AECOM

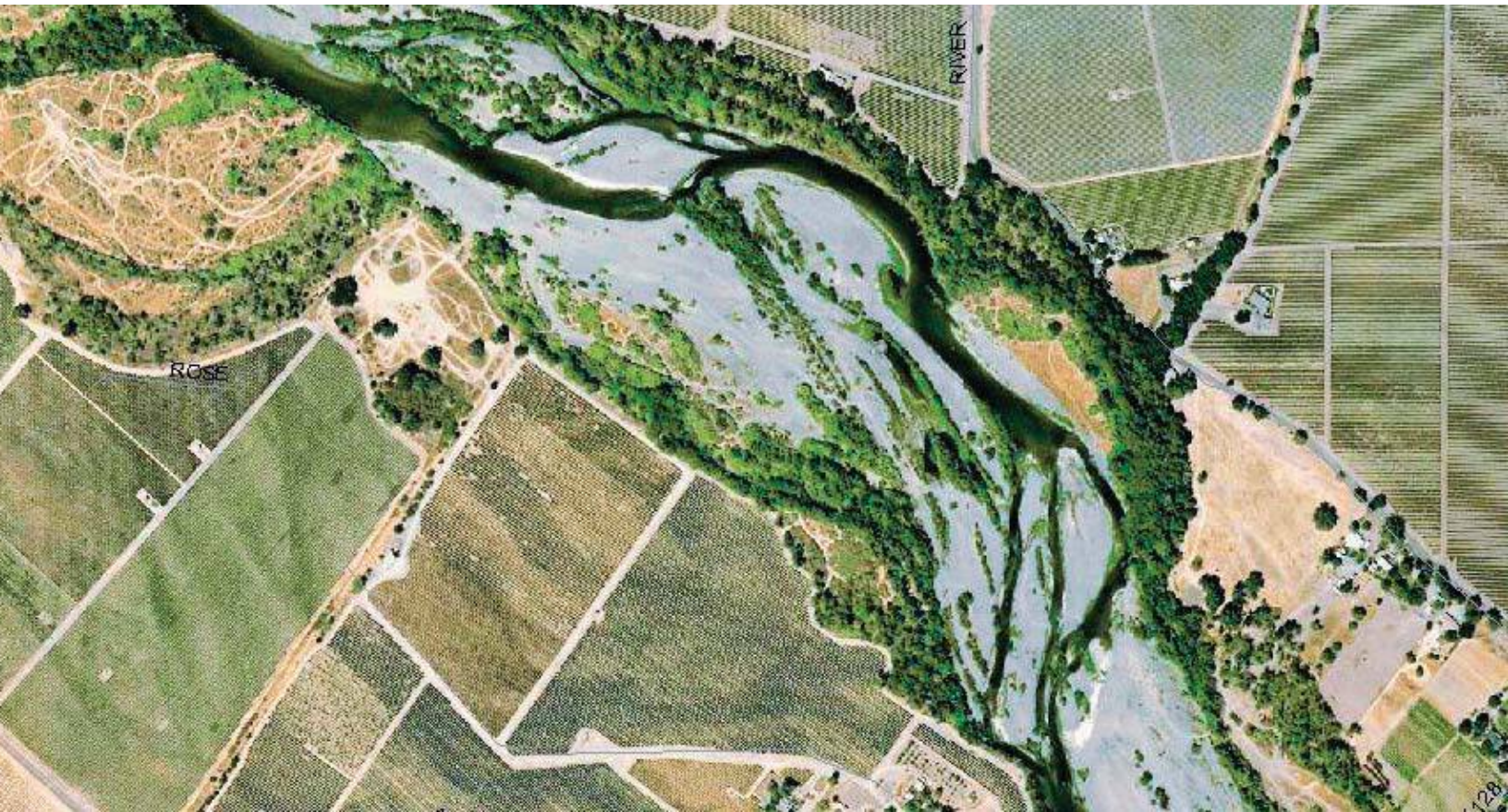
September 2010

Syar Alexander Valley Instream Mining Project and Sonoma County ARM Plan Amendments

Response to Comments Document

SCH# 2006042101

Prepared for
County of Sonoma Permit
and Resource Management Department



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1.0 INTRODUCTION

1.1 ENVIRONMENTAL REVIEW PROCESS

On April 30, 2010, the County of Sonoma (the Lead Agency) released for public review a Draft Environmental Impact Report (Draft EIR) on the proposed Syar Alexander Valley Instream Mining Project and Sonoma County Aggregate Resource Management (ARM) Plan Amendments (proposed project) (State Clearinghouse No. 2006042101). A 48-day public review and comment period on the Draft EIR began on April 30, 2010, and closed on June 17, 2010. The County Planning Commission also held a public hearing to receive public comment on the Draft EIR at the Sonoma County Permit and Resource Management Department (PRMD) hearing room, at 2550 Ventura Avenue in Santa Rosa on June 17, 2010.

The Draft EIR for the proposed project, together with this Response to Comments Document and any other information to be added by the Lead Agency, will constitute the Final EIR for the proposed project. The Final EIR is an informational document that must be considered by decision-makers before approving the proposed project (CEQA Guidelines, Section 15090). California Environmental Quality Act (CEQA) Guidelines (Section 15132) specify the following:

> The Final EIR shall consist of:
>
> (a) The Draft EIR or a revision of that draft.
>
> (b) Comments and recommendations received on the Draft EIR either verbatim or in a summary.
>
> (c) A list of persons, organizations, and public agencies commenting on the Draft EIR.
>
> (d) The responses of the Lead Agency to significant environmental points raised in review and consultation process.
>
> (e) Any other information added by the Lead Agency.

This Response to Comments Document has been prepared pursuant to CEQA and in conformance with the CEQA Guidelines. This document incorporates comments from public agencies, organizations and the general public, and contains appropriate responses by the Lead Agency to those comments.

1.2 DOCUMENT ORGANIZATION

This Response to Comments Document contains the Lead Agency's responses to comments raised during the public comment period. The organization of this Response to Comments Document is as follows:

- **Chapter 1** describes the environmental review process and the organization of this Response to Comments Document.
- **Chapter 2** contains the text and figure revisions to the Draft EIR. Some changes were made by the County; others were made in response to comments received on the Draft EIR.

Text changes in this Response to Comments Document are indented and shown in underline and strikeout format. Text shown in underline format is new text added to the EIR. Text shown in strikeout format is text deleted from the Draft EIR. Indented text, presented in normal format (no underline or strikeout), is original text excerpted from the Draft EIR that will remain in the Final EIR and is shown to provide context for the revisions.

- **Chapter 3** contains a list of all persons and organizations that submitted written comments on the Draft EIR during the public review period and/or made comments at the June 17, 2010 public hearing on the Draft EIR.

- **Chapter 4** contains master responses. Numerous comments were received pertaining to three key issues: history of gravel mining in the Russian River and hydrologic setting, the No Project Alternative, and erosion and sedimentation impacts resulting from the project. The master responses provide detailed information related to each of these key issues in one place rather than repeating this information throughout the document.

- **Chapter 5** contains all of the comments received during the public comment period, and the responses to those comments. Each comment letter is assigned a letter (e.g., A, B, C, etc.). Each comment, whether included in a letter or in the public hearing transcript, is labeled with a number. These comment numbers correspond to the numbering system that was applied to copies of the comment letters and the public hearing transcript, which are presented in Appendix A and Appendix B, respectively, of this Response to Comments Document.

2.0 REVISIONS TO THE DRAFT EIR

2.1 CHANGES TO THE PROPOSED PROJECT

Following publication of the Draft EIR, the project sponsor made two changes to the proposed project in response to comments received on the Draft EIR (see Appendix C):

- Haul Routes 2 and 5 were eliminated from the proposed project in order to reduce traffic, air quality and noise impacts on residences along these routes; and
- Gravel would be placed on unpaved access roads to reduce air quality impacts.

These changes resulted in a number of revisions to the Draft EIR that are listed below.

2.2 STAFF-INITIATED CHANGES AND CHANGES THAT WERE MADE IN RESPONSE TO COMMENTS ON THE DRAFT EIR

Sonoma County, the lead agency, made corrections and clarifications to the Draft EIR. Some of these changes were made in response to issues raised by the commenters during the public review period, and others were initiated by the County. These revisions are also presented below. Revisions made in response to comments on the Draft EIR are also presented in Chapter 5 of this Response to Comments Document.

2.3 REVISIONS TO THE DRAFT EIR

The following corrections and changes are made to the Draft EIR and are incorporated as part of the Final EIR. Revised or new language is underlined. Deleted language is indicated by ~~strikethrough~~ text.

1.0 INTRODUCTION AND PROJECT DESCRIPTION

Page 1-3 of the Draft EIR, Figure 1-1 is revised to reflect the elimination of Haul Routes 2 and 5 from the proposed project.

Page 1-9 of the Draft EIR, Figure 1-3 is revised to reflect the elimination of Haul Routes 2 and 5 from the proposed project.

Page 1-11 of the Draft EIR, Figure 1-4 is revised to reflect the elimination of Haul Routes 2 and 5 from the proposed project.

Page 1-13 of the Draft EIR, the fifth paragraph, second sentence is revised as follows:

> Specific roads identified for access to the site include Geyserville Avenue, Canyon Road, ~~Hamilton Lane~~, Banti Lane, Bill Ferguson Road, and Healdsburg Avenue ~~Lytton Station Road, Olivier Road, and Hassett Lane~~.

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Syar Alexander Valley Instream Mining Project

Russian River Gravel Bar Skimming
Sonoma County California

EDAW | AECOM

Revised August, 2010

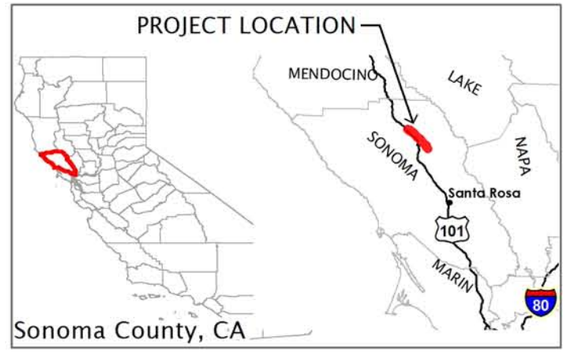

Figure 1-1
Gravel Bar Location Map: Overview

- Gravel Bars
- Staging Area
- Public Access Roads
- Private Access Roads
- Russian River Course (May 2006)
- River Mile Marker (RM ##)
- Main Roads

Source: USDA-FSA Aerial Photography August 2005 (Color)
Delta Geomatics Corporation May 2006 (Black and White)

0 1,250 2,500 Feet

Source: Syar Industries inc. EDAW.
Projection State Plane NAD 1983 California II

Back of Figure 1-1

Syar Alexander Valley Instream Mining Project

Russian River Gravel Bar Skimming
Sonoma County California

EDAW | AECOM

Revised August, 2010

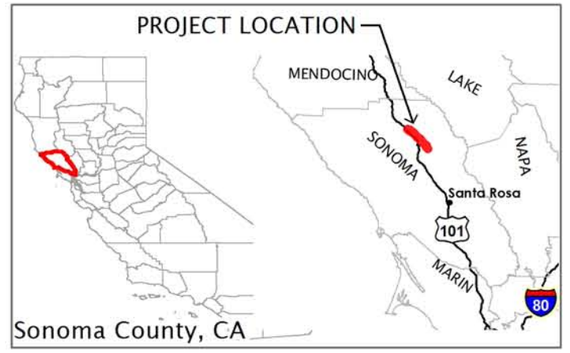

Figure 1-3
Gravel Bar Location Map: Reach 2

- Gravel Bars
- Staging Area
- Public Access Roads
- Private Access Roads
- Russian River Course (May 2006)
- River Mile Marker (RM ##)
- Main Roads

Source: USDA-FSA Aerial Photography August 2005 (Color)
Delta Geomatics Corporation May 2006 (Black and White)

0 1,250 2,500 Feet

Source: Syar Industries inc. EDAW.
Projection State Plane NAD 1983 California II

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Syar Alexander Valley Instream Mining Project

Russian River Gravel Bar Skimming
Sonoma County California

EDAW | AECOM

Revised August, 2010

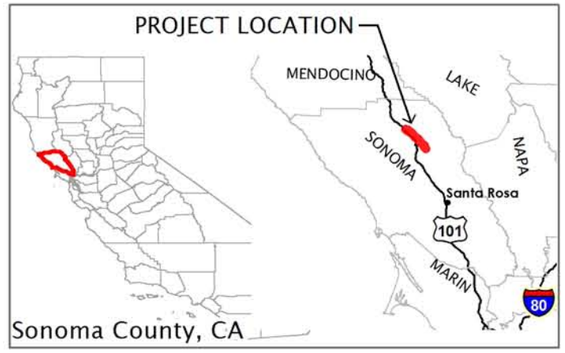


Figure 1-4
Gravel Bar Location Map: Reach 3

- Gravel Bars
- Staging Area
- Public Access Roads
- Private Access Roads
- Russian River Course (May 2006)
- River Mile Marker (RM ##)
- Main Roads

Source: USDA-FSA Aerial Photography August 2005 (Color)
Delta Geomatics Corporation May 2006 (Black and White)

0 1,250 2,500 Feet

Source: Syar Industries inc. EDAW.
Projection State Plane NAD 1983 California II

Back of Figure 1-4

Pages 1-13 to 1-14 of the Draft EIR, the first paragraph below the heading "Alexander Valley Reach Gravel Mining History" is revised as follows:

> The Russian River within the Alexander Valley has been subject to bar skimming operations for almost 100 years. These operations have been intermittent, occurring when gravel has accumulated on the river bars following winter storms that produced high flows and transported large volumes of sand and gravel. Studies done in conjunction with the adoption of the 1994 ARM Plan found that within the Alexander Valley reach of the Russian River, gravel recharges at an average rate of approximately ~~200,000 cubic yards (300,000 tons) per year~~ 64,333 cubic yards (96,500 tons) per year. The specific rate of natural recharge fluctuates depending on the level of high flows during each winter and availability of material upstream of the study area (Kondolf 1997). The gravel bars proposed for mining as part of this project have all been mined previously by various companies. DeWitt Sand and Gravel most recently skimmed three bars in the mining reach (identified with the prefix of "SD") in 1999. Another operator currently has a mining permit to skim bars approximately 5 miles upstream of the study area.

Page 1-17 of the Draft EIR, the first bullet item under Table 1-1 is revised as follows:

> *Transplanting activities*: Syar would transplant stands of living, native riparian vegetation from the proposed skimmed areas to the high bank ~~and head of the bars before and in conjunction with skimming operations on each bar~~, or at other locations on the skimmed bar when those locations are deemed to be stable. Stable locations might include the inside portion of the bar (furthest from the low-water), outside perimeter of the bar (if already vegetated), or in some cases the bar head. Transplanting would take place before and in conjunction with skimming operations on each bar. Syar would monitor the vegetation on an ongoing basis in consultation with PRMD, DFG, and National Marine Fisheries Service (NMFS). Syar would supplement the transplanting approach with pole plantings and other methods if determined necessary through the Adaptive Management Strategy (AMS) process. In some cases, DFG and/or the AMS process may identify large stands of mature trees as important and require their maintenance on-site. Vegetation that is not transplanted (weeds, nonnative species) and debris would be disposed of off-site.

Page 1-58 of the Draft EIR, the last sentence on the page is revised as follows:

> ~~After construction of the enhancement is complete, the low-flow channel would be regarded, the berms would be removed to allow rewatering, and the temporary bypass channel would be backfilled.~~ The upstream and downstream berms would be notched to allow winter flows to return to the dewatered portion of the channel. The low flow channel will not be graded after construction nor will the berms.

Page 1-59 of the Draft EIR, the bulleted list below the heading "Equipment" is revised as follows:

> Syar proposes the use of the following diesel-powered equipment during mining operations:

- Front-end loader
- Bulldozer
- Water truck
- ~~Motor grader~~
- Aggregate hauler
- Fuel and lube truck (this equipment would arrive on-site once a day)
- Crane (this equipment would be present only for installation and removal of temporary river crossings)
- Haul trucks

Page 1-60 of the Draft EIR, Table 1-2 is revised as follows:

Table 1-2
Public and Private Access to the Proposed Mining Sites

Bar No.	Route Description	Haul Route Number
SD-1	Banti Lane, private road (Independence Road, Geyserville Avenue, Bill Ferguson Road, private road) ~~Healdsburg Road, Lytton Station Road, Hassett Lane, Olivier, private roads~~	4 (3) ~~2~~
SD-2	Banti Lane, private road (Independence Road, Geyserville Avenue, Bill Ferguson Road, private road) ~~Healdsburg Road, Lytton Station Road, Hassett Lane, Olivier, private roads~~	4 (3) ~~2~~
SD-4	Banti Lane, private road (Independence Road, Geyserville Avenue, Bill Ferguson Road, private road) ~~Healdsburg Road, Lytton Station Road, Hassett Lane, Olivier, private roads~~	4 (3) ~~2, 5~~
S-4	Banti Lane, private road (Independence Road, Geyserville Avenue, Bill Ferguson Road, private road) ~~Healdsburg Road, Lytton Station Road, Hassett Lane, Olivier, private road; or Banti Lane, private road (via S-6 route)~~	4 (3) ~~2, 3, or 4 (5)~~
SD-5	Banti Lane, private road (Independence Road, Geyserville Avenue, Bill Ferguson Road, private road) ~~Healdsburg Road, Lytton Station Road, Hassett Lane, Olivier, private road (temporary bridge); or Banti Lane, private road (via S-6 route)~~	4 (3) ~~2, 3, or 4 (5)~~
S-5	Banti Lane, private road (Independence Road, Geyserville Avenue, Bill Ferguson Road, private road) ~~Independence underpass, Geyserville Avenue, Ferguson Road, private roads; or Banti Lane, private road (via S-6 route)~~	4 (3) ~~2, 3, or 4 (5)~~
S-6	Banti Lane, private road (Independence Road, Geyserville Avenue, Bill Ferguson Road, private road) ~~Banti Lane, private road~~	4 (3) ~~3,4, or 5~~
S-7	Banti Lane, private road (Independence Road, Geyserville Avenue, Bill Ferguson Road, private road) ~~Geyserville Avenue, Hamilton Lane, private roads (temporary bridge)~~	4 (3) ~~5~~
S-8	Banti Lane, private road (Independence Road, Geyserville Avenue, Bill Ferguson Road, private road) ~~Geyserville Avenue, Hamilton Lane, private roads~~	4 (3) ~~5~~

Table 1-2
Public and Private Access to the Proposed Mining Sites

Bar No.	Route Description	Haul Route Number
S-9	Canyon Road, Geyserville Avenue, private road (Banti Lane, private road; Independence Road, Geyserville Avenue, Bill Ferguson Road, private road)~~Banti Lane, private road Access from S-8 (temporary bridge)~~	6, 7 or 8 (4, 3) ~~5~~
S-10	Canyon Road, Geyserville Avenue, private road (Banti Lane, private road; Independence Road, Geyserville Avenue, Bill Ferguson Road, private road)~~Access from S-8 or S-13 (temporary bridges)~~	6, 7 or 8 (4, 3) ~~5 or (6 and 7)~~
S-11	Canyon Road, Geyserville Avenue, private road (~~temporary bridge~~ Banti Lane, private road ;Independence Road, Geyserville Avenue, Bill Ferguson Road, private road)	6, 7 and 8 (4, ~~3~~5)
S-12	Canyon Road, Geyserville Avenue, private road (~~temporary bridge~~ Banti Lane, private road; Independence Road, Geyserville Avenue, Bill Ferguson Road, private road)	6, 7 and 8 (4, ~~3~~5)
S-13	Canyon Road, Geyserville Avenue, private road (Banti Lane, private road; Independence Road, Geyserville Avenue, Bill Ferguson Road, private road)	6, 7 and 8 (4,3 ~~5~~)
S-14	Canyon Road, Geyserville Avenue, private roads (Banti Lane, private road; Independence Road, Geyserville Avenue, Bill Ferguson Road, private road)	6, 7 and 8 (4,3 ~~5~~)

Notes:
Alternative access routes are provided (in parentheses) in the event that regular routes are not available.
Former haul route 1 has been omitted from the current project plan. Haul Routes 2 and 5 have also been eliminated from the proposed project.
Source: Data compiled by EDAW, 2009; revised August 2010

Page 1-61 of the Draft EIR, a new second paragraph is added under the heading “Dust Control” as follows:

Dust Control

Water for dust control would be provided from irrigation wells and applied using a water truck. A water truck would spray water along the haul routes to control fugitive dust. Syar would use a motor grader periodically to rework the road surface and incorporate wetted soil into the roadbed. The water truck would have a capacity of approximately 4,000 gallons. Application of water for dust control would vary depending on the temperature, but would occur approximately two times per day on a normal summer day.

Syar would improve dirt access roads at the start of the mining season using the following process. During the initial staging of mining equipment at the gravel bars, the dirt access roads would be watered and otherwise maintained to minimize dust. The first loads of aggregate that are skimmed off the bars would be used to gravel the access roads. Gravel would be loaded into haul trucks at the bar being skimmed and hauled to the access road where it would be spread using a motor grader and other earth moving equipment to form a gravel road surface of approximately 6 inches in depth. A water truck would be used throughout the gravel road surface construction to minimize dust.

While the improved gravel road is used for mining and reclamation operations, the gravel surface of the road would be maintained through regular watering, regular smoothing of the surface and applying additional gravel as needed to maintain adequate gravel depth. When the access road is no longer needed for mining and reclamation activities in that mining season, the gravel would remain in place for future access unless the landowner requests that it be removed. In the event the gravel road surface is removed, wheel loaders and other equipment would load the gravel into haul trucks, which would then haul the gravel to the Healdsburg Plant for processing. Where the gravel road surface remains in place, it would be inspected prior to any future use for mining and reclamation, and any work necessary to bring the gravel road surface into a useable condition would be performed at the initial stages of that year's operations.

Page 1-64 of the Draft EIR, the first sentence below the heading "Adaptive Management Strategy Background" is revised as follows:

In 200~~3~~4, ~~NMFS~~ NOAA Fisheries issued *Sediment Removal from Freshwater Salmonid Habitat: Guidelines to NOAA Fisheries Staff for Evaluation of Sediment Removal Actions for California Streams* ~~(NMFS Guidelines)~~.

Page 1-67 of the Draft EIR, the third paragraph is revised as follows:

Syar would determine the average maximum residual pool depth ~~volume as described by Lisle and Hilton (1999) either with~~ by surveying along the thalweg~~, methods or with a combination of surveying and hydraulic modeling~~ to monitor changes in pool depth. ~~habitat quantity, relative to a permanent vertical datum and to the water surface corresponding to summer low flow~~. The residual pool depth is the water depth measured from the bottom of the pool along the thalweg to the water surface elevation defined by the controlling downstream riffle crest measured at point of zero flow. This would occur in the localized mining area at three pools (adjacent to each mined bar and immediately upstream and downstream of each mined bar), and for all pools in the permitted mining reach (once every 5 years or whenever there is a 10-year or greater flow event). ~~at two representative pools within, and one upstream of, the project reach.~~

Page 1-72 of the Draft EIR, the discussion of Alternative 5 is revised as follows:

ALTERNATIVE 5—PROPOSED PROJECT WITHOUT THE MINING OF BARS S-9 AND S-10 ~~AND/OR USE OF HAUL ROUTE 5~~

This alternative would be similar to the proposed project, except that the operator would not mine Bars S-9 or S-10~~, and haul truck traffic would not use Haul Route 5~~. This alternative would eliminate the project's significant unavoidable noise impacts on several receptors near Bars S-9 and S-10~~, and one receptor adjacent to Geyserville Avenue~~.

2.0 SUMMARY

Page 2-3 of the Draft EIR, the first paragraph is revised as follows:

…and circulation to less than significant. ~~The EIR notes, however, that the contribution of project traffic to the Lytton Station Road curve would result in a significant unavoidable impact if the applicant is unable to acquire the right-of-way necessary to~~

~~implement Mitigation Measure 3.6- 3c. Implementation of that measure would reduce the impact to less-than-significant.~~

Page 2-3 of the Draft EIR, the two paragraphs below the heading "Air Quality," are revised as follows:

> Section 3.7, "Air Quality" discloses that the project would generate long-term operational emissions of criteria air pollutants (e.g., CO, $PM_{2.5}$, and PM_{10}) and precursors (e.g., ROG and NO_x) from sources including mining-related activities (e.g., excavation), off-road equipment, material transport, and worker commute exhaust emissions. With the imposition of mitigation meaures~~exception of PM_{10}~~, all emissions would be below the ~~standards~~ thresholds of significance of the Northern Sonoma County Air Pollution Control District (NSCAPCD). ~~The project would generate more than 78 tons per year (TPY) of PM_{10}, however, exceeding the standard of 15 TPY. The project proposes substantial watering for dust control and other measures, and substantial additional measures are proposed as mitigation, but implementation of these measures apparently do not suffice to reduce emissions below the threshold.~~
>
> The project would not expose sensitive receptors to significant emissions of toxic air contaminants. The project would generate CO2 emissions that would contribute to global climate change effects, although emissions would not exceed the ~~draft~~ threshold of significance ~~promulgated~~ adopted by the Bay Area Air Quality Management District (BAAQMD).

Page 2-3 of the Draft EIR, first paragraph under the heading "Noise" is revised as follows:

> Section 3.9, "Noise" explains that the project would expose sensitive receptors to noise levels in excess of significance thresholds as a result of mining equipment and heavy-duty truck traffic on both public and private roads. This EIR includes several mitigation measures to reduce potential impacts, but concludes that significant impacts would still occur at several receptors from mining equipment~~, and one receptor from truck traffic on Geyserville Avenue~~. The EIR also includes measures that, if implemented, would reduce noise impacts on private roadways to less–than significant.

Page 2-6 of the Draft EIR, the discussion below the heading "Significant and Unavoidable Adverse Impacts," is revised as follows:

> This EIR identifies significant adverse impacts that would result from the proposed project, and imposes measures to mitigate them to the extent feasible. All project impacts can be mitigated to a level that is less-than-significant with the following exceptions:
>
> - ~~Impact 3.6-3 The project would substantially increase hazards due to a design feature (i.e., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).~~
>
> - ~~Impact 3.7-1 The project would generate long-term operational (regional) emissions of criteria air pollutants and precursors. The impact of PM_{10} generation would be significant but the impact of generating other criteria pollutants and precursors would be less than significant.~~

- Impact 3.8-1 The project would result in a substantial impact on scenic landscape units or scenic corridors.

- Impact 3.9-1 Project operations would expose existing sensitive receptors to noise from equipment used on-site.

- ~~Impact 3.9-3 Project haul truck traffic would expose one receptor on Geyserville Avenue to noise in excess of the threshold for interior noise.~~

- Impact 3.9-4 Project haul trucks along private roads would expose existing sensitive receptors to noise.

These effects would also be significant and unavoidable on a cumulative level.

Page 2-7 of the Draft EIR, the fifth bullet point following the sentence "This EIR analyzes the following alternatives at length:" is revised as follows:

- Alternative 1 – No Project
- Alternative 2 – Gravel Mining in Compliance With The ARM Plan
- Alternative 3 – Gravel Mining within a 10-Year Time Period
- Alternative 4 – Gravel Mining at a Lower Volume
- Alternative 5 – Proposed Project Without the Mining of Bars S-9 and S-10 ~~and Use of Haul Route 5~~

Page 2-8, the first paragraph is revised as follows:

> …identifies a No Project Alternative, under which Syar would not implement the project as proposed. Syar would not conduct any mining activities within the proposed reach of the Russian River between Gill Creek to Jimtown Bridge. ~~Without a source of high quality aggregate generated within the County, alternative sources of gravel would be required. At present, an import source of FCC aggregate that can economically be provided to the Sonoma County market has not been identified.~~

Page 2-9 of the Draft EIR, the discussion of Alternative 5 is revised as follows:

> **ALTERNATIVE 5 – PROPOSED PROJECT WITHOUT THE MINING OF BARS S-9 AND S-10 ~~AND USE OF HAUL ROUTE 5~~**
>
> This alternative would be similar to the proposed project with the exception of mining Bars S-9 and S-10~~ and use of Haul Route 5~~. Syar would mine aggregate resources along the 6.5-mile Alexander Valley reach of the Russian River (minus Bars S-9 and S-10) in accordance with the methods, standards, and AMS identified under the proposed alternative, including the daily and seasonal timing of mining activities. ~~Syar would also eliminate the use of Haul Route 5 and instead use Haul Routes 1-4 and 6-8.~~

Page 2-9 of the Draft EIR, the first paragraph under the heading "Conclusions" is revised as follows:

> In general, impacts associated with increased dust, noise, and traffic, would be similar in kind and intensity as the proposed project for sensitive receptors located nearest to ~~Haul~~

~~Route 5 and~~ Bars S-9 and S-10. Alternative 5 would eliminate the project's significant unavoidable noise impacts on several receptors near Bars S-9 and S-10~~, and one receptor on Geyserville Avenue located adjacent to Haul Route 5~~ as compared to the proposed project. However, mining under this alternative would preclude mining of the two bars immediately upstream of the Geyserville Bridge and therefore contradict the applicant's objective and the County's public policy in protecting public infrastructure~~ and the elimination of Haul Route 5 would divert access to other haul routes with greater distances, increasing emissions of PM_{10} and other criteria pollutants~~. For most of the environmental issue areas (e.g., cultural resources, energy, and recreation), the timeframe of the mining permit would not change the level of impact.

Pages 2-59 and 2-60 of the Draft EIR, Mitigation Measure 3.6-3c in Table 2-1 is deleted as follows:

~~**3.6-3c** **Improve Curve on Lytton Station Road.** Prior to use of Haul Route 2, Syar shall purchase required right of way and design and construct a widening improvement of Lytton Station Road sufficient to meet applicable Caltrans and AASHTO standards and keep project haul trucks from crossing the center line. The Sonoma County Department of Transportation and Public Works has developed a preliminary concept for lane widening that would expand the paved area of the interior south east quadrant of the curve by approximately 10 feet at the apex. This preliminary concept appears to be the most efficient and costeffective means of meeting this requirement, although widening to the outside of the curve could also meet this requirement. If right of way is required for the improvements and Syar is unable to acquire the necessary right-of-way to construct the improvements, the implementation of Mitigation Measure 3.6-3c may not be feasible. If the identified improvement in Mitigation Measure 3.6-3c is infeasible, the roadway impact would be significant and unavoidable.~~

This deletion is also made on page 3.6-29 of the Draft EIR (see revisions to Section 3.6, Traffic and Circulation, below).

Page 2-59 of the Draft EIR, the Significance After Mitigation for Impact 3.6-3 in the last column of Table 2.1 is revised as follows:

LTS~~/SU~~

Page 2-60 of the Draft EIR, Mitigation Measure 3.6-3d in Table 2-1 is revised as follows:

3.6-3d **Trim Vegetation to Increase Stopping Sight Distances**. Prior to using Geyserville Avenue as a haul route, Syar shall ensure that shrubs and other vegetation are trimmed in the County right of way to provide more than 300 feet of stopping sight distance along~~:~~

~~• Geyserville Avenue southeast of Hamilton Lane; and~~
~~•~~ Geyserville Avenue north of Independence Lane.

This revision is also made on page 3.6-30 of the Draft EIR (see revisions to Section 3.6, Traffic and Circulation, below).

Pages 2-60 and 2-61 of the Draft EIR, Mitigation Measure 3.6-4b in Table 2-1 is revised as follows:

3.6-4b **Implement roadway preparation work.** Prior to use of a Haul Route that utilizes one of the following roads, Syar shall implement roadway preparation work and construct pavement improvements, as described below, prior to the use of relevant road.

- Bill Ferguson Road shall receive a new chip seal.
- ~~Hassett Lane and Lytton Station Road shall receive a new asphalt overlay.~~
- ~~Healdsburg Avenue shall receive a new chip seal on the portion adjacent to Lytton Station Road.~~
- Banti Lane shall receive a new chip seal.
- Prior to proposed roadwork on ~~Lytton Station Road, Hassett Lane and,~~ Healdsburg Avenue, Syar shall perform excavation and pavement repair ~~at locations~~ on the haul route portions of ~~those~~ this road~~s~~ specified by the County Department of Transportation and Public Works to address road base failure.

This revision is also made on pages 3.6-31 and 3.6-32 of the Draft EIR (see revisions to Section 3.6, Traffic and Circulation, below).

Page 2-61 of the Draft EIR, Mitigation Measure 3.6-5 in Table 2-1 is revised as follows:

3.6-5 **Improve Railroad Crossings.** Syar shall improve railroad track crossings ~~at Lytton Springs Road (Route 2) and the private crossings~~ on Routes 3, 4, ~~5,~~ 6, 7, and 8 to meet all applicable safety standards as required by the CPUC and NCRA. For Routes 3, 4, ~~5,~~ 6, 7, and 8, Syar shall obtain an encroachment permit and enter into a lease agreement with NRCA for installation of improvements. This encroachment permit would obligate Syar for ongoing maintenance of the railroad crossings. ~~For Lytton Springs Road, Syar shall coordinate with the County, CPUC, and NCRA to repair the pavement.~~

This revision is also made on page 3.6-32 of the Draft EIR (see revisions to Section 3.6, Traffic and Circulation, below).

Page 2-62 of the Draft EIR, the Significance After Mitigation for Impact 3.7-1 in the last column of Table 2.1 is revised as follows:

~~SU for PM_{10} /~~ LTS for all ~~other~~ criteria pollutants

This revision is also made on page 3.7-24 of the Draft EIR (see revisions to Section 3.7, Air Quality, below).

Page 2-62 and 2-63 of the Draft EIR, the following new mitigation measures are added below Mitigation Measure 3.7-1 in Table 2-1, as follows:

3.7-1b Mining of a single bar shall not result in emissions of more than 15 tpy of PM_{10}. For Bars S-10, S-11, S-12, S-13, S-14, Syar shall utilize Haul Routes 6, 7, or 8 instead of Haul Route 4. If Haul Routes 6, 7 and 8 are all unavailable for use, Syar shall comply with the following annual production limits set forth in Table 7 of Appendix D:

- Bar S-10 339,000 tons
- Bar S-11 299,000 tons
- Bar S-12 285,000 tons
- Bar S-13 258,000 tons
- Bar S-14 204,000 tons

For Bars SD-1 and SD-2, Syar shall comply with the following annual production limits set forth in Table 7 of Appendix D:

- Bar SD-1 244,000 tons
- Bar SD-2 288,000 tons

Alternatively, Syar may retain a qualified expert and include as part of its annual mining plan submittals an air quality analysis that includes sampling of the silt content(s) of the graveled haul road(s) in the riverbed and haul route(s) that Syar proposes to use that year. Where applicable, such sampling may be taken from the bars where the gravel will be obtained. The air quality analysis shall use the actual silt content(s) and fugitive dust emission equations and analysis set forth in Appendix D, and shall be subject to a peer review by the County. Where the analysis demonstrates and peer review confirms that the mining will not exceed 15 tpy of PM_{10}, then the tonnage limitations set forth in this Mitigation Measure shall not apply. If the air quality analysis demonstrates that a different tonnage limitation will avoid any emissions in excess of 15 tpy of PM_{10}, then that different tonnage limitation shall apply.

3.7-1c Mining of multiple bars shall not result in emissions of more than 15 tpy of PM_{10}. If Syar wishes to mine multiple bars in a given mining season, it shall retain a qualified expert and include as part of its annual mining plan submittals an air quality analysis that complies with Mitigation Measure 3.7-1b and demonstrates that the mining will not exceed 15 tpy of PM_{10}.

This revision is also made on page 3.7-24 of the Draft EIR (see revisions to Section 3.7, Air Quality, below).

Page 2-66 of the Draft EIR, the Significance After Mitigation for Impact 3.9-3 in the last column of Table 2.1 is revised as follows:

LTS~~/SU~~

Page 2-67 of the Draft EIR, Mitigation Measure 3.9-3b in Table 2.1 is deleted as follows:

~~**3.9-3b** **Implement a Detailed Interior Noise Study at Receptor I.** Prior to the use of Haul Route 5, the operator shall seek the consent of the owner(s) and/or occupant(s) of the residence at Receptor I and conduct a detailed interior noise study of the residence. The façade of the residence shall be tested for the amount of exterior-to-interior noise reduction provided by the existing residential façade to ensure that the assumption of a 15-dB reduction with windows and doors closed is accurate.~~

~~If the detailed interior-noise survey concludes that noise at Receptor I would exceed the interior-noise-level standard of 45 dB Ldn, mitigation shall be provided through installation of noise insulation (window package upgrades that increase the sound transmission class per window by 10 dBA). The project applicant shall offer to compensate the property owner(s) for window upgrades for habitable rooms facing Geyserville~~

~~Avenue. The property owner(s) shall be responsible for acquiring competitive bids from three (3) qualified contractors to purchase and install the windows. The applicant shall compensate the resident for the cost of the lowest bid after installation of the windows, but shall not be held liable for additional costs that may be incurred during window replacement (dry rot, termite damage, or repairs required to bring the window installation up to code).~~

~~This measure shall not apply if Receptor I is not occupied for residential use during the mining season in which Haul Route 5 is utilized.~~

This deletion is also made on page 3.9-21 of the Draft EIR (see revisions to Section 3.9, Noise, below).

3.2 GEOMORPHOLOGY, HYDROLOGY AND WATER QUALITY

Page 3.2-2 of the Draft EIR, a new bulleted item is added to the list at the top of the page, as follows:

- Sonoma County Water Agency (L. Parsons, R. Bekert, S. Brady), 2003. Aggregate Resource Management Plan EIR 2000–2001 Biotic Monitoring Program Report.
- Prepared for the County of Sonoma, Permit and Resource Management Department.
- Thomas Dunne and L. B. Leopold 1978. Water in Environmental Planning. W.H. Freeman and Company, N.Y.
- US EPA, website (http://www.epa.gov/warsss/sedsource/bankfull.htm). Watershed Assessment of River Stability & Sediment Supply (WARSSS). Prepared by D.L. Rosgen.
- <u>A History of the Salmonid Decline in the Russian River (Steiner Environmental Consulting, 1996 for SCWA).</u>

Page 3.2-15 of the Draft EIR, second paragraph is revised as follows:

> ~~Studies done in conjunction with the adoption of~~ The 1994 ARM Plan estimated that gravel recharge within the Alexander Valley (combined Upper and Lower Reaches) occurs at an average rate of approximately ~~50,000 cubic yards (100,000 tons)~~ <u>64,333 cubic yards (96,500 tons)</u> per year (Sonoma County, 1994). The 1994 ARM Plan acknowledges considerable uncertainties associated with estimating recharge rates. Over a period of time with intensive monitoring the average annual sediment recharge can and should be updated. Two sources of monitoring data that rely on different measurement techniques for estimating aggregate recharge are presented.

Page 3.2-18 of the Draft EIR, Figure 3.2-3b is revised to present the correct graphic.

Page 3.2-40 of the Draft EIR, the first paragraph, second sentence below Impact 3.2-1 is revised as follows:

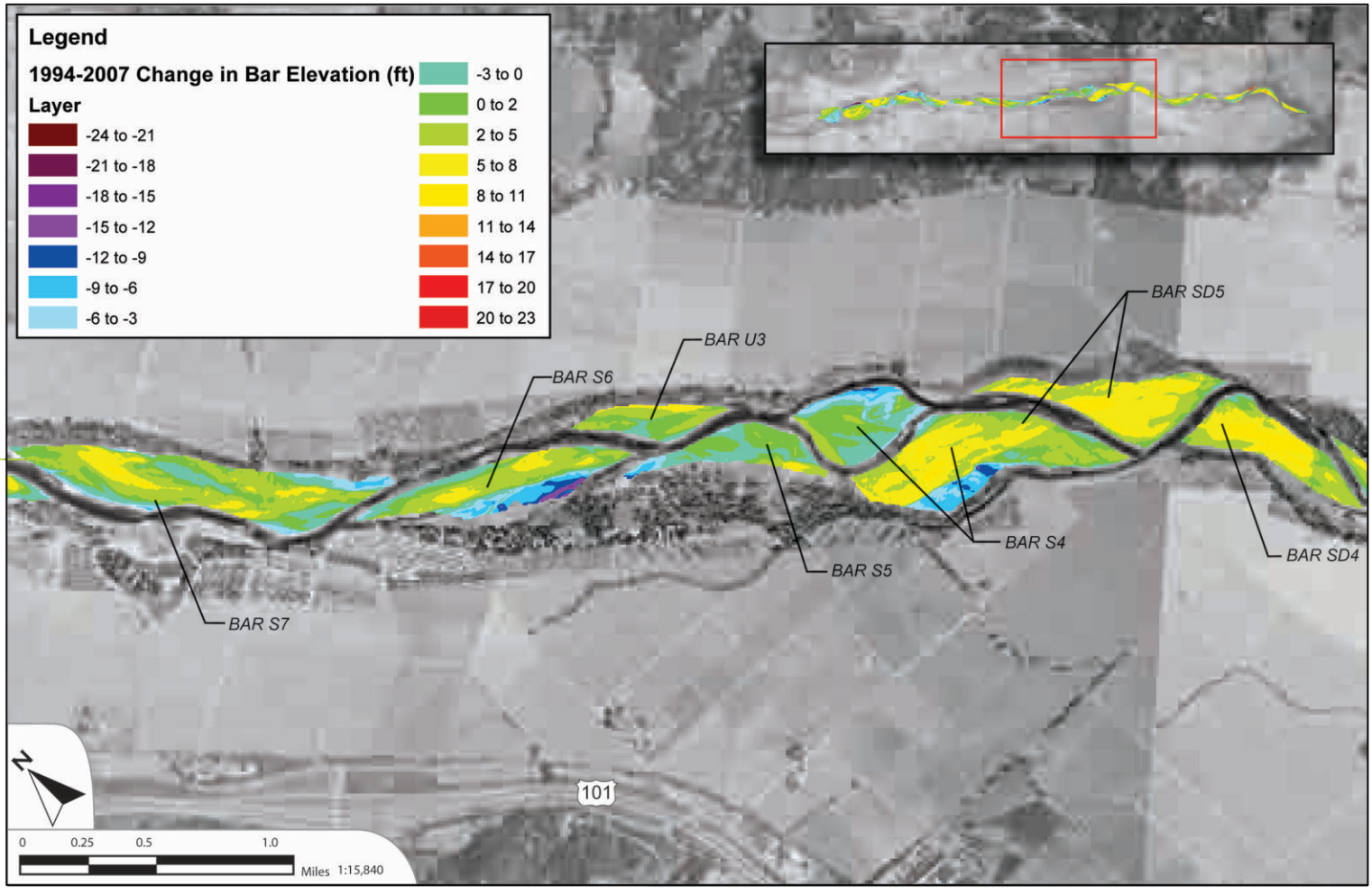
> Minimum baseline elevations control the maximum depth of aggregate removal on bars. Baseline elevations are keyed to low flow water surface elevation at <u>200 cfs.</u> Recent plans that may reduce the magnitude of summer flows on the Russian River would result in the establishment of lower baseline elevations, potentially increasing the depth of mining and causing changes in the channel morphology including channel incision and widening of the low flow channel.

Page 3.2-46 of the Draft EIR, the third paragraph, new fourth sentence is added as follows:

> Another example of insufficient bar head buffer is Bar 2 in the Middle Reach located downstream of the Alexander Valley and Digger Bend near Healdsburg. This bar was mined and buffers retained using a 6-foot vertical offset from low water at the upstream end of the bar. Given the high energy setting, the head of bar buffer was overtopped, allowing a high flow channel to develop along the inner edge of the bar, which caused some erosion of the streambank at the inner edge. Unconsolidated cobble, gravel and sand material naturally deposited at the bar head may have also contributed to the formation of the high flow channel. The low flow channel and adjacent riffles and pools were not affected, nor did the thalweg move from its pre-mining position.

Pages 3.2-50 and 3.2-51 of the Draft EIR, Mitigation Measure 3.2-5 is revised to include a new last paragraph as follows:

> Mitigation Measures: 3.2-5 Monitoring Requirements:
>
> The following additional monitoring requirements shall be incorporated into the ARM Plan and related mining ordinance amendments for the lower Alexander Valley and, as appropriate, into the conditions of the project, to track gravel recharge rates, changes in sediment storage, bar area, channel stability, channel width, low water surface elevations, thalweg elevations, and pool depth. Monitoring shall be required at three different spatial scales and time periods, as follows:
>
> (1) Extended Monitoring Reach Survey: A baseline survey starting at the Jimtown Bridge (RM 46) to one-half the distance from Gill Creek to Cloverdale Airport (RM 56.5) shall be performed prior to commencement of mining and then after a 10-year or greater flood or once every 5 years if no such flood occurs. The measurements outside of the permitted reach shall be used as a control, to determine the changes attributed to natural variation as opposed to mining activities.
>
> (2) Permitted Mining Reach Survey: A permitted mining reach survey from RM 47.5 to RM 54 shall be conducted after a 5-year or greater flood or at least once every three years if no such flood occurs.
>
> (3) Local Mining Reach Area Survey: A local mining area survey that includes the mined bar (one pool), one bar upstream (two riffles and one pool), and one bar downstream (two riffles and one pool) from the mined bar (a total of four riffles and three pools) performed every year for a three-year period following mining, or until performance criteria are met or as approved by PRMD through adaptive management.
>
> The additional metrics set forth in Mitigation Measures 3.2-5a through 3.2-5g, below, shall be incorporated into the monitoring program for each of the survey areas and timeframes noted above.
>
> The Extended Monitoring Reach Survey identified above in paragraph (1) encompasses the Permitted Reach (paragraph (2)) and the Local Mining Reach (paragraph (3)) by definition. An Extended Monitoring Reach Survey will satisfy



Source: Syar (2010)

Figure 3.2-3b

Changes in Bar Elevations in the Alexander Valley from 1994 to 2007

the survey requirements for both the Permitted and Local Mining Reaches as long as all of the data points required for the Permitted and Local Mining Reaches included in Mitigation Measures 3.2-5a through 3.2-5g are provided. A Permitted Reach Survey will satisfy the survey requirements for the Local Mining Reach as long as all of the data points required for the Local Mining Reach outlined in Mitigation Measures 3.2-5a through 3.2-5g are provided.

This revision is also made in Table 2.1 of the Draft EIR.

Page 3.2-53 of the Draft EIR, Mitigation Measure 3.2-5b, bulleted item (3) is revised as follows:

3) The collected thalweg elevation data will be compared to baseline data, and used to evaluate ~~potential~~ changes in vertical stability trends over a two year or greater period in accordance with the ARM Plan and SMARO.

This revision is also made in Table 2.1 of the Draft EIR.

Page 3.2-54, Mitigation Measure 3.2-5e, the last sentence of the paragraph with the heading "Monitoring:" is revised as follows:

The average maximum residual pool depth is the average of the measured maximum depths ~~less~~ below the ~~depth of flow~~ lowest point of ~~over~~ the controlling riffle crest.

This revision is also made in Table 2.1 of the Draft EIR.

Page 3.2-55, the second paragraph below the heading "Impact Significance After Mitigation" is deleted as follows:

Mitigation Measures 3.2-5a through 3.2-5g would reduce impacts related to changes in channel geomorphology and potential for flooding to a less-than-significant level. Incorporation of these mitigation measures, monitoring and performance criteria will ensure that removal of sediment from bars will not disrupt the geomorphic processes that maintain pool and riffle habitat.

~~In the permitted project reach area, monitoring in year 6 may be performed one year earlier and combined with the extended project reach monitoring in year 5 instead of doing back-to-back surveys of the extended project reach and the permitted project reach.~~

Page 3.2-57 of the Draft EIR, first paragraph, a new last sentence is added as follows:

The recharge rate in the future could be higher or lower than this value. The gravel bars are replenished in floods larger than average annual flows, and depend upon the climatic period (whether it was a wet, normal, or dry streamflow year), such that the amount of gravel in excess and available for mining will vary in any given year.

Page 3.2-57, the first sentence of the third paragraph is revised as follows:

Monitoring data (ENTRIX, 2010) indicates that there is net sediment storage over time (even after much greater quantities of sediment extraction in the 1980s and earlier).~~, so that the bar forms and other g~~ Geomorphic features will be maintained as long as only the excess~~ive~~ sediment ~~(beyond what can be naturally replenished)~~ is mined ~~not removed through mining~~ and there is sufficient supply remaining afterward to maintain bar forms.

Page 3.2-58, the first sentence of Impact 3.2-8 is revised as follows:

> Project related mining will tend to straighten the meander of the ~~low flow~~ active channel (the portion of the channel that includes the bars and low flow channel and is contained below the river terraces) and reduce the ~~angle of attack on the bank opposite of the mined bar thus decreasing the~~ shear stress and erosion potential on the bank immediately opposite the mined bar. This impact is beneficial.

Pages 3.2-59 and 3.2-60, the heading and first two paragraphs of Impact 3.2-10 are revised as follows:

> **Impact 3.2-10 Increased Localized Erosion Downstream of Mined Bars**. Case studies have shown that bank erosion associated with gravel mining is a local effect, specific to particular bends or reaches, and occurs in response to particular modifications to channel geometry (Collins and Dunne, 1990). Project related mining straightens the high flow pathway and thereby may alter the channel geometry so that flows impinge on a downstream meander, potentially increasing localized bank erosion. ~~impact increase flow velocities and reduce the sediment supply immediately downstream of mined bar(s), thus increasing potential for scour and erosion on the riffle and bank below the mined area~~. This is a potentially significant impact.
>
> Gravel extraction results in a decrease in shear stress which accelerates sediment deposition on the post-mining bar surface and promotes recovery of the channel bar surface and fluvial processes following gravel extraction. ~~There is a potential that as mining removes sediment from the channel and the mined bars trap the incoming sediment load, downstream bars are temporarily starved of sediment. This depletion of sediment can be amplified if multiple adjacent bars are mined at the same time. Additionally, m~~Mining adjacent bars has the potential to straighten the flow path at moderately high flows over a relatively long channel length.~~, potentially increasing flow velocity~~. This can increase the localized erosion of ~~the riffle and~~ banks downstream from the mined bar(s) depending upon the particular channel geometry. Strengthening the banks along the river corridor is needed to reduce the potential for localized erosion impacts of mining activities.

Page 3.2-64, the first sentence below the “Mitigation Measures” heading is revised as follows:

> Mitigation measures 3.2-2 (Head of Bar Buffer) and 3.2-3 (Side Bar Buffer) function to retain the bar form, limiting flow over the head of bar until at least 11,000 cfs discharge is exceeded, which will not occur until after the bar skim surface has already been backwatered through the downstream end of the mined bar. The backwater will prevent~~ing inundation~~ downstream flow over ~~of~~ the mined surface until flows reach at least 11,000 cfs, ~~and preventing lower flows from~~ limiting the potential for entrainment~~ing~~ of sediments from the skim floor.

3.3 VEGETATION AND WILDLIFE

Page 3.3-37 of the Draft EIR, the first three paragraphs of Mitigation Measure 3.3-7 are revised as follows:

3.3-7 **Survey for Roosting Special-Status Bats.** Before removing any trees greater than 12 inches in diameter (dbh), a qualified bat biologist shall conduct a survey for roosting pallid and Townsend's big-eared bats. If mining activities would occur near the Geyserville Bridge or travel under the bridge would be required to access the proposed mining site, bat surveys shall be conducted. In addition, surveys shall be conducted at any other structures that may be bat roosting sites closer than ~~200~~ 300 feet from any mining activity.

If no active roosts are found, no further action would be warranted.

If a maternity roost is located, the qualified bat biologist shall delineate a ~~200~~ 300-foot buffer zone around the roost. If active maternity roosts or hibernacula are found, the project shall be redesigned to avoid the loss of the tree occupied by the roost if feasible. DFG shall also be notified of any active nurseries in the mining zone. If either a maternity roost or hibernaculum is present, the following additional measures shall also be implemented:

This revision is also made in Table 2.1 of the Draft EIR.

