4.8 HYDROLOGY AND WATER QUALITY

Would the project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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 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-site?		✓		
e. Create or contribute runoff water which would exceed the capacity of existing or planned storm water 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?				✓
j. Inundation by seiche, tsunami, or mudflow?				✓

a) Violate any water quality standards or waste discharge requirements?

Less Than Significant Impact With Mitigation Incorporated. As authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. Point sources are discrete conveyances such as pipes or man-made ditches. Individual homes that are connected to a municipal system, use a septic system, or do not have a surface discharge do not need an NPDES permit; however, industrial, municipal and other facilities must obtain permits if their discharges go directly to surface waters. The NPDES permit program is administered by the California Regional Water Quality Control Board. There are nine Regional Water Quality Control Boards (RWQCB), which are responsible for development and enforcement of water quality objectives and implementation plans. The project site is located in the jurisdiction of the Lahontan RWQCB.

Impacts related to water quality would range over three different periods: 1) during the earthwork and construction phase, when the potential for erosion, siltation, and sedimentation would be the greatest; 2) following construction, prior to the establishment of ground cover, when the erosion potential may remain relatively high; and 3) following completion of the project, when impacts related to sedimentation would decrease markedly, but those associated with urban runoff would increase.

Short-Term Construction

A Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP is required to contain a site map(s) that depicts the construction site perimeter, existing and proposed buildings, lots, roadways, storm water collection and discharge points, general topography both before and after construction, and drainage patterns across the project site. The SWPPP must list Best Management Practices (BMPs) the discharger would use to protect storm water runoff and the placement of those BMPs. BMPs for construction activities may include measures to control pollutants at particular sources, such as fueling areas, trash storage areas, outdoor materials storage areas, and outdoor work areas. BMPs are also used during treatment of the pollutants at these particular source areas.

In addition to the BMPs, the SWPPP must contain: a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Section A of the Construction General Permit describes the elements that must be contained in a SWPPP.

Construction activities associated with the proposed project have the potential to produce typical pollutants such as nutrients, heavy metals, toxic chemicals, waste materials including wash water, paints, wood, paper, concrete, food containers, sanitary wastes, fuel, and lubricants. Impacts to storm water quality would occur from construction and associated earth moving, and increased pollutant loadings would occur immediately off-site. The proposed project's area of disturbance would be greater than one acre; therefore, the project is subject to NPDES requirements for construction projects (General Permit #CAS000002) enforced by Lahontan RWQCB.

With implementation of Mitigation Measure HWQ-1, the project would obtain coverage under the General Permit. At this time, the project landowner would be required to submit a Notice of Intent (NOI) prior to construction activities, and then prepare, have on site, and conform to a SWPPP during construction. Though the permit requirements are not anticipated, work would be required to conform to conditions of the Army Corp of Engineers, Lahontan RWQCB, and State of California Fish and Game. The proposed project is also subject to compliance with Code Section 12.08.090, *Drainage and Erosion Design Standards*, which outlines the drainage and erosion design standards that are required by the Town, beyond the RWQCB requirements. Additionally, with implementation of Mitigation Measure HWQ-2, all proposed driveways and construction parking areas would be paved (should construction continues past October 15th) in order to minimize erosion and sedimentation on roadways. Following compliance with the provisions of the NPDES

(recommended Mitigation Measure HWQ-1), appropriate paving (Mitigation Measure HWQ-2), and Code Section 12.08.090, project implementation would not violate any water quality standards or waste discharge requirements associated with construction activities.

Long-Term Operations

The primary objectives of the municipal storm water program requirements are to effectively prohibit non-storm water discharges and to reduce the discharge of pollutants from the storm water conveyance system to the "Maximum Extent Practicable." For this evaluation, impacts to storm water quality would be considered significant if the project did not attempt to address storm water pollution to the "maximum extent practicable." The Lahontan RWQCB has adopted a Water Quality Control Plan, which contains prohibitions, water quality standards, and policies for implementation of standards.

