

Photograph A-21. DP 11, Feature 14 (Dent and Sayer Tank), cattle tank and surrounding ranching area; view facing north.



Photograph A-22. DP 11, Feature 14 (Dent and Sayer Tank), cattle tank and surrounding ranching area; view facing west.



Photograph A-23. DP 12, Feature 12, upland area with dirt road; no OHWM indicators; view facing northwest.



Photograph A-24. DP 12, Feature 12, upland area with dirt road; no OHWM indicators; view facing south-southeast.



Photograph A-25. DP 13, Feature 13, shallow swale with no OHWM indicators; view facing southeast.



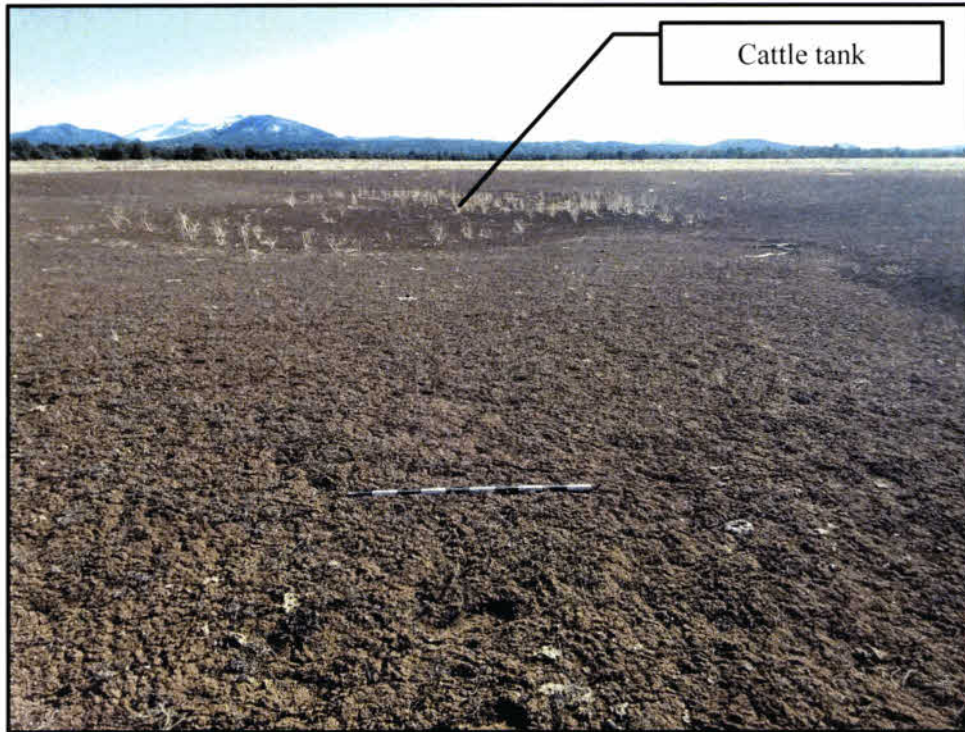
Photograph A-26. DP 13, Feature 13, shallow swale with no OHWM indicators; view facing northwest.



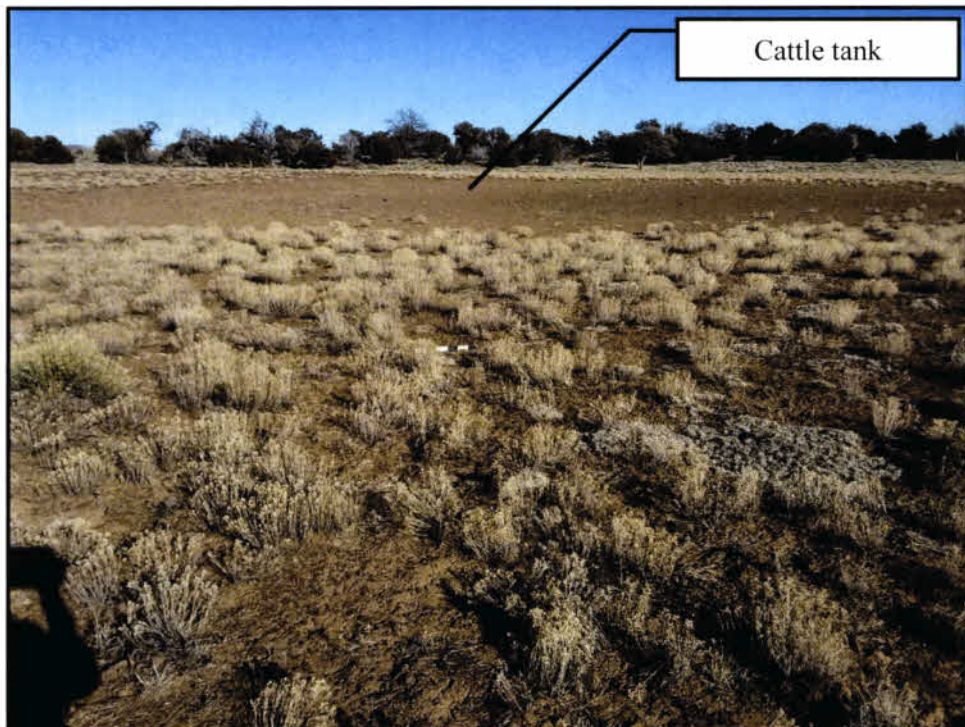
Photograph A-27. DP 14, Feature 16, upland area with no OHWM indicators; view facing northwest.



Photograph A-28. DP 14, Feature 16, upland area with no OHWM indicators; view facing southeast.



Photograph A-29. DP 15, Feature 17, cattle tank; view facing southwest.



Photograph A-30. DP 16, Feature 18, cattle tank; view facing east.



Photograph A-31. DP 17, Feature 19, cattle tank; view facing northeast.



Photograph A-32. DP 18, Feature 20, upland area with no OHWM indicators; view facing northwest.



Photograph A-33. DP 18, Feature 20, upland area with no OHWM indicators; view facing southeast.



Photograph A-34. DP 19, Feature 21 (Rabbit Canyon), upland area with no OHWM indicators; view facing northeast.



Photograph A-35. DP 19, Feature 21 (Rabbit Canyon), upland area with no OHWM indicators; view facing south-southwest.



Photograph A-36. DP 20, former road alignment adjacent to current road alignment; view facing northwest.



Photograph A-37. DP 20, former road alignment adjacent to current road alignment; view facing southeast.



Photograph A-38. DP 20, upland area with no OHWM indicators; view facing southwest.



Photograph A-39. DP 21, Feature 23, upland area with no OHWM indicators; view facing northeast.



Photograph A-40. DP 22, Feature 24, upland area with no OHWM indicators; view facing southwest.



Photograph A-41. DP 22, Feature 24, upland area with no OHWM indicators; view facing northeast.



Photograph A-42. DP 23, Feature 25, upland area with no OHWM indicators; view facing west.



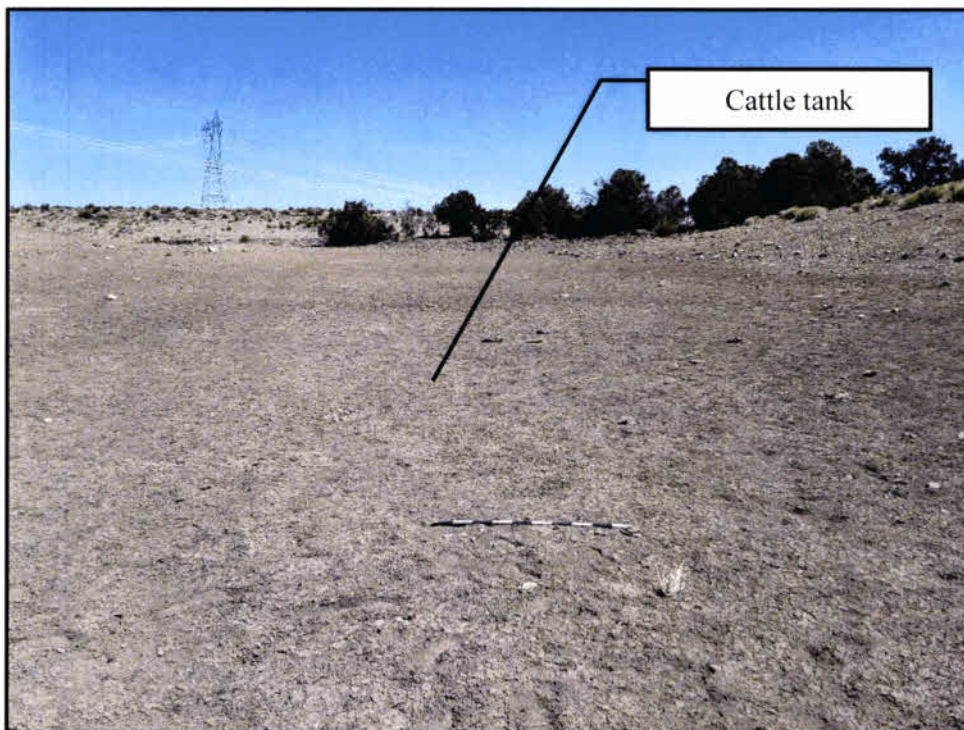
Photograph A-43. DP 23, Feature 25, upland area with no OHWM indicators; view facing east.



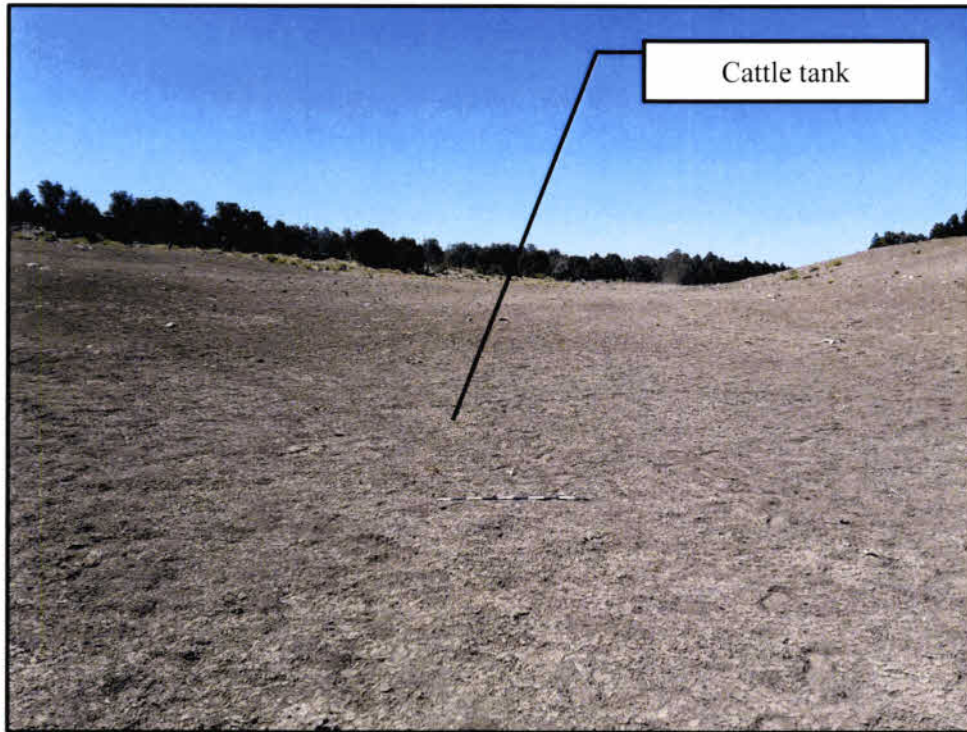
Photograph A-44. DP 24, Feature 26, upland area with no OHWM indicators; view facing northwest.



Photograph A-45. DP 24, Feature 26, upland area with no OHWM indicators; view facing southeast.



Photograph A-46. DP 25, Feature 22 (Hidden Tank), cattle tank with no OHWM indicators; view facing northeast.



Photograph A-47. DP 25, Feature 22 (Hidden Tank), cattle tank with no OHWM indicators; view facing southwest.



Photograph A-48. DP 26, Feature 28, upland area with no OHWM indicators; view facing west.



Photograph A-49. DP 26, Feature 28, upland area with no OHWM indicators; view facing east.



Photograph A-50. DP 27, Feature 29, upland area with no OHWM indicators; view facing west.



Photograph A-51. DP 27, Feature 29, upland area with no OHWM indicators; view facing east.



Photograph A-52. DP 28, Feature 21, upland area with no OHWM indicators; view facing west.



Photograph A-53. DP 28, Feature 21, upland area with no OHWM indicators; view facing east.



Photograph A-54. DP 29, Feature 27, upland area with no OHWM indicators; view facing northwest.



Photograph A-55. DP 29, Feature 27, upland area with no OHWM indicators; view facing southeast.



Photograph A-56. DP 30, Feature 30, upland area with no OHWM indicators; view facing west.



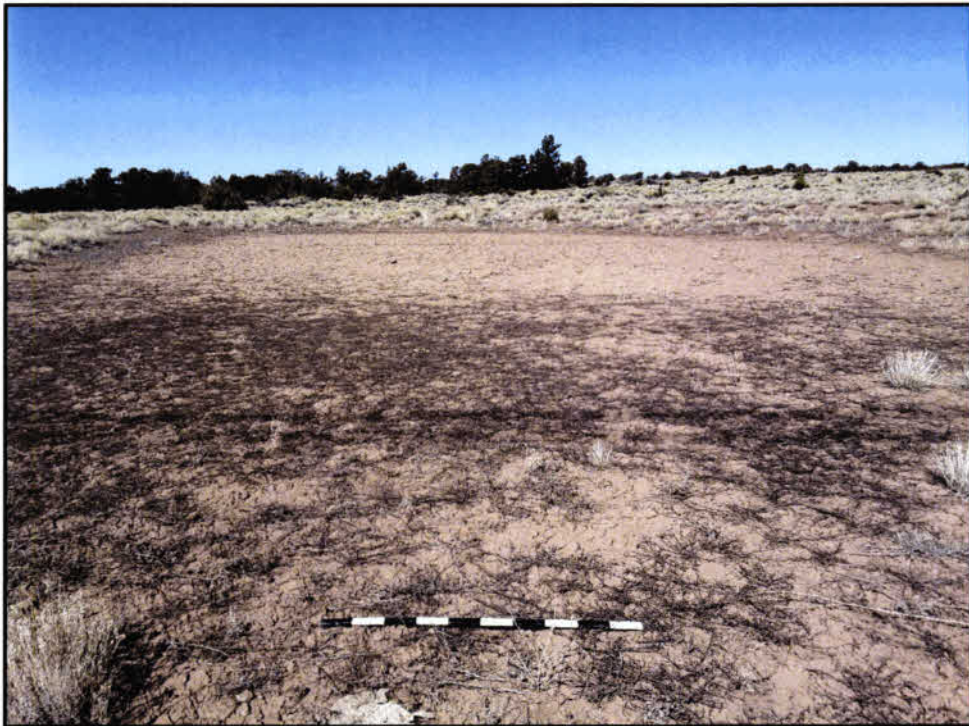
Photograph A-57. DP 30, Feature 30, upland area with no OHWM indicators; view facing southeast.



Photograph A-58. DP 31, Feature 6, upland area with no OHWM indicators; view facing northwest.



Photograph A-59. DP 31, Feature 6, upland area with no OHWM indicators; view facing southeast.



Photograph A-60. DP 32, Feature 7, ephemeral pond/depression; view facing northwest.



Photograph A-61. DP 32, upland area with no OHWM indicators; view facing southeast.



Photograph A-62. DP 33, Feature 15, upland area with no OHWM indicators; view facing northwest.

APPENDIX B
Aerial Photographs with Data Points

APPENDIX C

Jurisdictional Delineation Field Notes

Jurisdictional Waters Delineation Field Notes

Location: CO Bar Solar Energy Project, Coconino County, Arizona

Date: 5/21/2021 Field Staff: Corina Anderson and Hannah French

Photo Point ID	Feature Width (feet)	Feature Depth (feet)	Field Indicators of OHWM (check applicable characteristics)		Notes (include observed flow regime: ephemeral/intermittent/perennial)
DP 1	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	Upland area; no OHWM
			<input type="checkbox"/>	Change in vegetation species	
			<input type="checkbox"/>	Change in vegetation cover	
			<input type="checkbox"/>	Cut Bank or shelving/benches	
			<input type="checkbox"/>	Water stains	
			<input checked="" type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	
DP 2	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	Upland area; no OHWM
			<input type="checkbox"/>	Change in vegetation species	
			<input type="checkbox"/>	Change in vegetation cover	
			<input type="checkbox"/>	Cut Bank or shelving/benches	
			<input type="checkbox"/>	Water stains	
			<input checked="" type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	
DP 3	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	Upland area; no OHWM
			<input type="checkbox"/>	Change in vegetation species	
			<input type="checkbox"/>	Change in vegetation cover	
			<input type="checkbox"/>	Cut Bank or shelving/benches	
			<input type="checkbox"/>	Water stains	
			<input checked="" type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	
DP 4	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	Upland area; no OHWM
			<input type="checkbox"/>	Change in vegetation species	
			<input type="checkbox"/>	Change in vegetation cover	
			<input type="checkbox"/>	Cut Bank or shelving/benches	
			<input type="checkbox"/>	Water stains	
			<input checked="" type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	
DP 5	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	Upland area; no OHWM
			<input type="checkbox"/>	Change in vegetation species	
			<input type="checkbox"/>	Change in vegetation cover	
			<input type="checkbox"/>	Cut Bank or shelving/benches	
			<input type="checkbox"/>	Water stains	
			<input checked="" type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	
DP 6	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	Upland area; no OHWM
			<input type="checkbox"/>	Change in vegetation species	
			<input type="checkbox"/>	Change in vegetation cover	
			<input type="checkbox"/>	Cut Bank or shelving/benches	
			<input type="checkbox"/>	Water stains	
			<input checked="" type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	
DP 7	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	Upland area; no OHWM
			<input type="checkbox"/>	Change in vegetation species	
			<input type="checkbox"/>	Change in vegetation cover	
			<input type="checkbox"/>	Cut Bank or shelving/benches	
			<input type="checkbox"/>	Water stains	
			<input checked="" type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	

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Field Staff: Corina Anderson and Hannah French

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DP 8	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	<input type="checkbox"/>	Drift or debris (e.g., vegetative matter)	Cattle tank; no OHWM
			<input type="checkbox"/>	Change in vegetation species	<input type="checkbox"/>	Mud cracks	
			<input type="checkbox"/>	Change in vegetation cover	<input type="checkbox"/>	Bed and bank	
			<input type="checkbox"/>	Cut Bank or shelving/benches	<input type="checkbox"/>	Other (describe)	
			<input type="checkbox"/>	Water stains	<input checked="" type="checkbox"/>	Sheet flow area?	
			<input type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	<input type="checkbox"/>	Swale or erosional feature?	
DP 9	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	<input type="checkbox"/>	Drift or debris (e.g., vegetative matter)	Cattle tank; no OHWM
			<input type="checkbox"/>	Change in vegetation species	<input type="checkbox"/>	Mud cracks	
			<input type="checkbox"/>	Change in vegetation cover	<input type="checkbox"/>	Bed and bank	
			<input type="checkbox"/>	Cut Bank or shelving/benches	<input type="checkbox"/>	Other (describe)	
			<input type="checkbox"/>	Water stains	<input checked="" type="checkbox"/>	Sheet flow area?	
			<input type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	<input type="checkbox"/>	Swale or erosional feature?	
DP 10	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	<input type="checkbox"/>	Drift or debris (e.g., vegetative matter)	Upland area; no OHWM
			<input type="checkbox"/>	Change in vegetation species	<input type="checkbox"/>	Mud cracks	
			<input type="checkbox"/>	Change in vegetation cover	<input type="checkbox"/>	Bed and bank	
			<input type="checkbox"/>	Cut Bank or shelving/benches	<input type="checkbox"/>	Other (describe)	
			<input type="checkbox"/>	Water stains	<input checked="" type="checkbox"/>	Sheet flow area?	
			<input type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	<input type="checkbox"/>	Swale or erosional feature?	
DP 11	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	<input type="checkbox"/>	Drift or debris (e.g., vegetative matter)	Dent and Sayer Tank; no OHWM
			<input type="checkbox"/>	Change in vegetation species	<input type="checkbox"/>	Mud cracks	
			<input type="checkbox"/>	Change in vegetation cover	<input type="checkbox"/>	Bed and bank	
			<input type="checkbox"/>	Cut Bank or shelving/benches	<input type="checkbox"/>	Other (describe)	
			<input type="checkbox"/>	Water stains	<input checked="" type="checkbox"/>	Sheet flow area?	
			<input type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	<input type="checkbox"/>	Swale or erosional feature?	
DP 12	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	<input type="checkbox"/>	Drift or debris (e.g., vegetative matter)	Upland area; no OHWM
			<input type="checkbox"/>	Change in vegetation species	<input type="checkbox"/>	Mud cracks	
			<input type="checkbox"/>	Change in vegetation cover	<input type="checkbox"/>	Bed and bank	
			<input type="checkbox"/>	Cut Bank or shelving/benches	<input type="checkbox"/>	Other (describe)	
			<input type="checkbox"/>	Water stains	<input checked="" type="checkbox"/>	Sheet flow area?	
			<input type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	<input type="checkbox"/>	Swale or erosional feature?	
DP 13	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	<input type="checkbox"/>	Drift or debris (e.g., vegetative matter)	Upland area; no OHWM
			<input type="checkbox"/>	Change in vegetation species	<input type="checkbox"/>	Mud cracks	
			<input type="checkbox"/>	Change in vegetation cover	<input type="checkbox"/>	Bed and bank	
			<input type="checkbox"/>	Cut Bank or shelving/benches	<input type="checkbox"/>	Other (describe)	
			<input type="checkbox"/>	Water stains	<input checked="" type="checkbox"/>	Sheet flow area?	
			<input type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	<input type="checkbox"/>	Swale or erosional feature?	
DP 14	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	<input type="checkbox"/>	Drift or debris (e.g., vegetative matter)	Upland area; no OHWM
			<input type="checkbox"/>	Change in vegetation species	<input type="checkbox"/>	Mud cracks	
			<input type="checkbox"/>	Change in vegetation cover	<input type="checkbox"/>	Bed and bank	
			<input type="checkbox"/>	Cut Bank or shelving/benches	<input type="checkbox"/>	Other (describe)	
			<input type="checkbox"/>	Water stains	<input checked="" type="checkbox"/>	Sheet flow area?	
			<input type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	<input type="checkbox"/>	Swale or erosional feature?	