3.5 CULTURAL RESOURCES

Page 3.5-7 of the Draft EIR, the second paragraph below Mitigation Measure 3.5-1.a. is revised as follows:

In the event that archaeological features such as pottery, arrowheads, midden, or culturally modified soil deposits are discovered at any time during grading, scraping, or excavation within the project, all work shall be halted in the vicinity of the find and PRMD Project Review staff shall be notified and a qualified archaeologist shall be contacted immediately to make an evaluation of the find and report to PRMD. PRMD staff may consult and/or notify the appropriate tribal representative(s) from tribes known to PRMD to have interests in the area. Artifacts associated with prehistoric sites include humanly modified stone, shell, bone, or other cultural materials such as charcoal, ash, and burned rock indicative of food procurement or processing activities. Prehistoric domestic features include hearths, firepits, or house floor depressions, whereas typical mortuary features are represented by human skeletal remains. When contacted, a member of PRMD Project Review staff and the archaeologist, accompanied by those tribal representatives that so wish, shall visit the site to determine the extent of the resources and to develop and coordinate proper protection/mitigation measures required for the discovery. PRMD may refer the mitigation/protection plan to designated tribal representatives for review and comment. No work shall commence until a protection/mitigation plan is reviewed and approved by PRMD Project Review staff. Mitigation measures may include avoidance, removal, preservation, and/or recordation in accordance with California law. Archaeological evaluation and mitigation shall be at the applicant's sole expense.

This revision is also made in Table 2.1 of the Draft EIR.

3.6 TRAFFIC AND CIRCULATION

Page 3.6-2 of the Draft EIR, the third, fourth, seventh and eighth paragraphs are deleted as follows:

> ~~***Hamilton Lane***~~
> ~~Hamilton Lane is a short local two-lane gravel roadway that extends north of Geyserville Avenue in the City of Geyserville south of SR 128. About 600 feet north of Geyserville Avenue, the roadway crosses the former Northwestern Pacific railroad tracks. Haul route 5 uses Hamilton Lane.~~
>
> ~~***Hassett Lane***~~
> ~~Hassett Lane is a two-lane rural road that extends north of Lytton Station Road. It is roughly parallel to U.S. 101. Route 2 uses Hassett Lane~~.
>
> ~~***Lytton Springs Road***~~
> ~~Lytton Springs Road is a paved roadway that has one travel lane in each direction and connects Lytton Station Road (Healdsburg Avenue) to the U.S. 101 access ramps. A length of not more than 1000 feet would be utilized as a portion of haul route 2.~~
>
> ~~***Lytton Station Road***~~
> ~~Lytton Station Road is a two-lane local road that extends from Healdsburg Avenue to Alexander Valley Road farther to the east. Lytton Station Road is roughly parallel and north of Alexander Valley Road for most of its length. Route 2 would run along Lytton Station Road from Hassett Lane to Healdsburg Avenue. This segment includes a 90-degree curve along Lytton Station Road.~~

Page 3.6-3 of the Draft EIR, the first paragraph is deleted as follows:

> ~~***Olivier Road***~~
> ~~Olivier Road is a short underdeveloped two-lane rural roadway that traverses east from the northern termination of Hassett Lane to the Russian River at the west. Route 2 utilizes Olivier Road from Hassett Lane to approximately 800 feet west where it intersects with a private road running northwards~~.

Page 3.6-3 of the Draft EIR, the third paragraph under the heading “Bicycle Facilities” is revised as follows:

> The Sonoma County Bikeways Plan describes a proposed class II bikeway that is located continuously along the U.S. 101 corridor on Geyserville Avenue from Lytton Springs Road ~~at the southern end of the project extent (Haul Route 2)~~ to Kelly Road north of the project site. These roadways have been identified as proposed improvement projects to receive class II bikeway upgrades and shoulder improvements.

Page 3.6-3 of the Draft EIR, the first paragraph under the heading “Railroad Crossings” is revised as follows:

> All of the proposed haul routes cross over railroad tracks owned by the North Coast Railroad Authority (NCRA). ~~The crossing on route 2 is a public roadway crossing located on Lytton Springs Road just west of Healdsburg Avenue.~~ ~~This crossing is equipped with lighted warning signals.~~ The crossings on routes 3, 4, ~~5~~, 6, 7, and 8 are private road

crossings located along the private access routes currently used to access vineyard parcels or homes, and are signed with stop signs.

Page 3.6-4 of the Draft EIR, the numbered list below the first paragraph is revised as follows:

1. U.S. 101 southbound off-ramp at Healdsburg Avenue/Old Redwood Highway
2. U.S. 101 northbound off-ramp at Healdsburg Avenue/Old Redwood Highway
~~3. U.S. 101 southbound off-ramp at Lytton Springs Road~~
~~4. U.S. 101 northbound off-ramp at Lytton Springs Road~~
~~5. Healdsburg Avenue at Lytton Springs Road~~
6. U.S. 101 southbound off-ramp at Geyserville Avenue
7. U.S. 101 northbound off-ramp at Geyserville Avenue
8. Geyserville Avenue at Banti Lane
~~9. Geyserville Avenue at Hamilton Lane~~
10. U.S. 101 southbound off-ramp at Canyon Road
11. U.S. 101 northbound off-ramp at Canyon Road
12. Geyserville Avenue at Canyon Road
13. Geyserville Avenue at access to Route 6
14. Geyserville Avenue at access to Route 7
15. Geyserville Avenue at access to Route 8

Page 3.6-4 of the Draft EIR, the second paragraph and the bulleted list below the second paragraph are revised as follows:

Each of the access routes to the proposed gravel bars would use one or more of the analysis intersections. The intersections used by each route are listed below. The route previously designated as Route 1 is no longer under consideration. <u>Additionally, the project sponsor has eliminated Haul Routes 2 and 5.</u>

~~• Route 2—intersections = 1, 2, 3, 4, 5~~
• Route 3—intersections1 = 1, 2
• Route 4—intersections = 1, 2, 6, 7, 8
~~• Route 5—intersections = 1, 2, 6, 7, 8, 9~~
• Route 6—intersections = 1, 2, 10, 11, 12, 13
• Route 7—intersections = 1, 2, 10, 11, 12, 13, 14
• Route 8—intersections = 1, 2, 10, 11, 12, 13, 14, 15.

Page 3.6-5 of the Draft EIR, Figure 3.6-1 is revised to reflect the elimination of Haul Routes 2 and 5 from the proposed project.

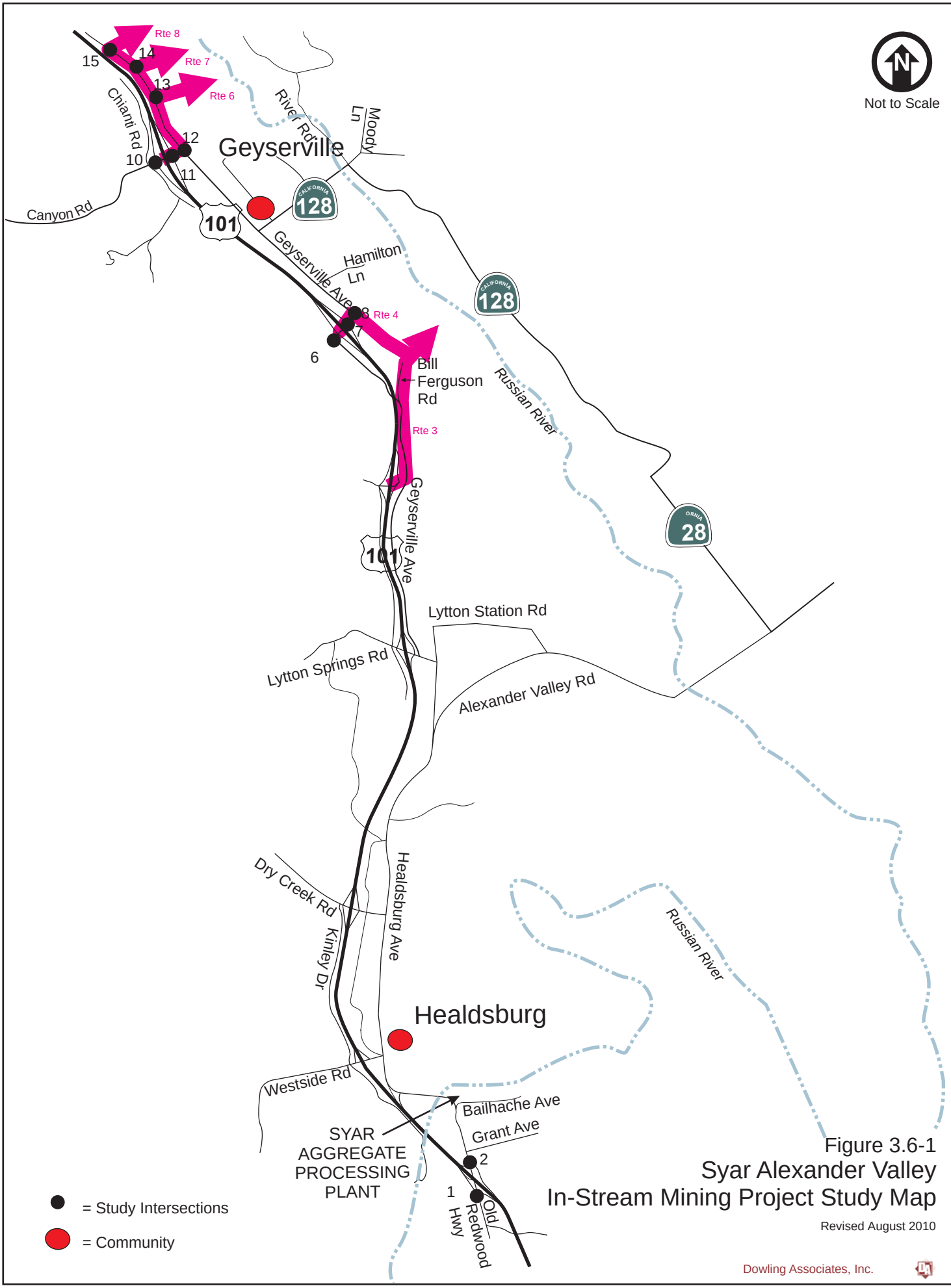


Figure 3.6-1
Syar Alexander Valley
In-Stream Mining Project Study Map

Revised August 2010

Dowling Associates, Inc.

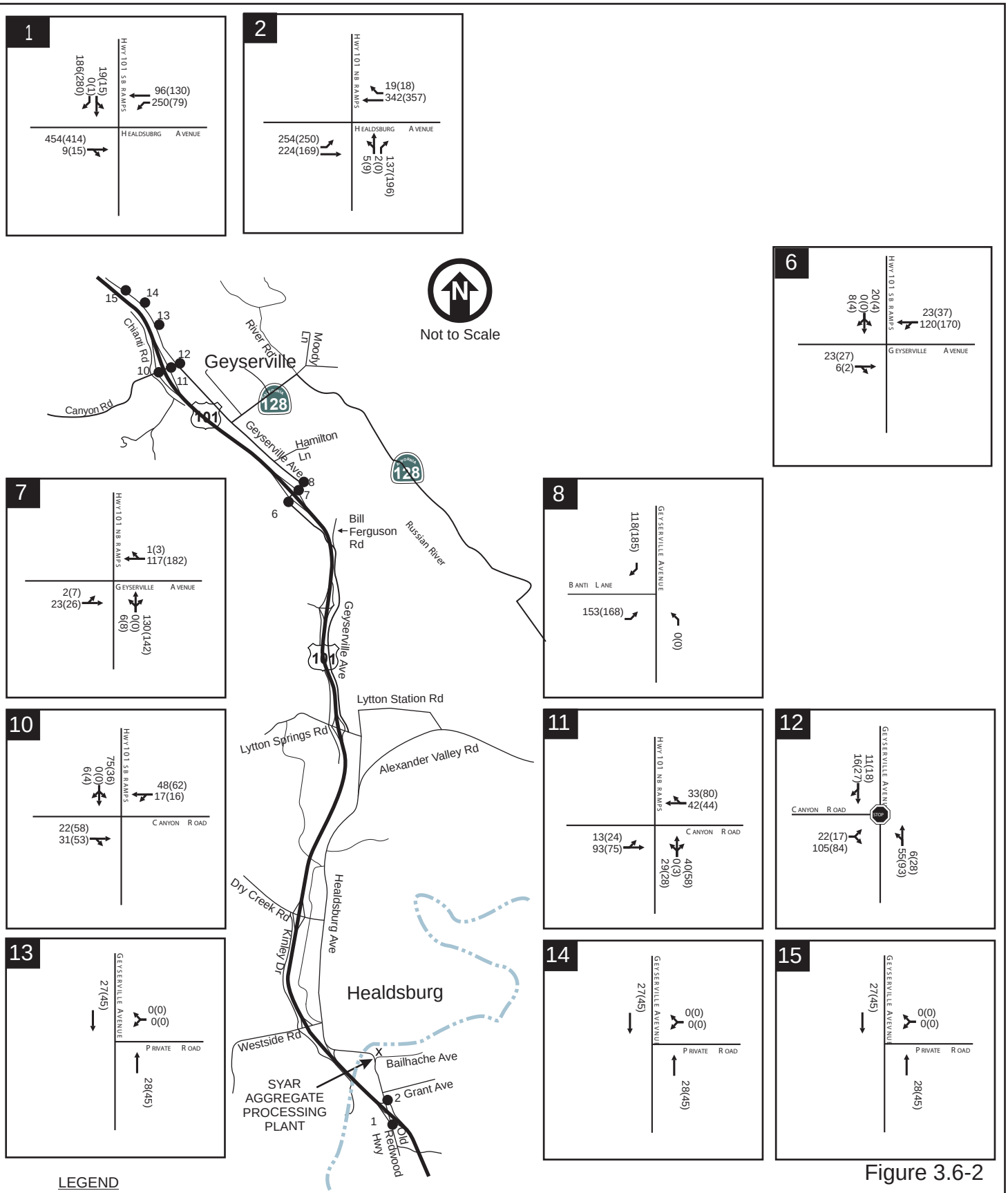
Page 3.6-8 of the Draft EIR, Table 3.6-3 is revised as follows:

Table 3.6-3
Existing a.m. and p.m. Peak-Hour LOS at Proposed Project Intersections

Intersection #	Location	Peak Hour LOS Level (average delay in seconds)	
		a.m.	**p.m.**
1	U.S. 101 southbound off-ramp at Healdsburg Avenue/Old Redwood Highway	B (11.8)	B (11.4)
2	U.S. 101 northbound off-ramp at Healdsburg Avenue/Old Redwood Highway	B (11.6)	B (11.4)
~~3~~	~~U.S. 101 southbound off-ramp at Lytton Springs Road~~	~~B (10.5)~~	~~B (12.7)~~
~~4~~	~~U.S. 101 northbound off-ramp at Lytton Springs Road~~	~~A (9.7)~~	~~B (10.3)~~
~~5~~	~~Healdsburg Avenue at Lytton Springs Road (access to Route 2)~~	~~B (10.7)~~	~~B (10.8)~~
6	U.S. 101 southbound off-ramp at Geyserville Avenue	B (10.3)	B (10.4)
7	U.S. 101 northbound off-ramp at Geyserville Avenue (access to Route 3)	A (9.1)	A (9.2)
8	Geyserville Avenue at Banti Lane (access to Route 4)	A (10)	B (10.1)
~~9~~	~~Geyserville Avenue at Hamilton Lane (access to Route 5)~~	~~A (9.8)~~	~~B (10.2)~~
10	U.S. 101 southbound off-ramp at Canyon Road	A (9.7)	A (9.8)
11	U.S. 101 northbound off-ramp at Canyon Road	A (9.5)	A (9.6)
12	Geyserville Avenue at Canyon Road	A (7.4)	A (7.7)

Note: Numbers in parentheses indicate seconds of average delay overall at all-way stop controlled intersections and for the worst affected approach at side street controlled intersections

Page 3.6-9 of the Draft EIR, Figure 3.6-2 is revised to reflect the elimination of Haul Routes 2 and 5 from the proposed project.



LEGEND

xx(xx) = AM(PM) traffic volume

● = Study Intersections

Figure 3.6-2

Syar Alexander Valley In-Stream Mining Existing AM(PM) Volumes

Revised August 2010

NOTE: All intersections show traffic which creates worst case delay among route altenratives, therefore intersection 8 shows access conditions for Route 4 and intersections 13 14 and 15 reflect traffic from routes 6, 7 and 8 respectively

Dowling Associates, Inc.

Page 3.6-10 of the Draft EIR, Table 3.6-4b is revised as follows:

Table 3.6-4b
Existing County Road Segment Levels of Service

	Facility Class	LOS C Maximum Threshold Volume	LOS D Maximum Threshold Volume	Max. 1-way Peak Hour Volume	LOS
Geyserville Avenue East of U.S. 101	2-Lane Rural Road	1000	1200	185 (NB PM)	C*
Healdsburg Avenue North of U.S. 101	2-Lane Primary Arterial	900	1010	446 (SB PM)	C*
~~Lytton Springs Road East of U.S. 101~~	~~2-Lane Rural Road~~	~~1000~~	~~1200~~	~~238 (WB PM)~~	~~C*~~
Canyon Road East of U.S. 101	2-Lane Rural Arterial	1000	1200	125 (EB AM)	C*

Notes: LOS = level of service; C* = LOS at C or better
Source: California Department of Transportation, Traffic and Vehicle Data System (http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/2007all.htm). Directional factor assumed to be 60 percent based on Highway Capacity Manual default guidance. Caltrans does not distinguish between a.m. and p.m.

Page 3.6-12 of the Draft EIR, Table 3.6-5 is revised as follows:

Table 3.6-5
Historical Accident Data for Select Project Roadways

Roadway and Year	Number of Collisions	Number of Fatal Collisions	Number of Injuries
U.S. 101 – Old Redwood Highway to Canyon Road (Peak 3-year Accident Rate = 0.68 per Million Vehicle Miles)			
2002	29	0	18
2003	33	0	28
2004	42	2	44
2005	41	4	22
2006	21	0	19
2007*	1	1	1
Healdsburg Avenue – Bailhache Road to U.S 101 (Peak 3-year Accident Rate = 4.58 per MVM)			
2002	8	0	3
2003	6	0	1
2004	8	0	1
2005	4	0	0
2006	4	0	1
2007*	2	0	4

Table 3.6-5
Historical Accident Data for Select Project Roadways

Roadway and Year	Number of Collisions	Number of Fatal Collisions	Number of Injuries
State Route 128 – Geyserville Avenue to Russian River (Peak 3-year Accident Rate = 1.77 per MVM)			
2002	3	0	3
2003	7	0	5
2004	3	0	4
2005	2	0	3
2006	4	0	2
2007*	0	0	0
~~**Lytton Station Road – Geyserville Avenue to Alexander Valley Road**~~ ~~(Peak 3-year Accident Rate = 1.13 per MVM)~~			
~~2002~~	~~3~~	~~0~~	~~2~~
~~2003~~	~~5~~	~~0~~	~~4~~
~~2004~~	~~4~~	~~0~~	~~5~~
~~2005~~	~~2~~	~~0~~	~~0~~
~~2006~~	~~3~~	~~0~~	~~1~~
~~2007*~~	~~1~~	~~0~~	~~1~~
Canyon Road – Graymont Drive to Geyserville Avenue (Peak 3-year Accident Rate =2.23 per MVM)			
2002	3	0	1
2003	3	0	2
2004	1	0	0
2005	2	0	1
2006	0	0	0
2007*	0	0	0

SOURCE: California Highway Patrol 2007
* = partial year data to June, 1 2007

Page 3.6-19 of the Draft EIR, Figure 3.6-3 is revised to reflect the elimination of Haul Routes 2 and 5 from the proposed project.

Page 3.6-21 of the Draft EIR, Figure 3.6-4 is revised to reflect the elimination of Haul Routes 2 and 5 from the proposed project.

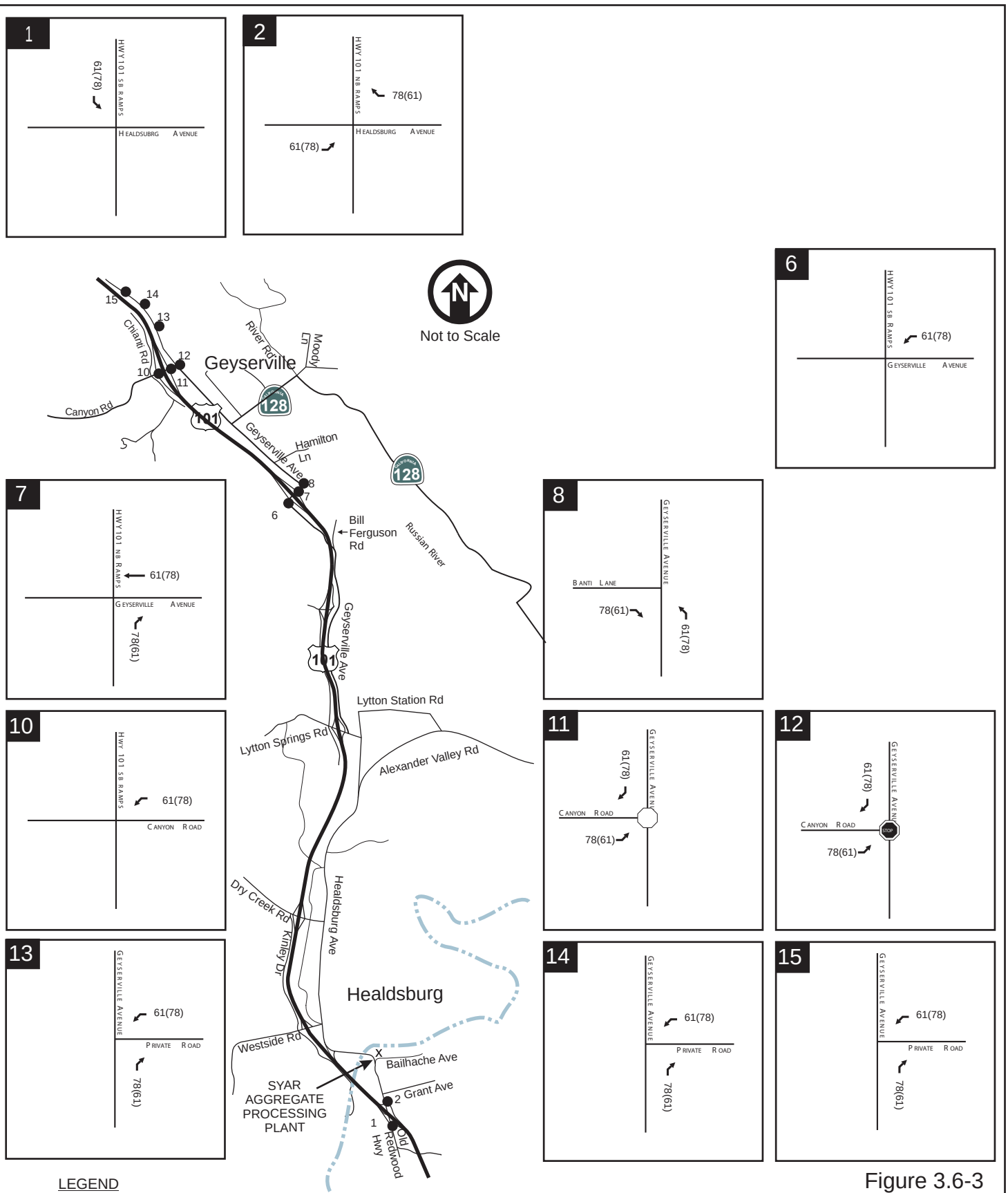


Figure 3.6-3
Syar Alexander Valley
In-Stream Mining Project Only
AM(PM) Volumes

Revised August 2010

NOTE: All intersections show traffic which creates worst case delay among route altenratives, therefore intersection 8 shows access conditions for Route 4 and intersections 13 14 and 15 reflect traffic from routes 6, 7 and 8 respectively

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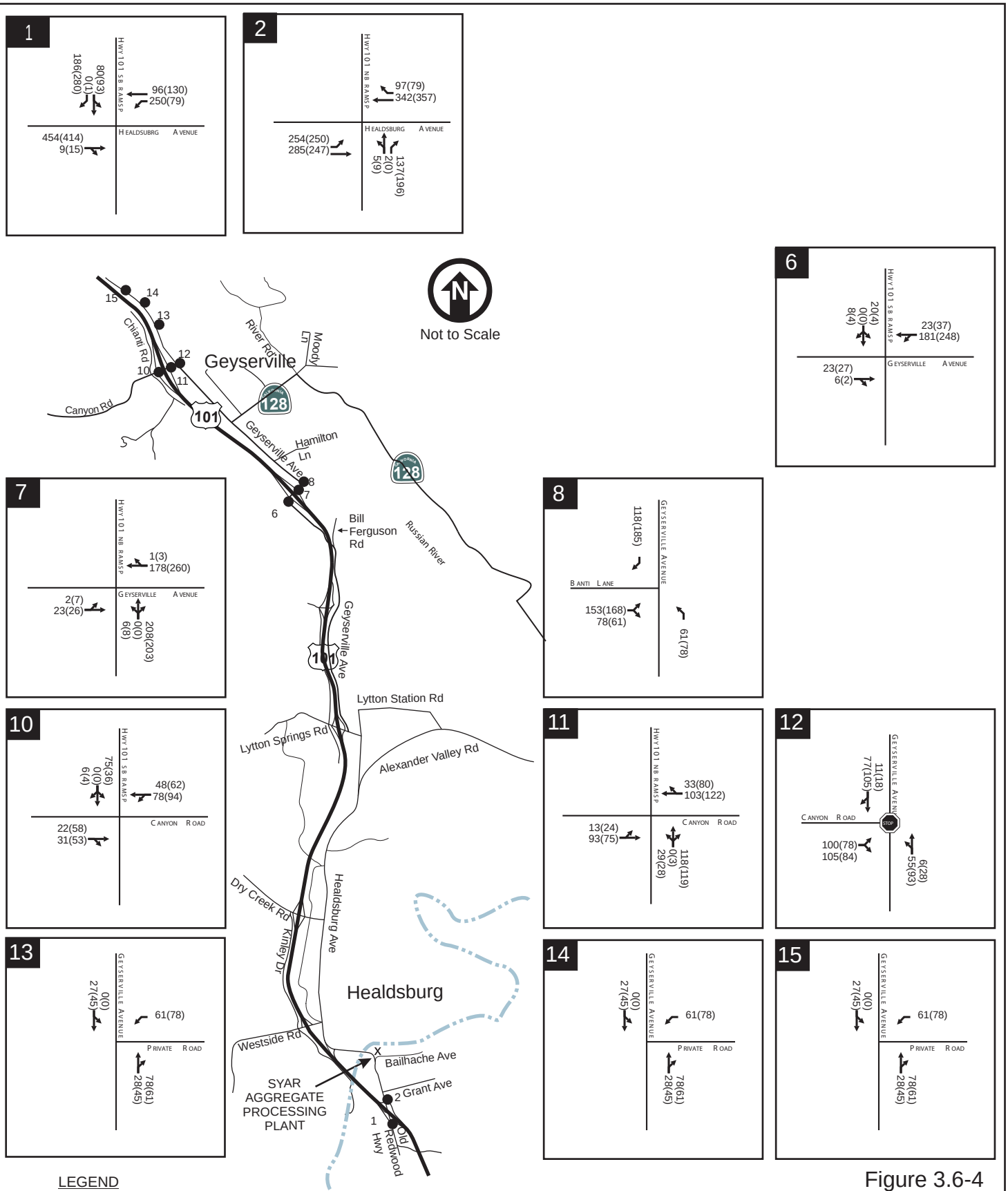

LEGEND

xx(xx) = AM(PM) traffic volume

● = Study Intersections

Figure 3.6-4

Syar Alexander Valley

In-Stream Mining Cumulative With Project

AM(PM) Volumes

Revised August 2010

NOTE: All intersections show traffic which creates worst case delay among route altenratives, therefore intersection 8 shows access conditions for Route 4 and intersections 13 14 and 15 reflect traffic from routes 6, 7 and 8 respectively

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Page 3.6-25 of the Draft EIR, Table 3.6-7 is revised as follows:

Table 3.6-7
Peak Hour Level of Service at Existing Condition, Cumulative 2025 No Project and Cumulative 2025 With Project Impacts along Haul Routes ~~2 – 8~~ 3,4,6,7,8

#	Intersection Location	Peak Hour LOS Level (average delay in seconds) at Intersections																	
		Existing Condition		Cumulative 2025 No Project		~~Cumulative 2025 Haul Route 2~~		Cumulative 2025 Haul Route 3		Cumulative 2025 Haul Route 4		~~Cumulative 2025 Haul Route 5~~		Cumulative 2025 Haul Route 6		Cumulative 2025 Haul Route 7		Cumulative 2025 Haul Route 8	
		A.M. Peak	P.M. Peak	A.M. Peak	P.M. Peak	~~A.M. Peak~~	~~P.M. Peak~~	A.M. Peak	P.M. Peak	A.M. Peak	P.M. Peak	~~A.M. Peak~~	~~P.M. Peak~~	A.M. Peak	P.M. Peak	A.M. Peak	P.M. Peak	A.M. Peak	P.M. Peak
1	U.S. 101 southbound off-ramp at Healdsburg Avenue/Old Redwood Highway	B (11.8)	B (11.4)	C (15.9)	B (13.7)	~~F (79.8)~~	~~C (17.3)~~	F (79.8)	C (17.3)	F (79.8)	C (17.3)	~~F (79.8)~~	~~C (17.3)~~	F (79.8)	C (17.3)	F (79.8)	C (17.3)	F (79.8)	C (17.3)
2	U.S. 101 northbound off-ramp at Healdsburg Avenue/Old Redwood Highway	B (11.6)	B (11.4)	B (14.3)	B (13.8)	~~C (16.1)~~	~~C (15.6)~~	C (16.1)	C (15.6)	C (16.1)	C (15.6)	~~C (16.1)~~	~~C (15.6)~~	C (16.1)	C (15.6)	C (16.1)	C (15.6)	C (16.1)	C (15.6)
3	~~U.S. 101 southbound off-ramp at Lytton Springs Road~~	~~B (10.5)~~	~~B (12.7)~~	~~B (11.6)~~	~~C (15.6)~~	~~B (14)~~	~~C (20.7)~~	~~B (13.4)~~	~~C (21.9)~~	~~B (13.4)~~	~~C (21.9)~~	~~B (13.4)~~	~~C (21.9)~~	~~B (13.4)~~	~~C (21.9)~~	~~B (13.4)~~	~~C (21.9)~~	~~B (13.4)~~	~~C (21.9)~~
4	~~U.S. 101 northbound off-ramp at Lytton Springs Road~~	~~A (9.7)~~	~~B (10.3)~~	~~B (10.4)~~	~~B (11.4)~~	~~B (11.1)~~	~~B (12.3)~~	~~B (13)~~	~~B (15)~~	~~B (13)~~	~~B (15)~~	B (13)	B (15)	~~B (13)~~	~~B (15)~~	~~B (13)~~	~~B (15)~~	~~B (13)~~	~~B (15)~~
5	~~Healdsburg Avenue at Lytton Springs Road (access to Route 2)~~	~~B (10.7)~~	~~B (10.8)~~	~~B (11.7)~~	~~B (12)~~	~~B (14.6)~~	~~C (17.5)~~												
6	U.S. 101 southbound off-ramp at Geyserville Avenue	B (10.3)	B (10.4)	B (11.3)	B (11.4)					B (12.9)	B (13)	~~B (12.9)~~	~~B (13)~~	B (14.4)	C (18.6)	B (14.4)	C (18.6)	B (14.4)	C (18.6)
7	U.S. 101 northbound off-ramp at Geyserville Avenue (access to Route 3)	A (9.1)	A (9.2)	A (9.4)	A (9.6)					A (9.8)	B (10.1)	~~A (9.8)~~	~~B (10.1)~~	B (10.8)	B (11.5)	B (10.8)	B (11.5)	B (10.8)	B (11.5)
8	Geyserville Avenue at Banti Lane (access to Route 4)	A (10.0)	B (10.1)	B (10.3)	B (10.5)					B (11.9)	B (12.3)	~~B (11.1)~~	~~B (11.3)~~						
9	~~Geyserville Avenue at Hamilton Lane (access to Route 5)~~	~~A (9.8)~~	~~B (10.2)~~	~~B (10.4)~~	~~B (11)~~							~~B (12.3)~~	~~B (13.9)~~						
10	U.S. 101 southbound off-ramp at Canyon Road	A (9.7)	A (9.8)	B (10.2)	B (10.3)									B (11.8)	B (12)	B (11.8)	B (12)	B (11.8)	B (12)
11	U.S. 101 northbound off-ramp at Canyon Road	A (9.5)	A (9.6)	A (10)	B (10.2)									B (10.5)	B (10.7)	B (10.5)	B (10.7)	B (10.5)	B (10.7)
12	Geyserville Avenue at Canyon Road	A (7.4)	A (7.7)	A (7.7)	A (8.1)									A (8.5)	A (8.8)	A (8.5)	A (8.8)	A (8.5)	A (8.8)
13	Geyserville Avenue at access to Route 6																	A (9.5)	A (9.9)
14	Geyserville Avenue at access to Route 7															A (9.5)	A (9.9)		
15	Geyserville Avenue at access to Route 8													A (9.5)	A (9.9)				

Note: Numbers in parentheses indicate seconds of average delay overall at all-way stop controlled intersections and for the worst affected approach at side street controlled intersections
Shaded cells indicate no change from no project condition
N/A = The proposed intersections do not currently exist at this time. They would be connected to public roadways for the purposes of the project.

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Page 3.6-28 of the Draft EIR, Table 3.6-9b is revised as follows:

Table 3.6-9b
County Road Segment Levels of Service

Segment	Facility Class	LOS C Threshold Volume	LOS D Threshold Volume	Existing		Cumulative 2025 No Project		Cumulative 2025 With Project	
				Max. 1-way Peak Hour Volume	LOS	Max. 1-way Peak Hour Volume	LOS	Max. 1-way Peak Hour Volume	LOS
Geyserville Avenue East of U.S. 101	2-Lane Rural Road	1000	1200	185 (NB PM)	C*	242 (NB PM)	C*	317 (NB PM)	C*
Healdsburg Avenue North of U.S. 101	2-Lane Primary Arterial	900	1010	446 (SB PM)	C*	584 (SB PM)	C*	659 (SB PM)	C*
~~Lytton Springs Road East of U.S. 101~~	~~2-Lane Rural Road~~	~~1000~~	~~1200~~	~~238 (WB PM)~~	~~C*~~	~~312 (WB PM)~~	~~C*~~	~~387 (WB PM)~~	~~C*~~
Canyon Road East of U.S. 101	2-Lane Rural Arterial	1000	1200	125 (EB AM)	C*	164 (EB AM)	C*	239 (EB AM)	C*

Source: California Department of Transportation, Traffic and Vehicle Data System (http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/2007all.htm). Directional factor assumed to be 60 percent based on Highway Capacity Manual default guidance. Caltrans does not distinguish between a.m. and p.m.

Notes: LOS = level of service; C* = LOS at C or better

Page 3.6-29 of the Draft EIR, the section titled "Curvature on Lytton Station Road" is deleted as follows:

~~Curvature on Lytton Station Road~~

~~The Lytton Station Road curve was identified by Carlenzoli and Associates (2008), and concurred with by the County, as not being able to safely accommodate the wider turning radius of haul trucks. The curve may need improvement to the radius in order to allow haul trucks to trucks to negotiate the curve without tracking into the opposing lane and creating conflicts with existing traffic.~~

Page 3.6-29 of the Draft EIR, Mitigation Measure 3.6-3c is deleted as follows:

~~Mitigation Measures~~

~~3.6-3c~~ **~~Improve Curve on Lytton Station Road.~~** ~~Prior to use of Haul Route 2, Syar shall purchase required right of way and design and construct a widening improvement of Lytton Station Road sufficient to meet applicable Caltrans and AASHTO standards and keep project haul trucks~~

~~from crossing the center line. The Sonoma County Department of Transportation and Public Works has developed a preliminary concept for lane widening that would expand the paved area of the interior south east quadrant of the curve by approximately 10 feet at the apex. This preliminary concept appears to be the most efficient and costeffective means of meeting this requirement, although widening to the outside of the curve could also meet this requirement. If right of way is required for the improvements and Syar is unable to acquire the necessary right-of-way to construct the improvements, the implementation of Mitigation Measure 3.6-3c may not be feasible. If the identified improvement in Mitigation Measure 3.6-3c is infeasible, the roadway impact would be significant and unavoidable.~~

This revision is also made in Table 2.1 of the Draft EIR.

Page 3.6-30 of the Draft EIR, the first paragraph is deleted as follows:

~~*Haul route 5 access from Hamilton Lane to Geyserville Avenue:* Sight distance for the stop at Hamilton Lane turning south onto Geyserville Avenue is 300 feet, as a result of overhanging vegetation obstructing the view. The stopping sight distance of 300 feet is exactly equal to the minimum stopping sight distance. This may be a potentially significant impact.~~

Page 3.6-30 of the Draft EIR, Mitigation Measure 3.6-3d is revised as follows:

Mitigation Measure

3.6-3d **Trim Vegetation to Increase Stopping Sight Distances.** Prior to using Geyserville Avenue as a haul route, Syar shall ensure that shrubs and other vegetation are trimmed in the County right of way to provide more than 300 feet of stopping sight distance along~~:~~
~~• Geyserville Avenue southeast of Hamilton Lane; and~~
~~•~~ Geyserville Avenue north of Independence Lane.

This revision is also made in Table 2.1 of the Draft EIR.

Page 3.6-30, first sentence below the heading “Significance after Mitigation” is revised as follows:

Mitigation Measures 3.6-3a<u>, 3.6-3b, and 3.6-3d</u> ~~through 3.6-3d~~ would reduce potential traffic-related hazards due to design features or incompatible use to less-than-significant levels.

Page 3.6-31 of the Draft EIR, Table 3.6-10 is revised as follows:

Table 3.6-10
Civil Engineering Review of Road Conditions

Road	Route(s)	Condition
Geyserville Avenue	6, 7 & 8	Generally in good condition with adequate shoulders.
~~Hamilton Lane~~	~~5~~	~~Generally in fair condition. No shoulders.~~
~~Geyserville Avenue~~	~~5~~	~~Generally in good condition. Adequate shoulders on south half, but shoulders should be widened on north half.~~

Table 3.6-10
Civil Engineering Review of Road Conditions

Road	Route(s)	Condition
Banti Lane	~~4~~5	Generally in good condition. Presently a locked gate at Geyserville Avenue.
Bill Ferguson Road	3	Generally in fair condition.
Geyserville Avenue	3	Generally in good condition. Adequate shoulders on north half, but shoulders should be widened on south half.
~~Healdsburg Avenue~~	~~2~~	~~Generally in fair condition except the portion within the railroad right-of-way is in very poor condition.~~
~~Lytton Station~~	~~2~~	~~Generally in fair condition except some patches which are primarily in the center 10 feet of the road.~~
~~Hassett Lane~~	~~2~~	~~Generally in poor condition with numerous patches. The existing bridge at the north end is 19 feet wide.~~

Source, Carlenzoli and Associates 2008.

Pages 3.6-31 and 3.6-32 of the Draft EIR, Mitigation Measure 3.6-4b is revised as follows:

3.6-4b **Implement roadway preparation work.** Prior to use of a Haul Route that utilizes one of the following roads, Syar shall implement roadway preparation work and construct pavement improvements, as described below, prior to the use of relevant road.

- Bill Ferguson Road shall receive a new chip seal.
- ~~Hassett Lane and Lytton Station Road shall receive a new asphalt overlay.~~
- ~~Healdsburg Avenue shall receive a new chip seal on the portion adjacent to Lytton Station Road.~~
- Banti Lane shall receive a new chip seal.
- Prior to proposed roadwork on ~~Lytton Station Road, Hassett Lane and,~~ Healdsburg Avenue, Syar shall perform excavation and pavement repair ~~at locations~~ on the haul route portion~~s~~ of ~~those~~ this road~~s~~ specified by the County Department of Transportation and Public Works to address road base failure.

This revision is also made in Table 2.1 of the Draft EIR.

Page 3.6-32 of the Draft EIR, first paragraph below Impact 3.6-5 is revised as follows:

The California Public Utilities Commission (CPUC) requires that all at-grade crossings be subjected to on-site reviews in the course of permitting. These reviews establish the adequacy of crossing provisions, including warning devices consistent with the CPUC general orders and Caltrans standards. County staff, Syar representatives, and representatives of NCRA and CPUC met on-site on November 29, 2007 and inspected crossings on Routes ~~2~~, 3, 4, ~~5~~, 6 and 7. Route 8 was not proposed as part of the project at that time, but is similar to the other private crossings. NCRA and CPUC indicated

during the site visit, and in correspondence with the County (NCRA 2007, CPUC 2007), that improvements will be required at all crossings. Improvements may include track work, track roadbed improvement, approach roadway improvements, and warning sevice upgrades commensurate with the level of rail service and volume of truck traffic being proposed. Syar would be required to enter into a lease agreement with the NCRA for private crossings that would include crossing improvements and maintenance requirements. ~~Improvements to the public crossing on Lytton Station Road would require coordination with NCRA, CPUC and the County.~~

Page 3.6-32 of the Draft EIR, Mitigation Measure 3.6-5 is revised as follows:

3.6-5 **Improve Railroad Crossings.** Syar shall improve railroad track crossings ~~at Lytton Springs Road (Route 2) and the private crossings~~ on Routes 3, 4, ~~5,~~ 6, 7, and 8 to meet all applicable safety standards as required by the CPUC and NCRA. For Routes 3, 4, ~~5,~~ 6, 7, and 8, Syar shall obtain an encroachment permit and enter into a lease agreement with NRCA for installation of improvements. This encroachment permit would obligate Syar for ongoing maintenance of the railroad crossings. ~~For Lytton Springs Road, Syar shall coordinate with the County, CPUC, and NCRA to repair the pavement.~~

This revision is also made in Table 2.1 of the Draft EIR.

Page 3.6-33 of the Draft EIR, the impact statement and the first paragraph under the heading "Secondary Impacts Resulting from Implementing Transportation Mitigation Measures" are revised as follows:

Impact 3.6-7 Implementation of Mitigation Measures ~~3.6-3c,~~ 3.6-3d~~,~~ and 3.6-6a~~,~~ could potentially result in secondary impacts in terms of loss of biological resources from vegetation pruning and/or tree removal.

~~Widening of the curve along Lytton Station Road for Mitigation Measure 3.6-3c may require tree pruning and/or removal;~~ The widening of portions of Geyserville Road for Mitigation Measure 3.6-6a may require tree/vegetation pruning, and Mitigation Measure 3.6-3d will require vegetation pruning on Geyserville Avenue at two locations for sight distance, which could result in potential biologic impacts. These potential impacts are addressed in Section 3.3, 'Vegetation and Wildlife'.

3.7 AIR QUALITY

Page 3.7-8 of the Draft EIR, Table 3.7-3 is revised to reflect that the NSCAPCD attainment status for ozone is A, attainment (not N, nonattainment). NSCAPCD is in attainment for all state and federal standards.

Page 3.7-22 of the Draft EIR, Impact 3.7-1 is revised as follows:

Impact 3.7-1 The project would generate long-term operational (regional) emissions of criteria air pollutants and precursors. ~~The generation of PM10 would be significant but other criteria pollutant and precursors would be less than significant.~~

Pages 3.7-22 to 3.7-23 of the Draft EIR, the fourth bulleted item below Impact 3.7-1 is revised as follows:

- Fugitive dust emissions from direct disturbance and haul truck travel: As set forth in Appendix D to the Response to Comment Document, ~~T~~the amount of mined aggregate is assumed to be 350,000 tons. Appendix D assumed that 28,000 one-way trips would occur each year, with 14,000 unloaded trips and 14,000 loaded trips with 25 tons per truck load. This analysis calculated worst-case fugitive emissions of PM_{10} and $PM_{2.5}$ based on equations of fugitive dust travel developed by U.S. EPA, truck travel projections and estimates of truck travel in Geyserville on gravel roads, unpaved haul roads, and paved rural roadways. ~~and the VMT on unpaved roads is assumed to be 84,000 miles (28,000 one way truck trips * 3 miles). The unpaved distance assumes the longest distance of travel from Route 8 through the gravel bars to Bar S-5 (the longest alternative access route). Although this alternate route was not specified in the project description, it was chosen to obtain a conservative figure and maximum impact. It is assumed that this route could be used if others are not available. The modeling depicts the worst case scenario with the longest route. Many shorter routes will be used throughout the project years and therefore, the impacts would be less than modeled here for most years, and for the average over the project life. Table 3.7-4 summarizes the modeled, annual project-generated, operation-related emissions of each criteria air pollutant and precursor. Operation-related regional air quality effects were determined by comparing these modeling results with applicable standards recommended by NSCAPCD. The results presented in Table 3.7-4 account for a 50% reduction in emissions due to dust control measures as described in the project (i.e., watering for dust control). Appendix H shows the detailed modeling input parameters and results.~~

Page 3.7-23 of the Draft EIR, the second paragraph is revised as follows:

As shown in Table 3.7-4, modeled emissions of ROG, NOx and CO would not exceed NSCAPCD-recommended standards. ~~Modeled emissions of PM10, which would primarily be in the form of fugitive dust associated with ground disturbance activities such as aggregate extraction, would exceed the NSCAPCD standard of 15 tpy (PM2.5 is a subset of PM10, and as such, the evaluation of short-term construction-generated PM10 would be similar for PM2.5). Thus, project-generated, operation-related emissions could violate or contribute substantially to an existing or projected air quality violation, and/or expose sensitive receptors to substantial pollutant concentrations. Potential effects associated with the emission of PM10 would be considered significant. To further reduce impacts, additional dust control BMP measures would be required~~.

Page 3.7-23 of the Draft EIR, Table 3.7-4 is revised as follows:

Table 3.7-4
Summary of Modeled Annual Project-Generated Operational Emissions of Criteria Air Pollutants and Precursors and CO_2

Source	TPY				
	ROG	**NO_X**	**CO**	**~~PM_{10}~~**	**CO_2e**
~~Fugitive PM_{10} Dust~~				~~78.7~~[1]	
On-Site, Off-Road Heavy-Duty Equipment	0.2	1.8	0.6	~~0.1~~	273.7
Off-Site, On-Road Material Transport	0.2	2.7	2.3	~~0.1~~	622.1
Worker Commute Vehicle Exhaust	0.0	0.0	0.3	~~0.0~~	622.5
Total	0.4	4.5	3.2	~~**78.9**~~	**958.3**
NSCAPCD-Recommended Standards (tpy)	40.0	40.0	100.0	~~15.0~~	-

Notes: NO_X = oxides of nitrogen; NSCAPCD = Northern Sonoma County Air Pollution Control District; ~~PM_{10} = respirable particulate matter with an aerodynamic diameter of 10 micrometers or less;~~ ROG = reactive organic gases; CO = carbon monoxide; ; CO_2e = carbon dioxide equivalent; tpy = tons per year 1 Accounts for a 50% reduction in emissions due to best management practices included in the project description (e.g., watering). See Appendix H for detailed input parameters and modeling results. Sources: Modeling performed by AECOM in 2009

Page 3.7-23 of the Draft EIR, the following four new paragraphs are added below Table 3.7-4:

Appendix D of the Response to Comments Document contains a supplemental analysis of project-generated PM_{10} and $PM_{2.5}$ emissions prepared by Illingworth & Rodkin, Inc., an environmental consulting firm that has completed more than 2,500 studies regarding project air quality and noise impacts. Illingworth & Rodkin analyzed fugitive emissions of PM_{10} and $PM_{2.5}$ generated by the proposed project, as revised by the applicant's new information regarding truck haul route changes and rocking portions of haul routes. Appendix D calculated fugitive dust emissions using Sections 13.2.1 and 13.2.2 of the U.S. EPA Compilation of Emission Factors, and used a conservative assumption of the silt content of unpaved roads. The analysis explains that use of a lower silt content, like that reported by the applicant, would result in substantially lower emission rates. Appendix D then assessed emissions against a worst-case scenario of project truck travel distances. The analysis assumed that Haul Routes 3 or 4 would be used for all gravel bars, and also evaluated use of Haul Route 8 for the northernmost Bars S-9 through S-14.

Illingworth & Rodkin explained that the NSCAPCD is in attainment for $PM_{2.5}$, and does not have a threshold of significance for project emissions. The adjacent Bay Area Air Quality Management District (BAAQMD) is in non-attainment for $PM_{2.5}$, however, and recently adopted a new 10 tpy threshold of significance. This new threshold does not apply to the proposed project, and appears conservative given that the NSCAPCD is in attainment. Nevertheless, Tables 5 and 6 of Appendix D reveal that project emissions would be far below the threshold at all identified bars, and thus less than significant.

Illingworth & Rodkin found that with implementation of Mitigation Measure 3.7-1, mining of the full 350,000 tons per year would not exceed the 15 tons per year (tpy) threshold of significance for PM_{10} emissions at Bars SD-4, SD-5, S-4, S-5, S-6, S-7, S-8, or S-9. Appendix D explains that mining of 350,000 tpy at the five northernmost bars (Bars S-10, S-11, S-12, S-13, S-14) would not result in a significant adverse impact if the northernmost Haul Routes 6, 7, or 8 are used, but would exceed the threshold if Haul Route 4 is used. (Tables 3 and 4.) Mining 350,000 tpy at the two southernmost Bars SD-1 and SD-2, via Haul Route 4, would exceed the threshold by 4.6 and 2.7 tpy, respectively. (Tables 3 and 4.)

In addition, skimming of multiple bars in any given year could exceed the 15 tpy threshold. For example, Table 7 of Appendix D indicates that the applicant could mine 244,000 tons from Bar SD-1 without resulting in a significant adverse impact. But if the applicant skimmed additional aggregate from a different bar in the same year, it could exceed the 15 tpy threshold.

Page 3.7-24 of the Draft EIR, the following new mitigation measures are added below Mitigation Measure 3.7-1 as follows:

3.7-1b Mining of a single bar shall not result in emissions of more than 15 tpy of PM_{10}. For Bars S-10, S-11, S-12, S-13, S-14, Syar shall utilize Haul Routes 6, 7, or 8 instead of Haul Route 4. If Haul Routes 6, 7 and 8 are all unavailable for use, Syar shall comply with the following annual production limits set forth in Table 7 of Appendix D:

- Bar S-10 339,000 tons
- Bar S-11 299,000 tons
- Bar S-12 285,000 tons
- Bar S-13 258,000 tons
- Bar S-14 204,000 tons

For Bars SD-1 and SD-2, Syar shall comply with the following annual production limits set forth in Table 7 of Appendix D:

- Bar SD-1 244,000 tons
- Bar SD-2 288,000 tons

Alternatively, Syar may retain a qualified expert and include as part of its annual mining plan submittals an air quality analysis that includes sampling of the silt content(s) of the graveled haul road(s) in the riverbed and haul route(s) that Syar proposes to use that year. Where applicable, such sampling may be taken from the bars where the gravel will be obtained. The air quality analysis shall use the actual silt content(s) and fugitive dust emission equations and analysis set forth in Appendix D, and shall be subject to a peer review by the County. Where the analysis demonstrates and peer review confirms that the mining will not exceed 15 tpy of PM_{10}, then the tonnage limitations set forth in this Mitigation Measure shall not apply. If the air quality analysis demonstrates that a different tonnage limitation will avoid any emissions in excess of 15 tpy of PM_{10}, then that different tonnage limitation shall apply.

3.7-1c Mining of multiple bars shall not result in emissions of more than 15 tpy of PM_{10}. If Syar wishes to mine multiple bars in a given mining season, it shall retain a qualified expert and include as part of its annual mining plan submittals an air quality analysis that complies with Mitigation Measure 3.7-1b and demonstrates that the mining will not exceed 15 tpy of PM_{10}.

This revision is also made in Table 2.1 of the Draft EIR.

