H. Any use which endangers the temporary safeguards erected for flood protection.

**Building and Construction Ordinance**

*Chapter 17.28 Kern County Grading Code*

Requirements of the Kern County Grading Code will be implemented. A grading permit will be obtained prior to commencement of construction activities. Of particular note with respect to hydrology and water quality is Section 17.28.140, Erosion Control, as discussed in Section 4.6 (Geology and Soils).

*Chapter 17.48 Kern County Floodplain Management*

Any construction that takes place within areas of special flood hazards, areas of flood-related erosion hazards, and areas of mudslide (i.e., mudflow) hazards within the jurisdiction of unincorporated Kern County will comply with the requirements and construction design specifications of this ordinance. Any required development permits will be obtained prior to commencement of construction activities.

**4.9.4 Impacts and Mitigation Measures**

**Methodology**

This section describes the potential hydrology and water quality impacts associated with development of the North Sky River Wind Energy Project and Jawbone Wind Energy Project (project). This analysis first established baseline conditions for the affected environment relevant to hydrology and water quality, as presented above in Section 4.9.2. These baseline conditions were evaluated based on their potential to be affected by construction activities as well as O&M activities for the project. Sections 3.7 (Construction), 3.8 (Operation and Maintenance Activities), and 3.9 (Decommissioning and Repowering) of this EIR describe the activities that are reasonably expected to occur over the lifetime of the project (anticipated to be approximately 30 years), including construction and installation of WTGs, operation and maintenance, and decommissioning. The predicted interactions between the affected environment and project activities are evaluated based on the significance criteria defined below.

**Thresholds of Significance**

The Kern County CEQA Implementation Document and Kern County Environmental Checklist state that a project would normally be considered to have a significant impact if it would:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on site or off site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on site or off site;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
• Otherwise substantially degrade water quality;
• Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
• Place within a 100-year flood hazard area structures which would impede or redirect flood flows;
• Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam; or
• Result in inundation by seiche, tsunami, or mudflow.

The Notice of Preparation/Initial Study (NOP/IS) prepared for the project found that there would be no impact to hydrology and water quality related to the following significance criteria topics: placement of housing within a mapped 100-year flood hazard area; and the exposure of people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam. Therefore, it is not necessary to further address these issues in this EIR analysis.

Project Impacts

Impact 4.9-1: Violate Any Water Quality Standards or Waste Discharge Requirements

Development of the project would result in a significant impact to hydrology and water quality if associated construction, maintenance, or decommissioning activities would result in the violation of any water quality or waste discharge standards. Such violations could occur through the creation of erosion, sedimentation, and/or polluted runoff, through the accidental release of potentially hazardous materials required during construction or operational activities, and/or through the discharge of contaminated groundwater during dewatering activities. Applicable water quality standards and regulations are presented in Section 4.9.3 (Regulatory Setting). Potential impacts associated with water quality or waste discharge violations are described below.

Soil Erosion and Sedimentation

Soil-disturbing activities that would occur during construction of the project include the following activities: grading of roads, turbine foundations, and crane pads; grading of substation, concrete batch plant, O&M building, materials laydown area, and equipment staging areas; construction of turbine tower foundations and transformer pads; and construction of the substations and O&M building. Preparation of the project site for construction would involve land clearing and grading by removing topsoil and vegetation for roads, WTG foundations, and substations. All grading and excavation activities would have the potential to cause water quality degradation resulting from soil disturbance. In particular, due to the steep terrain in some areas of the project site, the installation and/or upgrading of access roads would require substantial earth-moving activities with the potential for associated water quality effects.

As described in Section 4.9.2 (Environmental Setting), Cottonwood Creek and Jawbone Canyon Wash traverse the project site, in addition to multiple intermittent or ephemeral waterways. Soil-disturbing activities required for project implementation are summarized above. Of these activities, road construction, widening, and/or improvement for either temporary or permanent access, particularly in steep terrain, have the potential to cause soil instability resulting in erosion (soil transport) and subsequent water quality degradation via sediment deposition into local waterways (soil delivery). Land disturbance associated with road construction and improvements would include: vegetation clearing, blade grading, soil compaction, installation of drainage structures and
stream crossings, and installation of slope-strengthening structures as needed. These activities involve soil disturbance and stockpiling of earth that could potentially accelerate soil erosion. Exposed and disturbed soils could be transported via wind and/or stormwater runoff into surface drainages on the project site, as well as their downstream tributaries. The potential for water quality degradation to occur as a result of soil erosion and sedimentation is greatest on steeper slopes, and where project access roads traverse stream channels.

**Hazardous Materials**

During construction or operation and maintenance of the project, any activity which results in the accidental release of hazardous or potentially hazardous materials could result in water quality degradation. Hazardous and potentially hazardous chemicals used during construction of the project and its associated linear facilities will include gasoline, diesel fuel, motor oil, hydraulic fluid, antifreeze, solvents, cleaners, sealants, welding flux, various lubricants, paint, and paint thinner. The preparation and pouring of concrete and the use of motorized equipment are examples of construction activities that would involve the use of potentially harmful materials. Excess concrete could flow away from a concrete batch plant, turbine foundation site, or substation construction site. Motorized equipment could leak hazardous materials such as motor oil, transmission fluid, or antifreeze due to inadequate or improper maintenance, unnoticed or unrepai red damage, improper refueling, or operator error.