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DP 15	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	<input type="checkbox"/>	Drift or debris (e.g., vegetative matter)	Cattle tank; no OHWM
			<input type="checkbox"/>	Change in vegetation species	<input type="checkbox"/>	Mud cracks	
			<input type="checkbox"/>	Change in vegetation cover	<input type="checkbox"/>	Bed and bank	
			<input type="checkbox"/>	Cut Bank or shelving/benches	<input type="checkbox"/>	Other (describe)	
			<input type="checkbox"/>	Water stains	<input checked="" type="checkbox"/>	Sheet flow area?	
			<input type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	<input type="checkbox"/>	Swale or erosional feature?	
DP 16	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	<input type="checkbox"/>	Drift or debris (e.g., vegetative matter)	Cattle tank; no OHWM
			<input type="checkbox"/>	Change in vegetation species	<input type="checkbox"/>	Mud cracks	
			<input type="checkbox"/>	Change in vegetation cover	<input type="checkbox"/>	Bed and bank	
			<input type="checkbox"/>	Cut Bank or shelving/benches	<input type="checkbox"/>	Other (describe)	
			<input type="checkbox"/>	Water stains	<input checked="" type="checkbox"/>	Sheet flow area?	
			<input type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	<input type="checkbox"/>	Swale or erosional feature?	
DP 17	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	<input type="checkbox"/>	Drift or debris (e.g., vegetative matter)	Cattle tank; no OHWM
			<input type="checkbox"/>	Change in vegetation species	<input type="checkbox"/>	Mud cracks	
			<input type="checkbox"/>	Change in vegetation cover	<input type="checkbox"/>	Bed and bank	
			<input type="checkbox"/>	Cut Bank or shelving/benches	<input type="checkbox"/>	Other (describe)	
			<input type="checkbox"/>	Water stains	<input checked="" type="checkbox"/>	Sheet flow area?	
			<input type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	<input type="checkbox"/>	Swale or erosional feature?	
DP 18	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	<input type="checkbox"/>	Drift or debris (e.g., vegetative matter)	Upland area; no OHWM
			<input type="checkbox"/>	Change in vegetation species	<input type="checkbox"/>	Mud cracks	
			<input type="checkbox"/>	Change in vegetation cover	<input type="checkbox"/>	Bed and bank	
			<input type="checkbox"/>	Cut Bank or shelving/benches	<input type="checkbox"/>	Other (describe)	
			<input type="checkbox"/>	Water stains	<input checked="" type="checkbox"/>	Sheet flow area?	
			<input type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	<input type="checkbox"/>	Swale or erosional feature?	
DP 19	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	<input type="checkbox"/>	Drift or debris (e.g., vegetative matter)	Upland area; no OHWM
			<input type="checkbox"/>	Change in vegetation species	<input type="checkbox"/>	Mud cracks	
			<input type="checkbox"/>	Change in vegetation cover	<input type="checkbox"/>	Bed and bank	
			<input type="checkbox"/>	Cut Bank or shelving/benches	<input type="checkbox"/>	Other (describe)	
			<input type="checkbox"/>	Water stains	<input checked="" type="checkbox"/>	Sheet flow area?	
			<input type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	<input type="checkbox"/>	Swale or erosional feature?	
DP 20	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	<input type="checkbox"/>	Drift or debris (e.g., vegetative matter)	Upland area; no OHWM
			<input type="checkbox"/>	Change in vegetation species	<input type="checkbox"/>	Mud cracks	
			<input type="checkbox"/>	Change in vegetation cover	<input type="checkbox"/>	Bed and bank	
			<input type="checkbox"/>	Cut Bank or shelving/benches	<input type="checkbox"/>	Other (describe)	
			<input type="checkbox"/>	Water stains	<input checked="" type="checkbox"/>	Sheet flow area?	
			<input type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	<input type="checkbox"/>	Swale or erosional feature?	
DP 21	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	<input type="checkbox"/>	Drift or debris (e.g., vegetative matter)	Upland area; no OHWM
			<input type="checkbox"/>	Change in vegetation species	<input type="checkbox"/>	Mud cracks	
			<input type="checkbox"/>	Change in vegetation cover	<input type="checkbox"/>	Bed and bank	
			<input type="checkbox"/>	Cut Bank or shelving/benches	<input type="checkbox"/>	Other (describe)	
			<input type="checkbox"/>	Water stains	<input checked="" type="checkbox"/>	Sheet flow area?	
			<input type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	<input type="checkbox"/>	Swale or erosional feature?	

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DP 22	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	<input type="checkbox"/>	Drift or debris (e.g., vegetative matter)	Upland area; no OHWM
			<input type="checkbox"/>	Change in vegetation species	<input type="checkbox"/>	Mud cracks	
			<input type="checkbox"/>	Change in vegetation cover	<input type="checkbox"/>	Bed and bank	
			<input type="checkbox"/>	Cut Bank or shelving/benches	<input type="checkbox"/>	Other (describe)	
			<input type="checkbox"/>	Water stains	<input checked="" type="checkbox"/>	Sheet flow area?	
			<input type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	<input type="checkbox"/>	Swale or erosional feature?	
DP 23	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	<input type="checkbox"/>	Drift or debris (e.g., vegetative matter)	Upland area; no OHWM
			<input type="checkbox"/>	Change in vegetation species	<input type="checkbox"/>	Mud cracks	
			<input type="checkbox"/>	Change in vegetation cover	<input type="checkbox"/>	Bed and bank	
			<input type="checkbox"/>	Cut Bank or shelving/benches	<input type="checkbox"/>	Other (describe)	
			<input type="checkbox"/>	Water stains	<input checked="" type="checkbox"/>	Sheet flow area?	
			<input type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	<input type="checkbox"/>	Swale or erosional feature?	
DP 24	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	<input type="checkbox"/>	Drift or debris (e.g., vegetative matter)	Upland area; no OHWM
			<input type="checkbox"/>	Change in vegetation species	<input type="checkbox"/>	Mud cracks	
			<input type="checkbox"/>	Change in vegetation cover	<input type="checkbox"/>	Bed and bank	
			<input type="checkbox"/>	Cut Bank or shelving/benches	<input type="checkbox"/>	Other (describe)	
			<input type="checkbox"/>	Water stains	<input checked="" type="checkbox"/>	Sheet flow area?	
			<input type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	<input type="checkbox"/>	Swale or erosional feature?	
DP 25	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	<input type="checkbox"/>	Drift or debris (e.g., vegetative matter)	Rabbit Canyon and Hidden Tank; no OHWM
			<input type="checkbox"/>	Change in vegetation species	<input type="checkbox"/>	Mud cracks	
			<input type="checkbox"/>	Change in vegetation cover	<input type="checkbox"/>	Bed and bank	
			<input type="checkbox"/>	Cut Bank or shelving/benches	<input type="checkbox"/>	Other (describe)	
			<input type="checkbox"/>	Water stains	<input checked="" type="checkbox"/>	Sheet flow area?	
			<input type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	<input type="checkbox"/>	Swale or erosional feature?	
DP 26	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	<input type="checkbox"/>	Drift or debris (e.g., vegetative matter)	Upland area; no OHWM
			<input type="checkbox"/>	Change in vegetation species	<input type="checkbox"/>	Mud cracks	
			<input type="checkbox"/>	Change in vegetation cover	<input type="checkbox"/>	Bed and bank	
			<input type="checkbox"/>	Cut Bank or shelving/benches	<input type="checkbox"/>	Other (describe)	
			<input type="checkbox"/>	Water stains	<input checked="" type="checkbox"/>	Sheet flow area?	
			<input type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	<input type="checkbox"/>	Swale or erosional feature?	
DP 27	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	<input type="checkbox"/>	Drift or debris (e.g., vegetative matter)	Upland area; no OHWM
			<input type="checkbox"/>	Change in vegetation species	<input type="checkbox"/>	Mud cracks	
			<input type="checkbox"/>	Change in vegetation cover	<input type="checkbox"/>	Bed and bank	
			<input type="checkbox"/>	Cut Bank or shelving/benches	<input type="checkbox"/>	Other (describe)	
			<input type="checkbox"/>	Water stains	<input checked="" type="checkbox"/>	Sheet flow area?	
			<input type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	<input type="checkbox"/>	Swale or erosional feature?	
DP 28	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	<input type="checkbox"/>	Drift or debris (e.g., vegetative matter)	Rabbit Canyon; no OHWM
			<input type="checkbox"/>	Change in vegetation species	<input type="checkbox"/>	Mud cracks	
			<input type="checkbox"/>	Change in vegetation cover	<input type="checkbox"/>	Bed and bank	
			<input type="checkbox"/>	Cut Bank or shelving/benches	<input type="checkbox"/>	Other (describe)	
			<input type="checkbox"/>	Water stains	<input checked="" type="checkbox"/>	Sheet flow area?	
			<input type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	<input type="checkbox"/>	Swale or erosional feature?	

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DP 29	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	<input type="checkbox"/>	Drift or debris (e.g., vegetative matter)	Upland area; no OHWM
			<input type="checkbox"/>	Change in vegetation species	<input type="checkbox"/>	Mud cracks	
			<input type="checkbox"/>	Change in vegetation cover	<input type="checkbox"/>	Bed and bank	
			<input type="checkbox"/>	Cut Bank or shelving/benches	<input type="checkbox"/>	Other (describe)	
			<input type="checkbox"/>	Water stains	<input checked="" type="checkbox"/>	Sheet flow area?	
			<input type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	<input type="checkbox"/>	Swale or erosional feature?	
DP 30	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	<input type="checkbox"/>	Drift or debris (e.g., vegetative matter)	Upland area; no OHWM
			<input type="checkbox"/>	Change in vegetation species	<input type="checkbox"/>	Mud cracks	
			<input type="checkbox"/>	Change in vegetation cover	<input type="checkbox"/>	Bed and bank	
			<input type="checkbox"/>	Cut Bank or shelving/benches	<input type="checkbox"/>	Other (describe)	
			<input type="checkbox"/>	Water stains	<input checked="" type="checkbox"/>	Sheet flow area?	
			<input type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	<input type="checkbox"/>	Swale or erosional feature?	
DP 31	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	<input type="checkbox"/>	Drift or debris (e.g., vegetative matter)	Upland area; no OHWM
			<input type="checkbox"/>	Change in vegetation species	<input type="checkbox"/>	Mud cracks	
			<input type="checkbox"/>	Change in vegetation cover	<input type="checkbox"/>	Bed and bank	
			<input type="checkbox"/>	Cut Bank or shelving/benches	<input type="checkbox"/>	Other (describe)	
			<input type="checkbox"/>	Water stains	<input checked="" type="checkbox"/>	Sheet flow area?	
			<input type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	<input type="checkbox"/>	Swale or erosional feature?	
DP 32	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	<input type="checkbox"/>	Drift or debris (e.g., vegetative matter)	Upland area; no OHWM
			<input type="checkbox"/>	Change in vegetation species	<input type="checkbox"/>	Mud cracks	
			<input type="checkbox"/>	Change in vegetation cover	<input type="checkbox"/>	Bed and bank	
			<input type="checkbox"/>	Cut Bank or shelving/benches	<input type="checkbox"/>	Other (describe)	
			<input type="checkbox"/>	Water stains	<input checked="" type="checkbox"/>	Sheet flow area?	
			<input type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	<input type="checkbox"/>	Swale or erosional feature?	
DP 33	N/A	N/A	<input type="checkbox"/>	Change in soil texture (e.g., sandy channel bottom)	<input type="checkbox"/>	Drift or debris (e.g., vegetative matter)	Upland area; no OHWM
			<input type="checkbox"/>	Change in vegetation species	<input type="checkbox"/>	Mud cracks	
			<input type="checkbox"/>	Change in vegetation cover	<input type="checkbox"/>	Bed and bank	
			<input type="checkbox"/>	Cut Bank or shelving/benches	<input type="checkbox"/>	Other (describe)	
			<input type="checkbox"/>	Water stains	<input checked="" type="checkbox"/>	Sheet flow area?	
			<input type="checkbox"/>	Sediment deposits (e.g., on rocks or vegetation)	<input type="checkbox"/>	Swale or erosional feature?	

Jurisdictional Waters Delineation Field Notes

Location: CO Bar Solar Energy Project, Coconino County, Arizona

Date: 5/21/2021

Field Staff: Corina Anderson and Hannah French

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NOTES:

Surface water present? If so, describe (pond/stream/lake; depth; flowing/still, etc.): No

Fish present? If so, did it take more than 10 minutes of extensive searching to find? No

Macroinvertebrates present? If so, did it take more than 10 minutes of extensive searching to find? No

Filamentous algae and/or periphyton present? If so, did it take more than 10 minutes of extensive searching to find? No

Difference in vegetation (pick one and describe):

- Dramatic vegetation species change, with distinct riparian/aquatic/wetland species dominant along the entire reach? No
- Distinct riparian vegetation corridor along part of the reach (interspersed with upland vegetation)? No
- Vegetation along the reach occurs at a greater density than upland areas, but no dramatic compositional difference? No
- No difference in vegetation between streambed and uplands? No

Rooted upland plants absent/present but rare/consistent dispersion/prevalent within streambed? N/A.

Dominant vegetation species in upland: longflower rabbitbrush (*Chrysothamnus depressus*), tulip pricklypear (*Opuntia phaeacantha*), rubber rabbitbrush (*Ericameria nauseosa*), broom snakeweed (*Gutierrezia sarothrae*), oneseed juniper (*Juniperus monosperma*), two-needle pinyon (*Pinus edulis*), Fremont's mahonia (*Mahonia fremontii*), whipple cholla (*Cylindropuntia whipplei*), and prickly Russian thistle (*Salsola tragus*). Dominant grasses observed include blue grama (*Bouteloua gracilis*), squirreltail (*Elymus elymoides*), Indian ricegrass (*Achnatherum hymenoides*), New Mexico featherglass (*Hesperostipa neomexicana*), sideoats grama (*Bouteloua curtipendula*), and slender wheatgrass (*Elymus trachycaulus*).

Dominant vegetation species along streams (separate species lists by stream, if different): N/A

Soil particle size difference/sediment sorting between streambed and upland? N/A

Streambed substrate composition (silt, cobbles, bedrock, sands, gravel, muck, vegetation, concrete, etc.)? N/A

EXHIBIT C. AREAS OF BIOLOGICAL WEALTH

As stated in the Arizona Corporation Commission Rules of Practice and Procedure R14-3-219:

Describe any areas in the vicinity of the proposed site or route which are unique because of biological wealth or because they are habitats for rare and endangered species. Describe the biological wealth or species involved and state effects, if any, the proposed facilities will have thereon.

Introduction

The 1886 Solar Energy Station Interconnection Project (Interconnection Project) would be built on open ranchland just north of and parallel to the existing Moenkopi to Cedar Mountain 500-kilovolt transmission line right-of-way. Unpaved ranch roads cross under and run along the length of the existing transmission lines. Throughout Exhibit C, the term Study Area refers to a 1-mile area buffered around the Interconnection Project.

Methods

Areas of biological wealth and the rare and endangered species that may occur at or in the vicinity of the proposed Interconnection Project were identified through a biotic resource review using the following resources:

- The U.S. Fish and Wildlife Service (USFWS) official species list for the Interconnection Project obtained from the USFWS online Information for Planning and Consultation (IPaC) System (USFWS 2023a; Attachment C-1).
- Species information obtained from the Arizona Game and Fish Department (AGFD) Online Environmental Review Tool (AGFD 2023a; Attachment C-2).
- Land cover, wetland, elevation data, and species descriptions from a variety of authoritative sources.

In addition, biologists with SWCA Environmental Consultants (SWCA) have conducted field reconnaissance in portions of the Study Area and completed extensive wildlife surveys in the vicinity.

Results

Areas of Biological Wealth

No designated or proposed critical habitats, wetlands, riparian areas, or Important Bird Areas are within or adjacent to the 1-mile Study Area; however, the AGFD (2023a) identified an Important Connectivity Zone and two wildlife linkages that intersect with the Study Area. Each wildlife linkage is an area, or corridor, used by wildlife to move between or within habitat blocks to complete activities necessary for survival and reproduction (AGFD 2011a). The Dog Knobs–Ebert Mountain–Government Prairie linkage connects pinyon–juniper (*Pinus* spp.–*Juniperus* spp.) woodland, ponderosa pine (*Pinus ponderosa*) forest, and grasslands and is important for the regional movement of pronghorn (*Antilocapra americana*

americana), mule deer (*Odocoileus hemionus*), black bear (*Ursus americanus*), and mountain lion (*Puma concolor*).

The South Rim–San Francisco Peaks–Woody Ridge/Bellemont Area wildlife linkage connects canyons, coniferous forest, and grasslands, and is important for sentry milkvetch (*Astragalus cremnophylax* var. *cremnophylax*), mule deer, elk (*Cervus elaphus*), and Gunnison’s prairie dog (*Cynomys gunnisoni*) (AGFD 2011a).

Rare and Endangered Species

The USFWS (2023a) and AGFD (2023a) provided lists of special-status species that should be considered in an effects analysis for the Interconnection Project. These species and the likelihood of their presence in the vicinity of the Interconnection Project are addressed below in three sections: 1) Federally Listed and Candidate Species, 2) Other Special-Status Species, and 3) State-Protected Native Plant Species.

Federally Listed and Candidate Species

Five federally listed or candidate species were identified by the USFWS (2023a) in its official species list for the Interconnection Project. These species include one mammal (Mexican wolf [*Canis lupus baileyi*]), two birds (Mexican spotted owl [*Strix occidentalis lucida*] and yellow-billed cuckoo [*Coccyzus americanus*]), one insect (monarch butterfly [*Danaus plexippus*]), and one plant (Fickeisen plains cactus [*Pediocactus peeblesianus* ssp. *Fickeiseniae*]). The Interconnection Project’s 1-mile Study Area is within the geographical/elevational range and contains appropriate habitat conditions for only one of the five species: the monarch butterfly (Table C-1). The other four species are unlikely to occur in the Study Area (see Table C-1)

Table C-1. Federally Listed and Candidate Species Reviewed for Their Potential to Occur in the Study Area

Common Name (Scientific Name)	Status*		Range or Habitat Requirements	Potential for Occurrence in Study Area
	Federal	State		
Mexican wolf (<i>Canis lupus baileyi</i>)	E, EXPN	SGCN Tier 1	Inhabits oak (<i>Quercus</i> spp.) and pine/juniper (<i>Pinus</i> spp./ <i>Juniperus</i> spp.) savannas in foothills and mixed-conifer woodlands above 4,000 feet above mean sea level (amsl).	Unlikely to occur. The Study Area is approximately 30 miles north of the Mexican Wolf Experimental Population Area, the northern border of which runs along Interstate 40. Wolves that stray outside the Mexican Wolf Experimental Population Area are captured and returned (personal communication, Corina Anderson, SWCA, and Ryan Gordon, USFWS). According to USFWS radio collar tracking data, the nearest recent record of a Mexican wolf was approximately 90 miles southeast of the Study Area in the Apache-Sitgreaves National Forests.
Mexican spotted owl (<i>Strix occidentalis lucida</i>)	T	SGCN Tier 1	Found in mature montane forests and woodlands and steep, shady, wooded canyons. Generally, nests in older forests of mixed conifers or ponderosa pine–Gambel oak (<i>Pinus ponderosa–Quercus gambelii</i>) in live trees, snags, and canyon walls at elevations between 4,100 and 9,000 feet amsl.	Unlikely to occur. The Study Area does not contain suitable nesting and roosting habitat for this species. Critical habitat for this species is in the Kaibab National Forest, approximately 7 miles south of the Interconnection Project.

Common Name (Scientific Name)	Status*		Range or Habitat Requirements	Potential for Occurrence in Study Area
	Federal	State		
Yellow-billed cuckoo (<i>Coccyzus americanus</i>)	T	SGCN Tier 1	Typically found in riparian woodland vegetation (cottonwood [<i>Populus</i> spp.], willow [<i>Salix</i> spp.], or saltcedar [<i>Tamarix</i> spp.]) at elevations below 6,600 feet amsl. Dense understory foliage appears to be an important factor in nest site selection.	Unlikely to occur. The Study Area does not contain suitable habitat parameters; there is no riparian woodland vegetation or dense understory foliage in or near the Study Area. Critical habitat for this species is approximately 50 miles south of the Study Area along the Verde River.
Monarch butterfly (<i>Danaus plexippus</i>)	C	–	Monarch butterflies are a migratory species found in a variety of habitats, often near water sources. They require milkweed (<i>Asclepias</i> spp.) for breeding. Populations in Arizona overwinter in Mexico and California, more rarely in the low deserts of Arizona.	May occur. See below for details.
Fickeisen plains cactus (<i>Pediocactus peeblesianus</i> ssp. <i>Fickeiseniae</i>)	E, EXPN	ANPL	Populations are found on gravelly limestone or gravelly loam in desertscrub at elevations between 4,200 and 5,950 feet amsl. Known to occur in the vicinity of Cataract Canyon, Mays Canyon, and the community of Gray Mountain in Coconino County and the Arizona Strip in Coconino and Mohave Counties.	Unlikely to occur. The Study Area is outside the species' known geographic range, is above the species' elevational range of 4,200 to 5,950 feet amsl and contains no soil types associated with the species. The nearest critical habitat is approximately 23 miles to the northeast in the vicinity of Gray Mountain, Arizona, and the nearest species record is within that critical habitat unit.

Note: All species were listed in USFWS (2023a). Potential occurrence determination based on information from AGFD (2023b, 2023c) ArcGIS (2023), Arizona Rare Plant Committee (2023), Corman and Wise-Gervais (2005), Morris et al. 2015, USFWS (2016, 2020, 2023b).

* Federal status definitions

C = Candidate for listing; E = Endangered – species in danger of extinction throughout all or a significant portion of its range; EXPN = Experimental population, non-essential; T = Threatened species likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

* State status definitions

ANPL = Protected by the Arizona Native Plant Law; SGCN = Species of Greatest Conservation Need, wildlife species identified by AGFD (2022a) as having conservation priority. SGCN Tier 1 species are those categorized by AGFD (2022a) as “highest priority vulnerable” species.

MONARCH BUTTERFLY

The monarch butterfly is a candidate species for listing. There are generally no provisions in the Endangered Species Act, as amended (ESA) (16 United States Code 1531 et seq.) for candidate species, but the USFWS encourages opportunities to conserve the species. Adult monarchs feed on the nectar of many flowers during breeding and migration but they lay eggs only on milkweed (*Asclepias* spp.) plants. The species occurs throughout Arizona during the summer and migrates to winter in Mexico and California, though small numbers do overwinter in the low deserts of southwestern Arizona (Morris et al. 2015; USFWS 2020; USFWS 2023b). In the southwestern United States, migrating monarchs often occur near water sources such as rivers, creeks, riparian corridors, roadside ditches, and irrigated gardens.

The Study Area is within the summer range for the species and contains suitable nectar-producing species for monarch foraging, such as rabbitbrush (*Chrysothamnus* spp.) and thistles (*Cirsium* spp.).

Other Special-Status Species

Other special-status species considered for the Interconnection Project fall into the following conservation categories:

1. The eagle species, bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*), protected by the Bald and Golden Eagle Protection Act (BGEPA).
2. Birds of Conservation Concern (BCC), which are bird species, beyond those designated as federally threatened or endangered, that represent the USFWS's highest conservation priorities (USFWS 2021). The BCC for the Interconnection Project are those that occur in Bird Conservation Region 34.
3. Species of Greatest Conservation Need (SGCN) in Arizona, which are species identified by the AGFD (2022a) as warranting heightened attention because of low and declining populations. SGCN are prioritized into three tiers. Tier 1 species include federally listed taxa (or those requiring post-delisting monitoring); species protected under the BGEPA; closed-season species; and species covered by AGFD-signed conservation agreements, a conservation strategy and assessment, or a strategic conservation plan. Tier 2 represents the remainder of the species meeting the vulnerability criteria. Tier 3 species are those for which the AGFD was unable to assess status and thus represent priority research and information needs. Only Tier 1 and 2 species are addressed in this document.

