13 HYDROLOGY AND WATER QUALITY

This chapter describes the existing hydrologic conditions at the project site, presents a summary of the regulatory setting, and provides an analysis of the hydrology and water quality impacts of the proposed project. Mitigation measures are provided to reduce potentially significant impacts, when feasible.

13.1 ENVIRONMENTAL SETTING

13.1.1 HYDROLOGY AND DRAINAGE

REGIONAL HYDROLOGY

The project is located within the North Lahontan Hydrologic Region (HR), as defined by the California Department of Water Resources (DWR). The North Lahontan HR covers approximately 3.91 million acres (6,110 square miles) and includes portions of Modoc, Lassen, Sierra, Nevada, Placer, El Dorado, Alpine, Mono, and Tuolumne counties. Significant geographic features include the Sierra Nevada, the volcanic terrain of the Modoc Plateau, Honey Lake Valley, Martis Valley, and Lake Tahoe (DWR 2003).

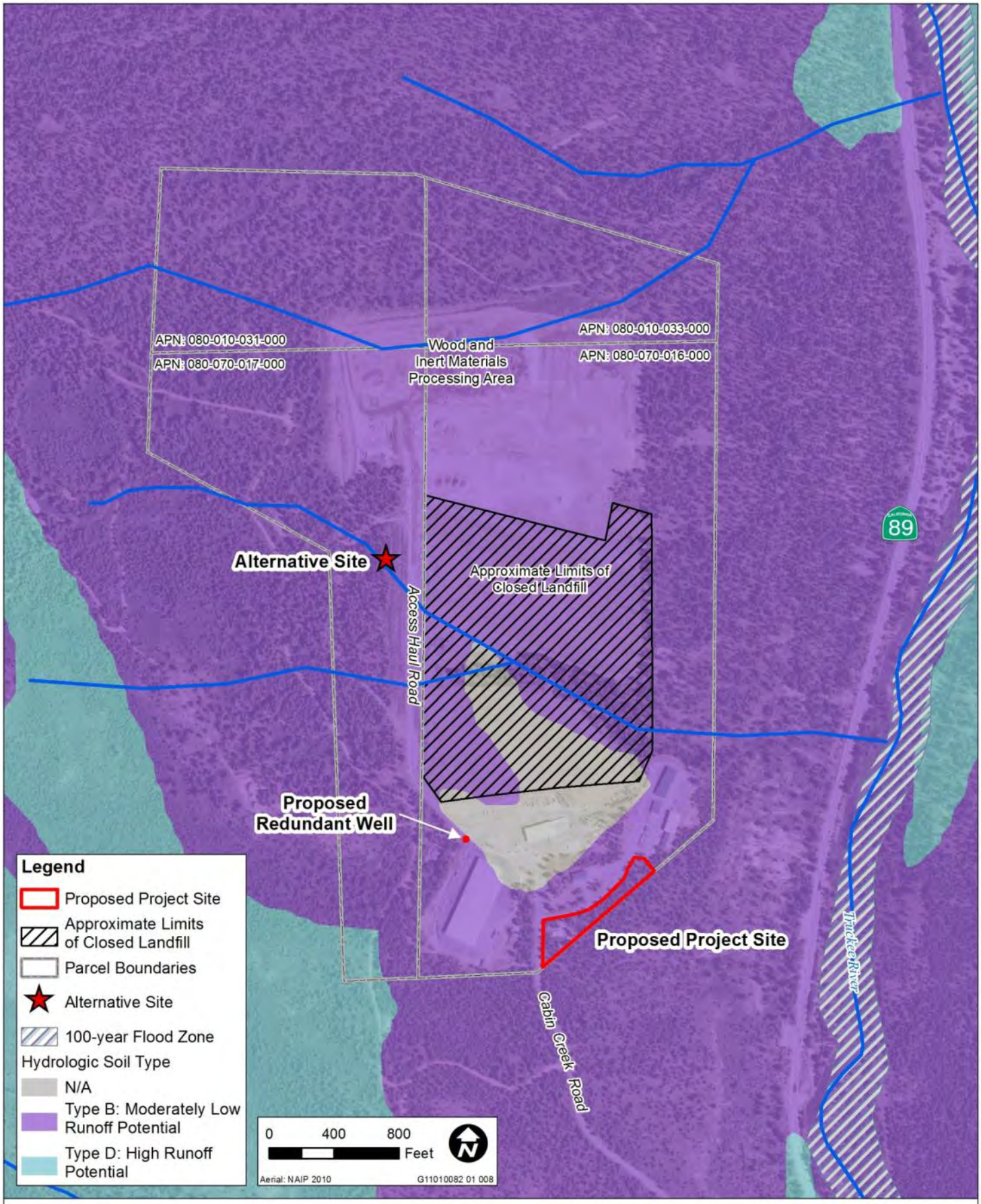
SURFACE HYDROLOGY

TRUCKEE RIVER WATERSHED

The project site is located within the Truckee River watershed. The Truckee River originates high in the Sierra Nevada, drains initially into Lake Tahoe, flows out of Lake Tahoe, and terminates in Pyramid Lake, Nevada. Within the Truckee River watershed, the project site is located at the northern end of the Squaw Creek-Truckee River subwatershed (Exhibit 13-1). Ephemeral drainages originate in the ridges to the west, flow east through the project site toward the Truckee River. Annual precipitation in the project vicinity averages 39 inches, as measured by the DWR at Donner Memorial State Park, located approximately 1.5 miles northwest of the site at an elevation of 5,937 feet (DWR 2000). Precipitation is primarily winter snowfall with occasional fall, winter, and spring rain. The project site is located on a relatively flat portion of an easterly facing slope, sloping sharply upward to the west and descending to the east towards the Truckee River.