Currently, drainage south of SR-203/Main Street (including the project site) involves sheet flow through the central portion of the Town to existing roadways or is carried in unimproved channels or ditches to drainage concentration points. Eventually runoff drains down SR-203/Main Street, which acts as a watercourse. As the site is already developed, the overall on-site runoff quantities do not appear to increase or decrease due to the proposed development. However, due to the changes to the project site, the runoff may increase in some areas. This increase would be limited in short duration and small storms by the proposed infiltration systems, and would outflow in sheet conditions that would be similar to existing conditions. Activities associated with the proposed development typically produce pollutants such as nutrients, bacteria, oil and grease, heavy metals, pesticides and herbicides, toxic chemicals related to cleaning, waste materials including wash water, paints, wood, paper, concrete, food containers, sanitary wastes, fuel, and lubricants, while the natural areas would likely continue producing suspended solids.

The project is subject to compliance with the Lahontan RWQCB Water Quality Control Plan, which contains prohibitions, water quality standards, and policy implementation standards, in order to control storm water on site and prevent pollutants from non-point sources from entering and degrading surface or ground waters. Additionally, the proposed project is subject to compliance with Town Code Section 12.08.090. Following compliance with the recommended Mitigation Measure HWQ-1, HWQ-2, and Town Code Section 12.08.090 requirements, project implementation would not violate any water quality standards or waste discharge requirements associated with long-term activities.

Fire Access Road Alternative

Similar to the project, the Fire Access Road Alternative would result in a less than significant impact, as the proposed site boundaries would remain the same as the proposed project and impervious surfaces would not exceed that proposed by the project.

Mitigation Measures:

HWQ-1 The Town shall comply with the National Pollution Discharge Elimination System requirements for construction projects (General Permit #CAS000002) enforced by the Lahontan Regional Water Quality Control Board (RWQCB). Construction activities subject to this permit shall include clearing, grading and disturbances to the ground such as stockpiling or excavation, but not including regular maintenance activities performed to restore the original line, grade, or capacity of the facility. Prior to any site disturbance, the Town shall submit a Notice of Intent (NOI) to the Lahontan RWQCB for coverage under the General Permit. Also, prior to any site disturbance, the applicant shall submit a Storm Water Pollution Prevention Plan (SWPPP) to the Town Public Works Department for review and approval. The SWPPP shall be designed such that no off-site Best Management Practices (BMPs) are required in the Town right-of-way (R/W) after October 15 or before April 30 each year. The applicant shall maintain the SWPPP on site at all times and shall conform to the SWPPP during construction.

HWQ-2 All proposed driveways and construction parking areas shall be paved, if construction continues past October 15th, in order to minimize erosion and sedimentation on roadways.

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)?

Less Than Significant Impact with Mitigation Measures. The Mammoth Community Water District (MCWD) provides water supply to the Town from both surface and groundwater sources. Surface water within the Mammoth Basin is generally supplied by snowmelt. Groundwater is supplied by eight groundwater production wells within the Town. In 2006, based on actual water supply, approximately 67 percent of potable water for the community came from surface water diverted from the Mammoth Creek watershed and 33 percent came from groundwater pumped from wells, located within the Town boundaries.[1] When lower than normal precipitation years are experienced, the use of groundwater is increased, as less surface water supply is available. In order prevent the Mammoth Basin from being overdrafted, the MCWD maintains an extensive groundwater and surface water monitoring system.

As discussed in Response 4.16(b), project implementation would not create a demand for water in excess of available supplies. Further, the proposed project would include approximately 44,100 square feet of impervious surfaces consisting of roofs, drives, and walks/terrace areas; this area includes portions of the garage that is covered by landscaping.[2] Therefore, implementation of the project would not

[1] Town of Mammoth Lakes, *Town of Mammoth Lakes 2005 General Plan Update Final Program EIR*, May 2007, Page 4-259.
[2] Triad/Holmes Associates, *Holiday Haus Preliminary Drainage Study*, dated February 2008.

result in an increase of impervious surfaces from existing site conditions and therefore would not substantially deplete groundwater supplies or interfere with groundwater recharge. The proposed project is consistent with current conditions in the area.

