24.15 CHAPTER 15 - HYDROLOGY, WATER RIGHTS, SURFACE WATER QUALITY, AND GROUNDWATER

Section 15.1.4, DEIR/EIS page 15-17, FEIR/EIS page 15-17: Revision made in response to TCPUD comment letter

Quail Lake Creek Watershed

Hydrology and Flooding. The Quail Lake Creek watershed contains several tributaries that discharge to Quail Lake and the perennial Quail Lake Creek that flows south out of the Project area. The Quail Lake Creek Watershed (also titled H64 or TMDL watershed 7040) has an area of approximately 1.7 square miles or 947 acres, of which 26 percent of the total watershed area is located within the Project area. The headwaters flow from an elevation of 8,400 feet msl at Knee Ridge and discharge into McKinney Bay of Lake Tahoe near Lagoon Road. The upper portion of this creek (RM 0.5 – RM 0.97) does not have water year-round. Quail Lake is located in the lower half of the watershed. Less than half of the runoff from this watershed actually flows through this lake. The abandoned Noonchester Gold Mine is located south and upgradient of Quail Lake.

~~During the summer and fall, Tahoe City Public Utility District (TCPUD) at times diverts its water rights in Homewood Creek to fill Quail Lake.~~ Section 15.1.11 below details the existing points of diversion and water rights of the Project area.

Section 15.1.5, DEIR/EIS page 15- 20, FEIR/EIS page 15- 20: Revision made in response to Lahontan comment letter

North Base Area

The North Base Parking Lot BMP Drainage Improvement Project was implemented in the fall of 2006 on Placer County APN 97-130-05. Sheet C-5 of the plan sheets present the sizing of the system capacity to contain the 20-yr, 1hr storm volume (Placer County APN97-130-05). The system captures and infiltrates runoff from the parking lot with 30-inch corrugated metal pipe SD-82 stormchamber units and a Vortclarex VCL100 by Contech with a trench drain catch basin. Overflows from the system are routed to the municipal separate storm sewer systems of Caltrans and Placer County ~~stormwater treatment systems along State Route (SR) 89~~.

Section 15.1.6, DEIR/EIS page 15-21, FEIR/EIS page 15-21: Revision made to provide reference to new Appendix Z-2

15.1.6 Load Simulation Program in C++ (LSPC) – Existing Annual Loading at North, South, and Mid-Mountain Area and Tahoe Ski Bowl Way

The document *HMR Water Quality – Quantification of Design Benefits* (Grismer 2010) details the LSPC stormwater management analysis (Grismer 2010), which relies on three tracks of information associated in part with the TMDL-related studies of 2007 and 2008. The detailed LSPC stormwater management analysis for the Project area is provided in Appendix Z-1 and Z-2, summarized below for the existing conditions, and discussed under Impact HYDRO-1 for the Proposed Project (Alternative 1/1A) and Alternatives 2, 3, 4, 5 and 6.

Section 15.1.9, DEIR/EIS page 15-24, FEIR/EIS page 15-24: Revision made in response to revised HMR Water Supply Assessment

15.1.9 Groundwater

The Project area involves the Tahoe Valley West Groundwater Sub-Basin (TVGB), which is one of the three sub-basins comprising the greater North Lahontan Basin The TVGB is located within the larger structural feature referred to as the Lake Tahoe Basin. The TVGB is bounded on the east by the western shore of the Lake and on the west by the Sierra Nevada. The approximate north-south boundary is one-half mile west of Dollar Point and two miles west of Meeks Bay (Nichols 2011). Within this sub-basin elevations range from 6,225 feet msl at lake level to above 6,400 feet msl in the west (California Department of Water Resources 2003).

Groundwater recharge in the Project area is primarily from infiltration of precipitation into faults and fractures in bedrock, into soils and decomposed granite that overlies much of the bedrock and into unconsolidated basin-fill deposits (Nichols 2011). Except where the land surface is impermeable or where the groundwater table coincides with land surface, groundwater is recharged over the extent of the flow path (Thodal 1997). No sub-basins in the Northern Lahontan Hydrologic Study Area are identified as subject to critical conditions of overdraft according to California Department of Water Resources (DWR) Bulletin 118-80 (DWR 2004). Bulletin 118 states that changes in groundwater storage in the Tahoe Valley West Sub-Basin have been minimal. California's Water Update (i.e., Bulletins 160-93 and 160-98) reiterated statements of no evidence of overdraft, with Bulletin 160-98 stating that no overdrafts aqre expected in the Study Area through 2020, even in drought years.

Kleinfelder completed groundwater evaluations in 2006, 2007 and 2008 for the North and South Base areas. Existing conditions are summarized below as reported to TRPA in the *Revised Soils Hydrologic Scoping and Final Report* (Kleinfelder 2010). Based on the results of precipitation evaluations using data from the WETS station in Tahoe City (6,235 ft msl) and following the methodology outlined in the *Technical Standard for Water-Table Monitoring of Potential Wetland Sites and the Natural Resources Conservation Services (NRCS) Engineering Field Handbook* (1997), total precipitation preceding and during the 2007 and 2008 monitoring periods was within normal range. The long-term annual groundwater discharge within the Project area has not been calculated; although, historic groundwater levels are well documented. A portion of the discharge occurs as groundwater pumping and another portion occurs as groundwater discharge to perennial and seasonal stream baseflows.

The existing groundwater quality within the Project area is not well characterized, except for groundwater chemistry analysis conducted for the *Phase I Assessment Homewood Mountain Resort*, which detected some ~~Given that groundwater is used for domestic uses at the North and South Base areas, groundwater quality is assumed to be good.~~ c~~C~~ontamination from fuel tanks ~~was detected~~ during analysis (~~for the Phase I Environmental Site Assessment (~~Robinson Engineering 2005). A low concentration of MTBE was measured in the groundwater in the North Base area. The assessment concluded that natural attenuation has reduced the MTBE concentration to levels near the California WQO and that additional natural attenuation will result in the groundwater reaching the WQO. Given that groundwater is used for domestic uses at the North and South Base areas, groundwater quality is assumed to be of adequate drinking water quality.

Section 15.1.11, DEIR/EIS page 15-27, FEIR/EIS page 15-27: Revision made in response to TCPUD comment letter and revised HMR Water Supply Assessment

Currently, there are no reservoirs or water tanks that directly serve operations in the Project area. HMR does not currently divert water from Madden Creek nor are there plans to do so. Accordingly, there is no storage basin or other storage facility associated with such a diversion. There are also no diversions from Quail Creek, Quail Lake, or Homewood Creek or plans for such diversions (personal communications David Tirman, email received September 17, 2010).

The TCPUD services ~~provid~~the South Base area from the Crystal Way Well, which HMR then applies towards ~~es~~ domestic and irrigation waters~~-~~ for this base area~~to the South Base area~~, APN 097-060-022 and Mid-Mountain operations ~~from the Crystal Way Well~~ (Designation North Lahontan USGS Groundwater Basin 6-5.02). This portion of the Project area is located in the McKinney/Quail Sub-District. California's Water Plan Update, Bulletin 160-98 states that no overdrafts are expected in the North Lahontan Hydrologic Study Area, even in drought years, by 2020 (TCPUD 2006). The projected annual demand is estimated at 385 acre-feet/year or 0.84 acre-feet/yr per connection. (Nichols 2010).

Madden Creek Water Company (MCWC) supplies the North Base portion of the Project area. No data is available from Madden Creek Water Company, but the current demand of 160 connections is being met and it can be assumed that the water supply is sufficient to produce 134 acre-feet/year, which is based on TCPUD's projected annual demand per connection of 0.84 acre-feet/year (Nichols 2010).

The revised ~~Homewood Mountain Resort~~ Water Supply Assessment (NCE~~ichols~~ 2011~~0~~) prepared for the Project area is attached in Appendix AA-1. Sections V.A through V.D describe the TCPUD, MCWC, snowmaking and groundwater supplies respectively. Existing snowmaking deamnd is approximately 14.2 million gallons/year or 43.6 acre-feet/year (SMI 2010, NCE 2011). Chapter 16, Section 16.1.1, details the existing public water supply and existing demand for the Project area as related to domestic uses.~~does not address the use of public or municipal water supply current used for snowmaking.~~

Section 15.2.1, DEIR/EIS page 15-31. FEIR/EIS page 15-: Revision made in response to TCPUD comment letter

TRPA s~~S~~ource water 09719101/11 ~~, operated by TCPUD~~ and source water 08502048W11~~,~~ ~~operated by Agate Bay Water Company~~ are located in the vicinity of the Project area, but ~~. However,~~ TRPA Source Water Assessment maps indicate that no source waters are located within 600 feet of the Project area.

A ~~The~~ revised *HMR Water Supply Assessment* (Nichols 2011~~0~~) was prepared for the Project area, which is attached in Appendix AA-A. Public water supply is further analyzed in Chapter 16, Public Services and Utilities.

Section 15.2.3, DEIR/EIS page 15-32, FEIR/EIs page 15-33 Revision made in response to Lahontan comment letter

National Pollutant Discharge Elimination System (NPDES)– General Construction

The State Board regulates construction activities resulting in the disturbance of one or more acres of soils through the California General Permit for Storm Water Discharges Associated with Federal Clean Water Act Section 402 Construction Activities and Land Disturbance Activities (Order No. 2009-009DWQ). This permit does not cover disturbance to lands classified as SEZ and does not cover construction activities within the Lake Tahoe Hydrologic Unit. The State Board defers to Lahontan Board Order No. R6T-2011-0019 ~~2005-007~~ for construction activities within the Lake Tahoe Hydrologic Unit.

Section 15.2.3, DEIR/EIS page 15-34, FEIR/EIS page 15-35: Revision made in response to Lahontan comment letter

California Regional Water Quality Control Board's Basin Plan for the Lahontan Region

Lahontan implements the *California Regional Water Quality Control Board's Basin Plan for the Lahontan Region* or Basin Plan, which recognizes natural water quality, existing and potential beneficial uses, and water quality problems associated with human activities in Placer County (Lahontan 1995). Lahontan also has regulatory authority to enforce the requirements of the Clean Water Act and the California Water Code. This includes the regulatory authority to enforce the implementation of TMDLs, the adoption of waste discharge requirements (WDRs) to ensure compliance with surface WQOs, and groundwater management.

Specifically the Basin Plan outlines the narrative and numeric WQOs for water bodies within the Lake Tahoe Hydrologic Unit. Some water bodies have specific WQOs. In the Project area, Madden Creek has numeric WQOs for Total Dissolved Solids, Chloride, Total Nitrogen, Total Phosphorus, and Iron. Section 5.2 of the Basin Plan contains the waste discharge prohibitions, including the waste discharge prohibitions on discharges to floodplains and SEZs.

Waste Discharge Requirements and Anti-Degradation Findings

Lahontan previously established WDRs for the Project area under Board Order No. 6-79-51, which was adopted September 19, 1979, and Board Order No. 6-88-174, which was adopted November 9, 1988. The current Board Order No. 6-95-86A2, adopted March 13, 2002, updated WDRs to be consistent with requirements placed on other ski resorts within the Region and established specific compliance dates, which extend those in Board Order No 6-88-174.

Section 15.2.3, DEIR/EIS page 15-36, FEIR/EIS page 15-37: Revision made in response to Lahontan comment letter and TMDL adoption

The permit requires submittal of a Notice of Intent (NOI) and that the construction contractor develop and implement a site-specific stormwater pollution prevention plan (SWPPP) to prevent stormwater and groundwater pollution caused by construction activities. At a minimum, implementation of the SWPPP must prevent debris, soil, silt, sand, rubbish, cement or concrete or washings thereof, oil or petroleum products or other organic or earthen material from construction or operation from entering into receiving waters, their tributaries and adjacent wetlands. The SWPPP outlines erosion control measures to be taken as well as BMPs to ~~control and~~ prevent to the best available technology ~~maximum extent practicable~~ the discharge of pollutants to surface waters and groundwater. Although the SWPPP focuses primarily on protection of surface waters, it also contains a plan for responding to and managing accidental spills during construction and a plan for management and storage of pumped groundwater. The SWPPP addresses overall management of the construction project site such as designating areas for material storage, equipment fueling, concrete washout, and stockpiles.

California Environmental Quality Act (CEQA)

Under CEQA, Lahontan is a responsible agency with regard to the Project. The California Water Code section 13050(e) reads as follows: "Waters of the State means any surface water or groundwater, including saline waters, within the boundaries of the state." State waters include irrigation canals and surface impoundments (other than those solely constructed for wastewater), wetlands, and waters of the United States (a subset of State waters). Lahontan's policies concerning wetland and riparian protection are stated in chapter four of the Basin Plan as outlined under sub-section Wetlands Protection and Management (pages 12-8 to 12-14).

Lake Tahoe Total Maximum Daily Load (TMDL)

Section 303(d) of the Clean Water Act requires States to compile a list of impaired water bodies that do not meet WQOs. The Clean Water Act also requires States to establish total maximum daily loads (TMDLs) for such waters. The deep water transparency standard for Lake Tahoe is the average annual Secchi depth measured between 1967 and 1971, an annual average Secchi depth of 39.7 meters or 97.4 feet. The transparency standard for Lake Tahoe has not been met since its adoption. In 2007, the average annual average Secchi depth was 70 feet or 27.6 feet from the standard. Transparency loss is considered a water quality impairment from the input of nutrients and sediment. Consequently, Lake Tahoe is listed under Section 303(d) as impaired by inputs of nitrogen, phosphorus and sediment. The goal of the Lake Tahoe TMDL is to set forth a plan to restore Lake Tahoe's historic transparency to 97.4 feet.

The *Final Lake Tahoe Total Maximum Daily Load* report was released for public review and comment in June 2010. The report and the adoption and approval process are fully compliant with CEQA. The document states that the forthcoming adoption of the Final Lake Tahoe TMDL will not have a significant adverse impact on the environment (Lahontan and NDEP 2009). The Lahontan Board adopted the Water Quality Control Plan Amendments Total Maximium Daily Load for Sediment and Nutrients in Lake Tahoe on November 16, 2010, with the State Baord adopting on April 19, 2011 and the EPA approving the resolution on August 16, 2011.

Section 15.2.3, DEIR/EIS page 15-37 and FEIR/EIS page 15-37: Citation added in response to TCPUD comment letter and revised HMR Water Supply Assessment

California Department of Water Resources (DWR)

The mission of the DWR is "to manage the water resources of California in cooperation with other agencies, to benefit the State's people, and to protect, restore, and enhance the natural and human environments" DWR is responsible for promoting California's general welfare by ensuring beneficial water use and development statewide. To guide development and management of the State's water resources, DWR is responsible for preparing the California Water Plan Update (Water Code section 10000 et seq.).

Water Code section 10910(d) requires the identification of existing water supply entitlements, water rights or water service contracts relevant to the Project and a description of the quantities of water received in prior years by the public water supply system. Supplemental water demand and relevant analysis is provided in the revised *Homewood Mountain Resort Water Supply Assessment* (Nichols 2011~~0~~), attached in Appendix AA-1.