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (06061C0059F) (1998) indicates that the project site does not lie within the 100-year floodplain (Exhibit 13-1).

Soils in the watershed have been mapped in the Soil Survey for the Tahoe National Forest, California by the Natural Resource Conservation Service (NRCS 2012) and classified by hydrologic soil types. Hydrologic soil types are classified into four groups: A) soils having a low runoff potential with a high infiltration rate, B) soils with a moderate infiltration rate, C) soils with a low infiltration rate, or D) soils having a high runoff potential with a low infiltration rate (Placer County 1990). The Hydrologic Soil Groups present within the project site are types B and D (Exhibit 13-1). The project site consists of one small mobile home but otherwise the remainder of the site is heavily vegetated and drainage patterns are otherwise unaltered by development or impervious surfaces.



Source: Data received from SSURGO 2009 and Placer County 2011: adapted by Ascent Environmental 2012

Exhibit 13-1 Project Site Hydrologic Features

GROUNDWATER HYDROLOGY

MARTIS (TRUCKEE) VALLEY GROUNDWATER BASIN

The project site is not located within a mapped groundwater basin. However, it is directly adjacent and southwest of the Martis (Truckee) Valley Groundwater Basin, which is within Nevada and Placer Counties, California. Therefore, characteristics of this basin are summarized to generally describe the surrounding hydrologic characteristics in the project area. The Martis Valley groundwater basin is an intermontane, fault-bounded basin, approximately ten miles across with a surface area of approximately 57 square miles. Martis Valley is the principal topographic feature within the basin. The basin is terraced with elevations between 5,700 and 5,900 feet above mean sea level.

The project site is located on volcanic and granitic boulders and cobbles in a silty to sandy matrix in the north and with some older colluvium in the south. The matrix is clay, silt, and sand, varying in proportions, with sand layers providing potential avenues for groundwater movement, however, the permeability of the site soil is very low (Placer County 1994b).

GROUNDWATER SUPPLY

Water level data in the nearby Martis Valley basin is collected by the Tahoe-Truckee Sanitation Agency (T-TSA), Placer County Water Agency (PCWA), Glenshire Mutual Water Company (GMWC), and DWR. Water levels elevations within the Martis Valley are strongly influenced by the complex stratification of the hydrogeologic units, topographic relief, and ground water flow barriers (Nimbus 2001).

From 1990 through 2000, average basin groundwater levels remained relatively constant. Although seasonal water level variations can exceed 10 feet. Based on information provided by the California DWR Groundwater Bulletin 118 (2006) and a study conducted for the Martis Valley Groundwater Management Plan by Nimbus Engineers (2001), approximately 24,700 acre-feet per year of groundwater is currently available in the Martis Valley Groundwater Basin (DWR 2006). This availability estimate takes into account natural and artificial recharge, and existing water usage from natural and municipal water extraction.

WATER QUALITY

Water quality is most affected by land development, erosion, and storm water runoff. Constituents found in storm water runoff vary during a storm even, from event to event within a given area, and from area to area within a given watershed. Variances can be the result of differences in rainfall intensity and occurrence, geographic features, and the land use of the area, as well as vehicle traffic and the percentage of impervious surface. Furthermore, sediment runoff from construction sites without adequate erosion control measures can contribute sediments and other pollutants to receiving waters.

Section 303(d) of the Federal Clean Water Act requires the identification of water bodies that do not meet, or are expected not to meet water quality standards or are considered impaired (see Regulatory Setting discussion provided above for a more detailed discussion of the Section 303(d) process). The Clean Water Act requires states to develop total maximum daily loads (TMDL) for waters placed on the 303(d) List, with oversight by the EPA. A TMDL is a quantifiable assessment of potential water quality issues, contributing sources, and load reductions or control actions needed to restore or protect bodies of water.

SURFACE WATER QUALITY

The Truckee River is located approximately 1,500 feet to the east of the project site. The portion of the Truckee River that flows adjacent to the project site is the middle Truckee River. The middle Truckee River is the segment

of the Truckee River from the outflow of Lake Tahoe at Tahoe City to the California/Nevada state line. The middle Truckee River is listed as impaired for sedimentation and siltation on the 303(d) list. The potential sources are from grazing, watershed disturbance including ski resorts, silvicultural activities, urban development, reservoir construction and management, and highly erosive subwatersheds. At higher stream flows, suspended sediment concentrations in the Truckee River are above those recommended for aquatic life protection (RWQCB 2008).

GROUNDWATER QUALITY

Groundwater quality was investigated in the Tahoe-Martis (Tahoe-Martis) study unit as part of the Priority Basin Project of Groundwater Ambient Monitoring and Assessment (GAMA) Program. Tahoe-Martis is in the northeast part of the Sierra Nevada and includes the project site. Samples were collected from 52 wells in El Dorado, Placer, and Nevada Counties. The groundwater samples were analyzed for a large number of synthetic organic constituents, constituents of special interest, naturally occurring inorganic constituents, radioactive constituents, and microbial indicators (USGS 2007).