Page 3.7-24 of the Draft EIR, the paragraph below the heading "Impact Significance After Mitigation" is revised as follows:

Imposition of Mitigation Measures 3.7-1, 3.7-1a, and 3.7-1b would reduce fugitive PM_{10} dust emissions below the NSCAPCD standard of 15 tpy. Thus, this impact would be less than significant. ~~Implementation of Mitigation Measure 3.7-1 would reduce fugitive PM10 dust emissions by an estimated 37.5 tpy (see Appendix H), over the 50% reduction attributable to the dust control requirements proposed as part of the project (see Chapter 1, Introduction and Project Description). However, mitigated emissions of PM10 would still total 39.34 tpy (see Appendix H), and exceed the NSCAPCD standard of 15 tpy. Thus, this impact would be significant and unavoidable.~~

Page 3.7-29 of the Draft EIR, Figure 3.7-2 is revised to reflect the elimination of Haul Routes 2 and 5 from the proposed project.

Page 3.7-31 of the Draft EIR, Figure 3.7-3 is revised to reflect the elimination of Haul Routes 2 and 5 from the proposed project.

Syar Alexander Valley Instream Mining Project

Russian River Gravel Bar Skimming
Sonoma County California

AECOM

Revised August, 2010

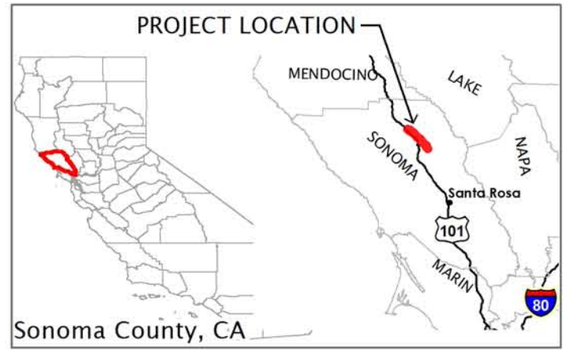

Figure 3.7-2
Sensitive Receptor Locations: Reach 2

- Sensitive Receptors Along Haul Routes
- Sensitive Receptors in the Vicinity of the Proposed Mining Locations
- Gravel Bars
- Staging Area
- Access Roads
- Russian River Course (May 2006)
- Main Roads

Source: USDA-FSA Aerial Photography August 2005 (Color)
Delta Geomatics Corporation May 2006 (Black and White)

0 1,250 2,500 Feet

Source: Syar Industries inc. EDAW,
Projection State Plane NAD 1983 California II

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Syar Alexander Valley Instream Mining Project

Russian River Gravel Bar Skimming
Sonoma County California

AECOM

Revised August, 2010

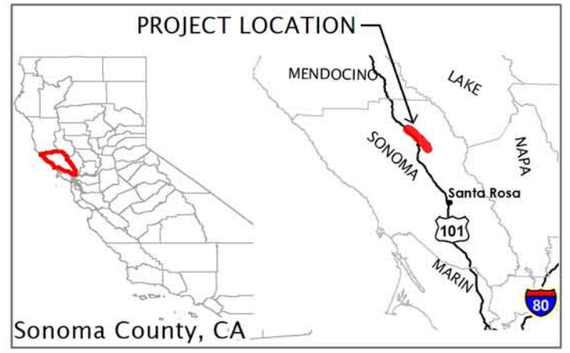

Figure 3.7-3
Sensitive Receptor Locations: Reach 3

- Sensitive Receptors Along Haul Routes
- Sensitive Receptors in the Vicinity of the Proposed Mining Locations
- Gravel Bars
- Staging Area
- Access Roads
- Russian River Course (May 2006)
- Main Roads

Source: USDA-FSA Aerial Photography August 2005 (Color)
Delta Geomatics Corporation May 2006 (Black and White)

0 1,250 2,500 Feet

Source: Syar Industries inc. EDAW,
Projection State Plane NAD 1983 California II

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3.9 NOISE

Page 3.9-6 of the Draft EIR, Table 3.9-1 is revised as follows:

Table 3.9-1
Summary of Modeled Existing Traffic Noise Levels

Roadway	Segment Location	CNEL (dBA) 100 Feet from Centerline of Roadway	Distance (feet) from Roadway Centerline to CNEL (dBA) Contour		
		Existing	70	65	60
Geyserville Avenue	Canyon Road	50.0	5	10	22
~~Geyserville Avenue~~	~~Hamilton Lane~~	~~56.1~~	~~12~~	~~26~~	~~55~~
Geyserville Avenue	Bill Ferguson Road	54.3	9	19	42
~~Healdsburg Avenue~~	~~Lytton Springs Road~~	~~54.5~~	~~9~~	~~20~~	~~43~~
~~Lytton Station Road~~	~~Healdsburg Avenue~~	~~54.6~~	~~9~~	~~20~~	~~43~~
~~Hassett Lane~~	~~Lytton Station Road~~	~~47.2~~[1]	~~3~~	~~6~~	~~14~~
SR 101	S. Healdsburg Avenue	72.8	153	331	712
SR 101	Lytton Springs Road	72.1	138	298	641
SR 101	South Geyserville Ave	71.7	130	279	602

Notes: CNEL = community noise equivalent level; dBA = A-weighted decibels; SR = State Route
[1]Assumed ADT based on ambient noise measurement and field observations to establish a baseline for future project traffic noise evaluation. Refer to Appendix J for modeling input assumptions and output results.
Source: Modeling conducted by EDAW in 2007

Page 3.9-7 of the Draft EIR, Table 3.9-2 is revised as follows:

Table 3.9-2
Summary of Measured Ambient Noise Levels

Site	Location	Distance from Roadway Centerline (Feet)	Date/Time	Average Measured Hourly Noise Levels, dBA						
				24-hour L_{dn}	Daytime (7 a.m.–10 p.m.)			Nighttime (10 p.m.–7 a.m.)		
					L_{eq}	L_{50}	L_{max}	L_{eq}	L_{50}	L_{max}
1	North of Healdsburg Avenue, southwest corner of existing residential side yard	65	10/10/07 – 10/11/07	63.2	60.7	55.6	80.5	55.3	50.6	72.6
2	South side of Alexander Valley Road, residential front yard (540 Alexander Valley Road)	75	10/10/07 – 10/11/07	66.1	63.9	55.4	80.2	58.2	45.4	77.6
~~3~~	~~East side of Geyserville Avenue and west of Hamilton Lane, residential front yard (20690 Geyserville Avenue)~~	~~90~~	~~10/10/07 – 10/11/07~~	~~63.4~~	~~57.1~~	~~54.8~~	~~77.9~~	~~52.3~~	~~45.1~~	~~72.0~~
~~4~~	~~West side of Hassett Lane, residential front yard~~	~~90~~	~~10/11/07 9:00 a.m.~~	~~NA~~	~~48.4~~	~~41.1~~	~~68.2~~	~~NA~~		
~~5~~	~~South side of Lytton Station Road, residential front yard~~	~~60~~	~~10/11/07 10:20 a.m.~~	~~NA~~	~~61.3~~	~~46.8~~	~~82.9~~	~~NA~~		

Notes: dBA = A-weighted decibels; L_{dn} = day-night average noise level; L_{eq} = the energy average noise level; L_{50} = the noise level exceeded 50% of a specific period of time, L_{max} = maximum noise level; NA = not applicable
Source: Data compiled by EDAW in 2007

Page 3.9-18 of the Draft EIR, Table 3.9-7 is revised as follows:

Table 3.9-7
Summary of Modeled Existing Traffic Noise Levels under Existing and Project Conditions on Public Roadways

Roadway	Segment Location		L_{dn} (dBA) 100 Feet from Centerline of Roadway		Net Change (dBA)	Distance (feet) from Roadway Centerline to L_{dn} (dBA) Contour		
	From	To	Existing	Project		70	65	60
Geyserville Avenue	Canyon Road	the north	49.7	60.7	+11.0	24	52	111
~~Geyserville Avenue~~	~~Hamilton Lane~~	~~Banti Lane~~	~~55.8~~	~~61.6~~	~~+5.9~~	~~28~~	~~60~~	~~129~~
Geyserville Avenue	Bill Ferguson Road	Souverain Road	53.9	61.2	+7.3	26	56	121
~~Healdsburg Avenue~~	~~Lytton Springs Road~~	~~Lytton Station Road~~	~~54.1~~	~~61.3~~	~~+7.1~~	~~26~~	~~57~~	~~122~~
~~Lytton Station Road~~	~~Healdsburg Avenue~~	~~Hassett Lane~~	~~54.2~~	~~61.3~~	~~+7.1~~	~~26~~	~~57~~	~~122~~
~~Hassett Lane~~	~~Lytton Station Road~~	~~Olivier Road~~	~~47.2~~	~~60.6~~	~~+13.4~~	~~23~~	~~51~~	~~109~~

Notes: CNEL = community noise equivalent level; dBA = A-weighted decibels
Refer to Appendix J for modeling input assumptions and output results.
Source: Modeling conducted by EDAW in 2009

Page 3.9-18 of the Draft EIR, the paragraph under Table 3.9-7 is revised as follows:

> As shown in Table 3.9-7, noise levels from travel of heavy-duty trucks on public roadways associated with project operations on proposed haul routes would result in traffic noise increases ranging from ~~5.9 to 13.4~~ 7.3 to 11.0 dBA at 100 feet, relative to existing conditions. The table also shows that the distance from the haul routes to the 70-, 65-, and 60-dBA noise contours would range from a minimum of ~~23~~ 24 feet to a maximum of ~~129~~ 121 feet. The measured existing ambient noise level~~s~~ along Healdsburg Avenue~~,~~ ~~Geyserville Avenue, and Lytton Station Road are~~ is 63.2 dB Ldn~~,~~ ~~63.4 dB Ldn, and 61.3 dB Leq, respectively~~ as shown previously in Table 3.9-2~~1~~. The modeled versus measured traffic noise levels along ~~these~~ this roadway~~s~~ indicate~~s~~ that traffic noise emanating from U.S. 101 also contribute~~s~~ to the overall measured noise levels because of the proximity of the roadways to U.S. 101, along with neighborhood activities and errant stationary sources (heating, ventilation, and air conditioning [HVAC]).

Page 3.9-19 of the Draft EIR, the third, fourth, and fifth paragraphs are revised as follows:

> Three significance thresholds apply for noise on public roadways: 1) the General Plan criteria of 60dB Ldn for noise at outdoor activity areas (which increases to 65 dB Ldn for noise impacted areas); (2) the General Plan criteria of 45 dB Ldn for interior noise; 3) the ARM Plan criteria of a 3 dB increase in areas adjacent to haul roads if/and noise levels are raised above the performance standards in the General Plan; or, a 3 dB increase in adjacent areas that are currently designated as noise impacted. The modeled traffic

noise levels in Table 3.9-7 show an increase of ~~5.9 to 13.4~~ 7.3 to 11.0 dB at various distances from the roadway centerlines that do not necessarily correspond to the location of sensitive receptors along the roadway. Figures 3.7-1 through 3.7-3 in Section 3.7, "Air Quality," show existing noise-sensitive receptors that occur along the public roads used as haul routes. Table 3.9-8 shows the noise modeling results for heavy-truck hauling activities at the outdoor activity areas of sensitive receptors located adjacent to the public haul routes. Project haul traffic noise predictions show that, without mitigation, two ~~seven~~ sensitive receptors would be exposed to noise level increases of 3 dB or more that would exceed the County's exterior transportation-noise-level standard of 60 dB Ldn in outdoor activity areas. Noise level increases also likely would exceed the County's interior standard of 45 dB Ldn, given the estimated 15-dB exterior-to-interior attenuation from residential facades with doors and windows closed.

~~Six of the seven~~ The two receptors are not noise impacted, and would exceed the relevant thresholds by just ~~0.5 to 1.6~~ 1.5 dB. ~~The final receptor, Receptor I on Geyserville Avenue, is just 40 feet from the road, and thus currently exceeds 60 dB Ldn, and is considered noise impacted.~~ As a result, Policy NE-1b states that a maximum noise level of 65 Ldn may be allowed, while the ARM Plan states that net noise should not increase by more than 3 decibels (or to 64.7 dBA).

As can be seen by Table 3.9-8, ~~all the~~ both receptors exceed their applicable threshold by less than 4 dB, and both ~~all but Receptor I~~ would exceed the standard by just ~~0.5 to 1.6~~ 1.5 dBA. These results are conservative and likely overstate the actual impact. Nevertheless, absent mitigation, the impact is considered significant.

Page 3.9-20 of the Draft EIR, Table 3.9-8 is revised as follows:

Table 3.9-8
Summary of Modeled Project Traffic Noise Levels from Heavy-Duty Truck Travel on Public Haul Routes at Residential Outdoor Activity Area Locations

Roadway	Receptor	Distance to Centerline (feet)	Exterior Traffic Noise Level at Residential Outdoor Activity Area in dBA, Ldn		
			Existing	Standard (Exterior Threshold)	Plus Project
Geyserville Avenue	D	150	47.1	60	**60.5**
	E	150	47.1	60	**60.5**
	~~F~~	~~100~~	~~55.8~~	~~60~~	~~**61.6**~~
	~~G~~	~~125~~	~~54.3~~	~~60~~	~~**60.2**~~
	~~H~~	~~100~~	~~55.8~~	~~60~~	~~**61.6**~~
	~~I~~	~~40~~	~~**61.7**~~	~~64.7~~	~~**67.6**~~
	~~J~~	~~165~~	~~52.5~~	~~60~~	~~58.4~~
	~~K~~	~~225~~	~~50.5~~	~~60~~	~~56.4~~
	~~K~~	~~125~~	~~52.4~~	~~60~~	~~59.7~~
	N	120	52.7	60	60.0
	O	140	51.7	60	59.0
~~Healdsburg Avenue~~	~~DD~~	~~235~~	~~48.6~~	~~60~~	~~55.7~~
	~~EE~~	~~245~~	~~48.3~~	~~60~~	~~55.4~~
~~Lytton~~	~~CC~~	~~100~~	~~54.2~~	~~60~~	~~**61.3**~~

Table 3.9-8
Summary of Modeled Project Traffic Noise Levels from Heavy-Duty Truck Travel on Public Haul Routes at Residential Outdoor Activity Area Locations

Roadway	Receptor	Distance to Centerline (feet)	Exterior Traffic Noise Level at Residential Outdoor Activity Area in dBA, Ldn		
			Existing	Standard (Exterior Threshold)	Plus Project
~~Station Road~~	~~DD~~	~~325~~	~~46.6~~	~~60~~	~~53.6~~
~~Hassett Lane~~	~~R~~	~~120~~	~~46.0~~	~~60~~	~~59.4~~
	~~S~~	~~180~~	~~43.3~~	~~60~~	~~56.7~~
	~~T~~	~~325~~	~~39.5~~	~~60~~	~~52.9~~
	~~U~~	~~1,050~~	~~31.8~~	~~60~~	~~45.2~~
	~~V~~	~~390~~	~~38.3~~	~~60~~	~~51.7~~
	~~W~~	~~135~~	~~45.2~~	~~60~~	~~58.6~~
	~~X~~	~~210~~	~~42.3~~	~~60~~	~~55.7~~

Notes: [1] Refer to Figures 3.7-1 through 3.7-3 in Section 3.7, "Air Quality," for locations of sensitive receptors.
Bold = exceedance of county transportation outdoor activity area exterior noise level threshold
Source: Modeling conducted by EDAW in 2007

Page 3.9-21 of the Draft EIR, first paragraph under the first heading "Impact Significance After Mitigation" is revised as follows:

> Implementation of Mitigation Measure 3.9-3a would reduce project-generated off-site traffic noise on public roads to below the relevant exterior standards, and reduce impacts to less than significant. ~~Implementation of Mitigation Measure 3.9-3a does not appear sufficient to mitigate interior noise at Receptor I to the General Plan standard of 45 dB Ldn, however, interior noise likely already exceeds 45 dB at Receptor I. As a result, the following Mitigation Measure 3.9-3b shall apply to Receptor I:~~

Page 3.9-21 of the Draft EIR, Mitigation Measure 3.9-3b is deleted as follows:

> ~~**3.9-3b Implement a detailed interior noise study at Receptor I.** Prior to the use of Haul Route 5, the operator shall seek the consent of the owner(s) and/or occupant(s) of the residence at Receptor I and conduct a detailed interior noise study of the residence. The façade of the residence shall be tested for the amount of exterior-to-interior noise reduction provided by the existing residential façade to ensure that the assumption of a 15-dB reduction with windows and doors closed is accurate.~~
>
> ~~If the detailed interior-noise survey concludes that noise at Receptor I would exceed the interior-noise-level standard of 45 dB Ldn, mitigation shall be provided through installation of noise insulation (window package upgrades that increase the sound transmission class per window by 10 dBA). The project applicant shall offer to compensate the property owner(s) for window upgrades for habitable rooms facing Geyserville Avenue. The property owner(s) shall be responsible for acquiring competitive bids from three (3) qualified contractors to purchase and install the windows. The applicant shall compensate the resident for the~~

~~cost of the lowest bid after installation of the windows, but shall not be held liable for additional costs that may be incurred during window replacement (dry rot, termite damage, or repairs required to bring the window installation up to code).~~

~~This measure shall not apply if Receptor I is not occupied for residential use during the mining season in which Haul Route 5 is utilized.~~

This revision is also made in Table 2.1 of the Draft EIR.

Page 3.9-21 of the Draft EIR, the second heading "Impact Significance After Mitigation" and the first paragraph under that heading are deleted as follows:

~~***Impact Significance After Mitigation***~~

~~Implementation of Mitigation Measure 3.9-3b would reduce the impact at Receptor I to elevated interior-noise levels to a less-than-significant level. If the relevant property owner does not agree to a retrofit their home, the impact would be significant and unavoidable.~~

3.13 LAND USE AND AGRICULTURE

Page 3.13-3 of the Draft EIR, Figure 3.13-1 is revised to reflect the elimination of Haul Routes 2 and 5 from the proposed project.

Page 3.13-21 of the Draft EIR, Table 3.13-2A, item number 8, column three is revised as follows:

Mitigation Measures 3.6-3a ~~through 3.6-3d~~, 3.6-b, and 3.6-3d would address inadequate road design issues of existing intersections and roadways to improve safety. These mitigations would require Syar to upgrade and improve specific intersections. Mitigation Measure 3.6-1 would restrict project traffic to assure the acceptable levels of traffic are not exceeded.

Page 3.13-59 of the Draft EIR, Table 3.13-2C, item letter d, column three is revised as follows:

Reclamation activities would occur at the end of each operating season (annual reclamation) and at the end of the final year of operations for each bar (final reclamation). In the case of vegetation transplanting activities, Syar would transplant large clumps or stands of riparian vegetation from the proposed skimmed areas to the high bank ~~and head of the bars before and in conjunction with skimming operations on each bar~~, or at other locations on the skimmed bar when those locations are deemed to be stable. Stable locations might include the inside portion of the bar (furthest from the low-water), outside perimeter of the bar (if already vegetated), or in some cases the bar head. Transplanting would take place before and in conjunction with skimming operations on each bar. Syar would monitor the vegetation on an ongoing basis, in consultation with relevant agencies. Syar would supplement the transplanting approach with pole plantings and other methods if determined necessary through the AMS.

Syar Alexander Valley Instream Mining Project

Russian River Gravel Bar Skimming
Sonoma County California

EDAW | AECOM

Revised August, 2010

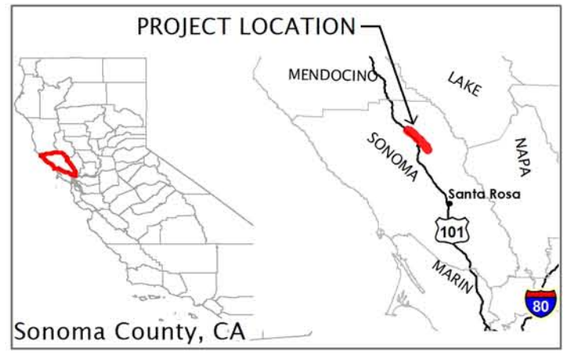

Figure 3.13-1
Farmland Sonoma County

- Gravel Bars
- Staging Area
- Access Roads
- Russian River Course (May 2006)
- Main Roads

Farmland Classifications

- Farmland of Local Importance
- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland
- Developed
- Grazing
- Other

Source: USDA-FSA Aerial Photography August 2005 (Color)
Delta Geomatics Corporation May 2006 (Black and White)

1 0.5 0 Miles

Source: Syar Industries Inc. EDAW,
Projection State Plane NAD 1983 California II

Back of Figure 3.13-1

4.0 TOPICAL ISSUES AND IMPACT SUMMARIES

Page 4-17 of the Draft EIR, the first paragraph below the heading "Syar Instream Mining Project" is revised as follows:

> As described in Section 3.7, "Air Quality", the proposed project would not result in any significant unavoidable impacts ~~associated with PM_{10} emissions from mining and mining-related activities, even~~ with implementation of numerous dust control mitigation measures. The project's incremental contribution to cumulative ~~PM_{10}~~ emissions ~~also~~ would be less than significant on a cumulative level ~~even with adoption of Mitigation Measure 3.7-1. Other air quality impacts would be less than significant on a cumulative level~~ for the reasons stated in Section 3.7. In addition, the project's contribution to cumulative global climate change impacts would not exceed any published threshold of significance, and its emissions would fall below the draft threshold promulgated by BAAQMD.

Page 4-35 of the Draft EIR, the first paragraph below the heading "Alternative 4 — Proposed Project with a Lower Extraction Volume," is revised and new second paragraph is added as follows:

> Alternative 4 was proposed to ~~would~~ reduce PM_{10} emissions below the NSCAPCD thresholds. This alternative would be similar to the proposed project, with the exception of the annual amount of aggregate produced each year. Syar would mine aggregate resources along the 6.5-mile Alexander Valley reach of the Russian River in accordance with the methods, standards, and AMS identified under the proposed alternative, including the daily and seasonal timing of mining activities and duration of mining activities (15 years). However, Syar would reduce its production from a cap of 350,000 tons with 300,000 tons per year average to a cap of 132,000 tons of aggregate per year. This reduction would likely result in smaller mined areas in the gravel bars, as well as fewer bars mined. Other proposed mining methods, including minimum buffers at head and side of bars, and a minimum elevation of one-foot elevation above the low flow water level, would be the same as the proposed project. The proposed project based the amount of restoration to be completed within the REP based on the extraction volume. Since the extraction volume is reduced under Alternative 4, the amount of restoration would be reduced to less than half of that in the proposed project.
>
> Chapter 2 and Appendix D of the Response to Comments Document explain that changes proposed in the project and the imposition of new mitigation measures have reduced PM_{10} emissions to less than significant. As a result, Alternative 4 is no longer needed to "avoid or substantially lessen any of the significant effects of the project." (CEQA Guidelines Section 15126.6.)

Pages 4-36 and 4-37 of the Draft EIR, the first paragraph under the heading "Air Quality," is revised as follows:

> This alternative was defined to reduce the total extraction volume per year to meet the NSCAPCD recommended standard of 15 TPY for PM_{10}, before changes proposed in the project and the imposition of new mitigation measures reduced those emissions to less than significant. This alternative assumes that all dust control measures would be

implemented, including those proposed as part of the project and those included as mitigation identified in Section 3.7, "Air Quality.". ~~.~~ Like the proposed project, w~~W~~ith implementation of all dust control measures, emission of dust would not exceed the NSCAPCD standards, and impacts would be reduced to a less-than-significant level.

Page 4-38 of the Draft EIR, the discussion of Alternative 5 is revised as follows:

Alternative 5 – Proposed Project Without the Mining of Bars S-9 and S-10 ~~and Use of Haul Route 5~~

Alternative 5 would eliminate the project's significant unavoidable noise impacts on several receptors near Bars S-9 and S-10~~, and one receptor on Geyserville Avenue located adjacent to Haul Route 5~~. As discussed in Section 3.9, "Noise", mining Bars S-9 and S-10 would result in significant unavoidable impacts at several nearby receptors~~, and haul truck traffic on Haul Route 5 would result in a significant unavoidable impact at one receptor on Geyserville Avenue~~. Under this alternative, the operator would mine aggregate resources in accordance with the methods, standards, and AMS identified under the proposed alternative, but would not mine Bars S-9 and S-10 ~~and would not use Haul Rote 5. Access to Bars S-7 and S-8 would be routed to more distant haul routes, and Haul Route 5 would not be available as an alternate for several other bars~~.

Page 4-39 of the Draft EIR, the first paragraph below the heading "Air Quality" is revised as follows:

This alternative would result in impacts similar to that of the proposed project described in Section 3.7, "Air Quality". ~~However, Haul Route 5 is the closest route to Bars S-7 and S-8, and is designated as the primary haul route for those bars. Haul Route 5 is also designated as a haul route or alternative access for nine other bars, partly because of its prime location in the middle of the relevant river stretch. The elimination of Haul Route 5 would divert access to other haul routes with greater distances, increasing emissions of PM_{10} and other criteria pollutants~~.

Page 4-39 of the Draft EIR, the first paragraph below the heading "Noise" is revised as follows:

As discussed above, this alternative was defined to eliminate the project's significant adverse impacts from mining operations on several receptors near Bars S-9 and S-10~~, and from haul truck traffic on one receptor on Geyserville Avenue on Haul Route 5~~.

3.0 AGENCIES, ORGANIZATIONS AND PERSONS COMMENTING ON THE DRAFT EIR

Table 3-1 lists all agencies, organizations and persons that submitted written comments on the Draft EIR during the 48-day public review and comment period that began on April 30, 2010 and ended on June 17, 2010. The table also includes the code that is used to identify each comment letter.

Table 3-2 lists the individuals who provided comments at the public hearing to receive public comment on the Draft EIR, which was held at the Sonoma County Permit and Resource Management Department (PRMD) hearing room, at 2550 Ventura Avenue in Santa Rosa on June 17, 2010. All comments received at the public hearing are identified with the letter code "BB" in Section 5.2, Spoken Comments on the Draft EIR and Responses.

Table 3-1
Agencies, Organizations and Persons that Submitted Written Comments on the Draft EIR

Comment Letter Code	Commenter	Affiliation
A	Katy Sanchez	Native American Heritage Commission
B	Brenda L. Tomaras	Lytton Rancheria (Tomaras & Ogas, LLP)
C	Lisa Carboni	Caltrans
D	Moses Stites	California Public Utilities Commission
E	Charles Armor	California Department of Fish and Game
F	Stephen Bargsten	Regional Water Quality Control Board - North Coast Region
G	Don McEnhill	Russian Riverkeeper
H	R. Brian Hines	Redwood Empire - Trout Unlimited
I	Carolyn Weston and Richard Weston	
J	Mitchell Swanson	Swanson Hydrology + Geomorphology
K	John Cash and Brian Petrie	
L	Deborah and Michael Bailey	
M	Jacqueline Luders	
N	Unsigned letter	
N.a	William Bagley	
O	Steven Oliver	

Table 3-1
Agencies, Organizations and Persons that Submitted Written Comments on the Draft EIR

Comment Letter Code	Commenter	Affiliation
P	Stephen McLeod and Marion Faymonville	
Q	Karen Waelde	Vineyard Valley View Property Owners Association and Vineyard Club
Q.a	Malcolm and Joan Ross	
R	Jeff Collins	Asti Winery
S	Bioengineering Associates	
T	Bret Munselle and Bill Munselle	Munselle Vineyards
U	Wes Brubacher	
V	Johanna Vanoni	
W	Larry Heiges	
X	Richard Trusendi	
Y	Mike Rose	
Z	Roland L. Osmon	
AA	Petition to Support Gravel Bar Skimming in the Alexander Valley Reach of the Russian River with 253 signatures	
CC	Paula Cook, Planning Commissioner	

Table 3-2
Individuals Who Provided Comments on the Draft EIR
at the June 17, 2010 Public Hearing

Commenter	Affiliation
Larry Cadd	
Ray Pigoni	
Don McEnhill	Russian Riverkeeper
Karen Waelde	Vineyard Valley View Property Owners Association
Karen Bosworth	
Wes Brubacher	
David Fanucchi	
David Lewers	
Paul Foppiano	
Al Cadd	Russian River Property Owners Association
Johanna Vanoni	
Victoria Heiges	
Chris Snyder	Operating Engineers Local 3
William Bagley	
Debra I. Bailey	
Kelly Harris	Bioengineering Associates
Roger Stuhlmuller	
Bob Santucci	
Joe Carnation	Geyserville Unified School District
Bret Munselle	Munselle Vineyards
Brian Hines	Trout Unlimited of California
Jeff Collins	Asti Winery

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4.0 MASTER RESPONSES

4.1 MASTER RESPONSE INDEX

Master Response 1: History of Gravel Mining and Hydrologic Setting. This master response addresses comments that purport to provide information about past mining on the Russian River, or the hydrologic setting of the proposed project.

Master Response 2: No Project Alternative. This master response addresses comments that the Draft EIR either understated or overstated the potential impacts of the No Project Alternative, in which the project would not be approved or implemented, but the demand for high quality aggregate would continue to exist and require alternative sources of gravel.

Master Response 3: Erosion and Sediment Supply/Recharge. This master response addresses comments the County received regarding the potential for bed and bank erosion within and downstream of the project reach. This Master Response explains the types of fluvial processes that can cause erosion related to gravel mining, and how the Draft EIR evaluated the potential for erosion. This Master Response also responds to comments regarding a loss of sediment supply, lack of recharge, and "hungry water" effects due to mining, as the potential for erosion is closely linked to the sediment supply and recharge processes in the Russian River.

4.2 MASTER RESPONSES

MASTER RESPONSE 1: HISTORY OF GRAVEL MINING AND HYDROLOGIC SETTING

(Responds to Comments G-2, G-29, G-34, G-35, G-51, G-52, H-2, I-3, I-5, I-7, I-21, I-31, I-37, I-38, I-39, BB-6 and BB-51, among others)

The County received a number of comments that do not actually discuss the project or its proposed mining methods, or the Draft EIR or its analysis, mitigation measures, monitoring requirements, or performance standards. These comments instead purport to provide information about past mining on the Russian River, based on either anecdotal evidence or past reports prepared by objective (or interested) third parties. Some of these comments appear to support an argument to the decisionmakers, sometimes implied and sometimes explicit, that no future gravel mining should be permitted in the Russian River, in any amount or location, regardless of mining methods, impacts, or mitigation measures.

These comments typically do not address the adequacy of the Draft EIR and no further response is technically required. The comments instead advance a policy option that can be considered by the decisionmakers. The County Board of Supervisors has considered this option before. The Draft EIR notes at page 3.2-14 that "[a] wider channel was evaluated as a policy option in the 1994 ARM Plan as the 'streamway concept,' but was rejected because it would encroach upon valuable agricultural lands and potentially cause damage to infrastructure (e.g., wells and bridges)." The ARM Plan designates the project reach as an instream mining area. (See page 3.2-2.)

Some of the comments may be viewed as commenting in part on the history of gravel mining in the Russian River, the hydrologic setting of the proposed project, or both. To that end, it is worth noting that the Draft EIR includes a very lengthy discussion of the history and hydrologic setting in Section 3.2, Geomorphology, Hydrology and Water Quality. The Draft EIR explains

that commercial gravel mining has occurred within the Russian River in the Alexander Valley since the early 1900s, and that the project reach is a depositional area. (See pages 3.2-11, 3.2-16.) It notes that the rate of instream mining increased from the 1940s to the 1980s, and included direct excavation of the channel thalweg. See page 3.2-11.) From 1981 to 1993, gravel extraction in the Alexander Valley removed an average of 680,000 tons per year, with rates over 900,000 tons in some years. (See page 3.2-11.)

The Draft EIR further explains that since the adoption of the current ARM Plan in 1994, the average annual extraction rate has substantially decreased to 123,000 tons per year. (See page 3.2-11.) The Draft EIR notes that annual monitoring of the Russian River has shown that the ARM Plan has been very effective at limiting mining to a sustainable yield of available recharge and minimizing the potential for down-cutting of the riverbed from mining activities. (See page 3.2-37.) No mining has occurred in the lower Alexander Valley since 2001, even though several large floods have resulted in a net sediment gain of more than 1 million cubic yards and bar elevation increases up to 20+ feet in some cases. (See pages 3.2-11, 3.2-14, 3.2-15, 3.2-24.)

The Draft EIR also discloses the adverse environmental impacts of past instream gravel mining and other uses. The Draft EIR explains that agricultural development in the floodplain of the Alexander Valley, dating back to the late 1800s, has narrowed the active river meander belt by as much as an estimated 50%, which generated increased soil discharges, bank erosion, and sediment, though the extent of this effect is not known. (See page 3.2-6.) The Draft EIR further notes that gravel mining was largely unregulated from the 1940s to the 1980s, which supplemented efforts to fill and reclaim former river bed to agricultural uses and helped create and maintain the artificially straight and narrow channel. (See page 3.2-11.) This largely unregulated mining resulted in impacts including downcutting of the channel, separating the tributaries, and increased bank erosion. The Draft EIR also explains that channelization has been accompanied by a reduction in mature, late successional riparian vegetation that would otherwise protect the banks, which has reduced the recruitment of large woody debris and the complexity and diversity of hydraulic conditions and aquatic habitat. (See page 3.2-11.)

The Draft EIR also discusses more recent and site-specific impacts related to mining. It explains that in the Upper Alexander Valley, the Louisiana Pacific (LP) bar was overtopped in 2002, resulting in a high-flow chute channel and impacts to channel hydraulics and the outside pool and riffle sequence. (See page 3.2-46.) The Draft EIR explains that mining in the upper half of the bar resulted in a reduced bar head buffer that was lower than the side bar buffers, which were also wider than typically required. (See page 3.2-46.) The Draft EIR also explains that an insufficient bar head buffer at Bar 2 in the Middle Reach resulted in a similar overtopping and erosion. (See page 3.2-46.)

The Draft EIR also explains that the Russian River demonstrates considerable resilience in recovering from adverse impacts. The Draft EIR states that the river has largely recovered from the impacts of past mining practices, and that implementation of the 1994 ARM Plan has prevented impacts of the scale and magnitude that occurred in the 1980s. (See page 3.2-58.) It explains that the overtopping of Bar 2 did not affect the thalweg or adjacent riffles or pools, and that subsequent mining (with a larger and higher head of bar buffer) has prevented a new high flow channel from forming. (See page 3.2-46.) The Draft EIR further explains that thalweg elevations have been stable and increasing after PRMD halted DeWitt from over-mining bars within its permitted area in 2001, and the data shows an increase in thalweg elevations since mining last occurred in 2002. (See pages 3.2-24, 3.2-26.) The Draft EIR notes that the former DeWitt section has nearly recovered and been vertically stable since 2003. (See page 3.2-26.)

The Draft EIR nevertheless identifies an important need to protect and maintain geomorphic processes by conducting mining only above the bankfull discharge elevation. (See page 3.2-5.) The Draft EIR calculates this elevation at approximately 11,000 cfs (or approximately 8 feet above the low flow water surface elevation), which is higher and more conservative than the elevation proposed by the project applicant. (See page 3.2-5.) The Draft EIR limits mining to one foot above the higher of either the 1997 or 2007 water surface elevations adjacent to each bar. (See page 3.2-45.)

The Draft EIR also explains that the proposed mining is based on the recent NOAA Sediment Removal Guidelines, and that the proposed ARM Plan amendments are similarly intended to manage mining to not interfere with the geomorphic processes that maintain high value aquatic habitat, and to generate habitat enhancement work and/or other public benefits. (See page 3.2-39.) The Draft EIR thus imposes rigorous mitigation measures to reduce programmatic hydrologic, geomorphologic, and water quality impacts to a less than significant level. These measures include:

- Revised head of bar buffers that, contrary to the applicant's proposal, allow mining only downstream of the horizontal apex of the bar (or the lower half of the bar where no apex is apparent). Mining in the upper half of the bar is permitted only when the head of bar buffer is at least 8-feet above the water surface elevation, but in no case shall the buffer be less than one-third of the bar length. (See page 3.2-45.)

- Revised side bar buffers established at 15% of the maximum width of the active channel but in no case less than 50 feet wide. Side bar buffers shall be no higher than the head of bar buffer elevation. These buffers are consistent with NOAA's Sediment Removal Guidelines, and minimize the potential for erosion while avoiding the high and wide buffers that may have contributed to channel braiding at the LP bar.

- Revised outer bank buffers equivalent to 2.5 times the height of the bank or 30-feet, whichever is greater, as measured from the toe of the outermost bank.

The Draft EIR also discusses the Adaptive Management Strategy (AMS), which is designed to account for year-to-year changes in the river and result in a further beneficial impact over existing conditions. (See page 3.2-49.) The Draft EIR first notes that there have been relatively few field data collection efforts in the lower Alexander Valley related to sediment transport (see page 3.2-5), and imposes substantial monitoring requirements at pages 3.2-50 through 3.2-55. The Draft EIR requires surveys of the extended monitoring reach from the Jimtown Bridge (RM 46) to RM 56.5, the permitted mining reach from RM 47.5 to RM 54, and the local mining reach, as well as Digital Terrain Models to help monitor gravel recharge and other changes in channel topography. (See pages 3.2-50 and 3.2-51.) The Draft EIR further requires applicants to hire a qualified professional to prepare annual reports regarding changes in channel vertical stability, bar surface area, low-flow channel width, and pool depth. (See pages 3.2-52 to 3.2-54.)

The Draft EIR then imposes significant new performance standards on mining in the project reach. Mining projects shall be suspended or subjected to modifications, additional enhancements, or other remediation methods if they result in six-inch decreases in the average water surface elevation, a 15% decrease in bar surface area, or a 5% or 15% decrease in residual pool depth, depending on location. (See pages 3.2-53 to 3.2-54.) These performance standards provide an additional layer of protection for unforeseen circumstances and year-to-year changes in the river, consistent with the longstanding environmental practice of adaptive management.

The Draft EIR then provides a full and independent analysis of the project's potential impacts on geomorphology, hydrology and water quality. (See pages 3.2-56 to 3.2-70.) The Draft EIR specifically analyzes the potential for increased erosion and sediment downstream of the project. (See pages 3.2-59 to 3.2-61 and 3.2-63 to 3.2-66). The Draft EIR notes that by maintaining intact head of bar and edge of water buffers, the proposed project may create depositional sites for fines, and help to decrease suspended sediments. (See page 3.2-63.) The document nevertheless imposes several pages of mitigation measures, including the implementation of riparian vegetation equivalent to 25% of the area of mined bars, to reduce potential impacts to less than significant. (See pages 3.2-59 to 3.2-61, 3.2-64 to 3.2-66.) The Draft EIR includes still more mitigation measures in Section 3.3, Vegetation and Wildlife, and Section 3.4, Fisheries Resources, to further reduce the potential for erosion and sedimentation impacts. (See page 3.2-64.)

The Draft EIR further notes that the proposed project would result in a variety of beneficial impacts. The project would reduce the angle of attack on the bank opposite the mined bar, decreasing the shear stress and erosion potential. (See pages 3.2-58 to 3.2-59.) It would result in a temporary increase in channel capacity and a reduced potential for flooding. (See page 3.2-59.) The proposed mining and ARM Plan amendments would also result in beneficial impacts related to riparian vegetation, wetland habitat, aquatic and pool habitat for endangered and threatened salmonids, conditions for juvenile fish habitat rearing and overwintering, connectivity and access to tributaries, and reduced sediment inputs into the river associated with existing, ongoing bank erosion. (See pages 3.3-29, 3.3-33, 3.4-14, 3.4-18, 3.4-22, 3.4-23, 3.4-24.)

The proposed project thus appears quite different than the past mining activities cited by the comments. It would employ substantially different mining methods to remove a much smaller amount of aggregate than mining in the early 1900s, 1940s, or 1980s. The project has and will benefit from increased scientific information and analysis, including the 2004 NOAA Sediment Removal Guidelines. It is subject to rigorous mitigation measures and performance standards, including head of bar, side bar, and outer bar buffers, and is further subject to the AMS to account for year-to-year changes in river conditions. The project includes a River Enhancement Plan that calls for the construction of three oxbows and three alcoves, and the planting of significant acreage of riparian vegetation. As a result, unlike past mining activities cited by the comments, the proposed project would not result in any significant adverse impacts to river geomorphology, hydrology, water quality, vegetation, wildlife, or fisheries resources, but would result in several beneficial impacts to those resources over existing conditions.

MASTER RESPONSE 2: NO PROJECT ALTERNATIVE

(Responds to Comments G-9, J-10, U-3, W-1, X-1, BB-16, BB-17, BB-22, BB-26, BB-34, BB-35 and BB-41, among others)

The County received many comments urging approval or denial of the proposed project. Such comments do not address the adequacy of the Draft EIR, but will be considered by the decisionmakers. Some commenters packaged their support or opposition to the project into comment(s) that the Draft EIR either understated or overstated the potential impacts of the No Project Alternative, in which the project would not be approved or implemented, but the demand for high quality aggregate would continue to exist and require alternative sources of gravel.

The Draft EIR discloses and analyzes the impacts of the No Project Alternative at pages 4-24 through 4-27. The Draft EIR discloses that because mining activities would not occur, the No Project Alternative would not result in the project's significant unavoidable impacts related to aesthetics and operational equipment noise. The No Project Alternative also would avoid the project's less than significant impacts, including effects on vegetation and wildlife, fisheries resources, traffic, air quality, and noise.

However, the No Project Alternative would also result in adverse impacts. Many commenters stated that potential impacts include damage or destruction of riparian habitat, public infrastructure, private property, vineyards, and erosion and sedimentation. The Draft EIR already addresses these potential impacts at pages 4-24 through 4-27.

On page 4-24 the Draft EIR explains that without the project the Russian River would continue to be "defined by the forces of nature," though it should be noted that extensive sedimentation from natural bank erosion could occur in response to continued aggradation of the gravel bars. This process could also damage or remove riparian habitat in areas where natural bank erosion is occurring.

On page 4-25 the Draft EIR discusses the potential for impacts to geomorphology, hydrology, and water quality and explains that gravel bars throughout the reach will continue to aggrade and the river will continue to seek ways to accommodate high water flows with less capacity within the current channel. This puts outward pressure on the banks adjacent to the gravel bars as the river attempts to meander. This section states: "Erosion of some banks would likely continue to occur, possibly resulting in encroachment on adjacent farmland and potential impacts to nearby structures (e.g., bridges)." The Draft EIR also acknowledges that under the No Project Alternative there could be damage to the Geyserville Bridge from erosion, flooding, or both.

Vegetation and wildlife are also discussed on page 4-25 of the Draft EIR. This section explains that although these resources would not be disturbed or damaged by mining, they could be damaged by ongoing natural processes. Increased hydrological pressure on the banks can remove or disturb vegetation destroying valuable riparian habitat. Loss of riparian vegetation, particularly forest, can be detrimental to fisheries as it removes shade, which helps to keep the water cool, and can lead to increased sedimentation, which affects water quality and can fill pools and damage spawning riffles. The vegetation that enters the river can become wedged along banks and trapped instream providing habitat for aquatic species (e.g., invertebrates, amphibians, and fish) thus somewhat off-setting the negative impacts of the loss of riparian habitat.

The discussion of fisheries starts on page 4-25 of the Draft EIR. The section states that without mining the fisheries would not benefit from the proposed enhancement activities and "Habitat value and fish populations would be determined by the prevailing conditions and influences." These conditions and influences can lead to extensive adverse impacts caused by large storm events and the natural processes of the river such as eroding banks opposite the aggrading gravel bars. As noted above, under the discussion of vegetation and wildlife, this can lead to loss of remaining riparian habitat and increased bank erosion and sedimentation of the river.

Air quality is discussed on page 4-26 of the Draft EIR. This section acknowledges the potential increases in some air pollutants as a result of having to import gravel from other areas. No quantitative analysis is possible because gravel could come from as far away as Mexico or Canada or from closer sources in other parts of California.

Conformance of the No Project Alternative with land use policies is discussed on page 4-27 of the Draft EIR. The No Project Alternative would not fulfill the intentions of the ARM Plan. The ARM Plan explicitly allows instream mining along the proposed reach of the Alexander Valley and mining in this area is intended to meet local needs for high quality gravel. The ARM Plan establishes mining as a key element in long term management for flood protection and maintenance of the Russian River in its current channel.

In addition, the No Project Alternative would not result in the beneficial impacts of habitat restoration and invasive species removal. Among other benefits the amendments to the ARM Plan and the River Enhancement Plan provide for re-establishment of a wider riparian zone throughout the project reach, which would improve the balance and ecological functions of the river system. Therefore, the project is considered to have long-term beneficial impacts that the No Project Alternative does not have.

MASTER RESPONSE 3: EROSION AND SEDIMENT SUPPLY/RECHARGE

(Responds to Comments G-3, G-8, G-34, G-35, G-38, G-42, G-44, G-45, G-55, H-3, H-4, H-6, I-5, I-20, I-22, I-39, U-1 and BB-51, among others)

Master Response 3 answers several comments the County received regarding the potential for bed and bank erosion within and downstream of the project reach. This Master Response explains what types of fluvial processes cause erosion related to gravel mining, and how the Draft EIR evaluated the potential for erosion. This Master Response also responds to comments regarding a loss of sediment supply, lack of recharge, and "hungry water" effects due to mining, as the potential for erosion is closely linked to the sediment supply and recharge processes in the Russian River.

The key fluvial process by which erosion occurs in the Lower Alexander Valley is by the aggradation of bars, which causes the channel to erode its banks and laterally migrate across the valley. This is a natural process of alluvial meandering rivers, directly applicable to the Russian River, and is well-documented in the technical geomorphic literature. The conceptual model of fluvial processes that cause meandering and associated lateral bank erosion is fully explained in the Draft EIR at pages 3.2-58 to 3.2-59 (Impact 3.2-8, Reduced Lateral Bank Erosion at Point Bars), and pages 3.2-11 to 3.2-29 (Section 3.2A, Setting, Geomorphology). As explained therein, the basic erosion process is that aggrading bars cause the channel to naturally migrate across the valley by eroding on the outside bend opposite the bar and depositing on the back of the bar. In this manner, the river laterally migrates across the valley flat but the overall channel dimensions remain the same because the erosion on the bank opposite the bar is complemented by deposition and sediment aggradation on the bar. Additionally, aggrading bars increase the risk of avulsions, where the channel position can radically change, potentially cutting through a section of bank during high flows.

Case studies show that mining can offset existing erosion in meandering channels. A compilation of studies evaluating mining impacts (Collins and Dunne, 1989) considered the case of mining on the Skykomish River in Washington. Researchers found that bar skimming changed the rates of bank erosion at the bend opposite the mined bar and downstream. Erosion rates at the meander bend were between 10-20 ft/yr and averaged 15 ft/yr between 1933 and 1961. Since the beginning of mining in 1961 to 1978, the bend was stable. Erosion was also slowed along an outside bank near a downstream bar, where bank retreat averaged 20 ft/yr from 1961-1969 from a rate of 34 ft/yr between 1955 and 1961.

The case study shows that gravel mining can inhibit the processes of erosion and lateral channel migration by interrupting the bar aggradation process (see Draft EIR at pgs 3.2-58 and 3.2-59). The result is that lateral channel migration and the accompanying bank erosion process are slowed when gravel bars are skimmed and cannot fully aggrade. This is considered a beneficial impact because erosion and accompanying sedimentation is reduced.

Even though bar aggradation is the key fluvial process that causes erosion in the Lower Alexander Valley, the Draft EIR also discloses that gravel mining can accelerate erosion by (1) lowering the streambed, which over-steepens streambanks and thereby causes bank erosion, (2) substantially depleting the sediment supply to a point where there is insufficient recharge of stored channel sediments, causing "hungry water" that erodes streambed and banks, and (3) locally straightening the flow pathway or otherwise altering the channel geometry over a section of channel, causing the straightened flow pathway to impinge directly on a bank section at a downstream meander that has not yet been mined.

The 1994 ARM Plan EIR discusses these three processes and the history of channel incision in response to pre-1994 land use practices (Section 3.2, Geomorphology, Hydrology and Water Quality). The first two processes (streambed lowering leading to over-steepened banks, and depletion of the sediment supply leading to hungry water) are closely interrelated. Both processes tend to occur when the sediment transport capacity greatly exceeds the sediment supply. When the sediment supply is greatly reduced (for example, due to capture of sediments behind dams) the river may respond by eroding its bed and banks, sometimes referred to as the "hungry water" effect. Dredging of the channel bed can also result in streambed lowering by causing a knickpoint and headward migration of the knickpoint that expands the streambed lowering in the upstream direction. This occurred during the 1940s-1970s when the Basalt Mining Company directly dredged the bed of the Middle Reach to depths of up to 30 feet.

The proposed project is unlikely to cause streambed lowering given the rate of sediment recharge measured since adoption of the 1994 ARM Plan, and the record of overall thalweg stability since 1994. The Draft EIR describes and quantifies changes associated with bed elevation in the lower Alexander Valley under the sections *Thalweg Elevation* and *Reference (Baseline) Elevations* (pages 3.2-16 to 3.2-28). The thalweg and reference elevations are annually tracked and quantified by the Annual Monitoring Program (AMP) reports required by the 1994 ARM Plan. There have not been any trends associated with streambed elevation lowering since the 1994 ARM Plan has been in effect.

The AMP reports have calculated and documented net positive sediment accumulations for both the Lower Alexander Valley and the Middle Reach (Entrix, 2007, 2009, 2010). The 2008 AMP report (Entrix, 2010) determined that for the 1994-2008 ARM monitoring period, the average annual sediment recharge in the Alexander Valley is 365,700 tons. Syar's 1994-2007 measurements of sediment accumulation changes using the Digital Terrain Model (DTM) found that the average annual recharge rate in the proposed project reach is approximately 346,000 tons (AECOM, 2010). This recharge occurred during the same period (1994-2007) when mining extracted approximately 1 million tons over the 13-year period (Draft EIR, page 3.2-16). Most of the bars in the Lower Alexander Valley Reach have aggraded by 10 feet or more between 1994-2007, although a portion of a few bars show some loss of elevation, which is to be expected in a dynamic alluvial channel with mobile bed material. This data demonstrates that the Lower Alexander Valley is situated within a sediment depositional zone since at least 1994.

As a result, the proposed project would not result in significant impacts related to "hungry water" (i.e., sediment extraction rate exceeds sediment supply) that would lead to excessive streambank or bed erosion. As noted above, recharge rates measured since the 1994 ARM Plan show an adequate supply of sediment to allow recharge of stored sediments on bars, and cause the river to expend energy transporting the available sediment load.

The Draft EIR nevertheless imposes mitigation measures, monitoring requirements, and performance criteria to track vertical channel stability to avoid and mitigate any remaining potential project impacts related to channel incision and over-steepening of banks. The Draft EIR requires monitoring of the water surface elevation and thalweg, implementation of a correction factor for changes in low flow releases in the river, and compliance with performance criteria that the average water surface elevation shall not decrease by more than six inches in the permitted mining reach and localized mining area. (See pages 3.2-52 and 3.2-53).

Previous AMP reports (Entrix, 2005, 2007, 2009, 2010) have tracked bank erosion in the Upper and Lower Alexander Valley (in the 2.5 mile long reach between RM 47.25 and 49.75) and in the Middle Reach using aerial photography and inspections of channel banks. Although the

reports identified erosion locations within the gravel mining reaches, they found no indication that bank erosion has accelerated in response to mining (Entrix, 2005, 2007, 2009, 2010).

The Collins and Dunne report discussed above found that bank erosion is a more local effect, specific to particular bends or reaches, and occurs in response to particular modifications to channel geometry (Collins and Dunne, 1989). The Draft EIR discusses the potential for localized erosion due to a straightened flow pathway that impinges directly on a downstream meander under Impact 3.2-10 at pages 3.2-59 and 3.2-60. The Draft EIR imposes Mitigation Measures 3.2-10a and 3.2-10b to reduce to less than significant any potential for local erosion within the Lower Alexander Valley Reach. Mitigation Measure 3.2-10a requires the applicant to implement a riparian planting plan. The area planted will be 25% of the area mined, resulting in the planting of approximately 25 acres of riparian planting. Mitigation Measure 3.2-10b limits mining on adjacent upstream bars in the same year or in the subsequent 2-year period when mining up to two-thirds of a bar or the area upstream of the apex of the bar was approved, unless a minimum of 2-feet of recharge has occurred on the mined bar and the bar head elevation has been stable.