As described in Section 3.8 (Operation and Maintenance Activities), during operation and maintenance of the project, hazardous and potentially hazardous chemicals (for example, oil, grease, and ethylene glycol) would be used to lubricate and cool the WTGs and ancillary facilities; a radiator would dissipate heat and would contain a water and ethylene mixture that would be tested annually. The gearbox would contain approximately 70 gallons of oil that would not be routinely renewed. The WTGs would be equipped with leak-proof gaskets. Possible leakage or spillage during operations and/or maintenance of the WTGs would be confined within the towers. A supply of chemicals would be stored on site in the maintenance yard. Due to the remote location of the site, it is expected that two 500-gallon diesel storage tanks would be installed on site to serve O&M vehicles. To minimize the potential for harmful releases through spills or contaminated runoff, chemicals would be stored in tanks or drums located within secondary containment areas. Use of extremely hazardous materials is not anticipated. Storage and use of hazardous materials would be subject to a hazardous materials management plan approved by Kern County. In contrast with construction activities, which would include more intensive use of heavy equipment for longer periods of time, operation and maintenance of the project would have substantially less potential to result in an accidental spill or release of hazardous materials that could cause water quality degradation.

In addition to the potential for water quality to be affected by the accidental release of hazardous materials, water quality degradation could also occur as a result of the discharge of contaminated groundwater during dewatering activities, if necessary. Dewatering activities would be required if groundwater is unexpectedly encountered during project construction. Any dewatering activities would be performed in compliance with applicable State and local regulatory requirements. These operations may include, as applicable, the use of sediment traps and sediment basins in accordance with the California Stormwater Quality Association (CASQA) Handbook for Construction (CASQA, 2009), which provides guidance for selecting and implementing BMPs to eliminate or reduce the discharge of pollutants from construction sites to waters of the State. Depth to groundwater at the project site is not known; therefore, it is possible that groundwater resources...
may be unexpectedly encountered and dewatering activities would be required. Discharge of the
dewatered effluent would be regulated under the NPDES General Construction Permit,
administered by the Lahontan RWQCB. Compliance with the conditions of the NPDES General
Construction Permit would ensure that contaminated groundwater is properly tested and treated, if
necessary, prior to discharge to any surface water.

Conclusion

During construction of the project, potential impacts to water quality associated with erosion and
sedimentation would be localized and temporary. The project proponents would implement
measures to minimize and contain erosion and sedimentation in accordance with the Kern County
Grading Code, and would be required to submit a grading permit to the County for approval prior to
commencement of any construction activities. Land clearing and grading would be performed
according to the Soil Erosion and Sedimentation Mitigation Plan as required by Section
19.64.140.K (WE Combining District - Development Standards and Conditions) of the Kern
County Zoning Ordinance. Additionally, because the project would disturb more than one acre, the
project proponents would be required to obtain and comply with the NPDES General Permit. As
required by this permit, the project proponents would develop and implement a SWPPP, including a
Rain Event Action Plan (REAP) prior to permit approval.

Mitigation Measures

Mitigation measures identified in other issue area sections of this EIR that would help to minimize
or avoid the potential for project activities to result in the violation of any water quality standards or
waste discharge requirements are summarized below. Please see Section 4.4 (Biological Resources)
for the full text of Mitigation Measure 4.4-30, Section 4.6 (Geology and Soils) for the full text of
Mitigation Measures 4.6-5 and 4.6-6, and Section 4.8 (Hazards and Hazardous Materials) for the
full text of Mitigation Measures 4.8-1 and 4.8-3. Mitigation Measure 4.9-1 was introduced
specifically for this issue area and the full text of MM 4.9-1 is presented below the following bullet
list, which provides summaries of all MMs relevant to Impact 4.9-1.

- MM 4.9-1 requires the project proponent(s) to submit a road plan to the County for approval at least 60 days prior to commencement of construction activities, thereby facilitating the identification and implementation of any necessary Best Management Practices to control erosion and/or sedimentation, and the identification and prevention of any potential disturbances to drainages and/or riparian areas. The road plan shall clearly identify all planned road construction and improvements to existing roads, all drainage crossings, and all sensitive habitat within 100 feet of road improvements.

- MM 4.4-30 requires the project proponent(s) to demonstrate compliance with all required water quality permits prior to commencement of any construction activities. All required water quality permits would be maintained and made available on-site at all times during construction of the project.

- MMs 4.6-5 and 4.6-6, would minimize the potential impacts of grading and would require implementation of specific Best Management Practices to reduce the potential for water quality degradation through erosion and sedimentation, as specified in the Soil Erosion and Sedimentation Control Plan.

