Appendix A: Public Involvement Information

Letter Number	Comment Number	Entity	Date of Commen	t Comment	Response	Comment Topic
Scoping						
A	1	Private Citizen	12/5/2018	Appears Lookout Solar is a foreign owned company. The foreign ownership could leave local entities holding the liabilities, if this project encounters difficulties.	Comment noted.	General Economic
А	2	Private Citizen	12/5/2018	Custer County Commission has already issued a Occupancy on Right-of-Way to Lookout Alternative Energy, LLC 3-8-2017 for the same route proposed by Lookout Solar.	Comment noted. WAPA's interconnection decision is separate from any other permissions the Project may need to acquire, such as approval from State or local entities.	General
A	3	Private Citizen	12/5/2018	Past wind farm project in this same area was handled very poorly by Custer County Commission, causing grave concerns about how they may handle this Project.	Comment noted. WAPA's authority on the project is limited to the Federal action of approving or denying the interconnection.	General
В	1	U.S. Department of Agriculture, Farm Service Agency	11/26/2018	Thank you for the opportunity to comment on the project information involving the proposed construction of the Lookout Solar Project located in Oglala Lakota and Custer Counties in South Dakota. As a Federal nexus, the Farm Service Agency (FSA) is requesting more detail of the project area in order to determine if any of our producers may be affected. If there is a shapefile that wo would be able to share with us, we can make a determination of what interested we have in the project prior to the completion of your EA.	WAPA responded via email on 1/3/19 with the following response: Attached are the Project shapefiles. Please let me know if there is anything else I can do.	Land Use Vegetation
С	1	U.S. Department of Agriculture, Natural Resources Conservation Service	12/27/2018	Thank you for the opportunity to provide Farmland Protection Policy Act (FPPA) review of this project. The project as outlined will have no impact on prime or important farmland. The Natural Resources Conservation Service (NRCS) would advise the applicant to consult with the local NRCS and Farm Service Agency offices regarding any United States Department of Agriculture easements or contracts in the project areas that may be affected. For any other easements outside of the NRCS, you should check with the local courthouses.		Land Use Vegetation
D	1	South Dakota Department of Environment and Natural Resources	12/17/2018	The South Dakota Department of Environment and Natural Resources (DENR) Surface Water Quality Program has reviewed the proposed Lookout Solar Project in Oglala Lakota and Custer Counties. The DENR finds that this construction, using conventional construction techniques, should not cause violation of any statutes or regulations administered by the DENR based on the following comments: 1. At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site. Any construction activity that disturbs an area of one or more acres of land must have authorization under the General Permit for Storm Water Discharges Associated with Construction Activities. Contact the Department of Environment and Natural Resources for additional information or guidance at 1-800-SDSTORM (800-737-8676) or http://denr.sd.gov/des/sw/StormWaterandConstruction.aspx. 2. A Surface Water Discharge (SWD) permit may be required if any construction dewatering should occur as a result of this project. Please contact this office for more information. 3. Impacts to tributaries and wetlands should be avoided or minimized if possible. These water bodies are considered waters of the state and are protected under the South Dakota Surface Water Quality Standards. The discharge of pollutants from any source, including indiscriminate use of limit material, may not cause destruction or impairment except where authorized under Section 404 of the Federal Water Pollution Control Act. Please contact the U.S. Army Corps of Engineers concerning these permits. This office requests the opportunity to review and comment on any significant changes that may be proposed before the project is completed. Thank you for the opportunity to comment on the proposed project.	Comment noted.	Water Resources
E	1	South Dakota Game, Fish and Parks	12/26/2018	I received a WAPA scoping notice for the proposed solar project on the Pine Ridge Indian Reservation in South Dakota. I have been going through the information you sent, and some of the information that has been submitted to the South Dakota Public Utilities Commission for the permit for this solar facility. I have a couple questions for you: 1. Do you have any shape files that you might be able to share with more specific project boundaries? 2. In the PUC application, it looks like there was an Environmental Assessment completed in Summer 2016 for the proposed project. This was completed by the Bureau of Indian Affairs, and they issued a FONSI. Why is there a second EA being conducted for this project? 3. What was the reasoning for the extended deadline in the scoping notice?	WAPA provided the following response on 12/27/18: Thank you for your interest in the project. To answer your questions: 1. Do you have any shape files that you might be able to share with more specific project boundaries? Yes. Please see attached. 2. In the PUC application, it looks like there was an Environmental Assessment completed in Summer 2016 for the proposed project. This was completed by the Bureau of Indian Affairs, and they issued a FONSI. Why is there a second EA being conducted for this project? The BIA's EA did not fully describe the Proposed Action. The BIA document only covered the portions of the project which are to be located on the Pine Ridge Reservation. The transmission line and WAPA's federal action (Issuing an easement or special use permit), which was not described in the BIA's EA. Also, the Forest Service may have a Federal action (Issuing an easement or special use permit), which was not described in the BIA's accument. The BIA does not intend to amend or modify their 2016 EA, so WAPA and the Forest Service are preparing a second EA to fully evaluate the project and our respective Federal actions. 3. What was the reasoning for the extended deadline in the scoping notice? President Trump directed all Federal agencies to close for business on Wednesday, December 5th, as a day of mourning for the late President Bush. As such, neither WAPA or Forest Service representatives were able to attend the December 5th public meeting. WAPA has extended the scoping deadline and scheduled an additional public meeting so that interested parties can meet with Federal agency representatives. Please let me know if you'd like to discuss further.	General
E	2	South Dakota Game, Fish and Parks	2/11/2019	Thank you for contacting the South Dakota Department of Game, Fish and Parks (SDGFP) regarding the above-mentioned project involving the construction of an 84d acre photovoltaic solar generating facility, a new substation, a new underground transmission line, access roads and a maintenance and operation center in Ogalial a Lakota and Custer Counties, South Dakota. The scoping notice did not include sufficient detail to determine environmental impacts of this project. However, SDGFP accessed the developers application materials sent to the South Dakota Public Utilities Commission to complete our review. We have prepared the following comments and suggestions to be considered as part of the draft environmental assessment (EA) to be prepared by Western Area Power Administration.	Comment noted.	General

Letter Numb	er Comment Number	Entity	Date of Commen	t Comment	Response	Comment Topic
E	3	South Dakota Game, Fish and Parks	2/11/2019	Siting and operation of solar projects has the potential to directly and indirectly impact area wildlife. This may occur by altering habitats, influencing behavior patterns and directly killing individuals through collisions with project infrastructure. In particular, SDGP is concerned about collision mortality of birds and bats in the project area (Harrison et al. 2016, Walston et al. 2016). Lookout Solar LLC (the developer) conducted one year of pre-construction wildlife surveys at the project site. If major impacts are predicted from these studies, development in the area should be avoided. If less serious impacts are anticipated, mitigation is recommended to reduce these impacts. Post-construction studies should be conducted to assess actual impacts of the project, evaluate mitigation effectiveness and evaluate predictions. Very little research exists on the impacts of solar energy facilities sited in grassland and herbaceous habitat. We recommend the developer follow the methods described in Huso et al. (2016) for mortality monitoring at utility-scale solar facilities. Information on efforts to survey for and document sensitive species and habitats, as well as how risk will be avoided or mitigated should be included in the EA. We also recommend the developers contact the U.S. Fish and Wildlife Service ecological services field office for consultation to determine any potential impacts to federally threatened or endangered species, if they have not done so already.	Comment noted.	Fish and Wildlife
E	4	South Dakota Game, Fish and Parks	2/11/2019	A desktop review of the project indicated that most of the proposed area is classified as grassland/herbaceous cover with a small portion of the area dassified as shrub/scrub in the 2011 National Land Cover Database (https://www.mric.gov/). The Natiral Resources Conservation Service identifies this major land resource area as mixed sandy and silty tableand and badlands. This area is dominated by grasslands and shrublands. Remnant prairie tracts have high conservation value, especially those that contain a high diversity of both plant and animal species, and rare or non-existent invasive species. We acknowledge this area is likely comprised of primarily untilled native grasslands and impacts to these habitats may be unavoidable, but would still recommend the project area be surveyed for untilled tracts of native prairie and recommend efforts taken not to place solar panels, roads, collection lines and facilities in these areas. The project area does contain large areas of un-fragmented land, indicating the potential for high quality wildlife habitat. The £ should provide information on the extent of grassland in the area, ways to avoid direct loss of grassland acres and ways to reduce degradation and fragmentation. Additionally, mixed sandy and silty tablelands and badlands are susceptible to wind and water erosion. South Dakota Game, Fish and Parks recommends implementing erosion control measures during the construction phase of the project, to reduce impacts of sedimentation to ground and surface waters. Additionally, the proposed underground transmission line will run under the Cheyenne River. Disturbance to riparian and wettand areas should be kept to an absolute minimum. If riparian vegetation is lost, it should be quantified and replaced on site. Seeding of indigenous species should be accomplished immediately after construction to reduce sedimentation and erosion.		Soils and Geology Vegetation Water Resources
E	5	South Dakota Game, Fish and Parks	2/11/2019	We have conducted a search of the SD Natural Heritage Database (NHD) for the above referenced project. This database monitors species at risk, specifically those species that are legally designated as threatened or endangered or rare. Rare species are those that are declining and restricted to limited habitat or a jurisdiction, may be isolated or disjunct due to geographic or climatic factors that are classified as such due to lack of survey data. A list of monitored species can be found at http://gfp.sd.gov/natural-heritage-program. Many places in South Dakota have not been surveyed for rare or protected species and the absence of a species from the database does not preclude its presence from the project area. If surveys indicate that state endangered, threatened or rare species may occur in the project area, South Dakota Codified Law 34A-S-8 allows for only limited and specific authorized take of threatened and endangered species for scientific, coological or educational purposes. For more information, please visit https://gfp.sd.gov.licenses/other-permits/endangered-species-permit.aspx.	Comment noted.	General
E	6	South Dakota Game, Fish and Parks	2/11/2019	In North America, grassland birds have experienced consistent and long term declines (Peterjohn and Sauer 1999). The developers included reports of one year of grassland bird studies conducted in the project area. A number of species were documented that are impacted by habitat fragmentation. Species of habitat fragmentation concern are those which research and literature indicates rengatively affected by loss and fragmentation of habitat. Fragmentation includes cutting habitats into smaller, more isolated blocks and the creation of barriers (such as the inclusion of trees in prairies, barren land in forested areas, wind turbines, roads, etc.). The effects of fragmentation on species of concern include avoidance of fragmented areas or decreased density, survival, and/or reproduction in fragmented habitats. This list was compiled by the U.S. Fish and Wildlife Service. The EA should address ways to reduce direct and indirect impacts to these species. Sensitive species present in the project area include: Burrowing owl (Athene cunicularia) Upland Sandpiper (Bartamia longicauda) Longbilled Curlew (Numenius americanus) Western Meadow Lark (Sturnella neglecta) Lark Bunting (Colamospiza melanocorys) Shary-tailed grows (Tympanuchus phasianellus) Grasshopper Sparrow (Ammodramus savannarum) Additionally, a search of the NHD indicated that there is a 2011 record of a nesting burrowing owl (Athene cuniculario) located in a prairie dog town in the US Forest Service allotment where the proposed alternate substation is located. The burrowing owl is listed as a species of greatest conservation need in South Dakota because it relies on a unique habitat. Burrowing owls est in grasslands with few trees, and generally inhabit prairie dog towns larger than 25 acres (Griebel and Savidge 2007, Thiele et al. 2013). The breding season in South Dakota la med. Fish and Parks suggests avoiding construction withous 25 miles of an active burrowing owl nest. These recommendations for burrowing owl nest avoidance measures should be in	Comment noted. The 0.25-mile buffer for Burrow owls has been incorporated in the draft EA in section 3.7.1.	Fish and Wildlife

Letter Number	Comment Number	Entity	Date of Commen	t Comment	Response	Comment Topic
E	7	South Dakota Game, Fish and Parks	2/11/2019	South Dakota Game, Fish and Parks generally recommends two years of prairie grouse lek surveys in a project area prior to development. Prairie grouse (sharp-tailed grouse and greater prairie chicken (T. cupido)) inhabit large in-tact blocks of native grassland. Development (roads, power lines, solar panels, buildings, etc.) in and around prairie grouse habitat can fragment otherwise suitable habitat and sidplace brids. Parieir grouse are indicators of high quality grassland habitat and a robust ecological community due to their specific habitat needs. The developers of the Lookout Solar project did not complete prairie grouse lek surveys, but they did observe sharp-tailed grouse in the project area. South Dakota Game, Fish and Parks recommends a 1 mile setback from active sharp-tailed grouse leks. If possible, we recommend performing pre-construction lek surveys in April and May of 2019, and siting of project infrastructure 1 mile from active leks. We also suggest a two mile no construction buffer during the lekking season, 1 March to 30 June. Sharp-tail grouse are sensitive to noise, and construction are leks could cause birds to abandon leks. If the developer determines it is not fessible to cease controlled in the two mile buffer during the lekking season, SDGFP asks that construction activities are limited to the period 3 hours after sunrise to 1 hour before sunset. These recommendations for sharp-tailed grouse lek avoidance measures should be included in the EA.	Comment noted.	Fish and Wildlife
E	8	South Dakota Game, Fish and Parks	2/11/2019	Under the Migratory Bird Treaty Act (MBTA), it is unlawful to pursue, hunt, take, capture, kill, possess, sell, purchase, barter, import, export or transport any migratory bird, or any part, nest or egg of any such bird, unless authorized under a permit issued by the Secretary of the Interior. Take is defined in regulations as: "pursue, hunt, shoot, wound, kill, trap, capture or collect or attempt to pursue, hunt, shoot, wound, kill, trap, capture or collect." A list of species protected by the MBTA can be found here: https://www.fws.gov/birds/management/managed-species/migratory-bird-treaty-act-protectedspecies.php. A number of protected species and their nests were identified by the developer during the 1 year of pre-construction udified surveys. That so species protected by the MBTA specific to the solar facility include removal of nests when clearing riparian areas of trees, collisions with above-ground power lines, electrocution from power lines and collisions with photovoltaic panels. To avoid impacts to MBTA protected species, SDGP recommends construction activities near any documented nest should be avoided during the nesting period (March-August). Tree removal in the immediate vicinity of any nests should be avoided.	Comment noted. Lookout Solar has committed to avoiding ground clearing activities during the migratory bird nesting season (typically May 1 to August 15, unless: 1) surveys are performed prior to construction to identify and mark nests for avoidance or 2) potential nesting habitat is removed outside of the breeding season (i.e. mowing).	Fish and Wildlife
E	9	South Dakota Game, Fish and Parks	2/11/2019	The developer proposes to use underground transmission lines, which will reduce impacts to avian species. We include the following information for the reviewers and developers to consider if any above-ground power lines will be a part of the project. Avian use of energized poles includes perching (for hunting and roosting), nesting, and resting (including shelter during inclement weather). Jarge birds (e.g. eagles, hawks) that use energized poles can be electrocuted if energized equipment is not insulated properly to minimize risks. Other avian species could potentially collide with the lines, including waterfowl, and sharp-tailed grouse, which do not generally perch on tall transmission lines. If any aboveground transmission lines are built in addition to the proposed underground transmission line, south Dakota Game, Fish and Parks recommends all new construction should follow or exceed Avian Power Line Interaction Committee (APLIC) construction design standards for avian-safe passage and use. See https://www.aplic.org/ for specific guidance on how to mitigate collision and electrocution risks to avian species. Ways to reduce or mitigate the impacts of power line strikes and electrocutions should be provided in the EA, including the suggestions from APLIC.	No above-ground transmission lines are proposed for this Project	Fish and Wildlife
E	10	South Dakota Game, Fish and Parks	2/11/2019	The NHD search also indicated an historic record of a fringe-tailed myotis (Myotis thysanodes) approximately 5 miles north west of the proposed substation location. In addition, a number of other bat species were recorded in the northern portion of Badlands National Park, approximately 10 miles north of the project area. While there are no records in the NHO of bats in the immediate project area, the close proximity and similar terrain could indicate a high use area of bat activity in southwestern South Dakota. The developers of the Lookout Solar project conducted one year of bat pre-construction acoustic monitoring. Their results verified the presence of Townsends big-eared bat (Corynorhinus townsendil), big brown bat (Eptesicus fuscus), silver-haired bat (Lasionycteris noctivagans), westers mail-footed myotis (Myotis silic/abrum), little brown bat (M, Judifigus), finged myotis (M, Inanodes), and long legged myotis (M, Vofans). The fringed myotis, silver-haired bat and Townsend's big-eared bat are classified as a species of greatest conservation need in South Dakota. Bats have the potential to collide with meteorological and communication towers associated with a project, and may also be susceptible to collision with solar panels (Harrison et al. 2016). Because the risks and impacts of solar energy facilities on bats is not well understood, SDGFP recommends at least one year of post construction bat mortality monitoring at the project during the operational phase and request copies of monitoring reports upon completion. To mitigate risks abs during the construction phase, we recommend that the developers refrain from removing trees along riparian areas during the active period for bats (April-September). Information on bat use and potential habitat in the project area should be included in the EA. South Dakota Game, Fish and Parks also requests that the EA include plans for post-construction mortality monitoring.	-While the Project has not developed a mortality monitoring plan, Lookout Solar intends to report any incidental bird and bat mortality to SDGFP and WAPA for ap period of 2 years post-construction.	Fish and Wildlife
E	11	South Dakota Game, Fish and Parks	2/11/2019	The search of the NHD also revealed an historic record of a large stand (-50,000 individuals) of Barr's Milkvetch (Astragalus barrii) in the immediate project area in Ogalala Lakota County. Barr's Milkvetch is globally ranked as very rare and local throughout its range, and is regionally endemic in southwestern South Dakota. We also found a number of records for Barr's Milkvetch within a 10 mile radius of the project area, indicating this project area likely supports a oppulation of this rare plant species. We ask that the project avoid removing this large stand of Barr's Milkvetch if it is still present in the project area.	Comment noted.	Vegetation
E	12	South Dakota Game, Fish and Parks	2/11/2019	Swift fox (Vulpes velox) are listed as state threatened by SDGFP. Swift fox typically inhabit short grass to midgrass prairies with gently rolling topography. Swift fox will enlarge burrows of other burrowing animals (e.g. black tailed prairie dogs) or create their own dens in loose soils (Higgins et al. 2000). Habitat loss is the greatest threat to swift fox populations throughout its range. No records of swift fox occur within the project area, however suitable habitat exists within the project boundary. Additionally, swift fox were reintroduced into Badlands National Park, and the surrounding area in the early 2000's (Samsal 2011). If a swift fox den is discovered during construction of the project, SDGFP recommends avoiding construction in the immediate area (0.25 mile buffer), if feasible. Wildlife surveys completed by the developer indicate that prairie dog rowns were identified in the project area by biologist, during site visits. We recommend not siting project components within prairie dog colonies (if feasible) to reduce disturbance to swift fox habitat, as well as to reduce the risk of collision for avian predators that may forage in prairie dog colonies. Collisions with vehicles associated with construction, operation, and maintenance activities are also a concern if swift fox are found in the project area. Same, Fish and Parks requests that recommendations for avoiding risks to swift fox are included in the EA.	The environmental commitments regarding swift fox are located in section 3.7.1 of the draft EA.	Fish and Wildlife

Letter Number	Comment Number	Entity	Date of Commen	t Comment	Response	Comment Topic
E	13	South Dakota Game, Fish and Parks	2/11/2019	The project area is also home to populations of mule deer (Odocoileus hemionus), whitetail deer (O.virginianus) and antelope (Antilocapra americana). We do not anticipate this project to pose a significant impact to these species. However, the use of a barbed wire fence rather than a woven wire fence to exclude livestock from the project would be preferred. Adult deer can easily jump a woven wire fence, but fawns cannot, and can be left stranded. The ideal wildlife-friendly fence should be 40° in East, and the top two wires should be no less than 12" apart. Deer and antelope can easily tangle their back legs if the top wires are too close together. The bottom wire or rail should be high enough for antelope, calves and fawns to crawl under, at least 18" from the ground. Barbless wire for the top and bottom strands will prevent snagging and injuries. It is also advantageous to make the fence highly visible, not only for deer and antelope, but also for low-flying bird species such as grouse and owls. If the developers prefer to fence out livestock and wildlife from the project area, we suggest a wown wire fence 7-8" tall to exclude deer and antelope. If such practice in lipedmented, GFP would request to be contacted to conduct a site visit to assure big game animals are void of a fenced-in facility. The wire should be installed tight to the ground. For more information on building wildlife-from from from scr. usda.gov/internet/FSE DOCUMENTS/nrcs14292 Do26389.gdf. South Dakota Game, Fish and Parks requests that recommendations for avoiding risks to deer and antelope are included in the EA.	The commitment to use wildlife-friendly fencing techniques is located in section 3.7.1 of the draft EA. The solar generating facility and substation would be fenced using wildlife-friendly fencing techniques, as described herein. Specifically, a barbed wire fence or a woven wire fence would be used with the following specifications that would minimize impacts to mule deer, whitetail deer, and antelope. Where woven fence exclusions are used, they would be 7.8' tall and SDGFP would be contacted to conduct a site visit to assure big game animals are excluded from the fenced-in facility. Where barbed wire fence is used, the height would be 40' or less, the top two wires would be no less than 12" apart, and the bottom wire or rail would be at least 18" from the ground. Further, barbless wire would be used for the top and bottom strands and the fence would be highly visible through use of location, marking, or materials.	
E	14	South Dakota Game, Fish and Parks	2/11/2019	To better understand the project design and construction approach to assist further analysis of potential environmental impacts, we recommend the developers schedule a joint meeting with SDGFP and the U.S. Fish and Wildlife Service representatives to further discuss project details and wildlife concerns. We appreciate the opportunity to provide comments on this project. Please keep SDGFP involved in all future correspondence.	Comment noted.	General
F	1	Sierra Club of South Dakota	1/12/2019	I am writing you today concerning the Lookout Solar Project as the chief executive of the Sierra Club's state chapter, a lobbyist, and a resident. This project is very exciting as we need to transition away from fossil fuels quickly but the devil is in the details. You must be transparent with the tribal nations. It is their land and they ve lost too much to European expansion. They must have an active role in making critical decisions and the project must provide economic development for the tribas. Henry Red Cloud of Pine Ridge has been training and installing solar power for years. It would be wise to consult with him. I'm looking forward to seeing the completion of this project. Please don't hesitate if there is anything I can do to help.	Tribal consultation activities are summarized in Chapters 1.4 and 3.8.	Tribal Consultation
G	1	U.S. Fish and Wildlife Service	12/6/2018	I received your letter to notify people about this project. Is this your request to initiate Section 7 consultation or will you do that at a later date? You can get listed species information for this site: https://ecos.fws.gov/ipac/	WAPA had determined "no effect" to listed species and no Section 7 consultation is warranted.	Fish and Wildlife
Draft EA		vviidille Service		parer date: Too can get insteo species information for this site: https://ecos.iws.gov/ipac/		
А	1	Federal Emergency Management Agency	11/27/2019	Thank you for your inquiry regarding the proposed Lookout Solar Project located within the Pine Ridge Indian Reservation in Oglala Lakota and Custer County, South Dakota. FEMA's major concern is if this project is located within a mapped Special Flood Hazard Area, as development in these areas requires further consideration, including local review and permitting. We recommend that you contact Ms. Kimberly Kerkvliet, Custer County Floodplain Administrator, at (605) 673-8174 to receive further guidance regarding floodplain consideration on the Lookout Solar Project, which might be relative to the regulations and policies of the National Flood Insurance Program.	Acknowledged. The project is located in a floodplain and has received a floodplain development permit from Custer County	Water Resources
А	2	Federal Emergency Management Agency	11/27/2019	Regulatory Flood Insurance Studies and Flood Insurance Rate Maps, which may be pertinent in your review, can be found on the FEMA Flood Map Service Center: bttps://msc.fema.gov/portal/home. Technical and supporting data may be available for download from the FEMA Engineering Library: https://www.fema.gov/enginering-library. Currently, there are no regulatory Flood Insurance Rate Maps for the Pine Ridge Indian Reservation or for Shannon County, and they do not participate in the National Flood Insurance Program. We recommend that you contact community officials to receive further guidance regarding floodplain consideration on the proposed solar project. Considering that floods are the most devastating natural disaster in this country, any efforts to reduce their impacts is worthwhile.	Acknowledged. The project is located in a floodplain and has received a floodplain development permit from Custer County	Water Resources
В	1	South Dakota Department of Environment and Natural Resources (Waste Management)	11/25/2019	Air Quality Determination: It appears, based on the information, that the project will have little or no impact on the air quality in this area. This project is approved.	Comment noted.	Air Quality
С	1	South Dakota Department of Environment and Natural Resources (Waste Management)	11/25/2019	Waste Management Determination (Hazardous Waste/Solid Waste/Asbestos): It appears, based on the information provided, that this project will have little or no impact on the waste management in this area.	Comment noted.	General
D	1	U.S. Department of Agriculture, Natural Resources Conservation Service	12/30/2019	Thank you for the opportunity to provide Farmland Protection Policy Act (FPPA) review of this project. The project as outlined will have no impact on prime or important farmland. The Natural Resources Conservation Service (NRCS) would advise the applicant to consult with the local NRCS and Farm Service Agency offices regarding any United States Department of Agriculture easements or contracts in the project areas that may be affected. For any other easements outside of the NRCS, you should check with the local courthouses.	Comment noted.	Vegetation



Department of Energy

Western Area Power Administration Upper Great Plains Customer Service Region P.O. Box 35800 Billings, MT 59107-5800

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NOV 1 9 2018

Dear Customers and Interested Parties:

This letter is to notify you of the proposed Lookout Solar Project (Project) and to request your input on the Project. The Project would involve construction of an 840-acre photovoltaic solar generating facility. Other project components would include a new substation, a new underground transmission line, access roads, and a maintenance and operation center. The Project would be located approximately 22 miles south of Buffalo Gap, primarily on lands within the Pine Ridge Indian Reservation in Oglala Lakota and Custer Counties, South Dakota (see enclosed map).

The Project would interconnect with Western Area Power Administration's (WAPA) New Underwood to Wayside 230-kilovolt Transmission Line. As a result, WAPA will provide federal oversight of the preparation of an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA). The EA will evaluate the environmental effects of the proposed Project on resources such as wetlands, vegetation and wildlife, cultural and recreation resources, as well as other social, economic, and environmental effects.

WAPA is announcing a public scoping period for the Project. The scoping period provides an opportunity for the general public, government agencies, and tribal governments to identify issues and alternatives that will help WAPA define the scope of the EA. One public scoping meeting (open house format) will be held to provide an opportunity for interested parties to discuss the Project with resource specialists and to submit comments. The meeting will be held on Wednesday, December 5th, 2018, from 5:00 p.m. to 7:00 p.m., at the Hot Springs Public Library.

Comments may be submitted in the following ways:

- By mail to:
 Western Area Power Administration
 Attn: Ms. Christina Gomer
 2900 4th Avenue North
 Billings, MT 59101
- By fax to (406) 255-2900
- By email to gomer@wapa.gov

• In writing at the public scoping open house meeting:

Wednesday, December 5th, 2018 5:00 p.m. to 7:00 p.m. Hot Springs Public Library 2005 Library Drive Hot Springs, South Dakota 57747 For your input to be considered during preparation of the draft EA, WAPA requests comments by Monday, January 7, 2019. If you have any questions, or need more information about the project, please contact WAPA using the methods listed above. Thank you for your time and interest in the Project.

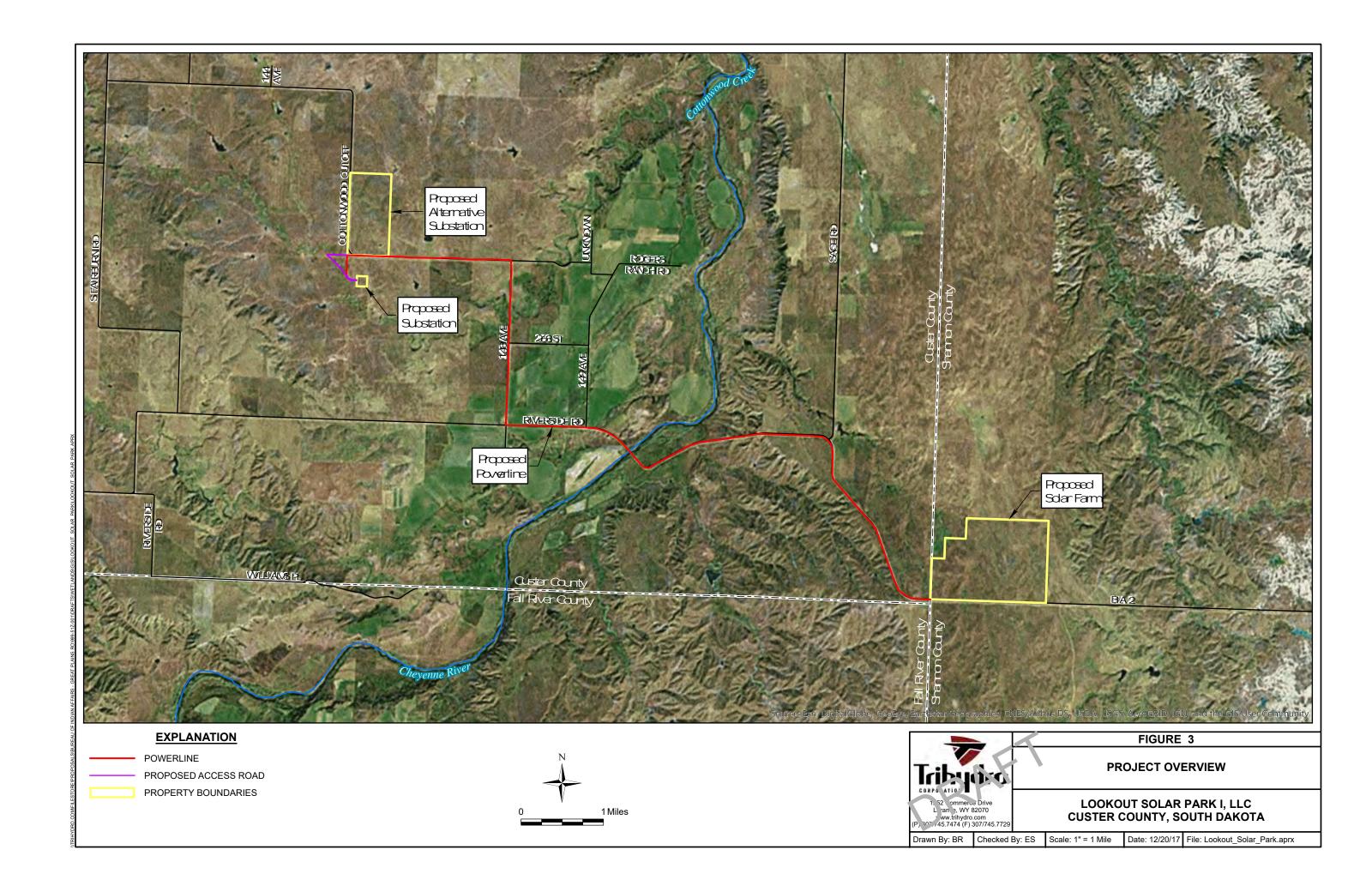
Sincerely,

Christina Gomer

NEPA Coordinator

Christina Lomer

Enclosure





Department of Energy

Western Area Power Administration
Upper Great Plains Customer Service Region
P.O. Box 35800
Billings, MT 59107-5800

DEC 1 7 2018

B0401.BL

Dear Customers and Interested Parties:

This letter is to notify you that Western Area Power Administration (WAPA) has extended the scoping comment period for the proposed Lookout Solar Project (Project) and has scheduled an additional public meeting (open house format) for the Project. WAPA representatives will attend the meeting.

The Project would involve construction of an 840-acre photovoltaic solar generating facility. Other project components would include a new substation, a new underground transmission line, access roads, and a maintenance and operation center. The Project would be located approximately 22 miles south of Buffalo Gap, primarily on lands within the Pine Ridge Indian Reservation in Oglala Lakota and Custer Counties, South Dakota (see enclosed map).

The Project would interconnect with WAPA's New Underwood to Wayside 230-kilovolt Transmission Line. As a result, WAPA will provide Federal oversight of the preparation of an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA). The EA will evaluate the environmental effects of the proposed Project on resources such as wetlands, vegetation and wildlife, cultural and recreation resources, as well as other social, economic, and environmental effects.

The scoping period provides an opportunity for the general public, government agencies, and tribal governments to identify issues and alternatives that will help WAPA define the scope of the EA. The additional public scoping meeting (open house format) will be held to provide an opportunity for interested parties to discuss the Project with Federal agency resource specialists and to submit comments. The meeting will be held on Wednesday, January 16, 2019, from 5:00 p.m. to 7:00 p.m., at the Hot Springs Public Library.

Comments may be submitted in the following ways:

By mail to:
 Western Area Power Administration
 Attn: Ms. Christina Gomer
 2900 4th Avenue North
 Billings, MT 59101

- By fax to (406) 255-2900
- By email to gomer@wapa.gov

• In writing at the public scoping open house meeting:

Wednesday, January 16th, 2019 5:00 p.m. to 7:00 p.m. Hot Springs Public Library 2005 Library Drive Hot Springs, SD 57747 For your input to be considered during preparation of the draft EA, WAPA requests comments no later than Tuesday, February 19, 2019. If you have any questions, or need more information about the Project, please contact WAPA using the methods listed above. Thank you for your time and interest in the Project.

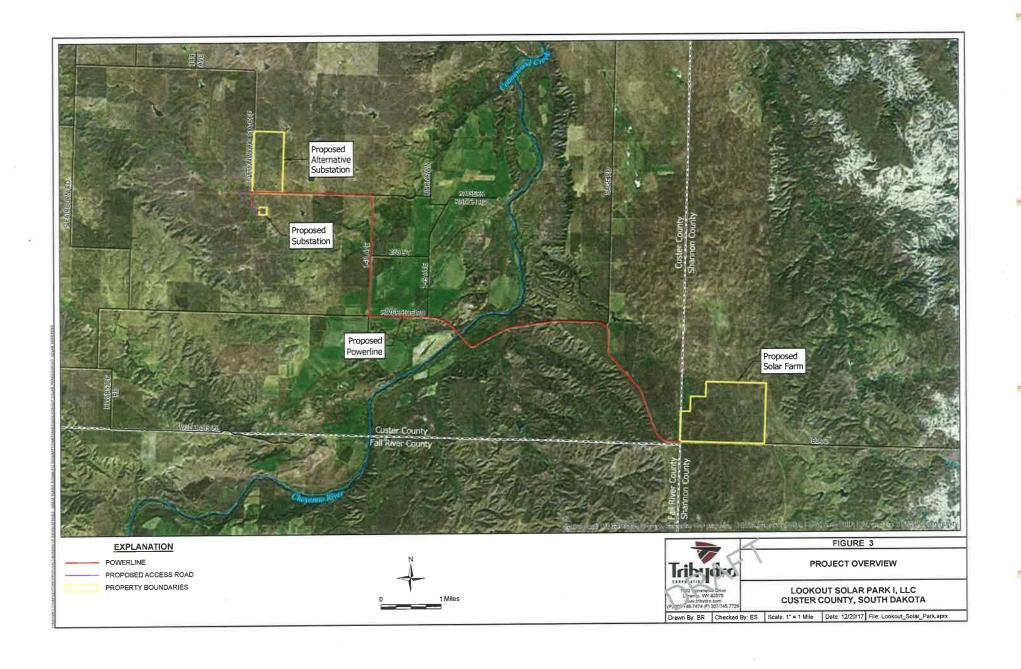
Sincerely,

Christina Gomer NEPA Coordinator

Christina Lomer

TVEI / COOldin

Enclosure





Department of Energy

Western Area Power Administration
Upper Great Plains Customer Service Region
P.O. Box 35800
Billings, MT 59107-5800

JAN 1 0 2019

B0401.BL

Dear Customers and Interested Parties:

This letter is to notify you that, as a result of the government shutdown, Western Area Power Administration (WAPA) has cancelled the public scoping meeting for the proposed Lookout Solar Project (Project). The meeting was previously scheduled for Wednesday, January 16, 2019, from 5:00 p.m. to 7:00 p.m., at the Hot Springs Public Library.

Although the public meeting has been cancelled, WAPA is still requesting public comments on the Project. Comments may be submitted in the following ways:

• By mail to:

Western Area Power Administration Attn: Ms. Christina Gomer 2900 4th Avenue North Billings, MT 59101

- By email to gomer@wapa.gov
- By phone to (406) 255-2811
- By fax to (406) 255-2900

For your input to be considered during preparation of the draft Environmental Assessment, WAPA requests comments no later than Tuesday, February 19, 2019. If you have any questions, or need more information about the Project, please contact WAPA using the methods listed above. Thank you for your time and interest in the project.

Sincerely,

Christina Gomer NEPA Coordinator

Christina domer



Department of Energy

Western Area Power Administration
Upper Great Plains Customer Service Region
P.O. Box 35800
Billings, MT 59107-5800

JAN 1 1 2019

B0401.BL

Dear Customers and Interested Parties:

Please disregard Western Area Power Administration's (WAPA) January 10, 2019, correspondence regarding the cancellation of the public scoping meeting for the proposed Lookout Solar Project (Project). The meeting <u>will</u> proceed as planned.

Please join WAPA on Wednesday, January 16, 2019, from 5:00 p.m. to 7:00 p.m., at the Hot Springs Public Library. Comments on the Project may be submitted in the following ways:

• By mail to:

Western Area Power Administration

> Attn: Ms. Christina Gomer 2900 4th Avenue North Billings, MT 59101

- By email to gomer@wapa.gov
- By phone to (406) 255-2811

- By fax to (406) 255-2900
- In writing at the public scoping open house meeting:

Wednesday, January 16th, 2019 5:00 p.m. to 7:00 p.m. Hot Springs Public Library 2005 Library Drive Hot Springs, SD 57747

For your input to be considered during preparation of the draft Environmental Assessment, WAPA requests comments no later than Tuesday, February 19, 2019. If you have any questions, or need more information about the project, please contact WAPA using the methods listed above. Thank you for your time and interest in the project.

Sincerely,

Christina Gomer NEPA Coordinator

Christina Lomer

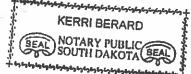
Affidavit of Publication

STATE OF SOUTH DAKOTA

County of Fall River

SS:

Sheri Sponder being first duly sworn, upon his/her oath says: That
he/she is now and was at all time hereinafter mentioned, an
employee of the Rapid City Journal, a corporation of Rapid City,
South Dakota, the owner and publisher of the HOT SPRINGS
STAR, a legal and daily newspaper printed and published in
Sturgis, in said County of Fall River, and has full and personal
knowledge of all the facts herein stated as follows: that said
newspaper is and at all of the times herein mentioned has been a
legal and daily newspaper with a bonafide paid circulation of at
least Two Hundred copies weekly, and has been printed and
published in the English language, at and within an office
maintained by the owner and publisher thereof, at Hot Springs, in
said Fall River County, and has been admitted to the United States
mail under the second class mailing privilege for at least one year
prior to the publication herein mentioned; that the advertisement, a
printed copy of which, taken from said Hot Springs Star, the paper
in which the same was published, is attached to this sheet and made
a part of this affidavit, was published in said paper once each
week for two successive
weeks, the first publication there of being on the
day of Nov 2018 that the fees charged for
the publication there of are 242 dollars
and 88 cents.
Shori Soonder
Subscribed and sworn to before me this
day of December, 2018.
- Demosiano
Notary public
- 8212019
My commission expires



Public comments are sought to define the scope and alternatives for an Environmental Assumment of a proposed solal energy facility in Custer and Oglala Lakota Counties, to the south of Buffalo Gap, South Dakota. The proposed project, to be called the Lookout Solar Project, would include up to 110 MW solar generating facility, an underground power collection system, project substation, a new overhead transmission line, access roads, and a maintenance and operation center. Construction of the Lookout Solar Project is proposed to begin as early as September of 2019.

Western Area Power Administration will hold one public scoping meeting (open house format) to provide an opportunity for interested parties to discuss the Project with resource specialists and to submit comments. The meeting will be held on Wednesday, December 5, 2018, from 5:00 p.m. to 7:00 p.m., at the Hot Springs Public Library. The meeting location is handicapped accessible.

To learn more about this project and to share your ideas, join us at:

5:00 to 7:00 p.m. on Wednesday, December 5, 2018 Hot Springs Public Library 2005 Library Drive Hot Springs, SD 57747

Comments may be submitted in the following ways:

- By mail to:

 Western Area Power Administration
 Attn: Ms. Christina Gomer
 2900 4th Avenue North
 Billings, MT 59101
- By fax to (406) 255-2900
 By phone to (406) 255-2811
- By email to gomer@wapa.gov
- In writing at the public scoping open house meeting.

Comments should be postmarked no later than January 7, 2019.

(Published twice at an approximate cost of \$242.88)

Affidavit of Publication

STATE OF SOUTH DAKOTA

County of Pennington

SS:

Sheri Sponder being first duly sworn, upon his/her oath says: That he/she is now and was at all time hereinafter mentioned, an employee of the RAPID CITY JOURNAL, a corporation of Rapid City, South Dakota, the owner and publisher of the RAPID CITY JOURNAL, a legal and daily newspaper printed and published in Rapid City, in said County of Pennington, and has full and personal knowledge of all the facts herein stated as follows: that said newspaper is and at all of the times herein mentioned has been
a legal and daily newspaper with a bonafide paid circulation of at
least Two Hundred copies daily, and has been printed and published
in the English language, at and within an office maintained by the
owner and publisher thereof, at Rapid City, in said Pennington County, and has been admitted to the United States mail under the
second class mailing privilege for at least one year prior to the
publication herein mentioned; that the advertisement, a printed
copy of which, taken from said Rapid City Journal, the paper in
which the same was published, is attached to this sheet and made a
part of this affidavit, was published in said paper once each
day for two successive
days, the first publication there of being on the day of Dec 2018 that the fees charged for
the publication there of are 233 dollars
and 30 cents.
Sheri Sponder
Subscribed and sworn to before me this7th
WHITHY DABARETTE
SEAL OTHY LEDNEY
Notary public
PUBLIC : FEAL : OF TO OOG
day of December 2018 Notary public PUBLIC SEAL SEAL SEAL My commission expires

Public comments are sought to define the scope and alternatives for an Environmental Assessment of a proposed solar energy facility in Custer and Oglala Lakota Counties, to the south of Buffalo Gap, South Dakota. The proposed project, to be called the Lookout Solar Project, would include up to 110 MW solar generating facility, an underground power collection system, project substation, a new overhead transmission line, access roads, and a maintenance and operation center. Construction of the Lookout Solar Project is proposed to begin as early as September of 2019.

Western Area Power Administration will hold one public scoping meeting (open house format) to provide an opportunity for interested parties to discuss the Project with resource specialists and to submit comments. The meeting will be held on Wednesday, December 5, 2018, from 5:00 p.m. to 7:00 p.m., at the Hot Springs Public Library. The meeting location is handicapped accessible.

To learn more about this project and to share your ideas, join us at:

5:00 to 7:00 p.m. on Wednesday, December 5, 2018 Hot Springs Public Library 2005 Library Drive
Hot Springs, SD 57747

Comments may be submitted in the following ways:

- . By mail to: Western Area Power Administration Attn: Ms. Christina Gomer
 2900 4th Ayenue North
 Billings, MT 59101

 By fax to (406) 255-2900
- By phone to (406) 255-2811
- By email to gomer@wapa.gov
- In writing at the public scoping open house meeting.

Comments should be postmarked no later than January 7, 2019.

(Published twice at an approximate cost of \$233.30)



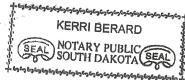
Affidavit of Publication

STATE OF SOUTH DAKOTA

County of Fall River

SS:

Sheri Sponder being first duly sworn, upon his/her oath says: That
he/she is now and was at all time hereinafter mentioned, an
employee of the Rapid City Journal, a corporation of Rapid City,
South Dakota, the owner and publisher of the HOT SPRINGS
STAR, a legal and daily newspaper printed and published in
Sturgis, in said County of Fall River, and has full and personal
knowledge of all the facts herein stated as follows: that said
newspaper is and at all of the times herein mentioned has been a
legal and daily newspaper with a bonafide paid circulation of at
least Two Hundred copies weekly, and has been printed and
published in the English language, at and within an office
maintained by the owner and publisher thereof, at Hot Springs, in
said Fall River County, and has been admitted to the United States
mail under the second class mailing privilege for at least one year
prior to the publication herein mentioned; that the advertisement, a
printed copy of which, taken from said Hot Springs Star, the paper
in which the same was published, is attached to this sheet and made
a part of this affidavit, was published in said paper once each
week for two successive
weeks, the first publication there of being on the
2nd day of Jan 2019 that the fees charged for
the publication there of are dollars
and 25 cents.
A
Sheri Sponder
Subscribed and sworn to before me this
day of January, 2019.
1 /
- DIMOSILONO
Notary public
600,000,000 BD11019
My commission expires



Public Input Encouraged!

Public comments are sought to define the scope and alternatives for an Environmental Assessment of a proposed solar energy facility in Custer and Oglala Lakota Counties, to the south of Buffalo Gap, South Dakota. The proposed project, to be called the Lookout Solar Project, would include approximately 110 MW solar generating facility, an underground power collection system, project substation, an underground transmission line, access roads, and a maintenance and operation center. Construction of the Lookout Solar Project is proposed to begin as early as September of 2019.

Western Area Power Administration will hold an additional public scoping meeting (open house format) to provide an opportunity for interested parties to discuss the Project with federal officials, including resource specialists, and to submit comments. The meeting will be held on Wednesday, January 16, 2019, from 5:00 p.m. to 7:00 p.m., at the Hot Springs Public Library. The meeting location is handicapped accessible.

To learn more about this project and to share your ideas, join us at:

5:00 to 7:00 p.m. on Wednesday, January 16, 2019 Hot Springs Public Library 2005 Library Drive Hot Springs, SD 57747

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• By mail to:

Western Area Power Administration Attn: Ms. Christina Gomer 2900 4th Avenue North Billings, MT 59101 • By fax to (406) 255-2900

- By phone to (406) 255-2811
- By email to gomer@wapa.gov
- In writing at the public scoping open house meeting.

Comments should be postmarked no later than February 19, 2019.

(Published three times at the approximate cost of \$336.25)

Affidavit of Publication

STATE OF SOUTH DAKOTA

County of Pennington

SS:

Sheri Sponder being first duly sworn, upon his/her oath says: That
he/she is now and was at all time hereinafter mentioned, an
employee of the RAPID CITY JOURNAL, a corporation of Rapid
City, South Dakota, the owner and publisher of the RAPID CITY
JOURNAL, a legal and daily newspaper printed and published in
Rapid City, in said County of Pennington, and has full and
personal knowledge of all the facts herein stated as follows: that
said newspaper is and at all of the times herein mentioned has been
a legal and daily newspaper with a bonafide paid circulation of at
least Two Hundred copies daily, and has been printed and published
in the English language, at and within an office maintained by the
owner and publisher thereof, at Rapid City, in said Pennington
County, and has been admitted to the United States mail under the
second class mailing privilege for at least one year prior to the
publication herein mentioned; that the advertisement, a printed
copy of which, taken from said Rapid City Journal, the paper in
which the same was published, is attached to this sheet and made a
part of this affidavit, was published in said paper once each
week for two successive
<u>week5</u> , the first publication there of being on the
day of that the fees charged for
the publication there of are 324 dollars
and 95 cents.
Sheri Sponder
Subscribed and sworn to before me this
day of January, 2019.
Leuberard
Notary public

KERRI BERARD My commission expires
SOUTH DAKOTA SEAL
<u> </u>

Public Input Encouraged!

Public comments are sought to define the scope and alternatives for an Environmental Assessment of a proposed solar energy facility in Custer and Oglala Lakota Counties, to the south of Buffalo Gap, South Dakota. The proposed project, to be called the Lookout Solar Project, would include approximately 110 MW solar generating facility, an underground power collection system, project substation, an underground transmission line, access roads, and a maintenance and operation center. Construction of the Lookout Solar Project is proposed to begin as early as September of 2019.

Western Area Power Administration will hold an additional public scoping meeting (open house format) to provide an opportunity for interested parties to discuss the Project with federal officials, including resource specialists, and to submit comments. The meeting will be held on Wednesday, January 16, 2019, from 5:00 p.m. to 7:00 p.m., at the Hot Springs Public Library. The meeting location is handicapped accessible.

To learn more about this project and to share your ideas, join us at:

5:00 to 7:00 p.m. on Wednesday, January 16, 2019 Hot Springs Public Library 2005 Library Drive Hot Springs, SD 57747

Comments may be submitted in the following ways:

By mail to:
Western Area Power Administration
Attn: Ms. Christina Gomer
2900 4th Avenue North
Billings, MT 59101

- By fax to (406) 255-2900
 By phone to (406) 255-2811
- By email to gomer@wapa.gov
- In writing at the public scoping open house meeting.

Comments should be postmarked no later than February 19, 2019.

(Published three times at the approximate cost of \$324.95)

COLIDT



LAKOTA COUNTRY TIMES

PO Box 386, Martin, SD 57551 Phone: 605-685-1868 FAX:605-685-1870

US Postal Permit Number: USPS 024-176

AFFIDAVIT OF PUBLICATION

State of South Dakota, County of Bennett:

Roseanna Hammock of said county, being first duly sworn, on oath, says that he/she is the Editor/Publisher or an employee of the Publisher of the Lakota Country Times, a weekly newspaper published in the county of Bennett for circulation in the counties of Bennett and Shannon and Todd in South Dakota; That he/she has full and personal knowledge of the facts herein stated, that said newspaper is a legal newspaper as defined in SDCL 17-2-2.1 through 17-2-2,4 inclusive, that said newspaper has been published within the said County of Bennett and State of South Dakota, for a least one year prior to the first publication of the attached public notice, and that the legal advertisement headed:

NOTICE: PUBLIC INPUT ENCOURAGED

A printed copy of which, taken from the paper in which the same was published, and which is hereto attached and made a part of this affidavit, was published in said newspaper for 1_successive weeks) to wit:

NOV 29	_ 2018	Volume 15	Issue #11
	2018	Volume 15	Issue #
	2018	Volume 15	Issue #
	2018	Volume 15	Issue #

That the full amount of the fee charged for the publication of the attached public notice inures to the sole benefit of the publisher or publishers; that no agreement or understanding for the division thereof has been made with any other person, and that no part thereof has been agreed to be paid to any person whomsoever; that the fees charged for the publication thereof are:

\$ 41.48

Signed Roslanna Hannact

Subscribed and sworn to before me this date:

, 2018

Signed:

Notary Public in and for the County of Bennett, South Dakota

My Commission expires Dec. 13, 2019

CONNIE L. SMITH

SEAL NOTARY PUBLIC SEAL SOUTH DAKOTA

LEGALS & NOTICES

LAKOTA COUNTRY TIMES

TRUTH AND INTEGRITY WITH LAKOTA SPIRIT

WWW.LAKOTACOUNTRYTIMES.COM

NOVEMBER 29, 2018

BIDS & PROPOSALS

PUBLIC INPUT ENCOURAGED!

Public comments are sought to define the scope and alternatives for an Environmental Assessment

o a proposed solar energy facility in Custer and Oglala Lakota Counties, to the south of Buffalo Gap South Dakota. The proposed project, to be called the Lookouts Solar Project would include up to 110 MW solar generating facility, an underground power collection system, project substation, a new overhead transmission line, access roads, and a maintenance and operation center. Construction of the Lookout Solar Project is proposed to begin as early as September of 2019.

Western Area Power Administration will hold one public scoping meeting (open house format) to provide an opportunity for interested parties to discuss the Project with resource specialists and to submit comments. The mee ing will be held on Wednesday, December 5, 2028, from 5:00 p.m. to 7:00 p.m., at the Hot Springs Public Library. The meeting location is handicapped accessible.

To learn more about this project, and to share your ideas, join us at:

5:00 to 7:00 p.m. on Wednesday, December 5, 2018 Hot Springs Public Library 2005 Library Drive Hot Springs, SD 57747

Comments may be submitted in the following ways:

By mail to:

Western Area Powe
Administration

Attn: Ms. Christina Gomer
2900 4th Avenue North
Billings MT 59201

By fax to (406) 255-2900

By phone to (406) 255-2811

By email to gomer@wapa.gov

• In writing at the public scoping open house meeting.

Comments should be postmarked no later than January 7 2019.



Department of Energy

Western Area Power Administration Upper Great Plains Customer Service Region P.O. Box 35800 Billings, MT 59107-5800

NOV 1 9 2019

Dear Customers and Interested Parties:

This letter is to update you on the proposed Lookout Solar Project (Project) and to request your input on the Project. Lookout Solar Project I, LLC (Lookout Solar) proposes to construct a photovoltaic solar generating facility capable of generating up to 110 MW on 840-acre of land approximately 22 miles south of Buffalo Gap, primarily on lands within the Pine Ridge Indian Reservation in Oglala Lakota and Custer Counties, South Dakota. Other Project components would include a new substation, a new underground transmission line, access roads, a maintenance and operation center, and potentially an energy storage facility. The Project proposes to interconnect with Western Area Power Administration's (WAPA) New Underwood to Wayside 230-kilvolt Transmission Line.

The proposed interconnection is a Federal action under the National Environmental Policy Act of 1969. As a result, a draft Environmental Assessment (EA) has been prepared to analyze the environmental effects of the proposed Project on resources such as wetlands, vegetation and wildlife, cultural and recreation resources, as well as other social, economic, and environmental effects.

WAPA is requesting your review and comment on the draft EA, which is available for download at the following website:

https://www.wapa.gov/regions/UGP/Environment/Pages/LookoutSolar.aspx. Comments may be submitted in the following ways:

- By mail to:
 - Western Area Power Administration 6th Floor, Attn: Ms. Christina Gomer 2900 4th Avenue North Billings, MT 59101
- By email to gomer@wapa.gov
- By phone to (406) 255-2811

For your input to be considered, comments must be received by December 23, 2019. If you have any questions or need more information about the Project, please contact WAPA using the methods listed above. Thank you for your time and interest in the Project.

Sincerely,

Christina Gomer NEPA Coordinator

Christma domer

Affidavit of Publication

STATE OF SOUTH DAKOTA

County of Pennington

SS:

Nov. 20, 27. Dec. 4, 11 L1742
PUBLIC NOTICE
Public Input Encouraged!

Public comments are sought on the draft Environmental Assessment (EA) of a proposed solar energy facility in Custer and Oglala Lakota Counties, to the south of Buffalo Gap, South Dakota. The proposed project, to be called the Lookout Solar Project, would include up to 110 MW solar generating facility, including a new substation, a new underground transmission line, access roads, a maintenance and operation center, and potentially an energy storage facility. Construction of the Lookout Solar Project is proposed to begin as early as February 2020.

The draft EA is available for download at the following website: https://www.wapa.gov/regions/UGP/Environnient/Pages/LookoutSolar.aspx

Comments may be submitted in the following ways:
• By mail to:
Western Area Power Administration Attn: Ms. Christina Gomer 2900 4th Avenue North Billings, MT 59101
• By fax to (406) 255-2900
• By phone to (406) 255-2811
• By email to gomer@wapa.gov

Comments should be postmarked no later than December 23, 2019.

(Published four time at the total approximate cost of \$102.80)

Sheri Sponder being first duly	sworn, upon his/her oath says: That
	all time hereinafter mentioned, an
-	JOURNAL, a corporation of Rapid
	er and publisher of the RAPID CITY
	newspaper printed and published in
	of Pennington, and has full and
	facts herein stated as follows: that
	f the times herein mentioned has been
	vith a bonafide paid circulation of at
	y, and has been printed and published
	d within an office maintained by the
	at Rapid City, in said Pennington
	f to the United States mail under the
	for at least one year prior to the
	that the advertisement, a printed
	id Rapid City Journal, the paper in
	, is attached to this sheet and made a
_	published in said paper once each
	three successive
	lication there of being on the
	ov 2019 that the fees charged for
	102 dollars
and <u>80</u> cents.	
1	. 4
Sher	Sponder
	10 %
Subscribed and sworn to befor	re me this18th
day of <u>December</u>	, 2019.
HILLIAM J. PARAMILE	11
SEAL . Pelle //atth	ar J. Trunquell
Nota	ry puolic
PUBLIC ON SOUTH ON THE PROPERTY OF SOUTH ON TH	ecember 5 2025
SEAL MOTHER	My commission expires
72. ' 30317734 V .A3'	



LAKOTA COUNTRY TIMES

PO Box 386, Martin, SD 57551 Phone: 605-685-1868 FAX:605-685-1870

US Postal Permit Number: USPS 024-176

State of South Dakota, County of Bennett:

Roseanna Hammock of said county, being first duly sworn, on oath, says that he/she is the Editor/Publisher or an employee of the Publisher of the Lakota Country Times, a weekly newspaper published in the county of Bennett for circulation in the counties of Bennett and Shannon and Todd in South Dakota; That he/she has full and personal knowledge of the facts herein stated, that said newspaper is a legal newspaper as defined in SDCL 17-2-2.1 through 17-2-2,4 inclusive, that said newspaper has been published within the said County of Bennett and State of South Dakota, for a least one year prior to the first publication of the attached public notice, and that the legal advertisement headed:

NOTICE OF PUBLIC MEETING

A printed copy of which, taken from the paper in which the same was published, and which is hereto attached and made a part of this affidavit, was published in said newspaper for 4_successive weeks) to wit:

Nov 21		2019	Volume 16	Issue #7
Nov 28		2019	Volume 16	Issue #8
<u>Dec 5</u>	7	2019	Volume 16	Issue #9
Dec 12		2019	Volume 16	Issue #

That the full amount of the fee charged for the publication of the attached public notice inures to the sole benefit of the publisher or publishers; that no agreement or understanding for the division thereof has been made with any other person, and that no part thereof has been agreed to be paid to any person whomsoever; that the fees charged for the publication thereof are:

\$ 100.64

signed: <u>Poslanna Hammock</u>

Subscribed and sworn to before me this date:

, 2019

Signed:

Notary Public in and for the County of Bennett, South Dakota

My Commission expires Dec. 13, 2025

CONNIE L. SMITH

ROTARY PUBLIC SEAL SOUTH DAKOTA

PUBLIC INPUT ENCOURAGED!

Public comments are sought on the draft Environmental Assessment (EA) of a proposed solar energy facility in Custer and Oglala Lakota Counties, to the south of Buffalo Gap, South Dakota. The proposed project, to be called the Lookout Solar Project, would include up to 110 MW solar generating facility, including a new substation, a new underground transmission line, access roads, a maintenance and operation center, and potentially an energy storage facility. Construction of the Lookout Solar Project is proposed to begin as early as February 2020.

The draft EA is available for download at the following web:

https://www.wapa.gov/re-gions/UGP/Environnient/Pages/ LookoutSolar.aspx

Comments may be submitted in the following ways:

· By mail to:

Western Area Power Adminis-

Attn: Ms. Christina Gomer 2900 4th Avenue North Billings, MT 59101

• By fax to (406) 255-2900

• By phone to (406) 255-2811

• By email to gomer@wapa.

Comments should be postmarked no later than December 23, 2019.

Affidavit of Publication State of South Dakota)ss. County of Custer Charles W. Najacht of said county, being duly sworn, on oath says that he is publisher of the Custer County Chronicle, a weekly newspaper printed and published in Custer City, said County of Custer and has full and personal knowledge of all the facts herein stated; that said newspaper is a legal newspaper and has a bona-fide circulation of at least two hundred copies weekly, and has been published within said County for fifty-two successive weeks next prior to the publication of the notice herein, mentioned, and was and is printed wholly or in part in an office maintained at said place of publication: that the a printed copy of which, taken from the paper in which the same was published, is attached to this sheet, and is made a part of this Affidavit, was published in said newspaper at least once each week for _____ successive week(s), on which said newspaper was regularly published, to wit: the full amount of the fees for the publication of the annexed notice is \$

ENCOURAGED!

