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**To:** <BWines@waterboards.ca.gov>, <dbowyer@waterboards.ca.gov>  
**CC:** "Wesseling, Henrik (Cupertino) NA" <Henrik.Wesseling@hanson.biz>, <shung...>  
**Date:** 11/14/2008 2:50 PM  
**Subject:** Permanente Creek Restoration Plan - Plan Scope  
**Attachments:** RWQCB\_Perm Creek Restoration\_11142008.pdf

Dale / Brian:

Please review the enclosed scope of the Permanente Creek Restoration Plan.

Per our August 20, 2008 conversation and September 2, 2008 follow-up letter, we (Hanson) are requesting that RWQCB (the Board) comment and concur on the structure and content on the Restoration Plan prior to commencing the Plan's detail.

Please regard this electronic copy of the enclosed letter as submittal of a conceptual proposal of Phase 2 and Phase 3 of Hanson's long-term creek restoration plan (Plan). An original of this enclosed letter sent via FEDEX to you both and should be available at your Oakland office on Monday, November 17, 2008.

Please do not hesitate to contact me with any questions or comments.

Thank you,

Scott A Renfrew

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November 14, 2008

Dale Bowyer  
Brian Wines  
California Regional Water Quality Control Board  
San Francisco Bay Region  
1515 Clay Street, Ste. 1400  
Oakland, CA 94612

Re: Permanente Creek  
Long-Term Restoration Plan Outline  
RWQCB Site No. 02-43-C0596 (bkw)

Dear Mr. Bowyer and Mr. Wines:

Lehigh Southwest Cement Company ("Lehigh"), in consultation with URS Corporation ("URS") is pleased to provide this Work Plan to the Regional Water Quality Control Board, San Francisco Bay Region ("Water Board"). The Work Plan describes the methodology that Lehigh intends to use to prepare the Long-term Restoration Plan ("Restoration Plan") for Permanente Creek, as required by Cleanup and Abatement Order No. 99-018.

This letter is intended to give the Water Board an opportunity to provide input regarding the content of the Restoration Plan. We provide this letter in lieu of making a presentation to the Water Board, as initially outlined in our September 2, 2008 letter, based on our understanding that the Water Board does not believe that an in-person presentation is necessary.

## BACKGROUND

### Site Overview

The Permanente Quarry is a limestone and aggregate mining operation in the Santa Clara County foothills, west of the City of Cupertino. Quarrying began in 1903, and in 1939, a cement plant was added to the site operations. Mining and cement manufacture have been continuous since. Hanson Permanente Cement, Inc. ("Hanson") currently owns the site, and Lehigh manages mining and cement operations.

Permanente Creek flows through Hanson's property. Permanente Creek is a natural stream that has its headwaters in the higher elevations of the Coast Range and flows eastward until it reaches the floor of the Santa Clara Valley. Permanente Creek enters Mountain View Slough approximately where the creek crosses the I-280 freeway, and from that point flows eventually enter the South San Francisco Bay. Permanente Creek follows a natural course until approximately mid-way through Hanson's property, when it reaches the first of a series of

Dale Bowyer  
Brian Wines  
November 14, 2008  
Page 2

sedimentation basins, culverts and channelized segments intended to manage stormwater flow. Lehigh manages and maintains these facilities as part of its normal operations.

On July 27, 1999, the Water Board issued Cleanup and Abatement Order No. 99-018 ("CAO") to address sediment discharge in Permanente Creek resulting from site operations. The CAO required interim and long-term corrective measures for sediment control. Hanson has satisfied the majority of these requirements, through activities that include maintaining existing sedimentation basins, the construction and maintenance of additional off-creek sedimentation basins and implementation of revegetation and slope stability measures. The Water Board has recognized that Hanson's efforts successfully reduced sediment loading into Permanente Creek.

The only remaining requirement of the CAO is Item C.9, which requires Lehigh/Hanson to provide the Water Board with a long-term creek restoration plan. The CAO contemplated that this requirement would be completed in three phases. Phase One, completed in September 2000 by URS Corporation (URS), involved a system wide field reconnaissance (Exhibit 1). Phases Two and Three required, respectively, the prioritization of candidate restoration sites, and development of an implementation schedule and design alternatives.

