Southern California Edison
A.19-07-015 – TLRR IC

DATA REQUEST SET E D - S C E - 0 1 6

To: Energy Division
Prepared by: Scott Lacy
Job Title: Sr. Construction Project Manager
Received Date: 9/9/2024

Response Date: 9/27/2024

Question 16-1:
16-1: Project Description Updates for Removal of Segment 4

We have removed references to Segment 4 from the Project Description that SCE reviewed in late 2023. However, much of the data presented in the PD (taken from the 2020 PEA's Chapter 3) is presented for the project as a whole and not by segment. For example, calculations about water use, access road widening, guard structures, excavation materials, waste materials, and ground disturbance are presented for the project as a whole (including Segment 4). In addition, construction equipment and workforce data is presented for the project as a whole. Please review all of the data provided in Attachment 1 to this letter, and provide tracked changes in the Word file showing the corrected data with Segment 4 removed. The data to be reviewed is highlighted.

Response to Question 16-1:
Please see attachment "A1907015_ED-SCE-016_Q16-1.docx" which displays the tracked changes and corrected data following the removal of Segment 4.

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Question 16-2:
16-2: Marker Balls

The PEA states that marker ball locations cannot be defined until consultation with the FAA is complete; see text below. However, SCE's preliminary design includes structure heights and spans, which are used in the FAA determination, so a preliminary determination of marker ball locations can be calculated. Please provide SCE's preliminary estimates of the locations of marker balls based on the FAA criteria defined below (from the PEA). We understand that these may change after FAA consultation. SCE will consult with the FAA and consider recommendations, to the extent feasible. Typical recommendations include, but are not limited to, the following: installation of marker balls on the proposed OPGW between structures), and/or installation of lighting on structures. Generally, marking or lighting is recommended by the FAA for those spans or structures that exceed 200 feet in height above ground level (AGL); however, marking or lighting may be recommended for spans and structures that are less than 200 feet AGL, but located within close proximity to an airport or other high-density aviation environment. FAA recommendations of guidelines and standards for marking and lighting are included in Advisory Circular AC 70/7460-1L

Response to Question 16-2:
SCE completed a preliminary FAA Filing Determination study in 2019, based upon preliminary engineering design. Please see attachment "A1907015_ED-SCE-016_Q16-2.pdf". The study identifies structures and catenaries that would require FAA filing to determine if they are deemed obstructions to air navigation and may potentially receive determinations for locations where lighting or marker balls are recommended to be installed.

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Question 16-3:
16-2: PEA Table 3.5-1, Typical Subtransmission Structure Dimensions

The first data column of this table shows "Number of Structures, IC Project." For Segment 1, 905 structures are listed in this column. For Segment 2, 452 structures are listed, but 110 of these are shown as "Temporary." None of the Segment 1 structures are characterized as "Temporary." Please verify that there are no temporary structures planned in Segment 1. If changes are required, please submit an updated Table 3.5-1. If no changes are required to the Segment 1 description, please explain why no temporary structures are required in Segment 1 while 110 temporary structures are required for Segment 2.

Response to Question 16-3:
SCE confirms there are no temporary structures planned in Segment 1. Due to the different circuit configurations and expected construction outage constraints between Segments 1 and 2, the preliminary engineering design created in 2020 incorporated temporary structures in Segment 2 to minimize potential blowout conflicts during construction that were not anticipated in Segment 1. These design and construction assumptions have not changed, therefore SCE did not revise PEA Table 3.5-1 to include any temporary poles in Segment 1.

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Question 16-4:
16-4: Cumulative Projects and Deteriorated Pole Program

In SCE's November 2023 review of the Administrative Draft of the Project Description, SCE suggested that the description of the Deteriorated Pole (DP) Program be moved to the Cumulative Projects section. We have made that change and we have removed the Segment 4 data. However, given the time that has passed since the analysis of this project began, this data requires updating. Please see Attachment 2 to this letter. The table in Attachment 2 shows "Planned Installation" of 42 replacement poles occurring in 2023 and 2024. Please provide an updated table that shows 2023 and 2024 replacements as "installed" and not "planned," and update the anticipated status for 2025 and 2026, as needed. The table shows that over 500 structures will have been replaced in Segments 3N and 3S before the end of 2025. Please verify that the GIS data that we have been provided accurately defines structures that will be replaced as part of the I-C Project (separate from those that will have been replaced as part of the DP Program). Please confirm whether the 21 poles that have been replaced under the DP Program in Segments 1 and 2 (where all existing poles are defined as requiring replacement as part of the I-C Project) will be replaced again as part of the I-C Project

Response to Question 16-4A:
Please see the revised table below for the most up-to-date information on the number of deteriorated poles that have been installed or are still planned across Segments 1-3. SCE has replaced 41 out of the grand total of 48 poles planned for replacement in 2023/2024, with the seven poles remaining in Segment 1 scheduled to be replaced by 12/31/2024. (Note: One transmission tower in Segment 1 was incorrectly labeled as a pole in the previous version of the table. This error has been rectified, reducing the total count for Segment 1 to 18. This also reduced the overall project deteriorated pole count from 526 to 525).

Count of Installed or Planned	**Install Years**						
Segments	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**Grand Total**
1		**2**	**4**	**3**	**9**		**18**
Installed		2	4	3	2		11
Planned Installation					7		7
2			**2**				**2**
Installed			2				2
3N	**123**	**40**	**84**	**6**	**5**	**34**	**292**
Installed	123	40	84	6	5		258
Planned Installation						34	34
3S	**113**	**18**	**57**	**19**	**6**		**213**
Installed	113	18	57	19	6		213
Grand Total	**236**	**60**	**147**	**28**	**20**	**34**	**525**

SCE Response to 16.4 (B)

Yes, the current GIS accurately defines those structures that are expected to be replaced by the IC Project based on the information currently available.

SCE Response to 16.4 (C)

Yes, SCE anticipates that all poles replaced in Segments 1 and 2 under the DP program will need to be replaced again as part of the IC Project.

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Question 16-5:
16-5: Conductor Type and EMF Plan

SCE's comments on the Administrative Draft of the Project Description (late 2023) removed reference to ACCC as the conductor type, stating that the conductor type has not yet been determined. However, the PTC Application, Appendix F (April 2020 Field Management Plan [FMP]) appears to have been developed with the assumption that ACCC conductor would be used in Segments 1, 2, 3N, and 3S. The text (Magnetic Field Assumptions, page F-29) states the following: The current conductor type, ACSR, sags much more than the proposed conductor type, ACCC, resulting in lower EMF values. This generally leads to lower EMF results for the ACCC conductors. Please confirm the conductor type that was used in preparation of the April 2020 FMP. Explain whether (and why) the FMP data is still valid if another type of conductor is used.

Response to Question 16-5:
The April 2020 Field Management Plan (FMP) was prepared based on desktop engineering with information and data points available at that time. While the actual conductor type to be chosen during the final engineering design could be slightly different, the conclusions discussed in the FMP are still valid.

As stated on page 7 of the FMP:

"The calculated results are not intended to be predictors of the actual magnetic field levels at any given time or at any specific location if and when the IC Project is constructed. This is because magnetic field levels depend upon a variety of variables, including load growth, customer electricity usage, and other factors beyond SCE's control. The CPUC affirmed this in D. 06-01-042 stating:

Our [CPUC] review of the modeling methodology provided in the utility [EMF] design guidelines indicates that it accomplishes its purpose, which is to measure the relative differences between alternative mitigation measures. Thus, the ***modeling indicates relative differences in magnetic field reductions*** (emphasis added) *between different transmission line construction methods but does not measure actual environmental magnetic fields."*

Regardless of the specific conductor type that may be utilized, the reduction measures of using taller structures, optimally arranging the phasing, maintaining higher minimum ground clearances,

and derating the lines (in the case of Segment 4) would still be valid in lowering EMF levels compared to levels that would be expected without implementing these measures. Furthermore, as there is no numeric standard for EMF levels at the edge of the right-of-way, the preliminary or final designs were not intended to keep the calculated magnetic field levels under a certain threshold.

Data Request 16, Attachment 1: Project Description Review Required for Segment 4 Removal

The EIR team has attempted to update the first section below (115 kV Subtransmission Poles and Towers) based on elimination of Segment 4. Please review and verify the data shown.

*For all subsequent sections presented in this attachment, we have not been able to update data at all because it was not presented by segment. The data requiring review is highlighted. **Please track changes** in this document to show where information was modified.*

115 kV Subtransmission Poles and Towers

Approximately ~~727~~ 744 TSP and ~~391~~ 397 permanent LWS poles would be installed as part of the Proposed Project.

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Approximately ~~128~~ 124 multipole TSP structures (which comprise two or three individual TSPs located at a single site, with each TSP bearing a single circuit or a single conductor) would be used for the Proposed Project, along with approximately ~~76~~ 75 wood H-frame poles. …

The approximate dimensions of the proposed structure types are … summarized in Table B-2 (Summary of Project Subtransmission Structures).

Table Error! No text of specified style in document.**-2. Summary of Project Subtransmission Structures**

Project Component	Number of New Structures	Approx. Height Above Ground (Feet)	Approx. Pole Diameter (Feet)	Approx. Auger Hole Depth (Feet)	Auger Diameter (Feet)	Number of Existing Structures to be Removed	Existing Structures, Approx. Height (Feet)
Segment 1							
TSP, Single	383	75-140	2-6	10-30	4-8	—	—
TSP, Multi-pole	~~125~~124	65-140	2-6	10-30	4-8	—	—
LWS, Multi-pole	~~6~~0	88-106	1-4	11-13	2-5	—	—
LWS Pole	~~391~~397	75-124	1-4	9-15	2-5	—	—
LST/TSP	—	—	—	—	—	~~969~~986	65-81
Pole (LWS or Wood)	—	—	—	—	—	~~192~~6	~~42-94~~72-78
H-Frame (LWS or Wood)						80	43-91
Multipole (Wood)						75	55-91
Segment 2							
TSP, Single	342	72-137	2-6	10-30	4-8	—	—
LWS Pole, Temporary	108	52-84	1-4	7-11	2-5	—	—
LWS, Multi-pole, Temporary	2	38-43	1-4	6-7	2-5	—	—
LST/TSP	—	—	—	—	—	~~385~~384	66-132
H-Frame (LWS or Wood)	—	—	—	—	—	~~5~~2	58-69
Segment 3N							
H-Frame, LWS, or Wood	43	66	1-2	9	2-3	~~43~~41	61-66

Multipole, Wood	2	60-77	2-3	8-10	3-4	2	58
Segment 3S							
Multipole, TSP	3	57	1.5	10-30	2-3	—	—
H-Frame, LWS or Wood	32	74	1-2	9-10	2-3	32	57-77
Multipole, Wood	7	57-67	2-3	8-9	3-4	10	59-63

Source: SCE, PEA Table 3.5-1.

Access Roads and Spur Roads

… Approximately ~~388~~ 306 miles of existing access and spur roads would be employed for construction of the I-C Project. At present, all ~~388~~ 306 miles are projected to require minor rehabilitation work, including regrading and repair of the existing roadbed.

Water Usage and Water Sources

SCE estimates it would use up to a maximum of 3,100 acre-feet of water over the construction period and would likely be less due to refinements in construction scheduling during final engineering. This amounts to approximately 1,000 acre-feet during each calendar year of construction.

Commented [MC1]: We have not revised this information to account for the removal of Segment 4, as this value still remains valid as a maximum volume.

Reusable, Recyclable, and Waste Material Management

Approximately ~~2,054~~1,920 tons of metal (consisting of steel from existing towers and metals from existing conductor) would be removed as part of the Proposed Project, as would approximately ~~37~~ 32 tons of concrete from the foundations of existing towers.

Guard Structures

SCE estimates that ~~305~~ 287 guard structures may need to be temporarily installed for the Proposed Project.

Ground Disturbance Summary

Ground disturbance for the Proposed Project would include all areas affected by construction. It is estimated that the total permanent land disturbance for the Proposed Project would be approximately ~~2,069~~1,755 acres. It is estimated that the Proposed Project would temporarily disturb and restore approximately ~~2,741~~2,172 acres. The estimated amount of land disturbance for each Project component is summarized in Table B-4, Summary of Estimated Ground Disturbance, which summarizes the total disturbance acreage from Tables B-5 through B-8, which address subtransmission lines, substations, telecommunications amplifier site, and access and spur roads, respectively.

Table Error! No text of specified style in document.**-4. Summary of Estimated Ground Disturbance**

Project Feature	Acres Disturbed During Construction	Acres to be Restored	Acres Permanently Disturbed
Subtransmission Lines (from Table B-6)	~~2,730.6~~2,285.4	123.5~~155.9~~	~~1,891.2~~1,614.7
Substations (from Table B-7)	0.5	0.5	0
Telecommunications Amplifier Site (from Table B-8)	10.5	0	10.5
Access and Spur Roads (from Table B-9)	~~850.3~~678.3	0	~~166.8~~129.7
Total Estimated Land Disturbance	~~3,591.9~~2,974.2	~~156.4~~124.0	~~2,068.5~~1,754.9

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Subtransmission Line Ground Disturbance

The estimated land disturbances associated with subtransmission work areas are presented in Table B-5.