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5.0 COMMENTS ON THE DRAFT EIR AND RESPONSES TO COMMENTS

5.1 WRITTEN COMMENTS ON THE DRAFT EIR AND RESPONSES

A. NATIVE AMERICAN HERITAGE COMMISSION

A-1 **Comment:** The Native American Heritage Commission (NAHC) has reviewed the Notice of Completion (NOC) regarding the above project. To adequately assess and mitigate project-related impacts on archaeological resources, the Commission recommends the following actions be required:

- Contact the appropriate Information Center for a record search to determine:
  - If a part or all of the area of project effect (APE) has been previously surveyed for cultural resources.
  - If any known cultural resources have already been recorded on or adjacent to the APE.
  - If the probability is low, moderate, or high that cultural resources are located in the APE.
  - If a survey is required to determine whether previously unrecorded cultural resources are present.
- If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
  - The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure.
  - The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological Information Center.
- Contact the NAHC for a Sacred Lands File Check.
  - Check Completed with negative results. 05/11/10.
  - The absence of specific site information in the Sacred Lands File does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites (see below).
- Contact the NAHC for a list of appropriate Native American Contacts for consultation concerning the project site and to assist in the mitigation measures.
  - Native American Contacts List attached
    The NAHC makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend other with specific knowledge. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project

information has been received. If you receive notification of change of addresses and phone numbers from any these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information.

- Lack of surface evidence of archeological resources does not preclude their subsurface existence.
  - Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) §15064.5 (f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities.
  - Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans.
  - Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code §7050.5, CEQA §15064.5 (e), and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

Response: The letter from the Native American Heritage Commission is a standard letter reiterating the need to ensure that appropriate steps have been taken in assessing potential archaeological resources within the project area and ensuring that accidental discovery during the project's implementation will be handled appropriately.

As outlined in Section 3.5 Cultural Resources of the Draft EIR, the following tasks were undertaken to analyze the potential impacts to both historical and archaeological resources that might be present within the project site.

- A records search at the Northwest Information Center (NWIC) of the California Historical Resources Information System. The search revealed three registers, inventories, seven historic maps, and five previous Cultural Resource Studies in the project area. The EIR consultant's archaeologist, Loren Huddleston, also performed a filed study of the area. No prehistoric or historic artifacts or sites were encountered during the cultural inventory.

- Despite the lack of resources observed during the field study of the project area the river is highly dynamic and is constantly depositing new materials within the channel. Therefore, Mitigation Measures 3.5-1.a. and 3.5-1.b. are included to ensure that there is ongoing evaluation of the gravel bars at the time that they are to be mined. These include additional surveys, training of workers, and procedures for protecting resources if they are discovered.

B. LYTTON RANCHERIA OF CALIFORNIA (TOMARAS & OGAS, LLP)

B-1 **Comment:** The Lytton Tribe formally requests, pursuant to Public Resources Code §21092.2, to be notified and involved in the entire environmental review process under CEQA during the mining Projects contemplated under this document. This includes adding the Tribe to the distribution list(s) for public notices and public

circulation of all documents pertaining to the Project. The Tribe further requests to be directly notified of all public hearings and scheduled approvals concerning the Project.

THE LEAD AGENCY MUST INCLUDE INVOLVEMENT OF AND CONSULTATION WITH THE TRIBE IN ITS REVIEW PROCESS

It has been the intent of the Federal Government and the State of California that Indian tribes be consulted with regard to issues which impact cultural and spiritual resources, as well as other governmental concerns. The responsibility to consult with Indian tribes stems from the unique government-to-government relationship between the United States and Indian tribes. This arises when tribal interests are affected by the actions of governmental agencies and departments such as approval of Specific Plans and EIRs. In this case, it is undisputed that portions of the project lie within Lytton Tribe's traditional territory and the Tribe appreciates Sonoma County's willingness to consult with the Tribe on this Project, as well as to keep the Tribe informed of the progress of this Project.

Response: PRMD staff contacted the commenter to determine whether the Lytton Tribe was requesting a site visit, and to clarify that the tribe is on the mailing list for all notices. The commenter responded that no site visit was requested at the time and that the Tribe only wished to retain that option for the future, if it is deemed necessary.

B-2 **Comment:**

LYTTON TRIBAL CULTURAL AFFILIATION TO THE PROJECT AREA AND PROJECT IMPACTS TO CULTURAL RESOURCES

The Lytton Band is not opposed to this project. The Tribe's primary concerns stem from the project's likely impacts on Native American cultural resources. The Lytton Band has a legal and cultural interest in the proper protection of sacred places and all Pomo cultural resources. The Tribe is concerned about both the protection of unique and irreplaceable cultural resources, such as Pomo village sites and archaeological items which would be displaced by development, and with the proper and lawful treatment of cultural items, Native American human remains and sacred items likely to be discovered in the course of the mining project given the proximity to stream areas.

The Pomo people, and the Lytton Rancheria in particular, traditionally occupied the geographical area known today as the County of Sonoma for thousands of years, including the area of Alexander Valley and within the Town of Windsor. This is verified through stories and songs of the Pomo people that are cultural evidence of the Tribe's cultural affiliation with these lands. Occupation is also evidenced through the location of the Tribe's prior reservation, anthropological studies, archaeological studies, and histories of the area. In addition, Tribal ties to these territories have been maintained to the present day through cultural and governmental actions.

While the cultural surveys for the DEIR, as noted previously the Tribe believes that the geographic terrain for the mining project demonstrates areas of sensitivity. There is a rich history of cultural resources within the County of Sonoma and an analysis of potential impacts to cultural resources is crucial. Given that Native American cultural resources may be affected by the Project, there should be adequate consultation

with the Tribe in assessing the potential impacts and developing adequate mitigation for such impacts.

Response: The commenter states that the Tribe is not opposed to the project. Comment noted.

B-3 **Comment:** Finally, the Tribe believes that if human remains are discovered, State law would apply and the mitigation measures for the Project must account for this. According to the California Public Resources Code, § 5097.98, if Native American human remains are discovered, the Native American Heritage commission must name a "most likely descendant," who shall be consulted as to the appropriate disposition of the remains.

Response: The commenter cites the Public Resources Code relative to the discovery of human remains during project implementation. The Draft EIR includes Mitigation Measure 3.5-1.b. to address the potential discovery of human remains. The Mitigation Measure specifically incorporates the provision of the Public Resources Code.

B-4 **Comment:**
DRAFT EIR AND MITIGATION MEASURES

Environmental Impact Reports must provide adequate protection for significant archaeological and cultural sites and adequately follow the provisions of CEQA and its Guidelines, including Calif. Pub. Res. Code § 21083.2(b) (avoidance as preferred method of preservation of archaeological resources), CEQA Guidelines § 15126.4(b)(3) (agencies should avoid effects on historical resources of archaeological nature), and CEQA Guidelines § 15020 (lead agency responsible for adequacy of environmental documents).

The Tribe requests the following revisions be made to the proposed mitigation measures (for ease of reading and to reduce space, portions of the measures which are not impacted by the revisions will be left out and noted with elisions):

MM 3.5-1a

In the event that archaeological features such as pottery, arrowheads, midden, or ... PRMD staff may consult and/or notify the appropriate tribal representatives) from tribes known to PRMD to have interests in the area.. .. When contacted, a member of PRMD Project Review staff and the archaeologist, accompanied by those appropriate tribal representatives that so wish, shall visit the site to determine the extent of the resources and to develop and coordinate proper protection/mitigation measures required for the discovery.

The Lytton Tribe looks forward to working together with the Sonoma County Transportation Authority and other interested agencies in protecting any invaluable Pomo cultural resources found in the Project area. Should you have any questions, please do not hesitate to contact me.

Response: The commenter requests a minor modification to Mitigation Measure 3.5-1.a.

Page 3.5-7 of the Draft EIR, the second paragraph below Mitigation Measure 3.5-1.a. is revised as follows:

> In the event that archaeological features such as pottery, arrowheads, midden, or culturally modified soil deposits are discovered at any time during grading, scraping, or excavation within the project, all work shall be halted in the vicinity of the find and PRMD Project Review staff shall be notified and a qualified archaeologist shall be contacted immediately to make an evaluation of the find and report to PRMD. PRMD staff may consult and/or notify the appropriate tribal representative(s) from tribes known to PRMD to have interests in the area. Artifacts associated with prehistoric sites include humanly modified stone, shell, bone, or other cultural materials such as charcoal, ash, and burned rock indicative of food procurement or processing activities. Prehistoric domestic features include hearths, firepits, or house floor depressions, whereas typical mortuary features are represented by human skeletal remains. When contacted, a member of PRMD Project Review staff and the archaeologist, accompanied by those tribal representatives that so wish, shall visit the site to determine the extent of the resources and to develop and coordinate proper protection/mitigation measures required for the discovery. PRMD may refer the mitigation/protection plan to designated tribal representatives for review and comment. No work shall commence until a protection/mitigation plan is reviewed and approved by PRMD Project Review staff. Mitigation measures may include avoidance, removal, preservation, and/or recordation in accordance with California law. Archaeological evaluation and mitigation shall be at the applicant's sole expense.

This revision is also made in Table 2.1 of the Draft EIR.

C. CALTRANS

C-1 **Comment:** Thank you for including the California Department of Transportation (Department) in the environmental review process for the proposed project. We have reviewed the application and have the following comments to offer.

Encroachment Permit

Please be advised that any work or traffic control that encroaches on State right-of-way (ROW) requires an encroachment permit issued by the Department. Further information is available on the following website:
http://www.dot.ca.gov/traffops/developserv/permits/

To apply, a completed encroachment permit application, environmental documentation, and five (5) sets of plans clearly indicating State ROW must be submitted to the address below. Traffic-related mitigation measures should be incorporated into the construction plans during the encroachment permit process.

Response: The Department's comments are noted. The Draft EIR notes at page 3.6-11 that Caltrans has jurisdiction over U.S. 101 and SR 128, including all freeway interchanges. The EIR preparers and applicant are aware that encroachment on State right-of-way would require an encroachment permit from the Department. A condition of approval will require the applicant to obtain an encroachment permit for any work encroaching on State rights-of-way or County rights-of-way.

D. CALIFORNIA PUBLIC UTILITIES COMMISSION

D-1 **Comment:** The traffic impact study within the traffic and circulation (Railway Safety) section of the DEIR specifically addressed safety issues to at-grade railroad crossings as requested from our 2007 NOP comment letter. While we concur with the proposed mitigation measures on page 3.6-32 of the DEIR, a Safety Diagnostic will be required with CPUC, County and Railroad staff to finalize the proposed mitigation measures and include additional measures from the general category listed below if applicable following the Diagnostic.

General categories of such measures include:

- Installation of grade separations at crossings, i.e., physically separating roads and railroad track by constructing overpasses or underpasses
- Improvements to warning devices at existing highway-rail crossings
- Installation of additional warning signage
- Improvements to traffic signaling at intersections adjacent to crossings, e.g., traffic preemption
- Installation of median separation to prevent vehicles from driving around railroad crossing gates
- Prohibition of parking within 100 feet of crossings to improve the visibility of warning devices and approaching trains
- Installation of pedestrian-specific warning devices and channelization and sidewalks
- Construction of pull out lanes for buses and vehicles transporting hazardous materials
- Installation of vandal-resistant fencing or walls to limit the access of pedestrians onto the railroad right-of-way
- Elimination of driveways near crossings
- Increased enforcement of traffic laws at crossings
- Rail safety awareness programs to educate the public about the hazards of highway-rail grade crossings

Commission approval is required to modify an existing highway-rail crossing or to construct a new crossing.

It should be noted that the environmental documents (FEIR) will also be used by the Commission for final CEQA approval and compliance with all General Order requirements as they apply to this project. It is important that the CPUC staff continue to be involved in the process.

Thank you for your consideration of these comments. Please contact David Stewart, Utilities Engineer, at (916) 928-2515 or email at atm@cpuc.ca.gov for questions regarding the Safety Diagnostic and crossing modification process with the Commission.

If you have any other questions in this matter, please contact me at (415) 713-0092 or email at ms2@cpuc.ca.gov.

Response: The Commission's comments are noted, including its concurrence in the mitigation measures proposed at page 3.6-32. The Draft EIR notes at page 3.6-32

that the project will be subject to an on-site review by the Commission in the course of permitting, and requires that the project meet all applicable safety standards as required by the Commission. The Draft EIR explains that meeting these standards will require improvements that may include the measures identified by the Commission, such as track work, track roadbed improvement, approach roadway improvements, and warning device upgrades. County staff would coordinate with the Commission, NCRA, and the applicant to finalize the specific measures required at each crossing.

E. CALIFORNIA DEPARTMENT OF FISH AND GAME

E-1 **Comment:** The Department of Fish and Game (DFG) has reviewed the draft Environmental Impact Report (EIR) for the Syar Alexander Valley Instream Mining Project and Sonoma County ARM Plan Amendments (Project). The draft EIR was received in our office on May 3, 2010.

The Project proposes an instream gravel mining operation along the Russian River in the lower Alexander Valley. The Project location is approximately 110 acres of gravel bars between River Mile 47.5 and River Mile 54. The Project also proposes an Alternative Management Strategy to allow for more precise control of potential impacts and a River Enhancement Plan to restore riparian and instream habitat.

DFG is identified as a Trustee Agency pursuant to the California Environmental Quality Act (CEQA) Section 15386 and is responsible for the conservation, protection, and management of the State's biological resources. DFG is using our comments on the draft EIR as a means to inform the Lead Agency of our concerns regarding sensitive resources which could potentially be affected by the project.

Response: The proposed project is described in Chapter 1.0, Introduction and Project Description, of the Draft EIR. The Department of Fish and Game (DFG) is identified as a trustee agency at page 1-75.

E-2 **Comment:**
Alternatives Analysis

A reasonable project alternative that should be considered in the final EIR, in addition to the five alternatives already identified, would be a proposed project with a ten-year time period and a lower extraction volume. As a combination of existing Alternatives 3 and 4, it could be identified in Section 15126.6(e)(2) of the CEQA Guidelines as the environmentally superior alternative to the No Project Alternative due to a decrease in duration and intensity of significant impacts.

Response: The comment does not identify a new alternative, but rather a variation and combination of two alternatives already considered in the Draft EIR. These two alternatives are already included as part of the range of reasonable alternatives presented in the Draft EIR, and CEQA does not require an EIR to consider each and every conceivable variation of the alternatives stated. (*Mira Mar Mobile Community v. City of Oceanside* (2004) 119 Cal.App.4th 477, 491; *Residents Ad Hoc Stadium Com. v. Board of Trustees* (1979) 89 Cal.App.3d 274, 287-88.)

The Draft EIR identified Alternative 4, the Proposed Project with a Lower Extraction Volume, as the environmentally superior alternative because it would reduce the

proposed project's significant unavoidable air quality impact (associated with PM_{10} emissions) to a less-than-significant level. (See pages 4-35 to 4-38, 4-40.) As discussed in Chapter 2 and Appendix D of this Response to Comments Document, changes proposed in the project and the imposition of new mitigation measures have reduced PM_{10} emissions to less than significant. As a result, Alternative 4 is no longer needed to mitigate a significant impact of the project.

Within any alternative, the public and decisionmakers are free to propose a reduced permit timeframe, from the proposed 15 years all the way to the zero years in the No Project Alternative. The Draft EIR included a 10-year project alternative, Alternative 3, because 10 years is the permit duration specified in the ARM Plan. (See page 4-32.) The Draft EIR notes that by reducing the project's time period, the project's noise and aesthetic impacts would remain significant and unavoidable, but would occur in fewer years. (See pages 4-32 to 4-34.) But the Draft EIR also explains that reducing the permit term could result in reduced beneficial impacts from habitat restoration, bank stabilization, and infrastructure projection. (See page 4-33.)

Combining Alternative 3 with any other alternative would result in the impacts associated with both. The resulting project would reduce the duration of aesthetic and noise impacts, per Alternative 3, but could also result in reduced beneficial impacts from habitat restoration, bank stabilization, and infrastructure protection. (See pages 4-32 to 4-33.) The public remains free to recommend, and the decisionmakers free to adopt, any combination or variation of the alternatives presented in the Draft EIR.

E-3 **Comment:**
River Enhancement Activities

Syar proposes river enhancement activities to improve habitat and ecological conditions. Enhancement activities including, but not limited to, streambank enhancement, riparian forest planting, large woody debris jams and tributary enhancement should be developed in consultation with DFG and the California Salmonid Stream Habitat Restoration Manual (DFG, 1998). River enhancement activities should be designed to sustain and promote anadromous, salmonids and other native fish species.

Response: The commenter requests that the applicant develop its river enhancement activities in consultation with DFG and its *California Salmonid Stream Habitat Restoration Manual*. This comment does not address the adequacy of the Draft EIR. In response to this comment, however, the applicant has stated that it understands the need to consult with DFG and intends to incorporate applicable provisions of its *California Salmonid Stream Habitat Restoration Manual* with regard to river enhancement activities.

E-4 **Comment:**
Vegetation and Wildlife

Mitigation Measure 3.3-6 should be modified to require a 50-foot exclusion buffer for songbirds and a minimum exclusion buffer of 300 feet for raptor nests. Some species of raptor, like Osprey, may require a 0.25-mile buffer surrounding an active breeding nest. DFG recommends a qualified biological monitor be on-site to observe buffer

efficacy and that DFG be consulted if modification to buffer size is needed for project activities.

Response: Mitigation Measure 3.3-6 requires the applicant to consult with DFG to establish a buffer around the trees of nesting birds, if the applicant is unable to prune, remove, or transplant vegetation between September 1 and February 15 and nesting birds are identified. Pending consultation with DFG, the measure establishes a minimum 25-foot buffer for songbird nests, and 200-500 foot buffer for raptor nests. The EIR preparers believe these buffers are sufficient to reduce potential impacts to less than significant, and do not need to be increased. Nevertheless, Mitigation Measure 3.3-6 already requires the applicant to contact DFG to establish buffers on a case-by-case basis, and DFG may require larger buffers if the agency still believes them necessary.

E-5 **Comment:** Mitigation Measure 3.3-7 should require that a qualified bat biologist delineate a minimum 300-foot buffer around a maternity roost.

Response: Page 3.3-37 of the Draft EIR, the first three paragraphs of Mitigation Measure 3.3-7 are revised as follows:

3.3-7 **Survey for Roosting Special-Status Bats.** Before removing any trees greater than 12 inches in diameter (dbh), a qualified bat biologist shall conduct a survey for roosting pallid and Townsend's big-eared bats. If mining activities would occur near the Geyserville Bridge or travel under the bridge would be required to access the proposed mining site, bat surveys shall be conducted. In addition, surveys shall be conducted at any other structures that may be bat roosting sites closer than ~~200~~ 300 feet from any mining activity.

If no active roosts are found, no further action would be warranted.

If a maternity roost is located, the qualified bat biologist shall delineate a ~~200~~ 300-foot buffer zone around the roost. If active maternity roosts or hibernacula are found, the project shall be redesigned to avoid the loss of the tree occupied by the roost if feasible. DFG shall also be notified of any active nurseries in the mining zone. If either a maternity roost or hibernaculum is present, the following additional measures shall also be implemented:

This revision is also made in Table 2.1 of the Draft EIR.

E-6 **Comment:**
Lake and Streambed Alteration

For any activity that will divert or obstruct the natural flow, or change the bed, channel, or bank (which may include associated riparian resources) of a river or stream, or use material from a streambed, DFG may require a Lake and Streambed Alteration Agreement (LSAA), pursuant to Section 1600 et seq. of the Fish and Game Code, with the applicant. Issuance of an LSAA is subject to CEQA. DFG, as a responsible agency under CEQA, will consider the CEQA document for the project. The CEQA document should fully identify the potential impacts to the stream or riparian resources and provide adequate avoidance, mitigation, monitoring and

reporting commitments for completion of the agreement. To obtain information about the LSAA notification process, please access our website at http://www.dfg.ca.gov/habcon/1600/ or to request a notification package, contact the Lake and Streambed Alteration Program at (707) 944-5520.

Response: The Draft EIR identifies the need for a Lake and Streambed Alteration Agreement, and identifies DFG as a responsible agency for the issuance of the same, at page 1-74. Consistent with the commenter's direction, the Draft EIR discloses, analyzes, and mitigates all impacts to stream or riparian resources. With mitigation, all such impacts would be less than significant.

E-7 **Comment:**
California Endangered Species Act

Please be advised that a California Endangered Species Act (CESA) Permit must be obtained if the project has the potential to result in take of species of plants or animals listed under CESA, either during construction or over the life of the project. Issuance of a CESA Permit is subject to CEQA documentation; therefore, the CEQA document must specify impacts, mitigation measures, and a mitigation monitoring and reporting program. If the project will impact CESA listed species, early consultation is encouraged, as significant modification to the project and mitigation measures may be required in order to obtain a CESA Permit.

Response: The Draft EIR identifies the need for a California Endangered Species Act permit at page 1-74. The Draft EIR specifies impacts and mitigation measures regarding endangered species in several sections, including Section 3.3, Vegetation and Wildlife, and Section 3.4, Fisheries Resources.

E-8 **Comment:** DFG appreciates the opportunity to comment on the Syar Alexander Valley Instream Mining Project and Sonoma County ARM Plan Amendments. DFG staff is available to meet with you to further clarify our comments and provide technical assistance on any changes necessary to protect resources. If you have any questions, please contact Mr. Adam McKannay, Environmental Scientist, at (707) 944-5534, or Mr. Richard Fitzgerald, Coastal Habitat Conservation Supervisor, at (707) 944-5568.

Response: Comment noted.

F. CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, NORTH COAST REGION

F-1 **Comment:** Thank you for the opportunity to comment on the proposed Draft Environmental Impact Report (DEIR) for the Syar Alexander Valley Instream Mining Project and Sonoma County ARM Amendments. The North Coast Regional Water Quality Control Board (Regional Water Board) is a responsible agency for this project, with jurisdiction over the quality of ground and surface waters (including wetlands) and the protection of the beneficial uses of such waters.

The proposed project consists of a Use Permit and a Reclamation Plan to mine 350,000 tons of river aggregate from deposits on 110 acres over 6.5 miles (river mile 47.5 to 54) of previously-mined gravel bars within the Russian River in the Alexander Valley.

Response: Comment acknowledged. The Draft EIR recognizes the role of the North Coast RWQCB as a responsible agency on page 1-73.

F-2 **Comment:** The Regional Water Board staff appreciates the elements of the project that will help improve fish passage, water quality, and habitat, on the Russian River. The changes in mining techniques, including the techniques of "oxbows", "alcoves", and "horseshoe skim" mining, will be an improvement over past practices. Additionally, the DEIR includes more mitigation over previous mining efforts. This additional mitigation is described within the River Enhancement Program, which proposes improvements to riparian habitat, increase in flood plain, bioengineered stream bank stabilization, large woody debris placement, salmonid habitat enhancement projects, and removal of invasive species such as Arundo donax (Giant Reed). Regional Water Board staff has been involved with an interagency work group for the past several years which has worked with Syar in the development of the revised mining techniques and River Enhancement Program techniques.

Response: The comment states that the RWQCB appreciates the elements of the proposed project that will help improve fish passage, water quality, and habitat on the Russian River. The comment notes that the RWQCB believes the horseshoe skim technique and proposed oxbows and alcoves will be an improvement over past practices, and that the Draft EIR includes more mitigation than previous mining efforts. The comment also highlights REP proposals to improve riparian habitat, stabilize stream banks, remove invasive species, place large woody debris, and enhance salmonid habitat. These comments are noted. The County appreciates the involvement by Regional Board staff in reviewing the project proposal, and looks forward to working with Regional Board staff in the future. Note that the River Enhancement Plan is part of the project description as proposed by Syar and is not considered mitigation.

F-3 **Comment:** In general, we also want to ensure that potential impacts to water quality are avoided, minimized or mitigated. The proposed DEIR describes the general scope of work intended to occur and identifies some potentially significant environmental impacts of the proposed project and mitigation measures to address these impacts. The proposed project includes extensive grading that may disturb sediment and remove riparian vegetation. In addition, the close proximity to an impaired waterbody could have potential impacts on the beneficial use of the Russian River.

Response: Comment acknowledged. The County and EIR preparers share the commenter's concerns about potential water quality impacts. As a result, the Draft EIR includes an extensive analysis of water quality impacts on 3.2-62 to 3.2-69, and imposes mitigation to reduce all potential effects to a less than significant level.

F-4 **Comment:**
<u>Impaired Waters</u>

This project is within the Russian River watershed. Please note that the Russian River, including its tributaries, is listed on the Regional Water Board's 303(d) list as impaired due to sedimentation/siltation. Sources of impairment include land development, channelization, streambank modification, erosion, surface runoff, non-point source runoff, and urban runoff.

Response: Comment noted. The Draft EIR acknowledges that the Russian River is impaired for sediment/siltation on page 3.2-32.

F-5 **Comment:**
Storm Water

The EIR should include BMPs to prevent the release of sediment or hazardous materials during project activities, and to prevent sediment and other pollutants reaching surface waters or leaving the site in storm water runoff. These BMPs should include scheduling grading activities to take place during the dry season, identifying staging areas for work vehicles that are separated from sensitive areas, training employees in procedures for cleaning up spills of hazardous materials, and utilizing erosion and sediment control techniques.

Response: The Draft EIR imposes BMPs and other mitigation measures to prevent the release of sediment or hazardous materials during project operations, including at pages 3.2-64 to 3.2-69, and 3.11-4 to 3.11-6. The project proposes mining operations during the dry season, from June 1 to October 15 or November 1. (See page 1-62.) The Draft EIR imposes erosion control BMPs and fueling limits on staging areas (see pages 1-59, 3.2-68 and 3.11-5 to 3.11-6), and requires employee training as part of an updated Spill Prevention and Fueling and Lubrication Plan (see page 3.11-5).

F-6 **Comment:** The following permits may be required for this project:

Water Quality Certification (401 Certification): Permit issued for activities resulting in dredge or fill within waters of the United States. All projects must be evaluated for the presence of jurisdictional wetlands and other waters of the State. Destruction of, or impacts to, these waters must be avoided. Under the Clean Water Act Sections 401 and 404, disturbing waters requires a permit from the United States Army Corps of Engineers (ACOE) and a State 491 Certification. This project will require a 401 Certification, as have past gravel mining operations by Syar.

Response: Comment noted. The Draft EIR notes the need for a 401 certification at page 1-73.

F-7 **Comment:** In summary, Regional Water Board staff supports the improvements in mining and mitigation over past practices within this reach of the Russian River. If you have any questions or comments, please contact Stephan Bargsten at (707) 576-2653 or sbargsten@waterboards.ca.gov.

Response: The comment expresses that Regional Board staff supports the improvements in mining and mitigation. This comment is noted.

G. RUSSIAN RIVERKEEPER

G-1 **Comment:** I am submitting these comments on behalf of Russian Riverkeeper and our 1400 members in support of our mission to work with the community to advocate, educate and uphold our environmental laws to ensure the protection and restoration of the Russian River for the health and benefit of all who use and enjoy it.

Due to the length of the DEIR for the Syar Alexander Valley Instream Mining Project (Project) we were not able to complete our review or write up our citations and references for our comments. We will be submitting additional comments prior to the release of the FEIR and will forward those comments to the applicant to allow them time to review and respond to them. We have retained several consultants to review the technical aspects of the DEIR and accompanying studies and reports but those comments could not be completed prior to today's deadline so again we will submit those comments to the record prior to the release of the FEIR and forward them to the Applicant to ensure they have time to review and respond prior as soon as possible. We would appreciate more time for review but as the process has complied with legal notice requirements we will simply make a request to allow more time in order for the FEIR to respond to all comments and issues raised.

Response: The commenter states that he did not have sufficient time to review the Draft EIR.

The Draft EIR was posted on-line and delivered to relevant local libraries on April 30, 2010. On May 5, 2010, PRMD hosted a meeting with the commenter, Trout Unlimited, and the relevant public resource agencies (Department of Fish & Game, Army Corps, and National Marine Fisheries) and handed the Draft EIR to attendees. The hard copy included a disk with the report in electronic format. CEQA requires a 45 day review period, which would have resulted in the comment period closing June 14, 2010. The actual review period was 48 days as the hearing date for oral comments was held on June 17, 2010.

The review period was sufficient to allow the commenter to provide a substantial number of comments. This Response to Comments Document responds to the commenter's comments, many of which have multiple parts.

The commenter states that he has retained several consultants and intends to submit additional comments prior to the release of this document. As of this writing no further comments have been submitted.

G-2 **Comment:**

1.4 Project Setting and Locale

Alexander Valley Reach Gravel Mining History

Has the ARM Plan study on annual gravel "recharge" ever been verified in the field or was this the product of a modeling exercise? Is sediment recharge in this study referring to annual sediment inflows or annual changes in sediment storage volume? Have any previous gravel mining projects resulted in impacts to the Russian River?

Response: Yes, the 1994 ARM Plan study on annual gravel recharge has been reviewed against field conditions. Every year, the County prepares Annual Monitoring Program (AMP) reports that update the results and conclusions of the Russian River monitoring activities as required by the 1994 ARM Plan. The most recently completed AMP report evaluates mining activities conducted in 2008 (Entrix, 2010), and includes a comparison of the recharge rates predicted in the 1994 ARM Plan with recharge rates determined from recently collected (2008) field data. Two additional sources of information on sediment recharge are the 1991 Simons and Li

study of the Alexander Valley and Syar's 2008 measurements of bar sediment storage change in the proposed project reach. (AECOM, 2010; see page 3.2-16).

The 1994 ARM Plan estimated that the average annual sediment recharge was 96,500 tons. The 1994 ARM Plan describes this estimate as a "first approximation" and recommended that it be updated based on future monitoring data. An earlier study conducted by Simons and Li (1991), parts of which were used in the 1994 ARM Plan estimates, determined that the Alexander Valley average annual sediment recharge was 682,000 tons. The 2008 AMP report (Entrix, 2010) determined that for the 1994-2008 ARM monitoring period, the average annual sediment recharge in the Alexander Valley is 365,700 tons. Measurement of sediment accumulation on bars from data collected by Syar over the 1994-2007 period found that the average annual recharge rate in the proposed project reach is approximately 346,000 tons (AECOM, 2010). The results of the data provided by Syar and the results provided in the 2008 AMP report are very closely matched.

The annual sediment recharge estimates are based on different methodologies and assumptions. The 1994 ARM Plan estimates were based on a very spatially limited set of cross-sections (8 cross-sections over a 16 mile long reach) over a nine year period (1982-1991) to estimate the change in sediment volume, and also drew from several different past sediment budget estimates and studies to account for sediment input and output from the reach. The more cross-sections within the reach from which to estimate change in sediment storage, the more robust the data and the more likely to accurately represent an average annual rate. Thus, the 2008 AMP report averaged sediment recharge rates in each of fourteen years since 1994 to 2008, relying on the change in sediment volume developed from a minimum of 20 cross-sections in any given year, but usually 40 or more cross-sections to estimate changes in sediment storage in the Alexander Valley. The Syar data is probably the most accurate, since it is based on a Digital Terrain Model (DTM) that provides a much more dense population of elevation change data on bars in the river channel than can be derived from cross-section surveys. The DTM is produced by aerial photogrammetry of bars within the project reach, and was used to determine sediment recharge rate over the thirteen year period 1994-2007.

Sediment recharge in both the 1994 ARM Plan study and the AMPs refers to annual net change in sediment volume in the Alexander Valley Reach, not to sediment inflows. However, the 1994 ARM Plan also made estimates of sediment inflows and outflows for a sediment budget. Sediment storage changes have also been measured by data collected by Syar, and were reviewed and reported in the Draft EIR.

Yes, previous gravel mining projects have resulted in impacts to the Russian River, as documented in Section 3.2 of the Draft EIR, "Geomorphology, Hydrology, and Water Quality", and Master Response 1 of this Response to Comments Document.

G-3 **Comment:**

1.5 Project Description

Project Purpose:

What is the applicant's definition of "sustainable yield of aggregate" that is used in the Project DEIR? Assuming the authors are referring to sustainable yield as taking

less than annual aggradation above some baseline, why is that baseline sustainable? How did the authors determine·the·amount·of "natural" replenishment of gravel and have the authors determined how much replenishment is natural and how much is induced by past incision, mining and other activities?

Response: The Draft EIR does not use an applicant definition of "sustainable yield of aggregate." From a fluvial geomorphic perspective, a goal would be to manage aggregate extraction to protect the stream processes that maintain a bar-pool-riffle form, to avoid channel bed or bank instability, and to not exceed the rate of sediment replenishment over the long-term.

As mitigated and conditioned, the proposed project would only extract accumulated bar sediments above an established baseline level, thereby protecting stream processes of sediment transport and maintaining the bar-pool-riffle form of the channel. If the rate of gravel extraction does not exceed the rate of replenishment, then the channel will maintain the bar-pool-riffle complex and will not be unstable.

This approach is in keeping with the 1994 ARM Plan EIR Instream Management Program objective to "manage production to remove only the net accumulation of aggregate within the channel and by regulating the location, extent, depth, and frequency of gravel extraction" (Section 7.5, page 7-11). The 1994 ARM Plan calls for mining at a sustainable yield by establishing baseline elevations below which mining will not occur, and using buffers to retain important geomorphic features and maintain fluvial processes. Syar has proposed to mine the sediment volume that has accumulated in the form of bar storage over the past 15 years using the horseshoe and ESDH methods. Once each bar has been mined, Syar would return to previously-mined bars only if there is sufficient replenishment above the baseline elevation.

The baseline is sustainable precisely because there is an adequate supply of sediments recruited from the watershed and transported by the Russian River, causing deposition and replenishment of sediments on the bars. The baseline elevation, below which no aggregate extraction may occur, in combination with the head and side bar buffers established in the Draft EIR, would provide a stable bar, pool, and riffle channel form.

As explained in Response to Comment G-2 and in Master Response 3, the "amount of replenishment" (i.e. the average annual recharge) was determined based on sources including the annual monitoring data collected for the County's AMPs, and the DTM data collected by Syar. The estimated annual recharge for the Alexander Valley is approximately 350,000 tons. As such, Syar is essentially harvesting sediments stored on bars in the project reach at approximately the rate that they accumulate over time.

The EIR authors did not determine how much replenishment is "natural" and how much is induced by past incision, mining, and other activities. Distinguishing which groups of land-uses and which groups of stream processes (incision, debris flows, bank erosion, mass-wasting, gullying, rilling, etc.) contribute to the average recharge rate is not needed to determine the average annual recharge. It is much more straightforward, accurate, and useful to simply measure the net recharge. Partitioning recharge amounts into "natural" versus "un-natural" (i.e., induced)

categories, would not change either the total recharge or the ways in which gravel mining should be managed.

G-4 **Comment:**
Project Objectives:

In reference to the state and local policies of meeting local aggregate demand with local sources, what is the basis for those policy determinations? Is the basis for these local source policies environmental impacts, assurance of supply for local projects and or some other basis? Are these policies mandates or suggestions? We did not see any direct references to the policies mentioned above where are the references to the actual policies cited and the actual citations? In these policies referenced, what is the definition of "local aggregate demand" and "local sources"? Is local demand proximate to the Healdsburg area and does it include southern Sonoma County or western Sonoma County? What are the impacts from moving aggregate long distances to areas already served by existing sources closer to the place of use?

Response: The Draft EIR identifies policies related to mineral resources on pages 3.13-5 to 3.13-8, and page 3.13-11.

Additional goals, objectives, and policies can be found by going to the various cited documents, including the Sonoma County General Plan, Sonoma County Aggregate Resources Management Plan (ARM Plan), and the California Surface Mining and Reclamation Act.

As stated on page 3.13-8 of the DEIR, the Sonoma County General Plan has the following goal related to aggregate resources:

Goal RC-11: Provide for production of aggregates to meet local needs and contribute the County's share of demand in the North Bay production-consumption region. Manage aggregate resources to avoid needless resource depletion and ensure that extraction results in the fewest environmental impacts.

The ARM Plan's stated goal is:

The goal of the ARM Plan is to meet the County's need for aggregate while minimizing environmental impacts and land use conflicts in a manner consistent with the requirements of CEQA, SMARA and State Mineral Resource Management Policies.

ARM Plan objectives are listed on page 3.18-11 of the DEIR.

The first sentence of Section 7 (Management Plan) of the ARM Plan states, "The County's intent expressed in this Management Plan is to be able to meet future aggregate needs using the resources that are available or could be developed in the County while recognizing that continued production from both terrace and instream sources must be regulated with standards that avoid or minimize significant impacts and promote the efficient use of the resource."

Three major objectives are listed in Subsection 7.5 of the ARM Plan, the Instream Management Program. The second is "Provide high-quality aggregate materials."

The California Department of Conservation, State Mining & Geology Board's regulations (the Surface Mining and Reclamation Act of 1975) opens with the following section:

§ 2711. (a) The Legislature hereby finds and declares that the extraction of minerals is essential to the continued economic well-being of the state and to the needs of the society, and that the reclamation of mined lands is necessary to prevent or minimize adverse effects on the environment and to protect the public health and safety.

"Local demand" is considered to be anywhere within Sonoma County and the near edges of the surrounding counties since some places in Napa and Lake counties are more easily accessible from the Sonoma County side. In the case of aggregate resources, Goal RC-11 specifically includes the North Bay in the area to be served. (See text of Goal RC-11 above).

Customers are highly likely to obtain gravel from the nearest source given the extreme cost of hauling (15 cents per ton is added for each mile), rather than paying to move aggregate long distances to areas already served by existing sources. Please see Response to Comment G-5.

G-5 **Comment:** The 2007 Annual Report on Aggregate Production in Sonoma County (Production Report) is the most recent public report on production and demand for aggregates in Sonoma County. The report has no breakout of demand for ACC& PCC, which are the primary types of gravel that come from river sources such as the proposed Project. The Production Report also does not delineate the types of aggregate that are imported to Sonoma County. The Production Report also has no data on the place of use for various types of aggregate within Sonoma County. This leaves DEIR reviewers with no published information on how much PCC & ACC is required to supply the North County area that is most feasibly served at the lowest environmental and traffic impacts by the proposed Project. The Project objectives state that there is a need for local high quality (ACC& PCC) aggregate but reviewers have no way to determine the level of that demand and therefore whether the actual need or size of the proposed project is in line with demand or will grossly oversupply the market.

Response: The commenter takes issue with the 2007 Annual Report on Aggregate Production in Sonoma County and its alleged lack of information. The Report speaks for itself and includes relevant information from sources required to report to the County. Facilities including importation sites, sites within cities, distribution sites, and operations not subject to SMARO are not required to report to the County. Estimating demand and market analysis are not required under CEQA. However, the North San Francisco Bay Region is projected to have less than 10 years of permitted aggregate supply (see *Map Sheet 52 (Updated 2006), Aggregate Availability in California 2006,* by Department of Conservation, California Geological Survey, in Appendix G). Gravel is currently imported from a variety of locations, including as far away as Canada and Mexico. Each mile of travel is estimated to add 15 cents per ton to the cost of aggregate (see *Map Sheet 52 (Updated 2006*) in Appendix G). The 2007 Annual Report explains that there are fundamental problems associated with attempting to produce Portland Cement Concrete (PCC) grade aggregate from hard rock quarries in Sonoma County, that terrace mining for PCC-

grade aggregate is phased out (with one exception), and that instream mining of PCC-grade aggregate has declined in recent years. See Appendix G.

G-6 **Comment:** In light of several unavoidable impacts if the proposed project is approved the issue of clearly defining local demand and local sources is very important to the ability to evaluate impacts and whether over-riding considerations are warranted. Residents living in the Project area will feel most of the Project impacts such as PM_{10} emissions, traffic and aesthetics. Those impacted residents deserve to know if they will endure impacts while the DEIR states that a project purpose if to reduce impacts from importation, what about the impacts from exporting gravel to market served by existing sources? What is the delineation of the area for "local aggregate demand", is it the entire Sonoma County, the entire North Bay or some area surrounding the plant until it overlaps another local source? For instance, if there was demand for gravel for a project in Petaluma and there are existing sources in Petaluma, would this project still be considered a "local source" for that market?

Response: The commenter notes that local residents would experience project impacts related to PM_{10} emissions, traffic and aesthetics, and questions whether the Sonoma County Board of Supervisors will be able to find overriding considerations if it wishes to approve the project. Project impacts related to PM_{10} emissions and traffic would be less than significant. The Board will consider whether project benefits and other considerations outweigh the project's limited but significant aesthetic impacts.

Please see Response to Comment G-5 regarding local demand. Given that the price of aggregate increases so much with distance and shipping costs, it is unlikely that a project in Petaluma would purchase aggregate from this project, unless it was the most affordable or provided other benefits or values, such as superior quality.

G-7 **Comment:** The recent economic downturn has reduced construction according to the number of active building permits and construction employment and this has produced a significant reduction in aggregate demand. This is dearly visible in the amount of trucks hauling gravel from the Syar distribution facility in Healdsburg where truck traffic is down significantly. The 2007 Production Report only considers production and not demand and although production has not fallen as far as building activity this could be due to producers increasing stockpiles and not increasing or stable demand. Has the volume of this project even considered the market demands? How much has gravel demand been reduced in the recent economic downturn? Is the requested volume proportional to actual demand in the "local" area given the reduction in demand that will likely persist for years? Lastly, two other mining operations are mentioned in the DEIR also located in north Sonoma County, Shamrock Materials in upper Alexander Valley and Syar Middle Reach vested rights projects. How will these operations affect the local market supply of gravel, will all projects combined oversupply the "local market"?

Response: The commenter questions aggregate demand and applicant profitability. These comments do not address the adequacy of the Draft EIR, but will be forwarded to the applicant, the party that actually considers the profit margin and profit utility. Approved projects that are not profitable are not usually implemented.

G-8 **Comment:** In reference to the fourth objective beginning with "Conserve valuable agricultural lands..." what studies have been performed that demonstrate the project will maintain flood channel capacity and reduce bank erosion? How can the project demonstrate it is conserving agricultural lands? How can it demonstrate meeting this objective when the Project could result in increase downstream erosion and loss of agricultural lands downstream of the project area? How can the project reduce erosion when reducing gravel bars essentially reduces friction and allows the river to increase speed, which normally leads to more erosion?

Response: The Draft EIR explains at page 3.2-59 that instream mining can temporarily increase flood conveyance capacity by providing additional channel cross-sectional area. The Draft EIR bases its findings on the conceptual model of fluvial erosion processes in a meandering channel in the Alexander Valley, and years of actual erosion monitoring.

Master Response 3 provides an explanation of erosion processes. As explained therein, the skimming of sediments from gravel bars interrupts the process of bar-building and thereby reduces the rate at which erosion occurs along the meander on the outside bank opposite the bar. The general direction of this effect is to reduce erosion and thereby conserve agricultural lands adjacent to the river.

Previous AMP reports (Entrix, 2005, 2007, 2009, 2010) have tracked erosion in the Upper and Lower Alexander Valley (in the 2.5 mile long reach between RM 47.25 and 49.75) and in the Middle Reach using aerial photography and periodic inspections of channel banks. Although the reports identified erosion locations within the gravel mining reaches, they found no indication that erosion has accelerated in response to mining (Entrix, 2005, 2007, 2009, 2010). In particular, the monitoring has not detected channel incision, a key mechanism by which unregulated mining can cause an over-steepening of streambanks and thereby result in erosion.

The comment asks "how can the project reduce erosion when reducing gravel bars essentially reduces friction and allows the river to increase speed, which normally leads to more erosion"? This comment reveals a misunderstanding of how the proposed gravel skimming would alter channel hydraulics and thereby affect erosion. Generally, the gravel extraction would flatten and widen the channel cross-section, providing a larger cross-sectional area under the post-mining condition. The hydraulic effect of a larger cross-sectional area is to reduce velocity, not increase it. Indeed, hydraulic modeling recently performed by Syar, and reviewed by ENTRIX, shows a decrease in velocity in the mining reach. For example, a 2-D hydraulic model for Bars S-8 and S-9 compared velocities from 1994, a mined condition, and 2007, an aggraded condition. Near bank velocities increased from 5-8 feet/second in 1994 to over 10 feet/second in 2007 at Bar S-8, and 2-3 feet/second to 6-9 feet/second at Bar S-9.

As noted above, the same increase in cross-sectional area would also increase the flow conveyance capacity of the channel. Hydraulic modeling (HEC-RAS) performed by Syar supports this basic process of improving flood capacity, at least until mined sites refill with sediment over time. The modeling found a 1-2 foot water surface elevation change in the Lower Alexander Valley from historic mined conditions (1994) to recent conditions (2007), representing a period of bar aggradation.

G-9 **Comment:** The final project objective to avoid traffic, air quality & other environmental impacts from importing gravel makes a huge assumption that this project would produce lower impacts. Since the basis of this objective is reducing impacts to the community the applicant should demonstrate that this project would produce lower impacts than importing gravel, where is the analysis to support the DEIR conclusion that impacts from local sources are less than imports? What is the distance from the Project area to major markets and what are the distances from other existing sources? Has any study been conducted to evaluate the impacts of transporting gravel from current existing sources to end markets in various areas of the local market area?

Response: The commenter insists that the applicant should be required to demonstrate that the project would result in less environmental impacts than existing conditions. CEQA does not require project sponsors to do so, nor preclude agencies from approving projects that have impacts over baseline. Please see Master Response 2 with regards to the impacts of the No Project Alternative.

G-10 **Comment:** One of the biggest impacts from gravel mining is transportation due to highly impacted traffic loads on Highway 101. A local freight railroad operation NCRA is planning to open up dormant rail lines along Highway 101 and would open up Sonoma County markets to other gravel sources due to lower financial and environmental costs with railroads versus trucking. What effect on traffic and air quality would occur from the ability to use railroads to import gravel to Sonoma County?

Response: The North Coast Railroad Authority (NCRA) has proposed to operate freight trains along a segment of the Northwestern Pacific line known as the Russian River Division, which extends from Lombard in Napa County west to U.S. Highway 101 near Novato, and then continues north to Willits, a total distance of 142 miles (North Coast Railroad Authority, 2010). Under the proposed project, NCRA would operate three round-trip freight trains per week initially, and up to three round-trip freight trains per day by the second or third year of operations. NCRA released the Russian River Division Freight Rail Project Draft EIR in March 2009, and a recirculated Draft EIR was issued in November 2009. Responses to comments on the recirculated Draft EIR are currently being prepared, and the NCRA Board of Directors will consider certification of a Final EIR in October 2010. (MacDonald and Meyers, 2010.)

The proposed NCRA Russian River Division Freight Rail Project, if approved and implemented, could offer another option for transporting gravel to Sonoma and Mendocino Counties. While this option would need to be fully evaluated to determine its environmental impacts, it is expected that the use of freight trains to transport gravel would reduce the number of truck trips currently required to import aggregate from out of the County, which in turn would reduce traffic impacts and associated haul truck air pollutant emissions. But as noted in the Draft EIR and this Response to Comments Document, all project impacts related to traffic and air quality have already been reduced to a less than significant level. As a result, a rail transport option would not reduce any significant project impacts to a less than significant level. A rail transport option could result in new, potentially significant impacts of its own, however. Rail transport would require the construction of rail

spur(s), the loading and unloading of gravel onto rail cars, and other activities that would result in adverse impacts to air quality, noise, biological, and other resources.

A rail transport alternative is not addressed in the Draft EIR for this project because the freight rail project has not yet been approved and it is not currently operating. Additionally, this alternative was not raised during the scoping process, is not necessary to reduce any environmental impacts of the proposed project to a less than significant level, and would result in potentially significant adverse impacts of its own. The Notice of Preparation for the NCRA Russian River Division Freight Rail Project EIR was published in July 2007, one year after the Syar Instream Mining Project application was submitted to Sonoma County and the NOP was issued. See Response to Comment G-74 regarding the scope of cumulative projects.

While a freight rail alternative was not addressed in the Draft EIR, the project sponsor could consider it in the future. Changes to the project would be subject to further environmental review.

G-11 **Comment:**
Mining Operations:

What is the margin of error for the site-specific DTM analysis conducted by Syar in individual gravel bars? How large were the planes used for interpreting aerial photographs? Was LIDAR used for digital terrain models?

Response: The DTM are produced from aerial photogrammetry that provides a spot elevation point spaced about every 20-40 feet over the entire surface area of each bar. This is a far greater density of elevation data points than can be obtained from cross-section surveys spaced about every 400 ft or more along the longitudinal axis of the mined bar. The elevation data points are accurate to within 0.25 feet or better. The DTM that define the bar surface, including grade breaks, are checked in stereo to insure the surface is correctly defined. LiDar is not used.

G-12 **Comment:** What is the basis for the sequence of gravel mining in the first 6 years? Has the project evaluated using any other sequence of mining? What the environmental impacts from the proposed sequence of mining versus mining bars in a more widely distributed manner, i.e.: rather than mine two bars adjacent to each other why not mine one at the upper end and one at the lower end of the reach to distribute impacts and possible lessen them?

Response: The Draft EIR explains at 1-15 and 1-16 that the applicant developed the sequence of gravel mining to produce an annual average of 300,000 tons of sand and gravel, with a maximum annual extraction of 350,000 tons. It does not appear that mining bars at the opposite ends of the project reach is necessary to reduce any impact to less than significant; as noted in Master Response 1, all project impacts to geomorphology, hydrology, water quality, vegetation and wildlife, and fisheries resources have already been reduced to less than significant. Nevertheless, the sequence of mining bars may change if, through the AMS process, it is determined that a different sequence is warranted. The Draft EIR restricts the mining of two adjacent bars per Mitigation Measure 2.2-10b on page 3.2-61.

G-13 Comment:
Mining Methods:

In the recent history of regulated gravel mining in the Russian River various mining methods have been employed and often in successive years methods are changed in response to impacts or failure to meet required performance standards. While the idea of Adaptive Management Strategy (AMS) and even using effective discharge height in the Project are not necessarily bad ideas but they do create a situation where the public is cut-off from evaluating potential impacts and reviewing project changes without any opportunity for public input or comments. This circumvents critical CEQA goals for the public to be fully informed of a project's impacts. How is the public able to evaluate a stable project description as required by CEQA if changes are made in the middle of the project period and the public has no ability to review and comment on changes? In light of the great potential for a changed project description, how can the EIR be adequate if the success or failure of mitigation efforts depend upon mining techniques or plans that have yet to be formulated and have never been subject to analysis and review within the EIR? If plans need to be altered the successive years then it would seem that previous mitigations have failed. So how does the Project mitigate failures after the fact if the DEIR indicates that failures would be addressed through either stopping mining or changing the future mining methods? AMS is NOT mitigation unless damages are prevented but the whole concept is about changing practices due to failure to meet performance standards, which are in themselves supposed mitigation. Stopping mining and/ or changing mining methods would not cure many impacts that already occurred so how are those impacts that occurred in previous years mitigated as required by CEQA? In light of nothing in the DEIR to address this issue we would suggest that adding funds to the REP or performing additional beneficial mitigations would be a start towards addressing impacts that have already occurred. How does the project plan to track or monitor mitigations and ensure they fulfill obligations? Would mitigation monitoring be reported to the public for all mitigations rather than the limited set presented in the annual Scientific Review Team reports? How does project rectify mitigations that do not meet criteria?

Response: Chapter 1.0 of the Draft EIR, Introduction and Project Description, provides a stable project description and identifies the mining techniques proposed by the project. The horseshoe skim method is specifically explained at page 1-18, and the Effective Discharge Stage Height method at page 1-55; visual representations of these techniques are provided at Figures 1-5, 1-6, 1-8a, 1-8b, 1-8c, 1-8d, 1-8e, 1-8f, 1-8g, and 1-8h. Contrary to the assertion of the comment, the proposed mining techniques and plans have been formulated, and were subjected to review and analysis throughout the entire Draft EIR.