The concentrations of most constituents detected in groundwater samples from the Tahoe-Martis wells were below drinking-water thresholds (USGS 2007). In general the inorganic quality of groundwater in the Lake Tahoe Basin is excellent (DWR 2004). Total dissolved solids average 800 mg/L based on 1 well sampled (North Tahoe Public Utility District 1999, cited in DWR 2004). Electrical conductivity averages 800 mg/L based on 1 well sampled (DWR 2004).

13.2 REGULATORY SETTING

13.2.1 FEDERAL

FEDERAL EMERGENCY MANAGEMENT AGENCY

In 1968, Congress created the National Flood Insurance Program (NFIP) in response to the rising cost of taxpayer funded disaster relief for flood victims and the increasing amount of damage caused by floods. FEMA administers the NFIP to provide subsidized flood insurance to communities that comply with FEMA regulations to limit development in floodplains. FEMA also issues flood insurance rate maps (FIRMs) that identify which land areas are subject to flooding. These maps provide flood information and identify flood hazard zones in the community. FEMA has established a minimum level of flood protection for new development as the 1-in-100 Annual Exceedence Probability (AEP) (i.e., 100-year flood event).

CLEAN WATER ACT

The U.S. Environmental Protection Agency (EPA) is the lead federal agency responsible for water quality management. The Clean Water Act (CWA) is the primary federal law that governs and authorizes water quality control activities by EPA as well as the states. Various elements of the CWA address water quality. These are discussed below.

FEDERAL ANTIDEGRADATION POLICY

The federal antidegradation policy, established in 1968, is designed to protect existing uses and water quality and national water resources. The federal policy directs states to adopt a statewide policy that includes the following primary provisions:

- existing in-stream uses and the water quality necessary to protect those uses shall be maintained and protected;
- where existing water quality is better than necessary to support fishing and swimming conditions, that quality shall be maintained and protected unless the state finds that allowing lower water quality is necessary for important local economic or social development; and
- where high-quality waters constitute an outstanding national resource, such as waters of national and state parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

WATER QUALITY CRITERIA/STANDARDS

Pursuant to federal law, EPA has published water quality regulations under Title 40 of the CFR. Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. As defined by the act, water quality standards consist of designated beneficial uses of the water body in question and criteria that protect the designated uses. Section 304(a) requires EPA to publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. As described in the discussion of state regulations below, the SWRCB and its nine RWQCBs have designated authority in California to identify beneficial uses and adopt applicable water quality objectives.

NATIONAL TOXICS RULE AND CALIFORNIA TOXICS RULE

In 1992, EPA issued the National Toxics Rule (NTR) (40 CFR 131.36) under the CWA to establish numeric criteria for priority toxic pollutants in 14 states and jurisdictions, including California, to protect human health and aquatic life. The NTR established water quality standards for 42 pollutants for which water quality criteria exist under CWA Section 304(a) but for which the respective states had not adopted adequate numeric criteria. EPA issued the California Toxics Rule (CTR) in May 2000. The CTR establishes numeric water quality criteria for 130 priority pollutants for which EPA has issued Section 304(a) numeric criteria that were not included in the NTR.

SECTION 404 OF THE CLEAN WATER ACT

In accordance with Section 404 of the CWA, the USACE regulates discharge of dredged or fill material into waters of the United States. Waters of the United States and their lateral limits are defined in Title 33, Part 328.3(a) of the Code of Federal Regulations to include navigable waters of the United States, interstate waters, all other waters where the use or degradation or destruction of the waters could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are adjacent to any of these waters or their tributaries. Waters of the United States are often categorized as “jurisdictional wetlands” (i.e., wetlands over which the USACE exercises jurisdiction under Section 404) and “other waters of the United States” when habitat values and characteristics are being described. “Fill” is defined as any material that replaces any portion of a water of the United States with dry land or that changes the bottom elevation of any portion of a water of the United States. Any activity resulting in the placement of dredged or fill material within waters of the United States requires a permit from the Corps. In accordance with Section 401 of the Clean Water Act, projects that apply for a USACE permit for discharge of dredged or fill material must obtain water quality certification from the appropriate RWQCB indicating that the project will uphold state water quality standards. Wetland protection elements of the CWA administered by the USACE are further discussed in Chapter 5, Biological Resources.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

The National Pollutant Discharge Elimination System (NPDES) permit program was established in the CWA to regulate municipal and industrial discharges to surface waters of the United States. NPDES permit regulations have been established for broad categories of discharges including point source municipal waste discharges and nonpoint source stormwater runoff. Each NPDES permit identifies limits on allowable concentrations and mass emissions of pollutants contained in the discharge. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits. “Nonpoint source” pollution originates over a wide area rather than from a definable point. Nonpoint source pollution often enters receiving water in the form of surface runoff and is not conveyed by way of pipelines or discrete conveyances. Two types of nonpoint source discharges are controlled by the NPDES program: discharges caused by general construction activities and the general quality of stormwater in municipal stormwater systems. The goal of the NPDES nonpoint source regulations is to improve the quality of stormwater discharged to receiving waters to the maximum extent practicable. The Regional Water Quality Control Boards (RWQCBs) in California are responsible for implementing the NPDES permit system (see the discussion of state regulations below).

SECTION 303(D) IMPAIRED WATERS LIST

Under Section 303(d) of the CWA, states are required to develop lists of water bodies that do not attain water quality objectives after implementation of required levels of treatment by point source dischargers (municipalities and industries). Section 303(d) requires that the state develop a total maximum daily load (TMDL) for each of the listed pollutants. The TMDL is the amount of the pollutant that the water body can receive and still be in compliance with water quality objectives. The TMDL is also a plan to reduce loading of a specific pollutant from various sources to achieve compliance with water quality objectives. EPA must either approve a TMDL prepared by the state or disapprove the state’s TMDL and issue its own. NPDES permit limits for listed pollutants must be consistent with the waste load allocation prescribed in the TMDL. After implementation of the TMDL, it is anticipated that the problems that led to placement of a given pollutant on the Section 303(d) list would be remediated.