Table Error! No text of specified style in document.**-5. Ground Disturbance for Subtransmission Line Construction**

Project Feature	**Site Quantity**	**Disturbance Acreage Calculation (L x W, feet)**	**Acres Disturbed During Construction**[4]	**Acres to be Restored**	**Acres Newly and Permanently Disturbed**[5]
Install TSP	725	200 x 150	499.3	0	499.3
Install Multipole TSP Structure	124~~128~~	200 x 150	85.4~~88.2~~	0	85.4~~88.2~~
Install TSP H-Frame	0~~2~~	200 x 150	0.0~~1.4~~	0	0.0~~1.4~~
Install LWS pole (permanent)	397~~391~~	200 x 100	182.3~~179.5~~	0	182.3~~179.5~~
Install LWS/Wood H-Frame	75~~135~~	200 x 125	43.0~~77.5~~	0	43.0~~77.5~~
Install Multipole LWS structure (permanent)	2~~15~~	200 x 125	1.1~~8.6~~	0	1.1~~8.6~~
Install LWS pole (temporary)	108~~108~~	200 x 100	49.6~~49.6~~	0	49.6~~49.6~~
~~Install Multipole LWS Structure (temporary)~~	~~2~~	~~200 x 150~~	~~1.4~~	~~0~~	~~1.4~~
Install Multipole Wood Structure (permanent)	9	200 x 200	8.3	0	8.3
Remove TSP or LST	1,370~~1,356~~	200 x 150	943.5~~933.9~~	0	943.5~~933.9~~
Remove H-Frame (steel or wood)	153~~136~~	200 x 125	87.8~~78.1~~	0	87.8~~78.1~~
Remove Multipole (wood)	89~~12~~	200 x 125	51.1~~8.3~~	0	51.1~~8.3~~
Remove wood pole	6~~192~~	200 x 100	2.8~~88.2~~	0	2.8~~88.2~~
Modify Existing Structure	537~~83~~	200 x 125	308.2~~47.6~~	0	308.2~~47.6~~
Conductor Stringing (Pull and Tension) Sites	458~~458~~	400 x 150	630.9~~630.9~~	0	630.9~~630.9~~
Conductor Field Snub or Splice Areas	64~~63~~	400 x 100	58.8~~57.0~~	0	58.8~~57.0~~
Splice Removal	882~~882~~	75 x 50	75.9~~75.9~~	0	75.9~~75.9~~
Install/Remove Guard Structure	287~~305~~	75 x 75	37.1~~39.4~~	0	37.1~~39.4~~
Telecommunications Pull and Tension Site[1]	0~~—~~	400 x 150	0.0~~–~~	--	0.0~~—~~
Material Yards[2]	52~~69~~	Varies	244.8~~296.8~~	~~161.9~~128.6	0~~0~~
Helicopter Landing Zone[3]	3~~5~~	Varies	2.1~~3.9~~	~~3.9~~2.1	0~~0~~
Existing Access and Spur Roads	~~386.2~~305.9 miles	# of miles x 18 feet	~~845.5~~547.2	0	~~162~~124
New Spur Roads	~~2.8~~2.7 miles	#of miles x variable dimensions	~~4.8~~5.8	0	~~4.8~~5.8
Subtotal			~~4,434.9~~3,983.9	~~166.1~~128.6	~~3,409.4~~3,271.4
TOTAL (*minus overlapping areas)*			**~~2,730.6~~2,285.4**	**~~155.9~~123.5**	**~~1,891.2~~1,614.7**

Source: SCE, PEA Table 3.7-4. Updated with PEA Deficiency ED Data Request - 007, Response Date: 4/13/2021.

Table Notes:

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1 Telecommunications pull and tension sites along Segments 1 and 2 would be located within conductor stringing sites or conductor field snub areas.
2 128.6~~152~~ acres of material yards located on undisturbed areas; remainder of material yard acreage (116.2~~144.8~~ acres) is previously disturbed.
3 0.4 acres of helicopter landing zones overlap with access roads; these overlapping areas would not be restored, but area is included in Existing Access and Spur Roads row.
4 Total Acres Disturbed During Construction reflects the sum of the disturbance areas with overlaps between and among structure installation, removal, and modification work areas, conductor stringing sites, conductor field snub or splice areas, splice removal areas, guard structure installation and removal areas, telecommunications pull and tension sites, material yards, helicopter landing zones, and access roads removed; therefore, columns do not sum.
5 Total Acres Newly and Permanently Disturbed calculated as follows: Total Acres Disturbed During Construction (2,285~~731~~) <minus> Acres to be Restored (129~~155.9~~ acres) <minus> Area of Currently-Disturbed Access Roads (547~~683.5~~ acres).

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Ground Disturbance for Access and Spur Road Construction

Table B-8, Ground Disturbance for Access and Spur Roads, shows the potential land disturbance for access roads and spur roads to be used during construction.

Table Error! No text of specified style in document.**8. Ground Disturbance for Access and Spur Roads**

Project Feature	Quantity	Disturbance Estimate (L x W)	Acres Disturbed During Construction	Acres to be Restored	Acres Permanently Disturbed
Existing Access and Spur Roads	~~386.2~~305.9 miles	# of miles x 18 feet	~~845.5~~672.5	0	123.9~~162~~[1]
New Spur Roads	~~2.8~~2.7 miles	# of miles x variable dimensions	~~4.8~~5.8	0	~~4.8~~5.8
Access and Spur Road Total			**~~850.3~~678.3**	**0**	**~~166.8~~129.7**

Source: SCE, PEA Table 3.7-3. Updated with PEA Deficiency Data Request - 007, Response Date: 4/13/2021.
1 The width of existing access and spur roads varies across the I-C Project alignment. SCE's standard design for access and spur roads is that they have a width of 18 feet (a 14-foot drivable surface and 2-foot shoulders on each side of the road). At present, existing access and spur roads account for ~~687~~ 549 acres of disturbance. To bring these access and spur roads up to the SCE standard design, an additional ~~162~~ 124 acres would be permanently disturbed. No disturbance outside the 18-foot width (including vegetation trimming) is included in these calculations.

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Excavation Material

As described in Table B-2, an estimated total of ~~1,698~~1,618 poles or towers will be removed as part of the Proposed Project. The amount of soil estimated to be generated from the excavation of each new or replacement pole or tower is expected to range from approximately 6 to 71 cubic yards depending on the required dimensions for each excavation.

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Approximately 35 vaults or pull boxes would be installed under the Proposed Project at or in the vicinity of the existing substations, resulting in the excavation of approximately 375 cubic yards of soil material. An additional approximately 400 cubic yards of soil may be excavated for installation of underground fiber optic cable at or in the vicinity of the existing substations. ~~In addition, it is anticipated that between 590 and 1,180 cubic yards of material would be excavated to facilitate each jack-and-bore installation required for the Proposed Project.~~

Construction Equipment and Workforce

Table B-10, Construction Equipment Estimate, lists the equipment SCE expects to use during construction and the estimated duration of use for each piece of equipment.

Table Error! No text of specified style in document.**-10. Construction Equipment Estimate**

Work Activity			Activity Production			
Primary Equipment Description	**Estimated Horse-Power**	**Probable Fuel Type**	**Primary Equipment Quantity**	**Estimated Schedule (Days)**	**Duration of Use (Hours/Day)**	**Estimated Production Per Day**
Survey				~~358~~262		~~358~~ 262 **Miles**
1-Ton Truck, 4x4	300	Diesel	2	~~358~~262	10	1 Mile
Material Yards				**Duration of Project**		**n/a**
1-Ton Truck, 4x4	300	Diesel	1	Duration of Project	4	n/a
R/T Forklift	350	Diesel	1		5	
Boom/Crane Truck	350	Diesel	1		5	
Water Truck	300	Diesel	2		10	
Jet A Fuel Truck	300	Diesel	1		4	
Truck, Semi-Tractor	500	Diesel	1		6	
Road Work				3747		~~388~~ 306 **Miles**
1-Ton Truck, 4x4	300	Diesel	2	3747	5	n/a
Backhoe/Front Loader	350	Diesel	1	3747	7	
Track Type Dozer	350	Diesel	1	3747	7	
Motor Grader	350	Diesel	1	3747	5	
Water Truck	300	Diesel	2	3747	10	
Drum Type Compactor	250	Diesel	1	3747	5	
Excavator	300	Diesel	1	2228	7	
Lowboy Truck/Trailer	500	Diesel	1	2228	4	
Wet Crossing Installation						**40 crossings**
1-Ton Truck, 4x4	300	Diesel	1	80	8	0.5 per day
Tracked Excavator	250	Diesel	1	80	8	
Rubber Tire Backhoe	125	Diesel	1	80	8	
Wheel Loader	250	Diesel	1	80	8	
Dump Truck	350	Diesel	2	80	8	
Water Truck	300	Diesel	1	80	10	
Concrete Truck	350	Diesel	3	80	4	
Flatbed Trailer	--	Diesel	1	80	8	
Install TSP Foundations				~~1,454~~1,450		~~727~~ 725 **TSPs**
3/4-Ton Truck, 4x4	275	Gas	2	~~1,454~~1,450	5	0.5 per day
Boom/Crane Truck	350	Diesel	1	~~1,454~~1,450	7	
Backhoe/Front Loader	200	Diesel	1	~~1,454~~1,450	10	
Auger Truck	500	Diesel	1	1,088~~1,091~~	10	
Water Truck	350	Diesel	1	1,450~~1,454~~	10	
Dump Truck	350	Diesel	1	1,450~~1,454~~	10	
Concrete Mixer Truck	425	Diesel	2	1,088~~1,091~~	6	

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Work Activity				Activity Production		
Primary Equipment Description	**Estimated Horse-Power**	**Probable Fuel Type**	**Primary Equipment Quantity**	**Estimated Schedule (Days)**	**Duration of Use (Hours/Day)**	**Estimated Production Per Day**
TSP Haul				181~~182~~		~~727~~ 725 **TSPs**
3/4-Ton Truck, 4x4	275	Gas	2	181~~182~~	8	~~1~~ 4 per day
Boom/Crane Truck	350	Diesel	1	181~~182~~	8	
Flat Bed Pole Truck	400	Diesel	2	181~~182~~	10	
Water Truck	350	Diesel	1	181~~182~~	10	
TSP Assembly				725~~727~~		~~727~~ 725 **TSPs**
3/4-Ton Truck, 4x4	275	Gas	2	725~~727~~	6	1 per day
1-Ton Truck, 4x4	300	Diesel	2	725~~727~~	6	
Water Truck	350	Diesel	1	725~~727~~	10	
Compressor Trailer	60	Diesel	1	725~~727~~	6	
Boom/Crane Truck	350	Diesel	1	725~~727~~	7	
TSP Erection				~~727~~725		~~727~~ 725 **TSPs**
3/4-Ton Truck, 4x4	275	Gas	1	~~727~~725	6	1 per Day
1-Ton Truck, 4x4	300	Diesel	1	~~727~~725	6	
Water Truck	350	Diesel	1	~~727~~725	10	
Compressor Trailer	60	Diesel	1	~~727~~725	6	
R/T Crane	350	Diesel	1	~~727~~725	7	
Medium-duty Helicopter		Jet A	1	~~73~~73	6	
Install TSP Multipole Foundations				~~753~~729		~~128~~ 124 **Multipole TSPs**
3/4-Ton Truck, 4x4	275	Gas	2	~~753~~729	5	0.17 per Day
Boom/Crane Truck	350	Diesel	1	~~753~~729	7	
Backhoe/Front Loader	200	Diesel	1	~~753~~729	10	
Auger Truck	500	Diesel	1	365~~376~~	10	
Water Truck	350	Diesel	1	729~~753~~	10	
Dump Truck	350	Diesel	1	729~~753~~	10	
Concrete Mixer Truck	425	Diesel	2	365~~376~~	6	
TSP Multipole Haul				124~~128~~		~~128~~ 124 **Multipole TSPs**
3/4-Ton Truck, 4x4	275	Gas	2	124~~128~~	8	1 per Day
Boom/Crane Truck	350	Diesel	1	124~~128~~	8	
Flat Bed Pole Truck	400	Diesel	2	124~~128~~	10	
Water Truck	350	Diesel	1	124~~128~~	10	
TSP Multipole Assembly				~~384~~413		~~128~~ 124 **Multipole TSPs**
3/4-Ton Truck, 4x4	275	Gas	2	~~384~~413	6	0.3 per Day
1-Ton Truck, 4x4	300	Diesel	2	~~384~~413	6	
Water Truck	350	Diesel	1	~~384~~413	10	
Compressor Trailer	60	Diesel	1	~~384~~413	6	

