

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

AMENDED MONITORING AND REPORTING PROGRAM NO. 2003-0032A1
WDID NO. 6A090033000

FOR

HEAVENLY SKI RESORT

_____ El Dorado County and Alpine Counties _____

I. GENERAL PROVISIONS

- A. The monitoring and reporting program (MRP) must be conducted in accordance with the General Provisions for Monitoring and Reporting Programs (Attachment 1).
- B. The Discharger must provide a certified cover letter (Attachment 2) with each MRP submittal to the Regional Board.

II. MONITORING

A. Water Quality Monitoring of Ski Area

1. Water Quality Sampling Stations - See Figures 1 and 2

- a. Heavenly Valley Creek - Station HV-C2: near base of Patsy's lift.
- b. Heavenly Valley Creek - Station HV-C3: at LTBMU property line, approximately 0.4 miles upstream of Pioneer Trail.
- c. Hidden Valley Creek - Station HV-H5: baseline/reference station, just above the confluence with Trout Creek.
- d. Bijou Park Creek - Station HV-C4: approximately 50 feet below northwest corner of Saddle Road and Wildwood Avenue.
- e. California Base - Stations HV-P1a and HV-P1b: both influent points to Storm Filter treatment vault.
- f. California Base - Station HV-P2: effluent from Storm Filter treatment vault.

2. Frequency of Water Quality Sampling

Discharger must collect samples and analyze for each constituent at the frequency described in this section. The Discharger need not sample water bodies that are inaccessible due to snow, when the water is so low that a representative sample can not be taken, or when samples cannot be taken due to hazardous conditions. In these cases, the Discharger may shift sampling dates from those listed below. If samples are not collected, the

Discharger must report the reasons why sampling could not be completed. The Discharger must record and report on weather conditions, including temperature and precipitation, for the time of sampling and for the previous day.

- a. Heavenly Valley, Hidden Valley, and Bijou Park Creeks Receiving Water Sampling Locations - HV-C2, HV-C3, HV-C4, and HV-H5.

Monthly, plus weekly during spring runoff period. Spring runoff period typically occurs from April through mid-June. The duration of the spring runoff period should be evaluated based on stream hydrographs.

- b. California Base Parking Area StormFilter™ Locations - HV-P1a, HV-P1b, and HV-P2.

10 runoff events per water year (October 1 – September 30 of following year). Samples must be collected to reflect both snow melt and rainfall runoff events.

3. Parameters to be Monitored

- a. Receiving Water Sampling Locations at Heavenly Valley, Hidden Valley, and Bijou Park Creeks (HV-C2, HV-C3, HV-C4, and HV-H5) – Flow rates must be measured using USGS width-integrated discharge measurement procedures and grab samples must be collected and analyzed for the following:

Parameter	Minimum Reporting Limit
Total Nitrogen (TKN+nitrate+nitrite)	0.01 mg/L
Total Phosphorus	0.01 mg/L
Turbidity	0.1 NTU
Suspended Sediment	1.0 mg/L
Chloride	0.1 mg/L

- b. Influent and Effluent Sampling Locations from StormFilter™ at California Base Parking Area (HV-P1a, HV-P1b, and HV-P2) – Grab samples must be collected and analyzed for the following:

Parameter	Minimum Reporting Limit
Oil and Grease with silica gel treatment	2 mg/L
Total Nitrogen (TKN+nitrate+nitrite)	0.1 mg/L
Total Phosphorus	0.01 mg/L
Turbidity	1 NTU
Chloride	0.1 mg/L

B. Erosion Control and Facilities Maintenance Monitoring

Inspections must be made by the Discharger on a monthly basis at all lodges, maintenance shops, parking areas, and roads within the Facility where the Discharger engages in snow removal and deicing activities. Inspections must also be made after large precipitation or snowmelt events that may result in channel erosion or sediment movement on slopes, or in substantial sediment accumulation in BMPs at or below the California Base area. The purpose of the inspection is to identify actual or potential erosion and surface runoff on the project site and to identify BMP maintenance needed so that corrective measures may be immediately undertaken.

Any erosion, surface runoff problems, wastewater disposal problems, or other adverse conditions that are found on the subject property must be clearly described as well as the corrective measures taken to mitigate the conditions. In the event that no such problems are found on the property, a statement certifying this condition must be included for each monthly inspection.

Results of these inspections, focusing on identification of maintenance needs and the corrective measures taken, must be recorded and reported. At a minimum, the inspections must include the areas and items listed below.