- MM 4.8-1 requires that all hazardous materials are properly stored, handled by trained individuals, and disposed of in accordance with applicable laws and regulations, and Mitigation Measure 4.8-3, which requires specific herbicide application equipment and
techniques to protect water quality from degradation through improper handling and application of herbicides. Additionally, to prevent hazardous materials from entering drainages and affecting water quality, the applicant would be required to implement a Hazardous Materials Business Plan and submit it to the Kern County Environmental Health Services Department for review and approval, as discussed in Section 4.8 (Hazards and Hazardous Materials).

Mitigation Measure 4.9-1, listed below and summarized in the list above, would be implemented with the project.

**MM 4.9-1** The project proponent(s) shall submit a Road Plan to the Kern County Engineering, Surveying, and Permit Services Department for approval prior to any access or spur road construction and/or upgrades. The Road Plan shall identify the precise location of all planned access and spur road construction and/or improvements to existing roads, the specific improvements/modifications that would be undertaken at each location or road segment, including the planned width of each completed segment, the engineered limits of cut and fill, the location of any drainage and/or sensitive habitat within 100 feet of either edge of the planned access or spur road, and the location and construction details of any new or modified stream crossings or drainage diversion structures. Should the Road Plan propose a “cut” or “fill” of more than twelve (12) inches, or the movement of more than fifty (50) cubic yards of material, the Road Plan shall be submitted in the form of a grading permit application to the Kern County Engineering, Surveying, and Permit Services Department for review and approval.

**Level of Significance after Mitigation**
Impacts would be less than significant.

**Impact 4.9-2: Substantially Deplete Groundwater Supplies or Interfere with Groundwater Recharge Such that There Would Be a Net Deficit in Aquifer Volume or a Lowering of the Local Groundwater Table Level**

Construction, operation, and/or decommissioning of the project could impact groundwater supply and recharge if one of the following occurs: the affected groundwater basin is in overdraft conditions; construction activities cause the affected groundwater basin to be in overdraft; substantial drawdown occurs at groundwater wells in the area as a result of construction groundwater pumping; or project activities redirect natural recharge to groundwater basin(s), such as through the introduction of impervious areas that prevent infiltration. Each of these potential conditions is discussed below.

During construction, water requirements would be met using local groundwater resources pumped from an on-site well and stored in a temporary or permanent reservoir, or water would be purchased from an off-site source and trucked on to the site. Potential off-site sources include the Cal Portland Mojave Plant and/or the Los Angeles Aqueduct. During operations, water requirements would also be met using an on-site groundwater well, and/or by trucking water on to the site. No impacts to groundwater supply would occur if water is purchased from an off-site source. For the purposes of this impact analysis, it is assumed that local groundwater resources would be used to meet all construction and operational water supply requirements.

**Overdraft.** Groundwater overdraft occurs when the quantity of water removed from a groundwater basin exceeds the rate of recharge to that basin. As described above in Section 4.9.2, the overdraft
conditions for the Kelso Lander Valley Groundwater Basin and the Fremont Valley Groundwater Basin have not been assessed by the DWR. If overdraft conditions are present and construction of the project utilizes local groundwater resources, the project could exacerbate overdraft conditions, resulting in adverse impacts to groundwater resources. Overdraft conditions can be temporary and of varying duration, depending upon the intensity and duration of activities which cause such conditions to occur. A recent assessment of the Kelso Lander Valley Groundwater Basin conducted by Wood Rogers Inc. suggests that the basin is not in overdraft conditions and that sufficient water supply is available within this basin to meet project construction and operational water requirements (Wood Rogers, 2011). Use of local groundwater resources to meet water requirements during project construction would require groundwater monitoring and reporting activities, conducted in coordination with local agencies, in order to avoid and/or minimize potential overdraft impacts.

**Drawdown.** Drawdown occurs when groundwater pumping at one well lowers the aquifer level such that other wells in the vicinity experience an increased depth to groundwater, requiring greater energy to draw the same volume of water from affected wells. Section 3.4 describes that several year-round and seasonal residences exist near the project site; due to the remote location of the project site, it is reasonably assumed that residences in the area utilize private groundwater wells to meet domestic water needs. Depending on the location of project supply wells in proximity to other local private groundwater wells, and the pumping rate and duration required to meet project needs, construction of the project could result in adverse drawdown effects.

The assessment of groundwater supplies conducted by Wood Rogers Inc. includes preliminary analysis of drawdown effects in the area of the pump test well, located in the southwestern portion of Kelso Lander Valley Groundwater Basin, and determines that drawdown effects would be temporary and of short duration (Wood Rogers, 2011). As with overdraft, drawdown conditions can be temporary and of varying duration, depending upon the intensity and duration of activities which cause such conditions to occur. Use of local groundwater resources to meet water requirements during project construction would require groundwater monitoring and reporting activities, conducted in coordination with local agencies, in order to avoid and/or minimize potential drawdown impacts.

**Recharge.** The project would introduce new impervious surfaces associated with the following permanent project components: WTGs, service roads, a power collection system, communication cables, overhead and underground transmission lines, electrical switchyards, project substation(s), meteorological towers, and operation and maintenance facilities. The project would also introduce new temporary impervious areas through construction access roads, lay-down areas, and concrete batch plants. The total project area is 13,535 acres, and the new areas of impervious surfaces that would be introduced as a result of the project would not have a measurable effect on groundwater recharge. Any small increase in runoff would be localized and would not result in an appreciable impact to groundwater recharge.