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Work Activity			Activity Production			
Primary Equipment Description	Estimated Horse-Power	Probable Fuel Type	Primary Equipment Quantity	Estimated Schedule (Days)	Duration of Use (Hours/Day)	Estimated Production Per Day
Boom/Crane Truck	350	Diesel	1	41~~38~~	7	
TSP Multipole Erection				~~384~~413		~~128~~ 124 Multipole TSPs
3/4-Ton Truck, 4x4	275	Gas	1	~~384~~413	6	0.3 per Day
1-Ton Truck, 4x4	300	Diesel	1	~~384~~413	6	
Water Truck	350	Diesel	1	~~384~~413	10	
Compressor Trailer	60	Diesel	1	~~384~~413	6	
R/T Crane	350	Diesel	1	~~384~~413	7	
Medium-duty Helicopter		Jet A	1	~~38~~41	6	
~~Install TSP H-Frame Foundations~~				~~8~~		~~2 TSP H-Frames~~
~~3/4-Ton Truck, 4x4~~	~~275~~	~~Gas~~	~~2~~	~~8~~	~~6~~	~~0.5 per Day~~
~~1-Ton Truck, 4x4~~	~~300~~	~~Diesel~~	~~2~~	~~8~~	~~6~~	
~~Water Truck~~	~~350~~	~~Diesel~~	~~1~~	~~8~~	~~10~~	
~~Compressor Trailer~~	~~60~~	~~Diesel~~	~~1~~	~~8~~	~~6~~	
~~Boom/Crane Truck~~	~~350~~	~~Diesel~~	~~1~~	~~1~~	~~7~~	
~~TSP H-Frame Haul~~				~~1~~		~~2 TSP H-Frames~~
~~3/4-Ton Truck, 4x4~~	~~275~~	~~Gas~~	~~1~~	~~1~~	~~6~~	~~0.5 per Day~~
~~1-Ton Truck, 4x4~~	~~300~~	~~Diesel~~	~~2~~	~~1~~	~~6~~	
~~Water Truck~~	~~350~~	~~Diesel~~	~~1~~	~~1~~	~~10~~	
~~Compressor Trailer~~	~~60~~	~~Diesel~~	~~1~~	~~1~~	~~6~~	
~~Boom/Crane Truck~~	~~350~~	~~Diesel~~	~~1~~	~~1~~	~~7~~	
~~TSP H-Frame Assembly~~				~~4~~		~~2 TSP H-Frames~~
~~3/4-Ton Truck, 4x4~~	~~275~~	~~Gas~~	~~2~~	~~4~~	~~6~~	~~0.5 per Day~~
~~1-Ton Truck, 4x4~~	~~300~~	~~Diesel~~	~~2~~	~~4~~	~~6~~	
~~Water Truck~~	~~350~~	~~Diesel~~	~~1~~	~~4~~	~~10~~	
~~Compressor Trailer~~	~~60~~	~~Diesel~~	~~1~~	~~4~~	~~6~~	
~~Boom/Crane Truck~~	~~350~~	~~Diesel~~	~~1~~	~~1~~	~~7~~	
~~TSP H-Frame Erection~~				~~4~~		~~2 TSP H-Frames~~
~~3/4-Ton Truck, 4x4~~	~~275~~	~~Gas~~	~~2~~	~~4~~	~~6~~	~~0.5 per Day~~
~~1-Ton Truck, 4x4~~	~~300~~	~~Diesel~~	~~2~~	~~4~~	~~6~~	
~~Water Truck~~	~~350~~	~~Diesel~~	~~1~~	~~4~~	~~10~~	
~~Compressor Trailer~~	~~60~~	~~Diesel~~	~~1~~	~~4~~	~~6~~	
~~Boom/Crane Truck~~	~~350~~	~~Diesel~~	~~1~~	~~1~~	~~7~~	
Existing Pole Removal[1]				~~96~~29		~~384~~ 114 Poles
1-Ton Truck, 4x4	300	Diesel	2	~~96~~29	10	4 per day
Compressor Trailer	60	Diesel	1	~~96~~29	5	
Manlift/Bucket Truck	250	Diesel	1	~~96~~29	8	
Boom/Crane Truck	350	Diesel	1	~~96~~29	8	

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Work Activity			Activity Production			
Primary Equipment Description	**Estimated Horse-Power**	**Probable Fuel Type**	**Primary Equipment Quantity**	**Estimated Schedule (Days)**	**Duration of Use (Hours/Day)**	**Estimated Production Per Day**
Flat Bed Pole Truck	400	Diesel	1	~~96~~29	10	
Water Truck	300	Diesel	1	~~96~~29	10	
Existing Lattice Structure/TSP Removal				~~2,712~~2,740		~~1,356~~1,370 **Structures**
1-Ton Truck, 4x4	300	Diesel	2	2,740~~2,712~~	10	0.5 per day
Compressor Trailer	60	Diesel	1	2,740~~2,712~~	5	
Manlift/Bucket Truck	250	Diesel	1	2,740~~2,712~~	8	
Backhoe/Front Loader	125	Diesel	2	2,740~~2,712~~	10	
Boom/Crane Truck	350	Diesel	1	2,740~~2,712~~	8	
Flat Bed Pole Truck	400	Diesel	1	2,740~~2,712~~	10	
Water Truck	300	Diesel	1	2,740~~2,712~~	10	
Medium-duty Helicopter		Jet A	1	274~~271~~	6	
Dump Truck	350	Diesel	1	2,740~~2,712~~	10	
Excavator	250	Diesel	1	2,740~~2,712~~	10	
R/T Crane (M)	215	Diesel	1	2,740~~2,712~~	5	
R/T Crane (L)	300	Diesel	1	2,740~~2,712~~	7	
LWS Pole Haul[3]				~~100~~126		~~391~~ 505 **LWS Poles**
3/4-Ton Truck, 4x4	275	Gas	1	~~100~~126	10	4 per day
Water Truck	300	Diesel	1	~~100~~126	10	
Boom/Crane Truck	350	Diesel	1	~~100~~126	8	
Flat Bed Pole Truck	400	Diesel	1	~~100~~126	10	
LWS Pole Assembly[3]				~~100~~126		~~391~~ 505 **LWS Poles**
3/4-Ton Truck, 4x4	275	Gas	2	~~100~~126	6	4 per day
Compressor Trailer	60	Diesel	1	~~100~~126	6	
1-Ton Truck, 4x4	300	Diesel	2	~~100~~126	10	
Water Truck	350	Diesel	1	~~100~~126	10	
Boom/Crane Truck	350	Diesel	1	~~100~~126	8	
LWS Pole Install[3]				~~100~~126		~~391~~ 505 **LWS Poles**
1-Ton Truck, 4x4	300	Diesel	1	~~100~~126	6	4 per day
Manlift/Bucket Truck	350	Diesel	1	~~100~~126	10	
Boom/Crane Truck	350	Diesel	1	~~100~~126	7	
Auger Truck	210	Diesel	1	~~100~~126	8	
Water Truck	300	Diesel	1	~~100~~126	10	
Backhoe/Frontloader	125	Diesel	1	~~100~~126	10	
Extendable Flat Bed Pole Truck	400	Diesel	1	~~100~~126	6	
Medium-duty Helicopter		Jet A	1	13~~10~~	6	
LWS/Wood Multipole Haul[4]				~~15~~86		~~15~~ 86 **Structures**
3/4-Ton Truck, 4x4	275	Gas	1	~~15~~86	10	1 per day

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Work Activity	**Activity Production**					
Primary Equipment Description	**Estimated Horse-Power**	**Probable Fuel Type**	**Primary Equipment Quantity**	**Estimated Schedule (Days)**	**Duration of Use (Hours/Day)**	**Estimated Production Per Day**
Water Truck	300	Diesel	0.5	~~15~~86	10	
Boom/Crane Truck	350	Diesel	1	~~15~~86	8	
Flat Bed Pole Truck	400	Diesel	1	~~15~~86	10	
LWS/Wood Multipole Assembly				**~~15~~86**		**~~15~~ 86 Structures**
3/4-Ton Truck, 4x4	275	Gas	2	~~15~~86	6	1 per day
Compressor Trailer	60	Diesel	1	~~15~~86	6	
1-Ton Truck, 4x4	300	Diesel	2	~~15~~86	10	
Water Truck	350	Diesel	1	~~15~~86	10	
Boom/Crane Truck	350	Diesel	1	~~15~~86	8	
LWS/Wood Multipole Structure Install				**15**		**15 Structures**
1-Ton Truck, 4x4	300	Diesel	1	15	6	1 per day
Manlift/Bucket Truck	350	Diesel	1	15	10	
Boom/Crane Truck	350	Diesel	1	15	7	
Auger Truck	210	Diesel	1	15	8	
Water Truck	300	Diesel	1	15	10	
Backhoe/Frontloader	125	Diesel	1	15	10	
Extendable Flat Bed Pole Truck	400	Diesel	1	15	6	
LWS/Wood H-Frame Structure Haul[4]				**68**		**38~~135 H-Frames~~**
3/4-Ton Truck, 4x4	275	Gas	1	38~~68~~	10	2 per day
Water Truck	300	Diesel	0.5	38~~68~~	10	
Boom/Crane Truck	350	Diesel	1	38~~68~~	8	
Flat Bed Pole Truck	400	Diesel	1	38~~68~~	10	
LWS/Wood H-Frame Structure Assembly				**68**		**38~~135 H-Frames~~**
3/4-Ton Truck, 4x4	275	Gas	2	38~~68~~	6	2 per day
Compressor Trailer	60	Diesel	1	38~~68~~	6	
1-Ton Truck, 4x4	300	Diesel	2	38~~68~~	10	
Water Truck	350	Diesel	1	38~~68~~	10	
Boom/Crane Truck	350	Diesel	1	38~~68~~	8	
LWS/Wood H-Frame Structure Install				**68**		**38~~135 H-Frames~~**
1-Ton Truck, 4x4	300	Diesel	1	38~~68~~	6	2 per day
Manlift/Bucket Truck	350	Diesel	1	38~~68~~	10	
Boom/Crane Truck	350	Diesel	1	38~~68~~	7	
Auger Truck	210	Diesel	1	29~~56~~	8	
Water Truck	300	Diesel	1	38~~68~~	10	
Backhoe/Frontloader	125	Diesel	1	38~~68~~	10	
Extendable Flat Bed Pole Truck	400	Diesel	1	38~~68~~	6	

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Work Activity			Activity Production			
Primary Equipment Description	Estimated Horse-Power	Probable Fuel Type	Primary Equipment Quantity	Estimated Schedule (Days)	Duration of Use (Hours/Day)	Estimated Production Per Day
Temporary LWS Multipole Haul[4]				**4**		**2 Structures**
3/4-Ton Truck, 4x4	275	Gas	1	4	10	0.5 per day
Water Truck	300	Diesel	0.5	4	10	
Boom/Crane Truck	350	Diesel	1	4	8	
Flat Bed Pole Truck	400	Diesel	1	4	10	
Temporary LWS Multipole Assembly				**2**		**2 Structures**
3/4-Ton Truck, 4x4	275	Gas	2	2	6	1 per day
Compressor Trailer	60	Diesel	1	2	6	
1-Ton Truck, 4x4	300	Diesel	2	2	10	
Water Truck	350	Diesel	1	2	10	
Boom/Crane Truck	350	Diesel	1	2	8	
Temporary LWS Multipole Structure Install/Removal				**4**		**2 Structures**
1-Ton Truck, 4x4	300	Diesel	1	4	6	0.5 per day
Manlift/Bucket Truck	350	Diesel	1	4	10	
Boom/Crane Truck	350	Diesel	1	4	7	
Auger Truck	210	Diesel	1	4	8	
Water Truck	300	Diesel	1	4	10	
Backhoe/Frontloader	125	Diesel	1	4	10	
Extendable Flat Bed Pole Truck	400	Diesel	1	4	6	
Temporary LWS Pole Haul[3]				**54**		**108 Poles**
3/4-Ton Truck, 4x4	275	Gas	1	54	10	2 per Day
Water Truck	300	Diesel	1	54	10	
Boom/Crane Truck	350	Diesel	1	54	8	
Flat Bed Pole Truck	400	Diesel	1	54	10	
Temporary LWS Pole Assembly[3]				**27**		**108 Poles**
3/4-Ton Truck, 4x4	275	Gas	2	27	6	4 per Day
Compressor Trailer	60	Diesel	1	27	6	
1-Ton Truck, 4x4	300	Diesel	2	27	10	
Water Truck	350	Diesel	1	27	10	
Boom/Crane Truck	350	Diesel	1	27	8	
Temporary LWS Pole Install/Removal[3]				**216**		**108 Poles**
1-Ton Truck, 4x4	300	Diesel	1	216	6	4 per Day
Manlift/Bucket Truck	350	Diesel	1	216	10	
Boom/Crane Truck	350	Diesel	1	216	7	
Auger Truck	210	Diesel	1	216	8	
Water Truck	300	Diesel	1	216	10	
Backhoe/Frontloader	125	Diesel	1	216	10	