1. Lodges, Maintenance Shops, Parking Areas and Roads

At the base and day lodges, maintenance shops, parking areas, and roads where the Discharger engages in snow removal and deicing activities, the inspection must include and note damage to:

- a. Drop Inlets, examine for:
- i. Clogging by debris, ice, or sediment
 - ii. Runoff movement into the infiltration gallery

- iii. Damage by vehicles or snow plow equipment
- b. Drainage Collection System, examine for:
 - i. Clogging by debris, ice or sediment
 - ii. Free movement of water through pipes, channels, and appurtenances
 - iii. Damage to drainage collection system
 - iv. Adequate energy dissipation
- c. Sediment Traps and Vaults, examine for:
 - i. Depth and volume of accumulated sediment in each chamber of traps, vaults, or galleries
 - ii. Filter condition
 - iii. Date of last cleaning and/or filter replacement
 - iv. Presence and nature of sheen, foam, trash, or scum
- d. Erosion Control, examine for:
 - i. Condition of vegetative cover
 - ii. Gully or rill erosion on slopes
 - iii. Sediment buildup at toe of slopes
 - iv. Vegetation damage by vehicles or heavy foot traffic
- e. Culvert Outlet, examine for:
 - i. Adequate energy dissipation, downstream erosion
 - ii. Blockage of culvert outlet by sediment or other debris
 - iii. Removal of trash and debris from drainage needed.
- f. Upstream drainage diversion structures, examine for:
 - i. Structures are in place
 - ii. Structures are operational – no clogging by debris, ice or sediment
- g. Spilled or improperly stored chemicals, paints, fuels, sealants, oils, greases, anti-freeze etc., exposed to weather
- h. Sediment/sand build-up on parking lot and paved roads
- i. Condition of oil and sediment traps and residual capacity

2. Remainder of Ski Area

The Discharger must monitor the condition of ski slopes, summer maintenance roads, revegetation areas, and drainage structures based on the items listed below. Potential problem areas and necessary corrective actions must be identified and recorded. Corrective actions implemented and the implementation date for the identified corrective actions must be recorded.

Results of ski area monitoring must be reported quarterly and include the inspection date, inspector(s) name, problems noted, corrective measures taken, and a schedule for completion of corrective measures.

- a. Revegetated areas
- b. Culverts at drainage crossings (all culverts > 36" should be inspected annually at a minimum)
- c. Designated roadways
- d. Closures and use controls on closed roadways
- e. Energy dissipaters on culverts
- f. Sedimentation basins/irrigation ponds
- g. Rock-lined channels
- h. Mechanical stabilization measures (e.g. Riprap and gabions)
- i. Water bars
- j. Water supply, sewer, snowmaking, and irrigation water lines and holding tanks
- k. Unprotected soil piles
- l. Infiltration trenches
- m. Gully/rill erosion on slopes
- n. Other erosion control and storm water runoff facilities

C. Annual Worklist

The Discharger must develop and report, on an annual basis, a list of major projects/corrective actions to be undertaken each year that involve ground disturbance and may impact water quality. This report must include but is not limited to:

1. Grading of existing runs
2. Tree removal of greater than 100 trees or any tree removal in SEZs
3. Installation of new erosion control facilities
4. Areas to be treated for erosion control
5. New ski run construction
6. New road construction
7. Lift construction

8. Installation of snowmaking facilities
9. Other projects involving large scale disturbance

D. Snow Conditioning and Snowmaking Enhancement Monitoring

If snow conditioning or snowmaking enhancement chemicals or other additives are used on ski slopes (including tubing runs, half-pipes, jumps, or terrain parks), a log of the following information must be kept:

1. Location of application and type of material applied
2. Dates of application
3. Amounts of applications
 - a. total pounds
 - b. pounds per acre
4. Compositions of the snow conditioning or snowmaking enhancement chemicals or other additives

E. Deicers and Abrasive Application and Recovery Monitoring

1. For abrasives or ice control agents that the Discharger applies on parking lots and roadways, the following must be recorded and reported:
 - a. Location of the source for the material.
 - b. Types, physical properties, and chemistry of abrasives and ice control agents. Parameters must be determined from composite samples representative of each unique source material used for road and parking lot abrasives. Abrasives must be analyzed for the parameters shown below. Alternative methods may be used upon approval by the Regional Board Executive Officer.

