IV. ENVIRONMENTAL IMPACT ANALYSIS
G. HYDROLOGY AND WATER QUALITY

INTRODUCTION

This section of the Draft Environmental Impact Report (Draft EIR) provides a description of the surface water and groundwater resources on the proposed Project site, information on regulations that serve to protect these resources, an assessment of the potential impacts of the proposed Project on these resources, and recommended measures to mitigate potentially significant impacts on these resources. A technical report was prepared to analyze the potential surface water and groundwater hydrology and water quality impacts associated with the Project. This technical report is summarized in the section below and included in Appendix G of this Draft EIR. Additional technical reports prepared to analyze the biological resources at the Project site were also utilized in the preparation of this section and are included in Appendix D of this Draft EIR.

BACKGROUND AND METHODS

The information and analysis in this section (except where footnoted otherwise or described below) is based on the *Snowcreek VIII, Mammoth Lakes, Mono County, California Preliminary Drainage Study, March 2007* prepared by Triad/Holmes Associates.

This Drainage Study, which is incorporated herein by this reference, is included as Appendix G to this Draft EIR. In addition, the following reports prepared for the evaluation of biological resources at the Project site were utilized in the preparation of this section and are included in Appendix D to this Draft EIR: *Hilltop Site Snow Creek Area 7 Wetland Delineation Report, August 2005* by Resource Concepts, Incorporated and *Identification/Delineation of Wetlands on a Portion of the Snowcreek Resort Property in Mammoth Lakes (Mono County), California, June 27, 2002* by D. R. Sanders and Associates, Incorporated.

ENVIRONMENTAL SETTING

The Project site is located in the Town of Mammoth Lakes (Town), Mono County, California. The Town is located on the eastern slopes of the Sierra Nevada at an elevation of approximately 7,900 feet above sea level within Section 34, Township 3 South, Range 27 East. The Town is located approximately 168 miles south of Reno, Nevada, and approximately 310 miles north of Los Angeles, California. Neighboring communities of the Town include June Lake to the northwest, Benton to the east, and Tom's Place to the southeast (refer to Figure II-1 and Figure II-2). Regional access is provided by US Highway 395 and California State Highway 203. Major roadways which provide access to the site include Minaret Road to the north and Old Mammoth Road to the north and west.

The Project site is bordered on the south and east by United States Forest Service (USFS) land and on the north across Old Mammoth Road by undeveloped land. The Project site is located directly to the east of

the existing nine-hole Snowcreek Golf course, to the south of Mammoth Creek, north east of Snowcreek V, and is bordered on the east by Sherwin Creek Road.

Surface Hydrology

Regional

The Town is located within the 71-square mile Mammoth Basin, a drainage area on the eastern slope of the Sierra Nevada that is tributary to the Great Basin, a large hydrologic/geographic region encompassing portions of California, Nevada, Utah, Idaho, and Oregon. Drainage to the Great Basin does not reach the ocean but instead evaporates or percolates to groundwater in a series of "sinks" or lakes.

The Mammoth Basin (Basin) delivers surface and groundwater to Mammoth Creek/Hot Creek, which is tributary to the Owens River. Mammoth Creek and Hot Creek are different names for the same stream with the division in nomenclature occurring where US Highway 395 crosses the stream to the southeast of Town. The Owens River ultimately terminates at Owens Lake, a dry "sink"/evaporation basin located at the southern end of the Owens Valley, approximately 125 miles southeast of the Town. The watershed boundaries of the Mammoth Basin consist of the Mammoth Crest divide on the Sierra Nevada crest to the west and south, the Dry Creek drainage divide on the north, and the Convict Creek drainage divide on the east. The general trend of the Basin is to the southeast, with elevations ranging from approximately 11,600 feet above sea level (asl) on the Mammoth Crest to the southwest of Town to approximately 7,000 feet asl at the confluence of Hot Creek and the Owens River to the southeast of Town. The total flow length of the Mammoth Creek/Hot Creek drainage is approximately 18 miles.[1]

The Mammoth Basin includes a system of lakes and interconnecting surface streams in its upper elevations, all of which are eventually tributary either by surface flow or underground flow to Mammoth Creek. Within or proximate to the Town, a total of five sub-watersheds are tributary to Mammoth Creek: the Lake Mary Basin, Old Mammoth, Murphy Gulch, Sherwin Creek, and Casa Diablo.[2]

Local

The Project site is located within the Sherwin Creek sub-watershed within the Town. The Project site consists of undeveloped, natural areas and landscaped areas. Overall topography on the Project site is characterized by both relatively flat and shallow sloping hillside terrain, with elevations ranging between 7,835 and 7,930-feet asl. Shallow drainages flow east and northeast towards Mammoth Creek. Vegetation consists of abundant sagebrush and grasses as well as a few pine trees. The terrain steeply climbs to the ridge south of the Project site at an approximate rate of 21 percent. Soil types are "B" and "D" as defined in the Town of Mammoth Lakes Design Manual.

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[1] *Town of Mammoth Lakes Storm Drain Master Plan Update (90% Draft), January 17, 2005, Page 2.*

[2] *Ibid, Page 5.*

Drainage areas for the Project site are shown in Figure IV.G-1. The existing drainage pond and proposed drainage ponds are shown in Figure IV.G-2. Currently, stormwater runoff from the section of the Project site located to the south of Old Mammoth Road (Areas A, B, C, and E) is collected in the existing golf course lakes. Under most conditions, runoff is contained in these lakes and does not exit. However, when spring runoff flows are high enough and during significant storms, a portion of the runoff from Areas A, B, C, and E may travel in a northeasterly direction via sheet flow across natural porous dirt areas with scattered vegetation and rocks to an existing culvert under Sherwin Creek Road. From the outlet of this existing culvert, this excess runoff is conveyed in a natural channel for approximately 200 feet until it outlets into Mammoth Creek. Stormwater from Area F, the southerly portion of the proposed golf course expansion, travels approximately 3,000 feet on a relatively flat gradient in a northwesterly direction through porous soils with scattered vegetation and rocks in the general direction towards Mammoth Creek. There is no apparent channelization of this runoff or signs of runoff draining to Mammoth Creek from this area. Under most conditions, this runoff infiltrates to the soil prior to reaching Mammoth Creek. Area D, the portion of the Project site north of Old Mammoth Road, is located adjacent to Mammoth Creek. With the exception of high spring runoff events and times of significant storms, runoff generally infiltrates into the ground without concentrating and running off-site into Mammoth Creek. There is no 100-year flood zone south of Old Mammoth Road and west of Sherwin Creek Road where most of the Project site is located. The small portion of the Project site located north of Old Mammoth Road is affected by the 100-year flood zone. A detail of the flood zone limits for the portion of the Project north of Old Mammoth Road and west of Minaret Road is shown in Figure IV.G-3.