Public comments are sought on draft Environmental Assessment (EA) of a proposed solar energy facility in Custer and solar energy facility in Custer and Oglala Lakota Counties, to the south of Buffalo Gap, South Dakota. The proposed project, to be called the Lookout Solar Project, would include up to 110 MW solar generating facility, including a new substation, a new underground transmission line, access made a maintenance and access roads, a maintenance and operation center, and potentially an energy storage facility. Construction of the Lookout Solar facility. Project is proposed to begin as

early as February 2020.

The draft EA is available for download at the following website:

https://www.wapa.gov/regions/ UGP/Environnient/Pages/Lookout Solar.aspx

Comments may be submitted in the following ways:

• By mail to:

Area Power Western Administration

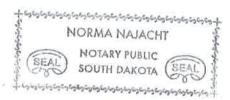
Attn: Ms. Christina Gomer

2900 4th Avenue North Billings, MT 59101

• By fax to (406) 255-2900 • By phone to (406) 255-2811 email

gomer@wapa.gov
Comments should be postmarked no later than Dec. 23,

11/20, 11/27, 12/4, 12/11



MY COMMISSION EXPIRES: May 5, 2024

Subscribed and sworn to me before this





LOOKOUT SOLAR PROJECT AQUATIC RESOURCE INVENTORY REPORT CUSTER AND OGLALA LAKOTA COUNTIES, SOUTH DAKOTA

August 10, 2018

Project #: 52V-001-001

SUBMITTED BY: Trihydro Corporation

1252 Commerce Drive, Laramie, WY 82070

Table of Contents

1.0	INTR	ODUCTION	1-1				
	1.1	Purpose	1-1				
	1.2	Physical Description of Lookout Solar Project Area	1-1				
	1.3	Ecology	1-2				
	1.4	Watershed and Hydrology	1-2				
	1.5	Jurisdictional Waters of the U.S					
	1.6	Regional Supplement					
	1.7	7 Significant Nexus Determination					
2.0	METI	HODS	2-1				
	2.1	Data Review	2-1				
	2.2	Aerial Photograph Review	2-1				
	2.3	NRCS Soil Survey	2-1				
		2.3.1 Oglala Lakota County Soil Survey	2-2				
	2.4	National Wetland Inventory					
	2.5	Wetland Delineation Methodology					
	2.6	Stream Assessment Methodology	2-4				
3.0	RESI	ULTS	3-1				
	3.1	Aquatic Resource Findings	3-1				
		3.1.1 Palustrine and Riverine Systems	3-1				
		3.1.1.1 Freshwater Emergent and Scrub-Shrub Wetlands	3-2				
		3.1.1.2 Intermittent Drainages	3-2				
		3.1.2 Wetland Vegetation	3-3				
		3.1.3 Wetland Soils	3-3				
		3.1.4 Wetland Hydrology	3-4				
4.0	CON	CLUSIONS	4-1				
5 0	RFF	FRENCES	5-1				

List of Tables

- 1. Project Area Soils, Lookout Solar, LLC., Custer and Oglala and Lakota Counties, South Dakota
- 2. 2018 Wetland Delineation Results by Sample Point, Lookout Solar, LLC., Custer and Oglala and Lakota Counties, South Dakota
- 2018 Aquatic Resource Totals, Lookout Solar, LLC., Custer and Oglala and Lakota Counties, South Dakota
- 4. 2018 Plant List, Lookout Solar, LLC., Custer and Oglala and Lakota Counties, South Dakota

List of Figures

- 1. Project Area, Lookout Solar, LLC., Custer and Oglala and Lakota Counties, South Dakota
- 2. Aquatic Resources Overview, Lookout Solar, LLC., Custer and Oglala and Lakota Counties, South Dakota
- 3. Solar Farm Wetlands, Lookout Solar, LLC., Custer and Oglala and Lakota Counties, South Dakota
- 4. Cheyenne River Crossing, Lookout Solar, LLC., Custer and Oglala and Lakota Counties, South Dakota
- Angustora Canal Crossing, Lookout Solar, LLC., Custer and Oglala and Lakota Counties, South Dakota
- Cottonwood Creek Crossing, Lookout Solar, LLC., Custer and Oglala and Lakota Counties, South Dakota
- 7. Cottonwood Cutoff Wetland Crossing, Lookout Solar, LLC., Custer and Oglala and Lakota Counties, South Dakota
- 8. Substation Access Wetlands, Lookout Solar, LLC., Custer and Oglala and Lakota Counties, South Dakota
- 9. Soil Survey, Lookout Solar, LLC., Custer and Oglala and Lakota Counties, South Dakota



List of Appendices

- A. WETLAND DETERMINATION DATA FORMS
- B. PHOTOGRAPH LOG

1.0 INTRODUCTION

On behalf of Lookout Solar, LLC. (Lookout Solar), Trihydro Corporation (Trihydro) hereby submits this aquatic resource inventory report for the Lookout Solar Farm and associated infrastructure (Project Area) to the United States Army Corps of Engineers (Corps). The Project Area is located approximately 10 miles east of Buffalo Gap, South Dakota and intersects portions of Custer and Oglala Lakota Counties (Figure 1). The Solar Farm will be located on the Pine Ridge Indian Reservation (Reservation) and connect to an approximate 10-acre substation via a 9-mile long buried transmission line cable that is located west of the Reservation. The purpose of this Project is to generate solar energy, provide public education on the benefits of solar energy, encourage future renewable-energy interest and investments, and reduce greenhouse gas (GHG) emissions across the Reservation. The Project Area consists of private land, including trust land within the Reservation.

1.1 PURPOSE

The primary purpose of this report is to present the results of an aquatic resource inventory conducted within the Project Area. The results of this inventory will be submitted to the Corps along with a jurisdictional determination request and will be incorporated into a supplemental Environmental Assessment (EA) being developed for the Project. No wetlands have been previously delineated for this Project. It was determined that an on-site delineation was necessary to facilitate a jurisdictional determination and subsequent permitting. As such, Trihydro performed a site assessment to determine the current footprint of aquatic resources in the Project Area. The results of the onsite assessment are presented in the following sections.

1.2 PHYSICAL DESCRIPTION OF LOOKOUT SOLAR PROJECT AREA

The Project Area is located with Township 6 South, Range 8, Sections 11, 12, and 14; Township 6 South, Range 9 East, Section 18, 19, 26-29, 35, and 36; and Township 41 North, Range 26, 27, 28, 29, 19, 18, 35, 36, and 41 North, Range 48 West, Sections 35 and 36. The Project Area will include an 840-acre solar farm, an approximate 10-acre substation, and nine linear miles of buried transmission line cable. The transmission line cable will be installed within road right-of-ways, which range in width from 66 to 100 feet. The transmission line will be drilled underneath the Cheyenne River using a horizontal directional drill (HDD). This method may be used for other stream or wetland crossings, depending on the final placement of the transmission line within the right-of-way and pending Corps permit requirements. The Project Area is located nine miles east of the town of Buffalo Gap, South Dakota. The solar farm is located on the western boundary of the Reservation and consists of 840 acres immediately north of road BIA 2 and west of the BIA 2 and Trevillyan Road intersection. The substation is located approximately eight miles northwest of the solar farm, and consists of approximately 10 acres of land located one-quarter mile south of County Highway 719.



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Current land uses include agriculture production and rangeland. Current aquatic resources include the Cheyenne River, Cottonwood Creek, the Angustora Canal, intermittent drainages, emergent wetlands, and livestock reservoirs.

1.3 ECOLOGY

The Project Area is located within two Major Land Resource Areas (MRLAs) and includes the Pierre Shale Plains and the Mixed Sandy and Silty Tableland and Badlands of the Northwestern Great Plains Ecoregion (EPA 2017). The proposed transmission line and substation are located within the Pierre Shale Plains, and the solar farm is located within the Mixed Sandy and Silty Tableland and Badlands. These MRLAs are generally dominated by either short or tall grass species, with lower densities of forb, shrub, and tree cover. The Project Area is characterized by mixed-grass prairie species, such as little bluestem (*Schizachyrium scoparium*), buffalograss (*Bouteloua dactyloides*), western wheatgrass (*Pascopyrum smithii*), green needlegrass (*Nassella viridula*), fescue (*Festuca spp.*), purple three-awn (*Aristida purpurea*), and prairie junegrass (*Koeleria macrantha*). A number of invasive grasses including cheatgrass (*Bromus tectorum*) and field brome (*Bromus arvensis*) are common in grassland habitat, with smooth brome (*Bromus inermis*) present along roads and adjacent to disturbed areas. In some grassland habitats, primarily within the Mixed Sandy and Silty Tableland Badlands, stands of sand sagebrush (*Artemisia filifolia*) are present with a small percentage of fringed sage (*Artemisia frigida*), yucca, and various forbs present as well.

Riparian areas located within the Project Area occur along the Cheyenne River and Cottonwood Creek. Several sources of open, ponded water also exist in the Project Area and serve as reservoirs for livestock. Riparian areas exhibit woody overstories comprised of eastern cottonwood (*Populus deltoides*), box elder (*Acer negundo*), and Russian olive (*Elaeagnus angustifolia*). Understories include shrubland and grassland species such as western snowberry (*Symphoricarpos occidentalis*) and smooth brome. Emergent wetlands are dominated by narrowleaf cattail (*Typha angustifolia*), bulrush (*Shoenoplectus spp.*), spike rush (*Eleocharis palustris*), prairie cordgrass (*Spartina pectinata*), and other hydrophytic species.

1.4 WATERSHED AND HYDROLOGY

The Cheyenne River originates from the confluence of several creeks in the Thunder Basin National Grassland, which is located within Converse County, Wyoming. The River flows east of its headwaters, into the southwestern boarder of South Dakota and ultimately serves as a tributary of the Missouri River in central South Dakota (United States Geological Survey [USGS] 2017). The Cheyenne River and Project Area are located within the Cheyenne Basin (hydrologic unit code [HUC] 101201) that extends from southwestern South Dakota to northeastern Wyoming, to the northwestern portion of Nebraska (USGS 2017). Within the Cheyenne Basin, the sub-basin watershed in which the Project Area is located is the Middle Cheyenne-Spring sub-basin watershed (HUC 10120109). The drainage area for

the Middle Cheyenne-Spring Basin encompasses approximately 1,000 square miles, extending into portions of Custer, Pennington, Oglala Lakota, and Fall River Counties (USGS 2017). The majority of the catchment are for the Middle Cheyenne-Spring Basin consists of mostly undeveloped rangeland, with cultivated agricultural land concentrated near ephemeral water sources.

Two primary drainages occur in the Project Area; the Cheyenne River and Cottonwood Creek, the latter of which is a small tributary to the Cheyenne River. Numerous small drainages also intersect the proposed transmission line where culverts allow surface water to flow under the road and eventually to the Cheyenne River during high flow. The Angustora Canal is also crossed by the transmission line between the Cheyenne River crossing and the Cottonwood Creek crossing. This man-made canal flows north and eventually into Cottonwood Creek just upstream of its confluence with the Cheyenne River. In addition, a few small, closed depressional wetlands occur within the solar farm. Aquatic resources within the Project Area are displayed on Figures 2 through 8.

1.5 JURISDICTIONAL WATERS OF THE U.S.

In 1972, the U.S. Congress enacted the Clean Water Act (CWA) after recognizing the continual acceleration of degradation to the Nation's waters. The purpose of the CWA is to sustain and protect the physical, chemical, and biological integrity of the waters of the U.S. The Corps is responsible for overseeing the nation's wetlands, which are federally regulated through Section 404 of the CWA and Section 10 of the Rivers and Harbors Act (RHA) (33 USC 1344).

The definition of "waters of the United States" currently in effect is the definition promulgated in 1986/1988, implemented consistent with subsequent Supreme Court decisions and guidance documents. The 2015 revised regulatory definition of "waters of the United States" has been stayed by the U.S. Court of Appeals for the Sixth Circuit. In response to this stay, EPA, Department of Army, and Army Corps of Engineers resumed nationwide use of the agencies' prior regulations defining the term "waters of the United States." On February 28, 2017, the President of the United States issued an Executive Order directing EPA and Department of the Army to review and rescind or revise the 2015 Rule. EPA, Department of Army, and the Army Corps of Engineers are in the process of reviewing the 2015 rule and considering a revised definition of "waters of the United States" consistent with the Executive Order. Therefore, according to the 1986/1988 regulatory definition (40 CFR 230.3[s]), the term "waters of the United States" means:

- 1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide.
- 2. All interstate waters including interstate wetlands.



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- 3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
 - a. Which are or could be used by interstate or foreign travelers for recreational or other purposes.
 - b. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
 - c. Which are used or could be used for industrial purposes by industries in interstate commerce.
- 4. All impoundments of waters otherwise defined as waters of the United States under this definition.
- 5. Tributaries of those waters identified in numbers 1 through 3, listed above.
- 6. The territorial sea.
- 7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in numbers 1 through 6, listed above; waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11[m] which also meet the criteria of this definition) are not waters of the United States.

Several regulatory guidance documents have been published that describe Section 404 permit compliance activities. These documents, including the *1987 Wetland Delineation Manual* (Corps 1987) and Corps *Interim Regional Supplements*, provide the methodologies and guidelines necessary to determine whether an area is a wetland as defined by Section 404. For an area to be considered a jurisdictional wetland, it must contain positive evidence of hydrophytic vegetation, hydric soils, and wetland hydrology. The manual and applicable regional supplements provide methodology to be used in the field for this three-tiered approach.

1.6 REGIONAL SUPPLEMENT

In March 2010, as an update to the 1987 Corps Manual, the Corps published the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)* (Corps 2010). This document was developed in cooperation with the Great Plains Regional Working Group, by the U.S. Army Engineer Research and Development Center, at the request of the Corps, with funding through the Wetlands Regulatory Assistance Program. The purpose of this regional supplement is to provide guidance for performing wetland delineations in the Great Plains Region, which consists of all or portions of 11 states, including Colorado, Kansas, Minnesota, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, and Wyoming. The Great Plains Region is subdivided into five subregions or Land Resource Regions (LRRs), including the Northern Great Plains (LRR F), Western Great

Plains (LRR G), Central Great Plains (LRR H), Southwestern Prairies (LRR J), and the Southwest Plateaus and Plains (LRR I). The Project Area is located in LRR G.

The *Great Plains Regional Supplement* takes precedence over the *1987 Wetland Delineation Manual*, where applicable. Such differences include regional criteria specific to making determinations on the presence or absence of hydrophytic vegetation, hydric soils, and wetland hydrology. Changes to the hydrophytic vegetation criteria include simplification of the indicator plant status and modifications to the prevalence index and dominance test calculations. In addition, plant morphological adaptations can be used as supplemental evidence for whether or not wetland plants dominate a site. Changes to hydric soil criteria include regional soil type criteria that are more characteristic of soils in the Great Plains. Finally, additional guidance is provided, which helps the wetland delineator apply wetland hydrology indicators across the Great Plains Region. An area is a wetland if indicators of hydrophytic vegetation and hydric soils are present along with indicators of wetland hydrology. Additional wetland indicators are provided for problematic wetland situations, namely areas with temporal shifts in vegetation or hydrology; drought conditions; sparse vegetation; riparian strips; artificial or managed plant communities; and areas affected by fire, drought, or other natural disturbances. Trihydro utilized the *Great Plains Regional Supplement* as the technical basis for identifying and delineating potential wetlands at the Project Area. The scope of the determination is limited to identifying those wetlands that may be "waters of the United States" and therefore subject to Section 404 of the CWA and Section 10 of the RHA.

1.7 SIGNIFICANT NEXUS DETERMINATION

The U.S. Supreme Court Case, Rapanos v. United States, enacted two new analytical standards for designating traditional navigable waters (TNWs) (including wetlands adjacent to non-TNWs). Both of these standards are subject to CWA jurisdiction: (1) if the water body is relatively permanent, or if the water body is a wetland that directly abuts a relatively permanent water (RPW) body, or (2) if a water body, in combination with all wetlands adjacent to the water body, has a significant nexus to TNWs. A significant nexus exists if the water body in question has an effect on the chemical, physical, and/or biological properties of downstream TNWs. The classes of water bodies subject to CWA jurisdiction include: (1) non-navigable tributaries that do not typically flow year-round or have continuous flow at least seasonally; (2) wetlands adjacent to such tributaries; and (3) wetlands adjacent to, but not directly abutting, a relatively permanent non-navigable tributary.



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2.0 METHODS

2.1 DATA REVIEW

A review of available information relative to jurisdictional waters of the U.S. was performed in-house prior to visiting the Project Area. The following data sources were identified and used during the wetland delineation and are described in greater detail below:

- Spatial data for the proposed Project Area, including the substation and linear cable route (provided by the Project proponent)
- Aerial photographs of the Project Area, Google Earth Imagery (12/2016)
- U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS), Soil Survey of Custer and Oglala Lakota Counties (Soil Survey Staff 2018) and U.S. Department of Agriculture NRCS National Hydric Soil List (NRCS 2015)
- National Wetlands Inventory (NWI) data (USFWS 2018a)

2.2 AERIAL PHOTOGRAPH REVIEW

Aerial photographs for the Project Area, generated by Google Earth, were reviewed prior to the on-site delineation. Google Earth Imagery includes aerial photographs from December 2016. Inundation was visible within the area of the proposed solar farm at approximately nine locations, in the form of ponded water. No inundation was apparent within the area of the proposed substation. Natural intermittent drainage features and a man-made irrigation canal that intersect the linear extent of the Project Area (i.e. proposed transmission line cable) were evident during the aerial photograph review.

2.3 NRCS SOIL SURVEY

The Project Area is located within two counties. These counties may have received soil surveys at different scales, times, level of detail, or with a different land use in mind, resulting in distinct information that may not be directly comparable to the adjacent county (Soil Survey Staff 2018). As such, soil series identified within Oglala Lakota and Custer Counties may be named differently but exhibit similar soil characteristics. Soils within the Project Area are shown on Figure 9.

2.3.1 OGLALA LAKOTA COUNTY SOIL SURVEY

The soil survey identified 26 unique soil series; however, five of these soils constitute approximately 85% of the Project Area. These predominant soil series include: Anselmo-Valentine complex (5 to 20% slopes), Pierre clay (3 to 9% slopes), Richfield-Altvan silt loams (0 to 3% slopes), Valentine sand (3 to 30% slopes), and Tuthill-Anselmo fine sandy loams (3 to 9% slopes). The Anselmo-Valentine complex comprises 432 acres (46%) of the Project Area. These soils are well- to excessively-drained soils with a fine sandy loam texture. Anselmo-Valentine soils are derived from sandstone, and are found amongst hillslopes in Nebraska, Kansas, South Dakota, and Wyoming. The Anselmo-Valentine complex is not prime farmland, and its predominant land use includes rangeland production. Pierre clay is a well-drained soil derived from shale parent material found in hillslopes of Nebraska and South Dakota. This soil series comprises 140 acres (15%) of the Project Area; and, while this series is not hydric, it is classified as farmland of statewide importance. Predominant land use includes rangeland and supplemental agricultural production. Richfield-Altvan silt loams and Tuthill-Anselmo fine sandy loam complexes comprise 122 acres (13%) and 34 acres (4%), respectively. These soils contain hydric soil components and are included on the South Dakota list of hydric soils (NRCS 2015). Similar to other soils in the Project Area, these soils primarily serve rangeland production. The Valentine sand series is an excessively drained soil derived from Eolian sand parent material. This series is common amongst dunes in Nebraska, South Dakota, and Wyoming, and is not recognized as hydric or prime farmland. This series constitutes 68 acres (7%) of the Project Area and primarily serves rangeland production. Of the 21 remaining soil series, most represent less than 1% of the Project Area. Table 1 contains the acreages of all 26 soil series in the Project Area and their associated hydric soil rating and prime farmland classification.

2.4 NATIONAL WETLAND INVENTORY

Data layers from the NWI indicate the extent, approximate location, and type of wetlands within the U.S. These data delineate the aerial extent of wetlands and surface waters as defined by Cowardin et al. (1979). NWI data indicate that within the proposed solar farm, a freshwater pond and five palustrine emergent (PEM) wetlands may be present. In the remainder of the Project Area, NWI data suggests that several hydrologic features may intersect the proposed transmission line cable route, including intermittent riverine drainages, PEM wetlands, and a palustrine scrub-shrub (PSS) wetland. A single perennial riverine feature (i.e. Cheyenne River) was identified in the central portion of the Project Area. No potential wetland resources were identified in the proposed substation. NWI data are shown on Figures 2-8. Cottonwood Creek and the Angustora Canal, both classified as intermittent streams, are also crossed by the transmission line. It is important to note that NWI data are not synonymous with on-site delineated wetlands and are a tool used to identify potential wetlands at a landscape scale.

2.5 WETLAND DELINEATION METHODOLOGY

The following is a summary of the routine procedures that were used to determine the presence or absence of wetlands at the Project Area:

- **Step 1:** Identify and locate the project area. The Project Area includes the solar farm, the substation, and the transmission cable line route located at the boundary between Custer and Oglala Lakota Counties (Figure 1).
- Step 2: Determine whether an atypical situation exists. Atypical situations include the following: a) unauthorized activities, b) natural events, and c) unplanned man-induced wetlands. Although a man-made irrigation canal (i.e. Angostura Canal) was identified within the Project Area, this is a permanent feature and does not constitute an atypical situation for the Project Area.
- Step 3: Determine the size of the Project Area. The Project Area encompasses approximately 850 acres, with additional acreage resulting from the transmission cable line. The study area was determined by using aerial photography. Therefore, baseline transects were not required for the field delineation.
- **Step 4:** Identify the plant community types. Four plant communities were identified within the Project Area. They include the following: developed or disturbed, cultivated cropland, riparian and wetland, and grassland.
- **Step 5:** Select and evaluate representative sample observation points using the Great Plains Region Wetland Determination Data Forms (Corps 2010):
 - Evaluate whether normal environmental conditions are present on-site. Abnormal weather conditions, including heavy rainfall or drought, may influence the presence of some wetland indicators. For instance, heavy rainfall may raise water levels, and result in the presence of hydrology in areas that are typically upland. Conditions within the Project Area were considered normal in regard to the Wetland Determination Data Forms provided in the *Great Plains Regional Supplement* (Corps 2010).
 - Establish an observation point in each plant community type. Twenty-nine observation points were selected to represent the community types identified at the Project Area. One to two observation points were selected within each wetland, with at least one observation point selected within an upland area adjacent to the wetland. When assessing NWI wetlands, if all three indicators (hydrophytic vegetation, hydric soil, and hydrology) were absent, only one determination point (upland) was recorded. It was determined that an adequate number of observation points were selected to accurately characterize wetland boundaries.
 - Characterize wetland indicators at each sample point. Vegetation, soil, and hydrologic indicators were assessed at each sample point using the Wetland Determination Data Form and methods described in the *Great Plains Regional Supplement* (Corps 2010). The data collected for these points are presented in Appendix A



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and summarized in Table 2. Determination points were selected to accurately identify the wetland/upland interface.

• Step 6: Wetland Determination. Each observation point was examined to determine whether wetland indicators of all three parameters (vegetation, soils, and hydrology) are, or would normally be, present during a significant portion of the growing season. If so, the sample point was considered to be within a wetland. If evidence was not found at the sample point to suggest that the location would normally have wetland indicators for all three parameters, then the area was considered an upland. Samples were obtained from various locations within the Project Area to identify the approximate boundary between wetland and upland areas. Depending on the size of the wetland, one or two representative sample points were documented for each wetland and associated upland area. The Wetland Determination Data Forms completed for the Project Area are provided in Appendix A.

In addition to the wetland delineation methods described above, wetlands, open water ponds, and streams were delineated and classified using the Cowardin Wetlands and Deepwater Habitat Classification system (Cowardin et al. 1979) so as to distinguish between different types of aquatic resource types. For the purposes of this Aquatic Resource Inventory Report, wetlands are considered PEM wetlands, palustrine scrub-shrub (PSS), and palustrine open water (POW). POW wetlands were delineated based on ordinary high-water mark.

2.6 STREAM ASSESSMENT METHODOLOGY

All stream channels within the Project Area were classified as Intermittent Riverine with Streambed (R4SB), with the exception of the Cheyenne River (RU2BG) (Cowardin et al. 1979). Nine riverine segments (eight intermittent; one perennial) were identified using NWI data. Intermittent streams were not delineated on-site using Wetland Delineation Field Forms. If intermittent stream drainages were observed on-site, they were digitized using a combination of aerial imagery and a hand-held Global Positioning System (GPS). During the 2018 on-site assessment, surface water was exhibited in the Cheyenne River, the Angostura Canal, and Cottonwood Creek. The locations of culverts were also recorded using a GPS (Figures 3-8).

3.0 RESULTS

This section provides a discussion of the results of the on-site aquatic resource inventory. The discussion includes vegetation, soil, hydrologic, and other data used to determine aquatic resource boundaries. Aquatic resources were delineated to obtain baseline information for this Project Area, prior to the development of the solar farm and associated infrastructure.

3.1 AQUATIC RESOURCE FINDINGS

Aquatic resources were delineated between June 11 and June 15, 2018, using the data collected from 29 field observation points. Aquatic resources identified include wetlands, intermittent stream drainages, and a river. Wetlands within the Project Area were characterized as either PEM, PSS, or POW. The R4SB features identified using NWI data were verified on-site, and their locations were recorded using a GPS. Approximately 100 feet of intermittent stream were delineated upstream and downstream of the Project Area (Figures 3-8). A single, perennial riverine (R2UBG) feature was identified in the Project Area using the NWI data and consists of the Cheyenne River. In total, 1.3 acres of aquatic resources were delineated within the Project footprint including 0.9 acres of PEM, 0.3 acres of PSS, 0.1 acres of R2UBG, less than 0.01 acres of POW, and nine intermittent riverine streams (R4SB) (Figures 3-8). Of the nine intermittent streams, eight were classified as R4SB7 (vegetated streambed) and one was classified as R4SBFx (Angustora Canal). Acreages for each aquatic resource delineated within the Project Area are presented in Table 3. The results from each wetland and upland sample point are summarized in Table 2. Wetland Determination Data Forms are provided in Appendix A. Photographs of each sample point are provided in Appendix B. Figures 3-8 show the location of each on-site wetland and upland sample location and the field delineated boundaries of aquatic resources within the Project Area.

3.1.1 PALUSTRINE AND RIVERINE SYSTEMS

In total, 22 unique aquatic resources (9 PEM, 1 PSS, 2 POW, 1 R2UBG, and 9 R4SB) were delineated in the Project Area. PEM wetlands comprised 0.9 acres, the single PSS wetlands comprised 0.3 acres, and the POW wetlands comprise less than 0.01 acres. The Cheyenne River (R2UBG) comprises 0.2 acres. One of the R4SB features consists of the Angostura Canal, a human-excavated canal warranting the special modifier, "x" (Cowardin et al. 1979). The solar farm was void of distinct drainage features, and the wetlands delineated in this area consisted of PEM wetlands. The proposed substation did not contain any wetland features. The proposed transmission line cable route was intersected by PEM and PSS, R4SB, and R2UBG. A single PSS wetland was delineated along the southern bank of the Cheyenne River and was consistent with the PSS wetland layer identified using the NWI data (Figure 4). Generally, the NWI data accurately represented the delineated wetland boundaries, with the exception of Sample Points 8C and



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9A-12B. At Sample Point 8C, NWI data suggested the area was PSS, but the on-site assessment resulted in the determination that this area is disturbed and is void of any wetland indicators. Within Sample Points 9A-12B, the delineated PEM wetland boundaries were more extensive than those depicted by the NWI data (Figure 6). In areas apparently lacking hydrology indicators, the lowest or wettest spots were preferentially selected for sampling, under the assumption that these areas would yield the highest number of wetland indicators. If the sample lacked one or more wetland indicators, it was determined that no wetland was present and no delineation was necessary (i.e. Sample Points 3, 5, 13, 14, and 16).

3.1.1.1 FRESHWATER EMERGENT AND SCRUB-SHRUB WETLANDS

Using the Cowardin Classification System (Cowardin et al. 1979), all palustrine wetlands were characterized as PEM or PSS. Most occurred in semi-open depressions located within the proposed solar farm. These depressions were dispersed geographically and isolated from drainage channels (i.e. Sample Points 1, 2, 4, and 6). Semi-closed depressions lack a defined exit channel, and are subject to inundation via overland flow in response to a large storm event. Limited surface water was present during the on-site assessment, but saturation was observed, indicating that water does not persist in these depressions. Additional PEM, PSS, and POW wetlands were characterized along the proposed transmission line cable route on the banks of the Cheyenne River. Wetlands identified within the Cheyenne River floodplain are likely subject to periods of temporary inundation during high flow conditions in response to storm events or seasonal snowmelt, resulting in the development of wetland indicators (i.e. Sample Points 7 and 8). The PEM wetlands that are not influenced by the Cheyenne River likely receive moisture from surrounding intermittent streams and ditches identified using the NWI data (Sample Points 9-12, and 15). The wetlands identified south of Cottonwood Creek are the largest of those delineated on-site. These wetlands boarder Cottonwood Creek and extend south to a series of roadside ditches (R4SBX) on the east and west side of County Road 719 (Figure 6). These roadside ditches likely receive surface water runoff during storm events, and the resulting flow temporarily inundates the wetlands delineated during the on-site assessment (Figures 6).

3.1.1.2 INTERMITTENT DRAINAGES

Using the Cowardin Classification System (Cowardin et al. 1979), all nine drainages were characterized as Intermittent Riverine with Streambed substrate (R4SB), and the Cheyenne River was classified as Perennial Riverine (R2UBG). The R4SB features may ultimately serve as tributaries to the Cheyenne River during high flow conditions, and hydrologic connectivity of these features is further described in Section 3.1.4. A GPS was used to delineate drainages approximately 100 feet upstream and downstream of the Project Area. Representative photographs drainages are provided in Appendix B.



3.1.2 WETLAND VEGETATION

Vegetation identified within delineation areas included native and introduced species. Road disturbance areas exhibited greater densities of introduced species. The most commonly observed grassland plant species included smooth brome (*Bromus inermis*), slender wild rye (*Elymus trachycaulus*), curly blue grass (*Poa secunda*), narrow-leaf cattail (*Typha angustifolia*), and western wheatgrass (*Pascopyrum smithii*). Dominant plant species observed within the shrubland areas consisted of narrow-leaf willow (*Salix exigua*), eastern cottonwood (*Populus deltoides*), and Russian olive (*Elaeagnus angustifolia*). Commonly observed wetland species identified on-site include common spike rush (*Eleocharis palustris*), short-awn meadow foxtail (*Alopecurus aequalis*), and freshwater cord grass (*Spartina pectinata*). The USFWS Information for Planning and Consultation system and the South Dakota County Species List suggested that habitat may support a federally threatened forb, the western prairie fringe orchid (*Platanthera praeclara*) (USFWS 2017, 2018b). Currently, no known populations of the prairie fringe orchid are documented in South Dakota; however, the species remains listed because status surveys within the State may have overlooked populations (USFWS 2017). Suitable habitat in South Dakota includes moist, calcareous, silt loams and sub-irrigated sand prairies that exhibit tall grasses and sedge meadows (South Dakota Technical Guide 2002). Detailed vegetation data pertaining to each sample location are provided in Table 2. The plant list for species observed during the on-site assessment is 2018 is provided in Table 4.

3.1.3 WETLAND SOILS

Soil characteristics were assessed at the upland and wetland sample locations within the Project Area from depths of 12 to 20 inches, depending on whether a restrictive layer was contacted with the shovel. Detailed soil data pertaining to each sample location are provided in Table 2, along with Wetland Determination Data Forms provided in Appendix A.

Soil matrix color within the on-site upland areas consisted of values between 2.5YR 4/2; and 10YR 2/2 and 5/1, according to the Munsell Soil Color Charts. As shown in the Munsell Soil Color Chart, hydric soils generally have a chroma value less than two (Munsell 2000). Hydric soils observed at wetland Sample Points in this Project Area varied between from 2.5YR 4/2; 7.5YR 4/1; 10YR 4/1, 4/2, and 5/1; and GLEY 1 3/10Y, 3/N, 4/N, and 5/N. Hydric soils were similar in value and chroma colors to those that were observed in the upland soils, but generally more depleted. In addition, gleying, mottling, and prominent redox concentrations were apparent in wetland soils. Hydric indicators observed include loamy gleyed matrix (F2), depleted matrix (F3), and redox depressions (F8). The hydric soil indicator for redox depressions was applicable to Sample Points collected within closed-depression landforms located within the proposed solar farm. Redox concentrations in upland and wetland sample points varied between 2.5YR 6/6; 5YR 4/6, 5/6, and 5/8; 7.5YR 3/4, 4/6, 5/4, 5/5, 5/6, and 6/6; and 10YR 4/6, 5/6, 5/8, and 6/6. Soil textures ranged from predominantly loamy or sandy in the upland areas to mostly clayey in wetland areas.



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3.1.4 WETLAND HYDROLOGY

Surface water runoff from the adjacent upland areas provides hydrology for the on-site wetlands. The primary indicators of wetland hydrology included: water-stained leaves, saturation, algal mat or crust, drift deposits, and aquatic invertebrates. Secondary indicators included: FAC-neutral test, surface soil cracks, and drainage patterns. Some primary and secondary indicators were observed at in upland Sample Points, where the point was placed near the wetland edge, indicating occasional high water into upland areas. Hydrologic indicators for each sample location are shown in Appendix A and in Table 2.

Significant nexus, as defined in Section 1.7, may include tributaries of waterbodies that exhibit seasonal flow (e.g. intermittent streams). A review of aerial imagery, in conjunction with the on-site assessment of wetlands, suggests that some wetlands (approximately one acre) within the Project Area may ultimately serve as tributaries to the Cheyenne River, a TNW. As such, these areas may be subject to Corps jurisdiction. Notably, the PEM wetlands delineated in the proposed solar farm consist of geographically isolated depressions (approximately one-half acre) that lack connectivity to surrounding drainages. As such, these areas likely lack significant nexus criteria and are therefore not likely to be subject to Corp jurisdiction.

4.0 CONCLUSIONS

Trihydro, on behalf of Lookout Solar, performed an aquatic resource inventory in 2018 to assess the current footprint of aquatic resources. In 2018, a total of 1.3 acres of aquatic resources were delineated within the Project Area including 1.1 acres of wetlands (PEM, PSS, and POW), and 0.2 acres of river (R2UBG). The largest wetlands were delineated adjacent to the Cheyenne River and immediately south of Cottonwood Creek. Additionally, nine intermittent streams (R4SB) that intersect the Project Area were identified during the 2018 on-site assessment (Figure 6). Two of the intermittent streams are man-man features including the Angustora Canal and a small drainage ditch near Cottonwood Creek. Specific acreages for each aquatic resource type are show in Table 3.

In summary, nine intermittent streams and the Angostura Canal are crossed by the transmission line route and connect downstream to the Cheyenne River, a TNW. These streams, the Cheyenne River, and wetlands adjacent to these features are subject to Corps jurisdiction. The protection of these aquatic resources will promote the continuation of healthy ecological function within the Project Area and the surrounding landscape, including utilization by livestock, plants and wildlife. If proposed disturbance occurs on more than one-half acres of jurisdictional wetland or 300-linear feet of stream, a general Nationwide Permit 12 may be required.

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5.0 REFERENCES

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201807_LookoutSolar_DRAFT_RPT.docx 5-1

TABLES



TABLE 1. PROJECT AREA SOILS LOOKOUT SOLAR, LLC., CUSTER AND OGLALA LAKOTA COUNTIES, SOUTH DAKOTA

Soil Series	Acres in Project Area	Percent of Project Area	Prime Farmland Classification	Hydric Soil Rating
Anselmo-Valentine complex, 5 to 20 percent slopes	431.73	46.29	Not prime farmland	No
Pierre clay, 3 to 9 percent slopes	140.33	15.04	Farmland of statewide importance	Yes
Richfield-Altvan silt loams, 0 to 3 percent slopes	121.52	13.03	Prime farmland if irrigated	Yes
Valentine sand, 3 to 30 percent slopes	67.50	7.24	Not prime farmland	No
Tuthill-Anselmo fine sandy loams, 3 to 9 percent slopes	34.27	3.67	Prime farmland if irrigated	Yes
Jayem fine sandy loam, 3 to 9 percent slopes	23.27	2.50	Farmland of statewide importance	Yes
Pierre clay, 2 to 6 percent slopes	19.67	2.11	Not prime farmland	Yes
Tuthill-Anselmo fine sandy loams, 0 to 3 percent slopes	12.20	1.31	Prime farmland if irrigated	Yes
Lohmiller silty clay loam	11.87	1.27	Farmland of statewide importance	Yes
Kyle clay, 0 to 2 percent slopes	9.64	1.03	Farmland of statewide importance	Yes
Nunn clay loam, 0 to 2 percent slopes	9.50	1.02	Prime farmland if irrigated	Yes
Samsil clay, 15 to 40 percent slopes	9.44	1.01	Not prime farmland	No
Jayem fine sandy loam, 0 to 3 percent slopes	8.84	0.95	Prime farmland if irrigated	Yes
Satanta loam, 0 to 2 percent slopes	8.15	0.87	Prime farmland if irrigated	No
Pierre-Samsil, moderately deep clays, 6 to 25 percent slopes	5.55	0.60	Not prime farmland	Yes
Lohmiller silty clay, channeled, 0 to 3 percent slopes, occasionally flooded	4.60	0.49	Not prime farmland	Yes
Schamber-Samsil complex, 15 to 40 percent slopes	2.83	0.30	Not prime farmland	No
Pierre clay, 6 to 20 percent slopes	2.51	0.27	Not prime farmland	No
Pierre-Hisle complex, 0 to 9 percent slopes	2.40	0.26	Not prime farmland	No
Bankard loamy fine sand, 0 to 4 percent slopes	1.99	0.21	Not prime farmland	Yes
Arvada loam, 0 to 3 percent slopes	1.48	0.16	Not prime farmland	No
Valent loamy fine sand, 6 to 25 percent slopes	1.23	0.13	Not prime farmland	No
Haverson loam, 0 to 2 percent slopes, rarely flooded	1.06	0.11	Prime farmland if irrigated	Yes
Kyle clay, 2 to 6 percent slopes	0.59	0.06	Farmland of statewide importance	No
Water	0.47	0.05	NA	NA
Satanta loam, 2 to 6 percent slopes	0.04	0.00	Prime farmland if irrigated	Yes
Altvan loam, 2 to 6 percent slopes	0.02	0.00	Prime farmland if irrigated	No
AL C. HAIAH	•			

Note: "NA" = not applicable ground cover

201808_1-Soils_TBL-1.xlsx

TABLE 2. WETLAND DELINEATION RESULTS BY SAMPLE POINT LOOKOUT SOLAR, LLC., CUSTER AND OGLALA LAKOTA COUNTIES, SOUTH DAKOTA

Sample ID	Vegetation Observed	USACE Status	Hydrophytic Vegetation Present?	Soils Observed (Dominant Matrix/Chroma)	Soil Mottles Observed	Hydric Soils Present?	Hydrology	Hydrology Present?	Wetland Indicators Present (hydric soils (HS), hydrophytic vegetation (HV), and hydrology (HY))?	Is the Sampling Point Within a Wetland?
1A	Eleocharis palustris Alopecurus aequalis	OBL OBL	Yes	0-3" 10YR 3/2 3-9" GLEY 1 4/N 9-16" 10YR 4/2	7.5 YR 5/6 7.5 YR 5/6 7.5 YR 5/6	Yes	Saturation, algal mat or crust, FAC-Neutral Test	Yes	HS, HV, HY	Yes
1B	Elymus trachycaulus Eleocharis palustris Bromus inermis Poa secunda Alopecurus aequalis Grindelia squarrosa	FACU OBL UPL FACU OBL UPL	No	0-3" 10YR 3/2 3-16" 10YR 3/1	7.5 YR 4/6 No	No	No hydrology indicators were observed	No	None	No
2A	Eleocharis palustris	OBL	Yes	0-1" 10YR 3/3 1-10" 10YR 4/1 10-16" 10YR 4.5/2	No 5YR 5/6 No	Yes	Algal mat or crust, water-stained leaves, FAC-Neutral Test	Yes	HS, HV, HY	Yes
2B	Elymus trachycaulus Bromus inermis Poa secunda Tragopogon dubius Grindelia squarrosa	FACU UPL FACU UPL UPL	No	0-12" 10YR 3/1	No	No	No hydrology indicators were observed	No	None	No
3	Elymus trachycaulus Alopecurus aequalis Bromus inermis	FACU OBL UPL	Yes	0-4" 10YR 3/2 4-10" 10YR 3/2 10-16" 10YR 3/3	10YR 6/6 10YR 6/6 No	No	Algal mat or crust, water-stained leaves, FAC-Neutral Test	Yes	HV, HY	No
4A	Eleocharis palustris Sagittaria sp.	OBL OBL	Yes	0-4" 10YR 4/1 4-7" GLEY 1 4/N 7-16" 2.5 YR 4/2	10YR 5/6 10YR 5/6 No	Yes	Algal mat or crust, FAC-Neutral Test, saturation	Yes	HS, HV, HY	Yes
4B	Elymus trachycaulus Eleocharis palustris Alopecurus aequalis	FACU OBL OBL	No	0-2" 10YR 3/2 2-13" 10YR 4/3	7.5YR 5/8 10YR 6/6	No	Surface soil cracks, FAC-Neutral Test	Yes	НҮ	No
5	Eleocharis palustris Alopecurus aequalis Juncus interior Elymus trachycaulus Eleocharis acicularis	OBL OBL FACW FACU OBL	Yes	0-5" 10YR 3/2 5-14" 10YR 2/2	7.5YR 4/6 7.5YR 4/6	No	Aquatic invertebrates, FAC-Neutral Test	Yes	HV, HY	No
6A	Eleocharis palustris Alopecurus aequalis	OBL OBL	Yes	0-4" 10YR 3/2 4-10" 10YR 4/1 10-16" 10YR 4/2	7.5 YR 6/6 7.5 YR 4/6 7.5 YR 4/6	Yes	Algal mat or crust, water-stained leaves, aquatic	Yes	HS, HV, HY	Yes
6B	Elymus trachycaulus Alopecurus aequalis	FACU OBL	No	0-3" 10YR 3/2 3-12" 10YR 3/2	7.5YR 5/6 7.5YR 5/6	No	Water-stained leaves	Yes	HY	No

201808_2-WetlandDelineationResults_TBL-2.xisx

TABLE 2. WETLAND DELINEATION RESULTS BY SAMPLE POINT LOOKOUT SOLAR, LLC., CUSTER AND OGLALA LAKOTA COUNTIES, SOUTH DAKOTA

Sample ID	Vegetation Observed	USACE Status	Hydrophytic Vegetation Present?	Soils Observed (Dominant Matrix/Chroma)	Soil Mottles Observed	Hydric Soils Present?	Hydrology	Hydrology Present?	Wetland Indicators Present (hydric soils (HS), hydrophytic vegetation (HV), and hydrology (HY))?	Is the Sampling Point Within a Wetland?
7A	Salix exigua Populus deltoides Asclepias speciosa Sagittaria rigida Spartina pectinata	FACW FAC FAC OBL FACW	Yes	0-3" 2.5YR 3/2 (silty clay) 3-4" 2.5YR 3/2 (sandy clay) 4-8" GLEY 1 3/10Y 8-16" GLEY 1 4/N	No No 10YR 6/6 7.5YR 4/6	Yes	Drift deposits, water-stained leaves, surface soil cracks, FAC-Neutral Test	Yes	HS, HV, HY	Yes
7B	Typha angustifolia	OBL	Yes	0-1" 10YR 2/1 1-8" 7.5YR 4/1 8-16" 10YR 4/1	No 5YR 5/8 10YR 5/8	Yes	Saturation, drift deposits, water-stained leaves, FAC- Neutral Test	Yes	HS, HV, HY	Yes
7C	Elaeagnus angustifolia Salix exigua Populus deltoides Elymus trachycaulus Alopecurus aequalis Pascopyrum smithii Grindelia squarrosa Monolepis nuttalliana Rumex crispus Glycyrrhiza lepidota Melilotus officinalis Bromus inermis Spartina pectinata	FACU FACW FAC OBL FACU UPL FAC FAC FAC FAC FACU FACU UPL FACW	Yes	0-16" 10YR 4/3	7.5YR 4/6	No	No hydrology indicators were observed	No	НҮ	No
8A	Salix exigua Eleocharis acicularis Typha angustifolia Spartina pectinata	FACW OBL OBL FACW	Yes	0-3" 10YR 4/1 3-16" 10YR 5/1	7.5YR 5/6 7.5YR 5/6	Yes	Sediment deposits, drift deposits, iron deposits, water- stained leaves, aquatic invertebrates, FAC-Neutral Test	Yes	HS, HV, HY	Yes
8B	Elaeagnus angustifolia Populus deltoides Elymus trachycaulus Bromus arvensis Bromus inermis Agropyron cristatum Pascopyrum smithii Rumex crispus Lepidium densiflorum Melilotus officinalis Bromus tectorum Hordeum jubatum	FACU FACU FACU UPL UPL FACU FAC FAC FAC FAC FAC UPL FACU FAC FACU UPL FACW	No	0-8" 10YR 3/2 8-16" 10YR 3/2	5YR 4/6 (clay) 5YR 4/6 (sandy clay)	No	Water-stained leaves, surface soil cracks	Yes	HY	No
8C	Elaeagnus angustifolia Populus deltoides Pascopyrum smithii Bromus tectorum Rumex crispus Hordeum jubatum Cirsium arvense Agropyron cristatum Bromus inermis Melilotus officinalis	FACU FACU UPL FACW FACU UPL UPL FACU FACU	No	0-12" 10YR 3/2	7.5YR 5/6	No	No hydrology indicators observed	No	None	No
9A	Alopecurus aequalis Typha angustifolia Bromus inermis Chenopodium album	OBL OBL UPL FACU	Yes	0-3" 10YR 3/2 3-10" 10YR 3/1 10-20" 10YR 4/1	No 7.5YR 4/6 7.5YR 4/6	Yes	Saturation, algal mat or curst, drainage patterns	Yes	HS, HY, HV	Yes
9B	Elymus trachycaulus Lactuca serriola Bromus inermis Chenopodium album Pascopyrum smithii Spartina pectinata	FACU FAC UPL FACU FACU FACU	No	0-3" 10YR 2/2 3-12" 10YR 3/2 12-16" GLEY 1 4/N	No 7.5YR 3/4 7.5YR 5/6	Yes	Drift deposits	Yes	HS, HY	No

201808_2-WetlandDelineationResults_TBL-2.xisx

TABLE 2. WETLAND DELINEATION RESULTS BY SAMPLE POINT LOOKOUT SOLAR, LLC., CUSTER AND OGLALA LAKOTA COUNTIES, SOUTH DAKOTA

Sample ID	Vegetation Observed	USACE Status	Hydrophytic Vegetation Present?	Soils Observed (Dominant Matrix/Chroma)	Soil Mottles Observed	Hydric Soils Present?	Hydrology	Hydrology Present?	Wetland Indicators Present (hydric soils (HS), hydrophytic vegetation (HV), and hydrology (HY))?	Is the Sampling Point Within a Wetland?
10A	Schoenoplectus sp. Typha angustifolia Eleocharis palustris Tradescantia occidentalis	OBL OBL OBL UPL	Yes	0-7" 10YR 4/3 7-10" GLEY 1 3/N 7-10" GLEY 1 5/N	No 7.5YR 4/6 7.5YR 4/6	Yes	Saturation, algal mat or curst, water-stained leaves, drainage patterns, FAC-Neutral Test	Yes	HS, HV, HY	Yes
10B	Sisybrium altissimum Lepidium densiflorum Bromus inermis Hordeum jubatum Pascopyrum smithii Spartina pectinata	UPL FAC UPL FACW FACU FACW	No	0-4" 10YR 4/3 4-16" 10YR 4/1	No 7.5YR 5/4	Yes	Drift deposits, surface soil cracks	Yes	HS, HY	No
11A	Populus angustifolia Acer negundo Asclepias speciosa Typha angustifolia Bromus inermis	FACW FAC FAC OBL UPL	Yes	0-3" 10YR 3/2 3-10" 10YR 5/1 10-16" GLEY 1 5/N	7.5YR 4/6 5YR 5/6 7.5YR 4/6	Yes	Drift deposits, algal mat or crust, water-stained leaves, hydrogen sulfide odor, drainage patterns, FAC-Neutral Test	Yes	HS, HV, HY	Yes
11B	Populus angustifolia Bromus inermis Poa secunda	FACW UPL FACU	No	0-5" 10YR 3/2 5-16" 10YR 4/1	10YR 5/6 10YR 5/6	Yes	No hydrology indicators observed	No	HS	No
							Saturation, drift deposits, water-stained leaves, hydrogen sulfide odor, drainage patterns, FAC-Neutral Test			
12A	Typha angustifolia Alopecurus aequalis	OBL OBL	Yes	0-5" 10YR 3/2 5-16" GLEY 1 4/N	10YR 4/6 10YR 4/6	Yes		Yes	HS, HV, HY	Yes
12B	Bromus inermis Cirsium undulatum Tragopogon dubius	UPL FACU UPL	No	0-4" 10YR 3/2 4-16" 10YR 3/2	No No	No	No hydrology indicators observed	No	None	No
13	Bromus inermis Equisetum sp.	UPL FAC	No	0-16"10YR 3/3 0-16" 2.5YR 4/2	No 10YR 5/6	No	No hydrology indicators observed	No	None	No
14	Eleocharis palustris Rumex crispus Poa secunda	OBL FAC FACU	Yes	0-16" 10YR 4/3	7.5YR 5/8	No	Saturation	Yes	HV, HY	No
15A	Salix fragilis Rumex crispus Eleocharis palustris Hordeum jubatum Spartina pectinata Sagittaria latifolia	UPL FAC OBL FACW FACW OBL	Yes	0-10" GLEY 1 4/N 10-16" GLEY 1 4/N	5YR 4/6 (20%) 5YR 4/6 (40%)	Yes	Algal mat or crust, water-stained leaves, surface soil cracks, sparsely vegetated concave surface, FAC-Neutral Test	Yes	HS, HV, HY	Yes
15B	Bromus inermis Elymus trachycaulus Poa secunda Agropyron cristatum Spartina pectinata	UPL FACU FACU UPL FACW	No	0-16" 10YR 4/3	No	No	No hydrology indicators observed	No	None	No
16	Cirsium arvense Poa secunda Melilotus officinalis Lepidium densiflorum Convolvulus arvensis Pascopyrum smithii Helianthus petiolaris Bromus inermis	FACU FACU FACU FAC UPL FACU UPL UPL	No	0-4" 10YR 3/2 4-8" 10YR 3/1 8-16" GLEY 1 4/N	No 7.5YR 4/6 10YR 4/6	Yes	Drainage patterns	No	HS	No

Notes:

FAC = Facultative FACW = Facultative Wetland

FACU = Facultative Upland

UPL = Upland (Species not listed in the latest version of the US Army Corp Wetland Plant List were assumed to be UPL)

3 of 3 201808_2-WetlandDelineationResults_TBL-2.xlsx

TABLE 3. AQUATIC RESOURCE TOTALS, LOOKOUT SOLAR, LLC., CUSTER AND OGLALA LAKOTA COUNTIES, SOUTH DAKOTA

Project Area Description	PEM Wetland Acres	PSS Wetland Acres	POW Wetland	Riverine Open Water Acres	Total
			Acres		Acres
Solar Farm	0.413	0.000	0.000	0.000	0.413
Transmission Cable Line	0.461	0.292	0.003	0.178	0.934
Substation	0.000	0.000	0.000	0.000	0.000
Total	0.874	0.292	0.003	0.178	1.347
Aquatic Resource	Acres				
Wetlands	1.166				
Ponds	0.003				
River	0.178				
Total	1.347				

Note:

201808_3-AquaticResourceTotals_TBL-3.xls

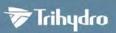
[&]quot;PEM" = palustrine emergent wetlands, "PSS"= palustrine scrub shrub wetlands, "POW" = palustrine open water

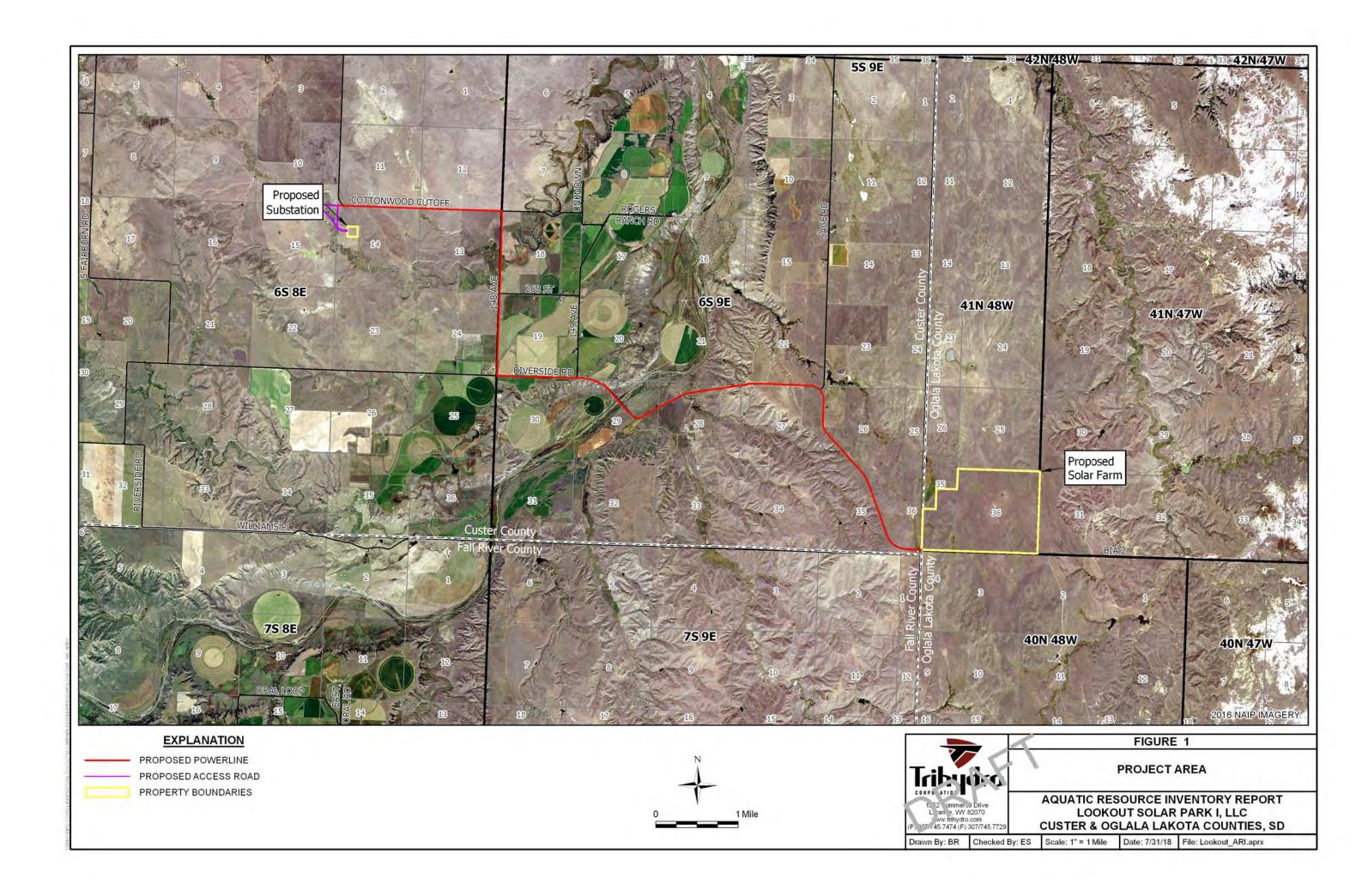
TABLE 4. 2018 PLANT LIST LOOKOUT SOLAR, LLC., CUSTER AND OGLALA AND LAKOTA COUNTIES, SOUTH DAKOTA

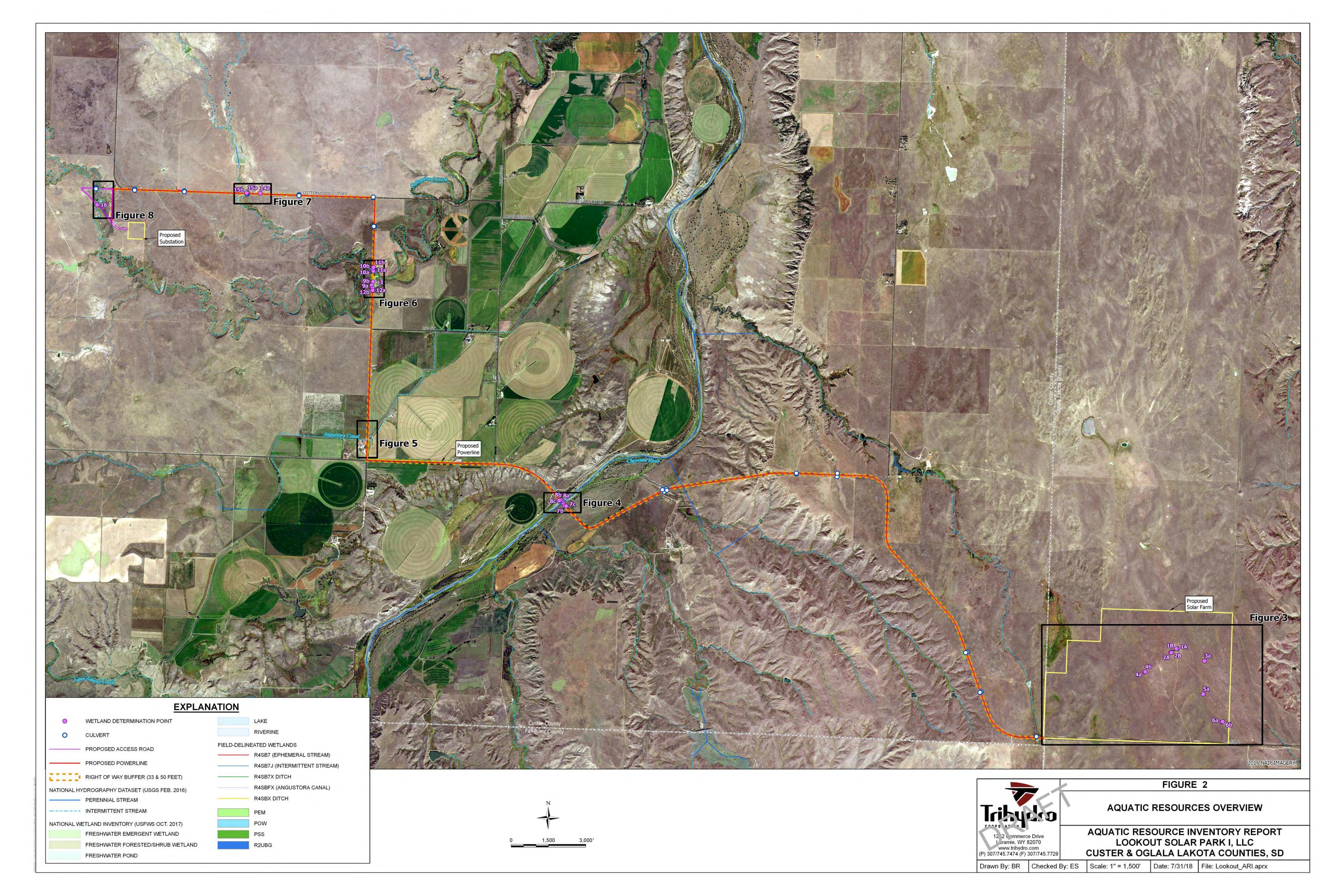
Scientific Name	Common Name	Wetland Indicator Status
Grasses		•
Agropyron cristatum	crested wheatgrass	*UPL
Alopecurus aequalis	short-awn meadow foxtail	OBL
Bromus arvensis	field brome	FACU
Bromus inermis	smooth brome	UPL
Bromus tectorum	cheatgrass	UPL
Elymus trachycaulus	slender wild rye	FACU
Hordeum jubatum	foxtail barley	FACW
Pascopyrum smithii	western wheatgrass	FACU
Poa secunda	curly bluegrass	FACU
Forbs		
Asclepias speciosa	showy milkweed	FAC
Chenopodium album	lamb's quarters	FACU
Cirsium arvense	Canada thistle	FACU
Cirsium undulatum	wavy leaf thistle	FACU
Convolvulus arvensis	field bindweed	*UPL
Eleocharis acicularis	needle spike rush	OBL
Eleocharis palustris	common spike rush	OBL
Equisetum sp.	horsetail species	FAC
Glycyrrhiza lepidota	American licorice	FACU
Grindelia squarrosa	curly cup gumweed	UPL
Helianthus petiolaris	prairie sunflower	*UPL
Juncus interior	inland rush	FACW
Lactuca serriola	prickly lettuce	FAC
Lepidium densiflorum	miner's pepperwort	FAC
Melilotus officinalis	yellow sweetclover	FACU
Monolepis nuttalliana	Nuttall's poverty weed	FAC
Rumex crispus	curly dock	FAC
Sagittaria latifolia	duck potato	OBL
Sagittaria sp.	arrowhead species	OBL
Schoenoplectus sp.	rush species	OBL
Sisybrium altissimum	tall hedge mustard	UPL
Spartina pectinata	freshwater cordgrass	FACW
Tradescantia occidentalis	prairie spiderwort	UPL
Tragopogon dubius	yellow salsify	*UPL
Typha angustifolia	narrow-leaf cattail	OBL
Trees/Shrubs		
Acer negundo	box elder	FAC
Elaeagnus angustifolia	Russian olive	FACU
Populus deltoides	eastern cottonwood	FAC
Populus angustifolia	narrow-leaf cottonwood	FACW
Salix exigua	narrow-leaf willow	FACW
Salix fragilis	crack willow	*UPL

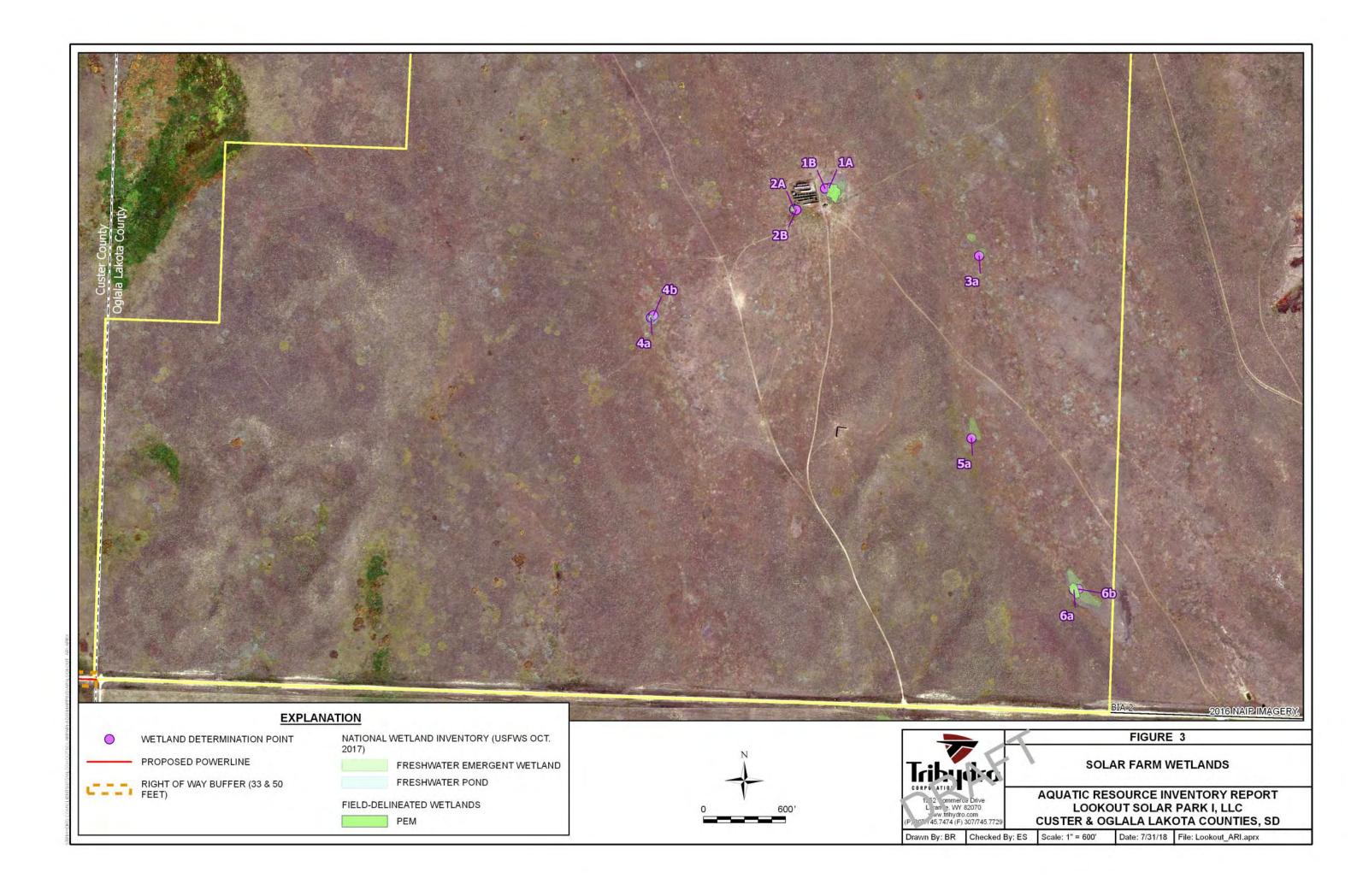
^{*}Specie was not listed in the State of South Dakota 2016 Wetland Plant List and was therefore considered upland for delineation purposes.