Parameter	Method	Minimum Reporting Limit
Total Nitrogen (TKN+nitrate+nitrite)	EPA 351.3, 353.3, 354.1	5 mg/kg, 0.5 mg/kg, 0.5 mg/kg
Total Phosphorus	EPA 365.3	0.5 mg/kg
Soluble Phosphorus (dissolved orthophosphate)	EPA 365.3	0.5 mg/kg
Percent Organic Matter (total volatile residue)	EPA 160.4	NA
Sand Equivalent	CTM 217	NA
Durability	CTM 229	NA
Gradation	CTM 202	NA

Ice control agents must be analyzed for the parameters shown below. Alternative methods may be used upon approval by the Regional Board Executive Officer.

Parameter	Method	Minimum Reporting Limit
Total Nitrogen (TKN+nitrate+nitrite)	EPA 351.3, 353.3, 354.1	5 mg/kg, 0.5 mg/kg, 0.5 mg/kg
Total Phosphorus	EPA 365.3	0.5 mg/kg
Percent sodium	EPA 6010	2%

- c. The quantity of ice control agents and abrasives used on Heavenly property and on City of South Lake Tahoe (CSLT) streets maintained by Heavenly must be recorded and reported. When the Discharger applies deicers and/or abrasives on parking lots, base facilities, private roads, or CSLT roads leading to the California Base area, the Discharger must keep a daily log and report a monthly summary of the following:
 - i. Location and dates of applications, including street names if applied within CSLT
 - ii. Amounts of each material applied daily, with subtotals for Heavenly property and CSLT streets
- d. The quantity of material recovered from the roadways and BMPs must be recorded and reported according to the method of recovery. The Discharger must keep a daily log and report a monthly summary of the following:
 - i. Location and dates of maintenance, including street names if within CSLT
 - ii. Amounts of material recovered by maintenance activities
 - iii. Location of disposal facilities

F. Heavenly Valley Creek TMDL Monitoring

- 1. In addition to the in-stream monitoring required in Section II.A., the Discharger must monitor the following parameters related to Desired Instream Conditions listed in *Water Quality Control Plan for the Lahontan Region* (Basin Plan) Table 4.13-HVC-1 (Heavenly Valley Creek TMDL).
 - a. U.S. Forest Service (USFS) Region 5 Stream Condition Inventory (SCI) full surveys at least once every four years corresponding with the second year of benthic macroinvertebrate (BMI) sampling intervals

(see F.1.b. below) on Heavenly Valley Creek and Hidden Valley Creek. In doing so, efforts should be made to perform the SCI monitoring after the bioassessment sampling, to avoid disturbance of instream habitats prior to bioassessment collections.

b. BMI community health must be monitored as follows:

- i. Site Locations. Four sites will be monitored. Three stream reaches will be sampled along Heavenly Valley Creek: 1) at USFS property line (approx. 6,614 ft. elev.); 2) below Patsy's (approx. 7,921 ft. elev.); and 3) at Sky Meadows (approx. 8,540 ft. elev.); and one "control" stream reach will be sampled at Lower Hidden Valley Creek (approx. 6,642 ft. elev.)
- ii. Sampling Frequency. Bioassessment monitoring must be conducted at all four sites in 2010 and 2011, 2014 and 2015, etc., at a frequency of two years on, two years off.
- iii. Index Period. Macroinvertebrate sampling must be conducted between July 1 and August 31, depending on flow conditions (i.e., sampling should occur earlier during the index period in dry years, and later in wet years, but always within the July-August index period).
- iv. Field Methods. In collecting macroinvertebrate samples, the discharger must use the "Reachwide Benthos (Multihabitat) Procedure" specified in *Standard Operating Procedures for Collecting Benthic Macroinvertebrate Samples and Associated Physical and Chemical Data for Ambient Bioassessments in California* (Ode 2007).¹
- v. Laboratory Methods. Macroinvertebrates must be identified and classified according to the Standard Taxonomic Effort (STE) Level I of the Southwestern Association of Freshwater Invertebrate Taxonomists (SAFIT),² and using a fixed-count of 600 organisms per sample.
- vi. Quality Assurance. Beginning in 2011, and thereafter, the discharger or its consultant(s) must have and follow a quality assurance (QA) plan that covers the required bioassessment monitoring. The QA plan must include, or be supplemented to include, a specific requirement for external QA checks (i.e., verification of taxonomic identifications and correction of data where

¹ This document is available on the Internet at: http://www.swrcb.ca.gov/swamp/docs/phab_sopr6.pdf.