Table C-2 lists special-status species identified by the AGFD (2023a) that may occur in the Study Area because the area falls within the species' predicted range. Also included in Table C-2 are species not identified by the AGFD (2023a) but may occur in the Study Area because they were observed in the vicinity by SWCA biologists, and suitable habitat is present. Table C-3 lists species identified by the AGFD (2023a) but are unlikely to occur in the Study Area because it is outside their geographic range and/or lacks suitable habitat.

BALD AND GOLDEN EAGLE PROTECTION ACT SPECIES

Both bald eagles and golden eagles may occur in the Study Area (see Table C-2).

BIRDS OF CONSERVATION CONCERN AND STATE SPECIES

A total of 55 BCC and SGCN (excluding the two eagle species) may occur in the Study Area because the area falls within the species' predicted range and contains suitable habitat (see Table C-2).

State-Protected Native Plant Species

The Arizona Native Plant Law (ANPL) (Arizona Revised Statutes 3-904) identifies a lengthy list of plant species—largely cacti, agaves, yuccas, and desert trees—that are susceptible to removal for collection, landscaping, sale, or other commercial uses. The ANPL states that these plants shall not be taken, transported, or possessed from any land without permission and a permit from the Arizona Department of Agriculture; it also requires notification prior to land clearing even if the plants will be destroyed. Protected native plants classified under the ANPL are present in areas potentially disturbed by construction activities.

Table C-2. Other Special-Status Species that May Occur in the Study Area

Common Name (Scientific Name)	Status*		Habitat/Range Requirements	Potential for Occurrence in Study Area
	Federal	State		
Birds				
American kestrel (<i>Falco sparverius</i>)	-	SGCN Tier 2	Favors open settings including deserts and grasslands with scattered trees or other structures for perching and nesting; also reported in open pinyon-juniper (<i>Pinus spp.~Juniperus</i>) woodlands. Found year-round in most of Arizona at elevations ranging from approximately 100 to 9,500 feet above mean sea level (amsl).	May occur. The Study Area is within the year-round range and contains appropriate habitat associations.
American peregrine falcon (<i>Falco peregrinus anatum</i>)	-	SGCN Tier 1	Found in a variety of biomes; generally associated with cliffs and open landscapes. Year-round range includes almost all of Arizona.	May occur. The Study Area is within the year-round range and contains appropriate habitat associations.
Bald eagle (<i>Haliaeetus leucocephalus</i>)	BGEPA	SGCN Tier 1	Found in areas with open water, or in arid regions, areas with available food (small birds, rodents, and carrion), and roost sites. Non-breeding eagles range throughout Arizona except for the south-central portion of the state; breeding eagles occur in limited, fragmented locations of central, east-central, and west-central portions of the state.	May occur. The Study Area is within the non-breeding range and food resources are available.
Black-throated gray warbler (<i>Setophaga nigrescens</i>)	-	SGCN Tier 2	Habitat includes open coniferous or mixed coniferous-deciduous woodland with brushy undergrowth, pinyon-juniper and pine-oak (<i>Pinus</i> spp. - <i>Quercus</i> spp.) associations, and oak scrub. Breeding range includes northern and eastern Arizona; migration range includes central and southwestern portions of the state.	May occur. The Study Area is within the breeding range and contains pinyon-juniper woodlands.
Brewer's sparrow (<i>Spizella breweri</i>)	-	SGCN Tier 2	Occupies deserts/scrub-dominated landscapes; most occupied locations are characterized by big sagebrush (<i>Artemisia tridentata</i>) and saltbush (<i>Atriplex</i> spp.) but may also contain other sagebrush and low woody species with a mixture of native and nonnative grasses. Also reported in adjacent grasslands composed of scattered junipers and low woody shrubs. Breeding range includes the Coconino Plateau south of the Grand Canyon, at elevations from approximately 4,300 to 7,400 feet amsl.	May occur. The Study Area is within the breeding range and contains appropriate habitat associations.
Bullock's oriole (<i>Icterus bullockii</i>)	-	SGCN Tier 2	Closely associated with a variety of riparian communities but also breeds in drier habitats such as pinyon-juniper or evergreen oak woodlands and occasionally at higher elevations in montane riparian areas. Nesting from approximately 150 to 7,700 feet amsl in northern Arizona and the east half of the state.	May occur. The Study Area is within the breeding range and pinyon-juniper habitat is present.
Cassin's finch (<i>Haemorhous cassinii</i>)	-	SGCN Tier 2	Occupies open coniferous forest over a broad elevational range, including ponderosa pine (<i>Pinus ponderosa</i>) and pinyon pine associations. Non-breeding range includes central, east-central, and southeastern portions of Arizona; year-round range includes north-central and northeastern portions of the state.	May occur. The Study Area is within the species' non-breeding range and contains open pinyon-juniper woodlands.

Common Name (Scientific Name)	Status*		Habitat/Range Requirements	Potential for Occurrence in Study Area
	Federal	State		
Chestnut-collared longspur (<i>Calcarius ornatus</i>)	BCC	SGCN Tier 2	Occupies desert grasslands dominated by low grasses and forbs; flocks to isolated water sources. Tends to be more abundant in habitat where prairie dog colonies are present. Non-breeding range includes east half of Arizona.	May occur. The Study Area is within the non-breeding range and contains grassland habitat.
Common nighthawk (<i>Chordeiles minor</i>)	-	SGCN Tier 2	Found in a variety of open habitats, including sagebrush and desert grassland, prairies and plains, open forests, croplands, rock outcrops, and gravel rooftops. Breeding range includes northern, central, and eastern Arizona.	May occur. The Study Area is within the breeding range and contains appropriate habitat associations.
Ferruginous hawk (<i>Buteo regalis</i>)	-	SGCN Tier 2	Inhabits grasslands, shrub-steppe, pinyon-juniper, sparse riparian forests, and canyon areas with cliffs and rock outcrops. Year-round range includes roughly the north half of Arizona; wintering range includes roughly the south half of the state.	May occur. The Study Area is within the year-round range and contains appropriate habitat associations.
Golden eagle (<i>Aquila chrysaetos</i>)	BGEPA	SGCN Tier 2	Mountainous canyon land, rimrock terrain of open desert, grassland, and forested areas. Year-round range includes all of Arizona.	May occur. The Study Area is within the year-round range and contains appropriate habitat associations.
Gray flycatcher (<i>Empidonax wrightii</i>)	-	SGCN Tier 2	Prefers arid pinyon-juniper woodlands; infrequently in grasslands and desertscrub where these trees are few and scattered. Common breeder and summer resident from the Mogollon Rim north at elevations from approximately 4,300 to 7,600 feet amsl.	May occur. The Study Area is within the breeding range and contains appropriate habitat associations.
Gray vireo (<i>Vireo vicinior</i>)	-	SGCN Tier 2	Forages and nests on dry, mid-elevation slopes dominated by open stands of junipers and the adjacent cold-temperate grasslands with small, scattered juniper stands. Widely distributed across northern Arizona, east to the Carrizo and Chuska ranges in northern Apache County and as far west as the Hualapai and McCracken ranges in Mohave County. Breeds across the northeast half of the state.	May occur. The Study Area is within the breeding range and contains pinyon-juniper woodlands.
Lewis's woodpecker (<i>Melanerpes lewis</i>)	BCC	SGCN Tier 2	Found in ponderosa pine and open riparian forests with brushy understory and dead or downed woody material; may also use oak, pinyon-juniper, and pine-fir (<i>Pinus</i> spp.-- <i>Abies</i> spp.-- <i>Pseudotsuga menziesii</i>) woodlands, and nut and fruit orchards. Year-round range includes northern Arizona. Non-breeding range includes northwestern, central, and southeastern portions of the state.	May occur. The Study Area is within the year-round range and contains pinyon-juniper woodlands habitats.
Lincoln's sparrow (<i>Melospiza lincolni</i>)	-	SGCN Tier 2	Breeds in willow- (<i>Salix</i> spp.), sedge- (Cyperaceae), and moss-dominated habitats, mixed-deciduous wood groves, and black spruce-tamarisk bogs. Uses shrub-dominated habitats, particularly riparian sites, but also brushy forest edges and weedy fields during migration. Uses pine-oak forests, freshwater habitats, coniferous forests, and brushy fields in winter. Non-breeding range includes southwestern and east-central Arizona. Migration range includes northeastern Arizona. Isolated breeding locations are known in north-central and east-central portions of the state.	May occur. The Study Area is along the boundary of the migration range and an isolated portion of its fragmented breeding range and contains shrubby/brushy habitats.

Common Name (Scientific Name)	Status*		Habitat/Range Requirements	Potential for Occurrence in Study Area
	Federal	State		
Long-eared owl (<i>Asio otus</i>)		SGCN Tier 2	Roosts in dense vegetation, forages in open grasslands or shrublands. Known to nest in willows, cottonwoods (<i>Populus</i> spp.), and junipers adjacent to shrub-steppe. Found year-round throughout most of Arizona.	May occur. The Study Area is within the year-round range and contains open grasslands, shrub-steppe, and junipers.
Northern goshawk (<i>Accipiter gentilis</i>)	-	SGCN Tier 2	Occupies ponderosa pine forests; may also use Douglas-fir (<i>Pseudotsuga menziesii</i>), various pine, and aspen forests. May hunt in habitats ranging from open steppes to dense forests. Year-round range includes higher elevations in roughly the east half of Arizona.	May occur. The Study Area is within the year-round range and contains open foraging habitat.
Pinyon jay (<i>Gymnorhinus cyanocephalus</i>)	BCC	SGCN Tier 2	Associated with pinyon-juniper woodland; also found in sagebrush, scrub oak, and chaparral. Year-round range includes north half of Arizona.	May occur. The Study Area is within the year-round range and contains appropriate habitat.
Prairie falcon (<i>Falco mexicanus</i>)	-	SGCN Tier 2	Inhabits desertscrub and grasslands, often dominated by a mixture of grasses, sagebrush, and other low growing shrubs. Found year-round throughout most of Arizona. Nests statewide on ledges and within crevices and potholes of cliffs, canyon walls, and rocky ridges at elevations ranging from approximately 500 to 9,000 feet amsl.	May occur. The Study Area is within the year-round range and contains appropriate habitat.
Sage thrasher (<i>Oreoscoptes montanus</i>)	-	SGCN Tier 2	Breeds in northern Arizona, exclusively in shrub-steppe habitats. Expanses of dense sagebrush provide concealment, whereas bare ground provides foraging opportunities. During migration and winter, they transition to grasslands with scattered shrubs and open pinyon-juniper woodlands.	May occur. The Study Area is within the breeding range and contains appropriate habitat associations.
Savannah sparrow (<i>Passerculus sandwichensis</i>)	-	SGCN Tier 2	Occupies grasslands with few trees, including meadows, pastures, grassy roadsides, sedge wetlands, and cultivated fields. Breeding range includes most of Arizona north of the Mogollon Rim; non-breeding range includes the rest of the state. In Arizona nests only in high-elevation grasslands and larger mountain meadows, typically where the soil was damp at elevations primarily between 8,700 and 9,300 feet amsl.	May occur as a migrant or forager. The Study Area is within the year-round range but lacks breeding habitat.
Townsend's solitaire (<i>Myadestes townsendi</i>)	-	SGCN Tier 2	In Arizona, associated with high-elevation forests and mountain slopes; wintering habitat includes juniper trees with a few scattered tall pines for perching. Range includes all of Arizona except the southwestern deserts. Breeding range north of the Mogollon Rim; non-breeding range south of the Mogollon Rim. Breeds at elevations ranging from approximately 6,500 to 11,000 feet amsl.	May occur. The Study Area is within the breeding range but does not contain typical high-elevation nesting habitat. Species would most likely occur as a wintering bird.
Vesper sparrow (<i>Pooecetes gramineus</i>)	-	SGCN Tier 2	Commonly associated with dry grassland often containing widely scattered junipers, low woody shrubs, various forbs, and mixed native and nonnative grasses. Winters south of the Mogollon Rim and moves into northern Arizona in early March to breed. Nests on the ground, under grass clumps or near the base of shrubs at elevations ranging from approximately 5,600 to 9,500 feet amsl.	May occur. The Study Area is within the breeding range and contains appropriate habitat associations.

Common Name (Scientific Name)	Status*		Habitat/Range Requirements	Potential for Occurrence in Study Area
	Federal	State		
Western screech-owl (<i>Megascops kennicottii</i>)	-	SGCN Tier 2	Found year-round throughout much of the state in a variety of woodland habitats, including Sonoran Desert uplands, pinyon-juniper woodlands, and lowland wooded drainages. Nests primarily at elevations from 180 to 6,500 feet amsl but has been detected at elevations to just above 7,500 feet amsl on dry mountain slopes with pinyon-juniper woodlands.	May occur. The Study Area is within the year-round range and contains appropriate habitat associations.
Mammals				
Allen's lappet-browed bat (<i>Idionycteris phyllotis</i>)	-	SGCN Tier 2	Typically found in ponderosa pine, pinyon-juniper, and Madrean pine-oak woodlands, as well as riparian woodlands at elevations from approximately 1,300 to 9,800 feet amsl. Commonly associated with boulder piles, cliffs, rocky outcrops, and lava flows. Roosts in caves, abandoned mines, and large trees or cliffs. Ranges from the northwest corner to the southeast corner of the state.	May occur. The Study Area is within the known range for the species and pinyon-juniper woodlands are present.
American pronghorn (<i>Antilocapra americana americana</i>)	-	SGCN Tier 2	Inhabits grasslands, sagebrush plains, deserts, and foothills. In Arizona, range includes a narrow band of scattered populations from east-central through north-central and northwestern portions of the state. Also, a small, fragmented range in southeastern portion of the state.	May occur. The Study Area is within the known range for the species and contains grasslands.
Big free-tailed bat (<i>Nyctinomops macrotis</i>)	-	SGCN Tier 2	Primarily inhabits rugged, rocky country, roosting in rock crevices in cliffs, caves, buildings, and tree holes. Plant associations include subalpine meadow, sage grassland, ponderosa pine, pinyon-juniper woodland, lowland desertscrub, earthen stock tanks in desertscrub, and Sonoran Desert riparian areas at elevations ranging from approximately 1,800 to 8,500 feet amsl. Found throughout most of the state, but most records are from northern Arizona.	May occur. The Study Area is within the known range for the species and contains appropriate habitat associations.
Brazilian free-tailed bat (<i>Tadarida brasiliensis</i>)	-	SGCN Tier 2	Occupies a wide variety of habitats from desert communities through pinyon-juniper woodlands and pine-oak forests at elevations up to approximately 9,000 feet amsl. Maternity colonies and roosts found in limestone caves, abandoned mines, bridges, buildings, and hollow trees. Range is throughout Arizona.	May occur. The Study Area is within the known range for the species and pinyon-juniper woodlands are present.
Fringed myotis (<i>Myotis thysanodes</i>)	-	SGCN Tier 2	Occurs primarily in middle elevation habitats in deserts, grasslands, and most commonly, oak and pinyon-juniper woodlands at elevations from approximately 4,000 to 8,500 feet amsl. Roosts in caves, mine tunnels, in large snags, under exfoliating bark, and in buildings. Ranges throughout much of Arizona except the northeast and southwest corners.	May occur. The Study Area is within the known range for the species, and grasslands and pinyon-juniper woodlands are present.
Greater western bonneted bat (<i>Eumops perotis californicus</i>)	-	SGCN Tier 2	Associated with variety of habitats, including chaparral, oak woodlands, mixed xeric shrubland and riparian woodlands, ponderosa pine woodlands, floodplains, desert washes, grasslands, agricultural areas, and water bodies below 8,500 feet amsl. Roosts in vertical cliffs and buildings. In Arizona, range includes central, northwestern, western, and southern portions of the state.	May occur. The Study Area is within the known range for the species and pinyon-juniper woodlands are present.

Common Name (Scientific Name)	Status*		Habitat/Range Requirements	Potential for Occurrence in Study Area
	Federal	State		
Gunnison's prairie dog (<i>Cynomys gunnisoni</i>)	-	SGCN Tier 1	Occupies gently sloping grasslands and semidesert and montane shrublands between 4,600 and 12,000 feet amsl. In Arizona, range includes central and northeastern portions of the state.	May occur. The Study Area is within the known range for the species and contains appropriate habitat associations.
Hoary bat (<i>Lasiurus cinereus</i>)	-	SGCN Tier 2	Prefers deciduous and coniferous forests and woodlands, juniper scrub, riparian forest, and desert habitats at elevations from 485 to 9,900 feet amsl. Roosts primarily among foliage in trees. Ranges statewide.	May occur. The Study Area is within the known range for the species and contains appropriate habitat associations.
Least chipmunk (<i>Neotamias minimus</i>)	-	SGCN Tier 2	Inhabits a broad range of habitats, including montane forests and meadows, ponderosa forests, pinyon-juniper woodlands, shrublands, and rocky areas. Its geographic range includes northern Arizona.	May occur. The Study Area is within the known range for the species and contains appropriate habitat associations.
Pale Townsend's big-eared bat (<i>Corynorhinus townsendii pallescens</i>)	-	SGCN Tier 1	Associated with mesic forested habitats but occupies a broad range of habitats, including arid scrub, pine forest, pinyon-juniper, and wooded canyons between 500 and 8,400 feet amsl. Day roosts and maternity and hibernation colonies in caves, mines, or buildings. Night roosts may include caves, buildings, and tree cavities. Range is throughout Arizona.	May occur. The Study Area is within the known range for the species and contains appropriate habitat associations.
Southwestern myotis (<i>Myotis auriculatus</i>)	-	SGCN Tier 2	Known from desertscrub, desert grasslands, mesquite (<i>Prosopis</i> spp.), and chaparral to pinyon-juniper woodland and pine-fir forest at elevations from approximately 1,200 to 7,300 feet amsl. Night roosts include caves, mines, and buildings.	May occur. The Study Area contains appropriate habitat associations.
Spotted bat (<i>Euderma maculatum</i>)	-	SGCN Tier 2	Occupies a variety of habitats, including low to high deserts, riparian areas, pinyon-juniper woodland, and ponderosa pine and spruce-fir forests below 10,600 feet amsl. Roosts in crevices and cracks of cliff faces; sometimes roosts in caves or in buildings near cliffs. Range is throughout Arizona.	May occur. The Study Area is within the known range for the species and contains appropriate habitat associations.
Stephen's woodrat (<i>Neotoma stephensi</i>)	-	SGCN Tier 2	Rocky areas in pinyon-juniper woodlands. In Arizona, found roughly in north half of the state.	May occur. The Study Area is within the geographic range and contains appropriate habitat associations.
Western red bat (<i>Lasiurus blossevillii</i>)	-	SGCN Tier 2	Uses broadleaf deciduous riparian forests and wooded areas, and preferentially roosts in cottonwood trees and dense foliage. Generally distributed in south-central to southern and southeastern Arizona at elevations between 1,900 and 7,200 feet amsl.	May occur. Although broadleaf deciduous woodlands are not present, the Study Area is within the species' range.
Yuma myotis (<i>Myotis yumanensis</i>)	-	SGCN Tier 2	Associated with a wide variety of upland and lowland habitats (within wide range of elevations from sea level to 11,000 feet amsl), including riparian, desertscrub, moist woodlands, and forests, where it prefers cliffs and rocky walls near water. Roosts in caves, mines, cliff crevices, buildings, bridges, and similar structures. Nursery colonies in buildings, caves, mines, and bridges. Ranges throughout Arizona except for the south-central portion of the state.	May occur. The Study Area is within the known range for the species and contains appropriate habitat associations.

Notes: Includes Arizona SGCN Tier 1 and 2 species listed in the AGFD (2023a) Environmental Review Tool report, Birds of Conservation Concern for Bird Conservation Region 34 (USFWS 2021), and USFWS 2023a.

Range or habitat requirement information and potential occurrence justification from AGFD (2001, 2002, 2003a, 2003b, 2004, 2011b, 2011c, 2020, 2022b, 2022c, 2022d, 2022e, 2022g), Ammerman et al. (2012), Billerman et al. (2020), Corman and Wise-Gervais (2005), Environmental Conservation Online System (2023), Hoffman (1986), Katzner (2020), NatureServe Explorer (2023), Reid (2006), SEINet (2023).

• Federal Status Definitions

BCC = Bird of Conservation Concern; BGEPA = Bald and Golden Eagle Protection Act.

• State Status Definitions

ANPL = Protected by the Arizona Native Plant Law, Salvage Restricted; SGCN = Species of Greatest Conservation Need, wildlife species identified by AGFD (2022a) as having conservation priority, SGCN Tier 1 species are those categorized by AGFD (2022a) as "highest priority vulnerable" species. Tier 2 represents the remainder of the species meeting the vulnerability criteria.

Table C-3. Other Special-Status Species Unlikely to Occur in the Study Area

Common Name (Scientific Name)	Status*		Habitat/Range Requirements	Potential for Occurrence in Study Area
	Federal	State		
Amphibians				
Northern leopard frog (<i>Lithobates pipiens</i>)	-	SGCN Tier 1	Occupies aquatic systems in a variety of habitats, including grassland, brushland, woodland, and forest ranging into high mountains. Usually found in permanent water with rooted aquatic vegetation; also frequents ponds, canals, marshes, springs, and streams. May be found in upland areas when dispersing to new breeding areas. Found up to 11,000 feet amsl.	Unlikely to occur. The Project Area is within the known geographic range for the species; however, there is no perennial aquatic habitat present, and the species has not reported by AGFD within 3 miles of the Study Area.
Birds				
Gila woodpecker (<i>Melanerpes uropygialis</i>)	-	SGCN Tier 2	Known from the Sonoran Desert in southern Arizona containing saguaros (<i>Carnegiea</i> sp.) and adjacent timbered drainages and residential shade at elevations from approximately 150 to 4,800 feet amsl.	Unlikely to occur. The Study Area is outside the species' range and no Sonoran Desert habitat is present in or near the Study Area.
Northern pygmy-owl (<i>Glaucidium gnoma californicum</i>)	-	SGCN Tier 2	In northern Arizona, reported in ponderosa pine forests and less frequently in denser woodlands of pinyon-juniper. Found year-round throughout most of Arizona. Nests at elevations from approximately 3,600 to 10,500 feet amsl.	Unlikely to occur. While the Study Area is within the year-round range and contains pine-juniper woodlands, the woodlands are not dense.
Mammals				
Gray-collared chipmunk (<i>Neotamias cinereicollis</i>)	-	SGCN Tier 2	Found in high mountain clearings and forest edges, in pine, spruce, and fir forests. May use oak-juniper habitats in some areas. In Arizona, range includes central and east-central portions of the state.	Unlikely to occur. The Study Area is north of the geographic range.

Notes: Includes Arizona SGCN Tier 1 and 2 species listed in the AGFD (2023a) Environmental Review Tool report.

Range or habitat requirement information and potential occurrence justification from AGFD (2003c, 2003d, 2005, 2011d, 2021, 2022f), Brennan (2012), Corman and Wise-Gervais (2005), SEINet (2023).

*. State Status Definitions

ANPL = Protected by the Arizona Native Plant Law, Salvage Restricted; SGCN = Species of Greatest Conservation Need, wildlife species identified by AGFD (2022a) as having conservation priority. SGCN Tier 1 species are those categorized by AGFD (2022a) as "highest priority vulnerable" species. Tier 2 represents the remainder of the species meeting the vulnerability criteria.