Lehigh representatives met with the Water Board on August 20, 2008 to discuss Lehigh's intent to complete Phases Two and Three of Item C.9. After that meeting, Lehigh provided the Water Board with a summary letter dated September 2, 2008. The meeting and letter established a schedule for completing Phases Two and Three of Item C.9. That schedule required Lehigh to provide the Water Board with a conceptual overview of Phases Two and Three by November 15, 2008, which is set forth below, and with a draft of the Restoration Plan itself by April 15, 2009. Lehigh has contracted with URS to complete Phases Two and Three of Item C.9.

### **OVERVIEW OF PROPOSED RESTORATION PLAN**

This Work Plan describes the methodology and assumptions that will guide the preparation of the Restoration Plan for Permanente Creek. The Restoration Plan will:

- Build on Phase One work completed on-site under the Cleanup and Abatement Order No. 99-018, Item C.9. Phase One,
- Propose restoration activities for "all areas of the Creek affected by the Facility" (CAO, Item C.9. Phase Two),
- Prioritize a list of candidate restoration sites and activities (CAO, Item C.9. Phase Two)
- Develop an implementation schedule for the candidate sites (CAO, Item C.9. Phase Three).

For your reference, we have included a draft outline / table of contents for the Restoration Plan as an appendix to this letter. This is to provide the Water Board with an overview of

Dale Bowyer  
Brian Wines  
November 14, 2008  
Page 3

Lehigh's current approach, understanding that the individual elements contained in the outline are likely to be modified as work on the Restoration Plan progresses.

### **Preparatory Work to Update Phase One**

Lehigh and URS believe that some preliminary field work is necessary to update the Phase One report that was submitted to the Water Board in September 1999, to account for the passage of approximately eight years and ensure that baseline conditions are adequately captured. This work has already been initiated. URS has already started the field work required to reassess the current reaches of Permanente Creek affected by Lehigh's operations that may require restoration, to determine the degree of site change and status of the conditions in Phase One Reaches A through G, and to develop restoration options.

Lehigh and URS will develop restoration options that address current and anticipated changes to Permanente Creek by adding the following analyses to the Phase One data set:

- Historic and current aerial photo analysis, to provide a view of the watershed before disturbances to Permanente Creek, identify events that affected Permanente Creek and evaluate how the stream adjusted to the changes,
- Analysis of stream impairment causes (on-site and watershed based),
- Analysis of stream geomorphology (on-site and reference reaches),
- Profile survey of selected areas of the upper reaches (those unaffected by in-stream structures) to compare current and 2000 sediment deposits,
- Identification of restoration opportunities and constraints associated with the goals and objectives based on site conditions.

The field surveys will evaluate Reaches A-G to determine if sediment sources identified in the September 2000 report remain active, and whether new sources have developed. A Stream Reach Inventory and Channel Stability Evaluation (Pfankuch 1975) or Proper Functioning Condition Assessment (TR 1737-15 1998) will be used to evaluate and catalogue the Creek conditions, and rank the relative channel stability. The site review will also assess whether new reach designations should be added or subtracted to better categorize channel characteristics or channel geomorphic types. The topographic plan-view Figure 3-3 of the Phase One report will be updated with new site topography and updated reach definitions.

The site assessment will assign stream classifications for each reach, either confirming the Phase One designations or by performing additional geomorphic analysis using the Rosgen stream classification (1996) methods. The planned reference sites include Swiss Creek; alternatively, other streams with similar watershed characteristics will be identified and classified, if changes have occurred or if additional reference data is needed to identify restoration options.

A new topographic survey of select areas of Permanente Creek will identify degradation or deposition changes over the past eight years. The elevation data will be used to compare longitudinal profile and cross sections changes, for example, to determine sediment depth changes between stations 103+00 and 157+00. The topographical survey results will be used to assess the fluvial morphology and prescribe appropriate restoration practices based on the expected morphological progression of the stream during future operations. The longitudinal profile Figure 3-4 of the Phase One report will be updated with new survey data and will show reach definitions and new cross section locations.