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Work Activity			Activity Production			
Primary Equipment Description	Estimated Horse-Power	Probable Fuel Type	Primary Equipment Quantity	Estimated Schedule (Days)	Duration of Use (Hours/Day)	Estimated Production Per Day
Extendable Flat Bed Pole Truck	400	Diesel	1	216	6	
Medium-duty Helicopter		Jet A	1	22	6	
Install/Remove Conductor and Install OPGW				**873**		**262 Linear Miles**
¾-Ton Truck, 4x4	275	Gas	1	873	10	0.3 Miles per Day
1-Ton Truck, 4x4	300	Diesel	2	873	10	
Manlift/Bucket Truck	250	Diesel	1	873	10	
Boom/Crane Truck	350	Diesel	1	873	10	
Dump Truck	350	Diesel	1	873	10	
Wire Truck/Trailer	350	Diesel	2	603	10	
Sock Line Puller	300	Diesel	1	236	10	
Bull Wheel Puller	350	Diesel	1	463	10	
Hydraulic Rewind Puller	350	Diesel	1	873	10	
Static Truck/ Tensioner	350	Diesel	1	873	10	
Backhoe/Front Loader	125	Diesel	1	175	8	
Truck, Semi-Tractor	400	Diesel	2	873	10	
Lowboy Truck/Trailer	450	Diesel	2	873	10	
Water Truck	300	Diesel	1	873	10	
Light Helicopter		Jet A	1	698	7	
Conductor Splicing Rig	350	Diesel	1	236	10	
Fiber Splicing Lab	300	Diesel	1	291	10	
Install/Remove Guard Structures				~~97~~57		~~483~~ 287 Structures
3/4-Ton Truck, 4x4	275	Gas	2	57~~97~~	8	5 per Day
1-Ton Truck, 4x4	300	Diesel	2	57~~97~~	8	
Compressor Trailer	60	Diesel	2	57~~97~~	7	
Backhoe/Front Loader	125	Diesel	1	57~~97~~	10	
Water Truck	300	Diesel	1	57~~97~~	5	
Manlift/Bucket Truck	250	Diesel	1	57~~97~~	8	
Boom/Crane Truck	350	Diesel	1	57~~97~~	10	
Auger Truck	500	Diesel	1	57~~97~~	8	
Extendable Flat Bed Pole Truck	400	Diesel	1	57~~97~~	8	
Telecommunications Underground Infrastructure Installation				**29**		**3,580 Feet**
1-Ton Truck, 4x4	300	Diesel	2	29	4	125 Feet per Day
Backhoe/Front Loader	125	Diesel	1	29	6	
Dump Truck	350	Diesel	2	29	6	
Pipe Truck/Trailer	275	Diesel	1	29	8	
Concrete Mixer Truck	350	Diesel	3	29	2	

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Work Activity	Activity Production					
Primary Equipment Description	**Estimated Horse-Power**	**Probable Fuel Type**	**Primary Equipment Quantity**	**Estimated Schedule (Days)**	**Duration of Use (Hours/Day)**	**Estimated Production Per Day**
Water Truck	300	Diesel	1	29	6	
Compressor Trailer	60	Diesel	1	29	4	
Lowboy Truck/Trailer	450	Diesel	1	29	4	
Telecommunications Pole Haul Independence Tap and Crossings						**~~65~~ 60 LWS Poles**
3/4-Ton Truck, 4x4	275	Gas	1	15~~17~~	10	4 per Day
Water Truck	300	Diesel	0.5	15~~17~~	10	
Boom/Crane Truck	350	Diesel	1	15~~17~~	8	
Flat Bed Pole Truck	400	Diesel	1	15~~17~~	10	
Telecommunications Pole Installation Independence Tap and Crossings						**~~65~~ 60 LWS Poles**
1-Ton Truck, 4x4	300	Diesel	1	15~~17~~	6	4 per Day
Manlift/Bucket Truck	350	Diesel	1	15~~17~~	10	
Boom/Crane Truck	350	Diesel	1	15~~17~~	7	
Auger Truck	210	Diesel	1	15~~17~~	8	
Water Truck	300	Diesel	1	15~~17~~	10	
Backhoe/Frontloader	125	Diesel	1	15~~17~~	10	
Extendable Flat Bed Pole Truck	400	Diesel	1	15~~17~~	6	
Restoration						**~~387~~ 262 Miles**
1-Ton Truck, 4x4	300	Diesel	2	~~387~~262	4	1 Mile per Day
Backhoe/Front Loader	125	Diesel	1	~~387~~262	4	
Motor Grader	250	Diesel	1	~~387~~262	6	
Water Truck	300	Diesel	1	~~387~~262	8	
Drum Type Compactor	100	Diesel	1	~~387~~262	4	
Lowboy Truck/Trailer	450	Diesel	1	~~387~~262	4	

Source: SCE, PEA Table 3.7-8.
Notes:
1 Includes removal of existing poles and temporary poles.
2 Includes removal of existing H-frames and temporary multipole LWS structures.
3 Includes permanent and temporarily-installed LWS poles.
4 Includes permanent and temporarily-installed LWS H-frames and permanent and temporarily-installed multipole LWS structures.

Construction Workforce

Table B-11, Construction Workforce Estimate, shows the estimated number of personnel required for each project task associated with construction of the Proposed Project.

Table B-11. Construction Workforce Estimate

Project Task	Estimated Workforce	Estimated Schedule (Days)
Survey	4	~~358~~262

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Project Task	Estimated Workforce	Estimated Schedule (Days)
Material Yards	5	Duration of Project
Road Work	6	~~47~~37
Wet Crossing Installation	6	80
Install TSP Foundations	5	~~1,454~~1,450
TSP Haul	5	~~182~~181
TSP Assembly	5	~~727~~725
TSP Erection	5	~~727~~725
Install TSP Multipole Foundations	5	~~753~~729
TSP Multipole Haul	5	~~128~~124
TSP Multipole Assembly	5	~~384~~413
TSP Multipole Erection	5	~~384~~413
~~Install TSP H-Frame Foundations~~	~~5~~	~~8~~
~~TSP H-Frame Haul~~	~~5~~	~~1~~
~~TSP H-Frame Assembly~~	~~5~~	~~4~~
~~TSP H-Frame Erection~~	~~5~~	~~4~~
Existing Pole Removal (see Note 1)	5	96
Existing Lattice Structure/TSP Removal	5	~~2,712~~2,740
LWS Pole Haul (see Note 3)	5	100
LWS Pole Assembly (see Note 3)	5	100
LWS Pole Install (see Note 3)	5	100
LWS/Wood Multipole Haul (See Note 4)	5	15
LWS/Wood Multipole Assembly	5	15
LWS/Wood Multipole Structure Install	5	15
LWS/Wood H-Frame Structure Haul (See Note 4)	5	68
LWS/Wood H-Frame Structure Assembly	5	68
LWS/Wood H-Frame Structure Install	5	68
Temporary LWS Multipole Haul (See Note 4)	5	4
Temporary LWS Multipole Assembly	5	15~~2~~
Temporary LWS Multipole Structure Install/Removal	5	15~~4~~
Temporary LWS Pole Haul (See Note 3)	5	54
Temporary LWS Pole Assembly (See Note 3)	5	27
Temporary LWS Pole Install/Removal (See Note 3)	5	216
Install/Remove Conductor and Install OPGW	20	873
Install/Remove Guard Structures	5	~~97~~57
Telecommunications Underground Infrastructure Installation	6	29
Telecommunications Pole Haul Independence Tap and Crossings	5	17
Telecommunications Pole Assembly Independence Tap and Crossings	5	17
Telecommunications Pole Installation Independence Tap and Crossings	5	17
Restoration	~~Not provided~~7	~~387~~262

Source: SCE PEA Table 3.7-8.
Notes:
1 Includes removal of existing poles and temporary poles.

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2 Includes removal of existing H-frames and temporary multipole LWS structures.
3 Includes permanent and temporarily-installed LWS poles.
4 Includes permanent and temporarily-installed LWS H-frames and permanent and temporarily-installed multipole LWS structures.

Proposed Construction Timing

SCE anticipates that construction of the Proposed Project would take approximately 36 months. Construction would commence following CPUC approval, final engineering, procurement activities, land rights acquisition, and receipt of all applicable permits. Table B-12, Proposed Construction Schedule, shows the proposed schedule for project activity.

Table Error! No text of specified style in document.**-12. Proposed Construction Schedule**

Project Activity	Approximate Duration (months)	Approximate Start Date
PTC Application Submitted	---	July 2019
Amended PTC Application	22	April 2020
Second Amended PTC Application	---	October 2024
Acquisition of Required Permits	16	~~August 2025~~October 2025
Right-of-Way/ Property Acquisition	18	June 2026~~August 2026~~
Final Engineering	8	December 2026~~February 2027~~
Subtransmission Line Construction	39	April 2027~~June 2027~~
Cleanup	8	February 2030~~January 2030~~
Project Operational	---	October 2030~~August 2030~~

Source: SCE, PEA Table 3.7-10; updated with SCE updates ~~December 2023~~September 2024.

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Data Request 16, Attachment 2: Deteriorated Pole Program Data

Please update the following as requested in the DR 16 cover letter.

Deteriorated Pole Program (from ADEIR Draft Project Description, moved to Cumulative)

The Deteriorated Pole Program (DPP) is an on-going SCE system-wide program created over a decade ago to address the inspection and maintenance requirements of CPUC's General Order 165 and General Order 95. The Transmission Line Rating Remediation (TLRR) and DPP are independent programs.

Reconductoring of 42 miles within Segment 1 was scheduled for 2019-2020 but did not occur as planned. SCE states that there is continual review of SCE facilities within High Fire Risk Area (HFRA) and reconductor work for Segment 1 is not currently expected to occur prior to the start of this Proposed Project. Regardless of whether reconductoring within HFRA occurs before construction of the Proposed Project, the Proposed Project will include rebuilding and reconductoring of Segment 1 to remediate discrepancies along the Control-Haiwee-Inyokern and Control-Coso-Haiwee-Inyokern 115kV subtransmission lines.

SCE has been implementing the DPP pole replacements prior to implementation of the I-C Project and reconductoring of the I-C line segments. Poles replaced in Segments 1 and 2 require replacement as part of the Proposed Project; however, poles replaced in Segments 3N and 3S are not anticipated to require further replacement. [1]

A total of 464 poles have been replaced under the DPP since 2020, and an additional 76 poles are scheduled for replacement under this program through 2025. Table E-1 (Deteriorated Pole Program Pole Replacements) summarizes the poles replaced and planned for replacement under the DPP for each segment. [2]

Table E-1. Deteriorated Pole Program – Poles Installed by Year

	2020	2021	2022	2023	2024	2025	Grand Total
Segment 1	**-**	**2**	**4**	**13**	**-**	**-**	**19**
Installed	-	2	4	-	-	-	6
Planned Installation	-	-	-	13	-	-	13
Segment 2	-	**-**	**2**	-	-	-	**2**
Installed	-	-	2	-	-	-	2
Planned Installation	-	-	-	-	-	-	-
Segment 3N	**123**	**40**	**84**	**9**	**2**	**34**	**292**
Installed	123	40	84	-	-	-	247
Planned Installation	-	-	-	9	2	34	45
Segment 3S	**113**	**18**	**57**	**25**	**-**	**-**	**213**
Installed	113	18	57	7	-	-	195
Planned Installation	-	-	-	18	-	-	18
Grand Total	**236**	**60**	**147**	**47**	**2**	**34**	**526**

Commented [SL3]: See updated/revised Table in response to DR-16-4(A)

[1] PEA Deficiency Data Request Set ED, SCE-006, Question 02, Response Date: 9/11/19

[2] PEA Deficiency Data Request Set ED, SCE-013, Questions 13-1 and 13-2, Response Date 4/19/23

FAA Report

Ivanpah-Control: IC Segments 1, 2, 3, and 4

To:

Southern California Edison

Copies:

Arcadis U.S., Inc.
320 Commerce
Suite 200
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California 92602
Tel 714 730 9052
Fax 714 730 9345

From:

Arcadis TLRR Team

Date:

January 22, 2019

Rev. 2 – 4/2/2019

Arcadis Project No.:

05032059.0000

Subject:

FAA Filing Determination:
TLRR Subtransmission Line Project: Ivanpah-Control (IC)
IC Segments 1, 2, 3, and 4

EXECUTIVE SUMMARY

Arcadis reviewed the proposed engineering designs for the Ivanpah-Control Line (IC), Segments 1, 2, 3, and 4 (formerly known as CH and ICKI) subtransmission line project to determine which structures and conductor spans (catenaries) will require filing with the FAA for obstruction evaluations. For the purposes of the FAA filing requirements, there are two basic areas: “Within the Airport Vicinity” (those structures and catenaries within 20,000 feet from the edge of a runway) and “Outside the Airport Vicinity’ (those structures and catenaries beyond 20,000 feet from the edge of a runway).

