

4.8 SURFACE AND GROUNDWATER

4.8.1 Proposed Project

4.8.1.1 Affected Environment

Regional Surface Water

The fiber cable route is characterized by internal drainage that connects with either the Mojave River or one of many dry lakes (playas) present in the region. The Mojave River originates in the San Bernardino Mountains and generally flows northward through Victorville and then eastward through Barstow. It terminates at Soda Lake (a playa) in the central portion of the Proposed Project. The majority of the Mojave River is characterized by subsurface flow; surface flow generally occurs only in areas where the channel is restricted, such as at Lower Narrows near Victorville, in Afton Canyon, and at Camp Cady.

Segment 1 is located within the Lahontan Basin Plan Ivanpah Hydrologic Unit (HU). Beneficial uses established for the Ivanpah HU include agricultural, municipal, and domestic supply; groundwater recharge; recreation; flood peak attenuation/flood water storage; and water quality enhancement. No water quality objectives have been established for the Ivanpah HU.

Segment 2 and Segment 3 are located within the Lahontan Basin Plan Mojave HU. Beneficial uses established for the Mojave HU include agricultural, municipal, and domestic supply; groundwater recharge; recreation; cold freshwater habitat; and wildlife habitat. Water quality objectives established for the Mojave HU include reduction of total dissolved solids (TDS) and nitrogen.

There are 77 drainage crossings identified within the Proposed Project area that have been classified as either ephemeral drainages or desert washes. The majority of drainages in the Proposed Project area, including Ivanpah Dry Lake, are ephemeral; stream flow occurs only in direct response to rainfall. It is expected that most of these drainages would be at low flow or dry during Project construction. No jurisdictional wetlands or riparian habitat were identified within the Proposed Project area. A detailed description of the water resources in the Proposed Project area is provided in Appendix A - Biological Evaluation.

Occasionally, intense storms generate enough precipitation to result in surface flow that reaches the local base level, which typically is a dry lakebed in the Proposed Project area. Storms inundating the playa surfaces occur infrequently, perhaps several times per century.

The Proposed Project would cross the Ivanpah Dry Lake, which is regulated by the United States (U.S.) Army Corps of Engineers (ACOE), and various ephemeral drainage crossings regulated by the California Department of Fish and Game (CDFG) Lake and Streambed Alteration program (California Public Resources Code Section 1600 *et seq.*). The ACOE authorized Proposed Project activities under Nationwide Permit 12.

The Federal Emergency Management Agency (FEMA) has defined flood zones according to varying levels of flood risk. These zones are depicted on a community's Flood Insurance Rate Map (FIRM) or Flood Hazard Boundary Maps. The Proposed Project alignment is located within a Zone D area (low/no flooding potential and/or undetermined). Zone D includes areas with possible but undetermined flood hazards, but no flood hazard analysis has been conducted in these areas.

Groundwater

The Proposed Project area is located in the Ivanpah HU and the Upper Mojave Hydrologic area within the Mojave HU. The majority of drainages, including Ivanpah Dry Lake, are ephemeral and flow occurs only when it rains. Water comes to the surface of the Mojave River only in those areas where the river is constrained, such as at Lower Narrows near Victorville, in Afton Canyon, and at Camp Cady.

North of the San Bernardino Mountains, in the Victorville area (Segment 3), the proposed cable replacement segments are generally underlain by large groundwater basins that are commonly interconnected, resulting in the interbasinal flow of ground water. Typically, groundwater in these hydrologic basins is present in coarser alluvial deposits as well as in conglomerates beneath the flanks of the basin. Consolidated rock units generally do not contain significant amounts of groundwater unless they are highly fractured. Fine-grained deposits commonly present in the central portions of desert basins also generally yield only small amounts of water to wells.

Depth to groundwater across the Mojave Desert (Segment 1 and Segment 2) is highly variable (generally zero to 300 feet below ground surface). In general, shallow ground water is present in the topographically lowest portion of the hydrologic basins, which along the proposed cable route is typically a playa, and near the Mojave River. Shallow ground water beneath playa lakes, including the Ivanpah Dry Lake, is commonly of poor quality because salt buildup results in high levels of total dissolved solids. Shallow groundwater is also common beneath the distal portions of alluvial fan complexes.

