016	0.234	0.219	0.716	0.074	0.234	9	0.140	2.253	1.274	0.003	0.047	0.044
Dump Truck	Heavy-duty Diesel	0.013	0.061	1.564	0.014	5.560	0.647	0.716	0.029	0.000	9	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	0.015	0.824	0.095	0.003	0.354	0.091	0.150	0.002	0.000	9	0.000	0.000	0.000	0.000	0.000	0.000
Other																	
Inspectors	light-duty auto/truck	0.327	18.530	2.130	0.073	7.965	2.053	3.371	0.002	0.000	11	0.000	0.000	0.000	0.000	0.000	0.000
Material Haul Trucks	Heavy-duty Diesel	0.241	1.093	28.155	0.257	100.079	11.653	12.882	0.029	0.000	10	0.000	0.000	0.000	0.000	0.000	0.000

Table 6
PG&E Lockeford Substation Construction Emissions
PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Overlapping Emissions	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day
2026						
Activities 1,10,11	0.001	0.007	0.174	0.002	0.618	0.072
Activities 1,2,3,11	6.950	65.349	62.194	0.140	2.500	2.354
Activities 1,3,4,11	2.116	26.005	17.768	0.055	1.278	0.708
2027						
Activities 1,4,5, 11	2.190	27.425	19.034	0.053	1.332	0.755
Activities 1,9,11	0.142	2.259	1.447	0.005	0.665	0.116
2028						
Activities 1,5,11	1.243	14.550	10.869	0.031	1.031	0.465
Activities 1, 6,11	1.243	14.550	10.869	0.031	1.031	0.465
Activities 1,7,11	0.857	10.310	7.385	0.021	0.897	0.341
Activities 8,11	0.729	8.476	6.072	0.017	0.237	0.227
2029						
Activities 8,9,11	0.870	10.729	7.346	0.020	0.284	0.271
Worst-Case Daily						
2026	6.950	65.349	62.194	0.140	2.500	2.354
2027	2.190	27.425	19.034	0.053	1.332	0.755
2028	1.243	14.550	10.869	0.031	1.031	0.465
	0.870	10.729	7.346	0.020	0.284	0.271

Notes:
NA = Parameter not required for computing emissions.
1. Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.
2. Helicopter operation assumes 1 LTO/hr, medium lift helicopters
3. The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs
1 yd^3 =	1.2641662	tons
Blade width of grading equi	12	ft
1 acre =	43,560	ft^2
1 mile =	5,280	ft

4. PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel.

Earthmoving Emissions
Fugitive Dust emissions from Truck Dumping/Loading activities:

Activity	Year	Volume (yd^3)	Weight (ton)	Emission Factors (lb/ton		Emissions (lb/phase)	
				PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Soil Loaded/unloaded	2026	1,777	2,246	0.000041	0.000006	0.1	0.0
Soil Loaded/unloaded	2027	0	0	0.000041	0.000006	0.0	0.0
Soil Loaded/unloaded	2028	0	0	0.000041	0.000006	0.0	0.0
Soil Loaded/unloaded	2029	0	0	0.000041	0.000006	0.0	0.0

Note:
Material density (CalEEMod default, ton/cy) 1.264
Total amount of soil loaded/unloaded (cy): 1,777 (assumed to be split between 2025 and 2026.

Fugitive Dust emissions from Grading

Activity	Year	Area (acre)/Phase	Grader VMT (miles/phase)	Emission Factors (lb/VMT)		Emissions (lb/phase)	
				PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Grading	2026	3	2.06	1.543	0.167	3.2	0.3
Grading	2027	0.00	0.00	1.543	0.167	0.0	0.0
Grading	2028	0.00	0.00	1.543	0.167	0.0	0.0
Grading	2029	0.00	0.00	1.543	0.167	0.0	0.0

Note:
VMT = As / Wb X 43,560 (sqft/acre) /5280 (ft/mile)
VMT: vehicle miles traveled

As: the acreage of the grading site (0.5 acres per grader, 1 acre for scraper, CalEEMod defaults)

Wb: blade width of the grader. CalEEMod default Wb = 12 ft.

Total acres to be graded (acres): 3

Annual Emissions Summary

Year	Emissions (ton/year)						Emissions (metric tons/year)	Onsite DPM
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2	(lb/year)
2026	0.107	1.102	1.724	0.010	3.152	0.388	976.715	68.780
2027	0.077	1.040	0.722	0.003	0.385	0.056	234.793	49.141
2028	0.100	1.248	0.914	0.003	0.501	0.072	299.749	64.110
2029	0.033	0.413	0.300	0.001	#VALUE!	0.023	0.049	21.160

Table 7

PG&E 12 kV Service Line Extension into PG&E Thurman Switching Station

PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Vehicle and Equipment Emissions

Equipment / Vehicle List	Equipment / Vehicle Type	HP	Equipment Load Factor	Quantity	Number of Days Used	Hours per Day	Miles per Day	Months with Activities				Emission factors (g/hp/hr) for equipment, g/mile for vehicles, lb/hr for Helicopter						
								2026	2027	2028	2029	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2
General Construction: Average commute from Hotels to job site.																		
Pick-up Truck	Light-duty Truck	NA	NA	2	20	NA	25	0	2	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Safety Inspection	Light-duty Auto/Truck	NA	NA	1	20	NA	50	0	2	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	20	NA	25	0	2	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Street Sweeper	Heavy-duty Diesel	NA	NA	1	20	NA	50	0	2	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Mobilization: Thurman Yard or Staging Area																		
Direction Drill Machine -HDD	Bore/Drill Rigs	221	0.5	1	15	8	NA	0	2	0	0	0.111	1.043	0.821	0.005	0.027	0.025	493.278
Vacuum Truck- Pump Intake	Pumps	84	0.74	1	15	8	NA	0	2	0	0	0.247	3.385	2.103	0.006	0.081	0.081	568.844
2 Stationary Pumps	Pumps	84	0.74	2	15	8	NA	0	2	0	0	0.247	3.385	2.103	0.006	0.081	0.081	568.844
10-Cu Asphalt/Concrete Truck	Heavy-duty Diesel	NA	NA	1	2	NA	60	0	2	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	15	NA	60	0	2	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Water Truck	Heavy-duty Diesel	NA	NA	1	15	NA	60	0	2	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Excavator/Ditch Witch	excavators	158	0.38	1	15	8	NA	0	2	0	0	0.169	3.135	1.028	0.005	0.050	0.046	494.812
Backhoe/Front Loader	Tractors/Loaders/Backhoes	97	0.37	2	10	8	NA	0	2	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
Road Grader	Graders	187	0.41	1	10	8	NA	0	2	0	0	0.227	1.173	2.182	0.005	0.070	0.066	495.591
Drum Type Compactor	Plate Compactors	8	0.43	1	5	8	NA	0	2	0	0	0.661	3.469	4.142	0.008	0.161	0.161	569.774
10 ton fork lift	Forklifts	89	0.2	1	5	5	NA	0	2	0	0	0.278	3.649	2.397	0.005	0.116	0.107	494.068
30 Ton Crane	Cranes	231	0.29	1	5	5	NA	0	2	0	0	0.219	1.685	1.863	0.005	0.075	0.069	494.393
boom truck	Cranes	231	0.29	1	5	8	NA	0	2	0	0	0.219	1.685	1.863	0.005	0.075	0.069	494.393
Cable puller Truck, 4 × 4	light-duty truck	NA	NA	1	20	NA	15	0	2	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
1-Ton Crew Cab Flatbed, 4 × 4	Light-duty Truck	NA	NA	2	20	NA	15	0	2	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	10	NA	2	0	2	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Worker Commutes	Light-duty Auto/Truck	NA	NA	8	20	NA	25	0	2	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621

Table 7

PG&E 12 kV Service Line Extension into PG&E Thurman Switching St

PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Vehicle and Equipment Emissions

Equipment / Vehicle List	Equipment / Vehicle Type	Emissions (lbs/phase)						Emissions (metric tons/phase)	DPM Emission Factors, (g/hp/hr) for equipment, g/mile for vehicles,	DPM Emissions (lb/phase)	Activity	Onsite Emissions (lbs/day)					
		ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e	DPM	DPM		ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
General Construction: Average commute from Hotels to job site.																	
Pick-up Truck	Light-duty Truck	0.063	2.340	0.458	0.009	12.117	0.195	0.440	0.004	0.000	1	0.000	0.000	0.000	0.000	0.000	0.000
Safety Inspection	Light-duty Auto/Truck	0.029	1.647	0.189	0.006	0.708	0.182	0.300	0.002	0.000	1	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	0.029	1.647	0.189	0.006	0.708	0.182	0.300	0.002	0.000	1	0.000	0.000	0.000	0.000	0.000	0.000
Street Sweeper	Heavy-duty Diesel	0.030	0.135	3.476	0.032	12.355	1.439	1.590	0.029	0.000	1	0.000	0.000	0.000	0.000	0.000	0.000
Mobilization: Thurman Yard or Staging Area																	
Direction Drill Machine -HDD	Bore/Drill Rigs	3.245	30.486	23.987	0.152	0.783	0.737	6.541	0.027	0.783	2	0.216	2.032	1.599	0.010	0.052	0.049
Vacuum Truck- Pump Intake	Pumps	4.068	55.658	34.579	0.099	1.329	1.329	4.243	0.081	1.329	2	0.271	3.711	2.305	0.007	0.089	0.089
2 Stationary Pumps	Pumps	8.137	111.316	69.159	0.197	2.657	2.657	8.486	0.081	2.657	2	0.542	7.421	4.611	0.013	0.177	0.177
10-Cu Asphalt/Concrete Truck	Heavy-duty Diesel	0.004	0.016	0.417	0.004	1.483	0.173	0.191	0.029	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
10-Cu Dump Truck	Heavy-duty Diesel	0.027	0.121	3.128	0.029	11.120	1.295	1.431	0.029	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Water Truck	Heavy-duty Diesel	0.027	0.121	3.128	0.029	11.120	1.295	1.431	0.029	0.057	2	0.002	0.008	0.209	0.002	0.741	0.086
Excavator/Ditch Witch	excavators	2.684	49.792	16.327	0.083	0.797	0.734	3.565	0.050	0.797	2	0.179	3.319	1.088	0.006	0.053	0.049
Backhoe/Front Loader	Tractors/Loaders/Backhoes	2.805	45.055	25.473	0.066	0.937	0.876	2.863	0.074	0.937	2	0.281	4.505	2.547	0.007	0.094	0.088
Road Grader	Graders	3.072	15.857	29.503	0.070	0.952	0.887	3.040	0.070	0.952	2	0.307	1.586	2.950	0.007	0.095	0.089
Drum Type Compactor	Plate Compactors	0.201	1.052	1.256	0.002	0.049	0.049	0.078	0.161	0.049	2	0.040	0.210	0.251	0.000	0.010	0.010
10 ton fork lift	Forklifts	0.273	3.580	2.351	0.005	0.114	0.105	0.220	0.116	0.114	2	0.055	0.716	0.470	0.001	0.023	0.021
30 Ton Crane	Cranes	0.808	6.221	6.878	0.018	0.277	0.256	0.828	0.075	0.277	2	0.162	1.244	1.376	0.004	0.055	0.051
boom truck	Cranes	1.293	9.953	11.004	0.030	0.443	0.410	1.325	0.075	0.443	2	0.259	1.991	2.201	0.006	0.089	0.082
Cable puller Truck, 4 × 4	light-duty truck	0.019	0.702	0.137	0.003	3.635	0.058	0.132	0.004	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
1-Ton Crew Cab Flatbed, 4 × 4	Light-duty Truck	0.038	1.404	0.275	0.006	7.270	0.117	0.264	0.004	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Lowboy Truck/Trailer	Heavy-duty Diesel	0.001	0.003	0.070	0.001	0.247	0.029	0.032	0.029	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	0.116	6.588	0.757	0.026	2.832	0.730	1.198	0.002	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000

Table 7

PG&E 12 kV Service Line Extension into PG&E Thurman Switching Station

PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Worst-Case Daily						
	ROG	**CO**	**NOx**	**SOx**	**PM_{10}**	**$PM_{2.5}$**
	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day
2026	0.000	0.000	0.000	0.000	0.000	0.000
2027	2.313	26.744	19.608	0.062	1.478	0.790
2028	0.000	0.000	0.000	0.000	0.000	0.000
2029	0.000	0.000	0.000	0.000	0.000	0.000

Overlapping ov actifities 1 and 2.

Notes:

NA = Parameter not required for computing emissions.

1. Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

2. Helicopter operation assumes 1 LTO/hr, medium lift helicopters

3. The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs
1 yd^3 =	1.2641662	tons
Blade width of grading equipmen	12	ft
1 acre =	43,560	ft^2
1 mile =	5,280	ft

4. PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel.

Earthmoving Emissions

Fugitive Dust emissions from Truck Dumping/Loading activities:

Activity	**Year**	**Volume (yd^3)**	**Weight (ton)**	**Emission Factors (lb/ton**		**Emissions (lb/phase)**	
				PM_{10}	**$PM_{2.5}$**	**PM_{10}**	**$PM_{2.5}$**
Soil Loaded/unloaded	2026	0	0	0.000041	0.000006	0.0000	0.0000
Soil Loaded/unloaded	2027	13	16	0.000041	0.000006	0.0007	0.0001
Soil Loaded/unloaded	2028	0	0	0.000041	0.000006	0.0000	0.0000
Soil Loaded/unloaded	2029	0	0	0.000041	0.000006	0.0000	0.0000

Note:

Material density (CalEEMod default, ton/cy)	1.264
Total amount of soil loaded/unloaded (cy):	13

Fugitive Dust emissions from Grading

Activity	**Year**	**Area (acre)/**	**(miles/phas e)**	**Emission Factors (lb/VMT)**		**Emissions (lb/phase)**	
				PM_{10}	**$PM_{2.5}$**	**PM_{10}**	**$PM_{2.5}$**
Grading	2026	0	0.00	1.543	0.167	0.0	0.0
Grading	2027	0	0.00	1.543	0.167	0.0	0.0
	2028	0	0.00	1.543	0.167	0.0	0.0
Grading	2029	0	0.00	1.543	0.167	0.0	0.0

Note:

VMT = As / Wb X 43,560 (sqft/acre) /5280 (ft/mile)

VMT: vehicle miles traveled

As: the acreage of the grading site (0.5 acres per grader, 1 acre for scraper, CalEEMod defaults)

Wb: blade width of the grader. CalEEMod default Wb = 12 ft.

Total acres to be graded (acres):	0

Annual Emissions Summary

Year	**Emissions (ton/year)**						**Emissions (metric tons/year)**	**Onsite DPM (lb/year)**
	ROG	**CO**	**NOx**	**SOx**	**PM_{10} [d]**	**$PM_{2.5}$ [d]**	**CO_2**	
2026	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2027	0.013	0.172	0.116	0.000	0.036	0.007	38.500	8.395
2028	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2029	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table 8
PG&E Remote End Substation Construction Emissions
PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Vehicle and Equipment Emissions

Equipment / Vehicle List	Equipment / Vehicle Type	HP	Equipment Load Factor	Quantity	Number of Days Used	Hours per Day	Miles per Day	Months with Activities				Emission factors (g/hp/hr) for equipment, g/mile for vehicles, lb/hr for Helicopter						
								2026	2027	2028	2029	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2
System Work at Brighton Substation																		
Mechanics Truck	Light-duty Auto/Truck	NA	NA	2	30	NA	25	0	3	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	30	NA	25	0	3	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
General Construction at Brighton Substation																		
3/4-Ton Pick-up Truck	Light-duty Truck	NA	NA	4	5	NA	20	0	0	4	2	0.029	1.061	0.208	0.004	5.496	0.088	440.471
1-Ton Truck	Light-duty Truck	NA	NA	1	5	NA	20	0	0	4	2	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Manlift	Aerial lifts	63	0.31	1	5	5	NA	0	0	4	2	0.117	3.204	1.540	0.005	0.028	0.026	494.496
Dump Truck	Heavy-duty Diesel	NA	NA	1	5	NA	6	0	0	4	2	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Boom Truck	Cranes	231	0.29	1	5	6	NA	0	0	4	2	0.219	1.685	1.863	0.005	0.075	0.069	494.393
Jack Hammer	Other Construction Equipment	172	0.42	1	5	6	NA	0	0	4	2	0.220	3.135	1.826	0.005	0.093	0.086	492.644
Small Backhoe	Tractors/Loaders/Backhoes	97	0.37	1	5	5	NA	0	0	4	2	0.222	3.559	2.012	0.005	0.074	0.069	498.610
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	30	NA	25	0	0	4	2	0.013	0.747	0.086	0.003	0.321	0.083	299.621
System Work at Rio Oso Substation																		
Mechanics Truck	Light-duty Auto/Truck	NA	NA	2	30	NA	25	0	3	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	30	NA	25	0	3	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
General Construction at Rio Oso Substation																		
3/4-Ton Pick-up Truck	Light-duty Truck	NA	NA	4	5	NA	20	0	0	4	2	0.029	1.061	0.208	0.004	5.496	0.088	440.471
1-Ton Truck	Light-duty Truck	NA	NA	1	5	NA	20	0	0	4	2	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Manlift	Aerial lifts	63	0.31	1	5	5	NA	0	0	4	2	0.117	3.204	1.540	0.005	0.028	0.026	494.496
Dump Truck	Heavy-duty Diesel	NA	NA	1	5	NA	6	0	0	4	2	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Boom Truck	Cranes	231	0.29	1	5	6	6	0	0	4	2	0.219	1.685	1.863	0.005	0.075	0.069	494.393
Jack Hammer	Other Construction Equipment	172	0.42	1	5	6	NA	0	0	4	2	0.220	3.135	1.826	0.005	0.093	0.086	492.644
Small Backhoe	Tractors/Loaders/Backhoes	97	0.37	1	5	5	NA	0	0	4	2	0.222	3.559	2.012	0.005	0.074	0.069	498.610
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	30	NA	25	0	0	4	2	0.013	0.747	0.086	0.003	0.321	0.083	299.621
System Work at Bellota Substation																		
Mechanics Truck	Light-duty Auto/Truck	NA	NA	2	30	NA	25	0	2	0	1	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	30	NA	25	0	2	0	1	0.013	0.747	0.086	0.003	0.321	0.083	299.621
General Construction at Bellota Substation																		
3/4-Ton Pick-up Truck	Light-duty Truck	NA	NA	4	5	NA	20	0	0	4	2	0.029	1.061	0.208	0.004	5.496	0.088	440.471
1-Ton Truck	Light-duty Truck	NA	NA	1	5	NA	20	0	0	4	2	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Manlift	Aerial lifts	63	0.31	1	5	5	NA	0	0	4	2	0.117	3.204	1.540	0.005	0.028	0.026	494.496
Dump Truck	Heavy-duty Diesel	NA	NA	1	5	NA	6	0	0	4	2	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Boom Truck	Cranes	231	0.29	1	5	6	6	0	0	4	2	0.219	1.685	1.863	0.005	0.075	0.069	494.393
Jack Hammer	Other Construction Equipment	172	0.42	1	5	6	NA	0	0	4	2	0.220	3.135	1.826	0.005	0.093	0.086	492.644
Small Backhoe	Tractors/Loaders/Backhoes	97	0.37	1	5	5	NA	0	0	4	2	0.222	3.559	2.012	0.005	0.074	0.069	498.610
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	30	NA	25	0	0	4	2	0.013	0.747	0.086	0.003	0.321	0.083	299.621
General Construction at Clayton Hill																		
Mechanics Truck	Light-duty Auto/Truck	NA	NA	2	30	NA	25	0	3	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	30	NA	25	0	3	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621

Table 8
PG&E Remote End Substation Construction Emissions
PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Vehicle and Equipment Emissions

		Emissions (lbs/phase)						Emissions (metric tons/phase)	DPM Emission Factors, (g/hp/hr) for equipment, g/mile for vehicles,	Onsite DPM Emissions (lb/phase)	Activity	Onsite Emissions (lbs/day)					
Equipment / Vehicle List	Equipment / Vehicle Type	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e	DPM	DPM		ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
System Work at Brighton Substation																	
Mechanics Truck	Light-duty Auto/Truck	0.044	2.471	0.284	0.010	1.062	0.274	0.449	0.002	0.000	1	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	0.044	2.471	0.284	0.010	1.062	0.274	0.449	0.002	0.000	1	0.000	0.000	0.000	0.000	0.000	0.000
General Construction at Brighton Substation																	
3/4-Ton Pick-up Truck	Light-duty Truck	0.025	0.936	0.183	0.004	4.847	0.078	0.176	0.004	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
1-Ton Truck	Light-duty Truck	0.006	0.234	0.046	0.001	1.212	0.019	0.044	0.004	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Manlift	Aerial lifts	0.126	3.449	1.658	0.006	0.030	0.028	0.241	0.028	0.030	2	0.025	0.690	0.332	0.001	0.006	0.006
Dump Truck	Heavy-duty Diesel	0.001	0.004	0.104	0.001	0.371	0.043	0.048	0.029	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Boom Truck	Cranes	0.969	7.465	8.253	0.022	0.332	0.307	0.994	0.075	0.332	2	0.194	1.493	1.651	0.004	0.066	0.061
Jack Hammer	Other Construction Equipment	1.052	14.976	8.723	0.025	0.446	0.412	1.068	0.093	0.446	2	0.210	2.995	1.745	0.005	0.089	0.082
Small Backhoe	Tractors/Loaders/Backhoes	0.438	7.040	3.980	0.010	0.146	0.137	0.447	0.074	0.146	2	0.088	1.408	0.796	0.002	0.029	0.027
Worker Commutes	Light-duty Auto/Truck	0.044	2.471	0.284	0.010	1.062	0.274	0.449	0.002	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
System Work at Rio Oso Substation																	
Mechanics Truck	Light-duty Auto/Truck	0.044	2.471	0.284	0.010	1.062	0.274	0.449	0.002	0.000	1	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	0.044	2.471	0.284	0.010	1.062	0.274	0.449	0.002	0.000	1	0.000	0.000	0.000	0.000	0.000	0.000
General Construction at Rio Oso Substation																	
3/4-Ton Pick-up Truck	Light-duty Truck	0.025	0.936	0.183	0.004	4.847	0.078	0.176	0.004	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
1-Ton Truck	Light-duty Truck	0.006	0.234	0.046	0.001	1.212	0.019	0.044	0.004	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Manlift	Aerial lifts	0.126	3.449	1.658	0.006	0.030	0.028	0.241	0.028	0.030	2	0.025	0.690	0.332	0.001	0.006	0.006
Dump Truck	Heavy-duty Diesel	0.001	0.004	0.104	0.001	0.371	0.043	0.048	0.029	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Boom Truck	Cranes	0.969	7.465	8.253	0.022	0.332	0.307	0.994	0.075	0.332	2	0.194	1.493	1.651	0.004	0.066	0.061
Jack Hammer	Other Construction Equipment	1.052	14.976	8.723	0.025	0.446	0.412	1.068	0.093	0.446	2	0.210	2.995	1.745	0.005	0.089	0.082
Small Backhoe	Tractors/Loaders/Backhoes	0.438	7.040	3.980	0.010	0.146	0.137	0.447	0.074	0.146	2	0.088	1.408	0.796	0.002	0.029	0.027
Worker Commutes	Light-duty Auto/Truck	0.044	2.471	0.284	0.010	1.062	0.274	0.449	0.002	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
System Work at Bellota Substation																	
Mechanics Truck	Light-duty Auto/Truck	0.044	2.471	0.284	0.010	1.062	0.274	0.449	0.002	0.000	4	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	0.044	2.471	0.284	0.010	1.062	0.274	0.449	0.002	0.000	4	0.000	0.000	0.000	0.000	0.000	0.000
General Construction at Bellota Substation																	
3/4-Ton Pick-up Truck	Light-duty Truck	0.025	0.936	0.183	0.004	4.847	0.078	0.176	0.004	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
1-Ton Truck	Light-duty Truck	0.006	0.234	0.046	0.001	1.212	0.019	0.044	0.004	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Manlift	Aerial lifts	0.126	3.449	1.658	0.006	0.030	0.028	0.241	0.028	0.030	2	0.025	0.690	0.332	0.001	0.006	0.006
Dump Truck	Heavy-duty Diesel	0.001	0.004	0.104	0.001	0.371	0.043	0.048	0.029	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Boom Truck	Cranes	0.969	7.465	8.253	0.022	0.332	0.307	0.994	0.075	0.332	2	0.194	1.493	1.651	0.004	0.066	0.061
Jack Hammer	Other Construction Equipment	1.052	14.976	8.723	0.025	0.446	0.412	1.068	0.093	0.446	2	0.210	2.995	1.745	0.005	0.089	0.082
Small Backhoe	Tractors/Loaders/Backhoes	0.438	7.040	3.980	0.010	0.146	0.137	0.447	0.074	0.146	2	0.088	1.408	0.796	0.002	0.029	0.027
Worker Commutes	Light-duty Auto/Truck	0.044	2.471	0.284	0.010	1.062	0.274	0.449	0.002	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
General Construction at Clayton Hill																	
Mechanics Truck	Light-duty Auto/Truck	0.044	2.471	0.284	0.010	1.062	0.274	0.449	0.002	0.000	3	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	0.044	2.471	0.284	0.010	1.062	0.274	0.449	0.002	0.000	3	0.000	0.000	0.000	0.000	0.000	0.000

Table 8
PG&E Remote End Substation Construction Emissions
PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Overlapping Emissions	ROG	CO	NOx	SOx	PM_{10} [d]	$PM_{2.5}$ [d]
	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day
2027						
activity 1,4	0.000	0.000	0.000	0.000	0.000	0.000
Activity 3	0.000	0.000	0.000	0.000	0.000	0.000
2028						
Activity 2	1.551	19.758	13.568	0.038	0.573	0.531
2029						
Activity 2,4	1.551	19.758	13.568	0.038	0.573	0.531
Worst-Case Daily						
2026	0.000	0.000	0.000	0.000	0.000	0.000
2027	0.000	0.000	0.000	0.000	0.000	0.000
2028	1.551	19.758	13.568	0.038	0.573	0.531
2029	1.551	19.758	13.568	0.038	0.573	0.531

Notes:
NA = Parameter not required for computing emissions.
1. Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.
2. Helicopter operation assumes 1 LTO/hr, medium lift helicopters
3. The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs
1 yd^3 =	1.2641662	tons
Blade width of grading equipment	12	ft
1 acre =	43,560	ft^2
1 mile =	5,280	ft

4. PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel.

Earthmoving Emissions

Fugitive Dust emissions from Truck Dumping/Loading activities:

Activity	Year	Volume (yd^3)	Weight (ton)	Emission Factors (lb/ton		Emissions (lb/phase)	
				PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Soil Loaded/unloaded	2026	0	0	0.000041	0.000006	0.0	0.0
Soil Loaded/unloaded	2027	0	0	0.000041	0.000006	0.0	0.0
Soil Loaded/unloaded	2028	0	0	0.000041	0.000006	0.0	0.0
Soil Loaded/unloaded	2029	0	0	0.000041	0.000006	0.0	0.0

Note:
Material density (CalEEMod default, ton/cy) 1.264
Total amount of soil loaded/unloaded (cy): 0

Fugitive Dust emissions from Grading

Activity	Year	Area (acre)/Ph	Grader VMT (miles/phase)	Emission Factors (lb/VMT)		Emissions (lb/phase)	
				PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Grading	2026	0	0.00	1.543	0.167	0.0	0.0
Grading	2027	0	0.00	1.543	0.167	0.0	0.0
Grading	2028	0	0.00	1.543	0.167	0.0	0.0
Grading	2029	0	0.00	1.543	0.167	0.0	0.0

Note:
VMT = As / Wb X 43,560 (sqft/acre) /5280 (ft/mile)
VMT: vehicle miles traveled
As: the acreage of the grading site (0.5 acres per grader, 1 acre for scraper, CalEEMod defaults)
Wb: blade width of the grader. CalEEMod default Wb = 12 ft.
Total acres to be graded (acres): 0

Annual Emissions Summary

Year	Emissions (ton/year)						Emissions (metric tons/year)	DPM (lb/year)
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2	DPM
2026	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2027	0.000	0.009	0.001	0.000	0.004	0.001	3.296	0.000
2028	0.003	0.037	0.023	0.000	0.008	0.001	6.935	1.910
2029	0.001	0.019	0.012	0.000	0.005	0.001	3.767	0.955

Table 9
PG&E Thurman Switching Station Construction Emissions
PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Vehicle and Equipment Emissions

Equipment / Vehicle List	Equipment / Vehicle Type	HP	Equipment Load Factor	Quantity	Number of Days Used	Hours per Day	Miles per Day/Vehicle	Months with Activities				Emission factors (g/hp/hr) for equipment, g/mile for vehicles, lb/hr for Helicopter						
								2026	2027	2028	2029	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2
General Construction (Assume 9 months to build this green field substation, work schedule 5-10)																		
Water Truck	Heavy-duty Diesel	NA	NA	1	85	NA	50	2	9	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Street Sweeper	Heavy-duty Diesel	NA	NA	1	50	NA	50	2	9	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Civil Site Preparation (Assume clear ultimate pad size of 514' X 500', around 6 Acre, 10 people for 4 weeks, and work schedule 5-10)																		
Pick-up Truck	Light-duty Truck	NA	NA	3	20	NA	25	1	0	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
1-Ton Truck	Light-duty Truck	NA	NA	2	20	NA	25	1	0	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Office Trailer	Generator sets	84	0.74	1	20	8	NA	1	0	0	0	0.230	3.334	2.077	0.006	0.076	0.076	568.799
Crawler Backhoe	Tractors/Loaders/Backhoes	97	0.37	2	20	8	NA	1	0	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
Bulldozer	rubber tired dozers	247	0.4	2	20	8	NA	1	0	0	0	0.365	1.641	3.410	0.005	0.147	0.136	496.529
Front Loader	Tractors/Loaders/Backhoes	97	0.37	2	20	8	NA	1	0	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
Dump Truck	Heavy-duty Diesel	NA	NA	6	20	NA	90	1	0	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Compactor / Roller	Rollers	80	0.38	4	20	8	NA	1	0	0	0	0.264	3.483	2.543	0.005	0.121	0.113	495.936
Air Compressor	air compressors	78	0.48	2	20	4	NA	1	0	0	0	0.329	3.648	2.196	0.006	0.091	0.091	569.034
Flat Bed Truck	Heavy-duty Diesel	NA	NA	3	2	NA	150	1	0	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Worker Commutes	Light-duty Auto/Truck	NA	NA	10	20	NA	25	1	0	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Foundations, Excavation, and Installation (Assume 321 different size foundations, total 750 Cu Yd concrete, 10 people for 8 weeks, and work schedule 5-10)																		
Pick-up Truck	Light-duty Truck	NA	NA	3	40	NA	25	0	2	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
1-Ton Truck	Light-duty Truck	NA	NA	2	40	NA	25	0	2	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Office Trailer	Generator sets	84	0.74	1	40	8	NA	0	2	0	0	0.230	3.334	2.077	0.006	0.076	0.076	568.799
22 Ton Crane	Cranes	231	0.29	1	30	8	NA	0	2	0	0	0.219	1.685	1.863	0.005	0.075	0.069	494.393
Concrete Truck	heavy-duty diesel	NA	NA	80	30	NA	90	0	2	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Front Loader	Tractors/Loaders/Backhoes	97	0.37	1	40	8	NA	0	2	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
Dump Truck	Heavy-duty Diesel	NA	NA	1	40	NA	90	0	2	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Compactor	plate compactors	8	0.43	2	40	8	NA	0	2	0	0	0.661	3.469	4.142	0.008	0.161	0.161	569.774
Air Compressor	air compressors	78	0.48	2	40	4	NA	0	2	0	0	0.329	3.648	2.196	0.006	0.091	0.091	569.034
Forklift	Forklifts	89	0.2	1	40	8	NA	0	2	0	0	0.278	3.649	2.397	0.005	0.116	0.107	494.068
Foundation Drill Rig	Bore/Drill Rigs	221	0.5	1	40	8	NA	0	2	0	0	0.111	1.043	0.821	0.005	0.027	0.025	493.278
Flat Bed Truck	Heavy-duty Diesel	NA	NA	3	2	NA	150	0	2	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Worker Commutes	Light-duty Auto/Truck	NA	NA	10	40	NA	25	0	2	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Structure Delivery and Setup (Assume sixteen disconnect switches, six H-frame deadend structure, two station service, fourteen single phase CCVT, high bus #1 & 2, and two bay low bus)																		
Flat Bed Truck	Heavy-duty Diesel	NA	NA	10	2	NA	150	0	1	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Equipment Installation (Assume six breakers, sixteen disconnect switches, six H-frame deadend structure, two station service, fourteen single phase CCVT, high bus #1 & 2, two bay low bus and jumpers, 10 people for 12 weeks, and work schedule 5-10)																		
Pick-up Truck	Light-duty Truck	NA	NA	3	60	NA	25	0	3	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
1-Ton Truck	Light-duty Truck	NA	NA	2	60	NA	25	0	3	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Office Trailer	Generator sets	84	0.74	1	60	8	NA	0	3	0	0	0.230	3.334	2.077	0.006	0.076	0.076	568.799
30 Ton Crane	Cranes	231	0.29	1	60	4	NA	0	3	0	0	0.219	1.685	1.863	0.005	0.075	0.069	494.393
Front Loader	Tractors/Loaders/Backhoes	97	0.37	2	60	4	NA	0	3	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
80' Aerial Lifts	Aerial lifts	63	0.31	2	60	4	NA	0	3	0	0	0.117	3.204	1.540	0.005	0.028	0.026	494.496
40' Aerial Lifts	Aerial lifts	63	0.31	2	60	4	NA	0	3	0	0	0.117	3.204	1.540	0.005	0.028	0.026	494.496
Dump Truck	Heavy-duty Diesel	NA	NA	1	40	NA	90	0	3	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Compactor	plate compactors	8	0.43	2	60	4	NA	0	3	0	0	0.661	3.469	4.142	0.008	0.161	0.161	569.774
Air Compressor	air compressors	78	0.48	2	60	4	NA	0	3	0	0	0.329	3.648	2.196	0.006	0.091	0.091	569.034
Forklift	Forklifts	89	0.2	2	60	4	NA	0	3	0	0	0.278	3.649	2.397	0.005	0.116	0.107	494.068
Flat Bed Truck	Heavy-duty Diesel	NA	NA	3	2	NA	150	0	3	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Worker Commutes	Light-duty Auto/Truck	NA	NA	10	60	NA	25	0	3	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Dress/Test/Wire Equipment (Assume six breakers, sixteen disconnect switches, four spans of overhead transmission line inside substation, two station service, fourteen single phase CCVT, 10 people for 8 weeks, and work schedule 5-10)																		
Rigging Truck	Heavy-duty Diesel	NA	NA	2	10	NA	25	0	2	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Forklift	Forklifts	89	0.2	2	40	8	NA	0	2	0	0	0.278	3.649	2.397	0.005	0.116	0.107	494.068
Manlift	Aerial lifts	63	0.31	2	40	8	NA	0	2	0	0	0.117	3.204	1.540	0.005	0.028	0.026	494.496
Boom Truck	Cranes	231	0.29	2	40	8	NA	0	2	0	0	0.219	1.685	1.863	0.005	0.075	0.069	494.393
1-Ton Truck	Light-duty Truck	NA	NA	2	40	NA	25	0	2	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Pick-up Truck	Light-duty Truck	NA	NA	3	40	NA	25	0	2	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Office Trailer	Generator sets	84	0.74	1	40	8	NA	0	2	0	0	0.230	3.334	2.077	0.006	0.076	0.076	568.799
Flat Bed Truck	Heavy-duty Diesel	NA	NA	3	2	NA	150	0	2	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Dump Truck	Heavy-duty Diesel	NA	NA	1	10	NA	90	0	2	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419

Table 9
PG&E Thurman Switching Station Construction Emissions
PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Vehicle and Equipment Emissions

Equipment / Vehicle List	Equipment / Vehicle Type	HP	Equipment Load Factor	Quantity	Number of Days Used	Hours per Day	Miles per Day/Vehicle	Months with Activities				Emission factors (g/hp/hr) for equipment, g/mile for vehicles, lb/hr for Helicopter						
								2026	2027	2028	2029	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2
Air Compressor	air compressors	78	0.48	2	20	4	NA	0	2	0	0	0.329	3.648	2.196	0.006	0.091	0.091	569.034
Worker Commutes	Light-duty Auto/Truck	NA	NA	10	40	NA	25	0	2	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Exterior Walls, Final Grading, and Paving (Assume 1350' X 20' X 1' of paved road, grade ultimate pad size of 514' X 500', around 6 Acre, 10 people for 4 weeks, and work schedule 5-10)																		
Concrete Truck	heavy-duty diesel	NA	NA	100	20	NA	90	0	1	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Pick-up Truck	Light-duty Truck	NA	NA	3	20	NA	25	0	1	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
1-Ton Truck	Light-duty Truck	NA	NA	2	20	NA	25	0	1	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Office Trailer	Generator sets	84	0.74	1	20	8	NA	0	1	0	0	0.230	3.334	2.077	0.006	0.076	0.076	568.799
Crawler Backhoe	Tractors/Loaders/Backhoes	97	0.37	2	20	8	NA	0	1	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
Bulldozer	rubber tired dozers	247	0.4	2	20	8	NA	0	1	0	0	0.365	1.641	3.410	0.005	0.147	0.136	496.529
Front Loader	Tractors/Loaders/Backhoes	97	0.37	2	20	8	NA	0	1	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
Dump Truck	Heavy-duty Diesel	NA	NA	6	20	NA	90	0	1	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Compactor / Roller	Rollers	80	0.38	4	20	8	NA	0	1	0	0	0.264	3.483	2.543	0.005	0.121	0.113	495.936
Air Compressor	air compressors	78	0.48	2	20	4	NA	0	1	0	0	0.329	3.648	2.196	0.006	0.091	0.091	569.034
Flat Bed Truck	Heavy-duty Diesel	NA	NA	3	2	NA	150	0	1	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Grader	Graders	187	0.41	2	20	8	NA	0	1	0	0	0.227	1.173	2.182	0.005	0.070	0.066	495.591
Worker Commutes	Light-duty Auto/Truck	NA	NA	10	20	NA	25	0	1	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Cleaning and Landscaping (Assume 4 people for 1 week and work schedule 5-10)																		
Flat Bed Truck	Heavy-duty Diesel	NA	NA	3	2	NA	150	0	1	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Pick-up Truck	Light-duty Truck	NA	NA	1	5	NA	25	0	1	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
1-Ton Truck	Light-duty Truck	NA	NA	1	5	NA	25	0	1	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Small Backhoe	Tractors/Loaders/Backhoes	97	0.37	1	5	8	NA	0	1	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
Dump Truck	Heavy-duty Diesel	NA	NA	1	5	NA	90	0	1	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Worker Commutes	Light-duty Auto/Truck	NA	NA	4	5	NA	25	0	1	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Other																		
Material Haul Trucks	Heavy-duty Diesel	NA	NA	25	2	NA	150	0	1	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Inspector Vehicles	light-duty auto/truck	NA	NA	1	180	NA	25	2	9	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621

Table 9
PG&E Thurman Switching Station Construction Emissions
PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Vehicle and Equipment Emissions

		Emissions (lbs/phase)						Emissions (metric tons/phase)	DPM Emission Factors, (g/hp/hr) for equipment, g/mile for vehicles,	DPM Emissions (lb/phase)		Onsite Emissions (lbs/day) [c]					
Equipment / Vehicle List	Equipment / Vehicle Type	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e	DPM	DPM	Activity	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
General Construction (Assume 9 months to build this green field subs																	
Water Truck	Heavy-duty Diesel	0.127	0.573	14.772	0.135	52.511	6.114	6.759	0.029	0.268	1	0.001	0.007	0.174	0.002	0.618	0.072
Street Sweeper	Heavy-duty Diesel	0.075	0.337	8.690	0.079	30.889	3.597	3.976	0.029	0.000	1	0.000	0.000	0.000	0.000	0.000	0.000
Civil Site Preparation (Assume clear ultimate pad size of 514' X 500', a																	
Pick-up Truck	Light-duty Truck	0.095	3.510	0.686	0.014	18.176	0.292	0.661	0.004	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
1-Ton Truck	Light-duty Truck	0.063	2.340	0.458	0.009	12.117	0.195	0.440	0.004	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Office Trailer	Generator sets	5.043	73.092	45.540	0.132	1.675	1.675	5.657	0.076	1.675	2	0.252	3.655	2.277	0.007	0.084	0.084
Crawler Backhoe	Tractors/Loaders/Backhoes	5.611	90.109	50.946	0.132	1.874	1.752	5.726	0.074	1.874	2	0.281	4.505	2.547	0.007	0.094	0.088
Bulldozer	rubber tired dozers	25.413	114.354	237.676	0.362	10.274	9.493	15.698	0.147	10.274	2	1.271	5.718	11.884	0.018	0.514	0.475
Front Loader	Tractors/Loaders/Backhoes	5.611	90.109	50.946	0.132	1.874	1.752	5.726	0.074	1.874	2	0.281	4.505	2.547	0.007	0.094	0.088
Dump Truck	Heavy-duty Diesel	0.322	1.457	37.539	0.342	133.439	15.538	17.177	0.029	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Compactor / Roller	Rollers	11.315	149.405	109.080	0.223	5.199	4.855	9.649	0.121	5.199	2	0.566	7.470	5.454	0.011	0.260	0.243
Air Compressor	air compressors	4.342	48.182	29.004	0.079	1.207	1.207	3.409	0.091	1.207	2	0.217	2.409	1.450	0.004	0.060	0.060
Flat Bed Truck	Heavy-duty Diesel	0.027	0.121	3.128	0.029	11.120	1.295	1.431	0.029	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	0.145	8.235	0.947	0.032	3.540	0.912	1.498	0.002	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Foundations, Excavation, and Installation (Assume 321 different size f																	
Pick-up Truck	Light-duty Truck	0.190	7.020	1.373	0.028	36.352	0.585	1.321	0.004	0.000	3_4	0.000	0.000	0.000	0.000	0.000	0.000
1-Ton Truck	Light-duty Truck	0.127	4.680	0.915	0.019	24.235	0.390	0.881	0.004	0.000	3_4	0.000	0.000	0.000	0.000	0.000	0.000
Office Trailer	Generator sets	10.086	146.185	91.080	0.263	3.350	3.350	11.314	0.076	3.350	3_4	0.252	3.655	2.277	0.007	0.084	0.084
22 Ton Crane	Cranes	7.755	59.720	66.026	0.177	2.658	2.460	7.949	0.075	2.658	3_4	0.259	1.991	2.201	0.006	0.089	0.082
Concrete Truck	heavy-duty diesel	6.438	29.145	750.789	6.850	2668.773	310.754	343.531	0.029	0.000	3_4	0.000	0.000	0.000	0.000	0.000	0.000
Front Loader	Tractors/Loaders/Backhoes	5.611	90.109	50.946	0.132	1.874	1.752	5.726	0.074	1.874	3_4	0.140	2.253	1.274	0.003	0.047	0.044
Dump Truck	Heavy-duty Diesel	0.107	0.486	12.513	0.114	44.480	5.179	5.726	0.029	0.000	3_4	0.000	0.000	0.000	0.000	0.000	0.000
Compactor	plate compactors	3.208	16.837	20.104	0.039	0.781	0.781	1.254	0.161	0.781	3_4	0.080	0.421	0.503	0.001	0.020	0.020
Air Compressor	air compressors	8.684	96.364	58.008	0.158	2.414	2.414	6.817	0.091	2.414	3_4	0.217	2.409	1.450	0.004	0.060	0.060
Forklift	Forklifts	3.493	45.820	30.098	0.065	1.459	1.339	2.814	0.116	1.459	3_4	0.087	1.146	0.752	0.002	0.036	0.033
Foundation Drill Rig	Bore/Drill Rigs	8.653	81.296	63.964	0.405	2.089	1.964	17.442	0.027	2.089	3_4	0.216	2.032	1.599	0.010	0.052	0.049
Flat Bed Truck	Heavy-duty Diesel	0.027	0.121	3.128	0.029	11.120	1.295	1.431	0.029	0.000	3_4	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	0.290	16.471	1.893	0.065	7.080	1.825	2.996	0.002	0.000	3_4	0.000	0.000	0.000	0.000	0.000	0.000
Structure Delivery and Setup (Assume sixteen disconnect switches, six																	
Flat Bed Truck	Heavy-duty Diesel	0.089	0.405	10.428	0.095	37.066	4.316	4.771	0.029	0.000	5	0.000	0.000	0.000	0.000	0.000	0.000
Equipment Installation (Assume six breakers, sixteen disconnect switc																	
Pick-up Truck	Light-duty Truck	0.285	10.530	2.059	0.043	54.528	0.877	1.982	0.004	0.000	6	0.000	0.000	0.000	0.000	0.000	0.000
1-Ton Truck	Light-duty Truck	0.190	7.020	1.373	0.028	36.352	0.585	1.321	0.004	0.000	6	0.000	0.000	0.000	0.000	0.000	0.000
Office Trailer	Generator sets	15.129	219.277	136.620	0.395	5.025	5.025	16.971	0.076	5.025	6	0.252	3.655	2.277	0.007	0.084	0.084
30 Ton Crane	Cranes	7.755	59.720	66.026	0.177	2.658	2.460	7.949	0.075	2.658	6	0.129	0.995	1.100	0.003	0.044	0.041
Front Loader	Tractors/Loaders/Backhoes	8.416	135.164	76.419	0.197	2.810	2.628	8.590	0.074	2.810	6	0.140	2.253	1.274	0.003	0.047	0.044
80' Aerial Lifts	Aerial lifts	2.414	66.223	31.827	0.107	0.579	0.546	4.636	0.028	0.579	6	0.040	1.104	0.530	0.002	0.010	0.009
40' Aerial Lifts	Aerial lifts	2.414	66.223	31.827	0.107	0.579	0.546	4.636	0.028	0.579	6	0.040	1.104	0.530	0.002	0.010	0.009
Dump Truck	Heavy-duty Diesel	0.107	0.486	12.513	0.114	44.480	5.179	5.726	0.029	0.000	6	0.000	0.000	0.000	0.000	0.000	0.000
Compactor	plate compactors	2.406	12.628	15.078	0.029	0.586	0.586	0.941	0.161	0.586	6	0.040	0.210	0.251	0.000	0.010	0.010
Air Compressor	air compressors	13.027	144.546	87.011	0.238	3.621	3.621	10.226	0.091	3.621	6	0.217	2.409	1.450	0.004	0.060	0.060
Forklift	Forklifts	5.240	68.731	45.147	0.098	2.189	2.008	4.221	0.116	2.189	6	0.087	1.146	0.752	0.002	0.036	0.033
Flat Bed Truck	Heavy-duty Diesel	0.027	0.121	3.128	0.029	11.120	1.295	1.431	0.029	0.000	6	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	0.436	24.706	2.840	0.097	10.620	2.737	4.494	0.002	0.000	6	0.000	0.000	0.000	0.000	0.000	0.000
Dress/Test/Wire Equipment (Assume six breakers, sixteen disconnect																	
Rigging Truck	Heavy-duty Diesel	0.015	0.067	1.738	0.016	6.178	0.719	0.795	0.029	0.000	7	0.000	0.000	0.000	0.000	0.000	0.000
Forklift	Forklifts	6.987	91.641	60.196	0.131	2.918	2.677	5.628	0.116	2.918	7	0.175	2.291	1.505	0.003	0.073	0.067
Manlift	Aerial lifts	3.218	88.297	42.436	0.143	0.772	0.727	6.181	0.028	0.772	7	0.080	2.207	1.061	0.004	0.019	0.018
Boom Truck	Cranes	20.681	159.255	176.068	0.473	7.089	6.560	21.196	0.075	7.089	7	0.517	3.981	4.402	0.012	0.177	0.164
1-Ton Truck	Light-duty Truck	0.127	4.680	0.915	0.019	24.235	0.390	0.881	0.004	0.000	7	0.000	0.000	0.000	0.000	0.000	0.000
Pick-up Truck	Light-duty Truck	0.190	7.020	1.373	0.028	36.352	0.585	1.321	0.004	0.000	7	0.000	0.000	0.000	0.000	0.000	0.000
Office Trailer	Generator sets	10.086	146.185	91.080	0.263	3.350	3.350	11.314	0.076	3.350	7	0.252	3.655	2.277	0.007	0.084	0.084
Flat Bed Truck	Heavy-duty Diesel	0.027	0.121	3.128	0.029	11.120	1.295	1.431	0.029	0.000	7	0.000	0.000	0.000	0.000	0.000	0.000
Dump Truck	Heavy-duty Diesel	0.027	0.121	3.128	0.029	11.120	1.295	1.431	0.029	0.000	7	0.000	0.000	0.000	0.000	0.000	0.000

Table 9
PG&E Thurman Switching Station Construction Emissions
PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Vehicle and Equipment Emissions

		Emissions (lbs/phase)						Emissions (metric tons/phase)	DPM Emission Factors, (g/hp/hr) for equipment, g/mile for vehicles,	DPM Emissions (lb/phase)		Onsite Emissions (lbs/day) [c]					
Equipment / Vehicle List	**Equipment / Vehicle Type**	**ROG**	**CO**	**NOx**	**SOx**	**PM_{10}**	**$PM_{2.5}$**	**CO_2e**	**DPM**	**DPM**	Activity	**ROG**	**CO**	**NOx**	**SOx**	**PM_{10}**	**$PM_{2.5}$**
Air Compressor	air compressors	4.342	48.182	29.004	0.079	1.207	1.207	3.409	0.091	1.207	7	0.217	2.409	1.450	0.004	0.060	0.060
Worker Commutes	Light-duty Auto/Truck	0.290	16.471	1.893	0.065	7.080	1.825	2.996	0.002	0.000	7	0.000	0.000	0.000	0.000	0.000	0.000
Exterior Walls, Final Grading, and Paving (Assume 1350' X 20' X 1' of																	
Concrete Truck	heavy-duty diesel	5.365	24.287	625.658	5.708	2223.978	258.962	286.275	0.029	0.000	8	0.000	0.000	0.000	0.000	0.000	0.000
Pick-up Truck	Light-duty Truck	0.095	3.510	0.686	0.014	18.176	0.292	0.661	0.004	0.000	8	0.000	0.000	0.000	0.000	0.000	0.000
1-Ton Truck	Light-duty Truck	0.063	2.340	0.458	0.009	12.117	0.195	0.440	0.004	0.000	8	0.000	0.000	0.000	0.000	0.000	0.000
Office Trailer	Generator sets	5.043	73.092	45.540	0.132	1.675	1.675	5.657	0.076	1.675	8	0.252	3.655	2.277	0.007	0.084	0.084
Crawler Backhoe	Tractors/Loaders/Backhoes	5.611	90.109	50.946	0.132	1.874	1.752	5.726	0.074	1.874	8	0.281	4.505	2.547	0.007	0.094	0.088
Bulldozer	rubber tired dozers	25.413	114.354	237.676	0.362	10.274	9.493	15.698	0.147	10.274	8	1.271	5.718	11.884	0.018	0.514	0.475
Front Loader	Tractors/Loaders/Backhoes	5.611	90.109	50.946	0.132	1.874	1.752	5.726	0.074	1.874	8	0.281	4.505	2.547	0.007	0.094	0.088
Dump Truck	Heavy-duty Diesel	0.322	1.457	37.539	0.342	133.439	15.538	17.177	0.029	0.000	8	0.000	0.000	0.000	0.000	0.000	0.000
Compactor / Roller	Rollers	11.315	149.405	109.080	0.223	5.199	4.855	9.649	0.121	5.199	8	0.566	7.470	5.454	0.011	0.260	0.243
Air Compressor	air compressors	4.342	48.182	29.004	0.079	1.207	1.207	3.409	0.091	1.207	8	0.217	2.409	1.450	0.004	0.060	0.060
Flat Bed Truck	Heavy-duty Diesel	0.027	0.121	3.128	0.029	11.120	1.295	1.431	0.029	0.000	8	0.000	0.000	0.000	0.000	0.000	0.000
Grader	Graders	12.289	63.429	118.011	0.281	3.808	3.548	12.159	0.070	3.808	8	0.614	3.171	5.901	0.014	0.190	0.177
Worker Commutes	Light-duty Auto/Truck	0.145	8.235	0.947	0.032	3.540	0.912	1.498	0.002	0.000	8	0.000	0.000	0.000	0.000	0.000	0.000
Cleaning and Landscaping (Assume 4 people for 1 week and work sch																	
Flat Bed Truck	Heavy-duty Diesel	0.027	0.121	3.128	0.029	11.120	1.295	1.431	0.029	0.000	9	0.000	0.000	0.000	0.000	0.000	0.000
Pick-up Truck	Light-duty Truck	0.008	0.292	0.057	0.001	1.515	0.024	0.055	0.004	0.000	9	0.000	0.000	0.000	0.000	0.000	0.000
1-Ton Truck	Light-duty Truck	0.008	0.292	0.057	0.001	1.515	0.024	0.055	0.004	0.000	9	0.000	0.000	0.000	0.000	0.000	0.000
Small Backhoe	Tractors/Loaders/Backhoes	0.701	11.264	6.368	0.016	0.234	0.219	0.716	0.074	0.234	9	0.140	2.253	1.274	0.003	0.047	0.044
Dump Truck	Heavy-duty Diesel	0.013	0.061	1.564	0.014	5.560	0.647	0.716	0.029	0.000	9	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	0.015	0.824	0.095	0.003	0.354	0.091	0.150	0.002	0.000	9	0.000	0.000	0.000	0.000	0.000	0.000
Other																	
Material Haul Trucks	Heavy-duty Diesel	0.224	1.012	26.069	0.238	92.666	10.790	11.928	0.029	0.000	10	0.000	0.000	0.000	0.000	0.000	0.000
Inspector Vehicles	light-duty auto/truck	0.131	7.412	0.852	0.029	3.186	0.821	1.348	0.002	0.000	11	0.000	0.000	0.000	0.000	0.000	0.000

Table 9
PG&E Thurman Switching Station Construction Emissions
PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Overlapping Emissions	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day
2026						
Activities 1,11	0.001	0.007	0.174	0.002	0.618	0.072
Activities 2,10,11	2.867	28.263	26.160	0.053	1.105	1.037
2027						
Activities 3_4, 10, 11	1.252	13.906	10.056	0.032	0.388	0.372
Activities 5,10, 11						
Activities 6,11	0.947	12.875	8.166	0.022	0.301	0.290
Activities 7,10,11	1.241	14.544	10.695	0.029	0.414	0.393
Activities 8,9,10,11	3.621	33.687	33.334	0.070	1.342	1.258
Worst-Case Daily						
2026	2.867	28.263	26.160	0.053	1.105	1.037
2027	3.621	33.687	33.334	0.070	1.342	1.258
2028	0.000	0.000	0.000	0.000	0.000	0.000
2029	0.000	0.000	0.000	0.000	0.000	0.000

Notes:

NA = Parameter not required for computing emissions.
1. Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.
2. Helicopter operation assumes 1 LTO/hr, medium lift helicopters
3. The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs
1 yd^3 =	1.2641662	tons
Blade width of grading equipment =	12	ft
1 acre =	43,560	ft^2
1 mile =	5,280	ft

4. PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel.

Earthmoving Emissions
Fugitive Dust emissions from Truck Dumping/Loading activities:

Activity	Year	Volume (yd^3)	Weight (ton)	Emission Factors (lb/ton		Emissions (lb/phase)	
				PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Soil Loaded/unloaded	2026	0	0	0.000041	0.000006	0.0	0.0
Soil Loaded/unloaded	2027	4,890	6,182	0.000041	0.000006	0.3	0.0
Soil Loaded/unloaded	2028	0	0	0.000041	0.000006	0.0	0.0
Soil Loaded/unloaded	2029	0	0	0.000041	0.000006	0.0	0.0

Note:

Material density (CalEEMod default, ton/cy) 1.264
Total amount of soil loaded/unloaded (cy): 4,890 (assumed to be in 2027

Fugitive Dust emissions from Grading

Activity	Year	Area (acre)/P	(miles/phase	Emission Factors		Emissions (lb/phase)	
				PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Grading	2026	0	0.00	1.543	0.167	0.0	0.0
Grading	2027	6.25	4.30	1.543	0.167	6.6	0.7
Grading	2028	0.00	0.00	1.543	0.167	0.0	0.0
Grading	2029	0.00	0.00	1.543	0.167	0.0	0.0

Note:
VMT = As / Wb X 43,560 (sqft/acre) /5280 (ft/mile)
VMT: vehicle miles traveled
As: the acreage of the grading site (0.5 acres per grader, 1 acre for scraper, CalEEMod defaults)
Wb: blade width of the grader. CalEEMod default Wb = 12 ft.
Total acres to be graded (acres): 6.25

Annual Emissions Summary

Year	Emissions (ton/year)						Emissions (metric	Onsite DPM
	ROG	CO	NOx	SOx	PM_{10} [d]	$PM_{2.5}$ [d]	CO_2	(lb/year)
2026	0.029	0.291	0.285	0.001	0.112	0.021	69.270	22.151
2027	0.118	1.331	1.725	0.010	2.871	0.355	934.129	74.373
2028	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2029	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table 10

PG&E Microwave Tower within PG&E Thurman Switching Station Construction Emissions

PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Vehicle and Equipment Emissions

Equipment / Vehicle List	Equipment / Vehicle Type	HP	Equipment Load Factor	Quantity	Number of Days Used	Hours per Day	Miles per Day	Months with Activities				Emission factors (g/hp/hr) for equipment, g/mile for vehicles, lb/hr for Helicopter						
								2026	2027	2028	2029	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2
General Construction (Assume separate contractor to build 100' tower. 10 men crew for 4 months and work schedule 5-10)																		
Mechanics Truck	Light-duty Auto/Truck	NA	NA	1	80	NA	25	0	4	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Worker Commutes	Light-duty Auto/Truck	NA	NA	10	80	NA	25	0	4	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Tower Foundation Installation (Assume 4 foundations, total 160 Cu Yd concrete, 6 people for 4 weeks, and work schedule 5-10)																		
Pick-up Truck	Light-duty Truck	NA	NA	2	20	NA	25	0	1	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
1-Ton Truck	Light-duty Truck	NA	NA	1	20	NA	25	0	1	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
22 Ton Crane	Cranes	231	0.29	1	20	8	NA	0	1	0	0	0.219	1.685	1.863	0.005	0.075	0.069	494.393
Concrete Truck	heavy-duty diesel	NA	NA	16	20	NA	90	0	1	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Front Loader	Tractors/Loaders/Backhoes	97	0.37	1	20	8	NA	0	1	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
Dump Truck	Heavy-duty Diesel	NA	NA	1	20	NA	90	0	1	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Compactor	plate compactors	8	0.43	1	20	8	NA	0	1	0	0	0.661	3.469	4.142	0.008	0.161	0.161	569.774
Air Compressor	air compressors	78	0.48	1	20	4	NA	0	1	0	0	0.329	3.648	2.196	0.006	0.091	0.091	569.034
Forklift	Forklifts	89	0.2	1	20	8	NA	0	1	0	0	0.278	3.649	2.397	0.005	0.116	0.107	494.068
Foundation Drill Rig	Bore/Drill Rigs	221	0.5	1	20	8	NA	0	1	0	0	0.111	1.043	0.821	0.005	0.027	0.025	493.278
Flat Bed Truck	Heavy-duty Diesel	NA	NA	1	2	NA	150	0	1	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Structure Delivery and Setup (Assume 100' tower steel)																		
Flat Bed Truck	Heavy-duty Diesel	NA	NA	4	2	NA	150	0	1	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Tower Installation (Assume 125' tower, 10 people for 4 weeks, work schedule 5-10)																		
Pick-up Truck	Light-duty Truck	NA	NA	3	20	NA	25	0	1	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
1-Ton Truck	Light-duty Truck	NA	NA	2	20	NA	25	0	1	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
30 Ton Crane	Cranes	231	0.29	1	20	8	NA	0	1	0	0	0.219	1.685	1.863	0.005	0.075	0.069	494.393
Front Loader	Tractors/Loaders/Backhoes	97	0.37	1	20	8	NA	0	1	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
120' Aerial Lifts	Aerial Lifts	63	0.31	1	20	8	NA	0	1	0	0	0.117	3.204	1.540	0.005	0.028	0.026	494.496
Dump Truck	Heavy-duty Diesel	NA	NA	1	20	NA	90	0	1	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Air Compressor	air compressors	78	0.48	2	20	4	NA	0	1	0	0	0.329	3.648	2.196	0.006	0.091	0.091	569.034
Forklift	Forklifts	89	0.2	1	20	8	NA	0	1	0	0	0.278	3.649	2.397	0.005	0.116	0.107	494.068
Flat Bed Truck	Heavy-duty Diesel	NA	NA	1	2	NA	150	0	1	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Communication Equipment Installation & Testing (Assume 10 people for 8 weeks and work schedule 5-10)																		
Rigging Truck	Heavy-duty Diesel	NA	NA	1	20	NA	25	0	2	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Manlift	Aerial lifts	63	0.31	1	20	8	NA	0	2	0	0	0.117	3.204	1.540	0.005	0.028	0.026	494.496
Boom Truck	Cranes	231	0.29	1	20	8	NA	0	2	0	0	0.219	1.685	1.863	0.005	0.075	0.069	494.393
1-Ton Truck	Light-duty Truck	NA	NA	2	20	NA	25	0	2	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Pick-up Truck	Light-duty Truck	NA	NA	3	20	NA	25	0	2	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Flat Bed Truck	Heavy-duty Diesel	NA	NA	1	2	NA	150	0	2	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Air Compressor	air compressors	78	0.48	1	20	8	NA	0	2	0	0	0.329	3.648	2.196	0.006	0.091	0.091	569.034
Cleaning and Landscaping (Assume 4 people for 1 week and work schedule 5-10)																		
Flat Bed Truck	Heavy-duty Diesel	NA	NA	1	2	NA	150	0	1	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Pick-up Truck	Light-duty Truck	NA	NA	1	5	NA	25	0	1	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
1-Ton Truck	Light-duty Truck	NA	NA	1	5	NA	25	0	1	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Small Backhoe	Tractors/Loaders/Backhoes	97	0.37	1	5	8	NA	0	1	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
Dump Truck	Heavy-duty Diesel	NA	NA	1	5	NA	90	0	1	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	5	NA	25	0	1	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Other																		
Material Haul Trucks	Heavy-duty Diesel	NA	NA	8	2	NA	150	0	1	0	0	0.014	0.061	1.577	0.014	5.604	0.653	1590.419
Inspector Vehicles	light-duty auto/truck	NA	NA	1	20	NA	25	0	1	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621

Table 10

PG&E Microwave Tower within PG&E Thurman Switching Station Con

PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Vehicle and Equipment Emissions

Equipment / Vehicle List	Equipment / Vehicle Type	Emissions (lbs/phase)						Emissions (metric tons/phase)	DPM Emission Factors, (g/hp/hr) for equipment, g/mile for vehicles,	DPM Emissions (lb/phase)	Activity	Onsite Emissions (lbs/day)					
		ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e	DPM	DPM		ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
General Construction (Assume separate contractor to build 100' tow																	
Mechanics Truck	Light-duty Auto/Truck	0.058	3.294	0.379	0.013	1.416	0.365	0.599	0.002	0.000	1	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	0.581	32.942	3.787	0.129	14.160	3.650	5.992	0.002	0.000	1	0.000	0.000	0.000	0.000	0.000	0.000
Tower Foundation Installation (Assume 4 foundations, total 160 Cu																	
Pick-up Truck	Light-duty Truck	0.063	2.340	0.458	0.009	12.117	0.195	0.440	0.004	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
1-Ton Truck	Light-duty Truck	0.032	1.170	0.229	0.005	6.059	0.097	0.220	0.004	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
22 Ton Crane	Cranes	5.170	39.814	44.017	0.118	1.772	1.640	5.299	0.075	1.772	2	0.259	1.991	2.201	0.006	0.089	0.082
Concrete Truck	heavy-duty diesel	0.858	3.886	100.105	0.913	355.836	41.434	45.804	0.029	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Front Loader	Tractors/Loaders/Backhoes	2.805	45.055	25.473	0.066	0.937	0.876	2.863	0.074	0.937	2	0.140	2.253	1.274	0.003	0.047	0.044
Dump Truck	Heavy-duty Diesel	0.054	0.243	6.257	0.057	22.240	2.590	2.863	0.029	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Compactor	plate compactors	0.802	4.209	5.026	0.010	0.195	0.195	0.314	0.161	0.195	2	0.040	0.210	0.251	0.000	0.010	0.010
Air Compressor	air compressors	2.171	24.091	14.502	0.040	0.604	0.604	1.704	0.091	0.604	2	0.109	1.205	0.725	0.002	0.030	0.030
Forklift	Forklifts	1.747	22.910	15.049	0.033	0.730	0.669	1.407	0.116	0.730	2	0.087	1.146	0.752	0.002	0.036	0.033
Foundation Drill Rig	Bore/Drill Rigs	4.326	40.648	31.982	0.203	1.045	0.982	8.721	0.027	1.045	2	0.216	2.032	1.599	0.010	0.052	0.049
Flat Bed Truck	Heavy-duty Diesel	0.009	0.040	1.043	0.010	3.707	0.432	0.477	0.029	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Structure Delivery and Setup (Assume 100' tower steel)																	
Flat Bed Truck	Heavy-duty Diesel	0.036	0.162	4.171	0.038	14.827	1.726	1.909	0.029	0.000	3	0.000	0.000	0.000	0.000	0.000	0.000
Tower Installation (Assume 125' tower, 10 people for 4 weeks, work																	
Pick-up Truck	Light-duty Truck	0.095	3.510	0.686	0.014	18.176	0.292	0.661	0.004	0.000	4	0.000	0.000	0.000	0.000	0.000	0.000
1-Ton Truck	Light-duty Truck	0.063	2.340	0.458	0.009	12.117	0.195	0.440	0.004	0.000	4	0.000	0.000	0.000	0.000	0.000	0.000
30 Ton Crane	Cranes	5.170	39.814	44.017	0.118	1.772	1.640	5.299	0.075	1.772	4	0.259	1.991	2.201	0.006	0.089	0.082
Front Loader	Tractors/Loaders/Backhoes	2.805	45.055	25.473	0.066	0.937	0.876	2.863	0.074	0.937	4	0.140	2.253	1.274	0.003	0.047	0.044
120' Aerial Lifts	Aerial Lifts	0.805	22.074	10.609	0.036	0.193	0.182	1.545	0.028	0.193	4	0.040	1.104	0.530	0.002	0.010	0.009
Dump Truck	Heavy-duty Diesel	0.054	0.243	6.257	0.057	22.240	2.590	2.863	0.029	0.000	4	0.000	0.000	0.000	0.000	0.000	0.000
Air Compressor	air compressors	4.342	48.182	29.004	0.079	1.207	1.207	3.409	0.091	1.207	4	0.217	2.409	1.450	0.004	0.060	0.060
Forklift	Forklifts	1.747	22.910	15.049	0.033	0.730	0.669	1.407	0.116	0.730	4	0.087	1.146	0.752	0.002	0.036	0.033
Flat Bed Truck	Heavy-duty Diesel	0.009	0.040	1.043	0.010	3.707	0.432	0.477	0.029	0.000		0.000	0.000	0.000	0.000	0.000	0.000
Communication Equipment Installation & Testing (Assume 10 peop																	
Rigging Truck	Heavy-duty Diesel	0.015	0.067	1.738	0.016	6.178	0.719	0.795	0.029	0.000	5	0.000	0.000	0.000	0.000	0.000	0.000
Manlift	Aerial lifts	0.805	22.074	10.609	0.036	0.193	0.182	1.545	0.028	0.193	5	0.040	1.104	0.530	0.002	0.010	0.009
Boom Truck	Cranes	5.170	39.814	44.017	0.118	1.772	1.640	5.299	0.075	1.772	5	0.259	1.991	2.201	0.006	0.089	0.082
1-Ton Truck	Light-duty Truck	0.063	2.340	0.458	0.009	12.117	0.195	0.440	0.004	0.000	5	0.000	0.000	0.000	0.000	0.000	0.000
Pick-up Truck	Light-duty Truck	0.095	3.510	0.686	0.014	18.176	0.292	0.661	0.004	0.000	5	0.000	0.000	0.000	0.000	0.000	0.000
Flat Bed Truck	Heavy-duty Diesel	0.009	0.040	1.043	0.010	3.707	0.432	0.477	0.029	0.000	5	0.000	0.000	0.000	0.000	0.000	0.000
Air Compressor	air compressors	4.342	48.182	29.004	0.079	1.207	1.207	3.409	0.091	1.207	5	0.217	2.409	1.450	0.004	0.060	0.060
Cleaning and Landscaping (Assume 4 people for 1 week and work s																	
Flat Bed Truck	Heavy-duty Diesel	0.009	0.040	1.043	0.010	3.707	0.432	0.477	0.029	0.000	6	0.000	0.000	0.000	0.000	0.000	0.000
Pick-up Truck	Light-duty Truck	0.008	0.292	0.057	0.001	1.515	0.024	0.055	0.004	0.000	6	0.000	0.000	0.000	0.000	0.000	0.000
1-Ton Truck	Light-duty Truck	0.008	0.292	0.057	0.001	1.515	0.024	0.055	0.004	0.000	6	0.000	0.000	0.000	0.000	0.000	0.000
Small Backhoe	Tractors/Loaders/Backhoes	0.701	11.264	6.368	0.016	0.234	0.219	0.716	0.074	0.234	6	0.140	2.253	1.274	0.003	0.047	0.044
Dump Truck	Heavy-duty Diesel	0.013	0.061	1.564	0.014	5.560	0.647	0.716	0.029	0.000	6	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	0.004	0.206	0.024	0.001	0.089	0.023	0.037	0.002	0.000	6	0.000	0.000	0.000	0.000	0.000	0.000
Other								0.000									
Material Haul Trucks	Heavy-duty Diesel	0.072	0.324	8.342	0.076	29.653	3.453	3.817	0.029	0.000	7	0.000	0.000	0.000	0.000	0.000	0.000
Inspector Vehicles	light-duty auto/truck	0.015	0.824	0.095	0.003	0.354	0.091	0.150	0.002	0.000	8	0.000	0.000	0.000	0.000	0.000	0.000

Table 10

PG&E Microwave Tower within PG&E Thurman Switching Station Construction Emissions

PG&E: Northern San Joaquin 230 kV Transmission Project PEA

	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
Overlapping Emissions	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day
2027						
Activities 1,2,3,7,8	0.851	8.836	6.802	0.023	0.264	0.248
Activities 1,4,7,8	0.743	8.902	6.208	0.017	0.242	0.229
Activities 1,5,6,8	0.656	7.756	5.455	0.015	0.205	0.195
Worst-Case Daily						
2026	0.000	0.000	0.000	0.000	0.000	0.000
2027	0.851	8.902	6.802	0.023	0.264	0.248
2028	0.000	0.000	0.000	0.000	0.000	0.000
2029	0.000	0.000	0.000	0.000	0.000	0.000

NA = Parameter not required for computing emissions.

1. Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.
2. Helicopter operation assumes 1 LTO/hr, medium lift helicopters
3. The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs
1 yd^3 =	1.2641662	tons
Blade width of grading equipmen	12	ft
1 acre =	43,560	ft^2
1 mile =	5,280	ft

4. PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel.

Earthmoving Emissions

Fugitive Dust emissions from Truck Dumping/Loading activities:

Activity	Year	Volume (yd^3)	Weight (ton)	Emission Factors (lb/ton		Emissions (lb/phase)	
				PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Soil Loaded/unloaded	2026	0	0	0.000041	0.000006	0.0	0.0
Soil Loaded/unloaded	2027	0	0	0.000041	0.000006	0.0	0.0
Soil Loaded/unloaded	2028	0	0	0.000041	0.000006	0.0	0.0
Soil Loaded/unloaded	2029	0	0	0.000041	0.000006	0.0	0.0

Note:

Material density (CalEEMod default, ton/cy)	1.264
Total amount of soil loaded/unloaded (cy):	0

Fugitive Dust emissions from Grading

Activity	Year	Area (acre)/	(miles/phas	Emission Factors		Emissions (lb/phase)	
				PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Grading	2026	0	0.00	1.543	0.167	0.0	0.0
Grading	2027	0	0.00	1.543	0.167	0.0	0.0
Grading	2028	0	0.00	1.543	0.167	0.0	0.0
Grading	2029	0	0.00	1.543	0.167	0.0	0.0

Note:

VMT = As / Wb X 43,560 (sqft/acre) /5280 (ft/mile)

VMT: vehicle miles traveled

As: the acreage of the grading site (0.5 acres per grader, 1 acre for scraper, CalEEMod defaults)

Wb: blade width of the grader. CalEEMod default Wb = 12 ft.

Total acres to be graded (acres):	0

Annual Emissions Summary

Year	Emissions (ton/year)						Emissions (metric	Onsite DPM
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2	(lb/year)
2026	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2027	0.023	0.267	0.245	0.001	0.291	0.037	116.227	13.527
2028	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2029	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	0.000

Table 11
PG&E 60 kV Lines Reconfiguration Construction Emissions
PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Vehicle and Equipment Emissions

Equipment / Vehicle List	Equipment / Vehicle Type	HP	Equipment Load Factor	Quantity	Number of Days Used	Hours per Day	Miles per Day	Months with Activities				Emission factors (g/hp/hr) for equipment, g/mile for vehicles, lb/hr for Helicopter						
								2026	2027	2028	2029	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2
General Construction: Number of workers/union and non union. Average commute from Hotels to job site. Worker Avg 25 per day.																		
Pick-up Truck	Light-duty Truck	NA	NA	15	40	NA	25	0	1	1	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Worker Commutes	Light-duty Auto/Truck	NA	NA	15	40	NA	25	0	1	1	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Safety Inspection	Light-duty Auto/Truck	NA	NA	1	40	NA	25	0	1	1	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Water Truck	Heavy-duty Diesel	NA	NA	1	40	NA	50	0	1	1	0	0.014	0.061	1.577	0.014	5.604	0.653	######
Street Sweeper	Heavy-duty Diesel	NA	NA	1	40	NA	50	0	1	1	0	0.014	0.061	1.577	0.014	5.604	0.653	######
Removal and replacement of approx. (12) 60 kV Wood Poles - West end of Lockeford-Industrial																		
Auger Truck	Bore/Drill Rigs	221	0.5	1	15	8	NA	0	1	0	0	0.111	1.043	0.821	0.005	0.027	0.025	493.278
Backhoe/Front Loader	Tractors/Loaders/Backhoes	97	0.37	1	15	8	NA	0	1	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
boom truck	Cranes	231	0.29	1	15	8	NA	0	1	0	0	0.219	1.685	1.863	0.005	0.075	0.069	494.393
bucket truck	Heavy-duty Diesel	NA	NA	1	15	NA	1	0	1	0	0	0.014	0.061	1.577	0.014	5.604	0.653	######
¾-Ton Pick-up Truck, 4 × 4	Light-duty Truck	NA	NA	2	15	NA	20	0	1	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Lowboy Truck/Trailer Pole Truck	Heavy-duty Diesel	NA	NA	1	15	NA	15	0	1	0	0	0.014	0.061	1.577	0.014	5.604	0.653	######
Worker Commutes	Light-duty Auto/Truck	NA	NA	5	15	NA	25	0	1	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Restoration: (Crew size of 4)																		
Light-duty Truck	Light-duty Truck	NA	NA	2	5	NA	25	0	1	0	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Road Grader	Graders	187	0.41	1	5	6	25	0	1	0	0	0.227	1.173	2.182	0.005	0.070	0.066	495.591
Backhoe and Trailer	Tractors/Loaders/Backhoes	97	0.37	1	5	6	NA	0	1	0	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	5	NA	25	0	1	0	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Replacement of approx. (1) 60 kV Wood Pole and reframing of 4 poles, reconfiguration outside of Industrial Sub, 2 new spans, topping north end of Industrial Tap																		
Auger Truck	Bore/Drill Rigs	221	0.5	1	15	8	NA	0	0	1	0	0.111	1.043	0.821	0.005	0.027	0.025	493.278
Backhoe/Front Loader	Tractors/Loaders/Backhoes	97	0.37	1	15	8	NA	0	0	1	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
boom truck	Cranes	231	0.29	1	15	8	NA	0	0	1	0	0.219	1.685	1.863	0.005	0.075	0.069	494.393
bucket truck	Heavy-duty Diesel	NA	NA	1	15	NA	1	0	0	1	0	0.014	0.061	1.577	0.014	5.604	0.653	######
¾-Ton Pick-up Truck, 4 × 4	Light-duty Truck	NA	NA	2	15	NA	20	0	0	1	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Lowboy Truck/Trailer Pole Truck	Heavy-duty Diesel	NA	NA	1	15	NA	15	0	0	1	0	0.014	0.061	1.577	0.014	5.604	0.653	######
Worker Commutes	Light-duty Auto/Truck	NA	NA	5	15	NA	25	0	0	1	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Restoration: (Crew size of 4)																		
Light-duty Truck	Light-duty Truck	NA	NA	2	5	NA	25	0	0	1	0	0.029	1.061	0.208	0.004	5.496	0.088	440.471
Road Grader	Graders	187	0.41	1	5	6	NA	0	0	1	0	0.227	1.173	2.182	0.005	0.070	0.066	495.591
Backhoe and Trailer	Tractors/Loaders/Backhoes	97	0.37	1	5	6	NA	0	0	1	0	0.222	3.559	2.012	0.005	0.074	0.069	498.610
Worker Commutes	Light-duty Auto/Truck	NA	NA	4	5	NA	25	0	0	1	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Other																		
Material Haul Trucks	Heavy-duty Diesel	NA	NA	10	5	NA	75	0	0	1	0	0.014	0.061	1.577	0.014	5.604	0.653	######
General Construction at Lodi Substation																		
Mechanics Truck	Light-duty Auto/Truck	NA	NA	2	30	NA	100	0	0	1	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	30	NA	25	0	0	1	0	0.013	0.747	0.086	0.003	0.321	0.083	299.621

Table 11
PG&E 60 kV Lines Reconfiguration Construction Emissions
PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Vehicle and Equipment Emissions

Equipment / Vehicle List	Equipment / Vehicle Type	Emissions (lbs/phase)						Emissions (metric tons/phase)	Factors, (g/hp/hr) for equipment, g/mile for vehicles,	Onsite DPM Emissions (lb/phase)	Activity	Onsite Emissions (lbs/day)					
		ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e	DPM	DPM		ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
General Construction: Number of workers/union and non union. Ave																	
Pick-up Truck	Light-duty Truck	0.951	35.099	6.864	0.142	181.761	2.923	6.607	0.004	0.000	1	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	0.436	24.706	2.840	0.097	10.620	2.737	4.494	0.002	0.000	1	0.000	0.000	0.000	0.000	0.000	0.000
Safety Inspection	Light-duty Auto/Truck	0.029	1.647	0.189	0.006	0.708	0.182	0.300	0.002	0.000	1	0.000	0.000	0.000	0.000	0.000	0.000
Water Truck	Heavy-duty Diesel	0.060	0.270	6.952	0.063	24.711	2.877	3.181	0.029	0.126	1	0.001	0.007	0.174	0.002	0.618	0.072
Street Sweeper	Heavy-duty Diesel	0.060	0.270	6.952	0.063	24.711	2.877	3.181	0.029	0.000	1	0.000	0.000	0.000	0.000	0.000	0.000
Removal and replacement of approx. (12) 60 kV Wood Poles - West																	
Auger Truck	Bore/Drill Rigs	3.245	30.486	23.987	0.152	0.783	0.737	6.541	0.027	0.783	2	0.216	2.032	1.599	0.010	0.052	0.049
Backhoe/Front Loader	Tractors/Loaders/Backhoes	2.104	33.791	19.105	0.049	0.703	0.657	2.147	0.074	0.703	2	0.140	2.253	1.274	0.003	0.047	0.044
boom truck	Cranes	3.878	29.860	33.013	0.089	1.329	1.230	3.974	0.075	1.329	2	0.259	1.991	2.201	0.006	0.089	0.082
bucket truck	Heavy-duty Diesel	0.000	0.002	0.052	0.000	0.185	0.022	0.024	0.029	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
¾-Ton Pick-up Truck, 4 × 4	Light-duty Truck	0.038	1.404	0.275	0.006	7.270	0.117	0.264	0.004	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Lowboy Truck/Trailer Pole Truck	Heavy-duty Diesel	0.007	0.030	0.782	0.007	2.780	0.324	0.358	0.029	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	0.054	3.088	0.355	0.012	1.328	0.342	0.562	0.002	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Restoration: (Crew size of 4)																	
Light-duty Truck	Light-duty Truck	0.016	0.585	0.114	0.002	3.029	0.049	0.110	0.004	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Road Grader	Graders	1.152	5.947	11.064	0.026	0.357	0.333	1.140	0.070	0.357	2	0.230	1.189	2.213	0.005	0.071	0.067
Backhoe and Trailer	Tractors/Loaders/Backhoes	0.526	8.448	4.776	0.012	0.176	0.164	0.537	0.074	0.176	2	0.105	1.690	0.955	0.002	0.035	0.033
Worker Commutes	Light-duty Auto/Truck	0.011	0.618	0.071	0.002	0.266	0.068	0.112	0.002	0.000	2	0.000	0.000	0.000	0.000	0.000	0.000
Replacement of approx. (1) 60 kV Wood Pole and reframing of 4 pol																	
Auger Truck	Bore/Drill Rigs	3.245	30.486	23.987	0.152	0.783	0.737	6.541	0.027	0.783	3	0.216	2.032	1.599	0.010	0.052	0.049
Backhoe/Front Loader	Tractors/Loaders/Backhoes	2.104	33.791	19.105	0.049	0.703	0.657	2.147	0.074	0.703	3	0.140	2.253	1.274	0.003	0.047	0.044
boom truck	Cranes	3.878	29.860	33.013	0.089	1.329	1.230	3.974	0.075	1.329	3	0.259	1.991	2.201	0.006	0.089	0.082
bucket truck	Heavy-duty Diesel	0.000	0.002	0.052	0.000	0.185	0.022	0.024	0.029	0.000	3	0.000	0.000	0.000	0.000	0.000	0.000
¾-Ton Pick-up Truck, 4 × 4	Light-duty Truck	0.038	1.404	0.275	0.006	7.270	0.117	0.264	0.004	0.000	3	0.000	0.000	0.000	0.000	0.000	0.000
Lowboy Truck/Trailer Pole Truck	Heavy-duty Diesel	0.007	0.030	0.782	0.007	2.780	0.324	0.358	0.029	0.000	3	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	0.054	3.088	0.355	0.012	1.328	0.342	0.562	0.002	0.000	3	0.000	0.000	0.000	0.000	0.000	0.000
Restoration: (Crew size of 4)																	
Light-duty Truck	Light-duty Truck	0.016	0.585	0.114	0.002	3.029	0.049	0.110	0.004	0.000	3	0.000	0.000	0.000	0.000	0.000	0.000
Road Grader	Graders	1.152	5.947	11.064	0.026	0.357	0.333	1.140	0.070	0.357	3	0.230	1.189	2.213	0.005	0.071	0.067
Backhoe and Trailer	Tractors/Loaders/Backhoes	0.526	8.448	4.776	0.012	0.176	0.164	0.537	0.074	0.176	3	0.105	1.690	0.955	0.002	0.035	0.033
Worker Commutes	Light-duty Auto/Truck	0.015	0.824	0.095	0.003	0.354	0.091	0.150	0.002	0.000	3	0.000	0.000	0.000	0.000	0.000	0.000
Other																	
Material Haul Trucks	Heavy-duty Diesel	0.112	0.506	13.035	0.119	46.333	5.395	5.964	0.029	0.000	3	0.000	0.000	0.000	0.000	0.000	0.000
General Construction at Lodi Substation																	
Mechanics Truck	Light-duty Auto/Truck	0.174	9.882	1.136	0.039	4.248	1.095	1.798	0.002	0.000	4	0.000	0.000	0.000	0.000	0.000	0.000
Worker Commutes	Light-duty Auto/Truck	0.044	2.471	0.284	0.010	1.062	0.274	0.449	0.002	0.000	4	0.000	0.000	0.000	0.000	0.000	0.000

Table 11
PG&E 60 kV Lines Reconfiguration Construction Emissions
PG&E: Northern San Joaquin 230 kV Transmission Project PEA

	ROG	CO	NOx	SOx	PM_{10} [d]	$PM_{2.5}$ [d]
Overlapping Emissions						
2027						
Activities 1,2	0.952	9.161	8.415	0.029	0.912	0.346
2028						
Activities 1,3,4	0.952	9.161	8.415	0.029	0.912	0.346
Worst-Case Daily						
2026	0.000	0.000	0.000	0.000	0.000	0.000
2027	0.952	9.161	8.415	0.029	0.912	0.346
2028	0.952	9.161	8.415	0.029	0.912	0.346
2029	0.000	0.000	0.000	0.000	0.000	0.000

Notes:
NA = Parameter not required for computing emissions.
1. Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.
2. Helicopter operation assumes 1 LTO/hr, medium lift helicopters
3. The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs
1 yd^3 =	1.2641662	tons
Blade width of grading equipment	12	ft
1 acre =	43,560	ft^2
1 mile =	5,280	ft

4. PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel.

Earthmoving Emissions

Fugitive Dust emissions from Truck Dumping/Loading activities:

Activity	Year	Volume (yd^3)	Weight (ton)	Emission Factors (lb/ton)		Emissions (lb/phase)	
				PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Soil Loaded/unloaded	2026	0	0	0.000041	0.000006	0.0	0.0
Soil Loaded/unloaded	2027	0	0	0.000041	0.000006	0.0	0.0
Soil Loaded/unloaded	2028	0	0	0.000041	0.000006	0.0	0.0
Soil Loaded/unloaded	2029	0	0	0.000041	0.000006	0.0	0.0

Note:
Material density (CalEEMod default, ton/cy) 1.264
Total amount of soil loaded/unloaded (cy): 0 (assumed to be split between 2025 and 2026.

Fugitive Dust emissions from Grading

Activity	Year	Area (acre	(miles/phase)	Emission Factors (lb/VMT)		Emissions (lb/phase)	
				PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Grading	2026	0	0.00	1.543	0.167	0.0	0.0
	2027	1	0.52	1.543	0.167	0.8	0.1
Grading	2028	0	0.00	1.543	0.167	0.0	0.0
Grading	2029	0	0.00	1.543	0.167	0.0	0.0

Note:
VMT = As / Wb X 43,560 (sqft/acre) /5280 (ft/mile)
VMT: vehicle miles traveled
As: the acreage of the grading site (0.5 acres per grader, 1 acre for scraper, CalEEMod defaults)
Wb: blade width of the grader. CalEEMod default Wb = 12 ft.
Total acres to be graded (acres): 0.75

Annual Emissions Summary

Year	Emissions (ton/year)						Emissions (metric tons/year)	Onsite DPM (lb/year)
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2	
2026	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2027	0.006	0.073	0.053	0.000	0.070	0.005	24.651	3.411
2028	0.006	0.079	0.060	0.000	0.096	0.008	32.900	3.411
2029	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table 12
LEU Construciton Emissions
PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Annual Construction Emissions (Total)

	Annual Emissions (ton/year)					
Construction Phase	**ROG**	**CO**	**NOx**	**SOx**	**PM_{10}**	**$PM_{2.5}$**
Construction Year 2026	0.00	0.00	0.00	0.00	0.00	0.00
Construction Year 2027	0.20	1.37	1.45	0.01	1.30	0.26
Construction Year 2028	0.01	0.10	0.12	0.00	0.00	0.00
Construction Year 2029	0.00	0.00	0.00	0.00	0.00	0.00

Onsite DPM Emissions

				DPM
Construction Phases	**Start**	**End**	**Year**	**ton/year**
Survey	2027/02/01	2027/02/26	2027	1.05E-03
Access Roads	2027/03/01	2027/03/26	2027	3.04E-03
Site Preparation	2027/03/01	2027/03/26	2027	0.0112
Underground 12 kV Line Installation	2027/03/01	2027/03/12	2027	1.49E-03
Fence and Gate Installation	2027/04/01	2027/05/10	2027	4.06E-03
Foundation	2027/05/01	2027/06/27	2027	9.39E-03
Ground/Grid Circuit Installation	2027/06/01	2027/07/26	2027	3.99E-03
Transformer Installation	2027/07/01	2027/08/25	2027	7.89E-03
Steel/Bus Erection	2027/07/01	2027/08/25	2027	2.57E-03
Yard Rock Installation	2027/09/01	2027/09/28	2027	1.32E-03
Cleaning and Restoration 1	2027/10/01	2027/10/14	2027	9.10E-04
Remaining Deliveries, Installations, Testing and Commissioning 1	2027/11/01	2027/12/24	2027	5.31E-03
Cleaning and Restoration 2	2028/02/01	2028/02/14	2028	1.77E-03
Remaining Deliveries, Installations, Testing and Commissioning 2	2028/02/01	2028/02/28	2028	2.65E-03
			Total 2027 Emissions	5.22E-02
			Total 2028 Emissions	4.42E-03

Table 12

LEU Construciton Emissions

PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Onsite Daily Emissions

			Phase Number	Onsite Daily Emissions (lb/day)					
				ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
Survey	2027/02/01	2027/02/26	1	0.4901	3.2687	2.9409	0.0136	0.1051	0.0967
Access Roads	2027/03/01	2027/03/26	2	1.323	8.7447	8.6699	0.0365	0.3039	0.2796
Site Preparation	2027/03/01	2027/03/26	3	3.8054	26.0621	29.1367	0.0924	9.3202	5.505
Underground 12 kV Line Installation	2027/03/01	2027/03/12	4	0.8826	6.7224	6.5475	0.0232	0.2981	0.2742
Fence and Gate Installation	2027/04/01	2027/05/10	5	1.2978	9.8858	8.3156	0.0365	0.2898	0.2666
Foundation	2027/05/01	2027/06/27	6	1.3677	8.3465	11.6893	0.0314	0.4696	0.4321
Ground/Grid Circuit Installation	2027/06/01	2027/07/26	7	0.4805	3.5608	3.6779	9.32E-03	0.1996	0.1836
Transformer Installation	2027/07/01	2027/08/25	8	1.6062	10.7247	10.8868	0.0406	0.3947	0.3656
Steel/Bus Erection	2027/07/01	2027/08/25	9	0.593	4.603	3.7956	0.017	0.1284	0.1181
Yard Rock Installation	2027/09/01	2027/09/28	10	0.5628	4.9828	3.9042	0.0162	0.1322	0.1216
Cleaning and Restoration 1	2027/10/01	2027/10/14	11	0.6498	3.9336	5.457	0.0164	0.1828	0.1682
Remaining Deliveries, Installations, Testing and Commissioning 1	2027/11/01	2027/12/24	12	0.9952	7.0236	7.1777	0.0259	0.2653	0.2441
Cleaning and Restoration 2	2028/02/01	2028/02/14	13	0.9644	5.0782	9.0364	0.0182	0.3536	0.3253
Remaining Deliveries, Installations, Testing and Commissioning 2	2028/02/01	2028/02/28	14	0.9952	7.0236	7.1777	0.0259	0.2653	0.2441

Maximum Onsite Daily Emissions

	Onsite Daily Emissions (lb/day)					
Overlapping Phases	**ROG**	**CO**	**NOx**	**SOx**	**PM_{10}**	**$PM_{2.5}$**
1	0.4901	3.2687	2.9409	0.0136	0.1051	0.0967
2,3,4	6.011	41.5292	44.3541	0.1521	9.9222	6.0588
5,6	2.6655	18.2323	20.0049	0.0679	0.7594	0.6987
6,7	1.8482	11.9073	15.3672	0.04072	0.6692	0.6157
7,8,9	2.6797	18.8885	18.3603	0.06692	0.7227	0.6673
10	0.5628	4.9828	3.9042	0.0162	0.1322	0.1216
11	0.6498	3.9336	5.457	0.0164	0.1828	0.1682
12	0.9952	7.0236	7.1777	0.0259	0.2653	0.2441
13,14	1.9596	12.1018	16.2141	0.0441	0.6189	0.5694
Max. daily emissions 2027	6.011	41.5292	44.3541	0.1521	9.9222	6.0588
Max. daily emissions 2028	1.9596	12.1018	16.2141	0.0441	0.6189	0.5694

Table 13

Overlappying Emissions for PG&E Sites Near Thurman Station

PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Construction Phase	2026						2027											
	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
PG&E 12 kV Service Line Extension to PG&E Thurman Switching Station																		
Specialized communications contractor												A_1	A_1					
Inspectors												A_2	A_2					
PG&E Thurman Switching Station																		
General Construction NTP by CPUC					B_1													
Civil Site Preparation						B_2												
Structure Foundations, Excavation, and Installation							B_3_4	B_3_4										
Equipment Foundations							B_3_4	B_3_4										
Structure Delivery and Setup									B_5									
Equipment Installation										B_6	B_6	B_6						
Dress/Test/Wire Equipment													B_7	B_7				
Exterior Walls, Final Grading, and Paving															B_8			
Cleaning and Landscaping															B_9			
Truck Drivers						B_10	B_10	B_10	B_10				B_10	B_10	B_10			
Inspectors					B_11	B_11	B_11	B_11	B_11	B_11	B_11	B_11	B_11	B_11	B_11			
PG&E Microwave Tower within Thurman Switching Station																		
General Construction										C_1	C_1	C_1	C_1					
Tower Foundation Installation										C_2								
Structure Delivery and Set Up										C_3								
Tower Installation											C_4							
Communication Equipment Installation & Testing												C_5	C_5					
Cleaning and Landscaping													C_6					
Truck Drivers										C_7	C_7							
Inspectors										C_8	C_8	C_8	C_8					

Overlapping Activities 2026	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day
B_1, B_11	0.001	0.007	0.174	0.002	0.618	0.072
B-2, B_10, B_11	2.867	28.263	26.160	0.053	1.105	1.037
Worst-case 2026	2.867	28.263	26.160	0.053	1.105	1.037

Overlapping Activities 2027	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day
(B_3_4, B_10, B_11)	1.252	13.906	10.056	0.032	0.388	0.372
(B_5, B_10, B_11)	0.000	0.000	0.000	0.000	0.000	0.000
(B_6, B_11), C_1, C_2, C_3, C_7, C_8),	1.798	21.712	14.968	0.046	0.565	0.539
(B_6, B_11), (C_1, C_4, C_7, C_8),	1.690	21.777	14.374	0.039	0.543	0.519
(A_1, A_2), (B_6, B_11), (C_1, C_5, C_8),	3.776	45.123	31.955	0.096	1.937	1.232
(A_1, A_2), (B_7, B_10, B_11), (C_1, C_5,C_6, C_8),	4.211	49.044	35.757	0.106	2.097	1.379
(B_8, B_9, B_10, B_11),	3.621	33.687	33.334	0.070	1.342	1.258
Worst-case 2027	4.211	49.044	35.757	0.106	2.097	1.379

Table 14

Overlapping Emissions for PG&E and LEU Sites Near Thurman Station

PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Construction Phase	2026						2027												2028											
	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
PG&E 12 kV Service Line Extension to PG&E Thurman Switching Station																														
Specialized communications contractor												A_1	A_1																	
Inspectors																														
PG&E Thurman Switching Station																														
General Construction NTP by CPUC					B_1																									
Civil Site Preparation						B_2																								
Structure Foundations, Excavation, and Installation							B_3_4	B_3_4																						
Equipment Foundations							B_3_4	B_3_4																						
Structure Delivery and Setup									B_5																					
Equipment Installation										B_6	B_6	B_6																		
Dress/Test/Wire Equipment													B_7	B_7																
Exterior Walls, Final Grading, and Paving															B_8															
Cleaning and Landscaping															B_9															
Truck Drivers						B_10	B_10	B_10	B_10				B_10	B_10	B_10															
Inspectors					B_11	B_11	B_11	B_11	B_11	B_11	B_11	B_11	B_11	B_11	B_11															
PG&E Microwave Tower within Thurman Switching Station																														
General Construction										C_1	C_1	C_1	C_1																	
Tower Foundation Installation										C_2																				
Structure Delivery and Set Up										C_3																				
Tower Installation											C_4																			
Communication Equipment Installation & Testing												C_5	C_5																	
Cleaning and Landscaping													C_6																	
Truck Drivers										C_7	C_7																			
Inspectors										C_8	C_8	C_8	C_8																	
LEU Construction																														
Survey								D_1																						
Access Roads									D_2																					
Site Preparation									D_3																					
Underground 12 kV Line Installation									D_4																					
Fence and Gate Installation										D_5	D_5																			
Foundation											D_6	D_6																		
Ground/Grid Circuit Installation												D_7	D_7																	
Transformer Installation													D_8	D_8																
Steel/Bus Erection													D_9	D_9																
Yard Rock Installation															D_10															
Cleaning and Restoration 1																D_11														
Remaining Deliveries, Installations, Testing and Commissioning 1																	D_12	D_12												
Cleaning and Restoration 2																				D_13										
Remaining Deliveries, Installations, Testing and Commissioning 2																				D_14										

Overlapping Activities 2026	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day
B_1, B_11	0.001	0.007	0.174	0.002	0.618	0.072
B-2, B_10, B_11	2.867	28.263	26.160	0.053	1.105	1.037
Worst-case 2026	2.867	28.263	26.160	0.053	1.105	1.037

Overlapping Activities 2027	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day
(B_3_4, B_10, B_11), (D_1)	1.742	17.175	12.997	0.046	0.493	0.469
(B_5, B_10, B_11), (D-2, D_3, D_4)	6.011	41.529	44.354	0.152	9.922	6.059
(B_6, B_11), C_1, C_2, C_3, C_7, C_8), D_5	3.096	31.597	23.284	0.082	0.855	0.805
(B_6, B_11), (C_1, C_4, C_7, C_8), (D_5, D_6)	4.356	40.009	34.378	0.107	1.302	1.218
(A_1, A_2), (B_6, B_11), (C_1, C_5, C_8), (D_6, D_7)	5.624	57.030	47.322	0.137	2.606	1.848
, A_2), (B_7, B_10, B_11), (C_1, C_5,C_6, C_8), (D_7, D_8, D_9))	6.890	67.932	54.118	0.173	2.820	2.046
(B_8, B_9, B_10, B_11), (D_10)	4.184	38.670	37.238	0.087	1.475	1.380
D_11	0.650	3.934	5.457	0.016	0.183	0.168
D_12	0.995	7.024	7.178	0.026	0.265	0.244
Worst-case 2027	6.890	67.932	54.118	0.173	9.922	6.059

Overlapping Activities 2028	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day
(D_13, D_14)	1.9596	12.1018	16.2141	0.0441	0.6189	0.5694

Table 15
PG&E Operation and Maintenance Emissions
PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Vehicle and Equipment Emissions

Equipment / Vehicle List	Equipment / Vehicle Type	HP	Equipment Load Factor	Quantity	Number of Days Used	Hours per Day	Miles per Day	Emission factors (g/hp/hr) for equipment, g/mile for vehicles, lb/hr for Helicopter						
								ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2
New 230kV Transmission Lines O&M (72 Structures)														
Detailed Ground and Aerial	Light-duty Auto/Truck	NA	NA	1	15	NA	50	0.009	0.608	0.056	0.003	0.320	0.082	270.292
Hughes 500 Helicopter	Helicopter	NA	NA	1	1	8	NA	4.010	5.330	1.950	0.290	0.060	0.060	424.200
Insulator Washing only if needed and called out by inspector	Heavy-duty Diesel	NA	NA	1	15	NA	80	0.012	0.052	1.445	0.013	0.444	0.139	1479.459
Light-duty Auto/Truck	Light-duty Auto/Truck	NA	NA	1	1	NA	50	0.009	0.608	0.056	0.003	0.320	0.082	270.292
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	5	NA	75	0.012	0.052	1.445	0.013	0.444	0.139	1479.459
Backhoe/Front Loader	Tractors/Loaders/Backhoes	97	0.37	1	5	8	NA	0.272	3.705	1.624	0.006	0.030	0.030	568.899
Boom truck	Cranes	231	0.29	1	5	8	NA	0.222	1.090	0.697	0.005	0.023	0.023	568.799
¾-Ton Pick-up Truck, 4 × 4	Light-duty Truck	NA	NA	1	5	NA	75	0.018	0.820	0.126	0.004	0.330	0.086	387.997
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	5	NA	75	0.012	0.052	1.445	0.013	0.444	0.139	1479.459
New Thurman Switching Station O&M														
Monthly Visual Inspections/ Maintenance (PG&E Standard TD3322-S)	Light-duty Auto/Truck	NA	NA	1	12	NA	50	0.009	0.608	0.056	0.003	0.320	0.082	270.292
Yearly Inspections/Maintenance (PG&E Standard TD3322-S)	Light-duty Auto/Truck	NA	NA	1	24	NA	50	0.009	0.608	0.056	0.003	0.320	0.082	270.292
Insulator Washing only if needed and called out by inspector	Heavy-duty Diesel	NA	NA	1	24	NA	50	0.012	0.052	1.445	0.013	0.444	0.139	1479.459
5 year inspection and maintenance (some could be every 2 or 8 years for various items)	Light-duty Auto/Truck	NA	NA	1	12	NA	50	0.009	0.608	0.056	0.003	0.320	0.082	270.292
Lockeford Substation O&M (if applicable) substation equipment maintenance requirements.														
Monthly Visual Inspections/ Maintenance (PG&E Standard TD3322-S)	Light-duty Auto/Truck	NA	NA	1	12	NA	50	0.009	0.608	0.056	0.003	0.320	0.082	270.292
Yearly Inspections/Maintenance (PG&E Standard TD3322-S)	Light-duty Auto/Truck	NA	NA	1	24	NA	50	0.009	0.608	0.056	0.003	0.320	0.082	270.292
Insulator Washing only if needed and called out by inspector	Heavy-duty Diesel	NA	NA	1	24	NA	50	0.012	0.052	1.445	0.013	0.444	0.139	1479.459
5 year inspection and maintenance (some could be every 2 or 8 years for various items)	Light-duty Auto/Truck	NA	NA	1	12	NA	50	0.009	0.608	0.056	0.003	0.320	0.082	270.292

Notes:
NA = Parameter not required for computing emissions.
1. Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.
2. Helicopter operation assumes 1 LTO/hr, medium lift helicopters
3. The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs
1 yd^3 =	1.2641662	tons
Blade width of grading equipment =	12	ft
1 acre =	43,560	ft^2
1 mile =	5,280	ft

4. PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel.

Table 15
PG&E Operation and Maintenance Emissions
PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Vehicle and Equipment Emissions

Equipment / Vehicle List	Equipment / Vehicle Type	Emissions (lbs/year)						Emissions (metric tons/year)	Onsite Emissions (lb/day)					
		ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
New 230kV Transmission Lines O&M (72 Structures)														
Detailed Ground and Aerial	Light-duty Auto/Truck	0.014	1.006	0.093	0.004	0.529	0.136	0.203	0.001	0.067	0.006	0.000	0.035	0.009
Hughes 500 Helicopter	Helicopter	32.080	42.640	15.600	2.320	0.480	0.480	1.539	32.080	42.640	15.600	2.320	0.480	0.480
Insulator Washing only if needed and called out by inspector	Heavy-duty Diesel	0.033	0.138	3.824	0.035	1.174	0.367	1.775	0.002	0.009	0.255	0.002	0.078	0.024
Light-duty Auto/Truck	Light-duty Auto/Truck	0.001	0.067	0.006	0.000	0.035	0.009	0.014	0.001	0.067	0.006	0.000	0.035	0.009
10-Cu Dump Truck	Heavy-duty Diesel	0.010	0.043	1.195	0.011	0.367	0.115	0.555	0.002	0.009	0.239	0.002	0.073	0.023
Backhoe/Front Loader	Tractors/Loaders/Backhoes	0.861	11.726	5.140	0.019	0.095	0.095	0.817	0.172	2.345	1.028	0.004	0.019	0.019
Boom truck	Cranes	1.311	6.439	4.117	0.030	0.136	0.136	1.524	0.262	1.288	0.823	0.006	0.027	0.027
¾-Ton Pick-up Truck, 4 × 4	Light-duty Truck	0.015	0.678	0.104	0.003	0.273	0.071	0.145	0.003	0.136	0.021	0.001	0.055	0.014
Lowboy Truck/Trailer	Heavy-duty Diesel	0.010	0.043	1.195	0.011	0.367	0.115	0.555	0.002	0.009	0.239	0.002	0.073	0.023
New Thurman Switching Station O&M														
Monthly Visual Inspections/ Maintenance (PG&E Standard TD3322-S)	Light-duty Auto/Truck	0.012	0.804	0.074	0.004	0.423	0.109	0.162	0.001	0.067	0.006	0.000	0.035	0.009
Yearly Inspections/Maintenance (PG&E Standard TD3322-S)	Light-duty Auto/Truck	0.023	1.609	0.148	0.007	0.847	0.217	0.324	0.001	0.067	0.006	0.000	0.035	0.009
Insulator Washing only if needed and called out by inspector	Heavy-duty Diesel	0.033	0.138	3.824	0.035	1.174	0.367	1.775	0.001	0.006	0.159	0.001	0.049	0.015
5 year inspection and maintenance (some could be every 2 or 8 years for various items)	Light-duty Auto/Truck	0.012	0.804	0.074	0.004	0.423	0.109	0.162	0.001	0.067	0.006	0.000	0.035	0.009
Lockeford Substation O&M (if applicable) substation equipment maintenance requirements.														
Monthly Visual Inspections/ Maintenance (PG&E Standard TD3322-S)	Light-duty Auto/Truck	0.012	0.804	0.074	0.004	0.423	0.109	0.162	0.001	0.067	0.006	0.000	0.035	0.009
Yearly Inspections/Maintenance (PG&E Standard TD3322-S)	Light-duty Auto/Truck	0.023	1.609	0.148	0.007	0.847	0.217	0.324	0.001	0.067	0.006	0.000	0.035	0.009
Insulator Washing only if needed and called out by inspector	Heavy-duty Diesel	0.033	0.138	3.824	0.035	1.174	0.367	1.775	0.001	0.006	0.159	0.001	0.049	0.015
5 year inspection and maintenance (some could be every 2 or 8 years for various items)	Light-duty Auto/Truck	0.012	0.804	0.074	0.004	0.423	0.109	0.162	0.001	0.067	0.006	0.000	0.035	0.009

Notes:
NA = Parameter not required for computing emissions.
1. Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.
2. Helicopter operation assumes 1 LTO/hr, medium lift helicopters
3. The following conversion factors were used to estimate emissions:

1 lb =	453.6
1 metric ton =	1,000,000
1 ton =	2,000
1 yd^3 =	1.2641662
Blade width of grading equipment =	12
1 acre =	43,560
1 mile =	5,280

4. PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad tr

Table 15
PG&E Operation and Maintenance Emissions
PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Vehicle and Equipment Emissions

Annual Emissions Summary

Year	Emissions (ton/year)						Emissions (metric tons/year)
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2
2030 and beyond	0.017	0.035	0.020	0.001	0.005	0.0016	11.9750

Maximum Daily Emissions

Year	Emissions (lb/day)					
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
2030 and beyond	32.534	46.983	18.573	2.342	1.186	0.714

Note:
Daily emissions are worst-case scenario assuming all O&M activities would occur during the same day.

Table 16

PG&E and LEU GHG Emissions from SF6 Containing Breakers

PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Location	Number of Circuit Breakers	SF_6 Capacity per Breaker (lbs)	Leakage Rate [a]	SF_6 Emissions per Circuit Breaker (lb/year)	Total SF_6 Emissions (lb/year)	Total SF_6 Emissions (tons/year)	CO_2e Emissions[b] (tons/year)	CO_2e Emissions[b] (metric tons/year)
PG&E Lockeford Substation	8	155	0.50%	0.775	6.2	3.10E-03	70.68	64.14
PG&E Thurman Switching Station	2	155	0.50%	0.775	1.55	7.75E-04	17.67	16.03
LEU Guild Substation[c]	3	186	0.50%	0.930	2.79	1.40E-03	31.81	28.86
PG&E Total GHG							88.35	80.17
PG&E and LEU Total GHG							120.16	109.03

Notes:

a. It was conservatively assumed that the leakage rate would be 0.5 percent.

b. SF6 Global Warming Potential (40 CFR 98 Subpart A): 22,800

c. LEU Guild Substation is expected to have 2 circuit breakers and one spare filler tank which would have the equivalent volume of SF_6.

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Table 17

PG&E Fugitive Dust Emission Factors

PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Fugitive Dust Emission Factors for Truck Dumping/Loading

Truck Dumping on a Pile or Loading to a Truck from a Pile

Parameter	PM_{10}	$PM_{2.5}$
k [a]	0.35	0.053
U [b]	2.7	2.7
M [a]	12.0	12.0
Emission Factor (lb/ton) [c]	0.00004	0.000006

Notes:

[a] k and M taken from Section 4.3 of Appendix A of the *CalEEMod User's Guide* (Environ, 2021).

[b] U taken as the CalEEMod default for the San Joaquin Valley Air Basin. Value converted from units of m/s to mph.

[c] Emission factor calculated using the following equation from Section 4.3 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2021):

Emission Factor (lb/ton) = $k \times 0.0032 \times [U\ (mph) / 5]^{1.3} / [M\ (\%) / 2]^{1.4}$

Fugitive Dust Emission Factors for Grading

Grading Equipment Passes

Parameter	PM_{10}	$PM_{2.5}$
S [a]	7.1	7.1
F [a]	0.6	0.031
Emission Factor (lb/VMT) [b]	1.543	0.167
Reduction from Applying Soil Stabilizers [c]	0%	0%
Emission Factor (Controlled, lb/VMT)	1.543	0.167

Notes:

[a] S and F taken from Section 4.3 of Appendix A of the *CalEEMod User's Guide* (Environ, 2021).

[b] Emission factor calculated using the following equation from Section 4.3 of Appendix A of the *CalEEMod User's Guide* (BREEZE 2021):

PM_{10} Emission Factor (lb/VMT) = $0.051 \times [S\ (mph)]^{2.0} \times F_{PM10}$

$PM_{2.5}$ Emission Factor (lb/VMT) = $0.04 \times [S\ (mph)]^{2.5} \times F_{PM2.5}$

Fugitive Dust Emissions from Paved and Unpaved Roads

Included in vehicle emissions - see Table 15 for details.