As previously mentioned, the project would construct a three-level underground parking structure. In order to construct the underground structure, groundwater would be required to be pumped at the project site. The water pumped during construction would be conveyed back to the Town's stormwater sewer system. However, prior to entering the Town's stormwater sewer system, the groundwater would be treated by a method in conformance with the requirements of NPDES CAS 000002 and NPDES CAG 996001, and as determined in the field while monitoring the water quality of the outflow for the dewatering (refer to Mitigation Measure HWQ-1). This amount of groundwater pumping is not anticipated to be substantial enough to deplete or interfere with groundwater recharge and would be considered less than significant.

Additionally, the required soils report (refer to Mitigation Measure GEO-1) would analyze the potential for groundwater within the study area and recommend measures to remediate associated conditions, should they exist. Groundwater elevations fluctuate seasonally being highest in June and July due to percolation of snowmelt. The report would determine the potential for groundwater seepage that may occur where excavation would be the greatest. Dewatering of areas during parking garage construction through the use of dewatering pumps may be required to remove all water within the excavation perimeter. With implementation of the recommended mitigation (GEO-1), project implementation would result in a less than significant impact in this regard.

Fire Access Road Alternative

Similar to the project, the Fire Access Road Alternative would result in a less than significant impact, as the proposed site boundaries would remain the same as the proposed project.

Mitigation Measures: Refer to Mitigation Measure HWQ-1 and GEO-1.

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

Less Than Significant Impact With Mitigation Incorporated. There are no stream channels located on the project site or in its vicinity. The project would not alter the course of a stream or river, thus, would not result in substantial erosion or siltation on- or off-site in this regard.

The *Holiday Haus Preliminary Drainage Study* (Triad/Holmes Associates, February 2008) was prepared to determine the expected hydrologic runoff quantities and preliminary drainage facilities for the proposed Holiday Haus project and adjacent SR-203/Main Street; refer to Appendix C, *Preliminary Drainage Study*. The Study's findings are summarized below.

Existing Conditions

Currently, runoff flows across the existing paved surfaces in sheet flow conditions. Runoff falls directly to the ground from the sloped building roofs. The existing runoff is partially concentrated at the paved areas at the openings between buildings. There is little vegetation on the project site as it is improved with nine buildings and pavement. There are some trees scattered throughout the site, which includes mainly indigenous pines and firs.

The existing buildings and a ridge along the western project boundary send runoff to the west. Runoff is conveyed in a shallow swale on the adjacent property. Along SR-203/Main Street, to the north, runoff flows toward the project site. Along the south and east boundaries of the project site, runoff generally exits the site in sheet flow, but is somewhat accelerated as it exits the paved areas between the buildings. Runoff from the project site eventually enters the Town's Storm Sewer System, which crosses under SR-203/Main Street and ends up in Murphy Gulch. Murphy Gulch is tributary to Mammoth Creek.