Groundwater Hydrology

The Mammoth Basin is located within the Long Valley Groundwater Basin. Groundwater hydrology within the Mammoth Basin generally mimics surface water hydrology, with the local and regional groundwater table sloping generally to the southeast and contributing to baseflow in the Mammoth Creek/Hot Creek system. Perched groundwater exists sporadically at shallower depths than the regional water table and is dependent upon local soil conditions. Recharge of regional groundwater is dependent upon annual precipitation, which averages approximately 25 inches within the Town itself but ranges considerably across the surface watershed (from approximately 80 inches near the Sierra Nevada crest to less than 10 inches near the watershed's outlet to the Owens River).

Throughout the Mammoth Basin, the bulk of precipitation occurs during the winter months and falls in the form of snow. As a result, groundwater recharge rates (as well as surface water streamflows) are greatest during the annual snowmelt which generally occurs between April and June, depending on the size of the snowpack. Groundwater is a key source of water supply for the Town (see Section IV.N, Utilities, of this Draft EIR for more detail). The portions of the Project site that are not currently covered with impervious surfaces (e.g., paving, structures, roadways) provide opportunities for groundwater recharge.

Groundwater on the Project site varies in height from 2 feet to 8.5 feet below existing grade. Several areas contain soils indicative of high groundwater. However, groundwater conditions fluctuate seasonally

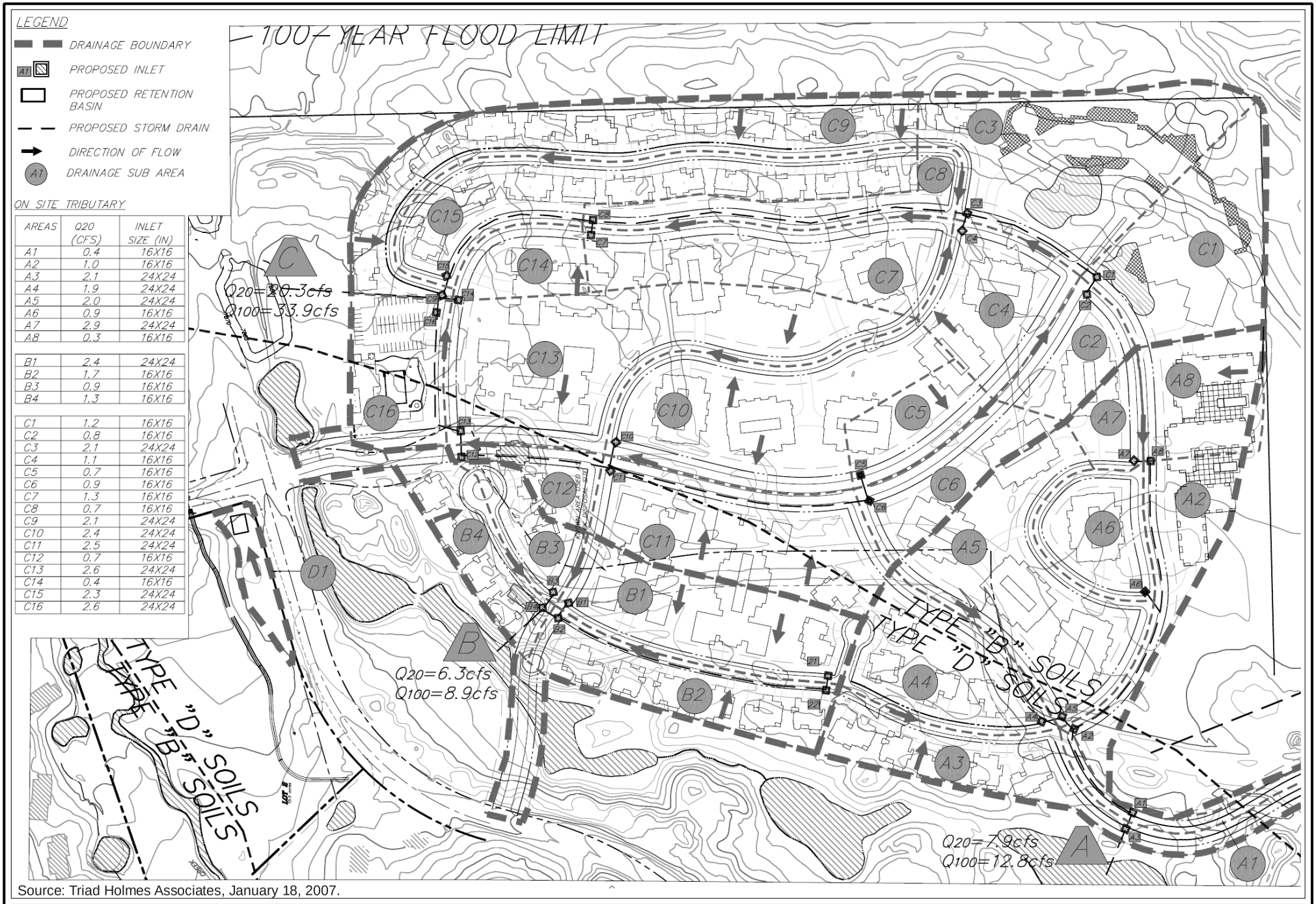
and groundwater conditions may not be reflective of groundwater conditions during construction. Substrata that would retard the flow of water downward were not observed on the site.

Jurisdictional Resources

Surface water resources determined to be "waters of the United States" are regulated by the U.S. Army Corps of Engineers (Corps) under Section 404 of the Federal Clean Water Act (CWA). In addition, surface water resources determined to be "waters of the State" are regulated by the California Regional Water Quality Control Boards (RWQCB) under the Porter-Cologne Water Quality Control Act. Such "waters" include a variety of features including streams, wetlands, and impoundments.

Two wetland delineations were prepared for the site; one for the northern portion and one for the southern portion. The northern portion of the site contains 15.89 acres and 3,330 linear feet of jurisdictional waters, including the main branch of Mammoth Creek, a side branch of Mammoth Creek, and their adjacent, emergent wetlands (Section 1). In addition, there are two excavated ponds of 0.10 and 0.07 acres (Section 1a and 1b) with a surface water connection to Section 1, which therefore are also identified as jurisdictional waters.