The remainder of the comment suggests a misunderstanding regarding the nature and role of the Adaptive Management Strategy (AMS). Contrary to the comment, the AMS is not intended to address a failure to meet performance standards or correct failed mitigation measures. The Draft EIR instead explains that the AMS is designed to account for year-to-year changes in the river and result in additional beneficial changes over existing conditions. (See page 3.2-49.) The AMS specifically provides a framework for adjusting management decisions depending on the physical and biological conditions at the time of mining, and for incorporating any lessons learned from earlier mining phases. (See page 1-65.)

The comment focuses on one aspect of the AMS—the remedies for breach of new performance criteria that provide an additional layer of protection for unforeseen circumstances and year-to-year changes in the river. The Draft EIR explains that if the proposed project exceeds these performance criteria, the applicant shall suspend mining or incorporate changes to the annual mining plan or Reclamation Plan, and/or implement other remediation, to meet the criteria. The Draft EIR thus requires the applicant to address unforeseen changes by suspending mining until the resource recovers and the relevant criteria are met, or implementing more direct measures to meet the criteria. The AMS thus provides an additional layer of protection and correction that does not exist for other projects.

The comment specifically recommends requiring additional funds to the REP or additional beneficial mitigations. Both recommendations are already incorporated into the AMS. The Draft EIR allows for additional enhancements and remediation if performance criteria are exceeded. (See pages 3.2-54, 3.4-26.)

The comment requests additional opportunities for the public to review and/or comment on yearly mining plans. Additional public review is not necessary to comply with CEQA, but may be included by the decisionmakers as part of any conditions of approval. Additional CEQA review, and potentially additional public review and comment, would be required if triggered by CEQA Guidelines § 15162. That section requires additional CEQA review if substantial proposed changes to the project or its circumstances or new information of substantial importance would result in a new significant environmental effect or a substantial increase in the severity of a previously identified significant effect.

G-14 **Comment:** What is the volume of mining that would reduce ALL Project impacts to less than significant?

Response: The volume of mining that would reduce "ALL" project impacts to less than significant is zero. As discussed in Section 3.8 of the Draft EIR, the ARM Plan PEIR found that future instream mining projects would result in significant and unavoidable aesthetic impacts where they are clearly visible to passersby in scenic corridors and landscape units, and/or create the appearance of industrial operations. The proposed project would not construct any permanent structures, and would be inevident or subordinate to most viewer groups most of the time. Nevertheless, the project would be dominant at times for boaters and co-dominant to viewers on Geyserville Bridge during mining and REP activities and thus, per the ARM Plan PEIR, impacts would be significant, though temporary. Reducing the volume of mining would shorten the duration of this impact, but it appears that only the No Project Alternative, Alternative 1, would reduce it to less than significant. As explained in the Draft EIR, however, Alternative 1 would not meet project objectives; would not result in project benefits related to geomorphology, hydrology, water quality, vegetation, wildlife, or fisheries; and would require importation of aggregate from outside Sonoma County, resulting in an increase in traffic congestion, air emissions, and other impacts. (See pages 4-24 to 4-26, 4-40.)

G-15 **Comment:**
River Enhancement Plan:

Mining that occurred previously in the DeWitt reach has already been performed and the impacts already incurred resulting in a debt to the Russian River Gravel

Mitigation Fund of $82,006. Syar is requesting to waive this amount owed to Sonoma County. This is illegal as it is deferred mitigation as the mining has occurred and Syar in purchasing the DeWitt operation knew it would be their liability that they took on fully aware. There is no justification for deferring the payment of the amount owed and it should be paid to the county prior to any mining occurring under this Project. Why has the amount not been paid and why is it not considered deferred mitigation?

Response: The applicant's request does not constitute deferred mitigation because the applicant is not requesting that the County defer any mitigation. The applicant instead requests that the County substitute or modify one mitigation measure imposed as part of the DeWitt approval. CEQA allows for the deletion or modification of adopted mitigation measures. (*See Napa Citizens for Honest Gov't v. Napa County Bd. of Supervisors* (2001) 91 Cal.App.4th 342, 359 [finding "nothing in established law or in logic to support the conclusion that a mitigation measure, once adopted, never can be [modified or] deleted"].) If the Board of Supervisors ultimately concurs with the applicant's request to modify the mitigation measure, it will need to give a legitimate reason (or reasons) for doing so, and support those reasons with substantial evidence. (*Id.*) For example, the Board may note that the proposed oxbows, alcoves, and riparian planting alone are worth far more than the $82,006 owed as part of the DeWitt approval.

G-16 **Comment:** We appreciate the concept of the River Enhancement Plan (REP) to create active mitigation projects while mining is occurring rather than pay into a fund that might not directly address the impacts of mining. We do however have questions concerning the REP.

Regarding the REP features designed to improve access to Gill Creek, Miller Creek and Rancheria Creek we have the following questions.

- What is the number of tributary miles that the REP will open up with the alcoves and oxbows?
- Are there any migration barriers or instream impoundments that would limit areas available to fish in tributaries in question?
- What are the fish populations of the tributaries that the REP will create improved access to?
- How many additional days or hours of access will the REP projects provide to these tributaries over current conditions since fish can still access these tributaries as high flows?
- What is the percent of individual fish and tributary miles out of the total Russian River systems do these tributaries in the REP represent?
- What is the importance of these tributaries in the overall scheme of fish restoration?
- What is the condition of the potential rearing and spawning areas in the tributaries that will be affected by the REP? In these tributaries is there any documentation that adequate flow is present throughout the summer and if so how many miles of suitable habitat exist on these tributaries?
- How long will the improved access to these tributaries persist until access is equivalent to current access?

Response: The commenter states that his organization appreciates the concept of the River Enhancement Plan (REP) to create active mitigation projects while mining

is occurring rather than pay into a fund that might not address the impacts of the mining activities. This comment is noted.

The comment also raises several questions concerning the REP features designed to improve access to Gill, Miller, and Rancheria creeks. These questions do not raise any concerns regarding the adequacy of the DEIR; nevertheless, brief summaries of the questions followed by responses are provided below.

What is the number of tributary miles that the REP will open up with the alcoves and oxbows?

CDFG conducted stream habitat inventories/surveys on Miller Creek (DFG 2006a) and Gill Creek (DFG 2006b). Survey data show that Miller Creek is a third order stream and has approximately 4.6 miles of blue line stream, and that Gill Creek is a second order stream and has approximately 3.75 miles of blue line stream (according to the USGS Geyserville and Jimtown 7.5 minute quadrangles). Information developed in support of the Rancheria Creek Restoration Plan (Dry Creek Rancheria Band of Pomo Indians, date unknown) shows that this creek is a total of 12 miles, including both perennial and intermittent reaches.

Are there any migration barriers or instream impoundments that would limit areas available to fish in the tributaries in question?

Current survey data does not identify any migration barriers present in any of the tributaries; however, a historical survey of Miller Creek identified a barrier approximately two miles upstream of the mouth (DFG 2006a).

What are the fish populations in the tributaries that the REP would improve access to?

Roach have been documented in Miller Creek (DFG 2006a); steelhead/rainbow trout, roach, pike minnow, and suckers are documented in Gill Creek (DFG 2006b); and no information on fish species presence is known for Rancheria Creek. There is no known information on fish population size and/or community structure for any of the tributary streams.

How many additional days or hours of access will the REP projects provide to these tributaries over current conditions?

The duration of access to the tributary streams in the project area, under both the existing condition and the proposed project, is believed to be dynamic and would vary year-to-year and within a given season due to the magnitude, duration, and frequency of future precipitation events. As a result, it is not possible to quantify the days or hours of access.

What is the percent of individual fish and tributary miles out of the total Russian River systems do these tributaries in the REP represent?

As discussed above, information on fish population size and/or community structure is limited and duration of access is dynamic and variable for the tributary streams in the project area. As a result, it is not possible to calculate the percentage of fish and tributary miles that would benefit from the proposed REP enhancements.

What is the importance of these tributaries in the overall scheme of fish restoration?

Tributaries are generally considered to provide important spawning and rearing habitat for several native fish species, including several species of anadromous salmonids. Site-specific information on this subject has not been determined.

What is the condition of the potential rearing and spawning areas in the tributaries that will be affected by the REP?

Available survey data indicate that Miller and Gill creeks have the potential to provide varied spawning and rearing habitat for anadromous salmonids (DFG 2006 a and 2006b). However; due to the limited nature of the data on flows and water temperatures, it is difficult to quantify these conditions.

In these tributaries is there any documentation that adequate flow is present throughout the summer and if so how many miles of suitable habitat exist on these tributaries?

Documentation on flow and habitat conditions in the tributaries is limited. The limited survey data that are available (DFG 2006a, DFG 2006b, Dry Creek Rancheria Band of Pomo Indians, date unknown) indicate that flows and water temperatures during the summer months may be limiting to cold water fish species.

How long will the improved access to these tributaries persist until access is equivalent to current access?

The duration of the improved access to these tributaries is currently unknown due to uncertainties regarding timing, duration, and magnitude of future high flow events, as well as the potential for periodic maintenance on the alcoves and oxbows. The proposed 15-year use permit would be carried out in the framework of an Adaptive Management Strategy in which the location and specific activities would be developed annually to address the dynamic nature of year-to-year river conditions and to meet current river management needs. The annual mining plan and REP project implementation would consider the river management priorities of stakeholders along the project reach.

G-17 **Comment:** Regarding the REP elements that focus on enhancing habitat in the mainstem of the River we have the following questions.

The funding for the REP activities will come from a $0.30 per ton fee, how was that figure determined?

Is there a study or analysis that provided this figure such that it would be adequate to offset any impacts from the Project or was it just a number that worked economically for the applicant?

Response: The applicant proposed enhancement activities based on a cost equivalent to a per tonnage fee of $0.30. The River Enhancement Plan (REP) was not imposed to offset or mitigate project impacts; the applicant proposed it, as part of the Project Description, to improve river habitat and ecological conditions. (See page 1-55.) Please see Response to Comment CC-7.

G-18 **Comment:** Of the proposed activities under the REP, has any studies been prepared or judgments made on the number of fish it would benefit?

Response: No specific studies have been prepared or judgments made on the number of fish that would benefit from the proposed REP activities. Please see Response to Comment G-16 for more information.

G-19 **Comment:** How long will the proposed REP features persist given the average frequency of sediment mobilization events in the last 50 years?

Response: The comment asks how long the proposed REP features will persist given the average frequency of sediment mobilization events in the last 50 years.

Neither the alcoves or oxbows are intended to be permanent enhancement features (see page 3.2-69). The oxbows will persist until laterally eroded, and could last several decades. Actively excavating the oxbows should allow over bank flows and fine sediment deposition to initiate riparian plant succession, which would provide both habitat and stability to the oxbow channel. Alcoves are natural geomorphic features that could be functional for ten years or more, depending upon the cycle of wet and dry periods following their construction.

G-20 **Comment:** In our experience we have seen the cost figures for most restoration activities on the Russian River and are not convinced that all the REP activities can be completed for the projected $1,575,000. Have the proposed projects, 3 alcoves, 3 oxbows and 11 acres of riparian enhancement been studied for feasibility and cost and will the REP provide adequate funding to complete all these activities?

Response: As stated at page 1-55 and in the REP (Appendix C of the Draft EIR), Syar has proposed to implement six enhancements (three oxbows, three alcoves), and eleven acres of riparian forest plantings during a 15-year use permit term. These enhancements would be implemented regardless of cost.

G-21 **Comment:** The total figure cited in the DEIR for the REP $1,575,00 is based on total mining of 5,250,000 tons of gravel, which is the maximum possible amount of mining requested and yet the Adaptive Management Strategy could very well limit the amount of mining to much less than that amount. How will the Project address such a shortfall in REP funding?

Response: As stated in Response to Comment G-17, the REP was not imposed as mitigation for any project impacts, but instead proposed by the applicant to improve river habitat and ecological conditions. As a result, reduction in mining and REP activities would not result in any adverse impacts, but rather a potential reduction in project benefits.

G-22 **Comment:** Would the REP activities be reduced if tonnage falls below 5,525,000 and which activities would be reduced or eliminated? In pre DEIR release meetings with the applicant and PRMD it was stated that in the first seven years of the Project there would be $2,500,000 spent on restoration and planting but the DEIR only refers to the potential $1,575,000 generated from the REP funding, what is the actual amount funds being committed to restoration and planting and where can we find the cost figures for these projects?

Response: Please see Responses to Comments G-17, G-20, G-21, J-3, and CC-7.

G-23 **Comment:** Are there other ways to enhance the fisheries and riparian habitat other than gravel mining?

Response: There are many ways to enhance fisheries and riparian habitat. The project identifies oxbows, alcoves, riparian vegetation, streambank enhancements, large woody debris placement, and tributary enhancements as ways to enhance fisheries and riparian habitats.

G-24 **Comment:** The DEIR states in several sections that the Russian River in the reach proposed for mining is "artificial" and poses numerous problems for biological resources, public infrastructure and valuable farmlands, wouldn't widening channel decrease flooding and erosion as well as provide the space and ability for the River to create the side channel and backwater habitat envisioned in the REP? Why isn't the project addressing only the symptoms and not the causes of the problems cited from imbalanced sediment transport?

Response: It is not accurate to state that the Russian River is "artificial." In describing the existing environmental setting, the Draft EIR notes that the river channel is "artificially straight and narrow" and "artificially confined" as a result of landowner efforts to fill and reclaim former river bed to agricultural uses, and unregulated instream mining from the 1940s to the early 1980s (see pages 3.2-11, 3.2-60). As noted in Response to Comment G-23, the Draft EIR analyzes the project as proposed by Syar, and alternatives to the same. The applicant has not proposed widening the river channel instead of gravel skimming.

G-25 **Comment:** The REP states that it will keep 75% of "topsoil and overburden" or what we would call fine sediment stockpiled for use in various enhancement activities. In discussing bioengineering projects to stabilize eroding banks along the Russian River the principle of Bioengineering Associates informed us that using fine grained sediment with higher organic content makes no sense since normal active channel vegetation has evolved to grow in sand and gravel with minimal organic content. Since the Russian River is listed as impaired under the Clean Water Act section 303(d) for sediment we are concerned that any release will exacerbate the sediment impairment. How will the project ensure that any topsoil or overburden does not end up in the River? Why is topsoil and overburden being used since riparian plants have adapted to growing in sand and gravel and not topsoil?

Response: The Draft EIR explains at page 1-55 that 75% of the topsoil and overburden generated from the enhancement activities would be stockpiled for use in various enhancement activities. This material would be primarily sand, with small amounts of gravel, but would include some component of topsoil. The remaining 25% of this material would be processed as aggregate. This material is already within the river system, and may be supporting vegetation in the river channel. The Draft EIR analyzes the potential impacts of increased turbidity and sedimentation associated with enhancement projects at pages 3.2-67 to 3.2-69, and imposes eight separate mitigation measures to reduce effects to less than significant. Among other measures, Mitigation Measure 3.2-14e requires that all enhancement sites shall be monitored for five years following construction to ensure that erosion control features and revegetation measures are properly working and not causing erosion or instability.

G-26 **Comment:** What is the width required for the river in the Project reach to pass a flood flow of the magnitude of the New Years 2006 flood without overtopping channel banks?

Response: The required width changes with every large flood event and depends on factors including but not limited to the amount of gravel storage in the project reach and the channel morphology at locations throughout the reach. The 2006 flood was only a 12-year event and is not the only magnitude or flood event relevant for environmental analysis.

G-27 **Comment:** How much water will the Project require for dust control and where will the water come from? How will the project ensure that water applied for dust control does not run-off to surface waters or create a nuisance for property owners?

Response: The Draft EIR explains on pages 3.10-3 and 3.10-4 that in the worst case scenario the project would use 128,000 gallons of water per day. The water would be provided from existing, private wells.

Runoff to flowing water is unlikely because the application of this water for dust control will be far enough from the active channel (flowing water) because of the mining buffers and the porosity of the river channel gravels. Applying water to haul routes and mining areas would not create a nuisance for property owners.

G-28 **Comment:**
2005 Geomorphic Analysis and Mining Plan for Lower Alexander Valley

The Swanson Hydrology and Geomorphology 2005 report performed a historic sediment flux calculation, is this defined as inflow or change in storage? In the same 2005 report, what is the basis for the aggradation calculation and assessment of historic sediment flux? Why didn't this evaluation look at downstream conditions and possible impacts? Where is the support for the assertions on page 25 of the 2005 report regarding channel widening? Is it appropriate to have the downstream boundary for the RAS model so close to the analysis reach? Since the models in this report analyzed sand and gravel transport separately, won't this understate transport rates leading to higher than actual aggradation? Why hasn't the model been run with the actual sand and gravel percent of sand and gravel found in the mining reach? Aren't there bimodal transport equations available to apply so that model results are more accurate?

Response: This comment refers to questions about the 2005 Swanson Hydrology and Geomorphology (SH+G) report, and does not comment on the adequacy of the Draft EIR. The 2005 SH+G report performed a historic sediment flux calculation, which included both the change in channel sediment storage and the sediment yield (inflow). Sediment transport rating curves for sand and gravel were developed and integrated with the historic flow record to determine sediment yield and the average annual sediment flux. Comparison of HEC RAS models for the period 1994-2003 showed a net accumulation of gravel on bars and loss of cross-sectional area.

The 2005 SH+G report describes the location and history of mining in the Middle Reach and the connection between gravel flux in Alexander Valley and sediment replenishment in the Middle Reach. A 2008 SH+G report found that the deposition of gravels on bars in the Middle Reach was occurring while mining was occurring in

both the Alexander Valley and Middle Reach from 1987-2002. The combined Alexander Valley and Middle Reaches aggraded a net of 4 million cubic yards during the period 1994-2007, which included a period from 1994-2000 when approximately 1.6 million cubic yards were extracted from the Middle Reach and Alexander Valley Reach combined.

Channel widening is documented on page 21 of the 2005 SH+G report for the period 1942-1994 using geo-referenced material.

It is appropriate to have the downstream boundary of the model at the point where there is a hydraulic control on high flows. The hydraulic control is a constriction in the Alexander Valley located approximately 2.0 miles downstream of the southernmost project bar SD-1, and is not very close to the area where mining would actually occur.

It is appropriate to use two different grain sizes in separate analyses to predict transport rates since there is field data for the transport of the sand size fraction, and application of the Parker equation for the gravel size fraction, developed using empirical data measured in the field. Other sediment transport equations are either theoretical or were developed from laboratory flume data. The results from application of the rating curves for sand and for gravel fractions compared favorably with data on the actual historical balance between mining and replenishment. The analysis demonstrated the greater importance of larger floods (10-year) rather than the average annual in replenishing sediment on mined bars. The sediment transport rating curves were developed then integrated with the hydraulic modeling results to determine the tons/yr transported. The study looked at only sand and gravel fractions, which are those extracted by the mining, and did not include the fine sediment load (silt and clay). Therefore, the sediment load equations underestimate the potential total sediment load that replenishes the bars. Syar has measured an average of 15% fines contained within the gravel bars. This means that bar replenishment includes additional sediment sources not accounted for in the analysis of gravel and sand transport, and thereby purposefully underestimates the total sediment load, which is a conservative assumption in the analysis.

G-29 **Comment:**
A. Setting:

Land and Water Use:

In the DEIR it is noted that past farming and flood control activities have taken at least 50% of the Rivers meander belt area and narrowed the River channel and this has increased incision and erosion as a result. These are the very causes of the un-natural buildup of gravel in lower Alexander Valley. Since reducing flooding and erosion impacts is a stated project objective, why hasn't the Project or REP addressed the cause of sediment build-up? It would seem that one of the most beneficial projects that the REP could undertake is widening the channel to alleviate the flooding and erosion problems for the long-term. Why isn't widening the meander belt a project alternative or mitigation? Since gravel mining only treats a symptom of a narrowed channel, gravel buildup, and not the cause does this mean that using mining to address flooding and erosion mean we have to keep mining forever?

Response: Please see Master Response 1 for a discussion of past gravel mining activities in the Russian River.

Widening of the channel is not proposed as part of the project, and does not appear necessary to reduce any potential impacts to less than significant. As set forth in Master Response 1, widening the channel was evaluated as a policy option in the 1994 ARM Plan, but was rejected because it would encroach upon valuable agricultural lands and potentially cause damage to infrastructure (e.g., wells and bridges).

G-30 **Comment:** The mention of the damage to the Geyserville Bridge in 2006 is not accompanied by any in depth examination of the cause of the damage other than the mention of riverbed scour. Since one of the project objectives involves protecting public infrastructure why hasn't the DEIR studied the cause to determine the proper remedy?

Response: The bridge was founded on seven concrete piers, which were placed over pile caps that had 25-foot long fir piles drilled into the river bed (Biological Assessment for the Replacement of the Geyserville Russian River Bridge on State Highway 128, Caltrans, March 2006). The new bridge has been founded on 48" diameter piles driven up to 150 feet into the river bed. These new piers reach well below the calculated scour. The new bridge is designed such that the west abutment could be left in the middle of the channel as a result of river meander. This abutment is designed to act as a pier with very deep foundations (email to Chris Seppeler, PRMD, from Steve Ng, Caltrans, August 10, 2010).

G-31 **Comment:** The DEIR goes on to state that gravel mining has the effect of maintaining an "artificially straight and narrow channel" so why will continued gravel mining improve the river channel? The DEIR continues to state that the channelization has "profoundly altered it natural fluvial process" and increased erosional rates through disconnecting the River from its floodplain. The DEIR also states that this condition has led to overall simplification of aquatic habitat. Again this clearly points to the channelized nature of the river in the Project reach as a severely degraded and unnatural condition.

Response: The Land and Water Use subsection does not state that "gravel mining has the effect of maintaining an 'artificially straight and narrow channel.'" The Draft EIR instead states that historically, dating back to the late 1800s, agricultural development in the floodplain of the Alexander Valley narrowed the active river meander belt by as much as 50% and converted the channel from natural equilibrium into an artificially confined channel. (See page 3.2-6.) It further explains that instream mining from the 1940s to the early 1980s supplemented landowners' efforts to fill and reclaim former river bed to agricultural use, and had the effect of maintaining the artificially straight and narrow channel. The subsection nowhere states that mining since the early 1980s, or mining today, automatically or necessarily has the effect of maintaining an artificially straight and narrow channel.

It is not clear what the commenter means by "improve the river channel." The project does not list "improving the river channel" as one of its objectives (see page 1-15), and "improve" seems a subjective term in this context. The Draft EIR explains that implementation of the proposed project, as mitigated, would not result in any significant adverse impacts to the channel's geomorphology, hydrology, water

quality, vegetation, wildlife, or fisheries resources, and would generate some benefits to those resources over existing conditions. The EIR also discloses the project impacts that cannot be mitigated to a less than significant level, to inform the public and decisionmakers about all effects on the river channel and other environmental resources.

The remainder of the comment purports to paraphrase portions of the Draft EIR's Land and Water Use subsection. That subsection speaks for itself.

G-32 **Comment:** Why is this severely degraded river condition an acceptable baseline for this Project?

Response: The project baseline includes the existing condition of the river because CEQA requires it. As noted on page 1-2 of the Draft EIR, State CEQA Guidelines Section 15125(a) provides that

> An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant.

The Supreme Court recently confirmed that "A long line of Court of Appeal decisions holds, in similar terms, that the impacts of a proposed project are ordinarily to be compared to the actual environmental conditions existing at the time of CEQA analysis." (*Communities For A Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal.4th 310, 321-22 [citing cases].) As a result, the impacts of this proposed project are compared to the actual existing conditions at the time of NOP publication.

G-33 **Comment:** In fact on page 3.2-14 the DEIR discusses the policy option in the 1994 ARM plan of a "streamway concept" that was rejected because it would encroach on valuable farmlands and potentially cause damage to infrastructure but this was not the consensus of the community and this concept was not well studied. Does the river already encroach on farmlands during floods currently? At the Project scoping meeting one speaker stated that in the 1950s the river jumped its banks and created a new channel through his vineyard. Didn't this event occur during a period of very active gravel mining? Doesn't this show that mining has not and will not prevent flooding? Will this project at the maximum volume stop flooding of farmlands? If not then how can the project objective of reducing or preventing flooding be attained? If the answer is to reduce the frequency of flooding, what is the reduction in frequency and what is the source of the analysis? Is the goal of flood prevention attainable through this project? If the answer is yes, then where is the analysis to demonstrate this fact?

Response: The purpose of the proposed project is not to prevent flooding, and does not identify "reducing or preventing flooding" as a project objective. Instead, page 1-15 of the Draft EIR identifies an objective to "conserve valuable agricultural lands and help protect public infrastructure by maintaining flood channel capacity and reducing bank erosion through the removal of excess aggregate from gravel bars." The 1994 ARM Plan similarly identifies an objective to "Maintain or increase the flood

flow capacity of stream channels," but does not identify the prevention of flooding as an objective or purpose of gravel mining projects.

The project would maintain and temporarily improve the flood conveyance capacity of the channel, as explained in the Draft EIR and Response to Comment G-8. The actual improvement in flood capacity will depend upon which specific bars are skimmed and when, the timing and magnitude of bar sediment aggradation occurs following mining, the specific location in the channel, and the magnitude and timing of future flood events. As sediment deposits on bars after mining over time, the temporary flood conveyance improvement would decrease.

G-34 **Comment:** In the land and water use section there is no mention of the extensive mining that occurred in other areas such as the Diggers Bend/ Rio Linda section of the river where Syar extensively mined in early 1980's leading to major property loss along Redwood Drive on Fitch Mountain and numerous landowner mining and "bar management" activities carried out by property owners such as Passalaqua Ranch. The loss of land and lowering of the riverbed in this area has 30 years later not returned to it's pre-mining state showing that the area below the Project reach is still in a sediment deficit that would be impacted by this project. Why hasn't the DEIR or Syar reviewed channel conditions and impacts in areas downstream of the project?

Response: The effects of historical mining practices are discussed in the Draft EIR on pages 3.2-5 to 3.2-11, and in Master Response 1 of this Response to Comments Document. Section 3.2 of the Draft EIR discusses overall changes in the river channel gradient, vertical and lateral stability, width, meander planform, and floodplain connectivity in response to past gravel mining practices and other land uses. Changes associated with bed lowering in the lower Alexander Valley are described and quantified under the section *Thalweg Elevation* on pages 3.2-16 to 3.2-28.

The EIR preparers are not aware of specific data defining bed elevation changes or other impacts at the Passalaqua Ranch and the Digger Bend section of the river mentioned in this comment. However, the comment claims that lowering of the river bed occurred in the early 1980s, an era that pre-dates the current 1994 ARM Plan and was marked by very different instream mining practices and regulatory limitations. As discussed on page 3.2-11 of the Draft EIR and Master Response 1, gravel extraction from 1981 to 1993 removed an average of 680,000 tons per year in the Alexander Valley, with rates over 900,000 tons in some years. Additionally, the 2006-2007 AMP report (Entrix, 2009) found that for all of the monitoring reaches (Middle Reach, Lower Alexander Valley, Upper Alexander Valley), the annual 2006-2007 elevation changes, as well as the cumulative average changes since 1994, indicate only relatively small fluctuations in bed elevations that are indicative of a dynamic alluvial channel. This would at least imply that the Healdsburg Reach, located between the Middle Reach and the Lower Alexander Valley, has also been vertically stable.

In addition, historic narrowing and deepening of the channel in the Middle Reach (just downstream from the Digger Bend channel section above Healdsburg) coincided with an era of direct channel dredging of the bed (up to 30 feet in depth), construction of levees, bridges, road building, and intensive bar skimming that began in the 1940s and continued through the 1970s and early 1980s. Similar channel

changes were occurring in the Lower Alexander Valley (upstream from Diggers Bend), although no direct dredging occurred there. The combination of these land uses dramatically affected the channel, notably causing a lowering of the channel bed and narrowing the extent of the floodplain. The specific effects mentioned in the comment are likely influenced by all of these land uses, similar to the effects in Lower Alexander Valley and Middle Reach. Master Response 1 and the Draft EIR explain that the ARM Plan has been very effective at minimizing the potential for down cutting of the river bed, and remediating legacy effects from past land use, and allowing considerable sediment replenishment in both reaches. The data shows that there is not a sediment deficit in either the Lower Alexander Valley or the Middle Reach, as stated in the comment.

The comment incorrectly assumes that mining in the Alexander Valley Reach would impact the Diggers Bend section and other areas downstream from the project reach. This assumption is not supported by the facts or data, as explained in the Draft EIR and Master Response 3. In the Middle Reach, bars aggraded between 1987 and 2006 with about 1 million cubic yards of sediment, even though mining occurred in the Alexander Valley Reach and to a lesser extent in the Middle Reach (Swanson Hydrology + Geomorphology, 2009). DTM data for the Lower Alexander Valley Reach for 1994-2007 indicate that there has been approximately 3 million cubic yards of new sediment storage in the project reach, even as 670,000 cubic yards were extracted by mining over the same period (Draft EIR, page 3.2-16).

These data are supported by a completely different methodology that accounts for sediment storage changes based on annual cross-section surveys required by the 1994 ARM Plan. The AMP report (ENTRIX, 2010) found that sediment storage in the Middle Reach increased by 2.5 million cubic yards from 1994-2008 and increased in the Lower Alexander Valley Reach by more than 1 million cubic yards over this same time period. During this same time period, approximately 320,000 cubic yards were extracted from the Middle Reach and approximately 670,000 cubic yards were extracted from the Lower Alexander Valley Reach. The sediment accrual data for the Lower Alexander Valley is presented in page 3.2-15 of the Draft EIR.

The data indicate that the river is transporting a considerable total sediment load and is capable of replenishing the bar sediments during mining, and that neither the Lower Alexander Valley nor the Middle Reach is in a sediment deficit condition. In addition, the proposed project provides an Adaptive Management Strategy and the Draft EIR imposes mitigation measures that monitor for any potential adverse adjustments on the channel (page 3.2-50 to 3.2-55). Therefore, the proposed project as mitigated would not result in any significant impacts. See also Master Response 3 and Responses to Comments G-56 and I-3.

G-35 Comment:

Geomorphology

Sediment Budget and Aggregate Recharge

The discussion of “safe yield” in this section is completely disconnected from the previous section where the DEIR admits the river channel is in a severely degraded condition. How can there be any “safe yield” of gravel extraction that purports to have no impacts if the channel is already in a severely degraded state? Where is the

evaluation and analysis of "safe yield" and "natural recharge" versus the percent of sediment that is induced recharge from the degraded condition of the River?

Response: As explained in Master Response 1, the Draft EIR discloses the adverse environmental impacts of land uses including past mining, which was largely unregulated from the 1940s to the 1980s. Those impacts do not forever obviate the possibility of a "safe yield" in the future, however, nor compel a finding that all future mining projects will have significant adverse impacts regardless of their size, location, mining methods and other characteristics. Please see Master Response 3 and Responses to Comments G-3 and G-34 with respect to specific issues raised.

G-36 **Comment:** The DEIR goes on to state that a characteristic of the channel in the Project reach is reduction in sediment transport from channel narrowing and the artificial state of the channel. Considering the 'artificial" channel, how can any sediment buildup be called natural?

Response: As discussed in Response to Comment G-24, the Russian River is not "artificial." Although the river is "artificially confined," natural processes still occur, including gravel bar aggradation and sediment buildup.

G-37 **Comment:** On page 1-13 on the DEIR it states that the 1994 ARM Plan studies found that annual recharge is 200,000 cubic yards or 300,000 tons but on page 3.2-15 it states that the 1994 ARM Plan studies showed recharge was 50,000 cubic yards or 100,000 tons, which figure is in error? Also the first citation uses a different conversion factor for tons to cubic yards or gravel, which figure is in error?

Response: As shown in Figure 4.3-13 of the 1994 ARM Plan, the ARM Plan identified a recharge rate of 96,500 tons per year in the Alexander Valley based on the amount being removed at that time (726,500 tons per year) and the amount that the river had degraded (630,000 tons per year). The conversion factor used in the ARM Plan is 1.50 tons/cubic yard.

Pages 1-13 to 1-14 of the Draft EIR, the first paragraph below the heading "Alexander Valley Reach Gravel Mining History" is revised as follows:

> The Russian River within the Alexander Valley has been subject to bar skimming operations for almost 100 years. These operations have been intermittent, occurring when gravel has accumulated on the river bars following winter storms that produced high flows and transported large volumes of sand and gravel. Studies done in conjunction with the adoption of the 1994 ARM Plan found that within the Alexander Valley reach of the Russian River, gravel recharges at an average rate of approximately ~~200,000 cubic yards (300,000 tons) per year~~ 64,333 cubic yards (96,500 tons) per year. The specific rate of natural recharge fluctuates depending on the level of high flows during each winter and availability of material upstream of the study area (Kondolf 1997). The gravel bars proposed for mining as part of this project have all been mined previously by various companies. DeWitt Sand and Gravel most recently skimmed three bars in the mining reach (identified with the prefix of "SD") in 1999. Another operator currently has a mining permit to skim bars approximately 5 miles upstream of the study area.

Page 3.2-15 of the Draft EIR, second paragraph is hereby modified as follows:

> ~~Studies done in conjunction with the adoption of~~ The 1994 ARM Plan estimated that gravel recharge within the Alexander Valley (combined Upper and Lower Reaches) occurs at an average rate of approximately ~~50,000 cubic yards (100,000 tons)~~ 64,333 cubic yards (96,500 tons) per year (Sonoma County, 1994). The 1994 ARM Plan acknowledges considerable uncertainties associated with estimating recharge rates. Over a period of time with intensive monitoring the average annual sediment recharge can and should be updated. Two sources of monitoring data that rely on different measurement techniques for estimating aggregate recharge are presented.

Please also see Master Response 3.

G-38 **Comment:** How will the Project effect downstream sediment budgets? Will the Project reduce sediment supply downstream of the Project reach? If not what studies demonstrate this contention? Have any studies been performed to indicate what the downstream sediment supply would be with other mining projects in upper Alexander Valley and the Middle Reach active? What studies have been performed to demonstrate your conclusions?

Response: The proposed project would reduce the total sediment yield to the downstream reaches by extracting up to 350,000 tons per year. Although the total sediment yield to the downstream Middle Reach is not very well known, that portion of the total sediment yield that is deposited in the channel is the recharge rate, which is better understood because it has been measured as part of the County annual monitoring program. Although the total sediment yield would be reduced in years in which mining occurs, recharge can continue if there is an adequate total sediment supply. Recharge will occur even during mining periods if the total sediment supply carried by the river exceeds the amount of extraction. This is demonstrated by the annual monitoring data collected by the County. As discussed in Response to Comment G-34 and Master Response 3, substantial aggradation has occurred during periods of mining activities.

The 2008 AMP report (Entrix, 2010) determined that the average annual recharge rate in the Middle Reach is 311,000 tons/yr. Thus, the average annual amount of sediment the project proposes to mine (up to 350,000 tons/yr) is nearly equal to the measured recharge rate of the Middle Reach. As a result, bars in downstream reaches would not be significantly affected by the proposed project's reduction in upstream sediment and would continue to be replenished by the more than adequate supply of sediment from mainstem and tributary sources. As noted above, field monitoring data shows aggradation of bar sediments in the Middle Reach at a time when there was active bar skimming occurring in both the Upper and Lower Alexander Valley. Measurements of sediment accumulations in both the Lower Alexander Valley and Middle Reach are discussed in Responses to Comments G-28 and G-34.

G-39 **Comment:** What are the error rates for the Digital Terrain Model (DTM) referred to on page 3.2-15? Why doesn't the DEIR mention only that DTM has shown "dramatic increases" in gravel bar height but does not mention that some areas show dramatic decreases in bar height? Doesn't this bias the uninformed reader to believe that bars are only growing? Looking at figures 3.23a-c it is clear that dramatic decreases in

sediment volume have also occurred. In Figure 3.23b the scale used for highlighting change in bar elevation is not equal for increases and decreases as the decrease scale bottoms out at greater than 8ft but the other side tops out at 12-16 ft again giving a highly biased view of the change in bar heights. Why did the DEIR use different scales for figure 3-2-3b? What are the error rates for these figures and where is the calculation for that error rate?

Response: Please see Response to Comment G-11 regarding DTM accuracy.

An incorrect version of Figure 3.2-3b was included in the DEIR. The correct graphic is attached as part of this Response to Comments Document, as shown in Section 2.0, "Revisions to the Draft EIR".

Figures 3.2-3 a, b, and c show some areas of gravel loss among many areas of substantial aggradation of gravel during the period.

G-40 **Comment:**
Reference (Baseline) Elevations

Referring to the discussion of using low-flow water surface elevations for a baseline, how does the calculations factor in channel width? If the channel becomes wider won't it reduce the surface elevation?

Response: The channel width is not a part of the calculation of the change in reference elevation from year to year. It is true that widening of the low-flow channel would lower the water surface elevation, even if no change occurs in the channel bed elevation. Similarly, a narrowing of the channel narrows would result in a rise in the low flow water surface elevation even if the bed elevation has not aggraded. For purposes of interpreting the data for reference elevations, whenever there is a datapoint that exceeds a $\pm$1 ft change in elevation relative to the reference elevation, the cross-section plot is reviewed. The review would seek to determine if there any substantial change has occurred in the cross-section low-flow channel width, and to properly interpret any such change and attribute it to an actual change in the bed elevation rather than a change in the channel width.

G-41 **Comment:** We question again why it is appropriate to use the 1994 elevations as a baseline since it represents a severely degraded condition? CEQA guidelines state that a degraded baseline means that the environmental condition is already impacted so any new impacts are cumulative and significant, so how can mining occur if the baseline condition is severely degraded? Why isn't the baseline from 1940 being used or 1950?

Response: The Draft EIR does not use 1940 or 1950 as the project baseline because, as noted in Response to Comment G-32, CEQA Guidelines Section 15125(a) and a long line of court decisions require that the baseline physical conditions include those in the vicinity of the project "at the time the notice of publication is published." The instant NOP was not published in 1940 or 1950, so the Draft EIR does not use either of those dates as the baseline.

In addition, it is not clear that using a baseline of 1940 or 1950 would meet the commenter's stated goals. Instead, as noted at page 3.2-11 of the Draft EIR, gravel mining from the 1940s to the 1980s was largely unregulated, included the removal of

substantial amounts of aggregate and the direct excavation of the channel thalweg, and had the effect of creating an artificially straight and narrow channel. Comparing the proposed project against those conditions would improperly understate and minimize project effects. The proposed project is instead evaluated against a baseline that includes several years of implementation of the 1994 ARM Plan, which has resulted in a substantial decrease in the average annual extraction rate and has been very effective at limiting mining to a sustainable yield of available recharge and minimizing the potential for down-cutting of the riverbed and other impacts.

Finally, the Draft EIR does not use 1994 elevations as a baseline. Instead, as noted on page 3.2-45, the Draft EIR requires the applicant to establish minimum baseline elevations at 1-foot above the higher of either the 1997 or 2007 water surface elevations.

G-42 Comment:
Erosion

Rivers operate in a continuum but the erosion section only focuses on the Project reach and ignores downstream areas that are also eroding. Readers are not fully informed as to exactly how the DEIR arrives at conclusions that the Project and proposed mitigations will reduce erosion along the River. Exactly what is the basis of those conclusions? Have conceptual models been run that predict the potential for erosion? Have those models been run with the post-mining conditions or pre-mining conditions? If any models were run using post-mining conditions, were all the elements of the Project incorporated into that post-mining scenario? Have the models been run using conditions representative of all Project alternatives in the DEIR? If no models have been run using post-mining conditions, why haven't they and without some level of modeling how can the DEIR arrive at the conclusion that the Project will reduce mining? The DEIR seems to take the position that erosion is the sum of many variables and is a complex process so what are the error rates and underlying assumptions of all models used or referred to in the DEIR to predict changes in erosion as a result of the Project? Is the DEIR stating that erosional impacts from past and proposed mining are somehow confined to the Project reach? If yes, where are the specific references or studies that determined that erosional impacts are confined to the project reach? One of the project objectives is to reduce erosion, what studies have been conducted to demonstrate that the proposed gravel mining will reduce erosion in the Project reach and if not why? It would seem that if a project objective is to decrease erosion some form of studies would have performed to quantify the change in erosion so what is the predicted decrease in erosion and what methods were used to determine this? What area of the River is covered by studies to determine whether erosion will decrease from project activities? Has the DEIR or project applicant performed studies to determine the potential for increases or decreases in erosion downstream of the Project area? Did those studies look at site-specific areas downstream of the Project reach? Since one of the Project's objectives is to reduce erosion and damage to public infrastructure; what studies or modeling has been performed to predict the change in erosion for the eroding area upstream of the western fill ramp to the Geyserville Bridge? Have any studies been performed on the various project alternatives on the predicted erosion rates for the Jimtown bridge and if not why? If any predictions on erosion potential have been performed for this Project that are based on best professional judgment, what is the basis for those judgments?

Response: Please see Master Response 3. As explained therein, conceptual models have been used to predict the potential for erosion, and they rely on a comparison of changes in river form between the pre- and post- mining condition.

In addition, the proposed project would not trigger the mechanisms that could influence erosion in reaches downstream from the Lower Alexander Valley, i.e., streambed lowering or due to extraction rates that exceed sediment supply (i.e., "hungry water").

The EIR preparers are not aware of studies that predict the change in erosion for the area upstream of the western fill ramp to the Geyserville Bridge or erosion rates for the Jimtown Bridge. Gravel mining is only likely to reduce erosion, however, since the removal of aggregate would reduce velocities by increasing cross-sectional area of the channel, rather than narrowing it, which happens when the bars aggrade.

G-43 **Comment:**
Flooding

While previous sections of the DEIR discuss the causes of flooding including channel narrowing from encroachment by farmers and structures, this section only discusses flooding as factored by sediment storage. Why hasn't the channel narrowing impact discussed here? Doesn't this bias the reader into believing that only gravel mining can reduce flooding? Would widening the river channel reduce flooding and sediment deposition? Wouldn't widening the river be a viable strategy for reducing flooding? Additionally if farming operations and infrastructure were moved away from the river any impacts from flooding would be reduced, is that a correct statement? For the proposed project what studies or modeling have been performed to demonstrate that the Project will decrease flooding and if not why? What is the predicted decrease in flooding for post-project conditions over the nonproject alternative?

Response: The Draft EIR identifies channel narrowing (i.e., land reclamation, construction of levees) and other land use effects on flooding besides sediment deposition in Section 3.2A Setting, Flooding. The Draft EIR states on page 3.2-30 that:

> flooding along the Russian River has been exacerbated by advancing urbanization and increased impervious surfaces causing more rapid runoff; past mining practices incised the riverbed and disconnected the adjacent floodplains reducing floodplain storage capacity; construction of levees and land reclamation further confined the channel and increase in-channel flows; and accumulation of sediment on gravel bars reducing flood carrying capacity and increasing lateral bank erosion and bank failures.

This EIR is not intended to explore all possible projects and methods for reducing flooding on the Russian River. This EIR instead discloses, analyzes, and mitigates the potential environmental effects of this project, which proposes 15 years of mining in one specific reach of the river. Please see Responses to Comments G-74 and BB-9.

An entirely different project to widen the high flow channel and floodplain would reduce flooding, at least temporarily, until accelerated sediment deposition reduced

the width or entirely altered the river planform and dimensions. However, channel widening would also cause an increased rate of sediment deposition, since shear force tends to decrease as the cross-sectional area is increased. Increased sediment deposition could offset the flow conveyance capacity gained by channel widening.

If agricultural crops were uprooted and farming operations and infrastructure were moved sufficiently distant from the river flood area, it would likely reduce impacts from flooding.

Please see Response to Comment G-33, which explains why and how sediment removal can help reduce flooding.

G-44 Comment:
Water Quality

It is stated that gravel mining is one of the activities that is a potential source of sediment pollution and goes on to state that soil discharge from disturbed slopes and loose or unstable slopes after mining. We could not agree more. In the past we have seen bar buffer edges at steep angles rapidly erode in high flows. Past turbidity monitoring by Syar in the middle reach seemed inconclusive and the feasibility of monitoring a high flow event right when it covers the bar for the first time it logistically difficult. This does not mean that turbidity is not increased from mining it just means it is difficult to effectively monitor. The mining plan and the interior bar slope of 2:1 will readily erode in high flows, how does the project plan to mitigate this impact? Are there any studies that show that any existing erosion is offset by mining, since it claims to reduce erosion and therefore sedimentation?

Response: The proposed project would not cause an increase in fine sediment from erosion of interior bar slopes. The interior bar cut slope of 2:1 along the inner and outer buffers aligned parallel to the channel would only suffer potential erosion when high flows are sufficient to overtop the bar head, approximately 11,000 cfs or more. But during those flows the river would move both suspended and bedload material, which would be likely to fill in along the 2:1 cut slopes and the interior of the bars as the flow declines below 11,000 cfs on the receding limb of the hydrograph. As such, sediment would backfill the 2:1 slopes during over-topping flow events, rather than increasing erosion and fine sediments. Additionally, the bar buffer area is along the outside of the 2:1 slope and is usually vegetated. This area would help prevent any erosion from substantially eroding back the 2:1 slope. This has been observed on mined bars in the Upper Alexander Valley, where vegetation on the outside of the 2:1 slope cut is causing sediments to deposit and build up the buffer area, rather than erode into it along the cut slope from the inside of the bar.

Any erosion from the interior of the bar (as discharge rises to exceed the height of the bar head) would occur only when there is already a substantial sediment load, both bed and suspended, transported in the river. Additional sediment from erosion of cut slopes around the bar interior would be a nominally small percentage of the total sediment load. Finally, Mitigation Measures 3.2-2 (Head of Bar Buffer) and 3.2-3 (Side Bar Buffer) function to retain the bar form, so that at flows less than 11,000 cfs, a backwater into the mined bar tail will form, providing less turbulent flow, minimizing opportunities for over-topping of the bar head to cause erosion of the 2:1 cut slopes on the interior of the bar, and providing an opportunity for suspended

sediments to deposit in the backwater area of the bar tail (see Draft EIR page 3.2-63 and -64).

As set forth in Master Response 3, case studies show that mining can offset existing erosion.

G-45 **Comment:** Additionally the DEIR and Project claim that no downstream erosion will occur from Project mining, how was this determined? Where are the studies that demonstrated that the Project would not increase downstream erosion?

Response: Please see Master Response 3, which discusses the processes that could cause erosion in downstream reaches, bed incision, and insufficient supply and recharge of sediments.

G-46 **Comment:** One water quality impact from fine sediment is embeddedness that essentially means larger coarser gravels favored by ESA listed Chinook Salmon that use them for spawning nests (redds) are covered with finer material that fills the voids between rocks. Embeddedness impacts salmon and other aquatic organisms by not allowing oxygen to circulate in the coarse gravels or allow waste to be carried away leading to mortality or abnormal growth rates. Why isn't this water quality impact being evaluated for potential significant impacts? Has the DEIR investigated this issue and if so what are existing conditions and how will project ensure embeddedness does not increase and impact aquatic habitats?

Response: The issue of gravel embeddedness, as it relates to aquatic habitat for invertebrates and fish in the study reach, is discussed on page 3.4-3 (existing conditions) of the DEIR. Potential project impacts that relate to embeddedness are described on pages 3.4-14 through 3.4-24 (see Impacts 3.4-5, 3.4-7, 3.4-7a, and 3.4-7b). The Draft EIR specifically discusses impacts related to temporary increases in fine sediment, turbidity, and disruption of sediment transport processes resulting in the loss or degradation of spawning beds from sediment deposition in the riffle substrates, reduction of pool volumes or riffle areas, and changes to hyporheic flow patterns (mixing of groundwater with surface waters) that could increase water temperatures. In addition, the project's proposed AMS includes several physical monitoring components, including measuring sediment intrusion. Specifically, page 1-67 of the Draft EIR states that Syar would measure the effects of fine sediment intrusion of potential spawning gravels at riffles. Intrusion effects would be measured by losses of permeability, or an equivalent alternative method approved by DFG and NMFS (previously NOAA). This monitoring would be done at no fewer than three locations: at the downstream end of the mining area, at a riffle midway through the mining area, and at one location upstream of the permit area. Each of the monitoring locations would be selected based on known usage by spawning salmonids or conformity with preferred habitat criteria.

G-47 **Comment:**
C. Potential Impacts and Mitigation

Criteria for determining significance

What is the source of these criteria? Why isn't causing increases in erosion considered a significant impact especially since it can result in property loss? Why

isn't perpetuating a degraded and narrowed channel considered an impact, especially since the DEIR has admitted this results in inferior aquatic habitat?

Response: The source of the significance criteria is the State CEQA Guidelines, Appendix G. The third criterion in Section VIII, Hydrology and Water Quality, requires an evaluation of whether a proposed project "would result in substantial erosion or siltation on- or off-site." CEQA defines "significant effect on the environment" as a potentially substantial, adverse change in the environment, not the continuation of an existing condition. (Public Resource Code, § 21068.)

G-48 **Comment:**
Impact 3.2-2

On page 3.2-46 there is discussion concerning Bar 2 that Syar mined in 2007 and the DEIR states that the larger bar head, "which prevented a new high flow channel from forming". Where is the source of this conclusion? I walk my dog near that bar every week and when the River rose during late January of 2010 and receded in early February a high flow channel through the interior of the bar was clearly evident and even some isolated pools developed in the interior-most section of the bar where ESA listed fish could have been stranded. In fact on a April 5 kayak trip which was filmed part of the team paddled right down the middle of bar 2 so we question this conclusion that the head of bar retained on bar 2 in 2007 was adequate – three years after mining.

Response: The paragraph cited clearly explains that the Bar 2 head of bar buffer area used a 6-ft vertical offset that did not prevent over-topping, and there was sufficient energy to cause a high flow channel to form. Subsequent flows in 2003-2006 helped to aggrade the bar by 6-8 feet and it was again mined in 2007. The high flow channel itself had not completely filled in prior to 2007, so its pathway remained even though other parts of the bar aggraded sufficiently to allow mining in 2007. A new high flow channel was not created; instead, the initial high flow channel remained as a legacy of the earlier overtopping flows.

The EIR preparers also note that factors other than the height of the bar buffer could have contributed to formation of the high flow chute channel, including unconsolidated cobble, gravel and sand material naturally deposited at the bar head. In addition, it should be understood that the development of a chute channel can be a natural response to bar evolution. Chute cutoffs are created when there is headward incision by flow cutting through the bar. Incision creating the chute channel can be initiated when there is aggradation along the bar rim (Hooke, 1997). Finally, the EIR preparers note that there is evidence that the high flow chute channel may be a feature that existed prior to the 2002 mining by Syar. Review of aerial photography from 1997 and earlier indicate the signature of the high flow chute channel, which implies that this feature may periodically reappear over time.

Bar 2 has not disassociated from the bank or become a mid-channel bar. Given that the bar is still connected to the bank, and that sediments have re-aggraded the bar, the head of bar buffer retained in 2007 appears adequate. In addition, the pool-riffle complex at this bar is intact. The EIR preparers have no information that indicates that there was inadequate slope from the upstream to downstream portion of the bar, and there have been no reports of fish stranding.

The Scientific Review Consultant asked Syar to conduct a study of fish stranding potential by comparing recently mined bars with unmined bars in the Middle Reach. The study was performed in fall 2007-spring 2008 and included Bar 2, which was mined in 2007 (Stillwater, 2009). The study determined that bars that had no gravel extraction for at least two decades have as much potential stranding area as the extraction bars. It is noteworthy that this study also found high-flow channels on the unmined bars.

G-49 Comment:
Mitigation Measure 3.2.2

In light of what we observed at bar 2 we question how the 8 ft height at head of bar would allow mining of the upper half of the bar without causing an interior chute channel to form. Where has this been successful in the past? Where is the study, report or document that lead to the conclusion that the impact after mitigation is less than significant? In light of the failure of the bar 2 mitigation in 2007, how will can an impact be mitigated if mitigation fails as it had on bar 2? How does the Project propose to address past failures of this type? We would suggest again that fines be applied to failed mitigations to be paid into a fund for restoration.