### Restoration Goals and Objectives

The Restoration Plan will identify restoration goals and objectives according to Phase One report (as updated), the historical data collected regarding the pre-operation condition of Permanente Creek, and the Water Board's current Basin Plan.<sup>1</sup>

The Basin Plan lists beneficial uses of Permanente Creek as cold freshwater habitat, fish spawning, wildlife habitat, water contact recreation, and non-water contact recreation. Restoration design goals will be based on creating conditions that allow realization of beneficial uses. The Restoration Plan will incorporate restoration design elements that create wildlife habitat and support cold freshwater habitat and fish spawning, wherever practical. Data collected from the site assessment and reference reaches will be used to identify and evaluate the most suited restoration alternatives that support the beneficial uses.

Analysis of new data from the site assessment and geomorphic evaluations will be detailed in the Restoration Plan along with a prescription of various restoration standards that can be applied to each reach at quarry closure, or on an interim basis as appropriate. The Restoration Plan will update Figure 3-3 of the Phase One report to identify sediment source locations and candidate restoration sites, listing standard restoration measures for each location. The Restoration Plan will incorporate, as appropriate, reference materials and state regulations pertaining to stream corridor restoration design standards and methods, including the following:

- California Salmonid Stream Habitat Restoration Manual (CDFG 2002),
- Stream Restoration Design, NEH-654 (NRCS 2008),
- Streambank and Shoreline Protection, NEH-650 (NRCS 1996),
- The Practical Streambank Bioengineering Guide (NRCS 1998),
- Stream Corridor Restoration: Principles, Processes, and Practices (Federal Interagency Stream Restoration Working Group 1998),

<sup>1</sup> San Francisco Bay Basin (Region 2) Water Quality Control Plan (California Regional Water Quality Control Board San Francisco Bay Region. Oakland, California. January 18, 2007).

Dale Bowyer  
Brian Wines  
November 14, 2008  
Page 5

- Streamside planting Guide for San Mateo and Santa Clara County Streams (San Francisquito Creek Watershed Coordinated Resource Management and Planning Process),
- Surface Mining Reclamation Act - Reclamation Standards (California Code of Regulations, Title 14, Article 9).

### Site Prioritization

The Restoration Plan will include a prioritization method for ranking candidate sites and distinguishing among the restoration alternatives for each reach. Restoration prioritization recommendations will be based on a ranking method that involves rating candidate sites according to a series of metrics such as: access, feasibility, relationship to elements affected by the closure plan (future plant operations and closure schedule); level of effort, cost, ecological benefit, support of beneficial uses, risk, and anticipated success. The Restoration Plan will contain an implementation schedule for the reaches and restoration actions. In general, implementation will occur at site closure (generally, the permanent cessation of mining and/or cement production activities); however, the Restoration Plan will consider appropriate and feasible interim restoration measures.

### Restoration Design

The Restoration Plan will include specific design elements to be applied as appropriate to candidate features. The design elements will be dictated by restoration standards, and by restoration goals and objectives. Where possible, specific design elements will also be guided by Water Board comments (including, for instance, those comments emailed by the Water Board to Lehigh on November 4, 2008). Restoration design elements will address the following:

- Natural channel/roughened channel design
  - Step pool design
  - Alluvial channel design
- Meander restoration/channel realignment
- Floodplain restoration
  - Riparian woodland planting/seeding/live staking
  - California Red-Legged Frog habitat enhancement/seasonal pool creation
- Fish habitat structures
  - Large woody debris (rootwad/log revetments)
  - In-stream structures: rock/log vanes and J-hooks
  - Riffle-pool complexes
- Fish barrier removal
  - Debris dams/mudflows/rock overburden
  - Slope/velocity barriers
  - Culverts/weirs/concrete lined channel
- Bioengineered bank stabilization

Dale Bowyer  
Brian Wines  
November 14, 2008  
Page 6

- Geotechnical matting/vegetated geogrid
- Live fascines
- Brush mattresses
- Riprap with joint plantings
- Live cribwalls
- Live staking
- Vegetation plantings/seeding
- Mulching/erosion control
- Slope stabilization
  - Slope grading: slope breaks, slope drains, geotechnical fabrics
  - Hardening/cribwalls
  - Diversions
  - Fascines
  - Vegetation plantings/seeding

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### CONCLUSION

Lehigh appreciates any comments the Water Board may wish to offer, with respect either to Lehigh's conceptual approach or to the individual components of the Restoration Plan. We ask, however, that the Water Board provide any feedback by November 30, 2008, so that Lehigh and URS have sufficient time to incorporate any suggestions or proposals and meet the April 15, 2009 deadline established for this project.