Assessment of Potential Effects

The transmission line structures would permanently remove habitat potentially used by special-status species on an estimated 0.04 acre (i.e., the area occupied by the footprint of all permanent transmission structures planned for the Interconnection Project). An additional estimated 64 acres of habitat would temporarily be lost at laydown and pulling and tensioning sites. Additional construction impacts such as noise and human activity would be temporary and of short duration.

Areas of Biological Wealth

An Important Connectivity Zone and two wildlife linkages intersect the Study Area (AGFD 2023a). The wildlife species that currently move through these linkages do so in the presence of two existing transmission lines and an existing transmission line access road. These animals are unlikely to change their movement patterns if an additional transmission line is added parallel to the existing features. The sentry milkvetch, an endangered plant species, was not identified by either the USFWS (2023a) or the AGFD (2023a) as a species of concern for the Interconnection Project and is not likely to occur in the Study Area.

Federally Listed and Candidate Species

MONARCH BUTTERFLY

Approximately 64 acres of potential foraging, breeding, and migration habitat for the monarch would be temporarily disturbed by the Interconnection Project, and approximately 0.04 acre would be removed permanently. This represents a small reduction in the amount of potential habitat available for nectar sources in the Study Area, which may reduce foraging opportunities for monarchs.

During construction, direct mortality to monarchs may also occur from collision with or crushing by vehicles or clearance of vegetation with monarch eggs or larvae. There would also be potential for direct mortality of individual monarchs during operation of the Interconnection Project, but it would be significantly less than during construction.

Due to the small area of ground disturbance and permanent removal of 0.04 acre of vegetation within the Interconnection Project, the abundance of similar habitat features surrounding the Interconnection Project (i.e., expanses of rabbitbrush for forage and other nectar sources), negligible effects from potential vehicle strikes, and the lack of water sources, effects on monarch butterflies from the Interconnection Project are anticipated to be insignificant.

Minimization Measures: best management practices that will be implemented to minimize impacts to the monarch butterfly include minimizing areas of ground disturbance, dust suppression, washing vehicles and equipment prior to entering the Interconnection Project right-of-way, and revegetation of temporary construction workspace according to a revegetation and restoration plan approved by Coconino County as part of the County's permitting process. With these best management practices in place, impacts to nectar resources would be negligible and localized.

Other Special-Status Species

The construction and operation of the Interconnection Project could impact wildlife species through habitat loss, alteration, or fragmentation; direct mortality or injury; and disturbance or displacement from noise and increased human presence in the Study Area. Vegetation clearing, grading, and excavation

during construction would directly impact up to approximately 64 acres of wildlife habitat. After construction, 64 acres of temporary disturbance would be revegetated and restored. The remaining 0.04 acre would be occupied by the Interconnection Project infrastructure and would remain unavailable to wildlife. Noise and human activity would be temporary and of short duration. Potential effects are addressed with greater specificity below.

Terrestrial Wildlife Species – In addition to temporarily or permanently losing a relatively small amount of habitat, terrestrial animals could potentially be impacted by construction activities. Such impacts may include displacement of individuals, temporary impacts on foraging behaviors, and noise-related disturbance. Potential sources of direct mortality and injury during construction include entrapment or injury from open trenches; crushing by, or collisions with, vehicles and equipment operating within the construction site; and destruction of occupied burrows.

Minimization Measures: Trenches will be filled or covered in a reasonable time, and escape ramps will be provided in trenches for any entrapped wildlife. Surveys will be conducted prior to construction to identify potential burrows for kit foxes (*Vulpes macrotis*), small mammals, and reptiles. Burrows will be avoided or excavated in accordance with species-specific requirements if they cannot be avoided. Vehicle speeds will be limited to 25 miles per hour to reduce noise, dust, and potential collisions. Construction activities will be limited to daylight hours to the extent feasible to reduce noise and light impacts for nocturnal wildlife. Trash and debris will be removed from the construction area as often as is feasible to reduce the likelihood of wildlife coming into the construction site.

Birds – Potential threats to birds, particularly eagles and other raptors, include risk of collisions with transmission lines and electrocution and damage to active nests, eggs, and nestlings during construction. Scavenging birds, particularly eagles, may be struck by construction vehicles.

Minimization Measures: To minimize risk of collision and electrocution, the Applicant will construct the proposed transmission line following the guidelines outlined in *Suggested Practices for Raptor Protection on Powerlines: The State of the Art in 2006* (Avian Power Line Interaction Committee [APLIC] 2006) and *Reducing Avian Collisions with Power Lines: The State of the Art in 2012* (APLIC 2012).

To minimize risk of harm to active bird nests, if construction occurs during bird breeding season (February 1 to August 31), prior to the start of construction activities qualified biologists will survey potentially disturbed areas to locate nests for species protected under the Migratory Bird Treaty Act. All active nests and those of undetermined status will be flagged in the field and will be buffered from ground-clearing activities until the nest is known to be inactive. Nests that can be determined to be inactive will be removed.

Bats – No roosting or maternal roost habitat for bats occurs in the Study Area, so roosting behavior would not be affected by the Interconnection Project.

Minimization Measures: Construction activities will be limited to daylight hours to the extent feasible, so construction-related noise, lights, and movement should not affect bat foraging, commuting, or migrating behavior.

State-Protected Native Plants

Potential effects of the proposed Interconnection Project on state-protected plant species include direct removal during vegetation clearing activities or crushing by heavy equipment and vehicles. Because clearing of private land and Arizona State Trust land is subject to the ANPL notice of intent requirements,

a Native Plant Inventory survey was conducted identifying species protected by the ANPL that occur in potentially disturbed areas. The Applicant will submit the notice of intent form to the Arizona Department of Agriculture using the Native Plant Inventory plant list.

Minimization Measures: Ground-disturbing activities will be limited to those required to accomplish Interconnection Project objectives. This will include establishing designated areas for equipment staging, stockpiling materials, and parking. Areas of temporary disturbance will be restored according to a revegetation and restoration plan approved by Coconino County as part of the County's conditional use permitting process.

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EXHIBIT C – ATTACHMENT C-1

**U.S. Fish and Wildlife Service
Information for Planning and Consultation (IPaC) System Official
Species List for the Project**



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arizona Ecological Services Field Office
9828 North 31st Ave
Mesa, AZ 85207



Phoenix, AZ 85053-2517
Phone: (602) 242-0210 Fax: (602) 242-2513

June 18, 2023

In Reply Refer To:
Project Code: 2023-0094904
Project Name: 1886 Solar Energy Center Interconnection

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

To Whom It May Concern:

The Fish and Wildlife Service (Service) is providing this list under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). The list you have generated (identifies threatened, endangered, proposed, and candidate species, and designated and proposed critical habitat, that may occur within the One-Range that has been delineated for the species (candidate, proposed, or listed) and it's critical habitat (designated or proposed) with which your project polygon intersects. These range delineations are based on biological merits, and do not necessarily represent exactly where the species is located. Please refer to the species information found on ECOSS to determine if suitable habitat for the species on your list occurs in your project area.

The purpose of the Act is to provide a means whereby threatened and endangered species and the habitats upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of Federal trust resources and to determine whether projects may affect federally listed species and/or designated critical habitat. A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4321(2)(C)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12. If the Federal action agency determines that listed species or critical habitat may be affected by a federally funded, permitted or authorized activity, the agency must consult with us pursuant to 50 CFR 402. Note that a "may affect" determination includes effects that may not be adverse and that may be beneficial, insignificant, or discountable. An effect exists even if only one individual

06/18/2023

or habitat segment may be affected. The effects analysis should include the entire action area, which often extends well outside the project boundary or "footprint." For example, projects that involve streams and river systems should consider downstream effects. If the Federal action agency determines that the action may jeopardize a proposed species or may adversely modify proposed critical habitat, the agency must enter into a section 7 conference. The agency may choose to confer with us on an action that may affect proposed species or critical habitat.

Candidate species are those for which there is sufficient information to support a proposal for listing. Although candidate species have no legal protection under the Act, we recommend that they be considered in the planning process in the event they become proposed or listed prior to project completion. More information on the regulations (50 CFR 402) and procedures for section 7 consultation, including the role of permit or license applicants, can be found in our Endangered Species Consultation Handbook at: <https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>.

We also advise you to consider species protected under the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712) and the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668 et seq.). The MBTA prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when authorized by the Service. The Eagle Act prohibits anyone, without a permit, from taking (including disturbing) eagles, and their parts, nests, or eggs. Currently 1,026 species of birds are protected by the MBTA, including the western burrowing owl (*Aythya curvirostris hyzogaea*). Protected western burrowing owls can be found in urban areas and may use their nest/burrows year-round; destruction of the burrow may result in the unpermitted take of the owl or their eggs.

If a bald eagle or golden eagle nest occurs in or near the proposed project area, our office should be contacted for Technical Assistance. An evaluation must be performed to determine whether the project is likely to disturb or harm eagles. The National Bald Eagle Management Guidelines provide recommendations to minimize potential project impacts to bald eagles (see <https://www.fws.gov/law/bald-and-golden-eagle-protection-act> and <https://www.fws.gov/program/eagle-management>).

The Division of Migratory Birds (505-248-7882) administers and issues permits under the MBTA and Eagle Act, while our office can provide guidance and Technical Assistance. For more information regarding the MBTA, BGEPA, and permitting processes, please visit the following web site: <https://www.fws.gov/program/migratory-bird-permit>. Guidance for minimizing impacts to migratory birds for communication tower projects (e.g., cellular, digital television, radio, and emergency broadcast) can be found at <https://www.fws.gov/media/recommended-best-practices-communication-tower-design-siting-construction-operation>.

The U.S. Army Corps of Engineers (Corps) may regulate activities that involve streams (including some intermittent streams) and/or wetlands. We recommend that you contact the Corps to determine their interest in proposed projects in these areas. For activities within a National Wildlife Refuge, we recommend that you contact refuge staff for specific information about refuge resources, please visit [this link](https://www.fws.gov/program/national-wildlife-refuge) or visit <https://www.fws.gov/program/national-wildlife-refuge>.

Exhibit C-1a. U.S. Fish and Wildlife Service IPaC report.

0016/0203

[wildlife-refuge-system](#) to locate the refuge you would be working in or around.

If your action is on tribal land or has implications for off-reservation tribal interests, we encourage you to contact the tribe(s) and the Bureau of Indian Affairs (BIA) to discuss potential tribal concerns, and to invite any affected tribe and the BIA to participate in the section 7 consultation. In keeping with our tribal trust responsibility, we will notify tribes that may be affected by proposed actions when section 7 consultation is initiated. For more information, please contact our Tribal Coordinator, John Nystedt, at 928-556-2160 or John_Nystedt@bws.gov.

We also recommend you seek additional information and coordinate your project with the Arizona Game and Fish Department. Information on known species detections, special status species, and Arizona species of greatest conservation need, such as the western burrowing owl and the Sonoran desert tortoise (*Gopherus morafraei*) can be found by using their Online Environmental Review Tool, administered through the Heritage Data Management System and Project Evaluation Program (<https://www.azgfd.com/wildlife/planning/projectevalprogram/>).

We appreciate your concern for threatened and endangered species. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office. If we may be of further assistance, please contact our Flagstaff office at 928-556-2118 for projects in northern Arizona, our general Phoenix number 602-242-0210 for central Arizona, or 520-670-6144 for projects in southern Arizona.

Sincerely,
s/

Heather Whitlow
Field Supervisor
Attachment

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

0016/0203

OFFICIAL SPECIES LIST

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

This species list is provided by:

Arizona Ecological Services Field Office

9828 North 31st Ave
#C3
Phoenix, AZ 85051-2517
(602) 242-0210

Exhibit C-1b. U.S. Fish and Wildlife Service IPaC report.

PROJECT SUMMARY

Project Code: 2023-0094904
Project Name: 1886 Solar Energy Center Interconnection
Project Type: Distribution Line - New Construction - Above Ground
Project Description: Interconnection of a proposed solar energy facility with the grid in northern Arizona
Project Location:
The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@35.61280975,-111.90622868977044,12z>



Counties: Coconino County, Arizona

ENDANGERED SPECIES ACT SPECIES

There is a total of 5 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

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

MAMMALS

NAME: Mexican Wolf *Canis lupus baileyi*
STATUS: Endangered
Population: Whenever found, except where listed as an experimental population. No critical habitat has been designated for this species.
Species profile: <https://ecos.fws.gov/ecsp/species/2916>

BIRDS

NAME: Mexican Spotted Owl *Strix occidentalis lucida*
STATUS: Threatened
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: <https://ecos.fws.gov/ecsp/species/8136>
NAME: Yellow-billed Cuckoo *Coccyzus americanus*
STATUS: Threatened
Population: Western U.S. DPS
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: <https://ecos.fws.gov/ecsp/species/7911>

INSECTS

NAME: Monarch Butterfly *Danaus plexippus*
STATUS: Candidate
No critical habitat has been designated for this species.
Species profile: <https://ecos.fws.gov/ecsp/species/9743>

Exhibit C-1c. U.S. Fish and Wildlife Service IPaC report.

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FLOWERING PLANTS

NAME: Fickelsen Plains Cactus *Pediocactus pectenianus* ssp. *fickelseniae*
STATUS: Endangered
There is final critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: <https://cces.hawaii.gov/species/544>

CRITICAL HABITATS

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

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

06/16/2023

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Exhibit C-1d. U.S. Fish and Wildlife Service IPaC report.

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USEWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the [FAQ below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [Exhibit data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the **PROBABILITY OF PRESENCE SUMMARY** at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i>	Breeds Oct 15 to Jul 31
<small>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities to offshore wind from certain types of development or activities.</small>	
Pinyon Jay <i>Gymnorhinus cyanocephalus</i>	Breeds Feb 15 to Jul 15
<small>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</small>	

<https://ecos.fws.gov/exp/species/949>

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (%)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (●)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

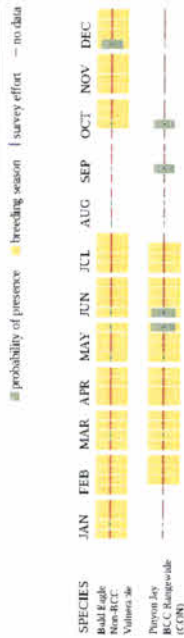
No Data (-)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Exhibit C-1e. U.S. Fish and Wildlife Service IPaC report.

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory_birds/species
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-impacts-to-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

MIGRATORY BIRDS FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.
Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location. The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act)

requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC - Rangewide" birds are [Birds of Conservation Concern \(BCC\)](#) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

Exhibit C-1f. U.S. Fish and Wildlife Service IPaC report.

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA_NCCOS_Integrative_Statistical_Modeling_and_Predictive_Mapping_of_Marine_Bird_Distributions_and_Abundance_on_the_Atlantic_Outer_Confinement_Shell](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [narrating studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location?". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project, not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities. Should presence be confirmed, to learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird list resources page.

WETLANDS

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

REVERINE

- [RESBC](#)

Exhibit C-1g. U.S. Fish and Wildlife Service IPaC report.

San Diego

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Dorothy House
Address: 114 N. San Francisco St.
City: Flagstaff
State: AZ
Zip: 86001
Email: dhouse@sswca.com
Phone: 9287745500

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Bureau of Reclamation

Exhibit C-1h. U.S. Fish and Wildlife Service IPaC report.

EXHIBIT C – ATTACHMENT C-2

**Arizona Game and Fish Department (AGFD)
Arizona Environmental Review Tool
Report for the Project**

Arizona Environmental Online Review Tool Report



*Arizona Game and Fish, Department Mission
To conserve Arizona's diverse wildlife resources and manage for safe, compatible outdoor recreation
opportunities for current and future generations.*

Project Name:
1886 Solar Energy Center Interconnection Project

Project Description:
Interconnection of a solar energy facility to an existing transmission line

Project Type:
Energy Storage/Production/Transfer, Energy Transfer, Power line/Electric line (new)

Contact Person:
dorothy house

Organization:
SWCA Environmental Consultants

On Behalf Of:
PRIVATE

Project ID:
HGIS-18401

Please review the entire report for project type and/or species recommendations for the location information entered. Please retain a copy for future reference.

Arizona Game and Fish Department
Project ID: HGIS-18401
project_report_2_1886_solar_energy_c_63832_66716_FINAL.pdf
Review Date: 7/7/2023 04:28:03 PM

Disclaimer:

1. This Environmental Review is based on the project study area that was entered. The report must be updated if the project study area, location, or the type of project changes.
2. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area. This review is also not intended to replace environmental consultation (including federal consultation under the Endangered Species Act), and use permitting, or the Department's review of site-specific projects.
3. The Department's Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there. HDMS data contains information about species occurrences that have actually been reported to the Department. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented populations of species of special concern.
4. Arizona Wildlife Conservation Strategy (AWCS), specifically Species of Greatest Conservation Need (SGCN), represent potential species distribution models for the State of Arizona which are subject to ongoing change, modification and refinement. The status of a wildlife resource can change quickly, and the availability of new data will necessitate a refined assessment.

Locations Accuracy Disclaimer:
Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Report is solely responsible for the project location and that the correctness of the Project Review Report content.

Exhibit C-2a. AGFD Environmental Review Tool results.

Recommendation & Disclaimer:

1. The Department is interested in the conservation of all fish and wildlife resources, including those species listed in this report and those that may have not been documented within the project vicinity as well as other game and nongame wildlife.
2. Recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation).
3. Potential impacts to fish and wildlife resources may be minimized or avoided by the recommendations generated from information submitted for your proposed project. These recommendations are preliminary in scope, designed to provide early considerations on all species of wildlife.
4. Making this information directly available does not substitute for the Department's review of project proposals, and should not decrease our opportunity to review and evaluate additional project information and/or new project proposals.
5. Further coordination with the Department requires the submittal of this Environmental Review Report with a cover letter and project plans or documentation that includes project narrative, acreage to be impacted, how construction or project activity(ies) are to be accomplished, and project locality information (including site map). Once AGFD had received the information, please allow 30 days for completion of project reviews. Send requests to:
 Project Evaluation Program, Habitat Branch
 Arizona Game and Fish Department
 5000 West Carefree Highway
 Phoenix, Arizona 85098-5000
 Phone Number: (602) 238-7600
 Fax Number: (602) 238-7366
 Or
PEE@azgfd.com
6. Coordination may also be necessary under the National Environmental Policy Act (NEPA) and/or Endangered Species Act (ESA). Site specific recommendations may be proposed during further NEPA/ESA analysis or through coordination with affected agencies.

1886 Solar Energy Center Interconnection Project

USA Topo Basemap With Locator Map

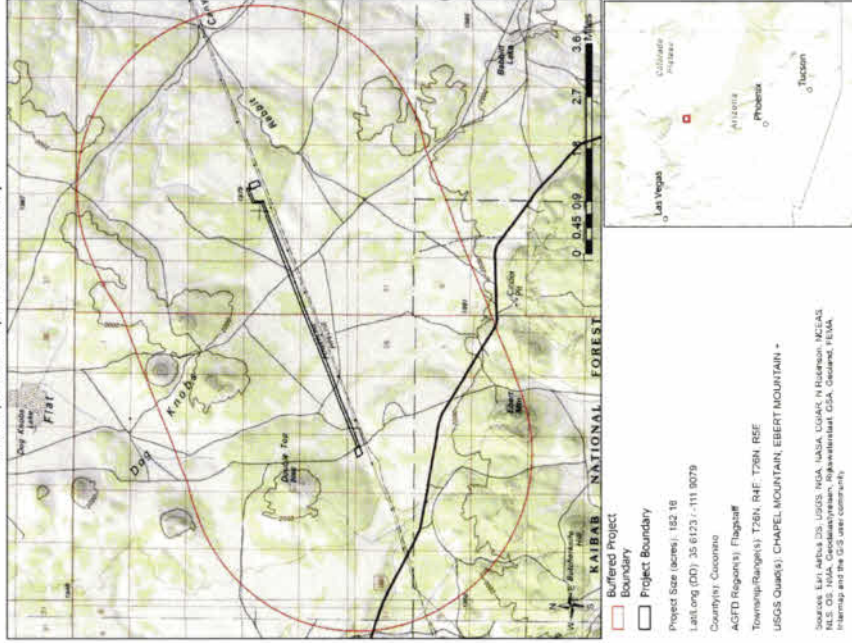
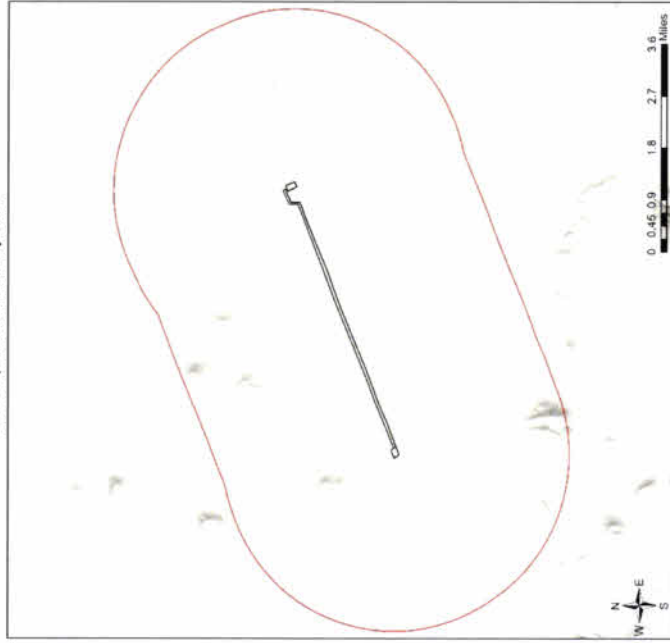


Exhibit C-2b. AGFD Environmental Review Tool results.

1886 Solar Energy Center Interconnection Project

Web Map As Submitted By User



1886 Solar Energy Center Interconnection Project

Important Areas

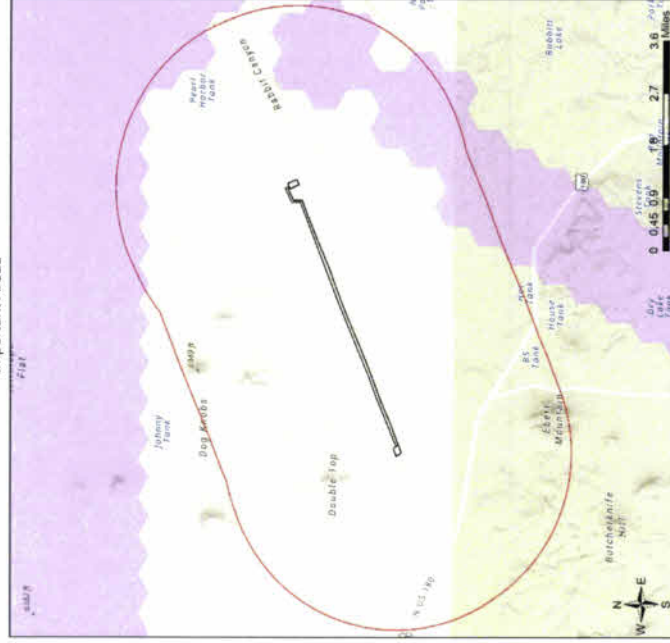


Exhibit C-2c. AGFD Environmental Review Tool results.