² The STEs developed and maintained by SAFIT list the requirements for Level I and Level II taxonomic effort, and are located at: <http://www.safit.org/ste.html>. When new editions are published by SAFIT, they will supersede all previous editions. All editions will be posted at SAFIT's website.

errors are identified). External QA checks must be performed on one of the discharger's macroinvertebrate samples collected per calendar year, or ten percent of the samples per year (whichever is greater). QA samples must be randomly selected. The external QA checks must be paid for by the discharger, and performed by the California Department of Fish and Game's Aquatic Bioassessment Laboratory. An alternate laboratory with equivalent or better expertise and performance may be used if approved in writing by Regional Board staff. A copy of the QA plan must be provided to Regional Board staff upon request.

- vii. Sample Preservation and Archiving. For purposes of this MRP, the quoted terms are described as follows: The "original sample material" is that material (i.e., macroinvertebrates, organic material, gravel, etc.) remaining after the subsample has been removed for identification. The "remaining subsampled material" is that material (e.g., organic material, gravel, etc.) that remains after the organisms to be identified have been removed from the subsample for identification. (Generally, no macroinvertebrates are present in the remaining subsampled material, but this needs to be verified via QA completeness checks.) The "identified organisms" are those organisms within the subsample that are specifically identified and counted.

The original sample material must be stored in 70 percent ethanol and retained by the discharger until: 1) all QA analyses specified herein and in the relevant QA plan are completed; and 2) any data corrections and/or re-analyses recommended by the external QA laboratory have been implemented. The remaining subsampled material must be stored in 70 percent ethanol and retained until completeness checks have been performed according to the relevant QA plan. The identified organisms must be stored in 70 percent ethanol, in separate glass vials for each final ID taxon. (For example, a sample with 45 identified taxa would be archived in a minimum of 45 vials, each containing all individuals of the identified taxon.) Each of the vials containing identified organisms must be labeled with taxonomic information (i.e., taxon name, organism count) and collection information (i.e., site name/site code, waterbody name, date collected, collection method). The identified organisms must be archived (i.e., retained) by the discharger for a period of not less than three years from the date that all QA steps are completed, and must be checked at least once per year and "topped off" with ethanol to prevent desiccation. The identified organisms must be relinquished to the Regional Board upon request by any Regional Board staff.

viii. Data Submittal. The macroinvertebrate results and other site and method details (i.e., site name, location coordinates, sample date/time, taxonomic identifications consistent with the specified SAFIT STEs, number of organisms within each taxa, etc.), must be submitted to the Regional Board in electronic format using a completed Surface Water Ambient Monitoring Program (SWAMP) "Taxonomy Results Template" for Benthic-Bioassessment-Algae. The most current version of SWAMP's Taxonomy Results Template must be used.

ix. Invasive Species Prevention. In conducting the required bioassessment monitoring, the discharger and its consultants must take all reasonable precautions to prevent the introduction or spread of aquatic invasive species. At minimum, the discharger and its consultants must follow the recommendations of the California Department of Fish and Game to minimize the introduction or spread of the New Zealand mudsnail.³

2. Monitoring of Desired Ski Slope Conditions:

Monitor status of Heavenly Ski Resort's cumulative watershed effects (CWE) mitigation program for maintaining BMPs for roads and ski runs.

G. Mitigation Monitoring

The Discharger must monitor the status of mitigation measures identified and required in the Master Plan EIR to mitigate for significant and potentially significant water quality impacts.

H. Facilities and Watershed Awareness

The Discharger must annually inform ski area employees of the location and purpose of ski area erosion control improvements and will encourage employees to report possible maintenance needs to supervisors and the facilities manager.

III. REPORTING

The following reports are required to be submitted to the Regional Board.

³ Instructions for controlling the spread of NZ mudsnails, including decontamination methods, can be found at: <http://www.dfg.ca.gov/invasives/mudsnail/>


Report	Report Contents
Quarterly Report	<ul style="list-style-type: none"> • Water quality monitoring of ski area • Erosion control and facilities monitoring • Remainder of ski area monitoring
Annual Report	<ul style="list-style-type: none"> • Water quality monitoring of ski area • Erosion control and facilities monitoring • Remainder of ski area monitoring • Annual worklist • Snow conditioning and snowmaking monitoring • Deicers and abrasives application and recovery • Desired ski slope conditions (CWE mitigation program and ski slope stability monitoring) • Mitigation monitoring • Facilities watershed awareness training
BMI/SCI Report	Electronic file submittal of TMDL BMI/SCI data & metadata
Comprehensive Review	Include all Annual Report elements with the addition of a comprehensive review of watershed restoration efforts, available BMI/SCI results, and attainment of water quality standards. The comprehensive reviews must cover the period of 2005 through 2011 and each subsequent five year period thereafter.