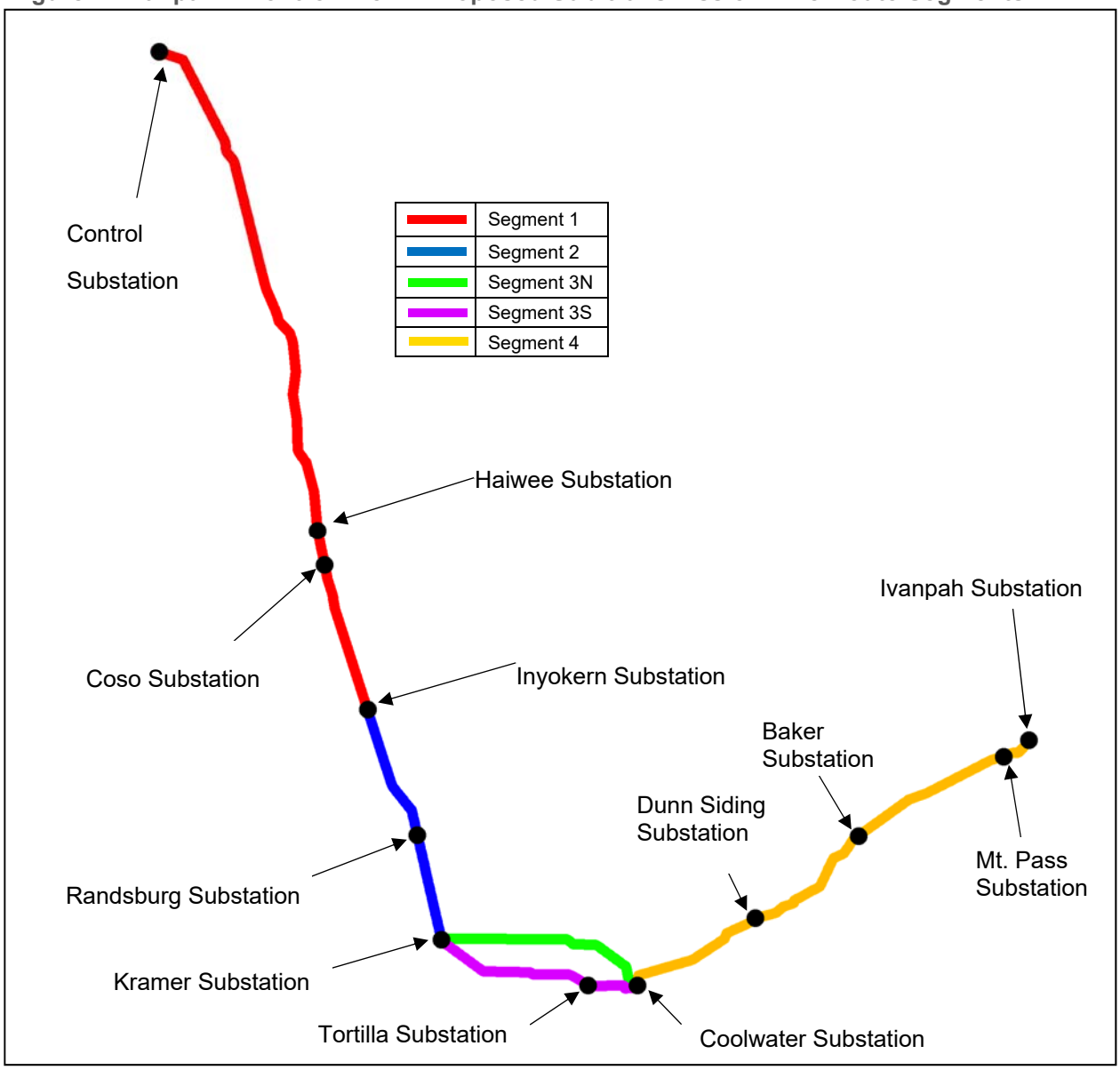
For the Ivanpah-Control line, Segments 1, 2, 3, and 4, there is one span outside the airport vicinity that will require FAA filing based on a catenary height greater than 200 feet. There are no structures outside the airport vicinity that are over 200 feet in height, that would prompt a FAA filing.

A total of 276 proposed structures along the IC Segments 1, 2, 3, and 4 subtransmission line project fall within the airport vicinities. Using the slope methodology as detailed below, 56 of these structures will require FAA filing to determine if they are obstructions to air navigation. Whenever a structure requires filing within the airport vicinity, the adjacent lines would also require filing.

GEOGRAPHIC SEGMENTS

The construction activities proposed by the IC transmission line rating remediation project design are described in detail for each geographic segment, including the planned structure and conductor removals and installations and approximate line lengths values. For visual reference Figure 1 depicts the location of each segment along the project alignment.

Figure 1: Ivanpah – Control 115 kV Proposed Sub-transmission Line Route Segments



The project has been divided into the following phase arrangement segments in the PEA report submittal. The sections are further subdivisions of the lines based on the line design and phasing.

REGULATORY FRAMEWORK

Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace, Section 9, Construction or alteration requiring notice, requires that any type of construction or alteration of a structure that may affect the National Airspace System (NAS) must be noticed to the Federal Aviation Administration (FAA) by completing the Notice of Proposed Construction or Alteration form (FAA Form 7460-1). Section 9 also details the dimensions and locations of structures that require filing. Federal Aviation Administration Advisory Circular 70/7460-1L sets forth standards for marking and lighting obstructions that have been deemed to be a hazard to navigable airspace.

FILING ANALYSIS METHODLOGY

Arcadis performed a GIS-based analysis of each of the proposed structures and catenaries included in the IC Segments 1, 2, 3, and 4 subtransmission line project. Each structure and catenary were evaluated using the criteria in 14 CFR 77.9 to determine if the structure or catenary:

(a) Outside the Airport Vicinity: Is more than 200 feet above ground level (AGL) and beyond 20,000 feet from an airport runway at its location.

--or--

(b) Within the Airport Vicinity: Exceeds an imaginary surface extending outward and upward at any of the following slopes:

(1) 100 to 1 for a horizontal distance of 20,000 feet from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway more than 3,200 feet in actual length, excluding heliports.

(2) 50 to 1 for a horizontal distance of 10,000 feet from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway no more than 3,200 feet in actual length, excluding heliports.

(3) 25 to 1 for a horizontal distance of 5,000 feet from the nearest point of the nearest landing and takeoff area of each heliport described in paragraph (d) of this section.

The airports and runways shown in Table 1 were identified from FAA data to be in the vicinity of the Ivanpah-Control project. The horizontal plane distances used in the analysis and shown in Table 1 are based on the runway lengths.

Table 1: Airports and Horizontal Distances

Airport	Horizontal Distance (feet)	Associated Projects
Independence Airport	20,000 (1 runway) 10,000 (1 runway)	Ivanpah-Control: IC Segment 1
Lone Pine/Death Valley Airport	20,000 (1 runway) 10,000 (1 runway)	Ivanpah-Control: IC Segment 1
Inyokern Airport	20,000 (3 runways)	Ivanpah-Control: IC Segments 1 and 2

Airport	Horizontal Distance (feet)	Associated Projects
Barstow-Daggett Airport	20,000 (2 runways)	Ivanpah-Control: IC Segments 3N, 3S, and 4
Baker Airport	10,000	Ivanpah-Control: IC Segment 4

Proposed structures located within the prescribed horizontal distance and slope ratio for each runway were identified. Each of these locations was analyzed using the runway elevation, base structure elevation, distance from the runway edge to the proposed structure, and slope ratio to determine if the structure height exceeds the imaginary surface.

RESULTS & ANALYSIS OF STRUCTURES AND CATENARIES

Ivanpah-Control: Segments 1, 2, 3, and 4 Projects

One span in IC Segment 4 is outside of the airport vicinities and requires filing per 14 CFR 77 as shown in Table 2 below.

Table 2: Ivanpah-Control Segment 4 Project

Span from Structure	Span to Structure	Latitude (Deg-Min-Sec)	Longitude (Deg-Min-Sec)
1281181	1281182	35° 30' 19.882" N	115° 32' 24.539" W

There are no structures above 200 feet in height on the Ivanpah-Control: Segments 1, 2, 3, and 4 lines. Therefore, only those structures within the airport vicinities need analysis.

Table 3 presents a summary of the number of proposed structures that are within the maximum prescribed horizontal distance from the identified airport runways. Those that break the slope line and will thus need to be filed with the FAA are quantified. Whenever a structure requires filing within the airport vicinity, the adjacent lines (spans) would also require filing. These structures and spans are listed in the table in Attachment A and shown on the figures in Attachment B.

Table 3: Structures Requiring Filing

Projects	Total Proposed Structures Within Specified Horizontal Distance	Total Proposed Structures Exceeding Horizontal Plan Slope and Requiring Filing
Ivanpah-Control Line: Segment 1	150	21
Ivanpah-Control Line: Segments 2, 3, and 4	126	35

Table 4: Location of Structures and Spans Requiring FAA Filing

IC Segment	Tower/Span ID	Latitude (Deg-Min-Sec)	Longitude (Deg-Min-Sec)	Ground Elevation (AMSL)	Structure Height (AGL)	Total Height (AMSL)	Height Change/ New Pole	Distance To Runway
1	475 to 477	36 36' 51.93" N	118 2' 56.02" W	3675	115	3,790.5		
1	477	36° 36' 46.121" N	118° 2' 53.223" W	3675	115	3,790.5	44.5	6,967
1	477 to 479	36 36' 39.98" N	118 2' 50.27" W	3675	115	3,790.5		
1	479	36° 36' 33.842" N	118° 2' 47.313" W	3674	115	3,788.7	44.9	5,710
1	479 to 480	36 36' 30.77" N	118 2' 45.83" W	3678	115	3,792.8		
1	480	36° 36' 27.695" N	118° 2' 44.354" W	3678	115	3,792.8	46.7	5,094
1	480 to 482	36 36' 21.57" N	118 2' 41.41" W	3678	115	3,792.8		
1	482	36° 36' 15.446" N	118° 2' 38.459" W	3678	115	3,792.8	46.7	3,915
1	482 to 483	36 36' 12.41" N	118 2' 37" W	3678	115	3,792.8		
1	483	36° 36' 9.378" N	118° 2' 35.539" W	3674	102	3,775.5	31.8	3,373
1	483 to 484	36 36' 6.33" N	118 2' 34.07" W	3674	102	3,775.5		
1	484	36° 36' 3.282" N	118° 2' 32.605" W	3674	93	3,766.6	24.1	2,877
1	484 to 485	36 36' 0.33" N	118 2' 31.19" W	3674	93	3,766.6		
1	485	36° 35' 57.386" N	118° 2' 29.768" W	3673	90	3,763.4	10.5	2,472
1	485 to 487	36 35' 53.01" N	118 2' 27.66" W	3676	90	3,765.8		
1	487	36° 35' 48.643" N	118° 2' 25.561" W	3676	90	3,765.8	20.0	2,099
1	487 to 488	36 35' 45.37" N	118 2' 25.26" W	3676	90	3,765.8		
1	488	36° 35' 42.088" N	118° 2' 24.953" W	3676	85	3,760.7	15.3	1,873
1	488 to 489	36 35' 39" N	118 2' 24.67" W	3676	85	3,760.7		
1	489	36° 35' 35.908" N	118° 2' 24.380" W	3675	84	3,759.4	13.4	1,852

IC Segment	Tower/Span ID	Latitude (Deg-Min-Sec)	Longitude (Deg-Min-Sec)	Ground Elevation (AMSL)	Structure Height (AGL)	Total Height (AMSL)	Height Change/ New Pole	Distance To Runway
1	489 to 490	36 35' 32.6" N	118 2' 24.07" W	3675	84	3,759.4		
1	490	36° 35' 29.300" N	118° 2' 23.767" W	3674	79	3,752.7	8.6	1,878
1	490 to 491	36 35' 25.95" N	118 2' 23.46" W	3674	79	3,752.7		
1	491	36° 35' 22.603" N	118° 2' 23.146" W	3673	79	3,751.7	8.7	1,905
1	491 to 492	36 35' 19.04" N	118 2' 22.82" W	3673	84	3,757.0		
1	492	36° 35' 15.479" N	118° 2' 22.486" W	3673	84	3,757.0	13.1	1,933
1	492 to 494	36 35' 11.51" N	118 2' 22.12" W	3673	84	3,757.0		
1	494	36° 35' 7.546" N	118° 2' 21.751" W	3671	84	3,754.7	13.2	1,965
1	494 to 495	36 35' 4.2" N	118 2' 21.44" W	3671	84	3,754.7		
1	495	36° 35' 0.844" N	118° 2' 21.129" W	3671	79	3,749.6	9.6	1,992
1	495 to 496	36 34' 57.56" N	118 2' 20.82" W	3671	79	3,749.6		
1	496	36° 34' 54.278" N	118° 2' 20.521" W	3670	79	3,749.3	9.2	2,065
1	496 to 497	36 34' 51.23" N	118 2' 20.24" W	3670	85	3,755.1		
1	497	36° 34' 48.191" N	118° 2' 19.957" W	3670	85	3,755.1	5.2	2,300
1	497 to 498	36 34' 44.93" N	118 2' 19.65" W	3669	90	3,759.0		
1	498	36° 34' 41.658" N	118° 2' 19.351" W	3669	90	3,759.0	9.0	2,690
1	498 to 500	36 34' 36.87" N	118 2' 18.91" W	3672	95	3,767.4		
1	500	36° 34' 32.075" N	118° 2' 18.463" W	3672	95	3,767.4	30.2	3,417
1	500 to 502	36 34' 27.96" N	118 2' 18.08" W	3672	95	3,767.4		
1	502	36° 34' 23.837" N	118° 2' 17.700" W	3671	88	3,759.0	34.6	4,123
1	502 to 504	36 34' 19.53" N	118 2' 17.3" W	3671	88	3,759.0		