13.2.2 STATE

STATE WATER RESOURCES CONTROL BOARD

In California, the SWRCB has broad authority over water quality control issues for the state. The SWRCB is responsible for developing statewide water quality policy and exercises the powers delegated to the state by the federal government under the CWA. Other state agencies with jurisdiction over water quality regulation in California include the California Department of Health Services (DHS) (for drinking water regulations), the California Department of Pesticide Regulation, the California Department of Fish and Game, and the Office of Environmental Health and Hazard Assessment. Regional authority for planning, permitting, and enforcement is delegated to the nine regional water boards. The regional boards are required to formulate and adopt water quality control plans for all areas in the region and establish water quality objectives in the plans. The Lahontan RWQCB is responsible for the water bodies in the project vicinity.

WATER QUALITY CONTROL PLAN FOR THE LAHONTAN BASIN

The Water Quality Control Plan for the Lahontan Region (Basin Plan) (1995) presents water quality standards and control measures for surface and ground waters of the Lahontan Region, which includes the California portion of Lake Tahoe and its tributaries. The Basin Plan designated beneficial uses for water bodies and established water quality objectives, waste discharge prohibitions, and other implementation measures to protect those beneficial uses. The Basin Plan was first adopted in 1975, and most recently updated in 1995. The

Basin Plan contains both narrative and numeric water quality objectives for the region. Ambient water quality standards are set as objectives for a body of water and effluent limits (or discharge standards) are conditions in state or federal wastewater discharge permits, such as the NPDES permits. Land uses and activities that could degrade water quality and BMPs that could be used to address various nonpoint sources of pollution are identified in the Basin Plan.

BENEFICIAL USES

The Water Quality Control Plan for the Lahontan Region (RWQCB 1995) defines and designates the existing beneficial uses for surface and groundwater in the project area.

Existing beneficial uses of the Truckee River (surface water) include:

- **Municipal and Domestic Supply**-waters used for community, military, or individual water supply systems including, but not limited to, drinking water supply
- **Agriculture Supply**-waters used for farming, horticulture, or ranching, including, but not limited to, irrigation, stock watering, and support of vegetation for range grazing.
- **Industrial Service Supply**-waters used for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, and fire protection.
- **Groundwater Recharge**-waters used for natural or artificial recharge of ground water for purposes of future extraction, maintenance or water quality, or halting saltwater intrusion into freshwater aquifers.
- **Freshwater Replenishment**-water used for natural or artificial maintenance of surface water quantity or quality.
- **Hydropower Generation**-water used for hydroelectric power generation
- **Water Contact Recreation**- water used for recreational activities involving body contact with water where ingestion of water is reasonably possible. These include, but are not limited to swimming, water-skiing, fishing, and others.
- **Noncontact Water Recreation-**used of waters used for recreational activities involving proximity to water, but not normally involving body contact with water. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, and others.
- **Wildlife Habitat**-uses of waters that support wildlife habitats including, but not limited to, the preservation and enhancement of vegetation and prey species, such as waterfowl.
- **Rare, Threatened, or Endangered Species**- waters that support habitat necessary for the survival and successful maintenance of plant or animal species established under state and/or federal law as rare, threatened or endangered.
- **Migration of Aquatic Organisms**-uses of waters that support habitats necessary for migration, acclimatization between fresh and salt water, or temporary activities by aquatic organisms, such as anadromous fish.
- **Cold Freshwater Habitat**-uses of water that support cold water ecosystems including, but not limited to, preservation and enhancement of aquatic habitats, vegetation, fish, and wildlife, including invertebrates.
- **Commercial and Sportfishing**-waters used for commercial or recreational collection of fish or other organisms including, but not limited to, uses involving organisms intended for human consumption.
- **Spawning, Reproduction, and Development**- uses of water s that support high quality aquatic habitat necessary for reproduction and early development of fish and wildlife.

The beneficial uses of groundwater in the project vicinity include the following (definitions provided above):

- Municipal and Domestic Supply
- Agriculture Supply
- Freshwater Replenishment

PORTER-COLOGNE WATER QUALITY CONTROL ACT

The Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne Act) is California's statutory authority for the protection of water quality. The act sets forth the obligations of the SWRCB and RWQCBs under the CWA to adopt and periodically update water quality control plans, or basin plans. Basin plans are plans in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California. The Porter-Cologne Act also requires waste dischargers to notify the RWQCBs of such activities by filing Reports of Waste Discharge and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements, NPDES permits, Section 401 water quality certifications, or other approvals.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMITS (NPDES)

The SWRCB and Lahontan RWQCB have required specific NPDES permits for a variety of activities that have potential to discharge pollutants to waters of the state and adversely affect water quality. To receive an NPDES permit a Notice of Intent to discharge must be submitted to the Lahontan RWQCB and design and operational BMPs must be implemented to reduce the level of contaminated runoff. BMPs can include the development and implementation of regulatory measures (local authority of drainage facility design) various practices, including educational measures (workshops informing public of what impacts result when household chemicals are dumped into storm drains), regulatory measures (local authority of drainage facility design), public policy measures (label storm drain inlets as to impacts of dumping on receiving waters), and structural measures (filter strips, grass swales, and retention basins). All NPDES permits also have inspection, monitoring, and reporting requirements.

GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY

The SWRCB adopted the statewide NPDES General Construction Permit in August 1999. The state requires that projects disturbing more than 1 acre of land during construction file a Notice of Intent with the RWQCB to be covered under this permit. Construction activities subject to the General Construction Permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce nonstormwater discharges to storm sewer systems and other waters. A Storm Water Pollution Prevention Plan (SWPPP) must be developed and implemented for each site covered by the permit. The SWPPP must include BMPs designed to prevent construction pollutants from contacting stormwater and keep products of erosion from moving off-site into receiving waters throughout the construction and life of the project; the BMPs must address source control and, if necessary, pollutant control.

GENERAL PERMIT FOR INDUSTRIAL FACILITIES

The SWRCB adopted in 1997 a statewide NPDES stormwater permit for general industrial activities (Order 97-03-DWQ) that regulates stormwater discharges to water of the United States from 10 broad categories of industrial activity. Electrical power plants comprise one of the industrial categories. The permit requires preparation of a SWPPP and implementation of BMPs that achieve the performance standard of best available technology economically and achievable (BAT) and best conventional pollutant control technology (BCT). The permit also requires a BMP inspection and monitoring plan.

STATE NONDEGRADATION POLICY

In 1968, as required under the federal antidegradation policy described previously, the SWRCB adopted a nondegradation policy aimed at maintaining high quality for waters in California. The nondegradation policy states that the disposal of wastes into state waters shall be regulated to achieve the highest water quality consistent with maximum benefit to the people of the state and to promote the peace, health, safety, and welfare of the people of the state. The policy provides as follows:

a) Where the existing quality of water is better than required under existing water quality control plans, such quality would be maintained until it has been demonstrated that any change would be consistent with maximum benefit to the people of the state and would not unreasonably affect present and anticipated beneficial uses of such water.

b) Any activity which produces waste or increases the volume or concentration of waste and which discharges to existing high-quality waters would be required to meet waste discharge requirements.

SAFE DRINKING WATER ACT

As mandated by the Safe Drinking Water Act (Public Law 93-523), passed in 1974, EPA regulates contaminants of concern to domestic water supply. Such contaminants are defined as those that pose a public health threat or that alter the aesthetic acceptability of the water. These types of contaminants are regulated by EPA primary and secondary Maximum Contaminant Levels (MCLs). MCLs and the process for setting these standards are reviewed triennially. Amendments to the Safe Drinking Water Act enacted in 1986 established an accelerated schedule for setting drinking water MCLs. EPA has delegated to the DHS the responsibility for California's drinking water program. DHS is accountable to EPA for program implementation and for adoption of standards and regulations that are at least as stringent as those developed by EPA. Title 22 of the California Administrative Code (Article 16, Section 64449) defines secondary drinking water standards, which are established primarily for reasons of consumer acceptance (i.e., taste) rather than for health issues.

13.2.3 LOCAL

PLACER COUNTY TAHOE BASIN STORMWATER MANAGEMENT PLAN

The Placer County Tahoe Basin Stormwater Management Plan (Placer County 2007a) addresses the need for protection of critical habitat from pollutants that may be contained in stormwater runoff in compliance with the NPDES Phase I Municipal Permit No. CAG616001 Lahontan RWQCB Order No. R6T-2005-0026, for the Lake Tahoe Basin. The plan outlines how Placer County approaches the stormwater quality program and provides staff with guidance for implementing the program.

PLACER COUNTY TRUCKEE RIVER BASIN STORMWATER MANAGEMENT PLAN

The Truckee River Basin Stormwater Management Plan (Placer County 2007b) is a comprehensive program to reduce pollution in stormwater runoff located in the Placer County portion of the Middle Truckee River Watershed. The plan is implemented in compliance with NPDES Phase II General Municipal Permit No. CAS000004 and WQCB Order No. 2003-005-DWQ.

PLACER COUNTY GENERAL PLAN

The Placer County General Plan (1994a) contains policies pertaining to water resources. The policies and applicable to the proposed project are described below. Refer to Table 4-1 in Chapter 4, Land Use for analysis of the project's consistency with relevant General Plan policies.

- **Policy 4.E.4**. The County shall ensure that new storm drainage systems are designed in conformance with the Placer County Flood Control and Water Conservation District's Stormwater Management Manual and the County Land Development Manual.
- **Policy 6.A.5.** The County shall continue to require the use of feasible and practical best management practices (BMPs) to protect streams from the adverse effects of construction activities and urban runoff and to encourage the use of BMPs for agricultural activities.
- **Policy 6.A.7.** The County shall discourage grading activities during the rainy season, unless adequately mitigated, to avoid sedimentation of creeks and damage to riparian habitat.

13.3 IMPACTS

13.3.1 SIGNIFICANCE CRITERIA

An impact is considered significant, as defined by the Placer County Environmental Checklist and the State CEQA Guidelines (Appendix G), if the proposed project would:

- violate any water quality standards or waste discharge requirements or contaminate a public water supply;
- 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;
- 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- 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 amount of surface runoff in a manner which would result in flooding on- or off-site;
- create or contribute runoff 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 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other 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 a dam; and
- result in substantial risk of inundation by seiche, tsunami, or mudflow.