Jurisdictional wetland and waters studies of the southern portion of the property conducted in 2002 by Dr. Dana Sanders determined that, although the site supports hydrophytes (wetland-associated) vegetation and some areas exhibiting hydria soil indicators, no federally jurisdictional wetlands or waters are present on-site as all areas lack wetland hydrology indicators. The study concluded that the hydrophytes vegetation on-site was a remnant from previous irrigation water from the Bodle Ditch, which was eliminated in 1989, and that the site has become drier since previous site studies were conducted in 1996 and 2000. The U.S. Army Corps of Engineers determined through a review of the delineation report, site visits, and subsequent correspondence with the applicant and Dr. Sanders, that there are no wetland or water features present on-site south of Old Mammoth Road subject to federal jurisdiction. However, the southern portion of the site contains one area, the drainage outflow from the Snowcreek Golf course pond, which may still be considered "sensitive". This area may be subject to regulation by the Lahontan Regional Water Quality Control Board as "waters of the State" under the Porter-Cologne Act and/or the CDFG under Section 1600 of the Fish and Game Code Streambed and Lake Alteration Agreement Program. For additional detail on jurisdictional waters, see Section IV.D, Biological Resources, of this EIR.

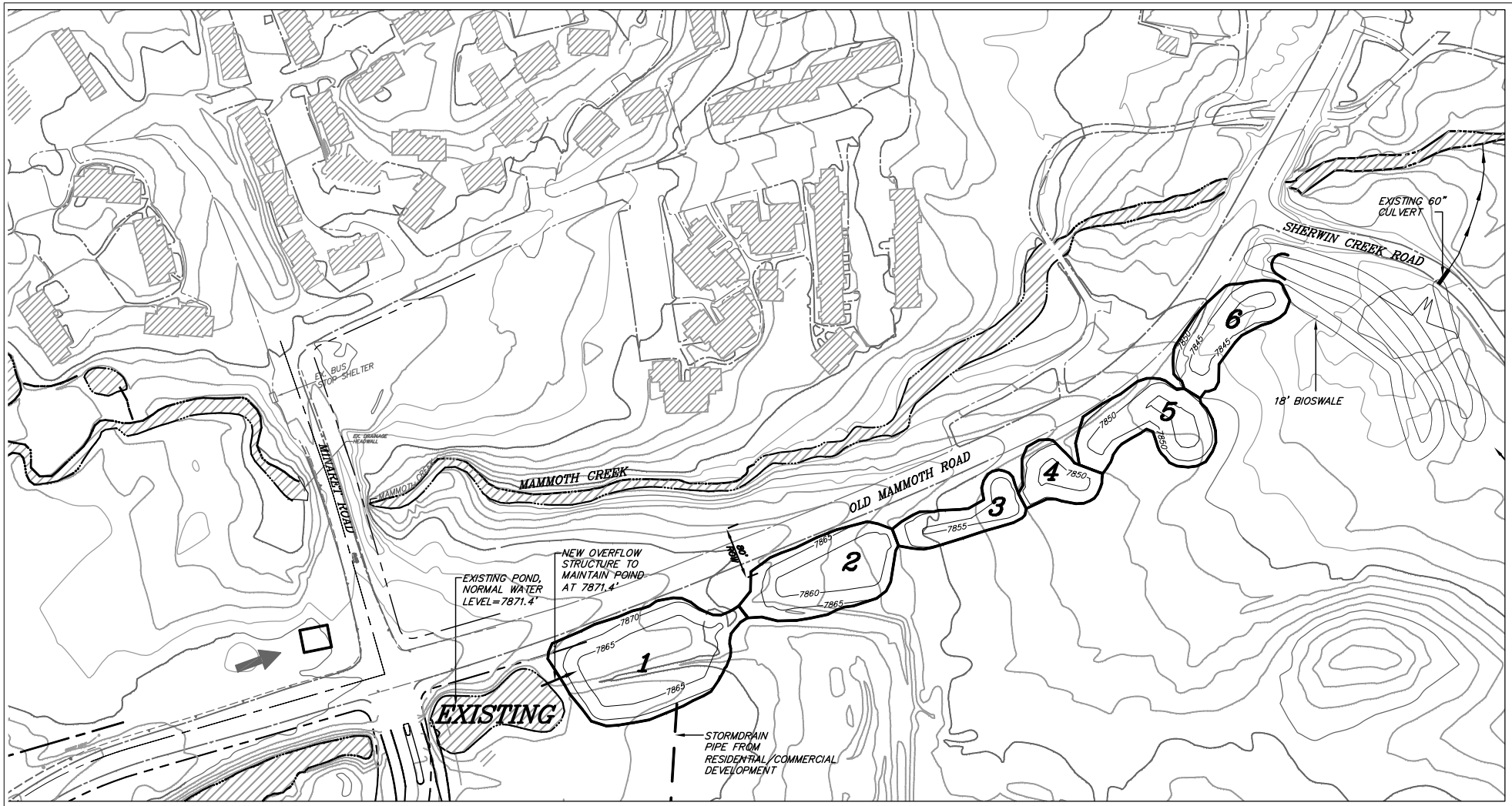


Source: Triad Holmes Associates, January 18, 2007.