IC Segment	Tower/Span ID	Latitude (Deg-Min-Sec)	Longitude (Deg-Min-Sec)	Ground Elevation (AMSL)	Structure Height (AGL)	Total Height (AMSL)	Height Change/ New Pole	Distance To Runway
1	504	36° 34' 15.216" N	118° 2' 16.901" W	3669	90	3,758.8	20.6	4,906
1	504 to 506	36 34' 11.14" N	118 2' 16.43" W	3669	90	3,758.8		
3S	NA1363009AE_SA1363009BE to NA1363010AE_CA1363010BE	34 51' 2.09" N	116 51' 52.76" W	2123	70	2,192.9		
3S	NA1363009AE_SA1363009BE	34° 51' 2.045" N	116° 51' 48.973" W	2123	70	2,192.9	12.0	19,727
3S	NA1363009AE_SA1363009BE to NA1363008AE_SA1363008BE	34 51' 2.02" N	116 51' 44.51" W	2123	70	2,192.9		
3S	NA1363008AE_SA1363008BE	34° 51' 1.999" N	116° 51' 40.038" W	2116	65.5	2,181.4	7.1	18,982
3S	NA1363008AE_SA1363008BE to NA1363007AE_SA1363007BE	34 51' 1.98" N	116 51' 35.54" W	2116	65.5	2,181.4		
3S	NA1363007AE_SA1363007BE	34° 51' 1.962" N	116° 51' 31.050" W	2112	65.5	2,177.4	7.2	18,234
3S	NA1363007AE_SA1363007BE to NA1363006AE_CA1363006BE_SA1363006CE	34 51' 1.93" N	116 51' 26.59" W	2111	72	2,183.1		
3S	NA1363006AE_CA1363006BE_SA1363006CE	34° 51' 1.903" N	116° 51' 22.127" W	2111	72	2,183.1	10.0	17,491
3S	NA1363006AE_CA1363006BE_SA1363006CE to WA1363005AE_EA1363005BE	34 51' 6.21" N	116 51' 22.1" W	2069	83.5	2,152.6		
3S	WA1363005AE_EA1363005BE	34° 51' 10.517" N	116° 51' 22.073" W	2069	83.5	2,152.6	16.0	17,489
3S	WA1363005AE_EA1363005BE to WA1363004AE_EA1363004BE	34 51' 14.76" N	116 51' 22.04" W	2069	83.5	2,152.6		
3S	WA1363004AE_EA1363004BE	34° 51' 19.003" N	116° 51' 22.009" W	2032	83.5	2,115.4	11.6	17,527

IC Segment	Tower/Span ID	Latitude (Deg-Min-Sec)	Longitude (Deg-Min-Sec)	Ground Elevation (AMSL)	Structure Height (AGL)	Total Height (AMSL)	Height Change/ New Pole	Distance To Runway
3S	WA1363004AE_EA1363004BE to NA1363003AE_SA1363003BE	34 51' 27.68" N	116 51' 21.96" W	2032	83.5	2,115.4		
4	128921 to 128920	35 15' 43.82" N	116 6' 10.4" W	1077	61	1,138.1		
4	128921	35° 15' 46.536" N	116° 6' 7.857" W	1077	61	1,138.1	7.1	9,584
4	128921 to 128922	35 15' 48.99" N	116 6' 5.56" W	1077	61	1,138.1		
4	128922	35° 15' 51.448" N	116° 6' 3.267" W	1068	57	1,124.9	1.5	8,962
4	128922 to 128923	35 15' 53.48" N	116 5' 59.23" W	1068	57	1,124.9		
4	128923	35° 15' 55.509" N	116° 5' 55.184" W	1050	56.5	1,106.8	3.5	8,204
4	128923 to 128924	35 15' 57.53" N	116 5' 51.17" W	1036	70	1,106.1		
4	128924	35° 15' 59.547" N	116° 5' 47.157" W	1036	70	1,106.1	17.1	7,457
4	128924 to 128925	35 16' 1.56" N	116 5' 43.14" W	1036	70	1,106.1		
4	128925	35° 16' 3.579" N	116° 5' 39.133" W	1021	61	1,082.4	7.4	6,718
4	128925 to 128926	35 16' 5.6" N	116 5' 35.12" W	1005	65.5	1,070.4		
4	128926	35° 16' 7.610" N	116° 5' 31.103" W	1005	65.5	1,070.4	12.9	5,990
4	128926 to 128927	35 16' 9.59" N	116 5' 27.16" W	1005	65.5	1,070.4		
4	128927	35° 16' 11.572" N	116° 5' 23.221" W	987	65.5	1,052.7	12.5	5,284
4	128927 to 128928	35 16' 13.63" N	116 5' 19.06" W	977	72	1,049.5		
4	128928	35° 16' 15.688" N	116° 5' 14.903" W	977	72	1,049.5	13.8	4,577
4	128928 to 128929	35 16' 17.87" N	116 5' 11.4" W	977	72	1,049.5		
4	128929	35° 16' 20.055" N	116° 5' 7.904" W	946	70	1,015.8	17.0	3,923
4	128929 to 128930	35 16' 22.2" N	116 5' 4.42" W	946	70	1,015.8		

IC Segment	Tower/Span ID	Latitude (Deg-Min-Sec)	Longitude (Deg-Min-Sec)	Ground Elevation (AMSL)	Structure Height (AGL)	Total Height (AMSL)	Height Change/ New Pole	Distance To Runway
4	128930	35° 16' 24.334" N	116° 5' 0.928" W	928	61	989.3	8.0	3,309
4	128930 to 128931	35 16' 26.45" N	116 4' 57.49" W	928	61	989.3		
4	128931	35° 16' 28.557" N	116° 4' 54.041" W	921	61	981.7	8.5	2,756
4	128931 to 128932	35 16' 30.78" N	116 4' 50.42" W	922	61	983.4		
4	128932	35° 16' 33.006" N	116° 4' 46.794" W	922	61	983.4	9.0	2,270
4	128932 to 128933	35 16' 35.03" N	116 4' 43.5" W	928	61	988.6		
4	128933	35° 16' 37.042" N	116° 4' 40.204" W	928	61	988.6	8.6	1,975
4	128933 to 217582E_2177583E	35 16' 38.66" N	116 4' 37.57" W	931	61	992.2		
4	217582E_2177583E	35° 16' 40.272" N	116° 4' 34.938" W	931	61	992.2	-9.7	1,878
4	217582E_2177583E to 128934	35 16' 41.64" N	116 4' 32.71" W	935	62	997.2		
4	128934	35° 16' 43.009" N	116° 4' 30.485" W	935	62	997.2	10.9	1,917
4	128934 to BAKER SUBSTATION	35 16' 43.66" N	116 4' 29.42" W	935	62	997.2		
4	BAKER SUBSTATION	35° 16' 44.314" N	116° 4' 28.362" W	938	48.18	986.2	0.0	1,973
4	BAKER SUBSTATION to 128935	35 16' 44.95" N	116 4' 27.31" W	940	62	1,001.9		
4	128935	35° 16' 45.599" N	116° 4' 26.262" W	940	62	1,001.9	8.4	2,051
4	128935 to 128936	35 16' 47.8" N	116 4' 22.67" W	949	70	1,018.8		
4	128936	35° 16' 50.009" N	116° 4' 19.077" W	949	70	1,018.8	16.6	2,448
4	128936 to 128937	35 16' 52.11" N	116 4' 15.64" W	949	70	1,018.8		
4	128937	35° 16' 54.223" N	116° 4' 12.201" W	959	61	1,019.7	8.9	2,956
4	128937 to 128938	35 16' 56.37" N	116 4' 8.7" W	959	61	1,019.7		
4	128938	35° 16' 58.521" N	116° 4' 5.199" W	969	56.5	1,025.3	4.1	3,546

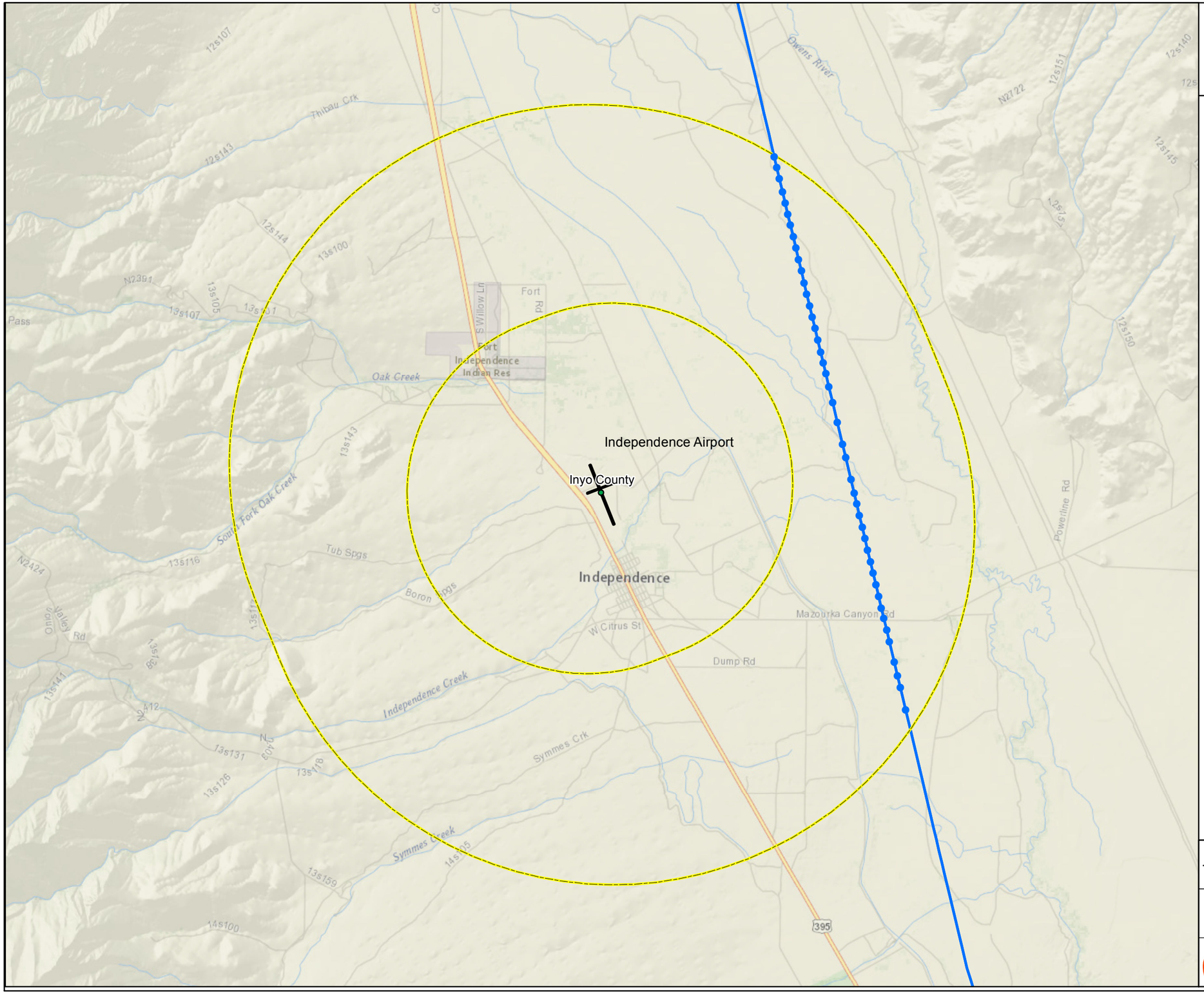
IC Segment	Tower/Span ID	Latitude (Deg-Min-Sec)	Longitude (Deg-Min-Sec)	Ground Elevation (AMSL)	Structure Height (AGL)	Total Height (AMSL)	Height Change/ New Pole	Distance To Runway
4	128938 to 128939	35 17' 0.7" N	116 4' 1.65" W	980	56.5	1,036.3		
4	128939	35° 17' 2.873" N	116° 3' 58.098" W	980	56.5	1,036.3	3.9	4,188
4	128939 to 128940	35 17' 5.02" N	116 3' 54.33" W	992	61	1,052.7		
4	128940	35° 17' 7.164" N	116° 3' 50.561" W	992	61	1,052.7	8.6	4,890
4	128940 to 128941	35 17' 9.27" N	116 3' 46.87" W	1004	61	1,065.3		
4	128941	35° 17' 11.371" N	116° 3' 43.179" W	1004	61	1,065.3	8.4	5,588
4	128941 to 128942	35 17' 13.48" N	116 3' 39.47" W	1017	65.5	1,082.4		
4	128942	35° 17' 15.601" N	116° 3' 35.754" W	1017	65.5	1,082.4	13.2	6,291
4	128942 to 128943	35 17' 17.75" N	116 3' 31.99" W	1017	65.5	1,082.4		
4	128943	35° 17' 19.891" N	116° 3' 28.222" W	1031	61	1,092.3	8.9	7,003
4	128943 to 128944	35 17' 22.01" N	116 3' 24.51" W	1046	61	1,107.5		
4	128944	35° 17' 24.123" N	116° 3' 20.793" W	1046	61	1,107.5	8.2	7,706
4	128944 to 128945	35 17' 26.24" N	116 3' 17.08" W	1060	61	1,120.8		
4	128945	35° 17' 28.353" N	116° 3' 13.364" W	1060	61	1,120.8	8.9	8,409
4	128945 to 128946	35 17' 30.47" N	116 3' 9.65" W	1076	65.5	1,141.5		
4	128946	35° 17' 32.587" N	116° 3' 5.936" W	1076	65.5	1,141.5	13.2	9,112
4	128946 to 128947	35 17' 34.7" N	116 3' 2.22" W	1076	65.5	1,141.5		
4	128947	35° 17' 36.821" N	116° 2' 58.505" W	1090	61	1,151.5	8.6	9,815
4	128947 to 128948	35 17' 38.94" N	116 2' 54.79" W	1090	61	1,151.5		
4	1281181 to 1281182	35° 30' 19.882" N	115° 32' 24.539" W	5125	70	5,195.0		