**Mitigation Measures**

If water for project construction and operation is obtained from the Tehachapi-Cummings County Water District and trucked to the site instead of pumped from groundwater wells at the project site, Mitigation Measures 4.9-2 and 4.9-3 would not be required, and the project proponents would not be responsible for implementing a Water Supply Contingency Plan or a Groundwater Monitoring and Reporting Plan. Regardless of the water source used during project construction and operation, the project proponents would be required to implement Mitigation Measures 4.9-4 and 4.9-5 to address drainage designs and dewatering practices.
Prior to construction, the project proponent(s) shall develop and implement a Water Supply Contingency Plan. The Water Supply Contingency Plan shall be prepared by a qualified hydrogeologist and submitted by the project proponent(s) to Kern County for review and approval. The Water Supply Contingency Plan shall provide detailed procedures for conducting a groundwater investigation to determine whether the identified groundwater resource(s) to be used for the project is in overdraft conditions; such investigation may include review of historic groundwater well data, groundwater monitoring, hydrologic modeling, and/or interviews with private well owners. The project proponent(s) shall coordinate groundwater investigation efforts with the Lahontan Regional Water Quality Control Board. This groundwater investigation shall occur prior to the onset of construction in order to ensure that no groundwater resources from overdrafted basins are used to meet project needs.

The Water Supply Contingency Plan shall identify at least two groundwater supply wells for project use during construction, a primary supply well and a secondary supply well. The Water Supply Contingency Plan shall identify the well sites, proximity to other active wells, estimated total depth, well screen depth, diameter, estimated yield and water quality. If the daily yields of the primary supply well are inadequate or become inadequate to meet the project requirements, the secondary supply well shall be used in order to avoid potential drawdown impacts at wells near the primary. Use of a secondary supply well would not alter the quantity of groundwater pumped for project purposes; the purpose of the secondary supply well would be to avoid potential impacts associated with over-pumping the primary supply well.

The Water Supply Contingency Plan shall specify when the second supply well shall be used, what conditions would trigger necessary use of the second supply well, the person responsible for determining when to utilize the second supply well, and how such use shall be reported. The Environmental Monitor shall verify that the secondary supply well is installed and is capable of producing daily yields sufficient to supplement or replace the primary supply well in meeting construction water demand, as needed.

The project proponent(s) shall develop and implement a Groundwater Monitoring and Reporting Plan prior to the onset of construction of the project. The Groundwater Monitoring and Reporting Plan shall be prepared by a qualified hydrogeologist and submitted by the project proponent(s) to Kern County for review and approval. The Groundwater Monitoring and Reporting Plan shall provide detailed methodology for monitoring background and site groundwater levels, water quality, and flow. Monitoring shall be performed during pre-construction, construction, and project operation with the intent to establish pre-construction and project-related groundwater level and water quality trends that can be quantitatively compared against observed and simulated trends near the project pumping wells and near potentially impacted existing private wells. The monitoring wells shall include locations up-gradient, lateral, and down-gradient of all project supply wells and a minimum of three offsite down-gradient wells. Water quality monitoring shall include annual sampling and testing for Total Dissolved Solids, which include minerals, salts, and metals dissolved in water. Water quality samples shall be drawn from project supply wells, one up-gradient well, and a minimum of two down-gradient offsite wells.

During construction, quarterly water level monitoring data reports shall be submitted by the project proponent(s) to Kern County for review. Based on the results of the
quarterly trend analyses, the project proponent(s) shall determine if the project pumping has resulted in water level decline of five feet or more below the baseline trend at nearby private wells. If drawdown of five feet or more occurs at off-site wells, the project proponent(s) shall immediately reduce groundwater pumping until water levels stabilize or recover, sustaining drawdown of less than five feet. Alternatively, the project proponent(s) shall provide compensation to the well owner, including reimbursement of increased energy costs, or deepening the well or pump setting.

4.9-4 Prior to the onset of construction of the project, the project proponent(s) shall submit a Drainage Design Plan to Kern County for review and approval. In the Drainage Design Plan, groundcover for the new substation shall be comprised of a pervious and/or high-roughness material (for example, gravel) to the maximum extent feasible, in order to ensure maximum percolation of rainfall after construction. Detention/retention basins shall be installed to reduce local increases in runoff, particularly on frequent runoff events (up to 10 year frequency). Downstream drainage discharge points shall be provided with erosion protection and designed such that flow hydraulics exiting the site mimic the natural conditions as much as possible.

4.9-5 If groundwater is unexpectedly encountered during construction, operation, or decommissioning of the project, dewatering activities shall be performed in compliance with the California Stormwater Quality Association Handbook for Construction or other similar guidelines, as approved by Kern County. The project proponent(s) shall notify Kern County and the Lahontan Regional Water Quality Control Board at the onset of dewatering activities, and submit written description of all executed dewatering activities, including steps taken to return encountered groundwater to the subsurface, upon the completion of dewatering activities at the affected site(s). The Environmental Monitor shall periodically check grading activities for groundwater exposure.