13.3.2 METHODS AND ASSUMPTIONS

Evaluation of potential hydrologic and water quality impacts was based on a review of existing information from previously completed documents that address water resources in the project vicinity. The information obtained from these sources was reviewed and summarized to establish existing conditions and to identify potential environmental effects, based on the standards of significance presented in this chapter. In determining the level of significance, the analysis assumes that the proposed project would comply with relevant federal, State, and local ordinances and regulations.

13.3.3 ISSUES OR POTENTIAL IMPACTS NOT DISCUSSED FURTHER

The proposed project would not place structures in a 100-year floodplain or in the vicinity of a levee or dam and, therefore, would not expose people or structures to a significant risk of loss, injury, or death from flooding. The project site is located at the top of Cabin Creek Road well above the Lake Tahoe water level and is not located in an area that is prone to inundation by seiche or tsunami. Impacts from landslides and mudflow are evaluated in Chapter 12 Geology, Soils, and Seismicity. Therefore, these impacts are not evaluated further.

13.3.4 IMPACT ANALYSIS

Impact 13-1	Construction-Related Erosion and Sedimentation Impacts. Implementation of the project would result in slope and soil disturbance associated with construction activities that could cause accelerated soil erosion and sedimentation or the release of other pollutants to nearby water bodies. This impact would be considered potentially significant.

The project area is located on a sloped site adjacent to the Eastern Regional MRF and Transfer Station at an elevation ranging from about 6,290 to about 6,320 feet above sea level. The site generally slopes from north to south at between 5 and 25 percent and drains by natural overland flow and drainage swales that traverse the property.

Construction of the proposed improvements would disturb site soils through vegetation removal, grading, excavation, and building construction. Earthwork at the site would result in the export of approximately 12,000 cubic yards of material, with approximately 30,000 cubic yards of cut and 18,000 cubic yards of fill. It is anticipated that the excess soil excavated from the project site would be deposited on the adjacent landfill site.

If not properly controlled, intense rainfall and associated storm water runoff that occurs during construction could result in short periods of sheet erosion within areas of exposed or stockpiled soils. If uncontrolled, these soil materials could flow off the site and to surrounding water bodies including the Truckee River. Further, the compaction of soils by heavy construction equipment may reduce the infiltration capacity of soils and increase the potential for runoff and downstream sedimentation.

Construction activities could also result in substantial storm water discharges of suspended soils and other pollutants from the project construction site. Construction-related chemicals (fuels, paints, adhesives, etc.) could be washed into surface waters by storm water runoff. The deposition of pollutants (gas, oil, etc.) onto the ground surface by construction vehicles could similarly result in the transport of pollutants to surface waters by storm water runoff or seepage of such pollutants into groundwater. Non-storm water discharges could result from activities such as discharge or accidental spills of hazardous substances such as fuels, oils, concrete, paints, or other construction materials. Because the proposed project could contribute substantial additional sources of soil erosion and sedimentation and the release of other pollutants during construction activities, this would be a **potentially significant** impact.

Impact 13-2	**Groundwater Depletion and Groundwater Recharge Impacts.** Implementation of the proposed project would increase impervious surfaces on the project site by approximately two acres. However, this increase in impervious surfaces would not be expected to substantially alter the existing stormwater discharge from the project site and substantial areas of impervious surfaces are available surrounding the site. Therefore, the project would not substantially interfere with groundwater recharge. The project is located in a relatively rural area where groundwater is typically pumped by individual users. The project would result in the pumping of up to 16 acre-feet per year (afy), and would increase pumping onsite by approximately 24%. It is not anticipated that this would be a substantial increase in groundwater pumping such that adverse groundwater depletion impacts in the local area would occur, because limited groundwater pumping occurs within the surrounding area and there is no evidence available to suggest that groundwater conditions are constrained. Overall, the project's groundwater depletion and groundwater recharge impacts would be **less than significant**.

Implementation of the project would create additional impervious surfaces (e.g., paved roads, parking areas, covered storage, and biomass facility building) on the project site. Of the approximately 290-acre Eastern Regional MRF and Transfer Station site, approximately 17 acres are covered with impervious surfaces (5.8%). With project implementation, the area of impervious surfaces would increase by approximately two acres (0.6%). This increase in impervious surfaces would not be substantial. Further, substantial areas of pervious surfaces would continue to be present surrounding the project site and would allow groundwater recharge through surface infiltration. Therefore, the project would not substantially interfere with groundwater recharge through surface infiltration.

With regard to groundwater depletion, the project is estimated to have a maximum (peak use) water demand of up to 14,400 gallons per day (gpd) or approximately 16 afy. Existing operations at the Eastern Regional MRF and Transfer Station site result in a daily water demand of up to 60,000 gpd, or 67 afy. There has been no history or evidence to suggest that the existing well and underlying groundwater could meet this demand. Project implementation could result in a 24% increase in water demand. It is not anticipated that this would be a substantial increase in groundwater pumping such that adverse groundwater depletion impacts would occur, because limited groundwater pumping occurs within the surrounding area and there is no evidence known about constrained groundwater conditions. Overall, the project's groundwater depletion and groundwater recharge impacts would be **less than significant**.

Impact 13-3	**Potential Long-Term Degradation of Water Quality.** Operation of the project would increase the intensity of use on the site, which could introduce new storm water pollutant sources. These pollutant sources could include oils and greases, petroleum hydrocarbons (gas and diesel fuels), nitrogen, phosphorus, and heavy metals. Pesticides, herbicides, and other landscape maintenance products could also be present and could adversely affect the quality of the site's storm water discharges. Additionally, there may be need for pretreatment of gasification-created wastewater prior to discharge to the regional sewer system. The potential water quality degradation associated with site operations would be considered **potentially significant**.