ATTACHMENT A: MAPS OF SPANS AND STRUCTURES REQUIRING FAA FILING

IVANPAH-CONTROL: SEGMENTS 1, 2, 3, AND 4 PROJECTS

IC SEGMENT	LOCATION
1	Independence Airport
1	Lone Pine/Death Valley Airport
1 and 2	Inyokern Airport
3N, 3S, and 4	Barstow-Daggett Airport
4	Baker Airport
4	Single Span Greater Than 200 Feet

Structures shown in blue were analyzed, but do not require filing. Structures shown in red were analyzed and require filing.



SOUTHERN CALIFORNIA EDISON®
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N

Legend

- Structures Analyzed
- Control-Haiwee
- FAA 77.9(b) Imaginary Surfaces
- FAA Runways
- Counties

INDEPENDENCE AIRPORT

IC SEGMENT 1

0 0.75 1.5 3
Miles

IMAGERY SOURCE: ESRI ONLINE NATIONAL GEOGRAPHIC AND WORLD IMAGERY 2015

Control-Haiwee
Transmission Line Rating Remediation Project

FAA Analysis

ARCADIS Design & Consultancy for natural and built assets

Figure: 1

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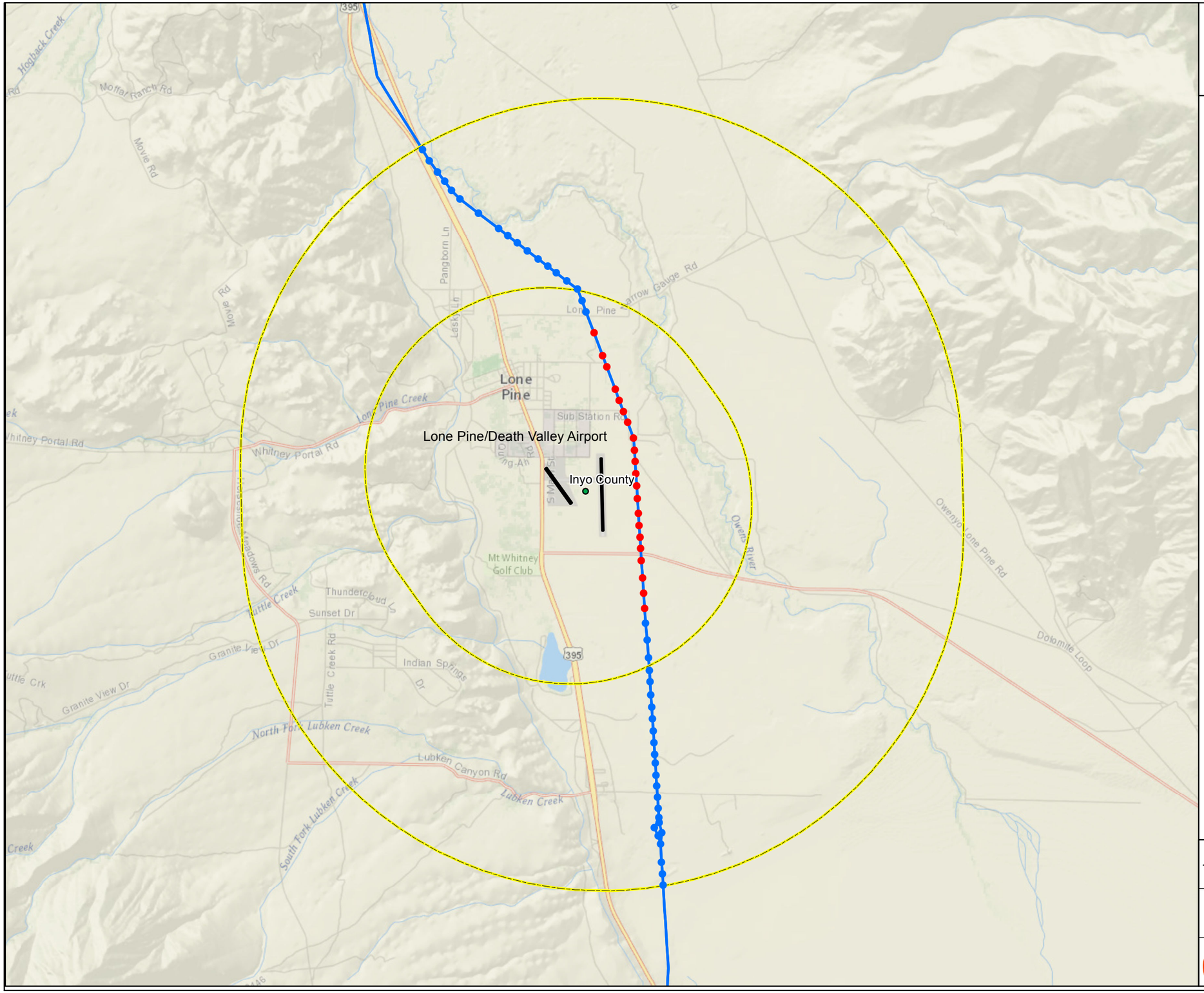
Coordinate System: NAD 1983 UTM Zone 11N

Attachment A-1



SOUTHERN CALIFORNIA EDISON®
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N

Legend

- Structures Analyzed
- Structures Requiring Filing
- Control-Haiwee
- FAA 77.9(b) Imaginary Surfaces
- FAA Runways
- Counties

LONE PINE/
DEATH VALLEY AIRPORT

IC SEGMENT 1

0 0.75 1.5 3
Miles

IMAGERY SOURCE: ESRI ONLINE NATIONAL GEOGRAPHIC AND WORLD IMAGERY 2015

Control-Haiwee
Transmission Line Rating Remediation Project

FAA Analysis

ARCADIS Design & Consultancy for natural and built assets

Figure:
1

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Coordinate System: NAD 1983 UTM Zone 11N

Attachment A-2

SOUTHERN CALIFORNIA EDISON®
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N

Legend

- Substation
- Structures Analyzed
- Control-Haiwee
- FAA 77.9(b) Imaginary Surfaces
- FAA Runways
- Counties

INYOKERN AIRPORT

IC SEGMENT 1

0 0.75 1.5 3
Miles

IMAGERY SOURCE: ESRI ONLINE NATIONAL GEOGRAPHIC AND WORLD IMAGERY 2015

Control-Haiwee
Transmission Line Rating Remediation Project

FAA Analysis

ARCADIS Design & Consultancy for natural and built assets

Figure: 1

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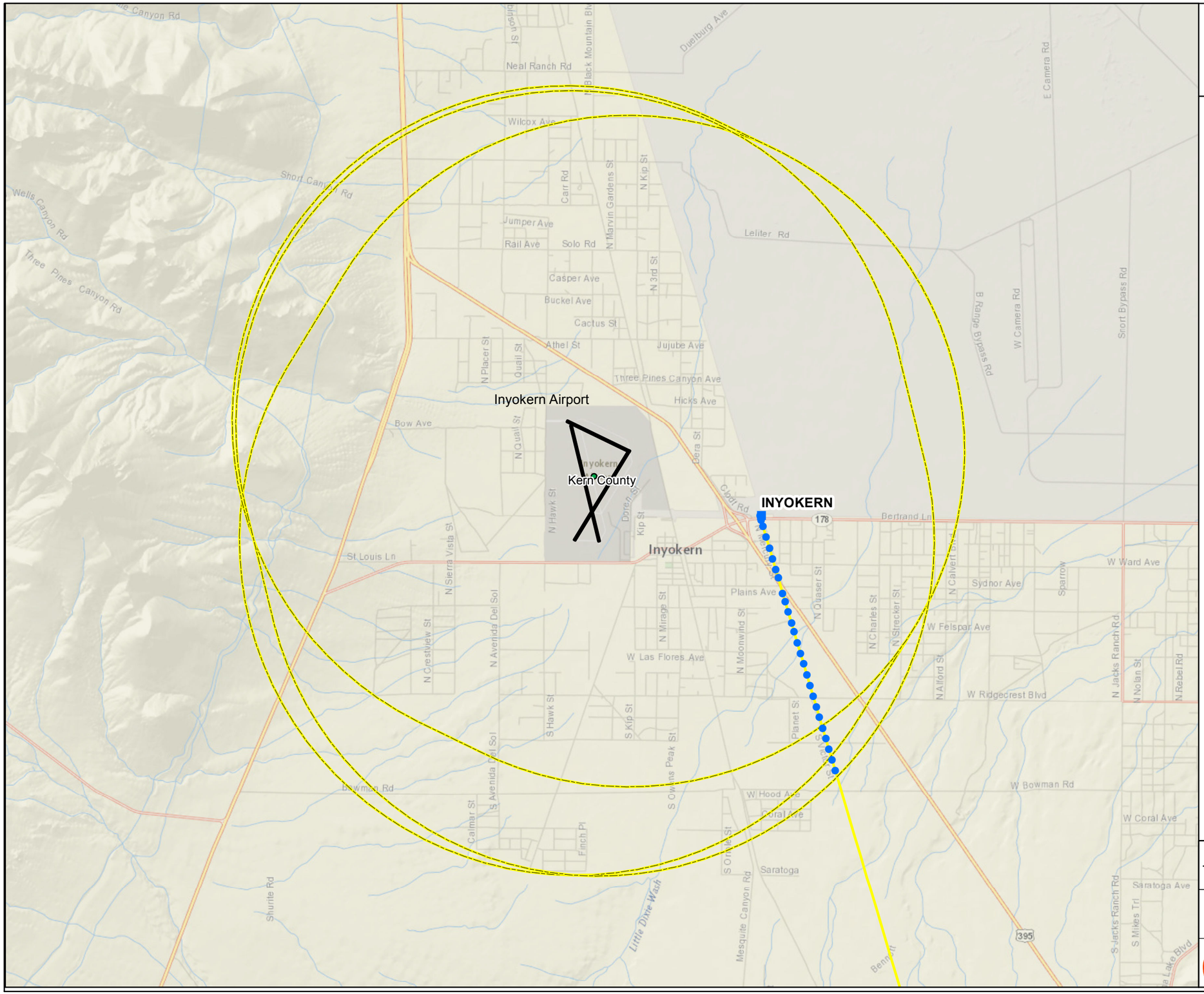
Coordinate System: NAD 1983 UTM Zone 11N

Attachment A-3



SOUTHERN CALIFORNIA EDISON®
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N

Legend

- Substation
- Structures Analyzed
- Section 1
- FAA 77.9(b) Imaginary Surfaces
- FAA Runways
- Counties