CHRISTOPHER A. JOSEPH & ASSOCIATES
Environmental Planning and Research

NORTH

Figure IV.G-1
On Site Drainage –
Residential/Commercial Site



SPILLWAY ELEVATIONS

BASIN	ELEVATION
1	7869.0
2	7862.0
3	7856.0
4	7854.0
5	7850.0
6	7844.0

RETENTION PROVIDED

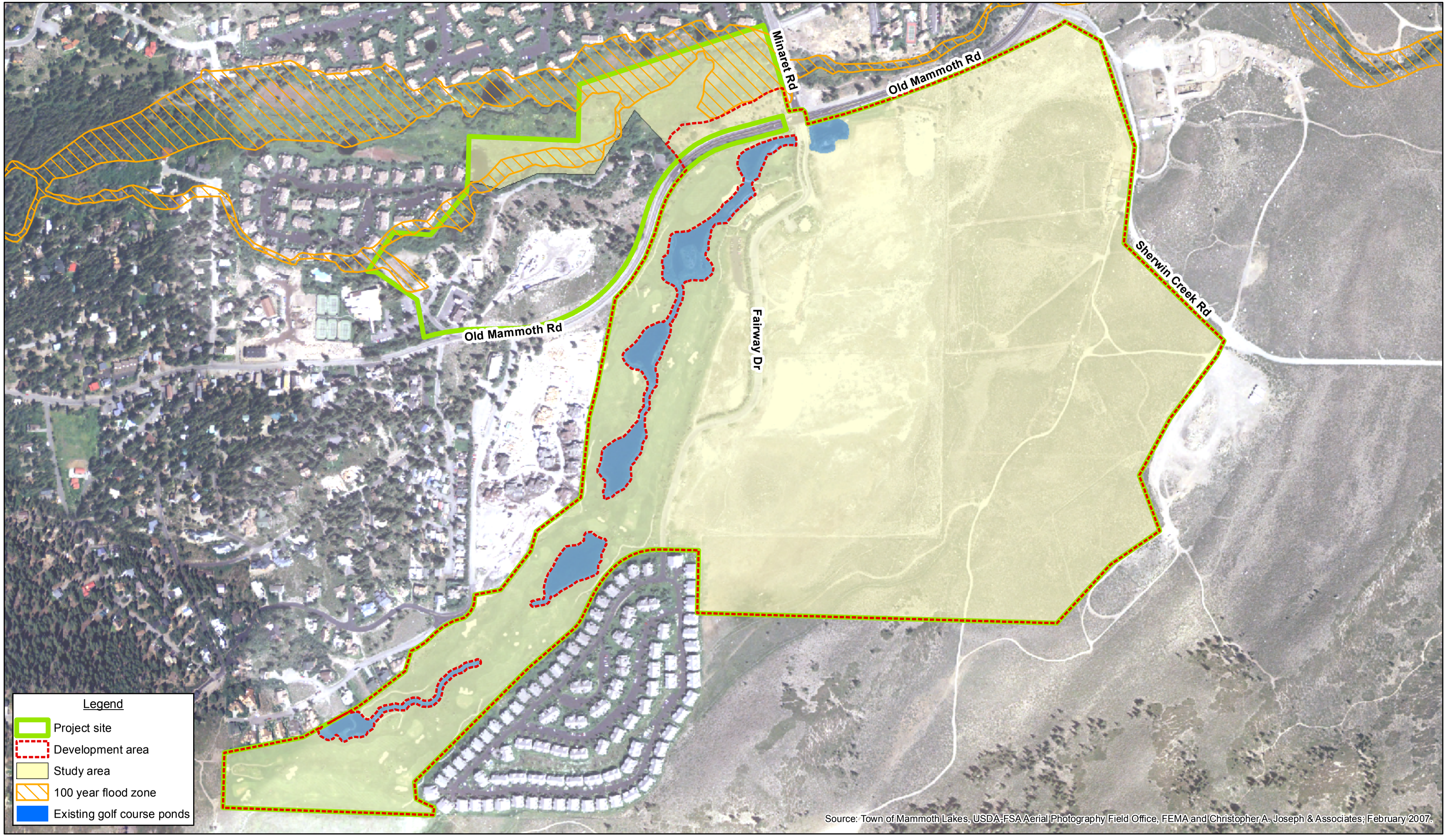
BASIN	CAPACITY (CF)
1	140,049
2	43,038
3	8,235
4	18,495
5	35,451
6	17,172
EXISTING	71,199
TOTAL	333,639 (12,357 CY)

Source: Triad Holmes Associates, January 18, 2007.

CHRISTOPHER A. JOSEPH & ASSOCIATES
Environmental Planning and Research

NORTH

Figure IV.G-2
Off-Site Drainage - Golf Course Area



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NORTH

0 500 1,000 1,500 2,000
Feet

Figure IV.G-3: 100 Year Flood Limit

Back of Figure IV.G-3: Flood Zone Limits

Regulatory Framework

Federal and State Water Quality Programs

NPDES Permits and Related Requirements

The 1972 amendments to the Federal Water Pollution Control Act, later referred to as the Clean Water Act (CWA), prohibit the discharge of any pollutant to navigable waters of the United States from a point source unless the discharge is authorized by a National Pollution Discharge Elimination System (NPDES) Permit. While the original CWA focused on point source discharges (defined pipes and outfalls), stormwater discharges were added to the scope of the law by Congress in 1987. The United States Environmental Protection Agency (U.S. EPA) adopted final regulations that established Phase I stormwater discharge control requirements for the NPDES program in 1990. These regulations required large municipalities and specific industrial sites to obtain stormwater discharge permits under the NPDES program. In addition, these regulations required that stormwater discharge permits be issued to large construction activities consisting of five acres or more of land.

In 2003, the Phase II NPDES program requirements took effect, regulating nonpoint source discharges from all construction sites one acre or more in size and expanding the permit requirements to smaller municipalities. In California, the NPDES program is administered by the State Water Resources Control Board (SWRQB) through the nine Regional Water Control Boards (RWQCBs). Because the Town of Mammoth Lakes is a small community, it falls below the threshold for the Phase II NPDES program's municipal stormwater regulations. Therefore, the Town's municipal storm drainage system is not required to be covered by an NPDES permit. However, the construction activities component of the Phase II NPDES program does apply to construction sites that disturb one acre or more within the Town.

In 1992, the California State Water Resources Control Board (SWRCB) adopted the General Construction Activity Storm Water Permit (GCASWP or General Permit) which is "...required for all stormwater discharges associated with construction activity where clearing, grading, and excavation results in a land disturbance of 5 or more acres." However, by Modification of Water Quality Order 99-08-DWQ (approved by Motion on December 2, 2002) and consistent with the Phase II NPDES program for stormwater, the SWRCB lowered the threshold acreage of soil disturbance requiring permit coverage from 5 acres to 1 acre. Since development projected to occur as part of the Project would fall within these criteria, this Project must be covered under the General Permit. In order to be covered under the General Permit, the project applicant for each individual project to be developed within the Project area must submit a Notice of Intent (NOI) to the SWRCB. For coordinated development proposals, a single NOI can be submitted.

The General Permit requires all owners of land where construction activities occur (i.e., dischargers) to:

- Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the nation;

- Develop and implement a Stormwater Pollution Prevention Plan (SWPPP); and
- Perform inspections of stormwater pollution prevention measures (control practices).

The General Permit authorizes the discharge of stormwater associated with construction activity from construction sites. However, it prohibits the discharge of materials other than stormwater and all discharges which contain hazardous substances in excess of reportable quantities established at Title 40 Code of Federal Regulations Sections 117.3 or 302.4 unless a separate NPDES permit has been issued to regulate those discharges.

The General Permit requires development and implementation of a SWPPP, emphasizing Best Management Practices (BMPs), which are defined as "schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States." The SWPPP has two major objectives:

- To help identify the sources of sediment and other pollutants that affect the quality of stormwater discharges; and
- To describe and ensure the implementation of practices to reduce sediment and other pollutants in stormwater discharges.

In addition, dischargers are required to conduct inspections before and after storm events and to annually certify that they are in compliance with the General Permit. The General Permit is currently being revised and reissued to include numeric action levels and numeric affluent limits for certain pollutants, additional BMP, and other measures to further minimize potential impacts associated with construction activities.