The above data, including sampling results and inspections, must be submitted to the Regional Board in accordance with the schedule described below. The Discharger must provide copies of the laboratory data sheets and any field data sheets, and compile the data in a tabular form for review by the Regional Board. The discharger must arrange the data in a tabular form so that the date, the constituents, and the concentration are readily discernible. The data must be summarized in such a manner as to clearly illustrate compliance with the discharge requirements. Reports must be submitted at the frequency listed below.

Monitoring Period	Report Due Date
<u>Quarterly Report</u>	
October 1 – December 31	February 1
January 1 – March 30	May 1
April 1 – June 30	August 1
<u>Annual Report*</u>	
October 1 – September 30	January 15 (except years Comprehensive Review is due)
<u>BMI/SCI Results</u>	
July 1 – August 31**	May 15 of each year after sampling
<u>Comprehensive Review</u>	
October 1, 2005 – September 30, 2011, and every 5 years thereafter	January 15, 2012 and every 5 years thereafter

* Annual Report includes first three quarterly report periods plus the fourth quarter (July 1 – September 30) of the water year.

** At frequency of two years on, two years off, as detailed in Section F.1.b. of this MRP.

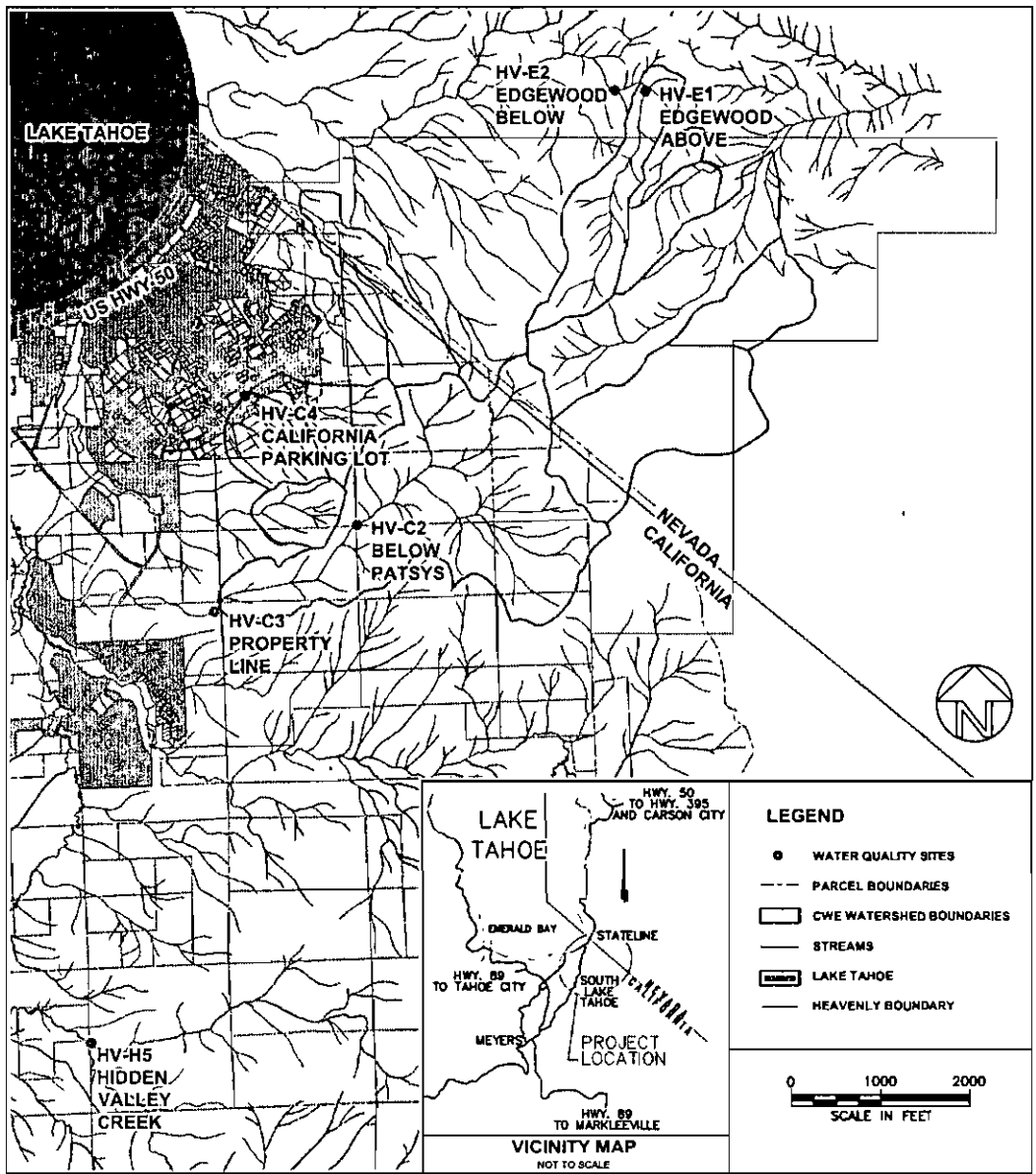
Ordered By: 
HAROLD J. SINGER
EXECUTIVE OFFICER