Level of Significance
Impacts would be less than significant.

Impact 4.9-3: Substantially Alter the Existing Drainage Pattern of the Site or Area, Including Through the Alteration of the Course of a Stream or River, or Substantially Increase the Rate or Amount of Surface Runoff in a Matter Which Would Result in Substantial Erosion or Siltation on Site or Off Site

Implementation of the project would introduce earth-disturbing activities and new permanent infrastructure that could alter existing drainage patterns of the area. The potential for project activities to result in substantial erosion or siltation associated with drainage pattern alterations are discussed below.

Ground Disturbance. Section 3.7 (Construction) of this EIR describes that construction of the project would include clearing, grading, and excavation activities for the installation of project infrastructure and roadways. These activities, and the presence of project infrastructure and roadways, could alter existing drainage patterns of the area.

The project site is 13,535 acres and encompasses approximately 23 percent of the Jawbone Canyon Watershed area. This is a substantial portion of the overall watershed; however, ground-disturbing activities would occur on a small percentage of the 13,535-acre site. Land clearing and grading
would be performed according to the Soil Erosion and Sedimentation Mitigation Plan as required by Section 19.64.140.K of the Kern County Zoning Ordinance, the project’s State-approved SWPPP, and any grading and building permits issued by Kern County.

As described in Section 3.5, new roads constructed for the project would use the existing road network to the greatest extent possible, and would be designed to limit disturbance and avoid sensitive resources to the extent possible. Grade adjustments would be required in most locations to accommodate maximum construction grades of 10 percent. In addition to the above, road improvements for the project would be completed in compliance with the Road Plan required per MM 4.9-1, which includes identification of any drainage within 100 feet of either edge of planned roads, as well as identification of the location and construction details of any new or modified stream crossings or drainage diversion structures. The Road Plan would be developed in coordination with and approved by the Kern County Engineering, Surveying, and Permit Services Department for review and approval.

**Drainage Crossings.** The project site is traversed by Cottonwood Creek, Jawbone Canyon Wash, and numerous ephemeral drainages. Prior to commencement of construction activities, the project proponents would be required to submit a grading permit and Road Plan (per MM 4.9-1) to Kern County for review and approval. Any alteration of the bed or banks of any drainage deemed by the CDFG to be jurisdictional waters of the State, including through access road improvement and construction, would not be permitted to commence prior to development and implementation of a Streambed Alteration Agreement with the CDFG.

As described in Section 3.7 (see “Site Preparation”), road construction would include the installation of water bars to allow for natural drainage of water over the road surface and to prevent road washout. Culverts and V ditches would be installed to handle excess drainage water. As described above, MM 4.9-1 requires the implementation of a Road Plan which includes identification of all locations and construction details of any new or modified stream crossings or drainage diversion structures. Road shaping would ensure proper water flow away from cut-and-fill slopes and into ditches and culverts. Erosion-control devices also will be installed or completed, and disturbed areas adjoining the roads would be restored and the appropriate erosion-control devices would be installed. All road work would be performed under final approved grading, erosion control, and stormwater quality management plans.

MM 4.9-4, identified above, requires the design and implementation of a Drainage Design Plan which includes downstream drainage discharge points provided with erosion protection and designed such that flow hydraulics exiting the site mimic the natural conditions as much as possible. Compliance with MMs listed below, as well as compliance with existing laws and regulations identified in section 4.9.3, would ensure that the project would not result in significant adverse impacts associated with drainage crossings such that substantial erosion or siltation would occur on- or off-site.

**Surface Runoff.** The rate and amount of surface runoff is determined by multiple factors, including topography, amount and intensity of precipitation, amount of evaporation that occurs in the watershed, and amount of precipitation and imported water that infiltrates to the groundwater. The project would not alter any precipitation amounts or intensities, nor would it require significant amounts of additional water to be imported into the project area. Grading would occur at turbine locations, substation site(s), the O&M building site, and along access roads to accommodate project infrastructure and maximum road grade requirements of 10 percent. Although grading activities
may require substantial earth-moving activities in some locations, this ground disturbance would be spread over the project’s 13,535-acre site and would not alter the overall topography of the area. Impervious surfaces that would result from construction of the project would not substantially interfere with groundwater infiltration, as described under Impact 4.9-2. The project would not alter precipitation amounts or intensities, evaporation rates, or the amount of precipitation that infiltrates into the groundwater. Additionally, the amount of imported water used for construction of the project (such as water used for dust suppression) would not substantially alter groundwater infiltration rates. Therefore, the rate or amount of surface runoff resulting from the project would not substantially change relative to existing conditions.