Water Quality Standards and TMDLs

In addition, the CWA requires states to adopt water quality standards for water bodies and to have those standards approved by the U.S. EPA. Water quality standards consist of designated beneficial uses for a particular water body (e.g., wildlife habitat, agricultural supply, and fishing) and water quality criteria necessary to support those uses. Water quality criteria are expressed either in the form of set numeric concentrations or levels of constituents, such as lead, suspended sediment, and fecal coliform bacteria, or narrative statements that describe the quality of water necessary to support a particular beneficial use. In 2000, U.S. EPA established numeric water quality criteria for certain toxic constituents in California receiving waters with human health or aquatic life designated uses in the form of the California Toxics Rule (CTR).[3]

The Lahontan RWQCB adopted the Water Quality Control Plan (Basin Plan) for the Lahontan Region in 1994. The Basin Plan has since been amended numerous times. The Basin Plan designates the beneficial

[3] *Title 40 Code of Federal Regulations Section 131.38.*

uses of receiving waters, including Mammoth Creek to which the Project site ultimately discharges via the Town's storm drain system, and specifies both narrative and numerical water quality objectives for these receiving waters. Water quality objectives, as defined by the California Water Code Section 13050(h), are the "limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses or the prevention of nuisance within a specific area." Because these standards are applicable to receiving waters, they do not apply directly to stormwater runoff from the Project site. Table IV.G-1, Designated Beneficial Uses of Mammoth Creek, lists the designated beneficial uses for Mammoth Creek and its tributary streams as described in the Basin Plan.

Table IV.G-1
Designated Beneficial Uses of Mammoth Creek

Beneficial Use	Designated Beneficial Use
MUN – Municipal and Domestic Supply	Existing or Potential
AGR – Agricultural Supply	Existing or Potential
FRSH – Freshwater Replenishment	Existing or Potential
COMM – Commercial and Sport Fishing	Existing or Potential
GWR – Groundwater Recharge	Existing or Potential
REC1 – Water Contact Recreation	Existing or Potential
REC2 – Non-Contact Water Recreation	Existing or Potential
COLD – Cold Freshwater Habitat	Existing or Potential
RARE – Rare, Threatened, or Endangered Species	Existing or Potential
MIGR – Migration of Aquatic Organisms	Existing or Potential
SPWN – Spawning, Reproduction, and Development	Existing or Potential
WILD – Wildlife Habitat	Existing or Potential
Source: Water Quality Control Plan, Lahontan Region; California Regional Water Quality Control Board, Lahontan Region, 1994.	

Under Section 303(d) of the CWA, states, territories, and authorized tribes are required to develop lists of impaired waters. Impaired waters are those particular waterbodies whose beneficial uses are being compromised by poor water quality. The law requires that these jurisdictions establish priority rankings for these impaired waters and develop Total Maximum Daily Loads (TMDLs) for the impairing pollutant(s) affecting each impaired waterbody. A TMDL is an estimate of the total load of each pollutant that a waterbody can receive from point, nonpoint, and natural sources without exceeding water quality standards. Once established, a TMDL allocates pollutant loadings among current and future point and nonpoint pollutant sources discharging to the waterbody.

In high runoff years, the Project site will seasonally discharge into Mammoth Creek. Mammoth Creek is identified in the 2002 Section 303(d) list of water quality impaired stream segments as impaired by metals. However, the listing is qualified with a statement that additional water quality monitoring is needed in order to determine the extent of the impairment and the need for a TMDL. Thus, the priority for TMDL is assigned as "low." Potential sources of potential elevated metals concentrations are identified as natural sources, urban runoff, and nonpoint sources.

The only TMDL-related work that is currently being undertaken by the RWQCB in the vicinity of the Mammoth Basin is the development of a nutrient TMDL for Crowley Lake, a reservoir on the Owens River downstream of the Mammoth Creek/Hot Creek confluence. However, the sources of these elevated nutrients are considered to most likely consist of pastures utilized for the grazing of cattle and located well downstream of the Town.

Additional Federal and State Regulations

Storm runoff from the Project site and discharges of runoff into and/or encroachment upon natural drainages, wetlands, and/or flood plains are subject to the requirements of the federal CWA and associated regulations, the State Porter-Cologne Water Quality Control Act and associated regulations, and to requirements established by the U.S. EPA, SWRCB, RWQCB, the Town, and the Mammoth Community Water District.[4] In addition, intrusions into jurisdictional areas are subject to the requirements of the CWA (Section 404/401 permitting) and Sections 1600-1607 of the State Fish and Game Code (the "Streambed Alteration Agreement Act"), and to the respective requirements established by the U.S. Army Corps of Engineers (Corps) and California Department of Fish and Game (CDFG) to administer these programs. As noted above, while there are areas north of Old Mammoth Road on the Project site that are jurisdictional for the Corps, none of these jurisdictional resources will be altered or filled by the proposed Project. Other sensitive sites south of Old Mammoth Road may be subject to the regulatory jurisdiction of the RWQCB and/or the CDFG.

Section 401 of the CWA requires that any person applying for a federal permit or license which may result in a discharge of pollutants into waters of the United States must obtain a state water quality certification that the activity complies with all applicable water quality standards, limitations, and restrictions. No license or permit may be issued by a federal agency until certification required by Section 401 has been granted. Further, no license or permit may be issued if certification has been denied. Section 401 water quality certification is normally provided with coverage under the General Construction Activities Stormwater Permit (GCASWP).

In addition to the designation of beneficial uses and the establishment of applicable water quality standards and criteria, the RWQCB Basin Plan also sets forth a series of land development guidelines intended to afford water quality protection for surface and groundwater (included in Appendix G to this Draft EIR). Although not mandatory, adoption of these guidelines by individual counties and municipalities within the Lahontan Region is recommended. In addition to these general guidelines, the RWQCB Basin Plan identifies a set of specific policies and guidelines applicable to the Mammoth Lakes area above the 7,000 foot elevation contour (which includes the Project site). The policy indicates that a Report of Waste Discharge is required not less than 90 days prior to the start of construction activities for new developments of either six or more dwelling units or commercial development involving soil

[4] *Federal CWA is at Chapter 33, United States Code, Sec. 1251 et seq.; Porter-Cologne Water Quality Control Act is at California Water Code, Sec. 13000 et seq.*

disturbance of 0.25 acre or more. The guidelines stipulate the specific components of this submittal, including the identification of interim erosion control measures to be applied during construction and short- and long-term erosion control measures to be employed following the construction phase.

Local Programs

The Town is currently in the process of updating the 1984 Storm Drainage and Erosion Control Design Manual that was prepared around the time the Town incorporated. This document specifies modeling and design approaches required for development projects located within the area served by the Town's storm drainage system. Although the new Storm Drain Master Plan Update is not yet finalized, progress has proceeded sufficiently far enough that current development proposals are expected to be consistent with the data and modeling approaches it utilizes. In addition, developments within the Town's storm drainage service area must comply with the erosion control requirements outlined in the 1984 Manual.