Water Code section 10910 requires a determination if a project is included in the most recently adopted Urban Water Management Plan (UWMP). The McKinney/Quail Sub-district is included in the 2010 urban water management plan (UWMP) update prepared by TCPUD ~~in March 2006~~ (TCPUD 2011~~06~~), but this UWMP does not account for the Project.

Water Code section 10910 limits groundwater discussion to the basin or basins that serve the Project. Additional requirements for groundwater discussions are found in Water Code section 10631(b) and 10910(f)(5), which require adequate description of groundwater basins and assurance of sufficiency of the groundwater from the basin to meet the projected water demand of the Project.

Section 15.2.4, DEIR/EIS page 15- 38, FEIR/EIS page 15-38; Revision made to update permit number

15.2.4 Placer County

Placer County published the *Placer County Stormwater Management Manual* in 1990 *(Placer County 1990)* and the *Land Development Manual* in 2006 (Placer County 2006). The Placer County Tahoe Basin Stormwater Management Plan describes the Placer County stormwater quality improvement program to be implemented in compliance with Phase I of Lahontan Board Order No. R6T-2005-0026 (NPDES Permit No. CAG616001) that was replaced by R6T-2011-0019 in April 2011. Placer County shares a general permit with El Dorado County and the City of South Lake Tahoe for stormwater/urban runoff discharges within the Lake Tahoe Basin; however, the Project area is individually permitted under Board Order No. 6-95-86A2, which outlines the WDRs to specific to the ski area and its operations.

Placer County adopted the West Shore Area General Plan in 1998, which contains goals and policies that apply to the Homewood area and the Project area. The conservation element of the plan addresses issues related to natural resources of the Plan area, including water and fisheries and establishes goals and policies relevant to these subjects. The safety element identifies goals and policies related to the protection of the public from risks associated with flooding.

Section 15.2.5, DEIR/EIS page 15-44, FEIR/EIS page 15-44, Revisions made per revised HMR Water Supply Assessment

15.2.5 Tahoe City Public Utility District

TCPUD provides services for water, sewer and recreational facilities to the west and north shore areas of Lake Tahoe, including unincorporated parts of Placer and El Dorado Counties. TCPUD operates five independent water sub-districts that have separate groundwater supply wells (Nichols 2011~~0~~). Since water is not diverted from one sub-district to another, the sub-districts are considered separate entities (Laliotis 2009). The sub-districts include Tahoe City Sub-Regional, Rubicon, McKinney/Quail, Alpine Peaks and Tahoe-Truckee Forest Tract.

The Project area is within the McKinney/Quail sub-district, which is not considered a "public water system" by Water Code section 10912. ~~TCPUD prepared their UWMP in March 2006.~~ The 2010 UWMP does not account for the Project. The revised *HMR Water Supply Assessment* (Nichols 2011~~0~~), attached in Appendix AA-1, ~~-~~provides the supplemental analysis of the projected water demand for the Project, including sufficiencies of supplies to meet demand through 2030. ~~-~~

Section 15.2.6, DEIR/EIS page 15-44, FEIR/EIS page 15-45; Revisions made per revised HMR Water Supply Assessment

15.2.6 Madden Creek Water Company

MCWC provides water to the North Base area of the Project area. MCWC is not considered a "public water system" by Water Code section 10912 and has not prepared an UWMP. The projected water demand for the service district is included in the MCWC ~~TCPUD~~ annual water demand in the revised *HMR Water~~ster~~ Supply Assessment* (Nichols 2011~~0~~)~~.~~, which provides the supplemental analysis of the projected water demand for the Project, including sufficiencies of supplies to meet demand through 2030.

Section 15.2.3, DEIR/EIS page 15-45, FEIR/EIS page 15-45-: Citation added in response to TCPUD comment letter

Kleinfelder West, Inc. 2007. *Stream Channel and Baseline Surface Water Assessment, Homewood Mountain Resort Homewood, California.* Submitted November 12, 2007.

Kleinfelder. 1994. *Summary of Phase IV Municipal Well Installation and Aquifer Testing of McKinney Well No. 1. Tahoe City Public Utility District, McKinney Bay, CA.*

Nichols Consulting Engineers. 2010. *Preliminary Drainage Report of Homewood Mountain Resort. December 2010.*

Impact HYDRO-1, DEIR/EIS page 15- 49, FEIR/EIS page 15-49: Revision made in response to Lahontan comment letter

The effectiveness of the systems cannot be definitively quantified using the data collected for compliance with Lahontan monitoring and reporting requirements; however, because annual and post-storm inspection and maintenance occurs in compliance with Board Order No. RT6-95-86A2 ~~R6T-2005-0007~~ and overflow does not typically occur from the systems during spring runoff and typical storm events (see Appendix Y for monitoring data for water years 2006 through 2009), the systems are capturing and infiltrating stormwater runoff as designed and permitted. The potential impact to surface water quality and beneficial uses under Alternative 2 is considered less than significant based on the implementation of effective, reasonable and appropriate measures to protect water quality of the Project area.

Compliance with Board Order No ~~R6T-2005-0007 and~~ Board Order No. 6-95-86A2. Presently, surface water quality in Madden Creek, Quail Lake Creek and Homewood Creek is not significantly degraded by ski operations (personal communications 11/17/2009, Bud Amorfini, Lahontan Staff; IERS 2010; personal communications 10/8/2010, Bud Amorfini, Lahontan Staff). Since background Total Nitrogen and Total Phosphorus concentrations measured at monitoring stations above the Project area (stations M-1 and E-1) are occasionally above WQOs and no statistically significant increase is measured at the monitoring stations below the Project area (stations M-2 and E-2), exceedances of WQOs are not directly linked to ski area operations and could be attributable to sources such as atmospheric loading (for nitrogen) and soil, plant and animal material (for nitrogen and phosphorus) (Kleinfelder 2007). Turbidity in receiving water samples consistently measure below 4 to 6 ntu with most samples measuring below 2 ntu. Concentrations for Total Suspended Solids are typically below 10 mg/L (Appendix Y; Appendix W Figures 7, 8 and 9). The data do not indicate negatively trending degradation as a result of ski area operations and do not indicate consistent pollutant values between the downstream and upstream monitoring locations. The potential impact to surface water quality and beneficial uses under Alternative 2 is considered less than significant based on compliance with Board Order No R6T-2011-001905-0007 and Board Order No. 6-95-86A2 (see Section 15.2.3).

Compliance with CWE Project area TOCs. Table 15-2 details the HMR CWE analysis results for the existing conditions of the Project area. Figure 15-6, presented in the analysis for the Proposed Project (Alternative 1/1A) and alternatives, provides a graphical representation of the No Project (Alternative 2) compared to the Proposed Project (Alternative 1/1A) and Alternatives 3, 4, 5 and 6. Based on the results, sediment yields generated under the No Project (Alternative 2) exceed Project area TOCs for Intervening Zone 7000, Madden Creek and Quail Lake Creek watersheds. Exceedance of Project area TOCs is a significant impact. Because the No Project (Alternative 2) will not change existing conditions of the Project area, the sediment yield in Intervening Zone 7000, Madden Creek and Quail Lake Creek would remain above the Project area TOCs as measured by the HMR CWE analysis. Based on the points of significance for the evaluation criteria for HYDRO-1, this impact is significant.

Impact HYDRO-1, DEIR/EIS page 15-52, FEIR/EIS page 15-52: Revision made in response to Lahontan comment letter

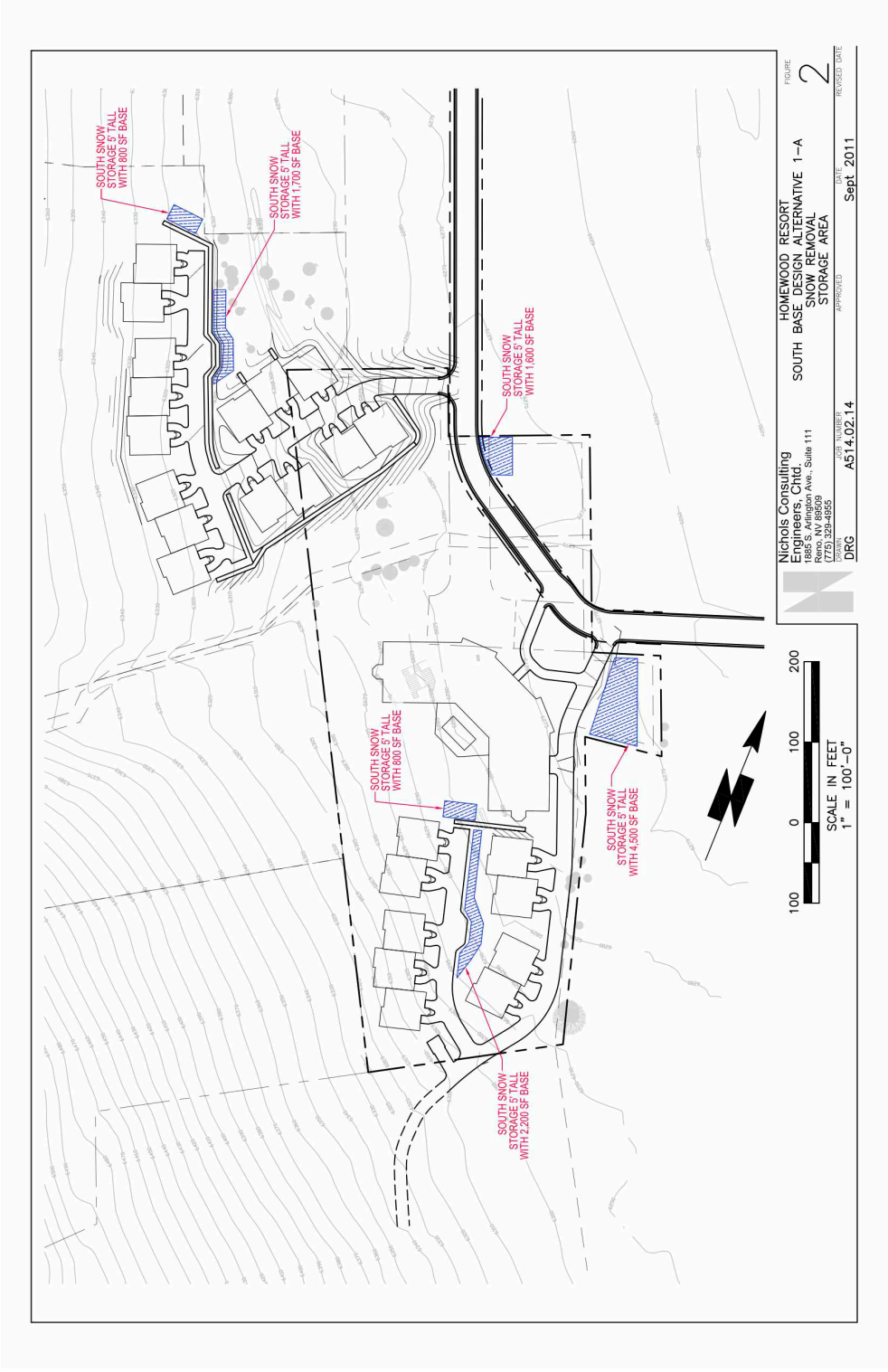
The Project is required to implement a TRPA-approved Erosion and Sediment Control Plan in conjunction with the Lahontan-approved SWPPP that is required under Board Order No. R6T-2011-0019~~2005-007~~ (General Permit No. CAG616002) for discharges of stormwater runoff associated with construction activity involving land disturbance in the Lake Tahoe hydrologic unit. Installation of site-specific temporary BMPs and maintenance and monitoring to ensure that disturbed areas, SEZs and stream channels are protected during precipitation events and for over wintering will be required to minimize effects from construction activities (e.g., ground disturbance) associated with the Project. The Project Applicant will prepare a site-specific Erosion Control and BMP Plan based on the final project design to define and map temporary BMPs for the control of erosion and runoff from ground disturbing activities. BMPs will be installed in accordance with Chapter 25 of the TRPA Code of Ordinances and Placer County codified regulations as required for project permitting. The HMR Erosion and Sediment Control Plan will be complimentary to the SWPPP that is required by Lahontan for NDPES permitting.

Impact HYDRO-1, DEIR/EIS page 15-56, FEIR/EIS page 15-56; Revisions made to add Alternative 1A analysis

Winter Roadway and Snowmelt Management. Snowmelt from snow disposal areas can represent not only a significant source of nutrients but also harmful hydrocarbons, metals, and biological oxygen demand. The current TRPA Code of Ordinances references the Handbook of Best Management Practices, which is Volume II of the 208 Plan and provides snow storage guidelines, including: adequate sizing of the area according to estimated snow amounts, avoidance of SEZ areas, and placement of storage areas up-gradient of stormwater treatment and BMP facilities. The TRPA CEP has a goal of improved snow storage. The Project improves upon existing snow storage and management under the Proposed Project (Alternative 1/1A) and Alternatives 3, 5 and 6 through location of storage areas a greater distance from SEZ areas and in areas that will drain to bioretention areas and to stormwater treatment systems. Figure 15-3~~4~~ illustrates the proposed snow storage areas in the North Base and Figure 15-4~~5~~ and 15-4A illustrate~~s~~ proposed snow storage areas in the South Base under Alternative 1 and Alternative 1A, respectively.~~.~~ Snow storage will not occur within Placer County ROWs or SEZ setbacks

Figure 15-3A; DEIR/EIS page 15-58, FEIR/EIS page 15- 58; Figure added for Alternative 1A analysis

Figure 15-4A. Snow Storage Areas Proposed for the South Base Area (Alternative 1A)



Impact HYDRO-1, DEIR/EIS page 15-59, FEIR/EIS page 15- 60: Revision made in response to change in Chapter 3

Fuel Storage. Under Alternatives 1, 1A, 3, 5 and 6 the maintenance facility currently located in the South Base area and in proximity to Homewood Creek will be relocated to the Mid-Mountain area. The existing 3~~5~~,000-gallon fuel tank will remain in use at the South Base area and could be located in close proximity to the chalets to be constructed during Phase 2 ~~until the start of Phase 2 development. when it will be removed~~. The fuel tank will be upgraded to meet the requirements of the NTFPD and Lahontan, include secondary containment for accidental spills, and be located an adequate distance from Phase 2 structures to ensure safety of residents.

~~At that point, N~~new diesel fuel tanks constructed at the new Mid-Mountain area maintenance facility in Phase 1 development could also ~~will~~ be used ~~exclusively. .~~ If constructed, t~~T~~hese Mid-Mountain tanks would~~ill~~ be sized to sustain operations throughout the winter since they will be inaccessible by fuel trucks when roadways are snow covered. The estimates for winter operations total 40,000 gallons that would be stored in two 20,000-gallon above ground tanks located beneath the maintenance facility within the crawl space. The tanks will be serviced from the paved apron adjacent to the maintenance building. The use and operations are required to conform to the California Fire Code and receive approval from the North Lake Tahoe Fire Protection District (NLTFPD), as discussed in Chapter 17, Public Safety and Hazards.