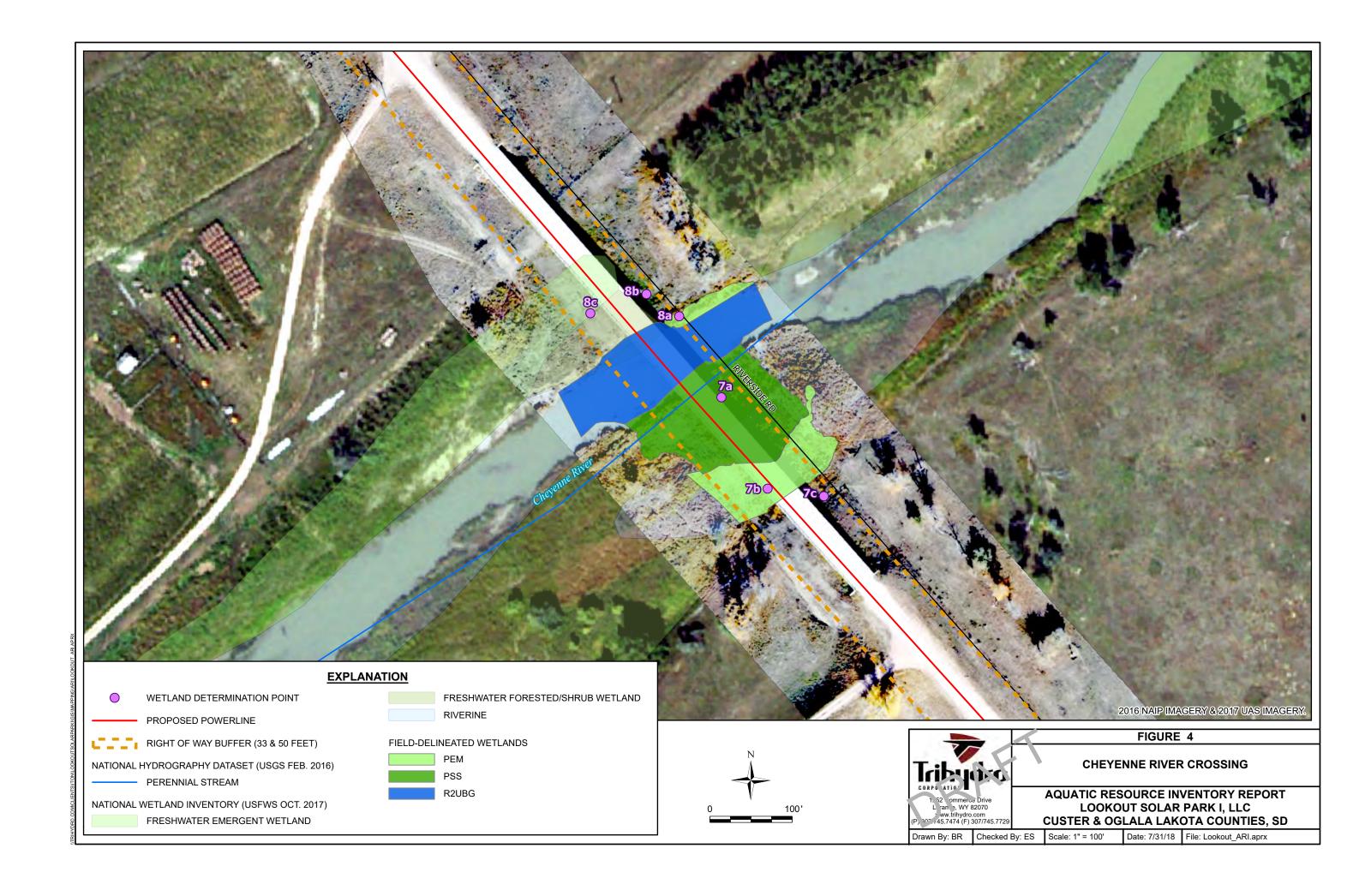
FIGURES

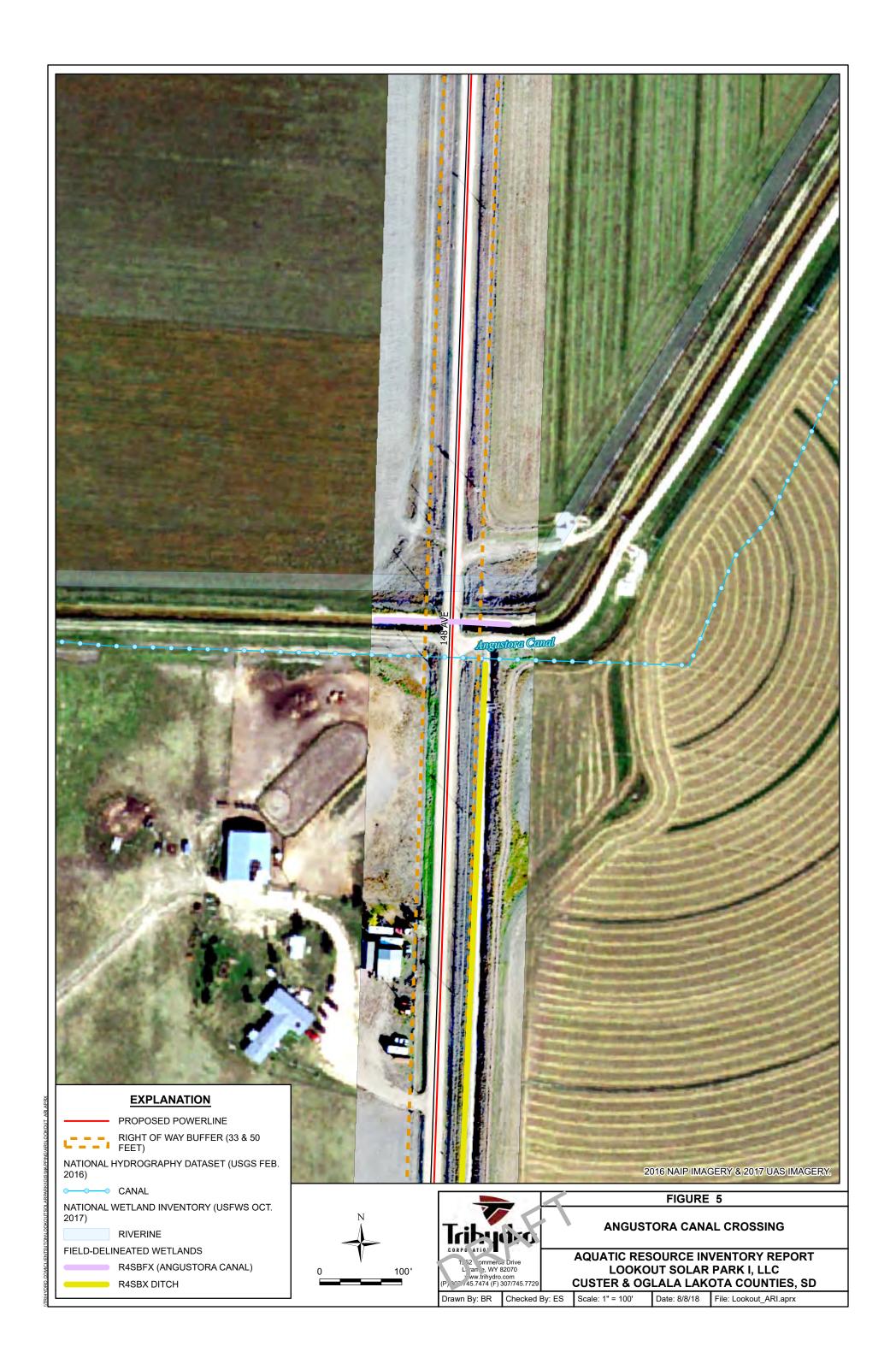


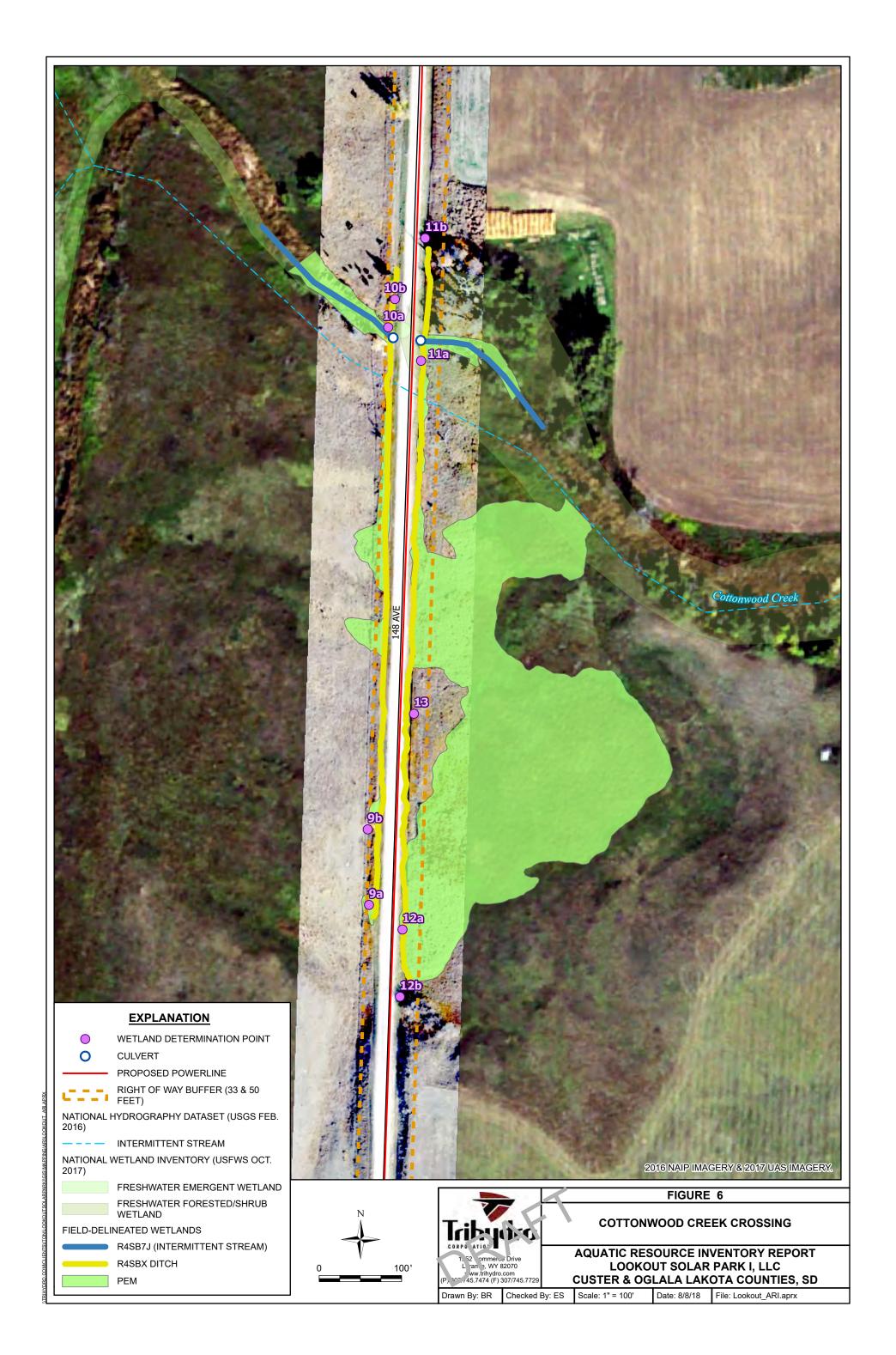


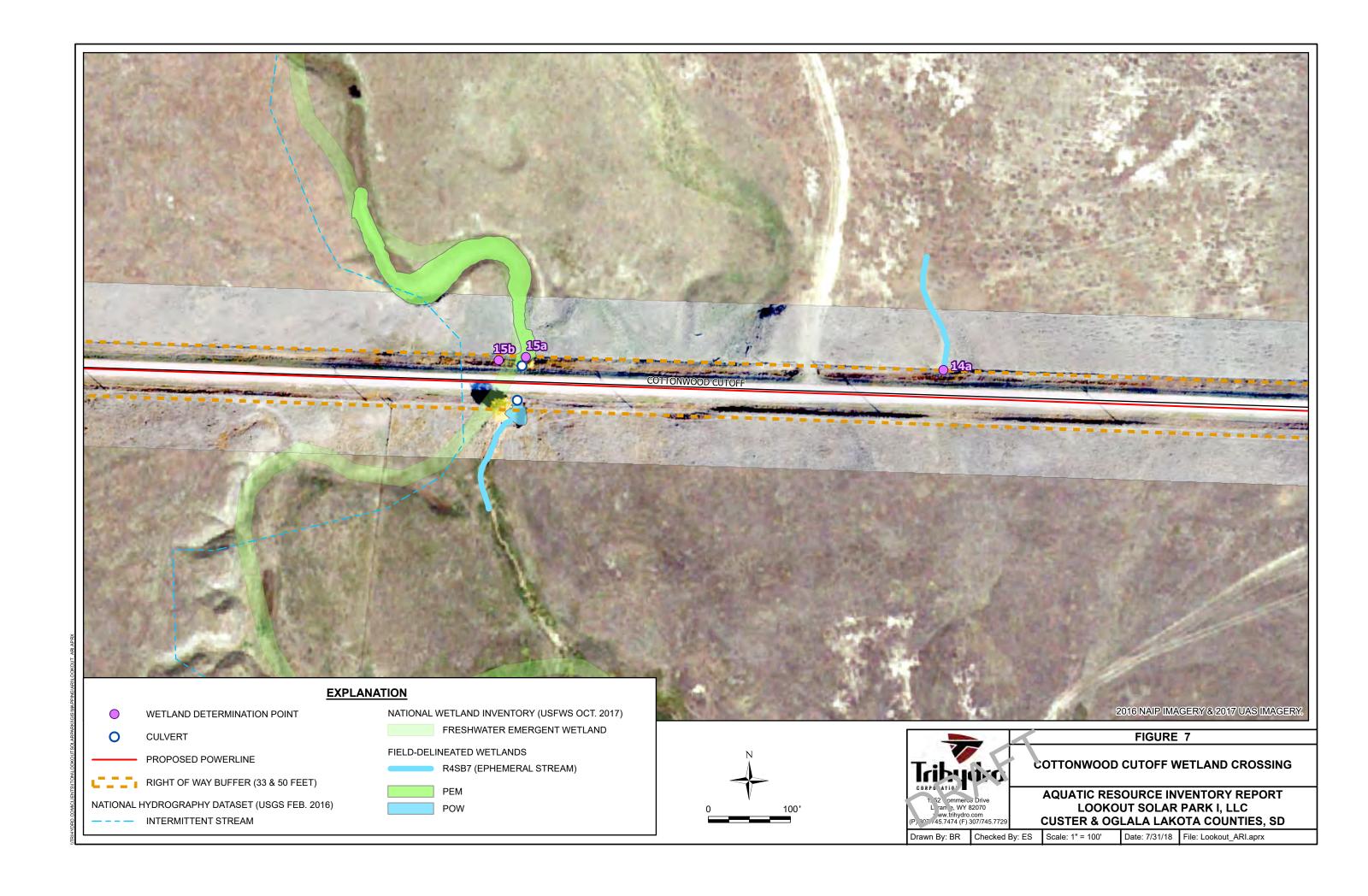


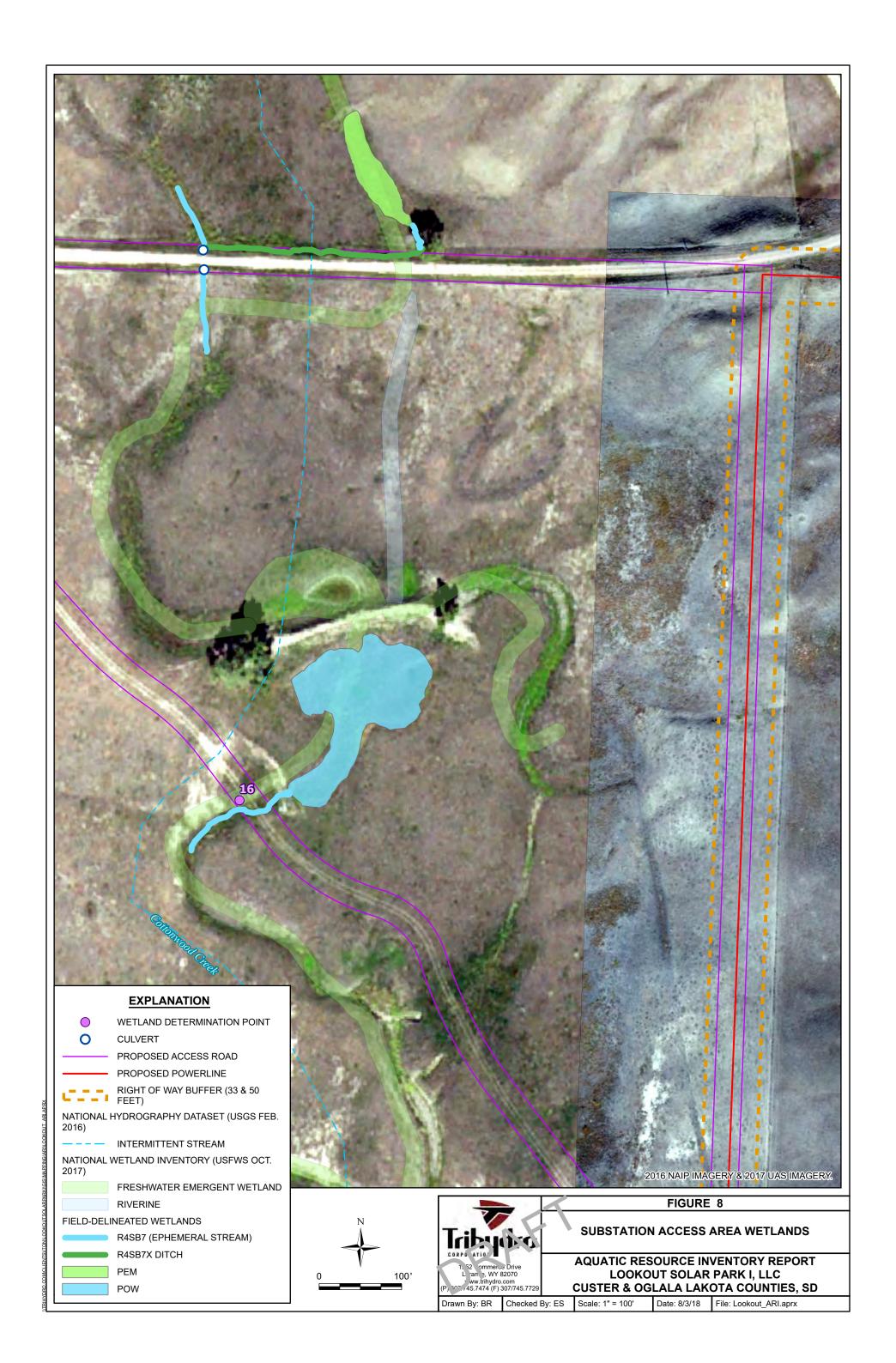


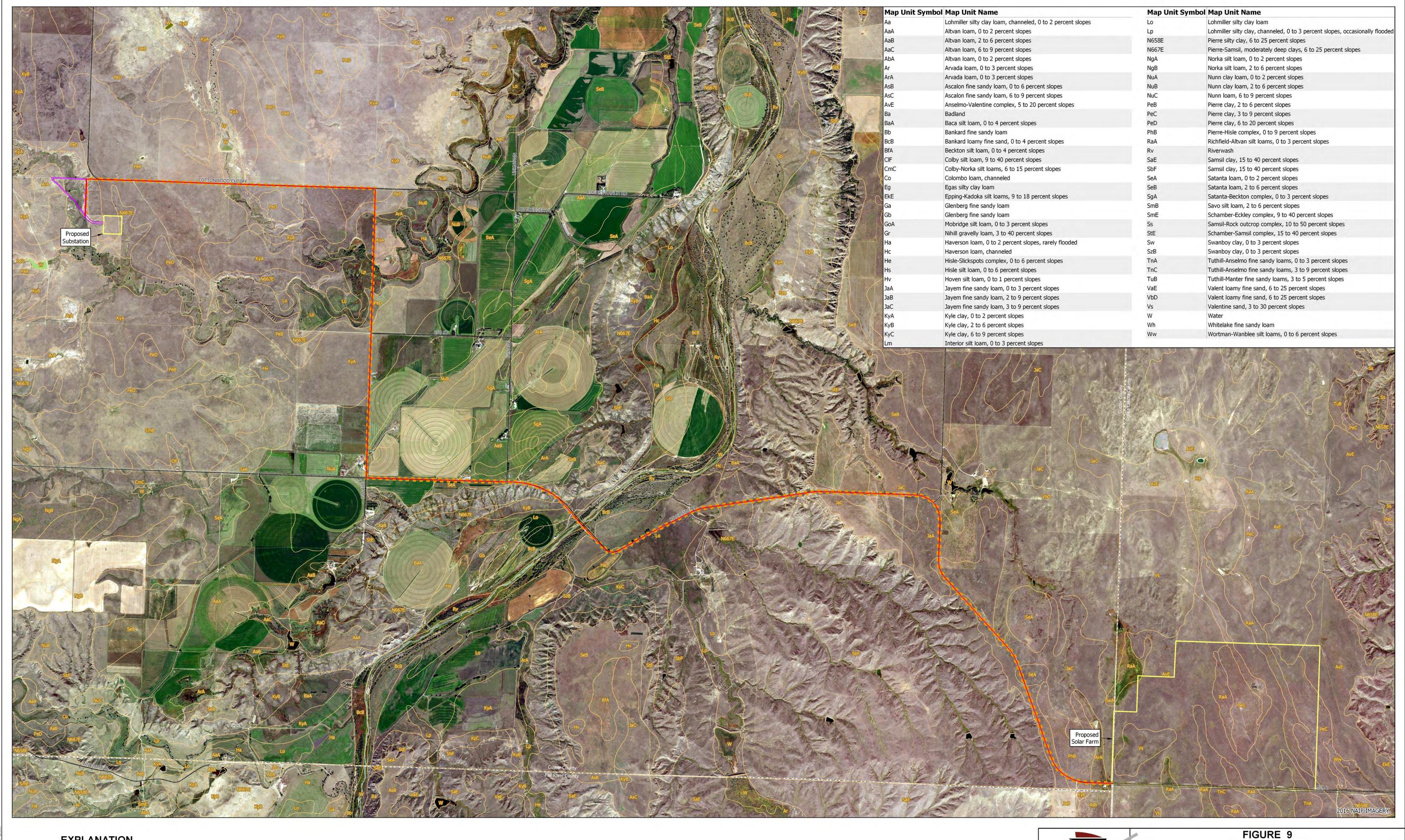








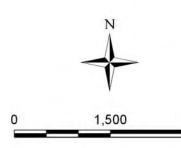






PROPOSED POWERLINE PROPOSED ACCESS ROAD SOILS (NRCS JULY 2018)

RIGHT OF WAY BUFFER (33 & 50 FEET) SOILS (NRCS JULY 2018)



12 2 commerce Drive 1 ramie, WY 82070

SOIL SURVEY

AQUATIC RESOURCE INVENTORY REPORT LOOKOUT SOLAR PARK I, LLC www.trihydro.com (P) 307/745.7474 (F) 307/745.7729 **CUSTER & OGLALA LAKOTA COUNTIES, SD**

Drawn By: BR Checked By: ES Scale: 1" = 1,500' Date: 8/8/18 File: Lookout_ARI.aprx

APPENDIX A

WETLAND DETERMINATION DATA FORMS



WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Lookout Solar			City/Co	_{unty:} Oglala L	_akota County	_ Samplin	mpling Date: 06/12/2018	
Applicant/Owner: Lookout Solar, LLC		State: SD Sampling Point: 1A Section, Township, Range: Section 36, Township 41N, Range 48W						
Investigator(s): ES, SJ			Section	, Township, R	tange: Section 36, Townsl	nip 41N, Ra	ange 48W	
Landform (hillslope, terrace, etc.): Clo					, convex, none): Concave			(%): 0-1
Subregion (LRR): G					Long: -102.98106622			
Soil Map Unit Name: Richfield-Altvan								
Are climatic / hydrologic conditions on								_
Are Vegetation No , Soil No , o					e "Normal Circumstances"			No
Are Vegetation No , Soil No , o						•		NO
-					needed, explain any answ			
SUMMARY OF FINDINGS – A	Attach site map	snowing	samp	oling point	locations, transect	s, impor	tant reat	ures, etc.
Hydrophytic Vegetation Present?	Yes X	No		s the Sample	ed Area			
Hydric Soil Present?	Yes X		١	within a Wetla	and? Yes X	No		
Wetland Hydrology Present?	Yes X	No						
Remarks:								
VEGETATION – Use scientifi	c names of pla	nts.						
		Absolute	Domir	nant Indicator	Dominance Test wor	ksheet:		
<u>Tree Stratum</u> (Plot size: 30')	% Cover	Speci	es? Status	- Number of Dominant S	Species		
1					That Are OBL, FACW,	or FAC	1	(A)
2					(excluding FAC-):		<u>·</u>	(A)
3							1	(D)
4					Species Across All Str	ata:		(B)
Sapling/Shrub Stratum (Plot size: 1	5'	0	= Total	Cover	Percent of Dominant S		100	(4 (5)
· · ·					That Are OBL, FACW,	or FAC:	100	(A/B)
1 2					Prevalence Index wo	rksheet:		
3.					Total % Cover of:		Multiply b	y:
4.					OBL species	x	1 =	
5					FACW species	x 2	2 =	
o		_	= Total	Cover	FAC species	x :	3 =	
)				FACU species	X 4	4 =	
1. Eleocharis palustris		95	Yes	OBL	UPL species			
2. Alopecurus aequalis		5	No	OBL	Column Totals:	(A))	(B)
3					Prevalence Inde	y = R/Δ =		
4					Hydrophytic Vegetat			
5					- X 1 - Rapid Test for			on
6					X 2 - Dominance Te		-	
7					3 - Prevalence Inc			
8					4 - Morphological			supporting
9					data in Remark	s or on a s	separate sh	neet)
10					Problematic Hydro	phytic Veç	getation ¹ (E	xplain)
Woody Vine Stratum (Plot size: 30')	100	= Total	Cover	¹ Indicators of hydric so	il and wetl	and hydrol	oav must
1					be present, unless dis			
2.					Hydrophytic			
		0	- Total	Cover	Vegetation	×		
% Bare Ground in Herb Stratum 0					Present? You	}s <u>^`</u>	No	
Remarks:				<u> </u>				
FAC Neutral Test (FACW+OBL:FACU	J, UPL): 2:0							

SOIL Sampling Point: 1A

Profile Desc	cription: (Descri	e to the de	pth needed to doc	ument the	indicator	or confir	m the absence of i	indicators.)
Depth	Matrix			dox Feature		. 2		
(inches)	Color (moist)		Color (moist)	%	Type'	_Loc ²	Texture	Remarks
0-3	10YR 3/2	99	7.5 YR 5/6	1	<u>C</u>	M	Clay	
3-9	GLEY 1 4/N	98	7.5 YR 5/6	2	С	М	Clay	
9-16	10YR 4/2	98	7.5 YR 5/6	2	С	M	Clay	
					_	-	-	
					_			
					_			
					_			
			l=Reduced Matrix, 0			ed Sand C		on: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators: (App	licable to al	I LRRs, unless oth					Problematic Hydric Soils ³ :
Histosol	` '			y Gleyed M				k (A9) (LRR I, J)
	pipedon (A2)			Redox (S				irie Redox (A16) (LRR F, G, H)
	istic (A3)			ed Matrix (ace (S7) (LRR G)
	en Sulfide (A4) d Layers (A5) (LR	D E\		y Mucky Mi y Gleyed M				s Depressions (F16) Houtside of MLRA 72 & 73)
	uck (A9) (LRR F, (ted Matrix			,	Vertic (F18)
	d Below Dark Surf			x Dark Surf				nt Material (TF2)
-	ark Surface (A12)	(,		ted Dark S)		low Dark Surface (TF12)
	/ //ucky Mineral (S1)		x Depression		,	-	olain in Remarks)
2.5 cm N	Mucky Peat or Pea	at (S2) (LRR	G , H) High F	Plains Depi	ressions (F	16)	³ Indicators of h	nydrophytic vegetation and
5 cm Mu	icky Peat or Peat	(S3) (LRR F) (N	ILRA 72 &	73 of LRF	RH)	wetland hy	drology must be present,
							unless dis	turbed or problematic.
Restrictive	Layer (if present)	:						
Type:								
Depth (in	ches):						Hydric Soil Pre	esent? Yes X No
Remarks:								
HYDROLO	GY							
Wetland Hy	drology Indicato	s:						
Primary India	cators (minimum c	f one require	ed; check all that ap	ply)			Secondary I	ndicators (minimum of two required)
Surface	Water (A1)		Salt Cru	st (B11)			Surface	Soil Cracks (B6)
	ater Table (A2)		Aquatic		es (B13)			y Vegetated Concave Surface (B8)
X Saturation			Hydroge					ge Patterns (B10)
	larks (B1)			son Water)	_	d Rhizospheres on Living Roots (C3)
·	nt Deposits (B2)		Oxidized					re tilled)
	posits (B3)			e not tilled		-		n Burrows (C8)
X Algal Ma	at or Crust (B4)		Presenc	e of Reduc	ed Iron (C	4)	Saturati	ion Visible on Aerial Imagery (C9)
Iron Dep	posits (B5)		Thin Mu	ck Surface	(C7)		Geomo	rphic Position (D2)
Inundati	on Visible on Aeri	al Imagery (E	37) Other (E	xplain in R	emarks)		X FAC-Ne	eutral Test (D5)
Water-S	tained Leaves (B	9)					Frost-H	eave Hummocks (D7) (LRR F)
Field Obser	vations:							
Surface Wat		Yes	No X Depth (inches):				
Water Table			No X Depth (
Saturation P			No Depth (tland Hydrology Pr	resent? Yes X No
(includes car	oillary fringe)							
Describe Re	corded Data (stream	am gauge, m	onitoring well, aeria	al photos, p	revious ins	spections)), if available:	
Remarks:		<u> </u>						

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Lookout Solar		City/Co	ounty:	Oglala La	kota County	Samplin	g Date: 06/12	2/2018
Applicant/Owner: Lookout Solar, LLC					State: SD	_ Samplino	g Point: 1B	
Investigator(s): ES, SJ								
Landform (hillslope, terrace, etc.): Closed depression								o): 0-1
Subregion (LRR): G								
Soil Map Unit Name: Richfield-Altvan silt loams, 0 to 3 per								
Are climatic / hydrologic conditions on the site typical for the								
Are Vegetation No , Soil No , or Hydrology No	-				'Normal Circumstances"			Nο
Are Vegetation No , Soil No , or Hydrology No					eeded, explain any answe			
SUMMARY OF FINDINGS – Attach site map								es, etc.
Hydrophytic Vegetation Present? Yes	No X							
Hydric Soil Present? Yes	No X			Sampled		No	Χ	
Hydric Soil Present? Yes Wetland Hydrology Present? Yes	No X		withii	n a Wetlar	10? Yes	NO		
Remarks:								
VEGETATION – Use scientific names of pla	nts.							
	Absolute	Dom	inant	Indicator	Dominance Test wor	ksheet:		
Tree Stratum (Plot size: 30')					Number of Dominant S			
1					That Are OBL, FACW, (excluding FAC-):	or FAC	1	(A)
2								_ ('')
3					Total Number of Domi		2	(B)
4	0							_ (-)
Sapling/Shrub Stratum (Plot size: 15')	0	- 1012	ai Cove	21	Percent of Dominant S That Are OBL, FACW,		50	(A/B)
1					D la da	-114-		_ ` ′
2					Prevalence Index wo Total % Cover of:		Multiply by	
3					OBL species 32			
4					FACW species 0			
5					FAC species 0			
Herb Stratum (Plot size: 5')	0	= Tota	al Cove	er	FACU species 42			
1. Elymus trachycaulus	40	Yes		FACU	UPL species 5	x :	5 = 25	
2. Eleocharis palustris	30	Yes		OBL	Column Totals: 79	(A)	225	(B)
3. Bromus inermis	3	No		UPL	Daniel and a lander	D/A	2.85	
4. Poa secunda	2	No		FACU	Prevalence Index Hydrophytic Vegetati			
5. Alopecurus aequalis	2	No		OBL	1 - Rapid Test for			
6. Grindelia squarrosa	2	No		UPL	2 - Dominance Te			
7					3 - Prevalence Inc			
8					4 - Morphological			upporting
9					data in Remark		•	,
10			al Cove		Problematic Hydro	phytic Veç	getation¹ (Exp	lain)
Woody Vine Stratum (Plot size: 30') 1					¹ Indicators of hydric so be present, unless dist			/ must
2.					Hydrophytic			
	0				Vegetation		X	
% Bare Ground in Herb Stratum 21	_ _				Present? Ye	es	No X	
Remarks:								
FAC Neutral Test (FACW+OBL:FACU+UPL): 2:4								
Prevalence Index indicator is not applicable, as wetland h	nydrology and	i hydrid	c soil ir	ndicators a	are absent.			

SOIL Sampling Point: 1B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

	O - I / ! - 4\				x Feature		. 2		
	Color (moist)	%		or (moist)	%	Type ¹	Loc ²	Texture	Remarks
0.40	10YR 3/2	99	7.5 YR	4/6	1	С	M	Clay	
3-16	10YR 3/1	100						Clay	
<u> </u>			_					•	
						-			
					. .			<u> </u>	
								<u> </u>	
			_					-	
					- ·				
	centration, D=De						ed Sand G		ocation: PL=Pore Lining, M=Matrix.
_	dicators: (Appl	icable to a							s for Problematic Hydric Soils ³ :
Histosol (A				Sandy (-				Muck (A9) (LRR I, J)
	pedon (A2)			-	Redox (S5				t Prairie Redox (A16) (LRR F, G, H)
Black Histi	, ,				d Matrix (S	,			Surface (S7) (LRR G) Plains Depressions (F16)
	Sulfide (A4) _ayers (A5) (LRF) F)			Mucky Mir Gleyed Ma				RR H outside of MLRA 72 & 73)
	k (A9) (LRR F, G			-	ed Matrix (,	uced Vertic (F18)
	Below Dark Surfa				Dark Surfa	,			Parent Material (TF2)
	s Surface (A12)	(/			ed Dark Su	. ,)		Shallow Dark Surface (TF12)
Sandy Mu	cky Mineral (S1)				Depressio		,		r (Explain in Remarks)
	icky Peat or Pea			High Pla	ains Depre	essions (F	16)		s of hydrophytic vegetation and
5 cm Mucl	ky Peat or Peat (S3) (LRR I	F)	(ML	RA 72 & 1	73 of LRF	RH)	wetla	nd hydrology must be present,
								unles	s disturbed or problematic.
Restrictive La	yer (if present):								
Type:									
Depth (inch	es):							Hydric So	il Present? Yes No X
Remarks:								L	
Remarks:									
	Υ								
HYDROLOG	Y ology Indicators	s:							
HYDROLOG Wetland Hydr			red; check	all that appl	ly)			Second	dary Indicators (minimum of two required)
HYDROLOG Wetland Hydr	ology Indicators tors (minimum of		red; check						· · · · · ·
HYDROLOG Wetland Hydr Primary Indicat Surface W	ology Indicators tors (minimum of /ater (A1)		red; check	_ Salt Crust	(B11)	s (B13)		Su	rface Soil Cracks (B6)
HYDROLOG Wetland Hydr Primary Indicat Surface W High Wate	ology Indicators tors (minimum of ater (A1) or Table (A2)		_	_ Salt Crust _ Aquatic In	(B11) vertebrate			Su Sp	urface Soil Cracks (B6) arsely Vegetated Concave Surface (B8)
HYDROLOG Wetland Hydr Primary Indicat Surface W	tors (minimum of /ater (A1) r Table (A2) (A3)		_	_ Salt Crust	(B11) vertebrate Sulfide O	dor (C1))	Su Sp Dr	rface Soil Cracks (B6)
HYDROLOG Wetland Hydr Primary Indicat Surface W High Wate Saturation Water Mar	tors (minimum of /ater (A1) r Table (A2) (A3)		_ _ _	Salt Crust Aquatic In Hydrogen Dry-Seaso	(B11) vertebrate Sulfide Oo on Water T	dor (C1) 「able (C2	'	Su Sp Dr. Ox	urface Soil Cracks (B6) arsely Vegetated Concave Surface (B8) ainage Patterns (B10)
HYDROLOG Wetland Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment	tors (minimum of tater (A1) er Table (A2) (A3) rks (B1) Deposits (B2)		_ _ _	Salt Crust Aquatic In Hydrogen Dry-Seaso Oxidized F	(B11) vertebrate Sulfide Oo on Water T	dor (C1) 「able (C2 res on Liv	'	Su Sp Dr. Ox	urface Soil Cracks (B6) harsely Vegetated Concave Surface (B8) hainage Patterns (B10) hidized Rhizospheres on Living Roots (C3) hwere tilled
HYDROLOG Wetland Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment Drift Depo	ology Indicators tors (minimum of later (A1) or Table (A2) (A3) rks (B1) Deposits (B2) sits (B3)		_ _ _	Salt Crust Aquatic In Hydrogen Dry-Seaso Oxidized F	(B11) vertebrate Sulfide Ocon Water 1 Rhizosphe not tilled)	dor (C1) 「able (C2 res on Liv	ving Roots	Su Sp Dr. Ox s (C3) (Cr.	urface Soil Cracks (B6) uarsely Vegetated Concave Surface (B8) uainage Patterns (B10) utidized Rhizospheres on Living Roots (C3) where tilled) uayfish Burrows (C8)
HYDROLOG Wetland Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment Drift Depo	tors (minimum of vater (A1) er Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4)		_ _ _	Salt Crust Aquatic In Hydrogen Dry-Seaso Oxidized F	(B11) vertebrate Sulfide Oo on Water T Rhizosphe not tilled) of Reduce	dor (C1) Table (C2 res on Liv	ving Roots	Su Sp Dr. Ox Cr. Cr. Sa	urface Soil Cracks (B6) harsely Vegetated Concave Surface (B8) hainage Patterns (B10) hidized Rhizospheres on Living Roots (C3) hwere tilled
HYDROLOG Wetland Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment Drift Depo Algal Mate Iron Depos	tors (minimum of vater (A1) er Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4)	f one requii	- - - - -	Salt Crust Aquatic In Hydrogen Dry-Seaso Oxidized F (where	(B11) vertebrate Sulfide Oc on Water 1 Rhizosphe not tilled) of Reduce c Surface (dor (C1) Table (C2 res on Lived Iron (C	ving Roots	Su Sp Dr Ox Cr Sa Ge	urface Soil Cracks (B6) arrsely Vegetated Concave Surface (B8) ainage Patterns (B10) tidized Rhizospheres on Living Roots (C3) where tilled) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9)
HYDROLOG Wetland Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment Drift Depo Algal Mat of Iron Depos	tors (minimum of tater (A1) Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5)	f one requii	- - - - -	Salt Crust Aquatic In Hydrogen Dry-Seaso Oxidized F (where Presence Thin Muck	(B11) vertebrate Sulfide Oc on Water 1 Rhizosphe not tilled) of Reduce c Surface (dor (C1) Table (C2 res on Lived Iron (C	ving Roots	Su Su Sp Dr Ox Cr Sa Ge FA	urface Soil Cracks (B6) uarsely Vegetated Concave Surface (B8) uainage Patterns (B10) uidized Rhizospheres on Living Roots (C3) uhere tilled) uyfish Burrows (C8) uturation Visible on Aerial Imagery (C9) umorphic Position (D2)
HYDROLOG Wetland Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment Drift Depo Algal Mat of Iron Depos	ology Indicators tors (minimum of tater (A1) er Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) a Visible on Aeria ined Leaves (B9	f one requii	- - - - -	Salt Crust Aquatic In Hydrogen Dry-Seaso Oxidized F (where Presence Thin Muck	(B11) vertebrate Sulfide Oc on Water 1 Rhizosphe not tilled) of Reduce c Surface (dor (C1) Table (C2 res on Lived Iron (C	ving Roots	Su Su Sp Dr Ox Cr Sa Ge FA	urface Soil Cracks (B6) uarsely Vegetated Concave Surface (B8) uainage Patterns (B10) uidized Rhizospheres on Living Roots (C3) where tilled) uayfish Burrows (C8) uturation Visible on Aerial Imagery (C9) ucomorphic Position (D2) uC-Neutral Test (D5)
HYDROLOG Wetland Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment Drift Depo	tors (minimum of vater (A1) er Table (A2) er (A3) erks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) er Visible on Aeria ined Leaves (B9	f one requii Il Imagery ()		Salt Crust Aquatic In Hydrogen Dry-Seasc Oxidized F (where Presence Thin Muck Other (Ex	(B11) vertebrate Sulfide Oc on Water 1 Rhizosphe not tilled) of Reduce c Surface (plain in Re	dor (C1) Fable (C2 res on Lived Iron (C (C7) emarks)	ving Roots	Su Su Sp Dr Ox Cr Sa Ge FA	urface Soil Cracks (B6) uarsely Vegetated Concave Surface (B8) uainage Patterns (B10) uidized Rhizospheres on Living Roots (C3) where tilled) uayfish Burrows (C8) uturation Visible on Aerial Imagery (C9) ucomorphic Position (D2) uC-Neutral Test (D5)
HYDROLOG Wetland Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment Drift Depo Algal Mate Iron Depos Inundation Water-Sta Field Observa	tors (minimum of vater (A1) er Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) a Visible on Aeria ined Leaves (B9) attions: Present?	f one requinulation on the second of the sec	(B7)	Salt Crust Aquatic In Hydrogen Dry-Seasc Oxidized F (where Presence Thin Muck Other (Exp	(B11) vertebrate Sulfide Or on Water 1 Rhizosphe not tilled) of Reduce c Surface (plain in Re	dor (C1) Fable (C2 res on Liv ed Iron (C C7) emarks)	ving Roots	Su Su Sp Dr Ox Cr Sa Ge FA	urface Soil Cracks (B6) uarsely Vegetated Concave Surface (B8) uainage Patterns (B10) uidized Rhizospheres on Living Roots (C3) where tilled) uayfish Burrows (C8) uturation Visible on Aerial Imagery (C9) ucomorphic Position (D2) uC-Neutral Test (D5)
HYDROLOG Wetland Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment Drift Depo Algal Mat of Iron Depos Inundation Water-Sta Field Observa Surface Water Water Table Primary Indicates	tors (minimum of vater (A1) er Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) a Visible on Aeria ined Leaves (B9 attions: Present?	f one requir Il Imagery () Yes Yes	(B7)	Salt Crust Aquatic In Hydrogen Dry-Sease Oxidized F (where Presence Thin Muck Other (Exp	(B11) vertebrate Sulfide Or on Water T Rhizosphe not tilled) of Reduce (Surface (plain in Re ches): ches):	dor (C1) Fable (C2 res on Lived Iron (C C7) emarks)	ving Roots	Su Sp Dr Ox Cr Sa Ge FA Fre	urface Soil Cracks (B6) urface Soil Cracks (B6) urface Soil Cracks (B10) urface Patterns (B10) urfaced Rhizospheres on Living Roots (C3) urfaced Rhizospheres (C3) urfaced Rhizosphere
HYDROLOG Wetland Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment Drift Depo Algal Mate Iron Depos Inundation Water-Sta Field Observa Surface Water Water Table Posaturation Presidincludes capill	tors (minimum of vater (A1) er Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) a Visible on Aeria ined Leaves (B9) attions: Present? resent? lary fringe)	Il Imagery () Yes Yes Yes	B7)	Salt Crust Aquatic In Hydrogen Dry-Sease Oxidized F (where Presence Thin Muck Other (Exp	(B11) vertebrate Sulfide Or on Water 1 Rhizosphe not tilled) of Reduce Surface (plain in Re ches): ches): ches):	dor (C1) Fable (C2 res on Lived Iron (C C7) emarks)	ving Roots 4) Wet	Su Sp Dr Ox Cr Sa Ge FA Fro	urface Soil Cracks (B6) uarsely Vegetated Concave Surface (B8) uainage Patterns (B10) uidized Rhizospheres on Living Roots (C3) where tilled) uayfish Burrows (C8) uturation Visible on Aerial Imagery (C9) ucomorphic Position (D2) uC-Neutral Test (D5)
HYDROLOG Wetland Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment Drift Depo Algal Mate Iron Depos Inundation Water-Sta Field Observa Surface Water Water Table Posaturation Presidincludes capill	tors (minimum of vater (A1) er Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) a Visible on Aeria ined Leaves (B9 attions: Present? sent?	Il Imagery () Yes Yes Yes	B7)	Salt Crust Aquatic In Hydrogen Dry-Sease Oxidized F (where Presence Thin Muck Other (Exp	(B11) vertebrate Sulfide Or on Water 1 Rhizosphe not tilled) of Reduce Surface (plain in Re ches): ches): ches):	dor (C1) Fable (C2 res on Lived Iron (C C7) emarks)	ving Roots 4) Wet	Su Sp Dr Ox Cr Sa Ge FA Fro	urface Soil Cracks (B6) urface Soil Cracks (B6) urface Soil Cracks (B10) urface Patterns (B10) urfaced Rhizospheres on Living Roots (C3) urfaced Rhizospheres (C3) urfaced Rhizosphere
HYDROLOG Wetland Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment Drift Depo Algal Mate Iron Depos Inundation Water-Sta Field Observa Surface Water Water Table Posaturation Presidincludes capill	tors (minimum of vater (A1) er Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) a Visible on Aeria ined Leaves (B9) attions: Present? resent? lary fringe)	Il Imagery () Yes Yes Yes	B7)	Salt Crust Aquatic In Hydrogen Dry-Sease Oxidized F (where Presence Thin Muck Other (Exp	(B11) vertebrate Sulfide Or on Water 1 Rhizosphe not tilled) of Reduce Surface (plain in Re ches): ches): ches):	dor (C1) Fable (C2 res on Lived Iron (C C7) emarks)	ving Roots 4) Wet	Su Sp Dr Ox Cr Sa Ge FA Fro	urface Soil Cracks (B6) urface Soil Cracks (B6) urface Soil Cracks (B10) urface Patterns (B10) urfaced Rhizospheres on Living Roots (C3) urfaced Rhizospheres (C3) urfaced Rhizosphere
HYDROLOG Wetland Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment Drift Depo Algal Mate Iron Depos Inundation Water-Sta Field Observa Surface Water Water Table Posaturation Presidincludes capill	tors (minimum of vater (A1) er Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) a Visible on Aeria ined Leaves (B9) attions: Present? resent? lary fringe)	Il Imagery () Yes Yes Yes	B7)	Salt Crust Aquatic In Hydrogen Dry-Sease Oxidized F (where Presence Thin Muck Other (Exp	(B11) vertebrate Sulfide Or on Water 1 Rhizosphe not tilled) of Reduce Surface (plain in Re ches): ches): ches):	dor (C1) Fable (C2 res on Lived Iron (C C7) emarks)	ving Roots 4) Wet	Su Sp Dr Ox Cr Sa Ge FA Fro	urface Soil Cracks (B6) urface Soil Cracks (B6) urface Soil Cracks (B10) urface Patterns (B10) urfaced Rhizospheres on Living Roots (C3) urfaced Rhizospheres (C3) urfaced Rhizosphere
HYDROLOG Wetland Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment Drift Depo Algal Mate Iron Depos Inundation Water-Sta Field Observa Surface Water Water Table Posaturation Prese (includes capill Describe Reco	tors (minimum of vater (A1) er Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) a Visible on Aeria ined Leaves (B9) attions: Present? resent? lary fringe)	Il Imagery () Yes Yes Yes	B7)	Salt Crust Aquatic In Hydrogen Dry-Sease Oxidized F (where Presence Thin Muck Other (Exp	(B11) vertebrate Sulfide Or on Water 1 Rhizosphe not tilled) of Reduce Surface (plain in Re ches): ches): ches):	dor (C1) Fable (C2 res on Lived Iron (C C7) emarks)	ving Roots 4) Wet	Su Sp Dr Ox Cr Sa Ge FA Fro	urface Soil Cracks (B6) urface Soil Cracks (B6) urface Soil Cracks (B10) urface Patterns (B10) urfaced Rhizospheres on Living Roots (C3) urfaced Rhizospheres (C3) urfaced Rhizosphere
HYDROLOG Wetland Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment Drift Depo Algal Mate Iron Depos Inundation Water-Sta Field Observa Surface Water Water Table Posaturation Prese (includes capill Describe Reco	tors (minimum of vater (A1) er Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) a Visible on Aeria ined Leaves (B9) attions: Present? resent? lary fringe)	Il Imagery () Yes Yes Yes	B7)	Salt Crust Aquatic In Hydrogen Dry-Sease Oxidized F (where Presence Thin Muck Other (Exp	(B11) vertebrate Sulfide Or on Water 1 Rhizosphe not tilled) of Reduce Surface (plain in Re ches): ches): ches):	dor (C1) Fable (C2 res on Lived Iron (C C7) emarks)	ving Roots 4) Wet	Su Sp Dr Ox Cr Sa Ge FA Fro	urface Soil Cracks (B6) urface Soil Cracks (B6) urface Soil Cracks (B10) urface Patterns (B10) urfaced Rhizospheres on Living Roots (C3) urfaced Rhizospheres (C3) urfaced Rhizosphere

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Lookout Solar		(City/Co	_{unty:} Oglala La	akota County	Sam	mpling Date: <u>06/12/2018</u>	
Applicant/Owner: Lookout Solar, LLC					State: SE	Sam	oling Point: 2	Α
Investigator(s): ES, SJ								
Landform (hillslope, terrace, etc.): Clo								
Soil Map Unit Name: Richfield-Altvan								
Are climatic / hydrologic conditions on								
Are Vegetation No , Soil No , c					"Normal Circums			No
Are Vegetation No , Soil No , c								110
SUMMARY OF FINDINGS – A								atures. etc.
	Yes X			9				
Hydrophytic Vegetation Present? Hydric Soil Present?	Yes X	No		is the Sampled		V		
Wetland Hydrology Present?			'	within a Wetla	nd? Y	es X	No	
Remarks:			ı					
VEGETATION - Use scientifi	ic names of pla	nts.						
Tree Stratum (Plot size: 30'	`			nant Indicator	Dominance To	est worksheet	:	
				es? Status	Number of Dor			
1					That Are OBL, (excluding FAC		1	(A)
2						,		
3 4					Total Number Species Acros		1	(B)
		0						
Sapling/Shrub Stratum (Plot size:	15')	<u> </u>	Total	00101	Percent of Dor That Are OBL,			(A/B)
1					Dunielana la	al a a ul ca la a a	4.	
2					Prevalence In	over of:		by:
3					OBL species			-
4					FACW species			
5					FAC species			
Herb Stratum (Plot size: 5')	0	= Total	Cover	FACU species			
	/	90	Yes	OBL	UPL species			
2.			-		Column Totals			
3.								
4.						ce Index = B/A		
5					Hydrophytic \	_		
6					X 1 - Rapid X 2 - Domina			tion
7						ence Index is ≤		
8						ological Adapta		de supporting
9					data in	Remarks or or	n a separate s	sheet)
10					Problemat	ic Hydrophytic	Vegetation ¹ ((Explain)
Woody Vine Stratum (Plot size: 30	'	90	= Total	Cover	¹ Indicators of h	ydric soil and y	vetland hydro	ology must
1					be present, un			
2.					Hydrophytic			
		0			Vegetation	Y		
% Bare Ground in Herb Stratum 10					Present?	Yes <u>^</u>	No	
Remarks:				<u></u>		<u> </u>		
FAC Neutral Test (FACW+OBL:FACU	J, UPL): 1:0							

SOIL Sampling Point: 2A

		e to the de	pth needed to doc			or confir	m the absence	e of indicators.)
Depth	Matrix	0/		dox Feature		Loc ²		Damanika
(inches)	Color (moist)	%	Color (moist)	%	Type'	LOC	Texture	Remarks
0-1	10YR 3/3	100						organic, fibrous roots
1-10	10YR 4/1	90	5 YR 5/6	10	<u>C</u>	М	Silty Clay	
10-16	10YR 4.5/2	100			_		Silty Clay	
			-					
			-					
			-					·
			<u> </u>					· ———
1								
			M=Reduced Matrix, 0 II LRRs, unless oth			ed Sand G		ocation: PL=Pore Lining, M=Matrix. s for Problematic Hydric Soils ³ :
_		icable to a						•
Histoso	pipedon (A2)			/ Gleyed M / Redox (S				Muck (A9) (LRR I, J) t Prairie Redox (A16) (LRR F, G, H)
	listic (A3)		-	ed Matrix (Surface (S7) (LRR G)
	en Sulfide (A4)			y Mucky M	,			Plains Depressions (F16)
	d Layers (A5) (LRF	R F)		y Gleyed M			_	RR H outside of MLRA 72 & 73)
	uck (A9) (LRR F, G			ted Matrix	` ,		`	ced Vertic (F18)
	ed Below Dark Surfa			Dark Surf	. ,			Parent Material (TF2)
	ark Surface (A12)	, ,	Deple	ted Dark S	urface (F7)		Shallow Dark Surface (TF12)
Sandy N	Mucky Mineral (S1)		X Redox	c Depression	ons (F8)		Other	(Explain in Remarks)
2.5 cm	Mucky Peat or Peat	t (S2) (LRR	G, H) High F	Plains Depi	ressions (F	16)	³ Indicators	s of hydrophytic vegetation and
5 cm M	ucky Peat or Peat (S3) (LRR F	· (N	ILRA 72 &	73 of LRF	R H)	wetlar	nd hydrology must be present,
							unles	s disturbed or problematic.
Restrictive	Layer (if present):							
								V
Depth (in	nches):						Hydric Soi	il Present? Yes X No
Remarks:	ntains high concent	rations of c	rganic material					
0-1 layer co	mains nigh concern	ialions of C	rganic material					
HYDROLO)GY							
Wetland Hy	drology Indicators	s:						
_			ed; check all that ap	(ylq			Second	lary Indicators (minimum of two required)
	· Water (A1)	•	Salt Crus					rface Soil Cracks (B6)
	ater Table (A2)		Aquatic		es (B13)			arsely Vegetated Concave Surface (B8)
Saturati			Hydroge					ainage Patterns (B10)
	Marks (B1)		Dry-Sea					idized Rhizospheres on Living Roots (C3)
	ent Deposits (B2)		Oxidized		, ,			where tilled)
	posits (B3)			not tilled		ing Roots	. ,	ayfish Burrows (C8)
						4\		
_	at or Crust (B4)			e of Reduc		+)		turation Visible on Aerial Imagery (C9)
	posits (B5)	I I		ck Surface				comorphic Position (D2)
	ion Visible on Aeria		B7) Other (E	xpiain in R	emarks)			C-Neutral Test (D5)
	Stained Leaves (B9))					Fro	ost-Heave Hummocks (D7) (LRR F)
Field Obser			N Y 5 11 /					
			No X Depth (
Water Table			No X Depth (V
Saturation F		Yes	No X Depth (inches):		Wet	tland Hydrolog	gy Present? Yes X No
Describe Re	pillary fringe) ecorded Data (strea	m gauge. n	nonitoring well, aeria	al photos, n	revious ins	pections)	. if available	
	(5	5 5-,	J,	, P		,)		
Remarks:								
	as noted in the imm	nediate are	a surrounding the sa	mple point				
Jataration W	as noted in the illil	.ou.uto ai co	a carroanding the sa	pio poiiti	•			

	Project/Site: Lookout Solar		City/Co	ounty:	Oglala La	kota County	Sampli	ng Date: <u>06/</u> 1	12/2018
Section Sect	Applicant/Owner: Lookout Solar, LLC					State: SD	Samplii	ng Point: 2B	
Local ruled (concave, correxx, none)	Investigator(s): ES, SJ		Section	n, Tov	vnship, Rai	nge: Section 36, To	wnship 41N, I	Range 48W	
Latt 43.48754623 Long: -102.981946 Datum: NAD 1983 NAD UNIT Name. Richfield-Altvan silt loams. 0 to 3 percent slopes New Vegleation None Non									%): 0-1
No No No No No No No									
Absolute Dominant Hydrology Present? Yes No No No No No No No N									
Are Vegetation No									
SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present?									No
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present?							·		
Hydric Soil Present? Yes No X Weltand Hydrology Present? Yes No X within a Wetland? Yes No X within a Wetland hydrology must be present. Yes No X within a Wetland hydrology must be present. Yes No X within a Wetland hydrology must be present? Yes No X within a Wetland hydrology must be present? Yes No X within a Wetland hydrology must be present? Yes No X within a Wetland hydrology must be present? Yes No X within a Wetland hydrology must be yes No X within a Wetland hydrology must be yes No X within a Wetland hydrology must be yes No X within a Wetland hydrology must be yes No X within a Wetland hydrology must be yes No X within a Wetland hydrology must be yes No X within a Wetland hydrology must be yes No X within a Wetland hydrology must be yes No X within a Wetland hydrology must be yes No									ıres, etc.
No X					-	·			· ·
	Hydric Soil Present? Yes	No X			•			V	
Absolute	Wetland Hydrology Present? Yes	No X		withi	n a Wetlar	nd? Yes	No	· <u>* </u>	
Absolute			I						
Absolute									
Absolute									
Absolute									
Number of Dominant Species Number of Dominant Species National S	VEGETATION – Use scientific names of pla	ants.							
1.	001		Domi	inant	Indicator	Dominance Test	worksheet:		
2 (excluding FAC-):	Tree Stratum (Plot size: 30°	% Cover	Spec	ies?	Status	Number of Domina	ant Species		
Total Number of Dominant Species Across All Strata: 2 (B)								0	(Λ)
Sapiling/Shrub Stratum (Plot size: 15' 0						(excluding 1 AC).			(^)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)								2	(B)
That Are OBL, FACW, or FAC: 0	4								(D)
Prevalence Index worksheet: Total % Cover of:	Sapling/Shrub Stratum (Plot size: 15')	0	= Tota	II Cov	er			0	(Δ/R)
Prevalence Index worksheet: Total % Cover of:									(/////
OBL species X 1 =									
FACW species x 2 = FACW species x 3 = FACW species x 3 = FACW species x 4	3								
Herb Stratum (Plot size: 5'	4								
Herb Stratum (Plot size: 5'	5								
1. Elymus trachycaulus	Harb Chrahima (Blataina, 5'	0	= Tota	I Cov	er				
2. Bromus inermis 3. Poa secunda 4. Tragopogon dubius 5. Grindelia squarrosa 6. 7. 8. 9. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10		40	Yes		FACU	· -			
3. Poa secunda									
4. Tragopogon dubius 5. Grindelia squarrosa 2. No UPL Hydrophytic Vegetation Indicators: 1. Rapid Test for Hydrophytic Vegetation 2. Dominance Test is >50% 2. Dominance Test is >50% 3. Prevalence Index is ≤3.0¹ 4. Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) 10		15					(/		(5)
5. Gillidelia squariosa 6.			No						
7	5. Grindelia squarrosa	2	No		UPL				
7	6.								n
8									
data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) 1									
Moody Vine Stratum (Plot size: 30') 98 = Total Cover 1 Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation 1 (Explain) 1 Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation Present? Yes No X Remarks: FAC Neutral Test (FACW+OBL:FACU+UPL): 0:5	9					data in Rer	icai Adaptatio narks or on a	ons (Provide i separate she	supporting eet)
Woody Vine Stratum (Plot size: 30' 1	10							•	•
1	West-10/6 Other (Distriction 30'	98	= Tota	I Cov	er				
2	, , , , , , , , , , , , , , , , , , , ,								gy must
% Bare Ground in Herb Stratum 2 0 = Total Cover Present? Yes No X Remarks: FAC Neutral Test (FACW+OBL:FACU+UPL): 0:5						Hydrophytic			
% Bare Ground in Herb Stratum Z No Yes No Ye						Vegetation		Y	
FAC Neutral Test (FACW+OBL:FACU+UPL): 0:5	% Bare Ground in Herb Stratum 2					Present?	Yes	No <u>^</u>	
	Remarks:								
	FAC Neutral Test (FACW+OBL:FACU+UPL): 0:5								
Prevalence Index indicator is not applicable, as wetland hydrology and hydric soil indicators are absent.	Prevalence Index indicator is not applicable, as wetland	hydrology and	l hydric	soil i	ndicators a	re absent.			