ENVIRONMENTAL IMPACTS

Thresholds of Significance

In accordance with Appendix G to the State *CEQA Guidelines*, a significant impact would occur if a project would:

(a) Violate any water quality standards or waste discharge requirements;

(b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);

(c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner, which would result in substantial erosion or siltation on- or off-site;

(d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off the site;

(e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;

(f) Otherwise substantially degrade water quality;

(g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;

(h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows;

(i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or

(j) Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow.

As discussed in the Initial Study that was prepared for the Notice of Preparation (see Appendix A), the potential impacts associated with Thresholds, (i) and (j) listed above were determined to result in either a less than significant impact or no impact (see also Section IV.A of this EIR). In addition, no housing is proposed within a 100-year flood plain. Therefore, only Thresholds (a), (b), (c), (d), (e), (f), and (h) listed above are addressed in the following discussion.

Project Impacts and Mitigation Measures

Impact HYD-1 Water Quality Standards

A significant impact may occur if the Project discharges water that does not meet the quality standards of agencies which regulate surface water quality (in this case, the Lahontan RWQCB). Significant impacts would occur if the Project does not comply with all applicable regulations with regard to surface water quality as governed by the State Water Resources Control Board (SWRCB). These regulations include compliance with the land development policies and guidelines applicable to the Mammoth Lakes area above 7,000 feet specified by the RWQCB in the Basin Plan.

Construction-Related Impacts

Three general sources of potential short-term construction-related stormwater pollution associated with the proposed Project are: (1) the handling, storage, and disposal of construction materials containing pollutants; (2) the maintenance and operation of construction equipment; and (3) earth moving activities which, when not controlled, may generate soil erosion and transportation, via storm runoff or mechanical equipment. Poorly maintained vehicles and heavy equipment leaking fuel, oil, antifreeze, or other fluids on the construction site are also common sources of stormwater pollution and soil contamination. Generally, routine safety precautions for handling and storing construction materials may effectively mitigate the potential pollution of stormwater by these materials. These same types of common sense, "good housekeeping" procedures can be extended to non-hazardous stormwater pollutants such as sawdust, concrete washout, and other solid wastes.

In addition, grading activities can greatly increase erosion processes, leading to impacts on storm drains and sediment loading to storm runoff. Two general strategies are recommended to prevent construction silt from entering local storm drains. First, erosion control procedures should be implemented for those areas that must be exposed. Secondly, the area should be secured to control offsite migration of pollutants. The area of disturbance for this Project is greater than 1 acre; therefore the Project is subject to the requirements of the National Pollution Discharge Elimination System (NPDES) requirements for construction projects as enforced by the RWQCB. The Project would require a Notice of Intent to

associate this Project with the General Permit and the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) during construction. Any work done in this area shall conform to Federal, State, and local permit requirements.

Specific BMPs to be implemented on the Project site would be identified in detail in the SWPPP to be prepared for the Snowcreek Master Plan area. These BMPs are likely to include the placement of riprap, rock cobble, and rock mulch, the use of existing sedimentation basins, and the installation of infiltration trenches.

Construction activities associated with all proposed development within the Project site would be subject to inspection and would be required to be conducted in conformance with the GCASWP. Coverage under this permit must be obtained from the RWQCB prior to start of construction. The General Permit requires that non-stormwater discharges from construction sites be eliminated or reduced to the maximum extent practicable, that a SWPPP be developed governing construction activities for the Project, and that routine inspections be performed of all stormwater pollution prevention measures and control practices being used at the site, including inspections before and after storm events.

The SWPPP prepared for construction of the Project must also address hazardous materials storage and use, erosion and sedimentation control, and spill prevention and response in addition to identifying measures for preventing non-stormwater discharges to surface water drainages and the Town's storm drain system. In addition, provisions for implementing the land development policy and guidelines pertaining to the Mammoth Lakes area in the Basin Plan must be included in the SWPPP. The required implementation of the BMPs in the Project's SWPPP would ensure that Project construction activities within the Project site would not cause the violation of any water quality standards within Mammoth Creek. Thus, the Project would be considered to have a ***less than significant*** impact on the ability of Mammoth Creek to attain all applicable water quality standards.

Operation-Related Impacts

Activities associated with operation of the Project would generate substances that could degrade the quality of water runoff. The deposition of certain chemicals by cars in the parking areas and the internal roadway surfaces could have the potential to contribute metals, oil and grease, solvents, phosphates, hydrocarbons, and suspended solids to the storm drain system. Additionally, the golf course expansion (Areas E2, E4, and F) may be irrigated with potable or untreated well water. This water would be used to irrigate the proposed string of stormwater retention basins along Old Mammoth Road and to irrigate the new golf course south of the basins. At this time, mitigation requirements for the use of reclaimed water have not been determined. However, impacts to water quality generated from Project operation can be reduced through the implementation of BMPs and mitigation measures designed to be protective of receiving water quality.

An 18-foot wide vegetative swale would connect the retention basins on the proposed golf course expansion areas to an existing 60-inch culvert under Sherwin Creek Road. During a 20-year storm, the velocity of stormwater runoff in the swale would be 3.5 ft/s. Since the "cleansing" of runoff occurs

mostly during storms of a 2-year or less frequency, the velocity of runoff during such events would be even lower, thereby allowing for proper performance of the swale. In addition the proposed swale would be landscaped as opposed to the existing dirt with scattered vegetation, which would additionally slow the velocity of stormwater runoff, further increasing the "cleansing" function of the swale. The system of proposed retention/infiltration basins would be designed to infiltrate to groundwater all runoff with the exception of rare large storm or snow melt events (see discussion below under Impact HYD-4). In extremely rare situations, excess runoff would travel via the vegetative swale described above to the existing culvert under Sherwin Creek Road, where it would discharge to Mammoth Creek.

Although the discharge of stormwater from the developed portions of the Project site to Mammoth Creek is expected to be an extremely rare event, implementation of Mitigation Measure HYD-1 below would reduce potential operational Project impacts on water quality in Mammoth Creek to a ***less than significant*** level.

Mitigation Measure HYD-1

The golf course expansion (Areas E2, E4, and F) area may be irrigated with reclaimed or potable water. At this time, mitigation requirements for the use of reclaimed water have not been determined. However, if reclaimed water is used for irrigation, options shall be explored to limit reclaimed water from entering the tributary area that flows toward Mammoth Creek. These measures could include:

- Irrigate all retention basins and the swale from the retention basins (located to the west of Sherwin Creek Road) using potable water.
- Irrigate any landscaping within or directly tributary to these features which requires irrigation using potable water. Golf course areas immediately south of the basins shall be constructed to retain all stormwater runoff and shall not overflow to the basins.
- Increase capacity of on-site retention for the golf course areas irrigated with reclaimed water to include capacity for a storm of 100-year intensity.
- Grade southeasterly limits of the golf course expansion area in some locations to block tributary drainage from the south and direct it east toward Sherwin Creek Road.