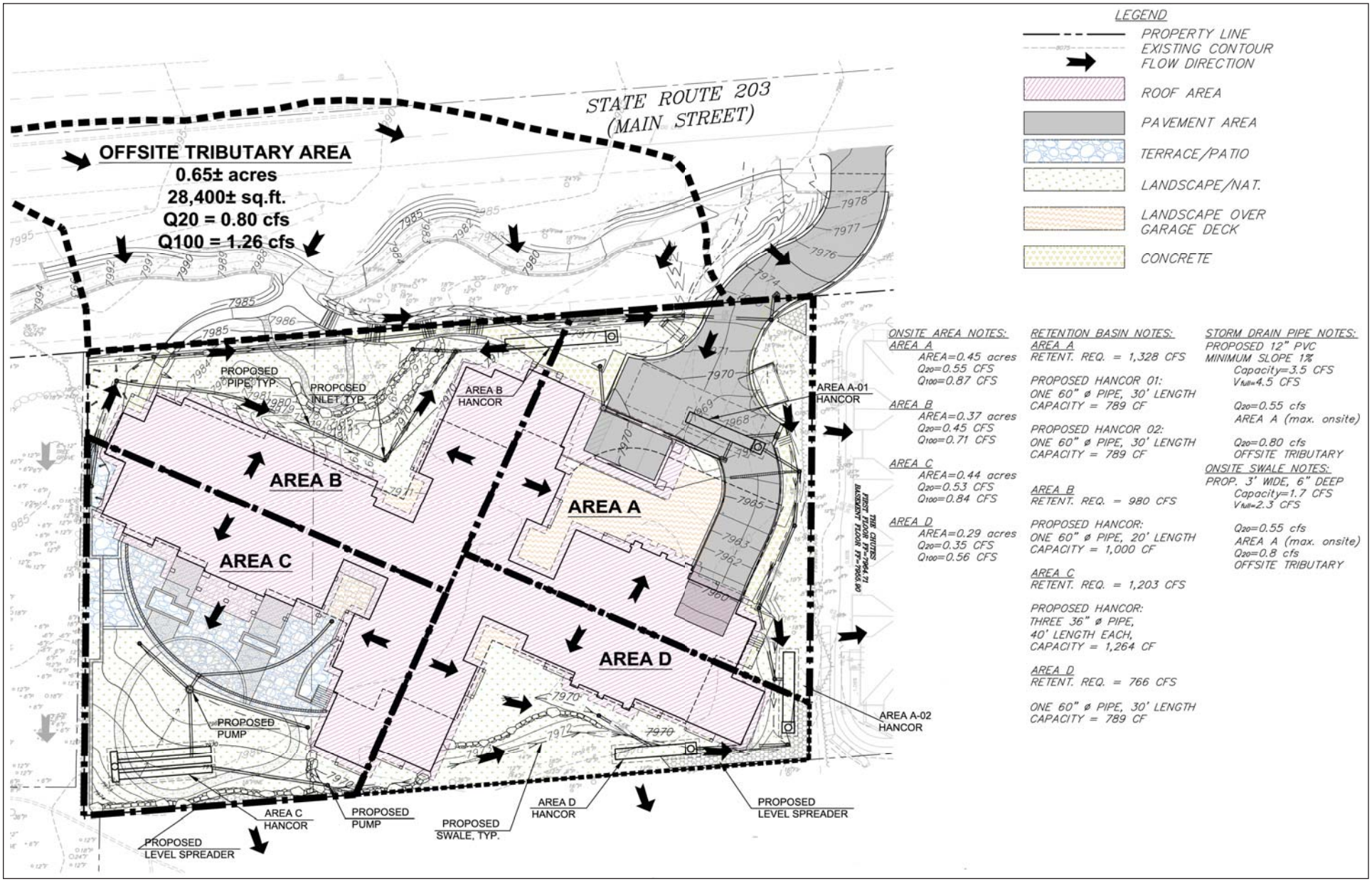
Post Development Drainage Conditions

On-Site Drainage

Project implementation would alter the existing drainage pattern of the site due to on-site grading and changes in impervious area. The proposed condition would involve less impervious area than the existing condition (reduction from 87 to 60 percent). The proposed on-site drainage facilities have been preliminarily designed to collect and transport the additional runoff generated by the added impervious areas on the project site to proposed retention facilities.

This analysis considers four drainage areas: Area A, Area B, Area C, and Area D; refer to Exhibit 4.8-1, *Post-Development Drainage*. On-site storm water within each drainage area would be collected via swales, gutters, and inlets, and then conveyed through the project site in swales, gutters, and pipes to underground retention/infiltration systems. Runoff that is in excess of the capacity of the retention systems would overflow at one of two locations to the south of the proposed building, and would then go through appropriate permanent Best Management Practices (BMP). Excess runoff would exit the project site in sheet flow via level-spreaders or equivalent devices.

For the 20-year storm for one hour, the total calculated on-site water retention facilities would be required to retain approximately 4,277 cubic feet of water; refer to Table 4.8-1, *Retention Volumes for On-Site Areas*, for a detailed description per analyzed Area. Retention/infiltration facility sizing calculations are included in Appendix C.



Source: Triad/Holmes Associates; February 2008.