Table 18
PG&E Construction Equipment Emission Factors
PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Construction Phase

OFFROAD Equipment Category	Horsepower	Load Factor	Year	Emission Factors (g/bhp-hr)								
				ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e	CO_2	CH4
Aerial Lifts	63	0.31	2026	0.117	3.204	1.540	0.005	0.028	0.026	494.496	491.351	0.126
Air Compressors	78	0.48	2026	0.329	3.648	2.196	0.006	0.091	0.091	569.034	568.299	0.029
Bore/Drill Rigs	221	0.50	2026	0.111	1.043	0.821	0.005	0.027	0.025	493.278	490.183	0.124
Cement and Mortar Mixers	9	0.56	2026	0.661	3.469	4.142	0.008	0.161	0.161	569.774	568.299	0.059
Concrete/Industrial Saws	81	0.73	2026	0.271	3.492	2.074	0.006	0.078	0.078	568.895	568.300	0.024
Cranes	231	0.29	2026	0.219	1.685	1.863	0.005	0.075	0.069	494.393	491.233	0.126
Crawler Tractors	212	0.43	2026	0.238	1.288	2.190	0.005	0.085	0.078	494.133	490.958	0.127
Crushing/Proc. Equipment	85	0.78	2026	0.330	3.690	2.140	0.006	0.084	0.084	569.039	568.299	0.030
Dumpers/Tenders	16	0.38	2026	0.685	2.339	4.332	0.007	0.161	0.161	569.824	568.299	0.061
Excavators	158	0.38	2026	0.169	3.135	1.028	0.005	0.050	0.046	494.812	491.657	0.126
Forklifts	89	0.20	2026	0.278	3.649	2.397	0.005	0.116	0.107	494.068	490.883	0.127
Generator Sets	84	0.74	2026	0.230	3.334	2.077	0.006	0.076	0.076	568.799	568.299	0.020
Graders	187	0.41	2026	0.227	1.173	2.182	0.005	0.070	0.066	495.591	492.436	0.126
Off-Highway Tractors	124	0.44	2026	0.215	3.201	1.462	0.005	0.073	0.068	495.526	492.301	0.129
Off-Highway Trucks	402	0.38	2026	0.185	1.167	0.943	0.005	0.034	0.031	496.811	493.636	0.127
Other Construction Equipment	172	0.42	2026	0.220	3.135	1.826	0.005	0.093	0.086	492.644	489.534	0.124
Other General Industrial Equipment	88	0.34	2026	0.267	3.650	2.304	0.005	0.103	0.096	492.835	489.660	0.127
Other Material Handling Equipment	168	0.40	2026	0.195	3.203	1.245	0.005	0.063	0.059	494.590	491.435	0.126
Pavers	130	0.42	2026	0.204	3.071	1.600	0.005	0.076	0.072	494.843	491.648	0.128
Paving Equipment	132	0.36	2026	0.198	3.092	1.480	0.005	0.074	0.069	493.217	490.047	0.127
Plate Compactors	8	0.43	2026	0.661	3.469	4.142	0.008	0.161	0.161	569.774	568.299	0.059
Pressure Washers	13	0.30	2026	0.604	3.487	4.248	0.008	0.176	0.176	569.644	568.299	0.054
Pumps	84	0.74	2026	0.247	3.385	2.103	0.006	0.081	0.081	568.844	568.299	0.022
Rollers	80	0.38	2026	0.264	3.483	2.543	0.005	0.121	0.113	495.936	492.741	0.128
Rough Terrain Forklifts	100	0.40	2026	0.165	3.337	1.791	0.005	0.048	0.044	495.274	492.089	0.127
Rubber Tired Dozers	247	0.40	2026	0.365	1.641	3.410	0.005	0.147	0.136	496.529	493.319	0.128
Rubber Tired Loaders	203	0.36	2026	0.184	1.141	1.285	0.005	0.043	0.040	492.687	489.557	0.125
Scrapers	367	0.48	2026	0.225	1.622	1.852	0.005	0.073	0.067	494.866	491.691	0.127
Signal Boards	6	0.82	2026	0.661	3.469	4.142	0.008	0.161	0.161	569.774	568.299	0.059
Skid Steer Loaders	65	0.37	2026	0.155	3.309	1.789	0.005	0.049	0.045	494.918	491.763	0.126
Surfacing Equipment	263	0.30	2026	0.136	1.141	1.209	0.005	0.046	0.043	493.001	489.886	0.125
Sweepers/Scrubbers	64	0.46	2026	0.295	3.672	2.568	0.005	0.133	0.122	496.127	492.952	0.127
Tractors/Loaders/Backhoes	97	0.37	2026	0.222	3.559	2.012	0.005	0.074	0.069	498.610	495.410	0.128
Trenchers	78	0.50	2026	0.447	3.736	3.935	0.005	0.254	0.236	497.641	494.381	0.130
Welders	46	0.45	2026	0.571	4.497	3.595	0.007	0.099	0.099	569.579	568.299	0.051

Notes:
Construction emission factors are based on year 2026.
Unless otherwise noted, Horsepower and Load Factors taken as the default, average values provided in Table 3.3 of Appendix D of the *CalEEMod User's Guide* (Environ, 2021).
Emission Factors in grams per brake-horsepower-hour (g/bhp-hr) taken as the defaults for the year 2024 provided in Table 3.4 of Appendix D of the *CalEEMod User's Guide* (Environ, 2021).

Table 18
PG&E Construction Equipment Emission Factors
PG&E: Northern San Joaquin 230 kV Transmission Project PEA
Operation and Maintenance Equipment

OFFROAD Equipment Category	Horsepower	Load Factor	Year	Emission Factors (g/bhp-hr)								
				ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e	CO_2	CH4
Aerial Lifts	63	0.31	2030	0.188	3.352	1.657	0.006	0.036	0.036	568.724	568.299	0.017
Air Compressors	78	0.48	2030	0.264	3.630	1.729	0.006	0.041	0.041	568.874	568.299	0.023
Bore/Drill Rigs	221	0.50	2030	0.127	1.035	0.274	0.006	0.010	0.010	568.574	568.299	0.011
Cement and Mortar Mixers	9	0.56	2030	0.661	3.469	4.142	0.008	0.161	0.161	569.774	568.299	0.059
Concrete/Industrial Saws	81	0.73	2030	0.221	3.480	1.667	0.006	0.036	0.036	568.774	568.299	0.019
Cranes	231	0.29	2030	0.222	1.090	0.697	0.005	0.023	0.023	568.799	568.299	0.020
Crawler Tractors	212	0.43	2030	0.262	1.207	1.104	0.006	0.040	0.040	568.874	568.299	0.023
Crushing/Proc. Equipment	85	0.78	2030	0.272	3.673	1.708	0.006	0.038	0.038	568.899	568.299	0.024
Dumpers/Tenders	16	0.38	2030	0.685	2.340	4.332	0.007	0.161	0.161	569.824	568.299	0.061
Excavators	158	0.38	2030	0.213	3.362	0.525	0.006	0.023	0.023	568.774	568.299	0.019
Forklifts	89	0.20	2030	0.283	3.799	1.555	0.006	0.021	0.021	568.924	568.299	0.025
Generator Sets	84	0.74	2030	0.178	3.316	1.645	0.006	0.034	0.034	568.699	568.299	0.016
Graders	187	0.41	2030	0.216	1.148	0.684	0.006	0.024	0.024	568.774	568.299	0.019
Off-Highway Tractors	124	0.44	2030	0.373	3.435	1.916	0.006	0.104	0.104	569.124	568.299	0.033
Off-Highway Trucks	402	0.38	2030	0.216	1.104	0.458	0.005	0.017	0.017	568.774	568.299	0.019
Other Construction Equipment	172	0.42	2030	0.161	3.127	0.459	0.006	0.019	0.019	568.649	568.299	0.014
Other General Industrial Equipment	88	0.34	2030	0.309	3.802	1.766	0.006	0.043	0.043	568.974	568.299	0.027
Other Material Handling Equipment	168	0.40	2030	0.220	3.341	0.640	0.006	0.028	0.028	568.774	568.299	0.019
Pavers	130	0.42	2030	0.300	3.326	1.425	0.006	0.074	0.074	568.974	568.299	0.027
Paving Equipment	132	0.36	2030	0.290	3.306	1.363	0.006	0.070	0.070	568.949	568.299	0.026
Plate Compactors	8	0.43	2030	0.661	3.469	4.142	0.008	0.161	0.161	569.774	568.299	0.059
Pressure Washers	13	0.30	2030	0.592	3.470	4.164	0.008	0.166	0.166	569.625	568.300	0.053
Pumps	84	0.74	2030	0.193	3.367	1.662	0.006	0.036	0.036	568.724	568.299	0.017
Rollers	80	0.38	2030	0.299	3.639	1.950	0.006	0.066	0.066	568.974	568.299	0.027
Rough Terrain Forklifts	100	0.40	2030	0.279	3.725	1.671	0.006	0.034	0.034	568.924	568.299	0.025
Rubber Tired Dozers	247	0.40	2030	0.335	1.322	1.828	0.006	0.069	0.069	569.049	568.299	0.030
Rubber Tired Loaders	203	0.36	2030	0.210	1.138	0.655	0.006	0.022	0.022	568.749	568.299	0.018
Scrapers	367	0.48	2030	0.259	1.184	1.057	0.005	0.040	0.040	568.874	568.299	0.023
Signal Boards	6	0.82	2030	0.661	3.470	4.142	0.008	0.161	0.161	569.774	568.299	0.059
Skid Steer Loaders	65	0.37	2030	0.214	3.538	1.477	0.006	0.017	0.017	568.774	568.299	0.019
Surfacing Equipment	263	0.30	2030	0.169	1.032	0.738	0.005	0.025	0.025	568.674	568.299	0.015
Sweepers/Scrubbers	64	0.46	2030	0.261	3.703	1.569	0.006	0.023	0.023	568.874	568.299	0.023
Tractors/Loaders/Backhoes	97	0.37	2030	0.272	3.705	1.624	0.006	0.030	0.030	568.899	568.299	0.024
Trenchers	78	0.50	2030	0.409	3.743	2.559	0.006	0.132	0.132	569.199	568.299	0.036
Welders	46	0.45	2030	0.449	4.387	3.273	0.007	0.045	0.045	569.299	568.299	0.040

Note:
1. CO2e were calculated using the following global warming potential (GWP, 100-year GWP from IPCC Fifth Assessment Report , 2014)

CO2	1
CH4	25
N2O	298

Table 19
PG&E Vehicle Emission Factors
PG&E: Northern San Joaquin 230 kV Transmission Project PEA
Construction Phase Emission Factors 2026:

	EMFAC2017 Emission Factors (g/mile) [a]							Paved Road Emission Factors (g/mile) [b]		Unpaved Road Emission Factors (g/mile) [b]		Total PM Emissions (g/mile)		Exhaust PM10 (g/mile)
Vehicle Class	**ROG**	**CO**	**NOx**	**SOx**	**PM_{10}**	**$PM_{2.5}$**	**CO_{2e}**	**PM_{10}**	**$PM_{2.5}$**	**PM_{10}**	**$PM_{2.5}$**	**PM_{10}**	**$PM_{2.5}$**	**DPM**
Light-duty Auto/Truck	0.013	0.747	0.086	0.003	0.021	0.008	299.621	0.300	0.075	258.442	25.789	0.321	0.083	0.0021
heavy-duty diesel	0.014	0.061	1.577	0.014	0.141	0.063	1,590.419	0.300	0.075	258.442	25.789	5.604	0.653	0.0286
light-duty truck	0.029	1.061	0.208	0.004	0.033	0.013	440.471	0.300	0.075	258.442	25.789	5.496	0.088	0.0044

Notes:

a. Vehicle Exhaust Emission Factors in grams per mile (g/mile) from EMFAC2021 for the San Joaquin Valley APCD, calendar year 2026.
b. Paved road emission factors calculated using CalEEMod methodology, as described below.
c. Total emission factors include fugitive emissions from paved and unpaved road

	Light-duty Auto/Truck	heavy-duty diesel	light-duty truck
VMT on paved road	100.0%	98.0%	98.0%
VMT on unpaved road	0.0%	2%	2%

Derivation of Paved Road Emission Factors

Parameter	**PM_{10}**	**$PM_{2.5}$**
Average Weight [a]	2.4	2.4
k [b]	1	0.25
sL [a]	0.1	0.1
Emission Factor (g/mile) [c]	**0.300**	**0.075**

$Eext = [\ k\ (sL)^{0.91}\ x\ (W)^{1.02}\ ]\ (1 - P/4N)$

[a] Average Weight and sL taken as the default value from CalEEMod.

[b] k taken from Table 13.2.1-1 of Section 13.2.1 of *AP-42* (USEPA, 2011).

[c] Emission factor calculated using Equation 1 from Section 13.2.1 of *AP-42* (USEPA, 2011), which is generally consistent with Section 5.3 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2021):

$$\text{Emission Factor (g/mile)} = k\ (\text{g/mile}) \times [\text{sL } (\text{g/m}^2)]^{0.91} \times [\text{Average Weight (tons)}]^{1.02}$$

Unpaved Road Emission Factors

	Emission Factors (lb/VMT)		Emission Factors (g/VMT)	
	PM10	PM2.5	PM10	PM2.5
Unpaved Road (uncontrolled)	1.266	0.126	574.32	57.31
Unpaved Road (with watering unpaved road twice a day)	0.57	0.057	258.44	25.79

Calculation Equation:

Emission factor (lb/VMT) = (k[(s/12)^a][(S/30)^d]/(M/0.5)^c-C)*(1-P/365) (CalEEMod and EPA AP-42, 13.2.2)

	PM10	PM2.5
k	1.8	0.18
s (silt content %)	8.5	8.5
S (mean vehicle speed)	40	40
M (moisture%)	0.5	0.5
a	1	1
c	0.2	0.2
d	0.5	0.5
C	0.00047	0.00036
P (number of days in a year with at least 0.01 inch of precipitation	51	51

Control efficiency of watering the unpaved road twice a day 55% (data from SCAQMD CEQA Handbook, TABLE XI-D, MITIGATION MEASURE EXAMPLES: FUGITIVE DUST FROM UNPAVED ROADs, 2007)

Operation and Maintenance Emission Factors: 2030

	Exhaust Emission Factors (g/mile) [a]							Paved Road Emission		Total PM Emissions (g/mile)		DPM (g/mile)
Vehicle Class	**ROG**	**CO**	**NOx**	**SOx**	**PM_{10}**	**$PM_{2.5}$**	**CO_{2e}**	**PM_{10}**	**$PM_{2.5}$**	**PM_{10}**	**$PM_{2.5}$**	**DPM**
Light-duty Auto/Truck	0.009	0.608	0.056	0.003	0.020	0.007	270.292	0.300	0.075	0.320	0.082	0.0015
heavy-duty diesel	0.012	0.052	1.445	0.013	0.143	0.064	1,479.459	0.300	0.075	0.444	0.139	0.0282
light-duty truck	0.018	0.820	0.126	0.004	0.030	0.011	387.997	0.300	0.075	0.330	0.086	0.0030

Note
a. Vehicle Exhaust Emission Factors in grams per mile (g/mile) from EMFAC2021 for the San Joaquin Valley APCD, calendar year 2030
'ehicles are assumed to travel on paved roads during operation.

Table 20

PG&E Aircraft Emission Factors

PG&E: Northern San Joaquin 230 kV Transmission Project PEA

Aircraft Type	Emission Factors (lbs/LTO) [a]						
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e
Twin Medium	4.010	5.330	1.950	0.290	0.060	0.060	424.200

Notes:

[a] Emission Factors in pounds per Landing and Take-off (lbs/LTO) found in Table 6-12 of the *Year 2011 Gulfwide Emission Inventory Study* , which was prepared by the U.S. Department of the Interior, Bureau of Ocean Energy Management (BOEM), Gulf of Mexico OCS Region (BOEM, 2014). The source of the Table 6-12 emission factors is Swiss Federal Office of Civil Aviation (FOCA). 2009. Guidance on Determination of Helicopter Emissions

Appendix B1b
Construction Emissions Calculations for LEU Sites

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Lodi Substation

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	132.64	1000sqft	4.60	132,640.20	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	51
Climate Zone	2			**Operational Year**	2028
Utility Company					
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Project specific info

Land Use - 4.6 acres of disturbed area per grading plan

Construction Phase - Project-specific timeline.

Off-road Equipment - Project-specific Information.

Off-road Equipment -

Off-road Equipment - Project-specific info

Off-road Equipment - Project-specific

Off-road Equipment - Project-specific information

Off-road Equipment - Project-specific equipment list used in lieu of CalEEMod defaults.

Off-road Equipment - project-specific information

Off-road Equipment - Site-specific value

Off-road Equipment - project-specific information

Off-road Equipment - Site-specific info

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Off-road Equipment - Project-specific information

Trips and VMT - Project-specific worker trips

On-road Fugitive Dust - Only a small portion of the construction access road surfaces surrounding the project will be unpaved, therefore 98% pavement is assumed.

Grading - Site-specific area.

Vehicle Trips - Unmanned operation and no daily worker trips will occur

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Consumer Products - No consumer product utilization was assumed for the project

Area Coating - No architectural coating is assumed for the project.

Landscape Equipment -

Energy Use -

Water And Wastewater - Unmanned facility - no water use is expected

Solid Waste - Unmanned facility - no solid waste generation is expected

Construction Off-road Equipment Mitigation - Tier 3 compliant engines are assumed for the project

Watering of exposed areas is assumed

Operational Off-Road Equipment - Assumes monthly inspection utilizing one off-highway truck 4 hours per day.

Fleet Mix -

Off-road Equipment - Project specific information

Off-road Equipment - Project specific equipment

Off-road Equipment - Project specific equipment

Off-road Equipment - Project specific equipment

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Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	40
tblConstructionPhase	NumDays	230.00	40.00
tblConstructionPhase	NumDays	230.00	40.00
tblConstructionPhase	NumDays	230.00	10.00
tblConstructionPhase	NumDays	230.00	40.00
tblConstructionPhase	NumDays	230.00	40.00
tblConstructionPhase	NumDays	18.00	40.00
tblConstructionPhase	NumDays	18.00	20.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	5.00	28.00
tblConstructionPhase	NumDays	230.00	10.00
tblConstructionPhase	NumDays	230.00	20.00
tblGrading	AcresOfGrading	120.00	3.04
tblLandUse	LandUseSquareFeet	132,640.00	132,640.20
tblLandUse	LotAcreage	3.04	4.60
tblOffRoadEquipment	HorsePower	84.00	34.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00

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Table Name	Column Name	Default Value	New Value
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	LoadFactor	0.38	0.44
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Aerial Lifts
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00

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Table Name	Column Name	Default Value	New Value
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	9.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	PhaseName	Remaining Deliveries, Installations, Testing and Commissioning	Remaining Deliveries, Installations, Testing and Commissioning 1

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblOffRoadEquipment	PhaseName		Steel/Bus Erection
tblOffRoadEquipment	PhaseName		Remaining Deliveries, Installations, Testing and Commissioning 1
tblOffRoadEquipment	PhaseName		Underground 12 kV Line Installation
tblOffRoadEquipment	PhaseName		Foundation
tblOffRoadEquipment	PhaseName		Foundation
tblOffRoadEquipment	PhaseName		Cleaning and Restoration 1
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Access Roads
tblOffRoadEquipment	PhaseName		Steel/Bus Erection
tblOffRoadEquipment	PhaseName		Remaining Deliveries, Installations, Testing and Commissioning 1
tblOffRoadEquipment	PhaseName		Cleaning and Restoration 1
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Survey
tblOffRoadEquipment	PhaseName		Underground 12 kV Line Installation
tblOffRoadEquipment	PhaseName		Fence and Gate Installation
tblOffRoadEquipment	PhaseName		Foundation
tblOffRoadEquipment	PhaseName		Yard Rock Installation
tblOffRoadEquipment	PhaseName		Ground/Grid Circuit Installation
tblOffRoadEquipment	PhaseName		Transformer Installation
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Fence and Gate Installation
tblOffRoadEquipment	PhaseName		Yard Rock Installation
tblOffRoadEquipment	PhaseName		Foundation
tblOffRoadEquipment	PhaseName		Access Roads
tblOffRoadEquipment	PhaseName		Cleaning and Restoration 1
tblOffRoadEquipment	PhaseName		Site Preparation

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Underground 12 kV Line Installation
tblOffRoadEquipment	PhaseName		Ground/Grid Circuit Installation
tblOffRoadEquipment	PhaseName		Cleaning and Restoration 2
tblOffRoadEquipment	PhaseName		Cleaning and Restoration 2
tblOffRoadEquipment	PhaseName		Cleaning and Restoration 2
tblOffRoadEquipment	PhaseName		Remaining Deliveries, Installations, Testing and Commissioning 2
tblOffRoadEquipment	PhaseName		Remaining Deliveries, Installations, Testing and Commissioning 2
tblOffRoadEquipment	PhaseName		Remaining Deliveries, Installations, Testing and Commissioning 2
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	PhaseName	Remaining Deliveries, Installations, Testing and Commissioning	Remaining Deliveries, Installations, Testing and Commissioning 1
tblOnRoadDust	PhaseName	Cleaning and Restoration	Cleaning and Restoration 1

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	12.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	4.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblSolidWaste	SolidWasteGenerationRate	164.47	0.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblTripsAndVMT	PhaseName	Remaining Deliveries, Installations, Testing and Commissioning	Remaining Deliveries, Installations, Testing and Commissioning 1
tblTripsAndVMT	PhaseName	Cleaning and Restoration	Cleaning and Restoration 1
tblTripsAndVMT	WorkerTripNumber	15.00	20.00
tblTripsAndVMT	WorkerTripNumber	56.00	10.00
tblTripsAndVMT	WorkerTripNumber	56.00	30.00
tblTripsAndVMT	WorkerTripNumber	56.00	6.00
tblTripsAndVMT	WorkerTripNumber	38.00	20.00
tblTripsAndVMT	WorkerTripNumber	15.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	20.00
tblTripsAndVMT	WorkerTripNumber	8.00	16.00
tblTripsAndVMT	WorkerTripNumber	56.00	10.00
tblTripsAndVMT	WorkerTripNumber	56.00	16.00
tblVehicleTrips	ST_TR	1.99	0.00
tblVehicleTrips	SU_TR	5.00	0.00
tblVehicleTrips	WD_TR	4.96	0.00
tblWater	IndoorWaterUseRate	30,673,000.00	0.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2027	0.1959	1.4521	1.3746	5.2800e-003	1.2438	0.0528	1.2966	0.2110	0.0487	0.2597	0.0000	466.5651	466.5651	0.1351	5.3900e-003	471.5493
2028	0.0148	0.1170	0.0956	3.5000e-004	0.0000	4.4200e-003	4.4200e-003	0.0000	4.0700e-003	4.0700e-003	0.0000	30.7464	30.7464	9.9400e-003	0.0000	30.9950
Maximum	**0.1959**	**1.4521**	**1.3746**	**5.2800e-003**	**1.2438**	**0.0528**	**1.2966**	**0.2110**	**0.0487**	**0.2597**	**0.0000**	**466.5651**	**466.5651**	**0.1351**	**5.3900e-003**	**471.5493**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2027	0.1959	1.4521	1.3746	5.2800e-003	1.1435	0.0528	1.1963	0.1563	0.0487	0.2050	0.0000	466.5646	466.5646	0.1351	5.3900e-003	471.5488
2028	0.0148	0.1170	0.0956	3.5000e-004	0.0000	4.4200e-003	4.4200e-003	0.0000	4.0700e-003	4.0700e-003	0.0000	30.7464	30.7464	9.9400e-003	0.0000	30.9950
Maximum	**0.1959**	**1.4521**	**1.3746**	**5.2800e-003**	**1.1435**	**0.0528**	**1.1963**	**0.1563**	**0.0487**	**0.2050**	**0.0000**	**466.5646**	**466.5646**	**0.1351**	**5.3900e-003**	**471.5488**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**8.06**	**0.00**	**7.71**	**25.93**	**0.00**	**20.75**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**3-1-2027**	**5-31-2027**	0.7152	0.7152
2	**6-1-2027**	**8-31-2027**	0.6063	0.6063
3	**9-1-2027**	**11-30-2027**	0.1804	0.1804
4	**12-1-2027**	**2-29-2028**	0.2113	0.2113
		Highest	0.7152	0.7152

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5181	1.0000e-005	1.2200e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3700e-003	2.3700e-003	1.0000e-005	0.0000	2.5200e-003
Energy	0.0132	0.1200	0.1008	7.2000e-004		9.1200e-003	9.1200e-003		9.1200e-003	9.1200e-003	0.0000	450.0892	450.0892	0.0170	5.3800e-003	452.1171
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	1.4300e-003	8.6000e-003	9.5600e-003	4.0000e-005		3.1000e-004	3.1000e-004		2.8000e-004	2.8000e-004	0.0000	3.4827	3.4827	1.1300e-003	0.0000	3.5109
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.5328**	**0.1286**	**0.1116**	**7.6000e-004**	**0.0000**	**9.4300e-003**	**9.4300e-003**	**0.0000**	**9.4000e-003**	**9.4000e-003**	**0.0000**	**453.5743**	**453.5743**	**0.0181**	**5.3800e-003**	**455.6305**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5181	1.0000e-005	1.2200e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3700e-003	2.3700e-003	1.0000e-005	0.0000	2.5200e-003
Energy	0.0132	0.1200	0.1008	7.2000e-004		9.1200e-003	9.1200e-003		9.1200e-003	9.1200e-003	0.0000	450.0892	450.0892	0.0170	5.3800e-003	452.1171
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	1.4300e-003	8.6000e-003	9.5600e-003	4.0000e-005		3.1000e-004	3.1000e-004		2.8000e-004	2.8000e-004	0.0000	3.4827	3.4827	1.1300e-003	0.0000	3.5109
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.5328**	**0.1286**	**0.1116**	**7.6000e-004**	**0.0000**	**9.4300e-003**	**9.4300e-003**	**0.0000**	**9.4000e-003**	**9.4000e-003**	**0.0000**	**453.5743**	**453.5743**	**0.0181**	**5.3800e-003**	**455.6305**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Survey	Site Preparation	2/1/2027	2/26/2027	5	20	
2	Access Roads	Site Preparation	3/1/2027	3/26/2027	5	20	
3	Site Preparation	Site Preparation	3/1/2027	3/26/2027	5	20	
4	Underground 12 kV Line Installation	Trenching	3/1/2027	3/12/2027	5	10	
5	Fence and Gate Installation	Site Preparation	4/1/2027	5/10/2027	5	28	
6	Foundation	Paving	5/1/2027	6/27/2027	5	40	
7	Ground/Grid Circuit Installation	Building Construction	6/1/2027	7/26/2027	5	40	
8	Transformer Installation	Building Construction	7/1/2027	8/25/2027	5	40	
9	Steel/Bus Erection	Building Construction	7/1/2027	8/25/2027	5	40	
10	Yard Rock Installation	Paving	9/1/2027	9/28/2027	5	20	
11	Cleaning and Restoration 1	Building Construction	10/1/2027	10/14/2027	5	10	
12	Remaining Deliveries, Installations, Testing and Commissioning 1	Building Construction	11/1/2027	12/24/2027	5	40	
13	Cleaning and Restoration 2	Building Construction	2/1/2028	2/14/2028	5	10	
14	Remaining Deliveries, Installations, Testing and Commissioning 2	Building Construction	2/1/2028	2/28/2028	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Access Roads	Off-Highway Trucks	4	6.00	275	0.38
Access Roads	Rubber Tired Loaders	2	6.00	203	0.36
Site Preparation	Graders	1	6.00	187	0.41
Site Preparation	Off-Highway Trucks	9	6.00	275	0.38
Site Preparation	Rollers	2	6.00	80	0.38
Site Preparation	Rubber Tired Dozers	1	6.00	247	0.40
Site Preparation	Rubber Tired Loaders	1	6.00	203	0.36
Site Preparation	Scrapers	1	6.00	367	0.48
Survey	Off-Highway Trucks	2	6.00	275	0.38
Fence and Gate Installation	Off-Highway Trucks	5	6.00	275	0.38
Fence and Gate Installation	Rough Terrain Forklifts	1	6.00	100	0.40
Underground 12 kV Line Installation	Bore/Drill Rigs	1	6.00	221	0.50
Underground 12 kV Line Installation	Off-Highway Trucks	2	6.00	275	0.38
Underground 12 kV Line Installation	Trenchers	1	6.00	78	0.50
Ground/Grid Circuit Installation	Off-Highway Trucks	1	6.00	275	0.38
Ground/Grid Circuit Installation	Trenchers	1	6.00	78	0.50
Transformer Installation	Cranes	1	6.00	231	0.29
Transformer Installation	Generator Sets	1	6.00	34	0.74
Transformer Installation	Off-Highway Trucks	5	6.00	275	0.38
Steel/Bus Erection	Aerial Lifts	1	6.00	63	0.31
Steel/Bus Erection	Off-Highway Trucks	2	6.00	275	0.44
Remaining Deliveries, Installations, Testing and Commissioning 1	Aerial Lifts	1	6.00	63	0.31
Remaining Deliveries, Installations, Testing and Commissioning 1	Cranes	1	6.00	231	0.29
Remaining Deliveries, Installations, Testing and Commissioning 1	Off-Highway Trucks	3	6.00	275	0.38
Cleaning and Restoration 1	Graders	1	6.00	187	0.41
Cleaning and Restoration 1	Off-Highway Trucks	1	6.00	275	0.38
Cleaning and Restoration 1	Rubber Tired Loaders	1	6.00	203	0.36
Foundation	Bore/Drill Rigs	1	6.00	221	0.50

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Foundation	Cranes	1	6.00	231	0.29
Foundation	Off-Highway Trucks	2	6.00	275	0.38
Foundation	Rubber Tired Dozers	1	6.00	247	0.40
Yard Rock Installation	Off-Highway Trucks	2	6.00	275	0.38
Yard Rock Installation	Rough Terrain Forklifts	1	6.00	100	0.40
Cleaning and Restoration 2	Graders	1	6.00	187	0.41
Cleaning and Restoration 2	Off-Highway Trucks	1	6.00	275	0.38
Cleaning and Restoration 2	Rubber Tired Dozers	1	6.00	247	0.40
Remaining Deliveries, Installations, Testing and Commissioning 2	Aerial Lifts	1	6.00	63	0.31
Remaining Deliveries, Installations, Testing and Commissioning 2	Cranes	1	6.00	231	0.29
Remaining Deliveries, Installations, Testing and Commissioning 2	Off-Highway Trucks	3	6.00	275	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Access Roads	6	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	15	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Survey	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Fence and Gate Installation	6	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Underground 12 kV Line Installation	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Ground/Grid Circuit Installation	2	10.00	22.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Transformer Installation	7	16.00	22.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Steel/Bus Erection	3	10.00	22.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Remaining Deliveries, Installations, Testing	5	30.00	22.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Cleaning and Restoration 1	3	6.00	22.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Foundation	5	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Yard Rock Installation	3	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Cleaning and Restoration 2										
Remaining Deliveries, Installations, Testing										

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Survey - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.9000e-003	0.0294	0.0327	1.4000e-004		1.0500e-003	1.0500e-003		9.7000e-004	9.7000e-004	0.0000	11.9122	11.9122	3.8500e-003	0.0000	12.0086
Total	**4.9000e-003**	**0.0294**	**0.0327**	**1.4000e-004**	**0.0000**	**1.0500e-003**	**1.0500e-003**	**0.0000**	**9.7000e-004**	**9.7000e-004**	**0.0000**	**11.9122**	**11.9122**	**3.8500e-003**	**0.0000**	**12.0086**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	6.0000e-005	8.7000e-004	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.2743	0.2743	1.0000e-005	1.0000e-005	0.2765
Total	**1.1000e-004**	**6.0000e-005**	**8.7000e-004**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.2743**	**0.2743**	**1.0000e-005**	**1.0000e-005**	**0.2765**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.9000e-003	0.0294	0.0327	1.4000e-004		1.0500e-003	1.0500e-003		9.7000e-004	9.7000e-004	0.0000	11.9122	11.9122	3.8500e-003	0.0000	12.0085
Total	**4.9000e-003**	**0.0294**	**0.0327**	**1.4000e-004**	**0.0000**	**1.0500e-003**	**1.0500e-003**	**0.0000**	**9.7000e-004**	**9.7000e-004**	**0.0000**	**11.9122**	**11.9122**	**3.8500e-003**	**0.0000**	**12.0085**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	6.0000e-005	8.7000e-004	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.2743	0.2743	1.0000e-005	1.0000e-005	0.2765
Total	**1.1000e-004**	**6.0000e-005**	**8.7000e-004**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.2743**	**0.2743**	**1.0000e-005**	**1.0000e-005**	**0.2765**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Access Roads - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0132	0.0867	0.0875	3.7000e-004		3.0400e-003	3.0400e-003		2.8000e-003	2.8000e-003	0.0000	32.0657	32.0657	0.0104	0.0000	32.3249
Total	**0.0132**	**0.0867**	**0.0875**	**3.7000e-004**	**0.0000**	**3.0400e-003**	**3.0400e-003**	**0.0000**	**2.8000e-003**	**2.8000e-003**	**0.0000**	**32.0657**	**32.0657**	**0.0104**	**0.0000**	**32.3249**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	2.4000e-004	3.4800e-003	1.0000e-005	0.0563	1.0000e-005	0.0563	5.8700e-003	1.0000e-005	5.8800e-003	0.0000	1.0971	1.0971	3.0000e-005	3.0000e-005	1.1059
Total	**4.4000e-004**	**2.4000e-004**	**3.4800e-003**	**1.0000e-005**	**0.0563**	**1.0000e-005**	**0.0563**	**5.8700e-003**	**1.0000e-005**	**5.8800e-003**	**0.0000**	**1.0971**	**1.0971**	**3.0000e-005**	**3.0000e-005**	**1.1059**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0132	0.0867	0.0875	3.7000e-004		3.0400e-003	3.0400e-003		2.8000e-003	2.8000e-003	0.0000	32.0656	32.0656	0.0104	0.0000	32.3249
Total	**0.0132**	**0.0867**	**0.0875**	**3.7000e-004**	**0.0000**	**3.0400e-003**	**3.0400e-003**	**0.0000**	**2.8000e-003**	**2.8000e-003**	**0.0000**	**32.0656**	**32.0656**	**0.0104**	**0.0000**	**32.3249**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	2.4000e-004	3.4800e-003	1.0000e-005	0.0563	1.0000e-005	0.0563	5.8700e-003	1.0000e-005	5.8800e-003	0.0000	1.0971	1.0971	3.0000e-005	3.0000e-005	1.1059
Total	**4.4000e-004**	**2.4000e-004**	**3.4800e-003**	**1.0000e-005**	**0.0563**	**1.0000e-005**	**0.0563**	**5.8700e-003**	**1.0000e-005**	**5.8800e-003**	**0.0000**	**1.0971**	**1.0971**	**3.0000e-005**	**3.0000e-005**	**1.1059**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Site Preparation - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1823	0.0000	0.1823	0.0995	0.0000	0.0995	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0381	0.2914	0.2606	9.2000e-004		0.0112	0.0112		0.0103	0.0103	0.0000	81.1547	81.1547	0.0263	0.0000	81.8108
Total	**0.0381**	**0.2914**	**0.2606**	**9.2000e-004**	**0.1823**	**0.0112**	**0.1935**	**0.0995**	**0.0103**	**0.1098**	**0.0000**	**81.1547**	**81.1547**	**0.0263**	**0.0000**	**81.8108**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	2.4000e-004	3.4800e-003	1.0000e-005	0.0563	1.0000e-005	0.0563	5.8700e-003	1.0000e-005	5.8800e-003	0.0000	1.0971	1.0971	3.0000e-005	3.0000e-005	1.1059
Total	**4.4000e-004**	**2.4000e-004**	**3.4800e-003**	**1.0000e-005**	**0.0563**	**1.0000e-005**	**0.0563**	**5.8700e-003**	**1.0000e-005**	**5.8800e-003**	**0.0000**	**1.0971**	**1.0971**	**3.0000e-005**	**3.0000e-005**	**1.1059**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0820	0.0000	0.0820	0.0448	0.0000	0.0448	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0381	0.2914	0.2606	9.2000e-004		0.0112	0.0112		0.0103	0.0103	0.0000	81.1546	81.1546	0.0263	0.0000	81.8107
Total	**0.0381**	**0.2914**	**0.2606**	**9.2000e-004**	**0.0820**	**0.0112**	**0.0932**	**0.0448**	**0.0103**	**0.0551**	**0.0000**	**81.1546**	**81.1546**	**0.0263**	**0.0000**	**81.8107**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	2.4000e-004	3.4800e-003	1.0000e-005	0.0563	1.0000e-005	0.0563	5.8700e-003	1.0000e-005	5.8800e-003	0.0000	1.0971	1.0971	3.0000e-005	3.0000e-005	1.1059
Total	**4.4000e-004**	**2.4000e-004**	**3.4800e-003**	**1.0000e-005**	**0.0563**	**1.0000e-005**	**0.0563**	**5.8700e-003**	**1.0000e-005**	**5.8800e-003**	**0.0000**	**1.0971**	**1.0971**	**3.0000e-005**	**3.0000e-005**	**1.1059**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Underground 12 kV Line Installation - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.4100e-003	0.0327	0.0336	1.2000e-004		1.4900e-003	1.4900e-003		1.3700e-003	1.3700e-003	0.0000	10.1902	10.1902	3.3000e-003	0.0000	10.2726
Total	**4.4100e-003**	**0.0327**	**0.0336**	**1.2000e-004**		**1.4900e-003**	**1.4900e-003**		**1.3700e-003**	**1.3700e-003**	**0.0000**	**10.1902**	**10.1902**	**3.3000e-003**	**0.0000**	**10.2726**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	6.0000e-005	8.7000e-004	0.0000	0.0141	0.0000	0.0141	1.4700e-003	0.0000	1.4700e-003	0.0000	0.2743	0.2743	1.0000e-005	1.0000e-005	0.2765
Total	**1.1000e-004**	**6.0000e-005**	**8.7000e-004**	**0.0000**	**0.0141**	**0.0000**	**0.0141**	**1.4700e-003**	**0.0000**	**1.4700e-003**	**0.0000**	**0.2743**	**0.2743**	**1.0000e-005**	**1.0000e-005**	**0.2765**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.4100e-003	0.0327	0.0336	1.2000e-004		1.4900e-003	1.4900e-003		1.3700e-003	1.3700e-003	0.0000	10.1902	10.1902	3.3000e-003	0.0000	10.2725
Total	**4.4100e-003**	**0.0327**	**0.0336**	**1.2000e-004**		**1.4900e-003**	**1.4900e-003**		**1.3700e-003**	**1.3700e-003**	**0.0000**	**10.1902**	**10.1902**	**3.3000e-003**	**0.0000**	**10.2725**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	6.0000e-005	8.7000e-004	0.0000	0.0141	0.0000	0.0141	1.4700e-003	0.0000	1.4700e-003	0.0000	0.2743	0.2743	1.0000e-005	1.0000e-005	0.2765
Total	**1.1000e-004**	**6.0000e-005**	**8.7000e-004**	**0.0000**	**0.0141**	**0.0000**	**0.0141**	**1.4700e-003**	**0.0000**	**1.4700e-003**	**0.0000**	**0.2743**	**0.2743**	**1.0000e-005**	**1.0000e-005**	**0.2765**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Fence and Gate Installation - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0182	0.1164	0.1384	5.1000e-004		4.0600e-003	4.0600e-003		3.7300e-003	3.7300e-003	0.0000	44.8717	44.8717	0.0145	0.0000	45.2345
Total	**0.0182**	**0.1164**	**0.1384**	**5.1000e-004**	**0.0000**	**4.0600e-003**	**4.0600e-003**	**0.0000**	**3.7300e-003**	**3.7300e-003**	**0.0000**	**44.8717**	**44.8717**	**0.0145**	**0.0000**	**45.2345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	1.7000e-004	2.4300e-003	1.0000e-005	0.0394	0.0000	0.0394	4.1100e-003	0.0000	4.1200e-003	0.0000	0.7680	0.7680	2.0000e-005	2.0000e-005	0.7741
Total	**3.0000e-004**	**1.7000e-004**	**2.4300e-003**	**1.0000e-005**	**0.0394**	**0.0000**	**0.0394**	**4.1100e-003**	**0.0000**	**4.1200e-003**	**0.0000**	**0.7680**	**0.7680**	**2.0000e-005**	**2.0000e-005**	**0.7741**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0182	0.1164	0.1384	5.1000e-004		4.0600e-003	4.0600e-003		3.7300e-003	3.7300e-003	0.0000	44.8716	44.8716	0.0145	0.0000	45.2344
Total	**0.0182**	**0.1164**	**0.1384**	**5.1000e-004**	**0.0000**	**4.0600e-003**	**4.0600e-003**	**0.0000**	**3.7300e-003**	**3.7300e-003**	**0.0000**	**44.8716**	**44.8716**	**0.0145**	**0.0000**	**45.2344**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	1.7000e-004	2.4300e-003	1.0000e-005	0.0394	0.0000	0.0394	4.1100e-003	0.0000	4.1200e-003	0.0000	0.7680	0.7680	2.0000e-005	2.0000e-005	0.7741
Total	**3.0000e-004**	**1.7000e-004**	**2.4300e-003**	**1.0000e-005**	**0.0394**	**0.0000**	**0.0394**	**4.1100e-003**	**0.0000**	**4.1200e-003**	**0.0000**	**0.7680**	**0.7680**	**2.0000e-005**	**2.0000e-005**	**0.7741**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Foundation - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0274	0.2338	0.1669	6.3000e-004		9.3900e-003	9.3900e-003		8.6400e-003	8.6400e-003	0.0000	55.1637	55.1637	0.0178	0.0000	55.6097
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0274**	**0.2338**	**0.1669**	**6.3000e-004**		**9.3900e-003**	**9.3900e-003**		**8.6400e-003**	**8.6400e-003**	**0.0000**	**55.1637**	**55.1637**	**0.0178**	**0.0000**	**55.6097**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.7000e-004	4.9000e-004	6.9600e-003	2.0000e-005	0.1125	1.0000e-005	0.1125	0.0118	1.0000e-005	0.0118	0.0000	2.1942	2.1942	5.0000e-005	5.0000e-005	2.2118
Total	**8.7000e-004**	**4.9000e-004**	**6.9600e-003**	**2.0000e-005**	**0.1125**	**1.0000e-005**	**0.1125**	**0.0118**	**1.0000e-005**	**0.0118**	**0.0000**	**2.1942**	**2.1942**	**5.0000e-005**	**5.0000e-005**	**2.2118**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0274	0.2338	0.1669	6.3000e-004		9.3900e-003	9.3900e-003		8.6400e-003	8.6400e-003	0.0000	55.1636	55.1636	0.0178	0.0000	55.6096
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0274**	**0.2338**	**0.1669**	**6.3000e-004**		**9.3900e-003**	**9.3900e-003**		**8.6400e-003**	**8.6400e-003**	**0.0000**	**55.1636**	**55.1636**	**0.0178**	**0.0000**	**55.6096**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.7000e-004	4.9000e-004	6.9600e-003	2.0000e-005	0.1125	1.0000e-005	0.1125	0.0118	1.0000e-005	0.0118	0.0000	2.1942	2.1942	5.0000e-005	5.0000e-005	2.2118
Total	**8.7000e-004**	**4.9000e-004**	**6.9600e-003**	**2.0000e-005**	**0.1125**	**1.0000e-005**	**0.1125**	**0.0118**	**1.0000e-005**	**0.0118**	**0.0000**	**2.1942**	**2.1942**	**5.0000e-005**	**5.0000e-005**	**2.2118**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.8 Ground/Grid Circuit Installation - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.6100e-003	0.0736	0.0712	1.9000e-004		3.9900e-003	3.9900e-003		3.6700e-003	3.6700e-003	0.0000	16.3667	16.3667	5.2900e-003	0.0000	16.4990
Total	**9.6100e-003**	**0.0736**	**0.0712**	**1.9000e-004**		**3.9900e-003**	**3.9900e-003**		**3.6700e-003**	**3.6700e-003**	**0.0000**	**16.3667**	**16.3667**	**5.2900e-003**	**0.0000**	**16.4990**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3000e-004	0.0192	5.3700e-003	8.0000e-005	0.0842	1.2000e-004	0.0843	8.9500e-003	1.2000e-004	9.0600e-003	0.0000	7.8831	7.8831	4.0000e-005	1.1900e-003	8.2373
Worker	4.4000e-004	2.4000e-004	3.4800e-003	1.0000e-005	0.0563	1.0000e-005	0.0563	5.8700e-003	1.0000e-005	5.8800e-003	0.0000	1.0971	1.0971	3.0000e-005	3.0000e-005	1.1059
Total	**8.7000e-004**	**0.0194**	**8.8500e-003**	**9.0000e-005**	**0.1405**	**1.3000e-004**	**0.1406**	**0.0148**	**1.3000e-004**	**0.0149**	**0.0000**	**8.9801**	**8.9801**	**7.0000e-005**	**1.2200e-003**	**9.3432**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.6100e-003	0.0736	0.0712	1.9000e-004		3.9900e-003	3.9900e-003		3.6700e-003	3.6700e-003	0.0000	16.3667	16.3667	5.2900e-003	0.0000	16.4990
Total	**9.6100e-003**	**0.0736**	**0.0712**	**1.9000e-004**		**3.9900e-003**	**3.9900e-003**		**3.6700e-003**	**3.6700e-003**	**0.0000**	**16.3667**	**16.3667**	**5.2900e-003**	**0.0000**	**16.4990**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3000e-004	0.0192	5.3700e-003	8.0000e-005	0.0842	1.2000e-004	0.0843	8.9500e-003	1.2000e-004	9.0600e-003	0.0000	7.8831	7.8831	4.0000e-005	1.1900e-003	8.2373
Worker	4.4000e-004	2.4000e-004	3.4800e-003	1.0000e-005	0.0563	1.0000e-005	0.0563	5.8700e-003	1.0000e-005	5.8800e-003	0.0000	1.0971	1.0971	3.0000e-005	3.0000e-005	1.1059
Total	**8.7000e-004**	**0.0194**	**8.8500e-003**	**9.0000e-005**	**0.1405**	**1.3000e-004**	**0.1406**	**0.0148**	**1.3000e-004**	**0.0149**	**0.0000**	**8.9801**	**8.9801**	**7.0000e-005**	**1.2200e-003**	**9.3432**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.9 Transformer Installation - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0321	0.2177	0.2145	8.1000e-004		7.8900e-003	7.8900e-003		7.3100e-003	7.3100e-003	0.0000	70.5972	70.5972	0.0220	0.0000	71.1462
Total	**0.0321**	**0.2177**	**0.2145**	**8.1000e-004**		**7.8900e-003**	**7.8900e-003**		**7.3100e-003**	**7.3100e-003**	**0.0000**	**70.5972**	**70.5972**	**0.0220**	**0.0000**	**71.1462**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3000e-004	0.0192	5.3700e-003	8.0000e-005	0.0842	1.2000e-004	0.0843	8.9500e-003	1.2000e-004	9.0600e-003	0.0000	7.8831	7.8831	4.0000e-005	1.1900e-003	8.2373
Worker	7.0000e-004	3.9000e-004	5.5700e-003	2.0000e-005	0.0900	1.0000e-005	0.0900	9.4000e-003	1.0000e-005	9.4100e-003	0.0000	1.7553	1.7553	4.0000e-005	4.0000e-005	1.7694
Total	**1.1300e-003**	**0.0196**	**0.0109**	**1.0000e-004**	**0.1742**	**1.3000e-004**	**0.1743**	**0.0184**	**1.3000e-004**	**0.0185**	**0.0000**	**9.6384**	**9.6384**	**8.0000e-005**	**1.2300e-003**	**10.0067**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0321	0.2177	0.2145	8.1000e-004		7.8900e-003	7.8900e-003		7.3100e-003	7.3100e-003	0.0000	70.5971	70.5971	0.0220	0.0000	71.1461
Total	**0.0321**	**0.2177**	**0.2145**	**8.1000e-004**		**7.8900e-003**	**7.8900e-003**		**7.3100e-003**	**7.3100e-003**	**0.0000**	**70.5971**	**70.5971**	**0.0220**	**0.0000**	**71.1461**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3000e-004	0.0192	5.3700e-003	8.0000e-005	0.0842	1.2000e-004	0.0843	8.9500e-003	1.2000e-004	9.0600e-003	0.0000	7.8831	7.8831	4.0000e-005	1.1900e-003	8.2373
Worker	7.0000e-004	3.9000e-004	5.5700e-003	2.0000e-005	0.0900	1.0000e-005	0.0900	9.4000e-003	1.0000e-005	9.4100e-003	0.0000	1.7553	1.7553	4.0000e-005	4.0000e-005	1.7694
Total	**1.1300e-003**	**0.0196**	**0.0109**	**1.0000e-004**	**0.1742**	**1.3000e-004**	**0.1743**	**0.0184**	**1.3000e-004**	**0.0185**	**0.0000**	**9.6384**	**9.6384**	**8.0000e-005**	**1.2300e-003**	**10.0067**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.10 Steel/Bus Erection - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0119	0.0759	0.0921	3.4000e-004		2.5700e-003	2.5700e-003		2.3600e-003	2.3600e-003	0.0000	29.7991	29.7991	9.6400e-003	0.0000	30.0401
Total	**0.0119**	**0.0759**	**0.0921**	**3.4000e-004**		**2.5700e-003**	**2.5700e-003**		**2.3600e-003**	**2.3600e-003**	**0.0000**	**29.7991**	**29.7991**	**9.6400e-003**	**0.0000**	**30.0401**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3000e-004	0.0192	5.3700e-003	8.0000e-005	0.0842	1.2000e-004	0.0843	8.9500e-003	1.2000e-004	9.0600e-003	0.0000	7.8831	7.8831	4.0000e-005	1.1900e-003	8.2373
Worker	4.4000e-004	2.4000e-004	3.4800e-003	1.0000e-005	0.0563	1.0000e-005	0.0563	5.8700e-003	1.0000e-005	5.8800e-003	0.0000	1.0971	1.0971	3.0000e-005	3.0000e-005	1.1059
Total	**8.7000e-004**	**0.0194**	**8.8500e-003**	**9.0000e-005**	**0.1405**	**1.3000e-004**	**0.1406**	**0.0148**	**1.3000e-004**	**0.0149**	**0.0000**	**8.9801**	**8.9801**	**7.0000e-005**	**1.2200e-003**	**9.3432**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0119	0.0759	0.0921	3.4000e-004		2.5700e-003	2.5700e-003		2.3600e-003	2.3600e-003	0.0000	29.7991	29.7991	9.6400e-003	0.0000	30.0400
Total	**0.0119**	**0.0759**	**0.0921**	**3.4000e-004**		**2.5700e-003**	**2.5700e-003**		**2.3600e-003**	**2.3600e-003**	**0.0000**	**29.7991**	**29.7991**	**9.6400e-003**	**0.0000**	**30.0400**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3000e-004	0.0192	5.3700e-003	8.0000e-005	0.0842	1.2000e-004	0.0843	8.9500e-003	1.2000e-004	9.0600e-003	0.0000	7.8831	7.8831	4.0000e-005	1.1900e-003	8.2373
Worker	4.4000e-004	2.4000e-004	3.4800e-003	1.0000e-005	0.0563	1.0000e-005	0.0563	5.8700e-003	1.0000e-005	5.8800e-003	0.0000	1.0971	1.0971	3.0000e-005	3.0000e-005	1.1059
Total	**8.7000e-004**	**0.0194**	**8.8500e-003**	**9.0000e-005**	**0.1405**	**1.3000e-004**	**0.1406**	**0.0148**	**1.3000e-004**	**0.0149**	**0.0000**	**8.9801**	**8.9801**	**7.0000e-005**	**1.2200e-003**	**9.3432**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.11 Yard Rock Installation - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.6300e-003	0.0390	0.0498	1.6000e-004		1.3200e-003	1.3200e-003		1.2200e-003	1.2200e-003	0.0000	14.1828	14.1828	4.5900e-003	0.0000	14.2975
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.6300e-003**	**0.0390**	**0.0498**	**1.6000e-004**		**1.3200e-003**	**1.3200e-003**		**1.2200e-003**	**1.2200e-003**	**0.0000**	**14.1828**	**14.1828**	**4.5900e-003**	**0.0000**	**14.2975**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5000e-004	2.0000e-004	2.7800e-003	1.0000e-005	0.0450	1.0000e-005	0.0450	4.7000e-003	0.0000	4.7000e-003	0.0000	0.8777	0.8777	2.0000e-005	2.0000e-005	0.8847
Total	**3.5000e-004**	**2.0000e-004**	**2.7800e-003**	**1.0000e-005**	**0.0450**	**1.0000e-005**	**0.0450**	**4.7000e-003**	**0.0000**	**4.7000e-003**	**0.0000**	**0.8777**	**0.8777**	**2.0000e-005**	**2.0000e-005**	**0.8847**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.6300e-003	0.0390	0.0498	1.6000e-004		1.3200e-003	1.3200e-003		1.2200e-003	1.2200e-003	0.0000	14.1828	14.1828	4.5900e-003	0.0000	14.2975
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.6300e-003**	**0.0390**	**0.0498**	**1.6000e-004**		**1.3200e-003**	**1.3200e-003**		**1.2200e-003**	**1.2200e-003**	**0.0000**	**14.1828**	**14.1828**	**4.5900e-003**	**0.0000**	**14.2975**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5000e-004	2.0000e-004	2.7800e-003	1.0000e-005	0.0450	1.0000e-005	0.0450	4.7000e-003	0.0000	4.7000e-003	0.0000	0.8777	0.8777	2.0000e-005	2.0000e-005	0.8847
Total	**3.5000e-004**	**2.0000e-004**	**2.7800e-003**	**1.0000e-005**	**0.0450**	**1.0000e-005**	**0.0450**	**4.7000e-003**	**0.0000**	**4.7000e-003**	**0.0000**	**0.8777**	**0.8777**	**2.0000e-005**	**2.0000e-005**	**0.8847**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.12 Cleaning and Restoration 1 - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.2500e-003	0.0273	0.0197	8.0000e-005		9.1000e-004	9.1000e-004		8.4000e-004	8.4000e-004	0.0000	7.2164	7.2164	2.3300e-003	0.0000	7.2748
Total	**3.2500e-003**	**0.0273**	**0.0197**	**8.0000e-005**		**9.1000e-004**	**9.1000e-004**		**8.4000e-004**	**8.4000e-004**	**0.0000**	**7.2164**	**7.2164**	**2.3300e-003**	**0.0000**	**7.2748**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1000e-004	4.7900e-003	1.3400e-003	2.0000e-005	0.0211	3.0000e-005	0.0211	2.2400e-003	3.0000e-005	2.2700e-003	0.0000	1.9708	1.9708	1.0000e-005	3.0000e-004	2.0593
Worker	7.0000e-005	4.0000e-005	5.2000e-004	0.0000	8.4400e-003	0.0000	8.4400e-003	8.8000e-004	0.0000	8.8000e-004	0.0000	0.1646	0.1646	0.0000	0.0000	0.1659
Total	**1.8000e-004**	**4.8300e-003**	**1.8600e-003**	**2.0000e-005**	**0.0295**	**3.0000e-005**	**0.0295**	**3.1200e-003**	**3.0000e-005**	**3.1500e-003**	**0.0000**	**2.1353**	**2.1353**	**1.0000e-005**	**3.0000e-004**	**2.2252**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.2500e-003	0.0273	0.0197	8.0000e-005		9.1000e-004	9.1000e-004		8.4000e-004	8.4000e-004	0.0000	7.2164	7.2164	2.3300e-003	0.0000	7.2748
Total	**3.2500e-003**	**0.0273**	**0.0197**	**8.0000e-005**		**9.1000e-004**	**9.1000e-004**		**8.4000e-004**	**8.4000e-004**	**0.0000**	**7.2164**	**7.2164**	**2.3300e-003**	**0.0000**	**7.2748**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1000e-004	4.7900e-003	1.3400e-003	2.0000e-005	0.0211	3.0000e-005	0.0211	2.2400e-003	3.0000e-005	2.2700e-003	0.0000	1.9708	1.9708	1.0000e-005	3.0000e-004	2.0593
Worker	7.0000e-005	4.0000e-005	5.2000e-004	0.0000	8.4400e-003	0.0000	8.4400e-003	8.8000e-004	0.0000	8.8000e-004	0.0000	0.1646	0.1646	0.0000	0.0000	0.1659
Total	**1.8000e-004**	**4.8300e-003**	**1.8600e-003**	**2.0000e-005**	**0.0295**	**3.0000e-005**	**0.0295**	**3.1200e-003**	**3.0000e-005**	**3.1500e-003**	**0.0000**	**2.1353**	**2.1353**	**1.0000e-005**	**3.0000e-004**	**2.2252**

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3.13 Remaining Deliveries, Installations, Testing and Commissioning 1 - [illegible]