SOIL Sampling Point: 2B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix			x Feature		. 2	,	
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u> _	Remarks
0-12	10YR 3/1	98	7.5 YR 4/6	2	С	M	Clay	
			· ·				<u> </u>	
	-		•		-			
	-	_	-	_	-			
	-	_		_	·		-	_
		_					<u> </u>	
							<u> </u>	
			1=Reduced Matrix, C			ed Sand G		tion: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators: (Appli	cable to al	I LRRs, unless othe	rwise not	ed.)		Indicators fo	or Problematic Hydric Soils ³ :
Histosol			Sandy	-				ck (A9) (LRR I, J)
	oipedon (A2)			Redox (S5				airie Redox (A16) (LRR F, G, H)
	stic (A3)			d Matrix (S				face (S7) (LRR G)
	en Sulfide (A4) d Layers (A5) (LRR	F)		Mucky Mi Gleyed M				ins Depressions (F16) H outside of MLRA 72 & 73)
	ick (A9) (LRR F, G ,			ed Matrix (,	Vertic (F18)
	d Below Dark Surfa			Dark Surfa	,			ent Material (TF2)
	ark Surface (A12)		Deplete	ed Dark Su	urface (F7)		allow Dark Surface (TF12)
-	Mucky Mineral (S1)			Depressio				xplain in Remarks)
	Mucky Peat or Peat	. , .		ains Depr				hydrophytic vegetation and
5 cm Mu	icky Peat or Peat (S	3) (LRR F) (ML	.RA 72 &	73 of LRI	(H)		nydrology must be present, isturbed or problematic.
Restrictive I	Layer (if present):						unless u	sturbed of problematic.
Type:	_ayo. (p. 000).							
	ches):						Hydric Soil P	resent? Yes No X
Remarks:							,	
rtomanto.								
HYDROLO								
Wetland Hy	drology Indicators	:						
Primary India	cators (minimum of	one require	ed; check all that app	ly)			Secondary	Indicators (minimum of two required)
	Water (A1)		Salt Crust	,				ce Soil Cracks (B6)
High Wa	ater Table (A2)		Aquatic In				Sparse	ely Vegetated Concave Surface (B8)
Saturation	` ,		Hydrogen		. ,			age Patterns (B10)
	larks (B1)		Dry-Seaso					ted Rhizospheres on Living Roots (C3)
	nt Deposits (B2)		Oxidized I			ing Roots	. ,	ere tilled)
	posits (B3)		,	not tilled)		4)		sh Burrows (C8)
_	at or Crust (B4)		Presence			4)		ation Visible on Aerial Imagery (C9)
	oosits (B5) on Visible on Aerial	Imagany (I	Thin Muck					orphic Position (D2) Neutral Test (D5)
	tained Leaves (B9)	0, 1	37) Other (Ex	piaiii iii re	elliaiks)			Heave Hummocks (D7) (LRR F)
Field Obser							11031-1	rieave Fidififfocks (DF) (ERRT)
Surface Wat		Vas	No X Depth (in	rches).				
Water Table			No X Depth (in					
Saturation P			No X Depth (in				tland Hydrology	Present? Yes No X
(includes cap	oillary fringe)							100
Describe Re	corded Data (strear	n gauge, m	nonitoring well, aerial	photos, pr	revious ins	spections)	, if available:	
Remarks:								

Project/Site: Lookout Solar		City/County: Oglala Lakota County Sampling Date: C						
Applicant/Owner: Lookout Solar, LLC					State: SD	Samplin	g Point: 3	
Investigator(s): ES, SJ		Section	n, Town	ship, Rai	nge: Section 36, Townshi	41N, R	ange 48W	
Landform (hillslope, terrace, etc.): Semi-closed depression								(%): <u></u> 0-1
Subregion (LRR): G								
Soil Map Unit Name: Richfield-Altvan silt loams, 0 to 3 per								
Are climatic / hydrologic conditions on the site typical for th								
Are Vegetation No , Soil No , or Hydrology No					Normal Circumstances" p			No
Are Vegetation No , Soil No , or Hydrology No					eded, explain any answer			
SUMMARY OF FINDINGS – Attach site map								iros etc
		Sam	piiig	poniti	ocations, transects	Шро	tant reatt	1103, 010.
Hydrophytic Vegetation Present? Yes X Medic Soil Present? Yes I	No		Is the S	Sampled	Area			
Hydric Soil Present? Yes! Wetland Hydrology Present? Yes X!	No <u>^</u>		within	a Wetlar	nd? Yes	No	X	
Remarks:	NO							
VEGETATION – Use scientific names of plan	nte							
VEGETATION — Ose scientific flames of plan	Absolute	Domi	inant In	dicator	Dominance Test works	hoot:		
Tree Stratum (Plot size: 30'	% Cover				Number of Dominant Sp			
1					That Are OBL, FACW, of		0	
2					(excluding FAC-):			(A)
3					Total Number of Domina	ant		
4					Species Across All Strat	a:	2	(B)
Carling/Charle Charles (Diet size, 15'	0	= Tota	al Cover		Percent of Dominant Sp		100	
Sapling/Shrub Stratum (Plot size: 15')					That Are OBL, FACW, o	r FAC:	100	(A/B)
1 2					Prevalence Index work	sheet:		
3.					Total % Cover of:		Multiply by	<u>/:</u>
4					OBL species	X	1 =	
5					FACW species			
	0	= Tota	al Cover		FAC species	X	3 =	
Herb Stratum (Plot size: 5'					FACU species	X	4 =	
1. Eleocharis palustris	40	Yes		BL	UPL species			
2. Alopecurus aequalis		Yes		BL	Column Totals:	(A	.)	(B)
3. Bromus inermis	_ 2	No		IPL	Prevalence Index	= B/A =		
4					Hydrophytic Vegetatio			
5					1 - Rapid Test for H	ydrophy	tic Vegetatio	n
6					X 2 - Dominance Test	is >50%		
7					3 - Prevalence Inde	x is ≤3.0	1	
8 9					4 - Morphological A	daptatio	ns¹ (Provide	supporting
10					data in Remarks			
10.	82				Problematic Hydrop	hytic Ve	getation (Ex	kplain)
Woody Vine Stratum (Plot size: 30') 1.					¹ Indicators of hydric soil be present, unless distu			gy must
2.					Hydrophytic			
	0				Vegetation	X		
% Bare Ground in Herb Stratum 18					Present? Yes		No	_
Remarks:								
FAC Neutral Test (FACW+OBL:FACU, UPL): 2:0								

SOIL Sampling Point: 3

Profile Desc	cription: (Describ	e to the de	oth needed to docu	ment the	indicator	or confir	m the absence	of indicators.)
Depth	Matrix			ox Feature	-	2		
(inches)	Color (moist)	%	Color (moist)	%	Type'	Loc ²	Texture	Remarks
0-4	10YR 3/2	95	10YR 6/6	5	С	М	Clay	fibrous roots
1-10	10YR 3/2	95	10YR 6/6	5	С	M	Clay	no roots
10-16	10YR 3/3	100					Clay	faint redox present
				_	_		· -	
l	-				_		· ·	
					_		· -	
					_	-		
					_			
			=Reduced Matrix, C			ed Sand G		cation: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators: (App	licable to all	LRRs, unless other	rwise no	ted.)		Indicators	s for Problematic Hydric Soils ³ :
Histosol	` '		Sandy					Muck (A9) (LRR I, J)
l —	pipedon (A2)		-	Redox (S				Prairie Redox (A16) (LRR F, G, H)
	istic (A3)		Strippe			Surface (S7) (LRR G)		
	en Sulfide (A4)) E/	Loamy		<u> </u>	Plains Depressions (F16) RR H outside of MLRA 72 & 73)		
	d Layers (A5) (LRI uck (A9) (LRR F, 0			ed Matrix	fatrix (F2)		`	ced Vertic (F18)
	d Below Dark Surf			Dark Surl				Parent Material (TF2)
	ark Surface (A12)	,			urface (F7)		Shallow Dark Surface (TF12)
	Mucky Mineral (S1))		Depression		,		(Explain in Remarks)
2.5 cm N	Mucky Peat or Pea	t (S2) (LRR	G, H) High P	lains Dep	ressions (F	16)	³ Indicators	of hydrophytic vegetation and
5 cm Mu	icky Peat or Peat	(S3) (LRR F)	(MI	_RA 72 &	73 of LRF	RH)	wetlar	nd hydrology must be present,
							unles	s disturbed or problematic.
Restrictive	Layer (if present)	:						
Type:								V
Depth (in	ches):						Hydric Soi	I Present? Yes No X
Remarks:								
HYDROLO	GY							
Wetland Hy	drology Indicator	s:						
Primary India	cators (minimum o	f one require	d; check all that app	ly)			Second	ary Indicators (minimum of two required)
Surface	Water (A1)		Salt Crus	t (B11)			Sui	face Soil Cracks (B6)
	ater Table (A2)		Aquatic Ir		es (B13)			arsely Vegetated Concave Surface (B8)
Saturation			Hydrogen					inage Patterns (B10)
	larks (B1)		Dry-Seas)		dized Rhizospheres on Living Roots (C3)
Sedimer	nt Deposits (B2)		Oxidized	Rhizosph	eres on Liv	ing Roots	s (C3) (v	where tilled)
	posits (B3)			not tilled		-	. ,	yfish Burrows (C8)
	at or Crust (B4)		Presence	of Reduc	ed Iron (C	4)	Sat	uration Visible on Aerial Imagery (C9)
Iron Dep	posits (B5)		Thin Muc	k Surface	(C7)		Ge	omorphic Position (D2)
Inundati	on Visible on Aeria	al Imagery (E	(Ex	plain in R	emarks)		X FA	C-Neutral Test (D5)
X Water-S	tained Leaves (B9))					Fro	st-Heave Hummocks (D7) (LRR F)
Field Obser	vations:							
Surface Wat	er Present?	Yes	No X Depth (ir	nches):				
Water Table			No X Depth (ir					
Saturation P			No X Depth (ir				land Hydrolog	y Present? Yes X No
(includes car	oillary fringe)							
Describe Re	corded Data (strea	am gauge, m	onitoring well, aerial	photos, p	revious ins	spections)	, if available:	
Remarks:							<u> </u>	
Sample point	was collected from	n the lowest	point within the surre	ounding is	solated dep	ression.		

Section, Township, Range: Section 36, Township 41N, Range 48W Landform (hillslope, terrace, etc.): Semi-closed depression Local relief (concave, convex, none): Concave Slope (%): 0-1 Subregion (LRR): G Lat: 43.48529217 Long: -102.985856 Datum: NAD_1983 Soil Map Unit Name: Richfield-Altvan silt loams, 0 to 3 percent slopes Are climatic / hydrologic conditions on the site typical for this time of year? Yes X Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are Vegetation No , Soil No , or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)	Project/Site: Lookout Solar		City/County:	Oglala La	kota County	Sampling Date: 06/12/2018		
	Applicant/Owner: Lookout Solar, LLC				State: SD	_ Sampling	Point: 4A	
Landform (fillslope, torrace, etc.): Semi-closed depression Local relief (concave, correxe, none): Concave Slope (%): O-1 Subregion (LRR): G	Investigator(s): ES, SJ		Section, Tow	nship, Rai	nge: Section 36, Townsl	nip 41N, Ra	ange 48W	
Solid Map Unit Name: Richflield-Altivan silt loams, 0 to 3 percent slopes								,): <u>0-1</u>
Soli Map Unit Name: Richfield-Altvan ailt loams, 0 to 3 percent slopes No (Ifno, explain in Remarks.)								
Are climato / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.) Are Vegetation No Soil No or Hydrology No asting ficantly disturbed? Are Normal Circumstances' present? Yes X No (If no, explain in Remarks.) SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc. Hydrologhytic Vegetation Present? Yes X No (If no, explain any answers in Remarks.) SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc. Hydrologhytic Vegetation Present? Yes X No (If no, explain in Remarks.) SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc. Hydrologhytic Vegetation Present? Yes X No (If no, explain in Remarks.) SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc. Hydrologhytic Vegetation Present? Yes X No (If no, explain in Remarks.) SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc. Hydrologhytic Vegetation Present? Yes X No (If no, explain in Remarks.) Summary of Norman Species, important features, etc. Hydrologhytic Vegetation Present? Yes X No (If no, explain any answers in Remarks.) Summary of Norman Species (If no explain any answers in Remarks.) Summary of Norman Species (If no explain any answers in Remarks.) Summary of Norman Species (If no explain any answers in Remarks.) Summary of Norman Species (If no explain any answers in Remarks.) Summary of Norman Species (If no explain any answers in Remarks.) Summary of Norman Species (If no explain any answers in Remarks.) Summary of Norman Species (If no explain any answers in Remarks.) Summary of Norman Species (If no explain any answers in Remarks.) Summary of Norman Species (If no explain any answers in Remarks.) Summary of Norman Species (If no explain any answers in Remarks.) Summary of Norman Species (If no explain any answers in Remar								
Are Vegetation No Soil No or Hydrology No alguificantly disturbed? Are "Normal Circumstances" present? Yes X No Are Vegetation Prosent? Are Vegetation No Soil No or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes X No Soil No Welland Hydrology Present? Yes X No Welland Hydrology Present? Yes X No Soil No Sessies? Status Welland Pydrology Present? Yes X No Soil No Sessies? Status No Soil No Sessies? Status No Sessies No Sessies? Status No Sessies? Status No Sessies No Sessies? Statu								
Ave Vegetation No Soll No or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes X No								No
SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present?								
Hydrophytic Vegetation Present?								es. etc.
Hydric Sol Present? Yes X No				Pomer		<u></u>		
VEGETATION - Use scientific names of plants. Dominant Indicator Species Statum (Plot size: 30') Absolute Species Status Status Species Status Status Species Status Status Status Species Status Statu	Hydric Soil Present? Ye	es X No		•				
Number of Dominant Species Saltus Section Sectio			within	n a Wetlar	nd? Yes X	No		
Absolute Species Status								
Absolute Species Status								
Absolute Species Status								
Absolute Species Status								
Number of Dominant Species Status That Are OBL, FACW, or FAC (excluding FAC) 2	VEGETATION - Use scientific nam	nes of plants.						
1.	001	Absolute	Dominant	Indicator	Dominance Test wor	ksheet:		
2.	Tree Stratum (Plot size: 30°)	<u>% Cover</u>	Species?	Status	Number of Dominant S	Species		
3.						or FAC	2	(A)
Species Across All Strata: 2 (B)					(excluding 1 AC).			_ (^)
Sapling/Shrub Stratum (Plot size: 15' 0						nant	2	(B)
That Are OBL, FACW, or FAC: 100 (A/B)	4				Species Across Air Str	ala.		_ (D)
1	Sapling/Shrub Stratum (Plot size: ¹⁵ ')	= Total Cove	er			100	(A/R)
2. 3. Total % Cover of: Multiply by: 4. 5. Total % Cover of: Multiply by: 5. 5. FACW species x 1 = FACW species x 3 = FACU species x 3 = FACU species x 4 = Yes 1. Eleocharis palustris 30 Yes OBL UPL species x 5 = 2. Sagiltaria rigida 20 Yes OBL Column Totals: (A) (B) 3. Hydrophytic Vegetation Indicators: (A) (B) 5. Hydrophytic Vegetation Indicators: (A) (B) 6. Yes					That Are Obl., I ACVV,	or rac.		_ (٨/٥)
Total % Cover of: Multiply by:								
5								
D	4							
Herb Stratum (Plot size: 5') 1. Eleocharis palustris 30 Yes	5							
1. Eleocharis palustris 30 Yes OBL UPL species x 5 =			= Total Cove	er				
2. Sagittaria rigida 20 Yes OBL Column Totals:(A)(B) 3. Prevalence Index = B/A =	Herb Stratum (Plot size:) 4 Fleocharis palustris		Yes	OBI	· -			_
3.	o Sagittaria rigida	20						
4.				-	Goldmin Totals.	(^)		(D)
Hydrophytic Vegetation Indicators: X 1 - Rapid Test for Hydrophytic Vegetation					Prevalence Inde	x = B/A =		
6								
7					i -		-	
8								
9								
10					4 - Morphological	Adaptation:	s' (Provide su separate shee	ipporting
Woody Vine Stratum (Plot size: 30')								
1	201		= Total Cove	er				
2								must
% Bare Ground in Herb Stratum 50 0 = Total Cover Present? Yes X No No					Hydrophytic			
% Bare Ground in Herb Stratum 50 Present? Yes No No					Vegetation	X		
					Present? You	es <u>^`</u>	No	
FAC Neutral Test (FACW+OBL:FACU, UPL): 2:0	Remarks:							
	FAC Neutral Test (FACW+OBL:FACU, UPL):	2:0						

SOIL Sampling Point: 4A

	Matrix	0/		ox Feature	es —1	1 2	T	Damada
(inches)	Color (moist) 10YR 4/1	<u>%</u> 90	Color (moist) 10YR 5/6	<u>%</u> 10	Type ¹ C	Loc ²	Texture	Remarks
0-4			-	_				
4-7	GLEY 1 4/N	98	10YR 5/6	_ 2	_ <u>C</u>	М	Clay	
7-16	2.5 YR 4/2	100					Clay	
					_			
			-					
							· <u></u> -	
Type: C=Co	ncentration. D=De	pletion. RI	– ————————————————————————————————————	S=Covere	ed or Coate	ed Sand G	irains. ² Locati	on: PL=Pore Lining, M=Matrix.
			III LRRs, unless other					r Problematic Hydric Soils³:
Histosol	(A1)		Sandy	Gleyed M	atrix (S4)		1 cm Mud	ck (A9) (LRR I, J)
	ipedon (A2)		-	Redox (S				airie Redox (A16) (LRR F, G, H)
Black His				ed Matrix (face (S7) (LRR G)
	n Sulfide (A4)				ineral (F1)		_	ns Depressions (F16)
	Layers (A5) (LRR		X Loamy X Deplet				`	H outside of MLRA 72 & 73)
	ck (A9) (LRR F, G Below Dark Surfa			ed Matrix Dark Surl	. ,			Vertic (F18) ent Material (TF2)
	rk Surface (A12)	ce (ATT)			urface (F7			llow Dark Surface (TF12)
	ucky Mineral (S1)			Depressi	•)	-	plain in Remarks)
-	lucky Peat or Peat	(S2) (I RE			ressions (F	16)		hydrophytic vegetation and
	cky Peat or Peat (73 of LRF			ydrology must be present,
	, (/ (=	, (,		sturbed or problematic.
	over /if present).							
Restrictive L	.ayer (ii present):							
Restrictive L Type:	.ayer (II present):							
Туре:	ches):						Hydric Soil Pr	esent? Yes X No
Туре:							Hydric Soil Pr	esent? Yes X No
Type: Depth (inc							Hydric Soil Pr	esent? Yes X No
Type: Depth (inc							Hydric Soil Pr	esent? Yes X No
Type: Depth (inc	hes):						Hydric Soil Pr	esent? Yes X No
Type: Depth (incomments:	hes):						Hydric Soil Pr	esent? Yes X No
Type: Depth (incomments: YDROLOG Wetland Hyd	GY Irology Indicators	s:	red; check all that app	oly)				resent? Yes X No
Type:	GY Irology Indicators	s:					Secondary	
Type:	GY Irology Indicators	s:	red; check all that app Salt Crus		es (B13)		Secondary Surface	Indicators (minimum of two required)
Type:	GY Irology Indicators ators (minimum of Water (A1) ter Table (A2)	s:	red; check all that app Salt Crus Aquatic I	st (B11)	. ,		Secondary Surface Sparse	Indicators (minimum of two required) e Soil Cracks (B6)
Type: Depth (incomplete in the content of the	GY Irology Indicators ators (minimum of Water (A1) ter Table (A2) on (A3)	s:	red; check all that app Salt Crus Aquatic I Hydroger	st (B11) nvertebrat n Sulfide C	. ,		Secondary Surface Sparse Draina	Indicators (minimum of two required) e Soil Cracks (B6) ely Vegetated Concave Surface (B8)
Type: Depth (incomplete Remarks: YDROLOG Wetland Hyd Primary Indicomplete Surface Note High Wat Saturation Water Ma	GY Irology Indicators ators (minimum of Water (A1) ter Table (A2) on (A3)	s:	red; check all that app Salt Crus Aquatic I Hydroger	st (B11) nvertebrat n Sulfide (son Water	odor (C1) Table (C2)		Secondary Surface Sparse Draina Oxidize	Indicators (minimum of two required) e Soil Cracks (B6) ely Vegetated Concave Surface (B8) ge Patterns (B10)
Type:	GY Irology Indicators ators (minimum of Water (A1) ter Table (A2) on (A3) arks (B1)	s:	red; check all that app Salt Crus Aquatic li Hydroger Dry-Seas Oxidized	st (B11) nvertebrat n Sulfide (son Water	Odor (C1) Table (C2) eres on Liv		Secondary Surface Sparse Draina Oxidize (C3) (whe	Indicators (minimum of two required) e Soil Cracks (B6) ely Vegetated Concave Surface (B8) ge Patterns (B10) ed Rhizospheres on Living Roots (C3
Type:	GY Irology Indicators ators (minimum of Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2)	s:	red; check all that app Salt Crus Aquatic li Hydroger Dry-Seas Oxidized	et (B11) nvertebrat n Sulfide Coon Water Rhizosph	Odor (C1) Table (C2) eres on Liv	ing Roots	Secondary Surface Sparse Draina Oxidize (C3) (whe	Indicators (minimum of two required) e Soil Cracks (B6) ely Vegetated Concave Surface (B8) ge Patterns (B10) ed Rhizospheres on Living Roots (C3
Type:	GY Irology Indicators ators (minimum of Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) oosits (B3) t or Crust (B4)	s:	red; check all that app Salt Crus Aquatic II Hydroger Dry-Seas Oxidized (where	ot (B11) nvertebrat n Sulfide C son Water Rhizosph not tilled	Odor (C1) Table (C2) eres on Liv) ed Iron (C4)	ing Roots	Secondary Surface Sparse Draina Oxidize (C3) (whe	Indicators (minimum of two required) e Soil Cracks (B6) ely Vegetated Concave Surface (B8) ge Patterns (B10) ed Rhizospheres on Living Roots (C3 ere tilled)
Type:	GY Irology Indicators ators (minimum of Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) oosits (B3) t or Crust (B4)	s: one requir	red; check all that app Salt Crus Aquatic li Hydroger Dry-Seas Oxidized (where Presence Thin Muc	ot (B11) nvertebrate Sulfide Coon Water Rhizosph not tilled of Reduct k Surface	Odor (C1) Table (C2) eres on Liv) ed Iron (C4) (C7)	ing Roots	Secondary Surface Sparse Draina Oxidize (C3) (whe Crayfis Satura Geome	Indicators (minimum of two required) e Soil Cracks (B6) ely Vegetated Concave Surface (B8) ge Patterns (B10) ed Rhizospheres on Living Roots (C3 ere tilled) th Burrows (C8) tion Visible on Aerial Imagery (C9)
Type:	GY Irology Indicators ators (minimum of Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5)	one requir	red; check all that app Salt Crus Aquatic li Hydroger Dry-Seas Oxidized (where Presence Thin Muc	ot (B11) nvertebrate Sulfide Coon Water Rhizosph not tilled of Reduct k Surface	Odor (C1) Table (C2) eres on Liv) ed Iron (C4) (C7)	ing Roots	Secondary Surface Sparse Draina Oxidize (C3) (whee Crayfis Satura Geomo	Indicators (minimum of two required) e Soil Cracks (B6) ely Vegetated Concave Surface (B8) ge Patterns (B10) ed Rhizospheres on Living Roots (C3 ere tilled) eh Burrows (C8) tion Visible on Aerial Imagery (C9) orphic Position (D2)
Type:	GY Irology Indicators ators (minimum of Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) oosits (B3) t or Crust (B4) oosits (B5) on Visible on Aerial cained Leaves (B9) vations:	one requir	red; check all that app Salt Crus Aquatic II Hydroger Dry-Seas Oxidized (where Presence Thin Muc	ot (B11) nvertebrat n Sulfide Coon Water Rhizosph not tilled e of Reduce k Surface kplain in R	Odor (C1) Table (C2) eres on Liv) ed Iron (C4) (C7) emarks)	ing Roots	Secondary Surface Sparse Draina Oxidize (C3) (whee Crayfis Satura Geomo	Indicators (minimum of two required) e Soil Cracks (B6) ely Vegetated Concave Surface (B8) ge Patterns (B10) ed Rhizospheres on Living Roots (C3 ere tilled) eh Burrows (C8) tion Visible on Aerial Imagery (C9) orphic Position (D2) eutral Test (D5)
Type:	GY Irology Indicators ators (minimum of Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aeria ained Leaves (B9) vations: er Present?	one requir	red; check all that app Salt Crus Aquatic II Hydroger Dry-Seas Oxidized (where Presence Thin Muc B7) Other (Ex	ot (B11) nvertebrat n Sulfide Con Water Rhizosph not tilled e of Reduce k Surface kplain in R	Odor (C1) Table (C2) eres on Liv) ed Iron (C4) (C7) emarks)	ing Roots	Secondary Surface Sparse Draina Oxidize (C3) (whee Crayfis Satura Geomo	Indicators (minimum of two required) e Soil Cracks (B6) ely Vegetated Concave Surface (B8) ge Patterns (B10) ed Rhizospheres on Living Roots (C3 ere tilled) eh Burrows (C8) tion Visible on Aerial Imagery (C9) orphic Position (D2) eutral Test (D5)
Type: Depth (incomplete in the complete in the	GY Irology Indicators ators (minimum of Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aeria ained Leaves (B9) vations: er Present?	one requir	red; check all that app Salt Crus Aquatic II Hydroger Dry-Seas Oxidized (where Presence Thin Muc	ot (B11) nvertebrat n Sulfide Con Water Rhizosph not tilled e of Reduce k Surface kplain in R	Odor (C1) Table (C2) eres on Liv) ed Iron (C4) (C7) emarks)	ing Roots	Secondary Surface Sparse Draina Oxidize (C3) (whee Crayfis Satura Geomo	Indicators (minimum of two required) e Soil Cracks (B6) ely Vegetated Concave Surface (B8) ge Patterns (B10) ed Rhizospheres on Living Roots (C3 ere tilled) eh Burrows (C8) tion Visible on Aerial Imagery (C9) orphic Position (D2) eutral Test (D5)
Type:	GY Irology Indicators ators (minimum of Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aeria cained Leaves (B9) vations: er Present? Present?	one requir	red; check all that app Salt Crus Aquatic II Hydroger Dry-Seas Oxidized (where Presence Thin Muc B7) Other (Ex	ot (B11) nvertebrat n Sulfide (Con Water Rhizosph not tilled e of Reduct k Surface k plain in R	Odor (C1) Table (C2) eres on Liv) ed Iron (C4 (C7) emarks)	ing Roots	Secondary Surface Sparse Draina Oxidize (C3) (whee Crayfis Satura Geomo X FAC-N Frost-F	Indicators (minimum of two required) e Soil Cracks (B6) ely Vegetated Concave Surface (B8) ge Patterns (B10) ed Rhizospheres on Living Roots (C3 ere tilled) eh Burrows (C8) tion Visible on Aerial Imagery (C9) orphic Position (D2) eutral Test (D5) Heave Hummocks (D7) (LRR F)
Type:	ches):	one requirements of the second	red; check all that approximate and selection of the control of th	ot (B11) nvertebrat n Sulfide Con Water Rhizosph not tilled e of Reduc k Surface kplain in R nches): nches): nches): nches):	Odor (C1) Table (C2) eres on Liv) ed Iron (C4 (C7) emarks)	ing Roots 4) Wet	Secondary Surface Sparse Draina Oxidize (C3) (whee Crayfis Satura Geomo X FAC-N Frost-H	Indicators (minimum of two required) e Soil Cracks (B6) ely Vegetated Concave Surface (B8) ge Patterns (B10) ed Rhizospheres on Living Roots (C3 ere tilled) eh Burrows (C8) tion Visible on Aerial Imagery (C9) orphic Position (D2) eutral Test (D5)
Type:	ches):	one requirements of the second	red; check all that approximate solutions and the second s	ot (B11) nvertebrat n Sulfide Con Water Rhizosph not tilled e of Reduc k Surface kplain in R nches): nches): nches): nches):	Odor (C1) Table (C2) eres on Liv) ed Iron (C4 (C7) emarks)	ing Roots 4) Wet	Secondary Surface Sparse Draina Oxidize (C3) (whee Crayfis Satura Geomo X FAC-N Frost-H	Indicators (minimum of two required) e Soil Cracks (B6) ely Vegetated Concave Surface (B8) ge Patterns (B10) ed Rhizospheres on Living Roots (C3 ere tilled) eh Burrows (C8) tion Visible on Aerial Imagery (C9) orphic Position (D2) eutral Test (D5) Heave Hummocks (D7) (LRR F)
Type:	ches):	one requirements of the second	red; check all that approximate and selection of the control of th	ot (B11) nvertebrat n Sulfide Con Water Rhizosph not tilled e of Reduc k Surface kplain in R nches): nches): nches): nches):	Odor (C1) Table (C2) eres on Liv) ed Iron (C4 (C7) emarks)	ing Roots 4) Wet	Secondary Surface Sparse Draina Oxidize (C3) (whee Crayfis Satura Geomo X FAC-N Frost-H	Indicators (minimum of two required) e Soil Cracks (B6) ely Vegetated Concave Surface (B8) ge Patterns (B10) ed Rhizospheres on Living Roots (C3 ere tilled) eh Burrows (C8) tion Visible on Aerial Imagery (C9) orphic Position (D2) eutral Test (D5) Heave Hummocks (D7) (LRR F)

Project/Site: Lookout Solar			City/Cou	_{nty:} Oglala La	kota County	Sam	_ Sampling Date: 06/12/2018		
Applicant/Owner: Lookout Solar, LLC					State: SD	Samp	Sampling Point: 4B		
Investigator(s): ES, SJ			Section,	Township, Ra	nge: Section 36, T	ownship 41N	, Range 48W		
Landform (hillslope, terrace, etc.): Ser	ni-closed depression	1	Local rel	lief (concave,	convex, none): <u>Co</u>	ncave	Slope (%): <u>0-1</u>	
Subregion (LRR): G		Lat: 43.4	18533941	1	_ Long: <u>-102.9857</u>	'853	Datum:	NAD_1983	
Soil Map Unit Name: Richfield-Altvan	silt loams, 0 to 3 per	cent slopes			NWI c	lassification:	Freshwater Po	nd	
Are climatic / hydrologic conditions on	the site typical for th	is time of yea	ar? Yes						
Are Vegetation No , Soil No , o	r Hydrology No	significantly	disturbed	d? Are '	Normal Circumsta	nces" presen	t? Yes X	No	
Are Vegetation No , Soil No , o					eeded, explain any	answers in R	Remarks.)		
SUMMARY OF FINDINGS – A								ures, etc.	
Hydrophytic Vegetation Present?	Yes N	No X							
Hydric Soil Present?	Yes N			the Sampled			Y		
Wetland Hydrology Present?			W	rithin a Wetlar	nd? Yes	s	No <u>^</u>		
Remarks:									
VEGETATION – Use scientifi	c names of plar	nts.							
				ant Indicator	Dominance Tes	t worksheet	:		
Tree Stratum (Plot size: 30')	% Cover	Species	s? Status	Number of Domi	nant Species	;		
1			-		That Are OBL, F.		1	(4)	
2					(excluding FAC-	·).	·	(A)	
3					Total Number of		2	(D)	
4					Species Across A	All Strata:	2	(B)	
Sapling/Shrub Stratum (Plot size: 1	.5'	0	= Total (Cover	Percent of Domin		5. 50	(4 (5)	
1.					That Are OBL, F.	ACW, or FAC): <u>90</u>	(A/B)	
2.					Prevalence Inde	ex workshee	t:		
3					Total % Cov	er of:	Multiply by	<u>/:</u>	
4.					OBL species		x 1 =		
5.					FACW species		x 2 =		
		0	= Total (Cover	FAC species		x 3 =		
)				FACU species		x 4 =		
1. Elymus trachycaulus		30	Yes	FACU	UPL species				
2. Eleocharis palustris			Yes	OBL	Column Totals:		(A)	(B)	
3. Alopecurus aequalis		10	No	OBL	Prevalence	Index = B/A	\ =		
4					Hydrophytic Ve				
5					1 - Rapid Te	_		n	
6					2 - Dominan	ce Test is >5	60%		
7					3 - Prevalen				
8							tions ¹ (Provide		
9							a separate she	•	
10		60	- Total (201/05	Problematic	Hydrophytic	Vegetation¹ (Ex	(plain)	
Woody Vine Stratum (Plot size: 30')	<u> </u>	- rotar c	Jover	¹ Indicators of hyd be present, unles	dric soil and v	wetland hydrolo	gy must	
1			-		be present, unles	ss disturbed (or problematic.		
2			-		Hydrophytic				
% Bare Ground in Herb Stratum 40		0	= Total (Cover	Vegetation Present?	Yes	No X		
% Bare Ground in Herb Stratum									
	I+LIDL\- 2-4								
FAC Neutral Test (FACW+OBL:FACU Prevalence Index indicator is not apple	,	nil indicators	are aher	≥nt					
I Tovalonio index indicator is not appr	ioabio, as welland st		a. 0 ab30	J. 14.					

SOIL Sampling Point: 4B

Profile Desc	cription: (Describ	e to the de	pth needed to docu	ıment the	indicator	or confir	m the absence of	indicators.)
Depth	Matrix			ox Feature	4	0	_	
(inches)	Color (moist)	%	Color (moist)	%	Type'	Loc ²	Texture	Remarks
0-2	10YR 3/2	90	7.5YR 3/8	10	С	М	Clay	
2-13	10YR 4/3	98	10YR 6/6	2	С	M	Clay	
	-					-		
17			Dada da Matrica				21	DI Daniel Indiana M. Matria
		•	I=Reduced Matrix, C I LRRs, unless oth			ed Sand G		on: PL=Pore Lining, M=Matrix. r Problematic Hydric Soils ³ :
-		icable to a						
Histosol	pipedon (A2)		Sandy	Redox (S				k (A9) (LRR I, J) airie Redox (A16) (LRR F, G, H)
	pipedon (Az) istic (A3)			ed Matrix (•			face (S7) (LRR G)
	en Sulfide (A4)			,	ineral (F1)			ns Depressions (F16)
	d Layers (A5) (LRF	R F)		Gleyed M				H outside of MLRA 72 & 73)
	uck (A9) (LRR F, G			ed Matrix			,	Vertic (F18)
	d Below Dark Surfa			Dark Surf				nt Material (TF2)
Thick D	ark Surface (A12)		Deplet	ed Dark S	urface (F7)	Very Shal	llow Dark Surface (TF12)
	Mucky Mineral (S1)			Depression				plain in Remarks)
	Mucky Peat or Pea				ressions (F			hydrophytic vegetation and
5 cm Mu	ucky Peat or Peat (S3) (LRR F) (M	LRA 72 &	73 of LRF	RH)		ydrology must be present,
5							unless dis	sturbed or problematic.
	Layer (if present)							
Type:			<u></u>					
	ches):						Hydric Soil Pro	esent? Yes No X
Remarks:								
HYDROLO	GY							
Wetland Hy	drology Indicator	s:						
Primary Indi	cators (minimum o	f one require	ed; check all that app	oly)			Secondary	Indicators (minimum of two required)
Surface	Water (A1)		Salt Crus	st (B11)				e Soil Cracks (B6)
	ater Table (A2)		Aquatic I		es (B13)			ly Vegetated Concave Surface (B8)
Saturati			Hydrogei					ge Patterns (B10)
	larks (B1)		-		Table (C2))		ed Rhizospheres on Living Roots (C3)
·	nt Deposits (B2)		Oxidized		` '			re tilled)
	posits (B3)			not tilled		Ü	` '	h Burrows (C8)
	at or Crust (B4)		Presence			4)	-	tion Visible on Aerial Imagery (C9)
_	posits (B5)		Thin Muc			,		orphic Position (D2)
-	ion Visible on Aeria	ıl Imagery (I			` '			eutral Test (D5)
	Stained Leaves (B9		,	•	,			leave Hummocks (D7) (LRR F)
Field Obser	•	,					_	,,,,,,
Surface Wat		Yes	No X Depth (i	nches):				
Water Table			No X Depth (i					
Saturation P			No X Depth (i				tland Hydrology P	resent? Yes X No
	pillary fringe)	165	No 🔨 Deptii (i	nches)		_ ***	tialiu Hydrology P	resent! Tes <u>** No</u>
Describe Re	corded Data (stream	m gauge, n	onitoring well, aeria	l photos, p	revious ins	spections)), if available:	
Remarks:								
Two seconda	ary indicators prese	ent						
ĺ								

Project/Site: Lookout Solar			City/Co	ounty: _	Oglala La	kota County	Sam	pling Date: <u>(</u>	06/12/2018
Applicant/Owner: Lookout Solar, LLC						State: SD	Sam	pling Point: 5	5
Investigator(s): ES, SJ			Section	n, Tow	nship, Ra	nge: Section 36,	Township 41N	I, Range 48V	V
Landform (hillslope, terrace, etc.): Clo						convex, none): C			
Soil Map Unit Name: Richfield-Altvan									
Are climatic / hydrologic conditions on									
Are Vegetation No , Soil No , o						'Normal Circumst			No
Are Vegetation No Soil No , C									110
SUMMARY OF FINDINGS -					,	·	•	,	aturos oto
SUMMART OF THE HUGS -	<u> </u>		Saiii	ipiiiig	politi	ocations, trai	iisects, iiiip	Jortant le	atures, etc.
Hydrophytic Vegetation Present?	Yes X Yes	No		Is the	Sampled	l Area			
Hydric Soil Present? Wetland Hydrology Present?	Yes X	No ^		within	a Wetlar	nd? Y	es	No X	i
Remarks:	Yes A	NO							
rtemane.									
VEGETATION - Use scientif	ic names of pla	nte							
VEGETATION – Ose scientili	ic names of pie	Absolute	Dom	inant I	ndicator	Dominance Te	ot workshoot		
<u>Tree Stratum</u> (Plot size: 30')	% Cover				Number of Dor			
1	•					That Are OBL,			
2						(excluding FAC	; -):	2	(A)
3						Total Number	of Dominant		
4						Species Across	s All Strata:	2	(B)
	15'	0	= Tota	al Cove	r	Percent of Don			
Sapling/Shrub Stratum (Plot size:						That Are OBL,	FACW, or FAC	D: 100	(A/B)
1.						Prevalence In	dex workshee	ot:	
2 3						Total % Co	over of:	Multiply	/ by:
4.						OBL species		x 1 =	
5						FACW species		x 2 =	
		0	= Tota	al Cove	r	FAC species		x 3 =	
)					FACU species		x 4 =	
1. Eleocharis palustris		30	Yes		OBL	UPL species			
2. Alopecurus aequalis		20	Yes		OBL	Column Totals	·	(A)	(B)
3. Juncus interior		10	No		FACW_	Prevalen	ce Index = B/A	\ =	
4. Elymus trachycaulus		15	No		UPL	Hydrophytic V			
5. Eleocharis acicularis			No		OBL	1 - Rapid 1	_		ation
6						X 2 - Domina			
7					<u> </u>	3 - Prevale	ence Index is ≤	3.0 ¹	
8						4 - Morpho	ological Adapta	ntions¹ (Provi	de supporting
9							Remarks or or		
10				al Cove		Problemat	ic Hydrophytic	Vegetation'	(Explain)
Woody Vine Stratum (Plot size: 30						¹ Indicators of h be present, unl			
1						-	- disturbed	or problemat	
2						Hydrophytic Vegetation			
% Bare Ground in Herb Stratum 10		0	= Tota	al Cove	r	Present?	Yes X	No	
Remarks:									
FAC Neutral Test (FACW+OBL:FACU	J. UPL)· 4·1								
,	· , - · - · · · ·								

SOIL Sampling Point: 5

Profile Desc	cription: (Describ	e to the de	pth needed to docu	ment the	indicator	or confirm	m the absence of ir	ndicators.)
Depth	Matrix			ox Feature				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>	Remarks
0-5	10YR 3/2	97	7.5YR 4/6	3	C	M	Clay	
5-14	10YR 2/2	99	7.5YR 4/6	_ 1	С	M, PL	Clay	
	_							
					_	· 	·	
						. <u></u>	. <u> </u>	
¹Type: C=C	oncentration, D=De	epletion, RM	I=Reduced Matrix, C	S=Covere	ed or Coate	ed Sand G	irains. ² Location	n: PL=Pore Lining, M=Matrix.
			I LRRs, unless other					Problematic Hydric Soils ³ :
Histosol	(A1)		Sandy	Gleyed M	atrix (S4)		1 cm Muck	(A9) (LRR I, J)
Histic E	pipedon (A2)		Sandy	Redox (S	5)			ie Redox (A16) (LRR F, G, H)
	istic (A3)			ed Matrix (,			ce (S7) (LRR G)
	en Sulfide (A4)			-	ineral (F1)			Depressions (F16)
	d Layers (A5) (LRR			-	fatrix (F2)		,	outside of MLRA 72 & 73)
	uck (A9) (LRR F, G d Below Dark Surfa			ed Matrix Dark Surf			Reduced V	ertic (F18) : Material (TF2)
	ark Surface (A12)	ice (ATT)			urface (F7)		w Dark Surface (TF12)
	/lucky Mineral (S1)			Depression	•	,		ain in Remarks)
-	Mucky Peat or Peat	(S2) (LRR			ressions (F	16)		drophytic vegetation and
5 cm Mu	ucky Peat or Peat (S3) (LRR F) (M I	LRA 72 &	73 of LRF	R H)	wetland hyd	drology must be present,
							unless dist	urbed or problematic.
Restrictive	Layer (if present):							
Type:								
Depth (in	ches):						Hydric Soil Pres	sent? Yes No X
Remarks:								
HYDROLO	GY							
Wetland Hy	drology Indicators	s:						
_			ed; check all that app	oly)			Secondary In	dicators (minimum of two required)
Surface	Water (A1)	•	Salt Crus	t (B11)			Surface	Soil Cracks (B6)
	ater Table (A2)		X Aquatic Ir		es (B13)			Vegetated Concave Surface (B8)
Saturation	` '		Hydroger		. ,			Patterns (B10)
Water M			Dry-Seas)	_	Rhizospheres on Living Roots (C3)
	nt Deposits (B2)		Oxidized					e tilled)
Drift De	posits (B3)			not tilled				Burrows (C8)
Algal Ma	at or Crust (B4)		Presence	of Reduc	ed Iron (C	4)	Saturatio	on Visible on Aerial Imagery (C9)
Iron Dep	posits (B5)		Thin Muc	k Surface	(C7)		Geomor	phic Position (D2)
Inundati	on Visible on Aeria	l Imagery (E	37) Other (Ex	plain in R	emarks)		X FAC-Nei	utral Test (D5)
Water-S	tained Leaves (B9)					Frost-He	ave Hummocks (D7) (LRR F)
Field Obser	vations:							
Surface Wat	er Present?	Yes	No X Depth (in	nches):				
Water Table	Present?	Yes	No X Depth (in	nches):		_		
Saturation P		Yes	No X Depth (in	nches):		Wet	land Hydrology Pre	esent? Yes X No No No
(includes car	oillary fringe)						if available.	
Describe Re	corded Data (Strea	ın gauge, m	nonitoring well, aerial	priotos, p	revious ins	spections),	, ii avaliable:	
Domanica								
Remarks:	per of mollusks pre	sent (1.2mr	n in length)					
A Small Hullik	or or monuses pre	3011L (1=Z11II	ii iii ieiigui <i>)</i> .					

Project/Site: Lookout Solar			City/Cou	_{unty:} Oglala La	Sa	Sampling Date: <u>06/12/2018</u>			
Applicant/Owner: Lookout Solar, LLC					; <u>SD</u> Sa	ampling Point: 6A			
Investigator(s): ES, SJ			Section,	, Township, Ra	ange: Section	n 36, Township 4	1Ν, Rangε	e 48W	
Landform (hillslope, terrace, etc.): Sen									0-1
Subregion (LRR): G		Lat: <u>43.</u> 4	1800987	' 4	Long:10	2.9739746		Datum: NA	D_1983
Soil Map Unit Name: Richfield-Altvan	silt loams, 0 to 3 pe	ercent slopes				NWI classificatio			
Are climatic / hydrologic conditions on	the site typical for t	this time of yea							
Are Vegetation No , Soil No , or		-				umstances" pres		X N	lo
Are Vegetation No , Soil No , o						in any answers ir			
SUMMARY OF FINDINGS – A						-			s otc
			Jamp	ning point i	iocations,	transcots, in	iportan	t icatare	3, 010.
Hydrophytic Vegetation Present?	Yes X		Is	s the Sample	d Area				
Hydric Soil Present?	Yes X		v	vithin a Wetla	nd?	Yes X	No		
Wetland Hydrology Present? Remarks:	Yes X	NO							
remarks.									
VEGETATION - Use scientific	c names of pla	ants.							
001		Absolute		ant Indicator	Dominan	ce Test workshe	et:		
Tree Stratum (Plot size: 30'				es? Status		f Dominant Speci			
1					That Are (DBL, FACW, or F LFAC-1	AC 1		(A)
2					`	,			(* ')
3						ber of Dominant cross All Strata:			(B)
4		0							(-)
Sapling/Shrub Stratum (Plot size: 1	5')	<u> </u>	- Total	Covei		f Dominant Speci DBL, FACW, or F)	(A/B)
1									
2						ce Index worksh % Cover of:		ıltiply by:	
3						ies			
4					-	ecies			
5						ies			
Herb Stratum (Plot size: 5')	0	= rotar	Cover		ecies			_
1. Eleocharis palustris	,	80	Yes	OBL		ies			_
2. Alopecurus aequalis		10	No	OBL	Column To	otals:	_ (A)		(B)
3					Drov	volonoo Indov. = F	2/Λ –		
4						valence Index = E			
5						apid Test for Hydr			
6						ominance Test is		-g-tatio	
7					3 - Pr	evalence Index is	s ≤3.0 ¹		
8					4 - Mo	orphological Adap	otations¹ (F		
9 10.						ta in Remarks or		,	
10			= Total	Cover	Proble	ematic Hydrophyt	ic Vegetat	tion' (Expla	in)
Woody Vine Stratum (Plot size: 30')		- Total	Covei		of hydric soil an			must
1					be presen	t, unless disturbe	d or proble	ematic.	
2					Hydrophy				
% Bare Ground in Herb Stratum 10		0	= Total	Cover	Vegetatio Present?	n Yes X	No	D	
% Bare Ground in Herb Stratum									
	11DI): 2:0								
FAC Neutral Test (FACW+OBL:FACU	, UFL). Z.U								

SOIL Sampling Point: 6A

Profile Desc	cription: (Describ	e to the de	oth needed to docu	ment the	indicator	or confir	m the absence of	indicators.)
Depth	Matrix			ox Feature	4	0	_	
(inches)	Color (moist)	%	Color (moist)	%	Type'	Loc ²	Texture	Remarks
0-4	10YR 3/2	95	7.5YR 6/6	5	_ <u>C</u>	PL	Clay	
4-10	10YR 4/1	95	7.5YR 4/6	5	С	M, PL	Clay	
10-16	10YR 4/2	80	7.5YR 4/6	20	С	M	Clay	
							<u> </u>	
				-	_			
				_	_			
			•		_			_
				_				
			=Reduced Matrix, C			ed Sand C		on: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators: (Appl	icable to all	LRRs, unless othe					Problematic Hydric Soils ³ :
Histosol	` '		Sandy					k (A9) (LRR I, J)
	pipedon (A2)		-	Redox (S				irie Redox (A16) (LRR F, G, H)
	istic (A3)			d Matrix (ace (S7) (LRR G)
	en Sulfide (A4)	3 E\			ineral (F1)			ns Depressions (F16)
	d Layers (A5) (LRF uck (A9) (LRR F, G		X Deplete	-	Matrix (F2)		`	I outside of MLRA 72 & 73) Vertic (F18)
	d Below Dark Surfa			Dark Surl				nt Material (TF2)
-	ark Surface (A12)	200 (7111)			urface (F7)		low Dark Surface (TF12)
	/lucky Mineral (S1)		X Redox			,	-	plain in Remarks)
	Mucky Peat or Pea				ressions (F	16)		nydrophytic vegetation and
	ucky Peat or Peat (73 of LRF			drology must be present,
							unless dis	turbed or problematic.
Restrictive	Layer (if present)	:						
Type:								
	ches):						Hydric Soil Pre	esent? Yes X No
Remarks:	nese concentration	s in the top 1	10"					
Dark mangan	iese concentration	s iii tile top	10 .					
HYDROLO	GY							
	drology Indicator	s:						
_			ed; check all that app	lv)			Secondary I	Indicators (minimum of two required)
Surface		•	Salt Crust					e Soil Cracks (B6)
	ater Table (A2)		X Aquatic Ir		es (B13)			ly Vegetated Concave Surface (B8)
Saturation			Hydrogen					ge Patterns (B10)
	larks (B1)				Table (C2)	١		ed Rhizospheres on Living Roots (C3)
	nt Deposits (B2)		Oxidized					re tilled)
	posits (B3)			not tilled		ing reode	` ,	h Burrows (C8)
	at or Crust (B4)		Presence		,	4)	-	ion Visible on Aerial Imagery (C9)
	posits (B5)		Thin Mucl			*)		rphic Position (D2)
-	on Visible on Aeria	al Imagery (F						eutral Test (D5)
	stained Leaves (B9		Other (Ex	piaiii iii iv	emarks)			leave Hummocks (D7) (LRR F)
Field Obser		,				1	11031-11	leave Hummocks (D1) (ERRT)
Surface Wat		Ves	No X Depth (ir	ichee).				
Water Table			No X Depth (ir					
Saturation P			No X Depth (ir				tland Hydrology B	resent? Yes X No
(includes cap		165	No X Deptil (II	iciies)		_ ***	lialiu Hyurology Fi	resent: res // No
		ım gauge, m	onitoring well, aerial	photos, p	revious ins	spections)), if available:	
Remarks:		<u> </u>						

Project/Site: Lookout Solar	City/County: Oglala Lakota County Sampling Date: 06						018
Applicant/Owner: Lookout Solar, LLC				State: SD	Sampling	Point: 6B	
Investigator(s): ES, SJ							
Landform (hillslope, terrace, etc.): Semi-closed depression							0-1
Subregion (LRR): G							
Soil Map Unit Name: Richfield-Altvan silt loams, 0 to 3 per							
Are climatic / hydrologic conditions on the site typical for thi							
Are Vegetation No , Soil No , or Hydrology No	_			Normal Circumstances		Yes X No	n
Are Vegetation No , Soil No , or Hydrology No				eded, explain any ans			
SUMMARY OF FINDINGS – Attach site map							s, etc.
Hydrophytic Vegetation Present? Yes N	Jo X						
Hydric Soil Present? Yes N	10 X		the Sampled			Y	
Wetland Hydrology Present? Yes X	lo	Wi	thin a Wetlar	id? Yes	No <u>-</u>		
Remarks:		•					
VEGETATION - Use scientific names of plan	nts.						
30'			nt Indicator	Dominance Test we	orksheet:		
Tree Stratum (Plot size: 30'			? Status	Number of Dominan			
1				That Are OBL, FACV (excluding FAC-):	N, or FAC	1	(A)
2							()
3				Total Number of Dor Species Across All S	ninant Strata:	2	(B)
7.	0						()
Sapling/Shrub Stratum (Plot size: 15')		rotar o	0101	Percent of Dominant That Are OBL, FACV		50	(A/B)
1				Prevalence Index w			
2				Total % Cover of		Multiply by:	
3				OBL species			
4				FACW species			
5				FAC species			
Herb Stratum (Plot size: 5')	0	= Total C	over	FACU species			_
1. Elymus trachycaulus	45	Yes	FACU	UPL species	x 5	i =	_
2. Alopecurus aequalis	45	Yes	OBL	Column Totals:	(A)		_ (B)
3				Prevalence Inc	lov - B/A -		
4				Hydrophytic Vegeta			
5				1 - Rapid Test fo			
6				2 - Dominance			
7				3 - Prevalence I			
8				4 - Morphologica	al Adaptations		
9						eparate sheet)	
10		= Total C		Problematic Hyd	drophytic Veg	etationˈ (Explai	n)
Woody Vine Stratum (Plot size: 30')				¹ Indicators of hydric be present, unless d			nust
2.				Hydrophytic			
	0			Vegetation	.,	X	
% Bare Ground in Herb Stratum 10				Present?	Yes	No <u>^`</u>	
Remarks:							
FAC Neutral Test (FACW+OBL:FACU+UPL): 1:1							
Prevalence Index indicator is not applicable, as hydric soil	indicators ar	re absent					

SOIL Sampling Point: 6B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix				x Feature			<u> </u>	
(inches)	Color (moist)			or (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-3	10YR 3/2	99	7.5YR			<u>C</u>	М	Loamy Clay	organic matter present
3-12	10YR 3/2	98	7.5YR	5/6	2	С	PL	Clay	
		-							
	-				. —				
			-						
			_			-		<u> </u>	
	oncentration, D=D						ed Sand G		cation: PL=Pore Lining, M=Matrix.
_	Indicators: (Appl	licable to a	III LRRs,						for Problematic Hydric Soils ³ :
Histosol					Gleyed Ma				Muck (A9) (LRR I, J)
	pipedon (A2)			-	Redox (S5				Prairie Redox (A16) (LRR F, G, H) Surface (S7) (LRR G)
	istic (A3) en Sulfide (A4)				d Matrix (S Mucky Mir				Plains Depressions (F16)
	d Layers (A5) (LRF	R F)			Gleyed Ma	, ,			RR H outside of MLRA 72 & 73)
	uck (A9) (LRR F, G			-	d Matrix (Reduc	ed Vertic (F18)
Deplete	d Below Dark Surfa	ace (A11)		· · · · · · · · · · · · · · · · · · ·	Dark Surfa	. ,			arent Material (TF2)
	ark Surface (A12)				d Dark Su	•)		Shallow Dark Surface (TF12)
-	Mucky Mineral (S1)		5 С П/		Depressio ains Depre		16)		(Explain in Remarks) of hydrophytic vegetation and
	Mucky Peat or Pea ucky Peat or Peat (_	RA 72 & 7				d hydrology must be present,
	asily i sai si i sai ((00) (=:::::	,	(,		disturbed or problematic.
Restrictive	Layer (if present)								
Type:									
Depth (in	ches):							Hydric Soil	Present? Yes No X
Remarks:									
HYDROLO	iCV								
	drology Indicator	e.							
_	cators (minimum o		ed: checl	call that apply	w)			Seconda	ary Indicators (minimum of two required)
Surface		r one requir	eu, crieci	_ Salt Crust				-	face Soil Cracks (B6)
	ater Table (A2)		_	_ Salt Clust _ Aquatic Inv		se (B13)			rsely Vegetated Concave Surface (B8)
Saturati				Aquatic inv Hydrogen					inage Patterns (B10)
	farks (B1)		_	_ Dry-Seaso)		dized Rhizospheres on Living Roots (C3)
	nt Deposits (B2)		_	Oxidized F		` '			here tilled)
	posits (B3)		_		not tilled)		Ü		yfish Burrows (C8)
Algal Ma	at or Crust (B4)			_ Presence	of Reduce	ed Iron (C	4)	Satu	uration Visible on Aerial Imagery (C9)
Iron De	posits (B5)		_	_ Thin Muck	Surface ((C7)		Geo	omorphic Position (D2)
	on Visible on Aeria	0 , (B7) _	_ Other (Exp	olain in Re	emarks)			C-Neutral Test (D5)
	Stained Leaves (B9)						Fros	st-Heave Hummocks (D7) (LRR F)
Field Obser									
Surface Wat	er Present?			Depth (inc					
Water Table				Depth (inc					V
Saturation P	resent? pillary fringe)	Yes	_ No <u>X</u> _	Depth (inc	ches):		Wet	tland Hydrolog	y Present? Yes X No
	corded Data (strea	ım gauge, r	monitoring	g well, aerial p	ohotos, pr	evious ins	spections)), if available:	
	•		·		•		,		
Remarks:									

Project/Site: Lookout Solar		City/Co	ounty: Custer	San	_ Sampling Date: 06/12/2018		
Applicant/Owner: Lookout Solar, LLC				State: _	SD Sam	npling Point: 7	7 A
Investigator(s): ES, SJ		Section	n, Township, f	Range: Section 2	9, Township 6S	, Range 9E	
				e, convex, none):			oe (%): 0-1
Subregion (LRR): G							
Soil Map Unit Name: Bankard loamy fine sand, 0 to 4 pe							
Are climatic / hydrologic conditions on the site typical for							
Are Vegetation No , Soil No , or Hydrology No				e "Normal Circum			No
Are Vegetation No , Soil No , or Hydrology No				needed, explain a			110
SUMMARY OF FINDINGS – Attach site ma							atures, etc.
Hydrophytic Vegetation Present? Yes X					•	<u> </u>	,
Hydric Soil Present? Yes X	No		Is the Sampl		., Y		
Wetland Hydrology Present? Yes X			within a Wet	land?	Yes X	NO	
Remarks:							
VEGETATION – Use scientific names of pl							
Tree Stratum (Plot size: ^{30'})			inant Indicato		Test workshee		
1			cies? Status	Nullibel of D	ominant Specie _, FACW, or FA		
2.				(excluding FA		4	(A)
3.				Total Numbe	r of Dominant		
4.					ss All Strata:	4	(B)
Sapling/Shrub Stratum (Plot size: 15')	0				ominant Specie		
Saping/shrub Stratum (Plot size:) 1. Salix exigua	70	Yes	FACW		_, FACW, or FA	.C: 100	(A/B)
2. Populus deltoides	10	No			ndex workshe	et:	
3.				Total %	Cover of:	Multiply	by:
4				OBL species		x 1 =	
5					es		
		= Tota	al Cover				
Herb Stratum (Plot size: 5'				· ·	es		
1. Asclepias speciosa		Yes	FAC				
2. Sagittaria rigida	10	Yes	OBL	_	ls:	_ (A)	(B)
3. Spartina pectinata		Yes	FACW	_ Prevale	ence Index = B/	'A =	
4					Vegetation Inc		<u> </u>
5				<u>X</u>	d Test for Hydro	phytic Vegeta	ation
6				<u>X</u> 2 - Domi	nance Test is >	50%	
7 8				3 - Preva	alence Index is :	≤3.0 ¹	
9.				4 - Morp	hological Adapt	ations¹ (Provi	de supporting
10					n Remarks or o		
10.			al Cover	- Problem	atic Hydrophytic	Vegetation	(Explain)
Woody Vine Stratum (Plot size: 30') 1.					hydric soil and nless disturbed		
2				Hydrophytic	;		
% Bare Ground in Herb Stratum 60	0	= Tota	al Cover	Vegetation Present?	Yes X	No	
Remarks:							
FAC Neutral Test (FACW+OBL:FACU, UPL): 3:0							

SOIL Sampling Point: 7A

Profile Desc	cription: (Describ	e to the de	oth needed to docu	ment the	indicator	or confir	m the absence of indicators.)
Depth	Matrix			x Feature			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	_Loc ²	Texture Remarks
0-3	2.5YR 3/2	100		_	_		Silty Clay
3-4	2.5YR 3/2	100					Sandy Clay
4-8	GLEY 1 3/10Y	99	10YR 6/6	1	С	M	Clay
8-16	GLEY 1 4/N	70	7.5YR 4/6	30	С	M	Clay
-					_		·
	-		-				· —— ——
				_		-	
¹ Type: C=Co	oncentration, D=De	epletion, RM	=Reduced Matrix, C	S=Covere	ed or Coate	ed Sand G	
Hydric Soil	Indicators: (Appl	icable to all	LRRs, unless othe	rwise no	ted.)		Indicators for Problematic Hydric Soils ³ :
Histosol	(A1)		Sandy	Gleyed M	atrix (S4)		1 cm Muck (A9) (LRR I, J)
	pipedon (A2)			Redox (S			Coast Prairie Redox (A16) (LRR F, G, H)
	stic (A3)			d Matrix (Dark Surface (S7) (LRR G)
	en Sulfide (A4)			-	ineral (F1)		High Plains Depressions (F16)
_	d Layers (A5) (LRF	,			latrix (F2)		(LRR H outside of MLRA 72 & 73)
	ick (A9) (LRR F, G			ed Matrix			Reduced Vertic (F18)
	d Below Dark Surfa	ice (A11)		Dark Surf			Red Parent Material (TF2)
	ark Surface (A12)			Depressio	urface (F7)	Very Shallow Dark Surface (TF12) Other (Explain in Remarks)
-	/lucky Mineral (S1) /lucky Peat or Pea	(S2) (I PP			ressions (F	16)	³ Indicators of hydrophytic vegetation and
	ucky Peat or Peat (· · · —		73 of LRF	•	wetland hydrology must be present,
5 611 1010	icky i cat of i cat (OO) (EIRICI)	(INIE	IKA 12 G	70 OI LIKI	(11)	unless disturbed or problematic.
Restrictive I	Layer (if present):						<u>'</u>
Type:							
Depth (inc			<u> </u>				Hydric Soil Present? Yes X No
Remarks:							
	ration of cobbles in	the surrour	iding area, near the l	oridge.			
HYDROLO							
	drology Indicators						
		one require	d; check all that app	ly)			Secondary Indicators (minimum of two required)
Surface	Water (A1)		Salt Crust	(B11)			X Surface Soil Cracks (B6)
High Wa	ater Table (A2)		Aquatic In	vertebrate	es (B13)		Sparsely Vegetated Concave Surface (B8)
Saturation	on (A3)		Hydrogen	Sulfide C	dor (C1)		Drainage Patterns (B10)
Water M	larks (B1)		Dry-Seaso	on Water	Table (C2)	Oxidized Rhizospheres on Living Roots (C3)
Sedimer	nt Deposits (B2)		Oxidized	Rhizosphe	eres on Liv	ing Roots	(C3) (where tilled)
X Drift Dep	posits (B3)		(where	not tilled)		Crayfish Burrows (C8)
Algal Ma	at or Crust (B4)		Presence	of Reduc	ed Iron (C	4)	Saturation Visible on Aerial Imagery (C9)
Iron Dep	oosits (B5)		Thin Mucl	k Surface	(C7)		Geomorphic Position (D2)
Inundation	on Visible on Aeria	l Imagery (E	37) Other (Ex	plain in R	emarks)		X FAC-Neutral Test (D5)
X Water-S	tained Leaves (B9)					Frost-Heave Hummocks (D7) (LRR F)
Field Obser	vations:						
Surface Water	er Present?	Yes	No X Depth (in	iches):			
Water Table			No X Depth (in				
Saturation P	resent?		No X Depth (in				tland Hydrology Present? Yes X No
(includes cap Describe Re		m dalide m	onitoring well, aerial	photos n	revious in	spections)	if available:
200011001100	ssided Data (Silea	gaago, 111	Same won, acrial	μοιου, μ	. 51,005 111	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,
Remarks:							
i veiliai va.							