**Flood Hazard Areas.** Encroachment of a turbine tower or other project-related permanent infrastructure into a stream channel or floodplain, including FEMA-designated Flood Hazard Areas, could result in flooding of or erosion damage to the encroaching structure, diversion of flows and increased flood risk for adjacent property, or increased erosion on adjacent property. As described under Section 4.9.2 (see “Surface Water”), portions of the project site are FEMA-designated Flood Hazard Areas, Flood Zone A, which are subject to inundation by the 100-year flood. Any construction that takes place within areas designated as Flood Zone A within the jurisdiction of unincorporated Kern County would be required to comply with the requirements and construction design specifications of the Kern County Floodplain Management Ordinance. The project would not result in significant adverse impacts related to Flood Hazard Areas such that substantial erosion or siltation on- or off-site would occur.

**Beneficial Uses.** As described in Section 4.9.2 (see “Surface Water”), drainages on the project site and in the surrounding area are identified in the Basin Plan for the Lahontan Region as minor surface waters with designated Beneficial Uses such as MUN, AGR, GWR, REC-1, REC-2, WARM, and WILD (see “Surface Water” for descriptions of these Beneficial Uses). As described, the Lahontan RWQCB has expressed concern that implementation of the project would require realignment, channelization, lining, and/or infilling of surface waters that could adversely affect the Beneficial Uses. Based on the above discussion, the project would alter drainage patterns on the project site, but such alterations would be localized and existing drainage patterns would be restored to the maximum extent feasible. In addition, project access roads would cross drainages on the project site, but would not alter the course of a stream or river. Roads would be designed to minimize alterations to existing drainage patterns. The introduction of new impervious infrastructure and increased soil compaction associated with access roads would also result in increased surface water runoff, but such effects would be localized, and would be minimized to the maximum extent feasible through the restoration of existing drainage patterns. The project would not realign, channelize, line, or infill surface waters on the project site. Although surface waters on the project site would be affected by implementation of the project, such effects would not result in significant adverse impacts to designated Beneficial Uses of surface waters on the project site.

**Mitigation Measures**

Mitigation measures identified in other issue area sections of this EIR that would help to minimize or avoid the potential for project activities to result in adverse impacts associated with drainage pattern alterations. Mitigation Measure 4.9-1 is presented in this section, under Impact 4.9-1. Please see Section 4.4 (Biological Resources) for the full text of Mitigation Measure 4.4-30, and Section 4.6 (Geology and Soils) for the full text of Mitigation Measures 4.6-5 and 4.6-6.
- MM 4.9-1 requires the applicant to submit a road plan to the County for approval at least 60 days prior to commencement of construction activities, thereby facilitating the identification and implementation of any necessary Best Management Practices to control erosion and/or sedimentation, and the identification and prevention of any potential disturbances to drainages and/or riparian areas. The road plan shall clearly identify all planned road construction and improvements to existing roads, all drainage crossings, and all sensitive habitat within 100 feet of road improvements.

- MM 4.4-30 requires the applicant to demonstrate compliance with all required water quality permits prior to commencement of any construction activities. All required water quality permits would be maintained and made available on-site at all times during construction of the project.

- MMs 4.6-5 and 4.6-6 would minimize the potential impacts of grading and would require implementation of specific Best Management Practices to reduce the potential for water quality degradation through erosion and sedimentation, as specified in the Soil Erosion and Sedimentation Control Plan.

Mitigation Measures 4.9-1, 4.4-30, 4.6-5, and 4.6-6, summarized above, would be implemented to minimize or reduce this potential impact. In addition, as discussed above under Impact 4.9-1, construction-related erosion and sedimentation as a result of soil disturbance would be less than significant with implementation of Best Management Practices required by the Kern County Grading Code and Floodplain Management Ordinance, and compliance with the National Pollutant Discharge Elimination System General Construction Permit. No additional mitigation measures are required.

**Level of Significance**

Impacts would be less than significant.

**Impact 4.9-4: Substantially Alter the Existing Drainage Pattern of the Site or Area, Including Through the Alteration of the Course of a Stream or River, or Substantially Increase the Rate or Amount of Surface Runoff in a Manner Which Would Result in Substantial Flooding on Site or Off Site**

As discussed under Impact 4.9-3, implementation of the project would not substantially alter existing drainage pattern of the site or area and would not alter the course of a stream or river or substantially alter surface runoff. Although the amount of surface runoff within the project area would not change, the pattern and concentration of this runoff could be altered by grading activities associated with the project. As described under Section 4.9.2 (Environmental Setting), there are multiple ephemeral drainages across the project site, which convey surface runoff in response to storm events. The discussion under Impact 4.9-3 describes that implementation of the project would not permanently alter the course of any drainages or substantially alter drainage patterns on or off the project site, although some drainage crossings would be required to accommodate access road alignments. These crossings would be designed to mimic natural drainage patterns to the maximum extent feasible, and any effects to surface runoff patterns and/or rates would be localized. Infrastructure associated with the project is not anticipated to be placed in an existing stream channel or FEMA-designated Flood Hazard Area.

The potential for development of the project to alter the existing drainage patterns would be minimized through compliance with design-specifications and BMPs required by the Kern County
Grading Code and Floodplain Management Ordinance. Any increase in surface water runoff resulting from permanent project features would be minor and location-specific, and would not influence surface runoff in a manner which would result in flooding on-site or off-site.