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0199	0.1436	0.1405	5.2000e-004		5.3100e-003	5.3100e-003		4.8800e-003	4.8800e-003	0.0000	45.5540	45.5540	0.0147	0.0000	45.9223
Total	**0.0199**	**0.1436**	**0.1405**	**5.2000e-004**		**5.3100e-003**	**5.3100e-003**		**4.8800e-003**	**4.8800e-003**	**0.0000**	**45.5540**	**45.5540**	**0.0147**	**0.0000**	**45.9223**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3000e-004	0.0192	5.3700e-003	8.0000e-005	0.0842	1.2000e-004	0.0843	8.9500e-003	1.2000e-004	9.0600e-003	0.0000	7.8831	7.8831	4.0000e-005	1.1900e-003	8.2373
Worker	1.3100e-003	7.3000e-004	0.0104	4.0000e-005	0.1688	2.0000e-005	0.1688	0.0176	2.0000e-005	0.0176	0.0000	3.2913	3.2913	8.0000e-005	8.0000e-005	3.3177
Total	**1.7400e-003**	**0.0199**	**0.0158**	**1.2000e-004**	**0.2530**	**1.4000e-004**	**0.2531**	**0.0266**	**1.4000e-004**	**0.0267**	**0.0000**	**11.1743**	**11.1743**	**1.2000e-004**	**1.2700e-003**	**11.5549**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0199	0.1436	0.1405	5.2000e-004		5.3100e-003	5.3100e-003		4.8800e-003	4.8800e-003	0.0000	45.5539	45.5539	0.0147	0.0000	45.9223
Total	**0.0199**	**0.1436**	**0.1405**	**5.2000e-004**		**5.3100e-003**	**5.3100e-003**		**4.8800e-003**	**4.8800e-003**	**0.0000**	**45.5539**	**45.5539**	**0.0147**	**0.0000**	**45.9223**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3000e-004	0.0192	5.3700e-003	8.0000e-005	0.0842	1.2000e-004	0.0843	8.9500e-003	1.2000e-004	9.0600e-003	0.0000	7.8831	7.8831	4.0000e-005	1.1900e-003	8.2373
Worker	1.3100e-003	7.3000e-004	0.0104	4.0000e-005	0.1688	2.0000e-005	0.1688	0.0176	2.0000e-005	0.0176	0.0000	3.2913	3.2913	8.0000e-005	8.0000e-005	3.3177
Total	**1.7400e-003**	**0.0199**	**0.0158**	**1.2000e-004**	**0.2530**	**1.4000e-004**	**0.2531**	**0.0266**	**1.4000e-004**	**0.0267**	**0.0000**	**11.1743**	**11.1743**	**1.2000e-004**	**1.2700e-003**	**11.5549**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.14 Cleaning and Restoration 2 - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.8200e-003	0.0452	0.0254	9.0000e-005		1.7700e-003	1.7700e-003		1.6300e-003	1.6300e-003	0.0000	7.9694	7.9694	2.5800e-003	0.0000	8.0338
Total	**4.8200e-003**	**0.0452**	**0.0254**	**9.0000e-005**		**1.7700e-003**	**1.7700e-003**		**1.6300e-003**	**1.6300e-003**	**0.0000**	**7.9694**	**7.9694**	**2.5800e-003**	**0.0000**	**8.0338**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.8200e-003	0.0452	0.0254	9.0000e-005		1.7700e-003	1.7700e-003		1.6300e-003	1.6300e-003	0.0000	7.9694	7.9694	2.5800e-003	0.0000	8.0338
Total	**4.8200e-003**	**0.0452**	**0.0254**	**9.0000e-005**		**1.7700e-003**	**1.7700e-003**		**1.6300e-003**	**1.6300e-003**	**0.0000**	**7.9694**	**7.9694**	**2.5800e-003**	**0.0000**	**8.0338**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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3.15 Remaining Deliveries, Installations, Testing and Commissioning 2 -

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.9500e-003	0.0718	0.0702	2.6000e-004		2.6500e-003	2.6500e-003		2.4400e-003	2.4400e-003	0.0000	22.7770	22.7770	7.3700e-003	0.0000	22.9612
Total	**9.9500e-003**	**0.0718**	**0.0702**	**2.6000e-004**		**2.6500e-003**	**2.6500e-003**		**2.4400e-003**	**2.4400e-003**	**0.0000**	**22.7770**	**22.7770**	**7.3700e-003**	**0.0000**	**22.9612**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.9500e-003	0.0718	0.0702	2.6000e-004		2.6500e-003	2.6500e-003		2.4400e-003	2.4400e-003	0.0000	22.7770	22.7770	7.3700e-003	0.0000	22.9611
Total	**9.9500e-003**	**0.0718**	**0.0702**	**2.6000e-004**		**2.6500e-003**	**2.6500e-003**		**2.4400e-003**	**2.4400e-003**	**0.0000**	**22.7770**	**22.7770**	**7.3700e-003**	**0.0000**	**22.9611**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.554122	0.053376	0.171995	0.136171	0.022603	0.005710	0.012724	0.016721	0.000451	0.000316	0.021848	0.001050	0.002914

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5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	319.4967	319.4967	0.0145	2.9900e-003	320.7486
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	319.4967	319.4967	0.0145	2.9900e-003	320.7486
NaturalGas Mitigated	0.0132	0.1200	0.1008	7.2000e-004		9.1200e-003	9.1200e-003		9.1200e-003	9.1200e-003	0.0000	130.5925	130.5925	2.5000e-003	2.3900e-003	131.3686
NaturalGas Unmitigated	0.0132	0.1200	0.1008	7.2000e-004		9.1200e-003	9.1200e-003		9.1200e-003	9.1200e-003	0.0000	130.5925	130.5925	2.5000e-003	2.3900e-003	131.3686

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	2.44721e+006	0.0132	0.1200	0.1008	7.2000e-004		9.1200e-003	9.1200e-003		9.1200e-003	9.1200e-003	0.0000	130.5925	130.5925	2.5000e-003	2.3900e-003	131.3686
Total		**0.0132**	**0.1200**	**0.1008**	**7.2000e-004**		**9.1200e-003**	**9.1200e-003**		**9.1200e-003**	**9.1200e-003**	**0.0000**	**130.5925**	**130.5925**	**2.5000e-003**	**2.3900e-003**	**131.3686**

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Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	2.44721e+006	0.0132	0.1200	0.1008	7.2000e-004		9.1200e-003	9.1200e-003		9.1200e-003	9.1200e-003	0.0000	130.5925	130.5925	2.5000e-003	2.3900e-003	131.3686
Total		**0.0132**	**0.1200**	**0.1008**	**7.2000e-004**		**9.1200e-003**	**9.1200e-003**		**9.1200e-003**	**9.1200e-003**	**0.0000**	**130.5925**	**130.5925**	**2.5000e-003**	**2.3900e-003**	**131.3686**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1.09826e+006	319.4967	0.0145	2.9900e-003	320.7486
Total		**319.4967**	**0.0145**	**2.9900e-003**	**320.7486**

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Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1.09826e+006	319.4967	0.0145	2.9900e-003	320.7486
Total		**319.4967**	**0.0145**	**2.9900e-003**	**320.7486**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5181	1.0000e-005	1.2200e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3700e-003	2.3700e-003	1.0000e-005	0.0000	2.5200e-003
Unmitigated	0.5181	1.0000e-005	1.2200e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3700e-003	2.3700e-003	1.0000e-005	0.0000	2.5200e-003

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6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5180					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1000e-004	1.0000e-005	1.2200e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3700e-003	2.3700e-003	1.0000e-005	0.0000	2.5200e-003
Total	**0.5181**	**1.0000e-005**	**1.2200e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.3700e-003**	**2.3700e-003**	**1.0000e-005**	**0.0000**	**2.5200e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5180					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1000e-004	1.0000e-005	1.2200e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3700e-003	2.3700e-003	1.0000e-005	0.0000	2.5200e-003
Total	**0.5181**	**1.0000e-005**	**1.2200e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.3700e-003**	**2.3700e-003**	**1.0000e-005**	**0.0000**	**2.5200e-003**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Off-Highway Trucks	1	4.00	12	402	0.38	Diesel

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Off-Highway Trucks	1.4300e-003	8.6000e-003	9.5600e-003	4.0000e-005		3.1000e-004	3.1000e-004		2.8000e-004	2.8000e-004	0.0000	3.4827	3.4827	1.1300e-003	0.0000	3.5109
Total	**1.4300e-003**	**8.6000e-003**	**9.5600e-003**	**4.0000e-005**		**3.1000e-004**	**3.1000e-004**		**2.8000e-004**	**2.8000e-004**	**0.0000**	**3.4827**	**3.4827**	**1.1300e-003**	**0.0000**	**3.5109**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Lodi Substation

San Joaquin County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	132.64	1000sqft	4.60	132,640.20	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	51
Climate Zone	2			**Operational Year**	2028
Utility Company					
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Project specific info

Land Use - 4.6 acres of disturbed area per grading plan

Construction Phase - Project-specific timeline.

Off-road Equipment - Project-specific Information.

Off-road Equipment -

Off-road Equipment - Project-specific info

Off-road Equipment - Project-specific

Off-road Equipment - Project-specific information

Off-road Equipment - Project-specific equipment list used in lieu of CalEEMod defaults.

Off-road Equipment - project-specific information

Off-road Equipment - Site-specific value

Off-road Equipment - project-specific information

Off-road Equipment - Site-specific info

Off-road Equipment - Project-specific information

Trips and VMT - Project-specific worker trips

On-road Fugitive Dust - Only a small portion of the construction access road surfaces surrounding the project will be unpaved, therefore 98% pavement is assumed.

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Grading - Site-specific area.

Vehicle Trips - Unmanned operation and no daily worker trips will occur

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Consumer Products - No consumer product utilization was assumed for the project

Area Coating - No architectural coating is assumed for the project.

Landscape Equipment -

Energy Use -

Water And Wastewater - Unmanned facility - no water use is expected

Solid Waste - Unmanned facility - no solid waste generation is expected

Construction Off-road Equipment Mitigation - Tier 3 compliant engines are assumed for the project

Watering of exposed areas is assumed

Operational Off-Road Equipment - Assumes monthly inspection utilizing one off-highway truck 4 hours per day.

Fleet Mix -

Off-road Equipment - Project specific information

Off-road Equipment - Project specific equipment

Off-road Equipment - Project specific equipment

Off-road Equipment - Project specific equipment

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	40
tblConstructionPhase	NumDays	230.00	40.00
tblConstructionPhase	NumDays	230.00	40.00
tblConstructionPhase	NumDays	230.00	10.00
tblConstructionPhase	NumDays	230.00	40.00
tblConstructionPhase	NumDays	230.00	40.00
tblConstructionPhase	NumDays	18.00	40.00
tblConstructionPhase	NumDays	18.00	20.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	5.00	28.00
tblConstructionPhase	NumDays	230.00	10.00
tblConstructionPhase	NumDays	230.00	20.00
tblGrading	AcresOfGrading	120.00	3.04
tblLandUse	LandUseSquareFeet	132,640.00	132,640.20
tblLandUse	LotAcreage	3.04	4.60
tblOffRoadEquipment	HorsePower	84.00	34.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	LoadFactor	0.38	0.44
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Aerial Lifts
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	9.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	PhaseName	Remaining Deliveries, Installations, Testing and Commissioning	Remaining Deliveries, Installations, Testing and Commissioning 1

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblOffRoadEquipment	PhaseName		Steel/Bus Erection
tblOffRoadEquipment	PhaseName		Remaining Deliveries, Installations, Testing and Commissioning 1
tblOffRoadEquipment	PhaseName		Underground 12 kV Line Installation
tblOffRoadEquipment	PhaseName		Foundation
tblOffRoadEquipment	PhaseName		Foundation
tblOffRoadEquipment	PhaseName		Cleaning and Restoration 1
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Access Roads
tblOffRoadEquipment	PhaseName		Steel/Bus Erection
tblOffRoadEquipment	PhaseName		Remaining Deliveries, Installations, Testing and Commissioning 1
tblOffRoadEquipment	PhaseName		Cleaning and Restoration 1
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Survey
tblOffRoadEquipment	PhaseName		Underground 12 kV Line Installation
tblOffRoadEquipment	PhaseName		Fence and Gate Installation
tblOffRoadEquipment	PhaseName		Foundation
tblOffRoadEquipment	PhaseName		Yard Rock Installation
tblOffRoadEquipment	PhaseName		Ground/Grid Circuit Installation
tblOffRoadEquipment	PhaseName		Transformer Installation
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Fence and Gate Installation
tblOffRoadEquipment	PhaseName		Yard Rock Installation
tblOffRoadEquipment	PhaseName		Foundation
tblOffRoadEquipment	PhaseName		Access Roads
tblOffRoadEquipment	PhaseName		Cleaning and Restoration 1
tblOffRoadEquipment	PhaseName		Site Preparation

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Underground 12 kV Line Installation
tblOffRoadEquipment	PhaseName		Ground/Grid Circuit Installation
tblOffRoadEquipment	PhaseName		Cleaning and Restoration 2
tblOffRoadEquipment	PhaseName		Cleaning and Restoration 2
tblOffRoadEquipment	PhaseName		Cleaning and Restoration 2
tblOffRoadEquipment	PhaseName		Remaining Deliveries, Installations, Testing and Commissioning 2
tblOffRoadEquipment	PhaseName		Remaining Deliveries, Installations, Testing and Commissioning 2
tblOffRoadEquipment	PhaseName		Remaining Deliveries, Installations, Testing and Commissioning 2
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	PhaseName	Remaining Deliveries, Installations, Testing and Commissioning	Remaining Deliveries, Installations, Testing and Commissioning 1
tblOnRoadDust	PhaseName	Cleaning and Restoration	Cleaning and Restoration 1

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	12.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	4.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblSolidWaste	SolidWasteGenerationRate	164.47	0.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblTripsAndVMT	PhaseName	Remaining Deliveries, Installations, Testing and Commissioning	Remaining Deliveries, Installations, Testing and Commissioning 1
tblTripsAndVMT	PhaseName	Cleaning and Restoration	Cleaning and Restoration 1
tblTripsAndVMT	WorkerTripNumber	15.00	20.00
tblTripsAndVMT	WorkerTripNumber	56.00	10.00
tblTripsAndVMT	WorkerTripNumber	56.00	30.00
tblTripsAndVMT	WorkerTripNumber	56.00	6.00
tblTripsAndVMT	WorkerTripNumber	38.00	20.00
tblTripsAndVMT	WorkerTripNumber	15.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	20.00
tblTripsAndVMT	WorkerTripNumber	8.00	16.00
tblTripsAndVMT	WorkerTripNumber	56.00	10.00
tblTripsAndVMT	WorkerTripNumber	56.00	16.00
tblVehicleTrips	ST_TR	1.99	0.00
tblVehicleTrips	SU_TR	5.00	0.00
tblVehicleTrips	WD_TR	4.96	0.00
tblWater	IndoorWaterUseRate	30,673,000.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2027	6.1321	44.4095	42.4950	0.1554	34.5252	1.7213	36.2465	11.6413	1.5836	13.2249	0.0000	15,053.0148	15,053.0148	4.7695	0.2009	15,174.3660
2028	1.9596	16.2140	12.1018	0.0441	0.0000	0.6189	0.6189	0.0000	0.5694	0.5694	0.0000	4,267.6839	4,267.6839	1.3803	0.0000	4,302.1903
Maximum	**6.1321**	**44.4095**	**42.4950**	**0.1554**	**34.5252**	**1.7213**	**36.2465**	**11.6413**	**1.5836**	**13.2249**	**0.0000**	**15,053.0148**	**15,053.0148**	**4.7695**	**0.2009**	**15,174.3660**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2027	6.1321	44.4095	42.4950	0.1554	26.3564	1.7213	27.0988	6.1699	1.5836	7.7535	0.0000	15,053.0148	15,053.0148	4.7695	0.2009	15,174.3659
2028	1.9596	16.2140	12.1018	0.0441	0.0000	0.6189	0.6189	0.0000	0.5694	0.5694	0.0000	4,267.6839	4,267.6839	1.3803	0.0000	4,302.1903
Maximum	**6.1321**	**44.4095**	**42.4950**	**0.1554**	**26.3564**	**1.7213**	**27.0988**	**6.1699**	**1.5836**	**7.7535**	**0.0000**	**15,053.0148**	**15,053.0148**	**4.7695**	**0.2009**	**15,174.3659**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**23.66**	**0.00**	**24.81**	**47.00**	**0.00**	**39.66**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.8397	1.2000e-004	0.0135	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0290	0.0290	8.0000e-005		0.0309
Energy	0.0723	0.6573	0.5522	3.9400e-003		0.0500	0.0500		0.0500	0.0500		788.7870	788.7870	0.0151	0.0145	793.4744
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	0.2388	1.4330	1.5927	6.6100e-003		0.0512	0.0512		0.0471	0.0471	0.0000	639.8377	639.8377	0.2069		645.0111
Total	**3.1508**	**2.0905**	**2.1584**	**0.0106**	**0.0000**	**0.1012**	**0.1012**	**0.0000**	**0.0971**	**0.0971**	**0.0000**	**1,428.6538**	**1,428.6538**	**0.2221**	**0.0145**	**1,438.5164**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.8397	1.2000e-004	0.0135	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0290	0.0290	8.0000e-005		0.0309
Energy	0.0723	0.6573	0.5522	3.9400e-003		0.0500	0.0500		0.0500	0.0500		788.7870	788.7870	0.0151	0.0145	793.4744
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	0.2388	1.4330	1.5927	6.6100e-003		0.0512	0.0512		0.0471	0.0471	0.0000	639.8377	639.8377	0.2069		645.0111
Total	**3.1508**	**2.0905**	**2.1584**	**0.0106**	**0.0000**	**0.1012**	**0.1012**	**0.0000**	**0.0971**	**0.0971**	**0.0000**	**1,428.6538**	**1,428.6538**	**0.2221**	**0.0145**	**1,438.5164**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Survey	Site Preparation	2/1/2027	2/26/2027	5	20	
2	Access Roads	Site Preparation	3/1/2027	3/26/2027	5	20	
3	Site Preparation	Site Preparation	3/1/2027	3/26/2027	5	20	
4	Underground 12 kV Line Installation	Trenching	3/1/2027	3/12/2027	5	10	
5	Fence and Gate Installation	Site Preparation	4/1/2027	5/10/2027	5	28	
6	Foundation	Paving	5/1/2027	6/27/2027	5	40	
7	Ground/Grid Circuit Installation	Building Construction	6/1/2027	7/26/2027	5	40	
8	Transformer Installation	Building Construction	7/1/2027	8/25/2027	5	40	
9	Steel/Bus Erection	Building Construction	7/1/2027	8/25/2027	5	40	
10	Yard Rock Installation	Paving	9/1/2027	9/28/2027	5	20	
11	Cleaning and Restoration 1	Building Construction	10/1/2027	10/14/2027	5	10	
12	Remaining Deliveries, Installations, Testing and Commissioning 1	Building Construction	11/1/2027	12/24/2027	5	40	
13	Cleaning and Restoration 2	Building Construction	2/1/2028	2/14/2028	5	10	
14	Remaining Deliveries, Installations, Testing and Commissioning 2	Building Construction	2/1/2028	2/28/2028	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Access Roads	Off-Highway Trucks	4	6.00	275	0.38
Access Roads	Rubber Tired Loaders	2	6.00	203	0.36
Site Preparation	Graders	1	6.00	187	0.41
Site Preparation	Off-Highway Trucks	9	6.00	275	0.38
Site Preparation	Rollers	2	6.00	80	0.38
Site Preparation	Rubber Tired Dozers	1	6.00	247	0.40
Site Preparation	Rubber Tired Loaders	1	6.00	203	0.36
Site Preparation	Scrapers	1	6.00	367	0.48
Survey	Off-Highway Trucks	2	6.00	275	0.38
Fence and Gate Installation	Off-Highway Trucks	5	6.00	275	0.38
Fence and Gate Installation	Rough Terrain Forklifts	1	6.00	100	0.40
Underground 12 kV Line Installation	Bore/Drill Rigs	1	6.00	221	0.50
Underground 12 kV Line Installation	Off-Highway Trucks	2	6.00	275	0.38
Underground 12 kV Line Installation	Trenchers	1	6.00	78	0.50
Ground/Grid Circuit Installation	Off-Highway Trucks	1	6.00	275	0.38
Ground/Grid Circuit Installation	Trenchers	1	6.00	78	0.50
Transformer Installation	Cranes	1	6.00	231	0.29
Transformer Installation	Generator Sets	1	6.00	34	0.74
Transformer Installation	Off-Highway Trucks	5	6.00	275	0.38
Steel/Bus Erection	Aerial Lifts	1	6.00	63	0.31
Steel/Bus Erection	Off-Highway Trucks	2	6.00	275	0.44
Remaining Deliveries, Installations, Testing and Commissioning 1	Aerial Lifts	1	6.00	63	0.31
Remaining Deliveries, Installations, Testing and Commissioning 1	Cranes	1	6.00	231	0.29
Remaining Deliveries, Installations, Testing and Commissioning 1	Off-Highway Trucks	3	6.00	275	0.38
Cleaning and Restoration 1	Graders	1	6.00	187	0.41
Cleaning and Restoration 1	Off-Highway Trucks	1	6.00	275	0.38
Cleaning and Restoration 1	Rubber Tired Loaders	1	6.00	203	0.36
Foundation	Bore/Drill Rigs	1	6.00	221	0.50
Foundation	Cranes	1	6.00	231	0.29
Foundation	Off-Highway Trucks	2	6.00	275	0.38
Foundation	Rubber Tired Dozers	1	6.00	247	0.40

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Yard Rock Installation	Off-Highway Trucks	2	6.00	275	0.38
Yard Rock Installation	Rough Terrain Forklifts	1	6.00	100	0.40
Cleaning and Restoration 2	Graders	1	6.00	187	0.41
Cleaning and Restoration 2	Off-Highway Trucks	1	6.00	275	0.38
Cleaning and Restoration 2	Rubber Tired Dozers	1	6.00	247	0.40
Remaining Deliveries, Installations, Testing and Commissioning 2	Aerial Lifts	1	6.00	63	0.31
Remaining Deliveries, Installations, Testing and Commissioning 2	Cranes	1	6.00	231	0.29
Remaining Deliveries, Installations, Testing and Commissioning 2	Off-Highway Trucks	3	6.00	275	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Access Roads	6	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	15	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Survey	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Fence and Gate Installation	6	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Underground 12 kV Line Installation	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Ground/Grid Circuit Installation	2	10.00	22.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Transformer Installation	7	16.00	22.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Steel/Bus Erection	3	10.00	22.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Remaining Deliveries, Installations, Testing	5	30.00	22.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Cleaning and Restoration 1	3	6.00	22.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Foundation	5	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Yard Rock Installation	3	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Cleaning and Restoration 2										
Remaining Deliveries, Installations, Testing										

3.1 Mitigation Measures Construction

Water Exposed Area

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Survey - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.4901	2.9409	3.2687	0.0136		0.1051	0.1051		0.0967	0.0967		1,313.0998	1,313.0998	0.4247		1,323.7169
Total	**0.4901**	**2.9409**	**3.2687**	**0.0136**	**0.0000**	**0.1051**	**0.1051**	**0.0000**	**0.0967**	**0.0967**		**1,313.0998**	**1,313.0998**	**0.4247**		**1,323.7169**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0121	5.5400e-003	0.0966	3.2000e-004	0.0411	1.6000e-004	0.0412	0.0109	1.5000e-004	0.0110		32.6068	32.6068	6.6000e-004	7.1000e-004	32.8344
Total	**0.0121**	**5.5400e-003**	**0.0966**	**3.2000e-004**	**0.0411**	**1.6000e-004**	**0.0412**	**0.0109**	**1.5000e-004**	**0.0110**		**32.6068**	**32.6068**	**6.6000e-004**	**7.1000e-004**	**32.8344**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.4901	2.9409	3.2687	0.0136		0.1051	0.1051		0.0967	0.0967	0.0000	1,313.0998	1,313.0998	0.4247		1,323.7169
Total	**0.4901**	**2.9409**	**3.2687**	**0.0136**	**0.0000**	**0.1051**	**0.1051**	**0.0000**	**0.0967**	**0.0967**	**0.0000**	**1,313.0998**	**1,313.0998**	**0.4247**		**1,323.7169**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0121	5.5400e-003	0.0966	3.2000e-004	0.0411	1.6000e-004	0.0412	0.0109	1.5000e-004	0.0110		32.6068	32.6068	6.6000e-004	7.1000e-004	32.8344
Total	**0.0121**	**5.5400e-003**	**0.0966**	**3.2000e-004**	**0.0411**	**1.6000e-004**	**0.0412**	**0.0109**	**1.5000e-004**	**0.0110**		**32.6068**	**32.6068**	**6.6000e-004**	**7.1000e-004**	**32.8344**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Access Roads - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3230	8.6699	8.7447	0.0365		0.3039	0.3039		0.2796	0.2796		3,534.6323	3,534.6323	1.1432		3,563.2116
Total	**1.3230**	**8.6699**	**8.7447**	**0.0365**	**0.0000**	**0.3039**	**0.3039**	**0.0000**	**0.2796**	**0.2796**		**3,534.6323**	**3,534.6323**	**1.1432**		**3,563.2116**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0485	0.0222	0.3864	1.2900e-003	6.5191	6.3000e-004	6.5197	0.6773	5.8000e-004	0.6779		130.4271	130.4271	2.6200e-003	2.8400e-003	131.3376
Total	**0.0485**	**0.0222**	**0.3864**	**1.2900e-003**	**6.5191**	**6.3000e-004**	**6.5197**	**0.6773**	**5.8000e-004**	**0.6779**		**130.4271**	**130.4271**	**2.6200e-003**	**2.8400e-003**	**131.3376**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3230	8.6699	8.7447	0.0365		0.3039	0.3039		0.2796	0.2796	0.0000	3,534.6323	3,534.6323	1.1432		3,563.2116
Total	**1.3230**	**8.6699**	**8.7447**	**0.0365**	**0.0000**	**0.3039**	**0.3039**	**0.0000**	**0.2796**	**0.2796**	**0.0000**	**3,534.6323**	**3,534.6323**	**1.1432**		**3,563.2116**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0485	0.0222	0.3864	1.2900e-003	6.5191	6.3000e-004	6.5197	0.6773	5.8000e-004	0.6779		130.4271	130.4271	2.6200e-003	2.8400e-003	131.3376
Total	**0.0485**	**0.0222**	**0.3864**	**1.2900e-003**	**6.5191**	**6.3000e-004**	**6.5197**	**0.6773**	**5.8000e-004**	**0.6779**		**130.4271**	**130.4271**	**2.6200e-003**	**2.8400e-003**	**131.3376**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Site Preparation - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.2275	0.0000	18.2275	9.9481	0.0000	9.9481			0.0000			0.0000
Off-Road	3.8054	29.1367	26.0621	0.0924		1.1178	1.1178		1.0284	1.0284		8,945.7685	8,945.7685	2.8932		9,018.0995
Total	**3.8054**	**29.1367**	**26.0621**	**0.0924**	**18.2275**	**1.1178**	**19.3453**	**9.9481**	**1.0284**	**10.9765**		**8,945.7685**	**8,945.7685**	**2.8932**		**9,018.0995**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0485	0.0222	0.3864	1.2900e-003	6.5191	6.3000e-004	6.5197	0.6773	5.8000e-004	0.6779		130.4271	130.4271	2.6200e-003	2.8400e-003	131.3376
Total	**0.0485**	**0.0222**	**0.3864**	**1.2900e-003**	**6.5191**	**6.3000e-004**	**6.5197**	**0.6773**	**5.8000e-004**	**0.6779**		**130.4271**	**130.4271**	**2.6200e-003**	**2.8400e-003**	**131.3376**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.2024	0.0000	8.2024	4.4766	0.0000	4.4766			0.0000			0.0000
Off-Road	3.8054	29.1367	26.0621	0.0924		1.1178	1.1178		1.0284	1.0284	0.0000	8,945.7684	8,945.7684	2.8932		9,018.0995
Total	**3.8054**	**29.1367**	**26.0621**	**0.0924**	**8.2024**	**1.1178**	**9.3202**	**4.4766**	**1.0284**	**5.5050**	**0.0000**	**8,945.7684**	**8,945.7684**	**2.8932**		**9,018.0995**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0485	0.0222	0.3864	1.2900e-003	6.5191	6.3000e-004	6.5197	0.6773	5.8000e-004	0.6779		130.4271	130.4271	2.6200e-003	2.8400e-003	131.3376
Total	**0.0485**	**0.0222**	**0.3864**	**1.2900e-003**	**6.5191**	**6.3000e-004**	**6.5197**	**0.6773**	**5.8000e-004**	**0.6779**		**130.4271**	**130.4271**	**2.6200e-003**	**2.8400e-003**	**131.3376**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Underground 12 kV Line Installation - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8826	6.5475	6.7224	0.0232		0.2981	0.2981		0.2742	0.2742		2,246.5463	2,246.5463	0.7266		2,264.7107
Total	**0.8826**	**6.5475**	**6.7224**	**0.0232**		**0.2981**	**0.2981**		**0.2742**	**0.2742**		**2,246.5463**	**2,246.5463**	**0.7266**		**2,264.7107**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0242	0.0111	0.1932	6.5000e-004	3.2596	3.2000e-004	3.2599	0.3387	2.9000e-004	0.3389		65.2136	65.2136	1.3100e-003	1.4200e-003	65.6688
Total	**0.0242**	**0.0111**	**0.1932**	**6.5000e-004**	**3.2596**	**3.2000e-004**	**3.2599**	**0.3387**	**2.9000e-004**	**0.3389**		**65.2136**	**65.2136**	**1.3100e-003**	**1.4200e-003**	**65.6688**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8826	6.5475	6.7224	0.0232		0.2981	0.2981		0.2742	0.2742	0.0000	2,246.5463	2,246.5463	0.7266		2,264.7107
Total	**0.8826**	**6.5475**	**6.7224**	**0.0232**		**0.2981**	**0.2981**		**0.2742**	**0.2742**	**0.0000**	**2,246.5463**	**2,246.5463**	**0.7266**		**2,264.7107**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0242	0.0111	0.1932	6.5000e-004	3.2596	3.2000e-004	3.2599	0.3387	2.9000e-004	0.3389		65.2136	65.2136	1.3100e-003	1.4200e-003	65.6688
Total	**0.0242**	**0.0111**	**0.1932**	**6.5000e-004**	**3.2596**	**3.2000e-004**	**3.2599**	**0.3387**	**2.9000e-004**	**0.3389**		**65.2136**	**65.2136**	**1.3100e-003**	**1.4200e-003**	**65.6688**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Fence and Gate Installation - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.2978	8.3156	9.8858	0.0365		0.2898	0.2898		0.2666	0.2666		3,533.0376	3,533.0376	1.1427		3,561.6040
Total	**1.2978**	**8.3156**	**9.8858**	**0.0365**	**0.0000**	**0.2898**	**0.2898**	**0.0000**	**0.2666**	**0.2666**		**3,533.0376**	**3,533.0376**	**1.1427**		**3,561.6040**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0242	0.0111	0.1932	6.5000e-004	3.2596	3.2000e-004	3.2599	0.3387	2.9000e-004	0.3389		65.2136	65.2136	1.3100e-003	1.4200e-003	65.6688
Total	**0.0242**	**0.0111**	**0.1932**	**6.5000e-004**	**3.2596**	**3.2000e-004**	**3.2599**	**0.3387**	**2.9000e-004**	**0.3389**		**65.2136**	**65.2136**	**1.3100e-003**	**1.4200e-003**	**65.6688**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.2978	8.3156	9.8858	0.0365		0.2898	0.2898		0.2666	0.2666	0.0000	3,533.0376	3,533.0376	1.1427		3,561.6040
Total	**1.2978**	**8.3156**	**9.8858**	**0.0365**	**0.0000**	**0.2898**	**0.2898**	**0.0000**	**0.2666**	**0.2666**	**0.0000**	**3,533.0376**	**3,533.0376**	**1.1427**		**3,561.6040**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0242	0.0111	0.1932	6.5000e-004	3.2596	3.2000e-004	3.2599	0.3387	2.9000e-004	0.3389		65.2136	65.2136	1.3100e-003	1.4200e-003	65.6688
Total	**0.0242**	**0.0111**	**0.1932**	**6.5000e-004**	**3.2596**	**3.2000e-004**	**3.2599**	**0.3387**	**2.9000e-004**	**0.3389**		**65.2136**	**65.2136**	**1.3100e-003**	**1.4200e-003**	**65.6688**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Foundation - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3677	11.6893	8.3465	0.0314		0.4696	0.4696		0.4321	0.4321		3,040.3772	3,040.3772	0.9833		3,064.9602
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3677**	**11.6893**	**8.3465**	**0.0314**		**0.4696**	**0.4696**		**0.4321**	**0.4321**		**3,040.3772**	**3,040.3772**	**0.9833**		**3,064.9602**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0485	0.0222	0.3864	1.2900e-003	6.5191	6.3000e-004	6.5197	0.6773	5.8000e-004	0.6779		130.4271	130.4271	2.6200e-003	2.8400e-003	131.3376
Total	**0.0485**	**0.0222**	**0.3864**	**1.2900e-003**	**6.5191**	**6.3000e-004**	**6.5197**	**0.6773**	**5.8000e-004**	**0.6779**		**130.4271**	**130.4271**	**2.6200e-003**	**2.8400e-003**	**131.3376**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3677	11.6893	8.3465	0.0314		0.4696	0.4696		0.4321	0.4321	0.0000	3,040.3772	3,040.3772	0.9833		3,064.9602
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3677**	**11.6893**	**8.3465**	**0.0314**		**0.4696**	**0.4696**		**0.4321**	**0.4321**	**0.0000**	**3,040.3772**	**3,040.3772**	**0.9833**		**3,064.9602**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0485	0.0222	0.3864	1.2900e-003	6.5191	6.3000e-004	6.5197	0.6773	5.8000e-004	0.6779		130.4271	130.4271	2.6200e-003	2.8400e-003	131.3376
Total	**0.0485**	**0.0222**	**0.3864**	**1.2900e-003**	**6.5191**	**6.3000e-004**	**6.5197**	**0.6773**	**5.8000e-004**	**0.6779**		**130.4271**	**130.4271**	**2.6200e-003**	**2.8400e-003**	**131.3376**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.8 Ground/Grid Circuit Installation - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4805	3.6779	3.5608	9.3200e-003		0.1996	0.1996		0.1836	0.1836		902.0587	902.0587	0.2917		909.3523
Total	**0.4805**	**3.6779**	**3.5608**	**9.3200e-003**		**0.1996**	**0.1996**		**0.1836**	**0.1836**		**902.0587**	**902.0587**	**0.2917**		**909.3523**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0221	0.9176	0.2646	4.1100e-003	4.8740	6.2000e-003	4.8802	0.5141	5.9300e-003	0.5200		434.1255	434.1255	1.9900e-003	0.0653	453.6262
Worker	0.0242	0.0111	0.1932	6.5000e-004	3.2596	3.2000e-004	3.2599	0.3387	2.9000e-004	0.3389		65.2136	65.2136	1.3100e-003	1.4200e-003	65.6688
Total	**0.0464**	**0.9287**	**0.4578**	**4.7600e-003**	**8.1336**	**6.5200e-003**	**8.1401**	**0.8528**	**6.2200e-003**	**0.8590**		**499.3390**	**499.3390**	**3.3000e-003**	**0.0667**	**519.2951**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4805	3.6779	3.5608	9.3200e-003		0.1996	0.1996		0.1836	0.1836	0.0000	902.0587	902.0587	0.2917		909.3523
Total	**0.4805**	**3.6779**	**3.5608**	**9.3200e-003**		**0.1996**	**0.1996**		**0.1836**	**0.1836**	**0.0000**	**902.0587**	**902.0587**	**0.2917**		**909.3523**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0221	0.9176	0.2646	4.1100e-003	4.8740	6.2000e-003	4.8802	0.5141	5.9300e-003	0.5200		434.1255	434.1255	1.9900e-003	0.0653	453.6262
Worker	0.0242	0.0111	0.1932	6.5000e-004	3.2596	3.2000e-004	3.2599	0.3387	2.9000e-004	0.3389		65.2136	65.2136	1.3100e-003	1.4200e-003	65.6688
Total	**0.0464**	**0.9287**	**0.4578**	**4.7600e-003**	**8.1336**	**6.5200e-003**	**8.1401**	**0.8528**	**6.2200e-003**	**0.8590**		**499.3390**	**499.3390**	**3.3000e-003**	**0.0667**	**519.2951**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.9 Transformer Installation - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6062	10.8868	10.7247	0.0406		0.3947	0.3947		0.3656	0.3656		3,891.0050	3,891.0050	1.2102		3,921.2610
Total	**1.6062**	**10.8868**	**10.7247**	**0.0406**		**0.3947**	**0.3947**		**0.3656**	**0.3656**		**3,891.0050**	**3,891.0050**	**1.2102**		**3,921.2610**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0221	0.9176	0.2646	4.1100e-003	4.8740	6.2000e-003	4.8802	0.5141	5.9300e-003	0.5200		434.1255	434.1255	1.9900e-003	0.0653	453.6262
Worker	0.0388	0.0177	0.3091	1.0300e-003	5.2153	5.1000e-004	5.2158	0.5418	4.7000e-004	0.5423		104.3417	104.3417	2.1000e-003	2.2700e-003	105.0701
Total	**0.0609**	**0.9353**	**0.5737**	**5.1400e-003**	**10.0893**	**6.7100e-003**	**10.0960**	**1.0559**	**6.4000e-003**	**1.0623**		**538.4672**	**538.4672**	**4.0900e-003**	**0.0675**	**558.6964**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6062	10.8868	10.7247	0.0406		0.3947	0.3947		0.3656	0.3656	0.0000	3,891.0050	3,891.0050	1.2102		3,921.2609
Total	**1.6062**	**10.8868**	**10.7247**	**0.0406**		**0.3947**	**0.3947**		**0.3656**	**0.3656**	**0.0000**	**3,891.0050**	**3,891.0050**	**1.2102**		**3,921.2609**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0221	0.9176	0.2646	4.1100e-003	4.8740	6.2000e-003	4.8802	0.5141	5.9300e-003	0.5200		434.1255	434.1255	1.9900e-003	0.0653	453.6262
Worker	0.0388	0.0177	0.3091	1.0300e-003	5.2153	5.1000e-004	5.2158	0.5418	4.7000e-004	0.5423		104.3417	104.3417	2.1000e-003	2.2700e-003	105.0701
Total	**0.0609**	**0.9353**	**0.5737**	**5.1400e-003**	**10.0893**	**6.7100e-003**	**10.0960**	**1.0559**	**6.4000e-003**	**1.0623**		**538.4672**	**538.4672**	**4.0900e-003**	**0.0675**	**558.6964**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.10 Steel/Bus Erection - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5930	3.7956	4.6030	0.0170		0.1284	0.1284		0.1181	0.1181		1,642.3962	1,642.3962	0.5312		1,655.6758
Total	**0.5930**	**3.7956**	**4.6030**	**0.0170**		**0.1284**	**0.1284**		**0.1181**	**0.1181**		**1,642.3962**	**1,642.3962**	**0.5312**		**1,655.6758**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0221	0.9176	0.2646	4.1100e-003	4.8740	6.2000e-003	4.8802	0.5141	5.9300e-003	0.5200		434.1255	434.1255	1.9900e-003	0.0653	453.6262
Worker	0.0242	0.0111	0.1932	6.5000e-004	3.2596	3.2000e-004	3.2599	0.3387	2.9000e-004	0.3389		65.2136	65.2136	1.3100e-003	1.4200e-003	65.6688
Total	**0.0464**	**0.9287**	**0.4578**	**4.7600e-003**	**8.1336**	**6.5200e-003**	**8.1401**	**0.8528**	**6.2200e-003**	**0.8590**		**499.3390**	**499.3390**	**3.3000e-003**	**0.0667**	**519.2951**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5930	3.7956	4.6030	0.0170		0.1284	0.1284		0.1181	0.1181	0.0000	1,642.3962	1,642.3962	0.5312		1,655.6758
Total	**0.5930**	**3.7956**	**4.6030**	**0.0170**		**0.1284**	**0.1284**		**0.1181**	**0.1181**	**0.0000**	**1,642.3962**	**1,642.3962**	**0.5312**		**1,655.6758**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0221	0.9176	0.2646	4.1100e-003	4.8740	6.2000e-003	4.8802	0.5141	5.9300e-003	0.5200		434.1255	434.1255	1.9900e-003	0.0653	453.6262
Worker	0.0242	0.0111	0.1932	6.5000e-004	3.2596	3.2000e-004	3.2599	0.3387	2.9000e-004	0.3389		65.2136	65.2136	1.3100e-003	1.4200e-003	65.6688
Total	**0.0464**	**0.9287**	**0.4578**	**4.7600e-003**	**8.1336**	**6.5200e-003**	**8.1401**	**0.8528**	**6.2200e-003**	**0.8590**		**499.3390**	**499.3390**	**3.3000e-003**	**0.0667**	**519.2951**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.11 Yard Rock Installation - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5628	3.9042	4.9828	0.0162		0.1322	0.1322		0.1216	0.1216		1,563.3879	1,563.3879	0.5056		1,576.0287
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5628**	**3.9042**	**4.9828**	**0.0162**		**0.1322**	**0.1322**		**0.1216**	**0.1216**		**1,563.3879**	**1,563.3879**	**0.5056**		**1,576.0287**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0388	0.0177	0.3091	1.0300e-003	5.2153	5.1000e-004	5.2158	0.5418	4.7000e-004	0.5423		104.3417	104.3417	2.1000e-003	2.2700e-003	105.0701
Total	**0.0388**	**0.0177**	**0.3091**	**1.0300e-003**	**5.2153**	**5.1000e-004**	**5.2158**	**0.5418**	**4.7000e-004**	**0.5423**		**104.3417**	**104.3417**	**2.1000e-003**	**2.2700e-003**	**105.0701**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5628	3.9042	4.9828	0.0162		0.1322	0.1322		0.1216	0.1216	0.0000	1,563.3879	1,563.3879	0.5056		1,576.0287
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5628**	**3.9042**	**4.9828**	**0.0162**		**0.1322**	**0.1322**		**0.1216**	**0.1216**	**0.0000**	**1,563.3879**	**1,563.3879**	**0.5056**		**1,576.0287**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0388	0.0177	0.3091	1.0300e-003	5.2153	5.1000e-004	5.2158	0.5418	4.7000e-004	0.5423		104.3417	104.3417	2.1000e-003	2.2700e-003	105.0701
Total	**0.0388**	**0.0177**	**0.3091**	**1.0300e-003**	**5.2153**	**5.1000e-004**	**5.2158**	**0.5418**	**4.7000e-004**	**0.5423**		**104.3417**	**104.3417**	**2.1000e-003**	**2.2700e-003**	**105.0701**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.12 Cleaning and Restoration 1 - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6498	5.4570	3.9336	0.0164		0.1828	0.1828		0.1682	0.1682		1,590.9460	1,590.9460	0.5145		1,603.8096
Total	**0.6498**	**5.4570**	**3.9336**	**0.0164**		**0.1828**	**0.1828**		**0.1682**	**0.1682**		**1,590.9460**	**1,590.9460**	**0.5145**		**1,603.8096**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0221	0.9176	0.2646	4.1100e-003	4.8740	6.2000e-003	4.8802	0.5141	5.9300e-003	0.5200		434.1255	434.1255	1.9900e-003	0.0653	453.6262
Worker	0.0145	6.6500e-003	0.1159	3.9000e-004	1.9557	1.9000e-004	1.9559	0.2032	1.8000e-004	0.2034		39.1281	39.1281	7.9000e-004	8.5000e-004	39.4013
Total	**0.0367**	**0.9243**	**0.3805**	**4.5000e-003**	**6.8297**	**6.3900e-003**	**6.8361**	**0.7173**	**6.1100e-003**	**0.7234**		**473.2536**	**473.2536**	**2.7800e-003**	**0.0661**	**493.0275**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6498	5.4570	3.9336	0.0164		0.1828	0.1828		0.1682	0.1682	0.0000	1,590.9460	1,590.9460	0.5145		1,603.8096
Total	**0.6498**	**5.4570**	**3.9336**	**0.0164**		**0.1828**	**0.1828**		**0.1682**	**0.1682**	**0.0000**	**1,590.9460**	**1,590.9460**	**0.5145**		**1,603.8096**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0221	0.9176	0.2646	4.1100e-003	4.8740	6.2000e-003	4.8802	0.5141	5.9300e-003	0.5200		434.1255	434.1255	1.9900e-003	0.0653	453.6262
Worker	0.0145	6.6500e-003	0.1159	3.9000e-004	1.9557	1.9000e-004	1.9559	0.2032	1.8000e-004	0.2034		39.1281	39.1281	7.9000e-004	8.5000e-004	39.4013
Total	**0.0367**	**0.9243**	**0.3805**	**4.5000e-003**	**6.8297**	**6.3900e-003**	**6.8361**	**0.7173**	**6.1100e-003**	**0.7234**		**473.2536**	**473.2536**	**2.7800e-003**	**0.0661**	**493.0275**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.13 Remaining Deliveries, Installations, Testing and Commissioning 1 -

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9952	7.1777	7.0236	0.0259		0.2653	0.2653		0.2441	0.2441		2,510.7342	2,510.7342	0.8120		2,531.0348
Total	**0.9952**	**7.1777**	**7.0236**	**0.0259**		**0.2653**	**0.2653**		**0.2441**	**0.2441**		**2,510.7342**	**2,510.7342**	**0.8120**		**2,531.0348**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0221	0.9176	0.2646	4.1100e-003	4.8740	6.2000e-003	4.8802	0.5141	5.9300e-003	0.5200		434.1255	434.1255	1.9900e-003	0.0653	453.6262
Worker	0.0727	0.0332	0.5796	1.9400e-003	9.7786	9.5000e-004	9.7796	1.0159	8.8000e-004	1.0168		195.6407	195.6407	3.9400e-003	4.2500e-003	197.0065
Total	**0.0948**	**0.9508**	**0.8442**	**6.0500e-003**	**14.6526**	**7.1500e-003**	**14.6598**	**1.5301**	**6.8100e-003**	**1.5369**		**629.7661**	**629.7661**	**5.9300e-003**	**0.0695**	**650.6327**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9952	7.1777	7.0236	0.0259		0.2653	0.2653		0.2441	0.2441	0.0000	2,510.7342	2,510.7342	0.8120		2,531.0348
Total	**0.9952**	**7.1777**	**7.0236**	**0.0259**		**0.2653**	**0.2653**		**0.2441**	**0.2441**	**0.0000**	**2,510.7342**	**2,510.7342**	**0.8120**		**2,531.0348**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0221	0.9176	0.2646	4.1100e-003	4.8740	6.2000e-003	4.8802	0.5141	5.9300e-003	0.5200		434.1255	434.1255	1.9900e-003	0.0653	453.6262
Worker	0.0727	0.0332	0.5796	1.9400e-003	9.7786	9.5000e-004	9.7796	1.0159	8.8000e-004	1.0168		195.6407	195.6407	3.9400e-003	4.2500e-003	197.0065
Total	**0.0948**	**0.9508**	**0.8442**	**6.0500e-003**	**14.6526**	**7.1500e-003**	**14.6598**	**1.5301**	**6.8100e-003**	**1.5369**		**629.7661**	**629.7661**	**5.9300e-003**	**0.0695**	**650.6327**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.14 Cleaning and Restoration 2 - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9644	9.0364	5.0782	0.0182		0.3536	0.3536		0.3253	0.3253		1,756.9497	1,756.9497	0.5682		1,771.1555
Total	**0.9644**	**9.0364**	**5.0782**	**0.0182**		**0.3536**	**0.3536**		**0.3253**	**0.3253**		**1,756.9497**	**1,756.9497**	**0.5682**		**1,771.1555**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9644	9.0364	5.0782	0.0182		0.3536	0.3536		0.3253	0.3253	0.0000	1,756.9497	1,756.9497	0.5682		1,771.1555
Total	**0.9644**	**9.0364**	**5.0782**	**0.0182**		**0.3536**	**0.3536**		**0.3253**	**0.3253**	**0.0000**	**1,756.9497**	**1,756.9497**	**0.5682**		**1,771.1555**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.15 Remaining Deliveries, Installations, Testing and Commissioning 2 -

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9952	7.1777	7.0236	0.0259		0.2653	0.2653		0.2441	0.2441		2,510.7342	2,510.7342	0.8120		2,531.0348
Total	**0.9952**	**7.1777**	**7.0236**	**0.0259**		**0.2653**	**0.2653**		**0.2441**	**0.2441**		**2,510.7342**	**2,510.7342**	**0.8120**		**2,531.0348**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9952	7.1777	7.0236	0.0259		0.2653	0.2653		0.2441	0.2441	0.0000	2,510.7342	2,510.7342	0.8120		2,531.0348
Total	**0.9952**	**7.1777**	**7.0236**	**0.0259**		**0.2653**	**0.2653**		**0.2441**	**0.2441**	**0.0000**	**2,510.7342**	**2,510.7342**	**0.8120**		**2,531.0348**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.554122	0.053376	0.171995	0.136171	0.022603	0.005710	0.012724	0.016721	0.000451	0.000316	0.021848	0.001050	0.002914

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0723	0.6573	0.5522	3.9400e-003		0.0500	0.0500		0.0500	0.0500		788.7870	788.7870	0.0151	0.0145	793.4744
NaturalGas Unmitigated	0.0723	0.6573	0.5522	3.9400e-003		0.0500	0.0500		0.0500	0.0500		788.7870	788.7870	0.0151	0.0145	793.4744

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	6704.69	0.0723	0.6573	0.5522	3.9400e-003		0.0500	0.0500		0.0500	0.0500		788.7870	788.7870	0.0151	0.0145	793.4744
Total		**0.0723**	**0.6573**	**0.5522**	**3.9400e-003**		**0.0500**	**0.0500**		**0.0500**	**0.0500**		**788.7870**	**788.7870**	**0.0151**	**0.0145**	**793.4744**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	6.70469	0.0723	0.6573	0.5522	3.9400e-003		0.0500	0.0500		0.0500	0.0500		788.7870	788.7870	0.0151	0.0145	793.4744
Total		**0.0723**	**0.6573**	**0.5522**	**3.9400e-003**		**0.0500**	**0.0500**		**0.0500**	**0.0500**		**788.7870**	**788.7870**	**0.0151**	**0.0145**	**793.4744**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.8397	1.2000e-004	0.0135	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0290	0.0290	8.0000e-005		0.0309
Unmitigated	2.8397	1.2000e-004	0.0135	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0290	0.0290	8.0000e-005		0.0309

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.8385					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2400e-003	1.2000e-004	0.0135	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0290	0.0290	8.0000e-005		0.0309
Total	**2.8397**	**1.2000e-004**	**0.0135**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0290**	**0.0290**	**8.0000e-005**		**0.0309**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.8385					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2400e-003	1.2000e-004	0.0135	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0290	0.0290	8.0000e-005		0.0309
Total	**2.8397**	**1.2000e-004**	**0.0135**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0290**	**0.0290**	**8.0000e-005**		**0.0309**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Off-Highway Trucks	1	4.00	12	402	0.38	Diesel

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Off-Highway Trucks	0.2388	1.4330	1.5927	6.6100e-003		0.0512	0.0512		0.0471	0.0471	0.0000	639.8377	639.8377	0.2069		645.0111
Total	**0.2388**	**1.4330**	**1.5927**	**6.6100e-003**		**0.0512**	**0.0512**		**0.0471**	**0.0471**	**0.0000**	**639.8377**	**639.8377**	**0.2069**		**645.0111**

Lodi Substation - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Lodi Substation

San Joaquin County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	132.64	1000sqft	4.60	132,640.20	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	51
Climate Zone	2			**Operational Year**	2028
Utility Company					
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Project specific info

Land Use - 4.6 acres of disturbed area per grading plan

Construction Phase - Project-specific timeline.

Off-road Equipment - Project-specific Information.

Off-road Equipment -

Off-road Equipment - Project-specific info

Off-road Equipment - Project-specific

Off-road Equipment - Project-specific information

Off-road Equipment - Project-specific equipment list used in lieu of CalEEMod defaults.

Off-road Equipment - project-specific information

Off-road Equipment - Site-specific value

Off-road Equipment - project-specific information

Off-road Equipment - Site-specific info

Off-road Equipment - Project-specific information

Trips and VMT - Project-specific worker trips

On-road Fugitive Dust - Only a small portion of the construction access road surfaces surrounding the project will be unpaved, therefore 98% pavement is assumed.

Grading - Site-specific area.

Vehicle Trips - Unmanned operation and no daily worker trips will occur

Vehicle Emission Factors -

Vehicle Emission Factors -

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Vehicle Emission Factors -

Consumer Products - No consumer product utilization was assumed for the project

Area Coating - No architectural coating is assumed for the project.

Landscape Equipment -

Energy Use -

Water And Wastewater - Unmanned facility - no water use is expected

Solid Waste - Unmanned facility - no solid waste generation is expected

Construction Off-road Equipment Mitigation - Tier 3 compliant engines are assumed for the project

Watering of exposed areas is assumed

Operational Off-Road Equipment - Assumes monthly inspection utilizing one off-highway truck 4 hours per day.