Applicant/Owner: Lookout Solar, LLC State: SD Sampling Point: 7B Nevestigator(s): ES, SJ Section, Township, Range: Section 29, Township 6S, Range 9E andform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0-1 Subregion (LRR): G Lat: 43.50156353 Long: -103.0744884 Datum: NAD_1983 Soil Map Unit Name: Bankard loamy fine sand, 0 to 4 percent slopes NWI classification: Riverine Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.) Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)	Project/Site: Lookout Solar	City/County: Custer County						Sampling Date: 06/12/2018		
Local relief (concave, corvex, none)	Applicant/Owner: Lookout Solar, LLC						State: SI	D Sam	pling Point:	7B
Local relief (concave, corvex, none)	Investigator(s): ES, SJ		:	Section	n, Townshi	p, Rar	nge: Section 29	, Township 6S,	Range 9E	
Late 43.50158353 Long 103.0744884 Datum: NAD_1983 NAD_1983 Datum: NAD_1983 Datum: NAD_1983 Datum: NAD_1983 Datum: NAD_1983 Datum: NAD_1983 NAD_1983 NAD_1983 Datum: NAD_1983 NAD_1										pe (%): 0-1
re climate / hydrologic contitions on the site hydrology / No whydrology / No significant / hydrologic contitions on the site hydrology / No significant / hydrology / No significant / No signif										
re climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.) Are Vegetation No_Soil No_ or Hydrology No_naturally problematic? Are Normal Circumstances' present? Yes X No_wet Vegetation Present? SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes X No_wet No_wet No_wet No. Welland Hydrology Present? Yes X No_wet No_wet No. Welland Hydrology Present? Yes X No_wet No. Welland Hydrology No. Wela										
re Vegetation No Soil No or Hydrology No significantly disturbed? Are Normal Circumstances' present? Yes X No ver Vegetation No Soil No or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes X No within a Wetland? Yes X No Wetland Hydrology Present? Ye										
SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present?										No
SumMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present?										110
	-									atures. etc.
Hydric Soil Present? Yes X No within a Wetland? Yes X No within a Wetland? Yes X No within a Wetland? Yes X No within a Wetland? Yes X No										
Absolute Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): (A)		Yes X	No			•		. V		
Absolute	*				within a V	Vetlan	ıd? \	/es <u>^</u>	No	-
Absolute										
Absolute										
Absolute % Cover C										
Absolute % Cover C										
Number of Dominant Species Number of Dominant Species Namber of Domi	VEGETATION - Use scientifi	c names of pla	ants.							
That Are O BOIL, FACW, or FAC (excluding FAC-):	201						Dominance T	est workshee	t:	
2						us				
Total Number of Dominant Species Across All Strata: 1 (B)									C 1	(Δ)
Species Across All Strata: 1 (B)								·		(//)
Sapling/Shrub Stratum (Plot size: 15' 0									1	(B)
Sapling/Shrub Stratum (Plot size: 15") That Are OBL, FACW, or FAC: 100 (A/B) 1. 2. Prevalence Index worksheet:	4									(D)
Prevalence Index worksheet: Total % Cover of:	Sapling/Shrub Stratum (Plot size: 1	15')	0	= Tota	ii Cover					(A/R)
2.										(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
3. OBL species x 1 =										
## Stratum (Plot size: 5'	3									-
D	4						-			
FACU species	5									
1. Typha angustifolia 2.	Horb Stratum (Plot size: 5'	,	0	= Tota	l Cover					
2.			70	Yes	OBL					
3							-			
4									- (* ')	(=)
5										
6								_		
7								-		ation
8. 9. 10. Woody Vine Stratum (Plot size: 30' 1. 2. Was Bare Ground in Herb Stratum 30 Remarks: - 3 - Prevalence index is \$3.0 — 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) — Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation Yes X No No										
9										
10 Problematic Hydrophytic Vegetation¹ (Explain) Woody Vine Stratum (Plot size: 30') 1 Hydrophytic Bare Ground in Herb Stratum 30 Total Cover Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation Vegetation Present? Yes X No							4 - Morph data in	ological Adapta Remarks or o	ations (Prov n a separate	sheet)
Woody Vine Stratum (Plot size: 30' 1 1 1 2 2 2 30 30	10									
1	30'		70	= Tota	l Cover					
2	, , ,									
% Bare Ground in Herb Stratum 30							Hydrophytic			
% Bare Ground in Herb Stratum 30 Remarks:							Vegetation	v. X	A.1	
Remarks:							Present?	Yes <u>^`</u>	No	
FAC Neutral Test (FACW+OBL:FACU+UPL): 1:0	Remarks:									
	FAC Neutral Test (FACW+OBL:FACU	J+UPL): 1:0								

SOIL Sampling Point: 7B

	Color (moist)	%	Color (moist	:) %	Type ¹	Loc ²	Texture	Remarks
-1	10YR 2/1						Mucky	Organic matter present
-8 7	7.5YR 4/1	80	5YR 5/8	20	С	М	Loamy Clay	
-16	10YR 4/1	90	10YR 5/8	10	С	M	Loamy	
	acentration, D=Dep					ed Sand G		cation: PL=Pore Lining, M=Matrix. for Problematic Hydric Soils ³ :
_ Histosol (A	dicators: (Applic	cable to a		ndy Gleyed M				Muck (A9) (LRR I, J)
	pedon (A2)			ndy Redox (S				Prairie Redox (A16) (LRR F, G, H)
_ Black Histi				ipped Matrix (Surface (S7) (LRR G)
	Sulfide (A4)		· · · · · · · · · · · · · · · · · · ·	amy Mucky Mi	,			lains Depressions (F16)
	_ayers (A5) (LRR			amy Gleyed M			(LR	R H outside of MLRA 72 & 73)
	k (A9) (LRR F, G,			pleted Matrix (ed Vertic (F18)
	Below Dark Surfac	ce (A11)		dox Dark Surf				arent Material (TF2)
	k Surface (A12)			pleted Dark S)	-	hallow Dark Surface (TF12)
	cky Mineral (S1) ucky Peat or Peat	(S2) (I DD	· · · · · · · · · · · · · · · · · · ·	dox Depressio _I h Plains Depr	. ,	16)		(Explain in Remarks) of hydrophytic vegetation and
	ky Peat or Peat (S			m Fiailis Depi (MLRA 72 &				d hydrology must be present,
_ o om maor	ny rout or rout (o	(, (,,,	,	(•••,		disturbed or problematic.
strictive La	yer (if present):							·
Type:								
. ypc								
							Hydric Soil	Present? Yes X No
• • • • • • • • • • • • • • • • • • • •	es):						Hydric Soil	Present? Yes X No
Depth (inchemarks:	es):						Hydric Soil	Present? Yes X No
Depth (inchemarks:	es):						Hydric Soil	Present? Yes X No
Depth (inchemarks: DROLOG etland Hydre	es):	:		apply)				Present? Yes X No
Depth (inchemarks: DROLOG etland Hydre imary Indicate	ology Indicators tors (minimum of o	:	ed; check all that	apply) Crust (B11)			Seconda	
Depth (inchemarks: DROLOG etland Hydromary Indicat Surface W High Wate	ology Indicators tors (minimum of ology atter (A1) er Table (A2)	:	ed; check all that Salt C Aquat	Crust (B11) tic Invertebrate			Seconda Surf	ary Indicators (minimum of two require
Depth (inchemarks: DROLOG etland Hydromary Indicat Surface W High Wate	ology Indicators tors (minimum of ology atter (A1) er Table (A2)	:	ed; check all that Salt C Aquat	Crust (B11)			Seconda Surf Spa	ary Indicators (minimum of two require face Soil Cracks (B6)
Depth (inchemarks: DROLOG etland Hydromary Indicat Surface W High Wate	rology Indicators tors (minimum of or /ater (A1) er Table (A2)	:	ed; check all that Salt C Aquat Hydro	Crust (B11) tic Invertebrate	dor (C1)		Seconda Surf Spa Drai	ary Indicators (minimum of two requir face Soil Cracks (B6) rsely Vegetated Concave Surface (B nage Patterns (B10)
DROLOG etland Hydra imary Indicat Surface W High Wate Saturation Water Mar Sediment	ology Indicators tors (minimum of o /ater (A1) er Table (A2) (A3) rks (B1) Deposits (B2)	:	ed; check all that Salt C Aquat Hydro Dry-S Oxidiz	Crust (B11) tic Invertebrate ogen Sulfide C eason Water zed Rhizosphe	dor (C1) Table (C2) eres on Liv		Seconda Surf Spa Drai Oxio (C3) (w	ary Indicators (minimum of two requir face Soil Cracks (B6) rsely Vegetated Concave Surface (B nage Patterns (B10) dized Rhizospheres on Living Roots (
Depth (inchemarks: DROLOG etland Hydro imary Indicat Surface W High Wate Saturation Water Mar Sediment Drift Depos	ology Indicators tors (minimum of ology atter (A1) er Table (A2) (A3) rks (B1) Deposits (B2) sits (B3)	:	ed; check all that Salt C Aquat Hydro Dry-S Oxidiz (wh	Crust (B11) tic Invertebrate ogen Sulfide Co eason Water zed Rhizosphe ere not tilled	dor (C1) Table (C2) eres on Liv	ring Roots	Seconda Surf Spa Drai Oxio (C3) (w	ary Indicators (minimum of two requirer face Soil Cracks (B6) rsely Vegetated Concave Surface (Bonage Patterns (B10) dized Rhizospheres on Living Roots (where tilled)
Depth (inchemarks: DROLOG etland Hydro imary Indicat Surface W High Wate Saturation Water Mar Sediment Drift Depos	ology Indicators tors (minimum of ology Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4)	:	ed; check all that Salt C Aquat Hydro Dry-S Oxidiz (wh	Crust (B11) tic Invertebrate ogen Sulfide C eason Water zed Rhizosphe ere not tilled	dor (C1) Table (C2) eres on Liv) ed Iron (C4)	ring Roots	Seconda Surf Spa Drai Oxio (C3) (w Cray Satu	ary Indicators (minimum of two require face Soil Cracks (B6) rsely Vegetated Concave Surface (B nage Patterns (B10) dized Rhizospheres on Living Roots (where tilled) wish Burrows (C8) uration Visible on Aerial Imagery (C9)
Depth (inchemarks: DROLOG etland Hydre imary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos	rology Indicators tors (minimum of or tater (A1) er Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5)	: one requir	ed; check all that Salt C Aquat Hydro Dry-S Oxidiz (wh Thin N	Crust (B11) tic Invertebrate ogen Sulfide C eason Water zed Rhizosphe ere not tilled ence of Reduc Muck Surface	rdor (C1) Table (C2) eres on Liv) ed Iron (C4) (C7)	ring Roots	Seconda Surf Spa Drai Oxio (C3) (w Cray Satu Geo	ary Indicators (minimum of two require face Soil Cracks (B6) rsely Vegetated Concave Surface (B nage Patterns (B10) dized Rhizospheres on Living Roots (where tilled) wish Burrows (C8) uration Visible on Aerial Imagery (C9)
Depth (inchemarks: DROLOG etland Hydra imary Indicat Surface W High Wate Saturation Water Mar Sediment Drift Depos Algal Mat of Iron Depos Inundation	rology Indicators tors (minimum of or /ater (A1) er Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) n Visible on Aerial	: one requir	ed; check all that Salt C Aquat Hydro Dry-S Oxidiz (wh Thin N	Crust (B11) tic Invertebrate ogen Sulfide C eason Water zed Rhizosphe ere not tilled	rdor (C1) Table (C2) eres on Liv) ed Iron (C4) (C7)	ring Roots	Seconda Surf Spa Drai Oxio (C3) (w Cray Satu Geo	ary Indicators (minimum of two required face Soil Cracks (B6) rsely Vegetated Concave Surface (Bounage Patterns (B10) dized Rhizospheres on Living Roots (Where tilled) offish Burrows (C8) uration Visible on Aerial Imagery (C9) office Position (D2) C-Neutral Test (D5)
DROLOG etland Hydra imary Indicat Surface W High Wate Saturation Water Mar Sediment Drift Depos Algal Mat of Iron Depos Inundation Water-Stai	ology Indicators tors (minimum of or tater (A1) er Table (A2) (A3) rks (B1) Deposits (B2) esits (B3) or Crust (B4) esits (B5) or Visible on Aerial ined Leaves (B9)	: one requir	ed; check all that Salt C Aquat Hydro Dry-S Oxidiz (wh Thin N	Crust (B11) tic Invertebrate ogen Sulfide C eason Water zed Rhizosphe ere not tilled ence of Reduc Muck Surface	rdor (C1) Table (C2) eres on Liv) ed Iron (C4) (C7)	ring Roots	Seconda Surf Spa Drai Oxio (C3) (w Cray Satu Geo	ary Indicators (minimum of two require face Soil Cracks (B6) rsely Vegetated Concave Surface (B nage Patterns (B10) dized Rhizospheres on Living Roots (where tilled) wish Burrows (C8) uration Visible on Aerial Imagery (C9)
Depth (inchemarks: DROLOG etland Hydro imary Indicate Surface W High Wate Saturation Water Mar Sediment I Drift Depose Algal Mate Iron Depose Inundation Water-Stail	rology Indicators: tors (minimum of or tater (A1) er Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) n Visible on Aerial ined Leaves (B9) attions:	: one requir	ed; check all that Salt C Aquat Hydro Oxidiz (wh Prese Thin M	Crust (B11) tic Invertebrate ogen Sulfide C eason Water zed Rhizosphe ere not tilled ence of Reduc Muck Surface (Explain in Re	dor (C1) Table (C2) eres on Liv ed Iron (C4 (C7) emarks)	ring Roots	Seconda Surf Spa Drai Oxio (C3) (w Cray Satu Geo	ary Indicators (minimum of two required face Soil Cracks (B6) rsely Vegetated Concave Surface (Bounage Patterns (B10) dized Rhizospheres on Living Roots (Where tilled) offish Burrows (C8) uration Visible on Aerial Imagery (C9) office Position (D2) C-Neutral Test (D5)
Depth (inchemarks: DROLOG etland Hydre imary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat o Iron Depos Inundation Water-Stai	ology Indicators tors (minimum of ology Indicators tors (minimum of ology tater (A1) er Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) or Visible on Aerial ined Leaves (B9) ations: Present?	: one requir Imagery (ed; check all that Salt C Aquat Hydro Dry-S Oxidiz (wh Prese Thin M B7) Other	Crust (B11) tic Invertebrate ogen Sulfide C eason Water zed Rhizosphe ere not tilled ence of Reduc Muck Surface (Explain in Re	dor (C1) Table (C2) eres on Liv) ed Iron (C- (C7) emarks)	ing Roots 4)	Seconda Surf Spa Drai Oxio (C3) (w Cray Satu Geo	ary Indicators (minimum of two required face Soil Cracks (B6) rsely Vegetated Concave Surface (Bounage Patterns (B10) dized Rhizospheres on Living Roots (Where tilled) offish Burrows (C8) uration Visible on Aerial Imagery (C9) office Position (D2) C-Neutral Test (D5)
Depth (inchemarks: DROLOG etland Hydre imary Indicat Surface W High Wate Saturation Water Mar Sediment Drift Depos Algal Mat o Iron Depos Inundation Water-Stai	rology Indicators tors (minimum of or tors (MA) rer Table (A2) or (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) or Visible on Aerial ined Leaves (B9) ations: Present?	: one requir Imagery (ed; check all that Salt C Aquat Hydro Dry-S Oxidiz (wh Prese Thin N B7) Other No X Dept No X Dept	Crust (B11) tic Invertebrate ogen Sulfide C eason Water zed Rhizosphe ere not tilled ence of Reduce Muck Surface (Explain in Re	dor (C1) Table (C2) eres on Liv) ed Iron (C4) (C7) emarks)	ring Roots 4)	Seconda Surf Spa Drai Oxio (C3) (w Cray Satu Geo X FAC	ary Indicators (minimum of two required face Soil Cracks (B6) rsely Vegetated Concave Surface (Bounage Patterns (B10) dized Rhizospheres on Living Roots (Where tilled) offish Burrows (C8) curation Visible on Aerial Imagery (C9) office Position (D2) C-Neutral Test (D5) st-Heave Hummocks (D7) (LRR F)
Depth (inchemarks: DROLOG etland Hydra imary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Inundation Water-Stai eld Observa aurface Water ater Table Production Presence	ology Indicators tors (minimum of ology Indicators tors (minimum of ology Indicators (/ater (A1) er Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) or Visible on Aerial ined Leaves (B9) ations: Present?	: one requir fes fes fes X	ed; check all that Salt C Aquat Hydro Dry-S Oxidiz (wh Prese Thin N B7) Other No Dept No Dept No Dept	Crust (B11) tic Invertebrate ogen Sulfide C eason Water zed Rhizosphe ere not tilled ence of Reduce Muck Surface (Explain in Re th (inches): th (inches): th (inches):	dor (C1) Table (C2) eres on Liv) ed Iron (C4 (C7) emarks)	ring Roots 4) Wet	Seconda Surf Spa Spa Oxio (C3) (w Cray Satu Geo X FAC Fros	ary Indicators (minimum of two required face Soil Cracks (B6) rsely Vegetated Concave Surface (Bounage Patterns (B10) dized Rhizospheres on Living Roots (Concave tilled) of the Burrows (C8) uration Visible on Aerial Imagery (C9) of morphic Position (D2) C-Neutral Test (D5)
Depth (inchemarks: DROLOG etland Hydra imary Indicat Surface W High Wate Saturation Water Mar Sediment Drift Depos Algal Mat o Iron Depos Inundation Water-Stai eld Observa attrace Water attraction Presidudes capill	rology Indicators tors (minimum of or vater (A1) er Table (A2) a (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) a Visible on Aerial ined Leaves (B9) ations: Present? resent?	: one requir fes fes fes X	ed; check all that Salt C Aquat Hydro Dry-S Oxidiz (wh Prese Thin N B7) Other No Dept No Dept No Dept	Crust (B11) tic Invertebrate ogen Sulfide C eason Water zed Rhizosphe ere not tilled ence of Reduce Muck Surface (Explain in Re th (inches): th (inches): th (inches):	dor (C1) Table (C2) eres on Liv) ed Iron (C4 (C7) emarks)	ring Roots 4) Wet	Seconda Surf Spa Spa Oxio (C3) (w Cray Satu Geo X FAC Fros	ary Indicators (minimum of two required face Soil Cracks (B6) rsely Vegetated Concave Surface (Bounage Patterns (B10) dized Rhizospheres on Living Roots (Concert tilled) of there tilled) of the Burrows (C8) curation Visible on Aerial Imagery (C9) of the Position (D2) concertal Test (D5) st-Heave Hummocks (D7) (LRR F)

Project/Site: Lookout Solar			City/Co	ounty: Custer		Sampling Date: 06/12/2018			
Applicant/Owner: Lookout Solar, LLC			-	-	Stat	e: SD	Sampling	Point: 7C	
• •									
Landform (hillslope, terrace, etc.): Flo						ne): Concave			(%): 5
, ,				•		,			
Soil Map Unit Name: Bankard loamy									
Are climatic / hydrologic conditions or									
Are Vegetation No Soil No								Voc X	No
Are Vegetation No , Soil No ,		-							NO
-						-			
SUMMARY OF FINDINGS –	Attach site ma	p showing	sam	pling poin	t locations	, transects,	import	ant feat	ures, etc.
Hydrophytic Vegetation Present?	Yes X	No		la tha Canan	lad Ausa				
Hydric Soil Present?	Yes	No X		Is the Sample within a Wet		Yes	No.	X	
Wetland Hydrology Present?	Yes	No <u>X</u>		willilli a wei	liailu f	res	NO_		
Remarks:									
VEGETATION - Use scientif	fic names of pla	ınts.							
	<u>-</u>		Dom	inant Indicato	or Dominar	nce Test works	heet:		
Tree Stratum (Plot size: 30')			cies? Status		of Dominant Sp	ecies		
1						OBL, FACW, o	r FAC	2	(4)
2					_ (excludin	g FAC-):	-		(A)
3						mber of Domina		2	4-1
4					Species /	Across All Strata	a: _	3	(B)
Continue/Chauth Charter / Diet siene	15'	0	= Tota	al Cover		of Dominant Spe		66.7	
Sapling/Shrub Stratum (Plot size: 1. Elaeagnus angustifolia)	5	No	FACU	That Are	OBL, FACW, o	r FAC:	66.7	(A/B)
2. Salix exigua			No	FACW	Prevaler	ice Index work	sheet:		
3. Populus deltoides		20	Yes		Tota	I % Cover of:		Multiply b	y:
4.					OBL spe	cies	x 1	=	
5					FACW sp	oecies	x 2	2 =	
o		27	= Tota	al Cover	FAC spe	cies	x 3	3 =	
)			0010.	FACU sp	ecies	x 4	· =	
1. Elymus trachycaulus		20	Yes	FACU	_	cies			
2. Alopecurus aequalis		3	No	OBL	Column 7	Fotals:	(A)	-	(B)
3. Pascopyrum smithii		5	No	FACU	_ Pro	valence Index	- B/A -		
4. Grindelia squarrosa		1	No	UPL		ytic Vegetation			
5. Monolepis nuttalliana		20	Yes	FAC	1 -	apid Test for H			on
6. Rumex crispus		2	No	FAC		ominance Test		o regetation	
7. Glycyrrhiza lepidota		_ 2	No	FACU		revalence Index			
8. Melilotus officinalis		1	No	FACU		lorphological A		s¹ (Provide	supporting
9. Bromus inermis 10. Spartina pectinata		<u>10</u>	No	UPL FACW	<u> </u>	ata in Remarks	or on a s	eparate sh	eet)
10. Spartina pectinata			No		Prob	lematic Hydrop	hytic Veg	etation ¹ (E	xplain)
Woody Vine Stratum (Plot size: 30	0')	66	= Tota	al Cover	1Indicato	rs of hydric soil	and wetla	and hydrolo	oav must
1						nt, unless distur			
2.					Hydroph	vtic			
		0			Vegetati	on	×		
% Bare Ground in Herb Stratum <u>34</u>	 <u></u>		Present? Yes X No					_	
Remarks:									
FAC Neutral Test (FACW+OBL:FAC	U+UPL): 2:7								

SOIL Sampling Point: 7C

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	<u>Matrix</u>			dox Feature		. 2		
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>	Remarks
0-16	10YR 4/3	95	7.5YR 4/6	5	С	М	Sandy Lo	fine sand
					·			
	•		-					
	-							
	oncentration, D=Dep					ed Sand G		cation: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators: (Applic	able to all	I LRRs, unless oth	erwise not	ed.)		Indicators	for Problematic Hydric Soils ³ :
Histosol	(A1)		Sandy	Gleyed Ma	atrix (S4)		1 cm N	/luck (A9) (LRR I, J)
Histic E	oipedon (A2)		Sandy	Redox (S5	5)		Coast	Prairie Redox (A16) (LRR F, G, H)
Black Hi	stic (A3)		Stripp	ed Matrix (S	86)		Dark S	Surface (S7) (LRR G)
Hydroge	n Sulfide (A4)		Loam	y Mucky Mir	neral (F1)		High P	lains Depressions (F16)
Stratified	d Layers (A5) (LRR	F)	Loam	y Gleyed Ma	atrix (F2)		(LR	R H outside of MLRA 72 & 73)
1 cm Mu	ıck (A9) (LRR F, G,	H)	Deple	ted Matrix (I	F3)		Reduc	ed Vertic (F18)
Depleted	d Below Dark Surfac	ce (A11)	Redox	Dark Surfa	ace (F6)		Red Pa	arent Material (TF2)
Thick Da	ark Surface (A12)		Deple	ted Dark Su	ırface (F7)	Very S	hallow Dark Surface (TF12)
Sandy N	lucky Mineral (S1)		Redox	Depression	ns (F8)		Other ((Explain in Remarks)
2.5 cm N	Mucky Peat or Peat	(S2) (LRR	G , H) High F	Plains Depre	essions (F	16)	³ Indicators	of hydrophytic vegetation and
5 cm Mu	icky Peat or Peat (S	3) (LRR F)) (N	ILRA 72 & 7	73 of LRI	R H)	wetland	d hydrology must be present,
							unless	disturbed or problematic.
Restrictive	Layer (if present):							
Type:								
Depth (in	ches).						Hydric Soil	Present? Yes No X
							Tiyanio con	
Remarks:	rm, indicator F8 is n	ot applicat	مام					
Due to landio	iiii, iiidicatoi i o is ii	ot applicat	ne.					
HYDROLO	GY							
Wetland Hy	drology Indicators	:						
Primary India	cators (minimum of	one require	ed: check all that ap	(vla			Seconda	ary Indicators (minimum of two required)
	Water (A1)		Salt Crus					ace Soil Cracks (B6)
	,				o (D12)			
	ater Table (A2)			nvertebrate				rsely Vegetated Concave Surface (B8)
Saturation	,		Hydroge					nage Patterns (B10)
	larks (B1)			son Water T	•	•		dized Rhizospheres on Living Roots (C3)
Sedimer	nt Deposits (B2)		Oxidized	Rhizosphe	res on Liv	ing Roots		here tilled)
Drift Dep	posits (B3)		(where	not tilled)			Cray	yfish Burrows (C8)
Algal Ma	at or Crust (B4)		Presence	e of Reduce	ed Iron (C	4)	Satu	uration Visible on Aerial Imagery (C9)
Iron Dep	oosits (B5)		Thin Mu	ck Surface ((C7)		Geo	morphic Position (D2)
Inundati	on Visible on Aerial	Imagery (E	37) Other (E	xplain in Re	marks)		FAC	-Neutral Test (D5)
	tained Leaves (B9)	0 , (, (•	,			st-Heave Hummocks (D7) (LRR F)
Field Obser	` ,							21) (2111)
		/	Na X Dande /	!h\.				
Surface Wat			No X Depth (
Water Table			No X Depth (
Saturation P		/es	No X Depth (inches):		Wet	land Hydrolog	y Present? Yes No X
(includes cap			and tanks are constituted to	.l h			if an all of the	
Describe Re	corded Data (strean	ı gauge, m	onitoring well, aeria	ıı pnotos, pr	evious in	spections),	, ii avaliable:	
Remarks:								

Project/Site: Lookout Solar	(City/Co	unty: Custer Co	Sampli	Sampling Date: 06/12/2018		
Applicant/Owner: Lookout Solar, LLC				State: SD	Samplir	ng Point: 8A	
Investigator(s): ES, SJ		Section	ı, Township, Ra	nge: Section 29, Tow	nship 6S, Ra	ange 9E	
				convex, none): Conca			(%): <u>2</u>
Subregion (LRR): G							
Soil Map Unit Name: Bankard loamy fine sand, 0 to 4							
Are climatic / hydrologic conditions on the site typical for							
Are Vegetation No , Soil No , or Hydrology No							No
Are Vegetation No , Soil No , or Hydrology No	-						_ 110
SUMMARY OF FINDINGS – Attach site n							ures. etc.
	No						,
Hydric Soil Present? Yes X	No		Is the Sampled		,		
	No	'	within a Wetlai	nd? Yes <u>^</u>	No.	·——	
Remarks:							
VEGETATION – Use scientific names of p				,			
Tree Stratum (Plot size: ^{30'})			nant Indicator es? Status	Dominance Test w			
1				Number of Dominar That Are OBL, FAC			
2.				(excluding FAC-):	,	3	(A)
3.				Total Number of Do	minant		
4.				Species Across All		3	(B)
4-1	0	= Total	Cover	Percent of Dominar	t Species		
Sapling/Shrub Stratum (Plot size: 15'		V	E4 014/	That Are OBL, FAC		100	(A/B)
1. Salix exigua		Yes		Prevalence Index v	worksheet:		
2				Total % Cover		Multiply b	y:
3				OBL species			
4		-		FACW species	x	2 =	
5		= Total	Cover	FAC species	x	3 =	
Herb Stratum (Plot size: 5'		- Total	OOVCI	FACU species	x	4 =	
1. Eleocharis acicularis	20	Yes	OBL	UPL species			
2. Typha angustifolia	60	Yes	OBL	Column Totals:	(/	A)	(B)
3. Spartina pectinata	5	No	FACW	Prevalence In	dev = R/A =		
4				Hydrophytic Veget			
5				X 1 - Rapid Test f			on
6				X 2 - Dominance		_	
7				3 - Prevalence			
8				4 - Morphologic	al Adaptatic	ns¹ (Provide	supporting
9				data in Rem			
10			Cover	Problematic Hy	drophytic Ve	egetation' (E	xplain)
Woody Vine Stratum (Plot size: 30') 1.				¹ Indicators of hydric be present, unless of			
2.				Hydrophytic			
	0			Vegetation	., X		
% Bare Ground in Herb Stratum 15				Present?	Yes	No	<u> </u>
Remarks:							
FAC Neutral Test (FACW+OBL:FACU, UPL): 4:0							

SOIL Sampling Point: 8A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix				x Feature		2	•	
(inches)	Color (moist)			(moist)	%	Type ¹	Loc ²	Texture	
0-3	10YR 4/1	95	7.5YR 5/		5	<u>C</u>	M	Clay	Slightly mucky with organic material
3-16	10YR 5/1	85	7.5YR 5/	<u>′6</u>	15	С	M	Clay	
			_						
			_						
			_		-				
1								. 2	
	oncentration, D=E Indicators: (App						ed Sand G		cation: PL=Pore Lining, M=Matrix. s for Problematic Hydric Soils ³ :
Histosol		incable to a	iii Lixixs, uii		Gleyed Ma				Muck (A9) (LRR I, J)
	pipedon (A2)		_		Redox (S5				Prairie Redox (A16) (LRR F, G, H)
	istic (A3)		_	-	d Matrix (S				Surface (S7) (LRR G)
	en Sulfide (A4)		_			neral (F1)		_	Plains Depressions (F16)
	d Layers (A5) (LR	,	- x		Gleyed Ma d Matrix (`	RR H outside of MLRA 72 & 73)
	uck (A9) (LRR F , d d Below Dark Sur				o Matrix (Dark Surfa	,			ced Vertic (F18) Parent Material (TF2)
	ark Surface (A12)		_			urface (F7)		Shallow Dark Surface (TF12)
	Mucky Mineral (S1		_	_ Redox [Depressio	ns (F8)	•	Other	(Explain in Remarks)
	Mucky Peat or Pe			_ High Pla					of hydrophytic vegetation and
5 cm Mi	ucky Peat or Peat	(S3) (LRR I	=)	(ML	RA 72 & '	73 of LRF	RH)		nd hydrology must be present,
Restrictive	Layer (if present):						unies	s disturbed or problematic.
Type:		,.							
	ches):							Hydric Soi	I Present? Yes X No
Remarks:	,		<u> </u>						
HYDROLO									
_	drology Indicato								
	cators (minimum o	of one requir							ary Indicators (minimum of two required)
Surface				Salt Crust		- (D40)			face Soil Cracks (B6)
High wa Saturati	ater Table (A2)			Aquatic Inv Hydrogen					arsely Vegetated Concave Surface (B8) inage Patterns (B10)
	farks (B1)			Dry-Seaso			١		dized Rhizospheres on Living Roots (C3)
	nt Deposits (B2)			Oxidized F					where tilled)
X Drift De					not tilled)		9		nyfish Burrows (C8)
	at or Crust (B4)			Presence			4)		uration Visible on Aerial Imagery (C9)
X Iron De	posits (B5)			Thin Muck	Surface ((C7)		Ge	omorphic Position (D2)
Inundati	ion Visible on Aeri	ial Imagery (B7)	Other (Exp	olain in Re	emarks)		X FA	C-Neutral Test (D5)
	Stained Leaves (B	9)						Fro	st-Heave Hummocks (D7) (LRR F)
Field Obser									
	ter Present?		No						
Water Table			No						- · · · · · · · · · · · · · · · · · · ·
Saturation P	resent? pillary fringe)	Yes X	No	Depth (in	ches): <u>0</u>		Wet	land Hydrolog	y Present? Yes X No
	corded Data (stre	am gauge, ı	monitoring v	vell, aerial p	ohotos, pr	evious ins	spections)	, if available:	
Remarks:									

Project/Site: Lookout Solar	(City/Count	y: Custer Co	Samplir	Sampling Date: 06/12/2018			
Applicant/Owner: Lookout Solar, LLC			-	State: SD	Samplin	g Point: 8B		
• •						-		
Landform (hillslope, terrace, etc.): Floodplain							· 2	
, , ,						Datum: NAD_1983		
Soil Map Unit Name: Bankard loamy fine sand								
Are climatic / hydrologic conditions on the site t								
Are Vegetation No , Soil No , or Hydrold				Normal Circumstan			/lo	
Are Vegetation No , Soil No , or Hydrold	ogy <u>No</u> naturally prob	olematic?	(If ne	eded, explain any a	answers in Ren	narks.)		
SUMMARY OF FINDINGS - Attach	site map showing	samplii	ng point le	ocations, trans	ects, impo	rtant feature	es, etc.	
Hydrophytic Vegetation Present? Yes	No_X							
Hydric Soil Present? Yes	No X		he Sampled			V		
Wetland Hydrology Present? Yes	X No	wit	hin a Wetlar	id? Yes	No	^		
Remarks:								
VECETATION Lies esignifications	as of plants							
VEGETATION – Use scientific name								
Tree Stratum (Plot size: 30'			t Indicator	Dominance Test				
	<u></u> -			Number of Domin That Are OBL, FA				
1				(excluding FAC-)		1	(A)	
2				Total Novel on off	D			
3				Total Number of I Species Across A		4	(B)	
4	0						_ (-)	
Sapling/Shrub Stratum (Plot size: 15')	- Total Ct	ovei	Percent of Domin That Are OBL, FA		25	(A/B)	
1. Elaeagnus angustifolia		Yes	FACU	·		•	_ (/ (/ 2)	
2. Populus deltoides	5	Yes	FAC	Prevalence Inde				
3						Multiply by:		
4				OBL species _				
5				FACW species _				
		= Total Co	over	FAC species _				
Herb Stratum (Plot size: 5'				FACU species _			_	
1. Elymus trachycaulus	2	No	FACU	UPL species _				
2. Bromus arvensis	30	Yes	FACU	Column Totals: _	(A	n)	(B)	
3. Bromus inermis	10	No	UPL	Prevalence	Index = B/A =			
4. Agropyron cristatum	5	No	UPL	Hydrophytic Veg				
5. Pascopyrum smithii	10	No	FACU	1 - Rapid Tes				
6. Rumex crispus 7. Lepidium densiflorum	3	No	FAC		ce Test is >50%			
	<u>5</u> 	No	FAC	3 - Prevalenc				
8. Melilotus officinalis 9. Bromus tectorum	2	No	UPL	4 - Morpholo			pporting	
10. Hordeum jubatum	$\frac{15}{2}$	Yes No	FACW	data in Re	emarks or on a	separate sheet)	
10. Hordeam Japatam				Problematic I	Hydrophytic Ve	getation¹ (Expla	ain)	
Woody Vine Stratum (Plot size: 30'		= Total Co	over	¹ Indicators of hyd	ric soil and wet	land hydrology	must	
1				be present, unles				
2.				Hydrophytic				
	0		over	Vegetation		Y		
% Bare Ground in Herb Stratum 16				Present?	Yes	No X		
Remarks:						<u> </u>		
FAC Neutral Test (FACW+OBL:FACU+UPL):	1:8							
Prevalence Index indicator is not applicable, a	s hydric soil indicators ar	e absent.						

SOIL Sampling Point: 8B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix				x Feature				
(inches)	Color (moist)	%		r (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-8	10YR 3/2	98	5YR 4/6		2	<u>C</u>	M	Clay	small amount of sand
8-16	10YR 3/2	98	5YR 4/6	5	2	<u>C</u>	М	Sandy Clay	coarse sand increases with depth,
								. <u></u>	sandy at 16"
						_			
							·		
									
						-	- ——	· 	
1								. 2.	
	oncentration, D=De Indicators: (Appl						ed Sand G		cation: PL=Pore Lining, M=Matrix. for Problematic Hydric Soils ³ :
_		iicabie to	ali LNNS, u						•
Histosol	oipedon (A2)		-		Gleyed Ma Redox (St	. ,			Muck (A9) (LRR I, J) Prairie Redox (A16) (LRR F, G, H)
	stic (A3)		-	-	d Matrix (Surface (S7) (LRR G)
	en Sulfide (A4)		-		Mucky Mi	,	1		Plains Depressions (F16)
Stratified	d Layers (A5) (LRF	RF)	-	-	Gleyed M			(LR	RR H outside of MLRA 72 & 73)
	ıck (A9) (LRR F, G		-		ed Matrix (,			ed Vertic (F18)
-	d Below Dark Surfa ark Surface (A12)	ace (A11)	-		Dark Surfa d Dark Sเ		·\		arent Material (TF2)
	lucky Mineral (S1)	ı	-		Depressio	•)		Shallow Dark Surface (TF12) (Explain in Remarks)
	Mucky Peat or Pea		R G, H)	High Pla			- 16)		of hydrophytic vegetation and
5 cm Mu	ıcky Peat or Peat ((S3) (LRR		_	.RA 72 &				d hydrology must be present,
								unless	disturbed or problematic.
_	Layer (if present):	:							
Type:									
Depth (in	ches):							Hydric Soil	Present? Yes No X
Remarks:									
HYDROLO	GY								
Wetland Hy	drology Indicator	s:							
Primary India	cators (minimum o	f one requi	ired; check	all that appl	y)			Seconda	ary Indicators (minimum of two required)
Surface	Water (A1)			Salt Crust	(B11)			X Surf	face Soil Cracks (B6)
High Wa	ater Table (A2)			Aquatic In	vertebrate	es (B13)		Spa	rsely Vegetated Concave Surface (B8)
Saturation	on (A3)			Hydrogen	Sulfide O	dor (C1)		Drai	inage Patterns (B10)
Water M	larks (B1)			Dry-Seaso	on Water ⁻	Table (C2)	Oxid	dized Rhizospheres on Living Roots (C3)
	nt Deposits (B2)			Oxidized F			ving Roots		vhere tilled)
-	posits (B3)			`	not tilled)				yfish Burrows (C8)
_	at or Crust (B4)			Presence			4)		uration Visible on Aerial Imagery (C9)
	posits (B5)		(DZ)	Thin Muck				· 	omorphic Position (D2)
	on Visible on Aeria tained Leaves (B9	ο,	(B7)	Other (Exp	olain in Re	emarks)			C-Neutral Test (D5) st-Heave Hummocks (D7) (LRR F)
Field Obser	,)					1	FIOS	st-neave nutilitiocks (D7) (LKK F)
Surface Wat		Ves	No. X	_ Depth (in	ches).				
Water Table				_ Depth (in					
Saturation P				_ Depth (in				land Hydrolog	y Present? Yes X No
(includes car	oillary fringe)								y 1 resent: 163 No
	corded Data (strea	ım gauge,	monitoring	well, aerial _l	photos, p	revious in	spections),	, if available:	
Remarks:									

Project/Site: Lookout Solar		City/Cou	unty: Custer Co	ounty Sampling Date: 06/1			018
Applicant/Owner: Lookout Solar, LLC				State: SD	Sampling	Point: 8C	
Investigator(s): ES, SJ	;						
				convex, none): Conce			3
Subregion (LRR): G							
Soil Map Unit Name: Bankard loamy fine sand, 0 to 4 percentage							
Are climatic / hydrologic conditions on the site typical for this							
						v. V. N	
Are Vegetation No , Soil No , or Hydrology No s				Normal Circumstance			o
Are Vegetation No , Soil No , or Hydrology No r	naturally pro	blematio	c? (If ne	eded, explain any an	swers in Rema	arks.)	
SUMMARY OF FINDINGS - Attach site map	showing	samp	ling point le	ocations, transe	cts, import	ant feature	s, etc.
Hydrophytic Vegetation Present? Yes N	0 X						
Hydric Soil Present? Yes N	o X		s the Sampled			Υ	
Hydric Soil Present? Yes N Wetland Hydrology Present? Yes N	o X	, w	vithin a Wetlar	nd? Yes_	No		
Remarks:							
Disturbed area adjacent to bridge; weedy.							
VEGETATION – Use scientific names of plan	ts.						
Tree Stratum (Plot size: 30')			ant Indicator	Dominance Test w	orksheet:		
			es? Status	Number of Domina			
1				That Are OBL, FAC (excluding FAC-):	W, or FAC	1	(A)
2				Tatal Number of Da		_	, ,
3				Total Number of Do Species Across All		5	(B)
4			Cover				()
Sapling/Shrub Stratum (Plot size: 15')		- Total	Cover	Percent of Dominar That Are OBL, FAC		20	(A/B)
1. Elaeagnus angustifolia	5	Yes	FACU				,
2. Populus deltoides	5	Yes	FAC	Prevalence Index			
3				Total % Cover			
4				OBL species			
5				FACW species			
	10	= Total	Cover	FACIL appairs			_
Herb Stratum (Plot size: 5' 1 Pascopyrum smithii	10	Yes	FACU	FACU species UPL species			_
2. Bromus tectorum	10	Yes	UPL	Column Totals:			
3. Rumex crispus	3	No	FAC	Column rotals.	(^)		_ (D)
4. Hordeum jubatum	3	No	FACW	Prevalence In	dex = B/A =		_
5. Cirsium arvense	4	No	FACU	Hydrophytic Vege	tation Indicat	ors:	
6. Agropyron cristatum	20	Yes	UPL	1 - Rapid Test		c Vegetation	
7. Bromus inermis	5	No	UPL	2 - Dominance			
8 Melilotus officinalis	2	No	FACU	3 - Prevalence			
9.				4 - Morphologic		s¹ (Provide sup eparate sheet)	porting
10.				Problematic Hy		. ,	in)
		= Total	Cover	1			
Woody Vine Stratum (Plot size: 30') 1				¹ Indicators of hydric be present, unless			nust
2.				Hydrophytic			
	0			Vegetation	.,	X	
% Bare Ground in Herb Stratum 43				Present?	Yes	No <u>^`</u>	
Remarks:							
FAC Neutral Test (FACW+OBL:FACU+UPL): 1:7							
Prevalence Index indicator is not applicable, as wetland so	il and hydro	logy ind	icators are abs	ent.			

SOIL Sampling Point: 8C

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix			lox Features		. 2		
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>	Remarks
0-12	10YR 3/2	99	7.5YR 5/6	1	С	M	Loamy Clay	
					-	· ———		
		- -						
						·		
			-			-		
			· <u> </u>					
¹ Type: C=C	oncentration, D=De	pletion, RN	/I=Reduced Matrix, 0	CS=Covered	or Coat	ed Sand G	rains. ² Locatio	n: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators: (Appli	cable to al	II LRRs, unless oth	erwise note	ed.)		Indicators for	Problematic Hydric Soils ³ :
Histosol	(A1)		Sandy	Gleyed Ma	trix (S4)		1 cm Muck	(A9) (LRR I, J)
	oipedon (A2)			Redox (S5)				irie Redox (A16) (LRR F, G, H)
	stic (A3)		-	ed Matrix (S				ace (S7) (LRR G)
	en Sulfide (A4)			y Mucky Min	,			s Depressions (F16)
	d Layers (A5) (LRR	E)		y Gleyed Ma			_	I outside of MLRA 72 & 73)
	ick (A9) (LRR F, G ,			ted Matrix (F			,	/ertic (F18)
	d Below Dark Surfa	,		Dark Surfa	,			nt Material (TF2)
	ark Surface (A12)	30 (7111)		ted Dark Su	. ,	'\		ow Dark Surface (TF12)
	fucky Mineral (S1)			Depression		,		olain in Remarks)
-	Mucky Peat or Peat	(S2) (I RR		Plains Depre		- 16)		lydrophytic vegetation and
	icky Peat or Peat (S	. , .		ILRA 72 & 7				drology must be present,
0 0111 1010	icky i cat of i cat (c	o) (LIXIX I)	ILIKA 12 W 1	J OI LIVI	XII)	-	turbed or problematic.
Postrictivo	Layer (if present):						unicas disi	turbed of problematic.
	Layer (II present).							
Type:								V
Depth (in	ches):						Hydric Soil Pre	esent? Yes No X
Remarks:							•	
HYDROLO	GY							
_	drology Indicators							
Primary Indic	cators (minimum of	one require	ed; check all that ap	ply)			Secondary I	ndicators (minimum of two required)
Surface	Water (A1)		Salt Crus	st (B11)			Surface	Soil Cracks (B6)
High Wa	iter Table (A2)		Aquatic	nvertebrates	s (B13)		Sparsel	y Vegetated Concave Surface (B8)
Saturation			Hydroge					e Patterns (B10)
_	larks (B1)			son Water T		\	_	d Rhizospheres on Living Roots (C3)
					•	*		
	nt Deposits (B2)			Rhizospher	res on Liv	ving Roots		re tilled)
	posits (B3)		`	e not tilled)				Burrows (C8)
	at or Crust (B4)			e of Reduce		4)	Saturati	on Visible on Aerial Imagery (C9)
Iron Dep	oosits (B5)		Thin Mu	ck Surface (C7)		Geomor	rphic Position (D2)
Inundati	on Visible on Aerial	Imagery (E	B7) Other (E	xplain in Re	marks)		FAC-Ne	eutral Test (D5)
Water-S	tained Leaves (B9)						Frost-He	eave Hummocks (D7) (LRR F)
Field Obser	vations:							
Surface Wat		/es	No X Depth (inches).				
Water Table			No X Depth (
Saturation P		Yes	No X Depth (inches):		Wet	land Hydrology Pr	resent? Yes No X
(includes cap		0.001100 ~	nonitoring well, aeria	l photos pr	ovious is	enactions)	if available:	
Describe Ke	corucu Data (Streat	ıı yauye, fi	ionitoring well, aeria	ii priotos, pre	evious in	speciions)	, ii avaliable.	
Remarks:								

Project/Site: Lookout Solar		City/C	ounty:	Custer Co	ounty	nty Sampling Date: 06/13/2018			
Applicant/Owner: Lookout Solar, LLC					State: SD	_ Samplir	ng Point: 9/	A	
Investigator(s): ES, SJ		Section	on, Tow	/nship, Ra	nge: Section 13, Towns	ship 6S, Ra	ange 8E		
Landform (hillslope, terrace, etc.): Semi-closed depressi								e (%): 0	
Subregion (LRR): G	Lat: 43.5	524909	956	•	Long: -103.1047976		 Datum	NAD_1983	
Soil Map Unit Name: Lohmiller silty clay loam					NWI classi				
Are climatic / hydrologic conditions on the site typical for									
Are Vegetation No , Soil No , or Hydrology No					Normal Circumstances			No	
Are Vegetation No , Soil No , or Hydrology No					eeded, explain any ansv			110	
SUMMARY OF FINDINGS – Attach site ma								tures. etc.	
				, point					
Hydrophytic Vegetation Present? Yes X Hydric Soil Present? Yes X	No			Sampled					
Wetland Hydrology Present? Yes X			withi	n a Wetlar	nd? Yes X	No	·——		
Remarks:									
Low area along roadside ditch/wetland. Strong hydric s	oil indicators.								
VEGETATION – Use scientific names of pl	ants.								
	Absolute	Dom	ninant	Indicator	Dominance Test wo	rksheet:			
<u>Tree Stratum</u> (Plot size: 30')	% Cover	Spec	cies?	Status	Number of Dominant	Species			
1					That Are OBL, FACW (excluding FAC-):	, or FAC	1	(A)	
2								(/\)	
3					Total Number of Dom Species Across All St		1	(B)	
4								(D)	
Sapling/Shrub Stratum (Plot size: 15'	0	= 100	ai Cove	er	Percent of Dominant That Are OBL, FACW		100	(A/B)	
1							-	(,,,,,)	
2					Prevalence Index w				
3					Total % Cover of			-	
4					OBL species				
5					FACW species				
Herb Stratum (Plot size: 5')		= Tota	al Cove	er	FACU species				
1. Alopecurus aequalis	10	No		OBL	UPL species				
2. Typha angustifolia	80	Yes		OBL	Column Totals:				
3. Bromus inermis	5	No		UPL					
4. Chenopodium album	2	No		FACU	Prevalence Inde				
5.					Hydrophytic Vegeta				
6.					1 - Rapid Test fo		_	ion	
7					X 2 - Dominance T				
8					3 - Prevalence In				
9					4 - Morphologica data in Rema	rks or on a	separate s	e supporting heet)	
10					Problematic Hyd	rophytic Ve	egetation¹ (I	Explain)	
Woody Vine Stratum (Plot size: 30')	97	= Tota	al Cove	er	¹ Indicators of hydric s	oil and wo	tland bydro	logy must	
1					be present, unless dis				
2.					Hydrophytic				
	0	- Tota	al Cav	or	Vegetation	vos X	No		
% Bare Ground in Herb Stratum 3					rieseil!	5 5	NO		
Remarks:									
FAC Neutral Test (FACW+OBL:FACU, UPL): 2:2									

SOIL Sampling Point: 9A

Profile Desc	cription: (Descri	e to the de	oth needed to doc	ument the	indicator	or confir	m the absence	of indicators.)
Depth	Matrix			dox Feature		. 2	_	
(inches)	Color (moist)		Color (moist)	%	Type'	Loc ²	Texture	Remarks
0-3	10YR 2/2	100					Loamy clay	fibrous roots
3-10	10YR 3/1	90	7.5YR 4/6	10	С	М	Clay	small, white mottles
10-20	10YR 4/1	70	7.5YR 4/6	30	С	M	Clay	
	-							 -
	-							
							<u> </u>	
			=Reduced Matrix, (ed Sand G		cation: PL=Pore Lining, M=Matrix.
_		licable to al	I LRRs, unless oth					for Problematic Hydric Soils ³ :
Histosol	` '			Gleyed M				Muck (A9) (LRR I, J)
l —	pipedon (A2)			Redox (S	,			Prairie Redox (A16) (LRR F, G, H)
l —	istic (A3) en Sulfide (A4)			ed Matrix (y Mucky M	,			Surface (S7) (LRR G) Plains Depressions (F16)
	d Layers (A5) (LR	R F)		y Gleyed M			<u> </u>	RR H outside of MLRA 72 & 73)
	uck (A9) (LRR F, (ted Matrix			`	ed Vertic (F18)
	d Below Dark Surf			c Dark Surf	` '			arent Material (TF2)
	ark Surface (A12)			ted Dark S)	Very S	hallow Dark Surface (TF12)
Sandy N	Mucky Mineral (S1)		c Depression				(Explain in Remarks)
	Mucky Peat or Pea			Plains Depi	•	•		of hydrophytic vegetation and
5 cm Mu	icky Peat or Peat	(S3) (LRR F) (N	ILRA 72 &	73 of LRR	R H)		d hydrology must be present,
D () ()							unless	disturbed or problematic.
_	Layer (if present)							
Type:								- V
Depth (in	ches):						Hydric Soil	Present? Yes X No
Remarks:	rm indicator FO is	not applicab	ala.					
Due to landio	orm, indicator F8 is	пот аррисат	ne.					
HYDROLO	GY							
Wetland Hy	drology Indicato	s:						
Primary India	cators (minimum c	f one require	ed; check all that ap	ply)			Seconda	ary Indicators (minimum of two required)
Surface	Water (A1)	-	Salt Cru	st (B11)				face Soil Cracks (B6)
	ater Table (A2)		Aquatic		es (B13)			rsely Vegetated Concave Surface (B8)
X Saturation			Hydroge					nage Patterns (B10)
	larks (B1)			son Water				dized Rhizospheres on Living Roots (C3)
·	nt Deposits (B2)		Oxidized					where tilled)
	posits (B3)			not tilled		5 10	. ,	yfish Burrows (C8)
	at or Crust (B4)		,	e of Reduc	•	4)		uration Visible on Aerial Imagery (C9)
	posits (B5)			ck Surface		,		emorphic Position (D2)
-	on Visible on Aeri	al Imagerv (E						C-Neutral Test (D5)
	stained Leaves (B9		, \	•	,			st-Heave Hummocks (D7) (LRR F)
Field Obser	,	,						
Surface Wat		Yes	No X Depth (inches):				
Water Table			No X Depth (
Saturation P			No Depth (tland Hydrolog	y Present? Yes X No
(includes cap	oillary fringe)							y . 1030iii: 163 NO
		am gauge, m	onitoring well, aeria	photos, p	revious ins	pections)), if available:	
Remarks:								
i								

Project/Site: Lookout Solar		City/Co	ounty: Custer C	Samplin	g Date: 06/13/2	2018	
Applicant/Owner: Lookout Solar, LLC				State: SD	Samplin	g Point: 9B	
Investigator(s): ES, SJ		Section	n, Township, Ra	ange: Section 13, Tow	vnship 6S, Ra	nge 8E	
Landform (hillslope, terrace, etc.): Semi-closed depression							0-1
Subregion (LRR): G							
Soil Map Unit Name: Lohmiller silty clay loam				NWI clas			
Are climatic / hydrologic conditions on the site typical for t							
Are Vegetation No , Soil No , or Hydrology No	_			"Normal Circumstance			0
Are Vegetation No , Soil No , or Hydrology No				eeded, explain any an			
SUMMARY OF FINDINGS – Attach site ma							s, etc.
Hydrophytic Vegetation Present? Yes							
Hydric Soil Present? Yes X			Is the Sample			Y	
Wetland Hydrology Present? Yes X			within a Wetla	ind? Yes_	No		
Remarks:							
VEGETATION – Use scientific names of pla	ants						
		Domi	inant Indicator	Dominance Test v	worksheet:		
<u>Tree Stratum</u> (Plot size: 30'			ies? Status	Number of Domina			
1				That Are OBL, FAC	CW, or FAC	0	
2				(excluding FAC-).		0	(A)
3				Total Number of Do		2	
4				Species Across All	Strata:	3	(B)
Sapling/Shrub Stratum (Plot size: 15')	0	= Tota	al Cover	Percent of Domina		0	
				That Are OBL, FAC	CW, or FAC:		(A/B)
1 2				Prevalence Index	worksheet:		
3				Total % Cover			
4				OBL species 0			
5.				FACW species 6			
		= Tota	al Cover	FAC species 2			_
Herb Stratum (Plot size: 5')			E4011	FACU species 62			_
Elymus trachycaulus Lactuca serriola	$-\frac{30}{2}$	Yes	FACU	· · · · 		5 = 150	
2. Lactuca serriola 3. Bromus inermis	<u>2</u> 30	No Yes	FAC UPL	Column Totals: 10	<u>JU</u> (A) 416	(B)
4 Chenopodium album	2	No	FACU	Prevalence Ir	ndex = B/A =	4.16	_
5. Pascopyrum smithii	30	Yes	FACU	Hydrophytic Vege	tation Indica	tors:	
6. Spartina pectinata	6	No	FACW	1 - Rapid Test	for Hydrophyt	ic Vegetation	
7				2 - Dominance			
8				3 - Prevalence			
9				4 - Morphologi	cal Adaptation	ns¹ (Provide sup separate sheet)	porting
10.				Problematic H		. ,	
			al Cover				
Woody Vine Stratum (Plot size: 30') 1				¹ Indicators of hydric be present, unless			must
2				Hydrophytic			
	0			Vegetation	.,	×	
% Bare Ground in Herb Stratum 16				Present?	Yes	No X	
Remarks:							_
FAC Neutral Test (FACW+OBL:FACU+UPL): 1:4							
I .							