INYOKERN AIRPORT

IC SEGMENT 2

0 0.75 1.5 3
Miles

IMAGERY SOURCE: ESRI ONLINE NATIONAL GEOGRAPHIC AND WORLD IMAGERY 2015

Ivanpah-Coolwater-Kramer-Inyokern
Transmission Line Rating Remediation Project

FAA Analysis

ARCADIS Design & Consultancy for natural and built assets

Figure: **1**

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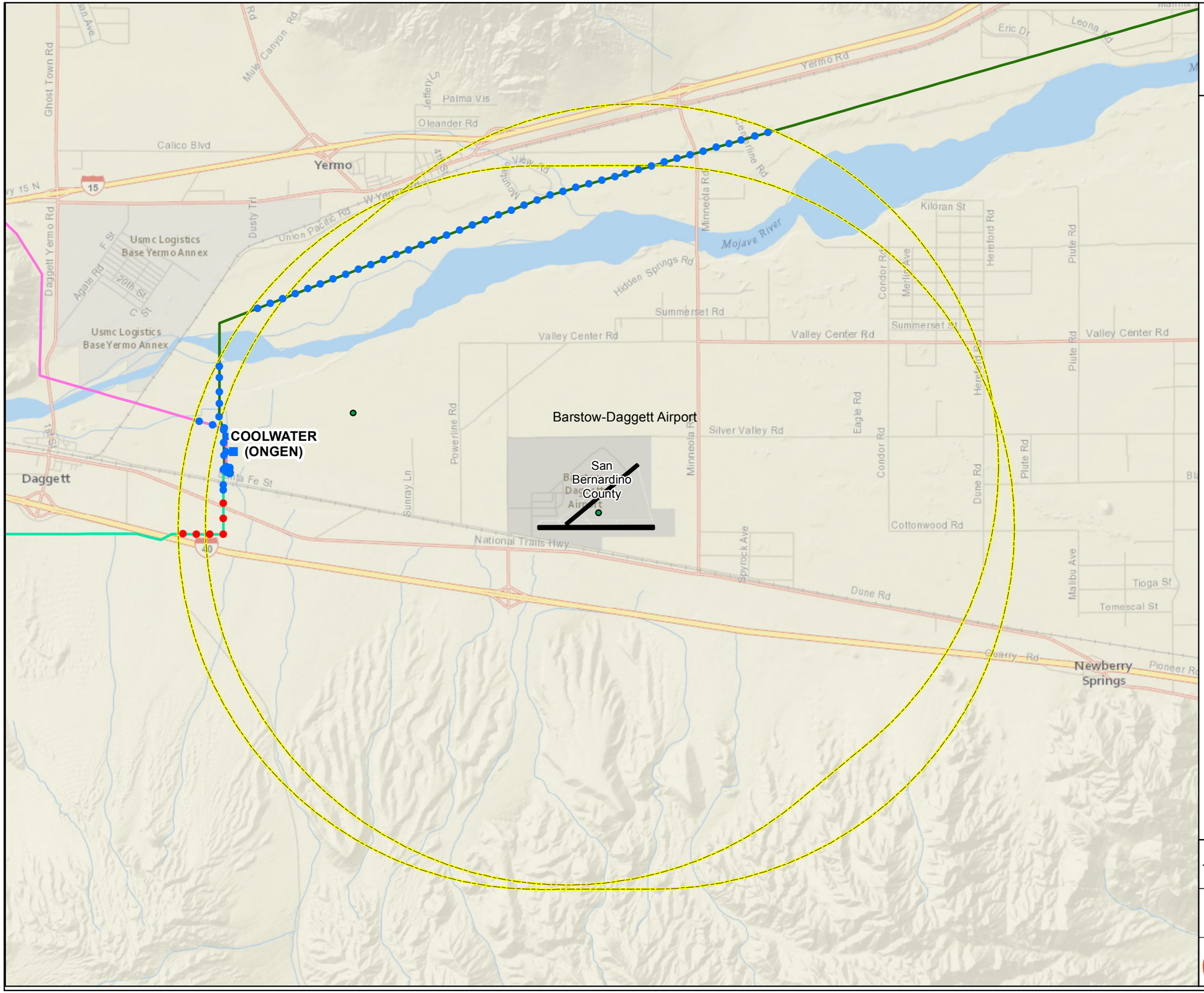
Coordinate System: NAD 1983 UTM Zone 11N

Attachment A-4



SOUTHERN CALIFORNIA EDISON®
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N

Legend

- Substation
- Structures Analyzed
- Structures Requiring Filing
- Section 2
- Section 3
- Section 4
- FAA 77.9(b) Imaginary Surfaces
- FAA Runways
- Counties

BARSTOW-DAGGETT AIRPORT

IC SEGMENTS 3N, 3S, AND 4

0 0.5 1 2 3
Miles

IMAGERY SOURCE: ESRI ONLINE NATIONAL GEOGRAPHIC AND WORLD IMAGERY 2015

Ivanpah-Coolwater-Kramer-Inyokern Transmission Line Rating Remediation Project

FAA Analysis

ARCADIS Design & Consultancy for natural and built assets

Figure: 1

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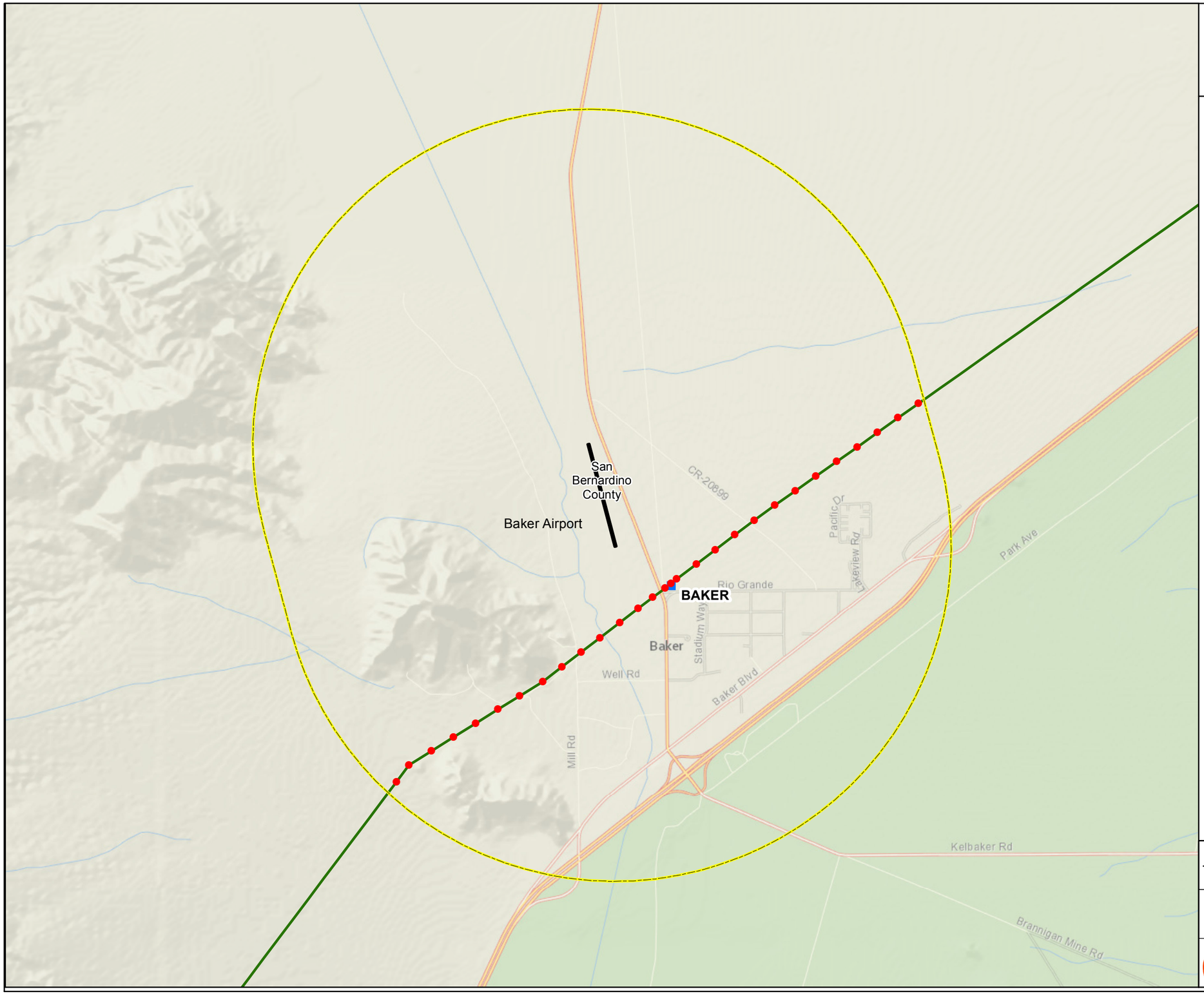
Coordinate System: NAD 1983 UTM Zone 11N

Attachment A-5



SOUTHERN CALIFORNIA EDISON®
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N

Legend

- Substation
- Structures Requiring Filing
- Section 4
- FAA 77.9(b) Imaginary Surfaces
- FAA Runways
- Counties

BAKER AIRPORT

IC SEGMENT 4

0 0.375 0.75 1.5
Miles

IMAGERY SOURCE: ESRI ONLINE NATIONAL GEOGRAPHIC AND WORLD IMAGERY 2015

Ivanpah-Coolwater-Kramer-Inyokern
Transmission Line Rating Remediation Project

FAA Analysis

ARCADIS Design & Consultancy for natural and built assets

Figure:
1

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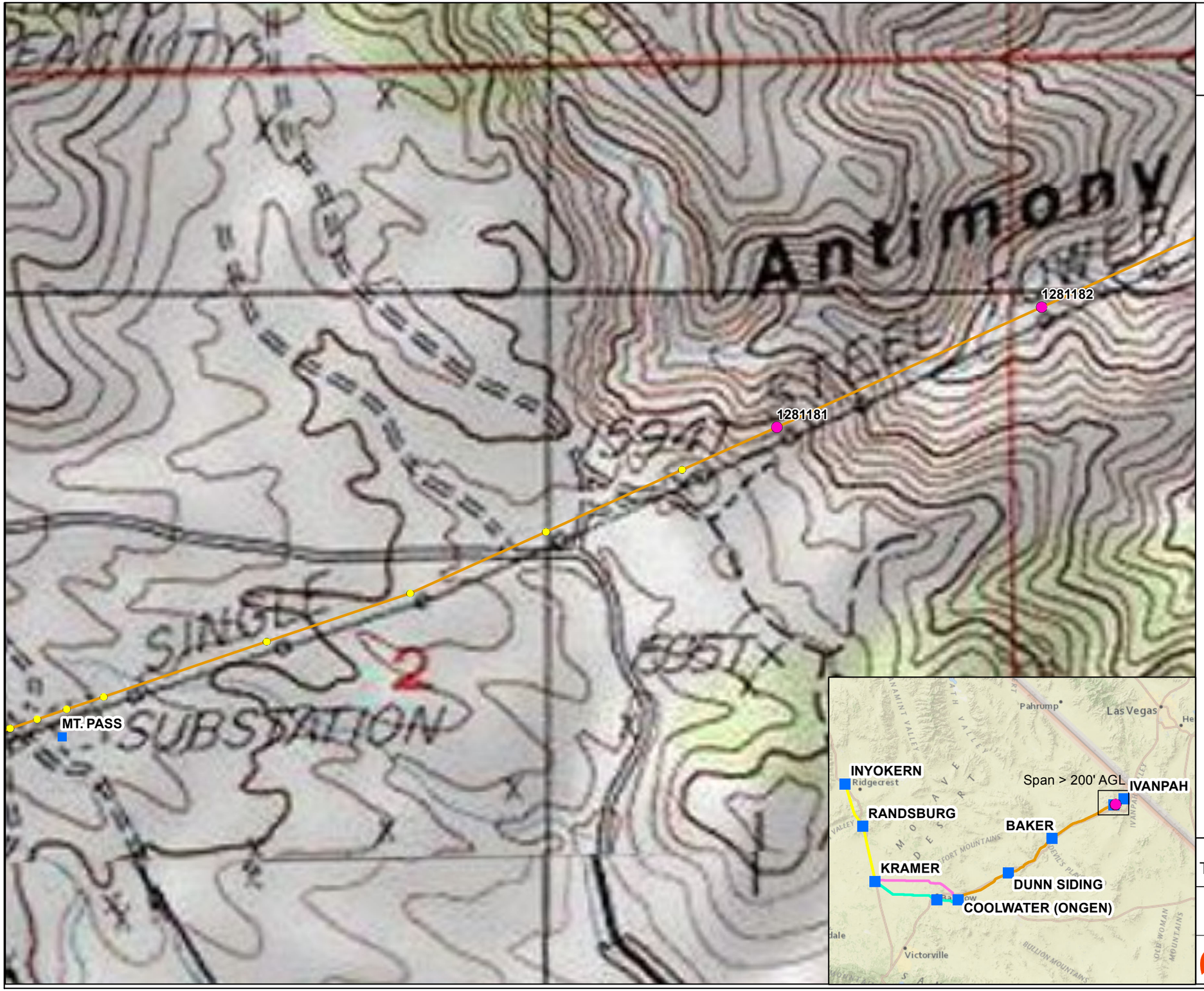
Coordinate System: NAD 1983 UTM Zone 11N

Attachment A-6



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N

Legend

- Substation
- Structures with Spans over 200' AGL
- Proposed Structures
- Section 2
- Section 3N
- Section 3S
- Section 4

SPAN 1281181 TO 1281182

IC SEGMENT 4

0 250 500 1,000
Feet

IMAGERY SOURCE: ESRI ONLINE NATIONAL GEOGRAPHIC AND WORLD IMAGERY 2015

Ivanpah-Coolwater-Kramer-Inyokern
Transmission Line Rating Remediation Project

FAA Marking and Lighting Analysis

ARCADIS Design & Consultancy for natural and built assets

Figure: **1**

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Coordinate System: NAD 1983 UTM Zone 11N