Thank you for your consideration,

*J. Wesseling* 11-14-2008

Henrik Wesseling  
Plant Manager - Lehigh Southwest Cement Company  
Permanente Plant - Cupertino, CA

cc. Scott Renfrew - LSCC  
Sean Hungerford - Dienpenbrock Harrison  
Mike Velzy - URS Corporation

Appendix: Permanente Creek - Outline for the Long-Term Restoration Plan

*Doc*  
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**Permanente Creek  
Outline for the Long-Term Restoration Plan**

<b>1.0 INTRODUCTION.....</b>	
1.1 CLEANUP AND ABATMENT ORDER.....	
1.2 PLAN PURPOSE AND GOALS .....	
1.3 SITE LOCATION.....	
1.4 SITE HISTORY .....	
1.5 WATERSHED CHARACTERISTICS .....	
1.5.1 Hydrology.....	
1.5.2 Land Use and Watershed Modifications.....	
<b>2.0 PERMANENTE CREEK WATERSHED DESCRIPTION.....</b>	
2.1 PLANT COMMUNITIES .....	
2.1.1 Methods.....	
2.1.2 Plant Community Descriptions.....	
2.2 ANIMALS .....	
2.2.1 Description of Survey Methods.....	
2.2.2 Results of Habitat Survey.....	
2.2.3 Results of Fish Survey.....	
2.2.4 Summary of Findings.....	
<b>3.0 GEOMORPHIC CONDITIONS ALONG PERMANENTE CREEK .....</b>	
3.1 GENERAL FEATURES .....	
3.2 STREAM CLASSIFICATION .....	
3.3 HYDROLOGY .....	
3.4 STREAM CHARACTERISTICS .....	
3.4.1 General.....	
3.4.2 Results of Geomorphic Survey.....	
3.5 SEDIMENT LOAD .....	
3.5.1 Sediment Budget .....	
3.6 PLAN VIEW GEOMETRY .....	
<b>4.0 WATER QUALITY OF PERMANENTE CREEK.....</b>	
4.1 INTRODUCTION AND SUMMARY OF 2000 DATA .....	
4.2 2008 INCIDENTAL DATA.....	
<b>5.0 REFERENCE CREEK INVESTIGATION .....</b>	
5.1 INTRODUCTION .....	
5.2 FIELD OBSERVATIONS.....	
5.2.1 Ohlone Creek.....	
5.2.2 Swiss Creek.....	
5.2.3 Stevens Creek/Other Reference Reaches as Needed.....	
5.3 CONCLUSIONS.....	
<b>6.0 RESTORATION MEASURES</b>	
6.1 RESTORATION STANDARDS	
○ Improve in-stream turbidity conditions during wet and dry weather	
○ Decrease sediment impacts to water quality and biota	
○ Increase wetland and riparian habitat	
○ Improve bed and bank stability	
○ Improve fisheries habitat	
○ Avoid impacts to protected species/improve habitat if feasible	



- Remove inline structures/ponds/fish passage barriers/channel hardening
- Restore natural channel morphology and bed/bank materials
- Improve stream competence, sediment conveyance, storage, and redistribution
- Reduce water temperatures
- Approach restoration holistically/on watershed scale

6.2 RESTORATION OPTIONS

- Natural channel/roughened channel design
- Meander restoration/channel realignment
- Floodplain restoration
- Fish habitat structures
- Fish barrier removal
- Bioengineered bank stabilization
- Slope stabilization

7.0 SITE PRIORITIZATION AND SCHEDULE

7.1 PRIORITIZATION PROTOCOL AND CRITERIA

- Potential Metrics: access, feasibility, future operations plans, level of effort, cost, ecological benefits, risk/anticipated success

7.2 PRIORITIZATION RESULTS

- Table of candidate sites with assigned metrics and priority ranking

7.3 SCHEDULE

7.4 INTERIM MONITORING AND REPORTING

8.0 REFERENCES.....