SOIL Sampling Point: 9B

Profile Desc	cription: (Describe	to the de	pth needed to docu			or confir	m the absence of	indicators.)
Depth	Matrix	0/		ox Feature		. 2		5 .
(inches)	Color (moist)	%	Color (moist)	%	Type'	_Loc ²	Texture	Remarks
0-3	10YR 2/2	100					Loamy Clay	
3-12	10YR 3/2	60	7.5YR 3/4	40	<u>C</u>	М	Clay	
12-16	GLEY 1 4/N	70	7.5YR 5/6	30	С	М	Clay	
						'		
						-		
	-		-	_		-		
	-		-					
1= 0.0							2	
			I=Reduced Matrix, C I LRRs, unless othe			ed Sand G		on: PL=Pore Lining, M=Matrix. Problematic Hydric Soils ³ :
Histosol		cable to al			latrix (S4)			k (A9) (LRR I, J)
l '	pipedon (A2)			Redox (S				irie Redox (A16) (LRR F, G, H)
	istic (A3)		-	d Matrix (ace (S7) (LRR G)
	en Sulfide (A4)				ineral (F1)			ns Depressions (F16)
Stratifie	d Layers (A5) (LRR	F)	X Loamy	Gleyed M	fatrix (F2)		(LRR H	d outside of MLRA 72 & 73)
1 cm Mu	uck (A9) (LRR F, G,	H)	Deplete	ed Matrix	(F3)			Vertic (F18)
	d Below Dark Surfa	ce (A11)		Dark Surf				nt Material (TF2)
	ark Surface (A12)				urface (F7))		low Dark Surface (TF12)
	Mucky Mineral (S1)	(S2) (I DD		Depression		16)		plain in Remarks) nydrophytic vegetation and
	Mucky Peat or Peat ucky Peat or Peat (S				ressions (F 73 of LRF			ydrology must be present,
0 0111 1110	acky i cat of i cat (c	oo) (Litit i	, (1812	-IVA 12 G	75 OI LIKI	(11)	-	sturbed or problematic.
Restrictive	Layer (if present):							
Type:								
Depth (in	ches):						Hydric Soil Pre	esent? Yes X No
Remarks:								
Borderline loa	amy gleyed matrix;	gley begins	at 12"					
HYDROLO	GY.							
	drology Indicators							
1			ed; check all that app	lv)			Socondary	Indicators (minimum of two required)
-	•	one require					-	-
	Water (A1)		Salt Crust		oo (P12)			e Soil Cracks (B6) ly Vegetated Concave Surface (B8)
_	ater Table (A2)		Aquatic Ir Hydrogen					
Saturati							_	ge Patterns (B10)
	Marks (B1)				Table (C2)			ed Rhizospheres on Living Roots (C3)
	nt Deposits (B2)				eres on Liv	ing Roots		re tilled)
X Drift De				not tilled		1)		h Burrows (C8) ion Visible on Aerial Imagery (C9)
_	at or Crust (B4) posits (B5)				ed Iron (C4	+)		
	ion Visible on Aerial	Imagary (F	Thin Mucl					orphic Position (D2)
	Stained Leaves (B9)		37) Other (Ex	piairi iri K	emarks)			eutral Test (D5) leave Hummocks (D7) (LRR F)
Field Obser	. ,					1	11031-11	leave Hullimocks (DT) (LIKET)
Surface Wat		Yes	No X Depth (ir	nches).				
Water Table			No X Depth (ir					
Saturation P			No X Depth (ir				tland Hydrology P	resent? Yes X No
	pillary fringe)	103	Мо Верин (II	ici ica)		_ "	dana riyarology r	105 <u>105 105 105 105 105 105 105 105 105 105 </u>
Describe Re	corded Data (strear	n gau <mark>ge, n</mark>	onitoring well, aerial	photos, p	revious ins	spections)), if available:	
Remarks:								

Project/Site: Lookout Solar			City/C	ounty: Cust	ter Co	unty	Sam	pling Date:	06/13/2018
Applicant/Owner: Lookout Solar, LLC						State: SD	Sam	pling Point: _	10A
Investigator(s): ES, SJ			Sectio	n, Townshi	p, Ran	ge: Section 13,	Township 6S,	Range 8E	
Landform (hillslope, terrace, etc.): Hill						onvex, none): C			oe (%): 3
Soil Map Unit Name: Lohmiller silty cla						NWI			
Are climatic / hydrologic conditions on									
Are Vegetation No , Soil No , o						Normal Circumsta			No
Are Vegetation No , Soil No , o						eded, explain any			110
SUMMARY OF FINDINGS – A									atures, etc.
Hydrophytic Vegetation Present?	Yes X								· · · · · ·
Hydric Soil Present?	Yes X	No		Is the San	•		es X	NI.	
Wetland Hydrology Present?	Yes X			within a W	vetian	a? Ye	es <u>^</u>	NO	-
Remarks:			•						
Low area along roadside ditch/wetlan	d. Strong hydric so	oil indicators.							
VEGETATION – Use scientifi	c names of pl								
Tree Stratum (Plot size: 30'	1			ninant Indica cies? Stat		Dominance Te			
					us_	Number of Dom That Are OBL,			
1 2						(excluding FAC		<u>1</u>	(A)
3.						Total Number o	f Dominant		
4.						Species Across		1	(B)
		0				Percent of Dom	inant Species	:	
Sapling/Shrub Stratum (Plot size: 1	15')					That Are OBL,			(A/B)
1						Prevalence Inc	lex workshee	ıt.	
2							ver of:		v bv·
3.						OBL species			
4			-			FACW species			
5				al Cayer		FAC species			
Herb Stratum (Plot size: 5')		- 1018	ai Covei		FACU species			
1. Schoenoplectus sp.		10	No	OBL		UPL species		x 5 =	
		80	Yes	OBL		Column Totals:		(A)	(B)
3. Eleocharis palustris		5	No	OBL		Drovolono	e Index = B/A	١ –	
4. Tradescantia occidentalis		5	No	UPL		Hydrophytic V			
5						X 1 - Rapid T	_		ation
6						X 2 - Domina		-	ation
7							nce Index is ≤		
8									ide supporting
9							Remarks or or		
10						Problemati	c Hydrophytic	Vegetation ¹	(Explain)
Woody Vine Stratum (Plot size: 30		100				¹ Indicators of hybe present, unle			
1 2						Hydrophytic			
		0	- Tota	ol Cover		Vegetation			
% Bare Ground in Herb Stratum 0]	Present?	Yes _^_	No	 _
Remarks:									
FAC Neutral Test (FACW+OBL:FACU	J, UPL): 3:0								

SOIL Sampling Point: 10A

		e to the de				or confir	m the absence of i	ndicators.)
Depth (inches)	Matrix Color (moist)	%	Color (moist)	dox Feature %	es Type ¹	Loc ²	Texture	Remarks
0-7	10YR 4/3	100					Sandy clay	
7-10	GLEY 1 3/N	90	7.5YR 4/6	10		M	Loamy clay	
10-16	GLEY 1 5/N	98	7.5YR 4/6	2	_ _	M	Loamy clay	
10-10	OLL 1 1 3/11		7.511(4/0				Loanly clay	
	_						-	
							<u> </u>	
							-	
							<u> </u>	
	<u> </u>		· -				<u> </u>	
			/I=Reduced Matrix, 0			ed Sand G		n: PL=Pore Lining, M=Matrix.
-		icable to a	I LRRs, unless oth					Problematic Hydric Soils ³ :
Histoso	, ,			Gleyed M				((A9) (LRR I, J)
	Epipedon (A2) Histic (A3)			/ Redox (S ed Matrix (rie Redox (A16) (LRR F, G, H) ace (S7) (LRR G)
	jen Sulfide (A4)				ineral (F1)			s Depressions (F16)
	ed Layers (A5) (LRF	RF)		y Gleyed M	, ,			l outside of MLRA 72 & 73)
	luck (A9) (LRR F, G			ted Matrix	. ,			/ertic (F18)
	ed Below Dark Surfa	ace (A11)		CDark Sur				nt Material (TF2)
	Dark Surface (A12) Mucky Mineral (S1)			ted Dark S Depressi	ons (F8))		ow Dark Surface (TF12) plain in Remarks)
	Mucky Peat or Pea			•	ressions (F	16)		ydrophytic vegetation and
	lucky Peat or Peat (73 of LRF			drology must be present,
							unless dist	turbed or problematic.
	Layer (if present):							
Type:								10 Y Y
	nches):						Hydric Soil Pre	esent? Yes X No
Remarks:								
HYDROLO	OGY							
Wetland Hy	ydrology Indicator	s:						
Primary Ind	licators (minimum of	fone require	ed; check all that ap	ply)			Secondary II	ndicators (minimum of two required)
	e Water (A1)		Salt Crus					Soil Cracks (B6)
_	/ater Table (A2)			Invertebrat				y Vegetated Concave Surface (B8)
X Saturat	` '			n Sulfide C			_	e Patterns (B10)
	Marks (B1)		-		Table (C2)			d Rhizospheres on Living Roots (C3)
	ent Deposits (B2) eposits (B3)			not tilled	eres on Liv	ing Roots	` ,	re tilled) n Burrows (C8)
	lat or Crust (B4)				ed Iron (C	1)	-	on Visible on Aerial Imagery (C9)
_	eposits (B5)			ck Surface		*)		rphic Position (D2)
	tion Visible on Aeria	ıl Imagery (l						eutral Test (D5)
	Stained Leaves (B9		,	•	•		Frost-He	eave Hummocks (D7) (LRR F)
Field Obse	rvations:							
Surface Wa	iter Present?		No X Depth (i					
Water Table	e Present?	Yes X	No Depth (i	inches): <u>8</u>				
Saturation F		Yes X	No Depth (i	inches): 0		Wei	tland Hydrology Pr	resent? Yes X No
	apillary fringe) ecorded Data (strea	m gauge n	nonitoring well, aeria	al photos n	revious ins	pections	ı, if available	
2 2 2 2 3 3 1 1 1 1		54490, 11		p0100, p		,	,	
Remarks:								

Project/Site: Lookout Solar		City/Co	ounty: Custer Co	ounty	oling Date: 06/1	3/2018	
Applicant/Owner: Lookout Solar, LLC				State: SD	Samp	oling Point: 10B	
Investigator(s): ES, SJ		Section	n, Township, Ra	nge: Section 13, To	wnship 6S,	Range 8E	
Landform (hillslope, terrace, etc.): Hillslope		Local	relief (concave,	convex, none): Nor	пе	Slope (%	%): <u>2</u>
Subregion (LRR): G							
Soil Map Unit Name: Lohmiller silty clay loam				NWI cl			
Are climatic / hydrologic conditions on the site typical							
Are Vegetation No , Soil No , or Hydrology No				"Normal Circumstan			No
Are Vegetation No , Soil No , or Hydrology No				eeded, explain any a			
SUMMARY OF FINDINGS – Attach site							res. etc.
	No X						
	No		Is the Sampled			Y	
	No		within a Wetlai	nd? Yes	'	No <u>^</u>	
Remarks:		<u> </u>					
VEGETATION – Use scientific names of	plants.						
Tree Stratum (Plot size: 30')			inant Indicator	Dominance Test	worksheet:	1	
			cies? Status	Number of Domin			
1				That Are OBL, FA (excluding FAC-)		1	(A)
2							_
3 4				Total Number of I Species Across A		2	(B)
7.	0			·			_
Sapling/Shrub Stratum (Plot size: 15'	_)	1010		Percent of Domin That Are OBL, FA			(A/B)
1				Duevelenee lade			
2				Prevalence Inde			
3				OBL species			
4				FACW species 1			
5		T.4.		FAC species 5			
Herb Stratum (Plot size: 5'		= Tota	al Cover	FACU species			
1. Sisybrium altissimum	1	No	UPL	UPL species _4	41	x 5 = 205	
2. Lepidium densiflorum	5	No	FAC	Column Totals:	36	(A) <u>270</u>	(B)
3. Bromus inermis	40	Yes	UPL	Danielanaa	Inday - D/A	_ 410	
4. Hordeum jubatum	5	No	FACW	Hydrophytic Veg	Index = B/A	<u> </u>	
5. Pascopyrum smithii	5	No	FACU	1 - Rapid Tes	-		1
6. Spartina pectinata		Yes	FACW_	2 - Dominano			ı
7				3 - Prevalence			
8						tions ¹ (Provide s	supporting
9						a separate she	•
10				Problematic I	Hydrophytic \	Vegetation ¹ (Exp	olain)
Woody Vine Stratum (Plot size: 30')		= Tota	al Cover	¹ Indicators of hyd			y must
1				be present, unles	s disturbed o	or problematic.	
2				Hydrophytic			
0/ Page 2000 d to 11 d 20 d 34	0	= Tota	al Cover	Vegetation Present?	Yes	No X	
% Bare Ground in Herb Stratum 34 Remarks:							-
FAC Neutral Test (FACW+OBL:FACU+UPL): 2:3							

SOIL Sampling Point: 10B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		_		x Feature	S			
(inches)	Color (moist)	%	Cold	or (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-4	10YR 4/3	100						Sandy loam	Coarse sand
4-16	10YR 4/1	85	7.5YR	5/4	15	С	PL	Clay	
		_	_						
						<u> </u>			
			_					· -	
1 _{Type:} C=C		nlotion D	M=Daduar	ad Matrix, CC		d or Coot	od Cond C	roine ² l es	nation. DI =Doro Lining M=Matrix
	oncentration, D=De Indicators: (Appli						ed Sand G		cation: PL=Pore Lining, M=Matrix. for Problematic Hydric Soils ³ :
Histosol		cable to t	iii Lixixo, t		Gleyed Ma				fluck (A9) (LRR I, J)
	oipedon (A2)				Redox (S5	. ,			Prairie Redox (A16) (LRR F, G, H)
	stic (A3)			-	d Matrix (S				surface (S7) (LRR G)
	n Sulfide (A4)				Mucky Mi	,			lains Depressions (F16)
	d Layers (A5) (LRR	F)			Gleyed M			_	R H outside of MLRA 72 & 73)
1 cm Mu	ıck (A9) (LRR F, G	, H)			d Matrix (,		Reduc	ed Vertic (F18)
-	d Below Dark Surfa	ce (A11)			Dark Surfa				arent Material (TF2)
	ark Surface (A12)				d Dark Sւ)	-	hallow Dark Surface (TF12)
-	Nucky Mineral (S1)	(CO) (LDI			Depressio		740)		(Explain in Remarks)
	Mucky Peat or Peat icky Peat or Peat (ទ	. , .		High Pla	RA 72 &				of hydrophytic vegetation and d hydrology must be present,
3 6111 1010	icky real of real (33) (LKK 1	7	(IAIT	NA 12 0	73 OI LKI	х п)		disturbed or problematic.
Restrictive I	Layer (if present):								distance of problematic.
Type:									
Depth (in	ches).							Hydric Soil	Present? Yes X No
Remarks:			 -					,uno con	- 1000iiii
	grains present in th	e top laye	r.						
HYDROLO	GY								
Wetland Hy	drology Indicators):							
_	cators (minimum of		red: check	all that anni	v)			Seconda	ary Indicators (minimum of two required)
	Water (A1)	one requi	ca, oncor	_ Salt Crust					ace Soil Cracks (B6)
	iter Table (A2)			_ Sait Clust _ Aquatic In		oc (B13)			rsely Vegetated Concave Surface (B8)
Saturation				_ Aquatic in					nage Patterns (B10)
	larks (B1)			Dry-Seaso)		lized Rhizospheres on Living Roots (C3)
	nt Deposits (B2)			Oxidized F		`	,		where tilled)
X Drift Dep			_		not tilled)		ring recoto		/fish Burrows (C8)
-	at or Crust (B4)			_ Presence	,		4)		uration Visible on Aerial Imagery (C9)
_	oosits (B5)			_ Thin Muck			7)		morphic Position (D2)
	on Visible on Aerial	Imagery	(B7)	Other (Exp					C-Neutral Test (D5)
	tained Leaves (B9)	0 ,		_ 0 (,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			st-Heave Hummocks (D7) (LRR F)
Field Obser	, ,								(, (, ,
Surface Wat		Yes	No X	Depth (in	ches).				
Water Table				Depth (in			l l		
Saturation P				Depth (in				land Hydrolog	y Present? Yes X No
(includes car	oillary fringe)								y 11636111: 163 NO
	corded Data (stream	m gauge, i	monitoring	well, aerial p	ohotos, pi	evious in	spections)	, if available:	
Remarks:									

Project/Site: Lookout Solar		City/Coun	nty: Custer Co	ounty	g Date: 06/1	3/2018	
Applicant/Owner: Lookout Solar, LLC				State: SD	Samplin	g Point: 11A	
Investigator(s): ES, SJ						-	
Landform (hillslope, terrace, etc.): Semi-closed depression							%): 0-1
Subregion (LRR): G							
Soil Map Unit Name: Lohmiller silty clay loam				NWI classi			
Are climatic / hydrologic conditions on the site typical for the							
Are Vegetation No , Soil No , or Hydrology No				"Normal Circumstances			No
Are Vegetation No , Soil No , or Hydrology No				eeded, explain any ansv	•		. 110
SUMMARY OF FINDINGS – Attach site map						,	ıres. etc.
_			31				
Hydrophytic Vegetation Present? Yes X Hydric Soil Present? Yes X	No		the Sampled				
Wetland Hydrology Present?		wi	thin a Wetlar	nd? Yes X	No		
Remarks:							
Low area along roadside ditch/wetland. Strong hydric so	l indicators.						
VEGETATION - Use scientific names of pla	nts.						
30'			nt Indicator	Dominance Test wo	rksheet:		
Tree Stratum (Plot size: 30' 1. Populus angustifolia			Status	Number of Dominant			
				That Are OBL, FACW (excluding FAC-):	l, or FAC	1	(A)
2							
3				Total Number of Dom Species Across All St		1	(B)
4	5						
Sapling/Shrub Stratum (Plot size: 15')	<u> </u>	- Total C	.0vei	Percent of Dominant That Are OBL, FACW		100	(A/B)
1. Acer negundo	5	Yes	FAC				
2				Prevalence Index we		NA. déimhe he	_
3				Total % Cover of OBL species			
4				FACW species			
5				FAC species			
Herb Stratum (Plot size: 5')	5	= Total C	over	FACU species			
1. Asclepias speciosa	1	No	FAC	UPL species			
2. Typha angustifolia	90	Yes	OBL	Column Totals:			
3. Bromus inermis	9	No	UPL				
4				Prevalence Inde			
5				Hydrophytic Vegeta			
6				1 - Rapid Test for X 2 - Dominance Telescope			1
7				I —			
8				3 - Prevalence In 4 - Morphologica			supporting
9				data in Remai	rks or on a	separate she	et)
10				Problematic Hydi	rophytic Ve	getation¹ (Ex	plain)
Woody Vine Stratum (Plot size: 30')	100	= Total C	over	¹ Indicators of hydric s	oil and wet	land hydrolog	nv must
1				be present, unless dis			gy mast
2.				Hydrophytic			
	0	- Total C	ovor	Vegetation	/00 X	No	
% Bare Ground in Herb Stratum 0				Present?	#S	NO	_
Remarks:							
FAC Neutral Test (FACW+OBL:FACU, UPL): 2:1							

SOIL Sampling Point: 11A

Depth Matrix Redox Features Remarks
10-16 10 10 10 10 10 10 10
10-16 GLEY 15/N 90 7.5YR 4/6 10 C M Clay Clay
10-16 GLEY 1 5/N 90 7.5YR 4/6 10 C M Clay 1 Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2 Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils 2: Histosol (A1) Sandy Gleyed Matrix (S4) 1 cm Muck (A9) (LRR I, J) Histic Epipedon (A2) Sandy Redox (S5) Coast Prairie Redox (A16) (LRR F, G, H) Black Histic (A3) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Yelydrogen Sulfide (A4) Loamy Mucky Mineral (F1) Hylains Depressions (F16) Stratified Layers (A5) (LRR F, G, H) X Depleted Matrix (F2) (LRR H outside of MLRA 72 & 73) 1 cm Muck (A9) (LRR F, G, H) X Depleted Matrix (F2) (LRR H outside of MLRA 72 & 73) 1 cm Muck (A9) (LRR F, G, H) X Depleted Matrix (F2) Redox Dark Surface (F6) Redox Dark Surface (F6) Redox Dark Surface (F7) Y Very Shallow Dark Surface (TF12)
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Histosol (A2) Sandy Gleyed Matrix (S4) Histic Epipedon (A2) Sandy Redox (S5) Dark Surface (A16) (LRR F, G, H) Stripped Matrix (S6) Stripped Matrix (S6) Stripped Matrix (S6) High Plains Depressions (F16) Loamy Mucky Mineral (F1) High Plains Depressions (F16) Loamy Gleyed Matrix (F2) Tom Muck (A9) (LRR F, G, H) Stratified Layers (A5) (LRR F) Loamy Gleyed Matrix (F2) Thick Dark Surface (A11) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Redox Depressions (F16) MLRA 72 & 73 of LRR H) Type: Depth (inches): Hydric Soil Present? Yes X No
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1)
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Histosol (A2) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Coast Prairie Redox (A16) (LRR F, G, H) Black Histic (A3) Stripped Matrix (S6) Mydrogen Sulfide (A4) Stratified Layers (A5) (LRR F) Stratified Layers (A5) (LRR F) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Redox Depressions (F8) Sandy Mucky Mineral (S1) Redox Depressions (F8) Stratified Layer or Peat (S2) (LRR G, H) Muck (A9) (LRR F, G, H) Muck (A9) (LRR G, H) Muck (A9) (LR G, H) Muck (A9) (LRR G, H) Muck (A9) (LR G, H) Muck (A
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1)
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1)
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1)
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1)
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1)
Histosol (A1) Histic Epipedon (A2) Sandy Redox (S5) Black Histic (A3) Stripped Matrix (S6) Hydrogen Sulfide (A4) Stratified Layers (A5) (LRR F) 1 cm Muck (A9) (LRR F, G, H) Stratified Layers (A5) (LRR F) 1 cm Muck (A9) (LRR F, G, H) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Stratified Layer (F2) Character (A12) Sandy Mucky Mineral (S1) Sandy Mucky Peat or Peat (S2) (LRR G, H) Stratified Layer (if present): Type: Depth (inches): High Plains Depressions (F16) Loamy Mucky Mineral (F1) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Redox Dark Surface (F7) Sandy Mucky Peat or Peat (S2) (LRR G, H) Migh Plains Depressions (F16) MLRA 72 & 73 of LRR H) Wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if present): Type: Depth (inches): Hydric Soil Present? Yes X No Hydric Soil Present? Yes X No Mineral (F1) Loamy Mucky Mineral (F1)
Histic Epipedon (A2)
Black Histic (A3)
X Hydrogen Sulfide (A4)
Stratified Layers (A5) (LRR F) 1 cm Muck (A9) (LRR F, G, H) Depleted Below Dark Surface (A11) Sandy Mucky Mineral (S1) 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) 5 cm Mucky Peat or Peat (S3) (LRR F) Medicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if present): Type: Depth (inches): Hydric Soil Present? Yes X No
Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Pedox Depressions (F8) Sandy Mucky Mineral (S1) Pedox Depressions (F8) Som Mucky Peat or Peat (S2) (LRR G, H) Mucky Peat or Peat (S3) (LRR F) Mucky Peat or Peat (S3) (LRR F) Redox Depressions (F8) High Plains Depressions (F16) MLRA 72 & 73 of LRR H) Wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if present): Type: Depth (inches): Hydric Soil Present? Yes X No
Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Depleted Dark Surface (F7) Redox Depressions (F8) Depleted Dark Surface (F8)
Sandy Mucky Mineral (S1) Redox Depressions (F8) Other (Explain in Remarks) 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) High Plains Depressions (F16) 5 cm Mucky Peat or Peat (S3) (LRR F) (MLRA 72 & 73 of LRR H) wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if present):
5 cm Mucky Peat or Peat (S3) (LRR F) (MLRA 72 & 73 of LRR H) wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if present): Type: Depth (inches): Hydric Soil Present? Yes X No
Unless disturbed or problematic. Restrictive Layer (if present):
Restrictive Layer (if present): Type:
Type: Depth (inches): Hydric Soil Present? Yes X No
Depth (inches):
Remarks:
HYDROLOGY
Wetland Hydrology Indicators:
Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (minimum of two required)
Surface Water (A1) Salt Crust (B11) Surface Soil Cracks (B6)
High Water Table (A2) Aquatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8)
Saturation (A3) X Hydrogen Sulfide Odor (C1) X Drainage Patterns (B10)
Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Roots (C3)
Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) (where tilled)
X Drift Deposits (B3) (where not tilled) Crayfish Burrows (C8)
X Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9)
Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) X FAC-Neutral Test (D5)
X Water-Stained Leaves (B9) Frost-Heave Hummocks (D7) (LRR F)
Field Observations:
Surface Water Present? Yes No X Depth (inches):
Water Table Present? Yes X No Depth (inches): 11
Saturation Present? Yes X No Depth (inches): 0 Wetland Hydrology Present? Yes X No Depth (inches): 0
(includes capillary fringe)
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
(includes capillary fringe)
(includes capillary fringe)
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Project/Site: Lookout Solar			City/Count	y: Custer Co	Sampling Date: <u>06/13/2018</u>		
Applicant/Owner: Lookout Solar, LLC					State: SD	Sampling Point: 11B	
Investigator(s): ES, SJ			Section, To	ownship, Ra	nge: Section 18, Townsh	ip 6S, Range 9E	
Landform (hillslope, terrace, etc.): Semi-clo							%): <u>0-1</u>
Subregion (LRR): G		Lat: 43.5	52713371		Long: <u>-103.1046423</u>	Datum: <u></u>	NAD_1983
Soil Map Unit Name: Lohmiller silty clay loa	m				NWI classific	ation: None	
Are climatic / hydrologic conditions on the s	te typical for th	is time of yea	ar? Yes X	(No	(If no, explain in R	emarks.)	
Are Vegetation No , Soil No , or Hyd	rology No	significantly	disturbed?	Are '	'Normal Circumstances" p	present? Yes X	No
Are Vegetation No , Soil No , or Hyd					eeded, explain any answe	rs in Remarks.)	
SUMMARY OF FINDINGS – Attac							res, etc.
Hydrophytic Vegetation Present?	Yes 1	No X	la 4	ha Cammiad	I Augo		
Hydric Soil Present?	Yes <u>X</u> 1	No		he Sampled hin a Wetlaı		No X	
	Yes 1	No X	With	iiii a vvetiai	10: 165		
Remarks:							
VEGETATION – Use scientific na	mes of plai		Danis	A locality of the second	I Danis and Tradescort	-bd-	
Tree Stratum (Plot size: 30')	Absolute % Cover		t Indicator Status	Dominance Test work		
I .			Yes	FACW	Number of Dominant S That Are OBL, FACW,	or FAC	
2.					(excluding FAC-):	1	(A)
3					Total Number of Domin	ant	
4					Species Across All Stra	ta: 2	(B)
Sapling/Shrub Stratum (Plot size: 15'		5			Percent of Dominant Sp That Are OBL, FACW,		(A/B)
1					Prevalence Index wor	ksheet:	
2					Total % Cover of:	Multiply by:	<u>: </u>
3					OBL species	x 1 =	
5					FACW species	x 2 =	
			= Total Co	over	FAC species	x 3 =	
Herb Stratum (Plot size: 5'	_)				FACU species		
1. Bromus inermis		90	Yes	UPL	UPL species		
2. Poa secunda		10	No	FACU	Column Totals:	(A)	(B)
3					Prevalence Index	= B/A =	
4					Hydrophytic Vegetation		
5					1 - Rapid Test for I	- Hydrophytic Vegetation	1
6 7					2 - Dominance Tes	t is >50%	
8					3 - Prevalence Inde		
9.					4 - Morphological A	Adaptations ¹ (Provide s s or on a separate she	supporting
10.					Problematic Hydro	•	,
			= Total Co	over			
Woody Vine Stratum (Plot size: 30' 1.					¹ Indicators of hydric soi be present, unless distu		y must
2					Hydrophytic		
0		0	= Total Co	over	Vegetation Present? Ye	s No ^X	
% Bare Ground in Herb Stratum U Remarks:	<u> </u>				. room: Te		-
	\. 4.0						
FAC Neutral Test (FACW+OBL:FACU+UPI Prevalence Index indicator is not applicable	,	ydrology indi	cators are	absent.			

SOIL Sampling Point: 11B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		. <u></u>	Redox Fea		- 1			
(inches)	Color (moist)		Color (m			Type'	Loc ²	<u>Texture</u>	Remarks
0-5	10YR 3/2	98	10YR 5/6	2		<u> </u>	М	Loamy clay	
5-16	10YR 4/1	90	10YR 5/6	10	(<u> </u>	М	Clay	
			-						
	-							- 	
									
<u> </u>			<u> </u>				-	· 	
	oncentration, D=D						ed Sand G		on: PL=Pore Lining, M=Matrix.
	Indicators: (App	olicable to a							r Problematic Hydric Soils ³ :
Histoso	(A1) pipedon (A2)			Sandy Gleye Sandy Redo:		x (S4)			k (A9) (LRR I, J) iirie Redox (A16) (LRR F, G, H)
	istic (A3)			Sandy Redo. Stripped Mat)			ace (S7) (LRR G)
	en Sulfide (A4)			Loamy Muck	. ,				ns Depressions (F16)
	d Layers (A5) (LR	RF)		Loamy Gleye				_	H outside of MLRA 72 & 73)
	uck (A9) (LRR F,			Depleted Ma	`	,			Vertic (F18)
-	d Below Dark Sur			Redox Dark					nt Material (TF2)
	ark Surface (A12) Mucky Mineral (S1			Depleted Da Redox Depre)		low Dark Surface (TF12) plain in Remarks)
	Mucky Peat or Pe	•		High Plains [16)		hydrophytic vegetation and
	ucky Peat or Peat			(MLRA 7					ydrology must be present,
								unless dis	sturbed or problematic.
Restrictive	Layer (if present):							
Type:									Y
Depth (in	ches):							Hydric Soil Pro	esent? Yes X No
Remarks:									
HYDROLO	GY								
	drology Indicato	rs:							
· -	cators (minimum		ed; check all tl	nat apply)				Secondary	Indicators (minimum of two required)
Surface	•			It Crust (B11)				e Soil Cracks (B6)
	ater Table (A2)			uatic Inverte		(B13)			ly Vegetated Concave Surface (B8)
Saturati				drogen Sulfic					ge Patterns (B10)
Water N	larks (B1)		Dr	y-Season Wa	ater Tal	ole (C2)		Oxidize	ed Rhizospheres on Living Roots (C3)
Sedime	nt Deposits (B2)		Ox	idized Rhizo	spheres	s on Liv	ing Roots	(C3) (whe	re tilled)
	posits (B3)		`	where not ti	,				h Burrows (C8)
_	at or Crust (B4)		· · · · · · · · · · · · · · · · · · ·	esence of Re		•	1)		ion Visible on Aerial Imagery (C9)
Iron De				in Muck Surf					orphic Position (D2)
	ion Visible on Aeri Stained Leaves (B		B/) Ot	ner (Explain	ın Kem	arks)			eutral Test (D5) leave Hummocks (D7) (LRR F)
Field Obser		3)						FIOSI-FI	leave Huminocks (DT) (EKK F)
Surface Wat		Yes	No X D	enth (inches)	١-				
Water Table			No X D						
Saturation F			No X D					land Hydrology P	resent? Yes No X
(includes ca	pillary fringe)								
Describe Re	corded Data (stre	am gauge, r	nonitoring well	, aerial photo	s, prev	ious ins	pections)	, if available:	
Remarks:									

Project/Site: Lookout Solar			City/Co	ounty:	Custer Co	ounty	Sar	npling Da	ate: 06/13/2	2018
Applicant/Owner: Lookout Solar, LLC						State:	SD San	npling Po	int: 12A	
Investigator(s): ES, SJ			Section	n, Tov	vnship, Ra	nge: Section	18, Township 6S	, Range	9E	
Landform (hillslope, terrace, etc.): Sem										0-1
Soil Map Unit Name: Lohmiller silty clay							IWI classification			
Are climatic / hydrologic conditions on the										
Are Vegetation No , Soil No , or							mstances" prese		X N	0
Are Vegetation No , Soil No , or							any answers in			
SUMMARY OF FINDINGS – A							-			s. etc.
Hydrophytic Vegetation Present?	Yes X				71					
Hydric Soil Present?	Yes X	No			Sampled		V			
Wetland Hydrology Present?				withi	n a Wetlar	nd?	Yes X	No		
Remarks:			L							
Low area along roadside ditch/wetland.	Strong hydric soi	l indicators.								
VEGETATION – Use scientific	names of pla	nts.								
Tree Stratum (Plot size: 30'		Absolute				Dominance	Test workshee	t:		
		% Cover					Dominant Specie			
1.						(excluding F	BL, FACW, or FA FAC-):	2		(A)
2						,	•			,
3 4							er of Dominant ross All Strata:	2		(B)
		5								,
Sapling/Shrub Stratum (Plot size: 15)		1010	ai 00v	oi.		Dominant Specie BL, FACW, or FA		0	(A/B)
1						Duninglaman	la describade a	-4.		
2							Index workshe Cover of:		ultiply by:	
3							s			
4							cies			
5							s			
Herb Stratum (Plot size: 5')	5	= Tota	al Cove	er		ies			_
1. Typha angustifolia		45	Yes		OBL	UPL specie	s	x 5 =		_
2. Alopecurus aequalis		45	Yes		OBL	Column Tot	als:	(A)		(B)
3										
4							lence Index = B			
5							ic Vegetation In			
6						I — ·	ninance Test is >		egetation	
7						I —	valence Index is			
8						l —	phological Adapt		Provide sun	nortina
9						data	in Remarks or c	n a sepa	rate sheet)	porting
10						Probler	matic Hydrophyti	c Vegeta	tion¹ (Expla	in)
Woody Vine Stratum (Plot size: 30')	90	= Tota	al Cove	er	¹ Indicators of	of hydric soil and	wetland	hvdrology r	must
1							unless disturbed			
2.						Hydrophyti	ic			
		0				Vegetation				
% Bare Ground in Herb Stratum 10						Present?	Yes <u>^</u>	N	o	
Remarks:										
FAC Neutral Test (FACW+OBL:FACU,	UPL): 2:0									

SOIL Sampling Point: 12A

	•	to the de	pth needed to docu			or confir	m the absence	of indicators.)
Depth (inches)	Matrix Color (moist)	%	Color (moist)	x Feature %	es Type ¹	Loc ²	_ Texture	Remarks
0-5	10YR 3/2	99	10YR 4/6	1	C Type	M	Loamy clay	fibrous roots
5-16	GLEY 1 4/N	97	10YR 4/6	3	C		Clay	
3-10	GLET 14/IN	_ = = = = = = = = = = = = = = = = = = =	10110 4/0		- —	IVI	Clay	
			· -					
	-							
-	-							
	-			_				
			·					
			1=Reduced Matrix, C			ed Sand C		cation: PL=Pore Lining, M=Matrix.
-		cable to a	I LRRs, unless othe					for Problematic Hydric Soils ³ :
Histoso	ы (А1) Epipedon (А2)			Gleyed M Redox (S	atrix (S4)			Muck (A9) (LRR I, J) Prairie Redox (A16) (LRR F, G, H)
	Histic (A3)			d Matrix (Surface (S7) (LRR G)
	jen Sulfide (A4)				ineral (F1)			Plains Depressions (F16)
	ed Layers (A5) (LRR	F)	X Loamy				_	RR H outside of MLRA 72 & 73)
	luck (A9) (LRR F, G ,	,		ed Matrix			`	ed Vertic (F18)
Deplete	ed Below Dark Surfa	ce (A11)	Redox	Dark Surf	ace (F6)		Red P	arent Material (TF2)
	Dark Surface (A12)				urface (F7)		Shallow Dark Surface (TF12)
	Mucky Mineral (S1)			Depression	. ,			(Explain in Remarks)
	Mucky Peat or Peat				ressions (F			of hydrophytic vegetation and
5 cm ivi	lucky Peat or Peat (S	53) (LRR F) (IVIL	.KA /2 &	73 of LRF	K H)		d hydrology must be present, disturbed or problematic.
Restrictive	Layer (if present):						uniess	disturbed of problematic.
Type:	-aye: (p. eee).							
· · ·	nches):						Hydric Soil	Present? Yes X No
Remarks:	,						, , , , , ,	
HYDROLO								
Wetland Hy	ydrology Indicators	:						
Primary Ind	icators (minimum of	one require	ed; check all that app	ly)			Seconda	ary Indicators (minimum of two required)
	e Water (A1)		Salt Crust					face Soil Cracks (B6)
	/ater Table (A2)		Aquatic In					rsely Vegetated Concave Surface (B8)
X Saturat	tion (A3)		X Hydrogen	Sulfide C	Odor (C1)		X Dra	inage Patterns (B10)
	Marks (B1)		Dry-Seaso					dized Rhizospheres on Living Roots (C3)
	ent Deposits (B2)		Oxidized F	Rhizosph	eres on Liv	ing Roots	s (C3) (w	vhere tilled)
X Drift De	eposits (B3)		(where	not tilled)			yfish Burrows (C8)
_	lat or Crust (B4)		Presence			4)		uration Visible on Aerial Imagery (C9)
	eposits (B5)		Thin Muck	s Surface	(C7)		· · · · · · · · · · · · · · · · · · ·	omorphic Position (D2)
	tion Visible on Aerial		B7) Other (Ex	plain in R	emarks)		· 	C-Neutral Test (D5)
	Stained Leaves (B9)						Fros	st-Heave Hummocks (D7) (LRR F)
Field Obse			~					
Surface Wa			No X Depth (in					
Water Table			No X Depth (in					
Saturation F		Yes X	No Depth (in	iches): <u>9</u>		We	tland Hydrolog	y Present? Yes X No
	apillary fringe) ecorded Data (strear	m dalide m	nonitoring well, aerial	photos n	revious in	spections') if available	
DOSOURE IVE	coordod Data (streat	gaage, II	iointoring woil, acida	ριισισο, μ		-poolioi 15,	,, ii avaliabie.	
Remarks:								
i veillai və.								
l								

Project/Site: Lookout Solar		City/Co	unty:	Custer Co	ounty	Sam	pling Date: 0	6/13/2018
Applicant/Owner: Lookout Solar, LLC					State: SD) Sam	pling Point: 1	2B
Investigator(s): ES, SJ		Section	n, Tow	nship, Ra	nge: Section 18,	Township 6S,	Range 9E	
Landform (hillslope, terrace, etc.): Semi-closed depression								e (%): 0-1
Subregion (LRR): G								
Soil Map Unit Name: Lohmiller silty clay loam					NWI			
Are climatic / hydrologic conditions on the site typical for th								
Are Vegetation No , Soil No , or Hydrology No					'Normal Circumst			No
Are Vegetation No , Soil No , or Hydrology No					eded, explain an			
SUMMARY OF FINDINGS – Attach site map								tures, etc.
			····· 3	, po				
Hydrophytic Vegetation Present? Yes N	No X		Is the	Sampled	Area			
Hydric Soil Present? Yes N Wetland Hydrology Present? Yes N	νο <u>Χ</u>	١,	withi	n a Wetlar	nd? Y	es	No X	
Remarks:	10							
VECETATION . Her exientific names of plan	oto							
VEGETATION – Use scientific names of plan								
Tree Stratum (Plot size: 30'	Absolute <u>% Cover</u>				Dominance Te			
1. Acer negundo				FAC	Number of Dor That Are OBL,			
2					(excluding FAC		1	(A)
3.					Total Number	of Dominant		
4.					Species Across		2	(B)
451	5	= Total	l Cove	er	Percent of Don	ninant Species	;	
Sapling/Shrub Stratum (Plot size: 15')					That Are OBL,			(A/B)
1					Prevalence Inc	dex workshee	et:	
2						over of:		by:
3					OBL species			-
4					FACW species			
5		= Total	I Cove	ar	FAC species		x 3 =	
Herb Stratum (Plot size: 5'		- Total	COVE	žI	FACU species		x 4 =	
1. Bromus inermis	90	Yes		UPL	UPL species			
2. Cirsium undulatum	2	No		FACU	Column Totals	:	(A)	(B)
3. Tragopogon dubius	2	No		UPL	Provalon	ce Index = B/A	۸ –	
4					Hydrophytic V		·	
5					1 - Rapid 1	•		tion
6					2 - Domina			
7					3 - Prevale			
8					4 - Morpho			le supporting
9					data in	Remarks or or	n a separate s	sheet)
10					Problemat	ic Hydrophytic	Vegetation ¹ (Explain)
Woody Vine Stratum (Plot size: 30'	94	= Total	I Cove	er	¹ Indicators of h			
1					be present, unl	ess disturbed	or problemati	U.
2					Hydrophytic			
% Bare Ground in Herb Stratum 6	0	= Total	I Cove	er	Vegetation Present?	Yes	No X	
Remarks:					1			
FAC Neutral Test (FACW+OBL:FACU+UPL): 0:3	and	ا احتمال	loe: !	adio=4	uro obst			
Prevalence Index indicator is not applicable, as hydric soil	and welland	a Hydrol	iogy if	เนเบลเบาร ล	iie auseill.			

SOIL Sampling Point: 12B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix				x Features	S			
(inches)	Color (moist)	%	Colo	r (moist)	<u></u> %	Type ¹	Loc ²	Texture	Remarks
0-4	10YR 3/2	100						Loamy	
4-16	10YR 3/2	100						Sandy clay	
			-						
									_
1 _{Type:} C=C	oncentration, D=De	nlotion DM-	-Doduso	d Matrix, CS		d or Coata	d Sand C	roing ² l oog	tion: PL=Pore Lining, M=Matrix.
	Indicators: (Appli						a Sana G		or Problematic Hydric Soils ³ :
Histosol		ouble to un			Sleyed Ma				ick (A9) (LRR I, J)
	pipedon (A2)		-		Redox (S5	. ,			rairie Redox (A16) (LRR F, G, H)
	stic (A3)		-		l Matrix (S				rface (S7) (LRR G)
	en Sulfide (A4)		-		Mucky Mir			_	ins Depressions (F16)
	d Layers (A5) (LRR		-		Gleyed Ma			,	H outside of MLRA 72 & 73)
	ıck (A9) (LRR F, G d Below Dark Surfa		-		d Matrix (f Dark Surfa				d Vertic (F18) ent Material (TF2)
	ark Surface (A12)	(, (, 1, 1)	-		d Dark Su		ı		allow Dark Surface (TF12)
	Mucky Mineral (S1)				Depression			Other (E	xplain in Remarks)
	Mucky Peat or Peat			_	ains Depre				f hydrophytic vegetation and
5 cm Mu	icky Peat or Peat (S3) (LRR F)		(MLI	RA 72 & 7	73 of LRR	H)		hydrology must be present,
Postrictivo I	Layer (if present):							uniess a	isturbed or problematic.
	Layer (ii present).								
	ches):							Hydric Soil P	resent? Yes No X
Remarks:								11,4110 00111	
rtomanto.									
HYDROLO									
_	drology Indicators								
Primary India	cators (minimum of	one required	d; check		-				/ Indicators (minimum of two required)
	Water (A1)			Salt Crust	. ,				ce Soil Cracks (B6)
	ater Table (A2)			Aquatic Inv					ely Vegetated Concave Surface (B8)
Saturation	,		-	Hydrogen				· 	age Patterns (B10)
	larks (B1)			Dry-Seaso Oxidized R					zed Rhizospheres on Living Roots (C3) ere tilled)
	nt Deposits (B2) posits (B3)				not tilled)		ing Roots		sh Burrows (C8)
	at or Crust (B4)			Presence	,		1)		ation Visible on Aerial Imagery (C9)
_	posits (B5)			Thin Muck		•	.,		orphic Position (D2)
	on Visible on Aeria	I Imagery (B	7)	Other (Exp	,	•			Neutral Test (D5)
Water-S	tained Leaves (B9))						Frost-	Heave Hummocks (D7) (LRR F)
Field Obser	vations:								
Surface Wat	er Present?	Yes	No X	_ Depth (ind	ches):		_		
Water Table		Yes							
Saturation P	resent?	Yes	No <u>X</u>	_ Depth (ind	ches):		Wetl	land Hydrology	Present? Yes No X
(includes cap Describe Re	olliary fringe) corded Data (strea	m gauge, mo	onitoring	well, aerial r	photos, pre	evious ins	pections).	if available:	
2 00020 1 10	55.454 <u>2</u> 414 (51.54	gaage,	,g	,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		p = =,,		
Remarks:									

Project/Site: Lookout Solar		City/Co	ounty:	Custer Co	ounty	Sam	pling Date: C	06/13/2018
Applicant/Owner: Lookout Solar, LLC					State: S	D Sam	pling Point: 1	3
Investigator(s): ES, SJ		Section	n, Tov	vnship, Ra	nge: Section 18	, Township 6S,	Range 9E	
					convex, none):			ne (%): 0
Subregion (LRR): G								
					NW			
Are climatic / hydrologic conditions on the site typical for								
Are Vegetation No , Soil No , or Hydrology No	-				'Normal Circums			No
Are Vegetation No , Soil No , or Hydrology No					eded, explain a			
SUMMARY OF FINDINGS – Attach site ma								atures, etc.
				-	<u>·</u>	· · ·	'	· ·
Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes				e Sampled			V	
Wetland Hydrology Present? Yes	No X		withi	n a Wetlar	nd? '	Yes	No <u>^</u>	
Remarks:								
VEGETATION – Use scientific names of pla	ants.							
	Absolute	Dom	inant	Indicator	Dominance T	est workshee	t:	
<u>Tree Stratum</u> (Plot size: 30'	% Cover	Spec	cies?	Status	Number of Do	minant Species	3	
1					That Are OBL (excluding FA	, FACW, or FA	C 0	(A)
2					(excluding I A	O).		(^)
3					Total Number Species Acros		1	(B)
4								(D)
Sapling/Shrub Stratum (Plot size: 15'	0	= 10ta	al Cov	er		minant Species , FACW, or FA		(A/B)
1								(/(b)
2						ndex workshee		
3						Cover of:		-
4								
5						s		
Herb Stratum (Plot size: 5'	0	= Tota	al Cov	er				
Herb Stratum (Plot size: 5' 1. Bromus inermis	97	Yes		UPL	•			
o Equisetum en	3	No		FAC	-	3:		
3		-			Johann Fotal	·	. (* ')	(5)
4						nce Index = B/		
5.					1	Vegetation Inc		
6.					<u> </u>	Test for Hydro		ition
7.						ance Test is >		
8						ence Index is		
9						ological Adapta Remarks or o		
10						tic Hydrophytic		,
30'	100	= Tota	al Cov	er				
Woody Vine Stratum (Plot size: 30' 1.						hydric soil and nless disturbed		
2.					Hydrophytic			
	0				Vegetation	V	X	
% Bare Ground in Herb Stratum 0					Present?	Yes	No X	
Remarks:								
FAC Neutral Test (FACW+OBL:FACU, UPL): 0:1								
Prevalence Index indicator is not applicable, as hydric so	oii and wetland	nydro	ology i	ndicators a	are absent.			