Special Status Species Documented within 3 Miles of Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
<i>Chrysomitris mollis</i>	Tusayan Rabbitbrush	SC	S			
<i>Gymnothorax cyanocephalus</i>	Pinyon Jay	PTN	S			2

Note: Status code definitions can be found at <https://www.azgfd.com/wildlife/burrowingowls/statuscodes/statuscodes.html>

Special Areas Documented that Intersect with Project Footprint as Drawn

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Dog Knobs - Ebert Mountain - Government Prairie	Coconino County Wildlife Movement Area - Diffuse					
South Rim, San Francisco Peaks - Woody Ridge/Bealemont area	Coconino County Wildlife Movement Area - Diffuse					

Note: Status code definitions can be found at <https://www.azgfd.com/wildlife/burrowingowls/statuscodes/statuscodes.html>

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
<i>Accipiter gentilis</i>	Northern Goshawk	SC	S	S		2
<i>Antilocapra americana americana</i>	American Pronghorn					2
<i>Aquila chrysaetos</i>	Golden Eagle			S		2
<i>Asio otus</i>	Long-eared Owl					2
<i>Basileophus ridgwayi</i>	Juniper Titmouse					2
<i>Buteo regalis</i>	Ferruginous Hawk	SC		S		2
<i>Calcarius ornatus</i>	Chetkud-collared Longspur					2
<i>Chordeiles minor</i>	Common Nighthawk					2
<i>Corynorhinus townsendii palmeri</i>	Pale Townsend's Big-eared Bat	SC	S	S	1	1
<i>Cynomys gunnisoni</i>	Gunnison's Prairie Dog	SC		S		1
<i>Empidonax inornatus</i>	Gray Flycatcher					2
<i>Euderma maculatum</i>	Spotted Bat	SC	S	S		2
<i>Eumops perotis californicus</i>	Greater Western Bonneted Bat					2
<i>Falco mexicanus</i>	Prairie Falcon					2
<i>Falco peregrinus anatum</i>	American Peregrine Falcon					2
<i>Falco sparverius</i>	American Kestrel					2
<i>Glaucidium gnomia californicum</i>	Northern Pygmy-owl					2
<i>Gymnothorax cyanocephalus</i>	Pinyon Jay			S		2
<i>Haemorrhous castaneus</i>	Cassin's Finch					2
<i>Icterus bullockii</i>	Bullock's Oriole					2
<i>Idionycteris phyllotis</i>	Allen's Lappet-eared Bat	SC	S	S		2
<i>Lasiurus blossevilli</i>	Western Red Bat			S		2

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
<i>Lasiurus cinereus</i>	Hoary Bat					2
<i>Chiricahua chiricahuensis</i>	Chiricahua Leopard Frog	LT				1
<i>Lithobates pipiens</i>	Northern Leopard Frog		S	S		1
<i>Megascops kennicottii</i>	Western Screech-owl					2
<i>Melanerpes lewis</i>	Lewis's Woodpecker					2
<i>Melanerpes uropygialis</i>	Gila Woodpecker					2
<i>Melospiza lincolni</i>	Lincoln's Sparrow					2
<i>Microtus longicaudus</i>	Long-tailed Vole					1
<i>Mustela nigripes</i>	Black-footed Ferret	LE-XN				2
<i>Myadestes townsendi</i>	Townsend's Solitaire					2
<i>Myotis arizonae</i>	Southwestern Myotis	SC				2
<i>Myotis thysanodes</i>	Fringed Myotis	SC				2
<i>Myotis yumanensis</i>	Yuma Myotis	SC				2
<i>Neotamias cinereicollis</i>	Gray-collared Chipmunk					2
<i>Neotamias minimus</i>	Least Chipmunk					2
<i>Neotoma stephensi</i>	Stephens' Woodrat					2
<i>Nyctinomops macrotis</i>	Big Free-tailed Bat	SC				2
<i>Oreoscoptes montanus</i>	Sage Thrasher					2
<i>Passerculus sandwichensis</i>	Savannah Sparrow					2
<i>Pooecetes gramineus</i>	Vesper Sparrow					2
<i>Rallus limicola</i>	Virginia Rail					2
<i>Setophaga nigrescens</i>	Black-throated Gray Warbler					2
<i>Spizella breweri</i>	Brewer's Sparrow					2
<i>Strix occidentalis lucida</i>	Mexican Spotted Owl	LT				1
<i>Tadarida brasiliensis</i>	Brazilian Free-tailed Bat					2
<i>Vireo vicinior</i>	Gray Vireo					2

Species of Economic and Recreation Importance Predicted that Intersect with Project Footprint as Drawn

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
<i>Antilocapra americana americana</i>	American Pronghorn					
<i>Cervus elaphus</i>	Elk					
<i>Odocoileus hemionus</i>	Mule Deer					
<i>Patagioenas fasciata</i>	Band-tailed Pigeon					
<i>Puma concolor</i>	Mountain Lion					
<i>Zenaidura macroura</i>	Mourning Dove					

Exhibit C-2d. AGFD Environmental Review Tool results.

Arizona Game and Fish Department project_report_2_1886_solar_energy_s.63632_66716_FINAL.pdf
Project ID: HGIS-19401 Review Date: 7/7/2023 04:28:03 PM

Project Type: Energy Storage/Production/Transfer, Energy Transfer, Power Line/Electric Line (new)

Project Type Recommendations:

Minimize the potential introduction or spread of exotic invasive species, including aquatic and terrestrial plants, animals, insects and pathogens. Precautions should be taken to wash and/or decontaminate all equipment utilized in the project activities before entering and leaving the site. See the Arizona Department of Agriculture website for a list of prohibited and restricted noxious weeds at [https://www.azdhs.gov/dhs/divisions/agriculture/pesticides/pesticides.html](https://www.azdhs.gov/dhs/divisions/agriculture/pesticides/pesticides/pesticides.html) and the Arizona Native Plant Society <https://aznps.com/aznps/conservation/how-to-control/>. To view a list of documented invasive species or report invasive species in or near your project area visit <http://invasive.org/maps/usa/invasive-species-map.html> and managing invasive species at <https://dlnr.naturalresources.org/maps/usa/invasive-species-map.html>.

- To build a list zoom to your area of interest, use the identify/measure tool to draw a polygon around your area of interest, and select "See What's Here" for a list of reported species. To export the list, you must have an account and be logged in. You can then use the export tool to draw a boundary and export the records in a csv file.

The Department recommends that wildlife surveys are conducted to determine if noise-sensitive species occur within the project area. Avoidance or minimization measures could include conducting project activities outside of breeding seasons.

For any powerlines built, proper design and construction of the transmission line is necessary to prevent or minimize risk of electrocution of raptors, owls, vultures, and golden or bald eagles, which are protected under state and federal law. Limit project activities during the breeding season for birds, generally March through late August, depending on species in the local area (raptors breed in early February through May). Conduct avian surveys to determine bird species that may be utilizing the area and develop a plan to avoid disturbances during the nesting season. For underground powerlines, trenches should be covered or back-filled as soon as possible. Incorporate escape ramps in ditches or fencing along the perimeter to deter small mammals and haptoritana (snakes, lizards, tortoises) from entering ditches. In addition, indirect effects to wildlife due to construction (timing of activity, clearing of rights-of-way, associated bridges and culverts, effects to wetlands, fences) should also be considered and mitigated.

Based on the project type entered, coordination with State Historic Preservation Office may be required (<https://shpo.state.az.us/>).

Based on the project type entered, coordination with U.S. Fish and Wildlife Service (Migratory Bird Treaty Act) may be required (<https://www.fws.gov/wtf/az/aznba/ecological-services/>).

Vegetation restoration projects (including treatments of invasive or exotic species) should have a completed site-evaluation plan (identifying environmental conditions necessary to re-establish native vegetation), a revegetation plan (species, density, method of establishment), a short and long-term monitoring plan, including adaptive management guidelines to address needs for replacement vegetation.

Project Location and/or Species Recommendations:

Analysis indicates that your project is located in the vicinity of an identified [wildlife habitat connectivity feature](http://wildlife.habitat.com/connectivity/feature). The County-level Stakeholder Assessments contain five categories of data (Barrier/Development, Wildlife Crossing Area, Wildlife Movement Area, Diffuse, Wildlife Movement Area- Landscape, Wildlife Movement Area- Riparian/Washes) that provide a context of select anthropogenic barriers, and potential connectivity. The reports provide recommendations for opportunities to preserve or enhance permeability, project planning and implementation efforts should focus on maintaining and improving opportunities for wildlife permeability. For information pertaining to the linkage assessment and wildlife species that may be affected, please refer to <http://www.ecofl.com/wildlife/habitatconnectivity/feature>.

Please contact the Project Evaluation Program (pass@agfd.az.gov) for specific project recommendations.

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Exhibit C-2e. AGFD Environmental Review Tool results.

EXHIBIT D. BIOLOGICAL RESOURCES

As stated in the Arizona Corporation Commission Rules of Practice and Procedure R14-3-219:

List the fish, wildlife, plant life, and associated forms of life in the vicinity of the proposed site or route and describe the effects, if any, the proposed facilities will have thereon.

Introduction

The 1886 Solar Energy Station Interconnection Project (Interconnection Project) would be built on open ranchland just north of and parallel to the existing Moenkopi to Cedar Mountain 500-kV transmission line right-of-way (ROW). Unpaved ranch roads cross under and run along the length of the existing transmission lines. Throughout Exhibit D, the term Study Area refers to a 1-mile area buffered around the Interconnection Project.

Methods

Biological resources in the vicinity of the proposed Interconnection Project were identified through a biotic resource review using the following resources:

- The Southwest Regional Gap Analysis Project land cover data set (U.S. Geological Survey [USGS] 2016)
- Regional checklists, reports, and publications

In addition, biologists with SWCA Environmental Consultants (SWCA) have conducted field reconnaissance in portions of the Study Area and completed extensive wildlife surveys in the vicinity.

Results

Ecological Setting

The topography of the Study Area is characterized by flat to rolling terrain with occasional basalt or limestone benches. Elevations range from approximately 6,460 to 6,520 feet above mean sea level.

No perennial surface waters exist within 20 miles of the Study Area. The only water sources in the Study Area are three metal stock tanks (drinkers) maintained by Babbitt Ranches and four ephemeral earthen stock tanks. Several more earthen stock tanks are scattered throughout the surrounding ranchland. Additional anthropogenic features include ranch roads, ranch outbuildings associated with one of the drinkers, a cellular tower, and a transmission line corridor with the 500-kV transmission lines. A considerable amount of soil disturbance has occurred in and around the Study Area as a result of over a century of cattle and horse ranching.

The Study Area intersects linkages that are used by wildlife to move between or within habitat blocks to complete activities necessary for survival and reproduction (AGFD 2011). See Exhibit C for details.

Vegetation Communities

Brown (1994) maps the Study Area in the Great Basin Conifer Woodland biotic community. According to the Southwest Regional Gap land cover classification, the Study Area is dominated by Colorado Plateau Pinyon-Juniper Woodland and Inter-mountain Basins Semi-Desert Shrub-Steppe, with patches of Inter-mountain Basins Juniper Savanna, Inter-mountain Basins Big Sagebrush Shrubland, and Inter-mountain Basins Semi-Desert Grassland (USGS 2016) (Table D-1).

Table D-1. Vegetation Cover Types in the Study Area by Percent of Total Land Cover

Vegetation Cover Type	Area (acres)	Percent of Total Land Cover
Colorado Plateau Pinyon-Juniper Woodland	5,363.53	59.9
Inter-Mountain Basins Semi-Desert Shrub Steppe	2,570.07	28.7
Inter-Mountain Basins Juniper Savanna	615.93	6.9
Inter-Mountain Basins Big Sagebrush Shrubland	281.34	3.1
Inter-Mountain Basins Semi-Desert Grassland	116.36	1.3
Total	8,947.23	100.0

Source: USGS 2016.

Plant Species

The native plant species observed during the field reconnaissance visits are listed in Table D-2 at the end of this exhibit. These species are typical of plants found in the pinyon–juniper woodland and shrub-steppe biotic communities (Decker et al. 2020). Two nonnative plant species—prickly Russian thistle (*Salsola tragus*) and field bindweed (*Convolvulus arvensis*)—were also observed. Field bindweed is listed as a Class C noxious weed by the Arizona Department of Agriculture under Arizona Administrative Code R3-4-245. A Class C noxious weed is categorized by the Arizona Department of Agriculture (2023) as “a species of plant that is widespread but may be recommended for active control based on risk assessment.”

Wildlife Species

Wildlife species observed in the vicinity of the Interconnection Project or that could potentially occur in the Study Area are listed in Tables D-3 through D-5 at the end of this exhibit. These species are typical of wildlife found in the pinyon–juniper (*Pinus* spp.–*Juniperus* spp.) woodland and shrub-steppe biotic communities (Decker et al. 2020).

Summary of Potential Effects

Plant Species

Construction of the Interconnection Project would permanently remove vegetation on an estimated 0.04 acre at the transmission line structures. Approximately 64 acres of vegetation would be removed temporarily, primarily at laydown yards (40 acres). Native vegetation characteristic of the pinyon–juniper woodland and shrub-steppe biotic communities is extensive in northern Arizona, and the acreage of disturbance as a percentage of the remaining habitat in Coconino County is very small. The permanent removal of approximately 0.04 acre of vegetation would have a negligible impact on the vegetation

communities as a whole. Standard best management practices will be employed during construction to minimize the introduction and spread of noxious weeds.

Wildlife Species

Wildlife species listed in Tables D-2 through D-4 may be affected by the Interconnection Project in ways discussed below, but none of the species are likely to be substantially affected.

- Construction-related activity and noise may disturb wildlife species in the area and cause them to avoid or move away from the site or temporarily alter their behavior in other ways (e.g., remain underground). Once construction is completed it is expected that wildlife will return to the area and resume normal behavior patterns.
- Ground-dwelling animals (e.g., mice and reptiles) in areas of ground disturbance could be injured or killed during construction.
- Ground- and shrub-nesting birds could be disturbed during construction, and their nests, eggs, or young destroyed. Any bird nesting in an area potentially disturbed by construction would be protected under the Migratory Bird Treaty Act (MBTA), which makes it illegal to destroy a nest that has eggs or chicks in it or if there are young birds that are still dependent on the nest for survival. To avoid violating the MBTA, if construction occurs during the nesting season, a preconstruction protocol survey 30 days prior to construction would be conducted to ensure that any active nests in vegetation or on the ground are avoided. If active nests cannot be avoided, an appropriate avoidance buffer would be established (in accordance with USFWS guidelines), and construction would not occur within that buffer until the nest becomes inactive.
- Removal of vegetation associated with clearing portions of the transmission line ROW, placement of support structures, and construction of the substation would result in a small loss of habitat that could provide nesting sites, cover, and/or forage for bird and mammal species or their prey. In temporarily disturbed areas along the transmission line ROW, species composition of birds and mammals using those areas may change over time as vegetation species and structure recover. The acreage of vegetation to be cleared is small, however, particularly relative to the large amount of comparable habitat available in the vicinity of the Interconnection Project. Removal of vegetation is expected to have negligible effects on wildlife species.
- Transmission lines do not appear to affect most wildlife movements (Goodwin 1975; Lee et al. 1989; Thompson 1977).
- The effects of exposure to electromagnetic fields by birds nesting near power lines is largely unknown; however, in one study, Fernie et al. (2000) found that electromagnetic fields exposure affected the reproductive success of kestrels (*Falco sparverius*), increasing fertility, egg size, embryonic development, and fledging success, but reducing hatching success.
- Transmission lines pose a risk of collisions and electrocution for birds, particularly eagles and other raptors. To minimize that risk, the Applicant will construct the proposed transmission line following the guidelines outlined in *Suggested Practices for Raptor Protection on Powerlines: The State of the Art in 2006* (Avian Power Line Interaction Committee 2006) and *Reducing Avian Collisions with Power Lines: The State of the Art in 2012* (Avian Power Line Interaction Committee 2012).
- Impacts of the Interconnection Project to bats in flight are expected to be negligible because bats are well adapted to avoid stationary objects by using echolocation.

Table D-2. Plant Species Potentially Occurring in the Study Area

Common Name	Scientific Name	Common Name	Scientific Name
Blue grama*	<i>Bouteloua gracilis</i>	Powell's amaranth	<i>Amaranthus powellii</i>
Broom snakeweed*	<i>Gutierrezia sarothrae</i>	Prickly Russian thistle†	<i>Salsola tragus</i>
Cheatgrass†	<i>Bromus tectorum</i>	Puncturevine†	<i>Tribulus terrestris</i>
Common purslane	<i>Portulaca oleracea</i>	Redroot buckwheat	<i>Eriogonum racemosum</i>
Coyote tobacco	<i>Nicotiana attenuata</i>	Redstem stork's bill†	<i>Erodium cicutarium</i>
Desert sweet	<i>Chamaebatiaria millefolium</i>	Ring muhly	<i>Muhlenbergia torreyi</i>
Evening primrose	<i>Oenothera spp.</i>	Rocky Mountain beeplant	<i>Cleome serrulata</i>
Fendler's globemallow	<i>Sphaeralcea fendleri</i>	Rubber rabbitbrush	<i>Ericameria nauseosa</i>
Fetid goosefoot	<i>Dysphania graveolens</i>	Sand dropseed	<i>Sporobolus cryptandrus</i>
Fleabane	<i>Erigeron spp.</i>	Sawtooth sage	<i>Salvia subincisa</i>
Fourwing saltbush	<i>Atriplex canescens</i>	Sideoats grama	<i>Bouteloua curtipendula</i>
Fremont's mahonia	<i>Mahonia fremontii</i>	Slender goldenweed	<i>Machaeranthera gracilis</i>
Globemallow	<i>Sphaeralcea spp.</i>	Small-leaf globemallow	<i>Sphaeralcea parvifolia</i>
Greene's rabbitbrush*	<i>Chrysothamnus greenei</i>	Southwestern mock vervain	<i>Glandularia gooddingii</i>
Greenstem paperflower	<i>Psilostrophe sparsiflora</i>	Spinystar	<i>Escobaria vivipara</i>
Hoary Townsend daisy	<i>Townsendia incana</i>	Squirreltail	<i>Elymus elymoides</i>
Indian ricegrass	<i>Achnatherum hymenoides</i>	Stansbury cliffrose	<i>Purshia stansburiana</i>
Longflower rabbitbrush	<i>Chrysothamnus depressus</i>	Thymeleaf sandmat	<i>Chamaesyce serpyllifolia</i>
Mid bladderpod	<i>Lesquerella intermedia</i>	Tulip pricklypear	<i>Opuntia phaeacantha</i>
Mormon tea	<i>Ephedra viridis</i>	Twistspine pricklypear	<i>Opuntia macrorhiza</i>
Mountain pepperweed	<i>Lepidium montanum</i>	Twoneedle pinyon*	<i>Pinus edulis</i>
Muttongrass	<i>Poa fendleriana</i>	Utah juniper	<i>Juniperus osteosperma</i>
Needle and thread	<i>Hesperostipa comata</i>	Whipple cholla	<i>Cylindropuntia whipplei</i>
Oneseed juniper*	<i>Juniperus monosperma</i>	Winged buckwheat	<i>Eriogonum alatum</i>
Pale desert-thorn	<i>Lycium pallidum</i>	Winterfat	<i>Krascheninnikovia lanata</i>
Pinkflower hedgehog cactus	<i>Echinocereus fendleri</i>	Yerba de pasmo	<i>Baccharis pteronioides</i>

Source: SWCA unpublished data

* Dominant

† Arizona Department of Agriculture noxious weed

Table D-3. Mammal Species Potentially Occurring in the Study Area

Common Name	Scientific Name	Common Name	Scientific Name
Allen's big-eared bat†	<i>Idionycteris phyllotis</i>	Long-eared myotis†	<i>Myotis evotis</i>
Arizona myotis†	<i>Myotis occultus</i>	Long-legged myotis†	<i>Myotis volans</i>
Arizona pocket mouse	<i>Perognathus amplus</i>	Long-tailed weasel	<i>Mustela frenata</i>
Arizona woodrat	<i>Neotoma devia</i>	Mountain lion	<i>Puma concolor</i>
Badger	<i>Taxidea taxus</i>	Mule deer	<i>Odocoileus hemionus</i>
Big brown bat†	<i>Eptesicus fuscus</i>	Northern grasshopper mouse	<i>Onychomys leucogaster</i>

Common Name	Scientific Name
Big free-tailed bat	<i>Nyctinomops macrotis</i>
Black bear	<i>Ursus americanus</i>
Black-tailed jack rabbit*	<i>Lepus californicus</i>
Bobcat	<i>Lynx rufus</i>
Botta's pocket gopher	<i>Thomomys bottae</i>
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>
Brush mouse	<i>Peromyscus boylii</i>
California myotis†	<i>Myotis californicus</i>
Canyon bat†	<i>Parastrellus hesperus</i>
Canyon mouse	<i>Peromyscus crinitus</i>
Cave myotis†	<i>Myotis velifer</i>
Cliff chipmunk	<i>Neotamias dorsalis</i>
Coyote*	<i>Canis latrans</i>
Deer mouse	<i>Peromyscus maniculatus</i>
Desert cottontail*	<i>Sylvilagus audubonii</i>
Desert shrew	<i>Notiosorex crawfordi</i>
Elk*	<i>Cervus elaphus</i>
Fringed myotis†	<i>Myotis thysanodes</i>
Gray fox	<i>Urocyon cinereoargenteus</i>
Greater bonneted bat†	<i>Eumops perotis</i>
Gunnison's prairie dog	<i>Cynomys gunnisoni</i>
Hoary bat†	<i>Lasiurus cinereus</i>
Kit fox	<i>Vulpes macrotis</i>

Common Name	Scientific Name
Ord's kangaroo rat	<i>Dipodomys ordii</i>
Pallid bat†	<i>Antrozous pallidus</i>
Pinyon mouse	<i>Peromyscus truei</i>
Plains pocket mouse	<i>Perognathus flavescens</i>
Packet gopher*	<i>Thomomys</i> spp.
Pocketed free-tailed bat	<i>Nyctinomops femorosaccus</i>
Porcupine	<i>Erethizon dorsatum</i>
Pronghorn*	<i>Antilocapra Americana</i>
Rock pocket mouse	<i>Perognathus intermedium</i>
Rock squirrel*	<i>Spermophilus variegates</i>
Silky pocket mouse	<i>Perognathus flavus</i>
Silver-haired bat†	<i>Lasionycteris noctivagans</i>
Southwestern myotis	<i>Myotis auriculus</i>
Spotted bat†	<i>Euderma maculatum</i>
Spotted ground squirrel	<i>Spermophilus spilosoma</i>
Stephens's woodrat	<i>Neotoma stephensi</i>
Townsend's big-eared bat†	<i>Corynorhinus townsendii</i>
Western red bat†	<i>Lasiurus blossevillii</i>
Western small-footed bat†	<i>Myotis ciliolabrum</i>
White-tailed antelope squirrel	<i>Ammospermophilus leucurus</i>
White-throated woodrat	<i>Neotoma albigula</i>
Yuma myotis†	<i>Myotis yumanensis</i>

Sources: Drost (2009); Hoffmeister (1986); SWCA unpublished data.