Moving the maintenance facility ~~fuel tanks~~ from the South Base area, where accidental spills could reach Homewood Creek and SEZ areas, to the Mid-Mountain area, which contains no active stream channel, reduces the potential for surface water quality impacts from accidental spills. Retaining the existing fuel tank at the South Base area does not increase potential impacts to Homewood Creek, assuming the fuel tank is properly maintained and serviced. Land coverage associated with the fuel tank is 571 square feet, including the tank, access road and retained containment area.

Impact HYDRO-1, DEIR/EIS page 15-61, FEIR/EIS page 15-62: Alternative 1A analysis differs from Alternative 1

to the Proposed Project (Alternative 1) would slightly increase stormwater runoff volumes. Alternatives 1A, 5 and 6 would construct slightly less impervious surfaces, which would slightly decrease stormwater runoff volumes. Stormwater treatment system capacity is analyzed in more detail for impact HYDRO-2.

Placer County requires installation of standard mitigation measures to permanently mark/emboss with prohibitive language such as "No Dumping! Flows to Creek" or other language as approved by the ESD, and/or graphical icons to discourage illegal dumping. Diversion of stormwater runoff around trash storage areas to minimize contact with pollutants is also required. Mitigation measures to assure compliance with these Placer County codified regulations are detailed as mitigation measures HYDRO-1b and HYDRO-1c.

CEP Resolution Compliance – Reduction in Land Coverage and Sediment Loading. The CEP Resolution for the Project requires reductions in land coverage and sediment loading for the Project area. The Proposed Project (Alternative 1/1A), Alternatives 3, 5 and 6 reduce total existing land coverage within the Project area by 13, 8, 23 and 20 percent, respectively, and relocate land coverage from lower capability LCDs 1a and 1b to higher capability LCDs 2, 4, 5 and 6. Land coverage is detailed in Chapter 14, Geology, Soils and Seismicity under impact GEO-3.

Reductions in land coverage are expected to result in reductions in sediment loading. Sediment loading was modeled for the North Base, South Base and Mid-Mountain areas and for Tahoe Ski Bowl Way (redevelopment areas). The LSPC stormwater management analysis for quantification of the Project design benefits relies on three tracks of information associated in part with the TMDL-related studies of 2007 and 2008. The detailed LSPC stormwater management analysis for the Project area is provided in Appendix Z-1. The analysis was rerun to model Alternative 1A proposed conditions. The results as compared to Alternative 1 are summarized in the sections below with data output and supporting graphs attached in Appendix Z-2. Using measured infiltration and sediment yield data and daily climate data for a range of WYs and conditions three treatment scenarios were modeled. These include the runoff and the treatment effectiveness of the existing stormwater treatment systems (termed "Existing Conditions"), the proposed stormwater treatment systems (termed the "Project SWMP") and the stormwater treatment systems that would meet the TRPA 20-year, 1-hour design storm requirements (termed the "20-year BMP SWMP"). Results are presented as annual total sediment load, expressed as kilograms per year (kg/yr).

It is important to note that this loading exercise is based on daily data representing particular water year conditions and cannot be directly compared to the HMR CWE modeling analysis that considers long-term averaged data to represent relative annualized sediment yields.

Table 15-7 summarizes the annual total sediment load modeled for the redevelopment areas for Alternative 1 under wet WYs 1995 and 2006 and dry WYs 1994 and 2003 precipitation regimes. The focus of the comparison is between the Project SWMP and the 20-year BMP SWMP, with the Project SWMP representing what is proposed under ~~the Proposed Project (~~Alternative 1~~)~~ and the 20-year BMP SWMP representing what is required under current TRPA Code of Ordinances. The North and South Base areas are the more substantial areas of the overall Project area affecting loading and serve to illustrate the model concepts.

Impact HYDRO-1, DEIR/EIS page 15-62, FEIR/EIS page 15-63: Alternative 1A analysis differs from Alternative 1, addition of Appendix Z-2

Appendix Z-1 presents additional graphs for comparisons of annual sediment loading for Alternative 1 for WYs 1994, 2003 and 2006. Appendix Z-2 presents graphs for comparisons of annual sediment loading for Alternative 1A for WYs 1994, 2003 and 2006. Figure 15-5, which represents comparisons of annual sediment loading for the North and South Base areas for WY 2006, is presented below to represent a worst-case scenario under a very wet WY. Under Alternatives 1 and 1A and under a precipitation regime for a very wet WY, the Project SWMP for the North and South Base areas is expected to decrease annual total sediment by approximately 80 percent and 81 percent, respectively, as compared to the 20-year BMP SWMP (Table 15-8).

While simple summary statements are difficult to make, given the complexity of storms, antecedent soil moisture conditions and other variables, the data shows that in wetter years, which represent worst-case scenarios, sediment and presumably fine sediment loads from the Project SWMP design for Alternative 1 and 1A are 80 to 86 percent less than those produced by the standard 20-year BMP SWMP design (Grismer 2010).

Based on results presented in Appendix Z-2, Alternative 1A under a precipitation regime for a very wet WY (2006) would reduce stormwater runoff by an additional 89,732 cf and sediment load by 102,061 kg as compared to Alternative 1 (Tables 15-7).

Table 15-7, DEIR/EIS page 15-63, FEIR/EIS page 15-64: Addition of Alternative 1A analysis

Table 15-7

Annual Stormwater Sediment Loads for Existing, 20-year BMP and Project SWMP Designs - Wet (1995 & 2006) and Dry (1994 & 2003) WY Analyses

Project Area	Existing Conditions (kg)*				20-yr BMP SWMP (kg)*				Project SWMP (kg)*			
	1994WY	1995WY	2003WY	2006WY	1994WY	1995WY	2003WY	2006WY	1994WY	1995WY	2003WY	2006WY
North Base Area	246,584	3,749,270	1,496,700	3,715,798	520,583	4,489,815	1,925,338	4,387,778	10,339	652,201	222,518	646,511
South Base Area	56,549	1,851,045	651,730	1,800,059	249,545	2,420,741	1,023,528	2,411,095	9,479	372,205	131,627	368,548
Mid-Mtn Base Area	15,353	475,818	166,708	461,902	21,493	491,426	177,498	497,680	28,649	187,886	68,063	162,855
Tahoe Ski Bowl Way	98,685	1,324,050	522,235	1,260,036	100,199	1,209,091	492,269	1,125,043	72,542	510,820	219,642	491,384
Alt 1 Total	**419,165**	**7,402,179**	**2,839,377**	**7,239,801**	**893,813**	**8,613,068**	**3,620,637**	**8,423,602**	**123,003**	**1,725,107**	**643,854**	**1,671,304**
North Base Area	246,584	3,749,270	1,496,700	3,715,798	511,488	4,448,699	1,905,269	4,352,857	15,734	688,260	237,997	693,640
South Base Area	56,549	1,851,045	651,730	1,800,059	172,342	2,263,700	924,871	2,254,841	0	250,157	79,280	219,359
Mid-Mtn Base Area	15,353	475,818	166,708	461,902	21,493	491,426	177,498	497,680	28,649	187,886	68,063	162,855
Tahoe Ski Bowl Way	98,685	1,324,050	522,235	1,260,036	100,199	1,209,091	492,269	1,125,043	72,542	510,820	219,642	491,384
Alt 1A Total**	**419,165**	**7,402,179**	**2,839,377**	**7,239,801**	**807,515**	**8,414,911**	**3,501,910**	**8,232,426**	**118,919**	**1,639,118**	**606,986**	**1,569,243**

Source: HMR Water Quality – Quantification of Design Benefits, Dr. Mark Grismer, May 26, 2010

Notes: __* 1 kilogram = 0.001 Metric Tonnes

Table 15-8, DEIR/EIS page 15-64, FEIR/EIS page 15-65: Addition of Alternative 1A analysis

Table 15-8

Decrease in Stormwater Sediment Loads for Project SWMP Compared to 20-year BMPs SWMP Designs in Wet (1995 & 2006) and Dry (1994 & 2003) WY Analyses

Project Area	Project SWMP (kg*)							
	1994WY	% Change	1995WY	% Change	2003WY	% Change	2006WY	% Change
North Base Area	510,243	98.0%	3,837,614	85.5%	1,702,820	88.4%	3,741,267	85.3%
South Base Area	240,065	96.2%	2,048,536	84.6%	891,901	87.1%	2,042,547	84.7%
Mid-Mtn Base Area	-7,156	-33.3%	303,540	61.8%	109,435	61.7%	334,825	67.3%
Tahoe Ski Bowl Way	27,657	27.6%	698,271	57.8%	272,627	55.4%	633,659	56.3%
Alt 1 - Overall	**772,804**	**86.5%**	**6,889,956**	**80.0%**	**2,978,786**	**82.3%**	**6,754,304**	**80.2%**
North Base Area	495,753	96.9%	3,760,439	84.5%	1,667,271	87.5%	3,659,217	84.1%
South Base Area	172,342	100.0%	2,013,543	88.9%	845,591	91.4%	2,035,482	90.3%
Mid-Mtn Base Area	-7,156	-33.3%	303,540	61.8%	109,435	61.7%	334,825	67.3%
Tahoe Ski Bowl Way	27,657	27.6%	698,271	57.8%	272,627	55.4%	633,659	56.3%
Alt 1A- Overall	690,590	85.5%	6,777,788	80.5%	2,896,927	82.7%	6,665,189	81.0%

Source: HMR Water Quality – Quantification of Design Benefits, Dr. Mark Grismer, May 26, 2010

Notes: * 1 kilogram = 0.001 Metric Tonnes

Impact HYDRO-1, DEIR/EIS page 15-66, FEIR/EIS page 15-67: Alternative 1A analysis differs from Alternative 1

The HMR CWE analysis concludes that implementation of the Proposed Project (Alternative 1/1A) or Alternative 3, 5 and 6 will reduce sediment yields originating within the Project area watersheds as compared to existing conditions. Three of the four sediment yields will be at or below their Project Area TOC through implementation of the Project. The results are discussed below according to watershed.

Intervening Zone 7000. The existing sediment yield for Intervening Zone 7000 is 62 T/yr, which exceeds the Project Area TOC (55 T/yr) by 7 T/yr. Under the Proposed Project (Alternative 1) and Alternatives 3, 5 and 6, the sediment yield will be reduced to 56, 58, 56, and 56 T/yr, respectively, a reduction of 5.3 T/yr which is within 1 T/yr of the Project Area TOC for Intervening Zone 7000. This 1 T/yr is within the expected 10 percent margin of error of the CWE model (personal communications September 22, 2010 – Mark Grismer). The CWE analysis was rerun to reflect the Proposed Project under Alternative 1A. Model results indicate an additional 0.5% reduction in sediment yield compared to the Alternative 1 reduction to 56 T/yr. Therefore, Alternative 1A is a very slight improvement in sediment yield over Alternative 1, though well within the model predictive error.

The HMR CWE analysis takes into consideration the installation of the stormwater treatment systems proposed for Alternatives 1, 1A, 3, 5 and 6 in the North Base area that are located in Intervening Zone 7000; however, because the model is based on standardized sedimentation rates that are applied to certain land uses, the model may not adequately assess the treatment levels of these systems. Additionally, treatment level sediment reduction assumptions for the model exercise erred on the conservative side when treatment systems, BMPs and other approaches had a reported range of effectiveness. The Project installs a number of higher-level treatments that are not reflected fully in the CWE model, as to not overstate the treatment effects. If higher level treatment assumptions were incorporated into the model, post-project sediment yields under Alternative 1, 1A, 3, 5 and 6 conditions would likely decrease by 2 to 10 Percent. Thus, where sediment yields are close to the TOC, specifically in Intervening Zone 7000, the actual reduction can be expected to be greater than modeled (IERS 2010).

Impact HYDRO-1, DEIR/EIS page 15-67, FEIR/EIS page 15-68: Alternative 1A analysis differs from Alternative 1

Madden Creek Watershed. Sediment yield in Madden Creek watershed is currently 459 T/yr, which exceeds the Project Area TOC for this watershed (i.e., 435 T/yr) by 24 T/yr. Under the Proposed Project (Alternative 1) and Alternatives 3, 5 and 6, sediment yield would be reduced to 425 T/yr, which is below the Project Area TOC for Madden Creek watershed. The CWE analysis was rerun to reflect the Project under Alternative 1A. Model results indicate an additional 0.5 percent reduction in sediment yield compared to the Alternative 1 reduction to 425 T/yr. Therefore, Alternative 1A is a very slight improvement in sediment yield over Alternative 1, though well within the model predictive error.

Homewood Creek Watershed. Sediment yield in Homewood Creek watershed is currently 828 T/yr, which is below its Project Area TOC (865 T/yr). Under the Proposed Project (Alternative 1) the sediment yield will be reduced to 799 T/yr and under Alternatives 3, 5 and 6, sediment yield will be reduced to 777, 784 and 784 T/yr, respectively. The CWE analysis was rerun to reflect the Project under Alternative 1A. Model results indicate an additional 0.5 percent reduction in sediment yield compared to the Alternative 1 reduction to 799 T/yr. Therefore, Alternative 1A is a very slight improvement in sediment yield over Alternative 1, though well within the model predictive error.

Quail Lake Creek Watershed. Sediment yield from Quail Lake Creek watershed is currently 152 T/yr, which exceed the Project Area TOC (147 T/yr) by 5 T/yr. Under the Proposed Project (Alternative 1) and Alternatives 3, 5 and 6, sediment yield will be reduced to 151, 149, 149 and 150 T/yr, respectively. The CWE analysis was rerun to reflect the Project under Alternative 1A. Model results indicate an additional 0.5 percent reduction in sediment yield compared to the Alternative 1 reduction to 151 T/yr. Therefore, Alternative 1A is a very slight improvement in sediment yield over Alternative 1, though well within the model predictive error.

Mitigation Measures HYDRO-1d, DEIR/EIS page 15-69, FEIR/EIS page 15-71: Stormwater monitoring duration requirement added

Post-Project Stormwater Monitoring. Post-project stormwater monitoring shall be performed annually for a minimum of five years following construction or for the period required in the Lahontan permit for comparison with pre-project monitoring results and for determination of compliance with State and TRPA discharge standards. Fine sediment shall be monitored as specified by TRPA and future Lake Tahoe TMDL research directives.

Monitoring results shall address the following components:

- Compliance of project area runoff with State and TRPA discharge standards;
- Stormwater treatment system effectiveness;
- Permanent BMP effectiveness;
- Revegetation/Landscaping effectiveness;
- Assessment of performance of strategies outlined in the Stormwater treatment calculations; and
- BMP and Stormwater treatment system maintenance regimes.

Impact HYDRO-2, DEIR/EIS page 15-73, FEIR/EIS page 15-75: Revision made in response to Lahontan comment letter

Construction and operation of the Proposed Project (Alternative 1/ 1A) or Alternative 3 will not cause increased runoff resulting in flooding or stream bank erosion or contribute runoff in rates or volumes that will exceed the capacity of existing or planned storm water drainage systems so that a 20-year, 1-hour storm runoff (approximately one inch per hour) cannot be contained on the site. Stormwater treatment systems are proposed to capture, treat, and infiltrate a minimum of the 20-year, 1-hour storm volume on-site; thus removing this stormwater volume from entering existing municipal separate storm sewer systems ~~stormwater systems~~ downgradient from the North Base area and Homewood Creek in the South Base area. Stormwater treatment system capacities are maximized for measured site conditions.