Fleet Mix -

Off-road Equipment - Project specific information

Off-road Equipment - Project specific equipment

Off-road Equipment - Project specific equipment

Off-road Equipment - Project specific equipment

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	40
tblConstructionPhase	NumDays	230.00	40.00
tblConstructionPhase	NumDays	230.00	40.00
tblConstructionPhase	NumDays	230.00	10.00
tblConstructionPhase	NumDays	230.00	40.00
tblConstructionPhase	NumDays	230.00	40.00
tblConstructionPhase	NumDays	18.00	40.00
tblConstructionPhase	NumDays	18.00	20.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	5.00	28.00
tblConstructionPhase	NumDays	230.00	10.00
tblConstructionPhase	NumDays	230.00	20.00
tblGrading	AcresOfGrading	120.00	3.04
tblLandUse	LandUseSquareFeet	132,640.00	132,640.20
tblLandUse	LotAcreage	3.04	4.60
tblOffRoadEquipment	HorsePower	84.00	34.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	HorsePower	402.00	275.00
tblOffRoadEquipment	LoadFactor	0.38	0.44
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Aerial Lifts
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	9.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	PhaseName	Remaining Deliveries, Installations, Testing and Commissioning	Remaining Deliveries, Installations, Testing and Commissioning 1
tblOffRoadEquipment	PhaseName		Steel/Bus Erection
tblOffRoadEquipment	PhaseName		Remaining Deliveries, Installations, Testing and Commissioning 1
tblOffRoadEquipment	PhaseName		Underground 12 kV Line Installation
tblOffRoadEquipment	PhaseName		Foundation
tblOffRoadEquipment	PhaseName		Foundation
tblOffRoadEquipment	PhaseName		Cleaning and Restoration 1

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Access Roads
tblOffRoadEquipment	PhaseName		Steel/Bus Erection
tblOffRoadEquipment	PhaseName		Remaining Deliveries, Installations, Testing and Commissioning 1
tblOffRoadEquipment	PhaseName		Cleaning and Restoration 1
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Survey
tblOffRoadEquipment	PhaseName		Underground 12 kV Line Installation
tblOffRoadEquipment	PhaseName		Fence and Gate Installation
tblOffRoadEquipment	PhaseName		Foundation
tblOffRoadEquipment	PhaseName		Yard Rock Installation
tblOffRoadEquipment	PhaseName		Ground/Grid Circuit Installation
tblOffRoadEquipment	PhaseName		Transformer Installation
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Fence and Gate Installation
tblOffRoadEquipment	PhaseName		Yard Rock Installation
tblOffRoadEquipment	PhaseName		Foundation
tblOffRoadEquipment	PhaseName		Access Roads
tblOffRoadEquipment	PhaseName		Cleaning and Restoration 1
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Underground 12 kV Line Installation
tblOffRoadEquipment	PhaseName		Ground/Grid Circuit Installation
tblOffRoadEquipment	PhaseName		Cleaning and Restoration 2
tblOffRoadEquipment	PhaseName		Cleaning and Restoration 2
tblOffRoadEquipment	PhaseName		Cleaning and Restoration 2
tblOffRoadEquipment	PhaseName		Remaining Deliveries, Installations, Testing and Commissioning 2
tblOffRoadEquipment	PhaseName		Remaining Deliveries, Installations, Testing and Commissioning 2

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblOffRoadEquipment	PhaseName		Remaining Deliveries, Installations, Testing and Commissioning 2
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	PhaseName	Remaining Deliveries, Installations, Testing and Commissioning	Remaining Deliveries, Installations, Testing and Commissioning 1
tblOnRoadDust	PhaseName	Cleaning and Restoration	Cleaning and Restoration 1
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	12.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	4.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblSolidWaste	SolidWasteGenerationRate	164.47	0.00
tblTripsAndVMT	PhaseName	Remaining Deliveries, Installations, Testing and Commissioning	Remaining Deliveries, Installations, Testing and Commissioning 1
tblTripsAndVMT	PhaseName	Cleaning and Restoration	Cleaning and Restoration 1
tblTripsAndVMT	WorkerTripNumber	15.00	20.00
tblTripsAndVMT	WorkerTripNumber	56.00	10.00
tblTripsAndVMT	WorkerTripNumber	56.00	30.00
tblTripsAndVMT	WorkerTripNumber	56.00	6.00
tblTripsAndVMT	WorkerTripNumber	38.00	20.00
tblTripsAndVMT	WorkerTripNumber	15.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	20.00
tblTripsAndVMT	WorkerTripNumber	8.00	16.00
tblTripsAndVMT	WorkerTripNumber	56.00	10.00
tblTripsAndVMT	WorkerTripNumber	56.00	16.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblVehicleTrips	ST_TR	1.99	0.00
tblVehicleTrips	SU_TR	5.00	0.00
tblVehicleTrips	WD_TR	4.96	0.00
tblWater	IndoorWaterUseRate	30,673,000.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2027	6.1261	44.4211	42.4102	0.1551	34.5252	1.7213	36.2465	11.6413	1.5836	13.2249	0.0000	15,021.8741	15,021.8741	4.7706	0.2021	15,143.5356
2028	1.9596	16.2140	12.1018	0.0441	0.0000	0.6189	0.6189	0.0000	0.5694	0.5694	0.0000	4,267.6839	4,267.6839	1.3803	0.0000	4,302.1903
Maximum	**6.1261**	**44.4211**	**42.4102**	**0.1551**	**34.5252**	**1.7213**	**36.2465**	**11.6413**	**1.5836**	**13.2249**	**0.0000**	**15,021.8741**	**15,021.8741**	**4.7706**	**0.2021**	**15,143.5356**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2027	6.1261	44.4211	42.4102	0.1551	26.3564	1.7213	27.0988	6.1699	1.5836	7.7535	0.0000	15,021.8741	15,021.8741	4.7706	0.2021	15,143.5356
2028	1.9596	16.2140	12.1018	0.0441	0.0000	0.6189	0.6189	0.0000	0.5694	0.5694	0.0000	4,267.6839	4,267.6839	1.3803	0.0000	4,302.1903
Maximum	**6.1261**	**44.4211**	**42.4102**	**0.1551**	**26.3564**	**1.7213**	**27.0988**	**6.1699**	**1.5836**	**7.7535**	**0.0000**	**15,021.8741**	**15,021.8741**	**4.7706**	**0.2021**	**15,143.5356**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**23.66**	**0.00**	**24.81**	**47.00**	**0.00**	**39.66**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.8397	1.2000e-004	0.0135	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0290	0.0290	8.0000e-005		0.0309
Energy	0.0723	0.6573	0.5522	3.9400e-003		0.0500	0.0500		0.0500	0.0500		788.7870	788.7870	0.0151	0.0145	793.4744
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	0.2388	1.4330	1.5927	6.6100e-003		0.0512	0.0512		0.0471	0.0471	0.0000	639.8377	639.8377	0.2069		645.0111
Total	**3.1508**	**2.0905**	**2.1584**	**0.0106**	**0.0000**	**0.1012**	**0.1012**	**0.0000**	**0.0971**	**0.0971**	**0.0000**	**1,428.6538**	**1,428.6538**	**0.2221**	**0.0145**	**1,438.5164**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.8397	1.2000e-004	0.0135	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0290	0.0290	8.0000e-005		0.0309
Energy	0.0723	0.6573	0.5522	3.9400e-003		0.0500	0.0500		0.0500	0.0500		788.7870	788.7870	0.0151	0.0145	793.4744
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	0.2388	1.4330	1.5927	6.6100e-003		0.0512	0.0512		0.0471	0.0471	0.0000	639.8377	639.8377	0.2069		645.0111
Total	**3.1508**	**2.0905**	**2.1584**	**0.0106**	**0.0000**	**0.1012**	**0.1012**	**0.0000**	**0.0971**	**0.0971**	**0.0000**	**1,428.6538**	**1,428.6538**	**0.2221**	**0.0145**	**1,438.5164**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Survey	Site Preparation	2/1/2027	2/26/2027	5	20	
2	Access Roads	Site Preparation	3/1/2027	3/26/2027	5	20	
3	Site Preparation	Site Preparation	3/1/2027	3/26/2027	5	20	
4	Underground 12 kV Line Installation	Trenching	3/1/2027	3/12/2027	5	10	
5	Fence and Gate Installation	Site Preparation	4/1/2027	5/10/2027	5	28	
6	Foundation	Paving	5/1/2027	6/27/2027	5	40	
7	Ground/Grid Circuit Installation	Building Construction	6/1/2027	7/26/2027	5	40	
8	Transformer Installation	Building Construction	7/1/2027	8/25/2027	5	40	
9	Steel/Bus Erection	Building Construction	7/1/2027	8/25/2027	5	40	
10	Yard Rock Installation	Paving	9/1/2027	9/28/2027	5	20	
11	Cleaning and Restoration 1	Building Construction	10/1/2027	10/14/2027	5	10	
12	Remaining Deliveries, Installations, Testing and Commissioning 1	Building Construction	11/1/2027	12/24/2027	5	40	
13	Cleaning and Restoration 2	Building Construction	2/1/2028	2/14/2028	5	10	
14	Remaining Deliveries, Installations, Testing and Commissioning 2	Building Construction	2/1/2028	2/28/2028	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Access Roads	Off-Highway Trucks	4	6.00	275	0.38
Access Roads	Rubber Tired Loaders	2	6.00	203	0.36
Site Preparation	Graders	1	6.00	187	0.41
Site Preparation	Off-Highway Trucks	9	6.00	275	0.38
Site Preparation	Rollers	2	6.00	80	0.38
Site Preparation	Rubber Tired Dozers	1	6.00	247	0.40
Site Preparation	Rubber Tired Loaders	1	6.00	203	0.36
Site Preparation	Scrapers	1	6.00	367	0.48
Survey	Off-Highway Trucks	2	6.00	275	0.38
Fence and Gate Installation	Off-Highway Trucks	5	6.00	275	0.38
Fence and Gate Installation	Rough Terrain Forklifts	1	6.00	100	0.40
Underground 12 kV Line Installation	Bore/Drill Rigs	1	6.00	221	0.50
Underground 12 kV Line Installation	Off-Highway Trucks	2	6.00	275	0.38
Underground 12 kV Line Installation	Trenchers	1	6.00	78	0.50
Ground/Grid Circuit Installation	Off-Highway Trucks	1	6.00	275	0.38
Ground/Grid Circuit Installation	Trenchers	1	6.00	78	0.50
Transformer Installation	Cranes	1	6.00	231	0.29
Transformer Installation	Generator Sets	1	6.00	34	0.74
Transformer Installation	Off-Highway Trucks	5	6.00	275	0.38
Steel/Bus Erection	Aerial Lifts	1	6.00	63	0.31
Steel/Bus Erection	Off-Highway Trucks	2	6.00	275	0.44
Remaining Deliveries, Installations, Testing and Commissioning 1	Aerial Lifts	1	6.00	63	0.31
Remaining Deliveries, Installations, Testing and Commissioning 1	Cranes	1	6.00	231	0.29
Remaining Deliveries, Installations, Testing and Commissioning 1	Off-Highway Trucks	3	6.00	275	0.38
Cleaning and Restoration 1	Graders	1	6.00	187	0.41
Cleaning and Restoration 1	Off-Highway Trucks	1	6.00	275	0.38
Cleaning and Restoration 1	Rubber Tired Loaders	1	6.00	203	0.36
Foundation	Bore/Drill Rigs	1	6.00	221	0.50
Foundation	Cranes	1	6.00	231	0.29
Foundation	Off-Highway Trucks	2	6.00	275	0.38
Foundation	Rubber Tired Dozers	1	6.00	247	0.40
Yard Rock Installation	Off-Highway Trucks	2	6.00	275	0.38
Yard Rock Installation	Rough Terrain Forklifts	1	6.00	100	0.40
Cleaning and Restoration 2	Graders	1	6.00	187	0.41

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Cleaning and Restoration 2	Off-Highway Trucks	1	6.00	275	0.38
Cleaning and Restoration 2	Rubber Tired Dozers	1	6.00	247	0.40
Remaining Deliveries, Installations, Testing and Commissioning 2	Aerial Lifts	1	6.00	63	0.31
Remaining Deliveries, Installations, Testing and Commissioning 2	Cranes	1	6.00	231	0.29
Remaining Deliveries, Installations, Testing and Commissioning 2	Off-Highway Trucks	3	6.00	275	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Access Roads	6	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	15	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Survey	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Fence and Gate Installation	6	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Underground 12 kV Line Installation	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Ground/Grid Circuit Installation	2	10.00	22.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Transformer Installation	7	16.00	22.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Steel/Bus Erection	3	10.00	22.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Remaining Deliveries, Installations, Testing and Commissioning 1	5	30.00	22.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Cleaning and Restoration 1	3	6.00	22.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Foundation	5	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Yard Rock Installation	3	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Cleaning and Restoration 2										
Remaining Deliveries, Installations, Testing and Commissioning 2										

3.1 Mitigation Measures Construction

Water Exposed Area

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Survey - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.4901	2.9409	3.2687	0.0136		0.1051	0.1051		0.0967	0.0967		1,313.0998	1,313.0998	0.4247		1,323.7169
Total	**0.4901**	**2.9409**	**3.2687**	**0.0136**	**0.0000**	**0.1051**	**0.1051**	**0.0000**	**0.0967**	**0.0967**		**1,313.0998**	**1,313.0998**	**0.4247**		**1,323.7169**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0115	6.7000e-003	0.0881	2.9000e-004	0.0411	1.6000e-004	0.0412	0.0109	1.5000e-004	0.0110		29.4927	29.4927	7.6000e-004	8.0000e-004	29.7514
Total	**0.0115**	**6.7000e-003**	**0.0881**	**2.9000e-004**	**0.0411**	**1.6000e-004**	**0.0412**	**0.0109**	**1.5000e-004**	**0.0110**		**29.4927**	**29.4927**	**7.6000e-004**	**8.0000e-004**	**29.7514**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.4901	2.9409	3.2687	0.0136		0.1051	0.1051		0.0967	0.0967	0.0000	1,313.0998	1,313.0998	0.4247		1,323.7169
Total	**0.4901**	**2.9409**	**3.2687**	**0.0136**	**0.0000**	**0.1051**	**0.1051**	**0.0000**	**0.0967**	**0.0967**	**0.0000**	**1,313.0998**	**1,313.0998**	**0.4247**		**1,323.7169**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0115	6.7000e-003	0.0881	2.9000e-004	0.0411	1.6000e-004	0.0412	0.0109	1.5000e-004	0.0110		29.4927	29.4927	7.6000e-004	8.0000e-004	29.7514
Total	**0.0115**	**6.7000e-003**	**0.0881**	**2.9000e-004**	**0.0411**	**1.6000e-004**	**0.0412**	**0.0109**	**1.5000e-004**	**0.0110**		**29.4927**	**29.4927**	**7.6000e-004**	**8.0000e-004**	**29.7514**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Access Roads - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3230	8.6699	8.7447	0.0365		0.3039	0.3039		0.2796	0.2796		3,534.6323	3,534.6323	1.1432		3,563.2116
Total	**1.3230**	**8.6699**	**8.7447**	**0.0365**	**0.0000**	**0.3039**	**0.3039**	**0.0000**	**0.2796**	**0.2796**		**3,534.6323**	**3,534.6323**	**1.1432**		**3,563.2116**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0461	0.0268	0.3524	1.1700e-003	6.5191	6.3000e-004	6.5197	0.6773	5.8000e-004	0.6779		117.9708	117.9708	3.0300e-003	3.2200e-003	119.0055
Total	**0.0461**	**0.0268**	**0.3524**	**1.1700e-003**	**6.5191**	**6.3000e-004**	**6.5197**	**0.6773**	**5.8000e-004**	**0.6779**		**117.9708**	**117.9708**	**3.0300e-003**	**3.2200e-003**	**119.0055**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3230	8.6699	8.7447	0.0365		0.3039	0.3039		0.2796	0.2796	0.0000	3,534.6323	3,534.6323	1.1432		3,563.2116
Total	**1.3230**	**8.6699**	**8.7447**	**0.0365**	**0.0000**	**0.3039**	**0.3039**	**0.0000**	**0.2796**	**0.2796**	**0.0000**	**3,534.6323**	**3,534.6323**	**1.1432**		**3,563.2116**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0461	0.0268	0.3524	1.1700e-003	6.5191	6.3000e-004	6.5197	0.6773	5.8000e-004	0.6779		117.9708	117.9708	3.0300e-003	3.2200e-003	119.0055
Total	**0.0461**	**0.0268**	**0.3524**	**1.1700e-003**	**6.5191**	**6.3000e-004**	**6.5197**	**0.6773**	**5.8000e-004**	**0.6779**		**117.9708**	**117.9708**	**3.0300e-003**	**3.2200e-003**	**119.0055**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Site Preparation - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.2275	0.0000	18.2275	9.9481	0.0000	9.9481			0.0000			0.0000
Off-Road	3.8054	29.1367	26.0621	0.0924		1.1178	1.1178		1.0284	1.0284		8,945.7685	8,945.7685	2.8932		9,018.0995
Total	**3.8054**	**29.1367**	**26.0621**	**0.0924**	**18.2275**	**1.1178**	**19.3453**	**9.9481**	**1.0284**	**10.9765**		**8,945.7685**	**8,945.7685**	**2.8932**		**9,018.0995**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0461	0.0268	0.3524	1.1700e-003	6.5191	6.3000e-004	6.5197	0.6773	5.8000e-004	0.6779		117.9708	117.9708	3.0300e-003	3.2200e-003	119.0055
Total	**0.0461**	**0.0268**	**0.3524**	**1.1700e-003**	**6.5191**	**6.3000e-004**	**6.5197**	**0.6773**	**5.8000e-004**	**0.6779**		**117.9708**	**117.9708**	**3.0300e-003**	**3.2200e-003**	**119.0055**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.2024	0.0000	8.2024	4.4766	0.0000	4.4766			0.0000			0.0000
Off-Road	3.8054	29.1367	26.0621	0.0924		1.1178	1.1178		1.0284	1.0284	0.0000	8,945.7684	8,945.7684	2.8932		9,018.0995
Total	**3.8054**	**29.1367**	**26.0621**	**0.0924**	**8.2024**	**1.1178**	**9.3202**	**4.4766**	**1.0284**	**5.5050**	**0.0000**	**8,945.7684**	**8,945.7684**	**2.8932**		**9,018.0995**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0461	0.0268	0.3524	1.1700e-003	6.5191	6.3000e-004	6.5197	0.6773	5.8000e-004	0.6779		117.9708	117.9708	3.0300e-003	3.2200e-003	119.0055
Total	**0.0461**	**0.0268**	**0.3524**	**1.1700e-003**	**6.5191**	**6.3000e-004**	**6.5197**	**0.6773**	**5.8000e-004**	**0.6779**		**117.9708**	**117.9708**	**3.0300e-003**	**3.2200e-003**	**119.0055**

3.5 Underground 12 kV Line Installation - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8826	6.5475	6.7224	0.0232		0.2981	0.2981		0.2742	0.2742		2,246.5463	2,246.5463	0.7266		2,264.7107
Total	**0.8826**	**6.5475**	**6.7224**	**0.0232**		**0.2981**	**0.2981**		**0.2742**	**0.2742**		**2,246.5463**	**2,246.5463**	**0.7266**		**2,264.7107**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0230	0.0134	0.1762	5.8000e-004	3.2596	3.2000e-004	3.2599	0.3387	2.9000e-004	0.3389		58.9854	58.9854	1.5200e-003	1.6100e-003	59.5028
Total	**0.0230**	**0.0134**	**0.1762**	**5.8000e-004**	**3.2596**	**3.2000e-004**	**3.2599**	**0.3387**	**2.9000e-004**	**0.3389**		**58.9854**	**58.9854**	**1.5200e-003**	**1.6100e-003**	**59.5028**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8826	6.5475	6.7224	0.0232		0.2981	0.2981		0.2742	0.2742	0.0000	2,246.5463	2,246.5463	0.7266		2,264.7107
Total	**0.8826**	**6.5475**	**6.7224**	**0.0232**		**0.2981**	**0.2981**		**0.2742**	**0.2742**	**0.0000**	**2,246.5463**	**2,246.5463**	**0.7266**		**2,264.7107**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0230	0.0134	0.1762	5.8000e-004	3.2596	3.2000e-004	3.2599	0.3387	2.9000e-004	0.3389		58.9854	58.9854	1.5200e-003	1.6100e-003	59.5028
Total	**0.0230**	**0.0134**	**0.1762**	**5.8000e-004**	**3.2596**	**3.2000e-004**	**3.2599**	**0.3387**	**2.9000e-004**	**0.3389**		**58.9854**	**58.9854**	**1.5200e-003**	**1.6100e-003**	**59.5028**

3.6 Fence and Gate Installation - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.2978	8.3156	9.8858	0.0365		0.2898	0.2898		0.2666	0.2666		3,533.0376	3,533.0376	1.1427		3,561.6040
Total	**1.2978**	**8.3156**	**9.8858**	**0.0365**	**0.0000**	**0.2898**	**0.2898**	**0.0000**	**0.2666**	**0.2666**		**3,533.0376**	**3,533.0376**	**1.1427**		**3,561.6040**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0230	0.0134	0.1762	5.8000e-004	3.2596	3.2000e-004	3.2599	0.3387	2.9000e-004	0.3389		58.9854	58.9854	1.5200e-003	1.6100e-003	59.5028
Total	**0.0230**	**0.0134**	**0.1762**	**5.8000e-004**	**3.2596**	**3.2000e-004**	**3.2599**	**0.3387**	**2.9000e-004**	**0.3389**		**58.9854**	**58.9854**	**1.5200e-003**	**1.6100e-003**	**59.5028**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.2978	8.3156	9.8858	0.0365		0.2898	0.2898		0.2666	0.2666	0.0000	3,533.0376	3,533.0376	1.1427		3,561.6040
Total	**1.2978**	**8.3156**	**9.8858**	**0.0365**	**0.0000**	**0.2898**	**0.2898**	**0.0000**	**0.2666**	**0.2666**	**0.0000**	**3,533.0376**	**3,533.0376**	**1.1427**		**3,561.6040**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0230	0.0134	0.1762	5.8000e-004	3.2596	3.2000e-004	3.2599	0.3387	2.9000e-004	0.3389		58.9854	58.9854	1.5200e-003	1.6100e-003	59.5028
Total	**0.0230**	**0.0134**	**0.1762**	**5.8000e-004**	**3.2596**	**3.2000e-004**	**3.2599**	**0.3387**	**2.9000e-004**	**0.3389**		**58.9854**	**58.9854**	**1.5200e-003**	**1.6100e-003**	**59.5028**

3.7 Foundation - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3677	11.6893	8.3465	0.0314		0.4696	0.4696		0.4321	0.4321		3,040.3772	3,040.3772	0.9833		3,064.9602
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3677**	**11.6893**	**8.3465**	**0.0314**		**0.4696**	**0.4696**		**0.4321**	**0.4321**		**3,040.3772**	**3,040.3772**	**0.9833**		**3,064.9602**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0461	0.0268	0.3524	1.1700e-003	6.5191	6.3000e-004	6.5197	0.6773	5.8000e-004	0.6779		117.9708	117.9708	3.0300e-003	3.2200e-003	119.0055
Total	**0.0461**	**0.0268**	**0.3524**	**1.1700e-003**	**6.5191**	**6.3000e-004**	**6.5197**	**0.6773**	**5.8000e-004**	**0.6779**		**117.9708**	**117.9708**	**3.0300e-003**	**3.2200e-003**	**119.0055**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3677	11.6893	8.3465	0.0314		0.4696	0.4696		0.4321	0.4321	0.0000	3,040.3772	3,040.3772	0.9833		3,064.9602
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3677**	**11.6893**	**8.3465**	**0.0314**		**0.4696**	**0.4696**		**0.4321**	**0.4321**	**0.0000**	**3,040.3772**	**3,040.3772**	**0.9833**		**3,064.9602**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0461	0.0268	0.3524	1.1700e-003	6.5191	6.3000e-004	6.5197	0.6773	5.8000e-004	0.6779		117.9708	117.9708	3.0300e-003	3.2200e-003	119.0055
Total	**0.0461**	**0.0268**	**0.3524**	**1.1700e-003**	**6.5191**	**6.3000e-004**	**6.5197**	**0.6773**	**5.8000e-004**	**0.6779**		**117.9708**	**117.9708**	**3.0300e-003**	**3.2200e-003**	**119.0055**

3.8 Ground/Grid Circuit Installation - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4805	3.6779	3.5608	9.3200e-003		0.1996	0.1996		0.1836	0.1836		902.0587	902.0587	0.2917		909.3523
Total	**0.4805**	**3.6779**	**3.5608**	**9.3200e-003**		**0.1996**	**0.1996**		**0.1836**	**0.1836**		**902.0587**	**902.0587**	**0.2917**		**909.3523**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0207	0.9809	0.2739	4.1100e-003	4.8740	6.2200e-003	4.8802	0.5141	5.9500e-003	0.5201		434.9690	434.9690	1.9300e-003	0.0654	454.5189
Worker	0.0230	0.0134	0.1762	5.8000e-004	3.2596	3.2000e-004	3.2599	0.3387	2.9000e-004	0.3389		58.9854	58.9854	1.5200e-003	1.6100e-003	59.5028
Total	**0.0438**	**0.9943**	**0.4501**	**4.6900e-003**	**8.1336**	**6.5400e-003**	**8.1401**	**0.8528**	**6.2400e-003**	**0.8590**		**493.9544**	**493.9544**	**3.4500e-003**	**0.0671**	**514.0216**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4805	3.6779	3.5608	9.3200e-003		0.1996	0.1996		0.1836	0.1836	0.0000	902.0587	902.0587	0.2917		909.3523
Total	**0.4805**	**3.6779**	**3.5608**	**9.3200e-003**		**0.1996**	**0.1996**		**0.1836**	**0.1836**	**0.0000**	**902.0587**	**902.0587**	**0.2917**		**909.3523**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0207	0.9809	0.2739	4.1100e-003	4.8740	6.2200e-003	4.8802	0.5141	5.9500e-003	0.5201		434.9690	434.9690	1.9300e-003	0.0654	454.5189
Worker	0.0230	0.0134	0.1762	5.8000e-004	3.2596	3.2000e-004	3.2599	0.3387	2.9000e-004	0.3389		58.9854	58.9854	1.5200e-003	1.6100e-003	59.5028
Total	**0.0438**	**0.9943**	**0.4501**	**4.6900e-003**	**8.1336**	**6.5400e-003**	**8.1401**	**0.8528**	**6.2400e-003**	**0.8590**		**493.9544**	**493.9544**	**3.4500e-003**	**0.0671**	**514.0216**

3.9 Transformer Installation - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6062	10.8868	10.7247	0.0406		0.3947	0.3947		0.3656	0.3656		3,891.0050	3,891.0050	1.2102		3,921.2610
Total	**1.6062**	**10.8868**	**10.7247**	**0.0406**		**0.3947**	**0.3947**		**0.3656**	**0.3656**		**3,891.0050**	**3,891.0050**	**1.2102**		**3,921.2610**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0207	0.9809	0.2739	4.1100e-003	4.8740	6.2200e-003	4.8802	0.5141	5.9500e-003	0.5201		434.9690	434.9690	1.9300e-003	0.0654	454.5189
Worker	0.0369	0.0214	0.2820	9.3000e-004	5.2153	5.1000e-004	5.2158	0.5418	4.7000e-004	0.5423		94.3767	94.3767	2.4300e-003	2.5700e-003	95.2044
Total	**0.0576**	**1.0024**	**0.5559**	**5.0400e-003**	**10.0893**	**6.7300e-003**	**10.0960**	**1.0559**	**6.4200e-003**	**1.0624**		**529.3457**	**529.3457**	**4.3600e-003**	**0.0680**	**549.7233**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6062	10.8868	10.7247	0.0406		0.3947	0.3947		0.3656	0.3656	0.0000	3,891.0050	3,891.0050	1.2102		3,921.2609
Total	**1.6062**	**10.8868**	**10.7247**	**0.0406**		**0.3947**	**0.3947**		**0.3656**	**0.3656**	**0.0000**	**3,891.0050**	**3,891.0050**	**1.2102**		**3,921.2609**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0207	0.9809	0.2739	4.1100e-003	4.8740	6.2200e-003	4.8802	0.5141	5.9500e-003	0.5201		434.9690	434.9690	1.9300e-003	0.0654	454.5189
Worker	0.0369	0.0214	0.2820	9.3000e-004	5.2153	5.1000e-004	5.2158	0.5418	4.7000e-004	0.5423		94.3767	94.3767	2.4300e-003	2.5700e-003	95.2044
Total	**0.0576**	**1.0024**	**0.5559**	**5.0400e-003**	**10.0893**	**6.7300e-003**	**10.0960**	**1.0559**	**6.4200e-003**	**1.0624**		**529.3457**	**529.3457**	**4.3600e-003**	**0.0680**	**549.7233**

3.10 Steel/Bus Erection - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5930	3.7956	4.6030	0.0170		0.1284	0.1284		0.1181	0.1181		1,642.3962	1,642.3962	0.5312		1,655.6758
Total	**0.5930**	**3.7956**	**4.6030**	**0.0170**		**0.1284**	**0.1284**		**0.1181**	**0.1181**		**1,642.3962**	**1,642.3962**	**0.5312**		**1,655.6758**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0207	0.9809	0.2739	4.1100e-003	4.8740	6.2200e-003	4.8802	0.5141	5.9500e-003	0.5201		434.9690	434.9690	1.9300e-003	0.0654	454.5189
Worker	0.0230	0.0134	0.1762	5.8000e-004	3.2596	3.2000e-004	3.2599	0.3387	2.9000e-004	0.3389		58.9854	58.9854	1.5200e-003	1.6100e-003	59.5028
Total	**0.0438**	**0.9943**	**0.4501**	**4.6900e-003**	**8.1336**	**6.5400e-003**	**8.1401**	**0.8528**	**6.2400e-003**	**0.8590**		**493.9544**	**493.9544**	**3.4500e-003**	**0.0671**	**514.0216**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5930	3.7956	4.6030	0.0170		0.1284	0.1284		0.1181	0.1181	0.0000	1,642.3962	1,642.3962	0.5312		1,655.6758
Total	**0.5930**	**3.7956**	**4.6030**	**0.0170**		**0.1284**	**0.1284**		**0.1181**	**0.1181**	**0.0000**	**1,642.3962**	**1,642.3962**	**0.5312**		**1,655.6758**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0207	0.9809	0.2739	4.1100e-003	4.8740	6.2200e-003	4.8802	0.5141	5.9500e-003	0.5201		434.9690	434.9690	1.9300e-003	0.0654	454.5189
Worker	0.0230	0.0134	0.1762	5.8000e-004	3.2596	3.2000e-004	3.2599	0.3387	2.9000e-004	0.3389		58.9854	58.9854	1.5200e-003	1.6100e-003	59.5028
Total	**0.0438**	**0.9943**	**0.4501**	**4.6900e-003**	**8.1336**	**6.5400e-003**	**8.1401**	**0.8528**	**6.2400e-003**	**0.8590**		**493.9544**	**493.9544**	**3.4500e-003**	**0.0671**	**514.0216**

3.11 Yard Rock Installation - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5628	3.9042	4.9828	0.0162		0.1322	0.1322		0.1216	0.1216		1,563.3879	1,563.3879	0.5056		1,576.0287
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5628**	**3.9042**	**4.9828**	**0.0162**		**0.1322**	**0.1322**		**0.1216**	**0.1216**		**1,563.3879**	**1,563.3879**	**0.5056**		**1,576.0287**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0369	0.0214	0.2820	9.3000e-004	5.2153	5.1000e-004	5.2158	0.5418	4.7000e-004	0.5423		94.3767	94.3767	2.4300e-003	2.5700e-003	95.2044
Total	**0.0369**	**0.0214**	**0.2820**	**9.3000e-004**	**5.2153**	**5.1000e-004**	**5.2158**	**0.5418**	**4.7000e-004**	**0.5423**		**94.3767**	**94.3767**	**2.4300e-003**	**2.5700e-003**	**95.2044**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5628	3.9042	4.9828	0.0162		0.1322	0.1322		0.1216	0.1216	0.0000	1,563.3879	1,563.3879	0.5056		1,576.0287
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5628**	**3.9042**	**4.9828**	**0.0162**		**0.1322**	**0.1322**		**0.1216**	**0.1216**	**0.0000**	**1,563.3879**	**1,563.3879**	**0.5056**		**1,576.0287**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0369	0.0214	0.2820	9.3000e-004	5.2153	5.1000e-004	5.2158	0.5418	4.7000e-004	0.5423		94.3767	94.3767	2.4300e-003	2.5700e-003	95.2044
Total	**0.0369**	**0.0214**	**0.2820**	**9.3000e-004**	**5.2153**	**5.1000e-004**	**5.2158**	**0.5418**	**4.7000e-004**	**0.5423**		**94.3767**	**94.3767**	**2.4300e-003**	**2.5700e-003**	**95.2044**

3.12 Cleaning and Restoration 1 - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6498	5.4570	3.9336	0.0164		0.1828	0.1828		0.1682	0.1682		1,590.9460	1,590.9460	0.5145		1,603.8096
Total	**0.6498**	**5.4570**	**3.9336**	**0.0164**		**0.1828**	**0.1828**		**0.1682**	**0.1682**		**1,590.9460**	**1,590.9460**	**0.5145**		**1,603.8096**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0207	0.9809	0.2739	4.1100e-003	4.8740	6.2200e-003	4.8802	0.5141	5.9500e-003	0.5201		434.9690	434.9690	1.9300e-003	0.0654	454.5189
Worker	0.0138	8.0400e-003	0.1057	3.5000e-004	1.9557	1.9000e-004	1.9559	0.2032	1.8000e-004	0.2034		35.3913	35.3913	9.1000e-004	9.7000e-004	35.7017
Total	**0.0345**	**0.9890**	**0.3796**	**4.4600e-003**	**6.8297**	**6.4100e-003**	**6.8361**	**0.7173**	**6.1300e-003**	**0.7234**		**470.3603**	**470.3603**	**2.8400e-003**	**0.0664**	**490.2205**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6498	5.4570	3.9336	0.0164		0.1828	0.1828		0.1682	0.1682	0.0000	1,590.9460	1,590.9460	0.5145		1,603.8096
Total	**0.6498**	**5.4570**	**3.9336**	**0.0164**		**0.1828**	**0.1828**		**0.1682**	**0.1682**	**0.0000**	**1,590.9460**	**1,590.9460**	**0.5145**		**1,603.8096**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0207	0.9809	0.2739	4.1100e-003	4.8740	6.2200e-003	4.8802	0.5141	5.9500e-003	0.5201		434.9690	434.9690	1.9300e-003	0.0654	454.5189
Worker	0.0138	8.0400e-003	0.1057	3.5000e-004	1.9557	1.9000e-004	1.9559	0.2032	1.8000e-004	0.2034		35.3913	35.3913	9.1000e-004	9.7000e-004	35.7017
Total	**0.0345**	**0.9890**	**0.3796**	**4.4600e-003**	**6.8297**	**6.4100e-003**	**6.8361**	**0.7173**	**6.1300e-003**	**0.7234**		**470.3603**	**470.3603**	**2.8400e-003**	**0.0664**	**490.2205**

3.13 Remaining Deliveries, Installations, Testing and Commissioning 1 -

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9952	7.1777	7.0236	0.0259		0.2653	0.2653		0.2441	0.2441		2,510.7342	2,510.7342	0.8120		2,531.0348
Total	**0.9952**	**7.1777**	**7.0236**	**0.0259**		**0.2653**	**0.2653**		**0.2441**	**0.2441**		**2,510.7342**	**2,510.7342**	**0.8120**		**2,531.0348**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0207	0.9809	0.2739	4.1100e-003	4.8740	6.2200e-003	4.8802	0.5141	5.9500e-003	0.5201		434.9690	434.9690	1.9300e-003	0.0654	454.5189
Worker	0.0691	0.0402	0.5287	1.7500e-003	9.7786	9.5000e-004	9.7796	1.0159	8.8000e-004	1.0168		176.9563	176.9563	4.5500e-003	4.8300e-003	178.5083
Total	**0.0898**	**1.0211**	**0.8026**	**5.8600e-003**	**14.6526**	**7.1700e-003**	**14.6598**	**1.5301**	**6.8300e-003**	**1.5369**		**611.9253**	**611.9253**	**6.4800e-003**	**0.0703**	**633.0271**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9952	7.1777	7.0236	0.0259		0.2653	0.2653		0.2441	0.2441	0.0000	2,510.7342	2,510.7342	0.8120		2,531.0348
Total	**0.9952**	**7.1777**	**7.0236**	**0.0259**		**0.2653**	**0.2653**		**0.2441**	**0.2441**	**0.0000**	**2,510.7342**	**2,510.7342**	**0.8120**		**2,531.0348**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0207	0.9809	0.2739	4.1100e-003	4.8740	6.2200e-003	4.8802	0.5141	5.9500e-003	0.5201		434.9690	434.9690	1.9300e-003	0.0654	454.5189
Worker	0.0691	0.0402	0.5287	1.7500e-003	9.7786	9.5000e-004	9.7796	1.0159	8.8000e-004	1.0168		176.9563	176.9563	4.5500e-003	4.8300e-003	178.5083
Total	**0.0898**	**1.0211**	**0.8026**	**5.8600e-003**	**14.6526**	**7.1700e-003**	**14.6598**	**1.5301**	**6.8300e-003**	**1.5369**		**611.9253**	**611.9253**	**6.4800e-003**	**0.0703**	**633.0271**

3.14 Cleaning and Restoration 2 - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9644	9.0364	5.0782	0.0182		0.3536	0.3536		0.3253	0.3253		1,756.9497	1,756.9497	0.5682		1,771.1555
Total	**0.9644**	**9.0364**	**5.0782**	**0.0182**		**0.3536**	**0.3536**		**0.3253**	**0.3253**		**1,756.9497**	**1,756.9497**	**0.5682**		**1,771.1555**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9644	9.0364	5.0782	0.0182		0.3536	0.3536		0.3253	0.3253	0.0000	1,756.9497	1,756.9497	0.5682		1,771.1555
Total	**0.9644**	**9.0364**	**5.0782**	**0.0182**		**0.3536**	**0.3536**		**0.3253**	**0.3253**	**0.0000**	**1,756.9497**	**1,756.9497**	**0.5682**		**1,771.1555**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

3.15 Remaining Deliveries, Installations, Testing and Commissioning 2 -

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9952	7.1777	7.0236	0.0259		0.2653	0.2653		0.2441	0.2441		2,510.7342	2,510.7342	0.8120		2,531.0348
Total	**0.9952**	**7.1777**	**7.0236**	**0.0259**		**0.2653**	**0.2653**		**0.2441**	**0.2441**		**2,510.7342**	**2,510.7342**	**0.8120**		**2,531.0348**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9952	7.1777	7.0236	0.0259		0.2653	0.2653		0.2441	0.2441	0.0000	2,510.7342	2,510.7342	0.8120		2,531.0348
Total	**0.9952**	**7.1777**	**7.0236**	**0.0259**		**0.2653**	**0.2653**		**0.2441**	**0.2441**	**0.0000**	**2,510.7342**	**2,510.7342**	**0.8120**		**2,531.0348**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.554122	0.053376	0.171995	0.136171	0.022603	0.005710	0.012724	0.016721	0.000451	0.000316	0.021848	0.001050	0.002914

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0723	0.6573	0.5522	3.9400e-003		0.0500	0.0500		0.0500	0.0500		788.7870	788.7870	0.0151	0.0145	793.4744
NaturalGas Unmitigated	0.0723	0.6573	0.5522	3.9400e-003		0.0500	0.0500		0.0500	0.0500		788.7870	788.7870	0.0151	0.0145	793.4744

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	6704.69	0.0723	0.6573	0.5522	3.9400e-003		0.0500	0.0500		0.0500	0.0500		788.7870	788.7870	0.0151	0.0145	793.4744
Total		**0.0723**	**0.6573**	**0.5522**	**3.9400e-003**		**0.0500**	**0.0500**		**0.0500**	**0.0500**		**788.7870**	**788.7870**	**0.0151**	**0.0145**	**793.4744**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	6.70469	0.0723	0.6573	0.5522	3.9400e-003		0.0500	0.0500		0.0500	0.0500		788.7870	788.7870	0.0151	0.0145	793.4744
Total		**0.0723**	**0.6573**	**0.5522**	**3.9400e-003**		**0.0500**	**0.0500**		**0.0500**	**0.0500**		**788.7870**	**788.7870**	**0.0151**	**0.0145**	**793.4744**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.8397	1.2000e-004	0.0135	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0290	0.0290	8.0000e-005		0.0309
Unmitigated	2.8397	1.2000e-004	0.0135	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0290	0.0290	8.0000e-005		0.0309

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.8385					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2400e-003	1.2000e-004	0.0135	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0290	0.0290	8.0000e-005		0.0309
Total	**2.8397**	**1.2000e-004**	**0.0135**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0290**	**0.0290**	**8.0000e-005**		**0.0309**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.8385					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2400e-003	1.2000e-004	0.0135	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0290	0.0290	8.0000e-005		0.0309
Total	**2.8397**	**1.2000e-004**	**0.0135**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0290**	**0.0290**	**8.0000e-005**		**0.0309**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Off-Highway Trucks	1	4.00	12	402	0.38	Diesel

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Off-Highway Trucks	0.2388	1.4330	1.5927	6.6100e-003		0.0512	0.0512		0.0471	0.0471	0.0000	639.8377	639.8377	0.2069		645.0111
Total	**0.2388**	**1.4330**	**1.5927**	**6.6100e-003**		**0.0512**	**0.0512**		**0.0471**	**0.0471**	**0.0000**	**639.8377**	**639.8377**	**0.2069**		**645.0111**

Lodi Substation - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

tblProjectCharacteristics

ProjectNar	LocationSt	EMFAC_ID	WindSpee	Precipitatic	ClimateZo	Urbanizatic	Operationa	UtilityCom	CO2Intens	CH4Intens	N2OIntens	TotalPopu	TotalLotAc	UsingHistc	Constructic	UseAdjusted	EMFACFactors
Lodi Subst	C	SJ	2.7	51	2	Urban	2028		641.35	0.029	0.006	0	4.6	0	2027/03/0	0	

PollutantSe	PollutantFu	PollutantName
1	Reactive C	ROG
1	Nitrogen C	NOX
1	Carbon Mo	CO
1	Sulfur Dio	SO2
1	Particulate	PM10
1	Particulate	PM2_5
1	Fugitive Pl	PM10_FUG
1	Fugitive Pl	PM25_FUG
1	Biogenic C	CO2_BIO
1	Non-Bioge	CO2_NBIO
1	Carbon Di	CO2
1	Methane (I	CH4
1	Nitrous Ox	N2O
1	CO2 Equiv	CO2E

LandUseT	LandUseS	LandUseU	LandUseS	LotAcreag	LandUseS	Population	BuildingSp	GreenSpa	RecSwimmingAreaAllowEdit
Industrial	General Li	132.64	1000sqft	4.6	132640.2	0	132640.2	0	0

PhaseNum	PhaseNam	PhaseTyp	PhaseStar	PhaseEnd	NumDays\	NumDays	PhaseDescription
1	Survey	Site Prepa	2027/02/0	2027/02/2	5	20	
2	Access Rc	Site Prepa	2027/03/0	2027/03/2	5	20	
3	Site Prepa	Site Prepa	2027/03/0	2027/03/2	5	20	
4	Undergrou	Trenching	2027/03/0	2027/03/1	5	10	
5	Fence and	Site Prepa	2027/04/0	2027/05/1	5	28	
6	Foundatio	Paving	2027/05/0	2027/06/2	5	40	
7	Ground/Gr	Building C	2027/06/0	2027/07/2	5	40	
8	Transform	Building C	2027/07/0	2027/08/2	5	40	
9	Steel/Bus	Building C	2027/07/0	2027/08/2	5	40	
10	Yard Rock	Paving	2027/09/0	2027/09/2	5	20	
11	Cleaning a	Building C	2027/10/0	2027/10/1	5	10	
12	Remaining	Building C	2027/11/0	2027/12/2	5	40	
13	Cleaning a	Building C	2028/02/0	2028/02/1	5	10	
14	Remaining	Building C	2028/02/0	2028/02/2	5	20	

PhaseNam	OffRoadEc	OffRoadEc	UsageHou	HorsePow	LoadFactor
Survey	Off-Highwa	2	6	275	0.38
Access Ro	Off-Highwa	4	6	275	0.38
Access Ro	Rubber Tir	2	6	203	0.36
Site Prepa	Graders	1	6	187	0.41
Site Prepa	Off-Highwa	9	6	275	0.38
Site Prepa	Rollers	2	6	80	0.38
Site Prepa	Rubber Tir	1	6	247	0.4
Site Prepa	Rubber Tir	1	6	203	0.36
Site Prepa	Scrapers	1	6	367	0.48
Undergrou	Bore/Drill I	1	6	221	0.5
Undergrou	Off-Highwa	2	6	275	0.38
Undergrou	Trenchers	1	6	78	0.5
Fence and	Off-Highwa	5	6	275	0.38
Fence and	Rough Ter	1	6	100	0.4
Foundatio	Bore/Drill I	1	6	221	0.5
Foundatio	Cranes	1	6	231	0.29
Foundatio	Off-Highwa	2	6	275	0.38
Foundatio	Rubber Tir	1	6	247	0.4
Ground/Gr	Off-Highwa	1	6	275	0.38
Ground/Gr	Trenchers	1	6	78	0.5
Transform	Cranes	1	6	231	0.29
Transform	Generator	1	6	34	0.74
Transform	Off-Highwa	5	6	275	0.38
Steel/Bus	Aerial Lifts	1	6	63	0.31
Steel/Bus	Off-Highwa	2	6	275	0.44
Yard Rock	Off-Highwa	2	6	275	0.38
Yard Rock	Rough Ter	1	6	100	0.4
Cleaning a	Graders	1	6	187	0.41
Cleaning a	Off-Highwa	1	6	275	0.38
Cleaning a	Rubber Tir	1	6	203	0.36
Remaining	Aerial Lifts	1	6	63	0.31
Remaining	Cranes	1	6	231	0.29
Remaining	Off-Highwa	3	6	275	0.38
Cleaning a	Graders	1	6	187	0.41
Cleaning a	Off-Highwa	1	6	275	0.38
Cleaning a	Rubber Tir	1	6	247	0.4
Remaining	Aerial Lifts	1	6	63	0.31
Remaining	Cranes	1	6	231	0.29
Remaining	Off-Highwa	3	6	275	0.38

PhaseNam	WorkerTrip	VendorTrip	HaulingTri	WorkerTrip	VendorTrip	HaulingTri	WorkerVel	VendorVel	HaulingVehicleClass
Survey	5	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT
Access Ro	20	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT
Site Prepa	20	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT
Undergrou	10	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT
Fence and	10	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT
Foundatio	20	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT
Ground/Gr	10	22	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT
Transform	16	22	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT
Steel/Bus	10	22	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT
Yard Rock	16	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT
Cleaning a	6	22	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT
Remaining	30	22	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT
Cleaning and Restoration 2									
Remaining Deliveries, Installations, Testing and Commissioning 2									

PhaseNam	WorkerPer	VendorPer	HaulingPe	RoadSiltLo	MaterialSil	MaterialMo	AverageVe	MeanVehicleSpeed
Survey	100	100	100	0.1	8.5	0.5	2.4	40
Access Ro	98	98	98	0.1	8.5	0.5	2.4	40
Site Prepa	98	98	98	0.1	8.5	0.5	2.4	40
Undergrou	98	98	98	0.1	8.5	0.5	2.4	40
Fence and	98	98	98	0.1	8.5	0.5	2.4	40
Foundatio	98	98	98	0.1	8.5	0.5	2.4	40
Ground/Gr	98	98	98	0.1	8.5	0.5	2.4	40
Transform	98	98	98	0.1	8.5	0.5	2.4	40
Steel/Bus	98	98	98	0.1	8.5	0.5	2.4	40
Yard Rock	98	98	98	0.1	8.5	0.5	2.4	40
Cleaning a	98	98	98	0.1	8.5	0.5	2.4	40
Remaining	98	98	98	0.1	8.5	0.5	2.4	40
Cleaning and Restoration 2								
Remaining Deliveries, Installations, Testing and Commissioning 2								

PhaseNam DemolitionDemolitionUnitAmount

PhaseNam	MaterialIm	MaterialEx	GradingSi	ImportExp	MeanVehi	AcresOfGr	MaterialMc	MaterialMc	MaterialSiltContent
Survey	0	0		0	7.1		7.9	12	6.9
Access Rc	0	0		0	7.1		7.9	12	6.9
Site Prepa	0	0		0	7.1	3.04	7.9	12	6.9
Fence and	0	0		0	7.1		7.9	12	6.9

PhaseNam	Architectu	Architectu	EF_Reside	ConstArea	EF_Reside	ConstArea	EF_Nonre	ConstArea	EF_Nonre	ConstArea	EF_Parkin	ConstArea_Parking

ParkingLotAcreage

VehicleTri	VehicleTri	WD_TR	ST_TR	SU_TR	HW_TL	HS_TL	HO_TL	CC_TL	CW_TL	CNW_TL	PR_TP	DV_TP	PB_TP	HW_TTP	HS_TTP	HO_TTP	CC_TTP	CW_TTP
General Li	1000sqft	0	0	0	0	0	0	7.3	9.5	7.3	92	5	3	0	0	0	28	59

CNW_TTP
13

Season	EmissionT	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
A	CH4_IDLE	0	0	0	0	0.003951	0.002493	0.002452	0.022959	0.008621	0	0	0.026793	0
A	CH4_RUN	0.001115	0.00225	0.001902	0.002377	0.007029	0.006308	0.00095	0.005541	0.005582	3.537314	0.318968	0.004062	0.007627
A	CH4_STR	0.034185	0.047042	0.04874	0.058796	0.010218	0.005665	0.005358	0	0.022957	0.00787	0.25075	0.002096	0.020218
A	CO_IDLE)	0	0	0	0	0.16531	0.126754	0.371652	7.159657	0.557661	0	0	1.431583	0
A	CO_RUNE	0.418701	0.617867	0.562831	0.618519	0.685174	0.611184	0.160767	0.224357	0.607318	26.83861	19.2771	0.256639	0.618866
A	CO_STRE	1.814053	1.977715	2.367511	2.614992	0.844535	0.464348	0.587426	0.001615	2.598132	0.563655	9.091168	0.292733	1.729457
A	CO2_NBI(	0	0	0	0	8.974001	14.12017	76.63334	1081.533	73.49505	0	0	328.1865	0
A	CO2_NBI(	217.421	258.1934	267.5891	337.7884	719.6553	709.7751	1006.399	1209.927	1374.199	1638.848	212.0621	1056.022	1433.368
A	CO2_NBI(	45.24583	55.06708	57.52985	72.52717	9.328439	6.145683	5.414222	0.013171	19.65709	5.826933	60.63235	1.784206	16.15093
A	NOX_IDLE	0	0	0	0	0.074809	0.102438	0.407174	5.813879	0.290742	0	0	3.031208	0
A	NOX_RUN	0.021176	0.044669	0.038313	0.050072	0.862736	0.836547	1.605381	2.295284	1.1158	0.441033	1.156285	4.381932	1.537353
A	NOX_STR	0.138829	0.185523	0.195432	0.245091	0.237391	0.137553	1.884211	2.342217	0.763579	0.05902	0.268552	1.029864	0.237741
A	PM10_IDL	0	0	0	0	0.001051	0.001555	0.000204	0.002285	0.000098	0	0	0.002397	0
A	PM10_PM	0.03675	0.03675	0.03675	0.03675	0.07644	0.08918	0.13034	0.061209	0.13034	0.092205	0.01176	0.7448	0.13034
A	PM10_PM	0.008	0.008	0.008	0.008	0.010071	0.010927	0.012	0.035687	0.012	0.024183	0.004	0.011368	0.013258
A	PM10_RU	0.001031	0.001214	0.001098	0.001143	0.012787	0.017635	0.008089	0.025927	0.006718	0.003596	0.001991	0.029117	0.031166
A	PM10_STI	0.001472	0.001818	0.001533	0.00156	0.000199	0.000098	0.00007	0	0.000237	0.000068	0.002738	0.000024	0.00021
A	PM25_IDL	0	0	0	0	0.001006	0.001487	0.000196	0.002186	0.000094	0	0	0.002293	0
A	PM25_PM	0.01575	0.01575	0.01575	0.01575	0.03276	0.03822	0.05586	0.026233	0.05586	0.039516	0.00504	0.3192	0.05586
A	PM25_PM	0.002	0.002	0.002	0.002	0.002518	0.002732	0.003	0.008922	0.003	0.006046	0.001	0.002842	0.003315
A	PM25_RU	0.000949	0.001117	0.001011	0.001054	0.012192	0.016851	0.007735	0.024806	0.006402	0.003431	0.001859	0.02785	0.02978
A	PM25_STI	0.001354	0.001672	0.00141	0.001435	0.000183	0.00009	0.000065	0	0.000218	0.000063	0.002568	0.000022	0.000193
A	ROG_DIU	0.038506	0.091083	0.070651	0.097527	0.001968	0.000968	0.000268	0	0.002465	0.000331	1.287514	0.000298	0.663577
A	ROG_HTS	0.076579	0.145125	0.107534	0.145386	0.063795	0.03158	0.010338	0.000014	0.029598	0.003169	0.802283	0.001989	0.046893
A	ROG_IDLI	0	0	0	0	0.017585	0.013901	0.014301	0.485485	0.04985	0	0	0.133328	0
A	ROG_RES	0.030738	0.066716	0.059651	0.08555	0.000926	0.000478	0.00013	0	0.000883	0.000168	0.644107	0.000116	0.214727
A	ROG_RUN	0.003771	0.009135	0.007173	0.009498	0.09724	0.113512	0.012808	0.021929	0.031344	0.057159	2.143859	0.079989	0.0602
A	ROG_RUN	0.024305	0.071488	0.053235	0.071061	0.212018	0.08221	0.010208	0.000006	0.114355	0.000919	0.496712	0.00457	0.011498
A	ROG_STR	0.142903	0.221144	0.216887	0.281418	0.051629	0.027926	0.027175	0.000001	0.121461	0.032727	1.906007	0.01154	0.080561
A	SO2_IDLE	0	0	0	0	0.000087	0.000135	0.000726	0.010207	0.000701	0	0	0.003112	0
A	SO2_RUN	0.002151	0.002555	0.002647	0.003338	0.007002	0.006837	0.009559	0.011402	0.013358	0.004174	0.002099	0.010033	0.014048
A	SO2_STR	0.000448	0.000545	0.000569	0.000718	0.000092	0.000061	0.000054	0	0.000195	0.000058	0.0006	0.000018	0.00016
A	TOG_DIUI	0.038506	0.091083	0.070651	0.097527	0.001968	0.000968	0.000268	0	0.002465	0.000331	1.287514	0.000298	0.663577
A	TOG_HTS	0.076579	0.145125	0.107534	0.145386	0.063795	0.03158	0.010338	0.000014	0.029598	0.003169	0.802283	0.001989	0.046893
A	TOG_IDLE	0	0	0	0	0.024306	0.018329	0.018839	0.5531	0.066017	0	0	0.187125	0
A	TOG_RES	0.030738	0.066716	0.059651	0.08555	0.000926	0.000478	0.00013	0	0.000883	0.000168	0.644107	0.000116	0.214727
A	TOG_RUN	0.005483	0.013327	0.010438	0.013795	0.115442	0.13096	0.015227	0.029534	0.043653	3.617417	2.664622	0.091656	0.075844
A	TOG_RUN	0.024305	0.071488	0.053235	0.071061	0.212018	0.08221	0.010208	0.000006	0.114355	0.000919	0.496712	0.00457	0.011498
A	TOG_STR	0.156461	0.242125	0.237464	0.308117	0.056528	0.030575	0.029754	0.000001	0.132984	0.035832	2.074772	0.012634	0.088205
A	N2O_IDLE	0	0	0	0	0.000884	0.001857	0.011506	0.170053	0.009592	0	0	0.04871	0
A	N2O_RUN	0.003403	0.004504	0.004354	0.006233	0.046992	0.069141	0.141084	0.190296	0.094436	0.288174	0.06637	0.148396	0.06159
A	N2O_STR	0.020939	0.023617	0.024943	0.02724	0.018894	0.010921	0.004633	0	0.020275	0.005512	0.015166	0.002252	0.025892
S	CH4_IDLE	0	0	0	0	0.003963	0.0025	0.002328	0.024301	0.00871	0	0	0.026831	0
S	CH4_RUN	0.001288	0.002577	0.002187	0.002734	0.007128	0.006349	0.000966	0.005542	0.005759	3.537335	0.312813	0.004077	0.007807
S	CH4_STR	0.028774	0.039391	0.04094	0.049387	0.009657	0.005356	0.005068	0	0.021487	0.006977	0.212542	0.001725	0.0188
S	CO_IDLE)	0	0	0	0	0.16531	0.126754	0.330438	7.064876	0.553317	0	0	1.394653	0
S	CO_RUNE	0.512499	0.748683	0.684843	0.751196	0.694245	0.614391	0.162129	0.22453	0.624288	26.83964	19.08479	0.257675	0.635891
S	CO_STRE	1.4716	1.6013	1.911537	2.107148	0.783815	0.431258	0.541685	0.001489	2.350512	0.455877	7.966323	0.205503	1.56421
S	CO2_NBI(	0	0	0	0	8.974001	14.12017	76.04782	1067.822	72.69248	0	0	335.9864	0
S	CO2_NBI(	236.7495	277.9974	286.1633	357.144	719.6716	709.7809	1006.401	1209.927	1374.23	1638.85	211.5491	1056.024	1433.399
S	CO2_NBI(	44.62053	54.34012	56.68086	71.55817	9.222073	6.087768	5.336293	0.012972	19.23721	5.64319	57.83119	1.639033	15.87083
S	NOX_IDLE	0	0	0	0	0.074809	0.102438	0.392011	5.532581	0.276313	0	0	3.08306	0
S	NOX_RUN	0.019295	0.040397	0.034758	0.04545	0.819137	0.796538	1.526859	2.188788	1.047776	0.438116	1.001088	4.164607	1.448257
S	NOX_STR	0.126622	0.169171	0.178244	0.223516	0.222245	0.128778	1.88089	2.342217	0.746111	0.0551	0.247736	1.028098	0.22237
S	PM10_IDL	0	0	0	0	0.001051	0.001555	0.000176	0.00202	0.000087	0	0	0.002031	0
S	PM10_PM	0.03675	0.03675	0.03675	0.03675	0.07644	0.08918	0.13034	0.061209	0.13034	0.092205	0.01176	0.7448	0.13034
S	PM10_PM	0.008	0.008	0.008	0.008	0.010071	0.010927	0.012	0.035687	0.012	0.024183	0.004	0.011368	0.013258
S	PM10_RU	0.001031	0.001214	0.001098	0.001143	0.012787	0.017635	0.008089	0.025927	0.006718	0.003596	0.001991	0.029117	0.031166
S	PM10_STI	0.001472	0.001818	0.001533	0.00156	0.000199	0.000098	0.00007	0	0.000237	0.000068	0.002738	0.000024	0.00021
S	PM25_IDL	0	0	0	0	0.001006	0.001487	0.000169	0.001933	0.000084	0	0	0.001943	0
S	PM25_PM	0.01575	0.01575	0.01575	0.01575	0.03276	0.03822	0.05586	0.026233	0.05586	0.039516	0.00504	0.3192	0.05586
S	PM25_PM	0.002	0.002	0.002	0.002	0.002518	0.002732	0.003	0.008922	0.003	0.006046	0.001	0.002842	0.003315
S	PM25_RU	0.000949	0.001117	0.001011	0.001054	0.012192	0.016851	0.007735	0.024806	0.006402	0.003431	0.001859	0.02785	0.02978
S	PM25_STI	0.001354	0.001672	0.00141	0.001435	0.000183	0.00009	0.000065	0	0.000218	0.000063	0.002568	0.000022	0.000193
S	ROG_DIU	0.092728	0.221282	0.168215	0.230413	0.004729	0.002317	0.000653	0.000001	0.006014	0.000826	3.375098	0.000716	1.62486
S	ROG_HTS	0.086399	0.171273	0.122743	0.163628	0.073054	0.036246	0.012043	0.000016	0.032811	0.003854	1.219824	0.002089	0.053417
S	ROG_IDLI	0	0	0	0	0.017585	0.013901	0.014085	0.514287	0.051107	0	0	0.133308	0
S	ROG_RES	0.063571	0.139127	0.121287	0.172331	0.001846	0.000948	0.000267	0	0.001666	0.000347	1.675015	0.000215	0.406285
S	ROG_RUN	0.004279	0.010319	0.008114	0.010735	0.097691	0.113677	0.012872	0.021931	0.032137	0.057219	2.086045	0.080051	0.061026
S	ROG_RUN	0.023271	0.068153	0.050751	0.067922	0.208303	0.080799	0.010046	0.000006	0.112779	0.000862	0.475823	0.003915	0.011321
S	ROG_STR	0.118329	0.182322	0.179279	0.232549	0.048614	0.026298	0.025559	0.000001	0.113304	0.028881	1.59978	0.009482	0.075148
S	SO2_IDLE	0	0	0	0	0.000087	0.000135	0.00072	0.010078	0.000693	0	0	0.003185	0
S	SO2_RUN	0.002342	0.002751	0.002831	0.00353	0.007003	0.006837	0.009559	0.011402	0.013358	0.004174	0.002093	0.010033	0.014049
S	SO2_STR	0.000442	0.000538	0.000561	0.000708	0.000091	0.00006	0.000053	0	0.00019	0.000056	0.000572	0.000016	0.000157
S	TOG_DIUI	0.092728	0.221282	0.168215	0.230413	0.004729	0.002317	0.000653	0.000001	0.006014	0.000826	3.375098	0.000716	1.62486
S	TOG_HTS	0.086399	0.171273	0.122743	0.163628	0.073054	0.036246	0.012043	0.000016	0.032811	0.003854	1.219824	0.002089	0.053417
S	TOG_IDLE	0	0	0	0	0.024306	0.018329	0.018412	0.585893	0.067448	0	0	0.187102	0
S	TOG_RES	0.063571	0.139127	0.121287	0.172331	0.001846	0.000948	0.000267	0	0.001666	0.000347	1.675015	0.000215	0.406285
S	TOG_RUN	0.006224	0.015054	0.01181	0.0156	0.1161	0.1312	0.01532	0.029537	0.04481	3.617505	2.594578	0.091747	0.07705
S	TOG_RUN	0.023271	0.068153	0.050751	0.067922	0.208303	0.080799	0.010046	0.000006	0.112779	0.000862	0.475823	0.003915	0.011321
S	TOG_STR	0.129555	0.19962	0.196288	0.254611	0.053227	0.028793	0.027984	0.000001	0.124054	0.031621	1.741508	0.010382	0.082278
S	N2O_IDLE	0	0	0	0	0.000886	0.001858	0.011389	0.167898	0.009472	0	0	0.049968	0
S	N2O_RUN	0.003208	0.004207	0.004091	0.005925	0.046619	0.068887	0.140994	0.190293	0.093489	0.28798	0.059951	0.1482	0.060392
S	N2O_STR	0.01964	0.022163	0.023406	0.025561	0.018103	0.010494	0.004468	0	0.019552	0.005341	0.014599	0.002146	0.025204
W	CH4_IDLE	0	0	0	0	0.003939	0.002486	0.002569	0.021105	0.008514	0	0	0.026756	0
W	CH4_RUN	0.001044	0.002115	0.001784	0.002229	0.006934	0.006269	0.000934	0.005541	0.005411	3.537295	0.32923	0.004048	0.007454
W	CH4_STR	0.038936	0.053788	0.055604	0.067084	0.010776	0.005973	0.00565	0	0.024327	0.008731	0.29347	0.00245	0.021559
W	CO_IDLE)	0	0	0	0	0.16531	0.126754	0.414509	7.290544	0.563661	0	0	1.482581	0
W	CO_RUNE	0.394971	0.585198	0.532148	0.585282	0.676848	0.608242	0.15948	0.224194	0.591272	26.8377	20.75736	0.255704	0.60293
W	CO_STRE	2.18282	2.382286	2.855125	3.156808	0.910767	0.500484	0.636933	0.001751	2.846381	0.674891	10.58314	0.384401	1.895434
W	CO2_NBI(	0	0	0	0	8.974001	14.12017	77.51424	1100.467	74.60336	0	0	317.4152	0
W	CO2_NBI(	211.34	251.9668	261.7487	331.7031	719.6403	709.7697	1006.397	1209.926	1374.17	1638.846	214.7369	1056.02	1433.34
W	CO2_NBI(	45.90542	55.8277	58.41791	73.53574	9.443567	6.208436	5.498194	0.013387	20.07622	6.015827	64.16452	1.936108	16.43104
W	NOX_IDLE	0	0	0	0	0.074809	0.102438	0.428124	6.202338	0.310667	0	0	2.959603	0
W	NOX_RUN	0.023201	0.049089	0.042049	0.05492	0.881064	0.852513	1.634108	2.336316	1.147021	0.442764	1.253471	4.464369	1.575634
W	NOX_STR	0.15293	0.204327	0.215259	0.269962	0.253421	0.146844	1.88771	2.342217	0.78199	0.062854	0.289017	1.031544	0.253943
W	PM10_IDL	0	0	0	0	0.001051	0.001555	0.000243	0.002651	0.000113	0	0	0.002902	0