* Species or species sign observed during reconnaissance visits to the Study Area and vicinity (SWCA unpublished data).

† Species detected during bat acoustic studies in the vicinity of the Study Area.

Table D-4. Bird Species Potentially Occurring in the Study Area

Common Name	Scientific Name
American crow	<i>Corvus brachyrhynchos</i>
American kestrel	<i>Falco sparverius</i>
American pipit	<i>Anthus rubescens</i>
American robin	<i>Turdus migratorius</i>
Ash-throated flycatcher	<i>Myiarchus cinerascens</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
Bank swallow	<i>Riparia riparia</i>
Barn swallow	<i>Hirundo rustica</i>
Bendire's thrasher	<i>Toxostoma bendirei</i>
Bewick's wren	<i>Thryomanes bewickii</i>

Common Name	Scientific Name
Long-billed curlew	<i>Numenius americanus</i>
Mallard	<i>Anas platyrhynchos</i>
Merlin	<i>Falco columbarius</i>
Mountain bluebird	<i>Sialia currucoides</i>
Mountain chickadee	<i>Poecile gambeli</i>
Mourning dove	<i>Zenaidra macroura</i>
Nashville warbler	<i>Leiothlypis ruficapilla</i>
Northern flicker	<i>Colaptes auratus</i>
Northern goshawk	<i>Accipiter gentilis</i>
Northern harrier	<i>Circus cyaneus</i>

Common Name	Scientific Name
Black-chinned hummingbird	<i>Archilochus alexandri</i>
Black-chinned sparrow	<i>Spizella atrogularis</i>
Black-headed grosbeak	<i>Pheucticus melanocephalus</i>
Black-throated gray warbler	<i>Setophaga nigrescens</i>
Black-throated sparrow	<i>Amphispiza bilineata</i>
Blue-gray gnatcatcher	<i>Polioptila caerulea</i>
Blue-winged teal	<i>Anas discors</i>
Brewer's blackbird	<i>Euphagus cyanocephalus</i>
Brewer's sparrow	<i>Spizella breweri</i>
Broad-tailed hummingbird	<i>Selasphorus platycercus</i>
Brown-headed cowbird	<i>Molothrus ater</i>
Bullock's oriole	<i>Icterus bullockii</i>
Bushtit	<i>Psaltriparus minimus</i>
Cassin's kingbird	<i>Tyrannus vociferans</i>
Chestnut-collared longspur	<i>Calcarius ornatus</i>
Chihuahuan meadowlark	<i>Sturnella liliana</i>
Chipping sparrow	<i>Spizella passerine</i>
Cliff swallow	<i>Petrochelidon pyrrhonota</i>
Common nighthawk	<i>Chordeiles minor</i>
Common raven	<i>Corvus corax</i>
Cooper's hawk	<i>Accipiter cooperi</i>
Crissal thrasher	<i>Toxostoma crissale</i>
Dark-eyed junco	<i>Junco hyemalis</i>
Downy woodpecker	<i>Picoides pubescens</i>
Eastern meadowlark	<i>Sturnella magna</i>
European starling	<i>Sturnus vulgaris</i>
Ferruginous hawk	<i>Buteo regalis</i>
Golden eagle	<i>Aquila chrysaetos</i>
Gray flycatcher	<i>Empidonax wrightii</i>
Gray vireo	<i>Vireo vicinior</i>
Great blue heron	<i>Ardea herodias</i>
Greater roadrunner	<i>Geococcyx californianus</i>
Green-winged teal	<i>Anas crecca</i>
Hairy woodpecker	<i>Picoides villosus</i>
Hepatic tanager	<i>Piranga flava</i>
Horned lark	<i>Eremophila alpestris</i>
House finch	<i>Carpodacus mexicanus</i>
House wren	<i>Troglodytes aedon</i>
Juniper titmouse	<i>Baeolophus ridgwayi</i>

Common Name	Scientific Name
Northern mockingbird	<i>Mimus polyglottos</i>
Osprey	<i>Pandion haliaetus</i>
Peregrine falcon	<i>Falco peregrines</i>
Pine siskin	<i>Spinus pinus</i>
Pinyon jay	<i>Gymnorhinus cyanocephalus</i>
Plumbeous vireo	<i>Vireo plumbeus</i>
Prairie falcon	<i>Falco mexicanus</i>
Red-breasted sapsucker	<i>Sphyrapicus ruber</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Red-winged blackbird	<i>Agelaius phoeniceus</i>
Rock wren	<i>Salpinctes obsoletus</i>
Rough-legged hawk	<i>Buteo lagopus</i>
Ruby-crowned kinglet	<i>Regulus calendula</i>
Ruddy duck	<i>Oxyura jamaicensis</i>
Sage thrasher	<i>Oreoscoptes montanus</i>
Say's phoebe	<i>Sayornis saya</i>
Scott's oriole	<i>Icterus parisorum</i>
Sharp-shinned hawk	<i>Accipiter striatus</i>
Spotted towhee	<i>Pipilo maculatus</i>
Swainson's hawk	<i>Buteo swainsoni</i>
Townsend's solitaire	<i>Myadestes townsendi</i>
Townsend's warbler	<i>Setophaga townsendi</i>
Tree swallow	<i>Tachycineta bicolor</i>
Turkey vulture	<i>Cathartes aura</i>
Vermilion flycatcher	<i>Pyrocephalus rubinus</i>
Vesper sparrow	<i>Pooecetes gramineus</i>
Violet-green swallow	<i>Tachycineta thalassina</i>
Western bluebird	<i>Sialia mexicana</i>
Western burrowing owl	<i>Athene cunicularia</i>
Western kingbird	<i>Tyrannus verticalis</i>
Western meadowlark	<i>Sturnella neglecta</i>
Western screech-owl	<i>Megascops kennicottii</i>
Western scrub-jay	<i>Aphelocoma californica</i>
Western tanager	<i>Piranga ludoviciana</i>
Western wood-pewee	<i>Contopus sordidulus</i>
White-breasted nuthatch	<i>Sitta carolinensis</i>
White-faced ibis	<i>Plegadis chihi</i>
White-throated swift	<i>Aeronautes saxatalis</i>
Wilson's phalarope	<i>Phalaropus tricolor</i>

Common Name	Scientific Name
Killdeer	<i>Charadrius vociferous</i>
Ladder-backed woodpecker	<i>Picoides scalaris</i>
Lark sparrow	<i>Chondestes grammacus</i>
Lesser goldfinch	<i>Spinus psaltria</i>
Loggerhead shrike	<i>Lanius ludovicianus</i>

Common Name	Scientific Name
Wilson's warbler	<i>Cardellina pusilla</i>
Woodhouse's scrub-jay	<i>Aphelocoma woodhouseii</i>
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>
Yellow-rumped warbler	<i>Setophaga coronata</i>

Note: All species listed were observed by SWCA biologists during reconnaissance visits or during avian surveys on the western CO Bar Ranch (SWCA unpublished data).

Table D-5. Reptile Species Potentially Occurring in the Study Area

Common Name	Scientific Name
Lizards	
Desert spiny lizard	<i>Sceloporus magister</i>
Eastern collared lizard	<i>Crotaphytus collaris</i>
Fence lizard	<i>Sceloporus undulatus</i>
Leopard lizard	<i>Gambelia wislizenii</i>
Lesser earless lizard	<i>Holbrookia maculata</i>
Little striped whiptail	<i>Cnemidophorus inornatus</i>
Orange-headed desert spiny lizard	<i>Sceloporus magister cephaloflavus</i>
Plateau fence lizard	<i>Sceloporus tristichus</i>
Plateau striped whiptail	<i>Cnemidophorus velox</i>
Short-horned lizard	<i>Phrynosoma hernandesi</i>
Side-blotched lizard	<i>Uta stansburiana</i>
Tree lizard	<i>Urosaurus ornatus</i>
Western collared lizard	<i>Crotaphytus bicinctores</i>
Western whiptail	<i>Cnemidophorus tigris</i>
Snakes	
Arizona black rattlesnake	<i>Crotalus oreganus cerberus</i>
Arizona mountain king snake	<i>Lampropeltis pyromelana pyromelana</i>
Common king snake	<i>Lampropeltis getula</i>
Glossy snake	<i>Arizona elegans</i>
Great Basin gopher snake	<i>Pituophis catenifer deserticola</i>
Hopi rattlesnake	<i>Crotalus viridis nuntius</i>
Night snake	<i>Hypsiglena torquata</i>
Striped whipsnake	<i>Coluber taeniatus</i>
Western patch-nosed snake	<i>Salvadora hexalepis</i>
Western rattlesnake	<i>Crotalus viridis</i>

Sources: Brennan (2012); Drost (2009).

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EXHIBIT E. SCENIC AREAS, HISTORIC SITES AND STRUCTURES, AND ARCHAEOLOGICAL SITES

As stated in the Arizona Corporation Commission Rules of Practice and Procedure R14-3-219:

Describe any existing scenic areas, historic sites and structures or archaeological sites in the vicinity of the proposed facilities and state the effects, if any, the proposed facilities will have thereon.

Scenic Areas and Visual Resources

Overview

This section of Exhibit E addresses the inventory of and potential effects on visually sensitive resources in relation to the 1886 Solar Energy Station Interconnection Project (Interconnection Project). Specifically, this portion of Exhibit E includes a description of the methodology for assessing potential effects, an inventory of visually sensitive resources, identification of sensitive viewers near the Interconnection Project, and a discussion of the potential effects of the Interconnection Project.

Methodology

The purpose of the visual impact assessment is to identify and characterize the level of visual modification in the landscape that would result from the Interconnection Project. Visual impacts are typically described in terms of the visual contrast created by a project, which can potentially affect both scenic quality and sensitive viewers. Scenic quality refers to the general characteristics and inherent aesthetic value of the landscape as a resource, regardless of specific viewers. The term “sensitive viewers” refers to specific individuals and/or groups whose views could be affected by a project. The methods used to conduct this visual impact assessment are consistent with past visual resource studies conducted for similar projects that have been approved by the Power Plant and Transmission Line Siting Committee.

1886 Solar Energy Station LLC (the Applicant) contracted with SWCA Environmental Consultants (SWCA) to develop an inventory of visually sensitive resources in the vicinity of the Interconnection Project by reviewing publicly available geographic information system (GIS) data, aerial photography, and on-site field verification and photographic documentation. A desktop review was conducted to identify any sites in the vicinity of the Interconnection Project that meet the following definition of “scenic area” provided in the Arizona Administrative Code at R17-3-701(A)(1)(i):

... any area of particular scenic beauty or historical significance as determined by the federal, state, or local officials having jurisdiction thereof, and includes interests in land which have been acquired for the restoration, preservation, and enhancement of scenic beauty.

Scenic areas so defined would include sites such as national or state parks and monuments, designated scenic overlooks, and wild and scenic river segments.

To assess how the Interconnection Project may visually modify the existing landscape, SWCA developed photo-realistic visual simulations of project components from representative positions referred to as key observation points (KOPs). In selecting KOPs, SWCA visited the area on June 12, 2023 to evaluate three potentially sensitive vantage points from which the Interconnection Project would be visible. Existing conditions were photographed from each KOP for the purpose of creating visual simulations. Table E-1 lists the chosen KOPs and the reason for their inclusion.

Table E-1. Key Observation Points

Name	Location	Reason for Inclusion
KOP-1 Latitude/Longitude 35.647294, -112.123751	Approximately 10.7 miles northwest of nearest visible transmission structure	Representative of residence near Valle/Grand Canyon Junction
KOP-2 Latitude/Longitude 35.573582, -111.933128	Approximately 1.8 miles southeast of the nearest visible transmission structure	Representative of travelers along U.S. Route 180
KOP-3 Latitude/Longitude 35.635053, -111.806679	Approximately 3.4 miles northeast of the nearest transmission structure	Representative trail user on Arizona National Scenic Trail

Photo-realistic simulations of the Interconnection Project were made using ArcGIS, Google Earth Pro, Autodesk products (AutoCAD and 3DS Max), and Adobe Photoshop software for each KOP (see Exhibits E-1 through E-3). Developing visual simulations involves creating a three-dimensional model of components, positioning the modeled components on a digital elevation model of the area, and superimposing the resulting model onto the KOP photographs of existing conditions, at the correct scale and distance. Date and time-of-day inputs determine shadows and reflected light, and the software accounts for distance and haze to increase accuracy of viewing conditions.

Using the resulting visual simulations, SWCA evaluated the potential for impacts to both scenic quality and sensitive viewers by analyzing the visual contrast the Interconnection Project would have against the existing landscape. A visual contrast analysis involves a qualitative discussion of anticipated changes in contrast between the existing landscape and the proposed facilities. Factors taken into consideration for such an analysis include distance of the proposed Interconnection Project from the viewer, existing landforms, vegetation, and built features present in the landscape. Visual contrast is described in terms of the degree of perceivable change in the basic design elements of form, line, color, texture, and scale that would be evident by the introduction of a particular project.

The level of perceived contrast between the proposed facilities and the existing landscape is classified using the following definitions:

- None: The contrast is not visible or perceived.
- Weak: The resulting contrast can be seen but does not attract attention.
- Moderate: The resulting contrast begins to attract attention and begins to dominate the characteristic landscape.
- Strong: The resulting contrast demands attention, would not be overlooked, and is dominant in the landscape.

“Sensitive viewers” refers to individuals who may be sensitive to potential changes in the scenery from a visible project. Regarding sensitive viewers, perceived contrast is dependent on several factors, including viewing distance, duration of view, viewing condition, and degree of visibility. When combined these factors indicate the overall visual dominance of new features in a landscape.

“Viewing distance” refers to the sensitive viewer’s distance from a particular feature. The assessment of visual impacts is predicated based off a person’s ability to discern details decreases as viewing distance increases. The duration of view refers to the length of time and associated viewing angle; generally, a viewer’s attention is attracted to a higher degree as the duration of view increases. Viewing conditions refer to whether the viewer is looking down at a feature from a superior position, looking up at a feature from an inferior position, or viewing it from a similar elevation (i.e., a neutral view). “Degree of visibility” refers to whether views of a feature are open and unobstructed or partially to fully obstructed by the existing landscape (i.e., topography, vegetation, or built features). The degree of visibility also refers to whether a feature would be visible against the sky (i.e., skyline view) or viewed against a backdrop of landforms, vegetation, and/or built features.

In general, residential and recreational viewers are considered to have higher sensitivities to visual changes in a landscape, whereas viewers moving along travel routes are considered to have low to moderate sensitivities (unless traveling along a designated scenic travel route).

Inventory Results

The existing condition of the landscape in the vicinity of the planned Interconnection Project is characterized by flat or slightly undulating open areas in the foreground, canyons in the midground, and distant mesas and buttes in the background. Vegetation consists mainly of large areas of light-colored (buff and light green) perennial grasses, forbs, and shrubs interspersed with dense stands of darker green pinyon (*Pinus* spp.) and juniper (*Juniperus* spp.) trees. Pinyon–juniper woodlands occur along the northern edge of the Study Area.

The most notable scenic features in the landscape are Red Butte in the pinyon–juniper-covered Kaibab National Forest south of the Grand Canyon National Park, and the San Francisco Peaks rising to 12,633 feet above mean sea level to the southeast. Red Butte rises to 7,329 feet above mean sea level and is a prominent feature in the broad undulating landscape.² These features and the densely forested pinyon–juniper landforms to the north and south give a sense of a predominantly natural and undeveloped landscape. The Arizona National Scenic Trail is a north-south non-motorized trail that traverses from Mexico through Arizona to Utah across the east side of the Study Area. The Arizona National Scenic Trail was designated a National Trail in 2009 and is known for its rich history and cultural sites, diverse wildlife and vegetation, and diverse terrain and scenery covering over 800 miles.

The landscape within the Study Area is mostly undeveloped but has been partially modified by human-made structures and activities. Roads, ranch infrastructure, and transmission lines have contributed to changes to the natural landscape within the Study Area, as have scattered rural residences on subdivided lands west of the Study Area. Numerous improved and unimproved dirt roads are within the 1-mile Study Area, as well as U.S. Route 180, a primary travel route to Grand Canyon National Park. Additional human modification to the landscape includes range improvements such as the occasional earthen and metal stock tanks, corrals, and ranch outbuildings. With the exception of existing high-voltage transmission line infrastructure, the overall character of the landscape is typical of rural rangeland.

² Red Butte is approximately 17.2 miles from the Interconnection Project. At a distance of 17.2 miles, the Interconnection Project is not anticipated to be perceivable from the existing Moenkopi to Cedar Mountain 500-kilovolt transmission line, if visible at all.

Visual Simulations and Contrast Analysis by KOP

SWCA, in coordination with the Applicant, identified and photographed three KOPs with potentially sensitive vantage points from which the Interconnection Project would be visible (see visual simulations in Exhibits E-1 through E-3).

Impacts to visual resources were determined by examining the simulated condition and evaluating the degree of change in landscape character (i.e., degree to which project elements contrast with existing conditions) that would result from the construction and operation of the planned Interconnection Project. The visual impact analysis for each of the three KOPs is provided below.

KOP 1: VALLE (GRAND CANYON JUNCTION)

KOP 1 (see Exhibits E-1a, E-1b, and E-1c) represents the view looking east that a residence may experience from the area near the intersection of East Laramie Drive and Big Springs Road in Valle (also known as Grand Canyon Junction). From KOP 1, the immediate foreground consists of a smooth tan dirt road that continues vertically; brown, beige, and light tan vegetation; stippled, singular forms of dark pinyon–juniper contrasting with the light-colored rabbitbrush (*Chrysothamnus* sp.) and grasses which increase in density and consistency; and sparsely occupied residences in several types of different structures which continue through the midground. Distant views from this KOP consist of light-colored rabbitbrush and grasses and sparsely scattered pinyon which transition to long, smooth, irregular, undulating, tan rolling hills and buttes.

From KOP 1, the viewer would be approximately 10.7 miles northwest from the nearest visible transmission structure. Based on the inferior viewing perspective, distance to nearest visible structure, and intervening vegetation and topography, the Interconnection Project would not attract a viewer's attention in the landscape. The lines, colors, textures, and scale of the proposed equipment would be similar to those of the existing transmission line infrastructure visible in the area. As shown in Exhibit E-1, the Interconnection Project is not anticipated to be visible from the area around KOP 1.

KOP 2: U.S. ROUTE 180

KOP 2 (see Exhibits E-2a, E-2b, and E-2c) represents the view that a sensitive viewer may experience from a vehicle traveling along U.S. Route 180. From KOP 2, views in the immediate foreground are made up of a smooth, consistent, distinctive asphalt roadway with contrasting white paint markings, and a repetitive three-strand barbed-wire fence with weathered T-post poles adjacent to the roadway. A smooth, tan, dirt U.S. Forest Service road (FS Rd 144) continues diagonally from the foreground through the midground. Brown, beige, and light tan vegetation, with dense and consistent light to dark green pinyon–juniper are viewed in the midground of the KOP. Distant views from KOP 2 consist of light-colored rabbitbrush and grasses and sparsely scattered pinyon–juniper which transition to long, smooth, irregular, undulating, tan rolling hills and buttes.

From KOP 2, the viewer is approximately 1.8 miles southeast of the nearest visible transmission structure. Based on the superior viewing perspective, and distance to the nearest structure along with the backdrop of the pale blue sky, the Interconnection Project would be perceivable to the casual observer, and the lines, colors, and textures would appear similar to the existing transmission line infrastructure common in the landscape. At this close distance the Interconnection Project would add new form and scale to the landscape with the proposed H-frame and monopole-type transmission structures. As shown in Exhibit E-2c, the Interconnection Project would likely be visible from this portion of U.S. Route 180. The expected duration for “travel route viewers” is relatively short, therefore, the Interconnection Project would not attract undue attention. Furthermore, the Interconnection Project would appear in a similar

manner to the existing transmission lines. Thus, the Interconnection Project would result in a weak degree of contrast and low visual impacts for travel route views on U.S. Route 180.

KOP 3: ARIZONA NATIONAL SCENIC TRAIL

KOP 3 (see Exhibits E-3a, E-3b, and E-3c) represents a trail user's view looking west from the Arizona National Scenic Trail, the approximate trail location closest to the Interconnection Project. This location is approximately 3.4 miles northeast of the nearest visible Interconnection Project transmission structure. The immediate foreground consists of dark greens, brown, beige, and light tan vegetation. Views in the midground include stippled, singular forms of dark pinyon-juniper contrasting with the light-colored rabbitbrush, grasses which increase in density and consistency, and skyline views of tall, dark, steel lattice structures and conductor wires that continue through the background and dominate this view. Distant views include the tall, dark, steel lattice structures continuing to the west, light-colored rabbitbrush and grasses and sparsely scattered pinyon-juniper, and long, smooth, irregular, undulating, tan rolling hills and buttes.

From KOP 3, the viewer is approximately 3.6 miles west of the nearest visible transmission structure. Based on the inferior viewing perspective, and distance to the nearest structure along with the backdrop of the pale blue sky, the Interconnection Project would likely be perceivable to the casual observer. The lines, colors, and textures of the Interconnection Project would appear similar to the existing transmission line infrastructure. The Interconnection Project would add new form and scale to the landscape with the proposed H-frame and monopole-type transmission structures. Due to the close proximity of the trail and the anticipated long duration of view from this location, the Interconnection Project could be seen and would begin to attract attention, although it would be similar to other built features in the landscape, thus resulting in a weak to moderate degree of contrast and low to moderate impacts along the Arizona National Scenic Trail.

Conclusion

Overall, the Interconnection Project would be similar in line, color, texture, and scale as compared to the existing Moenkopi to Cedar Mountain 500-kV transmission line. The Interconnection Project would introduce new form and scale to the landscape with the proposed H-frame and monopole-type transmission structures for its approximately 5-mile route between the Project Substation to the Arizona Public Service Switchyard. The Interconnection Project would be adjacent to existing transmission structures that are of similar height. The simulations illustrate the potential for different impacts to be experienced by sensitive viewers from various distances and locations. Therefore, the Interconnection Project would result in a weak degree of visual contrast and low visual impacts.