The current surface water drainage patterns of Homewood Creek will be altered through the removal of the existing culvert under Tahoe Ski Bowl Way in the South Base area. The Proposed Project (Alternative 1/1A) and Alternative 3 will implement the Homewood Creek SEZ Restoration project in the South Base area for improvements to existing surface water drainage patterns and stream bank and channel conditions and to alleviate flood risk within the Project area and to private residences down stream. Figures 15-7, 15-8, and 15-9 were prepared by Nichols Consulting Engineers to analyze the potential downstream impacts of removing the existing culvert crossing at Tahoe Ski Bowl Way and replace it with a bottomless arch bridge crossing. Figure 15-7 shows the calculated pre- and post-project 100-year flood plain for Homewood Creek. Removal of the culvert will improve the existing condition, which currently overtops the roadway during a 100-year event. The proposed bridge crossing will convey the 100-year peak flow without overtopping the roadway, and there will be no downstream impacts to existing structures or property, as the creek attenuates to the 100-year water surface elevation prior to leaving the Homewood property.

Impact HYDRO-2, DEIR/EIS page 15-80, FEIR/EIS page 15-81: Alternative 1A analysis differs from Alternative 1

A description of the proposed stormwater treatment systems follows. Figures 15-11 and 15-11A illustrates the Alternative 1 and 1A overall stormwater treatment design for the North Base Area and Figures 15-12 and 15-12A illustrates the overall stormwater treatment design for the South Base Area, noting that the South Base stormwater treatment systems have subsequently been relocated outside of the proposed Placer County ROW as updated on preliminary Civil Plan Sheet C12 (see Figure 3-9). Also note that North-4, North-5, South-3 and South-4 are groundwater reinjection galleries, as described in impact HYDRO-3, and are not stormwater infiltration galleries. Tables 15-9 and 15-9A detail the calculations in support of sizing for the stormwater treatment system capacities under Alternative 1 and 1A respectively.

The sections below describe first the stormwater treatment approach for Alternative 1 that are then followed by a narrative of the differences between Alternative 1 and 1A, which are highlighted yellow in Table 15-9A.

New Figures 15-11A (North Base Alt 1A), and 15-12A (South Base Alt 1A), DEIR/EIS page 15-81, FEIR/EIS page 15-83 and DEIR/EIS page 15-82, FEIR/EIS page 15-85, respectively; Alternative 1A analysis differs from Alternative 1

Figure 15-11A. Stormwater Treatment Systems – North Base Area (Alternative 1A)

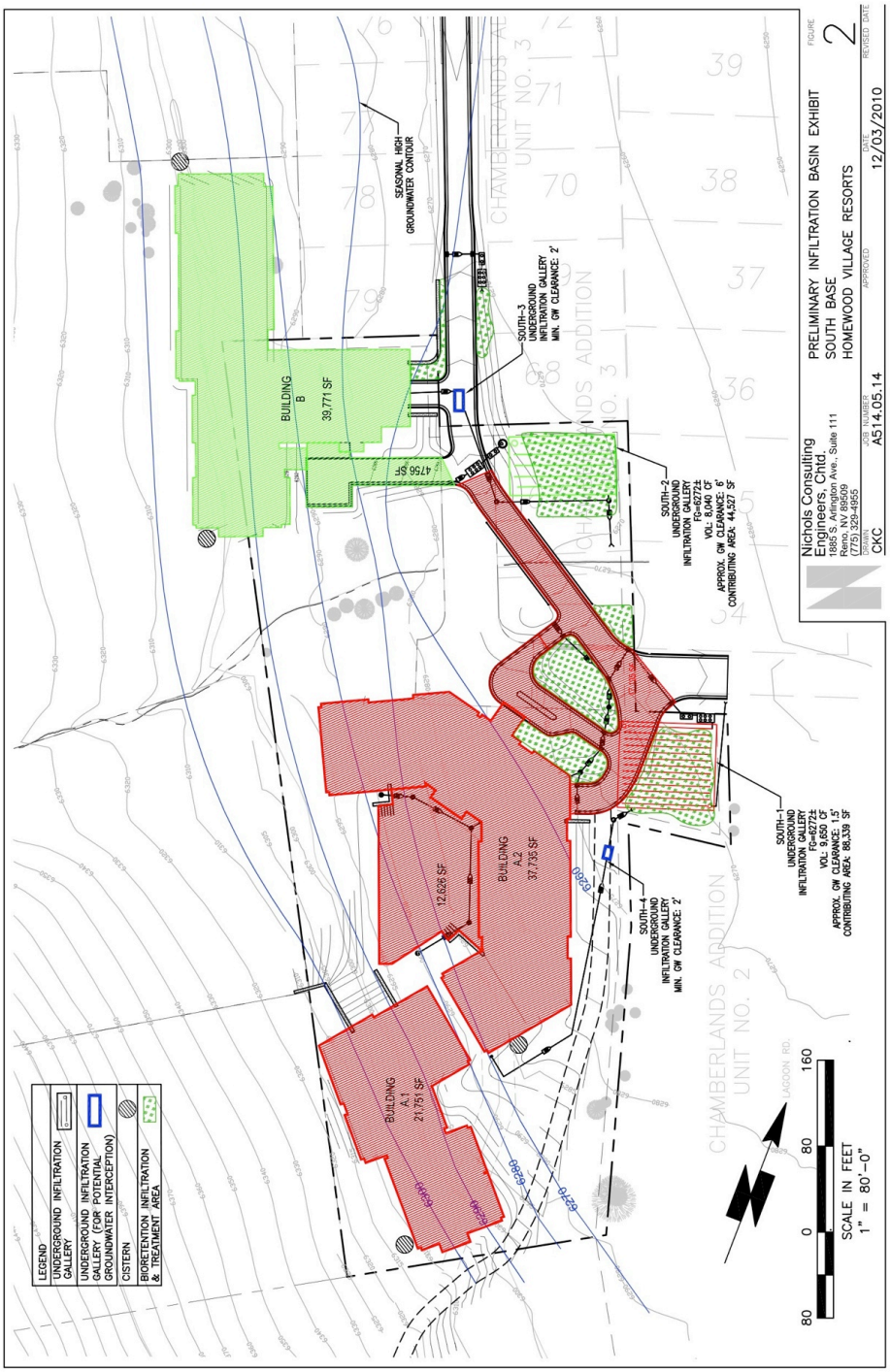


Figure 15-12A. Stormwater Treatment Systems – South Base Area (Alternative 1A)

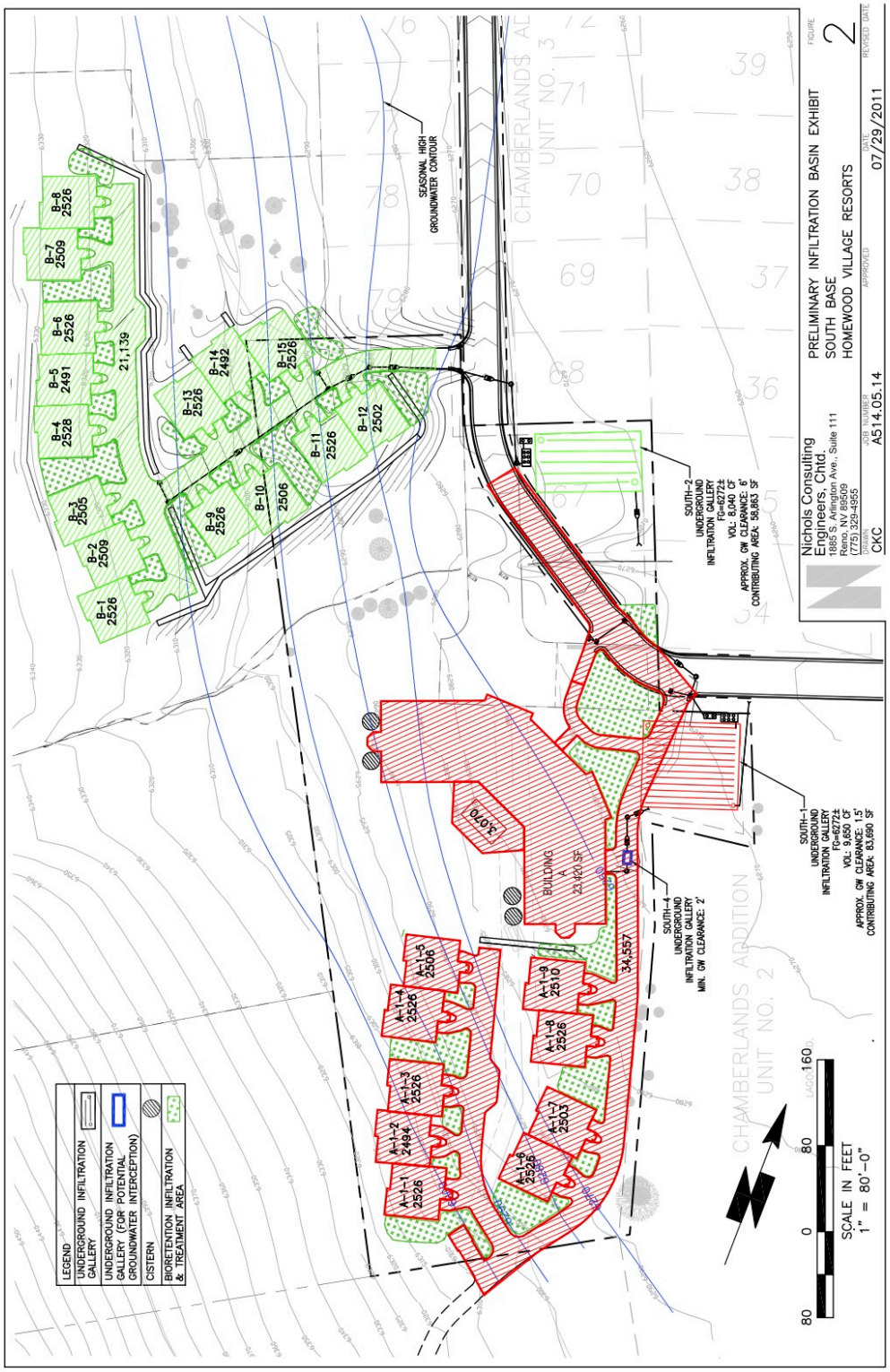


Table 15-9, DEIR/EIS page 15- 83, FEIR/EIS page 15-86: Addition of Total Capacity calculation

Table 15-9

Stormwater Treatment System Calculations – North, South, Mid-Mountain Areas, Tahoe Ski Bowl Way and Off-site Caltrans/Placer/HMR EIP Project (Alternative 1)

	North #1 Underground Basin	North #2 Underground Basin	North #3 Underground Basin	North #4 Underground Basin	South #1 Underground Basin	South #2 Underground Basin	Tahoe Ski Bowl Way #1	Tahoe Ski Bowl Way #2	Tahoe Ski Bowl Way #3	Mid Mountain	CALTRANS
CONTRIBUTING WATERSHED AREA (sf) *	55,420	43,800	285,400	337,400	332,900	169,030	71,200	33,600	157,400	280,400	
OPEN SPACE AREA* (sf)											
Total Open Space Area	30,785	23,910	47,416	108,027	114,853	75,253	9,271	17,534	85,691	158,289	
TREATED PERVIOUS AREA* (sf)											
Type A Revegetation Strategy (cf) **	0	0	45,293	16,423	45,810	2,450	15,140	0	0	64,023	
Type B Revegetation Strategy (cf) **	0	0	47,313	45,523	82,930	46,800	27,000	0	0	12,100	
Total Contributing Pervious Area	0	0	92,606	61,946	128,740	49,250	42,140	0	0	76,123	
CONTRIBUTING IMPERVIOUS AREA* (sf)											
North Base Buildings											
Building A	0	0	0	47,360	0	0	0	0	0	0	0
Building B	0	0	87,050	0	0	0	0	0	0	0	0
Building C	0	0	0	25,360	0	0	0	0	0	0	0
Building D	0	0	21,110	0	0	0	0	0	0	0	0
Building E	17,850	0	0	0	0	0	0	0	0	0	0
Building P	0	0	0	32,700	0	0	0	0	0	0	0
Hardscape	0	0	37,218	27,617	0	0	0	0	0	0	0
Road	6,785	19,890	0	34,390	0	0	0	0	0	0	0
South Base Buildings											
Building A.1	0	0	0	0	21,751	0	0	0	0	0	0
Building A.2	0	0	0	0	37,735	0	0	0	0	0	0
Building B	0	0	0	0	0	39,771	0	0	0	0	0
Hardscape	0	0	0	0	12,626	0	0	0	0	0	0
Road	0	0	0	0	17,195	4,756	0	0	0	0	0
Tahoe Ski Bowl Way											
Townhomes	0	0	0	0	0	0	0	0	43,280	0	0
Road	0	0	0	0	0	0	19,789	16,066	28,429	0	0
Mid-Mountain											
Building	0	0	0	0	0	0	0	0	0	45,988	0
Off-site Water Quality Mitigation (CALTRANS ROW)											
Roadway											28,314
Total Impervious Area (sf)	**24,635**	**19,890**	**145,378**	**167,427**	**89,307**	**44,527**	**19,789**	**16,066**	**71,709**	**45,988**	**28,314**
Required Infiltration Volume - 20yr/1hr Storm (cf)	**2,053**	**1,658**	**12,115**	**13,952**	**7,442**	**3,711**	**1,649**	**1,339**	**5,976**	**3,832**	
INFILTRATION VOLUME (cf)											
REQUIRED											
Required Infiltration Volume (cf)	2,053	1,658	12,115	13,952	7,442	3,711	1,649	1,339	5,976	3,832	
PROPOSED											
Proposed Infiltration Gallery Capacity (cf)	2,681	2,167	15,904	23,441	9,650	8,040	See LID	See LID	See LID	See LID	
"OVER & ABOVE" INFILTRATION											
Proposed Infiltration Gallery Capacity "Over and Above" 20yr/1hr Capacity (cf)	628	510	3,789	9,489	2,208	4,329	NA	NA	NA	NA	
Percentage "Over and Above" 20yr/1hr Capacity **	**30.6%**	**30.7%**	**31.3%**	**68.0%**	**29.7%**	**116.7%**	-	-	-	-	