Season	EmissionT	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
W	PM10_PM	0.03675	0.03675	0.03675	0.03675	0.07644	0.08918	0.13034	0.061209	0.13034	0.092205	0.01176	0.7448	0.13034
W	PM10_PM	0.008	0.008	0.008	0.008	0.010071	0.010927	0.012	0.035687	0.012	0.024183	0.004	0.011368	0.013258
W	PM10_RU	0.001031	0.001214	0.001098	0.001143	0.012787	0.017635	0.008089	0.025927	0.006718	0.003596	0.001991	0.029117	0.031166
W	PM10_STI	0.001472	0.001818	0.001533	0.00156	0.000199	0.000098	0.00007	0	0.000237	0.000068	0.002738	0.000024	0.00021
W	PM25_IDL	0	0	0	0	0.001006	0.001487	0.000233	0.002536	0.000108	0	0	0.002777	0
W	PM25_PM	0.01575	0.01575	0.01575	0.01575	0.03276	0.03822	0.05586	0.026233	0.05586	0.039516	0.00504	0.3192	0.05586
W	PM25_PM	0.002	0.002	0.002	0.002	0.002518	0.002732	0.003	0.008922	0.003	0.006046	0.001	0.002842	0.003315
W	PM25_RU	0.000949	0.001117	0.001011	0.001054	0.012192	0.016851	0.007735	0.024806	0.006402	0.003431	0.001859	0.02785	0.02978
W	PM25_STI	0.001354	0.001672	0.00141	0.001435	0.000183	0.00009	0.000065	0	0.000218	0.000063	0.002568	0.000022	0.000193
W	ROG_DIU	0.013337	0.030918	0.025151	0.035376	0.000706	0.000358	0.000095	0	0.000929	0.000122	0.346822	0.000117	0.240354
W	ROG_HTS	0.077435	0.148356	0.108919	0.146844	0.068502	0.032731	0.010482	0.000014	0.029966	0.003203	0.850081	0.001995	0.05036
W	ROG_IDLI	0	0	0	0	0.017585	0.013901	0.014382	0.44571	0.048114	0	0	0.133355	0
W	ROG_RES	0.013153	0.028491	0.025897	0.03742	0.000441	0.00023	0.00006	0	0.000476	0.000082	0.205715	0.000064	0.116136
W	ROG_RUI	0.003584	0.008702	0.006827	0.009048	0.096811	0.113355	0.012745	0.021927	0.030574	0.057105	2.234529	0.079932	0.059413
W	ROG_RUI	0.028632	0.086738	0.064115	0.084975	0.233421	0.09115	0.011477	0.000007	0.124229	0.001125	0.592793	0.005869	0.012355
W	ROG_STF	0.165268	0.256702	0.251196	0.326032	0.054652	0.029557	0.028814	0.000001	0.1291	0.036474	2.257118	0.013507	0.085634
W	SO2_IDLE	0	0	0	0	0.000087	0.000135	0.000734	0.010386	0.000711	0	0	0.00301	0
W	SO2_RUN	0.002091	0.002493	0.002589	0.003278	0.007002	0.006837	0.009559	0.011402	0.013357	0.004174	0.002125	0.010033	0.014048
W	SO2_STR	0.000454	0.000552	0.000578	0.000728	0.000094	0.000061	0.000054	0	0.000199	0.00006	0.000635	0.000019	0.000163
W	TOG_DIUI	0.013337	0.030918	0.025151	0.035376	0.000706	0.000358	0.000095	0	0.000929	0.000122	0.346822	0.000117	0.240354
W	TOG_HTS	0.077435	0.148356	0.108919	0.146844	0.068502	0.032731	0.010482	0.000014	0.029966	0.003203	0.850081	0.001995	0.05036
W	TOG_IDLE	0	0	0	0	0.024306	0.018329	0.019114	0.507814	0.064041	0	0	0.187156	0
W	TOG_RES	0.013153	0.028491	0.025897	0.03742	0.000441	0.00023	0.00006	0	0.000476	0.000082	0.205715	0.000064	0.116136
W	TOG_RUN	0.00521	0.012695	0.009932	0.013138	0.114816	0.130731	0.015136	0.029532	0.042529	3.617338	2.775131	0.091573	0.074696
W	TOG_RUN	0.028632	0.086738	0.064115	0.084975	0.233421	0.09115	0.011477	0.000007	0.124229	0.001125	0.592793	0.005869	0.012355
W	TOG_STR	0.180948	0.281056	0.275028	0.356964	0.059837	0.032361	0.031548	0.000001	0.141349	0.039934	2.456853	0.014788	0.093759
W	N2O_IDLE	0	0	0	0	0.000882	0.001856	0.01167	0.173028	0.009761	0	0	0.046997	0
W	N2O_RUN	0.003607	0.004804	0.004622	0.006547	0.047207	0.069277	0.141136	0.190297	0.09498	0.288283	0.070221	0.148511	0.06231
W	N2O_STR	0.022417	0.02528	0.026699	0.029158	0.019781	0.011425	0.004841	0	0.021199	0.005747	0.015922	0.002368	0.027035

RoadPercı	RoadSiltLc	MaterialSil	MaterialMc	MobileAve	MeanVehi	CARB_PM_VMT
100	0.1	4.3	0.5	2.4	40	0

Woodstov	NumberCc	NumberCa	NumberNc	NumberPe	Woodstov	WoodstoveWoodMass

Fireplaces	NumberWı	NumberGa	NumberPn	NumberNc	FireplaceH	FireplaceD	FireplaceWoodMass

ROG_EF	ROG_EF_	ROG_EF_PesticidesFertilizers
2.14E-05	3.54E-07	5.15E-08

Area_EF_I	Area_Resi	Area_EF_I	Area_Resi	Area_EF_I	Area_Nonı	Area_EF_I	Area_Nonı	Reapplicat	Area_EF_I	Area_Parking
150	0	150	0	150	198960	150	66320	0	150	0

NumberSn	NumberSummerDays
0	180

EnergyUse	T24E	NT24E	LightingEl	T24NG	NT24NG
General Li	1.48	4.2	2.6	18.39	0.06

WaterLanc	WaterLanc	IndoorWat	OutdoorW	ElectricityI	ElectricityI	ElectricityI	ElectricityI	SepticTanl	AerobicPe	Anaerobic	AnaDigest	AnaDigestCogenCombDigestGasPercent
General Li	1000sqft	0	0	2117	111	1272	1911	10.33	87.46	2.21	100	0

SolidWasti	SolidWasti	SolidWasti	LandfillNo	LandfillCa	LandfillCaptureGasEnergyRecovery
General Li	1000sqft	0	6	94	0

Vegetation	Vegetation	AcresBegi	AcresEnd	CO2peracre

BroadSpec	NumberOf	CO2perTree

ConstMitig	FuelType	Tier	NumberOf	TotalNumt	DPF	OxidationCatalyst
Aerial Lifts	Diesel	No Change	0	2	No Change	0
Bore/Drill F	Diesel	No Change	0	2	No Change	0
Cranes	Diesel	No Change	0	3	No Change	0
Generator	Diesel	No Change	0	1	No Change	0
Graders	Diesel	No Change	0	2	No Change	0
Off-Highwa	Diesel	No Change	0	38	No Change	0
Rollers	Diesel	No Change	0	2	No Change	0
Rough Ter	Diesel	No Change	0	2	No Change	0
Rubber Tir	Diesel	No Change	0	2	No Change	0
Rubber Tir	Diesel	No Change	0	4	No Change	0
Scrapers	Diesel	No Change	0	1	No Change	0
Trenchers	Diesel	No Change	0	2	No Change	0

SoilStabiliz	SoilStabiliz	SoilStabiliz	ReplaceGr	ReplaceGr	ReplaceGr	WaterExpo	WaterExpo	WaterExpo	WaterExpo	WaterUnpa	WaterUnpa	WaterUnpa	WaterUnpa	CleanPavedRoadPercentReduction
0	0	0	0	0	0	1	2	55	55	0	0	0.5	40	0

ProjectSet	IncreaseD	IncreaseD	IncreaseD	IncreaseD	ImproveW	ImproveW	ImproveDe	ImproveDe	IncreaseTr	IncreaseTr	IntegrateB	IntegrateB	ImprovePe	ImprovePe	ProvideTra	ProvideTra	ProvideTra	Implement

LimitParkir	LimitParkir	UnbundleF	UnbundleF	OnStreetM	OnStreetM	ProvideBR	ProvideBR	ExpandTra	ExpandTra	IncreaseTr	IncreaseTr	IncreaseTransitFrequencyHeadwaysPercentReduction

Implement	Implement	Implement	TransitSut	TransitSut	TransitSut	Implement	Implement	Workplace	Workplace	Workplace	Encourage	Encourage	Encourage	Encourage	MarketCor	MarketCor	Employee\	Employee\
0			0			0		0			0				0		0	

EmployeeS	ProvideRic	ProvideRic	Implement	ImplementSchoolBusProgramPercentFamilyUsing
2	0		0	

Landscape	Landscape	Landscape	Landscape	Landscape	Landscape	UseLowVC	UseLowVC	UseLowVC	UseLowVC
0		0		0		0	150	0	150

UseLowVC	UseLowVC	UseLowVC	UseLowVC	HearthOnl	NoHearthC	UseLowVC	UseLowVC	UseLowVOCPaintParkingValue
0	150	0	150	0	0	0	0	150

ExceedTitl ExceedTitl InstallHigh InstallHigh OnSiteRer KwhGener KwhGener PercentOfl PercentOfElectricityUseGenerated

Appliance	Appliancel Percent	Improvement
ClothWasher	30	
DishWasher	15	
Fan	50	
Refrigerator	15	

ApplyWate	ApplyWate	ApplyWate	UseReclai	PercentOu	PercentInc	UseGreyW	PercentOu	PercentInc	InstallLowI	PercentRe	InstallLowI	PercentRe	InstallLowI	PercentRe	InstallLowI	PercentRe	TurfReduc	TurfReduc
0			0			0			0	32	0	18	0	20	0	20	0	

TurfReduc	UseWaterI	UseWaterI	WaterEffic	MAWA	ETWU
	0	6.1	0		

InstituteRe	InstituteRecyclingAndCompostingServicesWastePercentReduction

OperOffRc	OperOffRc	OperHours	OperDays	OperHorse	OperLoadF	OperFuelType
Off-Highwa	1	4	12	402	0.38	Diesel

FleetMixLa	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Li	0.554122	0.053376	0.171995	0.136171	0.022603	0.00571	0.012724	0.016721	0.000451	0.000316	0.021848	0.00105	0.002914

GeneratorsNumberOf	GeneratorsHorsePow	Load_Fact	HoursPerDay	HoursPerYear	GeneratorsPumpsEquipmentDescription

BoilerEqui	NumberOf	BoilerFuel	BoilerRatir	DailyHeatI	AnnualHe	BoilerEquipmentDescription

UserDefin	UserDefin	TOG_lb_d	TOG_tpy	ROG_lb_d	ROG_tpy	CO_lb_da	CO_tpy	NOX_lb_d	NOX_tpy	SO2_lb_d	SO2_tpy	PM10_lb_	PM10_tpy	PM2_5_lb	PM2_5_tp	CO2_lb_d	CO2_tpy	CH4_lb_d

CH4_tpy

Generator	TOG_EF	TOG_EF_	ROG_EF	ROG_EF_	CO_EF	CO_EF_U	NOX_EF	NOX_EF_	SO2_EF	SO2_EF_I	PM10_EF	PM10_EF_	PM2_5_EF	PM2_5_EF	CO2_EF	CO2_EF_I	CH4_EF	CH4_EF_U

JOM

BoilerEqui	TOG_EF	TOG_EF_	ROG_EF	ROG_EF_	CO_EF	CO_EF_U	NOX_EF	NOX_EF_	SO2_EF	SO2_EF_I	PM10_EF	PM10_EF_	PM2_5_EF	PM2_5_EF	CO2_EF	CO2_EF_I	CH4_EF	CH4_EF_U

JOM

SubModuli	PhaseNam	Season	Remarks
1			Project specific info
3			4.6 acres of disturbed area per grading plan
4			Project-specific timeline.
5	Access Roads		Project-specific Information.
5	Architectural Coating		
5	Building Construction		Project-specific information used in lieu of CalEEMod defaults.
5	Cleaning and Restora		Project-specific information
5	Cleaning and Restora		Project specific information
5	Cleaning and Restora		Project specific equipment
5	Demolition		
5	Fence and Gate Insta		Project-specific info
5	Foundation		Project-specific
5	Grading		
5	Ground/Grid Circuit In		Project-specific information
5	Paving		Project-specific information used in lieu of CalEEMod defaults.
5	Remaining Deliveries		Project-specific information
5	Remaining Deliveries		Project specific equipment
5	Remaining Deliveries		Project specific equipment
5	Site Preparation		Project-specific equipment list used in lieu of CalEEMod defaults.
5	Steel/Bus Erection		project-specific information
5	Survey		Site-specific value
5	Transformer Installatic		project-specific information
5	Underground 12 kV Li		Site-specific info
5	Yard Rock Installation		Project-specific information
6			Project-specific worker trips
7			Only a small portion of the construction access road surfaces surrounding the project will be unpaved, therefore 98% pavement is assumed.
9			Site-specific area.
12			Unmanned operation and no daily worker trips will occur
13		A	
13		S	
13		W	
17			No consumer product utilization was assumed for the project
18			No architectural coating is assumed for the project.
19			
20			
21			Unmanned facility - no water use is expected
22			Unmanned facility - no solid waste generation is expected
			Tier 3 compliant engines are assumed for the project
25			Watering of exposed areas is assumed
34			Assumes monthly inspection utilizing one off-highway truck 4 hours per day.
35			

3. Screening HRA Methodology

Air dispersion of the DPM was modeled using the American Meteorological Society/U.S. Environmental Protection Agency (EPA) Regulatory Model (AERMOD). The modeled output (maximum ground-level concentrations), along with equations from the *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA 2015), were used to estimate the health risks for cancer and chronic (non-cancer) disease for residential and worker exposure to DPM emissions. DPM does not have OEHHA approved risk values from acute (non-cancer) exposure. Details regarding model selection, inputs, and calculation methodology are presented in the following sections.

3.1 Model Selection

The air dispersion modeling was conducted based on guidance presented in the *Guideline on Air Quality Models* (EPA 2017) and the EPA-approved dispersion model, AERMOD (Version 22112). The AERMOD model is a steady-state, multiple-source dispersion model that incorporates hourly meteorological data inputs and local surface characteristics. The AERMOD model is well suited for this assessment based on its ability to handle the various physical characteristics of project emission sources, including point, area, and volume source types. The required emission source data inputs to AERMOD include source locations, source elevations, stack heights, stack diameters, stack exit temperatures, stack exit velocities, and pollutant emission rates. The source locations are specified for a Cartesian coordinate system (x, y) where x and y are distances east and north in meters, respectively. The Cartesian coordinate system used for this analysis is the Universal Transverse Mercator Projection (UTM), 1983 North American Datum (NAD 83) Zone 10.

3.2 Model Options

The technical options selected for the AERMOD model include the following:

- Regulatory default control options
- Rural dispersion mode
- Receptor elevations and controlling hill heights obtained from AERMAP (Version 18081) output

No buildings were included in the air dispersion model, therefore building downwash was not included.

3.3 Meteorological Data

In the absence of site-specific meteorological data, the EPA requires the use of 5 years of representative National Weather Service (NWS) meteorological data. According to EPA's *Guideline on Air Quality Models* (EPA 2017), representativeness of meteorological data used in dispersion modeling depends on (1) the proximity of the meteorological monitoring site to the area under consideration, (2) the complexity of the terrain, (3) the exposure of the meteorological monitoring site, and (4) the period of time during which data are collected.

AERMOD-ready NWS meteorological data were acquired from the San Joaquin Valley Air Pollution Control District (SJVAPCD) for the Stockton Station for years 2013 through 2017. The Stockton Station data were considered representative of the project area and accordingly selected for use based on the following reasons:

- The SJVAPCD Stockton Station meteorological site is located approximately 16.5 miles from the Thurman/Guild location and 16.1 miles from the Lockeford location.
- There are no complex terrain features between the meteorological site and either project construction site.

Appendix B2
HRA Technical Memorandum

Health Risk Assessment for PG&E's Northern San Joaquin 230 kV Transmission Project

Date:	July 21, 2023
Project name:	Northern San Joaquin 230 kV Transmission Project
Attention:	Erin Rice
Client:	Pacific Gas and Electric Company
Prepared by:	Michelle Neumann
Reviewed by:	Jerry Salamy
Copies to:	Colleen Taylor

CH2M Hill Engineers Inc
4 Embarcadero Center
Suite 3800
San Francisco, CA 94111
United States
T +1.510.251.2426

https://www.jacobs.com/

1. Background

Pacific Gas and Electric Company (PG&E) has conducted a screening Health Risk Assessment (HRA) to evaluate the potential health risks from construction of the PG&E Northern San Joaquin 230 kilovolt (kV) Transmission Project (project). This HRA will support the findings in Section 5.3, Air Quality, in the project's Proponent's Environmental Assessment (PEA). The City of Lodi's Lodi Electric Utility (LEU) is a participating utility in the project and LEU's portion of the project is included in this assessment. This technical memorandum presents a list of the air toxics expected to be emitted during project construction, the methodology for conducting the screening HRA, and the results.

Work within the City of Lodi includes (1) construction of the new PG&E Thurman Switching Station, the new LEU Guild Substation, and approximately 0.3 mile of the new PG&E 230 kV line; and (2) modification to the existing LEU Industrial Substation, existing LEU 12 kV lines, existing PG&E 12 kV line, and existing PG&E 60 kV lines along East Lodi Avenue and East Sargent Road.

PG&E Thurman Switching Station and LEU Guild Substation will be constructed on the property at East Thurman Road and South Guild Avenue, adjacent to the existing LEU Industrial Substation. Consistent with guidance from the Office of Environmental Health Hazard Assessment (OEHHA), the screening HRA was performed only for construction activities lasting longer than 2 months in duration (OEHHA 2015). Two locations total – one at PG&E Lockeford Substation and one at the property at East Thurman Road and South Guild Avenue in Lodi – were selected where sensitive receptors are near construction and construction activities are expected to last more than 2 months. Based on the OEHHA guidance, construction activities occurring at PG&E Lockeford Substation and PG&E Thurman Switching Station, were included in the HRA. PG&E Thurman Switching Station construction activities include construction activities at the adjacent LEU Guild and LEU Industrial substations and LEU 12 kV line modification, and the construction of a PG&E microwave tower. If a specific facility is not being discussed, the two locations where sensitive receptors are nearby are referred to as "Thurman/Guild" and "Lockeford," respectively.

Construction activities associated with the new PG&E 230 kV transmission lines, PG&E 12 kV service line extension, PG&E remote-end substations (PG&E Brighton, PG&E Rio Oso, PG&E Bellota substations, and PG&E Clayton Hill Repeater Station), and PG&E 60 kV power line reconfigurations are expected to last less than 2 months at a given location and were not included.

2. Emissions of Air Toxics

Diesel particulate matter (DPM) is used a surrogate of the toxic air contaminant (TAC) expected to be emitted during construction. DPM emissions result from exhaust of diesel-fueled construction equipment and vehicles operated within the project area.

DPM emissions for PG&E Lockeford Substation, PG&E Thurman Switching Station, and LEU construction activities were derived from PEA construction emission estimates (Section 5.3.4.4), as follows:

- DPM was assumed to be best represented by particulate matter with aerodynamic diameter less than 10 microns (PM_{10}) emitted as a result of diesel fuel combustion. Therefore, fugitive dust emissions were excluded, as they are not expected to include DPM.
- PM_{10} emissions resulting from diesel-fueled construction equipment and vehicles exhaust were estimated using California Emission Estimator Model (CalEEMod) and were used as DPM emissions in the HRA.
- Offsite contributions resulting from material haul truck trips, worker commute trips, short-haul dump truck trips, long-haul dump truck trips, inspector vehicle trips, and mechanics truck trips were excluded, as they are not expected to significantly contribute to localized impacts of DPM from the construction site.

For the air dispersion modeling of the HRA, DPM emissions during the project construction duration were annualized over the construction period and spatially distributed within the construction area. Specifically, emissions were spatially distributed in (1) the area associated with construction of PG&E Lockeford Substation, averaged over 3 years, and (2) the area associated with construction of PG&E Thurman Switching Station and LEU Guild Substation, averaged one year. The emissions from PG&E Thurman Switching Station, the PG&E Microwave Tower within Thurman Switching Station, the PG&E 12 kV Extension, and LEU portion of the project substations were assumed to occur concurrently. These emission rates are presented in Table 1.

Table 1. DPM Emission Rates Modeled for Project Construction

Construction Sites	DPM Exhaust Emissions				
	Construction Year	Duration (months)	Total (lb/ construction year)[c]	Annualized (lb/year)	Modeled Rate (g/s)
PG&E Lockeford Substation Site [a]	2026	6	68.78	67.73	0.00097
	2027	9	49.14		
	2028	12	64.11		
	2029	4	21.16		
PG&E Thurman Switching Station Site (includes Thurman Switching Station, Microwave Tower, and the 12 KV Line Extension)[b]	2026	2	22.15	118.45	0.00170
	2027	9	96.30		
LEU Portion of the Project at Guild Substation Site [b]	2027	11	104.44	113.28	0.00163
	2028	1	8.84		

[a]Annualized emissions are based on the total construction emissions per year divided by the number of months per year of construction, allocating 0 emissions to months without construction, averaged over 36 months, then multiplied by 12 months.

[b] Annualized emissions are based on the total construction emissions per year divided by the number of months per year of construction, allocating 0 emissions to months without construction, averaged over 12 months, then multiplied by 12 months.

e.g., calculation: 67.7 = (61.99+41.39+78.56+21.16) / 36 * 12

Notes:

g/s = gram(s) per second

lb/construction year = pound(s) per construction year

lb/year = pound(s) per year

3. Screening HRA Methodology

Air dispersion of the DPM was modeled using the American Meteorological Society/U.S. Environmental Protection Agency (EPA) Regulatory Model (AERMOD). The modeled output (maximum ground-level concentrations), along with equations from the *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA 2015), were used to estimate the health risks for cancer and chronic (non-cancer) disease for residential and worker exposure to DPM emissions. DPM does not have OEHHA approved risk values from acute (non-cancer) exposure. Details regarding model selection, inputs, and calculation methodology are presented in the following sections.

3.1 Model Selection

The air dispersion modeling was conducted based on guidance presented in the *Guideline on Air Quality Models* (EPA 2017) and the EPA-approved dispersion model, AERMOD (Version 22112). The AERMOD model is a steady-state, multiple-source dispersion model that incorporates hourly meteorological data inputs and local surface characteristics. The AERMOD model is well suited for this assessment based on its ability to handle the various physical characteristics of project emission sources, including point, area, and volume source types. The required emission source data inputs to AERMOD include source locations, source elevations, stack heights, stack diameters, stack exit temperatures, stack exit velocities, and pollutant emission rates. The source locations are specified for a Cartesian coordinate system (x, y) where x and y are distances east and north in meters, respectively. The Cartesian coordinate system used for this analysis is the Universal Transverse Mercator Projection (UTM), 1983 North American Datum (NAD 83) Zone 10.

3.2 Model Options

The technical options selected for the AERMOD model include the following:

- Regulatory default control options
- Rural dispersion mode
- Receptor elevations and controlling hill heights obtained from AERMAP (Version 18081) output

No buildings were included in the air dispersion model, therefore building downwash was not included.

3.3 Meteorological Data

In the absence of site-specific meteorological data, the EPA requires the use of 5 years of representative National Weather Service (NWS) meteorological data. According to EPA's *Guideline on Air Quality Models* (EPA 2017), representativeness of meteorological data used in dispersion modeling depends on (1) the proximity of the meteorological monitoring site to the area under consideration, (2) the complexity of the terrain, (3) the exposure of the meteorological monitoring site, and (4) the period of time during which data are collected.

AERMOD-ready NWS meteorological data were acquired from the San Joaquin Valley Air Pollution Control District (SJVAPCD) for the Stockton Station for years 2013 through 2017. The Stockton Station data were considered representative of the project area and accordingly selected for use based on the following reasons:

- The SJVAPCD Stockton Station meteorological site is located approximately 16.5 miles from the Thurman/Guild location and 16.1 miles from the Lockeford location.
- There are no complex terrain features between the meteorological site and either project construction site.

- The land uses surrounding the meteorological site and the project construction sites are similar.

3.4 Receptor Grid Spacing

The receptor grid for the AERMOD modeling consists of receptors that are placed at the ambient air boundary (the project's property boundary) and Cartesian-grid receptors that are placed beyond the project's property boundary at spacing that increases with distance from the origin, as presented in Appendix A, Figure 1. Property boundary receptors were placed at 25-meter intervals. Beyond the project's property boundary, receptor spacing was as follows:

- 25-meter spacing from property boundary to 100 meters from the origin
- 50-meter spacing from beyond 100 meters to 250 meters from the origin
- 100-meter spacing from beyond 250 meters to 500 meters from the origin
- 250-meter spacing from beyond 500 meters to 1,000 meters from the origin
- 500-meter spacing from beyond 1,000 meters to 2,000 meters from the origin

All receptors and source locations were expressed in a UTM NAD 83, Zone 10 coordinate system. AERMAP was used to calculate the receptor elevations and the controlling hill heights. Terrain in the vicinity of the project was accounted for by assigning base elevations to each receptor. National Elevation Dataset files from the United States Geological Survey were obtained in one third arc-second resolution for the 2kilometer grid. The AERMAP domain was large enough to encompass the 10% slope factor required for calculating the controlling hill height.

3.5 Source Parameters

For each of the locations, the construction exhaust emissions were modeled as a set of point sources spaced approximately 25 meters apart over the construction areas with a horizontal stack release. The horizontal release type is an AERMOD option, which negates mechanical plume rise. This conservative approach was used because it is unknown whether the construction equipment will have vertically oriented exhaust stacks. Stack release parameters consisted of a stack release temperature of 533 degrees Kelvin (ºK; 500 degrees Fahrenheit [°F]), an exit velocity of 18 meters per section (59.1 feet per second), a stack diameter of 0.127 meters (5 inches), and a release height of 4.6 meters (15 feet) based on data for typical construction equipment. The Modeled Rate in Table 1 was equally divided and allocated to each of the sources per station. A detailed summary of the AERMOD modeling inputs is presented in Appendix A, Table 1 and Table 2.

3.6 Health Risk Estimates

Because the Lockeford and Thurman/Guild locations are several miles apart and have different construction schedules, the screening HRA for Lockeford estimated the 3-year rolling cancer risks during a 30-year exposure duration (starting with exposure during the third trimester) for residential exposure and a 25-year exposure duration (from age 16 to 40) for worker exposure, aligned with the expected construction duration, Maximally Exposed Individual Resident (MEIR), Maximally Exposed Individual Worker (MEIW), and maximum exposed sensitive receptor (preschool, K-12 school, or medical facility). If a maximum exposed sensitive receptor was not within the receptor grid used in the modeling, the lowest concentration receptor was evaluated. The screening HRA for Thurman/Guild estimated a 1-year exposure duration. The excess cancer risks were estimated using the following:

- Equations 5.4.1.1 and 8.2.4A from the *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA, 2015) for residential exposure

- Equations 5.4.1.2A, 5.4.1.2B, and 8.2.4B from the *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA 2015) for worker exposure
- The maximum annual ground-level concentrations used to estimate risk were determined through dispersion modeling with AERMOD
- The construction emission estimates modeled are presented in Table 1

Chronic risks also were estimated for the MEIR, MEIW, and maximum exposed sensitive receptor, based on the same emission rates and ground-level concentrations previously described. To calculate chronic risk, as characterized by the chronic hazard index, the maximum annual ground-level concentration was divided by the DPM reference exposure level of 5 micrograms per cubic meter ($\mu g/m^3$) (OEHHA and CARB 2020). Details on how cancer and chronic risks were calculated are included in Appendix B.

4. Results

The results of the screening HRA for construction activities associated with the project are shown in Table 2. The HRA results are compared to the SJVAPCD CEQA project analysis level recommended thresholds of significant impact. The excess cancer risks are less than the significance threshold of 20 in 1 million. The chronic hazard indices are less than the significance threshold of 1.0. Therefore, predicted impacts associated with the finite construction activities are less than significant. The model input and output files are provided digitally and identified as Appendix C.

Table 2. HRA Results

Construction Location	Risk	MEIR	MEIW	Maximum Exposed Sensitive Receptor
PG&E Portion of the Project at Thurman Switching Station Site	Cancer Risk (in a million) *Significance Threshold = 20 in 1 million*	1.23	0.18	0.40
	Chronic Hazard Index *Significance Threshold = 1.0*	0.0018	0.0144	0.0006
LEU Portion of the Project at Guild Substation Site	Cancer Risk (in a million) *Significance Threshold = 20 in 1 million*	1.23	0.13	0.37
	Chronic Hazard Index *Significance Threshold = 1.0*	0.0018	0.0102	0.0005
PG&E & LEU Combined at Thurman/Guild Sites	Cancer Risk (in a million) *Significance Threshold = 20 in 1 million*	2.46	0.28	0.77
	Chronic Hazard Index *Significance Threshold = 1.0*	0.035	0.0227	0.0011
PG&E Lockeford Substation Site	Cancer Risk (in a million) *Significance Threshold = 20 in 1 million*	7.43	0.19	0.07
	Chronic Hazard Index *Significance Threshold = 1.0*	0.0047	0.0053	0.00005

MEIR = Maximally Exposed Individual Resident

MEIW = Maximally Exposed Individual Worker

5. References

Office of Environmental Health Hazard Assessment (OEHHA). 2015. *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.* February.

Office of Environmental Health Hazard Assessment (OEHHA) and California Air Resources Board (CARB). 2020. *Consolidated Table of OEHHA/CARB Approved Risk Assessment Health Values.* October.

U.S. Environmental Protection Agency (EPA). 2017. *Guideline on Air Quality Models*, 40 CFR 51, Appendix W. November.

Appendix A
AERMOD



Appendix A. Figure 1
Screening Health Risk Assessment Receptor Grid
PG&E NSJ Project
Lodi, CA

APPENDIX A, TABLE 1

AERMOD Source Inputs – PG&E Thurman Switching Station/LEU Portion of the Project ("Guild")

PG&E: Northern San Joaquin 230 kV Transmission Project

Source ID	Stack Release Type	Source Description	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)	DPM Emission Rate (g/s)
G001	HORIZONTAL	Guild	653311.6	4221577	17.91	4.6	533	18	0.127	5.25603E-05
G002	HORIZONTAL	Guild	653336.6	4221577	17.96	4.6	533	18	0.127	5.25603E-05
G003	HORIZONTAL	Guild	653361.6	4221577	18.11	4.6	533	18	0.127	5.25603E-05
G004	HORIZONTAL	Guild	653311.6	4221602	18.04	4.6	533	18	0.127	5.25603E-05
G005	HORIZONTAL	Guild	653336.6	4221602	18.05	4.6	533	18	0.127	5.25603E-05
G006	HORIZONTAL	Guild	653361.6	4221602	18.13	4.6	533	18	0.127	5.25603E-05
G007	HORIZONTAL	Guild	653286.6	4221627	18.15	4.6	533	18	0.127	5.25603E-05
G008	HORIZONTAL	Guild	653311.6	4221627	18.15	4.6	533	18	0.127	5.25603E-05
G009	HORIZONTAL	Guild	653336.6	4221627	18.13	4.6	533	18	0.127	5.25603E-05
G010	HORIZONTAL	Guild	653361.6	4221627	18.15	4.6	533	18	0.127	5.25603E-05
G011	HORIZONTAL	Guild	653286.6	4221652	18.16	4.6	533	18	0.127	5.25603E-05
G012	HORIZONTAL	Guild	653311.6	4221652	18.18	4.6	533	18	0.127	5.25603E-05
G013	HORIZONTAL	Guild	653336.6	4221652	18.15	4.6	533	18	0.127	5.25603E-05
G014	HORIZONTAL	Guild	653361.6	4221652	18.18	4.6	533	18	0.127	5.25603E-05
G015	HORIZONTAL	Guild	653311.6	4221677	18.15	4.6	533	18	0.127	5.25603E-05
G016	HORIZONTAL	Guild	653336.6	4221677	18.15	4.6	533	18	0.127	5.25603E-05
G017	HORIZONTAL	Guild	653361.6	4221677	18.21	4.6	533	18	0.127	5.25603E-05
G018	HORIZONTAL	Guild	653311.6	4221702	18.15	4.6	533	18	0.127	5.25603E-05

APPENDIX A, TABLE 1

AERMOD Source Inputs – PG&E Thurman Switching Station/LEU Portion of the Project ("Guild")

PG&E: Northern San Joaquin 230 kV Transmission Project

Source ID	Stack Release Type	Source Description	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)	DPM Emission Rate (g/s)
G019	HORIZONTAL	Guild	653336.6	4221702	18.17	4.6	533	18	0.127	5.25603E-05
G020	HORIZONTAL	Guild	653361.6	4221702	18.22	4.6	533	18	0.127	5.25603E-05
G021	HORIZONTAL	Guild	653386.6	4221702	18.28	4.6	533	18	0.127	5.25603E-05
G022	HORIZONTAL	Guild	653411.6	4221702	18.27	4.6	533	18	0.127	5.25603E-05
G023	HORIZONTAL	Guild	653436.6	4221702	18.34	4.6	533	18	0.127	5.25603E-05
G024	HORIZONTAL	Guild	653461.6	4221702	18.42	4.6	533	18	0.127	5.25603E-05
G025	HORIZONTAL	Guild	653486.6	4221702	18.44	4.6	533	18	0.127	5.25603E-05
G026	HORIZONTAL	Guild	653511.6	4221702	18.43	4.6	533	18	0.127	5.25603E-05
G027	HORIZONTAL	Guild	653536.6	4221702	18.54	4.6	533	18	0.127	5.25603E-05
G028	HORIZONTAL	Guild	653311.6	4221727	18.11	4.6	533	18	0.127	5.25603E-05
G029	HORIZONTAL	Guild	653336.6	4221727	18.07	4.6	533	18	0.127	5.25603E-05
G030	HORIZONTAL	Guild	653361.6	4221727	18.13	4.6	533	18	0.127	5.25603E-05
G031	HORIZONTAL	Guild	653386.6	4221727	18.13	4.6	533	18	0.127	5.25603E-05
T001	HORIZONTAL	Thurman	653236.6	4221552	17.71	4.6	533	18	0.127	3.78524E-05
T002	HORIZONTAL	Thurman	653261.6	4221552	17.78	4.6	533	18	0.127	3.78524E-05
T003	HORIZONTAL	Thurman	653286.6	4221552	17.82	4.6	533	18	0.127	3.78524E-05
T004	HORIZONTAL	Thurman	653311.6	4221552	17.89	4.6	533	18	0.127	3.78524E-05
T005	HORIZONTAL	Thurman	653336.6	4221552	18.05	4.6	533	18	0.127	3.78524E-05

APPENDIX A, TABLE 1

AERMOD Source Inputs – PG&E Thurman Switching Station/LEU Portion of the Project ("Guild")

PG&E: Northern San Joaquin 230 kV Transmission Project

Source ID	Stack Release Type	Source Description	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)	DPM Emission Rate (g/s)
T006	HORIZONTAL	Thurman	653361.6	4221552	18.12	4.6	533	18	0.127	3.78524E-05
T007	HORIZONTAL	Thurman	653386.6	4221552	18.23	4.6	533	18	0.127	3.78524E-05
T008	HORIZONTAL	Thurman	653411.6	4221552	18.24	4.6	533	18	0.127	3.78524E-05
T009	HORIZONTAL	Thurman	653436.6	4221552	18.34	4.6	533	18	0.127	3.78524E-05
T010	HORIZONTAL	Thurman	653461.6	4221552	18.34	4.6	533	18	0.127	3.78524E-05
T011	HORIZONTAL	Thurman	653486.6	4221552	18.43	4.6	533	18	0.127	3.78524E-05
T012	HORIZONTAL	Thurman	653236.6	4221577	17.79	4.6	533	18	0.127	3.78524E-05
T013	HORIZONTAL	Thurman	653261.6	4221577	17.83	4.6	533	18	0.127	3.78524E-05
T014	HORIZONTAL	Thurman	653286.6	4221577	17.86	4.6	533	18	0.127	3.78524E-05
T015	HORIZONTAL	Thurman	653386.6	4221577	18.16	4.6	533	18	0.127	3.78524E-05
T016	HORIZONTAL	Thurman	653411.6	4221577	18.24	4.6	533	18	0.127	3.78524E-05
T017	HORIZONTAL	Thurman	653436.6	4221577	18.24	4.6	533	18	0.127	3.78524E-05
T018	HORIZONTAL	Thurman	653461.6	4221577	18.34	4.6	533	18	0.127	3.78524E-05
T019	HORIZONTAL	Thurman	653486.6	4221577	18.37	4.6	533	18	0.127	3.78524E-05
T020	HORIZONTAL	Thurman	653236.6	4221602	17.97	4.6	533	18	0.127	3.78524E-05
T021	HORIZONTAL	Thurman	653261.6	4221602	17.98	4.6	533	18	0.127	3.78524E-05
T022	HORIZONTAL	Thurman	653286.6	4221602	18	4.6	533	18	0.127	3.78524E-05
T023	HORIZONTAL	Thurman	653386.6	4221602	18.17	4.6	533	18	0.127	3.78524E-05

APPENDIX A, TABLE 1

AERMOD Source Inputs – PG&E Thurman Switching Station/LEU Portion of the Project ("Guild")

PG&E: Northern San Joaquin 230 kV Transmission Project

Source ID	Stack Release Type	Source Description	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)	DPM Emission Rate (g/s)
T024	HORIZONTAL	Thurman	653411.6	4221602	18.25	4.6	533	18	0.127	3.78524E-05
T025	HORIZONTAL	Thurman	653436.6	4221602	18.25	4.6	533	18	0.127	3.78524E-05
T026	HORIZONTAL	Thurman	653461.6	4221602	18.34	4.6	533	18	0.127	3.78524E-05
T027	HORIZONTAL	Thurman	653486.6	4221602	18.37	4.6	533	18	0.127	3.78524E-05
T028	HORIZONTAL	Thurman	653386.6	4221627	18.24	4.6	533	18	0.127	3.78524E-05
T029	HORIZONTAL	Thurman	653411.6	4221627	18.25	4.6	533	18	0.127	3.78524E-05
T030	HORIZONTAL	Thurman	653436.6	4221627	18.34	4.6	533	18	0.127	3.78524E-05
T031	HORIZONTAL	Thurman	653461.6	4221627	18.34	4.6	533	18	0.127	3.78524E-05
T032	HORIZONTAL	Thurman	653486.6	4221627	18.43	4.6	533	18	0.127	3.78524E-05
T033	HORIZONTAL	Thurman	653511.6	4221627	18.51	4.6	533	18	0.127	3.78524E-05
T034	HORIZONTAL	Thurman	653386.6	4221652	18.24	4.6	533	18	0.127	3.78524E-05
T035	HORIZONTAL	Thurman	653411.6	4221652	18.25	4.6	533	18	0.127	3.78524E-05
T036	HORIZONTAL	Thurman	653436.6	4221652	18.34	4.6	533	18	0.127	3.78524E-05
T037	HORIZONTAL	Thurman	653461.6	4221652	18.34	4.6	533	18	0.127	3.78524E-05
T038	HORIZONTAL	Thurman	653486.6	4221652	18.46	4.6	533	18	0.127	3.78524E-05
T039	HORIZONTAL	Thurman	653511.6	4221652	18.53	4.6	533	18	0.127	3.78524E-05
T040	HORIZONTAL	Thurman	653386.6	4221677	18.26	4.6	533	18	0.127	3.78524E-05
T041	HORIZONTAL	Thurman	653411.6	4221677	18.26	4.6	533	18	0.127	3.78524E-05

APPENDIX A, TABLE 1

AERMOD Source Inputs – PG&E Thurman Switching Station/LEU Portion of the Project ("Guild")

PG&E: Northern San Joaquin 230 kV Transmission Project

Source ID	Stack Release Type	Source Description	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)	DPM Emission Rate (g/s)
T042	HORIZONTAL	Thurman	653436.6	4221677	18.34	4.6	533	18	0.127	3.78524E-05
T043	HORIZONTAL	Thurman	653461.6	4221677	18.36	4.6	533	18	0.127	3.78524E-05
T044	HORIZONTAL	Thurman	653486.6	4221677	18.53	4.6	533	18	0.127	3.78524E-05
T045	HORIZONTAL	Thurman	653511.6	4221677	18.46	4.6	533	18	0.127	3.78524E-05

APPENDIX A, TABLE 2

AERMOD Source Inputs – PG&E Lockeford Substation

PG&E: Northern San Joaquin 230 kV Transmission Project

Source ID	Stack Release Type	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)	DPM Emission Rate (g/s)
L001	HORIZONTAL	661153.2	4220383	25.06	4.6	533	18	0.127	7.91665E-06
L002	HORIZONTAL	661178.2	4220383	25.08	4.6	533	18	0.127	7.91665E-06
L003	HORIZONTAL	661203.2	4220383	25.11	4.6	533	18	0.127	7.91665E-06
L004	HORIZONTAL	661228.2	4220383	25.12	4.6	533	18	0.127	7.91665E-06
L005	HORIZONTAL	661253.2	4220383	25.13	4.6	533	18	0.127	7.91665E-06
L006	HORIZONTAL	661128.2	4220408	25	4.6	533	18	0.127	7.91665E-06
L007	HORIZONTAL	661153.2	4220408	25.04	4.6	533	18	0.127	7.91665E-06
L008	HORIZONTAL	661178.2	4220408	25.08	4.6	533	18	0.127	7.91665E-06
L009	HORIZONTAL	661203.2	4220408	25.11	4.6	533	18	0.127	7.91665E-06
L010	HORIZONTAL	661228.2	4220408	25.14	4.6	533	18	0.127	7.91665E-06
L011	HORIZONTAL	661253.2	4220408	25.24	4.6	533	18	0.127	7.91665E-06
L012	HORIZONTAL	661278.2	4220408	25.32	4.6	533	18	0.127	7.91665E-06
L013	HORIZONTAL	661303.2	4220408	25.28	4.6	533	18	0.127	7.91665E-06
L014	HORIZONTAL	661328.2	4220408	24.93	4.6	533	18	0.127	7.91665E-06
L015	HORIZONTAL	661353.2	4220408	24.83	4.6	533	18	0.127	7.91665E-06
L016	HORIZONTAL	661378.2	4220408	24.85	4.6	533	18	0.127	7.91665E-06
L017	HORIZONTAL	661403.2	4220408	24.86	4.6	533	18	0.127	7.91665E-06
L018	HORIZONTAL	661428.2	4220408	24.9	4.6	533	18	0.127	7.91665E-06

APPENDIX A, TABLE 2

AERMOD Source Inputs – PG&E Lockeford Substation

PG&E: Northern San Joaquin 230 kV Transmission Project

Source ID	Stack Release Type	Easting (X)	Northing (Y)	Base Elevation	Stack Height	Temperature	Exit Velocity	Stack Diameter	DPM Emission Rate
		(m)	(m)	(m)	(m)	(K)	(m/s)	(m)	(g/s)
L019	HORIZONTAL	661453.2	4220408	24.96	4.6	533	18	0.127	7.91665E-06
L020	HORIZONTAL	661128.2	4220433	24.99	4.6	533	18	0.127	7.91665E-06
L021	HORIZONTAL	661153.2	4220433	25.03	4.6	533	18	0.127	7.91665E-06
L022	HORIZONTAL	661178.2	4220433	25.08	4.6	533	18	0.127	7.91665E-06
L023	HORIZONTAL	661203.2	4220433	25.11	4.6	533	18	0.127	7.91665E-06
L024	HORIZONTAL	661228.2	4220433	25.15	4.6	533	18	0.127	7.91665E-06
L025	HORIZONTAL	661253.2	4220433	25.27	4.6	533	18	0.127	7.91665E-06
L026	HORIZONTAL	661278.2	4220433	25.37	4.6	533	18	0.127	7.91665E-06
L027	HORIZONTAL	661303.2	4220433	25.37	4.6	533	18	0.127	7.91665E-06
L028	HORIZONTAL	661328.2	4220433	25.2	4.6	533	18	0.127	7.91665E-06
L029	HORIZONTAL	661353.2	4220433	25.08	4.6	533	18	0.127	7.91665E-06
L030	HORIZONTAL	661378.2	4220433	25.07	4.6	533	18	0.127	7.91665E-06
L031	HORIZONTAL	661403.2	4220433	25.07	4.6	533	18	0.127	7.91665E-06
L032	HORIZONTAL	661428.2	4220433	25.08	4.6	533	18	0.127	7.91665E-06
L033	HORIZONTAL	661453.2	4220433	25.11	4.6	533	18	0.127	7.91665E-06
L034	HORIZONTAL	661128.2	4220458	25.01	4.6	533	18	0.127	7.91665E-06
L035	HORIZONTAL	661153.2	4220458	25.05	4.6	533	18	0.127	7.91665E-06
L036	HORIZONTAL	661178.2	4220458	25.08	4.6	533	18	0.127	7.91665E-06

APPENDIX A, TABLE 2

AERMOD Source Inputs – PG&E Lockeford Substation

PG&E: Northern San Joaquin 230 kV Transmission Project

Source ID	Stack Release Type	Easting (X)	Northing (Y)	Base Elevation	Stack Height	Temperature	Exit Velocity	Stack Diameter	DPM Emission Rate
		(m)	(m)	(m)	(m)	(K)	(m/s)	(m)	(g/s)
L037	HORIZONTAL	661203.2	4220458	25.11	4.6	533	18	0.127	7.91665E-06
L038	HORIZONTAL	661228.2	4220458	25.14	4.6	533	18	0.127	7.91665E-06
L039	HORIZONTAL	661253.2	4220458	25.23	4.6	533	18	0.127	7.91665E-06
L040	HORIZONTAL	661278.2	4220458	25.29	4.6	533	18	0.127	7.91665E-06
L041	HORIZONTAL	661303.2	4220458	25.33	4.6	533	18	0.127	7.91665E-06
L042	HORIZONTAL	661328.2	4220458	25.34	4.6	533	18	0.127	7.91665E-06
L043	HORIZONTAL	661353.2	4220458	25.28	4.6	533	18	0.127	7.91665E-06
L044	HORIZONTAL	661378.2	4220458	25.2	4.6	533	18	0.127	7.91665E-06
L045	HORIZONTAL	661403.2	4220458	25.17	4.6	533	18	0.127	7.91665E-06
L046	HORIZONTAL	661428.2	4220458	25.17	4.6	533	18	0.127	7.91665E-06
L047	HORIZONTAL	661453.2	4220458	25.16	4.6	533	18	0.127	7.91665E-06
L048	HORIZONTAL	661128.2	4220483	25.05	4.6	533	18	0.127	7.91665E-06
L049	HORIZONTAL	661153.2	4220483	25.08	4.6	533	18	0.127	7.91665E-06
L050	HORIZONTAL	661178.2	4220483	25.1	4.6	533	18	0.127	7.91665E-06
L051	HORIZONTAL	661203.2	4220483	25.11	4.6	533	18	0.127	7.91665E-06
L052	HORIZONTAL	661228.2	4220483	25.14	4.6	533	18	0.127	7.91665E-06
L053	HORIZONTAL	661253.2	4220483	25.18	4.6	533	18	0.127	7.91665E-06
L054	HORIZONTAL	661278.2	4220483	25.24	4.6	533	18	0.127	7.91665E-06

APPENDIX A, TABLE 2

AERMOD Source Inputs – PG&E Lockeford Substation

PG&E: Northern San Joaquin 230 kV Transmission Project

Source ID	Stack Release Type	Easting (X)	Northing (Y)	Base Elevation	Stack Height	Temperature	Exit Velocity	Stack Diameter	DPM Emission Rate
		(m)	(m)	(m)	(m)	(K)	(m/s)	(m)	(g/s)
L055	HORIZONTAL	661303.2	4220483	25.3	4.6	533	18	0.127	7.91665E-06
L056	HORIZONTAL	661328.2	4220483	25.35	4.6	533	18	0.127	7.91665E-06
L057	HORIZONTAL	661353.2	4220483	25.38	4.6	533	18	0.127	7.91665E-06
L058	HORIZONTAL	661378.2	4220483	25.31	4.6	533	18	0.127	7.91665E-06
L059	HORIZONTAL	661403.2	4220483	25.25	4.6	533	18	0.127	7.91665E-06
L060	HORIZONTAL	661428.2	4220483	25.23	4.6	533	18	0.127	7.91665E-06
L061	HORIZONTAL	661453.2	4220483	25.18	4.6	533	18	0.127	7.91665E-06
L062	HORIZONTAL	661128.2	4220508	25.08	4.6	533	18	0.127	7.91665E-06
L063	HORIZONTAL	661153.2	4220508	25.11	4.6	533	18	0.127	7.91665E-06
L064	HORIZONTAL	661178.2	4220508	25.12	4.6	533	18	0.127	7.91665E-06
L065	HORIZONTAL	661203.2	4220508	25.15	4.6	533	18	0.127	7.91665E-06
L066	HORIZONTAL	661228.2	4220508	25.16	4.6	533	18	0.127	7.91665E-06
L067	HORIZONTAL	661253.2	4220508	25.18	4.6	533	18	0.127	7.91665E-06
L068	HORIZONTAL	661278.2	4220508	25.22	4.6	533	18	0.127	7.91665E-06
L069	HORIZONTAL	661303.2	4220508	25.29	4.6	533	18	0.127	7.91665E-06
L070	HORIZONTAL	661328.2	4220508	25.35	4.6	533	18	0.127	7.91665E-06
L071	HORIZONTAL	661353.2	4220508	25.37	4.6	533	18	0.127	7.91665E-06
L072	HORIZONTAL	661378.2	4220508	25.35	4.6	533	18	0.127	7.91665E-06