Sun and Weather

Date: **6-12-23**
 Photo Time: **11:45 am**



Visibility:



Air Quality: **Good**

Sun Azimuth:



Sun Angle: **65.07°**

Lighting Angle on Project: **Side Lit**

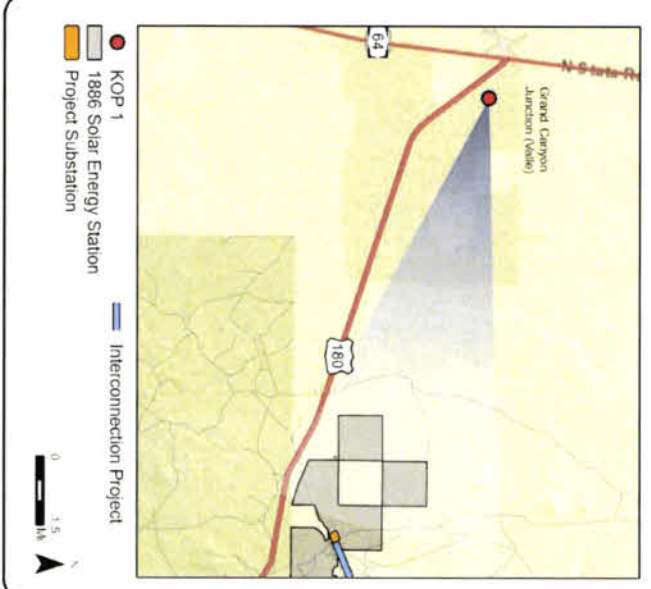
Wind: **15 mph**

Cloud Cover: **50 %**

Temperature (°F): **65°F**

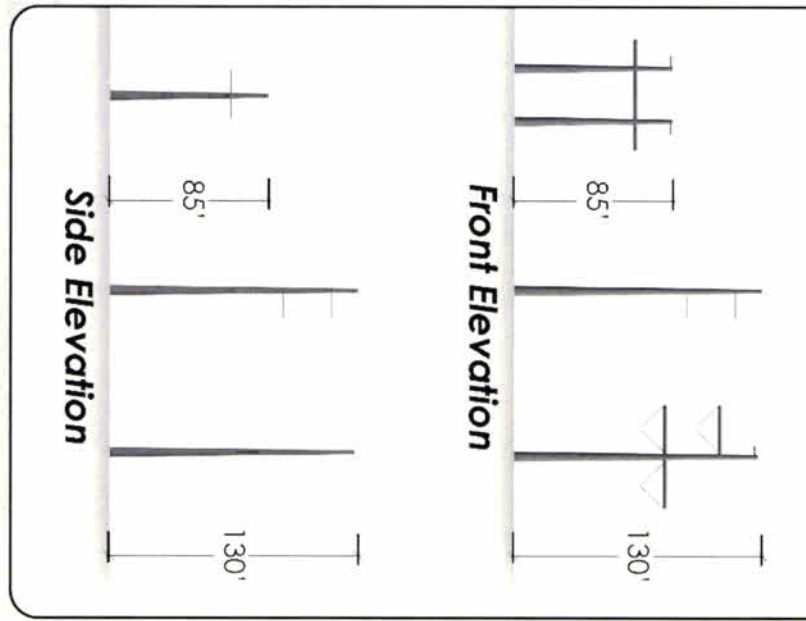
Simulation was prepared using information provided by client. Locations, colors, and heights may vary based on final engineering and design.

1886 Solar Energy Station Interconnection Project

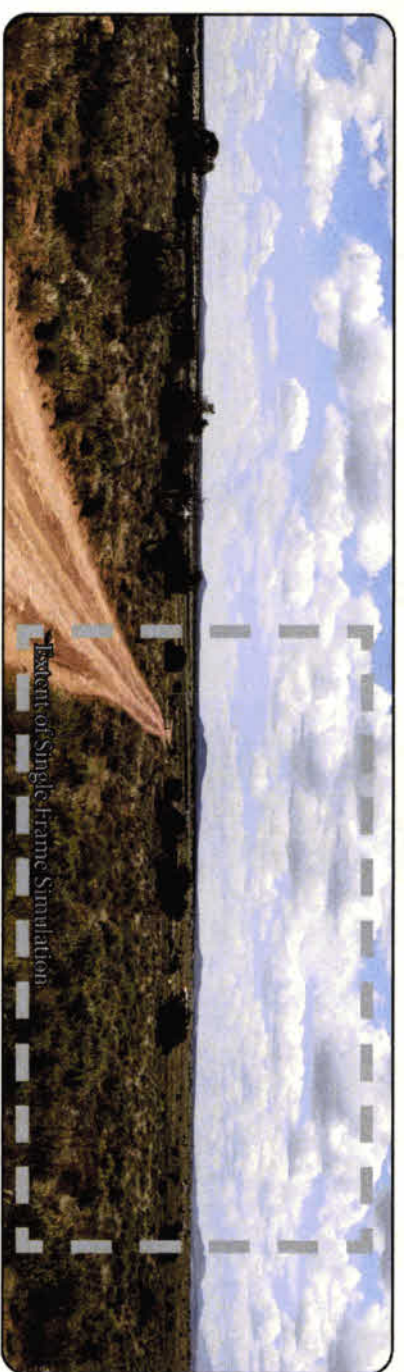


Approximate Distance to nearest visible Transmission Structure: **10.7 miles**

Project Location



Structure Diagram



KOP 1 - Valle (Grand Canyon Junction)

Base Photographic Documentation

Latitude, Longitude (°):

35.647294, -112.123751

Viewpoint Elevation (feet): **6015**

Camera Height (meters): **1.5**

Camera Heading (degrees): **285**

Camera Make & Model: **Canon EOS 5D Mark IV**

Camera Sensor Size (mm): **36 x 24 Full Frame**

Crop Factor: **1**

Lens Make & Model: **AF-P Nikkor**

Lens Focal Length (mm): **50**

Image Size (pixels): **6720 x 4480**

Single frame simulation approximates 50mm full frame equivalent.

Viewing Instructions: Printed at 100% the resulting simulation is 16 inches wide by 10 inches high. At this size and focal length, the simulation should be viewed at arms length (24 inches). If viewed on a computer monitor, scale should be 100%.



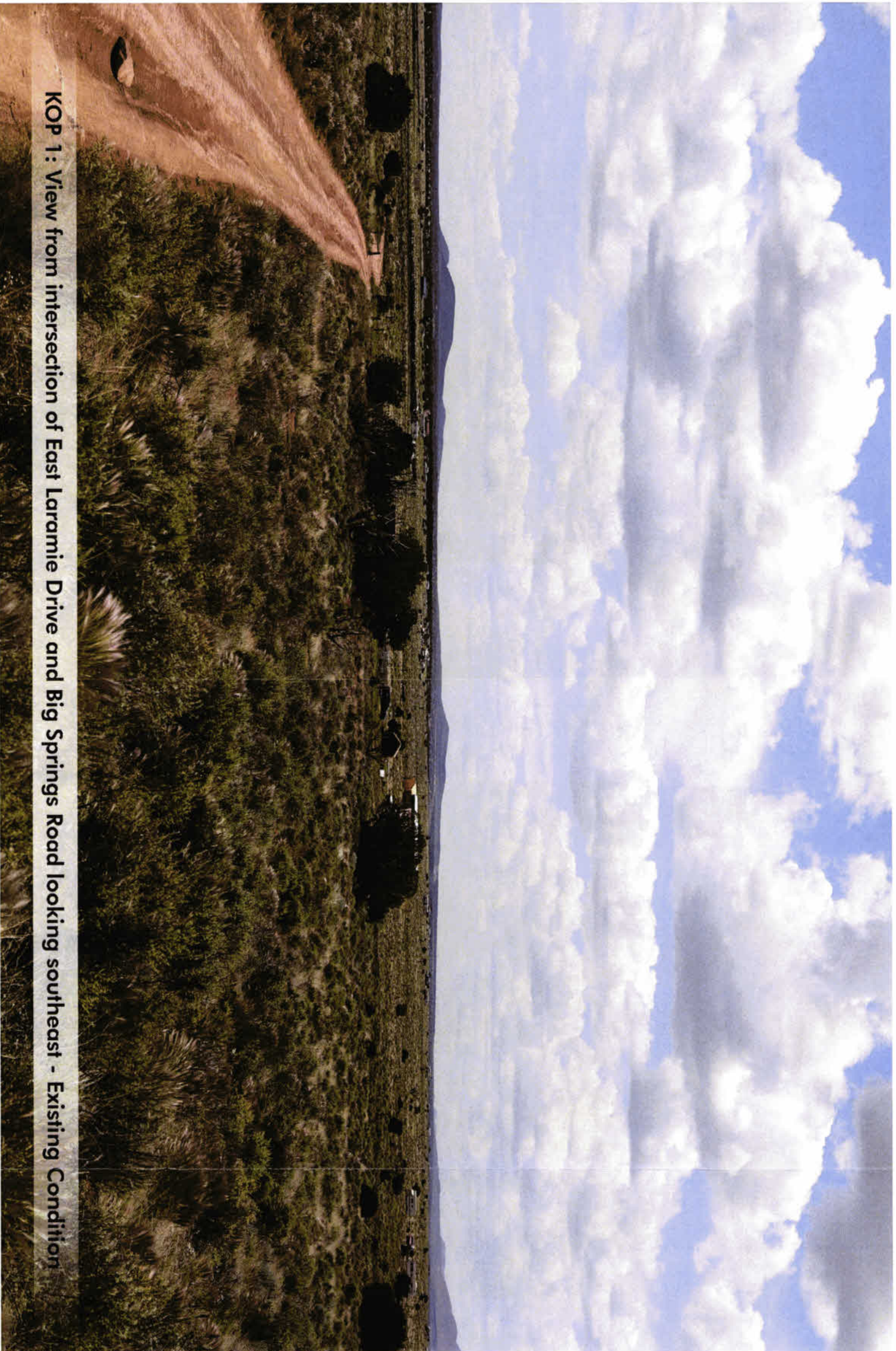
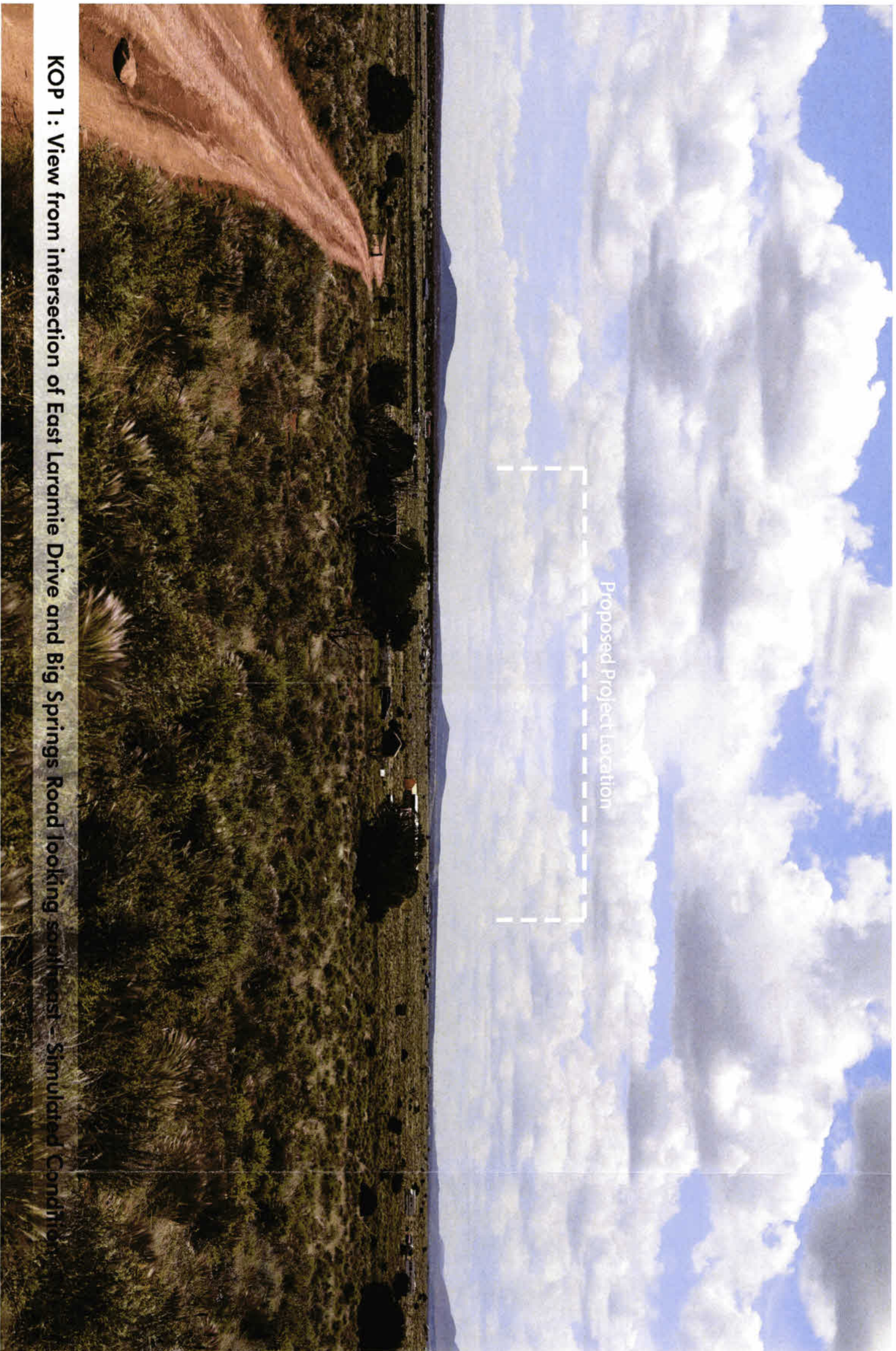



Exhibit E-1b. Existing view from KOP 1.



KOP 1: View from intersection of East Laramie Drive and Big Springs Road looking southeast – Simulated Condition

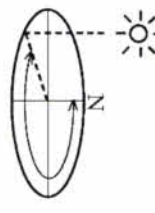
Exhibit E-1c. Photosimulation showing view from KOP 1.

Sun and Weather


Date: 6-12-23
Photo Time: 12:20 pm
Mostly-Cloudy

Visibility: 

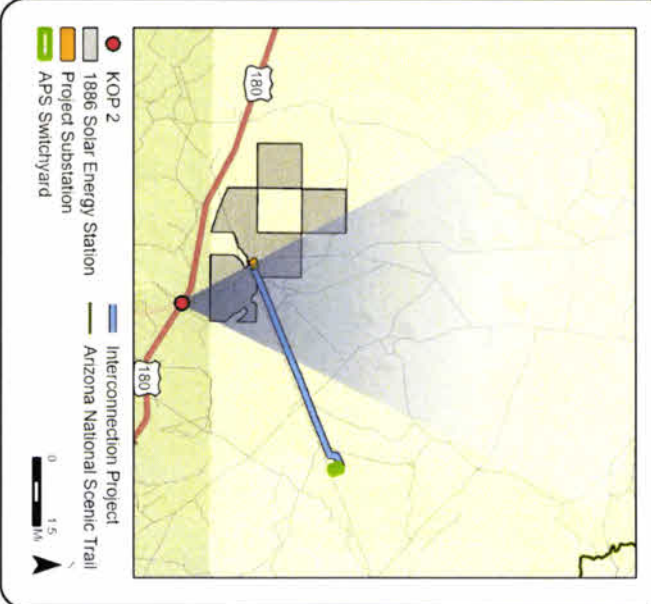
Air Quality: Good
Sun Azimuth: 115.42°


Sun Angle: 71.17°
Lighting Angle on Project: Side Lit

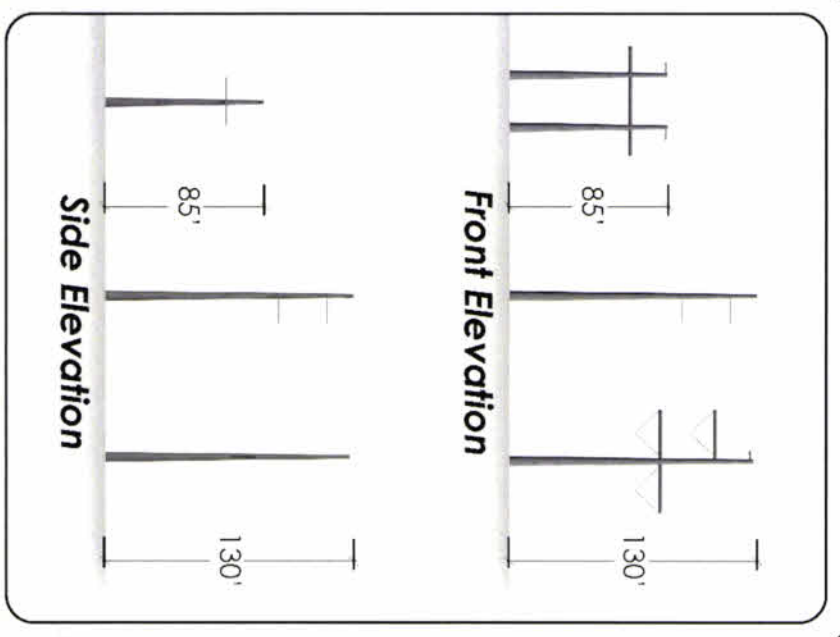
Wind: 15 mph
Cloud Cover: 50 %
Temperature (°F): 65°F

Simulation was prepared using information provided by client. Locations, colors, and heights may vary based on final engineering and design.

1886 Solar Energy Station Interconnection Project



Approximate Distance to nearest visible Transmission Structure: 1.8 miles
Project Location



Structure Diagram



Extent of Single-Frame Simulation

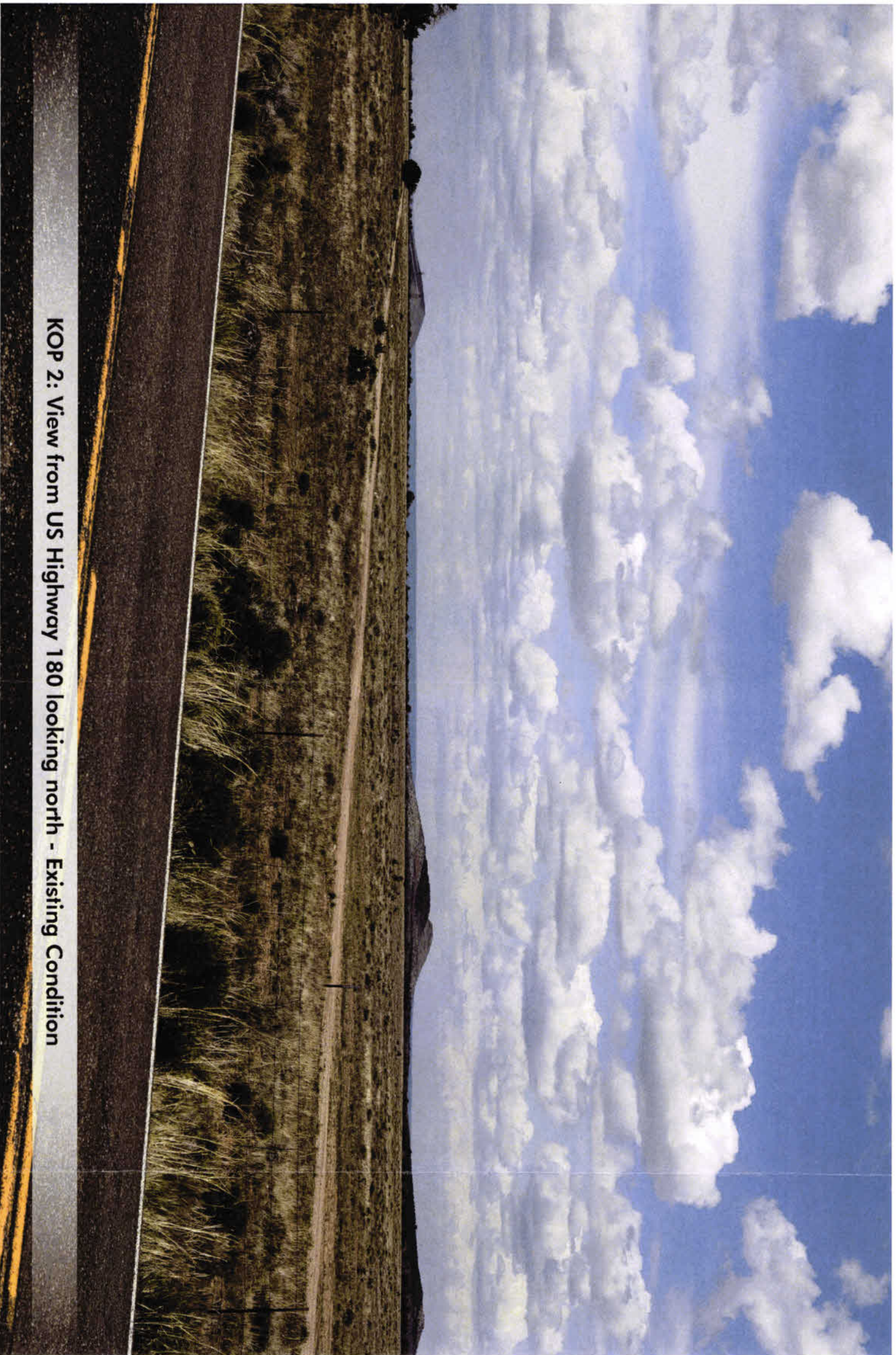
KOP 2 - US Highway 180

Base Photographic Documentation
Latitude, Longitude (°): 35.573582, -111.933128
Viewpoint Elevation (feet): 6560
Camera Height (meters): 1.5
Camera Heading (degrees): 0
Camera Make & Model: Canon EOS 5D Mark IV
Camera Sensor Size (mm): 36 x 24 Full Frame
Crop Factor: 1
Lens Make & Model: AF-P Nikkor
Lens Focal Length (mm): 50
Image Size (pixels): 6720 x 4480

Single frame simulation approximates 50mm full frame equivalent.

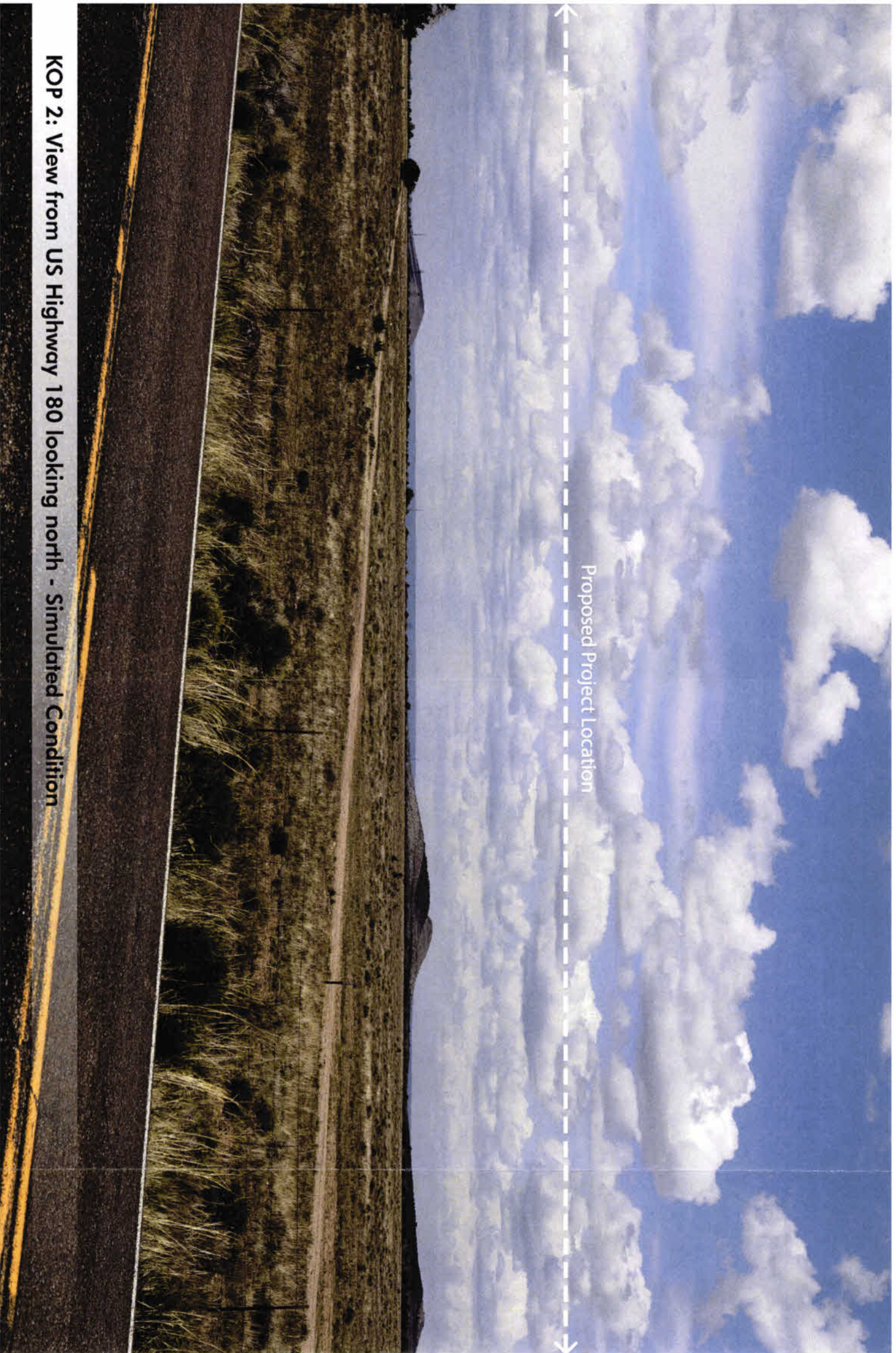
Viewing Instructions: Printed at 100% the resulting simulation is 16 inches wide by 10 inches high. At this size and focal length, the simulation should be viewed at arms length (24 inches). If viewed on a computer monitor, scale should be 100%.