	North #1 Underground Basin	North #2 Underground Basin	North #3 Underground Basin	North #4 Underground Basin	South #1 Underground Basin	South #2 Underground Basin	Tahoe Ski Bowl Way #1	Tahoe Ski Bowl Way #2	Tahoe Ski Bowl Way #3	Mid Mountain	CALTRANS
LID* STRATEGY REDUCTIONS (cf)											
Porous Pavers/Pavement (cf) **	0	0	321	525	0	0	0	0	0	0	
Cisterns (cf) (Roof Runoff Volume Removed)**	600	0	2,400	2,400	1,200	1,200	0	0	0	0	
Bioretention Area for Stormwater Treatment (cf) **	4,205	4,327	6,806	8,969	3,036	566	1,780	1,600	7,436	4,000	
Total LID Volume Reductions (cf)* **	**4,805**	**4,327**	**9,527**	**11,894**	**4,236**	**1,766**	**1,780**	**1,600**	**7,436**	**4,000**	
TOTAL REDUCTIONS											
REQUIRED											
Required Infiltration Volume (cf)	2,053	1,658	12,115	13,952	7,442	3,711	1,649	1,339	5,976	3,832	
PROPOSED											
Proposed Infiltration Gallery Capacity "Over and Above" 20yr/1hr Capacity (cf)	628	510	3,789	9,489	2,208	4,329	0	0	0	0	
Proposed LID Volume Reductions (cf)	4,805	4,327	9,527	11,894	4,236	1,766	1,780	1,600	7,436	4,000	
TOTAL CAPACITY	7,486	6,494	25,431	35,335	13,886	9,806	1,780	1,600	7,436	4,000	
"OVER & ABOVE" INFILTRATION											
Total "Over and Above" Capacity (cf)**	5,433	4,837	13,316	21,383	6,444	6,095	131	261	1,460	168	
Total Percentage "Over and Above" 20yr/1hr Capacity **	**265%**	**292%**	**110%**	**153%**	**87%**	**164%**	**8%**	**20%**	**24%**	**4%**	
TREATMENT VAULT FLOW (cfs)											
REQUIRED											
Treatment Vault Flow for 20yr/1hr (cfs)	0.148	0.443	-	0.750	0.375	0.161	0.431	0.351	0.62	-	
PROPOSED											
Proposed Treatment Vault Flow (cfs)	0.222	0.665	-	1.125	0.563	0.242	0.647	0.527	0.930	-	
"OVER & ABOVE" TREATMENT CAPACITY (cfs)											
Percentage "Over and Above" 20/yr/1hr Vault Flow	50%	50%	-	50%	50%	50%	50%	50%	50%	-	

Source: NCE and HBA ~~2010~~2011

Notes: Following notes are for Tables 15-9 and 15-9A

Impervious coverage (i.e., land coverage) is detailed in Tables 14-4 and 14-6 in Chapter 14, Geology, Soils ands Seismicity.

*** Definition of Terms:**

1. Contributing watershed area = Open Space + Pervious Area + Impervious Area
2. Open Space = undisturbed area with no change to existing infiltration rates
3. Pervious Areas = areas that have no land coverage but will have infiltration rates increased through Type A or Type B Revegetation Strategies as described in Chapter 3.
4. Impervious Areas = area that will have land coverage and will require infiltration of captured and conveyed stormwater runoff
5. LID = a site design strategy with a goal of maintaining or replicating the pre-development hydrologic regime through the use of design strategies to create a functionally equivalent hydrologic landscape (EPA 2000). LID Strategies effectively attenuate, disconnect or remove a volume of runoff that does not require mechanical pretreatment prior to entering the stormwater system.

**** Calculations and Assumptions:**

1. Type A Revegetation Strategy (cf) = Area (sf) * Depth (12 inches) * 30% void space = Volume (cf). Strategy is detailed in Chapter 3, Description of Proposed Project and Alternatives.
2. Type B Revegetation Strategy (cf) = Area (sf) * Depth (12 inches) * 30% void space = Volume (cf). Strategy is detailed in Chapter 3, Description of Proposed Project and Alternatives.
3. Infiltration Rates = To be suitable for infiltration, underlying soils should have an infiltration rate of 0.52 in/hr or greater, as initially determined from NRCS soil textural classification, and subsequently confirmed by field geotechnical tests (SMRC www.stormwatercenter.net accessed October 8, 2010). The soils within the North and South Base areas have infiltration rates measured at 4 in/hr (Kleinfelder 2010)
4. Bioretention calculation= (Bioretention area, sf) * (depth, 1.5 ft) * (void space, 30%); Minimum soil depth is 1.5 feet (18 inches to provide acceptable minimum pollutant attenuation and good growing conditions for selected plants. Void space is recommended at 30% to dictate the composition of engineered soils and maintain a minimum long-

term hydraulic conductivity of 1.0 in/hr; up to 40% void space is typically used in bioretention planting mix soils (Puget Sound Action Team 2005). A porosity value or void space (Vv/Vt) of 0.32 can be used to design for infiltration practices (SMRC www.stormwatercenter.net accessed October 8, 2010).

5. Porous Paver Calculation= (porous paver area, sf) * (20Yr-1Hr storm, 1 inch) = volume (cf) * 40%= reduction of stormwater volume; Porous pavers and pavement allow stormwater to infiltrate into underlying soils promoting pollutant treatment and recharge as opposed to producing large volumes of runoff requiring conveyance and treatment. Porous pavers have been measured to reduce stormwater runoff volumes by up to 80% depending on site conditions and maintenance (EPA 2000). The conservative assumption of 40% is used in the reduction equation to assure systems are not undersized and to consider late winter and early spring site conditions for cold weather climates.
6. Cisterns = Total Cistern Capacity, cf = Total Volume Reduction from Stormwater Treatment System, cf; the reduction is long-term storage and is primarily clean runoff from roofs that does not require mechanical treatment.
7. Percentage "Over & Above" Capacity= [(Proposed Infiltration Gallery Capacity, cf) - (Required Infiltration Volume, cf)] / (Required Infiltration Volume, cf)
8. Total "Over and Above" Capacity = (Proposed Infiltration Gallery Capacity "Over and Above" 20yr/1hr Capacity (cf) + Proposed LID Volume Reductions, cf)
9. Total Percentage "Over and Above" 20yr/1hr Capacity = (Total ~~"Over and Beyond"~~ Capacity - Required Infiltration Volume, cf)/(Required Infiltration Volume, cf))

***** Bioretention Area Reductions**

1. The calculations do not consider runoff directed to bioretention areas located directly above stormwater ~~infitlration~~infiltration galleries North-3, North-4, South-1 and South-2 in reduction ~~pecentages~~percentages, as to not overstate the "over and above" treatment capacities. To provide the most conservative calculations a 5 -foot buffer from the edge of gallery is included in the adjustment. This runoff will still enter stormwater infiltration galleries for further soil treatment but will not increase runoff volumes to Vortech vaults and Contech Stormfilters.

New Table 15-9A, insert at DEIR/EIS page 15-86, FEIR/EIS page 15-89: Alternative 1A analysis differs from Alternative 1

Table 15-9A

Stormwater Treatment System Calculations – North, South, Mid-Mountain Areas, Tahoe Ski Bowl Way and Off-site Caltrans/Placer/HMR EIP Project (Alternative 1A)

	North #1 Underground Basin	North #2 Underground Basin	North #3 Underground Basin	North #4 Underground Basin	South #1 Underground Basin	South #2 Underground Basin	Tahoe Ski Bowl Way #1	Tahoe Ski Bowl Way #2	Tahoe Ski Bowl Way #3	Mid Mountain	CALTRANS
CONTRIBUTING WATERSHED AREA (sf) *	55,420	43,800	285,400	337,400	343,749	169,030	71,200	33,600	157,400	280,400	
OPEN SPACE AREA* (sf)											
Total Open Space Area	30,785	23,910	47,416	102,332	216,069	83,984	47,511	17,534	85,691	158,289	
TREATED PERVIOUS AREA* (sf)											
Type A Revegetation Strategy (cf) **	0	0	45,293	16,423	17,420	12,143	3,900	0	0	64,023	
Type B Revegetation Strategy (cf) **	0	0	47,313	45,523	26,570	14,040	0	0	0	12,100	
Total Contributing Pervious Area	0	0	92,606	61,946	43,990	26,183	3,900	0	0	76,123	
CONTRIBUTING IMPERVIOUS AREA* (sf)											
North Base Buildings											
Building A	0	0	0	47,360	0	0	0	0	0	0	0
Building B	0	0	87,050	0	0	0	0	0	0	0	0
Building C	0	0	0	24,840	0	0	0	0	0	0	0
Building D	0	0	21,110	0	0	0	0	0	0	0	0
Building E	17,850	0	0	0	0	0	0	0	0	0	0
Building P	0	0	0	42,070	0	0	0	0	0	0	0
Hardscape	0	0	37,218	27,130	0	0	0	0	0	0	0
Road	6,785	19,890	0	37,730	0	0	0	0	0	0	0
South Base Buildings											
Building A	0	0	0	0	23,420	0	0	0	0	0	0
A-1-1	0	0	0	0	2,526	0	0	0	0	0	0
A-1-2	0	0	0	0	2,494	0	0	0	0	0	0
A-1-3	0	0	0	0	2,526	0	0	0	0	0	0
A-1-4	0	0	0	0	2,526	0	0	0	0	0	0
A-1-5A	0	0	0	0	2,506	0	0	0	0	0	0
A-1-6	0	0	0	0	2,526	0	0	0	0	0	0
A-1-7	0	0	0	0	2,503	0	0	0	0	0	0
A-1-8	0	0	0	0	2,526	0	0	0	0	0	0
A-1-9	0	0	0	0	2,510	0	0	0	0	0	0
B-1	0	0	0	0	0	2,526	0	0	0	0	0
B-2	0	0	0	0	0	2,509	0	0	0	0	0
B-3	0	0	0	0	0	2,505	0	0	0	0	0
B-4	0	0	0	0	0	2,528	0	0	0	0	0
B-5	0	0	0	0	0	2,491	0	0	0	0	0
B-6	0	0	0	0	0	2,526	0	0	0	0	0
B-7	0	0	0	0	0	2,509	0	0	0	0	0
B-8	0	0	0	0	0	2,526	0	0	0	0	0
B-9	0	0	0	0	0	2,526	0	0	0	0	0
B-10	0	0	0	0	0	2,506	0	0	0	0	0
B-11	0	0	0	0	0	2,526	0	0	0	0	0
B-12	0	0	0	0	0	2,502	0	0	0	0	0
B-13	0	0	0	0	0	2,526	0	0	0	0	0
B-14	0	0	0	0	0	2,492	0	0	0	0	0
B-15	0	0	0	0	0	2,526	0	0	0	0	0
Hardscape	0	0	0	0	3,070	0	0	0	0	0	0
Road	0	0	0	0	34,557	21,139	0	0	0	0	0
Tahoe Ski Bowl Way											
Townhomes	0	0	0	0	0	0	0	0	43,280	0	0
Road	0	0	0	0	0	0	19,789	16,066	28,429	0	0
Mid-Mountain											
Building	0	0	0	0	0	0	0	0	0	45,988	0
Off-site Water Quality Mitigation (CALTRANS ROW)											
Roadway											28,314
Total Impervious Area (sf)	**24,635**	**19,890**	**145,378**	**173,122**	**83,690**	**58,863**	**19,789**	**16,066**	**71,709**	**45,988**	**28,314**
Required Infiltration Volume - 20yr/1hr Storm (cf)	**2,053**	**1,658**	**12,115**	**14,427**	**6,974**	**4,905**	**1,649**	**1,339**	**5,976**	**3,832**	

Table 15-9A, page 89:

	North #1 Underground Basin	North #2 Underground Basin	North #3 Underground Basin	North #4 Underground Basin	South #1 Underground Basin	South #2 Underground Basin	Tahoe Ski Bowl Way #1	Tahoe Ski Bowl Way #2	Tahoe Ski Bowl Way #3	Mid Mountain	CALTRANS
INFILTRATION VOLUME (cf)											
REQUIRED											
Required Infiltration Volume (cf)	2,053	1,658	12,115	14,427	6,974	4,905	1,649	1,339	5,976	3,832	
PROPOSED											
Proposed Infiltration Gallery Capacity (cf)	2,681	2,167	14,432	23,089	9,650	8,040	See LID	See LID	See LID	See LID	
"OVER & ABOVE" INFILTRATION											
Proposed Infiltration Gallery Capacity "Over and Above" 20yr/1hr Capacity (cf)	628	510	2,317	8,662	2,676	3,135	NA	NA	NA	NA	
Percentage "Over and Above" 20yr/1hr Capacity **	**30.6%**	**30.7%**	**19.1%**	**60.0%**	**38.4%**	**63.9%**	-	-	-	-	
LID* STRATEGY REDUCTIONS (cf)											
Porous Pavers/Pavement (cf) **	0	0	321	525	0	0	0	0	0	0	
Cisterns (cf) (Roof Runoff Volume Removed)**	600	0	2,400	2,400	1,200	1,200	0	0	0	0	
Bioretention Area for Stormwater Treatment (cf) **	4,112	4,327	11,511	5,077	7,850	6,614	1,935	1,600	7,436	4,000	
Total LID Volume Reductions (cf)	**4,712**	**4,327**	**14,232**	**8,002**	**9,050**	**7,814**	**1,935**	**1,600**	**7,436**	**4,000**	
TOTAL REDUCTIONS											
REQUIRED											
Required Infiltration Volume (cf)	2,053	1,658	12,115	14,427	6,974	4,905	1,649	1,339	5,976	3,832	
PROPOSED											
Proposed Infiltration Gallery Capacity "Over and Above" 20yr/1hr Capacity (cf)	628	510	2,317	8,662	2,676	3,135	0	0	0	0	
Proposed LID Volume Reductions (cf)	4,712	4,327	14,232	8,002	9,050	7,814	1,935	1,600	7,436	4,000	
TOTAL CAPACITY	7,393	6,494	28,664	31,091	18,700	15,854	1,935	1,600	7,436	4,000	
"OVER & ABOVE" INFILTRATION											
Total "Over and Above" Capacity (cf)**	5,340	4,837	16,549	16,664	11,726	10,949	286	261	1,460	168	
Total Percentage "Over and Above" 20yr/1hr Capacity **	**260%**	**292%**	**137%**	**116%**	**168%**	**223%**	**17%**	**20%**	**24%**	**4%**	
TREATMENT VAULT FLOW (cfs)											
REQUIRED											
Treatment Vault Flow for 20yr/1hr (cfs)	0.148	0.443	-	0.750	0.375	0.161	43.1%	35.1%	62.0%	-	
PROPOSED											
Proposed Treatment Vault Flow (cfs)	0.222	0.665	-	1.125	0.563	0.242	0.647	0.527	0.930	-	
"OVER & ABOVE" TREATMENT CAPACITY (cfs)											
Percentage "Over and Above" 20/yr/1hr Vault Flow	50%	50%	-	50%	50%	50%	50%	50%	50%	-	

Source: NCE and HBA 2011

Notes: See notes under Table 15-9 above.

Impact HYDRO-2, DEIR/EIS page 15-86, FEIR/EIS page 15-91: NORTH-1 and NORTH-2 Alternative 1A analysis differs from Alternative 1

One cistern tank (600 cubic feet removed) will capture a portion of Building E roof runoff. The remaining runoff is routed to North-1. A bioretention area is proposed along SR 89. The bioretention area and cistern hydrologically disconnect or attenuate 4,805 cubic feet of runoff to increase the treatment capacity of North-1 to 2~~1~~65 percent above the TRPA required infiltration volume.