Implementation of the project would increase the intensity of use currently present on the project site, which would alter the types, quantities, and timing of contaminant discharges in storm water runoff relative to existing conditions. If this storm water runoff is uncontrolled and not treated, the water quality of the discharge could affect offsite surface water resources.

Water quality degradation from the discharge of industrial runoff occurs when storm water or landscaping irrigation runoff enters the downstream water bodies and/or groundwater carrying contaminants. Storm water may encounter oil, grease, or fuel that has collected on roadways and parking lots and convey these contaminants surface water and/or groundwater. The potential discharges of contaminated industrial runoff from the site could increase or could cause or contribute to adverse effects on aquatic organisms in receiving waters. Industrial contaminants typically accumulate during the dry season and may be washed off when adequate rainfall returns in the fall to produce a "first flush" of runoff.

The amount of contaminants discharged in stormwater from development areas varies based on a variety of factors, including the intensity of industrial uses such as vehicle traffic, types of activities occurring onsite (e.g., snow removal services), types of chemicals used onsite (e.g., pesticides, herbicides, cleaning agents, petroleum byproducts), the pollutants on paved surfaces, and the amount of rainfall.

Depending on the specific gasification technology chosen for the project, there may be need for pretreatment of gasification-created wastewater prior to discharge to the regional sewer system. Some gasification systems require syngas conditioning with water scrubbing. This scrubbing removes the tars from the syngas stream, and transfers them to the water medium. Although the scrubber water is recycled to the maximum extent possible, ultimately some wastewater would require discharge. Prior to discharge, this water would be pre-treated to the standards required by TTSD through the use of activated charcoal filters.

The potential for the project to contribute substantial additional sources of polluted runoff and to substantially degrade water quality during site operations would be considered a **potentially significant** water quality impact.

Impact 13-4	Stormwater System Impacts. The project includes facilities that would ensure that the quantity of post-development peak stormwater flows from the project are, at a minimum, no more than the pre-development peak flow (e.g., detention facilities). These facilities would be designed in accordance with California Regional Water Quality Control Board (Lahontan Region) and Placer County's Stormwater Management Manual requirements. This impact would be **less than significant**.

Implementation of the project would result in changes to onsite drainage patterns and soil absorption rates due to the construction of impervious surfaces including proposed parking, access driveways, new buildings, and material storage areas. Drainage from the project site would be conveyed to a new infiltration trench via overland sheet flow. From the trench, water would be discharged to a new detention basin constructed in the southwestern corner of the project site. The detention basin would be sized to comply with County requirements and would be designed consistent with the water quality and hydraulic requirements of the RWQCB and the Placer County Land Development Manual.

Per the Placer County Storm Water Management Manual (SWMM), for stormwater calculation purposes, areas that could be covered by snow should be assumed impervious because the ground beneath is likely to be saturated and frozen during the winter months. Additionally, snowmelt must be accounted for in calculating peak flows. Winter conditions typically produce the highest peak flows; however, because the project site is undeveloped, during winter conditions it is completely covered with snow and, therefore, considered to be impervious. As a result, when calculating pre- and post-project stormwater discharges under winter conditions, there would be no net change (i.e., the site would be considered 100% impervious).

Therefore, for purposes of this analysis, summer drainage conditions have been used to determine if the increase in impervious area from the project would result in a substantial increase in stormwater runoff volumes. Preliminary calculations of pre- and post-project flows were calculated by Wood Rodgers (April 2012). Pre-project flows are estimated to be 13.3 cubic feet per second (cfs) for the 10-year event and 10 cfs for the

100-year event. The 10-year and 100-year post project flows are estimated to result in a 3% and 1% increase, respectively, in flows from pre-development levels. This results in an approximate post-development increase in flow of 0.4 cfs for the 10-year event and 0.3 cfs for the 100-year event.

As described in Chapter 3, Project Description, the project includes environmental features and measures to ensure that the quantity of post development peak flow from the project is, at a minimum, no more than the pre-development peak flow quantity. These features include detention facilities designed in accordance to California Regional Water Quality Control Board (Lahontan region) and Placer County's Land Development Manual. The approximately 120' x 30' basin included as part of the project would detain flow for 24 hours at a minimum and 72 hours at a maximum, and would discharge to the south of the project site. The design of the stormwater drainage facilities would adequately handle projected onsite flows and volumes. This impact would be **less than significant**.

13.4 MITIGATION MEASURES

Mitigation Measure 13-1

Final design of the detention facilities shall be included in the Final Drainage Report submitted with the Improvement Plans for the project. The final improvement plans shall contain the following information regarding stormwater drainage.

a) *The Applicant shall prepare and submit Improvement Plans, specifications and cost estimates (per the requirements of Section II of the Land Development Manual [LDM] that are in effect at the time of submittal) to the County for review and approval. The plans shall show all physical improvements as required by the conditions for the project as well as pertinent topographical features both on and off site. All existing and proposed utilities and easements, onsite and adjacent to the project, which may be affected by planned construction, shall be shown on the plans. All landscaping and irrigation facilities within the public right-of-way (or public easements), or landscaping within sight distance areas at intersections, shall be included in the Improvement Plans. The Applicant shall pay plan check and inspection fees with the first Improvement Plan submittal. (NOTE: Prior to plan approval, all applicable recording and reproduction costs shall be paid). The cost of the above-noted landscape and irrigation facilities shall be included in the estimates used to determine these fees. It is the Applicant's responsibility to obtain all required agency signatures on the plans and to secure department approvals. If the Design/Site Review process and/or Development Review Committee (DRC) review is required as a condition of approval for the project, said review process shall be completed prior to submittal of Improvement Plans. Record drawings shall be prepared and signed by a California Registered Civil Engineer at the Applicant's expense and shall be submitted to the County in both hard copy and electronic versions in a format to be approved by the County prior to acceptance by the County of site improvements.*