NOT TO SCALE

RBF CONSULTING

08/08 • JN 10-106067

HOLIDAY HAUS PROJECT
INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

Post-Development Drainage

Exhibit 4.8-1

Table 4.8-1
Retention Volumes for On-Site Areas

Area Analyzed	Water Volume
AREA A	
Surface Area	19,690 square feet
Runoff Coefficient After Construction	0.81
Retention Volume Required	*1,328 cubic feet*
Proposed Hancor Systems Retention Volume	*1,578 cubic feet*
AREA B	
Surface Area	16,030 square feet
Runoff Coefficient After Construction	0.73
Retention Volume Required	*980 cubic feet*
Proposed Hancor Systems Retention Volume	*1,000 cubic feet*
AREA C	
Surface Area	19,045 square feet
Runoff Coefficient After Construction	0.77
Retention Volume Required	*1,203 cubic feet*
Proposed Hancor Systems Retention Volume	*1,264 cubic feet*
AREA D	
Surface Area	12,585 square feet
Runoff Coefficient After Construction	0.73
Retention Volume Required	*766 cubic feet*
Proposed Hancor Systems Retention Volume	*789 cubic feet*
Total On-Site Retention Volume Required	4,277 cubic feet
Total On-Site Hancor Systems Retention Volume	4,631 cubic feet
Source: Triad/Holmes Associates, *Holiday Haus Preliminary Drainage Study*, dated February 2008.	

Area A and Area B

Area A is located within the northeastern portion of the project site. Area B is located within the northwestern portion of the project site. The 20- and 100-year runoff quantities for Area A are 0.55 and 0.87 cubic feet per second (cfs), respectively. The recommended improvements for storm drainage collection in Area A are detailed in the Preliminary Drainage Study and summarized, as follows:

- A Hancor System[3] with one 60 inch pipe at 30 feet in length and a capacity of 789 cubic feet; and

- A second Hancor System with one 60 inch pipe at 30 feet in length and a capacity of 789 cubic feet.

Area B is located within the northwestern portion of the project site. The 20-year and 100-year runoff quantities for this area are 0.45 and 0.71 cfs, respectively. The recommended improvements for storm drainage collection in Area B are detailed in the Preliminary Drainage Study and summarized, as follows:

[3] The Hancor storm water retention/infiltration system captures storm water temporarily and allows it to be released in a controlled fashion back into the environment. This process prevents discharge from occurring all at one time.

- A Hancor System with one 60 inch pipe at 20 feet in length and a capacity of 1,000 cubic feet;

- Storm drain piping, preliminary sized as 12-inch PVC with a minimum slope of 1.0 percent; and

- Proposed inlets with depressions that can accommodate the 20-year runoff quantities for Area B.

Area C and Area D

Area C comprises the southwestern portion of the project site with 20-year and 100-year runoff quantities of 0.53 and 0.84 cfs, respectively. The recommended improvements for storm drainage collection in Area C are detailed in the Preliminary Drainage Study and summarized, as follows:

- A Hancor System with three 36 inch pipes at 40 feet in length each and a total capacity of 1,264 cubic feet;

- Proposed pump would be included in Area C to accommodate for the proposed elevation features such as the terrace and sled hill; the runoff would be pumped to the proposed retention facility for Area C, with any overflow being pumped to a dissipater; and

- A level spreader would be used to maintain the historic sheet flow exiting the project site.

Area D includes the southeastern portion of the project site. Area D's 20-year and 100-year storm flows for are 0.35 and 0.56 cfs, respectively. The recommended improvements for storm drainage collection in Area D are detailed in the Preliminary Drainage Study and summarized, as follows:

- A Hancor System with one 60 inch pipe at 30 feet in length and a capacity of 789 cubic feet;

- A graded earth swale that is preliminarily sized to accommodate the capacity for Area D, with a minimum slope of two percent.

- A proposed level spreader/energy dissipater at the southeast corner of the project site to allow for the tributary runoff to exit the above-mentioned swale and piping in a sheet flow condition, similar to the historic flow.