Under Alternative 1A, North-1 capacity remains 2681 cubic feet, bioretention is slightly reduced to 4,712 cubic feet, and percent above the TRPA required infiltration volume is 260 percent.

The separation of the bottom of North-1 to the seasonal high water table is 1.5 feet. During stormwater infiltration, this separation decreases to 0.8 feet, which poses a potentially significant impact. Mitigation measure HYDRO-2a details the actions required to reduce this potential impact from planned stormwater treatment systems to a level of less than significant.

Underground Gallery North-2. North-2 conveyance begins on the hotel entrance road with snowmelt occurring over the heated walkway area. Stormwater runoff sheet flows across the hotel building road and into the bioretention area for stormwater treatment in the middle of the roundabout. Overflow for this bioretention area is provided through a curb cut-out to a drop inlet on the east side of the roundabout that ultimately ends in the stormwater infiltration gallery.

Stormwater that does not enter the bioretention area is conveyed through a stormdrain pipe to the first treatment vault (Vortechs) for coarse sediment removal. The vault is sized to convey 0.665 cfs, which is 50 percent greater than the required flow rate. After leaving the Vortechs unit the stormwater is routed to the secondary treatment facility, a Contech Stormfilter, for fine sediment removal down to 15 microns. Immediately after exiting the secondary treatment facility the stormwater enters the stormwater infiltration gallery for soil treatment. North-2 has the capacity to infiltrate up to 2,167 cubic feet of runoff, which exceeds the TRPA Code of Ordinances requirement to capture and treat the 20-year/1-hour storm volume (1,658 cubic feet) by close to 31 percent.

Bioretention areas are proposed around the hotel entrance road and roundabout, which will hydrologically disconnect or attenuate 4,327 cubic feet of runoff, increase the potential treatment capacity of North-2, reduce total runoff volumes entering North-2 and allow for treatment capacity that is 292 percent more than the TRPA required infiltration volume. North-2 and LID strategies are the same under Alternative 1A.

Impact HYDRO-2, DEIR/EIS page 15-87, FEIR/EIS page 15-92: NORTH-3 Alternative 1A analysis differs from Alternative 1

North-3 has the capacity to infiltrate up to 15,904 cubic feet of runoff, which exceeds the TRPA Code of Ordinances requirement to capture and treat the 20-year/1-hour storm volume (12,115 cubic feet) by just over 31 percent. LID strategies, including porous pavers and pavement (321 cubic feet reduction), the cisterns (2,400 cubic feet removed and stored), and bioretention areas (6,806 cubic feet reduction) described above, serve to hydrologically disconnect or attenuate runoff volumes to North-3. The reduction and attenuation in runoff volume increases the potential treatment capacity of North-3 to 110 percent above the TRPA required infiltration volume.

Under Alternative 1A, North-3 has the capacity to infiltrate up to 14,432 cubic feet of runoff, which exceeds the TRPA Code of Ordinances requirement to capture and treat the 20-year/1-hour storm volume (12,115 cubic feet) by just over 19 percent. LID strategies, including porous pavers and pavement (321 cubic feet reduction), the cisterns (2,400 cubic feet removed and stored), bioretention areas (11,511 cubic feet reduction, which is greater than described above for Alternative 1) serve to hydrologically disconnect or attenuate runoff volumes to North-3. The reduction and attenuation in runoff volume increases the potential treatment capacity of North-3 to 137 percent above the TRPA required infiltration volume.

Impact HYDRO-2, DEIR/EIS page 15-88, FEIR/EIS page 15-93: NORTH-4 Alternative 1A analysis differs from Alternative 1

Type A and Type B revegetation techniques to increase soil infiltration rates and water holding capacities on the slopes above the North Base area will be applied to 16,423 and 45,523 square feet, respectively. These revegetation areas are not considered in the direct stormwater treatment capacity calculations, but are noted as important LID alternatives in replacement of cutoff trenches that would capture and convey surface runoff from these steeper contributing slope area to existing down stream drainage systems or channels.

Under Alternative 1A, North-4 has the capacity to infiltrate up to 23,089 cubic feet of runoff, which exceeds the TRPA Code of Ordinances requirement to capture and treat the 20-year/1-hour storm volume (14,427 cubic feet) by 60 percent. LID strategies, including porous pavers and pavement (545 cubic feet reduction), four cisterns (2,400 cubic feet removed and stored) and bioretention areas (5,077 cubic feet reduction) described above, serve to hydrologically disconnect or attenuate runoff volumes to North-4. This reduction and attenuation of this runoff volume subsequently increases the potential treatment capacity of North-4 to 137 percent above the TRPA required infiltration volume. Type A and Type B revegetation techniques to increase soil infiltration rates and water holding capacities on the slopes above the North Base area will be applied to 16,423 and 45,523 square feet, respectively.

Impact HYDRO-2, DEIR/EIS page 15-88, FEIR/EIS page 15-94: SOUTH-1 Alternative 1A analysis differs from Alternative 1

South-1 has the capacity to infiltrate up to 9,650 cubic feet of runoff, which exceeds the TRPA Code of Ordinances requirement to capture and treat the 20-year/1-hour storm volume (7,442 cubic feet) by almost 30 percent. LID strategies, including the cisterns (1,200 cubic feet removed and stored) and bioretention areas (3,036 cubic feet reduction), serve to hydrologically disconnect or attenuate runoff volumes to South-1. This reduction and attenuation of runoff volume subsequently increases the potential treatment capacity of South-1 to 87 percent above the TRPA required infiltration volume.

Type A and Type B revegetation techniques to increase soil infiltration rates on the slopes above the South Base area will be applied to 45,810 and 82,930 square feet, respectively. These revegetation areas are not considered in the direct stormwater treatment capacity calculations, but are noted as important LID alternatives in replacement of cutoff trenches that would capture and convey surface runoff from these steeper contributing slope area to existing down stream drainage systems or channels.

Under Alternative 1A, the South Base is configured differently than Alternative 1 and proposes less total land coverage and less contiguous hardscape. Construction of Chalets instead of fewer, larger buildings described for Alternative 1, allows for additional bioretention areas. As a result of the reconfiguration, South-1 has the capacity to infiltrate up to 9,650 cubic feet of runoff, which exceeds the TRPA Code of Ordinances requirement to capture and treat the 20-year/1-hour storm volume (6,974 cubic feet, a reduction from Alternative 1 because of less land coverage) by 38 percent. LID strategies, including the cisterns (1,200 cubic feet removed and stored) and bioretention areas (7,850 cubic feet reduction), serve to hydrologically disconnect or attenuate runoff volumes to South-1. This reduction and attenuation of runoff volume subsequently increases the potential treatment capacity of South-1 to 168 percent above the TRPA required infiltration volume.

Type A and Type B revegetation techniques to increase soil infiltration rates on the slopes above the North Base area will be applied to 17,420 and 26,570 square feet, respectively.

Impact HYDRO-2, DEIR/EIS page 15-89, FEIR/EIS page 15-95: SOUTH-2 Alternative 1A analysis differs from Alternative 1

and stored) are provided to capture Building B roof runoff with the remaining runoff routed to the bioretention area and South-2.

South-2 has the capacity to infiltrate up to 8,040 cubic feet of runoff, which exceeds the TRPA Code of Ordinances requirement to capture and treat the 20-year/1-hour storm volume (3,711 cubic feet) by almost 117 percent. LID strategies, including the cisterns (1,200 cubic feet removal) and bioretention areas (566 cubic feet reduction) described above, serve to hydrologically disconnect or attenuate runoff volumes to South-2. This reduction and attenuation of runoff volume subsequently increases the potential treatment capacity of South-2 to 164 percent above the TRPA required infiltration volume.

Type A and Type B revegetation techniques to increase soil infiltration rates on the slopes above the North Base area will be applied to 2,450 and 46,800 square feet, respectively. These revegetation areas are not considered in the direct stormwater treatment capacity calculations, but are noted as important LID alternatives in replacement of cutoff trenches that would capture and convey surface runoff from these steeper contributing slope area to existing down stream drainage systems or channels.

Under Alternative 1A, South-2 has the capacity to infiltrate up to 8,050 cubic feet of runoff, which exceeds the TRPA Code of Ordinances requirement to capture and treat the 20-year/1-hour storm volume (4,905 cubic feet) by 64 percent. LID strategies, including the cisterns (1,200 cubic feet removed and stored) and bioretention areas (6,614 cubic feet reduction), serve to hydrologically disconnect or attenuate runoff volumes to South-2. This reduction and attenuation of runoff volume subsequently increases the potential treatment capacity of South-2 to 223 percent above the TRPA required infiltration volume.

Type A and Type B revegetation techniques to increase soil infiltration rates on the slopes above the North Base area will be applied to 12,143 and 14,040 square feet, respectively.

Impact HYDRO-2, DEIR/EIS page 15-90, FEIR/EIS page 15-96: Tahoe Ski Bowl Way Alternative 1A analysis differs from Alternative 1

Tahoe Ski Bowl Way Extension. This project component is included as programmatic-level in the HMR Master Plan. Figure 15-13 illustrates the stormwater treatment approach for the Tahoe Ski Bowl Way portion of the Project area, including treatment vault and bioretention area layout. Bioretention areas will infiltrate the roadway runoff after the stormwater is conveyed through pre-treatment facilities.

Stormwater conveyance along the Tahoe Ski Bowl Way Extension is broken into two sections. The first section includes road runoff sheet flowing to a drop inlet at a low point on Tahoe Ski Bowl Way approximately half way in between the South Base Area and the proposed Townhomes. The runoff will enter the primary and secondary treatment vaults before being dispersed into the bioretention area for stormwater treatment. Stormwater is conveyed first to the treatment vault (Vortechs) for coarse sediment removal. The vault is sized to convey 0.647 cfs, which is 50 percent greater than the required flow rate. After leaving the Vortechs unit the stormwater is routed to the secondary treatment facility, a Contech Stormfilter, for fine sediment removal down to 15 microns. Immediately after exiting the secondary treatment facility the stormwater enters a bioretention area sized to infiltrate 1,780 cubic feet of runoff, which exceeds the TRPA Code of Ordinances requirement to capture and treat the 20-year/1-hour storm volume (1,649 cubic feet) by 8 percent. Under Alternative 1A, the bioretention areas along this portion of the roadway are expanded to infiltrate 1,935 cubic feet, which exceeds the TRPA Code of Ordinances requirement to capture and treat the 20-year/1-hour storm volume (1,649 cubic feet) by 17 percent.

The second section includes approximately 600 linear feet of the roadway leading up to the Townhome turnaround. Stormwater runoff will sheet flow to the curb and gutter and flow north to the drop inlets south of the Townhomes. The runoff will enter the primary and secondary treatment vaults before being dispersed into the bioretention area for soil treatment. The vault is sized to convey 0.527 cfs, which is 50 percent greater than the required flow rate. The bioretention areas are sized to treat 1,600 cubic feet of runoff, which exceeds the TRPA Code of Ordinances requirement to capture and treat the 20-year/1-hour storm volume (1,339 cubic feet) by 20 percent. There is no change to the stormwater treatment approach under Alternative 1A.

Approximately 15,140 square feet will receive Type A revegetation treatment and 27,000 square feet of Type B revegetation to increase soil infiltration rates. Under Alternative 1A, Type A revegetation is reduced to 3,900 sf and no Type B revegetation occurs.

Townhome roof runoff is directed to adjacent bioretention areas for infiltration and soil treatment. Bioretention areas are sized to treat 7,436 cubic feet of runoff, which exceeds the TRPA Code of Ordinances requirement to capture and treat the 20-year/1-hour storm volume (5,976 cubic feet) by 24 percent. There is no change to the stormwater treatment approach under Alternative 1A.

The proposed systems are based on a design that assumes maximum allowable land coverage for each unit or a worst-case scenario for analysis to assume that at a minimum, peak runoff volumes from the TRPA design storm can be retained, treated and infiltrated on site. The proposed systems are based on a design that assumes maximum allowable land coverage for each unit or a worst-case scenario for analysis to assume that at a minimum, peak runoff volumes from the TRPA design storm can be retained, treated and infiltrated on site. Additional environmental review will occur prior to Phase 2D, Townhomes and Tahoe Ski Bowl Way Extension, project entitlement application. The secondary access road has not been analyzed for grading or water quality impacts in this EIR/EIS.

Impact HYDRO-2, DEIR/EIS page 15-92, FEIR/EIS page 15-99: Mid-Mountain Alternative 1A analysis added

There is no change to the stormwater treatment approach under Alternative 1A.

Impact HYDRO-2, DEIR/EIS page 15-92, FEIR/EIS page 15-100: Off-site CEP/EIP Project Revised

~~Off-Site Caltrans/HMR EIP Project. Working in conjunction with Caltrans, HMR will provide additional treatment for off-site stormwater through a cooperative formed between the HMR and Caltrans. Caltrans will implement EIP project No. 996 and install two water quality treatment basins. HMR will contribute between $150,000 to $200,000 dollars towards a Contech Stormfilter or similar vault for treatment of fine sediment removal down to 15 microns particle size. The vault will serve as secondary treatment for the removal of fine sediments. HMR will not construct physical improvements; HMR will provide a monetary contribution only towards the EIP project, with Caltrans being responsible for environmental review, permitting, design, and construction of the improvements.~~

~~The runoff generated from the contributing areas along SR 89 and conveyed through the stormwater treatment system is approximately 3,600 cubic feet (cf) for the 20-year/1-hour storm. Vault flows would equal: 10-year = 3.54 cfs, 25-year = 4.28 cfs, 100-year = 5.39 cfs.~~

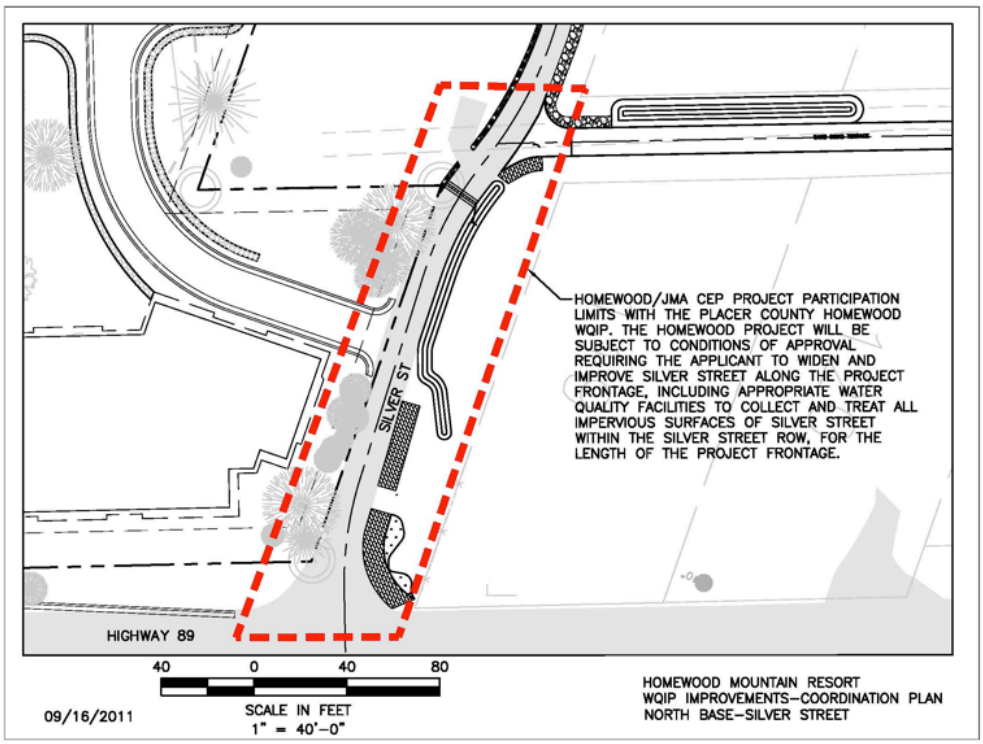
~~A simple schematic to document the proposed off-site project is illustrated in Figure 15-15. Preliminary civil plans for the EIP project are found in Appendix BB.~~

Off-Site CEP Required EIP Project. The HMR CEP resolution requires HMR to participate in an off-site EIP project in fulfillment of over and above CEP objectives. Placer County is planning to construct the Placer County-Homewood Mountain Resort Water Quality Improvement Project (WQIP) to the immediate north of the Project area in summer of 2012. The WQIP includes the collection and treatment of stormwater runoff from an existing residential and commercial area in Homewood that runs from Silver Street north to Fern Street and from SR 89 west to Sacramento Street. HMR's Tentative Map and Conditional Use Permit will be conditioned to construct frontage improvements on Silver Street to include water quality facilities for a portion of what is known as the "Silver Catchment"; an area to the immediate north of HMR and bound on the northern edge by Trout Street, as illustrated in Figure 15-15. Appendix BB-1 illustrates the total WQIP project area that is delineated as four PLRM catchments areas.