   Conceptual landscape plans submitted prior to project approval may require modification during the Improvement Plan process to resolve issues of drainage and traffic safety.

b) *The Improvement Plans shall show all proposed grading, drainage improvements, vegetation and tree removal and all work shall conform to provisions of the County Grading Ordinance (Ref. Article 15.48, Placer County Code) and Stormwater Quality Ordinance (Ref. Article 8.28, Placer County Code) that are in effect at the time of submittal. No grading, clearing, or tree disturbance shall occur until the Improvement Plans are approved and all temporary construction fencing has been installed and inspected by the County. All cut/fill slopes shall be at a maximum of 2:1 (horizontal: vertical) unless a soils report supports a steeper slope and the County concurs with said recommendation. Fill slopes shall not exceed 1.5:1 (horizontal: vertical)*

The Applicant shall revegetate all disturbed areas. Revegetation, undertaken from April 1 to October 1, shall include regular watering to ensure adequate growth. A winterization plan shall be provided with project Improvement Plans. It is the Applicant's responsibility to ensure proper installation and maintenance of erosion control/winterization before, during, and after project construction. Soil stockpiling or borrow areas, shall have proper erosion control measures applied for the duration of the construction as specified in the Improvement Plans. Provide for erosion control where roadside drainage is off of the pavement, to the satisfaction of the County.

The Applicant shall submit to the County a letter of credit or cash deposit in the amount of 110 percent of an approved engineer's estimate for winterization and permanent erosion control work prior to Improvement Plan approval to guarantee protection against erosion and improper grading practices. Upon the County's acceptance of improvements, and satisfactory completion of a one-year maintenance period, unused portions of said deposit shall be refunded to the Applicant or authorized agent.

If, at any time during construction, a field review by County personnel indicates a significant deviation from the proposed grading shown on the Improvement Plans, specifically with regard to slope heights, slope ratios, erosion control, winterization, tree disturbance, and/or pad elevations and configurations, the plans shall be reviewed by the County for a determination of substantial conformance to the project approvals prior to any further work proceeding. Failure of the County to make a determination of substantial conformance may serve as grounds for the revocation/modification of the project approval by the appropriate hearing body.

c) *The Improvement Plan submittal shall include a drainage report in conformance with the requirements of Section 5 of the Land Development Manual that are in effect at the time of submittal, to the County for review and approval. The report shall be prepared by a Registered Civil Engineer and shall, at a minimum, include: A written text addressing existing conditions, the effects of the improvements, all appropriate calculations, a watershed map, increases in downstream flows, proposed on- and off-site improvements and drainage easements to accommodate flows from this project. The report shall identify water quality protection features and methods to be used both during construction and for long-term post-construction water quality protection. "Best Management Practice" measures shall be provided to reduce erosion, water quality degradation, and prevent contamination.*

d) *Water quality Best Management Practices (BMPs), shall be designed according to the California Stormwater Quality Association Stormwater Best Management Practice Handbooks for Construction, for New Development / Redevelopment, and/or for Industrial and Commercial, (and/or other similar source as approved by the County.*

   Storm drainage from on- and offsite impervious surfaces (including roads) shall be collected and routed through specially designed catch basins, vegetated swales, vaults, infiltration basins, water quality basins, filters, etc. for entrapment of sediment, debris and oils/greases or other identified pollutants, as approved by the County. BMPs shall be designed at a minimum in accordance with the Placer County Guidance Document for Volume and Flow-Based Sizing of Permanent Post-Construction Best Management Practices for Stormwater Quality Protection. No water quality facility construction shall be permitted within any identified wetlands area, floodplain, or right-of-way, except as authorized by project approvals.

   All BMPs shall be maintained as required to insure effectiveness. The Applicant shall provide for the establishment of vegetation, where specified, by means of proper irrigation. Proof of on-going maintenance, such as contractual evidence, shall be provided to County upon request.

e) *Prior to Improvement Plan approval, the Applicant shall obtain a State Regional Water Quality Control Board National Pollutant Discharge Elimination System (NPDES) construction stormwater quality*

permit and shall provide to the County evidence of a state-issued Waste Discharge Identification (WDID) number or filing of a Notice of Intent and fees.

Significance After Mitigation

With implementation of the above mitigation measures, the project's construction-related water quality impacts would be reduced to a **less-than-significant** level because erosion from site soils would be minimized and pollutants would be captured on the site. Also, the implementation of identified spill prevention and cleanup plans would limit the potential for hazardous material spills to adversely affect storm water quality.

Mitigation Measure 13-3

The Applicant will implement Mitigation Measures 13-1a through e.

Significance After Mitigation

Implementation of Mitigation Measures 13-1a through 13-1e would require construction and operational features of the project to provide sufficient water quality control measures to ensure that the quality of the storm water would not be substantially degraded. With implementation of the above mitigation measures, the project's operational water quality impacts would be reduced to a **less-than-significant** level.