KOP 2: View from US Highway 180 looking north - Existing Condition

Exhibit E-2b. Existing view from KOP 2.



KOP 2: View from US Highway 180 looking north - Simulated Condition

Exhibit E-2c. Photosimulation showing view from KOP 2.

Sun and Weather

Date: **6-12-23**
 Photo Time: **1:50 pm**

Visibility: **Mostly-Cloudy**

Air Quality: **Good**

Sun Azimuth: **204.59°**

Sun Angle: **76.87°**

Lighting Angle on Project: **Side Lit**

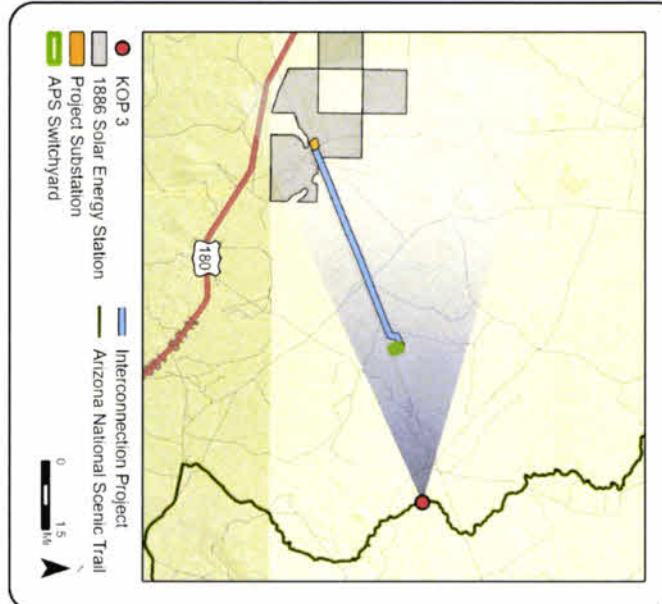
Wind: **20 mph**

Cloud Cover: **50 %**

Temperature (°F): **55°F**

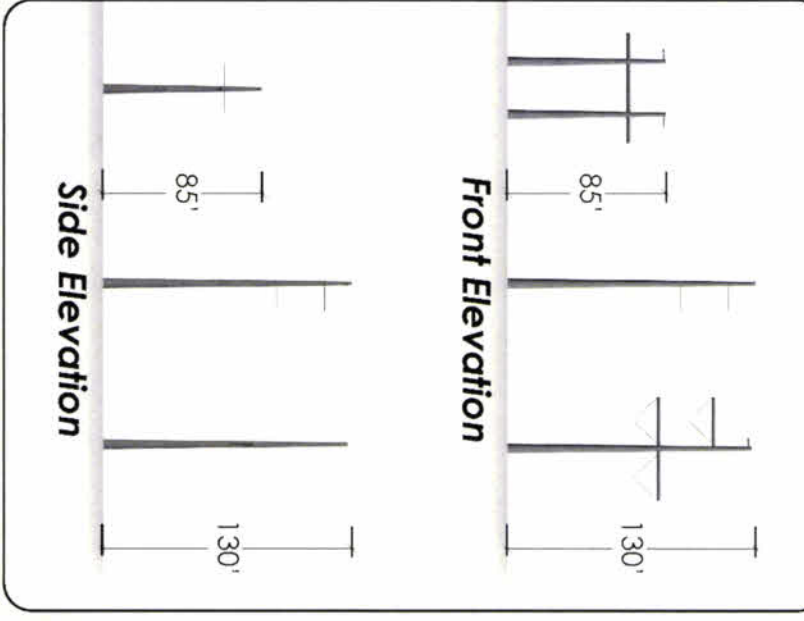
Simulation was prepared using information provided by client. Locations, colors, and heights may vary based on final engineering and design.

1886 Solar Energy Station Interconnection Project



Approximate Distance to nearest visible Transmission Structure: **3.5 miles**

Project Location



Structure Diagram



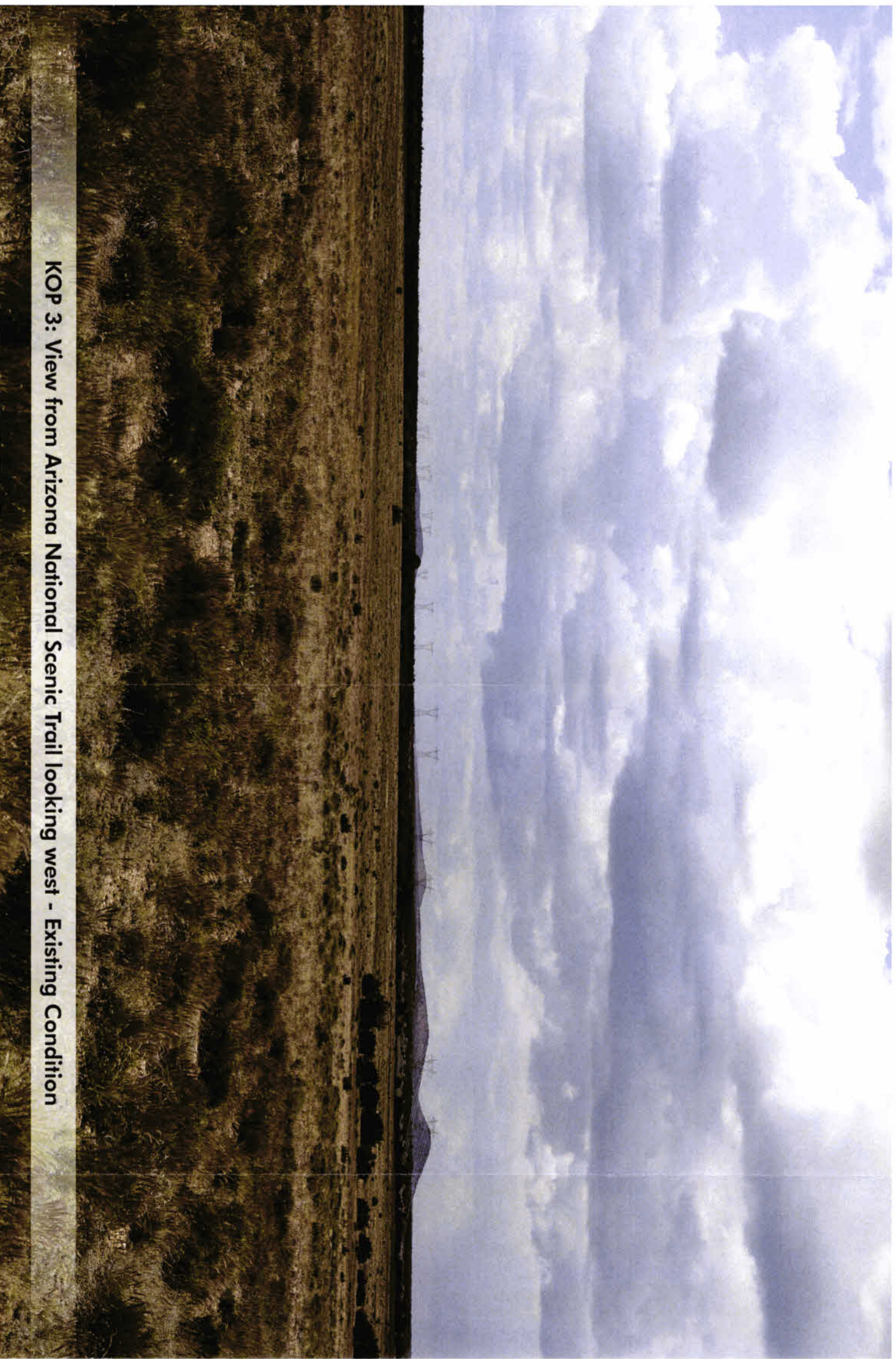
Extent of Single Frame Simulation

KOP 3 - Arizona National Scenic Trail

Base Photographic Documentation
 Latitude, Longitude (°): **35.635053, -111.806679**
 Viewpoint Elevation (feet): **6475**
 Camera Height (meters): **1.5**
 Camera Heading (degrees): **85**
 Camera Make & Model: **Canon EOS 5D Mark IV**
 Camera Sensor Size (mm): **36 x 24 Full Frame**
 Crop Factor: **1**
 Lens Make & Model: **AF-P Nikkor**
 Lens Focal Length (mm): **50**
 Image Size (pixels): **6720 x 4480**

Viewing Instructions: Printed at 100% the resulting simulation is 16 inches wide by 10 inches high. At this size and focal length, the simulation should be viewed at arms length (24 inches). If viewed on a computer monitor, scale should be 100%.





KOP 3: View from Arizona National Scenic Trail looking west - Existing Condition

Exhibit E-3b. Existing view from KOP 3.



KOP 3: View from Arizona National Scenic Trail looking west - Simulated Condition

Exhibit E-3c. Photosimulation showing view from KOP 9.

Historic Sites and Structures and Archaeological Sites

As required by the Arizona Corporation Commission *Rules of Practice and Procedure* R14-3-219, SWCA assessed the potential effects of the proposed Interconnection Project on historic sites and structures and archaeological sites. The assessment also was prepared to support Arizona Corporation Commission compliance with the State Historic Preservation Act (Arizona Revised Statutes 41-861 through 41-864), which requires state agencies to consider impacts of their programs on historic properties listed in or eligible for listing in the Arizona Register of Historic Places (ARHP) and to provide the State Historic Preservation Office (SHPO) an opportunity to review and comment on the actions that affect such historic properties.

To be eligible for the ARHP, a property must be at least 50 years old (less if it has special significance) and have national, state, or local significance in American history, architecture, archaeology, engineering, or culture. It should also possess integrity of location, design, setting, materials, workmanship, feeling, and association, and meet at least one of the four following criteria:

- Criterion (a): be associated with an event that made a significant contribution to the broad pattern of history.
- Criterion (b): be associated with the life of a historically significant person.
- Criterion (c): have distinctive characteristics of a type, period, or method of construction, represents the work of a master, possesses high artistic value, or represents a significant and distinguishable entity whose components may lack individual distinction.
- Criterion (d): has yielded or is likely to yield important prehistorical or historical information.

Methodology

For the purpose of assessing potential impacts to historic sites and structures, as well as archaeological sites, the Project Area is considered the Interconnection Project's 500-foot-wide CEC Corridor; the Study Area is defined as a 1-mile-radius buffer from the Project Area. SWCA reviewed archival records to identify such properties within the Study Area. Data sources searched include AZSITE, Arizona's statewide cultural resources database, which includes records from the Arizona State Museum (ASM), Arizona State University, SHPO, and the Bureau of Land Management; the National Register of Historic Places database; the ARHP list; General Land Office (GLO) plat maps; and historic-era topographic maps.

Previous Cultural Resources Projects

The records review identified 10 prior cultural resources surveys that have taken place within the 1-mile Study Area. These projects took place from 1978 to 2022 in support of mineral exploration, electrical transmission lines, gas pipelines, and energy projects. Of these, three cultural surveys intersect and cover approximately 69 percent of the entire Project Area (i.e., the CEC Corridor) (Table E-2).

Table E-2. Previous Cultural Resources Projects Intersecting the Project Area

Agency Number	Project Name	Organization	Year
2020-325.ASM	Babbitt Ranch Energy Center	SWCA	2020
2021-128.ASM	CO Bar Solar ASLD ROW Cultural Surveys	SWCA	2021
2021-447.ASM	CO Bar Ranch Fiber Optic and Access Road Survey	SWCA	2021–2022

The SHPO has provided guidance for the reliance on survey data that is 10 years or older (SHPO 2004). Surveys conducted before 1995 did not use the current ASM site definition criteria (ASM 1995). For the three surveys listed in Table E-2, the principal investigators meet current state and federal professional qualification standards. In addition, the surveys conducted by SWCA covered approximately 69 percent of the Project Area and can be relied on for current inventory purposes.

Historic-Era Sites

The records review identified three historic-era sites and two multicomponent sites within 1 mile of the Interconnection Project, none of which intersect the Project Area (Table E-3). Sites AZ I:5:19(ASM) and AZ I:5:20(ASM) are Euro-American historic-era refuse scatters that were recommended ineligible for the ARHP. AZ I:5:21(ASM) is a multicomponent site consisting of prehistoric Cohonina and historic-era Euro-American artifact scatter with both components recommended ineligible for the ARHP. AZ I:5:64(ASM) is a Euro-American historic-era hearth and refuse scatter that is recommended ineligible for the ARHP. AZ I:5:80(ASM) is a historic-era brush structure and refuse scatter that could be associated with the Navajo or Euro-American populations that was recommended as ineligible for the ARHP. AZ I:5:87(ASM) is a multicomponent site consisting of prehistoric Cohonina and historic-era Euro-American artifact scatter with a rock feature. The historic-era component was recommended ineligible for the ARHP, and the prehistoric component was recommended eligible for the ARHP. These recommendations were concurred by SHPO in 2021 and 2022.

Table E-3. Previously Recorded Historic-Era Sites within 1 Mile of the Project Area

Site Number	Cultural/Temporal Affiliation	Site Type	ARHP Eligibility Status	Associated Reference(s)	Distance from Project Area (miles)
AZ I:5:19(ASM)	Euro-American / ca. 1957–1970s	Refuse scatter	Determined not eligible	Barr et al. (2021)	0.33
AZ I:5:20(ASM)	Euro-American / ca. 1908–1929	Refuse scatter	Determined not eligible	Barr et al. (2021)	0.26
AZ I:5:21(ASM)	Euro-American / ca. 1957–1970s / Cohonina / ca. 700–1275	Refuse scatter Artifact scatter	Determined not eligible	Barr et al. (2021)	0.19
AZ I:5:64(ASM)	Euro-American / ca. 1930–1959	Hearth and refuse scatter	Determined not eligible	Barr et al. (2021)	0.51
AZ I:5:87(ASM)	Euro-American / ca. 1880–present / Cohonina / ca. 800–1150	Refuse scatter Artifact scatter with a feature	Determined eligible	Barr et al. (2022)	0.26

Historic-Era Structures

The records review did not identify any historic-era structures from the AZSITE database.

The GLO plat map of Township 26 North, Range 4 East was surveyed in 1916 and approved and filed in 1919. The landscape was depicted as ranchland with little development except for dirt roads providing access to ranchland. The fenced RANCH HOUSE TANK and a ranch house is depicted north of the Interconnection Project in Sections 26 and 27. In addition, a fenced pasture and a dirt road bisect the Interconnection Project in the SW¼ of Section 26 and an additional dirt road bisects the Interconnection Project in the SE¼ of Section 26.

The GLO plat of Township 26 North, Range 5 East was surveyed in 1916 and approved and filed in 1919. The landscape was depicted as ranchland with little development except for dirt roads providing access to ranchland. The Interconnection Project is bisected by two northwest-southeast trending dirt roads in the NE¼ and NW¼ of Section 30. In addition, a TANK is depicted in the SW¼ of Section 29, and a fenced pasture is depicted in the NW¼ and SW¼ of Section 28 that overlaps with the NE¼ and SE¼ of Section 29.

The 1960 U.S. Geological Survey Ebert Mountain, Arizona, 15-minute quadrangle depicts the area as a ranching landscape with dirt roads and stock tanks. A PIPELINE parallels the transmission line corridor adjacent to the Project Area. There is a roughly north-south unnamed dirt road in Section 34 that bisects the Interconnection Project, two dirt unnamed roads in Section 35 that lead to DENT AND SAYER RANCH that bisect the Interconnection Project, and there is a northwest-southeast unnamed dirt road leading to PEARL HARBOR STORAGE TANK that bisects the Project Area in Section 19.

Historical aerial photographs of the area from 1958 depict the same unimproved roads and pipeline that were depicted on the 1960 U.S. Geological Survey map. Modern aerial photography indicates that the historic-era roads intersecting the Interconnection Project are still in use.

Archaeological Sites

There are 11 previously recorded archaeological sites within the 1-mile Study Area and one site (AZ I:5:81[ASM]) intersects the Interconnection Project (Table E-4). AZ I:5:81(ASM) is a Cohonina artifact scatter that was recommended eligible for the ARHP. Of the remaining 10 sites, six sites (AZ I:5:16[ASM], AZ I:5:22[ASM], AZ I:5:25[ASM], AZ I:5:79[ASM], AZ I:5:85[ASM], and AZ I:5:86[ASM]) are Cohonina artifact scatters, five of which were recommended eligible and one was recommended ineligible. Two sites (AZ I:5:21[ASM] and AZ I:5:87[ASM]) are multicomponent sites consisting of prehistoric Cohonina and historic-era Euro-American artifact scatters; one was recommended ineligible and the other was recommended eligible. However, the historic component at AZ I:5:87(ASM) was recommended as ineligible. AZ I:5:63(ASM) is a Dinè sweat lodge that was recommended eligible for listing in the ARHP. AZ I:5:80(ASM) is associated with Dinè or Euro-American and consists of a brush structure and associated artifacts. It was recommended as ineligible for listing in the ARHP. One site consists of an Archaic artifact scatter that was recommended as ineligible and the last site (AZ I:5:24[ASM]) is lithic scatters that could not be assigned a cultural or temporal affiliation. With the exception of AZ I:5:85(ASM) and AZ I:5:86(ASM) (report is currently under review), these recommendations were concurred by SHPO in 2021 and 2022.

Table E-4. Previously Recorded Archaeological Sites within 1 Mile of the Project

Site Number	Cultural/Temporal Affiliation	Site Type	ARHP Eligibility Status	Associated Reference(s)	Distance from Project Area (miles)
AZ I:5:16(ASM)	Cohonina / ca. 1050–1250	Artifact scatter	Recommended eligible	Barr et al. (2022)	0.04

Site Number	Cultural/Temporal Affiliation	Site Type	ARHP Eligibility Status	Associated Reference(s)	Distance from Project Area (miles)
AZ I:5:21(ASM)	Cohonina / ca. 700–1275 / Euro-American / ca. 1957–1970s	Artifact scatter Refuse scatter	Recommended not eligible	Barr et al. (2021)	0.19
AZ I:5:22(ASM)	Cohonina / ca. 600–1225	Artifact scatter	Recommended eligible	Barr et al. (2021)	0.88
AZ I:5:23(ASM)	Archaic / ca. 1050–250	Artifact scatter	Recommended not eligible	Barr et al. (2021)	0.43
AZ I:5:24(ASM)	Native Archaeological Cultural	Lithic scatter	Recommended not eligible	Barr et al. (2021)	0.39
AZ I:5:25(ASM)	Cohonina / ca. 950–1150	Artifact scatter	Recommended eligible	Barr et al. (2021)	0.96
AZ I:5:63(ASM)	Diné/ca. 1930–1975	Sweat Lodge	Determined eligible	Barr et al. (2021)	0.96
AZ I:5:79(ASM)	Cohonina / ca. 550–950	Artifact scatter	Recommended ineligible	Barr et al. (2021)	0.43
AZ I:5:80(ASM)	Diné (?) / Euro-American (?)/ca. 1930-1975	Brush structure with associated artifacts	Determined ineligible	Barr et al. (2021)	0.09
AZ I:5:81(ASM)	Cohonina / ca. 800–1050	Artifact scatter	Recommended eligible	Barr et al. (2021)	Within
AZ I:5:85(ASM)	Cohonina / ca. 700–1150	Artifact scatter	Recommended eligible	Barr et al. (2023)	0.89
AZ I:5:86(ASM)	Cohonina / ca. 700–1150	Artifact scatter	Recommended eligible	Barr et al. (2023)	0.57
AZ I:5:87(ASM)	Cohonina / ca. 800–1150 / Euro-American / ca. 1880–present	Artifact scatter with a feature Refuse scatter	Recommended eligible	Barr et al. (2022)	0.26

Assessment of Effects

A project can have direct and/or indirect effects on historic sites and structures and archaeological sites when it alters the characteristics that qualify it for listing in the ARHP. Effects are adverse when they diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association. Adverse effects on historic properties include, but are not limited to, the following:

- Physical destruction of or damage to all or part of the property.
- Removal of the property from its historic location.
- Change of the character of the property’s use of physical features within the property’s setting that contribute to its historic significance.
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property’s significant historic characteristics.
- Neglect of a property that causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe.
- Transfer, lease, or sale of a property out of government ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property’s historic significance.

DIRECT EFFECTS

The records review identified one site (AZ I:5:81[ASM]) that could be directly affected by the proposed Project. The direct effects could be negated if AZ I:5:81(ASM) can be avoided by the Interconnection Project, i.e., spanning. The historical map research identified four unnamed unimproved roads intersecting the Project Area. These roads were not recorded as significant sites or structures during the previous surveys and likely would not be ARHP-eligible properties. The roads also appear to be still in use and would be avoided by the Interconnection Project activities.

INDIRECT EFFECTS

Seven ARHP-eligible properties were identified within the Study Area. Given the presence of other overhead and linear structures across the landscape and adjacent to the proposed structures, the Interconnection Project would not introduce any incompatible elements that are not already present. Therefore, there would be no adverse indirect impacts to the setting or integrity to the seven ARHP-eligible properties nor impacts to historic properties with the Study Area.

Conclusion

The records review identified that approximately 69 percent of the Project Area (i.e., the 500- foot-wide CEC Corridor) has been previously adequately surveyed for cultural resources. Once the Applicant finalizes the location of the 250-foot-wide ROW within the CEC Corridor, portions of the final ROW location not covered by previous surveys should be surveyed for significant cultural properties prior to construction activities. The available records indicated that there is one historic property that could be affected by direct effects and no historic properties that would be affected by indirect effects from implementation of the Interconnection Project. The direct effects could be negated if AZ I:5:81(ASM) can be avoided by project activities, i.e. spanning. Four historic-era roads intersect the Project Area but are still in use and would be avoided by the Interconnection Project activities.