Response: The head of bar buffer is based on the recent NOAA Sediment Removal Guidelines, which call for preservation of the bar head height at least up to the elevation of the dominant discharge, about 11,000 cfs or 8-feet above the low-water in the Lower Alexander Valley. The EIR preparers have not seen interior chute channels, bar disassociation from the bank resulting in a mid-channel bar or braiding, or other adverse effects on the adjacent pool-riffle complex when the bar heads have been retained at least 8 feet above the low flow water surface. The comment's claim regarding the alleged failure of the Bar 2 mitigation in 2007 is the commenter's own interpretation and is addressed in Response to Comment G-48. As explained therein, the only change at Bar 2 is the high flow chute channel, while the pool and riffle complex was not adversely changed.

G-50 Comment:
Mitigation Measure 3.2.3

While the mitigation proposed might ensure that side bar buffers are not completely wiped out in high flows, how can the impact of the 2:1 slopes be less than significant if those slopes are eroded down in high flows resulting in increases in turbidity?

Response: Please see Response to Comment G-44.

G-51 Comment:
Impact 3.2-5 - Adaptive Management Strategy (AMS)

Here the discussion focuses on the quality of data collected that is pertinent but completely misses the issue we raised earlier about AMS allowing failure. The proposed AMS is essentially saying that the mining method will be adjusted to prevent the impact from recurring but how does that address impacts that already occurred resulting in changes in mining methods? Once again it appears that AMS is a rear-view mirror mitigation and if say the head of buffer retained blows out leading to channel braiding or some other impact and the AMS says retain a larger buffer in next years mining, how does it cure the fact that the channel became braided?

Producing better quality data will not make the river whole again so just how does this mitigate impacts from failures to meet performance standards? In the Impact Significance After Mitigation section for 3.2-5 it offers nothing as mitigation if performance standards are not met so where is the actual mitigation for failing to meet standards? This whole concept is circular and will not mitigate impacts as required under CEQA.

Response: Please see Master Response 1 and Response to Comment G-13. As explained therein, the comment may misunderstand of the nature and role of the AMS. It would not be correct to suggest that the Draft EIR imposes no substantive mitigation measures and relies solely on the AMS to identify and mitigate adverse impacts after the fact. The Draft EIR in fact imposes many substantive mitigation measures and performance standards that will reduce to less than significant all project impacts on geomorphology, hydrology, water quality, vegetation and wildlife, and fisheries resources. The Draft EIR then further imposes the AMS to account for year-to-year changes in the river and adjust management decisions depending on year-to-year physical and biological conditions. (See pages 1-65, 3.2-49.) The AMS is neither "circular" nor "rear-view mirror mitigation;" it provides an additional layer of protection against impacts already addressed by substantial and specific mitigation measures.

By way of example, the comment specifically focuses on the channel braiding. The Draft EIR specifically analyzes the potential impacts of channel braiding at pages 3.2-47 and 3.2-48. The Draft EIR then imposes Mitigation Measure 3.2-3, which imposes side bar buffer widths sufficient to minimize potential erosion, but not so great as to contribute to widening. Consistent with NOAA's 2004 Sediment Removal Guidelines, Mitigation Measure 3.2-3 requires that minimum buffers shall be established at 15% of the maximum width of the active channel, but should not be less than 50 feet wide. The measure requires that buffers be no higher than 8 feet above the low water surface if mining upstream of the bar apex, and requires grading to match a higher head of bar buffer elevation, with tapering to allow for drainage. The Draft EIR explains that by matching the side bar buffer to the height of the head of bar buffer, the potential for braiding is less than significant. The measure further imposes adaptive management, but only to adjust the final height and width of side buffers, consistent with the specific requirements set forth above. The Draft EIR thus imposes direct mitigation sufficient to reduce channel braiding impacts to less than significant, as well as the AMS to account for year-to-year changes in the river.

G-52 Comment:

Impact 3.2-7 Over-mining and Depleting the Sediment Supply

This DEIR has stated that the river in the Project reach is severely degraded and artificial and provides poor aquatic habitat so in light of our assertion that the baseline used only perpetuates a degraded condition what is the definition of "over-mining" in this section? Is it not mining below the degraded baseline? How does defining over-mining in the Project reach and the proposed mitigations protect downstream property owners from increased erosion from decreased sediment transport? How do the mitigations ensure that no induced sediment recruitment, in other words erosion, occurs outside the Project reach?

Response: The comment suggests that any removal of aggregate would constitute "over-mining" and thus should not be allowed in the Russian River. Please see Master Responses 1 and 3, and Responses to Comments G-24, G-31, and G-56 with regard to specific issues raised.

G-53 Comment:
Impact 3.2-8 Reduced Lateral Erosion at Point Bars

It is a commonly understood fact that as rivers are straightened and gravel bars flattened by mining that the river speeds up due to less friction. So any benefit to reducing erosion on point bars would be offset by increased erosion due to increases in river velocity, how is this impact mitigated?

Response: The comment is incorrect. It is not a commonly understood fact that rivers speed up after mining. Please see Response to Comment G-8.

G-54 Comment:
Impact 3.2-9 Temporal Increases in Flood Capacity

The DEIR claims there is no mitigation needed for this as it is a beneficial impact but wouldn't a limited increase in flood capacity slow the River down and cause it to drop its bedload? Isn't the unnatural aggradation from the narrow and hourglass shape of the river discussed earlier as a cause for gravel building up on bars? What is the magnitude or volume of the predicted temporal increases in flood capacity and what studies have been performed to determine this? Will the Project result in a 1% increase in flood capacity or 5%? What studies were performed to determine the actual increase in flood capacity?

Response: Please see Response to Comment G-33.

The "unnatural aggradation from the narrow and hourglass shape of the river" is not the cause of gravel build-up on bars. As reiterated in Master Response 1, the project reach is a depositional area and the river in the Alexander Valley has been mined since the early 1900s. In fact, the narrowed river channel, as opposed to pre-turn-of-the-century channel, is more efficient at transporting sediment. Shear forces increase as the river is more confined into a narrower deeper channel, rather than a wide shallow channel.

Bedload deposition and bar form creation results from flow, channel gradient, particle sizes, and sediment supply of the watershed. Additionally, the constriction of the downstream end of the Alexander Valley creates a backwater condition at higher flows (around 10-year flood), which causes sediment deposition (SH+G, 2005).

G-55 Comment:
Impact 3.2-10 Increased Erosion Downstream

It is welcome to see this impact addressed in the Project reach but how does it make actual property owners living downstream of the Project and REP reach whole again if they suffer erosion? The mitigation measures either assumes all erosion caused by the Project will occur within the Project reach or that mitigation measures to plant vegetation to increase erosion resistance in the project reach would somehow cure all impacts. The project will interrupt sediment supply and transport downstream of

the project reach so exactly how will the proposed mitigation protect or make whole a property owner who lives 2 miles downstream of the Project reach? If the answer is erosion will not occur downstream of the Project reach where again is the analysis that shows this won't occur? If the Project proponents are confidant that no increase in downstream erosion will occur are they willing to post a bond if it does occur to mitigate for impacts to downstream property owners.

Response: Please see Master Response 3 and Response to Comment G-56.

G-56 Comment:
Impact 3.2-12 Alteration of Water Quality

On page 3.2-62 it states that, "However, sediment input and turbidity generated in association with the bar skimming activities from the mined bar surface is expected to be nominal in comparison to the natural sediment input and turbidity generated by the watershed". This statement is grossly misleading since there is a sever sediment pollution impairment so ANY increase in sediment that causes or contributes to the continuing impairment is by definition and case law a significant impact.

Response: The EIR preparers are not aware of any definition or case law stating that any increase in sediment is a significant effect on the environment. CEQA instead defines "significant effect on the environment" as a potentially substantial adverse change to the environment (Public Resources Code, § 21068), and notes that even incremental contributions to a significant cumulative impact may be less than cumulatively considerable and thus less than significant. (CEQA Guidelines, § 15130, subd. (a)(3).)

The comment appears to focus on one sentence in the Draft EIR. The Draft EIR includes a lengthy analysis of potential water quality impacts from erosion, sedimentation, and turbidity. The Draft EIR explains that the Russian River transports sediment from its headwaters to the Pacific Ocean (see page 3.2-14), and observations and surveys indicate that much of the Russian River watershed has a large proportion of fine sediments, even in areas where mining has not occurred. (See page 3.2-63.) The Draft EIR explains that 1.7 million cubic yards of sediment were deposited in the Lower Alexander Valley Reach from 1994 to 2008, and an estimated 3.0 million cubic yards were deposited in the project reach between 1994 and 2007. (See pages 3.2-15 to 3.2-16.)

The Draft EIR further explains that the project would minimize potential erosion and sediment discharge in several ways. The Draft EIR explains that the project proposes bar skimming and enhancement activities only in the dry season and chiefly outside the wetted stream and above the river's summer low-flow channel. (See page 3.2-62.) It notes that the applicant has proposed best management practices (BMPs) to minimize erosion at access roads and staging areas. (See pages 3.2-62, 1-61.) The Draft EIR explains that the applicant would use temporary bridges, consistent with federal regulations, to minimize wet entries of equipment and limit disturbance within the active river. (See page 3.2-62.) It notes that access road width is limited to 15 feet, reducing the surface areas potentially exposed to erosion. (See page 3.2-62.) And the Draft EIR explains that early rains would cause a substantial portion of exposed sand and fine sediment to infiltrate into post-mined surfaces, leaving a layer of relatively clean exposed gravel that would help stabilize

the surfaces and actually reduce the potential for erosion and transport of fines. (See pages 3.2-62 to 3.2-63.)

The Draft EIR then imposes more than a dozen mitigation measures to further reduce sediment input and turbidity. The Draft EIR imposes head of bar and side bar buffers, which will reduce the risk that fine sediments will be entrained from the bar surface and potentially deposited in pools or riffle habitats. (See pages 3.2-64, 3.2-47, 3.2-48.) It requires supplemental monitoring of riffle habitat quality, pool depth, and grain size to further reduce the potential for adverse sedimentation of pools and riffles. (See pages 3.2-64, 3.4-15 to 3.4-16.) The Draft EIR then imposes fifteen more measures at pages 3.2-65 to 3.2-66, including limits on temporary bridges, eleven separate BMPs to minimize erosion at access roads and staging areas, and installation of berms or plugs to isolate works sites and avoid sediment input during implementation of inset floodplain benches, alcoves, large woody debris, or bioengineered bank stabilization features.

The project would thus take place in a depositional zone and a watershed with a large proportion of fine sediments; would minimize potential erosion and sediment discharge in several ways; and is subject to more than a dozen mitigation measures to further reduce sediment input and turbidity. Viewed in this context, it does not appear "grossly misleading" to note that any remaining project impacts would most likely be nominal and indistinguishable from the fine sediments and turbidity generated throughout the watershed.

G-57 **Comment:** The data Syar collected during 2002, 2003 and 2008 is only result data and does not show if the sampling had a Quality Assurance Project Plan and whether the methods employed were sufficient to even gather meaningful data. Regardless in our experience as stated previously it is nearly impossible to take single grab samples at a point in time and draw conclusions from them.

Response: Syar collected the turbidity and suspended solids monitoring data in 2002, 2003, and 2008 according to the requirements of the Regional Water Quality Control Board under the 401 Certification. There was no requirement to prepare a Quality Assurance Project Plan.

G-58 **Comment:**

3.4 Fisheries Resources

Why hasn't the Russian River Biological Opinion or the Draft Coho Recovery Plan or Draft Steelhead Recovery Plan findings been included in the setting? One of the impacts from channel incision from past and continued gravel mining is induced recruitment from mainstem incision working up tributaries and creating migration barriers. Laurel Marcus and others have documented this. This incision working up tributaries is also implicated in increase bed scour that has reduced the quantity and quality of spawning gravels in tributaries. Has the DEIR evaluated potential impacts from using a deeply incised state as a baseline due to potential effects of tributary gravels needed by ESA listed fish?

Response: The Russian River Biological Opinion (NMFS 2003) is the second reference listed on page 3.4-1 of the Draft EIR, and its findings are citied in various locations of Section 3.4, Fisheries Resources. As stated in the comment, the Coho Salmon Recovery Plan is a draft document that has not been approved, and is

subject to public comment and revision. Further, the Draft Coho Salmon Recovery Plan was released less than one month prior to the release of the Draft EIR. The Draft Steelhead Recovery Plan has not yet been completed for public release. Only a draft outline of the plan has been released to date (for more information, see: <http://www.swr.noaa.gov/recovery/Steelhead_CCCS.htm#Recovery_Plan_Status: >).

The Draft EIR evaluated potential impacts against a baseline of the physical conditions as they existed at the time of NOP publication. (Page 1-2.)

G-59 **Comment:** Chinook Salmon spawning has been documented in the Project area and their success depends on the embeddedness of the gravel substrate in the Project area. What is the baseline for embeddedness of the spawning areas in the Project reach? What studies have been performed to determine potential Project impacts on gravel embeddedness and if not why haven't they? What studies have been conducted on the changes in embeddedness downstream of the Project reach and if none why haven't they been performed?

Response: The Draft EIR disclosed and analyzed the gravel substrate and issues associated with sedimentation and embeddedness on pages 3.4-3 (existing conditions) and 3.4-14 through 3.4-24 (see Impacts 3.4-5, 3.4-7, 3.4-7a, and 3.4-7b). Further, sediment intrusion is a monitoring component of the proposed AMS (see page 1-67 of the Draft EIR). Please see Response to Comment G-46 for additional information on this subject.

G-60 **Comment:** In the REP projects why are rock stream barbs being used instead of only wood structures? Isn't wood preferable to salmon and steelhead? In our observations we find primarily warm water species such as pike minnow and smallmouth bass near rock structures even during cool months so why not use wood for all structures if the intended beneficiary are Salmon and Steelhead?

Response: As discussed on page 1-57 of the Draft EIR, and further described on pages 23 to 24 of the River Enhancement Plan (Appendix D of the Draft EIR), the barbs would be constructed of large woody debris (LWD), large rock, or both. The REP also notes that LWD would be embedded into any barbs constructed of large rock.

G-61 **Comment:**
3.6 Traffic and Circulation

It is stunning to imagine over 450 trucks per day coming and going from the Project mining area to the processing plants, that's over a truck every 2 minutes for the operating hours listed in the DEIR. How will the aesthetic impacts from all those trucks be mitigated? Will this increase in trucks lead to an increase in accidents? How will these gravel haul trucks ensure they do not drop rocks and gravel and cause car damage to other vehicles?

Response: Page 3.6-17 of the Draft EIR states the following:

> No more than 20 trucks per hour can access the site, load with gravel, and depart the site for the plant. As such, 20 vehicles could access the roadways and intersections leading to the site and 20 vehicles could access the

roadways and intersections leading to the plant per hour. Given that the hauling operation could last for a maximum of 12 hours per day, a total of 480 daily one-way trips could occur (40 peak hour one-way trips times 12 hours of operation per day) which is the equivalent of 240 daily round trips. This estimate of 480 one-way trips is based on a peak truck loading scenario of trucks accessing the site, being fully loaded, and exiting in just 3 minutes each. This scenario is a conservative worst-case approach that overstates likely truck trips and their resulting impacts.

As noted above, the Draft EIR analyzes a worst-case number of truck trips that would not be considered a normal operating day.

Motor vehicle use is a common occurrence and part of the existing environmental setting. Project traffic would not result in a substantial impact on scenic landscape units, corridors, or vistas.

Mitigation Measure 3.7-1 includes measures to reduce spillage of rock on roadways, including requiring all loads to be either covered or have at least two feet of freeboard. It also requires Syar to sweep all paved access roads and streets daily whenever visible soil material is deposited or tracked.

G-62 **Comment:**
Mitigation Measure 3.6-6a Where necessary widen all the portions of Geyserville Avenue

We appreciate this mitigation measure. Since plans, permits and approvals are required for this mitigation measure when would these improvements be made and what assurance does the public have that they will be completed? Some areas that would need to be widened appear to be private property, how can we be assured that permission will be granted and improvements made?

Response: The comment expresses appreciation for the proposed mitigation measure to widen Geyserville Avenue. This comment is noted. To insure implementation, an approved Use Permit would be conditioned to require the widening prior to use of Geyserville Avenue as a haul route. Mitigation Measure 3.6-6a requires the widening of Geyserville Avenue in areas "without legal, physical and/or environmental constraints (e.g., lack of right of way, creek crossings, slopes, and trees)." No permission will be needed from private property owners for implementation of this mitigation.

G-63 **Comment:**
3.7 Air Quality

The increase in particulate air pollution caused by the Project poses a serious health risk to humans, according to studies in the UK a small 6% increase in $PM_{2.5}$; a component of PM_{10} is associated with a 6% increase in death rates. Additionally according to the California Air Resources Control Board:

- PM_{10} is among the most harmful of all air pollutants. When inhaled these particles evade the respiratory system's natural defenses and lodge deep in the lungs.

- Health problems begin as the body reacts to these foreign particles. PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections.
- Although particulate matter can cause health problems for everyone, certain people are especially vulnerable to PM_{10}'s adverse health effects. These "sensitive populations" include children, the elderly, exercising adults, and those suffering from asthma or bronchitis.
- Of greatest concern are recent studies that link PM_{10} exposure to the premature death of people who already have heart and lung disease, especially the elderly.

Response: The comment purports to identify some of the health risks of PM_{10} and $PM_{2.5}$ emissions. Those risks are already discussed at page 3.7-4 of the Draft EIR.

G-64 **Comment:** Considering the potentially harmful and even lethal effects of PM_{10} pollution generated by the Project, have any studies been conducted to estimate the possible health effects to local residents from the PM_{10} generated by the Project? If no such studies have been performed why not since it without them it is impossible to evaluate the potential human health impacts from this Project? Since dust particles often are not just soil particles, what studies have been performed to identify the individual components of the PM_{10} that will be generated by the Project? Has any evaluation been performed on the percent of silica dust component of the Project generated PM_{10}? Does the DEIR air quality analysis include emissions from trucks moving gravel from Syar distribution facility to end use points? If not why? It would seem that since one of the Project objectives is to minimize air quality impacts the Project should demonstrate that it could supply the end use locations with lower air quality impacts. Why hasn't that type of analysis been conducted? The project will create this impact whereas no project will not...and since Syar is making argument that their project will create lower emissions than imports but have not analyzed this conclusion is unsupported.

Response: The Draft EIR discloses the potential health impacts of PM_{10} and $PM_{2.5}$ on page 3.7-4. The Draft EIR acknowledges that particulate matter can result in adverse health effects including breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, alterations to the immune system, carcinogenesis, and premature death (EPA 2007a).

Chapter 2 and Appendix D of this Response to Comments Document explain that project-related $PM_{2.5}$ impacts are less than significant and well below the conservative threshold applicable to projects within the jurisdiction of the Bay Area Air Quality Management District. Chapter 2 and Appendix D also explain that PM_{10} emissions would be less than significant with the implementation of project revisions and new mitigation measures. As a result, the proposed project would not exceed any threshold of significance for particulate matter, and thus would not result in significant adverse health effects.

The project would not result in significant impacts related to silica dust. The federal Mine Safety and Health Administration requires the applicant to calculate and report the concentration of silica dust and other contaminants at its processing plant in Healdsburg, where operations include aggregate crushing and processing, truck and

equipment operation, and other activities that produce more exposure to silica dust than the proposed project. The most recent evaluation in March 2009 (available online through MSHA's mine data retrieval system) indicates that worker exposure to silica in the plant was substantially below occupational exposure limits. By contrast, the project does not propose a permanent and fixed processing facility, but seasonal mining of bars that would vary every year. Project emissions of dust from mining and hauling would dissipate over a short distance, and the Draft EIR requires the applicant to reduce emissions through measures including watering of mining areas, streets, haul routes, access roads, parking areas, and staging areas; enclosing hauling trucks and stockpiles; and suspending excavation and grading activities when instantaneous wind gusts exceed 25 mph. (Page 3.7-24.) As a result, Chapter 2 of this Response to Comments Document explains that the project would not exceed any threshold of significance related to particulate matter.

The 1994 ARM Plan PEIR analyzed the potential for air quality impacts resulting from trucks moving aggregate from distribution facilities to end use points, and determined that all such effects would be less than significant with continued implementation of BAAQMD and NSCAPCD rules and regulations. The proposed project does not alter or contradict that finding. The applicant's processing plant is within the City of Healdsburg rather than the unincorporated County. It operates under separate permits issued by other authorities, including the City of Healdsburg, the NSCAPCD, and the State Water Resources Control Board. The plant is supplied by multiple resources, including the applicant's vested rights for in-channel mining in the Middle Reach and its remaining terrace resources in the Middle Reach, and is not dependent on aggregate from the proposed project. The plant has and will continue to operate, and trucks have and will continue to serve the applicant's customers, regardless of whether this project is approved. Truck emissions from the plant are thus part of the existing condition, and their number, frequency, and length is determined by customer demand rather than the specific source of aggregates.

The comment also questions whether air pollutant emissions from the proposed project would be less than the No Project Alternative of importing the equivalent amount of gravel from out of the County. As explained in the Draft EIR and Chapter 2 and Appendix D of this Response to Comments Document, project emissions would comply with all thresholds of significance and would not result in any significant adverse impacts. By contrast, importation from outside the County would likely require barging and significant additional hauling by truck, both of which would generate potentially significant emissions of criteria pollutants and greenhouse gases. The Department of Conservation-California Geological Survey recently explained that "[t]ransporting aggregate from distant sources also results in increased fuel consumption, air pollution, traffic congestion, and road maintenance."

G-65 **Comment:** The Project DEIR shows that emissions in Sonoma County, not including up-wind sources, are 22.80 & 10.93 tons per day respectively for PM_{10} and $PM_{2.5}$. Using the DEIR figures of mining operations occurring over 110 days and the 75,000 tons per year project emissions of PM_{10} it appears that project level daily emissions of PM_{10} would be 682 tons per day of PM_{10}. Current sources according to the DEIR emit 22.80 tons per day of PM_{10} so adding 682 tons per day for the Project is a major significant impact that effects public health and has to be reduced. Even after mitigation is applied the Project would still generate over 357 tons per day of PM_{10}, which is still a 94 percent increase in PM_{10} emissions in a local are over levels

throughout the entire county! Since the exceedance of the threshold is so significant how can that impact meet Project objectives to avoid air quality impacts? How can such a major impact be the subject of overriding considerations? How can such a great impact to the public be in their best interest?

Response: As set forth in Chapter 2 of this Response to Comments Document, the applicant revised its project description following publication of the Draft EIR to eliminate the use of certain haul routes and propose the rocking of private haul routes through the vineyards. These changes necessitated a supplemental analysis of project-generated PM emissions, which determined that with mitigation, all project impacts related to PM_{10} and $PM_{2.5}$ emissions would be less than significant.

G-66 **Comment:** Although $PM_{2.5}$ is a subset of PM_{10} both are in non-attainment status for the region and $PM_{2.5}$ particles penetrate even deeper in lung tissue than PM_{10} so have far greater human and animal health impacts. Where are calculations, evaluation and mitigations for $PM_{2.5}$ that will be generated by the Project? Lastly, have any studies been conducted on PM_{10} effects on local wildlife? What would the effect of Project generated PM_{10} be on wildlife?

Response: The comment is incorrect in claiming that the NSCAPCD is in non-attainment for PM emissions. The District has never been classified as non-attainment for any federal standard. The District has been classified as attainment for the state PM_{10} standard since 2005, and was reclassified in April 2010 to attainment status for the state ozone standard. The District is currently classified as attainment for all federal and state ambient air quality standards.

With regard to emissions of $PM_{2.5}$, Appendix D of this Response to Comments Document is a supplemental analysis of project-generated PM emissions prepared in response to project changes proposed by the applicant. This analysis included an evaluation of $PM_{2.5}$ emissions. Appendix D notes that the NSCAPCD is in attainment for $PM_{2.5}$ and does not have a threshold of significance for project emissions. The adjacent Bay Area Air Quality Management District (BAAQMD) is in non-attainment for $PM_{2.5}$, however, and recently adopted a new threshold of significance of 10 tons per year (tpy). This new threshold does not apply to the proposed project, and appears conservative given that the NSCAPCD is in attainment for $PM_{2.5}$ and all other emissions. Appendix D nevertheless calculated $PM_{2.5}$ emissions resulting from the proposed project. As identified in Tables 5 and 6 of Appendix D, project emissions would be far below BAAQMD's 10 tpy threshold at all identified bars, and thus less than significant.

With regard to PM_{10} effects on local wildlife, the Draft EIR explains on page 3.7-12 that the Clean Air Act requires the U.S. Environmental Protection Agency (EPA) to set primary and secondary national ambient air quality standards (NAAQS) for criteria pollutants considered harmful to public health and the environment, including PM_{10} and $PM_{2.5}$. Secondary standards set limits to protect public welfare, including protection against damage to animals, crops, vegetation, and buildings. These secondary standards explicitly consider effects on wildlife.

As discussed in Chapter 2 and Appendix D of this Response to Comments Document, and Response to Comment G-64, the proposed project would not exceed any threshold of significance for PM_{10}, $PM_{2.5}$, or any other air pollutants. The project thus would not result in significant adverse impacts to wildlife.

G-67 **Comment:** Any reliance on ARM Plan PEIR evaluation and mitigation of air quality impacts preceded today's understanding of the significance of GHG's and Climate Change. It is still not clear that current and proposed regulations governing GHG's would result in reducing climate change impacts to less than significant. Mobile construction equipment is a major source of GHG's and it is not clear that proposed mitigations will reduce this impact to less than significant.

Response: On June 2, 2010, the Bay Area Air Quality Management District's Board of Directors unanimously adopted the proposed CEQA threshold of significance discussed at pages 3.7-20, 3.7-21, and 3.7-33 of the Draft EIR. Adoption followed a multi-year review and comment process in which the District held ten public workshops and another ten local agency staff workshops, published five iterations of the threshold for review and comment, and responded to all comments received before May 25, 2010. Compliance with this threshold is one method of ensuring that a project's greenhouse gas (GHG) emissions and contribution to global climate change would be less than significant.

As discussed at paged 3.7-33 to 3.7-34 of the Draft EIR, modeling of the worst-case emissions found that the project would result in approximately 958 metric tons per year (MY/y) of CO_2e, below the 1,100 MT/y threshold. As a result, project emissions would be less than significant. In addition, the proposed project would likely reduce GHG emissions as compared to the No Project Alternative or a reduced project alternative, by providing a local source of aggregate that would otherwise come from more distant sources by barge and/or truck, and thus help rather than hinder the state's goal of reducing GHG emissions.

Even though project emissions are less than significant, the Draft EIR imposes seven separate measures to further reduce CO_2e emissions. Those measures are discussed further in Response to Comment G-68.

G-68 **Comment:**
Mitigation Measure 3.7-5

The proposed mitigation for climate change includes a Greenhouse Gas Reduction Plan to conform to the 25% reduction mandated by the Sonoma County General Plan, In the DEIR it states that the plan will be developed in the future. It is illegal to defer mitigation and this plan should be developed prior to completion of the FEIR so that the public is fully informed about the projects effects.

Response: Please see Response to Comment G-67. As discussed therein, CO_2e emissions from the proposed project are nearly 150 tons per year below the relevant threshold of significance adopted by the unanimous Bay Area Air Quality Management District Board of Directors on June 2, 2010. The Draft EIR nevertheless imposes seven separate measures to further reduce CO_2e emissions. These measures are not necessary to reduce project impacts to less than significant, or otherwise comply with CEQA. (*See* CEQA Guidelines, § 15126.4, subd. (a)(3) ["Mitigation measures are not required for effects which are not found to be significant"].) They are extra measures that reflect the County's policy goal of reducing CO_2e emissions as much as possible, even if already less than significant on a project level. As a result, the measures do not constitute improper deferred mitigation under CEQA.

In addition, the required Greenhouse Gas Reduction Plan would not constitution improper deferred mitigation even if it were imposed to mitigate a significant impact to a less than significant level. CEQA recognizes that it may be impractical to devise or define the specifics of a mitigation measure early in the planning process. CEQA therefore allows agencies to defer those specifics so long as agencies "specify performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way." (CEQA Guidelines, § 15126.4, subd. (a)(1)(B).)

The identified measure meets that requirement. It imposes a specific, objective performance standard—a 25 percent reduction in the project's CO_2e emissions. Meeting this standard may be accomplished in more than one specified way, including but not limited to purchasing lower-polluting equipment, using low-sulfur fuel, properly tuning and maintaining all equipment, and/or implementing other control measures or technologies that become available during the permit term. It is impractical to require the applicant to develop this plan at this early stage in the planning process, before the project has even been heard by the Planning Commission or Board of Supervisors, much less approved. The Draft EIR therefore identifies feasible options and methods that may be employed, imposes a specific performance standard, and commits the applicant to further reducing its less-than-significant CO_2e emissions.

G-69 **Comment:** One potential mitigation for all GHG impacts would be to limit the transport to aggregate to the area most efficiently served by local sources. By limiting or prohibiting exports to points of use beyond 20 miles it would greatly mitigate impacts from GHG emissions. Why hasn't the Project proposed such mitigation and if not how does the project propose to mitigate GHG emissions?

Response: Please see Responses to Comments G-67 and G-68. As stated therein, project emissions are already below the relevant threshold of significance adopted by the Bay Area Air Quality Management District (BAAQMD) Board of Directors. As a result, it does not appear necessary to limit the project's sales radius to 20 miles or any other arbitrary number. Please also see Response to Comment G-4 with regard to local demand and service area.

G-70 **Comment:** How will public complaints about fugitive dust be addressed and what actions will be taken?

Response: Standard conditions of approval require that the project manager's contact information be posted on-site. This should include contact information that can be used for complaints about dust or for reporting an emergency after hours. The information will be posted in an area accessible to the public (i.e., at the intersection of private haul routes and public roadways where active mining is occurring). If a complaint is received then PRMD staff will investigate. If such investigation indicates that the project has or may have generated excessive dust, then the applicant shall identify any additional dust mitigation measures. The owner/operator shall implement any additional mitigation measures. If violations are found, PRMD shall seek voluntary compliance from the permit holder and thereafter may initiate an enforcement action and/or revocation or modification proceedings, as appropriate.

G-71 Comment:

Impact 3.7-3 Exposure of Sensitive Receptors to Emissions of Toxic Air Contaminants

In the DEIR the analysis strictly focuses on human health impacts, what studies or evaluation was performed on impacts from Toxic Air Contaminants on wildlife along the river?

Response: Please see Response to Comment G-66. As discussed therein, project emissions would not exceed even secondary standards established by the EPA to protect wildlife.

G-72 Comment:
3.8 Aesthetics

Since the Project area is a major tourism destination that highly values the aesthetic of the Wine Country, how can the Project mitigate the significant impact to aesthetics from the daily haul truck traffic on major tourist roads? How can the project mitigate the loss to the aesthetic from clouds of dust from disturbing gravel bars or bicyclists having to avoid gravel dropped from haul trucks?

Response: Please see Response to Comment K-3. As explained therein, the project would not result in reduced tourism or other economic effects sufficient to cause any substantial adverse physical changes in the environment. The project proposes to remove not more than 350,000 tons of gravel per year during weekdays only. The project would not result in significant impacts from "clouds of dust" or dropped gravel. All project air quality and dust impacts have been mitigated to a less than significant level and Mitigation Measure 3.7-1 requires covering all loads or maintaining at least two feet of freeboard.

G-73 Comment:

4.2 Cumulative Impacts

Any PM_{10} violations that occur in winter indicate that local receptors are already stressed and any additional PM_{10} even during the summer months when levels might be lower is a cumulative impact in addition to already high winter PM_{10} levels. How will the project mitigate the PM_{10} emissions? In addition, other cumulative projects including the Shamrock Materials mining area in upper Alexander Valley and Syar Industries vested rights mining area in the middle reach need to be evaluated for all air quality issues including PM_{10}, GHG's and TAC's. Farming operations create a large amount of dust from plowing and tilling fields, equipment driven on dirt roads and other farming associated activities conducted primarily on unpaved roads. Have the PM_{10} impacts from farm operations in the project area been evaluated cumulatively with Project generated PM_{10}? Northern Sonoma County has many dirt roads that are used by rural residents and each vehicle trip on these roads generates dust & PM_{10}. Have the PM_{10} impacts from vehicle use on non-farm county roads been evaluated in addition to Project generated PM_{10}?

Response: As stated on page 1-16 of the Draft EIR, the proposed mining season would extend from June 1 to November 1. No mining would occur during the winter months.

As discussed in Chapter 2 of this Response to Comments Document, PM_{10} emissions would be less than significant on both a project-specific and cumulative level. The projects identified by the commenter are already analyzed as cumulative projects in Section 4.2 of the Draft EIR.

G-74 **Comment:** Most of the arguments for the project and addressing geomorphic impacts revolve around mining being the only solution for the problems in this reach from flooding and erosion and a feasible means to improve aquatic habitat. Looking at the past history of mining in this reach and following the logic above, if the current Project is approved it would lead to a strong likelihood that future mining projects will be permitted. This is a potential cumulative impact that is not disclosed or evaluated thus violating CEQA.

This project is being proposed as a solution to maintaining flood capacity and reducing erosion and the DEIR states that annual recharge will continue to occur, which over time will re-accumulate and create likely need to mine gravel again in the future as it has in the past. This and the fact that many REP features will need to be "maintained" points to the extreme likelihood that mining will continue in the future. Why hasn't the DEIR evaluated the impacts from continued mining in the future after expiration of the permit sought in this DEIR?

Response: The first sentence of the comment is unclear. The Draft EIR does not include any arguments for (or against) the proposed project. The Draft EIR instead provides an independent analysis that discloses, evaluates, and mitigates the project's potential environmental impacts, and describes potentially feasible alternatives to the proposed project, in compliance with CEQA. In addition, the EIR preparers are not aware that anyone has argued that mining is the "only solution" for existing flooding or erosion problems.

It is not true that approval of the proposed project would lead to a "strong likelihood that future mining projects will be permitted." Instead, page 5-1 of the Draft EIR explains that approval of the proposed project:

> would not approve any potential future mining project, nor compel any future County decisionmaker to ever doing the same. A future mining project would instead require a separate application and a separate, site-specific environmental review document, and would be subject to the unfettered discretion of the relevant decisionmakers. The decisionmakers would be free to either deny future projects, and/or impose conditions on them limiting their extent, reach, methods, or environmental impacts.

CEQA limits an EIR's analysis of cumulative impacts to past, present, and reasonably probable future projects. (CEQA Guidelines, § 15130, subd. (b)(1)(A); *Gray v. County of Madera* (2008) 167 Cal.App.4th 1099, 1127.) "Reasonably probable future projects" includes those for which an application for approval has been filed, or environmental review has begun, when the subject NOP was published. (*Gray*, 167 Cal.App.4th at 1127-28.) The hypothetical future projects identified by the comment have never existed, do not exist now, and may never exist

in the future. No application for them has ever been filed. Including them as cumulative projects would require the County and the public to guess at their proponent(s), timing, location, size, purported mining methods, potential equipment and haul routes, processing location, and many other important details. CEQA advises against that type of speculation. (CEQA Guidelines, § 15145.)

Instead, as noted above, approval of the proposed project would not increase the likelihood that any potential future projects will be permitted. Hypothetical future projects would require a separate application for use permit and other entitlements, a separate, site-specific environmental review document, and would be subject to the unfettered discretion of the relevant decisionmakers.

H. REDWOOD EMPIRE TROUT UNLIMITED

H-1 **Comment:** The Redwood Empire Chapter of Trout Unlimited has reviewed the Syar Alexander Valley Instream Mining Project and Sonoma County ARM Plan Amendments Draft Environmental Impact Report and has determined that it is inadequate for the following reasons. We recommend that the Planning Commission not approve the DIER until these issues have been addressed and provide more time for comment.

Response: The commenter makes a general comment that the Draft EIR is inadequate under CEQA and requests that the Planning Commission not approve it without revisions. This comment is noted. CEQA already requires revisions in a draft EIR where warranted by comments. The commenter is referred to the other responses that follow with respect to specific issues raised.

H-2 **Comment:** The draft plan does not adequately address the need for a Sediment Budget for the Russian River watershed although this has been continuously called for since before 1994. A Sediment Budget which was repeatedly proposed to be included in the Russian River Watershed Adaptive Management Plan, would identify the sources of sediment in the watershed and the existing barriers to their natural transport.

Response: The sediment "budget" idea for the Russian River is discussed at length in the 1994 ARM Plan, and was rejected as unmanageable due to the great variability in sediment flows from year to year in the Russian River. This is discussed on page 3.2-37 of the Draft EIR as follows:

> The ARM Plan evaluated several methods for managing aggregate resources including the establishment of a sediment budget. However, the ARM Plan rejected the use of sediment budgets to limit instream mining activities due to the inherent difficulty in accurately estimating the sediment yield and due to substantial natural fluctuations in the annual sediment recharge. Instead the ARM Plan relies on a "redline method," which requires the establishment of baseline elevations below which mining cannot occur in the mining reaches. Mining in subsequent years can only occur when there has been sufficient recharge above the baseline elevations. Annual monitoring of the Russian River has shown that the ARM Plan has been very effective at limiting mining to a sustainable yield of available recharge and minimizing the potential for down cutting of the riverbed from mining activities. However, the County's ARM Plan

standards conflict with the federal Guidelines for Sediment Removal from Salmonid Habitat (NOAA, 2004).

Please also see Master Response 3.

H-3 **Comment:** The Draft EIR has too small a focus only looking at impacts in the mining reach itself which has unnatural constrictions that restrict aggregate transport including the Geyserville Bridge, the Jimtown Bridge, and vineyard development in areas that were once River channel. Impacts above and below the mining reach have been ignored.

Response: See Master Response 3 and Responses to Comments G-34, G-38, and G-56 regarding the project's potential to result in downstream effects related to erosion and for sediment recharge.

Mitigation measures and monitoring measures extend well downstream from the mining reach. For example, Mitigation Measure 3.2-5 extends the monitoring requirements to approximately 2 miles downstream from the most downstream bar in the project for: gravel recharge rates, changes in sediment storage, bar area, channel stability, channel width, channel vertical stability (low flow water surface elevations and thalweg elevations), and pool depth (Draft EIR at page 3.2-50).

H-4 **Comment:** The EIR does not identify where the aggregate to be mined comes from or what the natural aggregate accumulation would be in the mining reach if numerous barriers to aggregate transport were not existing such as Coyote Dam, Warm Springs Dam and hundreds of small dams on the watershed tributaries.

Response: See Master Response 3 and Response to Comment G-3.

Sediment source identification is not relevant to the impact analysis. CEQA does not require the EIR to distinguish the origin of sediments in order to identify impacts and mitigations. Nor does CEQA require the EIR to determine how much sediment is trapped by Coyote Dam, Warm Springs Dam, or other unspecified dams in the watershed in order to understand the rate of sediment recharge in the Alexander Valley. The net rate of sediment recharge has been tracked and quantified, and is discussed in Master Response 3 and Response to Comment G-3, and this information is presented in the EIR.

H-5 **Comment:** The blockage of sediment transport by these dams has made the Russian River a "sediment starved" system according to Sonoma County's own report, "A History of the Decline of Salmonids in the Russian River". This report was published by the Sonoma County Water Agency in 1996. The Morphology chapter in this report has been purposefully ignored in this EIR. The SCWA document does not even appear in the list of publications reviewed in the 3.2 Geology, Hydrology and Water Quality section. This is intentional as the SCWA document makes it clear that aggregate mining in the Russian River is not consistent with salmonid species recovery and in fact has been a key factor in the decline of the Russian River's listed salmonids species: Chinook Salmon, Coho Salmon and Rainbow Steelhead Trout.

Response: Page 3.2-2 of the Draft EIR is hereby revised to add the following to the bulleted list of reviewed studies:

- A History of the Salmonid Decline in the Russian River (Steiner Environmental Consulting, 1996 for SCWA).

This study was inadvertently omitted from the reference list. The Draft EIR fully evaluates all of the past geomorphic changes to the Russian River discussed in the 1996 report, including channel incision, bank erosion, narrowing, and loss of floodplain connectivity (pages 3.2-1 to 3.2-29). The 1996 report references multiple land use changes in the Russian River watershed as the cause of these geomorphic changes, including dams, agriculture, urbanization, logging, and gravel mining.

It is very important to recognize that the geomorphic effects described in the 1996 report occurred prior to the 1994 ARM Plan. As discussed in the Draft EIR and Master Response 1, gravel extraction rates have decreased substantially since the 1994 ARM Plan became effective. The 1996 SCWA report states that 726,500 tons of gravel was harvested in the Alexander Valley between 1982-1991 (Steiner, page 3.4-2) and the Draft EIR explains that gravel extraction in the Alexander Valley removed an average of 680,00 tons per year from 1981 to 1993, with rates over 900,000 tons in several years. By contrast, the average rate of extraction in the combined upper and lower Alexander Valley since the 1994 ARM Plan has been in effect (1994-2008) is about 200,000 tons per year (Entrix, 2010).

It is also very important to recognize that not only has the amount of extraction decreased substantially since 1994, but the manner in which the gravel is extracted is very different. As discussed in the Draft EIR and Master Response 1, gravel mining was largely unregulated from the 1940s to the 1980s. Prior to 1994 there were periods when the Middle Reach was dredged by removing sediments directly from the low-flow channel, lowering the thalweg and directly incising the channel bed. Bars were “flat-topped” to the low-flow water surface elevation in both the Middle and Alexander Valley Reaches. The 1994 ARM Plan required identification of new, baseline bar elevations, prohibited excavation below the baseline elevation, and established buffer requirements at the heads and sides of bars to protect the geomorphic form of the bar-pool-riffle complex and maintain sediment transport processes.

The concept that the Russian River is a “sediment starved system,” as presented in the SCWA report, may have been accurate at that time, but its conclusions have been updated by more recent data and different mining conditions after 1994. The Draft EIR explains that annual monitoring shows that the ARM Plan has been very effective at limiting mining to a sustainable yield of available recharge and minimizing the potential for down-cutting of the river bed from mining activities. A sediment starved system does not re-aggrade bars with over 1 million cubic yards of sediment in the Lower Alexander Valley alone and over 2.5 million cubic yards in the Middle Reach since 1994, during which time there was ongoing gravel extraction (see Response to Comment G-34 and Master Response 3). The 1996 SCWA report states that:

> In the Alexander Valley Reach, an average of 726,500 tons of gravel per year were extracted between 1982 and 1991. This extraction led to an average sediment loss in the reach of 630,000 tons per year. From 1991 to 1995, an average of 496,000 tons of gravel per year were extracted, leading to a sediment loss of 395,000 tons per year (Sonoma County, unpublished data).

Based on the SCWA data cited above, the average annual rate of recharge in the Alexander Valley would be approximately 100,000 tons per year, which is about the rate cited in the 1994 ARM Plan. However, measurements of sediment accumulation rates in the Alexander Valley since 1994 (as required by the 1994 ARM Plan) indicate that the recharge rate is closer to 350,000 tons per year (see Response to Comment G-2) and is proved by the fact that gravel bars have re-aggraded with stored sediment.

H-6 **Comment:** The "Hungry Water" concept is also inadequately addressed in the draft EIR. This is the condition where barriers to sediment transport such as the Russian River's dams reduce the sediment load in the River to a level far below normal for the River's power to move sediment. The River is "hungry" for additional sediment to be in balance with it's the energy during its winter high flow. The River recovers this sediment to regain its balance by eroding stream banks and downcutting tributary streams. In this way, gravel mining adds to the problem of bank erosion by removing sediment from a "sediment starved system". The Russian River is starved for "good" sediment, gravel and cobble that are important habitat for the macro-invertebrates that are salmonids primary food source. Clean plentiful aggregate is also necessary for salmonids redds in which they lay their eggs. The Russian River is actually "impaired" or polluted by "bad" sediment. That is fine sediment that clogs gravel beds, causes imbeddedness and smothers salmonids eggs and eliminates macro-invertebrate habitat.

Response: See Master Response 3, and Responses to Comments G-34 and G-38.

The DEIR discusses in detail the concept of "hungry water," beginning on page 3.2-57. The comment is incorrect in claiming that "hungry water" is "the condition where barriers to sediment transport such as the Russian River's dams reduce the sediment load in the river to a level far below normal for the River's power to move sediment." In fact, hungry water is the condition in which the sediment supply of a river has been reduced to the point that the river begins to accelerate erosion of its own bed and banks. This accelerated erosion is due to the excess energy the river would have expended transporting the available sediment supply.

H-7 **Comment:** This problem is not adequately addressed in the draft EIR including its impacts of the tributary streams in this reach including Gill, Miller, Rancheria and Gird creeks. Down cutting in these tributaries would be damaging to threatened and endangered salmonids populations. Such downcutting is found is streams in the middle reach of the Russian River where Syar continues to mine Bar 2 and Bar 13. Laurel Marcus has documented the effects in a report on the downcutting in "Pistol" Creek which flows past Hop Kiln Winery. This property recently lost a bridge to the 10 foot head cut that has been working its way up the stream. Tributary streams on the west shore of the Russian River in the Middle Reach have stream beds that are 10 above the river today. Box culverts suspended well above the River testify to the falsehood found in 3.2-58 where it is stated that, "the river has largely recovered from these past mining practices". Tell that to migrating salmonid trying to figure out how to jump into a box culvert suspended 10 feet above the River in the Middle Reach.

Response: Absent proper controls, mining projects on the Russian River can affect tributary streams. The Russian River is the "master stream" of the region, and its elevation controls the elevation of the junction of its tributary streams. Streams and

their tributaries meet each other with accordant junctions (referred to as Playfair's law of accordant junctions). A tributary stream will join the master stream at the same elevation. Therefore, a change in the elevation of the master stream will induce a change in the elevation of the junction of the tributaries. If the bed of the master stream drops in elevation, the tributary stream will erode its bed at its mouth in order to maintain its equilibrium and the accordant junction. The tributary will then begin to cut upstream towards its head (that is, headward erosion occurs).

This process of tributary incision is known to have occurred in the Middle Reach of the Russian River. It was likely a response to gravel mining methods (and other land uses) prior to implementation of the 1994 ARM Plan. In particular, from 1940 to 1970 the Basalt Rock Company directly dredged 8 miles of the stream bottom to 30-foot depths. Streambed topographic surveys conducted by the Army Corps of Engineers between 1940 and 1972 show streambed incision up to 18 feet along the Middle Reach. Bar skimming practices in the 1970s and 1980s also removed large volumes of gravel from the Middle Reach and upstream areas. Tributaries have incised in response to the legacy effects of past mining practices, as they attempt to establish a new grade in equilibrium with the lowered Russian River streambed.

The key to preventing new headward erosion of tributary streams in reaches downstream from the proposed project is to ensure vertical channel stability in the Russian River. The Draft EIR explains that thalweg elevations have been stable and increasing after PRMD halted DeWitt from over-mining bars within its permitted area in 2001, and the data shows an increase in thalweg elevations since mining last occurred in 2002. (Page 3.2-24, -26; Figures 3.2-4, -5, and -6.) The Draft EIR similarly notes that the former DeWitt section has been vertically stable since 2003. (Page 3.2-26.) The standards of the existing ARM Plan thus appear to have been effective at maintaining channel stability and detecting any dramatic change in the thalweg elevation, especially incision (dropping elevation) of the bed. The Draft EIR further indicates that sediment recharge in both the Lower Alexander Valley and Middle Reach have been keeping pace with gravel removal. When sediment recharge is occurring, there is very little risk of reach-wide channel incision on the mainstem Russian River, or on the tributaries in response to mainstem bed lowering, other than relatively small fluctuations around a mean elevation (i.e., dynamic equilibrium).

The proposed project would not result in substantial incision of the river with implementation of Mitigation Measure 3.2-2 (head of bar buffer), Mitigation Measure 3.2-3 (side bar buffer), Mitigation Measure 3.2-4 (outer bank buffer), and Mitigation Measure 3.2-5 (Adaptive Management Strategy) and particularly Mitigation Measure 3.2-5b (channel vertical stability). The potential for impacts associated with erosion and channel vertical stability thus would be less than significant with implementation of the mitigation and Adaptive Management Strategy. As a result, the proposed project would not result in significant headward erosion at tributary creeks or streams, or barriers to anadromous fish passage up or down those creeks and streams.

It may be important to note that tributary creeks are subject to other forces that can result in incision and headward erosion independent of any mining. Should they occur, such effects would not be related to the project.

H-8 **Comment:** The words Chinook, Coho and Steelhead do not appear in the Sonoma County PRMD Staff Report on the Syar Draft EIR. This is unexpected as these species were listed under the Endangered Species Act as follows:

- Chinook Salmon, 1999 federally listed as Threatened.
- Coho Salmon, 1996 federally listed as Endangered, 2005 State listed as Endangered.
- Rainbow Steelhead Trout, 2000 federally listed as Threatened.

The proposed mining will occur in the Critical Habitat of these three species but the PRMD Staff Report does not even include mention of this important consideration to the appropriateness of this project.

Response: This comment is noted. It does not address the adequacy of the Draft EIR. The staff report merely summarized the Draft EIR. The Draft EIR identifies the three species by name, discloses and analyzes all potential impacts, and determines that with mitigation the proposed project would result in no significant adverse impacts. Some impacts would be beneficial to the salmonoid species of concern.

H-9 **Comment:** The mining that has occurred upstream from this project by Shamrock has not been analyzed in this Draft EIR although it acknowledges that the area from Sulphur Creek to Jimtown Bridge constitutes the same Alexander Valley reach of the River. The cumulative effects of past and proposed future Shamrock mining must be evaluated in any EIR on mining in the Alexander Valley reach of the Russian River. This EIR does not do that.

Response: The comment is incorrect. The Draft EIR identified Shamrock's instream mining as part of the cumulative setting (page 4-3), and analyzed its cumulative effects throughout Section 4.2, Cumulative Impacts. The Draft EIR specifically discussed the Shamrock project and its potential contribution to cumulative impacts at pages including 4-9, 4-11, 4-12, 4-13, 4-17, and 4-18.

H-10 **Comment:** Returns of Chinook salmon have been declining since the Shamrock mining was done in the Alexander Valley reach but that is not addressed in this Draft EIR. Large runs of Chinook Salmon were reported in the Smith and Columbia Rivers this year makes claims that poor "ocean conditions" effected Russian River Chinook returns questionable. Smith River, Columbia River and Russian River Chinook Salmon live in the same Pacific Ocean. Degradation of fresh water Critical Habitat is the more likely reason for the Chinooks poor returns to the Russian in recent years. The impact of the Shamrock mining on the Chinook returns is not addressed in the Syar Draft EIR although it is extremely relevant.

Response: The Draft EIR does address potential impacts to Chinook and other listed fish species, and includes Mitigation Measure 3.4-5a (page 3.4-15) that requires pre- and post-mining surveys of pool and riffle habitat (including redd counts for salmonid species), performance criteria to protect listed fish species, and adaptive management measures to meet the performance criteria and avoid adverse impacts. The impacts of past and present activities, including the Shamrock mining, have all contributed to the conditions described in the setting. Section 4.2 of the Draft EIR, Cumulative Impacts, evaluates the effects on fisheries resources of cumulative activities including the Shamrock mining.

The Draft EIR states in Section 3.4 that habitat conditions and the resulting Russian River fish community, including Chinook salmon, are affected by numerous natural and human-caused influences (see pages 3.4-2 through 3.4-4 and 3.4-6 through 3.4-9). These influences include natural precipitation and flow patterns, the construction and operation of dams, vineyard development, gravel mining, and the introduction of nonnative species. Varying ocean conditions also affect all anadromous salmonids, including Russian River Chinook salmon.