<u>Off-Site Tributary Drainage Area</u>

With implementation of the proposed project, runoff along SR-203/Main Street would be conveyed in swales and piping to the east side of the project site, where it would then be allowed to overflow out of an energy dissipater/level spreader located close to a historic runoff location. The recommended improvements for storm drainage collection and conveyance for the off-site area are detailed in the Preliminary Drainage Study and summarized, as follows:

- A proposed six-inch deep, three-foot wide "V-shaped" earth swale located along the northerly border of the project site to convey runoff from the off-site tributary areas to the east;

- Proposed storm drain piping, preliminarily sized at 12-inches, to convey the off-site tributary flow east; and

- A proposed level spreader/energy dissipater at the northeast corner of the project site to allow for the tributary runoff to exit the above-mentioned swale and piping in a sheet flow condition, similar to the historic flow.

Conclusions

All inlets, for both on-site and off-site drainage, have been calculated to serve a 20-year storm event. No one inlet would receive flow for the entire project site. This would allow the depressions to be lessened in most cases. All on-site graded earth swales would be designed with a minimum slope of 2 percent. All on-site drainage facilities (as well as those serving the off-site tributary area) would be sized upon final determination of Q_{20}[4] during the final design process. Details of proposed drainage facilities would be identified in a Final Drainage Study, once the site plan is finalized with greater detail.

Lahontan RWQCB provisions require that runoff from impervious and disturbed surfaces generated by a 20-year storm (one inch per hour intensity) be retained and percolated into the ground. In addition to RWQCB requirements, the project is subject to compliance with Code Section 12.08.090, which specifies drainage standards regarding runoff calculations and design. The design and calculations included in the Preliminary Drainage Study are for planning purposes. The final location and details of drainage facilities would be determined during the design process in preparation of the improvement plans and would be in accordance with Town of Mammoth Lakes requirements in place at that time. The criteria followed during the design would be required to address issues such as safety, erosion protection, and water quality, as well as conforming to the requirements of the Clean Water Act and the Lahontan RWQCB.

Additionally, impacts to water quality generated from project operation can be reduced through the implementation of proposed BMPs designed to protect water quality in receiving water bodies. The project currently proposes BMPs that would be employed for the proposed development, which include collection and transportation facilities as well as retention/infiltration systems designed to filter runoff from paved areas on the project site. The additional BMPs, if necessary, would be included upon finalizing grading/improvement plans (refer to Mitigation Measure HWQ-4).

Mitigation is recommended, which requires compliance with the Preliminary Drainage Study specifications (February 2008). Following compliance with the recommended Mitigation Measure HWQ-3, and Code and Lahontan RWQCB requirements, project

[4] The Rational Method is used to estimate the peak discharge of stormwater runoff for drainage areas. The traditional formula for the Rational Method is Q=CIA where Q is the peak discharge, C is the runoff coefficient, I is the rainfall intensity, and A is the drainage area. Q_{20} is the Exceedance Intervals for Design Years 20.

implementation would not substantially alter the existing drainage pattern of the site, or result in substantial erosion or siltation.

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. The subdrain system would be located outside the seal associated with the underground parking garage (water protection seal) and allow water to flow around the garage and continue in its natural path. By design, water would not enter the garage, nor would water from inside the garage exit the structure. Mitigation Measure HWQ-5 would require dewatering pumps to remove all water buildup within the structural foundation area, and require the management of the dewatering outflow via a cleansing/separating device prior to discharge into the Town's Stormwater Sewer System.

The applicant would be required to design and construct improvements identified in the *2005 Storm Drain Master Plan* or other Town document (recommended Mitigation Measure HWQ-6), to the extent necessary, if no such improvements have been made by the time occupancy of the Project occurs. Implementation of HWQ-6 would increase the capacity of the Town's drainage facilities (including the downstream Sierra Valley Sites), as necessary.

Implementation of appropriate BMP's as well as Mitigation Measures HWQ-3 through HWQ-6 would reduce resultant erosion and water quality impacts resulting from long-term dewatering activities to less than significant levels.

Fire Access Road Alternative

Similar to the project, the Fire Access Road Alternative would result in a less than significant impact, as the proposed land uses, impervious site coverage, and site boundaries would remain similar to the proposed project.