APPENDIX A, TABLE 2

AERMOD Source Inputs – PG&E Lockeford Substation

PG&E: Northern San Joaquin 230 kV Transmission Project

Source ID	Stack Release Type	Easting (X)	Northing (Y)	Base Elevation	Stack Height	Temperature	Exit Velocity	Stack Diameter	DPM Emission Rate
		(m)	(m)	(m)	(m)	(K)	(m/s)	(m)	(g/s)
L073	HORIZONTAL	661403.2	4220508	25.29	4.6	533	18	0.127	7.91665E-06
L074	HORIZONTAL	661428.2	4220508	25.23	4.6	533	18	0.127	7.91665E-06
L075	HORIZONTAL	661453.2	4220508	25.19	4.6	533	18	0.127	7.91665E-06
L076	HORIZONTAL	661128.2	4220533	25.11	4.6	533	18	0.127	7.91665E-06
L077	HORIZONTAL	661153.2	4220533	25.12	4.6	533	18	0.127	7.91665E-06
L078	HORIZONTAL	661178.2	4220533	25.16	4.6	533	18	0.127	7.91665E-06
L079	HORIZONTAL	661203.2	4220533	25.18	4.6	533	18	0.127	7.91665E-06
L080	HORIZONTAL	661228.2	4220533	25.2	4.6	533	18	0.127	7.91665E-06
L081	HORIZONTAL	661253.2	4220533	25.2	4.6	533	18	0.127	7.91665E-06
L082	HORIZONTAL	661278.2	4220533	25.23	4.6	533	18	0.127	7.91665E-06
L083	HORIZONTAL	661303.2	4220533	25.28	4.6	533	18	0.127	7.91665E-06
L084	HORIZONTAL	661328.2	4220533	25.32	4.6	533	18	0.127	7.91665E-06
L085	HORIZONTAL	661353.2	4220533	25.34	4.6	533	18	0.127	7.91665E-06
L086	HORIZONTAL	661378.2	4220533	25.33	4.6	533	18	0.127	7.91665E-06
L087	HORIZONTAL	661403.2	4220533	25.28	4.6	533	18	0.127	7.91665E-06
L088	HORIZONTAL	661428.2	4220533	25.25	4.6	533	18	0.127	7.91665E-06
L089	HORIZONTAL	661453.2	4220533	25.21	4.6	533	18	0.127	7.91665E-06
L090	HORIZONTAL	661128.2	4220558	25.13	4.6	533	18	0.127	7.91665E-06

APPENDIX A, TABLE 2

AERMOD Source Inputs – PG&E Lockeford Substation

PG&E: Northern San Joaquin 230 kV Transmission Project

Source ID	Stack Release Type	Easting (X)	Northing (Y)	Base Elevation	Stack Height	Temperature	Exit Velocity	Stack Diameter	DPM Emission Rate
		(m)	(m)	(m)	(m)	(K)	(m/s)	(m)	(g/s)
L091	HORIZONTAL	661153.2	4220558	25.15	4.6	533	18	0.127	7.91665E-06
L092	HORIZONTAL	661178.2	4220558	25.17	4.6	533	18	0.127	7.91665E-06
L093	HORIZONTAL	661203.2	4220558	25.21	4.6	533	18	0.127	7.91665E-06
L094	HORIZONTAL	661228.2	4220558	25.22	4.6	533	18	0.127	7.91665E-06
L095	HORIZONTAL	661253.2	4220558	25.24	4.6	533	18	0.127	7.91665E-06
L096	HORIZONTAL	661278.2	4220558	25.25	4.6	533	18	0.127	7.91665E-06
L097	HORIZONTAL	661303.2	4220558	25.28	4.6	533	18	0.127	7.91665E-06
L098	HORIZONTAL	661328.2	4220558	25.29	4.6	533	18	0.127	7.91665E-06
L099	HORIZONTAL	661353.2	4220558	25.31	4.6	533	18	0.127	7.91665E-06
L100	HORIZONTAL	661378.2	4220558	25.31	4.6	533	18	0.127	7.91665E-06
L101	HORIZONTAL	661403.2	4220558	25.29	4.6	533	18	0.127	7.91665E-06
L102	HORIZONTAL	661428.2	4220558	25.25	4.6	533	18	0.127	7.91665E-06
L103	HORIZONTAL	661453.2	4220558	25.24	4.6	533	18	0.127	7.91665E-06
L104	HORIZONTAL	661128.2	4220583	25.16	4.6	533	18	0.127	7.91665E-06
L105	HORIZONTAL	661153.2	4220583	25.18	4.6	533	18	0.127	7.91665E-06
L106	HORIZONTAL	661178.2	4220583	25.21	4.6	533	18	0.127	7.91665E-06
L107	HORIZONTAL	661203.2	4220583	25.22	4.6	533	18	0.127	7.91665E-06
L108	HORIZONTAL	661228.2	4220583	25.24	4.6	533	18	0.127	7.91665E-06

APPENDIX A, TABLE 2

AERMOD Source Inputs – PG&E Lockeford Substation

PG&E: Northern San Joaquin 230 kV Transmission Project

Source ID	Stack Release Type	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)	DPM Emission Rate (g/s)
L109	HORIZONTAL	661253.2	4220583	25.26	4.6	533	18	0.127	7.91665E-06
L110	HORIZONTAL	661278.2	4220583	25.27	4.6	533	18	0.127	7.91665E-06
L111	HORIZONTAL	661303.2	4220583	25.28	4.6	533	18	0.127	7.91665E-06
L112	HORIZONTAL	661328.2	4220583	25.29	4.6	533	18	0.127	7.91665E-06
L113	HORIZONTAL	661353.2	4220583	25.29	4.6	533	18	0.127	7.91665E-06
L114	HORIZONTAL	661378.2	4220583	25.29	4.6	533	18	0.127	7.91665E-06
L115	HORIZONTAL	661403.2	4220583	25.28	4.6	533	18	0.127	7.91665E-06
L116	HORIZONTAL	661428.2	4220583	25.28	4.6	533	18	0.127	7.91665E-06
L117	HORIZONTAL	661453.2	4220583	25.28	4.6	533	18	0.127	7.91665E-06
L118	HORIZONTAL	661328.2	4220608	25.29	4.6	533	18	0.127	7.91665E-06
L119	HORIZONTAL	661353.2	4220608	25.3	4.6	533	18	0.127	7.91665E-06
L120	HORIZONTAL	661378.2	4220608	25.3	4.6	533	18	0.127	7.91665E-06
L121	HORIZONTAL	661403.2	4220608	25.31	4.6	533	18	0.127	7.91665E-06
L122	HORIZONTAL	661428.2	4220608	25.31	4.6	533	18	0.127	7.91665E-06
L123	HORIZONTAL	661453.2	4220608	25.32	4.6	533	18	0.127	7.91665E-06

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AERMOD Receptor – Thurman / Guild

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
661131.1	4220389	25.03	25.03
661131.1	4220370	25.08	25.08
661153.4	4220373	25.08	25.08
661175.7	4220375	25.08	25.08
661198	4220377	25.1	25.1
661220.3	4220380	25.11	25.11
661242.6	4220382	25.12	25.12
661264.9	4220384	25.18	25.18
661287.1	4220386	25.13	25.13
661309.4	4220389	24.87	24.87
661332.9	4220391	24.9	24.9
661356.4	4220393	24.95	24.95
661379.9	4220395	24.99	24.99
661403.3	4220397	25.03	25.03
661426.8	4220399	25.03	25.03
661450.3	4220401	25.03	25.03
661473.8	4220403	25.04	25.04
661473.4	4220425	25.05	25.05
661473	4220447	25.12	25.12
661472.5	4220468	25.13	25.13
661472.1	4220490	25.14	25.14
661471.7	4220512	25.18	25.18
661471.3	4220533	25.21	25.21
661470.6	4220555	25.24	25.24
661469.8	4220576	25.28	25.28
661469.1	4220598	25.32	25.32
661468.3	4220619	25.35	25.35

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AERMOD Receptor – Thurman / Guild

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
661448	4220618	25.34	25.34
661427.7	4220617	25.33	25.33
661407.4	4220616	25.32	25.32
661382.9	4220613	25.3	25.3
661358.4	4220611	25.3	25.3
661333.9	4220609	25.29	25.29
661309.4	4220607	25.29	25.29
661284.9	4220604	25.29	25.29
661260.4	4220602	25.27	25.27
661235.9	4220600	25.26	25.26
661211.4	4220598	25.24	25.24
661186.9	4220595	25.23	25.23
661166.4	4220593	25.2	25.2
661145.9	4220591	25.18	25.18
661125.3	4220589	25.16	25.16
661104.8	4220586	25.15	25.15
661106.1	4220561	25.12	25.12
661107.4	4220537	25.1	25.1
661108.8	4220512	25.07	25.07
661110.1	4220487	25.04	25.04
661111.4	4220462	25	25
661112.8	4220437	24.97	24.97
661114.1	4220413	24.97	24.97
661115.4	4220388	25.02	25.02
661125	4220275	24.77	24.77
661150	4220275	24.76	24.76
661175	4220275	24.73	24.73
661075	4220300	24.81	24.81

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AERMOD Receptor – Thurman / Guild

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
661100	4220300	24.87	24.87
661125	4220300	24.89	24.89
661150	4220300	24.89	24.89
661175	4220300	24.87	24.87
661200	4220300	24.83	24.83
661225	4220300	24.77	24.77
661250	4220300	24.68	24.68
661275	4220300	24.56	24.56
661300	4220300	24.53	24.53
661325	4220300	25.42	25.42
661350	4220300	25.47	25.47
661375	4220300	25.48	25.48
661400	4220300	25.47	25.47
661425	4220300	25.49	25.49
661050	4220325	24.78	24.78
661075	4220325	24.88	24.88
661100	4220325	24.97	24.97
661125	4220325	25.01	25.01
661150	4220325	25	25
661175	4220325	24.97	24.97
661200	4220325	24.95	24.95
661225	4220325	24.92	24.92
661250	4220325	24.85	24.85
661275	4220325	24.7	24.7
661300	4220325	24.6	24.6
661325	4220325	25.4	25.4
661350	4220325	25.45	25.45
661375	4220325	25.47	25.47

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AERMOD Receptor – Thurman / Guild

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
661400	4220325	25.46	25.46
661425	4220325	25.46	25.46
661450	4220325	25.46	25.46
661475	4220325	25.45	25.45
661500	4220325	25.44	25.44
661525	4220325	25.42	25.42
661025	4220350	24.75	24.75
661050	4220350	24.82	24.82
661075	4220350	24.91	24.91
661100	4220350	25.03	25.03
661125	4220350	25.08	25.08
661150	4220350	25.07	25.07
661175	4220350	25.07	25.07
661200	4220350	25.05	25.05
661225	4220350	25.04	25.04
661250	4220350	25.02	25.02
661275	4220350	24.96	24.96
661300	4220350	24.69	24.69
661325	4220350	25.3	25.3
661350	4220350	25.37	25.37
661375	4220350	25.41	25.41
661400	4220350	25.41	25.41
661425	4220350	25.39	25.39
661450	4220350	25.38	25.38
661475	4220350	25.38	25.38
661500	4220350	25.37	25.37
661525	4220350	25.36	25.36
661550	4220350	25.36	25.36

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AERMOD Receptor – Thurman / Guild

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
661025	4220375	24.78	24.78
661050	4220375	24.84	24.84
661075	4220375	24.93	24.93
661100	4220375	25.02	25.02
661125	4220375	25.07	25.07
661200	4220375	25.1	25.1
661225	4220375	25.11	25.11
661250	4220375	25.11	25.11
661275	4220375	25.17	25.17
661300	4220375	24.78	24.78
661325	4220375	25	25
661350	4220375	25.25	25.25
661375	4220375	25.25	25.25
661400	4220375	25.24	25.24
661425	4220375	25.24	25.24
661450	4220375	25.23	25.23
661475	4220375	25.23	25.23
661500	4220375	25.24	25.24
661525	4220375	25.25	25.25
661550	4220375	25.28	25.28
661025	4220400	24.82	24.82
661050	4220400	24.87	24.87
661075	4220400	24.93	24.93
661100	4220400	24.97	24.97
661450	4220400	25.05	25.05
661475	4220400	25.07	25.07
661500	4220400	25.09	25.09
661525	4220400	25.12	25.12

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AERMOD Receptor – Thurman / Guild

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
661550	4220400	25.19	25.19
661025	4220425	24.85	24.85
661050	4220425	24.89	24.89
661075	4220425	24.92	24.92
661100	4220425	24.95	24.95
661475	4220425	25.05	25.05
661500	4220425	25.02	25.02
661525	4220425	25.12	25.12
661550	4220425	25.17	25.17
661025	4220450	24.88	24.88
661050	4220450	24.91	24.91
661075	4220450	24.94	24.94
661100	4220450	24.97	24.97
661475	4220450	25.12	25.12
661500	4220450	25.08	25.08
661525	4220450	25.11	25.11
661550	4220450	25.15	25.15
661025	4220475	24.91	24.91
661050	4220475	24.94	24.94
661075	4220475	24.98	24.98
661100	4220475	25	25
661475	4220475	25.12	25.12
661500	4220475	25.1	25.1
661525	4220475	25.13	25.13
661550	4220475	25.18	25.18
661025	4220500	24.94	24.94
661050	4220500	24.98	24.98
661075	4220500	25.01	25.01

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AERMOD Receptor – Thurman / Guild

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
661100	4220500	25.04	25.04
661475	4220500	25.16	25.16
661500	4220500	25.15	25.15
661525	4220500	25.18	25.18
661550	4220500	25.22	25.22
661025	4220525	24.98	24.98
661050	4220525	25.02	25.02
661075	4220525	25.05	25.05
661100	4220525	25.08	25.08
661475	4220525	25.2	25.2
661500	4220525	25.2	25.2
661525	4220525	25.23	25.23
661550	4220525	25.27	25.27
661025	4220550	25.02	25.02
661050	4220550	25.05	25.05
661075	4220550	25.08	25.08
661100	4220550	25.11	25.11
661475	4220550	25.24	25.24
661500	4220550	25.24	25.24
661525	4220550	25.28	25.28
661550	4220550	25.31	25.31
661025	4220575	25.06	25.06
661050	4220575	25.09	25.09
661075	4220575	25.11	25.11
661100	4220575	25.13	25.13
661475	4220575	25.28	25.28
661500	4220575	25.29	25.29
661525	4220575	25.32	25.32

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AERMOD Receptor – Thurman / Guild

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
661550	4220575	25.35	25.35
661025	4220600	25.09	25.09
661050	4220600	25.12	25.12
661075	4220600	25.14	25.14
661100	4220600	25.16	25.16
661125	4220600	25.17	25.17
661150	4220600	25.2	25.2
661175	4220600	25.22	25.22
661200	4220600	25.24	25.24
661225	4220600	25.24	25.24
661475	4220600	25.33	25.33
661500	4220600	25.34	25.34
661525	4220600	25.37	25.37
661550	4220600	25.39	25.39
661025	4220625	25.12	25.12
661050	4220625	25.14	25.14
661075	4220625	25.17	25.17
661100	4220625	25.19	25.19
661125	4220625	25.21	25.21
661150	4220625	25.23	25.23
661175	4220625	25.24	25.24
661200	4220625	25.25	25.25
661225	4220625	25.26	25.26
661250	4220625	25.28	25.28
661275	4220625	25.3	25.3
661300	4220625	25.3	25.3
661325	4220625	25.31	25.31
661350	4220625	25.31	25.31

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AERMOD Receptor – Thurman / Guild

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
661375	4220625	25.31	25.31
661400	4220625	25.33	25.33
661425	4220625	25.34	25.34
661450	4220625	25.35	25.35
661475	4220625	25.37	25.37
661500	4220625	25.38	25.38
661525	4220625	25.41	25.41
661550	4220625	25.44	25.44
661050	4220650	25.17	25.17
661075	4220650	25.19	25.19
661100	4220650	25.22	25.22
661125	4220650	25.23	25.23
661150	4220650	25.24	25.24
661175	4220650	25.26	25.26
661200	4220650	25.28	25.28
661225	4220650	25.29	25.29
661250	4220650	25.3	25.3
661275	4220650	25.31	25.31
661300	4220650	25.32	25.32
661325	4220650	25.32	25.32
661350	4220650	25.33	25.33
661375	4220650	25.34	25.34
661400	4220650	25.35	25.35
661425	4220650	25.37	25.37
661450	4220650	25.39	25.39
661475	4220650	25.41	25.41
661500	4220650	25.43	25.43
661525	4220650	25.47	25.47

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AERMOD Receptor – Thurman / Guild

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
661550	4220650	25.51	25.51
661075	4220675	25.21	25.21
661100	4220675	25.23	25.23
661125	4220675	25.25	25.25
661150	4220675	25.27	25.27
661175	4220675	25.29	25.29
661200	4220675	25.31	25.31
661225	4220675	25.32	25.32
661250	4220675	25.32	25.32
661275	4220675	25.33	25.33
661300	4220675	25.33	25.33
661325	4220675	25.34	25.34
661350	4220675	25.35	25.35
661375	4220675	25.37	25.37
661400	4220675	25.39	25.39
661425	4220675	25.41	25.41
661450	4220675	25.44	25.44
661475	4220675	25.45	25.45
661500	4220675	25.47	25.47
661525	4220675	25.52	25.52
661550	4220675	25.56	25.56
661250	4220700	25.35	25.35
661275	4220700	25.35	25.35
661300	4220700	25.35	25.35
661325	4220700	25.36	25.36
661350	4220700	25.38	25.38
661375	4220700	25.4	25.4
661400	4220700	25.42	25.42

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AERMOD Receptor – Thurman / Guild

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
661425	4220700	25.45	25.45
661450	4220700	25.48	25.48
661475	4220700	25.5	25.5
661500	4220700	25.52	25.52
661525	4220700	25.57	25.57
661050	4220150	24.24	24.24
661100	4220150	24.22	24.22
661150	4220150	24.2	24.2
661200	4220150	24.15	24.15
661250	4220150	24.16	24.16
661300	4220150	24.17	24.17
661350	4220150	24.51	24.51
661400	4220150	24.91	24.91
660950	4220200	24.34	24.34
661000	4220200	24.37	24.37
661050	4220200	24.4	24.4
661100	4220200	24.4	24.4
661150	4220200	24.37	24.37
661200	4220200	24.31	24.31
661250	4220200	24.26	24.26
661300	4220200	24.28	24.28
661350	4220200	25	25
661400	4220200	25.18	25.18
661450	4220200	25.37	25.37
661500	4220200	25.46	25.46
661550	4220200	25.47	25.47
661600	4220200	25.6	25.6
660950	4220250	24.43	24.43

APPENDIX A, TABLE 3

AERMOD Receptor – Thurman / Guild

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
661000	4220250	24.5	24.5
661050	4220250	24.57	24.57
661100	4220250	24.63	24.63
661150	4220250	24.61	24.61
661200	4220250	24.53	24.53
661250	4220250	24.43	24.43
661300	4220250	24.37	24.37
661350	4220250	25.31	25.31
661400	4220250	25.35	25.35
661450	4220250	25.46	25.46
661500	4220250	25.49	25.49
661550	4220250	25.49	25.49
661600	4220250	25.5	25.5
661650	4220250	25.45	25.45
660900	4220300	24.46	24.46
660950	4220300	24.52	24.52
661000	4220300	24.61	24.61
661050	4220300	24.73	24.73
661450	4220300	25.49	25.49
661500	4220300	25.47	25.47
661550	4220300	25.46	25.46
661600	4220300	25.43	25.43
661650	4220300	25.4	25.4
661700	4220300	25.33	25.33
660900	4220350	24.54	24.54
660950	4220350	24.6	24.6
661000	4220350	24.69	24.69
661600	4220350	25.35	25.35

APPENDIX A, TABLE 3

AERMOD Receptor – Thurman / Guild

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
661650	4220350	25.31	25.31
661700	4220350	25.31	25.31
660900	4220400	24.62	24.62
660950	4220400	24.69	24.69
661000	4220400	24.78	24.78
661600	4220400	25.24	25.24
661650	4220400	25.23	25.23
661700	4220400	25.18	25.18
660900	4220450	24.7	24.7
660950	4220450	24.78	24.78
661000	4220450	24.84	24.84
661600	4220450	25.2	25.2
661650	4220450	25.25	25.25
661700	4220450	25.23	25.23
660900	4220500	24.78	24.78
660950	4220500	24.85	24.85
661000	4220500	24.91	24.91
661600	4220500	25.28	25.28
661650	4220500	25.3	25.3
661700	4220500	25.32	25.32
660900	4220550	24.84	24.84
660950	4220550	24.91	24.91
661000	4220550	24.98	24.98
661600	4220550	25.39	25.39
661650	4220550	25.45	25.45
661700	4220550	25.49	25.49
660900	4220600	24.91	24.91
660950	4220600	24.98	24.98

APPENDIX A, TABLE 3

AERMOD Receptor – Thurman / Guild

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
661000	4220600	25.05	25.05
661600	4220600	25.47	25.47
661650	4220600	25.54	25.54
661700	4220600	25.66	25.66
660900	4220650	24.96	24.96
660950	4220650	25.05	25.05
661000	4220650	25.12	25.12
661600	4220650	25.59	25.59
661650	4220650	25.68	25.68
661700	4220650	25.8	25.8
660900	4220700	25.02	25.02
660950	4220700	25.11	25.11
661000	4220700	25.16	25.16
661050	4220700	25.21	25.21
661100	4220700	25.26	25.26
661150	4220700	25.3	25.3
661200	4220700	25.33	25.33
661550	4220700	25.61	25.61
661600	4220700	25.69	25.69
661650	4220700	25.75	25.75
661700	4220700	25.88	25.88
660950	4220750	25.14	25.14
661000	4220750	25.19	25.19
661050	4220750	25.26	25.26
661100	4220750	25.31	25.31
661150	4220750	25.35	25.35
661200	4220750	25.38	25.38
661250	4220750	25.39	25.39

APPENDIX A, TABLE 3

AERMOD Receptor – Thurman / Guild

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
661300	4220750	25.41	25.41
661350	4220750	25.44	25.44
661400	4220750	25.49	25.49
661450	4220750	25.56	25.56
661500	4220750	25.62	25.62
661550	4220750	25.69	25.69
661600	4220750	25.76	25.76
661650	4220750	25.83	25.83
661000	4220800	25.25	25.25
661050	4220800	25.3	25.3
661100	4220800	25.35	25.35
661150	4220800	25.4	25.4
661200	4220800	25.42	25.42
661250	4220800	25.45	25.45
661300	4220800	25.48	25.48
661350	4220800	25.51	25.51
661400	4220800	25.58	25.58
661450	4220800	25.65	25.65
661500	4220800	25.71	25.71
661550	4220800	25.78	25.78
661600	4220800	25.86	25.86
661250	4220850	25.51	25.51
661300	4220850	25.56	25.56
661350	4220850	25.62	25.62
661400	4220850	25.68	25.68
661450	4220850	25.75	25.75
661500	4220850	25.82	25.82
661550	4220850	25.9	25.9

APPENDIX A, TABLE 3

AERMOD Receptor – Thurman / Guild

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
661000	4219900	23.89	23.89
661100	4219900	23.82	23.82
661200	4219900	23.74	23.74
661300	4219900	23.7	23.7
661400	4219900	23.64	23.64
660800	4220000	24	24
660900	4220000	24.03	24.03
661000	4220000	23.98	23.98
661100	4220000	23.91	23.91
661200	4220000	23.86	23.86
661300	4220000	23.88	23.88
661400	4220000	23.61	23.61
661500	4220000	23.86	23.86
661600	4220000	24.77	24.77
661700	4220000	25.11	25.11
660800	4220100	24.09	24.09
660900	4220100	24.14	24.14
661000	4220100	24.15	24.15
661100	4220100	24.09	24.09
661200	4220100	24.04	24.04
661300	4220100	24.07	24.07
661400	4220100	24.33	24.33
661500	4220100	24.66	24.66
661600	4220100	23.03	24.6
661700	4220100	25.3	25.3
661800	4220100	25.45	25.45
660700	4220200	24.08	24.08
660800	4220200	24.21	24.21

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AERMOD Receptor – Thurman / Guild

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
660900	4220200	24.3	24.3
661700	4220200	23.46	25.14
661800	4220200	25.27	25.27
661900	4220200	25.54	25.54
660700	4220300	24.16	24.16
660800	4220300	24.33	24.33
661800	4220300	24.75	24.75
661900	4220300	25.5	25.5
660700	4220400	24.27	24.27
660800	4220400	24.44	24.44
661800	4220400	23.14	23.14
661900	4220400	24.75	25.24
660700	4220500	24.33	24.33
660800	4220500	24.58	24.58
661800	4220500	25.25	25.25
661900	4220500	25.24	25.24
660700	4220600	24.43	24.43
660800	4220600	24.71	24.71
661800	4220600	26.07	26.07
661900	4220600	26.19	26.19
660700	4220700	24.52	24.52
660800	4220700	24.82	24.82
661800	4220700	26.41	26.41
661900	4220700	26.64	26.64
660700	4220800	24.65	24.65
660800	4220800	24.95	24.95
660900	4220800	25.13	25.13
661700	4220800	26.02	26.02

APPENDIX A, TABLE 3

AERMOD Receptor – Thurman / Guild

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
661800	4220800	26.47	26.47
661900	4220800	26.62	26.62
660800	4220900	25.1	25.1
660900	4220900	25.26	25.26
661000	4220900	25.36	25.36
661100	4220900	25.43	25.43
661200	4220900	25.52	25.52
661300	4220900	25.64	25.64
661400	4220900	25.8	25.8
661500	4220900	25.97	25.97
661600	4220900	26.11	26.11
661700	4220900	26.22	26.22
661800	4220900	26.47	26.47
660900	4221000	25.34	25.34
661000	4221000	25.38	25.38
661100	4221000	25.44	25.44
661200	4221000	25.59	25.59
661300	4221000	25.8	25.8
661400	4221000	25.99	25.99
661500	4221000	26.16	26.16
661600	4221000	26.34	26.34
661700	4221000	26.44	26.44
661300	4221100	25.71	25.71
661400	4221100	25.96	25.96
661500	4221100	26.14	26.14
661600	4221100	26.32	26.32
660750	4219500	22.87	22.87
661000	4219500	23.86	23.86

APPENDIX A, TABLE 3

AERMOD Receptor – Thurman / Guild

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
661250	4219500	24.12	24.12
661500	4219500	24.09	24.09
661750	4219500	24.28	24.28
660500	4219750	23.49	23.49
660750	4219750	23.74	23.74
661000	4219750	23.78	23.78
661250	4219750	24.01	24.01
661500	4219750	24.32	24.32
661750	4219750	24.36	24.36
662000	4219750	24.67	24.67
660250	4220000	20.18	22.99
660500	4220000	23.76	23.76
660750	4220000	23.98	23.98
662000	4220000	25.58	25.58
662250	4220000	25.78	25.78
660250	4220250	20.27	23.66
660500	4220250	23.87	23.87
662000	4220250	26.01	26.01
662250	4220250	26.3	26.3
660250	4220500	23.81	23.81
660500	4220500	23.93	23.93
662000	4220500	25.24	25.24
662250	4220500	23.45	23.45
660250	4220750	24.57	24.57
660500	4220750	23.72	23.72
662000	4220750	26.28	26.28
662250	4220750	25.42	25.42
660250	4221000	25.03	25.03

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AERMOD Receptor – Thurman / Guild

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
660500	4221000	23.15	23.15
660750	4221000	25.1	25.1
662000	4221000	26.21	26.21
662250	4221000	26	26
660500	4221250	23.86	23.86
660750	4221250	23.43	23.43
661000	4221250	23.8	23.8
661250	4221250	24.67	24.67
661500	4221250	25.93	25.93
661750	4221250	26.46	26.46
662000	4221250	26.54	26.54
660750	4221500	25.44	25.44
661000	4221500	23.33	25.08
661250	4221500	25.75	25.75
661500	4221500	26.82	26.82
661750	4221500	26.53	26.53
660500	4218500	22.53	22.53
661000	4218500	22.47	22.47
661500	4218500	23.17	23.17
662000	4218500	23.61	23.61
660000	4219000	22.61	22.61
660500	4219000	22.65	22.65
661000	4219000	22.79	22.79
661500	4219000	23.81	23.81
662000	4219000	24.48	24.48
662500	4219000	25.41	25.41
659500	4219500	22.09	22.09
660000	4219500	22.42	22.42

APPENDIX A, TABLE 3

AERMOD Receptor – Thurman / Guild

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
660500	4219500	23.13	23.13
662000	4219500	24.1	24.1
662500	4219500	25.55	25.55
663000	4219500	26.89	26.89
659500	4220000	22.83	22.83
660000	4220000	23.53	23.53
662500	4220000	26.6	26.6
663000	4220000	25.51	25.51
659500	4220500	23.31	23.31
660000	4220500	23.85	23.85
662500	4220500	26.8	26.8
663000	4220500	26.99	26.99
659500	4221000	23.91	23.91
660000	4221000	24.63	24.63
662500	4221000	25.34	25.34
663000	4221000	28.03	28.03
659500	4221500	24.43	24.43
660000	4221500	25.03	25.03
660500	4221500	25.25	25.25
662000	4221500	27.14	27.14
662500	4221500	27.65	27.65
663000	4221500	28.02	28.02
660000	4222000	25.23	25.23
660500	4222000	25.19	25.19
661000	4222000	26.63	26.63
661500	4222000	26.63	26.63
662000	4222000	26.55	26.55
662500	4222000	27.89	27.89

APPENDIX A, TABLE 3

AERMOD Receptor – Thurman / Guild

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
661000	4222500	27.05	27.05
661500	4222500	27.2	27.2
662000	4222500	27.43	27.43

APPENDIX A, TABLE 4

AERMOD Receptor - Lockeford

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
653206.9	4221620	18.02	18.02
653213.4	4221603	17.97	17.97
653212.9	4221581	17.79	17.79
653212.4	4221559	17.73	17.73
653211.9	4221537	17.76	17.76
653233.9	4221536	17.71	17.71
653256	4221536	17.75	17.75
653278.1	4221535	17.83	17.83
653300.1	4221535	17.89	17.89
653322.2	4221534	18.03	18.03
653344.3	4221534	18.08	18.08
653366.3	4221534	18.2	18.2
653390.4	4221534	18.23	18.23
653414.5	4221534	18.27	18.27
653438.5	4221534	18.34	18.34
653462.6	4221534	18.34	18.34
653486.7	4221534	18.43	18.43
653492.9	4221555	18.43	18.43
653499.1	4221577	18.44	18.44
653505.3	4221599	18.43	18.43
653511.5	4221620	18.52	18.52
653519.9	4221642	18.53	18.53
653528.2	4221664	18.42	18.42
653536.5	4221685	18.47	18.47
653545.4	4221703	18.54	18.54
653548.3	4221721	18.38	18.38
653524.4	4221722	18.33	18.33
653500.5	4221723	18.33	18.33

APPENDIX A, TABLE 4

AERMOD Receptor - Lockeford

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
653476.5	4221724	18.32	18.32
653452.6	4221725	18.23	18.23
653428.7	4221726	18.21	18.21
653404.7	4221727	18.18	18.18
653380.8	4221728	18.11	18.11
653356.8	4221729	18.14	18.14
653332.9	4221730	18.07	18.07
653309	4221731	18.12	18.12
653306.2	4221712	18.1	18.1
653306.1	4221691	18.14	18.14
653306	4221669	18.16	18.16
653286.8	4221669	18.15	18.15
653267.6	4221669	18.13	18.13
653267.4	4221644	18.1	18.1
653267.1	4221620	18.09	18.09
653247	4221620	18.09	18.09
653227	4221620	18.07	18.07
653175	4221450	18.01	18.01
653200	4221450	18.07	18.07
653225	4221450	18.14	18.14
653250	4221450	18.21	18.21
653275	4221450	18.2	18.2
653300	4221450	18.2	18.2
653325	4221450	18.22	18.22
653350	4221450	18.33	18.33
653375	4221450	18.4	18.4
653400	4221450	18.36	18.36
653425	4221450	18.36	18.36

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AERMOD Receptor - Lockeford

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
653450	4221450	18.39	18.39
653475	4221450	18.42	18.42
653500	4221450	18.53	18.53
653525	4221450	18.53	18.53
653150	4221475	18.02	18.02
653175	4221475	18	18
653200	4221475	18.11	18.11
653225	4221475	18.17	18.17
653250	4221475	18.19	18.19
653275	4221475	18.2	18.2
653300	4221475	18.2	18.2
653325	4221475	18.15	18.15
653350	4221475	18.21	18.21
653375	4221475	18.2	18.2
653400	4221475	18.33	18.33
653425	4221475	18.43	18.43
653450	4221475	18.43	18.43
653475	4221475	18.43	18.43
653500	4221475	18.53	18.53
653525	4221475	18.53	18.53
653550	4221475	18.58	18.58
653125	4221500	17.89	17.89
653150	4221500	17.97	17.97
653175	4221500	17.98	17.98
653200	4221500	17.99	17.99
653225	4221500	17.99	17.99
653250	4221500	18	18
653275	4221500	18.08	18.08

APPENDIX A, TABLE 4

AERMOD Receptor - Lockeford

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
653300	4221500	18.13	18.13
653325	4221500	18.15	18.15
653350	4221500	18.19	18.19
653375	4221500	18.21	18.21
653400	4221500	18.29	18.29
653425	4221500	18.34	18.34
653450	4221500	18.45	18.45
653475	4221500	18.43	18.43
653500	4221500	18.54	18.54
653525	4221500	18.53	18.53
653550	4221500	18.53	18.53
653575	4221500	18.63	18.63
653125	4221525	17.93	17.93
653150	4221525	17.97	17.97
653175	4221525	17.88	17.88
653200	4221525	17.78	17.78
653225	4221525	17.79	17.79
653250	4221525	17.81	17.81
653275	4221525	17.86	17.86
653300	4221525	17.95	17.95
653325	4221525	18.06	18.06
653350	4221525	18.1	18.1
653375	4221525	18.22	18.22
653400	4221525	18.23	18.23
653425	4221525	18.33	18.33
653450	4221525	18.33	18.33
653475	4221525	18.38	18.38
653500	4221525	18.49	18.49

APPENDIX A, TABLE 4

AERMOD Receptor - Lockeford

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
653525	4221525	18.53	18.53
653550	4221525	18.53	18.53
653575	4221525	18.63	18.63
653125	4221550	17.99	17.99
653150	4221550	18.02	18.02
653175	4221550	17.8	17.8
653200	4221550	17.78	17.78
653500	4221550	18.43	18.43
653525	4221550	18.39	18.39
653550	4221550	18.55	18.55
653575	4221550	18.6	18.6
653125	4221575	18.16	18.16
653150	4221575	18.11	18.11
653175	4221575	17.86	17.86
653200	4221575	17.82	17.82
653500	4221575	18.43	18.43
653525	4221575	18.43	18.43
653550	4221575	18.43	18.43
653575	4221575	18.45	18.45
653600	4221575	18.6	18.6
653125	4221600	18.22	18.22
653150	4221600	18.16	18.16
653175	4221600	17.97	17.97
653200	4221600	17.93	17.93
653525	4221600	18.42	18.42
653550	4221600	18.45	18.45
653575	4221600	18.42	18.42
653600	4221600	18.43	18.43

APPENDIX A, TABLE 4

AERMOD Receptor - Lockeford

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
653125	4221625	18.15	18.15
653150	4221625	18.15	18.15
653175	4221625	18.05	18.05
653200	4221625	18.03	18.03
653225	4221625	18.11	18.11
653250	4221625	18.13	18.13
653525	4221625	18.53	18.53
653550	4221625	18.53	18.53
653575	4221625	18.53	18.53
653600	4221625	18.53	18.53
653125	4221650	18.13	18.13
653150	4221650	18.05	18.05
653175	4221650	18.04	18.04
653200	4221650	18.02	18.02
653225	4221650	18.08	18.08
653250	4221650	18.1	18.1
653525	4221650	18.47	18.47
653550	4221650	18.53	18.53
653575	4221650	18.53	18.53
653600	4221650	18.52	18.52
653625	4221650	18.56	18.56
653125	4221675	18.13	18.13
653150	4221675	18.05	18.05
653175	4221675	17.99	17.99
653200	4221675	18.09	18.09
653225	4221675	18.08	18.08
653250	4221675	18.08	18.08
653275	4221675	18.16	18.16

APPENDIX A, TABLE 4

AERMOD Receptor - Lockeford

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
653300	4221675	18.14	18.14
653550	4221675	18.53	18.53
653575	4221675	18.53	18.53
653600	4221675	18.63	18.63
653625	4221675	18.63	18.63
653150	4221700	18.19	18.19
653175	4221700	18.07	18.07
653200	4221700	18.05	18.05
653225	4221700	18.11	18.11
653250	4221700	18.12	18.12
653275	4221700	18.15	18.15
653300	4221700	18.13	18.13
653550	4221700	18.54	18.54
653575	4221700	18.56	18.56
653600	4221700	18.63	18.63
653625	4221700	18.65	18.65
653200	4221725	18.05	18.05
653225	4221725	18.04	18.04
653250	4221725	18.11	18.11
653275	4221725	18.12	18.12
653300	4221725	18.08	18.08
653475	4221725	18.32	18.32
653500	4221725	18.33	18.33
653525	4221725	18.33	18.33
653550	4221725	18.39	18.39
653575	4221725	18.42	18.42
653600	4221725	18.53	18.53
653625	4221725	18.53	18.53

APPENDIX A, TABLE 4

AERMOD Receptor - Lockeford

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
653225	4221750	18.04	18.04
653250	4221750	18.07	18.07
653275	4221750	18.12	18.12
653300	4221750	18.12	18.12
653325	4221750	18.19	18.19
653350	4221750	18.08	18.08
653375	4221750	18.12	18.12
653400	4221750	18.19	18.19
653425	4221750	18.18	18.18
653450	4221750	18.24	18.24
653475	4221750	18.26	18.26
653500	4221750	18.29	18.29
653525	4221750	18.33	18.33
653550	4221750	18.36	18.36
653575	4221750	18.43	18.43
653600	4221750	18.49	18.49
653625	4221750	18.53	18.53
653225	4221775	18.04	18.04
653250	4221775	18.08	18.08
653275	4221775	18.1	18.1
653300	4221775	18.13	18.13
653325	4221775	18.13	18.13
653350	4221775	18.18	18.18
653375	4221775	18.15	18.15
653400	4221775	18.19	18.19
653425	4221775	18.17	18.17
653450	4221775	18.24	18.24
653475	4221775	18.22	18.22

APPENDIX A, TABLE 4

AERMOD Receptor - Lockeford

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
653500	4221775	18.23	18.23
653525	4221775	18.33	18.33
653550	4221775	18.33	18.33
653575	4221775	18.43	18.43
653600	4221775	18.49	18.49
653625	4221775	18.53	18.53
653250	4221800	18.07	18.07
653275	4221800	18.08	18.08
653300	4221800	18.1	18.1
653325	4221800	18.13	18.13
653350	4221800	18.16	18.16
653375	4221800	18.23	18.23
653400	4221800	18.19	18.19
653425	4221800	18.18	18.18
653450	4221800	18.12	18.12
653475	4221800	18.19	18.19
653500	4221800	18.23	18.23
653525	4221800	18.32	18.32
653550	4221800	18.36	18.36
653575	4221800	18.43	18.43
653600	4221800	18.49	18.49
653300	4221825	18.07	18.07
653325	4221825	18.13	18.13
653350	4221825	18.11	18.11
653375	4221825	18.23	18.23
653400	4221825	18.2	18.2
653425	4221825	18.19	18.19
653450	4221825	18.04	18.04

APPENDIX A, TABLE 4

AERMOD Receptor - Lockeford

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
653150	4221300	17.57	17.57
653200	4221300	17.71	17.71
653250	4221300	17.97	17.97
653300	4221300	18.18	18.18
653350	4221300	18.1	18.1
653400	4221300	18.09	18.09
653450	4221300	18.33	18.33
653500	4221300	18.52	18.52
653550	4221300	18.59	18.59
653050	4221350	17.34	17.34
653100	4221350	17.56	17.56
653150	4221350	17.67	17.67
653200	4221350	17.81	17.81
653250	4221350	18.03	18.03
653300	4221350	18.13	18.13
653350	4221350	18.33	18.33
653400	4221350	18.2	18.2
653450	4221350	18.3	18.3
653500	4221350	18.44	18.44
653550	4221350	18.54	18.54
653600	4221350	18.64	18.64
653650	4221350	18.69	18.69
653050	4221400	17.46	17.46
653100	4221400	17.73	17.73
653150	4221400	17.74	17.74
653200	4221400	17.88	17.88
653250	4221400	18.03	18.03
653300	4221400	18.12	18.12

APPENDIX A, TABLE 4

AERMOD Receptor - Lockeford

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
653350	4221400	18.21	18.21
653400	4221400	18.22	18.22
653450	4221400	18.33	18.33
653500	4221400	18.48	18.48
653550	4221400	18.59	18.59
653600	4221400	18.63	18.63
653650	4221400	18.73	18.73
653000	4221450	17.25	17.25
653050	4221450	17.62	17.62
653100	4221450	17.88	17.88
653150	4221450	17.95	17.95
653550	4221450	18.59	18.59
653600	4221450	18.66	18.66
653650	4221450	18.8	18.8
653700	4221450	18.73	18.73
653000	4221500	17.22	17.22
653050	4221500	17.59	17.59
653100	4221500	17.76	17.76
653600	4221500	18.63	18.63
653650	4221500	18.74	18.74
653700	4221500	18.83	18.83
653000	4221550	17.09	17.09
653050	4221550	17.46	17.46
653100	4221550	17.74	17.74
653600	4221550	18.63	18.63
653650	4221550	18.73	18.73
653700	4221550	18.79	18.79
653750	4221550	18.93	18.93

APPENDIX A, TABLE 4

AERMOD Receptor - Lockeford

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
653000	4221600	16.72	16.72
653050	4221600	17.26	17.26
653100	4221600	17.9	17.9
653650	4221600	18.67	18.67
653700	4221600	18.73	18.73
653750	4221600	18.86	18.86
653000	4221650	16.73	16.73
653050	4221650	17.21	17.21
653100	4221650	17.81	17.81
653650	4221650	18.63	18.63
653700	4221650	18.73	18.73
653750	4221650	18.66	18.66
653000	4221700	16.69	16.69
653050	4221700	17.32	17.32
653100	4221700	17.99	17.99
653650	4221700	18.71	18.71
653700	4221700	18.65	18.65
653750	4221700	18.53	18.53
653000	4221750	16.5	16.5
653050	4221750	17.28	17.28
653100	4221750	18.07	18.07
653150	4221750	18.47	18.47
653200	4221750	18.06	18.06
653650	4221750	18.53	18.53
653700	4221750	18.43	18.43
653750	4221750	18.53	18.53
653050	4221800	17.15	17.15
653100	4221800	17.9	17.9

APPENDIX A, TABLE 4

AERMOD Receptor - Lockeford

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
653150	4221800	18.53	18.53
653200	4221800	18.22	18.22
653650	4221800	18.33	18.33
653700	4221800	18.33	18.33
653750	4221800	18.57	18.57
653100	4221850	17.65	17.65
653150	4221850	18.27	18.27
653200	4221850	18.4	18.4
653250	4221850	18.04	18.04
653300	4221850	18.06	18.06
653350	4221850	18.09	18.09
653400	4221850	18.21	18.21
653450	4221850	18.04	18.04
653500	4221850	18.22	18.22
653550	4221850	18.3	18.3
653600	4221850	18.23	18.23
653650	4221850	18.26	18.26
653700	4221850	18.41	18.41
653750	4221850	18.51	18.51
653150	4221900	18.01	18.01
653200	4221900	18.36	18.36
653250	4221900	18.17	18.17
653300	4221900	17.96	17.96
653350	4221900	18.04	18.04
653400	4221900	18.04	18.04
653450	4221900	18.02	18.02
653500	4221900	18.15	18.15
653550	4221900	18.06	18.06

APPENDIX A, TABLE 4

AERMOD Receptor - Lockeford

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
653600	4221900	18.13	18.13
653650	4221900	18.25	18.25
653700	4221900	18.37	18.37
653200	4221950	18.29	18.29
653250	4221950	18.23	18.23
653300	4221950	18.07	18.07
653350	4221950	18.01	18.01
653400	4221950	17.85	17.85
653450	4221950	17.9	17.9
653500	4221950	17.93	17.93
653550	4221950	18.03	18.03
653600	4221950	18.08	18.08
653000	4221100	17.44	17.44
653100	4221100	17.43	17.43
653200	4221100	17.54	17.54
653300	4221100	17.75	17.75
653400	4221100	17.99	17.99
653500	4221100	18.15	18.15
653600	4221100	18.23	18.23
653700	4221100	18.43	18.43
652900	4221200	17.45	17.45
653000	4221200	17.36	17.36
653100	4221200	17.35	17.35
653200	4221200	17.62	17.62
653300	4221200	17.84	17.84
653400	4221200	18.22	18.22
653500	4221200	18.4	18.4
653600	4221200	18.38	18.38

APPENDIX A, TABLE 4

AERMOD Receptor - Lockeford

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
653700	4221200	18.54	18.54
653800	4221200	18.73	18.73
652800	4221300	17.04	17.04
652900	4221300	17.11	17.11
653000	4221300	17.12	17.12
653100	4221300	17.38	17.38
653600	4221300	18.59	18.59
653700	4221300	18.64	18.64
653800	4221300	18.8	18.8
653900	4221300	18.92	18.92
652800	4221400	16.22	16.22
652900	4221400	16.82	16.82
653000	4221400	17.24	17.24
653700	4221400	18.73	18.73
653800	4221400	18.83	18.83
653900	4221400	18.83	18.83
652800	4221500	16.22	16.22
652900	4221500	16.71	16.71
653800	4221500	18.83	18.83
653900	4221500	18.89	18.89
654000	4221500	19.03	19.03
652800	4221600	16.22	16.22
652900	4221600	16.35	16.35
653800	4221600	18.73	18.73
653900	4221600	18.94	18.94
654000	4221600	19.03	19.03
652800	4221700	15.95	15.95
652900	4221700	15.95	15.95

APPENDIX A, TABLE 4

AERMOD Receptor - Lockeford

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
653800	4221700	18.73	18.73
653900	4221700	19.03	19.03
654000	4221700	19.03	19.03
652800	4221800	15.95	15.95
652900	4221800	15.95	15.95
653000	4221800	16.38	16.38
653800	4221800	18.73	18.73
653900	4221800	18.83	18.83
654000	4221800	19.04	19.04
652800	4221900	15.95	15.95
652900	4221900	15.95	15.95
653000	4221900	15.96	15.96
653100	4221900	17.35	17.35
653800	4221900	18.63	18.63
653900	4221900	18.83	18.83
654000	4221900	19.04	19.04
652900	4222000	15.95	15.95
653000	4222000	15.95	15.95
653100	4222000	16.9	16.9
653200	4222000	18.03	18.03
653300	4222000	18.11	18.11
653400	4222000	17.79	17.79
653500	4222000	17.92	17.92
653600	4222000	18.05	18.05
653700	4222000	18.33	18.33
653800	4222000	18.63	18.63
653900	4222000	18.83	18.83
653000	4222100	15.95	15.95

APPENDIX A, TABLE 4

AERMOD Receptor - Lockeford

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
653100	4222100	16.4	16.4
653200	4222100	17.37	17.37
653300	4222100	17.79	17.79
653400	4222100	17.71	17.71
653500	4222100	17.83	17.83
653600	4222100	18.03	18.03
653700	4222100	18.33	18.33
653800	4222100	18.53	18.53
653200	4222200	17.02	17.02
653300	4222200	17.57	17.57
653400	4222200	17.66	17.66
653500	4222200	17.71	17.71
653600	4222200	18.01	18.01
652750	4220750	17.4	17.4
653000	4220750	17.61	17.61
653250	4220750	17.43	17.43
653500	4220750	17.58	17.58
653750	4220750	18.02	18.02
654000	4220750	18.51	18.51
652500	4221000	16.52	16.52
652750	4221000	17.4	17.4
653000	4221000	17.4	17.4
653250	4221000	17.6	17.6
653500	4221000	17.95	17.95
653750	4221000	18.34	18.34
654000	4221000	18.79	18.79
654250	4221000	19.02	19.02
652500	4221250	16.59	16.59

APPENDIX A, TABLE 4

AERMOD Receptor - Lockeford

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
652750	4221250	17.49	17.49
654000	4221250	19.02	19.02
654250	4221250	19.04	19.04
652250	4221500	15.95	15.95
652500	4221500	15.95	15.95
654250	4221500	19.33	19.33
654500	4221500	19.46	19.46
652250	4221750	15.95	15.95
652500	4221750	15.95	15.95
654250	4221750	19.43	19.43
654500	4221750	19.73	19.73
652500	4222000	15.95	15.95
652750	4222000	15.95	15.95
654000	4222000	19.09	19.09
654250	4222000	19.44	19.44
654500	4222000	19.83	19.83
652500	4222250	15.95	15.95
652750	4222250	15.95	15.95
653000	4222250	15.95	15.95
653250	4222250	17.36	17.36
653500	4222250	17.63	17.63
653750	4222250	18.45	18.45
654000	4222250	19.13	19.13
654250	4222250	19.56	19.56
652750	4222500	15.95	15.95
653000	4222500	15.95	15.95
653250	4222500	17.38	17.38
653500	4222500	17.74	17.74

APPENDIX A, TABLE 4

AERMOD Receptor - Lockeford

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
653750	4222500	18.77	18.77
654000	4222500	19.23	19.23
652000	4220000	15.11	15.11
652500	4220000	16.01	16.01
653000	4220000	16.64	16.64
653500	4220000	17.05	17.05
654000	4220000	17.66	17.66
654500	4220000	18.18	18.18
652000	4220500	15.4	15.4
652500	4220500	16.44	16.44
653000	4220500	17.88	17.88
653500	4220500	17.42	17.42
654000	4220500	18.19	18.19
654500	4220500	18.66	18.66
655000	4220500	19.19	19.19
651500	4221000	14.5	14.5
652000	4221000	15.29	15.29
654500	4221000	19.11	19.11
655000	4221000	19.72	19.72
651500	4221500	14.89	14.89
652000	4221500	15.75	15.75
655000	4221500	20.21	20.21
655500	4221500	20.53	20.53
651500	4222000	15.35	15.35
652000	4222000	15.75	15.75
655000	4222000	20.59	20.59
655500	4222000	20.63	20.63
651500	4222500	15.95	15.95

APPENDIX A, TABLE 4

AERMOD Receptor - Lockeford

PG&E: Northern San Joaquin 230 kV Transmission Project

East (x) (m)	North (y) (m)	Elevation (m)	Terrain Max (m)
652000	4222500	16	16
652500	4222500	15.95	15.95
654500	4222500	20.33	20.33
655000	4222500	20.73	20.73
652000	4223000	16.19	16.19
652500	4223000	19.14	19.14
653000	4223000	16.93	16.93
653500	4223000	18.04	18.04
654000	4223000	18.86	18.86
654500	4223000	20.07	20.07
655000	4223000	20.54	20.54
652500	4223500	17.85	17.85
653000	4223500	16.86	16.86
653500	4223500	16.36	16.36
654000	4223500	15.54	15.54

Appendix B
HRA Calculations

Appendix B Table 1
Cancer Impacts due to Diesel Particulate Matter - PG&E Thurman Switching Station
PG&E: Northern San Joaquin 230 kV Transmission Project

Modeled Concentrations
Maximum annual impact of annualized project emissions

				Receptor Location	
				East (x, meters)	North (y, meters)
MEIR	0.00879	µg/m^3	Diesel PM	653,900.00	4,221,700.00
Sensitive	0.00284	µg/m^3	Diesel PM	652,500.00	4,221,500.00
MEIW	0.07181	µg/m^3	Diesel PM	653,525.00	4,221,575.00

All locations expressed in UTM NAD83 Zone 10 projection and datum.
Sensitive receptor based on highest receptor concentration near Heritage Elementary School

Construction HRA per the 2015 OEHHA Guidance
Residential Calculation Procedure for Cancer Risks

MEIR

Year	0 (3rd tri)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Dose (mg/kg/day)	3.05E-06	9.20E-06	9.20E-06	7.27E-06	7.27E-06	7.27E-06	7.27E-06	7.27E-06	7.27E-06	6.29E-06	6.29E-06	6.29E-06	6.29E-06	6.29E-06	6.29E-06	6.29E-06	2.83E-06	2.83E-06	2.83E-06	2.83E-06	2.83E-06	2.83E-06	2.83E-06	2.83E-06	2.83E-06	2.83E-06	2.83E-06	2.83E-06	2.83E-06	2.83E-06	2.83E-06
Risk	1.02E-07	1.23E-06	1.23E-06	2.47E-07	2.47E-07	2.47E-07	2.47E-07	2.47E-07	2.47E-07	2.13E-07	2.13E-07	2.13E-07	2.13E-07	2.13E-07	2.13E-07	2.13E-07	3.24E-08	3.24E-08	3.24E-08	3.24E-08	3.24E-08	3.24E-08	3.24E-08	3.24E-08	3.24E-08	3.24E-08	3.24E-08	3.24E-08	3.24E-08	3.24E-08	3.24E-08
1-yr Risk	1.02E-07	1.23E-06	1.23E-06	2.47E-07	2.47E-07	2.47E-07	2.47E-07	2.47E-07	2.47E-07	2.13E-07	2.13E-07	2.13E-07	2.13E-07	2.13E-07	2.13E-07	2.13E-07	3.24E-08	3.24E-08	3.24E-08	3.24E-08	3.24E-08	3.24E-08	3.24E-08	3.24E-08	3.24E-08	3.24E-08	3.24E-08	3.24E-08	3.24E-08	3.24E-08	3.24E-08
Risk per Million	0.10	1.23	1.23	0.25	0.25	0.25	0.25	0.25	0.25	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03

Sensitive

Year	0 (3rd tri)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Dose (mg/kg/day)	9.84E-07	2.97E-06	2.97E-06	2.35E-06	2.35E-06	2.35E-06	2.35E-06	2.35E-06	2.35E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	9.13E-07	9.13E-07	9.13E-07	9.13E-07	9.13E-07	9.13E-07	9.13E-07	9.13E-07	9.13E-07	9.13E-07	9.13E-07	9.13E-07	9.13E-07	9.13E-07	9.13E-07
Risk	3.29E-08	3.97E-07	3.97E-07	7.97E-08	7.97E-08	7.97E-08	7.97E-08	7.97E-08	7.97E-08	6.89E-08	6.89E-08	6.89E-08	6.89E-08	6.89E-08	6.89E-08	6.89E-08	1.05E-08	1.05E-08	1.05E-08	1.05E-08	1.05E-08	1.05E-08	1.05E-08	1.05E-08	1.05E-08	1.05E-08	1.05E-08	1.05E-08	1.05E-08	1.05E-08	1.05E-08
1-yr Risk	3.29E-08	3.97E-07	3.97E-07	7.97E-08	7.97E-08	7.97E-08	7.97E-08	7.97E-08	7.97E-08	6.89E-08	6.89E-08	6.89E-08	6.89E-08	6.89E-08	6.89E-08	6.89E-08	1.05E-08	1.05E-08	1.05E-08	1.05E-08	1.05E-08	1.05E-08	1.05E-08	1.05E-08	1.05E-08	1.05E-08	1.05E-08	1.05E-08	1.05E-08	1.05E-08	1.05E-08
Risk per Million	0.03	0.40	0.40	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Worker Calculation Procedure for Cancer Risks

MEIW

Year	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Dose (mg/kg/day)	1.12E-05	1.12E-05	1.12E-05	1.12E-05	1.12E-05	1.12E-05	1.12E-05	1.12E-05	1.12E-05	1.12E-05	1.12E-05	1.12E-05	1.12E-05	1.12E-05	1.12E-05	1.12E-05	1.12E-05	1.12E-05	1.12E-05	1.12E-05	1.12E-05	1.12E-05	1.12E-05	1.12E-05	1.12E-05
Risk	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07
1-yr Risk	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07
Risk per Million	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18

Appendix B Table 2
Chronic Impacts due to Diesel Particulate Matter - PG&E Thurman Switching Station
PG&E: Northern San Joaquin 230 kV Transmission Project

Construction HRA per the 2015 OEHHA Guidance
Calculation Procedure for Chronic Hazard Index

Receptor Type	Pollutant	Maximum Annual Modeled Concentration ($\mu g/m^3$) [a]	REL ($\mu g/m^3$) [b]	Chronic Hazard Index
MEIR	Diesel PM	0.00879	5	0.0018
Sensitive	Diesel PM	0.00284	5	0.0006
MEIW	Diesel PM	0.07181	5	0.0144

Notes:

[a] Maximum Annual Modeled Concentrations taken from Appendix B, Table 1.