In regard to the comment regarding the decline of Chinook salmon, the most recent and comprehensive information on this subject can be found in a five-year Sonoma County Water Agency study of Chinook salmon spawning in the Russian River, including the Alexander Valley reach, from 2002-2007 (SCWA 2008). The survey identified primary Chinook salmon spawning areas in the upper Russian River from Alexander Valley upstream to Ukiah Valley and in Dry Creek. The highest abundance of redds in 2007 were in the Alexander Valley and Canyon reaches along the Russian River mainstem and Dry Creek reach. During the survey period, the Ukiah reach was the most productive for Chinook salmon along the mainstem. Below-normal rainfall in 2007 resulted in reduced water releases from Coyote Valley Dam at Lake Mendocino that may have influenced the distribution of spawning in upper Ukiah reach. The reduced storage of water in the lake also appeared to have increased turbidity of released water from the dam that may have influenced spawning in the upper Ukiah reach, as well as reduced detections of redds in the field. Redd abundance in the Lower Healdsburg and Upper Healdsburg reaches was very low. This is consistent with the observation of riffle habitat with substrate suitable for Chinook salmon spawning occurring primarily above Upper Healdsburg reach and in Dry Creek reach. Chinook salmon redds were typically concentrated in the Ukiah and Dry Creek reaches near the termini with dams. Releases of relatively cool, high flows of water from these dams are strong attractants for migrating Chinook salmon. Also, the gradient and relatively higher flows appear to provide good spawning substrate in these reaches, although substrate particle size and embeddedness in these reaches have not been quantified.

Overall there appears to be a marked increase in the number of spawning Chinook salmon since the 1980s, when Chinook salmon were considered nearly extirpated from the Russian River watershed. The SCWA study documented between 600 and more than 1,000 annual redds in the upper Russian River basin. Although Chinook salmon numbers have increased over historic accounts, there was a decrease in the observed number of Chinook salmon redds from 2002 to 2006. However, SCWA stated that it is probably not prudent to conclude that this represents a decline in Chinook salmon.

SCWA noted several factors that could explain the 2002-2006 decrease in Chinook salmon redds given the marked increase in spawning Chinook since the 1980s. The SCWA study likely did not detect all redds deposited, so the results may not be an accurate assessment of the true redd production. In addition, the pattern in the number of redds observed may be related to the natural cycle in fish populations. Fish species with a high fecundity and low survival rate, like Chinook salmon, naturally fluctuate over time. Reproduction in salmon can have “bust” and “boom” years due to a variety of environmental factors that influence the survival of offspring. In a species where females deposit 1,000s of eggs (Moyle 2002) and typically have a survival rate of less than one percent (Bradford 1995), an increase in survival of just

one percent can result in a huge number of spawning salmon when these fish reach maturity.

As stated above, the Draft EIR does address potential impacts to Chinook, and determined the impact to the species, with mitigation, to be less than significant.

H-11 "**Comment:** Habitat typing" of the Alexander Valley reach of the Russian River is proposed in the Draft EIR and is something that should be done as soon as possible by DFG with or without this project as it has been done on almost all Russian River tributaries in recent years. The exception is Austin Creek below Ward Creek where gravel mining has also been permitted in recent years. "Habitat typing using the DFG protocol is fundamental to evaluation of salmonids habitat conditions and changes over time.

Response: The commenter notes that "habitat typing" of the Alexander Valley Reach of the Russian River should be done as soon as possible and, indeed, is proposed in the Draft EIR. This comment is noted. The remainder of the comment seems aimed at the Department of Fish and Game (DFG), and urges DFG to conduct habitat typing with or without the proposed project. These comments do not address the adequacy of the Draft EIR, but will be referred to DFG, which is a responsible and trustee agency for the proposed project (see page 1-74 of the Draft EIR).

H-12 **Comment:** Areas of the proposed mining reach have much better habitat conditions than others but this is not addressed in the Draft EIR. The reach from Gill Creek to the Jimtown Bridge is in much better condition than the areas upstream. In this reach riparian tree canopy extends over and cools the River's water and the channel is deeper. Between the Geyserville Bridge and Gill Creek the River is shallow warm and would not support cold water species. This is not discussed in the Draft EIR and how the narrow channel with adequate tree canopy must be restored in the entire Alexander Valley reach if we are to make progress on salmonid recovery.

Response: The comments are somewhat confusing because the reach from Geyserville Bridge and Gill Creek (described as shallow and warm water habitat conditions) lies within the reach from Gill Creek to Jimtown Bridge (described as cold and deep water habitat conditions). Habitat conditions, including seasonal species-specific habitat functions, throughout the project area are described in Section 3.4 of the DEIR (see pages 3.4-2 through 3.4-4).

H-13 **Comment:** The Russian River is impaired by many factors including temperature, fine sediment and mercury. The Draft EIR does not address how this project will address those conditions in the project reach.

Response:
<u>Temperature</u>

The Draft EIR acknowledges the impairment of the Russian River for temperature (pgs. 3.2-34, 3.4-3). Potential causes of temperature impairment include flow regulation/modification, habitat modification, and removal of riparian vegetation. The Draft EIR states that instream mining operations could alter the natural geomorphic characteristics of the channel, creating a wide, shallow low-flow channel with elevated water temperatures, reduction in pools and riffles, and generally simplifying

channel complexity needed for fish habitat. The Draft EIR includes extensive mitigation and monitoring requirements to address changes to the geomorphic characteristics of the channel that could give rise to increased temperatures (see Section 3.2 of the Draft EIR). In addition, the Draft EIR discusses the project impact of removing overhead vegetation and instream woody material, thereby reducing channel shading and resulting in increased water temperatures. The project includes measures designed to prevent and minimize the loss or degradation of riparian vegetation, overhead cover, and instream woody debris, including the transplanting of large stands of riparian vegetation, revegetation of mined areas, and additional planting of riparian forest as part of the River Enhancement Plan. With implementation of these mitigation measures, the project will have a less than significant impact on temperature of the Russian River.

Fine Sediment

The Draft EIR acknowledges the impairment of the Russian River for sediment (pgs 3.2-32 to -34). As stated on page 3.2-39 of the Draft EIR, instream mining operations could lower the channel thalweg elevation, resulting in incision, over-steepening of streambanks and increased bank erosion that would affect channel stability and potentially impact water quality by increasing fine sediment loads in the Russian River and its tributaries. Section 3.2 of the Draft EIR includes extensive mitigation measures and monitoring requirements to address the potential for erosion and the associated sediment deposition in the river. With implementation of these mitigation measures, the project will have a less than significant impact on sedimentation in the Russian River.

Mercury

The comment is incorrect; the Russian River is not listed under Section 303(d) of the Clean Water Act as impaired for mercury (North Coast Regional Water Quality Control Board, 2010). Please see Response to Comment H-17 for more information.

H-14 **Comment:** Reducing temperatures will require healthy wide riparian forests along the River which is inconsistent with bar skimming. A 200 foot wide setback from the mainstem of the Russian River is needed as a minimum to allow for the return of riparian forest and its critical function in salmonids habitat. A 200 foot setback along the Russian River mainstem was recommended by the Sonoma County Planning Commission and the Citizen's Advisory Committee during the Sonoma County 2020 General Plan process. Salmonid recovery will not happen with adequate riparian forest in the hot Alexander Valley for water temperature control. The NMFS Coho Recovery Plan makes note of the problem of high ambient temperatures in the Alexander Valley. An 80% tree canopy over the water will be necessary to reduce water temperatures and eliminate the temperature impairment. This is not discussed in the Draft EIR.

Response: The Draft EIR acknowledges at 3.3-38 and 3.3-39 that the project may result in removal of riparian vegetation from proposed benching areas and the downstream two-thirds of the mined gravel bars, and that riparian vegetation may be removed for the access roads down the bank of the river. The project site is located within the MR (Mineral Resource) combining district, and designated in the ARM Plan for instream mining, both of which allow skimming even within the setback

areas as long as environmental review is carried out and appropriate permits are obtained. See also Sonoma County Code 26-66-030(c)(4).

See Response to Comment H-13 for a discussion of water temperature impairment of the Russian River.

H-15 **Comment:** Fine sediments will be added to the River in the wake of bar skimming the aggregate off the bars leaving the fine sediment exposed. This condition was observed on Bar 2 after Syar mined it recently. This fine sediment is washed into the River during high flows and fills the pools downstream of the mined bar. This EIR does not address that.

Response: See Response to Comment G-44.

There is no data to support the claim that fine sediments washed off mined bars (or even un-mined bars) fills in pools downstream of the mined bars on the Russian River. Monitoring of turbidity and total suspended solids conducted in response to the Regional Water Quality Control Board 401 Water Quality certification for mining in the Middle Reach found no consistent trend of either increased or decreased suspended sediment or turbidity downstream of skimmed bars (see pages 3.2-63 and 3.2-64).

Mitigation Measure 3.2-2 (Head of Bar Buffer) and 3.2-3 (Side Bar buffer) (page 3.2-64) reduces the risk that fine sediment will be entrained from the bar surface and potentially deposit in pools. Additionally, Mitigation Measure 3.2-5e (pg 3.2-54) requires monitoring of pool depths so that any potential for increase in fine sediment deposition in pools would be detected and addressed. Mitigation Measure 3.4-5a Riffle and Pool Habitats Monitoring (page 3.4-15), requires riffle substrate grain size distribution monitoring and performance criteria that prohibit an increase in fines by more than 5% of baseline.

H-16 **Comment:** It also does not discuss “V Star” sediment testing of the downstream pools. V Star is the accepted protocol for measuring fine sediment in pools but it does not receive mention in the Draft EIR.

Response: The Lisle and Hilton (1998) V* (v-star) methodology is one method that can be used to account for the amount of sediments depositing in residual pool volume. This is not the only methodology, however, and the Draft EIR requires monitoring by directly measuring pool volumes in the mining reach as well as upstream and downstream of the mining reach. This measure would detect changes in pool volume without requiring a more costly V* methodology that would be very challenging to implement on very large, deep pools that are not wadable, as is the case for some pools of the Lower Alexander Valley. In fact, Lisle and Hilton (1998) state that “For reconnaissance, one can use visual estimates of V* to evaluate the relative abundance of excess fine bed material.” Monitoring the pre- and post-mining pool depths using closely spaced depth measurements in both the immediate bar mining area and over the entire permitted reach (see Draft EIR page 3.2-54) would produce substantially more detailed and quantifiable information than the visual reconnaissance method that is recommended by Lisle and Hilton.

H-17 **Comment:** The Russian River is also impaired by Mercury which is a troubling condition given the River is the drinking water source for 600,000 Californians.

Removing the aggregate from gravel bars can facilitate the mobilization of mercury on these bars into the water during high flows. Bar skimming can also facilitate the conversion of mercury to methyl mercury, its most hazardous form. This has not been addressed in this Draft EIR.

Response: As stated in Response to Comment H-13, the Russian River is not listed under Section 303(d) of the Clean Water Act as impaired for mercury.

Alluvium deposited along the Russian River could include some mercury-containing minerals from naturally occurring exhalative mercury deposits (also known as silica-carbonate mercury deposits) in up-gradient California Coast Range watersheds. The potential sources of these deposits have not included sufficient mercury to impair the Russian River or result in water quality impacts for the following reasons.

Historic mercury mining likely did not contribute substantial mercury to Russian River alluvium for two reasons. First, most of the mercury mineralization is in the form of relatively insoluble cinnabar (mercuric sulfide), which is highly stable and relatively insoluble (for examples, see Bailey and others, 1973; and Albers, 1981). Therefore, it is unlikely that the alluvium that would be mined by Syar would be a substantial source of environmental mercury.

In addition, geothermal vents and thermal springs have been cited as potential sources of mercury. However, geothermal systems in the northern Coast Ranges, such as the Geysers, are dry steam systems in which mercury is emitted as a vapor and is not dissolved in geothermal water. The Geysers and similar geothermal systems have steam condensates with mercury concentrations ranging from 0.7 to 12.8 parts per billion. Recoverable condensates are reinjected to great depth with no discharge to surface water (Robertson and others, 1997).

Human-related sources of mercury include coal combustion, chlorine alkali processing, waste incineration, and metal processing (U.S. Geological Survey, 1997). Mercury discharged from industrial facilities travels for miles and enters aquatic ecosystems via atmospheric deposition. According to the U.S. Geological Survey, the ultimate source of mercury to most aquatic ecosystems is deposition from the atmosphere, primarily associated with rainfall (U.S. Geological Survey, 1997).

Methylation is a product of complex processes that move and transform mercury. Once in surface water, mercury enters a complex cycle in which one form can be converted to another. Mercury attached to particles can settle onto the sediments where it can diffuse into the water column, be resuspended, be buried by other sediments, or be methylated. Methyl mercury can enter the food chain, or it can be released back to the atmosphere by volatilization. Under certain environmental conditions (low dissolved oxygen and the presence of sulfate and organic material), inorganic mercury can be converted to methylmercury, a toxic form of mercury that poses a toxicological risk to aquatic life and humans (U.S. Geological Survey, 2010). Environments that exhibit these characteristics and are known to favor the production of methylmercury include certain types of wetlands, anaerobic conditions common in lake sediments, dilute low-pH lakes in Northeast and Northcentral United States, parts of the Florida Everglades, newly flooded reservoirs, and coastal wetlands, particularly along the Gulf of Mexico, Atlantic Ocean, and San Francisco Bay. (U.S. Geological Survey, 2000 and 2008).

The Russian River is not listed under Section 303(d) of the Clean Water Act as impaired for dissolved oxygen, and does not generally provide the anaerobic conditions under which inorganic mercury is converted to methylmercury, the form of mercury that undergoes bioaccumulation in aquatic organisms and humans.

As stated on page 1-15 of the Draft EIR, the proposed project would involve transplanting riparian vegetation, relocating large woody debris, removing giant reed, installing river crossings, skimming sand and gravel, salvaging and reusing soil, and removing crossings and mechanical equipment at the end of each mining season. These activities are not expected to alter conditions in the river in a manner that would facilitate methylation. Dissolved oxygen levels in the river would be expected to remain the same as existing conditions.

The proposed river enhancement activities would create oxbows and alcoves along the river with low flows, little inflow and potentially lower dissolved oxygen levels, which could provide the anaerobic conditions that allow methylation to occur. These activities would not significantly increase methylation in the river, however, due to the low levels of mercury in the river and the fact that most mercury in the alluvium deposits are in the form of cinnabar, a stable and relatively insoluble material.

H-18 **Comment:** The EIR proposes that Syar will pay for a Mitigation Enhancement Plan but does not discuss the fact that Syar has refused to pay the money it has owed to the Russian River Mitigation Fund since its purchase of Dewitt years ago. It now proposes to not pay into the Mitigation Fund at all for this project.

Response: The comment is incorrect. The Draft EIR explains at pages 1-55 and 3.2-60 that the applicant has requested a waiver of the $82,006 owed for the DeWitt mining project. The applicant is proposing to implement a River Enhancement Plan in lieu of paying the DeWitt fees and in lieu of paying into the Russian River Mitigation Fund for the proposed mining project. Enhancement activities can be implemented more economically and efficiently at the time mining is occurring in those areas of the Russian River where enhancement projects are proposed. This would result in real work being done in a time relative to the project, rather than waiting for adequate funds to accumulate.

Please also see Response to Comment G-15 also.

H-19 **Comment:** The failure of these bar skimming techniques on the LP Bar upstream which was over-mined by Shamrock is not discussed in this EIR even though this project would leave less of the bar head than is required by the ARM Plan. Over-mining of the LP Bar led to collapse of the bar head and serious braiding of the stream. This was just the sort of impact that was predicted for the Shamrock project which was permitted with a Mitigated Negative Declaration. On the LP Bar, this turned into an unmitigated disaster. The Draft EIR proposes that a wider buffer on the bar edge will prevent this from happening in the Syar project but does not say how reducing the head of the bar from 1/2 to 1/3 in violation of the ARM Plan will prevent this from happening.

Response: The comment is incorrect in claiming that the Draft EIR did not discuss the "Over-mining of the LP [Louisiana Pacific] Bar [that] led to collapse of the bar head and serious braiding of the stream." The Draft EIR specifically discussed the changes at the LP Bar and its relationship to the proposed ARM Plan amendment to

allow less than ½ of the bar head as a buffer, but only under conditions that the head of bar buffer is at least 8 feet above the low flow water surface elevation (Draft EIR at page 3.2-45 to 47).

It is also incorrect to state that the "Draft EIR proposes that a wide buffer on the bar edge will prevent this from happening in the Syar project." As stated in paragraph above, it is the minimum bar head buffer height and the side bar buffer width that are the basis for protecting the bar form, not just the side bar buffer requirements.

H-20 **Comment:** The Syar Plan also violates the ARM Plan by proposing a 15 year term when 10 years is maximum. The Draft EIR does not describe the long deliberations and reasoning behind the ARM Plan's 1/2 of the bar head requirement or the 15 year term requirement. Why were these requirements considered a good idea in 1994 but not now?

Response: The comment is incorrect. The project proposes an amendment to the ARM Plan. It is not a violation of the ARM Plan to propose an amendment to the Plan. The Draft EIR identifies and evaluates the potential impacts of the permit term and head of bar requirement at length. The Draft EIR includes Alternative 2, which compares the project to the existing ARM Plan, and Alternative 3, which specifically compares the project to the 10 year time-frame.

H-21 **Comment:** Adaptive Management "as proposed by Syar" is accepted as mitigation by this Draft EIR. There is a failure to discuss why the Russian River Adaptive Management Plan, which went through years of taxpayer, sponsored development and a 10 year multi-stakeholder process never was completed or implemented. The Plan would have provided guidelines for projects such as this but was left unsupported and has disappeared. The failure of such attempts at adaptive management for the Russian River watershed is not discussed in this EIR.

Response: The Adaptive Management Plan was not imposed as mitigation, rather it is proposed as part of the project. The Draft EIR identified and analyzed all the potential impacts of the proposed project, including its proposed Alternative Management Strategy, and imposed many performance criteria and mitigation measures that expand the adaptive management concept. These add additional measurements and monitoring tasks, add performance criteria for determining the success of various parts of the mining techniques, and maintain the County's authority to stop mining in response to data indicating that potential damage to the river, habitat, vegetation, or fish and wildlife may be occurring or have occurred.

The Russian River Watershed Adaptive Management Plan is an Army Corps of Engineers plan that has never been approved and still seems to be in the planning stages. The website where information on this plan is posted has not been updated since 2007. The plan focuses on the entire Russian River Watershed from Mendocino County to the coast. The Draft EIR explains at page 5-2 that the proposed ARM Plan and SMARO amendments were developed in consultation with the resource agencies, including the Army Corps. The Army Corps has not identified a conflict with the draft Russian River Watershed Adaptive Management Plan.

H-22 **Comment:** "Extensive monitoring" is proposed for mitigation in this plan but we have seen the emptiness of this promise at both the Shamrock mining site where lack of monitoring led to the failure of the LP Bar and at the Austin Creek mining project

where the "extensive annual monitoring" was slapped together just before a recent meeting on the Syar project only because its existence was questioned during the comment period on renewal of the Austin Creek mining permit. The extensive annual monitoring reports were not available during the NCRWCB permit comment period because they had never been done. A report covering the entire 5 year project was produced after the NCRWCB comment period was closed. This Draft EIR does not discuss the sad history of previously promised "extensive annual monitoring" and the complete disinterest in monitoring by the responsible agencies, Sonoma County PRMD and the Army Corp of Engineers.

Response: The County conducts annual monitoring of all mining sites and prepares annual monitoring reports. These monitoring reports are public records and available for public review. Federal and state resource agencies also monitored mining activities at Austin Creek.

"Lack of monitoring" did not lead to failure of the LP Bar. Instead, the Draft EIR explains that the mining resulted in a reduced bar head buffer that was lower in height than the side bar buffers (which were also wider than typically required), and that overtopping of the bar in 2002 resulted in a high-flow chute channel and impacts to channel hydraulics and the outside pool and riffle sequence. (See page 3.2-46.) PRMD and the resource agencies considered monitoring data from the LP Bar to determine the appropriate mining methods and monitoring for this project. As a result, the Draft EIR provides that mining in the upper half of any given bar may only be allowed when the head of bar buffer is at least 8-feet above the water surface elevation measured from the upstream crest at approximately 200 cfs flow, but in no case shall the head of bar buffer be less than one-third of the bar length (see Mitigation Measure 3.2-2).

The Draft EIR imposes more extensive and robust monitoring requirements for this project than for past mining activities. Project monitoring not previously required of instream mining operators includes: more detailed collection of topographic data for the entire mining reach, and control areas both upstream and downstream; more detailed thalweg survey data collection with multiple points through each riffle crest and pool; monitoring of pool depths; and monitoring of redds and grain size in riffles. Please see Section 3.2 of the Draft EIR for a complete description of the monitoring requirements for the proposed project. Please see Response to Comment F-7 for more information.

H-23 **Comment:** Previously suggested alternatives to instream gravel mining in the critical habitat of three salmonids species are not considered in this Draft EIR including the importation of aggregate from the Yuba Gold Fields near Marysville by rail. Such an alternative would protect the Russian River, improve the Yuba River and provide economic stimulus for the return of energy efficient rail freight transport to the Redwood Empire. The Yuba Goldfields has enough aggregate to supply California for 100 years. There is no need to be mining in the critical habitat of three species of listed salmonids in the Russian River given this alternative.

Response: The comment appears to identify a speculative future source of aggregates rather than a feasible alternative to the proposed project. Importation of aggregate from the Yuba Goldfields does not appear technically or legally feasible at

this time, would result in potentially significant environmental impacts of its own, and would not meet project objectives,

The Yuba Goldfields encompass approximately 10,000 acres along about 11 miles of the Yuba River between Yuba City-Marysville and Smartsville in Yuba County. The comment is incorrect in claiming that the site "has enough aggregate to supply California for 100 years." In fact, the Department of Conservation-California Geological Survey recently explained that the Yuba City-Marysville Region had a 1.6 billion ton decrease in permitted aggregate resources despite the addition of over 100 million tons of newly permitted resources to the area, due largely to the submission of revised reclamation plans. The Department of Conservation-California Geological Survey explained that the Yuba City-Marysville Region has 409 million tons of permitted aggregate resources, which is more than enough to meet the Region's 50-year aggregate demand of 360 million tons but would not meet the North San Francisco Bay Region's demand of 647 million tons, nor the state's 50-year demand of 13,536 million tons.

Accessing even these permitted resources does not appear legally or technically feasible for the applicant at this time. The applicant does not own or have vested rights to conduct aggregate mining within the Yuba Goldfields, and the right to mine the existing resources is and has been subject to extensive litigation. That litigation has included a challenge to the vested rights of the Western Aggregates LLC that concluded in 1999 (the *Gilt Edge* lawsuit), a subsequent vested rights challenge brought by the Yuba Goldfields Access Coalition (*see Calvert v. County of Yuba* (2007) 145 Cal.App.3d 613), and yet another lawsuit brought by the Coalition in May 2010 against the State Mining and Geology Board's vested rights determination. As a result, the current and the long-term availability of the aggregate materials at the Yuba Goldfields are in question, and do not appear accessible for this applicant.

Additionally, there is currently no direct rail connection from the Yuba Goldfields to Sonoma County. There is no rail spur at the Yuba Goldfields mining area, and no current plans to construct such a spur. The proposed NCRA freight rail project that would extend from Lombard in Napa County through Sonoma County and north to Willits is currently undergoing environmental review and has not been approved (see Response to Comment G-10). As a result, importation of aggregate materials by rail from the Yuba Goldfields to Sonoma County does not appear feasible at this time, and would result in potentially significant adverse impacts from the development of rail spurs and other infrastructure (see Response to Comment G-10). Therefore, importation of aggregate materials by rail from the Yuba Goldfields is not a feasible alternative to the proposed project.

In addition, importation by rail from the Yuba Goldfields would not meet the following project objectives, which are presented on pages 1-14 to 1-15 of the Draft EIR:

- Produce aggregate from an ARM-Plan designated site to implement the State and County policies of meeting local aggregate demand with local resources;

- Extend the life of permitted, locally-produced sources of high-quality aggregate that meets specifications for use in local infrastructure projects;

- Manage the skimming approach on an ongoing basis to provide a sustainable yield of aggregate while enhancing the biological and hydrological functions of the Russian River;

- Conserve valuable agricultural lands and help protect public infrastructure by maintaining flood channel capacity and reducing bank erosion through the removal of excess aggregate from gravel bars; and

- Avoid traffic, air quality, and other environmental impacts associated with importing aggregate from locations outside of Sonoma County.

Importation by rail from the Yuba Goldfields would not implement State and County policies of using local resources to meet local aggregate demand. It would also not generate the beneficial impacts of the proposed project, including the proposed ARM Plan amendments and oxbows, alcoves, and riparian revegetation. The Draft EIR and Master Response 1 explain that the project would result in beneficial impacts including effects related to riparian vegetation, wetland habitat, aquatic and pool habitat for endangered and threatened salmonids, conditions for juvenile fish habitat rearing and overwintering, connectivity and access to tributaries, and reduced sediment inputs into the river associated with existing, ongoing bank erosion. (Page 3.3-29, 3.3-33, 3.4-14, 3.4-18, 3.4-22, 3.4-23, 3.4-24.).

H-24 **Comment:** The alternative of greater use of locally available recycled aggregate products such as “Eco-crete” was not considered as an alternative. Both these alternatives would help meet Sonoma County’s carbon emissions and green building goals while promoting recovery of the Russian River’s once great salmonid fishery.

Response: Exclusive use of “eco-crete” (or recycled concrete) is not a feasible alternative to the proposed project. Aggregates obtained from recycled concrete are not equivalent in either quality or end uses to PCC-grade aggregates from alluvial and instream sources. Limitations on the use of recycled concrete aggregates have also resulted in reduced supply and customer demand, and their use would not meet project objectives.

Recycled concrete is produced by crushing concrete (and sometimes asphalt) to reclaim the aggregates. The reclaimed aggregates can then be used as a base rock material under concrete or asphalt, such as aggregate base for paved roads, aggregate subbase, and road shoulders. Approximately 68 percent of aggregates recycled from concrete are used as road base. The remainder are used for asphalt hot mixes (9 percent), low-value products such as general fill (7 percent), new concrete mixes (6 percent), high-value riprap (3 percent), and other uses (7 percent). (CalRecycle, 2007; Portland Cement Association, 2010).

The quality of reclaimed aggregates, and their uses, vary greatly from the PCC-grade aggregates that the project proposes to skim from the Russian River. The Department of Conservation-California Geological Survey and U.S. Geological Survey have both explained that PCC specifications established by agencies including the U.S. Army Corps of Engineers and California Department of Transportation require physical and chemical suitability that even the highest-grade deposits have difficulty meeting. (Department of Conservation-California Geological Survey, 2006; U.S. Geological Survey, 2000.) These specifications are more

restrictive than those for applications amenable to the use of reclaimed aggregates, such as road base, subbase, and general fill. (Department of Conservation-California Geological Survey, 2006.) The Department of Conservation-California Geological Survey has specifically explained that "[a]lluvial gravel is typically preferred to crushed stone for PCC aggregate because the rounded particles of alluvial sand and gravel result in a wet mix that is easier to work than a mix made of angular fragments." The 2007 Annual Report on Aggregate Production in Sonoma County similarly notes that instream "alluvial aggregates are seldom used for lower grade base or sub-base uses," but are instead reserved for applications that must meet PCC specifications.

The limitations on the use of recycled concrete aggregates have resulted in reduced supply and customer demand, as well. Supply is limited by the amount of broken concrete and asphalt that becomes available from demolition projects, which varies from year to year. (U.S. Geological Survey, 2000.) The 2007 Annual Report on Aggregate Production in Sonoma County explains that aggregate operations reported receiving a total of 320,765 tons of recycled material in 2007, which represents 10.9 of total reported sales for the year. This represented an increase from the 283,000 tons of aggregate recycled at processing facilities in the County in 2005. (Sonoma County Permit and Resource Management Department, 2006) The proposed project seeks to skim up to 350,000 tons of aggregate per year, which exceeds all the recycled material received in Sonoma County in either 2005 or 2007. Recycled aggregate thus varies from year to year and does not represent a reliable supply of material, even if its quality and end uses were equivalent to that of instream aggregates.

The exclusive use of recycled aggregates also does not appear to meet project objectives. It would not extend the life of local sources of high-quality aggregate that meets specifications for use in local infrastructure projects. It would not meet project objectives to enhance the biological and hydrological functions of the Russian River, or to conserve agricultural lands and help protect public infrastructure through the removal of excess aggregate from gravel bars.

In addition, recycling concrete requires substantial amounts of energy for demolition, transport and processing to break up the material, and may result in adverse impacts related to traffic, air quality, energy, and other resources.

H-25 **Comment:** RECOVERY of the fishery is the established goal in the Russian River watershed, not simply maintenance of the existing degraded conditions. That approach will never produce recovery.

Response: This comment is incorrect. The ARM Plan does not currently identify "Recovery" of the Fishery as a goal. Instead, the project proposes to add multiple new goals and objectives to the ARM Plan calling for enhancement and restoration of aquatic habitat, enhancement of diverse riparian vegetation, and the avoidance of certain activities unless necessary to improve aquatic habitat conditions (see Draft EIR pages 5-2 to 5-5).

I. CAROLYN WESTON AND RICHARD WESTON

I-1 **Comment:** We are the representatives for a property situated only a few miles downstream from the Jimtown Bridge, the southern end of the Syar project reach.

This property has been owned by the same family since the 1950's. Its boundary line extends down the middle of the Russian River for about 1,600 feet.

The Syar Alexander Valley Instream Mining Project Draft EIR is very lengthy and written in an unfamiliar, complicated and technical language. Also, we were unable to receive a copy relatively easy to read until 10 days before the public response deadline. Therefore, we can only present an outline of our criticisms of the draft prepared by AECOM. But if given an opportunity, we would provide fuller argumentation and supporting documents for the issues surrounding the inadequate and inaccurate presentations of this DEIR.

Response: Please see Response to Comment G-1.

I-2 **Comment:** Our main criticism is that despite the provisions of the CEQA Guidelines the AECOM staff does not provide a comprehensive and balanced discussion of the potential for off-site as well as on-site impacts caused by instream mining activities in Alexander Valley. This deficiency is particularly noticeable with issues involving hydrologic and geomorphic changes to the river channel upstream and downstream from the project reach.

Response: The commenter makes a general comment that the Draft EIR does not provide a "comprehensive and balanced" discussion of hydrologic and other Project impacts. This comment is noted. The commenter is referred to the other responses that follow with respect to specific issues raised.

I-3 **Comment:** Our section of the river suffered a significant amount of damage from the downcutting and sidecutting of the river channel in the late 1980's through the 1990's at the same time that extensive and intensive gravel mining was being·allowed in Alexander Valley. The degradation of our river frontage was not just a coincidence but can reasonably be attributed to three adverse impacts of this gravel mining:

(a) The natural tendency of the river to seek equilibrium in its flow-regime by reasserting a slow wide meandering channel across a low gradient flood plan was deterred too many times and in too great a degree by widespread agricultural encroachment on the flood plain and flood control methods such as levees, bank armoring and filling of side channels. The river was forced into a narrower, straighter and deeper confinement. Another form of economic exploitation, instream gravel mining, could be rationalized as vitally necessary to maintain the unnatural, degraded river channel. As a result, the flow velocity of the river increased considerably downstream from the mining reach with a commensurate increase in scouring action on the bed and banks (especially the bank of the outer curve of the river bend) where we are located. In particular, high flood stages from large winter storm runoffs greatly exacerbated this increased hydraulic pressure.

Response: The commenters state that "their" section of the river suffered downcutting in the late 1980s and 1990s that the commenters attribute to upstream gravel mining. As explained in Master Response 1, the Draft EIR explains that commercial gravel mining has occurred within the Alexander Valley since the early 1900s, and removed an average of 680,000 tons per year from 1981 to 1993, with rates over 900,000 in some years. Since the adoption of the current ARM Plan in 1994, however, the average annual extraction rate has substantially decreased to 123,000 tons per year. (See page 3.2-11.) Implementation of the ARM Plan has

been very effective at limiting mining to a sustainable yield of available recharge and minimizing the potential for down-cutting of the riverbed from mining activities.

The project does not propose mining in the same amounts or using the same methods that were employed in the late 1980s and 1990s. The project instead proposes mining of a maximum of 350,000 tons of gravel per year, using methods based on the NOAA Sediment Removal Guidelines. The project would be subject to substantial new mitigation measures and performance standards that are discussed in Master Response 1. As a result, the Draft EIR correctly concludes that the project would not result in any significant adverse impacts to the commenters' section of the river.

I-4 **Comment:** (b) The properties in the vicinity of the overmined river reach at Jimtown Bridge and above suffered enough bank erosion and failure that their owners had to harden them with rock riprap and other armoring, which practice further disrupted natural fluvial process, reduced energy dissipation there of stormwater and accelerated the river flow even more. We have not armored our frontage because of the expense and because of consideration for probable impacts on our downstream neighbors.

Response: The commenters note that properties at and immediately north of the Jimtown Bridge have suffered bank erosion and installed rock riprap and other armoring. The Draft EIR already disclosed that sections of riverbank have been armored with riprap, concrete rubble, car bodies or engineered structures, particularly from Bar S-4 to the Jimtown Bridge. (See page 3.2-29.) The Draft EIR notes that the impetus for these structures stemmed from the decreasing width of the active meander zone from agricultural development dating back to the late 1800s. (See page 3.2-6.)

I-5 **Comment:** (c) Another consequence of extensive and even intensive gravel mining and channelization upstream from us was the hungry water effect or sediment-deficient flow which led to downcutting and sidecutting of our channel area. Two reasons were likely for this degradation to occur in addition to the widespread appropriation of runoff by many reservoirs (large and small) in the watershed upstream and upslope from Alexander Valley. By not accurately forecasting the annual variations of gravel replenishing that actually occur in the river channel, the operators of the gravel mines extracted excessive tonnages of gravel that were not sustainable yields. No surplus gravel remained to be removed in a suspended state downstream during the following winter so that the channel along the way received more than normal scouring.

In addition, at times such as the 1986 flood year, abnormally high amounts of sediment entered the river system, but the normal sediment transport process of the river had become so disrupted that sediment began to accumulate on point bars in an aggrading river channel. If this accumulating bank of deposited gravel was afterwards withdrawn entirely and if an estimated replenishment rate of new gravel was annually removed, very little surplus sediment was allowed to be available for restoring a degraded channel reach downstream. This sediment deficiency certainly will recur if the Syar instream mining project proceeds as proposed in the 6.5-mile long project reach.

Response: See Response to Comment G-34 and Master Response 3 regarding the "Hungry Water" concept.

The Draft EIR and Master Response 1 discuss the changes in the Russian River geomorphology, including in the Lower Alexander Valley Reach prior to 1994. The facts do not support the assumption that the proposed project, with mitigations, under post-1994 ARM Plan mining requirements will lead to similar impacts downstream of the Jimtown Bridge. These facts include the capacity of the Alexander Valley Reach (and further downstream in the Middle Reach) to replenish bar sediments during the past decade due to the high sediment yield of the river, and the relative vertical stability of the channel as monitored more closely since 1994. Draft EIR Figures 3.2-4, 3.2-5, and 3.2-6 depict elevations of the channel thalweg in the Lower Alexander Valley using different data sources, and comparing past and recent time-periods. All three figures show that the thalweg near the Jimtown Bridge has elevated since 1994.

As set forth in Master Response 1, the project includes a new set of robust monitoring requirements and performance standards that will track any potentially significant channel geomorphic changes in the entire Lower Alexander Valley Reach, including downstream from the most downstream bar to be mined (SD-1) to the Jimtown Bridge. This monitoring, coupled with the Adaptive Management Strategy, will allow the County to modify mining, up to and including ceasing gravel extraction, if performance standards are not met. Mitigation measures associated with Adaptive Management and the specific monitoring requirements are described in the Draft EIR under Mitigation Measure 3.2-5, pages 3.2-50 to 3.2-55.

I-6 **Comment:** Our section of the river channel is not degrading at the rate it was in the 1990's (probably because there has been much less gravel mining permitted upstream recently). With the resumption of large-scale mining our channel has very little potential for aggrading.

Response: See Response to Comment I-5. The actual rate of recharge rarely occurs as an "annual average" because sediment is not transported at all in some low-flow years, but occurs in amounts much greater than the annual average in wetter years. This will influence the timing of when recharge of bar sediments actually occurs following mining.

I-7 **Comment:** Even though AECOM claims that Alexander Valley has since recovered from past practices and large gravel bars have now accumulated, none of the offending gravel has flowed downstream to our river frontage which has not recovered from the original assault. The resumption of removing 350,000 tons of gravel/year will no doubt once again cause our frontage to degrade.

Response: Please see Master Response 1 and 3, and Response to Comment G-34.

I-8 **Comment:** This Syar EIR relies too heavily on Syar's consultant, Mitchell Swanson, for hydrologic and geomorphologic analysis. Swanson has a vested interest in project approval.

Response: The Draft EIR does not rely on the applicant's consultant. The Draft EIR instead provides an independent analysis of the project and its potential

environmental effects that draws from a long list of references, including many of the sources and documents cited by the commenters. Please also see Response to Comment I-29.

I-9 **Comment:** What expertise does the AECOM staff possess to be able to critically and independently evaluate the various complex controversies involved in the hydrology and geomorphology of instream gravel mining? The EIR presents no evidence that any of the experts cited in the·text has a geology or engineering license generally accepted as necessary for the drafting of mining plans. A check of the records of the State licensing board at www.pels.ca.gov is particularly illuminating for Mr. Swanson's status.

Response: The project applicant would draft mining plans for the proposed project, rather than the EIR preparers. Appendix F contains the resumes of Mark Winsor of AECOM, and Mitch Katzel of Entrix. Both show the expertise necessary to critically and independently evaluate any future hydrologic and geomorphologic controversies.

I-10 **Comment:** This EIR claims that all impacts of removing 350,000 tons of gravel/year will be mitigated by the creation of oxbows, alcoves, the placement of LWD (large woody debris), the transplanting of riparian trees over 1" in diameter and new vegetation plantings on perhaps 11 acres despite the strong possibility that all this window dressing could be washed away in the next high flood winter.

Response: The comment is incorrect. The Draft EIR does not claim that any of the River Enhancement Plan (REP) features (i.e., oxbows, alcoves, LWD placement) are designed to address impacts of removing 350,000 tons of gravel/year. The REP is instead intended to enhance river habitat and ecological conditions above existing conditions (Draft EIR, page 1-15). The Draft EIR does not seek to prove that the REP features will reverse past mining impacts. Please see Response to Comment G-19 regarding the duration of proposed REP features.

I-11 **Comment:** No information is provided as to how many tons of gravel will be removed in the creation of oxbows and alcoves. Will this be part of the annual 350,000 tons or exceed it?

Response: The comment is incorrect. Appendix D of the Draft EIR includes the volumes and surface area for the proposed oxbows and alcoves. See Table 3 of Appendix D, page 17, for oxbow information, and table 4 for alcove information. The Draft EIR explains on page 1-55 that the volume of material generated from the oxbow and alcove enhancement projects is included in the annual limit of 350,000 tons.

I-12 **Comment:** This new mining technique is not supported by technical documents outside of this county.

No technical reports are provided that prove the impacts of gravel mining can be reversed by the placement of LWD, the transplantation of riparian vegetation, the planting of new vegetation on unspecified land, or the creation of oxbows and alcoves.

Response: Please see Response to Comment I-10. The proposed project is in keeping with the NMFS (previously NOAA) Sediment Removal Guidelines (NOAA,

2004). It is also in keeping with recent sediment removal activities that are being performed on Austin Creek (Cluer et al, 2010).

I-13 **Comment:** The in-county trials for the "horseshoe skimming" mining technique are limited in scale and in monitoring. One failure is described where the buffer zone collapsed and the main channel migrated into the mined pit creating a straight channel. Is the 6.5-mile long project reach actually going to be a large-scale experiment?

Response: The referenced impacts at Bar 2 in the Middle Reach and the LP Bar in the Upper Alexander Valley did not occur as a result of the horseshoe skim method, but due to an insufficient bar head buffer. Mitigation Measure 3.2-2 therefore requires a sufficient bar height and bar head length to minimize risk of creating a high flow chute channel and dissection of the bar. Use of the "horseshoe skim" method has also been successfully applied since 2003 on Austin Creek(see Appendix E), a tributary to the Russian River (Cluer, Holley, and Canelis, 2010).

I-14 **Comment:** No study of the 2006 flood is provided to show how much property was actually eroded in Alexander Valley as was done by Simons, Li & Associates for the years 1981 to 1986. According to the Healdsburg Tribune and the Press Democrat no vineyard land was eroded in 2006. In providing pictures of eroded river frontages, the EIR does not substantiate the claim that the damage was confined to the 2006 flood event instead of being an accumulation of erosion suffered over a period of time (perhaps even when mining was occurring).

Response: The Draft EIR discusses the effects of the 2006 flood on page 3.2-6, and assesses existing erosion conditions and proposed project mining effects at pages 3.2-28 to 3.2-29, and 3.2-58 to 3.2-61. The Draft EIR explains the physical processes and provides a conceptual model of why and how erosion occurs in the Alexander Valley. In addition, the Draft EIR explains that in the Lower Alexander Valley there are at least 21 sections of riverbank that range in length from 500 to over 2,000 feet that experience moderate or high erosion rates (page 3.2-29).

I-15 **Comment:** No alternative project is suggested by the EIR whereby gravel on point bars would be removed only to the degree necessary for flood control, i.e., where Syar's consultant Swanson believes that removing gravel above 10 feet on a bar would relieve hydraulic pressure against the opposite bank and thereby prevent bank erosion, bridge failure and vineyard flooding. Under this alternative, the annual tonnage of gravel to be extracted could be considerably reduced from 350,000 tons and made more conformable to actual annual replenishment rates.

Response: It is not clear what the commenters mean by the removal of gravel "necessary" for flood control. The Draft EIR explains at page 3.2-59 that instream mining of sediments can temporarily increase flood conveyance capacity by providing additional cross-sectional space for flood water. Mining of more aggregate should tend to result in a greater increase in flood conveyance capacity, for a longer period of time, than removing less aggregate. Any added capacity would be temporary, however, and would diminish as excavated sites refill with sediment. The amount of gravel "necessary" for flood control depends on the commenters' subjective desires regarding the size of future floods to be conveyed, the acceptability of resulting impacts, and the desirability of ongoing mining over time.

The comment may misunderstand the purpose of limiting mining to the bankfull discharge elevation. The Draft EIR does not impose this limit for flood control reasons, but to protect and maintain geomorphic processes that might be impacted by mining below the bankfull discharge elevation. (See page 3.2-5.) Nor does the Draft EIR impose a limit at 10 feet. It instead calculates the bankfull discharge elevation at approximately 11,000 cfs (or approximately 8 feet above the low flow water surface elevation), which is higher and more conservative than the elevation proposed by the project applicant, and limits mining to one foot above the higher of either the 1997 or 2007 water surface elevations adjacent to each bar. (See pages 3.2-5, 3.2-45.)

Finally, the commenters suggest that the project be "more conformable to actual annual replenishment rates." The best available data for the lower Alexander Valley shows that the estimated average annual replenishment rate is approximately 346,000 tons per year. (See pages 3.2-16 and 3.2-57.) The project proposes to remove an average of 300,000 tons per year, with a cap of 350,000 tons per year. (See page 4-35.)

I-16 **Comment:** No detailed assessment of the height and area of each gravel bar to be mined is presented.

Response: The Draft EIR provides as much information as possible about the gravel bars to be mined, given that their height and surface area changes with every significant flood event. The Draft EIR includes Figures 1-1, 1-2, 1-3, and 1-4, aerial photographs that identify the location of the bars. Table 1-1 provides further information regarding the eight bars tentatively proposed for the first cycle of mining operations, including their assessor's parcel number, parcel size in acres, proposed skimming area in acres, and quantity of aggregate (as of 2008) in both cubic yards and tons. The Draft EIR further provides conceptual mining plans for each of the eight bars in Figures 1-8a through 1-8h. This information meets CEQA's requirement for a description of the physical environmental conditions in the vicinity of the project, as they existed at the time the notice of preparation was published. (CEQA Guidelines, § 15125, subd. (a).)

I-17 **Comment:** This EIR is very lengthy, however it does not provide technical support studies for its major opinions (e.g., the ENTRIX annual monitoring reports).

Response: The ENTRIX monitoring reports are available on request.

I-18 **Comment:** This EIR provides no cumulative tabulation of gravel mining extraction in other areas of the river channel or reports how these other projects will or will not add to the impacts of removing 350,000 tons/year from Alexander Valley.

Response: As stated on page 4-3 in Section 4.0, Topical Issues and Impact Summaries, of the Draft EIR, the cumulative impact analysis considers the cumulative context presented in the ARM Plan PEIR, which included "all mining and reclamation which has occurred in the past, the existing and previously approved aggregate operations which may continue into the future, including operations with existing permits and vested rights (Middle Reach bar skimming by Syar), and other development and land uses which may have a similar or related effect". Additionally, the cumulative impact analysis considers other gravel mining operations in the region that have been planned or implemented since the ARM Plan PEIR was certified in

1994, including Shamrock mining operations (Russian River upper reach), Syar Phase VI terrace mining (Russian River middle reach), and other Syar Middle Reach operations (see DEIR page 4-3). A discussion of the cumulative impacts is presented on pages 4-7 to 4-22 of the Draft EIR.

I-19 **Comment:** No documented economic analysis has been provided in the EIR to substantiate the claim that no "import source of FCC grade aggregate...can economically be provided to the Sonoma County market".

Response: The identified sentence was included in the Draft EIR in error. The first paragraph of page 2-8 is hereby revised to read:

> identifies a No Project Alternative, under which Syar would not implement the project as proposed. Syar would not conduct any mining activities within the proposed reach of the Russian River between Gill Creek to Jimtown Bridge. ~~Without a source of high quality aggregate generated within the County, alternative sources of gravel would be required. At present, an import source of FCC aggregate that can economically be provided to the Sonoma County market has not been identified.~~

As discussed at pages 4-25 to 4-26 of the Draft EIR, importing aggregate from outside Sonoma County to end points within the County would be more expensive than transporting aggregate from a source within Sonoma County. Trucks transporting the aggregate would have to travel longer distances and consume more fuel, which in turn would generate more criteria pollutant emissions and result in more adverse air quality impacts and greenhouse gas emissions.

I-20 **Comment:** Essentially this EIR is entirely limited to the area involved in gravel mining as if there is no river channel above or below it.

Response: Please see Responses to Comments I-21, and G-34, and Master Response 3.

I-21 **Comment:** No acknowledgement is made on the impact of gravel mining on the entire river system. In evaluating this project's environmental impacts, the EIR should follow the guidelines of the California Watershed Assessment Manual, sponsored by the State of California. In Volume 2, the introduction to Chapter 3, Fluvial and Geomorphological Processes (by Joan Florsheim, UC Davis) states:

"A watershed approach toward assessment of fluvial processes and morphology requires utilization of methods that may be put into a framework to both incorporate data collected locally as well as to illustrate the processes that link the area under investigation to upstream/upslope and downstream areas within the watershed. Many aspects of fluvial processes and morphology may be measured to help assess a watershed's condition; however, individual measurements are difficult to interpret unless they are placed within the watershed's temporal and spatial context…

"The goal of developing a watershed scale framework for assessment of fluvial processes and morphology is to develop a coherent process-based, dynamic picture of how everything is connected (or linked), and how processes create and modify morphology within the watershed unit."

Response: The comment is incorrect in claiming that the Draft EIR does not acknowledge the impacts of gravel mining (and other land uses), on the entire river system. Please see Master Response 1. As explained therein, Section 3.2A Setting (page 3.2-16) describes pre-1994 bar skimming practices that contributed to thalweg lowering in both the Alexander Valley and Middle Reach. Page 3.2-6 describes the dredging, straightening and narrowing of the Middle Reach between 1940-1970, and includes a characterization of diversions within the Russian River watershed. Impact 3.2-2 (page 3.2-45 to -47) discusses bar head buffer issues in the Middle Reach and the Upper Alexander Valley Reach. Section 4.2 of the Draft EIR addresses cumulative project impacts, including the effects of mining in the Upper Alexander Valley and the Middle Reach.

The Draft EIR already discusses a watershed scale framework to "develop a coherent process-based dynamic picture of how everything is connected (or linked) and how processes create and modify morphology with the watershed unit." Pages 3.2-11 to 3.2-34 provide a comprehensive description of fluvial processes (sediment transport, bar-building/sediment accrual, hydraulics, vertical and lateral channel stability/instability, erosion, floodplain connectivity, riparian and aquatic habitat, flooding, groundwater, water quality), and how they have changed in the Russian River (with emphasis on the Alexander Valley) in response to various land uses, including gravel mining. Please also see Response to Comment G-34.

I-22 **Comment:** Swanson has studied the occurrence of aggradation and degradation in the mining reach above Jimtown Bridge, but no comprehensive surveying and assessment has been made by field reconnaissance of the area between Jimtown Bridge and Healdsburg. The fluvial features and processes of this latter reach should be analyzed as soon as possible, even if only Digger Bend may have mining potential, because this area represents an important link between two heavily mined reaches. The research findings (preferably produced by public agencies) should be made an integral part of the AMS process connected with the Syar mining permit.

Response: Please see Master Response 3, and Response to Comments G-38 and G-42. As discussed therein, the project would not result in significant effects on downstream reaches for a variety of reasons, including sediment accrual rates that have been demonstrated following gravel mining.

The data shows that the river channel morphology within the Lower Alexander Valley can replenish bar forms with sediment within about a decade following gravel mining. Since the next downstream reach (i.e., the Healdsburg Reach) collects additional sediment from inflowing tributaries below the Lower Alexander Valley Reach, the potential for significant impacts decreases moving downstream from the mining locations and mined reach. The Healdsburg Reach (RM 34 to RM 46) would have a more muted and limited response to upstream gravel mining under the post-1994 ARM Plan and mitigation measures, AMS, and performance criteria of the proposed project than the Lower Alexander Valley mining reach. Additionally, sediment accrual has been documented in the Middle Reach, located downstream of the Healdsburg Reach.

I-23 **Comment:** Who pays for ENTRIX's annual monitoring of the river mining reaches and what is the scope of its services for the County? In its reports does ENTRIX

provide an independent evaluation of the mined areas that is easily available to the public?

Response: The annual monitoring of the Russian River gravel mining area is funded through a fee assessed on the mining operators. Copies are available on request.

I-24 **Comment:** Does the ENTRIX staff working on the contract with Sonoma County include licensed professional engineers and geologists? Since ENTRIX serves as the only member of the County's Scientific Review Committee, how can diverse and even conflicting opinions among experts on mining issues be represented on that committee?

Response: Yes, ENTRIX staff includes licensed engineers and geologists in addition to an assortment of other scientists. ENTRIX is an international firm providing biologists, engineers, environmental specialists, scientists, and the like to provide environmental analysis, project management, permit compliance, and other consulting services. Among other experts, Mitch Katzel is a Senior Geomorphologist with ENTRIX. He has 18 years of experience as a hydrologist and fluvial geomorphologist. Mr. Katzel's Summary of Qualifications lists his areas of technical expertise as sediment transport analyses, channel geomorphic characterization and classification, assessment of spawning gravel quality and stability, hydrologic monitoring and analyses, and stream restoration. Mr. Katzel has directed consultations with state and federal permitting agencies and public stakeholder groups for environmental assessments associated with gravel mining, reservoir and hydroelectric operations, urban development, grazing, logging, pipeline construction, and flood control channel maintenance practices. See Appendix F for the complete Summary of Qualifications for Mr. Katzel.

The Draft EIR explains at page 1-14 that ENTRIX is currently acting as the SRC. It explains at 1-64 and 1-65 that the SRC would consult with the relevant resource agencies (i.e., Army Corps of Engineers, NOAA Fisheries, Department of Fish & Game, Regional Water Quality Control Board) before making a recommendation to PRMD. This review and consultation process will allow for the expression of diverse and even conflicting expert opinions.