Placer County currently plans on construction of the WQIP during the summer of 2012. HMR's improvements will be included in the project's Conditions of Approval for the Specific details regarding HMR's financial contribution (timing and amount) are to be included as part of the project Development Agreement currently being generated with Placer County. Ultimately the contribution by HMR to the WQIP will represent a sediment and nutrient load reduction outside of the HMR project area in the surrounding Homewood area. Existing PLRM baseline sediment loads are estimated at 3,045 pounds/year of Total Suspended Solids (TSS) and 1,755 pounds/year of Fine Sediment Particle (FSP) from the four delineated catchments within the WQIP project area. The PLRM results indicate a 74 percent reduction in TSS and a 75 percent reduction in FSP, reducing annual sediment loads from the WQIP project area to 793 pounds/year of TSS and 439 pounds/year of FSP.

The final monetary participation by HMR to the WQIP that addresses load reduction across the four PLRM catchments will be used to determine the percentage of the total catchment-wide TSS and FSP reductions to be credited to HMR.

Figure 15-15. DEIR/EIS page 15-94, FEIR/EIS page 15-102: Off-Site CEP/EIP Project Design Schematic (Replacement Figure)



Impact HYDRO-2, DEIR/EIS page 15-95, FEIR/EIS page 15-102: Alternative 1A analysis added

Appendix X-1 presents the Preliminary Drainage Report for Alternative 1A. The differences between Alternative 1 and Alternative 1A peak flows are quantified in the SWMM Tables in appendix A of the corresponding drainage reports. Conclusions in the Preliminary Drainage Report state that the design for the Alternative 1A incorporates current requirements by Placer County for stormwater collection and conveyance as well as the requirements by the TRPA. The SWMM post-development calculations show a cumulative reduction in peak flow from existing to proposed conditions for the 10 and 100-year storm events. The proposed stormwater treatment systems for collection, conveyance and infiltration will comply with the Placer County SWMM dated September 1, 1990.

Placer County staff review of the Preliminary Drainage Report indicates that the report adequately demonstrates that the proposed development has a less than significant impact on peak flow runoff leaving the Project area. Therefore, Placer County does not require onsite stormwater detention capacity in excess of the systems proposed as part of the Alternative 1A.

Impact HYDRO-2, DEIR/EIS page 15-101, FEIR/EIS page 15-108; Alternative 1A analysis added

Placer County 10-year and 100-year Peak Flow Analysis. The SWMM post-development calculations, presented in Appendix X and X-1, show a cumulative reduction in peak flow from existing to proposed conditions for the 10 and 100-year storm events. Placer County staff review of the Preliminary Drainage Report (NCE 2010, 2011) indicates that the report adequately demonstrates that the proposed development has a less than significant impact on peak flow runoff leaving the Project area. Because Alternatives 5 and 6 propose less impervious surface than Alternatives 1, 1A and 3, the conclusions of the Preliminary Drainage Report support that under Alternatives 5 and 6, the stormwater treatment systems for collection, conveyance and infiltration will comply with the Placer County SWMM dated September 1, 1990.

Although the Project will improve upon project area drainage, reduce post-project runoff volumes and maintain peak flows compared to existing conditions, implementation of standard mitigation measures HYDRO-2b, HYDRO-2c and HYDRO-2d assure compliance with Placer County codified regulations to reduce impacts from drainage and stormwater runoff to a level of less than significant. Implementation of these measures minimize potential impacts to down-gradient properties and existing drainage facilities by assuring that the rate or amount of surface runoff does not exceed existing conditions and does not significantly impact downstream properties or existing drainage facilities.

Impact HYDRO-3, DEIR/EIS page 15-104, FEIR/EIS page 15-112: Alternative 1A analysis added

The maximum depth of proposed excavation at the South Base area ranges from 19 to 21 feet bgs. The maximum estimated depth of groundwater interception ranges from 4 to 13 feet. Interception could occur over a distance of 376 feet along the western retaining wall of the proposed parking structure for the North Building, along 100 feet of the northwestern retaining wall of the South Building parking structure and along 110 feet of the southwestern retaining wall of the South Building parking structure. The maximum depth of excavation could be from 4 to 13 feet below seasonal high groundwater levels measured in this area. Under Alternative 1A, the parking structure for the North Building (Building B) is eliminated.

The maximum depth of proposed excavation at the Mid-Mountain area ranges from 8 to 20.5 feet. Based on the presence of shallow bedrock and site topography, which is close to a ridgeline, groundwater should not be encountered to the proposed depths of the retaining walls.

The conclusions are based upon the building and underground parking structure cross-sections prepared for the North Base, South Base and Mid-Mountain areas superimposed over modeled groundwater elevations, which were based on groundwater monitoring well observations during 2006, 2007 and 2008 (see Appendix D for groundwater data). The cross-sections are presented on Sheets C19, C20 and C21 of the Civil Plan set. Because groundwater movement will be intercepted, the impact is considered significant based on TRPA Code of Ordinances and requires mitigation to reduce and minimize impacts to groundwater.

Preliminary calculations for Alternatives 1, 3, 5 and 6 are shown below for proposed groundwater reinjection galleries North-5, North-6, South-3 and South-4 identified in Figures 15-8 and 15-9. Note that the groundwater reinjection galleries are separate and distinct systems from the proposed stormwater treatment systems.

Under Alternative 1A, the parking associated with Building B for the South Base area (i.e., North Parking) is eliminated and thus South-3 is also eliminated. The groundwater mitigation reduces to 48.1 cubic feet/hour in the South Base under Alternative 1A.

Impact HYDRO-3, Table 15-10, DEIR/EIS page 15-106, FEIR/EIS page 15-113: Alternative 1A analysis added (North Building Parking eliminated under Alternative 1A)

Table 15-10

Projected Groundwater Flows for Operational Mitigation of Intercepted Groundwater

Location	Finished Floor Elevation (ft)	Length of Retaining Wall (ft)	Depth of Retaining Wall (ft)	Maximum Depth of Groundwater Interception (ft)	Groundwater Gradient (ft)	Flow Rate of 4 in/hr (gpm)	Flow Rate of 9 in/hr (gpm)
North Base							
Parking Garage (Cross-Sections 1 through 4)	6,240	878	29 to 32	17	0.17	15	37
North Base Total						15	37
South Base							
North Building Parking (Cross-Section 5)*	6,280	376	19	13	0.12	3	9
South Building Parking (Cross-Section 6)	6,270	100	19	4	0.2	0.5	1
South Building Parking (Cross-Section 7)	6,270	110	21	4	0.2	1	1
South Base Total						4	11
Mid-Mountain							
Retaining Walls (Cross-Section 8)	7,285		14				
	7,323		8				
	7,327		11.5				
Cut slopes for Water Tanks (Cross-Section 10)	7,480		20.5				

Source: Kleinfelder 2010

* Eliminated under Alternative 1A.

Impact HYDRO-3, DEIR/EIS page 15-107, FEIR/EIS page 15-114: Alternative 1A analysis added

To determine the vertical and horizontal sphere of influence of the groundwater reinjection galleries, Kleinfelder staff modeled a 30-day period of reinjection of intercepted groundwater using the UCAM2 model (Unconfined or Confined Analytical Model authored by Brian J. Peck, PG, CHG of Schlumberger Water Services, Inc. Reno Nevada 89502). The maximum-modeled groundwater rise is 0.8-foot directly under the groundwater reinjection galleries with the extent of a 0.5-foot rise in groundwater extending up to 40 feet from the edge of gallery. The effect will extend radially because the background groundwater gradient is 0.02 foot/1.0 foot, an extremely shallow gradient. Soil-Hydrologic exhibits for Alternative 1, attached in Appendix D, illustrate the spheres of influences modeled for the groundwater reinjection galleries. As depicted on the Soil-Hydrologic exhibits, the sphere of influence of the groundwater reinjection galleries will not extend beyond the Project area boundaries and will not cause effects to parcels adjacent to the North and South Base areas. The preliminary cross-sections for Alternative 1A soils-hydrologic exhibits correspond to Civil Plan Sheets C10, C11 and C12, added as Appendix D-4.

Impact HYDRO-3 and Mitigation Measures HYDRO-3a, DEIR/EIS page 15-108, FEIR/EIS page 15-115: Revisions made in response to TCPUD comment letter and TRPA and Placer County staff review

The Project proposes the following measures to minimize the potential for nutrients to escape the root zone and be delivered to groundwater:

- Use of non-mowed or slow-growing turf grass species, preferably local native or naturalized species with annual fertilizer requirements that do not exceed 1.5 pounds per 1,000 square feet;
- Implementation of a Fertilizer Management Plan that meets the requirements of Section 81.7 of TRPA Code or Ordinances;
- Determination of appropriate fertilizer rates by a soil-revegetation specialist and based on the results of soil nutrient testing with phosphorus fertilizer use only when supported by soil testing results;
- Incorporation of fertilizer into soils prior to seed application to prevent burning and low germination rates;
- Use of Biosol or other organic, slow-release fertilizers that do not contain nitrate or ammonium with careful application to avoid application on hardscape;
- Prohibit fertilizer use on bioretention areas for stormwater treatment after initial establishment; and
- Installation of a highly controlled spray irrigation system to avoid over irrigation and overspray onto hardscape.

Implementation of these project measures will reduce potential impacts to groundwater quality from landscaped areas. However, to assure long-term protection of groundwater quality, a post-project groundwater monitoring program will be necessary.

Groundwater Quantity. Groundwater recharge and thus quantity will not be affected by changes in impervious surfaces because land coverage will decrease in the watersheds comprising the Project area and stormwater systems will capture, treat and infiltrate stormwater runoff from impervious surfaces. However, groundwater quantity could be impacted by increased diversions of groundwater for use in proposed snowmaking systems expansions under the Proposed Project (Alternative 1/1A) and Alternatives 3, 5 and 6. The Project could potentially ~~substantially~~ deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lessening of local groundwater supplies (i.e. 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). ~~Groundwater recharge will not be affected by changes in impervious surfaces because land coverage will decrease in the watersheds comprising the Project area and stormwater systems will capture treat and infiltrate stormwater runoff from impervious surfaces. However, groundwater quantity could be impacted by increased diversions of groundwater for use in existing and proposed snowmaking systems under the Proposed Project (Alternative 1) and Alternatives 3, 5 and 6.~~

The North Base well has an estimated 500 gallons per minute pumping rate and the McKinney W~~w~~ell No. 1 has a rate of around 1,000 gallons per minute (Kleinfelder 1994). HMR proposes to use these wells to supply ~~for a portion of~~ the 60.8 million gallons/year of snowmaking water needed for ~~with~~ the proposed snowmaking system expansion. Although pump rates are well documented, ~~Because~~ the recharge, recovery and storage capacities of the Project area wells and the proposed TCPUD McKinney W~~w~~ell No. 1 are unknown, the potential impact to groundwater quality is considered significant, requiring mitigation measure HYDRO-3a to reduce potential impacts to a level of less than

significant. ~~-~~ Note that t~~T~~he potential impacts to groundwater quantity as related to source water protection are analyzed in impact HYDRO-5 below.

HYDRO-3a. Implement Operation Dewatering Plan/ Implement Engineered Groundwater Mitigations

Groundwater intercepted as part of the drainage collection and conveyance systems for the underground parking structures shall include methods to infiltrate all collected groundwater for the purposes of groundwater recharge. The reinjection galleries for intercepted groundwater shall be separate entities from the stormwater treatment infiltration galleries and the distance between the groundwater and stormwater infiltration galleries shall be maximized to minimize potential for mixing. Collected groundwater shall be infiltrated locally in the general area where collected from. Systems shall be adequately sized to infiltrate no less than 100 percent of the collected volume. Tests and studies shall be conducted to confirm sufficient infiltration can be obtained for any and each given system with no adverse effects resulting from the infiltration/recharge activities. Prior to Improvement Plan approval for any and each project phase, a Geotechnical Evaluation Report certified by a Registered Civil Engineer shall be submitted to the ESD for review and approval for each groundwater infiltration/recharge system. The report shall, at a minimum, confirm the adequacy of soils to sufficiently and successfully infiltrate collected groundwater, and shall provide design recommendations based on applicable investigation and testing criteria. The report shall likewise provide evidence that proposed infiltration/recharge systems will not detrimentally affect onsite or offsite structures or properties. ~~The operational mitigation measures for groundwater interception for the underground parking foundations shall include foundation drains conveying intercepted groundwater to underground galleries for reinjection back into groundwater flows towards Lake Tahoe. Each groundwater reinjection gallery shall be designed to serve a specific area of each underground parking structure that could intercept groundwater and shall be sized to adequately infiltrate no less than 208.5 cubic feet/hour (North-5 and North -6), 48.1 cubic feet/hour (South-3) and 14 cubic feet/hour (South-4). Intercepted groundwater shall be conveyed away from the foundation via stormdrain pipe to the corresponding underground reinjection gallery serving that area of the building. Figure 15-16 illustrates the mitigation approach. The reinjection galleries for intercepted groundwater shall be separate entities from the stormwater treatment infiltration galleries and the distance between the groundwater and stormwater infiltration galleries shall be maximized to minimize potential for mixing.~~

Mitigation Measure HYDRO-3a, DEIR/EIS page 15-110, FEIR/EIS page 15-118; Revision made to add Well No. 1 per TCPUD comment letter

HYDRO-3c. Complete a Water Balance Analysis for the HMR-Operated Well and the TCPUD McKinney Well No. 1

The Project Applicant shall prepare a hydrogeologic report for the HMR-operated wells and the TCPUD McKinney Well No 1 to determine recharge, recovery and storage capacities of the aquifers. The report shall:

Impact HYDRO-4, Mitigation Measure HYDRO-4a and 4c, DEIR/EIS page 15-113, FEIR/EIS page 15-121: Revision made in response to NTFPD and Calfire comment letters and Placer County review

HYDRO-4a. Emergency Response and Evacuation Plan

The Project Applicant shall prepare and submit an emergency response and evacuation plan to TRPA, Placer County ESD and the North Tahoe Fire Protection District (NTFPD) for review and approval before construction permits are issued. The plan shall include detailed descriptions of how emergency response and evacuation will occur in the case of a large earthquake and potential seiche, ~~or~~ the 100-yr event, wildfire and avalanche. Emergency response and evacuation measures shall address the requirement of Placer County Local Hazard Mitigation Plan and at a minimum identifies steps that help avoid, reduce, alleviate, and mitigate disaster damages and potential loss of life. Additionally, Project area emergency access and evacuation designs shall be consistent with NTFPD's Emergency Preparedness and Evacuation Guide.