[b] REL taken from the *Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values* (OEHHA and ARB, 2020).

Appendix B Table 3
Cancer Impacts due to Diesel Particulate Matter - LEU Guild Substation, LEU Industrial Substation and 12 kV Lines
PG&E: Northern San Joaquin 230 kV Transmission Project

Modeled Concentrations
Maximum annual impact of annualized project emissions

				Receptor Location	
				East (x, meters)	North (y, meters)
MEIR	0.00883	$\mu g/m^3$	Diesel PM	653,900.00	4,221,700.00
Sensitive	0.00264	$\mu g/m^3$	Diesel PM	652,500.00	4,221,500.00
MEIW	0.05097	$\mu g/m^3$	Diesel PM	653414.46	4221533.6

All locations expressed in UTM NAD83 Zone 10 projection and datum.
Sensitive receptor based on highest receptor concentration near Heritage Elementary School

Construction HRA per the 2015 OEHHA Guidance
Residential Calculation Procedure for Cancer Risks

MEIR

Year	0 (3rd tri)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Dose (mg/kg/day)	3.06E-06	9.24E-06	9.24E-06	7.30E-06	7.30E-06	7.30E-06	7.30E-06	7.30E-06	7.30E-06	6.32E-06	6.32E-06	6.32E-06	6.32E-06	6.32E-06	6.32E-06	6.32E-06	2.84E-06	2.84E-06	2.84E-06	2.84E-06	2.84E-06	2.84E-06	2.84E-06	2.84E-06	2.84E-06	2.84E-06	2.84E-06	2.84E-06	2.84E-06	2.84E-06	2.84E-06
Risk	1.02E-07	1.23E-06	1.23E-06	2.48E-07	2.48E-07	2.48E-07	2.48E-07	2.48E-07	2.48E-07	2.14E-07	2.14E-07	2.14E-07	2.14E-07	2.14E-07	2.14E-07	2.14E-07	3.26E-08	3.26E-08	3.26E-08	3.26E-08	3.26E-08	3.26E-08	3.26E-08	3.26E-08	3.26E-08	3.26E-08	3.26E-08	3.26E-08	3.26E-08	3.26E-08	3.26E-08
1-yr Risk	1.02E-07	1.23E-06	1.23E-06	2.48E-07	2.48E-07	2.48E-07	2.48E-07	2.48E-07	2.48E-07	2.14E-07	2.14E-07	2.14E-07	2.14E-07	2.14E-07	2.14E-07	2.14E-07	3.26E-08	3.26E-08	3.26E-08	3.26E-08	3.26E-08	3.26E-08	3.26E-08	3.26E-08	3.26E-08	3.26E-08	3.26E-08	3.26E-08	3.26E-08	3.26E-08	3.26E-08
Risk per Million	0.10	1.23	1.23	0.25	0.25	0.25	0.25	0.25	0.25	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03

Sensitive

Year	0 (3rd tri)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Dose (mg/kg/day)	9.15E-07	2.76E-06	2.76E-06	2.18E-06	2.18E-06	2.18E-06	2.18E-06	2.18E-06	2.18E-06	1.89E-06	1.89E-06	1.89E-06	1.89E-06	1.89E-06	1.89E-06	1.89E-06	8.49E-07	8.49E-07	8.49E-07	8.49E-07	8.49E-07	8.49E-07	8.49E-07	8.49E-07	8.49E-07	8.49E-07	8.49E-07	8.49E-07	8.49E-07	8.49E-07	8.49E-07
Risk	3.06E-08	3.69E-07	3.69E-07	7.41E-08	7.41E-08	7.41E-08	7.41E-08	7.41E-08	7.41E-08	6.41E-08	6.41E-08	6.41E-08	6.41E-08	6.41E-08	6.41E-08	6.41E-08	9.74E-09	9.74E-09	9.74E-09	9.74E-09	9.74E-09	9.74E-09	9.74E-09	9.74E-09	9.74E-09	9.74E-09	9.74E-09	9.74E-09	9.74E-09	9.74E-09	9.74E-09
1-yr Risk	3.06E-08	3.69E-07	3.69E-07	7.41E-08	7.41E-08	7.41E-08	7.41E-08	7.41E-08	7.41E-08	6.41E-08	6.41E-08	6.41E-08	6.41E-08	6.41E-08	6.41E-08	6.41E-08	9.74E-09	9.74E-09	9.74E-09	9.74E-09	9.74E-09	9.74E-09	9.74E-09	9.74E-09	9.74E-09	9.74E-09	9.74E-09	9.74E-09	9.74E-09	9.74E-09	9.74E-09
Risk per Million	0.03	0.37	0.37	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Worker Calculation Procedure for Cancer Risks

MEIW

Year	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Dose (mg/kg/day)	7.97E-06	7.97E-06	7.97E-06	7.97E-06	7.97E-06	7.97E-06	7.97E-06	7.97E-06	7.97E-06	7.97E-06	7.97E-06	7.97E-06	7.97E-06	7.97E-06	7.97E-06	7.97E-06	7.97E-06	7.97E-06	7.97E-06	7.97E-06	7.97E-06	7.97E-06	7.97E-06	7.97E-06	7.97E-06
Risk	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07
1-yr Risk	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07
Risk per Million	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13

Appendix B Table 4
Chronic Impacts due to Diesel Particulate Matter -LEU Guild Substation, LEU Industrial Substation and 12 kV Lines
PG&E: Northern San Joaquin 230 kV Transmission Project

Construction HRA per the 2015 OEHHA Guidance
Calculation Procedure for Chronic Hazard Index

Receptor Type	Pollutant	Maximum Annual Modeled Concentration ($\mu g/m^3$) [a]	REL ($\mu g/m^3$) [b]	Chronic Hazard Index
MEIR	Diesel PM	0.00883	5	0.0018
Sensitive	Diesel PM	0.00264	5	0.0005
MEIW	Diesel PM	0.05097	5	0.0102

Notes:

[a] Maximum Annual Modeled Concentrations taken from Appendix B, Table 3.

[b] REL taken from the *Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values* (OEHHA and ARB, 2020).

Appendix B Table 5
Cancer Impacts due to Diesel Particulate Matter - PG&E Thurman Switching Station & LEU Portion of the Project
PG&E: Northern San Joaquin 230 kV Transmission Project

Modeled Concentrations
Maximum annual impact of annualized project emissions

				Receptor Location	
				East (x, meters)	North (y, meters)
MEIR	0.01762	$\mu g/m^3$	Diesel PM	653,900.00	4,221,700.00
Sensitive	0.00548	$\mu g/m^3$	Diesel PM	652,500.00	4,221,500.00
MEIW	0.11326	$\mu g/m^3$	Diesel PM	653,505.32	4,221,598.53

All locations expressed in UTM NAD83 Zone 10 projection and datum.
Sensitive receptor based on highest receptor concentration near Heritage Elementary School

Construction HRA per the 2015 OEHHA Guidance
Residential Calculation Procedure for Cancer Risks

MEIR

Year	0 (3rd tri)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Dose (mg/kg/day)	6.11E-06	1.84E-05	1.84E-05	1.46E-05	1.46E-05	1.46E-05	1.46E-05	1.46E-05	1.46E-05	1.26E-05	1.26E-05	1.26E-05	1.26E-05	1.26E-05	1.26E-05	1.26E-05	5.67E-06	5.67E-06	5.67E-06	5.67E-06	5.67E-06	5.67E-06	5.67E-06	5.67E-06	5.67E-06	5.67E-06	5.67E-06	5.67E-06	5.67E-06	5.67E-06	5.67E-06
Risk	2.04E-07	2.46E-06	2.46E-06	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.28E-07	4.28E-07	4.28E-07	4.28E-07	4.28E-07	4.28E-07	4.28E-07	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08
1-yr Risk	2.04E-07	2.46E-06	2.46E-06	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.28E-07	4.28E-07	4.28E-07	4.28E-07	4.28E-07	4.28E-07	4.28E-07	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08
Risk per Million	0.20	2.46	2.46	0.49	0.49	0.49	0.49	0.49	0.49	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07

Sensitive

Year	0 (3rd tri)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Dose (mg/kg/day)	1.90E-06	5.73E-06	5.73E-06	4.53E-06	4.53E-06	4.53E-06	4.53E-06	4.53E-06	4.53E-06	3.92E-06	3.92E-06	3.92E-06	3.92E-06	3.92E-06	3.92E-06	3.92E-06	1.76E-06	1.76E-06	1.76E-06	1.76E-06	1.76E-06	1.76E-06	1.76E-06	1.76E-06	1.76E-06	1.76E-06	1.76E-06	1.76E-06	1.76E-06	1.76E-06	1.76E-06
Risk	6.34E-08	7.66E-07	7.66E-07	1.54E-07	1.54E-07	1.54E-07	1.54E-07	1.54E-07	1.54E-07	1.33E-07	1.33E-07	1.33E-07	1.33E-07	1.33E-07	1.33E-07	1.33E-07	2.02E-08	2.02E-08	2.02E-08	2.02E-08	2.02E-08	2.02E-08	2.02E-08	2.02E-08	2.02E-08	2.02E-08	2.02E-08	2.02E-08	2.02E-08	2.02E-08	2.02E-08
1-yr Risk	6.34E-08	7.66E-07	7.66E-07	1.54E-07	1.54E-07	1.54E-07	1.54E-07	1.54E-07	1.54E-07	1.33E-07	1.33E-07	1.33E-07	1.33E-07	1.33E-07	1.33E-07	1.33E-07	2.02E-08	2.02E-08	2.02E-08	2.02E-08	2.02E-08	2.02E-08	2.02E-08	2.02E-08	2.02E-08	2.02E-08	2.02E-08	2.02E-08	2.02E-08	2.02E-08	2.02E-08
Risk per Million	0.06	0.77	0.77	0.15	0.15	0.15	0.15	0.15	0.15	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02

Worker Calculation Procedure for Cancer Risks

MEIW

Year	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Dose (mg/kg/day)	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05
Risk	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07
1-yr Risk	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07	2.78E-07
Risk per Million	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28

Appendix B Table 6
Chronic Impacts due to Diesel Particulate Matter - Thurman Switching Stations & LEU Guild Substation
PG&E: NSJ Project

Construction HRA per the 2015 OEHHA Guidance
Calculation Procedure for Chronic Hazard Index

Receptor Type	Pollutant	Maximum Annual Modeled Concentration ($\mu g/m^3$) [a]	REL ($\mu g/m^3$) [b]	Chronic Hazard Index
MEIR	Diesel PM	0.01762	5	0.0035
Sensitive	Diesel PM	0.00548	5	0.0011
MEIW	Diesel PM	0.11326	5	0.0227

Notes:

[a] Maximum Annual Modeled Concentrations taken from Appendix B, Table 5.

[b] REL taken from the *Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values* (OEHHA and ARB, 2020).

Appendix B Table 7
Cancer Impacts due to Diesel Particulate Matter - PG&E Lockeford Substation
PG&E: Northern San Joaquin 230 kV Transmission Project

Modeled Concentrations
Maximum annual impact of annualized project emissions

				Receptor Location	
				East (x, meters)	North (y, meters)
MEIR	0.02327	µg/m^3	Diesel PM	661,450.00	4,220,375.00
Sensitive	0.00025	µg/m^3	Diesel PM	662,000.00	4,222,500.00
MEIW	0.02636	µg/m^3	Diesel PM	661,473.36	4,220,425.13

All locations expressed in UTM NAD83 Zone 10 projection and datum.
No sensitive receptor is located within the receptor grid, therefore the is the lowest receptor concentration is used for the sensitive receptor calculation.

Construction HRA per the 2015 OEHHA Guidance
Residential Calculation Procedure for Cancer Risks

MEIR

Year	0 (3rd tri)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Dose (mg/kg/day)	8.06E-06	2.43E-05	2.43E-05	1.92E-05	1.92E-05	1.92E-05	1.92E-05	1.92E-05	1.92E-05	1.66E-05	1.66E-05	1.66E-05	1.66E-05	1.66E-05	1.66E-05	1.66E-05	7.48E-06	7.48E-06	7.48E-06	7.48E-06	7.48E-06	7.48E-06	7.48E-06	7.48E-06	7.48E-06	7.48E-06	7.48E-06	7.48E-06	7.48E-06	7.48E-06	7.48E-06
Risk	2.69E-07	3.25E-06	3.25E-06	6.53E-07	6.53E-07	6.53E-07	6.53E-07	6.53E-07	6.53E-07	5.65E-07	5.65E-07	5.65E-07	5.65E-07	5.65E-07	5.65E-07	5.65E-07	8.58E-08	8.58E-08	8.58E-08	8.58E-08	8.58E-08	8.58E-08	8.58E-08	8.58E-08	8.58E-08	8.58E-08	8.58E-08	8.58E-08	8.58E-08	8.58E-08	8.58E-08
Rolling 3-yr Risk				7.43E-06	4.56E-06	1.96E-06	1.96E-06	1.96E-06	1.96E-06	1.87E-06	1.78E-06	1.69E-06	1.69E-06	1.69E-06	1.69E-06	1.69E-06	1.22E-06	7.37E-07	2.58E-07	2.58E-07	2.58E-07	2.58E-07	2.58E-07	2.58E-07	2.58E-07	2.58E-07	2.58E-07	2.58E-07	2.58E-07	2.58E-07	2.58E-07	2.58E-07
Risk per Million				7.43	4.56	1.96	1.96	1.96	1.96	1.87	1.78	1.69	1.69	1.69	1.69	1.69	1.22	0.74	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26

Sensitive

Year	0 (3rd tri)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Dose (mg/kg/day)	8.66E-08	2.62E-07	2.62E-07	2.07E-07	2.07E-07	2.07E-07	2.07E-07	2.07E-07	2.07E-07	1.79E-07	1.79E-07	1.79E-07	1.79E-07	1.79E-07	1.79E-07	1.79E-07	8.04E-08	8.04E-08	8.04E-08	8.04E-08	8.04E-08	8.04E-08	8.04E-08	8.04E-08	8.04E-08	8.04E-08	8.04E-08	8.04E-08	8.04E-08	8.04E-08	8.04E-08
Risk	2.89E-09	3.49E-08	3.49E-08	7.01E-09	7.01E-09	7.01E-09	7.01E-09	7.01E-09	7.01E-09	6.07E-09	6.07E-09	6.07E-09	6.07E-09	6.07E-09	6.07E-09	6.07E-09	9.22E-10	9.22E-10	9.22E-10	9.22E-10	9.22E-10	9.22E-10	9.22E-10	9.22E-10	9.22E-10	9.22E-10	9.22E-10	9.22E-10	9.22E-10	9.22E-10	9.22E-10
Rolling 3-yr Risk			7.28E-08	4.20E-08	1.40E-08	1.40E-08	1.40E-08	1.40E-08	1.40E-08	1.31E-08	1.21E-08	1.21E-08	1.21E-08	1.21E-08	1.21E-08	1.21E-08	6.99E-09	1.84E-09	1.84E-09	1.84E-09	1.84E-09	1.84E-09	1.84E-09	1.84E-09	1.84E-09	1.84E-09	1.84E-09	1.84E-09	1.84E-09	1.84E-09	1.84E-09	1.84E-09
Risk per Million			0.07	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Worker Calculation Procedure for Cancer Risks

MEIW

Year	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Dose (mg/kg/day)	4.12E-06	4.12E-06	4.12E-06	4.12E-06	4.12E-06	4.12E-06	4.12E-06	4.12E-06	4.12E-06	4.12E-06	4.12E-06	4.12E-06	4.12E-06	4.12E-06	4.12E-06	4.12E-06	4.12E-06	4.12E-06	4.12E-06	4.12E-06	4.12E-06	4.12E-06	4.12E-06	4.12E-06	4.12E-06
Risk	6.48E-08	6.48E-08	6.48E-08	6.48E-08	6.48E-08	6.48E-08	6.48E-08	6.48E-08	6.48E-08	6.48E-08	6.48E-08	6.48E-08	6.48E-08	6.48E-08	6.48E-08	6.48E-08	6.48E-08	6.48E-08	6.48E-08	6.48E-08	6.48E-08	6.48E-08	6.48E-08	6.48E-08	6.48E-08
Rolling 3-yr Risk			1.94E-07	1.94E-07	1.94E-07	1.94E-07	1.94E-07	1.94E-07	1.94E-07	1.94E-07	1.94E-07	1.94E-07	1.94E-07	1.94E-07	1.94E-07	1.94E-07	1.94E-07	1.94E-07	1.94E-07	1.94E-07	1.94E-07	1.94E-07	1.94E-07	1.94E-07	1.94E-07
Risk per Million			0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19

Appendix B Table 8
Chronic Impacts due to Diesel Particulate Matter - PG&E Lockeford Substation
PG&E: Northern San Joaquin 230 kV Transmission Project

Construction HRA per the 2015 OEHHA Guidance
Calculation Procedure for Chronic Hazard Index

Receptor Type	Pollutant	Maximum Annual Modeled Concentration ($\mu g/m^3$) [a]	REL ($\mu g/m^3$) [b]	Chronic Hazard Index
MEIR	Diesel PM	0.02327	5	0.0047
Sensitive	Diesel PM	0.00025	5	5.00E-05
MEIW	Diesel PM	0.02636	5	0.0053

Notes:

[a] Maximum Annual Modeled Concentrations taken from Appendix B, Table 7.

[b] REL taken from the *Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values* (OEHHA and ARB, 2020).

Table 3
Residential Constants for Cancer Risk
PG&E: Northern San Joaquin 230 kV Transmission Project

Dose Constants

Year	0 (3rd tri)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
BR/BW	361	1090	1090	861	861	861	861	861	861	745	745	745	745	745	745	745	335	335	335	335	335	335	335	335	335	335	335	335	335	335	335
A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Conversion	1E-06	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001

Risk Constants

Year	0 (3rd tri)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
CPF (Diesel PM)	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
ASF	10	10	10	3	3	3	3	3	3	3	3	3	3	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ED	0.25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
AT	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
FAH	0.85	0.85	0.85	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73

A. Equation 5.4.1.1: $\text{Dose-air} = C_{air} \times \{BR/BW\} \times A \times EF \times 10^{-6}$

1. Dose-air = Dose through inhalation (mg/kg/d)
2. C_{air} = Concentration in air ($\mu g/m^3$)
3. {BR/BW} = Daily Breathing rate normalized to body weight (L/kg body weight - day)
4. A = Inhalation absorption factor (unitless)
5. EF = Exposure frequency (unitless), days/365 days
6. 10^{-6} = Micrograms to milligrams conversion, liters to cubic meters conversion

a: Recommended default values for EQ 5.4.1.1:

1. {BR/BW} = Daily breathing rates by age groupings, see As supplemental information, the assessor may wish to evaluate the inhalation dose by using the mean point estimates in Table 5.6 to provide a range of breathing rates for cancer risk assessment to the risk manager.
2. Table (point estimates) and Table 5.7 (parametric model distributions for Tier III stochastic risk assessment). For Tier 1 residential estimates, use 95th percentile breathing rates in Table 5.6.
3. A = 1
4. EF = 0.96 (350 days/365 days in a year for a resident)

A. Equation 8.2.4 A: $\text{RISK}_{\text{inh-res}} = \text{DOSE}_{air} \times CPF \times ASF \times ED/AT \times FAH$

7. $\text{RISK}_{\text{inh-res}}$ = Residential inhalation cancer risk
8. DOSE_{air} = Daily inhalation dose (mg/kg-day)
9. CPF = Inhalation cancer potency factor ($mg/kg\text{-}day^{-1}$)
10. ASF = Age sensitivity factor for a specified age group (unitless)
11. ED = Exposure duration (in years) for a specified age group
12. AT = Averaging time for lifetime cancer risk (years)
13. FAH = Fraction of time spent at home (unitless)

a: Recommended default values for EQ 8.2.4 A:

5. DOSE_{air} = Calculated for each age group from Eq. 5.4.1
6. CPF = Substance-specific (see Table 7.1)
7. ASF = See Section 8.2.1
8. ED = 0.25 years for 3rd trimester, 2 years for 0<2, 7 years for 2<9, 14 years for 2<16, 14 years for 16<30, 54 years for 16-70
9. AT = 70 years*
10. FAH = See Table 8.4

Table 4
Worker Constants for Cancer Risk
PG&E: Northern San Joaquin 230 kV Transmission Project

Dose Constants

Year	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
WAF	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BR/BW	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230
A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EF	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Conversion	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001

Risk Constants

Year	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
CPF (Diesel PM)	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
ASF	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ED	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
AT	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70

A. Equation 5.4.1.2 A: $\text{Dose-air} = (C_{air} \times WAF) \times \{BR/BW\} \times A \times EF \times 10^{-6}$

1. Dose-air = Dose through inhalation (mg/kg/d)
2. C_{air} = Annual average concentration in air ($\mu g/m^3$)
3. WAF = Worker air concentration adjustment factor (unitless)
4. {BR/BW} = Eight-hour breathing rate normalized to body weight (L/kg body weight - day)
5. A = Inhalation absorption factor (unitless)
6. EF = Exposure frequency (unitless), days/365 days)
7. 10^{-6} = Micrograms to milligrams conversion, Liters to cubic meters conversion

a: Recommended default values for EQ 5.4.1.2 A:

1. WAF = See EQ. 5.4.1.2 B for formula to calculate WAF, or App. M for refined post-processing modeling to calculate WAF.
2. {BR/BW} = For workers, use age16-70 year, 95th percentile, moderate intensity 8-hour point estimate breathing rates (see Table 5.8). No worker breathing rate distributions exist for stochastic risk assessment.
3. A = 1
4. EF = 0.68 (250 days / 365 days). Equivalent to working 5 days/week, 50 weeks/year.

b: Assumption for EQ 5.4.1.2 A:

1. The fraction of chemical absorbed (A) through the lungs is the same fraction absorbed in the study on which the cancer potency factor is based.
2. The source emits during the daylight hours. Calculate WAF (EQ 5.4.1.2 B) if a special post-processing modeling run described in App. M was not completed. For nighttime emissions and exposure scenarios, see Appendix N.

B. Equation 5.4.1.2 B: $WAF = (H_{res} / H_{source}) \times (D_{res} / D_{source}) \times DF$

1. WAF = Worker adjustment factor (unitless)
2. H_{res} = Number of hours per day the annual average residential air concentration is based on (always 24 hours)
3. H_{source} = Number of hours the source operates per day
4. D_{res} = Number of days per week the annual average residential air concentration is based on (always 7 days)
5. D_{source} = Number of days the emitting source operates per week
6. DF = Discount factor, for when the offsite worker's schedule partially overlaps the source's emission schedule

b: Recommended default values for EQ 5.4.1.2 B:

1. DF = 1 for offsite worker's schedule occurring within the source's emission schedule. A site-specific survey may be used to adjust the DF using EQ 5.4.1.2 C.

C. Equation 5.4.1.2 C: $DF = (H_{coincident} / H_{worker}) \times (D_{coincident} / D_{worker})$

1. $H_{coincident}$ = Number of hours per day the offsite worker's schedule and the source's emission schedule coincide
2. H_{worker} = Number of hours the offsite worker works per day
3. $D_{coincident}$ = Number of days per week the offsite worker's schedule and the source's emission schedule coincide
4. D_{worker} = Number of days the offsite worker works per week

B. Equation 8.2.4 B: $RISK_{inh\text{-}work} = DOSE_{air} \times CPF \times ASF \times ED/AT$

1. $RISK_{inh\text{-}work}$ = Worker inhalation cancer risk

a: Recommended default values for EQ 8.2.4 B:

1. $DOSE_{air}$ = Calculated for workers in Eq. 5.4.1.2
2. CPF = Substance specific (see Table 7.1)
3. ASF = 1 for working age 16-70 yrs (See Section 8.2.1)
4. ED = 25 years
5. AT = 70 yrs for lifetime cancer risk

Appendix C
HRA Model and Output Files
(provided digitally)

Appendix C1
Northern San Joaquin 230 kV Transmission Project Rare Plant Report

Northern San Joaquin 230 kV Transmission Project, San Joaquin County, California

Rare Plant Report

Final

August 2023

Pacific Gas and Electric Company

Preliminary and Subject to Change Based on CPUC Requirements, Final Engineering, and Other Factors



Northern San Joaquin 230 kV Transmission Project, San Joaquin County, California

Project No:	D31321DL.A.CS.EV.TM.09
Document Title:	Rare Plant Report
Document No.:	FES1004220706BAO
Revision:	Final
Date:	August 2023
Client Name:	Preliminary and Subject to Change Based on CPUC Requirements, Final Engineering, and Other Factors
Project Manager:	Colleen Taylor
Author:	Kyle Brown
File Name:	AppC1_Rare Plant Survey Report

Preliminary and Subject to Change Based on CPUC Requirements, Final Engineering, and Other Factors

Jacobs Engineering Group Inc.

155 Grand Avenue
Oakland, California 94612
United States
T +1.510. 251.2888
F +1.510.622.9000
www.jacobs.com

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Acronyms and Abbreviations

BSA	Biological Study Area
CCV	Central California Valley
CDFW	California Department of Fish and Wildlife
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
kV	kilovolt
LEU	Lodi Electric Utility
NRCS	Natural Resources Conservation Service
PG&E	Pacific Gas and Electric Company
SR	State Route
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1. Introduction

Pacific Gas and Electric Company (PG&E) proposes the Northern San Joaquin 230 kilovolt (kV) Transmission Project (project) to provide a new 230 kV transmission system in northern San Joaquin County in central California. The purpose of the project is to increase electric reliability and accommodate forecasted load growth to electrical customers in northern San Joaquin County.

This report presents the results of targeted rare plant surveys conducted for the project in spring and summer 2021, and a follow-up rare plant habitat assessment of new proposed work areas in summer 2022. A brief project overview, the project location, environmental setting, and survey methods and results are provided in the following sections.

The project includes activities by PG&E and the City of Lodi's Electric Utility (Lodi Electrical Utility or LEU). This project description summary includes PG&E's portion of the project and LEU's portion of the project. This report references PG&E's portion of the project or LEU's portion of the project in select sections. Refer to PG&E's project Proponent's Environmental Assessment for potential impact discussion by utility.

1.1 Project Overview

The project will loop in PG&E's existing overhead Brighton-Bellota 230 kV transmission line through PG&E Lockeford Substation and install a new overhead double-circuit 230 kV transmission line between PG&E Lockeford Substation and a new switching station (PG&E Thurman Switching Station) at Lodi Electric Utility (LEU) Fred M. Reid Industrial Substation (LEU Industrial Substation) in Lodi, California. LEU will construct LEU Guild Substation, a new 230/60 kV substation, between its Industrial Substation and the new PG&E Thurman Switching Station. At LEU Guild Substation, the new 230 kV transmission line will terminate, and transformers will step down the power to 60 kV and connect with LEU Industrial Substation. When the new 230 kV system is operating, the existing local PG&E 60 kV system will be reconfigured, including disconnecting from LEU's 60 kV system at LEU Industrial Substation. The 60 kV lines will be removed or reconfigured within their existing alignments.

PG&E will perform project-related work at four remote-end substations (Brighton, Bellota, Rio Oso, and Lodi), which are located in Folsom, Linden, Rio Oso, and Lodi, respectively, to update the system protection scheme.

The proposed project includes new or modified aboveground substations; switching station; microwave towers; Federal Communications Commission towers; and transmission, power, distribution/feeder, and telecommunication (optical ground and shield wires) lines. Belowground facilities or portions thereof include new and modified foundations, grounding grids, new and relocated 12 kV feeder lines, and telecommunication circuits at stations. Project activities will occur within new and existing right-of-way, along new proposed and existing access roads, and on PG&E property. Construction work areas and access roads will occur within existing, modified, or new rights-of-way with some adjacent or nearby temporary construction work areas and access.

1.2 Project Location

The proposed project is within unincorporated areas of northeastern San Joaquin County and partially within an industrial area of the City of Lodi. Work will be conducted from approximately 4 miles east of the PG&E Lockeford Substation westward to LEU Industrial Substation (Figure 1). Major geographic features in the project vicinity include the Mokelumne River, Bear Creek, State Route (SR) 99, SR 88, and SR 12.

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A biological study area (BSA) for the project was established as a 250-foot-wide corridor centered on the proposed transmission line and all potential work areas (including new proposed structure locations, staging areas, and new proposed substations) and a 50-foot-wide buffer around proposed access roads (Figure 2). Given the flat topography of adjacent areas, adequate access to the project using existing and short overland roads, similar land cover types in adjacent areas, and constrained access because of surrounding private property along the project's right-of-way, this BSA was determined to be appropriate to cover all potential direct and indirect effects. The BSA encompasses approximately 387 acres.

2. Existing Conditions

2.1 Environmental Setting

Beginning in 1992, the U.S. Forest Service has worked to develop a consistent approach to ecosystem classification and mapping at multiple geographic scales. The goal is to develop a stratification system for progressively smaller areas of increasingly uniform ecological potentials based on climate, physiography, water, soils, air, hydrology, and potential natural communities. The largest change in any one land cover class between 1973 and 2000 in the Central California Valley (CCV) ecoregion was the loss and conversion of 1,782 square kilometers of grassland and shrubland to developed land cover area (USGS 2012). This shift, starting in 1973 to approximately 1992, accounted for a large percentage of habitat loss for special-status plants in the project vicinity and further declining habitat suitability in the CCV ecoregion.

The CCV ecoregion consists of flat, intensively farmed plains with long, hot, dry summers and mild winters. The CCV ecoregion includes the flat valley basins of deep sediments adjacent to the Sacramento and San Joaquin Rivers, as well as the fans and terraces around the edge of the valley. The two major rivers flow from opposite ends of the CCV, entering into the Sacramento-San Joaquin River Delta and San Pablo Bay. This region once contained extensive prairies, oak savannas, desert grasslands in the south, riparian woodlands, freshwater marshes, and vernal pools. More than half of the region is now in cropland, about three-quarters of which is irrigated. At the next lower level in the classification hierarchy, the project is located within the Lodi Alluvium subregion. This project is located within the Great Valley Section of the California Dry Steppe Province. The project is within the Hardpan Terraces and Sodic Claypan Terraces subsections (Miles and Goudey 1997).

Geomorphology within the Hardpan Terraces subsection is described as very gently to gently sloping terraces and small areas of floodplain and alluvial fans along streams that cross from mountains to reach the Sacramento and San Joaquin Rivers. The Sodic Claypan Terraces are described as nearly level to gently sloping late Pleistocene and recent alluvial fans from the southern end of the northern California Coast Ranges. Alluvium within these subsections is formed from volcanic, granitic, sedimentary, and metamorphic rock sources. Fluvial erosion and deposition are the main geomorphic processes within the region (Miles and Goudey 1997).

The regional topography generally is flat with rolling hills increasing to the east. Elevation ranges from approximately 135 feet above sea level at the eastern end of the project to approximately 60 feet above sea level at the western end of the project.

Figure 3 presents California Natural Diversity Database (CNDDB) occurrences for special-status plant species within 5 miles of the project and is discussed further in the Methods and Results sections that follow.

2.1.1 Soils

Soils information for the BSA was obtained from the Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2022a) as well as the Official Soil Series Descriptions (NRCS 2022b). Figure 4 presents the soil types within the BSA and Table 1 presents additional information about the mapped soil series.

Preliminary and Subject to Change Based on CPUC Requirements, Final Engineering, and Other Factors

Table 1. Mapped Soil Series within the BSA and Vicinity

Type / Series	Texture	Landscape Position and Parent Material	Drainage and Permeability	Hydric Soil?
Acampo	Sandy loam	Acampo soils are on low fan terraces. The soils formed in alluvium derived from granite.	Moderately well drained; slow runoff; moderately rapid permeability	No
Archerdale	Very fine sandy loam	Archerdale soils are on low fan terraces and alluvial fans. The soils formed in alluvium from mixed rock sources.	Well drained; slow runoff; slow permeability	No
Bruella	Sandy loam	Bruella soils are on low terraces and fans. They formed in alluvium derived mainly from granitic rock sources.	Well and moderately well drained; slow runoff; moderately slow permeability (hard substratum phase has slow permeability below a depth of 40 inches); some areas are subject to rare flooding	No
Cometa	Sandy loam	Cometa soils are on gently sloping and undulating, slightly dissected older stream terraces. The soils formed in alluvium from granitic rock sources.	Moderately well or well drained; slow to medium runoff; very slow permeability	No
Kingdon	Fine sandy loam	Kingdon soils are on low fan terraces. The soils formed in alluvium derived mainly from granitic rock sources.	Moderately well drained; slow runoff; moderate permeability	No
Montpellier-Cometa Complex	Coarse sandy loam	Montpellier-Cometa complex soils are on fan remnants. The soils formed from alluvium derived from granitic rock.	Well drained; high runoff	No
Rocklin	Sandy loam/ Fine sandy loam	Rocklin soils are on nearly level to rolling dissected terraces of fan remnants. The soils formed in old alluvium from granitic rock sources.	Well drained; very slow to medium runoff; moderate permeability above cemented material but very slow to slow below	No
San Joaquin	Sandy loam/ Loam	San Joaquin soils are on hummocky, nearly level to undulating terraces. They formed in alluvium from mixed but mainly granitic rock sources.	Well and moderately well drained; medium to very high runoff; very slow permeability; some areas are subject to rare or occasional flooding	No
Tokay and Tokay-Urban Land Complex	Fine sandy loam	Tokay soils are on low fan terraces. The soils formed in alluvium derived mainly from granitic rock sources.	Well drained; slow runoff; moderately rapid permeability	No
Tujunga	Loamy sand	Tujunga soils are on alluvial fans and floodplains. The soils formed in alluvium weathered from granitic sources or similar.	Somewhat excessively drained; negligible to low runoff; high saturated hydraulic conductivity; flooding is none to frequent	No

Source:
Web Soil Survey 2.0 National Cooperative Soil Survey (NRCS 2022a)

2.1.2 Climate

The regional climate is characterized by cool, wet winters and hot, dry summers. The average annual rainfall is approximately 17 inches, with most of the precipitation occurring between November and March. Average monthly temperatures range from a low of 46 degrees Fahrenheit (^{o}F) in January to a high of 74^{o}F in July (Western Regional Climate Center 2022).

2.1.3 Vegetation and Land Cover Types

The majority of upland habitat observed throughout the BSA is either hardscaped (pavement and sidewalks) or otherwise developed/landscaped, agriculture, or is disturbed habitat consisting of primarily ruderal or non-native species. Representative vegetation alliances from the *Manual of California Vegetation, Second Edition* (Sawyer et al. 2009) are referenced and discussed in the following sections and shown on Figure 5.

2.1.3.1 Tree Cover

Tree cover is not included in the following description sections because this land cover type does not correlate with representative vegetation alliances from the *Manual of California Vegetation, Second Edition*. However, this land cover type is included in Figure 5, pages 3 and 7. Tree cover, where mapped, includes planted, ornamental, or landscaped overstory trees that are not associated with agricultural land cover types. There is potential that trees will need to be trimmed or removed to facilitate the project. Locations of these trees are shown on Figure 2 (pages 2, 3, 5, 6, 9, 10, 11, 13, 14, and 17).

2.1.3.2 Wetlands

Eight depressional seasonal wetlands were delineated within the BSA. Vegetation within the wetlands consisted of seaside barley (*Hordeum marinum*), sparse popcornflower (*Plagiobothrys* sp.), annual hairgrass (*Deschampsia danthonioides*), spikerush (*Eleocharis* sp.), and tall flatsedge (*Cyperus eragrostis*).

2.1.3.3 Other Waters

Other waters within the BSA include natural watercourses such as Bear Creek and Paddy Creek, constructed watercourses, and drainage and irrigation ditches. Where emergent vegetation exists, the predominant natural plant communities are *Schoenoplectus* (*acutus*, *californicus*) Herbaceous Alliance (hardstem and California bulrush marshes), *Juncus* (*oxymeris, xiphioides*) Provisional Herbaceous Alliance (irisleaf rush seeps), and *Lolium perenne* Herbaceous Semi-Natural Alliance (perennial rye grass fields). Vegetation within the creeks and along the creek banks is variable, but predominantly includes species such as bulrush (*Schoenoplectus* ssp.), perennial ryegrass (*Festuca perennis* [*Lolium perenne*]), irisleaf rush (*Juncus xiphioides*), and curly dock (*Rumex crispus*).

2.1.3.4 Riparian

Sparse riparian vegetation occurs along the banks of Bear Creek, Paddy Creek, and a realigned tributary to Paddy Creek, where these features bisect the proposed PG&E 230 kV transmission line. Figure 5 depicts riparian habitat associated with the riverine features within the BSA. In general, the riparian corridors within the BSA are narrow, confined by steep slopes, and sparsely vegetated. Riparian vegetation within the BSA consists mostly of non-native grasses, sparse willows (*Salix* ssp.) along Bear and Paddy Creek, and a few small, planted oaks (*Quercus agrifolia*) and black walnut trees (*Juglans* sp.), along the realigned tributary to Paddy Creek.

2.1.3.5 Grassland

Annual grasslands occur throughout the BSA, in pastures, along roadsides, and in other undeveloped, disturbed areas. Annual grassland can most readily be classified as annual brome grasslands, within the *Bromus* (*diandrus*, *hordeaceus*) – *Brachypodium distachyon* herbaceous semi-natural Alliance and *Avena* spp. – *Bromus* spp. Herbaceous Semi-Natural Alliance and *Lolium perenne* (*Festuca perennis*) Herbaceous Semi-Natural Alliance (perennial rye grass fields). Where these alliances occur, rip-gut brome (*Bromus diandrus*), seaside barley, foxtail barley (*Hordeum murinum*), soft chess (*Bromus hordeaceus*), and perennial ryegrass are dominant or co-dominant with other non-natives such as black mustard (*Brassica nigra*), fennel (*Foeniculum vulgare*), and bristly ox-tongue (*Helminthotheca echioides*) in the herbaceous layer. Additionally, *Brassica nigra* – *Centaurea* (*solstitialis*, *melitensis*) Herbaceous Semi-Natural Alliance occurs within annual grasslands in low cover, most commonly near roadsides and other developed areas.

2.1.3.6 Agriculture

Agricultural monocultures of almond, cherry, and peach (*Prunus* spp.), as well as walnuts (*Juglans* spp.), vineyards, and corn (*Zea mays*), were dominant in the developed agricultural land throughout the BSA.

2.1.3.7 Ruderal

Ruderal habitat is common in highly disturbed areas, including along roadways, at the edges of hardscape development, and at other infrastructure areas such as levees and railroads. Ruderal habitat is characterized by a lack of vegetation or is dominated by non-native or invasive plant species such as Italian thistles (*Carduus* spp.), yellow starthistle (*Centaurea solstitialis*), black mustard, foxtail barley, filaree (*Erodium botrys*), perennial pepperweed (*Lepidium latifolium*), and stinkwort (*Dittrichia graveolens*), among others.

Brassica nigra – *Centaurea* (*solstitialis*, *melitensis*) Herbaceous Semi-Natural Alliance (upland mustards or star-thistle fields) also is prevalent around the ruderal margins of the concrete hardscapes along creek banks and levees.

2.1.3.8 Developed/Disturbed

Developed areas include existing paved roadways and parking lots; railroad areas; residential, commercial, and industrial development; and areas where vegetation is regularly cleared. These areas lack vegetation entirely or have only scattered weedy grasses and forbs. The developed area also includes a portion of the Lodi Memorial Park and Cemetery located northeast of the intersection of East Lodi Avenue and South Guild Avenue that consists of gravestones, mowed grass, and a large stand of trees.

3. Methods

3.1 Special-status Plant Species Criteria

A plant was considered to have a special status if it met at least one of the following criteria:

- Listed, proposed for listing, or a candidate for listing as threatened or endangered under the Federal Endangered Species Act
- Listed or a candidate for listing as rare, threatened, or endangered under the California Endangered Species Act
- Ranked by the California Native Plant Society (CNPS) as 1, 2, 3, or 4 in the current online version of its Inventory of Rare and Endangered Plants of California (CNPS 2023)

3.2 Database Searches

Prior to conducting field surveys, a list of potentially occurring special-status plant species was compiled by searching various databases, including the following:

- CNPS Online Inventory of Rare and Endangered Plants of California (CNPS 2023)
- California Department of Fish and Wildlife (CDFW) CNDDB (CDFW 2023)
- U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) System (USFWS 2023)

A CNDDB and CNPS search for special-status species typically includes nine U.S. Geological Survey (USGS) 7.5-minute quadrangle maps for a project located within a single quadrangle—the quadrangle that covers the project footprint, and the eight quadrangles that surround the project quadrangle. However, in this case, the project footprint spanned four quadrangles; therefore, the CNDDB and CNPS species lists were generated for additional quadrangles to account for all the areas surrounding the four project quadrangles, including Linden, Lockeford, Waterloo, Lodi North, Clay, Goose Creek, Clements, Wallace, Valley Springs SW, Farmington, Peters, Stockton East, Stockton West, Lodi South, Galt, Bruceville, Thornton, and Terminous. The CNDDB search was further refined to a 5-mile buffer around the project footprint. The USFWS IPaC species list was generated for the project BSA.

Special-status plant species identified during the database review were considered to have the potential to occur in the BSA if their known or expected geographic range includes the BSA, and if suitable habitat is present. The database searches identified a total of 39 special-status plants (Appendix A).

3.2.1 Potential for Occurrence

The potential for occurrence of special-status species within the BSA was assigned based on the following categories:

- *Present* – Reconnaissance-level, targeted, or protocol-level surveys documented the occurrence or observation of a species in the BSA.
- *Likely to occur* – The species has a strong likelihood to be found in the BSA prior to or during construction but has not been directly observed to date during project surveys. The likelihood that a species may occur is based on the following considerations: suitable habitat that meets the habitat requirements of the species is present on or near the BSA; and records of sighting are documented on or near the BSA. The main assumption is that records of occurrence have been documented within or

near the BSA, the BSA falls within the range of the species, suitable habitat is present, but it is undetermined whether the habitat is currently occupied.

- *Potential to occur* – There is a possibility that the species can be found in the BSA prior to or during construction, but it has not been directly observed to date. The likelihood that a species may occur is based on suitable habitat that meets the habitat requirements of the species, which is present on or near the BSA. The main assumption is that the BSA falls within the range of the species, suitable habitat is present, but no records of sighting are located within or near the BSA and it is undetermined whether the habitat is currently occupied.
- *Unlikely to occur* – The species is not likely to occur in the BSA based on the lack or low quality of suitable habitat and features that are required to satisfy the requirements of the species.
- *Absent* – Suitable habitat does not exist in the BSA; the species is restricted to or known to be present only within a specific area outside of the BSA.

3.3 Field Surveys

Early-season botanical field surveys were conducted by Applied Technology Services botanist and wetland scientist Russell Huddleston with Jacobs biologists Mia Marek, Kyle Brown, and Stephanie Owens on April 27 and 28 and May 11, 2021. Late-season botanical surveys were conducted by Mia Marek and Kyle Brown on June 15, 2021, and August 6, 2021. A follow-up botanical survey was conducted on August 11, 2022, by Mia Marek and Stephanie Owens to assess the BSA where it was expanded to encompass additional proposed work areas. Botanical surveys were conducted in accordance with standard protocols for surveying special-status plants (CDFW 2018; USFWS 2000). All vascular plant species encountered during the surveys were identified to the taxonomic level necessary to determine rarity. A list of the plant species observed in the BSA is provided in Table B-1 in Appendix B.

Protocol-level surveys were not conducted throughout the entire 250-foot BSA corridor. Surveys documented vegetation communities and habitat along the entire proposed alignment and at the locations where work may occur to assess the potential for special-status plants. Botanical surveys were conducted during the appropriate blooming seasons for all special-status plants that are not considered to be extinct by CNPS and that were considered to have at least some potential to occur in the BSA, and surveys were performed to protocol level in the portions of the BSA where there is suitable habitat for rare plants to occur. Representative site photographs are presented in Appendix C. If special-status plants were found, the locations were to be mapped in the field using a handheld Trimble Global Positioning System unit.

4. Results

4.1 Site Conditions at the Time of the Survey

The U.S. Army Corps of Engineers Antecedent Precipitation Tool (APT) was used to define precipitation conditions over the period preceding the 2021 delineation survey, and data were collected for a location at the approximate center of the project alignment. Regional precipitation in the months preceding the 2021 surveys was drier than normal based on the APT data, and the data, according to the Palmer Drought Severity Index, indicate “extreme drought” conditions. The drought conditions were not considered a survey limitation as botanical surveys were comprehensive and considered adequately representative of the flora throughout the BSA.

Paddy Creek was dry at the time of the delineation, and Bear Creek had only isolated areas of standing water, with no apparent flow. The drier-than-normal conditions observed are likely the result of the drought conditions during the time of the survey. Shallow surface water was observed in some constructed irrigation channels.

4.2 State and Federally Listed Rare, Threatened, or Endangered Plants

No state or federally listed or proposed rare, threatened, or endangered plants were found during the 2021 and 2022 botanical surveys.

5. References

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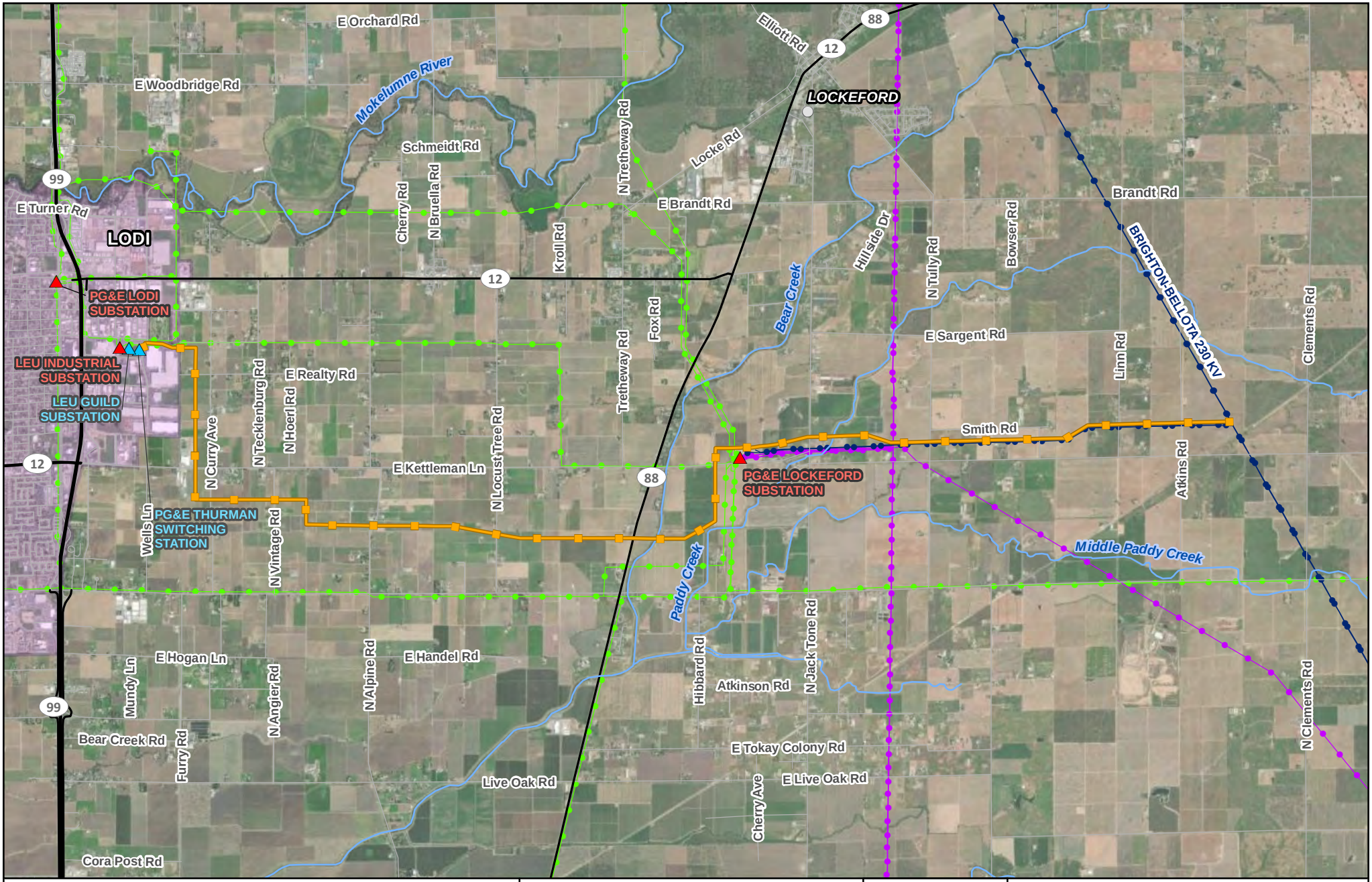
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Figures

Preliminary and Subject to Change Based on CPUC Requirements, Final Engineering, and Other Factors



Legend

- Existing Substation
- New Substation/ Switching Station
- PG&E New 230 kV Transmission Line
- Existing PG&E 60 kV Power Line
- Existing PG&E 115 kV Transmission Line
- Existing PG&E 230 kV Transmission Line
- Major_Roads
- Local Road
- River/Stream
- City Boundary

Source:
1) Base Map Source: Esri World Imagery

0 0.5 1 Miles

N

Scale: 1:65,000

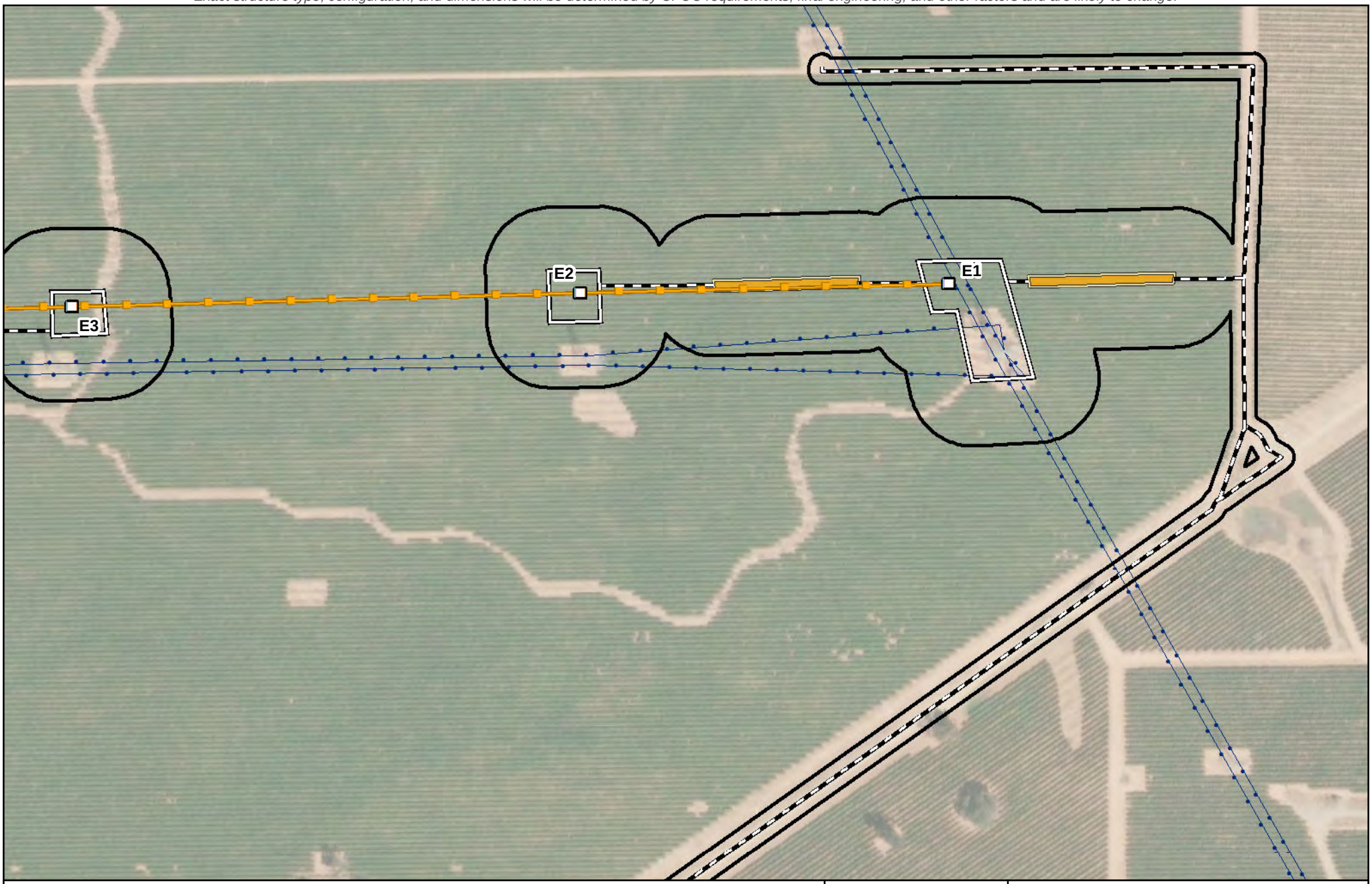


Figure 1
Project Location
Northern San Joaquin 230 kV Transmission Project

Jacobs

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Preliminary design and engineering for the physical, civil, and outdoor components.
Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.

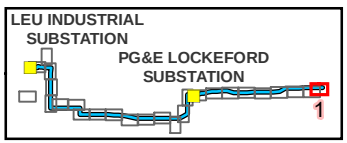


Legend

- Biological Study Area (387.06 acres)
- Substation
- PG&E New 230 kV Transmission Line
- Existing 60 kV Power Line
- Existing 230 kV Transmission Line

Proposed Impact Areas

- Proposed Structure
- RO-L1 Proposed TSP
- Structure: Modify or Replace
- Structure: Remove
- Existing Guy Stub Pole: Remove
- Potential Guard Structure Area
- Proposed Access Route
- Proposed Work Area
- Proposed Pull Site
- Proposed Fenceline
- Proposed Staging Area



Source:
1) Esri World Imagery

N

0 100 Feet

Scale: 1:3,000

FIGURE 2
Project Elements and Biological Study Area
Page 1 of 26
Northern San Joaquin 230 kV Transmission Project

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