Mitigation Measures:

HWQ-3 Prior to grading operations, the applicant shall comply with each of the recommendations detailed in the Preliminary Drainage Study (Triad/Holmes Associates, February 2008), and other such measure(s) as the Town Public Works Department deems necessary to adequately mitigate project impacts.

HWQ-4 In consultation with the Town, prior to submittal of grading plans, 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 project. 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, and storm drain inlets. 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.

HWQ-5 The applicant shall install a sump pump system that lifts stormwater to the surface within the underground parking garage, which conveys water through a device that removes oil and silt, prior to reintroduction into the storm water system. The sump pump system shall be installed prior to use of the parking structure.

HWQ-6 The applicant shall design and construct improvements identified in the 2005 Storm Drain Master Plan or other Town document to the extent necessary, as determined by the Town's Public Works Department, to increase the capacity of the Town's drainage facilities including the downstream Sierra Valley Sites if no such improvements have been made by the time occupancy of the Project occurs.

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-site?

Less Than Significant Impact With Mitigation Incorporated. Refer to Response 4.8(c).

Fire Access Road Alternative

Similar to the project, the Fire Access Road Alternative would result in a less than significant impact, as the proposed impervious site coverage and site boundaries would remain similar to the proposed project.

Mitigation Measures: Refer to Mitigation Measure HWQ-3.

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

Less Than Significant Impact With Mitigation Incorporated. Refer to Responses 4.8(a) and 4.8(c).

Fire Access Road Alternative

Similar to the project, the Fire Access Road Alternative would result in a less than significant impact, as the proposed land uses and site boundaries would remain the same as the proposed project.

Mitigation Measures: Refer to Mitigation Measures HWQ-1 through HWQ-3.

f) Otherwise substantially degrade water quality?

Less Than Significant Impact With Mitigation Incorporated. The project involves development of a Hotel Condominium facility, which due to its scope and nature would not otherwise substantially degrade water quality. Refer to Response 4.8(a).

Fire Access Road Alternative

Similar to the project, the Fire Access Road Alternative would result in a less than significant impact, as the proposed land uses and site boundaries would remain the same as the proposed project.

Mitigation Measures: Refer to Mitigation Measures HWQ-1 through HWQ-3.

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?

No Impact. The project involves development of a Hotel Condominium and workforce housing. However, the project site is not located within a 100-year flood hazard area; refer to Figure 4.6-2, *FEMA Flood Hazards Map*, of the *2005 General Plan Update FPEIR*. Therefore, project implementation would not place housing or structures within a 100-year flood hazard area.

Fire Access Road Alternative

Similar to the project, the Fire Access Road Alternative would result in a less than significant impact, as the proposed site boundaries would remain the same as the proposed project.

Mitigation Measures: No mitigation measures are required.

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

No Impact. Refer to Response 4.8(g).

Fire Access Road Alternative

Similar to the project, the Fire Access Road Alternative would result in a less than significant impact, as the site boundaries and impervious site coverage would remain similar.

Mitigation Measures: No mitigation measures are required.

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?

No Impact. Refer to Response 4.8(g).

Fire Access Road Alternative

Similar to the project, the Fire Access Road Alternative would result in a less than significant impact, as the proposed land uses, impervious site coverage, and site boundaries would remain similar to the proposed project.

Mitigation Measures: No mitigation measures are required.

j) Inundation by seiche, tsunami, or mudflow?

No Impact. A seiche is an oscillation of a body of water in an enclosed or semi-enclosed basin, such as a reservoir, harbor, lake, or storage tank. A tsunami is a great sea wave, commonly referred to as a tidal wave, produced by a significant undersea disturbance such as tectonic displacement of a sea floor associated with large, shallow earthquakes. Mudflows result from the downslope movement of soil and/or rock under the influence of gravity. The project site is relatively distant from the ocean, not in the vicinity of a reservoir, harbor, lake, or storage tank capable of creating a seiche, and is not positioned downslope from an area of potential mudflow. Therefore, no impact would occur in this regard.

Fire Access Road Alternative

Similar to the project, the Fire Access Road Alternative would result in a less than significant impact, as the proposed land uses and site boundaries would remain similar to the proposed project.

Mitigation Measures: No mitigation measures are required.