SOIL Sampling Point: 13

Profile Desc	ription: (Describe	to the dep	th needed to docu			or confirm	n the absence	of indicators.)		
Depth	Matrix Color (moist)	%	Color (moist)	x Feature %	Type ¹	Loc ²	Texture	Remarks		
(inches) 0-6	10YR 3/3	100	Color (moist)	70	<u>i ype</u>	LUC	Loam	fibrous; gravel present		
6-16			7 EVD E/6	1	С					
0-10	10YR 4/2	99	7.5YR 5/6		<u> </u>	<u>M</u>	Clay	white mottles present		
			,							
	-									
1							. 21			
			=Reduced Matrix, C: LRRs, unless othe			ed Sand G		cation: PL=Pore Lining, M=Matrix. for Problematic Hydric Soils ³ :		
Histosol		cable to all	Sandy					•		
	oipedon (A2)			Redox (S	. ,			Muck (A9) (LRR I, J) Prairie Redox (A16) (LRR F, G, H)		
Black His			·	d Matrix (Surface (S7) (LRR G)		
	n Sulfide (A4)				neral (F1)			Plains Depressions (F16)		
	l Layers (A5) (LRR			Gleyed M				RR H outside of MLRA 72 & 73)		
	ck (A9) (LRR F, G,	,		d Matrix (ed Vertic (F18)		
	d Below Dark Surfa ark Surface (A12)	ce (ATT)		Dark Surf	ace (F6) urface (F7)		arent Material (TF2) Shallow Dark Surface (TF12)		
	lucky Mineral (S1)			Depressio		,		(Explain in Remarks)		
	Mucky Peat or Peat	(S2) (LRR (essions (F	16)		of hydrophytic vegetation and		
5 cm Mu	cky Peat or Peat (33) (LRR F)	(ML	.RA 72 &	73 of LRF	RH)		d hydrology must be present,		
							unless	disturbed or problematic.		
	_ayer (if present):									
Type:										
	Depth (inches): No X									
Remarks:	es are not prominer	nt or distinct	and thus does not d	nualify as	Depleted	Matrix (F3))			
Trought Toutare	oo aro not pronimor	it or diotiriot,	and thus does not	quality ao	Bopiotod	maan (1 0)	<i>)</i> .			
HYDROLO	GY									
Wetland Hyd	drology Indicators	:								
			d; check all that app	y)			Seconda	ary Indicators (minimum of two required)		
Surface	Water (A1)		Salt Crust	(B11)			Sur	face Soil Cracks (B6)		
	ter Table (A2)		Aquatic In	vertebrate	es (B13)			rsely Vegetated Concave Surface (B8)		
Saturatio	on (A3)		Hydrogen	Sulfide O	dor (C1)		Dra	inage Patterns (B10)		
Water M	arks (B1)		Dry-Seaso	on Water	Table (C2)	Oxio	dized Rhizospheres on Living Roots (C3)		
	nt Deposits (B2)		Oxidized I			ing Roots		vhere tilled)		
	oosits (B3)			not tilled				yfish Burrows (C8)		
Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9)										
Iron Deposits (B5)										
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) FAC-Neutral Test (D5) Water-Stained Leaves (B9) Frost-Heave Hummocks (D7) (LRR F)								` '		
Field Observations:								st-neave nullillocks (D7) (LKK F)		
Surface Water		Vac	No X Depth (in	ches).						
Water Table			No X Depth (in							
Saturation Pr			No X Depth (in				land Hydrolog	y Present? Yes No X		
(includes cap	oillary fringe)	165	No // Deptil (iii	Ci les)		_ *****	iana myarolog	y Present: Tes No		
Describe Red	corded Data (strear	n gauge, mo	onitoring well, aerial	photos, p	revious ins	spections),	if available:			
Remarks:										

Project/Site: Lookout Solar		City/C	ounty	Custer Co	ounty	Sam	pling Date: C	06/13/2018
Applicant/Owner: Lookout Solar, LLC					State: SD	Samp	pling Point: _1	14
Investigator(s): ES, SJ		Section	on, To	wnship, Ra	nge: Section 12,	Township 6S,	Range 8E	
Landform (hillslope, terrace, etc.): Semi-closed depress								oe (%): 0-1
Subregion (LRR): G								
Soil Map Unit Name: Pierre clay, 2 to 6 percent slopes					NWI			
Are climatic / hydrologic conditions on the site typical for								
Are Vegetation No , Soil No , or Hydrology No					'Normal Circumst			No
Are Vegetation No , Soil No , or Hydrology No	-				eded, explain an	·	·	110
SUMMARY OF FINDINGS – Attach site ma								atures. etc.
	No							
Hydric Soil Present? Yes	No X			e Sampled			Y	
Wetland Hydrology Present? Yes X	No		with	in a Wetlar	nd? Y	es	No <u>^</u>	
VEGETATION – Use scientific names of p								
Tree Stratum (Plot size: 30')	Absolute % Cover				Dominance Te			
1					Number of Don That Are OBL,			
2.					(excluding FAC		1	(A)
3.					Total Number of	of Dominant		
4.					Species Across		1	(B)
Sapling/Shrub Stratum (Plot size: 15')					Percent of Don That Are OBL,			(A/B)
1					Prevalence Inc	dex workshee	rt:	
2					Total % Co	over of:	Multiply	<u>/ by:</u>
3 4					OBL species		x 1 =	
5		-			FACW species		x 2 =	
	5	= Tota	al Cov	/er	FAC species		x 3 =	
Herb Stratum (Plot size: 5'					FACU species		x 4 =	
1. Eleocharis palustris	60	Yes		OBL	UPL species			
2. Rumex crispus		No		FAC	Column Totals:		(A)	(B)
3. Poa secunda	5	No		FACU	Prevalend	ce Index = B/A	\ =	
4					Hydrophytic V			
5					1 - Rapid 1	_		ation
6					X 2 - Domina	nce Test is >5	50%	
7					3 - Prevale	ence Index is ≤	3.0 ¹	
8 9					4 - Morpho	logical Adapta	ntions¹ (Provi	de supporting
10						Remarks or or		
10.			al Cov		Problemati	c Hydrophytic	Vegetation	(Explain)
Woody Vine Stratum (Plot size: 30')					¹ Indicators of h be present, unl			
2					Hydrophytic			
% Bare Ground in Herb Stratum 30	0				Vegetation Present?	Yes X	No	
% Bare Ground in Herb Stratum 65 Remarks:								
FAC Neutral Test (FACW+OBL:FACU, UPL): 1:1								

SOIL Sampling Point: 14

Profile Desc	cription: (Descri	e to the dept	n needed to docu	ment the	indicator	or confirm	m the absence of i	ndicators.)
Depth	Matrix		Redo	ox Feature	-			
(inches)	Color (moist)	%	Color (moist)	%	Type'	_Loc ²	<u>Texture</u>	Remarks
0-16	10YR 4/3	95	7.5YR 5/8	5	<u>C</u>	M	Clay	
				_	-			
l ———				_			· 	
				_			. <u> </u>	
				_	-			
					-			
				_	_			
			Reduced Matrix, C			ed Sand G		on: PL=Pore Lining, M=Matrix.
_		licable to all L	RRs, unless othe					Problematic Hydric Soils ³ :
Histosol	` '		Sandy					(A9) (LRR I, J)
	pipedon (A2)		-	Redox (St			· · · · · · · · · · · · · · · · · · ·	irie Redox (A16) (LRR F, G, H)
	istic (A3)			d Matrix (,			ace (S7) (LRR G)
	en Sulfide (A4)	D. E.\		-	neral (F1)		_	s Depressions (F16)
	d Layers (A5) (LR uck (A9) (LRR F, (,	-	Gleyed M ed Matrix (,	I outside of MLRA 72 & 73) /ertic (F18)
	d Below Dark Surf			Dark Surfa				nt Material (TF2)
	ark Surface (A12)	400 (7111)			urface (F7)		ow Dark Surface (TF12)
·	Mucky Mineral (S1)		Depression		,		plain in Remarks)
	Mucky Peat or Pea	,			essions (F	16)		ydrophytic vegetation and
5 cm Mu	ucky Peat or Peat	(S3) (LRR F)	(ML	RA 72 &	73 of LRF	RH)	wetland hy	drology must be present,
							unless dist	turbed or problematic.
Restrictive	Layer (if present)	:						
Type:								
Depth (in	ches):						Hydric Soil Pre	esent? Yes No X
Remarks:								
			y 30% of the matri					
			-					as assessed to determine if
		. The sample v	was borderline, but	lacked hy	dric soil ir	idicators.	Due to the landforr	n, indicator F8 is not applicable.
HYDROLO								
Wetland Hy	drology Indicato	's:						
Primary Indi	cators (minimum o	f one required;	check all that app	ly)			Secondary I	ndicators (minimum of two required)
Surface	Water (A1)		Salt Crust	t (B11)			Surface	Soil Cracks (B6)
High Wa	ater Table (A2)		Aquatic In	vertebrate	es (B13)		Sparsel	y Vegetated Concave Surface (B8)
X Saturati	on (A3)		Hydrogen	Sulfide O	dor (C1)		Drainag	e Patterns (B10)
Water M	larks (B1)		Dry-Seaso	on Water ⁻	Table (C2))	Oxidize	d Rhizospheres on Living Roots (C3)
Sedime	nt Deposits (B2)		Oxidized	Rhizosphe	eres on Liv	ing Roots	(C3) (wher	re tilled)
Drift De	posits (B3)		(where	not tilled))		Crayfish	Burrows (C8)
Algal Ma	at or Crust (B4)		Presence	of Reduce	ed Iron (C	4)	Saturati	on Visible on Aerial Imagery (C9)
Iron Dep	posits (B5)		Thin Mucl	k Surface	(C7)		Geomoi	rphic Position (D2)
Inundati	ion Visible on Aeri	al Imagery (B7	Other (Ex	plain in Re	emarks)		FAC-Ne	eutral Test (D5)
Water-S	Stained Leaves (B	9)					Frost-He	eave Hummocks (D7) (LRR F)
Field Obser	vations:							
Surface Wat		Yes N	o X Depth (in	nches):				
Water Table			o X Depth (in					
Saturation P			o Depth (in				land Hydrology Pr	resent? Yes X No
(includes ca	pillary fringe)							100
Describe Re	corded Data (stre	am gauge, mor	nitoring well, aerial	photos, pi	revious ins	spections),	, if available:	
Remarks:								
Surface water	er is present appro	ximately two fe	et from the sample	point.				
1								

Project/Site: Lookout Solar		City/C	ounty	Custer Co	ounty	Sampling Date: 06/13/2018		
Applicant/Owner: Lookout Solar, LLC					State: SD	Samplin	g Point: 15A	
Investigator(s): ES, SJ		Sectio	n, Tov	wnship, Ra	nge: Section 12, Townsh	nip 6S, Ra	nge 8E	
Landform (hillslope, terrace, etc.): Semi-closed depressi								%): <u></u> 0-1
Subregion (LRR): G	Lat: 43.5	53488	131	•	Long: -103.1240862		Datum: N	NAD_1983
Soil Map Unit Name: Lohmiller silty clay loam					NWI classifi			
Are climatic / hydrologic conditions on the site typical for								
Are Vegetation No , Soil No , or Hydrology No					'Normal Circumstances"			No
Are Vegetation No , Soil No , or Hydrology No					eeded, explain any answe			
SUMMARY OF FINDINGS – Attach site ma								res. etc.
	No					-,		
Hydric Soil Present? Yes X	No			e Sampled				
Wetland Hydrology Present? Yes X	No		with	in a Wetlar	nd? Yes <u>^</u>	No		
Remarks:								
VEGETATION – Use scientific names of pl	ants.							
Tree Stratum (Plot size: 30')	Absolute				Dominance Test wor	ksheet:		
					Number of Dominant S			
1 2					That Are OBL, FACW, (excluding FAC-):	OI FAC	1	(A)
3.					Total Number of Domi	nont		
4					Species Across All Str		2	(B)
			al Cov	er	Percent of Dominant S	nocios		
Sapling/Shrub Stratum (Plot size: 15'				·	That Are OBL, FACW,		50	(A/B)
1. Salix fragilis	5	Yes		UPL	Prevalence Index wo	rkohooti		
2					Total % Cover of:		Multiply by:	
3					OBL species 11			
4		-	-		FACW species 35			
5					FAC species 0			
Herb Stratum (Plot size: 5')	5	= Tota	al Cov	er	FACU species 5			
1. Rumex crispus	5	No		FAC	UPL species 5	x	5 = 25	
2. Eleocharis palustris	10	No		OBL	Column Totals: 56	(A) 126	(B)
3. Hordeum jubatum	5	No		FACW		D/A	2 25	
4. Spartina pectinata	30	Yes		FACW	Prevalence Index			
5. Sagittaria latifolia	1	No		OBL	Hydrophytic Vegetati			
6					1 - Rapid Test for 2 - Dominance Te		_	1
7					X 3 - Prevalence Inc			
8					4 - Morphological			supporting
9					data in Remark	s or on a	separate she	et)
10					Problematic Hydro	phytic Ve	getation ¹ (Ex	plain)
Woody Vine Stratum (Plot size: 30'		= Tota			¹ Indicators of hydric so be present, unless dist			y must
1 2					Hydrophytic			
	0				Hydrophytic Vegetation	V		
% Bare Ground in Herb Stratum 49	<u>-</u>	- 100	ui 00V	OI .	Present? Ye	es <u>* </u>	No	_
Remarks:					•			
FAC Neutral Test (FACW+OBL:FACU+UPL): 4:1								

SOIL Sampling Point: 15A

Profile Desc	ription: (Describ	e to the de	pth needed to docu	ment the	indicator	or confirm	m the absence of indic	ators.)
Depth	Matrix			ox Featur				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>	Remarks
0-10	GLEY 1 4/N	80	5YR 4/6	20	<u>C</u>	M, PL	Clay	
10-16	GLEY 1 4/N	20	5YR 4/6	40	С	M, PL	Clay	
	-	_	-					<u> </u>
l ———			-	_	_		·	_
							·	
				_			<u> </u>	
	-		-		_		·	
1- 0.0							2	
			I=Reduced Matrix, C			ed Sand G		PL=Pore Lining, M=Matrix. blematic Hydric Soils³:
_		cable to al	I LRRs, unless othe					•
Histosol			Sandy	-			1 cm Muck (A9	
Black Hi	oipedon (A2)			Redox (S d Matrix (Dark Surface (Redox (A16) (LRR F, G, H)
	n Sulfide (A4)				ineral (F1)		High Plains De	
	d Layers (A5) (LRF	(F)	X Loamy					side of MLRA 72 & 73)
	ick (A9) (LRR F, G			ed Matrix	, ,		Reduced Vertice	,
l ——	d Below Dark Surfa	. ,		Dark Sur			Red Parent Ma	
Thick Da	ark Surface (A12)		Deplete	ed Dark S	Surface (F7)		Park Surface (TF12)
	lucky Mineral (S1)			Depressi			Other (Explain	,
	/lucky Peat or Peat				ressions (F		•	phytic vegetation and
5 cm Mu	icky Peat or Peat (S3) (LRR F) (MI	_RA 72 &	73 of LRF	R H)	•	ogy must be present,
Postriotivo I	_ayer (if present):						uniess disturbe	ed or problematic.
Type:	-h \.						Under Call Decay	No. Yes X
	ches):						Hydric Soil Presen	t? Yes X No
Remarks:								
HYDROLO	GY							
Wetland Hy	drology Indicators	S:						
_			ed; check all that app	lv)			Secondary Indica	ators (minimum of two required)
	Water (A1)	One require	Salt Crus				X Surface Soil	
	iter Table (A2)		Sait Crus		oc (B13)			getated Concave Surface (B8)
Saturation			Aquatic II				Drainage Pa	
	arks (B1)				Table (C2	١	_	izospheres on Living Roots (C3)
	nt Deposits (B2)		Oxidized		•			
	posits (B3)			not tilled		ing roots	Crayfish Bur	
_ ·	at or Crust (B4)		Presence			4)	-	isible on Aerial Imagery (C9)
Iron Dep			Thin Muc			7)		Position (D2)
-	on Visible on Aeria	l Imagery (F					X FAC-Neutra	
	tained Leaves (B9		Outor (Ex	piairi	iomanio)			Hummocks (D7) (LRR F)
Field Obser	` '	'						
Surface Water		Vec	No X Depth (ir	rches).				
Water Table			No X Depth (ir					
							land Hydrology Drace	nt? Yes X No
Saturation Pi		res	No X Depth (ir	icnes):		vvet	ianu nyurology Presel	itr res // NO
		m gauge, m	onitoring well, aerial	photos, p	revious in:	spections)	, if available:	
Remarks:								

Project/Site: Lookout Solar		City/Co	ounty:	Custer Co	ounty	_ Sampling	Date: 06/13/2	2018	
Applicant/Owner: Lookout Solar, LLC					State: SD	Sampling	· · · ·		
		Section, Township, Range: Section 12, Township 6S, Range 8E							
Landform (hillslope, terrace, etc.): Semi-closed depression								0-1	
Subregion (LRR): G									
Soil Map Unit Name: Lohmiller silty clay loam					NWI classific				
Are climatic / hydrologic conditions on the site typical for this									
Are Vegetation No , Soil No , or Hydrology No s	-				Normal Circumstances"		Yes X N	lo	
Are Vegetation No , Soil No , or Hydrology No n					eded, explain any answe		·		
SUMMARY OF FINDINGS – Attach site map								s, etc.	
					<u> </u>				
Hydrophytic Vegetation Present? Yes No. Hydric Soil Present? Yes No.				Sampled			V		
Wetland Hydrology Present? Yes N	o X		within	a Wetlar	nd? Yes	No 2	^		
Remarks:		I							
VEGETATION – Use scientific names of plan	ts.								
Tree Stratum (Plot size: 30')	Absolute				Dominance Test worl	ksheet:			
	% Cover				Number of Dominant S	•			
1					That Are OBL, FACW, (excluding FAC-):	OI FAC	0	(A)	
3.					Total Number of Domir	nant			
4					Species Across All Stra		3	(B)	
					Percent of Dominant S	necies			
Sapling/Shrub Stratum (Plot size: 15')					That Are OBL, FACW,		0	(A/B)	
1					Prevalence Index wor	rksheet:			
2					Total % Cover of:		Multiply by:		
3					OBL species				
4					FACW species				
5		- Total	I Covo		FAC species				
Herb Stratum (Plot size: 5')		- Total	COVE	1	FACU species	x 4	. =	_	
1. Bromus inermis	20	Yes		JPL	UPL species				
2. Elymus trachycaulus	30	Yes		FACU	Column Totals:	(A)		(B)	
3. Poa secunda	25	Yes		FACU	Prevalence Index	, - B/A -			
4. Agropyron cristatum	10	No		JPL	Hydrophytic Vegetati	_			
5. Spartina pectinata	15	No		FACW	1 - Rapid Test for				
6					2 - Dominance Te		o rogotation		
7					3 - Prevalence Ind				
8					4 - Morphological		s ¹ (Provide sup	porting	
9					data in Remark		•		
10		= Total			Problematic Hydro	phytic Veg	etation' (Expla	iin)	
Woody Vine Stratum (Plot size: 30' 1.					¹ Indicators of hydric so be present, unless dist			must	
2.					Hydrophytic				
	0				Vegetation		X		
% Bare Ground in Herb Stratum 0					Present? Ye	is	No X		
Remarks:									
FAC Neutral Test (FACW+OBL:FACU+UPL): 1:4									
Prevalence Index indicator is not applicable, as hydric soil a	and wetland	i hydrol	logy in	dicators a	re absent.				

SOIL Sampling Point: 15B

Profile Desc	ription: (Describe	e to the dept	th neede	ed to docun	nent the i	ndicator	or confirn	n the absence of i	ndicators.)			
Depth	Matrix				x Feature:	s						
(inches)	Color (moist)	%	Colo	r (moist)	%	Type ¹	Loc ²	<u>Texture</u>	Remarks			
0-16	10YR 3/2	100						Loamy clay				
							-					
							•					
	oncentration, D=De						ed Sand G		n: PL=Pore Lining, M=Matrix.			
Hydric Soil	Indicators: (Appli	cable to all	LRRs, u	nless other	wise note	ed.)		Indicators for	Problematic Hydric Soils ³ :			
Histosol			-	Sandy C	-				(A9) (LRR I, J)			
	oipedon (A2)		-	-	Redox (S5				rie Redox (A16) (LRR F, G, H)			
Black Hi			-		l Matrix (S				ce (S7) (LRR G)			
	en Sulfide (A4)	- \	-		Mucky Mir			_	s Depressions (F16)			
	d Layers (A5) (LRR ick (A9) (LRR F, G ,		=	-	Gleyed Ma			(LKK H Reduced V	outside of MLRA 72 & 73)			
	d Below Dark Surfa	,	-		d Matrix (I Dark Surfa	,			t Material (TF2)			
	ark Surface (A12)	ce (ATT)	-			rface (F7)	١		ow Dark Surface (TF12)			
	fucky Mineral (S1)		=		Depression		,		plain in Remarks)			
	Mucky Peat or Peat	(S2) (LRR 6	5, H)			essions (F	16)		ydrophytic vegetation and			
	ıcky Peat or Peat (S		, , -	_		73 of LRR		wetland hydrology must be present,				
								unless dist	urbed or problematic.			
Restrictive I	Layer (if present):											
Type:												
Depth (inc	ches):							Hydric Soil Pre	sent? Yes No X			
Remarks:	, <u>-</u>											
HYDROLO	GY											
Wetland Hyd	drology Indicators	5 :										
_	cators (minimum of		d: check	all that apply	v)			Secondary Ir	ndicators (minimum of two required)			
-	Water (A1)	•	•	Salt Crust					Soil Cracks (B6)			
	ater Table (A2)			Aquatic Inv	. ,	s (B13)		Sparsely Vegetated Concave Surface (B8)				
Saturation	` '			Hydrogen					e Patterns (B10)			
· ·	larks (B1)			Dry-Seaso					d Rhizospheres on Living Roots (C3)			
	nt Deposits (B2)			Oxidized F		, ,			e tilled)			
	posits (B3)		-		not tilled)	100 011 211	ing ricoto		Burrows (C8)			
	at or Crust (B4)			Presence		ed Iron (C4	1)		on Visible on Aerial Imagery (C9)			
_	oosits (B5)			Thin Muck		,	*)		phic Position (D2)			
	on Visible on Aerial	Imagery (B7		Other (Exp					utral Test (D5)			
	tained Leaves (B9)	0 , (Other (Exp	nani iii i ko	marks)			eave Hummocks (D7) (LRR F)			
Field Obser	` ,						1	11030110	cave Hummocks (D1) (ERRT)			
Surface Water		Yes 1	No X	Donth (in	oboo):							
Water Table		Yes 1							V			
Saturation Procession (includes cap		Yes 1	No <u>^</u>	_ Depth (in	ches):		_ Weti	land Hydrology Pr	esent? Yes No X			
	corded Data (strear	m gauge, mo	nitoring	well, aerial p	ohotos, pr	evious ins	pections),	if available:				
	,	- ·	3	'			. ,,					
Remarks:												
. tomanto.												

Project/Site: Lookout Solar		City/Co	unty: Custer Co	ounty	Samplir	ng Date: 06/13/	2018		
Applicant/Owner: Lookout Solar, LLC			-	State: SD	State: SD Sampling Point: 16				
		Section, Township, Range: Section 15, Township 6S, Range 8E							
Landform (hillslope, terrace, etc.): Semi-closed depression): 0-1		
Subregion (LRR): G									
Soil Map Unit Name: Lohmiller silty clay, channeled, 0 to 3									
Are climatic / hydrologic conditions on the site typical for th									
Are Vegetation No , Soil No , or Hydrology No :	-						lo.		
Are Vegetation No , Soil No , or Hydrology No							NO		
			,			•			
SUMMARY OF FINDINGS – Attach site map	showing	samp	oling point l	ocations, trans	sects, impo	rtant feature	es, etc.		
Hydrophytic Vegetation Present? Yes N	10 X	١.	ls the Sampled	I Aroo					
Hydric Soil Present? Yes X N Wetland Hydrology Present? Yes N	lo		within a Wetlar		s No	X			
Wetland Hydrology Present? Yes N	10 X		within a wetian	103	,				
Remarks:									
VEGETATION - Use scientific names of plan	nts.								
	Absolute	Domir	nant Indicator	Dominance Tes	t worksheet:				
<u>Tree Stratum</u> (Plot size: <u>30'</u>)	% Cover	Speci	es? Status	Number of Domir	nant Species				
1				That Are OBL, FA		0	(4)		
2				(excluding FAC-).		_ (A)		
3				Total Number of		3	(D)		
4				Species Across A	All Strata.		_ (B)		
Sapling/Shrub Stratum (Plot size: 15')		= Total	Cover	Percent of Domir That Are OBL, FA		0	(A/B)		
1				That Are Obc, F	ACVV, OI FAC.	<u>-</u>	_ (A/D)		
2.				Prevalence Inde	x worksheet:				
3						Multiply by:			
4				OBL species					
5				FACW species _					
E'		= Total	Cover	FAC species			_		
Herb Stratum (Plot size: 5')	20	Voo	FACIL	FACU species		•			
Cirsium arvense Poa secunda	_ <u>20</u> 30	Yes Yes	FACU FACU	UPL species					
3. Melilotus officinalis	1	No	FACU	Column Totals:	(<i>F</i>	A)	(B)		
4. Lepidium densiflorum	4	No	FAC	Prevalence	Index = B/A =				
5. Convolvulus arvensis	5	No	UPL	Hydrophytic Ve	getation Indica	ators:			
6. Pascopyrum smithii	10	No	FACU	1 - Rapid Te	st for Hydrophy	tic Vegetation			
7. Helianthus petiolaris	1	No	UPL	2 - Dominan					
8 Bromus inermis	20	Yes	UPL	3 - Prevalend					
9.	_			4 - Morpholo		ns ¹ (Provide su separate sheet			
10.				Problematic		•	•		
		= Total	Cover	Problematic	nyuropriyuc ve	getation (Expir	alli)		
Woody Vine Stratum (Plot size: 30')				¹ Indicators of hyd be present, unles			must		
1				be present, unles	ss disturbed or	problematic.			
2				Hydrophytic Vegetation					
% Bare Ground in Herb Stratum 9	0	= Total	Cover	Present?	Yes	No X			
Remarks:				1					
FAC Neutral Test (FACW+OBL:FACU+UPL): 0:7									
Prevalence Index indicator is not applicable, as wetland hy	/droloav indi	cators a	are absent						
as worlding it	, 3, 11131								

SOIL Sampling Point: 16

Profile Desc	ription: (Describe	e to the de	oth needed to docu	ment the	indicator	or confire	m the absence of indicators.)			
Depth	Matrix			x Feature						
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture Remarks			
0-4	10YR 3/2	100					Clay			
4-8	10YR 3/1	98	7.5YR 4/6	2	С	M	Clay			
8-16	GLEY 1 4/N	70	10YR 4/6	30	С	M, PL	Clay			
						-				
					_	-				
				-			·			
					_					
			=Reduced Matrix, C			ed Sand G				
Hydric Soil	Indicators: (Appli	cable to all	LRRs, unless othe	rwise no	ted.)		Indicators for Problematic Hydric Soils ³ :			
Histosol	(A1)		Sandy	-			1 cm Muck (A9) (LRR I, J)			
	oipedon (A2)			Redox (S			Coast Prairie Redox (A16) (LRR F, G, H)			
Black Hi	stic (A3)			d Matrix (. ,		Dark Surface (S7) (LRR G)			
	n Sulfide (A4)				ineral (F1)		High Plains Depressions (F16)			
	d Layers (A5) (LRR		·	-	/latrix (F2)		(LRR H outside of MLRA 72 & 73)			
_	ıck (A9) (LRR F, G	,		d Matrix			Reduced Vertic (F18)			
	d Below Dark Surfa	ce (A11)		Dark Surf	, ,		Red Parent Material (TF2)			
	ark Surface (A12)				urface (F7)	Very Shallow Dark Surface (TF12)			
-	Mucky Mineral (S1)	(CO) /I DD		Depression	ons (F8) ressions (F	16)	Other (Explain in Remarks)			
	Mucky Peat or Peat icky Peat or Peat (ទ		· · · —		73 of LR	,	³ Indicators of hydrophytic vegetation and wetland hydrology must be present,			
3 6111 1010	icky real of real (s	33) (LKK F)	(IVIL	.NA 12 0.	73 OI LINI	ΧП)	unless disturbed or problematic.			
Restrictive I	Layer (if present):									
Type:										
, , <u> </u>	ches):						Hydric Soil Present? Yes X No			
Remarks:	,									
HYDROLO										
_	drology Indicators									
-		one require	d; check all that app	y)			Secondary Indicators (minimum of two required)			
Surface	Water (A1)		Salt Crust	(B11)			Surface Soil Cracks (B6)			
High Wa	iter Table (A2)		Aquatic In	vertebrat	es (B13)		Sparsely Vegetated Concave Surface (B8)			
Saturation	on (A3)		Hydrogen	Sulfide C	Odor (C1)		X Drainage Patterns (B10)			
Water M	larks (B1)		Dry-Seaso	on Water	Table (C2)	Oxidized Rhizospheres on Living Roots (C3)			
Sedimer	nt Deposits (B2)		Oxidized F	Rhizosph	eres on Liv	ing Roots	(C3) (where tilled)			
Drift Dep	oosits (B3)		(where	not tilled	I)		Crayfish Burrows (C8)			
Algal Ma	at or Crust (B4)		Presence	of Reduc	ed Iron (C	4)	Saturation Visible on Aerial Imagery (C9)			
Iron Dep	oosits (B5)		Thin Muck	Surface	(C7)		Geomorphic Position (D2)			
Inundation	on Visible on Aerial	Imagery (E	37) Other (Ex	plain in R	temarks)		FAC-Neutral Test (D5)			
Water-S	tained Leaves (B9)						Frost-Heave Hummocks (D7) (LRR F)			
Field Obser	vations:									
Surface Wate	er Present?	Yes	No X Depth (in	ches):						
Water Table			No X Depth (in							
Saturation P			No X Depth (in				land Hydrology Present? Yes No X			
(includes cap	oillary fringe)		onitoring well, aerial				if available:			
Describe Ke	corucu Data (Streat	ıı yauye, m	omtoring well, aerial	ρποιοδ, β	nevious in	ppections)	, II available.			
Downsul										
Remarks:										

APPENDIX B

PHOTOGRAPH LOG



Photo 1. Sample Point 1A



Photo 3. Sample Point 2A



Photo 2. Sample Point 1B



Photo 4. Sample Point 2B









Photo 7. Sample Point 4A

Photo 8. Sample Point 4B

201808_Appendix_B_APP-B.doc 2 of 11



Photo 9. Sample Point 5

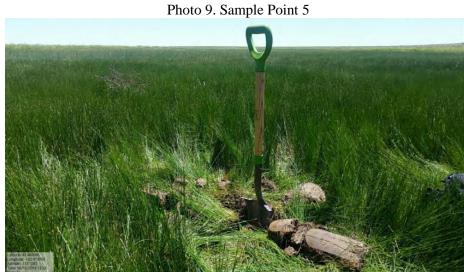


Photo 11. Sample Point 6A



Photo 10. Sample Point 5



Photo 12. Sample Point 6B

201808_Appendix_B_APP-B.doc 3 of 11



Carrier Countil Community (1) Community (1) Community (1) Community (1)





Photo 15. Sample Point 7B

Photo 16. Sample Point 7C

201808_Appendix_B_APP-B.doc 4 of 11



Photo 17. Sample Point 8A



Photo 19. Sample Point 8B



Photo 18. Sample Point 8A



Photo 20. Sample Point 8B

201808_Appendix_B_APP-B.doc 5 of 11

APPENDIX B. PHOTOGRAPH LOG

LOOKOUT SOLAR, LLC., CUSTER AND OGLALA LAKOTA COUNTIES, SOUTH DAKOTA



Photo 21. Sample Point 9A



Photo 23. Sample Point 10B



Photo 22. Sample Point 9B



Photo 24. Sample Point 10B





Photo 27. Sample Point 12A



Photo 26. Sample Point 11B



Photo 28. Sample Point 12B

7 of 11 201808_Appendix_B_APP-B.doc



Photo 29. Sample Point 13



Photo 31. Sample Point 14





Photo 32. Sample Point 14

8 of 11 201808_Appendix_B_APP-B.doc



Photo 33. Sample Point 15A



Photo 35. Sample Point 16



Photo 34. Sample Point 15B



Photo 36. Sample Point 16

201808_Appendix_B_APP-B.doc 9 of 11



Photo 37. Cheyenne River Crossing, North of bridge



Photo 39. Angostura Canal Crossing



Photo 38. Cheyenne River Crossing, South of bridge



Photo 40. Angostura Canal Crossing



Photo 41. Cottonwood Creek Crossing

201808_Appendix_B_APP-B.doc 11 of 11





BIOLOGICAL RESOURCE REPORT LOOKOUT SOLAR PROJECT CUSTER AND OGLALA LAKOTA COUNTIES, SOUTH DAKOTA

July 31, 2018

Project #: 52V-001-001

SUBMITTED BY: Trihydro Corporation

1252 Commerce Drive, Laramie, WY 82070

Table of Contents

1.0	INTR	ODUCTION	1-1
	1.1	Project Description	1-1
	1.2	Agency Coordination	1-1
	1.3	Regulatory Context	1-1
		1.3.1 Federal Endangered Species Act	1-2
		1.3.2 Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act	1-2
		1.3.3 South Dakota Endangered Species Act	1-3
	1.4	Survey Area Description	1-3
2.0	DES	KTOP ASSESSMENT	2-1
3.0	FIEL	D-BASED ASSESSMENT	3-1
	3.1	Plant Species Survey	3-1
	3.2	Habitat Assessment	3-2
	3.3	Raptor Nest Survey	3-5
	3.4	Swift Fox Survey	3-7
	3.5	Northern Long-Eared Bat Habitat Assessment	3-7
	3.6	Bat Acoustic Survey	3-9
	3.7	Migratory Bird Survey	3-11
	3.8	Additional Wildlife Observations	3-14
4.0	CON	CLUSION	4-1
5.0	RFFF	FRENCES	5-1

List of Tables

- 1. Special Status Species Assessed for the Project
- 2. Plant Species Potentially Affected by the Project
- 3. Habitat Types in the Assessment Area
- 4. Raptor Nests in the Survey Area
- 5. Acoustic Bat Survey Results
- 6. Avian Species Documented in the Survey Area

List of Figures

- 1. Project Area
- 2. GAP Data Ecological Systems
- 3. Wildlife Observations
- 4. Bat Species Composition by Detector Site

List of Appendices

- A. USFWS OFFICIAL SPECIES LIST
- B. STATE LISTED T&E SPECIES DOCUMENTED IN SOUTH DAKOTA, BY COUNTY
- C. PHOTOGRAPH LOG

1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION

The Project proponent (Wirsol) proposes to construct and operate an approximately 840-acre photovoltaic (PV) solar farm and an information and office center on the Pine Ridge Indian Reservation. The solar farm will connect to an approximately 10-acre substation (to be constructed) via a 9-mile long buried transmission line cable. The 230 kilovolt (kV) transmission line cable will be placed within an existing right-of-way that is 66 feet wide on the western half of route and 100 feet wide on the eastern half. The solar farm, transmission line right-of-way, and substation (including access road) are collectively considered the Project, hereon, with the Project Area being the collective of their surface footprint. The Project Area is shown on Figure 1. The purpose of this Project is to generate solar energy, provide public education on the benefits of solar energy, encourage future renewable-energy interest and investments, and reduce greenhouse gas (GHG) emissions across the Reservation.

1.2 AGENCY COORDINATION

Western Area Power Administration (WAPA) is the lead agency directing the development of a supplemental Environmental Assessment (EA) to meet National Environmental Protection Act (NEPA) requirements. Previously, the Bureau of Indian Affairs was the lead agency for the development of an EA that was finalized in 2017 and analyzed impacts exclusively associated with the solar farm located within the Pine Ridge Indian Reservation. No on-site biological resource surveys were required to complete the 2017 EA. With the Project scope and area increased to include the transmission line right-of-way and substation, WAPA has requested surveys to facilitate their environmental review per the Department of Energy (DOE) NEPA Implementing Procedures (10CFR 1021). The biological resource surveys scope of work and protocols were developed based on WAPA's NEPA requirements and informal consultation with the U.S. Fish and Wildlife Service regarding potential Endangered Species Act (ESA) listed species occurrence. In addition, South Dakota Game and Fish Department was consulted for state-listed Threatened or Endangered (T&E) species occurrences in the area.

1.3 REGULATORY CONTEXT

Special status species are those species for which state of federal agencies afford an additional level of protection by law, regulation, or policy. Included in this category are federally listed species that are protected under the ESA, the Migratory Bird Treaty Act (MBTA), the Bald and Golden Eagle Protection Act (BGEPA), and South Dakota State Endangered Species Law.

1.3.1 FEDERAL ENDANGERED SPECIES ACT

The ESA of 1973 protects plants and wildlife that are listed as endangered or threatened by the USFWS and the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries). Section 9 of the ESA prohibits the "take" of endangered wildlife, which is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 CFR 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any listed plant on federal land and removing, cutting, digging-up, damaging, or destroying any listed plant on non-federal land in knowing violation of state law (16 USC 1538). Under Section 7 of the ESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect a listed species (including plants) or its critical habitat. Federally listed species potentially affected by the Project are listed in Section 3.0 of this report.

1.3.2 MIGRATORY BIRD TREATY ACT AND BALD AND GOLDEN EAGLE PROTECTION ACT

The MBTA of 1918, offers protection to over 1,000 species of migratory birds including a variety of passerines and raptor species as a result of four bilateral treaties, or conventions, signed between the U.S. and Canada (1916), Mexico (1936, amended 1972 and 1999), Japan (1972), and Russia (1976). Under the MBTA, it is unlawful to pursue, hunt, take, capture, kill, possess, sell, purchase, barter, import, export, or transport any migratory bird, or any part, nest, or egg or any such bird, unless authorized under a permit issued by the Secretary of the Interior. Take is defined in regulations as: "pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect." If a nest is protected by the MBTA only and it is unoccupied (no eggs or nestlings), the nest is not protected from destruction or removal. The MBTA protects species using a nest, not the nest itself. A violation of the MBTA occurs when there is a "take" of a bird (egg, nestling, juvenile, or adult). For example, the destruction of an unoccupied migratory bird nest is not a violation of the MBTA. If a person destroys a migratory bird nest containing eggs, the violation of the MBTA is the take of the bird (egg), not the nest. Nests of certain exotic bird species are not protected by federal law. In South Dakota, those species include the Rock Pigeon (*Columba livia*), House Sparrow (*Passer domesticus*), Eurasian Collared-Dove (*Streptopelia decaocto*), and European Starling (*Sturnus vulgaris*).

In addition to the MBTA, bald and golden eagles are protected under the BGEPA. This statute prohibits anyone without a permit from committing "take" of bald and golden eagles, including their parts, nests, and eggs. "Take" is defined as the actions to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest and disturb. Any eagle nest is protected, including the tree or nest substrate and surrounding area (if disturbance of the surrounding area makes the nest tree unsuitable), whether the nest is occupied or unoccupied.

1.3.3 SOUTH DAKOTA ENDANGERED SPECIES ACT

The State of South Dakota maintains a list of T&E species (SDGFP 2016) that are protected under state statute 34A-8, which states that no person may take, possess, transport, import, export, process, sell, or offer for sale, buy or offer to buy any species of wildlife or plants listed as threatened or endangered pursuant to §§ 34A-8-3 and 34A-8-4. Violations are considered a Class 2 misdemeanor. State T&E species potentially affected by the Project are listed in Section 3.0 of this report.

1.4 SURVEY AREA DESCRIPTION

Survey areas varied depending on the specific biological resource. A summary of resource specific survey areas is provided below:

- Plant Species Survey Area: Survey conducted within the proposed Project footprint
- Habitat Assessment Area: Habitat assessment was conducted within 0.5 miles of the proposed Project footprint
- Raptor Nest Survey Area: A raptor nest survey was conducted within 0.5 miles of the proposed Project footprint
- Northern long-eared bat Habitat Assessment Area: Habitat was assessed within 0.5 miles of the proposed Project footprint
- Wildlife Survey Area (migratory birds, bats, swift fox, other wildlife): Surveys were conducted within the proposed Project footprint including scanning of adjacent areas with optics

2.0 DESKTOP ASSESSMENT

Prior to field surveys, a desktop assessment was completed to identify potential wildlife, plants, and habitats present in the Survey Area. This assessment included the following:

- Query of the USFWS Information, Planning, and Conservation (IPaC) system database and request of an official USFWS species list for the Project to identify potential ESA-listed endangered, threatened, candidate, or proposed species that may be affected by the Project
- Special status species information request from the South Dakota Game, Fish, and Parks (SDGFP)
- Review of the SDGFP State Wildlife Action Plan (SDGFP 2014) and Data Explorer
- Review of National Wetland Inventory (NWI) data to identify important wetland and riparian habitats
- Review of U.S. Geological Survey (USGS) Regional Gap Analysis Program (GAP) ecological community data
- Review of 2018 Range-Wide Indian Bat Survey Guidelines (USFWS 2018)
- Review of soils and Ecological Site Assessment data from the NRCS Web Soil Survey (NRCS 2018)
- Review of Google Earth aerial imagery of the Survey Area

The above sources were used to identify potential habitats for nesting raptors, western prairie fringed orchid (*Platanthera praeclara*), whooping crane (*Grus americana*), black-footed ferret (*Mustela nigripes*), northern longeared bat (*Myotis septentrionalis*) (NLEB), and other species of interest. Potentially suitable habitats were identified on field maps and used to develop field survey areas and protocols.

Below is a summary of wildlife and plant species that are contained within the IPaC report and/or SDGFP T&E species list for Custer and Oglala Lakota Counties. These species have either been documented in the County (for State T&E species) or have potential to occur and/or be impacted by the proposed Project. Table 1 also indicates the relative potential for occurrence in the Project Area (None, Very Low, Low, Moderate, and High), which is based on an assessment of potential habitat and occurrence data for the Survey Area. The USFWS official species list is included in Appendix A. A list of state listed T&E species that have been documented in South Dakota, by County, is included in Appendix B.

The results of a South Dakota Natural Heritage Database search indicated that two rare species, the spiny softshell turtle (*Apalone spinefera*) and plains topminnow (*Fundulus sciadicus*) have been documented in the Cheyenne River



near the transmission line crossing. In addition, burrowing owls (*Athene cunicularia*) have been documented in the area. These species are considered rare, but not are not designated as threatened or endangered by SDGFP.

TABLE 1. SPECIAL STATUS SPECIES ASSESSED FOR THE PROJECT

Species	Status¹	Potential Occurrence in Project Area ²	Surveys	Documented During Survey?					
ESA-Listed T&E Species									
Whooping crane Grus Americana	FT, SE	Very Low	May occur during migration, but highly unlikely. May use wetlands and croplands near the Project Area.	Habitat Assessment	No				
Red knot Calidris canutus	FT	None	None.	None	No				
Northern long-eared bat Myotis septontrionalis	hern long-eared FT Low Potential roost trees adjacent to Project Area,		Habitat assessment. No adverse effects = no USFWS protocol surveys needed	No					
Western prairie fringed orchid Platanthera praeclara	FT	None	No suitable habitat in the Project Area. Very rare in SD. Typically associated with unplowed mesic to wet tallgrass prairie but has been found in old fields and roadside ditches.	Habitat Assessment	No				
Black-footed ferret ³ Mustela nigripes	ack-footed ferret³ FE, SE None Unlikely to occur in		Habitat Assessment.	No					
	Sta	te-Listed T&E	Species						
Swift Fox Vulpes velox	ST	Moderate	May occur in grasslands throughout the Project Area.	Habitat Assessment, visual surveys and camera traps	No				
Osprey Pandion haliaetus	ST	Low	May occur along Cheyenne River. Potential nest sites, but nesting unlikely due to rarity of bird in this area.	Nest survey within 0.5-mile Project Area	No				

Species	Status¹	Potential Occurrence in Project Area ²	Habitat in Project Area	Surveys	Documented During Survey?
American dipper Cinclus mexicanus	ST	Low	Fast-moving, clear, unpolluted streams with cascades, riffles, and waterfalls.	None. No impacts to dipper habitats.	No
Northern river otter Lontra canadensis			None. No impacts to riverine habitats.	No	
Blacknose shiner Notropis heterolepis	SE	None	Cheyenne River. River will be crossed with horizontal directional drill	None. No impact to fish bearing	No
Longnose sturgeon Catostomus catostomus	ST		(HDD)	streams or waters.	
Sturgeon chub Mcarhybopsis gelida	ST				
	Oth	ner Protected V	Vildlife		
Raptors	MBTA, BGEPA	High	Potential nesting habitat for Swainson's hawk, red- tailed hawk, ferruginous hawk, and great-horned owl	Nest survey within 0.5-mile buffer surrounding Project Area	Yes. See Section 3.4.

¹Status:

- FE (Federally Endangered) FT (Federally Threatened)
- SE (State Endangered)
- ST (State Threatened)
- MBTA (Migratory Bird Treaty Act)
- BGEPA (Bald and Golden Eagle Protection Act

² Potential Occurrence in the Project Area:

- Very Low = extremely rare but may occur during migration
- Low = within the known range of the species, species uncommon in area, habitat is marginal or very limited
- Moderate = within the known range of the species, limited amount of suitable habitat present
- High = within the known range of the species, suitable habitat abundant in area, species documented in area

³ Black-footed ferret is on the Oglala Lakota County list (2016); but is not included on the USFWS official species list for the Project Area.

3.0 FIELD-BASED ASSESSMENT

Field surveys were completed between June 11, 2018 and June 16, 2018. Surveys included an aquatic resources inventory (reported separately), a plant species survey for affected species in the Project Area, a habitat assessment, a raptor nest survey, swift fox (*Vulpes velox*) surveys, NLEB habitat assessment, bat acoustic surveys, and a pedestrian survey to identify migratory bird use and other wildlife species in the area.

3.1 PLANT SPECIES SURVEY

All plant species observed in the Plant Species Survey Area were recorded in a field note book and are listed in Table 2. Surveys for plant species were limited to areas within the solar farm, substation and access road, and within the transmission line right-of-way so as to include any plant species potentially affected by the Project, including species being removed, trimmed, or relocated.

In total, 74 plant species were recorded within the Survey Area including 30 grass or grass-like plants, 11 woody plants including trees and shrubs, and 33 forbs. Western prairie fringed orchid is included on the USFWS official species list for the Project Area and is listed as threatened in Oglala Lakota County by SDGFP. The western prairie fringed orchid is a perennial orchid that inhabits tallgrass prairie and is found most often on unplowed, calcareous prairies and sedge meadows (USFWS 1996). Desktop review and an onsite habitat assessment indicated that suitable habitat for the species is not present. SDGFP notes that the counties indicated for western prairie fringed orchid are counties with potential habitat; however, currently there are no known populations of the species in South Dakota (SDGFP 2016).

TABLE 2. PLANT SPECIES FOUND WITHIN THE PROJECT AREA

Common Name	Scientific Name	Common Name	Scientific Name	
Grasses and	Grass-like Plants	Forbs		
Crested wheatgrass	Agropyron cristatum	Northern water plantain	Alisma triviale	
Short-awn foxtail	Alopecurus aequalis	Prickly poppy	Argemone polyanthemos	
Meadow foxtail	Alopecurus pratensis	White sagebrush	Artemesia ludoviciana	
Purple three-awn	Aristida purpurea	Showy milkweed	Asclepias speciosa	
Buffalo grass	Bouteloua dactyloides	Cream milkvetch	Astragalus racemosus	
Smooth brome	Bromus inermis	Lambsquarters	Chenopodium album	
Field brome	Bromus arvensis	Canada thistle	Cirsium arvense	
Cheatgrass	Bromus tectorum	Wavy leaf thistle	Cirsium undulatum	
Shortbeak sedge	Carex brevoria	Field bindweed	Convolvulus arvensis	
Panic grass	Dichanthelium sp.	Western wallflower	Erysimum asperum	
Needle spikerush	Eleocharis acicularis	American licorice	Glycyrrhiza lepidota	
Common spikerush	Eleocharis palustris	Curly cup gumweed	Grindelia squarrosa	
Streambank wheatgrass	Elymus trachycaulus	Prairie sunflower	Helianthus petiolaris	
Horsetail	Equisetum sp	Prickly lettuce	Lactuca serriola	
Stinkgrass	Eragrostis cilianensis	Common pepperweed	Lepidium densiflorum	
Needle and thread	Hesperostipa comata	Alfalfa	Medicago sativa	

Common Name	Scientific Name	Common Name	Scientific Name	
Fescue	Festuca spp.	Yellow sweet clover	Melilotus officinalis	
Inland rush	Juncus interior	Wild mint	Mentha arvensis	
Prairie junegrass	Koeleria macrantha	Scarlet beeblossom	Oenothera suffretescens	
Green needlegrass	Nassella viridula	Little pricklypear	Opuntia fragilis	
Western wheatgrass	Pascopyrum smithii	Plains pricklypear	Opuntia polycantha	
Kentucky bluegrass	Poa pratensis	Lilac penstemon	Penstemon gracilis	
Sandberg bluegrass	Poa secunda	Wooly plaintain	Plantago patagonica	
Tall fescue	Schedonorus arundinaceus	Prairie rose	Rosa arkansana	
Little bluestem	Schizachyrium scoparium	Curly dock	Rumex crispus	
Bulrush	Schoenoplectus spp.	Tall tumblemustard	Sisybrium altissimum	
Pale bulrush	Scirpus pallidus	Scarlet globemallow	Sphaeralcea coccinea	
Prairie cordgrass	Spartina pectinata	Common dandelion	Taraxacum officinale	
Narrowleaf cattail	Typha angustifolia	Spiderwort	Tradescantia sp.	
Soapweed yucca	Yucca glauca	Western salsify	Tragopogon dubius	
		Common mullein	Verbascum thapsus	
		Hoary vervain	Verbena stricta	
		Hookedspur violet	Viola andunca	
Wood	ly Plants	Woody Plants		
Box elder	Acer negundo	American plum	Prunus americana	
False indigo bush	Amorpha fruticosa	Narrowleaf willow	Salix exigua	
	Apocynum			
Spreading dogbane	androsaemifolium	Crack willow	Salix fragilis	
Sand sagebrush	Artemesia filifolia	Western snowberry	Symphoricarpos albus	
Russian olive	Elaeagnus angustifolia	Siberian Elm	Ulmus pumila	
Plains cottonwood	Populus deltoides			

3.2 HABITAT ASSESSMENT

GAP data were used to identify ecological communities in the Habitat Assessment Area. However, these data are based on aerial imagery obtained from remote-sensing, intended for use in characterization landscapes, and therefore do not always correlate with ecological communities observed on-the-ground. GAP ecological communities were used as a guide in identifying potential habitats present in the Habitat Assessment Area; however, these ecological communities were regrouped into four general habitat types observed in the field for the purpose of this report. Habitat descriptions include dominant plant species and wildlife species observed during the field habitat assessment. Information derived from the habitat assessment were also used in assessing potential habitats for T&E species including western prairie fringed orchid, whooping crane, northern long-eared bat, swift fox, and black-footed ferret, which are described later in the report.

The Project is located with the Northwestern Great Plains Level III Ecoregion, which includes most of western South Dakota with the exception of the Black Hills. A total of 17 ecological systems have been mapped within the Habitat Assessment Area using Gap Analysis Project (GAP) National Terrestrial Ecosystem data (USGS 2011). These ecological systems and their acreages within 0.5 miles of the Project Area, are presented in Table 3. The greatest



acreage consists of grassland systems including Northwestern Great Plains Mixedgrass Prairie and Western Great Plains Shortgrass Prairie, which together account for approximately 80 percent of the Project Area. As is shown in Table 3, these ecological systems have been grouped into four primary habitat types in the Habitat Assessment Area, including grassland, riparian and wetland, cropland, and developed or disturbed. Some ecological systems indicated by GAP data, such as the Black Hills Ponderosa Pine Woodland and Savanna, were not observed in the Habitat Assessment Area and are incorrectly reported. Other systems, such as Western Great Plains Wooded Draw and Ravine were limited to only a few small patches within the Habitat Assessment Area.

TABLE 3. HABITAT TYPES IN THE ASSESSMENT AREA

GAP ECOLOGICAL SYSTEM	TOTAL ACRES	HABITAT TYPE	PERCENTAGE (%) OF ASSESSMENT AREA	
Northwestern Great Plains Mixedgrass Prairie	4,494	Grassland	45.8%	
Western Great Plains Shortgrass Prairie	3,333	Grassland	34.0%	
Cultivated Cropland	842	Cropland	8.6%	
Northwestern Great Plains - Black Hills Ponderosa Pine Woodland and Savanna	246	Other	2.5%	
Pasture/Hay	221	Cropland	2.3%	
Introduced Upland Vegetation-Perennial Grassland/ Forbland	180	Grassland	1.8%	
Developed, High Intensity	128	Developed or Disturbed	1.3%	
Western Great Plains Floodplain Systems	126	Wetland	1.3%	
Open Water (Fresh)	65	Wetland	0.7%	
Developed, Open Space	60	Developed or Disturbed	0.6%	
Western Great Plains Depressional Wetland Systems	42	Wetland	0.4%	
Western Great Plains Sand Prairie	30	Grassland	0.3%	
Western Great Plains Sandhill Steppe	23	Grassland	0.2%	
Developed, Low Intensity	6	Developed or Disturbed	0.1%	
Western Great Plains Wooded Draw and Ravine	2	other	0.0%	
Rocky Mountain Foothill Limber Pine-Juniper Woodland	2	other	0.0%	
Western Great Plains Badland	1	other	0.0%	
Grand Total	9,803			
Habitat Type Totals	Total Acres	Percentage ((%) of Assessment Area	
Grassland	8,060		82.2%	
Cropland	1,063	10.8%		
Wetland and Riparian	234	2.4%		
Developed or Disturbed	195	2.0%		
Other	251	2.6%		

Grassland

Grassland habitats comprise approximately 82 percent of the Habitat Assessment Area and consist of a mosaic of various short- and mixed- grass prairie types. Sand sagebrush (Artemesia filifolia) stands are present within a few grassland areas, including much of the solar farm. With the exception of these stands of sand sagebrush, grassland habitats are dominated by graminoids associated with mixed grass prairie, including western wheatgrass (Pascopyrum smithii), green needlegrass (Nassella viridula), purple three-awn (Aristida purpurea), and prairie junegrass (Koeleria macrantha). Graminoids more closely associated with the shortgrass prairie system include buffalo grass (Bouteloua dactyloides) and Sandberg bluegrass (Poa secunda). A number of invasive grasses including cheatgrass (Bromus tectorum) and field brome (Bromus arvensis) are common in grassland habitat, with smooth brome (Bromus inermis) present primarily adjacent to disturbed areas and along roads. In some grassland habitats, primarily on the eastern extent of the Habitat Assessment Area, and in the proposed solar farm, stands of sand sagebrush are present with a lesser component of fringed sage (Artemesia frigida), soapweed yucca (Yucca glauca), and various forb species. Most of the grassland habitats are grazed by cattle. Wildlife species observed using grassland habitats are presented in Section 3.8 and include grassland specialists such as upland sandpiper (Bartramia longicauda), lark bunting (Calamospiza melanocorys), dickcissel (Spiza Americana), and sharp-tailed grouse (Tympanuchus phasianellus). One black-tailed prairie dog (Cynomys ludovicianus) colony was identified within 0.5 miles of the proposed transmission line and both burrowing owls and long-billed curlew (Numenius americanus) were observed using this patch of shortgrass prairie.

Riparian and Wetland

Riparian and wetlands habitats comprise approximately 2 percent of the Habitat Assessment Area; however, they provide essential habitat to a large number of species. There are two riparian areas within the Habitat Assessment Area; one along the Cheyenne River and another along Cottonwood Creek, an intermittent tributary to the Cheyenne. Riparian areas are dominated by woody vegetation including eastern cottonwood (*Populus deltoides*), box elder (*Acer negundo*), and Russian olive (*Elaeagnus angustifolia*). Understory species in riparian systems vary considerably, but include western snowberry (*Symphoricarpos occidentalis*) and various grasses, typically dominated by smooth brome. A number of wetlands occur in the Habitat Assessment Area including emergent wetlands and scrub-shrub wetlands. Emergent wetlands are dominated by narrowleaf cattail (*Typha angustifolia*), bulrushes (*Schoenoplectus* spp.), spike rushes (*Eleocharis* spp.), prairie cordgrass (*Spartina pectinata*), and other hydrophytic species. Emergent wetlands adjacent to the two riparian areas described above, are dominated by cattails and bulrush whereas spikerush dominates closed depressional wetlands found in a few areas in the Solar Farm. Scrub-shrub wetlands are dominated by narrowleaf willow (*Salix exigua*). Open water habitats are also present and include small ponds and riverine systems including the Cheyenne River. Wildlife species observed using riparian and wetland habitats are presented in Sections 3.8 and 3.9, and include a variety of waterfowl, snapping turtle (*Chelydra serpentina*), and songbirds birds such as

red-winged blackbirds (*Agelaius phoeniceus*) and yellow-billed cuckoo (*Coccyzus americanus*). Great horned owls (*Bubo virginanus*) and hawks (*Buteo* spp.) were also observed nesting in riparian habitat along the Cheyenne River.

Cropland

Croplands comprise approximately 10 percent of the Habitat Assessment Area and include cultivated crop fields and hay pastures. The primary agricultural crop in the Habitat Assessment Area is hay in the form of smooth brome, alfalfa (*Medicago sativa*), yellow sweet clover (*Melilotus officianalis*), and other herbaceous plants that are regularly harvested during the growing season. In addition, a small acreage of corn (*Zea mays*) is grown in irrigated fields adjacent to the Cheyenne River. A series of ditches provides water to irrigated cropland immediately west of the Cheyenne River. Croplands provide habitat to many wildlife species including deer, small mammals, and many avian species.

Developed or Disturbed

As can be seen on Figure 2, developed or disturbed areas are typically associated with roads and other human disturbance such as residential and agricultural buildings. These habitat types comprise approximately 2 percent of the Habitat Assessment Area. Vegetation in and adjacent to developed and disturbed areas is dominated by introduced and invader species. These species can be primarily seen along roadways (including the area adjacent to and directly below the Cheyenne River bridge) and include smooth brome, yellow sweet clover, cheat grass, field brome, curly dock (*Rumex crispus*), Canada thistle (*Cirsium arvense*), field bindweed (*Convolvulus arvensis*), pepperweed (*Lepidium latifolium*), common mullein (*Verbascum thapsus*), and a small proportion of native species described above for grassland and riparian and wetland habitats. Although developed and disturbed areas typically do not support a diverse array of native wildlife species, they do provide value to some wildlife species including those habituated to human presence including European starlings (*Sturnus vulgaris*) and Eurasian collard doves (*Streptopelia decaocto*). Examples of wildlife observed using developed and disturbed areas also include cliff swallows (*Petrochelidon pyrrhonota*) and raccoon (*Procyon lotor*) which were observed using habitat under and adjacent to the Cheyenne River bridge. Above ground utility lines in the area provide excellent perches for a variety of birds and raptor species.

3.3 RAPTOR NEST SURVEY

A survey was completed to identify raptor nests within 0.5 miles of the Project Area. Binoculars and a spotting scope were used to scan potential habitats for nests or potential raptor breeding activity. A vehicle was used to access areas with good vantage points where potential nesting habitat could be best observed. Identified nests were observed and classified as either active or inactive. Active nests were nests in which two adults and/or young were observed at the nest during the survey. Inactive nests were nests in which no raptor activity was observed. In addition to



characterizing nests as active or inactive, the nest type, nest substrate, nest height, nest species, and other observations were recorded.

A total of five raptor nests were documented in the Raptor Survey Area, including an active burrowing owl (BUOW) nest/territory, an active Swainson's hawk (*Buteo swainsoni*) (SWHA) nest, an active great-horned owl (GRHO) nest, and two inactive *Buteo* spp. nests (red-tailed hawk [*Buteo jamaicensis*] or Swainson's hawk). Nest locations are shown on Figure 3. In addition, American kestrels (*Falco sparverius*) were observed in a few locations throughout the Raptor Survey Area, with multiple sightings south of the substation. It is likely that kestrels are nesting in the Raptor Nest Survey Area; however, these nests are often inconspicuous. A golden eagle (*Aquila chrysaetos*) and a northern harrier (*Circus cyaneus*) were observed flying over the Raptor Survey Area; however, there was no indication of breeding by either species. Table 4 presents a description of each documented raptor nest in the Raptor Survey Area. Nest photos are presented in Appendix C. Note that the exact location of the great-horned owl nest was not observed and the nest was not photographed due to presence of young in the area. So as to not disturb the active nest site, biologists maintained a distance from the perceived location of the nest.

TABLE 4. RAPTOR NESTS IN THE SURVEY AREA

Species	Status	Nest Material / Condition	Nest Substrate/Height (feet)	Distance from Project Area (miles)	Notes	Latitude and Longitude
Burrowing owl	Active	Prairie dog burrow / Excellent	Ground / 0	0.10	2 adults, 3 fledglings. Active prairie dog colony	43.504219, - 103.035649
Great- horned owl	Active	Stick nest/cavity / unknown	Cottonwood/10-20	0.19	2 adults, at least one fledgling	43.504334, - 103.072350
Swainson's hawk	Active	Stick nest / Good	Cottonwood/30	0.08	2 adults, no young or incubation observed	43.507179, - 103.090372
Buteo spp.	Inactive	Stick nest / Good	Cottonwood/40	0.25	No raptor activity	43.505168, - 103.068513
Buteo spp.	Inactive	Stick nest / Good	Cottonwood/35	0.25	No raptor activity	43.527118, - 103.145892

3.4 SWIFT FOX SURVEY

The Project is within the known range for swift fox and comprises potentially suitable short-grass prairie habitat for the species. A combination of pedestrian and vehicular-based surveys were used to search for swift foxes and their sign, which includes tracks, scat, or den sites. Binoculars and a spotting scope were also used to scan the area from good vantage points, such as hill tops. In addition to visual encounter surveys, two camera traps were set; one in the solar farm and the other at the substation. A fox scent lure combined with skunk essence was placed on a wood stake approximately 10 feet from each camera, and the camera was set to take photos whenever triggered by movement throughout the day and night. Each camera was deployed for 5 days and 4 nights. Photos were later reviewed to identify any footage of swift foxes.

Potential grassland habitat is present across much of the Widlife Survey Area including the solar farm and substation. According to the SDGFP 2018 status reviews, swift foxes have been documented in both Custer County (prior to 2000) and Oglala Lakota County (after 2000). In 2009 and 2010, the Oglala Sioux Parks and Recreation Authority released 79 wild-caught swift fox onto the Pine Ridge Reservation in Oglala Lakota County. Four dens and six individuals were documented via camera and live trapping efforts in 2013 and 2014. However, the Swift Fox Survey Area is not within the mapped range of the species according to the South Dakota Wildlife Action Plan Explorer Tool (SDGFP 2014).

Neither swift foxes nor their sign were observed during the visual surveys or at either camera trap station. Much of the solar farm location consists of stands of sand sagebrush, which are not typically suitable habitat for swift fox.

Elsewhere in the Wildlife Survey Area, farming and ranching practices have altered the landscape. Prey species including lagomorphs and prairie dogs were observed to be in relatively low abundance throughout the Wildlife Survey Area. In South Dakota, black-tailed prairie dogs comprise much of the swift fox's diet (Uresk and Sharps 1986), and prairie dog colonies provide high quality habitat for swift fox due to an abundance of pretty and potential den sites.

Both rodent control and competition from other canids (i.e. coyote) have been cited as primary causes in the species' decline (Smiley and Keinath 2003). In particular, the elimination of prairie dog colonies has been implicated in reducing the quality of swift fox habitat across the species' range (Beauvais 2000). Prairie dog eradication in the Wildlife Survey Area is evident based on conversations with landowners in the area and from ground disturbance visible on aerial imagery in historic prairie dog colonies. In its current state, the Wildlife Survey Area appears to provide limited prey for swift fox.

3.5 NORTHERN LONG-EARED BAT HABITAT ASSESSMENT

The USFWS indicates that the Project Area is within the "Area of Influence" of the northern long-eared bat (NLEB). According to USFWS Summer Survey Guidance (USFWS 2018), suitable summer habitat for the NLEB consists primarily of forests and woodlands, including riparian areas. However suitable habitats may also include nearby



emergent wetlands and edge habitats such as fields and pastures adjacent to woodlands. Potential roost trees include live trees and/or snags ≥3 inches diameter breast height with loose bark, crevices, or cavities. Tree density and canopy cover within suitable habitats varies considerably. Isolated trees or clusters that have roost tree characteristics described above that are within 1,000 feet of other forested/wooded areas may be considered suitable habitat. NLEBs have also been observed roosting in buildings, barns, bridges, and bat houses; therefore, some human-made structures should also be considered potential summer habitat. Summer habitats are typically used from mid-May through mid-August.

Because the Project is not anticipated to result in adverse effects to NLEBs, surveys are not required by the USFWS as described in the 2018 Summer Survey Guidance (USFWS 2018). However, NLEB, along with a number of other bat species of concern, may forage over the Project Area and potentially roost in adjacent areas. Therefore, two acoustic bat recorders were placed in the Project Area to assess species presence and composition; one along the Cheyenne River and another along Cottonwood Creek (Tributary to the Cheyenne River) where the transmission line crosses. Methods followed those described in the USFWS Indiana Bat 2018 Summer Survey Guidance (USFWS 2018). Both bat detectors used were Wildlife Acoustics SM4Bat detectors combined with SMM_U2 ultrasonic microphones. Microphones were placed at the edge of potential bat flyways and elevated approximately 12-15 feet above the ground. Gain was set to 0 dB, the maximum recording length of each file was set to 5 seconds, and the detectors were set to record 30 minutes prior to sunset and 30 minutes after sunrise. Each detector was deployed for 4 nights for a total of 8 detector nights. Bat recordings were then analyzed using Kaleidoscope Pro Version 4.54 and auto-classified with a 0 balanced setting. Recordings were then hand-vetted to identify diagnostic call-sequences based on high-quality sequence recordings, with attention to primarily search-phase calls.

The Project Area is within the USFWS "Area of Influence" for NLEB, however, the known distribution of NLEBs is approximately 15 miles from the Project Area, in the Black Hills and approximately 40 miles to the east in Badlands National Park (SDGFP 2014). No suitable habitat was identified at either the solar farm site or the substation where permanent above ground structures will be placed. These parcels consist of grasslands with no trees or rock outcrops/caves that could provide hibernacula. As described above, there is potential NLEB habitat along the Cheyenne River and Cottonwood Creek. These two areas are shown on Figure 3 as bat detector locations. No potential roost trees were identified within the Project Area, including the transmission line right-of-way where clearing will occur. Large trees, primarily eastern cottonwood, are present along the two riparian areas described above. Some large snags with loose bark and crevices were observed. These may provide potential summer roost sites for NLEBs as well as a number of other tree roosting bat species. Although potential habitat for the NLEB is present along riparian areas adjacent to the transmission line route, no adverse impacts are expected due to the lack of potential roost trees in the



Project Area where construction will occur. Any potential presence of NLEB would be limited to individuals foraging over the Project Area and potentially roosting in wooded riparian areas adjacent to the transmission line corridor.

3.6 BAT ACOUSTIC SURVEY

A total of eleven bat species were auto-classified by Kaleidoscope Pro from 6,414 bat recordings over 8 detector nights. However, three of these species could not be verified as present based on a lack of diagnostic call characteristics during hand-vetting and/or a low number of calls with a high p-value equating to low confidence in the auto classifier. The results of the acoustic bat surveys are presented in Table 5.

Bat species verified as present include Townsend's big-eared bat (*Corynorhinus townsendii*), big brown bat (*Eptesicus fuscus*), silver-haired bat (*Lasionycteris noctivagans*), western small-footed myotis (*Myotis ciliolabrum*), little brown bat (*Myotis lucifigus*), fringed myotis (*Myotis thysanodes*), and long-legged myotis (*myotis volans*). Fringed myotis, silver-haired bat, and Townsend's big-eared bat are each classified as a Species of Greatest Conservation Need by SDGFP (SDGFP 2014). At both detector sites, little brown bat and western small-footed myotis comprised the majority of recordings. Although a low number of Townsend's big-eared bat and fringed myotis calls were recorded, these recordings contained diagnostic features that are typically not confused with other bat species in the region. A total of 92 eastern red bat recordings were auto-classified by Kaleidoscope Pro; however, most of the calls contained call sequences that were suggestive of little brown bat. No diagnostic eastern red bat call sequences were identified during hand-vetting. A small number of call sequences were auto-classified as western long-eared myotis (*Myotis evotis*, 3 auto-IDs) and northern long-eared bat (*Myotis septentrionalis*, 10 auto-IDs). However, these species cannot be verified as present based on a combination of a lack of diagnostic call sequences, and a low number of recordings and subsequently high p-value (p=1). Figure 4 displays the overall species composition for each bat species at each detector site. Only bat species verified as present via hand-vetting are displayed.