At this stage, it is unknown if it will be required to limit reclaimed water from entering the tributary area that flows toward Mammoth Creek. The final determination of outflow conditions if reclaimed water is used will be made during the final design in coordination with the RWQCB and other applicable agencies. In the event that reclaimed water is used, the above mitigation measures will be implemented to avoid any impacts to the water quality of Mammoth Creek.

In consultation with the Town, the Project applicant shall identify and implement a suite of stormwater quality BMPs designed to address the most likely sources of stormwater pollutants resulting from operation of the proposed development projects within the proposed Project area. Pollutant sources and pathways to be addressed by these BMPs include, but are not necessarily limited to, parking lots,

maintenance areas, trash storage locations, rooftops, interior public and private roadways, the golf course, and storm drain inlets. These BMPs shall include detention and sedimentation basins as well as infiltration devices designed to filter runoff from paved areas on the Project site. The design and location of these BMPs will be subject to review and comment by the Town but shall generally adhere to the standards associated with the Phase II NPDES stormwater permit program.

Implementation of these BMPs shall be assured by the Community Development Director and Town Engineer prior to the issuance of Grading or Building Permits. Compliance with these mitigation measures would reduce potential impacts resulting from Project operation on receiving water quality in Mammoth Creek to a ***less than significant*** level.

Impact HYD-2 Groundwater Depletion or Recharge

A significant impact may occur if a Project would substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.

Construction-Related Impacts

Groundwater seepage was encountered at the Project site at depths as high as 2 feet and as low as 8.5 feet below the existing grade. Groundwater conditions often fluctuate seasonally and depths recorded may not necessarily be reflective of groundwater elevations during construction. Groundwater pumped during construction from the Project site would not be extensive and would be conveyed to one of the existing retention basins located within the existing golf course area. This amount of groundwater pumping would not be substantial enough to deplete or interfere with groundwater recharge and would be considered ***less than significant***.

If required, dewatering must be done in accordance with the General Permit adopted by the Lahontan RWQCB – NPDES No. CAG996001. The applicant shall apply for coverage under this permit prior to beginning any dewatering work.

Operation-Related Impacts

The site is subject to high groundwater. Due to typical heavy snowpack melting in the spring, nearly all sites in Mammoth Lakes are subject to seasonal high groundwater and structures need to be protected from high groundwater levels. All Project structures, including but not be limited to underground structures, parking garages, basements, underslabs, and crawl spaces would require subdrains, which would drain to retention basins. With implementation of Mitigation Measure HYD-2, anticipated impacts pertaining to groundwater intrusion to Project structures would be reduced to a ***less than significant*** level.

As shown in Figure IV.G-2, the proposed retention basins along Old Mammoth Road have been sized to retain and infiltrate runoff from the residential/commercial areas within the Project as well as runoff from

other prior off-site developments which are tributary to these basins. The direction of runoff from the increased impervious surface areas of the Project to these basins would provide for groundwater recharge and would reduce operation-related impacts concerning groundwater recharge to a ***less than significant*** level.

Mitigation Measure HYD-2

All underground structures shall be designed with exterior wall drain board to a footing drain system as well as underslab subdrains. Crawl spaces shall be protected with proper ventilation and subdrains. The system shall be designed such that subdrains shall be designed with outlet systems that have maximum water surface elevations lower than the bottom of the subdrains to ensure that subdrains would not be inundated with stormwater when retention basins reach capacity. Subdrain design shall be based on final Project design and shall be adequately sized so that retention basin capacity is maintained for stormwater retention purposes. Implementation of this measure would reduce this impact to a ***less than significant*** level.

Impact HYD-3 Drainage Pattern Alteration

Construction-Related Impacts

Development of the currently undeveloped areas within the Project site would result in the modification of existing drainage paths and a higher amount of surface runoff than is currently generated by these areas. Siltation or other pollution carried by this increased runoff can be delivered to adjacent drainage channels during construction and can impact aquatic organisms and water quality downstream of the Project site.

As discussed above under Impact HYD-1, the required implementation of the BMPs in the Project's construction SWPPP would ensure that Project construction activities within the site would not cause substantial erosion or siltation on- or off-site. These BMPs would include, at a minimum, such measures as limiting site grading to dry spring, summer and fall months and siltation controls.

Operation-Related Impacts

Activities associated with the operation of the Project are not considered likely to substantially increase on- or off-site erosion or siltation. Nonetheless, the proposed installation of permanent storm control facilities and sedimentation/infiltration basins will reduce Project-generated erosion and siltation impacts (see Mitigation Measure HYD-1). No significant impacts pertaining to Project operation-generated erosion and siltation are anticipated to result from new development at the Project site.

Thus, the Project would have a ***less than significant*** impact in terms of increasing on- or off-site erosion and siltation through the alteration of existing drainage patterns.

Impact HYD-4 Drainage System Capacity

The Project would create 43 acres of impervious surfaces consisting of roofs, drives, and parking areas. The Project would include 24 acres of landscaped areas. With the exception of Area D, all post-development on-site runoff would be collected and conveyed via swales, inlets, and pipe networks to a series of retention/infiltration basins on the Project site (including the golf course lakes system located on the west side of the Project site). From these points, if sufficient stormflow occurs, the basins would discharge excess runoff to vegetated swales, culverts, and an additional swale at Sherwin Creek Road. Discharge to Mammoth Creek from this system of basins and swales would occur only under exceptional stormflows.

Stormwater runoff flow rates were calculated for on-site and off-site tributary areas. Consistent with the requirements of the Basin Plan for the Mammoth Lakes area, all retention/infiltration systems would be designed to retain stormwater runoff from a 20-year, 1-hour design storm (1.0 inch of rainfall) for on-site drainage. Off-site drainage systems would be designed for a 20- or 100-year design storm. .

Drainage Within Residential/Commercial Site

Post-development drainage within the developed area of the Project site would be conveyed by roadside swales, drop inlets, and storm drain pipes to lakes, basins, or other stormwater retention facilities. For on-site drainage, the typical inlets have been preliminarily sized at 16 by 16 inches, with several 24 by 24 inch inlets. The on-site drainage facilities would be sized to convey the flows generated during a storm of 20-year intensity.

As shown in Figure IV.G-1, the residential/commercial portion of the Project site is divided into four areas: Areas A, B, C, and D. Area A is 15.6 acres and drains primary to the southwest, Area B is 7.7 acres and drains to the west, Area C is 43.1 acres and drains to the north, and Area D (located north of Old Mammoth Road) is 0.5 acres and drains predominantly to the north. Additionally, Areas A, B, and C were divided into smaller subareas (A1-A8, B1-B4, and C1-C16) in order to preliminarily size the on-site drainage facilities.