Date: May 31, 2011

Figures: 1. Surface Water Sampling Locations
2. Storm Filter water quality treatment system sampling points

Attachments: 1. General Provisions for Monitoring and Reporting
2. Monitoring Report Certification Cover Page

Figure 1



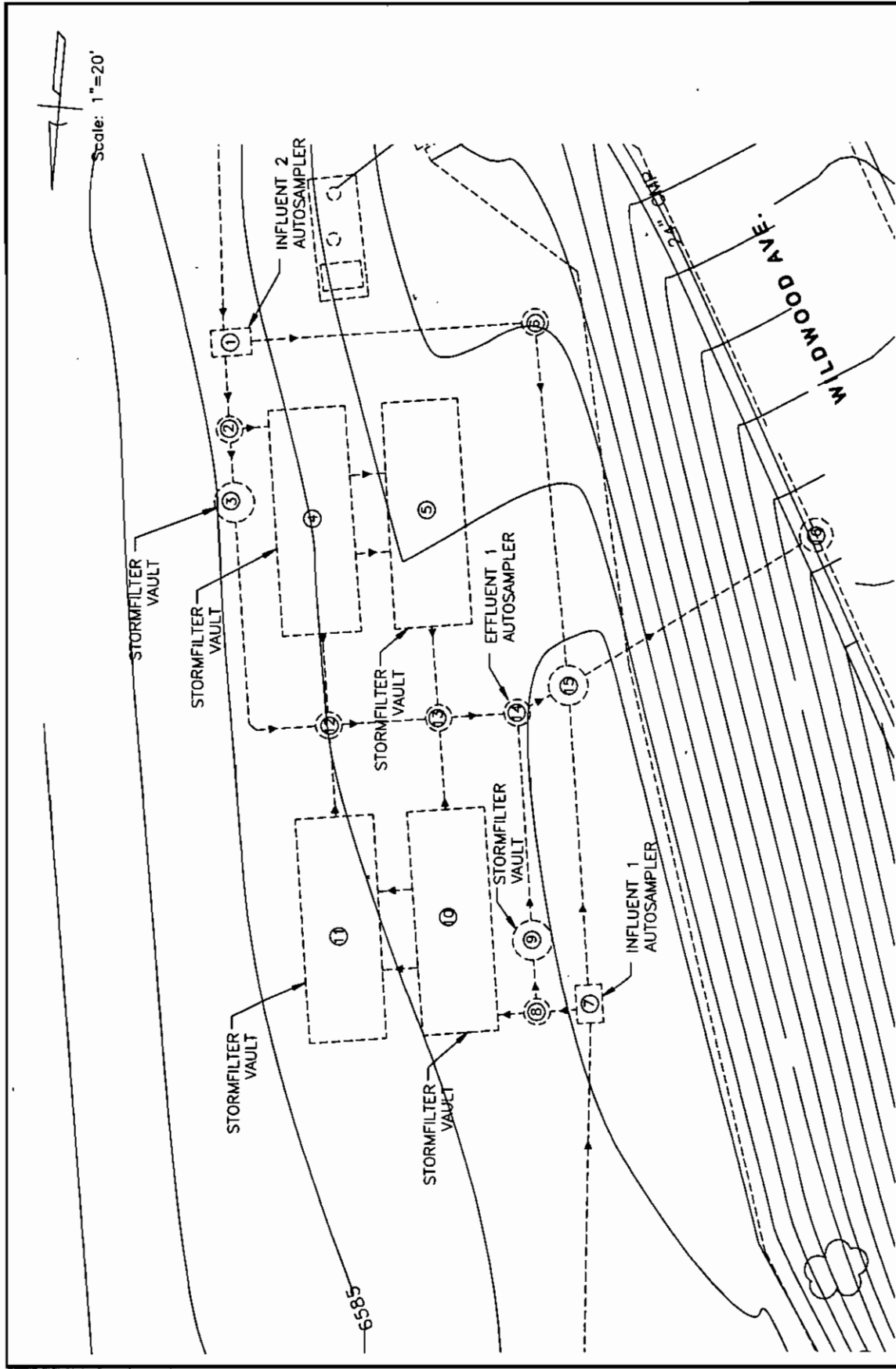


FIGURE 2
 California Base Lodge Parking Lot
 Storm Filter Water Quality Treatment System

ATTACHMENT 1

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD LAHONTAN REGION

GENERAL PROVISIONS FOR MONITORING AND REPORTING

1. **SAMPLING AND ANALYSIS**

- a. All analyses shall be performed in accordance with the current edition(s) of the following documents:
 - i. Standard Methods for the Examination of Water and Wastewater
 - ii. Methods for Chemical Analysis of Water and Wastes, EPA
- b. All analyses shall be performed in a laboratory certified to perform such analyses by the California State Department of Health Services or a laboratory approved by the Regional Board Executive Officer. Specific methods of analysis must be identified on each laboratory report.
- c. Any modifications to the above methods to eliminate known interferences shall be reported with the sample results. The methods used shall also be reported. If methods other than EPA-approved methods or Standard Methods are used, the exact methodology must be submitted for review and must be approved by the Regional Board prior to use.
- d. The Discharger shall establish chain-of-custody procedures to insure that specific individuals are responsible for sample integrity from commencement of sample collection through delivery to an approved laboratory. Sample collection, storage, and analysis shall be conducted in accordance with an approved Sampling and Analysis Plan (SAP). The most recent version of the approved SAP shall be kept at the facility.
- e. The Discharger shall calibrate and perform maintenance procedures on all monitoring instruments and equipment to ensure accuracy of measurements, or shall insure that both activities will be conducted. The calibration of any wastewater flow measuring device shall be recorded and maintained in the permanent log book described in 2.b, below.