**Mitigation Measures**

The project would comply with the goals, policies, and implementation measures of the Kern County General Plan as well as the Kern County Grading Code and Floodplain Management Ordinance requirements. In addition, mitigation measures identified in other issue area sections of this Environmental Impact Report that would help to minimize or avoid the potential for project activities to result in adverse impacts associated with drainage pattern alterations. Mitigation Measure 4.9-1 is presented in this section, under Impact 4.9-1. Please see Section 4.4 (Biological Resources) for the full text of Mitigation Measure 4.4-30, and Section 4.6 (Geology and Soils) for the full text of Mitigation Measures 4.6-5 and 4.6-6.

- **MM 4.9-1** requires the applicant to submit a road plan to the County for approval at least 60 days prior to commencement of construction activities, thereby facilitating the identification and implementation of any necessary Best Management Practices to control erosion and/or sedimentation, and the identification and prevention of any potential disturbances to drainages and/or riparian areas. The road plan shall clearly identify all planned road construction and improvements to existing roads, all drainage crossings, and all sensitive habitat within 100 feet of road improvements.

- **MM 4.4-30** requires the applicant to demonstrate compliance with all required water quality permits prior to commencement of any construction activities. All required water quality permits would be maintained and made available on-site at all times during construction of the project.

- **MMs 4.6-5 and 4.6-6** would minimize the potential impacts of grading and would require implementation of specific Best Management Practices to reduce the potential for water quality degradation through erosion and sedimentation, as specified in the Soil Erosion and Sedimentation Control Plan.

**Level of Significance**

Impacts would be less than significant.

**Impact 4.9-5: Create or Contribute Runoff Water Which Would Exceed Stormwater Drainage System Capacity or Provide a Substantial Additional Source of Polluted Runoff**

The project site is essentially undeveloped, but it is currently and has historically been used as grazing land for cattle. The project area is drained by natural stream channels and does not rely on constructed stormwater drainage systems. Construction of the project would introduce impervious surfaces associated with project components, and may require imported water for dust suppression activities, but would not have the potential to substantially increase the amount of stormwater runoff. As stated above, the pattern and concentration of runoff could be altered by project activities, such as grading of access roads, but the amount of runoff across the project site would not be substantially altered.

The project’s potential to result in surface water contamination, including through the introduction of polluted runoff, is discussed under Impact 4.9-1 (Violate Any Water Quality Standards or Waste Discharge Requirements). As discussed under Impact 4.9-1, the project would not result in a
significant adverse impact to water quality.

The project would not overwhelm stormwater drainage systems or create a substantial additional source of polluted runoff.

**Mitigation Measures**

The project would comply with the goals, policies, and implementation measures of the Kern County General Plan as well as Kern County Grading Code and Floodplain Management Ordinance requirements. No mitigation measures are required.

**Level of Significance**

Impact would be less than significant.

**Impact 4.9-6: Otherwise Substantially Degrade Water Quality**

Construction of the project would include soil-disturbing activities that could result in erosion and sedimentation, as well as the use of harmful and potentially hazardous materials required to operate vehicles, equipment, and project components. The transport of disturbed soils or the accidental release of potentially hazardous materials could result in water quality degradation. However, as discussed under Impacts 4.9-1 and 4.9-5, the potential for water quality impacts to occur would be minimized through implementation of identified MMs, as well as through compliance with applicable water quality related permits. These permits may include but are not limited to the following: a Streambed Alteration Agreement from the CDFG, a CWA Section 404 permit from the USACE, a SWPPP for compliance with Section 402 of the CWA coverage under the NPDES General Construction Permit, a CWA Section 401 certification from the Lahontan RWQCB, and a grading permit and Hazardous Materials Business Plan approval from Kern County.

**Mitigation Measures**

The project would comply with the goals, policies, and implementation measures of the Kern County General Plan as well as Kern County Grading Code and Floodplain Management Ordinance requirements. As discussed under Impact 4.9-1, project impacts to water quality would be less than significant with the implementation of mitigation measures. No additional sources of water quality degradation would be introduced as a result of the project, and no additional mitigation measures are required.

**Level of Significance**

Impacts would be less than significant.

**Impact 4.9-7: Place Structures Within a 100-year Flood Hazard Area Which Would Impede or Redirect Flood Flows**

The discussion presented under Impact 4.9-3 (see “Flood Hazard Areas”) describes that portions of the project site are FEMA-designated Flood Hazard Areas, Flood Zone A, which are subject to inundation by the 100-year flood. These Flood Hazard Area designations are associated with lower elevations on the project site, including Cottonwood Creek and its main tributaries, and Jawbone Canyon Wash. Any construction that takes place within areas designated as Flood Zone A within the jurisdiction of unincorporated Kern County would be required to comply with the requirements and construction design specifications of the Kern County Floodplain Management Ordinance. The project would not result in significant adverse impacts related to Flood Hazard Areas such that
substantial erosion or siltation on- or off-site would occur. As described under Impact 4.9-3, the project would not result in significant adverse impacts associated with Flood Hazard Areas.