Area D is bounded by Old Mammoth Road on the south, Minaret Road on the east, and a proposed bike path on the north and west. The bike path in this location is part of the conditions of approval for the Snowcreek VII development and has been preliminarily designed to function as a berm in order to keep the on-site runoff from entering Mammoth Creek directly. On-site runoff from Area D would be directed toward a retention/infiltration basin with a capacity of approximately 1,500 cf for an entire storm of 100-year intensity.

The Project would construct a new retention/infiltration system south of Old Mammoth Road and west of Sherwin Creek Road. The preliminary design would include an existing basin and six new basins with spillways. The present location for stormwater retention is less than ideal in heavy runoff years as a portion of Fairway #9 can be flooded, impacting golf play. The Project would reduce the stormwater

retention in this existing basin to approximately 71,200 cf. The series of six unlined basins would provide approximately 333,600 cf of storage.

The Project requires approximately 169,200 cf of storage. Existing development on surrounding sites, including Snowcreek VI and VII, require about 150,000 cf of storage, which is currently provided on the existing nine-hole golf course at the lower pond on both sides of Minaret Road. The total of the existing and Project requirements is 319,200 cf, which would result in approximately 14,400 cf of extra remaining capacity after all planned uses are developed at the Project site.

Golf Course Drainage (Tributary to Residential/Commercial Site)

Existing and proposed conditions were evaluated for the entire Basin 2.4 and 2.5 (as delineated in the Town of Mammoth Lakes Stormwater Master Plan, 2005) sub-basin that the Project would be located within. Existing runoff for the 100-year storm for this basin is 131 cfs, which is conveyed to Mammoth Creek via a 60-inch culvert located under Sherwin Creek Road. With the Project, runoff volume within this sub-basin would be increased to 139 cfs. This increase includes runoff from the golf course areas and may be reduced if runoff is not allowed from the golf course. Calculations prepared for the Project show that the existing 60-inch culvert is adequate to convey this increased runoff.

Conveyance systems would be designed for a storm of 100-year intensity. Off-site tributary areas are located south of the Project site as shown in Figure IV.G-2 and are subdivided into four sub-areas: E1 (9.2 acres), E2 (12.6 acres), E3 (4.7 acres), and E4 (37.7 acres). Areas E2 and E4 are part of the expanded golf course. Area E4 would not be tributary to the residential/commercial site and is discussed below. Runoff from Areas E1, E2, and E3 would be conveyed via a combination of vegetated swales and storm drains and contained south of the residential/commercial site in retention facilities located on the proposed new golf course with the capacity to retain approximately 46,200 cf for a storm of 100-year intensity or 31,000 cf for a storm of 20-year intensity. These retention facilities would be sand traps and/or natural and manmade depressions. The final determination of retention/infiltration requirements for the Project would be made in compliance with RWQCB, Town, and other relevant policies and regulations.

Golf Course Expansion Drainage (Not Tributary to Residential/Commercial Site)

Areas E4 and F are part of the golf course expansion but are not tributary to the residential/commercial site. The golf course expansion (Areas E2, E4, and F) would be irrigated with reclaimed or potable water. Golf course runoff would need to be contained on-site (within the golf course) or treated for nitrates or other potential pollutants that could be added to the runoff due to golf course operations. Areas E2 and E4 are not expected to discharge stormwater runoff to Mammoth Creek except during extremely rare events. The final determination of outflow conditions if reclaimed water is used would be made during the final design in coordination with the RWQCB and other applicable agencies. On-site retention for the 100-year storm would require approximately 3,000 cf of retention for each acre of golf course area. Should the golf course be allowed the standard 1-inch storm retention, approximately 1,000 cf per acre of

course area retention would be required. This retention could consist of facilities such as depressions, basins, sand traps, or pond freeboard, and shall include all of the new golf course up to the point where it overflows to the basins or otherwise leaves the site.

Compliance with the mitigation measure below would reduce potential impacts resulting from Project operation to a ***less than significant*** level.

Mitigation Measure HYD-4

In consultation with the Town of Mammoth Lakes and RWQCB, and subject to Town approval, the Project applicant shall identify and implement a suite of storm drainage facilities designed to safely capture, treat, and convey runoff from the required design storms. In addition, a detailed set of maintenance procedures necessary to assure that storm drainage facilities continue to work as designed shall be established and approved by the Town, in consultation with the RWQCB. Particular items requiring maintenance include, but are not limited to, cleaning of grates, removal of foreign materials from storm drainage pipes, maintenance as necessary for outlet facilities and retention basins, and repairs as necessary to damaged facilities.

Impact HYD-5 100-Year Flood Hazard

A significant impact may occur if a Project would place structures which would impede or redirect flood waters in a 100-year flood zone. There is no 100-year flood zone south of Old Mammoth Road and west of Sherwin Creek Road. A small portion of the Project site north of Old Mammoth Road where the Market/General Store would be located is adjacent to Mammoth Creek and is within a 100-year flood zone. However, all development in this portion of the Project site would be placed outside the 100-year flood zone. Thus, the Project would have a ***less than significant*** impact with respect to flood hazards.

CUMULATIVE IMPACTS

Impact HYD-6

Development of the Project in combination with the related projects would result in the further infilling of uses within the Urban Growth Boundary. The surrounding area primarily consists of a patchwork of undeveloped areas and developed impervious urbanized surfaces, and is served by existing storm drains that would be expanded in order to serve new development. It is likely that most of the related projects would drain to the Town's storm drain system and ultimately to Mammoth Creek. Each individual related project would be required to submit a drainage analysis to the Town. Each drainage analysis must illustrate how peak flows generated from each related Project site would be accommodated by the Town's existing and/or proposed storm drainage facilities. Where necessary, each related project would be required to include detention or infiltration features designed to reduce the total rate and/or volume of runoff generated at its site.

The Project would include retention basins of sufficient capacity to retain all runoff on-site, with eventual discharge to Mammoth Creek. The Project would not be connected to the Town's storm drain system. The Project would include BMPs to reduce erosion and impacts to water quality. The Project would not result in any cumulatively considerable impacts to the Town's existing or planned stormwater drainage system capacity. In addition, per the Basin Plan, development on each site larger than 0.25 acre above the 7,000 foot elevation level would be subject to uniform policy guidelines designed to minimize the water quality impacts associated with Project construction to the maximum extent practicable. All related projects that disturb one acre or more must also obtain coverage under the GCASWP, including the preparation and submittal of a SWPPP to govern all construction activities associated with each project. As a result, cumulatively considerable water quality and erosion/siltation impacts would be ***less than significant***.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Impacts to surface and groundwater resources and hydrology would be ***less than significant*** after implementation of the mitigation measures.