HYDRO-4b: Comply with Placer County Stormwater Management Manual Section VI

The Project Applicant shall show the limits of the future, unmitigated, fully developed, 100-year flood plain (after grading) for Homewood Creek on the Improvement Plans and designate same as a building setback line unless greater setbacks are required by other project conditions.

HYDRO-4c: Comply with Placer County Flood Damage Prevention Ordinance

To comply with Placer County Flood Damage Prevention Ordinance, Article 15.52, specifically 15.52.170 C.1 Elevation and Floodproofing, the Project Applicant shall show finished structure pad elevations 2 feet above the 100-year flood plain line for South Base buildings ~~A and B~~under Alternatives 1, 1A, 3, 4, 5 and 6 ~~-~~on the Improvement Plans and Informational Sheet filed with the Final Map. Pad elevations shall be certified by a California registered civil engineer or licensed land surveyor and submitted to the Engineering and Surveying Department. This certification shall be completed prior to construction of the foundation or at the completion of final grading, whichever comes first. No construction is allowed until this certification has been received by the ESD and approved by the Flood Plain Manager. Benchmark elevation and location shall be shown on the Improvement Plans and Informational Sheet to the satisfaction of DRC.

Impact HYDRO-5, DEIR/EIS page 15-114, FEIR/EIS page 15- 122; Corrections made to Source Water Entities based on follow up with Agate Bay Water Company and TCPUD, as TRPA Source Water Maps incorrectly assigned

Analysis: *Less than Significant Impact; No Project (Alternative 2)*

The No Project Alternative (Alternative 2) will not change the existing public water demand within the TCPUD McKinney-Quail Water Service Area or the Madden Creek Water Service Area. Source water 09719101/11~~, operated by TCPUD~~ and source water 08502048W11~~, operated by Agate Bay Water Company~~ are located in the vicinity of the Project area. However, TRPA Source Water Assessment maps indicate that no source waters are located within 600 feet of the Project area. Additionally, no contaminating land uses are identified within 600 feet of a drinking water source as identified on TRPA Source Water Assessment Maps.

Impact HYDRO-5, DEIR/EIS page 15-115, FEIR/EIS page 15-123; Revisions made to reflect the revised HMR Water Supply Assessment and Placer County staff review

Analysis: *Significant Impact; ~~Proposed Project (~~Alternatives 1, 1A, ~~) and Alternatives~~ 3, 5 and 6*

Source Water Protection. TRPA Code of Ordinance Chapter 83 sets forth regulations pertaining to recognition of source water, prevention of contamination to source water and protection of public health relating to drinking water. Source water is defined as water drawn to supply drinking water from an aquifer, or a well or from a surface water body by an intake, regardless of whether such water is treated before distribution.

Source water 09719101/11~~, operated by TCPUD~~ and source water 08502048W11~~, operated by Agate Bay Water Company~~ are located in the vicinity of the Project area. However, TRPA Source Water Assessment maps indicate that no source waters are located within the boundary or within 600 feet of the Project area. The potential impact from the Proposed Project (Alternative 1/1A) and Alternatives 3, 5 and 6 to source waters is less than significant.

Public Water Supply. The revised ~~*Draft HMR Water Supply Assessment*~~ (NCE 2011~~0~~) was prepared for the Project area and~~, which~~ is attached in Appendix AA-1. The demand of the Proposed Project and Alternatives 3, 5 and 6 on TCPUD and MCWC public water supplies are referenced to Impact PSU-1 in Chapter 16, Public Services and Utilities, which analyzes~~.~~ ~~The annual demand is communicated in acre-feet/year for discussions concerning the TROA and source water protection.~~ t~~T~~he potential effects of the Project on the ability of the water purveyors (i.e. TCPUD and MCWC) to meet the public water supply needs ~~are analyzed in Chapter 16, Public Services and Utilities.~~

Table 16-3 presents estimated domestic and snowmaking demand rounded to the nearest acre-foot/year. ~~.~~ Estimated annual domestic water demand ~~consumption~~ for residential, commercial, and irrigation uses for the Proposed Project (Alternative 1/1A) and Alternative 3 is 64 acre-feet/year, 17 acre-feet/year ~~–~~for Alternative 4, 80 acre-feet/year for Alternative 5, and 68 acre-feet/year ~~–~~for Alternative 6 (see Table 16-3 for water demand presented in million gallons/year). Snowmaking is estimated to require up to 187 acre-feet/~~ per~~ year ~~(~~Snow Makers, Inc. ~~Snow Machines, Inc.~~ 2010; NCE 2011) under Alternatives 1,1A, 3, 5 and 6.

Snowmaking. Snowmaking is proposed as a programmatic-level project component and will require further environmental review prior to project conditioning and/or approvals. The following preliminary analysis presents a worst-case scenario for snowmaking water demand and presents quantities in units of acre-feet/year to comparison with allocations under TROA. Build out of the Project area under the Proposed Project (Alternative 1/1A) and Alternatives 3, 5 and 6 will increase the use of surface water and groundwater for snowmaking from a current annual use of 43.6 acre-feet/year to cover 23.8 acres of ski trail to up to ~~approximately~~ 187 acre-feet/year to cover 102.3 acres of ski trail (SnowMakers Inc. 2010).

The potential water supplies identified for snowmaking operation total between 2,100 and 2,400 gallons per minute and include: 1,000 gallons per minute from the TCPUD McKinney well (non-potable, non-public supply); 800 gallons per minute from the HMR-owned North Base well (non-public~~potable~~ supply); and 300 gallons per minute from TCPUD domestic supplies that are available from 6 am to 6 pm~~;~~ and 300 gallons per minute from MCWC domestic supplies that are available from 6 am to 6 pm, which ~~-~~are identified ~~and would serve~~ only as ~~a~~ supplemental supply sources (Snowmakers Inc. 2010; NCE 2011). Snowmaking operations intend to use the 1,800 gallons per minute non-potable supply as the primary water sources. Maximum pumping requirements are identified as 2,000 gallons per minute on the North Side and 1,300 gallons per minute on the South side of the Project area. The opening and continued maintenance of ski trails

with snowmaking can be phased as to minimize the use of water from the TCPUD and MCWC supplies, but under a worst case scenario these supplies would be utilized. As concluded for impact PSU-1, the current rate of flow is not sufficient to meet peak demand for snowmaking under the Proposed Project (Alternative 1/1A) and Alternatives 3, 5, and 6. HMR and the TCPUD McKinney-Quail Water Service Area would require upgraded extraction, pumping, treatment, conveyance, and storage capacity to serve the new demand of the Project area. This is considered a significant impact on public water supply and mitigation is required.

Impact HYDRO-5, DEIR/EIS page 15-117, FEIR/EIS page 15-125; Revisions made to reflect the revised HMR Water Supply Assessment and Placer County staff review

Based on the information provided in the HMR Water Supply Assessment (Nichols 2011~~0~~) and the Snowmaking Planning document (Snowmakers 2010~~09~~) and the HMR Ski Area Master Plan (JMA~~MR~~ 2011~~0~~) the impacts of expanding snowmaking operations on domestic water supplies of TCPUD and MCWC service districts are less than significant. Existing TCPUD and MCWC water supplies can adequately serve the existing Project area water demand and future projected water demand for the service areas through 2030. The Project will be responsible for water system connections, improvements to distribution systems, and on-site storage systems for the Project area. However, because there is a possibility that public water supply will needed to supplement future snowmaking demand under a worst-case scenario and ~~are unclear.~~ there is ~~Given the~~ uncertainty associated with forthcoming TROA allocations and the reporting requirements for water supply diverted for ~~the~~ snowmaking use~~demand with the forthcoming diversion allocations for the TROA~~, the impact is potentially significant based on the evaluation criteria for HYDRO-5. Mitigation Measure HYDRO-5 will reduce potential impacts to public water supply from waters diverted for use in snowmaking to a level of less than significant by assuring meters are installed to monitor the monthly pumping and usage from individual wells, allowing for accurate reporting of application or use that is anticipated.

Irrigation. Landscaping proposed for the Project area has been designed to reduce total irrigation demand through the use of low-water use vegetation and incorporation of LID measures such as cisterns for storage of roof runoff and bioretention areas for stormwater treatment. The approach for calculating landscape water uses for the Project area is from a landscape rehabilitation focus because the Project needs to achieve revegetation, erosion control, fire safety, water quality and water conservation in concert with scenic improvements for the North and South Base areas. Based on the DWR's Water Budget Workbook, which calculates the maximum applied water allowance and estimated total water use, the following irrigation demand is estimated for the Project area (L+P Design Works 2010):

- North Base Area – 8.32 acre-feet/year;
- South Base Area – 2.12 acre-feet/year; and
- Mid-Mountain Area – 0.36 acre-feet/year.

For the Proposed Project (Alternative 1/1A) the total maximum irrigation demand for the Project area is estimated at 10.8 acre-feet/year or X MGY based on calculations presented in Appendix CC. Once landscaping has been established this irrigation demand is expected to decrease substantially. Irrigation demand could decrease under Alternative 1A depending on the ratio of landscaping area to bioretention area associated with each chalet. Based on current configurations and total land coverage in the North and South Base areas and irrigable acreage reported in the revised *HMR Water Supply Assessment* (Appendix AA-1), irrigation demand is comparable under Alternative 1 and Alternative 1A.

Mitigation Measure HYDRO-5, DEIR/EIS page 15-118, FEIR/EIS page 15-126; Revisions made to reflect the revised HMR Water Supply Assessment and Placer County staff review

Mitigation: **HYDRO-5. Water Use/Water Rights Monitoring Program/Install meters at Points of Diversions and Application or Use**

To ensure that water from HMR's various supplies is used in appropriate quantities and locations, a Water Use/Water Rights monitoring program shall be implemented. The goal of the program shall be to measure or estimate the quantity of water supplied by each source and document the location at which the water is used or applied. Meters shall be installed to monitor the monthly pumpage from individual wells. Additionally, the monitoring shall include monthly measurements of groundwater levels in the existing and proposed wells.

With the existing and proposed water supply monitoring facilities, determination of the quantity of water supplied to Homewood from each water supply source and the points of application or use of this water shall occur. By knowing the use restrictions on water from each source, the maximum water use permitted in any area shall be known, and thus water uses shall be limited to the maximum permitted.

The Project Applicant shall prepare an annual report indicating the quantity of water used from each of its sources and the maximum entitlement from each of its sources. The report shall be provided to TCPUD and/or MCWC ~~RPA and Placer County~~ for use in ensuring compliance with existing regulations and forthcoming reporting requirements under TROA.

Impact HYDRO-5, DEIR/EIS page 15-119, FEIR/EIS page 15-127: Revision to text

After Mitigation: *Less than Significant Impact; ~~Proposed Project (~~Alternatives 1, 1A,~~) and Alts~~ 3, 5* and 6

Implementation of mitigation measures HYDRO-5, HYDRO-3c, and PSU-1a will assure compliance with the forthcoming TROA regulations for the State of California allocations. The payment of connection and service fees approved by TCPUD and/or MCWC will ensure sufficient water to meet peak demand in the Project area. The completion of PSU-1a ~~of a final WSA~~ to identify the quantity and source of potable and non-potable water to serve the Project must demonstrate that water source(s) are adequate and meet State and Federal requirements for quality and quantity.

Impact HYDRO-C1, DEIR/EIS page 15-119, FEIR/EIS page 15-130; Revisions made to reflect the revised HMR Water Supply Assessment and Off-site CEP/EIP Project

Water Rights/Source Water Protection. The Project proposes no development of existing surface water rights. Groundwater diversions for snowmaking will be metered and reported as determined by the forthcoming TROA. The Project, along with other future projects in the TCPUD and MCWC service districts will be required to pay the connection and service fees approved by TCPUD and MCWC to support infrastructure that is necessary to ensure sufficient water delivery to meet peak demand in the Project area. Senate Bill 210 requires the preparation of WSAs to identify the quantity and source of potable and non-potable water to serve project areas to demonstrate that water source(s) are adequate and assure that they meet State and Federal requirements for quality and quantity to that cumulatively significant impacts to public water supply do not occur. Although the HMR Ski Area Master Plan Project does not qualify as a "project" under Section 10912 of the Water Code and a formal WSA is not required, Appendix AA-1 presents the revised HMR Water Supply Assessment (NCE 2011) and project water demand for informational purposes.

Combined Cumulative Impacts. No significant project-level impacts to hydrology or surface water or groundwater resources from construction or long-term operation of the Project are identified that would persist after implementation of compliance measures, Placer County standard mitigation measures and impact specific mitigation measures. At present, there are no other known projects in the Madden, Homewood, and Quail Lake Creek watersheds or Intervening Zone 7000 with direct or indirect impacts to water resources with the exception of roadway improvement projects in planning by Placer County and Caltrans.

Improvement upon existing channel conditions, surface water quality and stormwater quality will result from implementation of the Project, and as such, potential incremental effects will not result in cumulatively considerable impacts to hydrology and water resources. Cumulatively the Project is expected to provide direct beneficial effects to beneficial uses and surface water quality in the Homewood, California area through reductions in impervious surfaces and resultant runoff quantity and the active treatment of storromwater prior to infiltration to groundwater. ~~The Project will participate in TRPA EIP Project No. 996 in cooperation with Caltrans to install an off-site stormwater treatment system.~~ Other benefits of the Project include: participation in the Placer County-Homewood Mountain Resort WQIP, reduced effects from surface parking and snowmelt from parking lots, landscaping with goals of water conservation and bioretention for stormwater treatment, along with indirect effects from improved site management that reduces airborne contaminants.