**Mitigation Measures**

The project would comply with the goals, policies, and implementation measures of the Kern County General Plan as well as Kern County Grading Code and Floodplain Management Ordinance requirements. No mitigation measures are required.

**Level of Significance**

Impacts would be less than significant.

**Impact 4.9-8: Result in Inundation by Seiche, Tsunami, or Mudflow**

*Seiche.* A seiche is a large wave generated in an enclosed body of water in response to ground shaking. The project is not located within a dam inundation area or within the inundation area for any other natural body of water and would therefore not be subject to seiche hazards.

*Tsunami.* A tsunami is a wave generated in a large body of water (typically the ocean) by fault displacement or major ground movement. The project is not situated near the coast and would not be subject to any tsunami hazards.

*Mudflow.* A mudflow is a type of mass wasting or landslide, where earth and surface materials are rapidly transported downhill under the force of gravity. Mudflow events are caused by a combination of factors, including soil type, soil profile, precipitation, and slope. Mudflow may be triggered by heavy rainfall that the soil is not able to sufficiently drain or absorb. As a result of this super-saturation, soil and rock materials become unstable and eventually slide away from their existing location. Soils most susceptible to mudflow are saturated, loose, non-plastic, uniformly graded, and fine-grained sand deposits. If mudflow occurs on the project site, foundations within the mudflow area may be subject to settlement. However, the tower site locations identified for the project are situated where surface or near-surface bedrock is present (Kleinfeld West, Inc., 2010). Project infrastructure would not be subject to inundation by mudflow.

**Mitigation Measures**

The project would comply with the goals, policies, and implementation measures of the Kern County General Plan, as well as Kern County Grading Code and Floodplain Management Ordinance requirements. No mitigation measures are required.

**Level of Significance**

No impact would occur.

**Cumulative Setting Impacts and Mitigation Measures**

**Cumulative Setting**

The geographic scope for cumulative impacts to hydrology and water quality includes the Jawbone Canyon Watershed, within which the project site is located. Potential hydrology and water quality impacts associated with the construction and operation of the project, including water quality degradation due to erosion, sedimentation, or the release of hazardous materials, would be limited to this geographic scope.

With regard to the violation of any water quality standards or waste discharge requirements (Impact 4.9-1), it is reasonably anticipated that all projects in the cumulative scenario will be required to comply with the same water quality standards and waste discharge requirements as the project. Such violations could occur through the creation of erosion, sedimentation, and/or polluted runoff, through the accidental release of potentially hazardous materials required during construction or operational activities, or through the discharge of contaminated groundwater during dewatering activities. MMs would be implemented to ensure that the project’s impact relevant to violation of water quality standards and waste discharge requirements would be less than significant. This impact of the project would be temporary, localized, and less than significant. Therefore, it is considered unlikely that this impact of the project would combine with similar impacts of other projects. No cumulative impact would occur regarding the violation of water quality standards or waste discharge requirements.

With regard to the potential for substantial depletion of groundwater supplies or interference with groundwater recharge (Impact 4.9-2), the project would either pump water from one of two existing groundwater wells, or would import water from the Tehachapi-Cummings County Water District. Local overdraft conditions are not currently known for the Kelso Lander Valley and Fremont Valley Groundwater Basins, but MMs identified for the project would ensure that construction or operation of the project would not include pumping of groundwater from an overdrafted groundwater basin, would not cause a groundwater basin to be in overdraft conditions, and would not resulting in significant adverse effects associated with groundwater well drawdown or changes in groundwater recharge rates and patterns. Therefore, cumulative impacts of the project to area groundwater supplies would be less than significant.

With regards to the alteration of existing drainage patterns in a matter which would result in substantial erosion or siltation on- or off-site (Impact 4.9-3) or which would result in substantial flooding on- or off-site (Impact 4.9-4), the project would not substantially alter existing drainage patterns of the project site and, with the implementation of MMs identified under Impact 4.9-1, would not result in substantial erosion, siltation, or flooding on- or off-site. This impact of the project is not expected to combine with similar impacts of other projects in the cumulative scenario. No cumulative impacts would occur regarding the alteration of existing drainage patterns.

With regards to the creation or contribution of stormwater runoff which would exceed stormwater drainage system capacity or provide a substantial additional source of polluted runoff (Impact 4.9-5), or otherwise degrade water quality (Impact 4.9-6), the project would not introduce a substantial impact and would not have the potential to combine with similar impacts of other projects. No cumulative impact would occur.

With regards to the placement of structures within a 100-year flood zone which would impede or redirect flood flows (Impact 4.9-7), or the potential to cause or be subject to damage through inundation by mudflow (Impact 4.9-8), the project would not introduce a substantial impact and would not have the potential to combine with similar impacts of other projects. No cumulative impact would occur.

Mitigation Measures

Mitigation measures identified under Impacts 4.9-1 through 4.9-8 would minimize or avoid potential hydrology and water quality impacts of the project, and reduce the potential for impacts of
the project to combine with similar impacts of other projects in the cumulative scenario. No cumulative mitigation measures have been identified.

**Level of Significance after Mitigation**

Cumulative impacts would be less than significant.