TABLE 5. ACOUSTIC BAT SURVEY RESULTS

	Cheyenne River						Cottonwood Creek (Tributary)				Both	Confirmed Present via Hand-Vetting		
Species ¹	11- Jun	12- Jun	13- Jun	14- Jun	TOTAL	P-Value	11- Jun	12- Jun	13- Jun	14- Jun	TOTAL	P-Value	TOTAL	
CORTOW ²	0	1	0	0	1	1	0	0	0	0	0	1	1	Yes
EPTFUS	57	24	128	196	405	0	7	2	5	8	22	0.14	427	Yes
LASCIN	41	110	337	108	596	0	14	9	170	8	201	0	797	Yes
LASNOC	21	8	99	51	179	0	3	1	28	2	34	0.92	213	Yes
MYOCIL	1230	351	48	237	1866	0	138	72	27	100	337	0	2203	Yes
MYOLUC	260	580	564	736	2140	0	37	35	63	168	303	0	2443	Yes
MYOTHY ²	1	1	2	1	5	1	0	0	0	1	1	1	6	Yes
MYOVOL	48	13	20	41	122	0	8	4	37	48	97	0	219	Yes
LASBOR ³	8	0	44	11	63	0.69	5	4	13	7	29	0	92	No
MYOEVO	0	1	0	2	3	1	0	0	0	0	0	1	3	No
MYOSEP	0	0	3	3	6	1	0	0	4	0	4	1	10	No
Total Bats	1666	1089	1245	1386	5386	-	212	127	347	342	1028	-	6414	-
NO ID	732	651	815	856	3054	-	93	70	138	163	464	-	3518	-
NOISE	42	69	423	434	968	-	233	92	124	89	538	-	1506	-

¹CORTOW: Townsend's big-eared bat, EPTFUS: big brown bat, LASCIN: hoary bat, LASNOC: silver-haired bat, MYOCIL: western small-footed myotis, MYOLUC: little brown bat, MYOTHY: fringed myotis, MYOVOL: long-legged myotis, LASBOR: eastern red bat, MYOEVO: long-eared myotis, MYOSEP: northern long-eared bat (NLEB).



3-10 201807_Draft-BiologicalResources_RPT.docx

² Although only a few recordings of CORTOW and MYOTHY were auto-classified, these recordings contained diagnostic characteristics of the species indicating presence.

³ Although a large number of calls were auto-classified as LASBOR, no diagnostic sequences were recorded. Hand-vetting indicated most LASBOR classifications were likely MYOLUC based on downward trending tails characteristic of Myotis species only.

3.7 MIGRATORY BIRD SURVEY

Surveys for migratory birds were completed using a combination of vehicular surveys (driving along the road and stopping at regular intervals to scan the surrounding area for wildlife) and pedestrian-based surveys in inaccessible areas or areas of high potential habitat (i.e. wetlands, riparian areas, prairie dog colonies). Bird nests, notes on habitat use, and relative abundance were documented in field notes. A list of migratory bird species, including relative abundance and other observations, is presented in Section 3.8 of this report.

A total of 43 bird species were documented in the Wildlife Survey Area including songbirds, waterfowl, raptors, upland game birds, and shorebirds. These species, along with their estimated abundance and nesting habitat in the Wildlife Survey Area, are presented in Table 6. Of these 43 species, 10 were documented as nesting in the Project Area including burrowing owl, upland sandpiper, Canada goose (*Branta Canadensis*), mallard (*Anas platyrhynchos*), Swainson's hawk, killdeer (*Charadrius vociferous*), cliff swallow, American robin (*Turdus migratrius*), and mourning dove (*Zenaida macroura*). However, it is likely that other species are nesting as well. Table 6 includes observational notes for most species including some information on species likely nesting in the Wildlife Survey Area based on field observations. Three sharp-tailed grouse hens were observed near a stock tank and planted tree rows in the middle of the solar farm. The location is displayed on Figure 3. Greater sage-grouse (*Centrocercus urophasianus*) distribution does not overlap the Survey Area (SDGFP 2014).

The whooping crane (*Grus Americana*) is a federally endangered species that was included on the USFWS official species list for the Project Area. Whooping Cranes in the Aransas-Wood Buffalo population migrate between the Aransas National Wildlife Refuge on the Gulf of Mexico and the Wood Buffalo National Park in northeastern Alberta and the southern Northwest Territories. The most recent population estimate for the population was 431 individuals. Whooping cranes may stopover nearly anywhere in South Dakota during their migration; however, the Missouri River corridor is preferred (SDGFP 2014). Although unlikely, whooping cranes may use riparian and wetland habitats along the Cheyenne River and may forage in adjacent crop fields in the Survey Area during spring or fall migration.

TABLE 6. AVIAN SPECIES DOCUMENTED IN THE WILDLIFE SURVEY AREA

Common Name	Scientific Name Estimated Nesting Habitat in Survey Abundance ¹ Area		Notes	
Red-winged blackbird	Agelaius phoeniceus	High	Wetland	Abundant
Grasshopper sparrow	Ammodramus savannarum	High	Grassland	Common
Green-winged teal	Anas carolinensis	Low	Wetland	Three birds on pond near substation
Mallard	Anas platyrhynchos	Moderate	Wetland	Common on ponds in area, nesting in pond south of substation
Golden eagle	Aquila chrysaetos	Low	Limited to tall trees in area	One bird soaring near substation site, no nesting cliffs
Burrowing owl	Athene cunicularia	Low	Grassland, BTPD colonies	Nesting south of road in prairie dog colony. Three fledglings
Upland sandpiper	Bartramia longicauda	High	Grassland	Common, nesting, eggs observed
Canada goose	Branta canadensis	Low	Wetland, riparian	Nesting along Cheyenne River
Great-horned owl	Bubo virginanus	Low	Riparian, trees	Nesting (fledgling stage) in riparian north of bridge
Red-tailed hawk	Buteo jamaicensis	Low	Riparian, trees	Possibly nesting along Cheyenne River within 1 mile of road. Unoccupied potential nest documented.
Swainson's hawk	Buteo swainsoni	Low	Riparian, trees	Nesting within 0.5 mile of road
Lark bunting	Calamospiza melanocorys	High	Grassland	Common in grassland habitat
Turkey vulture	Cathartes aura	Low	Unlikely but possible in <i>Buteo</i> nests or riparian	Soaring in area
Killdeer	Charadrius vociferus	High	Wetland	Common, nesting, young/eggs observed
Lark sparrow	Chondestes grammacus	Moderate	Grassland	
Common nighthawk	Chordeiles minor	Moderate	Variable - ground nester	Possibly more abundant, heard a few buzz calls
Northern harrier	Circus cyaneus	Low	Wetlands - ground nester	One bird foraging near substation
Yellow-billed cuckoo	Coccyzus americanus	Low	Riparian willows/cottonwoods	Two birds in Cheyenne River riparian area. Probably nesting
American kestrel	Falco sparverius	Moderate	Tree cavities	Likely nesting south of substation
Barn swallow	Hirundo rustica	High	Bridges, buildings	
Orchard oriole	Icterus spurius	Moderate	Riparian, trees	



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Common Name	Scientific Name	Estimated Abundance ¹	Nesting Habitat in Survey Area	Notes
Red-headed woodpecker	Melanerpes erythrocephalus	Low	Riparian, trees (cavity nester)	One bird near river in dead tree. Likely nesting in tree cavity
Wild turkey	Meleagris gallopavo	Low	Riparian, grassland (on ground)	One tom near river
Brown-headed cowbird	Molothrus ater	High	Various, usually shrubs/trees	
Long-billed curlew	Numenius americanus	Low	Grassland	3 individuals near prairie dog colony
Blue grosbeak	Passerina caerulea	Low	Riparian, trees/shrubs	In Cheyenne River riparian area
Cliff swallow	Petrochelidon pyrrhonota	High	Bridges	Nesting at Cheyenne River bridge
Ring-necked pheasant	Phasianus colchicus	Low	Ground nest in dense vegetation	Probably more abundant, saw two individuals along road in tall vegetation
Black-billed magpie	Pica hudsonia	Low	Riparian, trees	
Common grackle	Quiscalus quiscula	Moderate	Riparian	
Black phoebe	Sayornis nigricans	High	Bridges, buildings	Common
Say's phoebe	Sayornis saya	Low	Bridges, buildings	
Eastern bluebird	Sialia sialis	Low	Tree cavities	
American goldfinch	Spinus tristis	Low	Trees/shrubs	
Dickcissel	Spiza american	Moderate	Grassland or sand sage areas	
Eurasian collard dove	Streptopelia decaocto	Low	Trees, buildings	
Western meadowlark	Sturnella neglecta	High	Grassland	Abundant
European starling	Sturnus vulgaris	Moderate	Riparian, trees (cavity nester)	
Brown thrasher	Toxostoma rufum	Low	Riparian, trees/shrubs	
American robin	Turdus migratorius	Moderate	Riparian, trees, buildings	Nesting observed along road in cottonwood tree
Sharp-tailed grouse	Tympanuchus phasianellus	Low	Grassland	3 hens at Lookout Solar Farm near tree rows
Western kingbird	Tyrannus verticalis	Low	Riparian, tree/shrubs	
Mourning dove	Zenaida macroura	High	Grassland	Abundant, nesting observed near substation

¹ Abundance:

Low: Fewer than five individuals in two or fewer locations

Moderate: Greater than five individuals in fewer than five locations

High: Greater than five individuals in greater than five locations



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3.8 ADDITIONAL WILDLIFE OBSERVATIONS

The Project Area is within the primary range of pronghorn antelope (*Antilcapra americana*), mule deer (*Odocoileus hemionus*), and white-tailed deer (*Odocoileus virginanus*) (SDGFP 2014). All three species were observed in the Project Area, with pronghorn antelope the most abundant. White-tailed jack rabbit (*Lepus townsendii*), cottontail (*Sylvilagus* sp.), and black-tailed prairie dogs were observed in the Wildlife Survey Area. Only one jack rabbit was observed on the swift fox camera trap located at the solar farm. One cottontail was observed near the road on the west side of the Wildlife Survey Area. One small, 3 acre prairie dog colony was mapped to the south of the transmission line right-of-way (Figure 3). Sign of raccoon was observed under the Cheyenne River bridge.

The official USFWS species list for the Project Area did not indicate potential occurrence of black-footed ferret (*Mustela nigripes*). However, the species is listed as Threatened by SDGFP and is included on the Custer County species list. All current populations of black-footed ferret have resulted from reintroductions. The nearest known populations are to the west at Wind Cave National Park and to the northeast at Badlands National Park (SDGFP 2014). Black-footed ferrets feed primarily on prairie dogs and require black-tailed prairie dog colonies with an estimated 100-150 acres to support one ferret. Currently, suitable habitat is not present in the Wildlife Survey Area.

Reptiles observed in the Survey Area include prairie rattlesnake (*Crotalus viridis*), garter snake (*Thamnophis* sp.), and snapping turtle (*Chelydra serpentine*). No amphibians were observed in the Project Area.

4.0 CONCLUSION

The Habitat Assessment Area consists of approximately 82% cover by grasslands, 11% cover by croplands, 2% cover by riparian and wetlands, 2% by developed or disturbed areas, and 3% by other habitats. A total of 74 plant species were identified within the Project Area.

Nine terrestrial T&E species (five federally listed and four state-listed) and three state-listed fishes were identified as potentially occurring in the Project Area. In addition, 39 bird species protected under the MBTA were documented in the Wildlife Survey Area.

Of the five federally listed T&E species on the USFWS official species list, only the whooping crane and NLEB have potential to occur in the Project Area. Whooping crane occurrence would be limited to rare migrants using stop over habitat along the Cheyenne River and adjacent crop fields. Potential for whooping crane occurrence is considered very low. The Project Area is within the NLEB Area of Influence and suitable roosting and foraging habitat is present along wooded riparian corridors. However, no tree removal or direct impacts to any potential roost sites are expected to occur during Project construction. NLEB presence was not confirmed during acoustic surveys and the potential for occurrence is considered low.

State-listed T&E species including the swift fox, osprey, American dipper, and northern river otter have potential for occurrence in the Project Area. However, American dippers and northern river otters would only potentially occur in open water and streambank habitats of the Cheyenne River, which will be avoided by horizontal directional drilling under the river. No ospreys or their nests were documented during the survey; however, suitable habitat for the species is present along the Cheyenne River. No swift foxes or their sign were documented during surveys. However, the species has been reintroduced in Oglala Lakota County and is known to occur on the Pine Ridge Reservation.

Although a low abundance of prey animals was observed in the Wildlife Survey Area and no sign of swift fox was observed, suitable habitat for the species is present in grasslands in the Project Area. No state-listed fishes will be affected by the Project.

Five raptor nests, including three active nests, were documented within 0.5 miles of the Project Area. The USFWS recommends spatial and seasonal buffers for breeding raptors, which include a 0.25 mile buffer for Swainson's hawk from April 1 to August 31, a 0.25 mile buffer for burrowing owl from April 1 to September 15, a 0.25 mile buffer for red-tailed hawk from February 1 to August 15, and a 0.125 mile buffer for great-horned owl from December 1 to September 30. As is shown in Table 4, there is an active burrowing owl nest and territory and an active Swainson's



hawk nest located within the USFWS recommended spatial buffers of 0.25 miles for these species. Avoidance of these areas may be needed to avoid disruption of breeding and a potential "take".

Seven additional migratory birds were confirmed as nesting in the Wildlife Survey Area including upland sandpiper, killdeer, mallard, Canada goose, cliff swallow (colony), American robin, and mourning dove. Nest activity may vary from year to year and additional birds are likely nesting, especially within the 840-acre solar farm site. Ground clearing activities during the migratory bird breeding season (typically May 1 to August 1) may result in "take" of migratory birds or their eggs unless clearance surveys are performed prior to construction or nesting habitat is removed outside of the breeding season.

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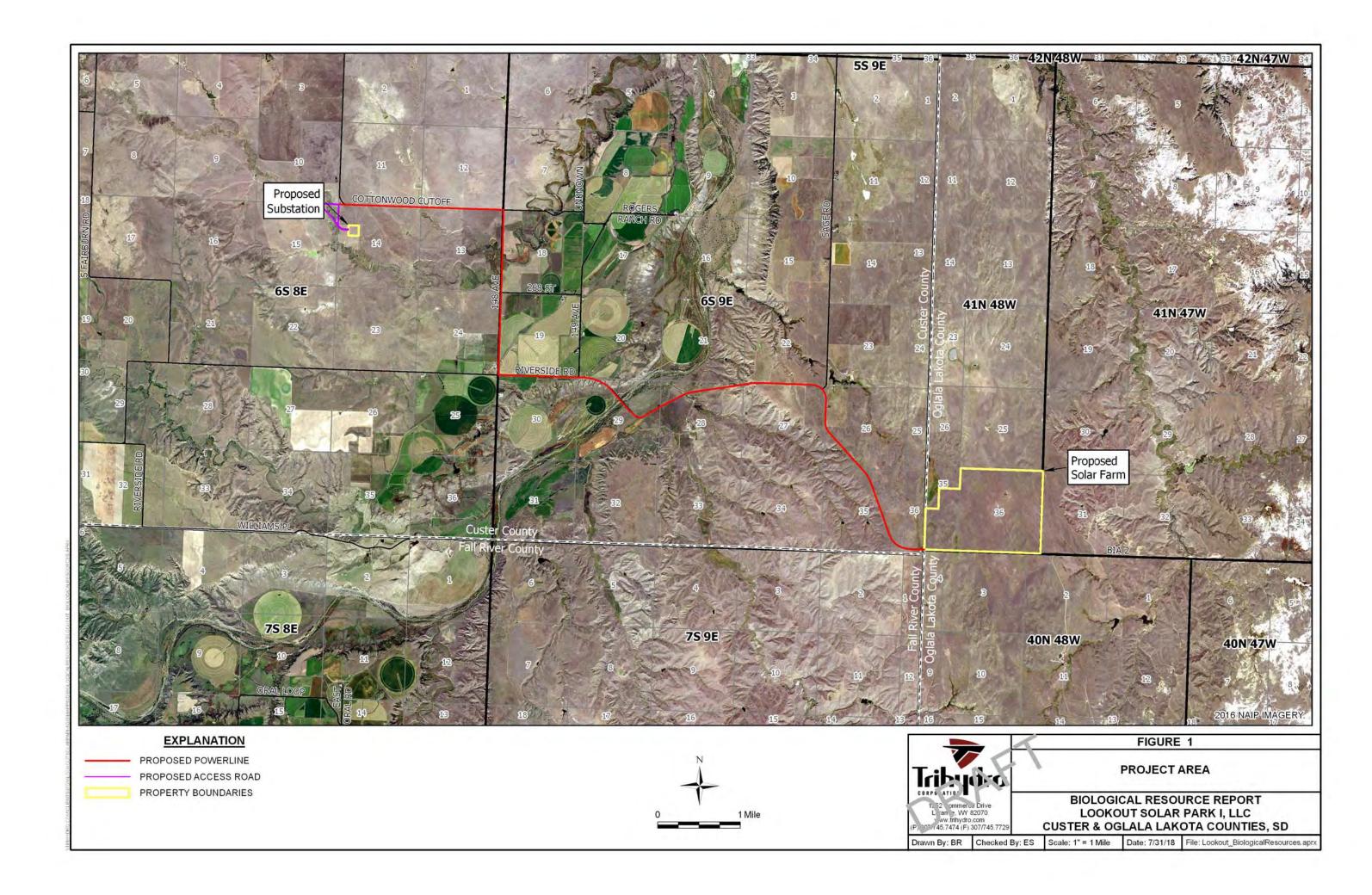
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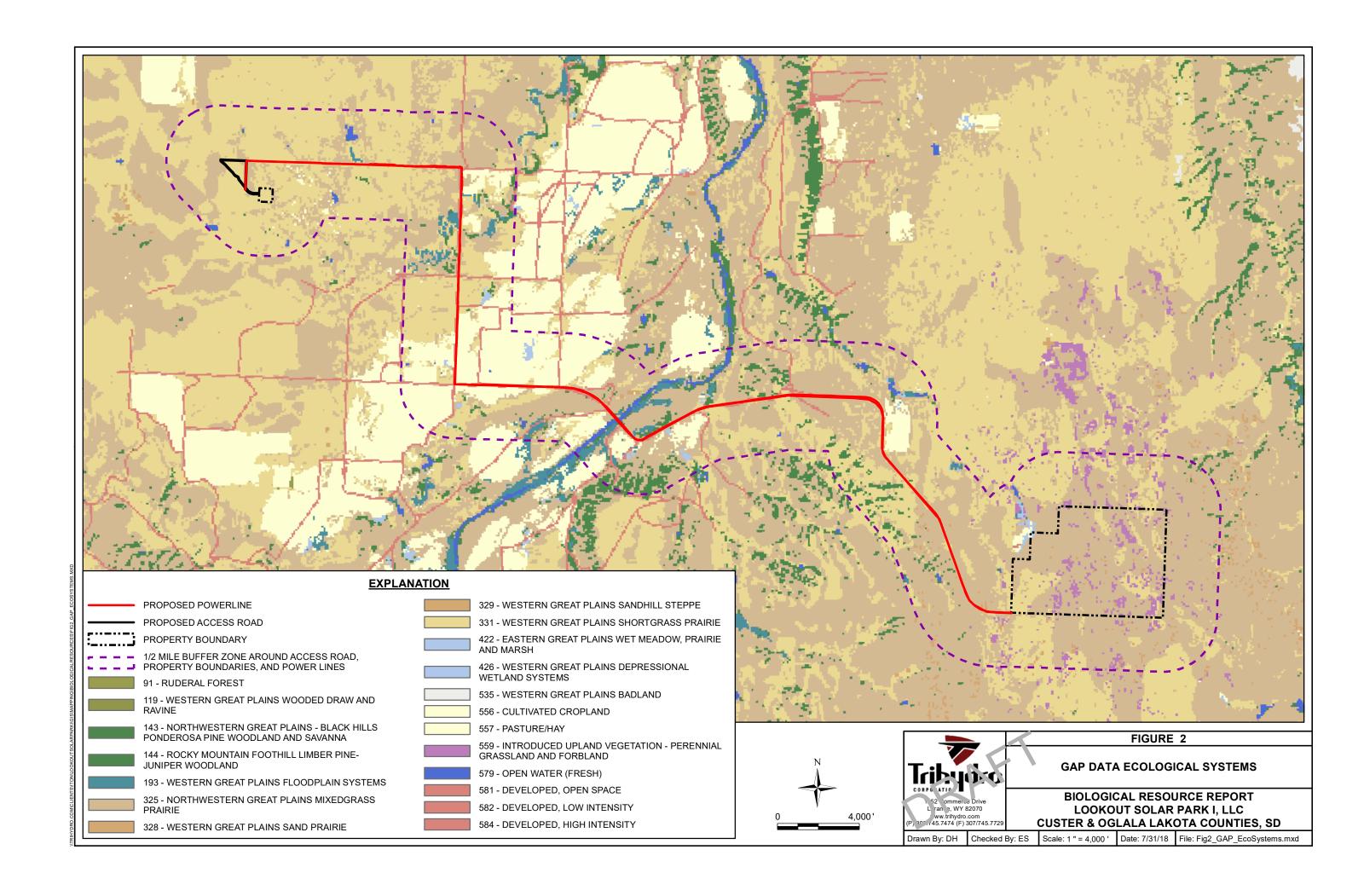


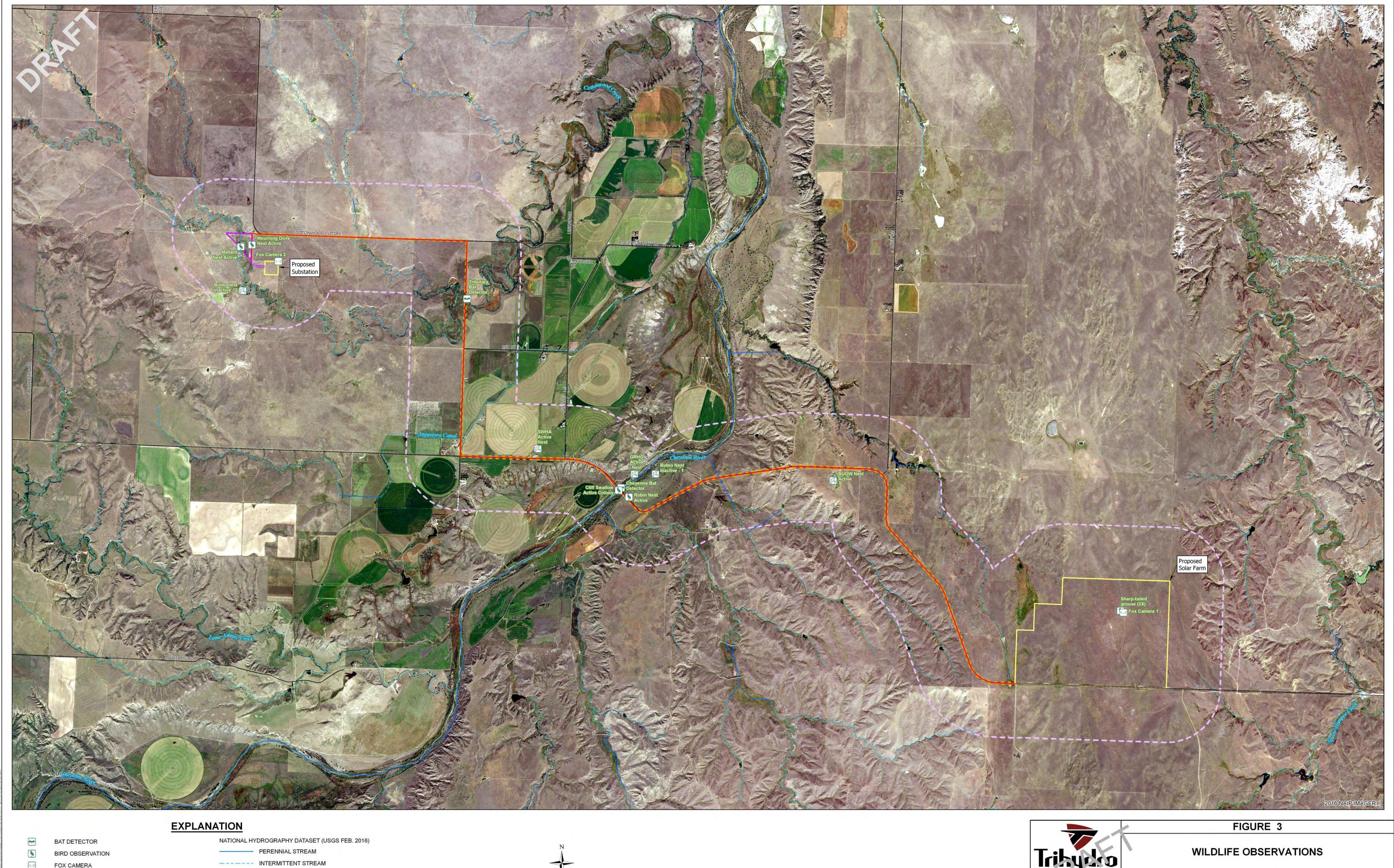
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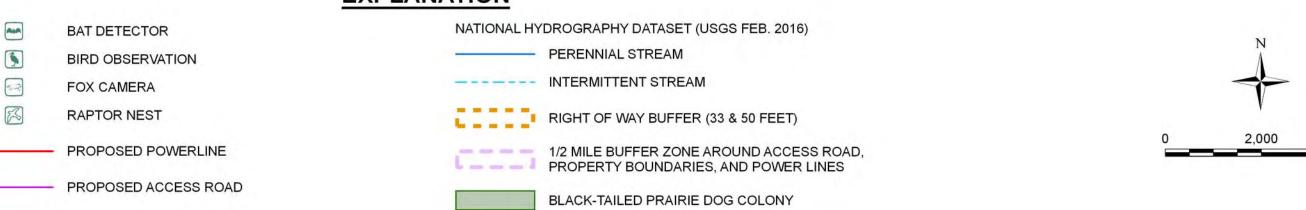
FIGURES







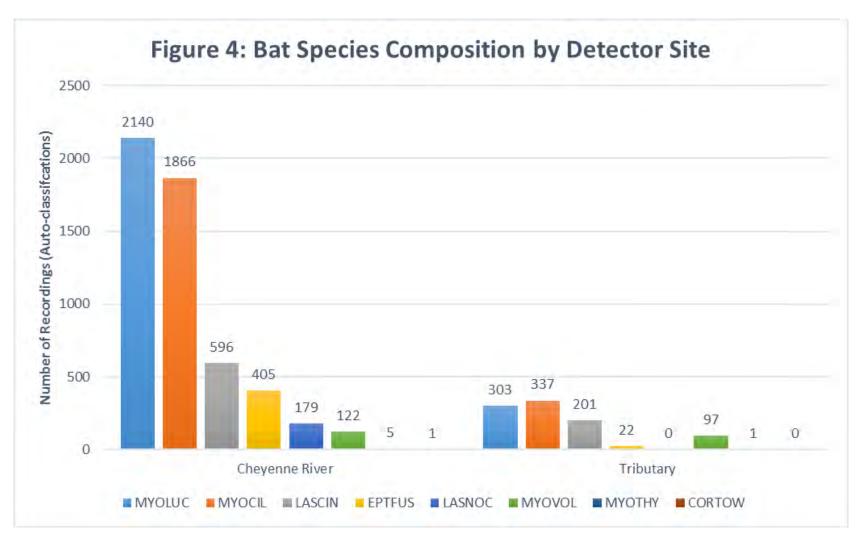




12 2 commerce Drive Laramie, WY 82070 www.trihydro.com (P) 307/745.7474 (F) 307/745.7729

BIOLOGICAL RESOURCE REPORT LOOKOUT SOLAR PARK I, LLC **CUSTER & OGLALA LAKOTA COUNTIES, SD**

Drawn By: BR Checked By: SJ Scale: 1" = 2,000' Date: 7/31/18 File: Lookout_BiologicalResources.aprx



MYOLUC: Myotis lucifigus (little brown bat)

MYOCIL: Myotis ciliolabrum (western small-footed myotis)

LASCIN: Lasiurus cinereus (hoary bat)

EPTFUS: Eptesicus fuscus (big brown bat)

LASNOC: Lasionycteris noctivagans (silver-haired bat)

MYOVOL: *Myotis volans* (long-legged myotis)

MYOTHYL *Myotis thysanodes* (fringed myotis)

CORTOW: Corynorhinus townsendii (Townsend's big-eared bat)

APPENDIX A

USFWS OFFICIAL SPECIES LIST



United States Department of the Interior

FISH AND WILDLIFE SERVICE

South Dakota Ecological Services Field Office 420 South Garfield Avenue, Suite 400 Pierre, SD 57501-5408

Phone: (605) 224-8693 Fax: (605) 224-9974 http://www.fws.gov/southdakotafieldoffice/



June 26, 2018

In Reply Refer To:

Consultation Code: 06E14000-2018-SLI-0070

Event Code: 06E14000-2018-E-01115

Project Name: Lookout Solar

Subject: Updated list of threatened and endangered species that may occur in your proposed

project location, and/or may be affected by your proposed project

To Whom It May Concern:

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

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

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

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

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

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

Please be aware that bald and golden eagles are protected under the Migratory Bird Treaty Act (16 U.S.C. 703-712, as amended), as well as the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.). Projects affecting these species may benefit from the development of an Eagle Conservation Plan (ECP), see guidance at this website (http://www.fws.gov/windenergy/eagle_guidance.html). An ECP can assist developers in achieving compliance with regulatory requirements, help avoid "take" of eagles at project sites, and provide biological support for eagle permit applications. Additionally, we recommend wind energy developments adhere to our Land-based Wind Energy Guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

We have recently updated our guidelines for minimizing impacts to migratory birds at projects that have communication towers (including meteorological, cellular, digital television, radio, and emergency broadcast towers). These guidelines can be found at:

http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm http://www.towerkill.com

According to National Wetlands Inventory maps, (available online at http://wetlands.fws.gov/) wetlands exist adjacent to the proposed construction corridor. If a project may impact wetlands or other important fish and wildlife habitats, the U.S. Fish and Wildlife Service (Service), in accordance with the National Environmental Policy Act of 1969 (42 U.S.C. 4321-4347) and other environmental laws and rules, recommends complete avoidance of these areas, if possible. If this is not possible, attempts should be made to minimize adverse impacts. Finally if adverse impacts are unavoidable, measures should be undertaken to replace the impacted areas. Alternatives should be examined and the least damaging practical alternative selected. If wetland impacts are unavoidable, a mitigation plan addressing the number and types of wetland acres to be impacted, and the methods of replacement should be prepared and submitted to the resource agencies for review.

Please check with your local wetland management district to determine whether Service interest lands exist at the proposed project site, the exact locations of these properties, and any additional restrictions that may apply regarding these sites. The Offices are listed below. If you are not sure which office to contact, we can help you make that decision.

U.S. Fish and Wildlife Service, Huron Wetland Management District, Federal Building, Room 309, 200 4th Street SW, Huron, SD 57350; telephone (605) 352-5894. Counties in the Huron WMD: Beadle, Buffalo, Hand, Hughes, Hyde, Jerauld, Sanborn, Sully.

U.S. Fish and Wildlife Service, Lake Andes Wetland Management District, 38672 291st Street, Lake Andes, South Dakota; telephone (605) 487-7603. Counties in the Lake Andes WMD: Aurora, Bon Homme, Brule, Charles Mix, Clay, Davison, Douglas, Hanson, Hutchinson, Lincoln, Turner, Union, Yankton.

U.S. Fish and Wildlife Service, Madison Wetland Management District, P.O. Box 48, Madison, South Dakota, 57042, telephone (605) 256-2974. Counties in the Madison WMD: Brookings, Deuel, Hamlin, Kingsury, Lake, McCook, Miner, Minnehaha, Moody.

U.S. Fish and Wildlife Service, Sand Lake Wetland Management District, 39650 Sand Lake Drive, Columbia, South Dakota, 57433; telephone (605) 885-6320. Counties in the Sand Lake WMD: Brown, Campbell, Edmunds, Faulk, McPherson, Potter, Spink, Walworth.

U.S. Fish and Wildlife Service, Waubay Wetland Management District, 44401 134A Street, Waubay, South Dakota, 57273; telephone (605) 947-4521. Counties in the Waubay WMD: Clark, Codington, Day, Grant, Marshall, Roberts.

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

You are welcome to visit our website (listed above) or to contact our office at the address or phone number above for more information.

Thank you.

Attachment(s):

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

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:

South Dakota Ecological Services Field Office 420 South Garfield Avenue, Suite 400 Pierre, SD 57501-5408 (605) 224-8693

Project Summary

Consultation Code: 06E14000-2018-SLI-0070

Event Code: 06E14000-2018-E-01115

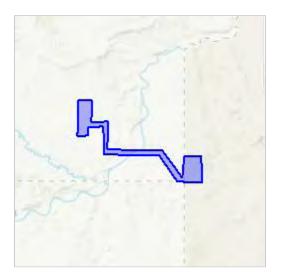
Project Name: Lookout Solar

Project Type: POWER GENERATION

Project Description: Solar Farm, powerline, and substation proposed for 2018

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/43.51567933862434N103.10663002018721W



Counties: Custer, SD | Fall River, SD | Oglala Lakota, SD

Endangered Species Act Species

There is a total of 4 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 STATUS

Northern Long-eared Bat *Myotis septentrionalis*

No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045

Threatened

Birds

NAME **STATUS**

Red Knot Calidris canutus rufa

Threatened

No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1864

Whooping Crane Grus americana

Endangered

Population: Wherever found, except where listed as an experimental population There is **final** critical habitat for this species. Your location is outside the critical habitat.

Species profile: https://ecos.fws.gov/ecp/species/758

Event Code: 06E14000-2018-E-01115

06/26/2018

Flowering Plants

NAME

Western Prairie Fringed Orchid Platanthera praeclara

Threatened

No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1669

Critical habitats

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

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the <u>National Wildlife Refuge</u> 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.

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 <u>below</u>.

- 1. The Migratory Birds Treaty Act of 1918.
- 2. The <u>Bald and Golden Eagle Protection Act</u> of 1940.
- 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

THERE ARE NO FWS MIGRATORY BIRDS OF CONCERN WITHIN THE VICINITY OF YOUR PROJECT AREA.

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 and/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 migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS <u>Birds of Conservation Concern</u> (<u>BCC</u>) 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 <u>Avian Knowledge Network (AKN)</u>. The AKN data is based on a growing collection of <u>survey</u>, <u>banding</u>, <u>and citizen science datasets</u> 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 (<u>Eagle Act</u> 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 E-bird Explore Data 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 <u>Avian Knowledge Network (AKN)</u>. This data is derived from a growing collection of <u>survey</u>, <u>banding</u>, <u>and citizen science datasets</u>.

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, migrating or present year-round in my project 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 refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. 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 <u>Birds of Conservation Concern</u> (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 <u>Eagle Act</u> 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

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 Project Mapping of Marine Bird Distributions and Atlantic Outer Continental Shelf 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 <u>Diving Bird Study</u> and the <u>nanotag studies</u> or contact <u>Caleb Spiegel</u> or <u>Pam Loring</u>.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to <u>obtain a permit</u> 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 trust resources page.

Wetlands

Impacts to <u>NWI wetlands</u> 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>U.S. Army Corps of Engineers District</u>.

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.

FRESHWATER EMERGENT WETLAND

- PEM1A
- PEM1Ah
- PEM1B
- PEM1C
- PEM1Ch
- PEM1Ax

FRESHWATER FORESTED/SHRUB WETLAND

- PFOA
- PSSA

FRESHWATER POND

- PABFh
- PUSAh
- PUSCh
- PUSC
- PUBFx

RIVERINE

- R4SBC
- R5UBH
- R2UBG
- R4SBCx

APPENDIX B

STATE LISTED T&E SPECIES DOCUMENTED IN SOUTH DAKOTA, BY COUNTY



State and Federally Listed Threatened, Endangered and Candidate Species Documented in South Dakota by County. Updated on 07/19/2016

The following list contains <u>documented</u> occurrences of both state and federally listed species by county in South Dakota. Records were compiled from the South Dakota Natural Heritage Database and expert knowledge of species occurrences. <u>Please note that the absence of a species from a county list does not preclude its presence and that a listing of a historical record does not necessarily mean the species still occurs in that county.</u>

Documentations of bird species consist of known breeding records with the exception of the whooping crane (*Grus americana*) for which all observations are included. However, please note that while the year-round distribution of the American dipper (*Cinclus mexicanus*) does not change, all other listed bird species may be found throughout the state during migration.

If more specific information is needed for a particular project site, please visit the following website to request a search of the Natural Heritage Database: http://gfp.sd.gov/wildlife/threatened-endangered/default.aspx

Species statuses include: FE = Federally Endangered, FT = Federally Threatened, PE = Proposed Endangered (Federal), PT = Proposed Threatened (Federal) C = Federal Candidate, SE = State Endangered, ST = State Threatened.

County	Common Name	Scientific Name	Status
Aurora	Topeka Shiner	Notropis topeka	FE
	Whooping Crane	Grus americana	FE, SE
Beadle	Topeka Shiner	Notropis topeka	FE
	Whooping Crane	Grus americana	FE, SE
	Northern River Otter	Lontra canadensis	ST
Bennett	Northern Pearl Dace	Margariscus nachtriebi	ST
	American Burying Beetle	Nicrophorus americanus	FE
	Northern Redbelly Dace	Chrosomus eos	ST
	Whooping Crane	Grus americana	FE, SE
	Swift Fox	Vulpes velox	ST
Bon Homme	Blacknose Shiner	Notropis heterolepis	SE
	Northern Redbelly Dace	Chrosomus eos	ST
	Pallid Sturgeon	Scaphirhynchus albus	FE, SE
	Shovelnose Sturgeon	Scaphirhynchus platorynchus	FT
	Sturgeon Chub	Macrhybopsis gelida	ST
	Sicklefin Chub	Macrhybopsis meeki	ST
	Topeka Shiner	Notropis topeka	FE
	False Map Turtle	Graptemys pseudogeographica	ST
	Interior Least Tern	Sternula antillarum athalassos	FE, SE
	Piping Plover	Charadrius melodus	FT, ST
	Whooping Crane	Grus americana	FE, SE

	Northern Long-eared Bat	Myotis septentrionalis	FT
	Northern River Otter	Lontra canadensis	ST
Brookings	American Burying Beetle	Nicrophorus americanus	FE
_	Poweshiek Skipperling	Oarisma poweshiek	FE
	Dakota Skipper	Hesperia dacotae	FT
	Northern Redbelly Dace	Chrosomus eos	ST
	Topeka Shiner	Notropis topeka	FE
	Whooping Crane	Grus americana	FE, SE
	Northern River Otter	Lontra canadensis	ST
	Western Prairie Fringed Orchid	Platanthera praeclara	FT
Brown	Dakota Skipper	Hesperia dacotae	FT
	Topeka Shiner	Notropis topeka	FE
	Whooping Crane	Grus americana	FE, SE
	Northern River Otter	Lontra canadensis	ST
Brule	Northern Redbelly Dace	Chrosomus eos	ST
	Pallid Sturgeon	Scaphirhynchus albus	FE, SE
	Shovelnose Sturgeon	Scaphirhynchus platorynchus	FT
	Sturgeon Chub	Macrhybopsis gelida	ST
	Whooping Crane	Grus americana	FE, SE
	Northern Long-eared Bat	Myotis septentrionalis	FT
	Northern River Otter	Lontra canadensis	ST
Buffalo	Northern Redbelly Dace	Chrosomus eos	ST
	Pallid Sturgeon	Scaphirhynchus albus	FE, SE
	Shovelnose Sturgeon	Scaphirhynchus platorynchus	FT
	False Map Turtle	Graptemys pseudogeographica	ST
	Whooping Crane	Grus americana	FE, SE
	Northern River Otter	Lontra canadensis	ST
Butte	Finescale Dace	Chrosomus neogaeus	SE
	Longnose Sucker	Catostomus catostomus	ST
	Whooping Crane	Grus americana	FE, SE
	Northern River Otter	Lontra canadensis	ST
	Swift Fox	Vulpes velox	ST
Campbell	Pallid Sturgeon	Scaphirhynchus albus	FE, SE
	Shovelnose Sturgeon	Scaphirhynchus platorynchus	FT
	False Map Turtle	Graptemys pseudogeographica	ST
	Interior Least Tern	Sternula antillarum athalassos	FE, SE
	Piping Plover	Charadrius melodus	FT, ST
	Whooping Crane	Grus americana	FE, SE
Charles Mix	Banded Killifish	Fundulus diaphanus	SE
	Pallid Sturgeon	Scaphirhynchus albus	FE, SE
	Shovelnose Sturgeon	Scaphirhynchus platorynchus	FT
	Sicklefin Chub	Macrhybopsis meeki	ST

	Sturgeon Chub	Macrhybopsis gelida	ST
	False Map Turtle	Graptemys pseudogeographica	ST
	Interior Least Tern	Sternula antillarum athalassos	FE, SE
	Piping Plover	Charadrius melodus	FT, ST
	Whooping Crane	Grus americana	FE, SE
	Northern Long-eared Bat	Myotis septentrionalis	FT
Clark	Northern River Otter	Lontra canadensis	ST
Clay	Pallid Sturgeon	Scaphirhynchus albus	FE, SE
-	Shovelnose Sturgeon	Scaphirhynchus platorynchus	FT
	Sicklefin Chub	Macrhybopsis meeki	ST
	Sturgeon Chub	Macrhybopsis gelida	ST
	Topeka Shiner	Notropis topeka	FE
	Eastern Hognose Snake	Heterodon platirhinos	ST
	False Map Turtle	Graptemys pseudogeographica	ST
	Interior Least Tern	Sternula antillarum athalassos	FE, SE
	Piping Plover	Charadrius melodus	FT, ST
	Northern Long-eared Bat	Myotis septentrionalis	FT
	Northern River Otter	Lontra canadensis	ST
Codington	Dakota Skipper	Hesperia dacotae	FT
_	Poweshiek Skipperling	Oarisma poweshiek	FE
	Topeka Shiner	Notropis topeka	FE
	Piping Plover	Charadrius melodus	FT, ST
	Whooping Crane	Grus americana	FE, SE
	Northern River Otter	Lontra canadensis	ST
Corson	Northern Redbelly Dace	Chrosomus eos	ST
	Pallid Sturgeon	Scaphirhynchus albus	FE, SE
	Shovelnose Sturgeon	Scaphirhynchus platorynchus	FT
	Sicklefin Chub	Macrhybopsis meeki	ST
	Sturgeon Chub	Macrhybopsis gelida	ST
	False Map Turtle	Graptemys pseudogeographica	ST
	Interior Least Tern	Sternula antillarum athalassos	FE, SE
	Piping Plover	Charadrius melodus	FT, ST
	Whooping Crane	Grus americana	FE, SE
	Black-footed Ferret	Mustela nigripes	FE, SE
Custer	Blacknose Shiner	Notropis heterolepis	SE
	Longnose Sucker	Catostomus catostomus	ST
	Sturgeon Chub	Macrhybopsis gelida	ST
	American Dipper	Cinclus mexicanus	ST
	Osprey	Pandion haliaetus	ST
	Whooping Crane	Grus americana	FE, SE
	Black-footed Ferret	Mustela nigripes	FE, SE
	Northern Long-eared Bat	Myotis septentrionalis	FT
	Northern River Otter	Lontra canadensis	ST

	Swift Fox	Vulpes velox	ST
Davison	Topeka Shiner	Notropis topeka	FE
Day	Blacknose Shiner	Notropis heterolepis	SE
	Dakota Skipper	Hesperia dacotae	FT
	Poweshiek Skipperling	Oarisma poweshiek	FE
	Banded Killifish	Fundulus diaphanus	SE
	Piping Plover	Charadrius melodus	FT, ST
	Whooping Crane	Grus americana	FE, SE
	Northern River Otter	Lontra canadensis	ST
Deuel	Dakota Skipper	Hesperia dacotae	FT
	Poweshiek Skipperling	Oarisma poweshiek	FE
	Banded Killifish	Fundulus diaphanus	SE
	Northern Redbelly Dace	Chrosomus eos	ST
	Topeka Shiner	Notropis topeka	FE
	Northern River Otter	Lontra canadensis	ST
Dewey	Pallid Sturgeon	Scaphirhynchus albus	FE, SE
	Shovelnose Sturgeon	Scaphirhynchus platorynchus	FT
	Interior Least Tern	Sternula antillarum athalassos	FE, SE
	Piping Plover	Charadrius melodus	FT, ST
	Whooping Crane	Grus americana	FE, SE
	Black-footed Ferret	Mustela nigripes	FE, SE
Douglas	Whooping Crane	Grus americana	FE, SE
Edmunds	Whooping Crane	Grus americana	FE, SE
Fall River	Finescale Dace	Chrosomus neogaeus	SE
	Osprey	Pandion haliaetus	ST
	Swift Fox	Vulpes velox	ST
Faulk	Whooping Crane	Grus americana	FE, SE
Grant	Dakota Skipper	Hesperia dacotae	FT
	Poweshiek Skipperling	Oarisma poweshiek	FE
	Blacknose Shiner	Notropis heterolepis	SE
	Northern Redbelly Dace	Chrosomus eos	ST
	Osprey	Pandion haliaetus	ST
	Northern River Otter	Lontra canadensis	ST
Gregory	American Burying Beetle	Nicrophorus americanus	FE
	Northern Pearl Dace	Margariscus nachtriebi	ST
	Pallid Sturgeon	Scaphirhynchus albus	FE, SE
	Shovelnose Sturgeon	Scaphirhynchus platorynchus	FT
	Sicklefin Chub	Macrhybopsis meeki	ST
	Sturgeon Chub	Macrhybopsis gelida	ST
	False Map Turtle	Graptemys pseudogeographica	ST
	Piping Plover	Charadrius melodus	FT, ST
	Interior Least Tern	Sternula antillarum athalassos	FE, SE

	Whooping Crane	Grus americana	FE, SE
	Northern Long-eared Bat	Myotis septentrionalis	FT
Haakon	Sturgeon Chub	Macrhybopsis gelida	ST
	Interior Least Tern	Sternula antillarum athalassos	FE, SE
	Whooping Crane	Grus americana	FE, SE
	Northern River Otter	Lontra canadensis	ST
	Swift Fox	Vulpes velox	ST
Hamlin	Dakota Skipper	Hesperia dacotae	FT
	Poweshiek Skipperling	Oarisma poweshiek	FE
	Topeka Shiner	Notropis topeka	FE
	Northern River Otter	Lontra canadensis	ST
Hand	Whooping Crane	Grus americana	FE, SE
Hanson	Topeka Shiner	Notropis topeka	FE
	Northern River Otter	Lontra canadensis	ST
Harding	Sturgeon Chub	Macrhybopsis gelida	ST
3	Peregrine Falcon	Falco peregrinus	SE
	Swift Fox	Vulpes velox	ST
Hughes	Pallid Sturgeon	Scaphirhynchus albus	FE, SE
	Shovelnose Sturgeon	Scaphirhynchus platorynchus	FT
	Sicklefin Chub	Macrhybopsis meeki	ST
	False Map Turtle	Graptemys pseudogeographica	ST
	Interior Least Tern	Sternula antillarum athalassos	FE, SE
	Piping Plover	Charadrius melodus	FT, ST
	Whooping Crane	Grus americana	FE, SE
	Northern Long-eared Bat	Myotis septentrionalis	FT
	Northern River Otter	Lontra canadensis	ST
	Swift Fox	Vulpes velox	ST
Hutchinson	Topeka Shiner	Notropis topeka	FE
	Whooping Crane	Grus americana	FE, SE
Hyde	Pallid Sturgeon	Scaphirhynchus albus	FE, SE
,	Shovelnose Sturgeon	Scaphirhynchus platorynchus	FT FT
	Whooping Crane	Grus americana	FE, SE
	Swift Fox	Vulpes velox	ST
Jackson	Northern Redbelly Dace	Chrosomus eos	ST
	Sturgeon Chub	Macrhybopsis gelida	ST
	Whooping Crane	Grus americana	FE, SE
	Northern Long-eared Bat	Myotis septentrionalis	FT
	Swift Fox	Vulpes velox	ST
Jerauld	Whooping Crane	Grus americana	FE, SE
	Northern River Otter	Lontra canadensis	ST ST
Jones	Sturgeon Chub	Macrhybopsis gelida	ST
JOINES	Whooping Crane	Grus americana	FE, SE

Kingsbury	Piping Plover	Charadrius melodus	FT, ST
	Whooping Crane	Grus americana	FE, SE
Lake	Northern River Otter	Lontra canadensis	ST
Lawrence	Finescale Dace	Chrosomus neogaeus	SE
	Longnose Sucker	Catostomus catostomus	ST
	American Dipper	Cinclus mexicanus	ST
	Osprey	Pandion haliaetus	ST
	Northern Long-eared Bat	Myotis septentrionalis	LT
Lincoln	Northern Redbelly Dace	Chrosomus eos	ST
	Topeka Shiner	Notropis topeka	FE
	Lined Snake	Tropidoclonion lineatum	SE
	Northern River Otter	Lontra canadensis	ST
Lyman	Pallid Sturgeon	Scaphirhynchus albus	FE, SE
	Shovelnose Sturgeon	Scaphirhynchus platorynchus	FT
	Sturgeon Chub	Macrhybopsis gelida	ST
	False Map Turtle	Graptemys pseudogeographica	ST
	Whooping Crane	Grus americana	FE, SE
	Black-footed Ferret	Mustela nigripes	FE, SE
	Northern Long-eared Bat	Myotis septentrionalis	LT
	Northern River Otter	Lontra canadensis	ST
	Swift Fox	Vulpes velox	ST
Marshall	Dakota Skipper	Hesperia dacotae	FT
	Poweshiek Skipperling	Oarisma poweshiek	FE
	Whooping Crane	Gus americana	FE, SE
	Northern River Otter	Lontra canadensis	ST
McCook	Topeka Shiner	Notropis topeka	FE
	Northern River Otter	Lontra canadensis	ST
McPherson	Dakota Skipper	Hesperia dacotae	FT
	Banded Killifish	Fundulus diaphanus	SE
	Whooping Crane	Grus americana	FE, SE
Meade	Banded Killifish	Fundulus diaphanus	SE
	Longnose Sucker	Catostomus catostomus	ST
	Sturgeon Chub	Macrhybopsis gelida	ST
	American Dipper	Cinclus mexicanus	ST
	Interior Least Tern	Sternula antillarum athalassos	FE, SE
	Whooping Crane	Grus americana	FE, SE
	Northern Long-eared Bat	Myotis septentrionalis	LT
	Northern River Otter	Lontra canadensis	ST
	Swift Fox	Vulpes velox	ST
Mellette	Sturgeon Chub	Macrhybopsis gelida	ST
	Whooping Crane	Grus americana	FE, SE
Miner	Topeka Shiner	Notropis topeka	FE

	Whooping Crane	Grus americana	FE, SE
Minnehaha	Topeka Shiner	Notropis topeka	FE
	Lined Snake	Tropidoclonion lineatum	SE
	Northern River Otter	Lontra canadensis	ST
	Western Prairie Fringed Orchid	Platanthera praeclara	FT
Moody	Dakota Skipper	Hesperia dacotae	FT
	Poweshiek Skipperling	Oarisma poweshiek	FE
	Blacknose Shiner	Notropis heterolepis	SE
	Topeka Shiner	Notropis topeka	FE
	Northern River Otter	Lontra canadensis	ST
Oglala Lakota	Sturgeon Chub	Macrhybopsis gelida	ST
	Swift Fox	Vulpes velox	ST
Pennington	Longnose Sucker	Catostomus catostomus	ST
	Sturgeon Chub	Macrhybopsis gelida	ST
	American Dipper	Cinclus mexicanus	ST
	Interior Least Tern	Sternula antillarum athalassos	FE, SE
	Osprey	Pandion haliaetus	ST
	Peregrine Falcon	Falco peregrinus	SE
	Whooping Crane	Grus americana	FE, SE
	Black-footed Ferret	Mustela nigripes	FE, SE
	Northern Long-eared Bat	Myotis septentrionalis	LT
	Northern River Otter	Lontra canadensis	ST
	Swift Fox	Vulpes velox	ST
Perkins	Whooping Crane	Grus americana	FE, SE
	Northern Long-eared Bat	Myotis septentrionalis	LT
	Swift Fox	Vulpes velox	ST
Potter	Pallid Sturgeon	Scaphirhynchus albus	FE, SE
	Shovelnose Sturgeon	Scaphirhynchus platorynchus	FT
	Interior Least Tern	Sternula antillarum athalassos	FE, SE
	Piping Plover	Charadrius melodus	FT, ST
	Whooping Crane	Grus americana	FE, SE
Roberts	Dakota Skipper	Hesperia dacotae	FT
	Poweshiek Skipperling	Oarisma poweshiek	FE
	Blacknose Shiner	Notropis heterolepis	SE
	Osprey	Pandion haliaetus	ST
	Whooping Crane	Grus americana	FE, SE
	Northern River Otter	Lontra canadensis	ST
Sandborn	Topeka Shiner	Notropis topeka	FE
	Whooping Crane	Grus americana	FE, SE
	Northern River Otter	Lontra canadensis	ST
Spink	Whooping Crane	Grus americana	FE, SE
	Northern River Otter	Lontra canadensis	ST

	Swift Fox	Vulpes velox	ST
Stanley	Pallid Sturgeon	Scaphirhynchus albus	FE, SE
	Shovelnose Sturgeon	Scaphirhynchus platorynchus	FT
	Sicklefin Chub	Macrhybopsis meeki	ST
	False Map Turtle	Graptemys pseudogeographica	ST
	Interior Least Tern	Sternula antillarum athalassos	FE, SE
	Piping Plover	Charadrius melodus	FT, ST
	Whooping Crane	Grus americana	FE, SE
	Black-footed Ferret	Mustela nigripes	FE, SE
	Northern Long-eared Bat	Myotis septentrionalis	LT
	Northern River Otter	Lontra canadensis	ST
	Swift Fox	Vulpes velox	ST
Sully	Pallid Sturgeon	Scaphirhynchus albus	FE, SE
	Shovelnose Sturgeon	Scaphirhynchus platorynchus	FT
	Interior Least Tern	Sternula antillarum athalassos	FE, SE
	Piping Plover	Charadrius melodus	FT, ST
	Whooping Crane	Grus americana	FE, SE
	Northern River Otter	Lontra canadensis	ST
	Swift Fox	Vulpes velox	ST
Todd	American Burying Beetle	Nicrophorus americanus	FE
	Blacknose Shiner	Notropis heterolepis	SE
	Finescale Dace	Chrosomus neogaeus	SE
	Northern Pearl Dace	Margariscus nachtriebi	ST
	Northern Redbelly Dace	Chrosomus eos	ST
	Black-footed Ferret	Mustela nigripes	FE, SE
Tripp	American Burying Beetle	Nicrophorus americanus	FE
	Blacknose Shiner	Notropis heterolepis	SE
	Northern Pearl Dace	Margariscus nachtriebi	ST
	Northern Redbelly Dace	Chrosomus eos	ST
	Sturgeon Chub	Macrhybopsis gelida	ST
	Whooping Crane	Grus americana	FE, SE
	Northern River Otter	Lontra canadensis	ST
Turner	Northern Redbelly Dace	Chrosomus eos	ST
	Topeka Shiner	Notropis topeka	FE
Union	American Burying Beetle	Nicrophorus americanus	FE
	Pallid Sturgeon	Scaphirhynchus albus	FE, SE
	Shovelnose Sturgeon	Scaphirhynchus platorynchus	FT
	Finescale Dace	Chrosomus neogaeus	SE
	Sturgeon Chub	Macrhybopsis gelida	ST
	Sicklefin Chub	Macrhybopsis meeki	ST
	Eastern Hognose Snake	Heterodon platirhinos	ST
	False Map Turtle	Graptemys pseudogeographica	ST
	Lined Snake	Tropidoclonion lineatum	SE

	Interior Least Tern	Sternula antillarum athalassos	FE, SE
	Piping Plover	Charadrius melodus	FT, ST
	Northern Long-eared Bat	Myotis septentrionalis	LT
	Northern River Otter	Lontra canadensis	ST
Walworth	Northern Redbelly Dace	Chrosomus eos	ST
	Pallid Sturgeon	Scaphirhynchus albus	FE, SE
	Shovelnose Sturgeon	Scaphirhynchus platorynchus	FT
	Sturgeon Chub	Macrhybopsis gelida	ST
	Sicklefin Chub	Macrhybopsis meeki	ST
	Interior Least Tern	Sternula antillarum athalassos	FE, SE
	Piping Plover	Charadrius melodus	FT, ST
	Whooping Crane	Grus americana	FE, SE
	Northern Long-eared Bat	Myotis septentrionalis	LT
Yankton	Higgins Eye	Lampsilis higginsii	FE
	Scaleshell	Leptodea leptodon	FE
	Pallid Sturgeon	Scaphirhynchus albus	FE, SE
	Shovelnose Sturgeon	Scaphirhynchus platorynchus	FT
	Sicklefin Chub	Macrhybopsis meeki	ST
	Sturgeon Chub	Macrhybopsis gelida	ST
	Eastern Hognose Snake	Heterodon platirhinos	ST
	False Map Turtle	Graptemys pseudogeographica	ST
	Interior Least Tern	Sternula antillarum athalassos	FE, SE
	Piping Plover	Charadrius melodus	FT, ST
	Northern Long-eared Bat	Myotis septentrionalis	LT
	Northern River Otter	Lontra canadensis	ST
Ziebach	Sturgeon Chub	Macrhybopsis gelida	ST
	Interior Least Tern	Sternula antillarum athalassos	FE, SE
	Black-footed Ferret	Mustela nigripes	FE, SE
	Swift Fox	Vulpes velox	ST
	Whooping Crane	Grus americana	FE, SE

APPENDIX C

PHOTOGRAPH LOG



Photo 1. Adult Burrowing owl



Photo 3. Buteo nest 1



Photo 2. Burrowing owl nest, prairie dog burrow



Photo 4. Buteo nest 2





Photo 5. Cheyenne bat detector



Photo 7. Cliff Swallow colony, Cheyenne Bridge





Photo 8. Cropland



Photo 9. Emergent wetland – closed depression



Photo 11. Great-horned owl adult perched above nest

Photo 10. Grassland - substation



Photo 12. Great-horned owl fledgling near nest



Photo 13. Long-billed Curlew



Photo 15. Riparian corridor – Cheyenne River



Photo 14. Potential Northern long-eared bat habitat - tributary



Photo 16. Riparian habitat



Photo 17. Robin nest

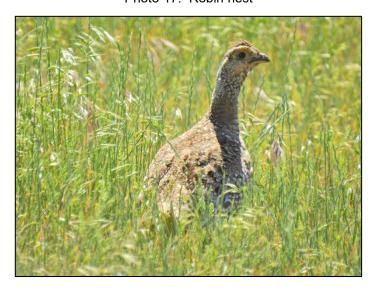


Photo 19. Sharp-tailed grouse



Photo 18. Sand sagebrush patch – solar farm



Photo 20. Shrub-scrub wetland



Photo 21. Snapping Turtle



Photo 23. Swainson Hawk nest



Photo 22. Solar farm - grassland



Photo 24. Swainson Hawk



Photo 25. Tributary bat detector location

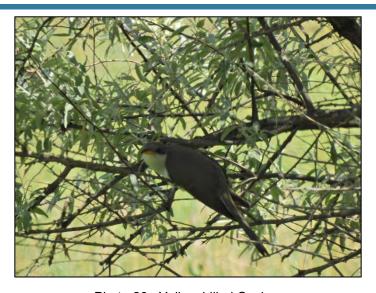


Photo 26. Yellow-billed Cuckoo