4.8.1.2 Significance Criteria

Pursuant to the California Environmental Quality Act (CEQA), impacts related to floodplains and groundwater would be considered significant if the Proposed Project:

- violates any water quality standards or waste discharge requirements;
- substantially depletes groundwater supplies or interferes substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (i.e., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted);
- substantially alters 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- or offsite;
- substantially alters the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increases the rate or amount of surface runoff in a manner that would result in flooding on- or offsite;
- creates or contributes runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- substantially degrades water quality;
- places housing within a 100-year floodplain, as mapped on a federal Flood Hazard Boundary or FIRM or other flood hazard delineation map;
- places structures within a 100-year flood hazard area, impeding or redirecting flood flows;
- exposes 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; and/or
- causes or exposes people and structures to inundation by seiche, tsunami, or mudflow.

Pursuant to the National Environmental Policy Act (NEPA), consideration of a significant impact on the human environment is conducted in accordance with Title 40 Code of Federal Regulations 1508.27 (specified in Section 1.2.1 Relationship to NEPA Guidelines). Following the public comment period, a finding regarding a significant impact would be prepared in accordance with this provision.

4.8.1.3 Impacts and Mitigation

Trenching and plowing activities required to install the fiber optic cable and conduit would result in soil disturbance within the right-of-way (ROW). Disturbed soils would be more susceptible to erosion and subsequent sedimentation. Vehicle and equipment use along the ROW and within staging areas could detach soil particles and facilitate wind and water erosion. The Proposed Project would be implemented using established Best Management Practices (BMPs) as described in the Storm Water Pollution Prevention Plan (SWPPP) included in Appendix H - Stormwater Pollution Prevention Plan to ensure degradation of surface water quality is minimized during the construction phase of the Project. The SWPPP lists specific BMPs to be used on the Proposed Project and includes measures to minimize

erosion, sedimentation, wind erosion, tracking of sediment onto roadways, and management of potentially hazardous materials. Proper implementation of the SWPPP measures would ensure that local, state, and federal water quality standards are not violated. Impacts to water quality are expected to be less than significant.

There are 77 ephemeral drainage or dry wash crossings identified within the Proposed Project area. Appendix A - Biological Evaluation lists each crossing and includes a description of the width and channel characteristics. Within Segment 1, there is 0.024 acre of ephemeral drainage and 0.429 acre of "lakebed" water impacts where the Proposed Project crosses the Ivanpah Dry Lake. Within Segment 2 and Segment 3, these ephemeral drainage impacts total 0.007 acre and 0.008 acre, respectively. At the Mojave River, the fiber optic cable would be placed within an existing conduit; therefore, there would be no disturbance to the waterbody. For the drainages, crossing locations would occur within existing ROW using plowing or trenching techniques. In the unlikely event of extended periods of flowing water or as specified in permits issued by the ACOE or CDFG, horizontal directional drilling (HDD) would be used to avoid turbidity and impacts to the drainage. Should the Proposed Project be approved, the following mitigation measures would be implemented by the Project applicant to reduce impacts to a less-than-significant level:

- MM-WTR-01: Prior to construction, AT&T Corp. (AT&T) shall amend the SWPPP to include specific detail on when and where BMPs must be installed, including a map depicting the location of the BMPs. The map shall also illustrate the work areas, site perimeter (i.e., limits of disturbance or ROW width), access roads, access points from paved roads, relevant drainage areas, and materials storage yards
- MM-WTR-02: The Project applicant shall notify the California State Lands Commission (CSLC) ~~and the BLM~~ at least 60 days in advance of any HDD activity ~~used to avoid impacts to water resources, including flowing water, dry washes, drainages, or other water resource areas~~ across water resources that would take place on land not under the jurisdiction of the Bureau of Land Management (BLM). The conduit shall be installed ~~with a minimum depth of 35 feet below ground level, unless a site specific geotechnical investigation recommends a shallower depth~~ at a depth to be specified by a geotechnical investigation. The notification shall include:
 - Engineering design drawings as issued for construction, certified by a California Registered Civil/Structural Engineer, showing cable conduit horizontal alignment with key control points referenced to the California Coordinate System (CCS83) and vertical profile data with elevations referenced to Mean Lower Low Water (MLLW) datum where applicable or otherwise, to the local vertical control datum. The drawings are to provide information such as tie-in details, conduit grade and material specifications, minimum bend radius, cathodic protection information (if any), co-ordinates of the entry and exit points, etc. Also, the CSLC's lease boundaries need to be delineated on the drawings.
 - A site specific geotechnical report certified by a California registered Geotechnical Engineer, including boring logs, and confirmation of the fitness of purpose of the proposed drilling program and any geotechnical recommendations for safe HDD installation.
 - A set of calculations to determine the required pulling load during pullback operations including any buoyancy control plan (if required), to successfully install the conduit.
 - A detailed drilling program together with detailed specifications of the boring machine to be used including the maximum pulling and snubbing capabilities, the directional survey methods to be used including equipment and controls, allowable bore deviation tolerances, verification that the completed bore is within the lease ROW and achieves the required clearance, etc.
 - Detailed specifications of the mud system and a complete listing of additives to be used including a copy of the Material Safety Data Sheet for the drilling mud.
 - A detailed drilling mud program and a frac-out contingency plan.
 - Additionally, any abandonment contingency plans in case the boring operations are forced to be suspended and a partially completed bore hole abandoned.

- Also, include a plot plan depicting the location of the entry pit, exit hole, where equipment and materials will be stored, and where refueling of equipment will be performed. AT&T shall implement their Horizontal Directional Drilling: Contingency and Resource Protection Plan, dated July 2007, during all drilling operations.
- MM-WTR-03: All incidents in which a release to the surface of drilling materials has been detected shall be reported promptly to the on-site monitor, who shall be responsible in turn for reporting all incidents to the appropriate agencies. All releases shall be reported to the BLM and CSLC within 24 hours. All releases to drainages, waterways, or other sensitive habitats shall be immediately reported to the BLM, CSLC, ACOE, U.S. Fish and Wildlife Service, CDFG, and Regional Water Quality Control Board.

In addition, applicant proposed measures (APMs) that include locating all laydown areas at least 100 feet from drainages, restricting refueling and equipment repair near drainages, monitoring construction activities, and immediate stabilization of the channel would ensure impacts remain less than significant. In addition, the applicant has prepared a Spill Prevention and Control Plan included in Appendix G - Spill Prevention and Control Plan to reduce the potential for a hazardous materials spill into a water resource. Implementation of these measures would reduce impacts to water quality degradation to a less-than-significant level.

Upon completion of construction, the Proposed Project alignment would be returned to pre-construction contours. Drainage patterns would be restored to near preconstruction conditions. Little to no change in the drainage patterns is expected from replacement of the fiber optic cable. Because no impervious surfaces would be introduced, with the exception of vault covers and markers, no notable change in runoff volume is anticipated. Therefore, a less than significant impact to drainage patterns, existing drainage systems, and runoff rates and/or volumes would occur as a result of the Proposed Project.

In general, groundwater is not expected to be encountered during construction due to the relatively shallow trench depth. As previously mentioned, groundwater could occur near the surface near playas and the Mojave River. Should the fiber optic cable replacement activities encounter high groundwater in areas such as the Ivanpah Dry Lake, APMs for dewatering would be implemented to manage the discharge of groundwater as described in Appendix H - Stormwater Pollution Prevention Plan. The Proposed Project would not use groundwater and the amount of dewatering, if required, would not deplete groundwater supplies. Therefore, impacts to groundwater supply and quality would be less than significant.

The Proposed Project does not involve the construction of housing; therefore, it would not place housing within a 100-year flood hazard area. The Proposed Project alignment is not located near any major waterbodies, so there would be no risk of tsunami or seiche. The relatively flat topography and low probability of frequently saturated soils precludes the risk of mudflow. Therefore, the Proposed Project would not expose people or structures to these geographically specific natural occurrences.

4.8.2 No Action Alternative

Selection of the No Action Alternative, as described in Section 2.5.1 No Action Alternative, would not result in construction of the Proposed Project and potential effects to floodplains and groundwater as described in Section 4.8.1.3 Impacts and Mitigation would not occur.