- f. A grab sample is defined as an individual sample collected in fewer than 15 minutes.
- g. A composite sample is defined as a combination of no fewer than eight individual samples obtained over the specified sampling period at equal intervals. The volume of each individual sample shall be proportional to the discharge flow rate at the time of sampling. The sampling period shall equal the discharge period, or 24 hours, whichever period is shorter.

- iv. In the case of a municipal, state or other public facility, by either a principal executive officer, ranking elected official, or other duly authorized employee.
- e. Monitoring reports are to include the following:
 - i. Name and telephone number of individual who can answer questions about the report.
 - ii. The Monitoring and Reporting Program Number.
 - iii. WDID Number.
- f. Modifications

This Monitoring and Reporting Program may be modified at the discretion of the Regional Board Executive Officer.

4. NONCOMPLIANCE

Under Section 13268 of the Water Code, any person failing or refusing to furnish technical or monitoring reports, or falsifying any information provided therein, is guilty of a misdemeanor and may be liable civilly in an amount of up to one thousand dollars (\$1,000) for each day of violation under Section 13268 of the Water Code.

T:\FORMS\GENPROV MRP.doc

file: general pro mrp

**b) Section(s) of WDRs/NPDES
Permit Violated:**

c) Reported Value(s) or Volume:

**d) WDRs/NPDES
Limit/Condition:**

**e) Date(s) and Duration of
Violation(s):**

f) Explanation of Cause(s):

g) Corrective Action(s)
(Specify actions taken and a schedule
for actions to be taken)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision following a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my knowledge of the person(s) who manage the system, or those directly responsible for data gathering, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

If you have any questions or require additional information, please contact _____ at the number provided above.

Sincerely,

Signature: _____

Name: _____

Title: _____