I-25 **Comment:** Will any ongoing public input into the AMS be allowed? At least shouldn't the AMS process be reviewed by a peer review committee whose members have no economic conflict of interest with the gravel mining industry?

Response: Please see Response to Comment G-13. As state therein, additional public review is not necessary to comply with CEQA, but may be included by the decision makers as part of any conditions of approval.

The AMS contemplates evaluation of information on the mining plan and monitoring reports against the objective standards and performance criteria established through this EIR. Work will proceed if the reports indicate that past mining and enhancement work is meeting the standards and criteria and that the next year's mining plan is also in compliance. The Scientific Review Committee will look at the technical details and make a recommendation to PRMD for its ministerial determination. The members of the committee and resource agency staff do not have an "economic conflict of interest with the gravel mining industry."

I-26 **Comment:** Will there be any ongoing public input into the Interagency Group decisions concerning the Alexander Valley gravel mining?

Response: The Draft EIR does not contemplate ongoing public input. Meetings between PRMD and the resource agencies are intended to provide coordination and reduce overlap among the various agencies as issues arise.

I-27 **Comment:** Can the 350,000 tons/year limit be increased through AMS?

Response: No, the annual maximum extraction volume of 350,000 tons cannot be increased though the AMS. If Syar proposed to increase the annual tonnage limit, it would require a Use Permit modification and associated CEQA review.

I-28 **Comment:** The EIR prepared by AECOM should address the questions asked above in order to better assess whether the ENTRIX-SRC and the AMS can function successfully to correct any problems that may arise over time with the Syar gravel mining permit.

Response: Please see Responses to Comments I-23 through I-26.

I-29 **Comment:** In its bibliography and particularly at the beginning of its geomorphology, hydrology and water quality section, the EIR lists some of the authorities in these fields who hold opinions differing from those of Mr. Swanson. However, in the text the EIR preparers do not include those opposing opinions in a comprehensive discussion of the geomorphological and related aspects of the Syar gravel mining proposal. Therefore, we have attached to this letter an appendix containing a small sample of statements made by those authorities that are applicable to instream gravel mining and especially to downstream impacts.

Response: The commenters claim that the preparers of the Draft EIR have not included opposing opinions in a comprehensive discussion of the geomorphological and related aspects of the proposed project. This claim is incorrect. At pages 3.2-1 to 3.2-2, the Draft EIR lists 26 separate references that the preparers have specifically evaluated in preparing the Draft EIR. This Response to Comments Document identifies still more reference the EIR preparers evaluated in preparing the EIR. The listed references include many of the sources cited by the commenters in the appendix to their comment letter.

The Draft EIR preparers considered and evaluated all of these sources, and then made an independent assessment of project impacts, as CEQA requires. That independent assessment is disclosed in the Draft EIR and this Response to Comments Document, both of which are comprehensive. The Draft EIR, for example, includes a 70-page chapter devoted to the geomorphology, hydrology, and water quality aspects and impacts of the proposed project. That the commenters oppose the proposed project does not mean that the EIR preparers ignored contrary opinions. It simply means that the EIR preparers complied with CEQA's mandate that they conduct an independent assessment of project impacts.

I-30 **Comment:** No government body could make a sufficiently informed and balanced decision based upon the information contained in this EIR.

We regret that we had so little time to prepare a response to the AECOM DEIR that we could not critically evaluate that lengthy document more thoroughly and systematically.

Response: The commenters make a general comment about the alleged inadequacy of the Draft EIR. The commenters are referred to the preceding responses with respect to specific issues raised. Please see Response to Comment I-1 with regard to the commenters' time to review the Draft EIR.

I-31 **Comment:** Simons, Li & Associates in "Hydrologic impacts of gravel mining on the Russian River" (1991) state that in many cases gravel mining can have effects elsewhere and alter channel behavior "both upstream and downstream. Mining can change the river gradient as has been reported in Dry Creek ..."

Response: The comment provides a quote from a 1991 study noting that gravel mining can have downstream effects. Please see Master Response 1. The Draft EIR acknowledges that gravel mining can result in impacts downstream, analyzes those potential impacts at great length, and imposes substantial mitigation measures, performance criteria, and enhancement activities to address them.

I-32 **Comment:** Phillip Williams & Associates in "Geomorphic and hydrologic conditions in the Russian River, California: historic trends and existing conditions" (Revised 1995 also cited as Florsheim, J. and Goodwin, P. who were employed by the Sonoma County Planning Department for a similar study) listed among other factors that will affect the future of the Russian River: "Reduced sediment supply to downstream reaches will continue to cause channel incision and subsequent bank erosion as bank heights are increased. The rate of future incision will depend on the rate of gravel extraction allowed on bars in the channel."

In addition Florsheim and Goodwin concluded that "If current gravel extraction levels continue in Mendocino and Sonoma Counties the river channel "will incise until it reaches bedrock, and then it will widen by bank erosion since erosion of the bed is no longer possible."

Response: Please see Response to Comment H-5. The 1996 SCWA report referenced therein is the same Florsheim and Goodwin study cited in this comment. The Florsheim and Goodwin study addressed gravel extraction rates and methods that predated the 1994 ARM Plan.

I-33 **Comment:** The Westons have watched this happen to their river frontage.

Response: Comment noted.

I-34 **Comment:** Steiner Environmental Consulting in "A history of the salmonid decline in the Russian River" (August 1996) states:

"Decreased sediment supply causes shifts in a river's equilibrium that lead to channel changes. With a decreased sediment load, the ability of water to carry sediment is greater than the actual sediment supply. To compensate for this discrepancy, the "hungry" water picks up sediment from the channel. This constant scour caused the channel to downcut. Mainstem river downcutting causes bank erosion, tributary downcutting, and a drop in associated ground water levels •••

"Channel incision causes an interruption between the active river channel and its associated flood plains…Vertical bank formation effectively cuts off natural floodplain function. In a 'natural' situation, the floodplain acts to slow down water velocity and dissipate energy during high discharges. Floodplains also act as water retention features. Water from a floodplain is slowly returned to the channel, and retained water may create seasonal wetland habitat. Floodplains isolated from the river by channel incision are only inundated on very large flows; in most flow events they fail to slow water velocity or retain water, and hence, downriver flooding increases…

"Channel morphology and the physical processes of the river system control all aspects of the biological system. Changes in sediment load or flow will cause channel adjustments. Continued gravel extraction compounds existing problems caused by reservoir sediment retention and past gravel extraction."

Response: Please see Response to Comment H-5.

I-35 **Comment:** G. Mathias Kondolf states in "Hungry water: effects of dams and gravel mining on river channels" (1997):

"Instream mining directly alters the channel geometry and bed elevation and may involve extensive clearing, diversion of flow, stockpiling of sediment, and excavation of deep pits… Instream mining may be carried out by excavating trenches or pits in the gravel bed, or by gravel bar skimming (or scalping), removing all the material in a gravel bar above an imaginary line...

"By removing sediment from the channel, instream gravel mining disrupts the preexisting balance between sediment supply and transporting capacity, typically inducing incision upstream and downstream of the extraction site.

Concerning the management of mining Kondolf states:

"Strategies used to manage instream mining range widely… One strategy is to define a redline, a minimum elevation… without stating these limits in terms of actual elevations above a permanent datum. Thus the extraction limits have migrated vertically downward as the channel incises.

"Another approach is to estimate the annual bedload sediment supply from upstream (the replenishment rate) and to limit annual extraction to that value… but bedload transport can be notoriously variable from year to year. Thus, this approach is probably better if permitted extraction rates are based on new deposition that year rather than on long-term average bedload yields. More fundamentally, however, the notion that one can extract at the replenishment rate without affecting the channel ignores the continuity of sediment transport through the river system. The mined reach is the… sediment source for downstream reaches, so mining at the replenishment rate could be expected to produce hungry water conditions downstream. Habitat managers in Washington state have sought to limit extraction to 50% of the transport rate as a first-cut estimate of safe yield to minimize effects upon salmon spawning habitat…

Response: The comment consists of block quotes from a 1997 Kondolf study entitled "Hungry Water: Effects of Dams and Gravel Mining on River Channels." The EIR preparers are well aware of the Kondolf study, referred to it during

preparation of the Draft EIR, and cited it several times in the document. (See pages 3.2-1, 3.2-57.)

The 1994 ARM Plan and Draft EIR concur in Kondolf's finding that estimating and relying on sediment budgets is problematic because "bedload transport can be notoriously variable from year to year." The Draft EIR explains at page 3.2-37 that "the ARM Plan rejected the use of sediment budgets to limit instream mining activities due to the inherent difficulty in accurately estimating the sediment yield and due to substantial natural fluctuations in the annual sediment recharge." The project therefore includes Mitigation Measure 3.2-1 which requires establishment of a minimum baseline elevation for the mining reach, and restricts skimming to bars that have accumulated sediment above the reference elevation.

I-36 **Comment:** "In 1995, the US Department of Transportation issued a notice to state transportation agencies indicating that federal funds will no longer be available to repair bridges damaged by gravel mining… "

Response: Comment noted. The Draft EIR explains that the Geyserville Bridge was replaced in 2006 at a cost of approximately $22.5 million.

I-37 **Comment:** The Sonoma County Planning Department's ARM Plan FEIR (October 1981) found "potential effects of... mining operations on the river's hydrology illustrated by… Problems with erosion… during the winter of 1977-78 in the vicinity·of Geyserville Bridge." Two mining operations, one near the bridge "were regularly extracting gravels during the drought years of 1976-77 and a total of six to eight acres of vineyard and riparian lands was lost. Emergency measures were undertaken by the Water Agency to prevent further damage.

Simons, Li & Associates state in a table that in 1981-82 31.1 acres with 8 sites were lost to bank erosion in ,Alexander Valley. In 1982-83 34.5 acres with 6 sites were lost to erosion, in 1983-4 9.5 acres with 2 erosion sites, none in 1984-85 and 57.3 acres in 1985-86 with 11 erosion sites. There were said to be 10 mining sites in 1981, 15 in 1982, 8 in 1983, 8 in 1984, and 12 in 1985.

This study also states that in 1984-85 there was very little replenishment. Channel changes also took place.

"Some significant channel changes occurred during the study period especially in the Alexander Valley Reach … Most of the gravel bars in the Alexander Valley that were accessible by equipment were mined at some time during the study period. All major bank erosion occurred in the Alexander Valley Reach especially between river miles 53 to 57 and between 46 to 51. In these two subreaches gravel bar migration (down-valley migration of the meander bends) was observed. In general, the bars moved about 1,400 feet in the 5 year period."

Response: The commenters cite the 1981 EIR from a superseded ARM Plan and other information from 1984-85 regarding past erosion and replenishment rates. Please see Master Response 1, which summarizes the significant information contained in the Draft EIR regarding mining and the river setting in this time period, as well as more recent information regarding river conditions.

I-38 **Comment:** The 1994 ARM Plan EIR (February 1994) states that in 1981 543,600 tons of gravel were extracted, in 1982 541,800 tons, 1983 494,400 tons, 1985 590,300 tons, 1986 1,016,000 tons, 1987 886,500 tons, 1988 954,700 tons, 1989 905,100 tons, and 1990 364,700 tons. Channel changes included:

"In some locations, the low flow channel has switched across to the opposite side of the active channel. For example, upstream of the confluence with Gill Creek, the low flow channel has migrated from the west bank in 1973 toward the east bank in 1991. South of Gill Creek, the low flow channel meandered in 1973 but is straighter and located toward the center of the active channel in 1991.

"Channel bars upstream and downstream of the Geyserville or State Highway 128 Bridge support more riparian vegetation in 1991 than in 1973. The low flow channel migrated from the east side of the active channel in 1973 toward the west side of the active channel in 1991.

"Upstream of the Jimtown Bridge, the 1991 aerial phonograph exhibits recent skimming activities on the alternate gravel bars. The active channel appears to have widened both upstream and downstream of the bridge between 1973 and 1991…

"Channel degradation occurred primarily at the upstream and downstream end of the Alexander Valley Reach between 1971 and 1991…

"Data show River Mile 52 as the only surveyed Cross-section location in the Alexander Valley where aggradation occurred between 1971 and 1991…

"The surveyed Cross-sections between River Mile 46 and River Mile 51 all exhibited some degradation. The maximum measured degradation of about 12 feet occurred, between 1971 and 1982 at River Mile 50. Smaller depths of degradation, about 2 to 5 feet, occurred between River Miles 50 and 51…"

Response: The commenters provide block quotes from the 1994 ARM Plan PEIR. That document speaks for itself, is already discussed at length in the Draft EIR, and is the first citation listed in Section 3.2, Geomorphology, Hydrology and Water Quality. Among other notations, the Draft EIR explains that since the adoption of the 1994 ARM Plan, the average annual extraction rate in the project area has substantially decreased to 123,000 tons per year. (See page 3.2-11.) It further notes that annual monitoring of the Russian River has shown that the ARM Plan has been very effective at limiting mining to a sustainable yield of available recharge and minimizing the potential for down-cutting of the riverbed from mining activities. (See page 3.2-37.) As discussed in Master Response 1, the project proposes mining in accordance with the protective standards in the 1994 ARM Plan, and/or the even more protective NOAA Sediment Removal Guidelines, and includes additional mitigation and monitoring requirements beyond the ARM Plan standards and Sediment Removal Guidelines.

I-39 **Comment:** Marcus, L. and Gaffney, K. (Russian River Resource Enhancement and Public Access Plan, Enhancement Alternatives: Middle Reach, Russian River 4/35/94) state:

"The 1950-1970's brought the advent of reservoirs and gravel mining as well as floodplain reclamation and the narrowing of the channel in its upper reaches. All

these changes result in the "hungry" water of the river causing significant channel downcutting, bank erosion and scour of riparian forest during most storms, and a drop in ground water levels and backcutting up tributary streams. These changes have been measured over the entire Mendocino County reach, portions of the lower and upper Alexander Valley and the entire Middle Reach."

Response: The comment quotes a 1994 study regarding mining in the Middle Reach from the 1950s to 1970s, and the hungry water effect. Please see Master Responses 1 and 3, and Responses to Comments H-6 and H-7.

I-40 **Comment:** Florsheim and Goodwin state:

"Comparison of aerial photographs for the Alexander Valley Reach between 1973 and 1991 was conducted to show changes in channel morphology. The river channel pattern is meandering and contains point bars and some alternate bars. The low flow channel has migrated across the active channel in some locations such as downstream of Cloverdale, upstream of the confluence of Gill Creek, and near the Geyserville Bridge. Many portions of the Alexander Valley Reach exhibit similar channel patterns in 1973 and in 1991…

"Comparison of longitudinal profiles of the thalweg surveyed in 1971 by the COE and a longitudinal profile compiled using cross-section data surveyed by the Sonoma County Water Agency in 1991 indicate degradation throughout the Alexander Valley except near the Geyserville Bridge…Data are sparse between River Mi1e 62 and 57 and between River Mile 50 and 46, however, some trends are evident. Degradation in the lower portion of the Alexander Valley (approximately River Mile 50) reaches 1.2 feet in the 20 year period. Aggradation at the Geyserville Bridge (approximately River Mile 52) is about 8.0 feet. The aggradation near the Geyserville Bridge is coincident with observations of local channel widening. Evaluation of the longitudinal profile suggest that sediment accumulated in the lower portion of the Alexander Valley in 1971 (indicated by the convexity in the profile between the Geyserville Bridge and the Jimtown Bridge) but was eroded by 1991…

Repetitive cross-sections surveyed in the Alexander Valley Reach by the Sonoma County Water Agency between 1973 and 1991 indicate a general lowering of the thalweg elevation in cross-sections where the thalweg has migrated across the channel. In many cases, the earlier channel has filled while the new channel is at a lower elevation than the old channel. At the cross-section at the Geyserville Bridge (River Mile 52) widening of over 300 feet occurred in the 22 year period between 1973 and 1991…Cross-sections 50.5, 50.2, 49.8 also show significant widening. An analysis of changes in stored sediment in the Alexander Valley Reach between 1981 and 1990 indicates that there has been a volumetric decrease of about 630,000 tons/year…This loss suggests that less sediment is available for transport to downstream reaches.

"Bank erosion in the Alexander Valley was noted in a study of channel change during the period from Fall 1981 to Spring 1986 (Simons, Li & Associates, 1991) which found that a total of 150 acres were lost to bank erosion during the 5 year period. Most of this erosion occurred during high magnitude flows in March, 1983 and in February, 1986 between River Miles 53 to 57 and 46 to 51. The estimated rate of meander migration of 1280 feet/year…during the period from 1981 to 1986. The

Sonoma County Water Agency estimated the rate of meander migration to be 375 feet/year (Einstein Report for Sonoma County Water Agency, 1972).

"…On the average, bank height increased in the Alexander Valley Reach by about 5.0 feet (average rate of increase is 0.3 feet/year)."

Response: Longitudinal profiles cited in the excerpted text from Florsheim and Goodwin refer to channel changes that predate the 1994 ARM Plan controls on gravel mining. The Draft EIR includes more recent longitudinal profiles, developed from more extensive and modern surveying techniques, at Figures 3.2-4, 3.2-5, and 3.2-6. These figures depict longitudinal profile elevations of the channel thalweg in the Lower Alexander Valley using different data sources, comparing past and recent time-periods. All three figures show that the thalweg has been reasonably stable since 1994, and has even elevated in the lowermost section of the reach near the Jimtown Bridge.

I-41 **Comment:** The California Department of Fish and Game's 2002 Draft Russian River Basin Fisheries Restoration Plan states in Appendix B:

"Gravel mining is known to be the second major cause (next to Coyote and Warm Springs Dams) of sediment deficit in the Russian River basin. Park Steiner, in Steiner Environmental Consulting's 1996 report…does an excellent job of outlining the impacts of gravel mining as follows…

"In-channel and terrace mining each have unique problems, but both remove gravel from a sediment-starved system, further decreasing sediment supply. Lake Mendocino blocks approximately 200,000 tons of sediment per year (SCWA 1985), and Warm Springs Dam blocks approximately 400,000 tons of sediment per year (COE 1973). In-channel mining removes gravel at rates significantly in excess of replenishment, hence contributing to channel incision…

"Recently; Shamrock Materials was granted a ten-year permit to remove up to 131,000 tons per year from the Alexander Valley Reach. Several other ten-year permit applications are pending which, when added together, could far exceed the most recently monitored sediment deposition amounts (Sonoma County Water Agency, unpublished data).

Response: The comment quotes the July 2002 draft of the Russian River Basin Fisheries Restoration Plan produced for California Department of Fish and Game. The EIR preparers are familiar with the plan; it is the first document listed in the Bibliography for the Draft EIR (see page 6-1.)

For more information on the Shamrock Mining Operation Project, please see Section 4.2 of the Draft EIR and Responses to Comments H-9, H-10, and BB-42.

I-42 **Comment:** The North Coast Regional Water Quality Control Board's "Overview of the Russian River watershed: its characteristics, salmonid populations, and sediment and salmonid habitat water quality concerns" (August 2, 2006) states:

"In addition to the influence of the dams, gravel extraction has reduced the supply of sediment available to downstream reaches of the Russian River watershed. Florsheim and Goodwin (1995) in their report on Geomorphic and Hydrologic

Conditions in the Russian River, California: Historic Trends and Existing Conditions, summarized studies focusing on degradation along the mainstem Russian River. Their evaluation, including an analysis of aerial photographs, topographic maps, repetitive cross-section data and longitudinal profiles derived from a number of sources indicate that channel incision has occurred since the 1940s... Channel incision or downcutting is about eighteen feet in the Ukiah Valley, twelve feet in the Alexander Valley (which also experienced aggradation of approximately eight feet in a short reach near the Geyserville Bridge), and up to twenty feet of degradation in the middle Reach."

Response: The commenter cites a North Coast Regional Water Quality Control Board summary of the Florsheim and Goodwin study that is discussed in Response to Comment H-5.

J. SWANSON HYDROLOGY + GEOMORPHOLOGY

J-1 **Comment:** On behalf of Syar Industries and its consultant team, I appreciate the opportunity to provide comments on the Draft EIR prepared by Sonoma County for this project. We look forward to working with the County as the project proceeds through the EIR process, and offer these comments on the Draft EIR for the County's consideration.

1) River Enhancement Plan: As noted in the staff report, the River Enhancement Plan, which includes a variety of activities to improve river habitat and ecological conditions, is a major component of the project as proposed by Syar. The Final EIR should include revisions to reflect the status of the River Enhancement Plan as a critical component of the project as proposed by Syar. The title of the Final EIR should be revised to refer to the "Syar Alexander Valley Instream Mining Project, River Enhancement Plan, and Sonoma County ARM Amendments." Also, the River Enhancement Plan is included in the project description, including the many graphics, as a major component of the project. This should also be reflected in the summary description of the project set forth in section 1.1.

Response: The REP is identified and described in multiple chapters and sections of the EIR, including at pages 1-55 through 1-58. Those pages discuss the applicant's proposed oxbows, alcoves, riparian revegetation, and other enhancement activities. They disclose that the applicant has proposed river enhancement activities that would help provide refuge for fish species, facilitate access to tributaries during upstream migration, and provide bank stability and eventually large woody debris, among other benefits. These discussions appear sufficient for the public and decisionmakers to evaluate the REP, and understand its importance in relation to other project elements. The EIR preparers thus do not see a need to revise the title of the EIR or Section 1.1, which merely sets forth the purpose of an EIR. The commenter is free to discuss the REP before the Planning Commission and Board of Supervisors.

J-2 **Comment:** 2) Page 1-17, first bullet below table 1-1, first sentence, Page 1-18, in paragraph below three bullet points, center of page, first sentence; and page 1-63, last bullet bottom of page. Delete references to Syar planting the head of bar buffer with transplanted willows and cottonwoods or new willow stakes. It is usually not practical or useful to plant the head of bar buffer since scour and soil moisture

conditions are usually not favorable. Also, if vegetation were to become established, it could result in island formation and/or scour holes that could isolate fish.

Response: The applicant has commented that transplanting vegetation at head of bar would not be a stable location due to scour and soil moisture conditions. The EIR preparers concur. An aerial photograph of the entire Russian River from the Upper Alexander Valley to the bottom of Middle Reach reveals very little natural vegetation at the head of any bars. Vegetation tends to occur at the downstream end of a few bars, on the inside of the bar (furthest away from the low-flow channel), or along the outside perimeter of the bar (where it is close to the low water). Where vegetation exists at or near the head of bar, it is almost always close to the streambank on the inside of the bar (where the bar may be building up sediment and is not directly in the line of scour) or up on the streambank above the elevation of the bar surface. It is not practical to expect transplanted vegetation to hold at the head of bars in most cases, but the inside of the bar likely provides a more stable location for vegetation to establish.

Page 1-17 of the Draft EIR, the first bullet item under Table 1-1 is revised to allow planting bars where vegetation is most likely to survive, as follows:

> *Transplanting activities*: Syar would transplant stands of living, native riparian vegetation from the proposed skimmed areas to the high bank ~~and head of the bars before and in conjunction with skimming operations on each bar~~, or at other locations on the skimmed bar when those locations are deemed to be stable. Stable locations might include the inside portion of the bar (furthest from the low-water), outside perimeter of the bar (if already vegetated), or in some cases the bar head. Transplanting would take place before and in conjunction with skimming operations on each bar. Syar would monitor the vegetation on an ongoing basis in consultation with PRMD, DFG, and National Marine Fisheries Service (NMFS). Syar would supplement the transplanting approach with pole plantings and other methods if determined necessary through the Adaptive Management Strategy (AMS) process. In some cases, DFG and/or the AMS process may identify large stands of mature trees as important and require their maintenance on-site. Vegetation that is not transplanted (weeds, nonnative species) and debris would be disposed of off-site.

J-3 **Comment: 3) Page 1-55, 3rd paragraph:** This paragraph should be rewritten to clarify the proposed REP contribution fee and the implementation of REP projects to be concurrent and adjacent to mined bars. We suggest the following revised text to clarify this discussion:

> Each of the proposed enhancements would only be constructed adjacent to and concurrently with mining of bars in order to avoid additional and more widespread impacts, as shown in Figures 1-8a, 1-8b, 1-8c, 1.8e, 1.8f, 1.8-g, 1.8-f The schedule for which bars and adjacent REP projects would be completed will be determined as part of the AMS annual mining plan process. This allows for flexibility to address the most critical sites along the river where bar skimming would help reduce lateral erosion and increase flood capacity and where aquatic habitat improvements are most needed.
>
> Figure 1-8c shows a proposed Year 1 mining and enhancement project plan for Bar S-9, which is located immediately upstream of the Geyserville Bridge. This

Bar S-9 plan would add to the proposed first six-year period projects. The Bar S-9 plan was developed through the AMS process having undergone several field and office reviews and revisions in 2009. With the present EIR and permitting schedules, this project would be initiated in the summer of 2011. The 3.4-acre wetland and the area surrounding the alcove would be planted to willow and cottonwood forest.

The first six REP projects have a market value of $2.2 million, which exceeds six year of $0.30/ton fee by $1.5 million. However, this assumes that mining will occur at the maximum rate of 350,000 tons per year; if mining were reduced per year, then the scale and/or number of the enhancement projects would be reduced proportionately.

After the first six years Syar, would contribute a fee for enhancement projects of $0.30 per ton mined. The fee could be a direct contribution of money, or as valued by Syar contributing equipment, design expertise, and/or materials for completion of annual enhancement projects.

For bank protection and other larger projects whose cost exceed the fee available in a given year, Syar would have landowner partners and additional funding provided by grants or landowners who may benefit.

Response: The Draft EIR analyzes as part of the project the implementation of the three alcoves, three oxbows, and 11 acres of riparian planting and restoration proposed by the applicant. The Draft EIR does not assess costs except to note that the applicant developed the Enhancement Project list by multiplying $0.30 per ton X 350,000 tons of gravel per year X 15 years = $1,575,000. The applicant stated the Enhancement Projects were equivalent to $1,575,000 and did not include factoring for inflation. The EIR notes in Alternative 3 that a reduction in the number of years could result in the REP activities being reduced proportionally. See also Response to Comment CC-7.

J-4 **Comment: <u>Page 1-55, 4th paragraph:</u>** Syar provided evidence several years ago (letter from Mitchell Swanson to John Perry, June 2, 2005) to show that DeWitt's operations did not cause a reduction in riparian forest cover and that DeWitt installed bank protection as part of his operations. This should be reflected in discussion of the $82,006 fee. This fee should be waived in light of the REP projects which are designed to help off set legacy impacts. Alternatively, the following statement should be added:

"The proposed first six years of REP enhancement projects will greatly exceed the original ARM Plan River Mitigation Fee. The proposed first six projects have a market value in 2008 of $2.2 million. Syar has proposed the River Enhancement Plan in order to offset "legacy impacts" of past mining and land reclamation. In light of these contributions in excess of the contested amount, the County should consider this issue resolved and waive the $82,006."

Response: Please see Responses to Comments G-15 and H-18. The comment does not address the adequacy of the Draft EIR, but merely reiterates the applicant's request for a waiver of the fees incurred by DeWitt.

J-5 **Comment: 4) Page 1-58 last paragraph last sentence:** This sentence as currently drafted is incorrect. After dewatering and construction is complete, the upstream and downstream berms will be notched so that the next winter's flow will overtop and breach the berms and allow for natural restoration of flow to the low flow channel. The low flow channel will not be graded after construction nor will the berms be removed. This avoids a second dewatering and fish capture routine, which is an impact avoidance measure.

Response: Page 1-58, the last sentence on the page is revised as follows:

~~After construction of the enhancement is complete, the low-flow channel would be regarded, the berms would be removed to allow rewatering, and the temporary bypass channel would be backfilled.~~ The upstream and downstream berms would be notched to allow winter flows to return to the dewatered portion of the channel. The low flow channel will not be graded after construction nor will the berms.

J-6 **Comment: 5) Page 1-59 under "Equipment":** Syar probably will not use Moto grader since they would not be able to drive directly to the Syar Plant, unlike the Middle reach haul road which is dedicated to hauling only. The material would be scooped up with a loader then directly loaded onto hauling trucks which would be driven off the bar and directly to the plant in Healdsburg.

Response: The applicant has confirmed that it would not use the moto-grader for mining, but would use it for construction and maintenance of haul roads. Page 1-59 of the Draft EIR, the bulleted list below the heading "Equipment" is revised as follows:

Syar proposes the use of the following diesel-powered equipment during mining operations:

- Front-end loader
- Bulldozer
- Water truck
- ~~Motor grader~~
- Aggregate hauler
- Fuel and lube truck (this equipment would arrive on-site once a day)
- Crane (this equipment would be present only for installation and removal of temporary river crossings)
- Haul trucks

J-7 **Comment: 6) Page 1-64 second paragraph:** The citation should be for NOAA 200~~3~~4 sediment removal guidelines for the Southwest Region, rather than the 2003 National Guidelines.

Response: Page 1-64 of the Draft EIR, the first sentence below the heading "Adaptive Management Strategy Background" is revised as follows:

In 200~~3~~4, ~~NMFS~~ NOAA Fisheries issued *Sediment Removal from Freshwater Salmonid Habitat: Guidelines to NOAA Fisheries Staff for Evaluation of Sediment Removal Actions for California Streams* ~~(NMFS Guidelines)~~.

J-8 **Comment: 7) Page 1-67, third paragraph entitled "Pools":** A specific description of residual pool depth should be added. i.e. it is the length between the lowest point in a riffle and the deepest part of the pool immediately upstream.

The reference to use of a hydraulic model to determine residual pool depth should be removed, as it would not factor into the calculation. Only surveying and the possible use of AutoCad would be needed.

Response: The applicant has asked that the EIR preparers incorporate a specific description of residual pool depth on page 1-67 as the length between the lowest point in a riffle and the deepest part of the pool immediately upstream. This is an incorrect description of the residual pool depth as intended.

Page 1-67 of the Draft EIR, the third paragraph is revised to clarify residual pool depth, as follows:

> Syar would determine the average maximum residual pool depth ~~volume as described by Lisle and Hilton (1999) either with~~ by surveying along the thalweg~~, methods or with a combination of surveying and hydraulic modeling~~ to monitor changes in pool depth. ~~habitat quantity, relative to a permanent vertical datum and to the water surface corresponding to summer low flow~~. The residual pool depth is the water depth measured from the bottom of the pool along the thalweg to the water surface elevation defined by the controlling downstream riffle crest measured at point of zero flow. This would occur in the localized mining area at three pools (adjacent to each mined bar and immediately upstream and downstream of each mined bar), and for all pools in the permitted mining reach (once every 5 years or whenever there is a 10-year or greater flow event). ~~at two representative pools within, and one upstream of, the project reach.~~

J-9 **Comment: 8) Page 1-70 bullets under "should performance criteria be exceeded":**

a. The words "suspend mining" should be deleted as the potential effects of previous year's mining will be known well before PRMD approves the following year's plan. The wording should say that the proposed mining plan would not be implemented until PRMD in consultation with SRC and resource agencies agree that the proposed plan will address concerns.

Some suggested wording:

The only type of circumstance which would "suspend" mining would be during a mining operation when it is apparent that the approved mining plan is not being implemented (e.g. vegetation that was suppose to be preserved is removed, the depth and configuration of mining is deeper or covers a wider area, or if it is discovered that wildlife found within the area of potential effects, such as nesting birds or isolated aquatic species in backwater pools or scour holes). In these cases, modification to the operations and/or mining plan, if needed, would be completed before mining proceeds.

Response: Comment noted. The applicant proposed that mining could be suspended if performance criteria are exceeded, and suspension remains an important tool and option.

J-10 **Comment: 9) <u>Alternatives: Page 1-72: Alternative 1; Pages 2-8, 2-9; Page 4-25, 3rd paragraph:</u>** The discussion of the No Project Alternative in the EIR should reference and briefly describe continuing geomorphic trends of bar growth, erosion and risk of channel avulsion. If the No Project Alternative is adopted, these continuing trends could significantly reduce flood protection and destroy riparian forest and agricultural land. In addition to the loss of economically valuable aggregate, the discussion should note that that the existing trend towards more aggradation will risk other significant impacts and economic losses.

The 1997 EIR/EIS for Syar's Middle Reach project in its evaluation of the no project/no action alternative, found a significant unavoidable impacts to flood protection and erosion and consequent loss of high bank riparian habitat and agricultural lands. This would also certainly continue to be the case in the Alexander Valley if the No Project Alternative is adopted.

The Syar project itself can only address these issues one bar at a time but at least critical areas can be prioritized and repeated mining can maintain better conditions than letting the bars continue to aggrade. The No Project and other alternatives that reduce the volume of mining will to a greater degree be deficient in managing the existing channel.

Response: See Master Response 2.

J-11 **Comment: 10) <u>The Environmentally Superior Alternative, Page 2-10:</u>** The discussion of the environmentally superior alternative should recognize the effects of ongoing aggradation of bars, erosion, loss of flood capacity and flood protection and risks of channel avulsion. These are very likely possibilities of No Project and mining at lower rates of mining (Alternative 4). Alternative 4 may not be economically viable. The EIR should discuss how the ARM Plan objectives have not been met without mining, and note that there are very serious risks to landowners due to erosion, loss of soils, farmland and production, loss of riparian habitat, and the economic costs of installing bank protection or other measures.

Response: The Draft EIR explicitly notes at page 4-40 that Alternative 4 would not achieve the applicant's aggregate production target and may not be economically feasible. The Draft EIR discusses the impacts of past floods at pages 3.2-29 through 3.2-31, and explains at page 3.2-59 that instream mining of sediments can increase flood conveyance capacity by providing additional cross-sectional space for flood water, though any added capacity would be temporary and would diminish as mined areas refill with gravels. The Draft EIR also explains at page 4-25 that without the project, erosions of some banks could continue to occur, possibly resulting in encroachment on adjacent farmland and potential impacts to nearby structures. The Draft EIR also explains at page 4-36 that Alternative 4 would reduce flooding potential over the existing conditions, but not as much as the proposed alternative. In these locations and others, the Draft EIR thus discusses the commenter's identified impacts of Alternative 4, though the commenter remains free to raise these points again before the Planning Commission and Board of Supervisors.

J-12 **Comment:** 11) Impact 3.2-1, page 3.2-40 first paragraph second sentence. Add:"200 cfs" at end of sentence

Response: Page 3.2-40 of the Draft EIR, the first paragraph, second sentence below Impact 3.2-1 is revised as follows:

> Baseline elevations are keyed to low flow water surface elevation at 200 cfs.

J-13 **Comment: 12) Page 3.2-46, 3rd paragraph:** The paragraph discusses the occurrence of braiding at Bar 2 in Middle Reach as a result of mining the bar and leaving the head of bar buffer. The EIR says that this was caused by too low of a head of bar buffer (6 feet), when the actual cause was that the head of bar was unconsolidated material that were easily eroded when overtopped.

The paragraph acknowledges that no changes in the adjacent riffle and pool occurred and the bar refilled aggraded 6-8 feet and was mined again with larger head of bar buffer without impact.

The key lessons from the 2002 Bar 2 mining are that the head of bar buffer can be compacted by grading equipment in order to avoid braiding in small floods and that despite the braiding, the channel retained its location and width and depth.

Response: The EIR preparers believe the Bar 2 high flow chute channel may have been caused by too low a bar head buffer. However, the EIR preparers acknowledge that unconsolidated material at the bar head may have also contributed to the problem at Bar 2. Therefore, on page 3.2-46 of the Draft EIR, third paragraph, a new fourth sentence will be added as follows:

> Given the high energy setting, the head of bar buffer was overtopped, allowing a high flow channel to develop along the inner edge of the bar, which caused some erosion of the streambank at the inner edge. Unconsolidated cobble, gravel and sand material naturally deposited at the bar head may have also contributed to the formation of the high flow channel. The low flow channel and adjacent riffles and pools were not affected, nor did the thalweg move from its pre-mining position.

J-14 **Comment: 13) Page 3.2-47, second paragraph, 2nd to last sentence:** The project already has a 10:1 slope from the top of the head of bar buffer to the skim floor, so this measure is already included in the project. Suggest adding the phrase "consistent with the project description"

Response: The identified language is part of a mitigation measure (3.2-2) and standard that shall be incorporated into the ARM Plan and SMARO Amendments for the Lower Alexander Valley Reach, and may thus apply to projects beyond this one. It does not appear necessary to revise the measure to include a specific mention of the project description. The Draft EIR already notes that the applicant has proposed a 10:1 slope at pages 1-18, 3.2-45, and 3.2-46.

J-15 **Comment: 14) Page 3.2-52, first bullet "monitoring" under 3.2-5b Channel Vertical Stability, and under Mitigation 3.2-5e Pool depth:**

Suggested language change: "The water surface elevation and thalweg shall be measured by collecting elevation data points at intervals that document the breaks in slope".

The requirement that data points be collected every ten feet is excessive. This will greatly increase costs and complicate analysis by increasing the number of survey points significantly. There are no calculations that would benefit from such dense surveying points.

The key to surveying the water surface and thalweg is to catch the inflections of topography or breaks in slope. These points are used in Auto Cad to create the topographic maps, which will ignore all of the other points in constructing the map. - Adding a large number of points will make the files harder to process and will take considerable time to survey in the field (on land for edge of water and in boat for thalweg surveys). The larger areas can be accurately measured from the DTM topography with supplemental points to test the accuracy of the aerial topographic survey.

Accordingly, the requirement for data points every ten feet should be deleted. The key - is to have a performance criteria that are measureable with the accuracy of DTM maps +/-0.5 feet for contours over the project and extended reaches. Adding wse points at key points where the breaks in slopes occur provides the needed precision, but these measurements have far less density than every 10 feet.

The thalweg surveys catch the deepest part of the pool and riffle for calculation of residual pool depth, which is the only factor measured for pool depth. Adding hundreds of field survey points will not improve the resolution and is a distraction from the important task.

The monitoring plan also has to be practical to implement. Adding a point every 10 feet will not add precision, but will add substantially to the time and expense of the monitoring plan.

Response: The EIR preparers believe the existing monitoring requirement for a 10-foot interval is appropriate. It was developed in consultation with the applicant and relevant resource agencies to demonstrate the effectiveness and beneficial impacts of the Adaptive Management Strategy. Please see also Response to Comment J-17.

J-16 **Comment: 15) <u>Page 3.2-53, mitigation measure 3.2-5b, bullet #3:</u>** The statement should be changed to say " …evaluate the average (not potential) changes and trend in vertical stability… over the entire monitoring reach."

Response: Page 3.2-53 of the Draft EIR, Mitigation Measure 3.2-5b, bulleted item (3) is revised as follows:

> 3) The collected thalweg elevation data will be compared to baseline data, and used to evaluate ~~potential~~ changes in vertical stability trends over a two year or greater period in accordance with the ARM Plan and SMARO.

This revision is also made in Table 2.1 of the Draft EIR.

J-17 **Comment: 16) <u>Page 3.2-54, mitigation 3.2-5 e, under bullet "monitoring"</u>** should delete the 10-foot requirement per the comment above and state that field measurements will be taken at the breaks in slope of the water surface elevation.

The last sentence should be corrected to say that " ...the measured **maximum** depths **below** the **lowest point of** the controlled riffle crest."

Response: The EIR preparers believe the existing monitoring requirement for a 10-foot interval is appropriate. Page 3.2-54, Mitigation Measure 3.2-5e, the last sentence of the paragraph with the heading "Monitoring:" is revised as follows:

> The average maximum residual pool depth is the average of the measured maximum depths ~~less~~ below the ~~depth of flow~~ lowest point of ~~over~~ the controlling riffle crest.

This revision is also made in Table 2.1 of the Draft EIR.

J-18 **Comment: 17) Page 3.2-54, under mitigation 3.2-5e, under "performance criteria"** a decrease of 5% is very small, possibly as low as 0.3 feet or 4 inches for a 6 foot deep pool over the entire permitted reach. This should be changed to 15%, which is within more likely within the potential measurement precision and outside of likely natural variation.

Response: The EIR preparers believe the existing performance criteria is appropriate. It applies to average residual pool depth over the permitted reach. The Draft EIR explains that deeper pools provide special-status and other fish species with low-velocity "safe" areas, flood and thermal refugia, and other important functions. (Page 3.4-21.) The EIR preparers believe a conservative performance criteria is necessary to protect these important habitat elements.

J-19 **Comment: 18) Page 3.2-55, 5th paragraph under "impact significance after mitigation:** The sentence should be corrected to say that monitoring of the permitted reach due in year 7 would be combined with the extended reach survey in year 6. This would account for the baseline year 1 survey.

The sequence will be, extended reach survey Year 1 as baseline, which would include the permitted and mining reaches, three years later, Year 4 would repeat permitting reach, the year 7 permitting reach would be covered by the extended reach survey in year 6 (five years after baseline). This sequence would change in case there were a 5 year flood and again if there were a l0-year flood. What is important is to cover the permitted reach surveys when the extended reach surveys occur.

Response: The intent is to have the monitoring occur concurrently. Pages 3.2-50 and 3.2-51, Mitigation Measure 3.2-5 is revised to include a new last paragraph as follows:

> Mitigation Measures: 3.2-5 Monitoring Requirements:
>
> The following additional monitoring requirements shall be incorporated into the ARM Plan and related mining ordinance amendments for the lower Alexander Valley and, as appropriate, into the conditions of the project, to track gravel recharge rates, changes in sediment storage, bar area, channel stability, channel width, low water surface elevations, thalweg elevations, and pool depth. Monitoring shall be required at three different spatial scales and time periods, as follows:

(1) Extended Monitoring Reach Survey: A baseline survey starting at the Jimtown Bridge (RM 46) to one-half the distance from Gill Creek to Cloverdale Airport (RM 56.5) shall be performed prior to commencement of mining and then after a 10-year or greater flood or once every 5 years if no such flood occurs. The measurements outside of the permitted reach shall be used as a control, to determine the changes attributed to natural variation as opposed to mining activities.

(2) Permitted Mining Reach Survey: A permitted mining reach survey from RM 47.5 to RM 54 shall be conducted after a 5-year or greater flood or at least once every three years if no such flood occurs.

(3) Local Mining Reach Area Survey: A local mining area survey that includes the mined bar (one pool), one bar upstream (two riffles and one pool), and one bar downstream (two riffles and one pool) from the mined bar (a total of four riffles and three pools) performed every year for a three-year period following mining, or until performance criteria are met or as approved by PRMD through adaptive management.

The additional metrics set forth in Mitigation Measures 3.2-5a through 3.2-5g, below, shall be incorporated into the monitoring program for each of the survey areas and timeframes noted above.

The Extended Monitoring Reach Survey identified above in paragraph (1) encompasses the Permitted Reach (paragraph (2)) and the Local Mining Reach (paragraph (3)) by definition. An Extended Monitoring Reach Survey will satisfy the survey requirements for both the Permitted and Local Mining Reaches as long as all of the data points required for the Permitted and Local Mining Reaches included in Mitigation Measures 3.2-5a through 3.2-5g are provided. A Permitted Reach Survey will satisfy the survey requirements for the Local Mining Reach as long as all of the data points required for the Local Mining Reach outlined in Mitigation Measures 3.2-5a through 3.2-5g are provided.

This revision is also made in Table 2.1 of the Draft EIR.

Page 3.2-55, the first and second paragraphs below the heading “Impact Significance After Mitigation” are revised as follows:

Mitigation Measures 3.2-5a through 3.2-5g would reduce impacts related to changes in channel geomorphology and potential for flooding to a less-than-significant level. Incorporation of these mitigation measures, monitoring and performance criteria will ensure that removal of sediment from bars will not disrupt the geomorphic processes that maintain pool and riffle habitat.

~~In the permitted project reach area, monitoring in year 6 may be performed one year earlier and combined with the extended project reach monitoring in year 5 instead of doing back-to-back surveys of the extended project reach and the permitted project reach.~~

J-20 **Comment: 19) Page 3.2-56, first paragraph, last two sentences:** Add the following sentence: Bar Aggradation can also cause lowering of thalweg and low flow

water surface such that groundwater could be affected; thus mining the bars can help maintain groundwater elevations.

Response: The EIR preparers do not agree that a sentence should be added stating that mining can help maintain groundwater levels because bars are prevented from aggrading. The Draft EIR instead explains that mining operations can cause down-cutting of the bed and thereby potentially lower the groundwater table. The Draft EIR imposes Mitigation Measure 3.2-6 to address this potential impact.

J-21 **Comment: 20) Page 3.2-57. 1st paragraph, 3rd sentence to end of paragraph:** The discussion uses average annual gravel supply. A more complete picture would include the occurrence of larger floods. Suggest adding the following: *The gravel bars are replenished in floods larger than average annual, and depending upon the climatic period (i.e. wet, normal, or dry streamflow years), the amount of gravel in excess and available for mining will vary.*

Response: Page 3.2-57 of the Draft EIR, first paragraph, a new last sentence is added as follows:

> The gravel bars are replenished in floods larger than average annual flows, and depend upon the climatic period (whether it was a wet, normal, or dry streamflow year), such that the amount of gravel in excess and available for mining will vary in any given year.

J-22 **Comment: 21) Page 3.2-57, 3rd paragraph 1st sentence:** the statement is incorrect. It states that "geomorphic features will be maintained as long as excessive sediment (beyond what can be naturally replenished) is not removed through mining." It should read: *"geomorphic features will be maintained as long as only the excess sediment is mined and there is sufficient supply left afterward."*

Response: The DEIR preparers concur that the suggested revision is correct.

Page 3.2-57, the first sentence of the third paragraph is revised as follows:

> Monitoring data (ENTRIX, 2010) indicates that there is net sediment storage over time (even after much greater quantities of sediment extraction in the 1980s and earlier)~~, so that the bar forms and other g~~ Geomorphic features will be maintained as long as only the excess~~ive~~ sediment ~~(beyond what can be naturally replenished)~~ is mined ~~not removed through mining~~ and there is sufficient supply remaining afterward to maintain bar forms.

J-23 **Comment: 22) Page 3.2-58, 5th paragraph, Impact 3.2-8; first sentence:** the term "low flow channel" should be changed to "flood channel" i.e. the large channel that includes the bars and the low flow channel and is contained by terraces (i.e. 10 year flood or greater before flow overtops the banks and floods the valley floor). The low flow channel meander will not be changed by mining, in fact the whole idea of the buffers to prevent changes to the low flow and bankfull channels such that small flood hydraulics are maintained and pool riffles and other features are maintained.

Response: Page 3.2-58, the first sentence of Impact 3.2-8 is revised as follows:

> Project related mining will tend to straighten the meander of the ~~low flow~~ active channel (the portion of the channel that includes the bars and low flow channel and is contained below the river terraces) and reduce the ~~angle of attack on the bank opposite of the mined bar thus decreasing the~~ shear stress and erosion potential on the bank immediately opposite the mined bar. This impact is beneficial.

J-24 Comment: 23) Pages 3.2-59 and 60, Impact 3.2-10 carryover paragraphs:

This impact should be deleted or revised to reflect the following, which is supported by scientific evidence and reasoning:

> No increase in erosion would occur downstream of mined bars since: 1) flow area upstream is going to increase with bar mining, such that flow velocities overall will decrease, not increase; and 2) the bar downstream of a mined bar will have head of bar buffers to backwater flow over the riffle and before flow would enter enters the next pool. Hydraulic modeling of the proposed mine projects show no hydraulic impact downstream or upstream.

It should be pointed out that erosion does increase with aggradation of bars; this is shown in hydraulic modeling and in observations of erosion made over past several years, most notably at bars S-9 and S-10 above Geyserville Bridge.

The statement that "strengthening banks is needed to reduce localized erosion impacts of mining activities" should be deleted. Mining as proposed will not increase erosion. The removal of the bar actually reduces erosive force against the bank thereby improving bank stability - mining with NOAA criteria will not cause more erosion.

Response: The comment requests revising Impact 3.2-10 to indicate that no increase in erosion would occur downstream of mined bars. This would have the effect of eliminating Mitigation Measures 3.2-10a and 3.2-10b changing the conclusion from potentially significant to no impact. The EIR preparers do not feel this change is warranted because mining can cause local erosion effects. The EIR preparers agree that velocities will not increase due to mining, and Impact 3.2-10 on pages 3.2-59 and 3.2-60 is revised as set forth below. However, the mining of sequential bars can result in increased erosion due to a straightened local flow-pathway that impinges on a downstream meander. Mitigation Measures 3.2-10a and 3.2-10b will not be deleted, though it should be noted that mining of consecutive bars is allowed when the mining occurs only in the lower half of the bar (Mitigation Measure 3.2-10b).

Pages 3.2-59 and 3.2-60, the heading and first two paragraphs of Impact 3.2-10 are revised as follows:

> Impact 3.2-10 Increased Localized Erosion Downstream of Mined Bars. Case studies have shown that bank erosion associated with gravel mining is a local effect, specific to particular bends or reaches, and occurs in response to particular modifications to channel geometry (Collins and Dunne, 1990). Project related mining straightens the high flow pathway and thereby may alter the channel geometry so that flows impinge on a downstream meander, potentially increasing localized bank erosion. ~~impact increase flow velocities and reduce the~~

~~sediment supply immediately downstream of mined bar(s), thus increasing potential for scour and erosion on the riffle and bank below the mined area~~. This is a potentially significant impact.

Gravel extraction results in a decrease in shear stress which accelerates sediment deposition on the post-mining bar surface and promotes recovery of the channel bar surface and fluvial processes following gravel extraction. ~~There is a potential that as mining removes sediment from the channel and the mined bars trap the incoming sediment load, downstream bars are temporarily starved of sediment. This depletion of sediment can be amplified if multiple adjacent bars are mined at the same time. Additionally, m~~Mining adjacent bars has the potential to straighten the flow path at moderately high flows over a relatively long channel length.~~, potentially increasing flow velocity~~. This can increase the localized erosion of ~~the riffle and~~ banks downstream from the mined bar(s) depending upon the particular channel geometry. Strengthening the banks along the river corridor is needed to reduce the potential for localized erosion impacts of mining activities.

J-25 **Comment: 24) Page 3.2-64, first paragraph below table 3.2-6, first sentence:** The word “inundation” should be replaced with: “...preventing downstream flow over the skimmed bar surface ... before the 11,000 cfs flow”

It is likely and stated on the previous page (Page 3.2-63, 2nd paragraph 3rd sentence) that during floods, water will backwater through the downstream end of the mined bar, which is about 1 foot above low water and the mined area will be ponded before flow overtops the head of bar buffer and at that point exposes the skimmed area to downstream flow (which has greater velocity).

We appreciate the opportunity to comment, and would be happy to provide further information regarding any of these comments.

Response: Page 3.2-64, the first sentence below the “Mitigation Measures” heading is revised as follows:

Mitigation measures 3.2-2 (Head of Bar Buffer) and 3.2-3 (Side Bar Buffer) function to retain the bar form, limiting flow over the head of bar until at least 11,000 cfs discharge is exceeded, which will not occur until after the bar skim surface has already been backwatered through the downstream end of the mined bar. The backwater will prevent~~ing inundation~~ downstream flow over ~~of~~ the mined surface until flows reach at least 11,000 cfs, ~~and preventing lower flows from~~ limiting the potential for entrainment~~ing~~ of sediments from the skim floor.

K. JOHN M. CASH AND BRIAN C. PETRIE

K-1 **Comment:** We are writing to comment on the proposal by Syar Industries to conduct a major extraction of the gravel bars on the Russian River north of the Geyserville Bridge on Route 128. Syar Industries has been an excellent neighbor of ours for more than ten years. They have maintained the riparian habitat along the river, , have strongly discouraged the use of all-terrain vehicles on the gravel bars, and have been responsive to the community. Nevertheless, the proposal currently under consideration for gravel extraction would have an unimaginable negative impact on

the Russian River and on the way of life of those of us who live along , it. We must regretfully write in strong opposition to the proposal of Syar Industries.

Response: The commenters state that the applicant "has been an excellent neighbor of ours for more than ten years" but nevertheless express "strong opposition" to the proposed project. These comments are noted. The commenters are referred to the other responses that follow with respect to specific issues raised.

K-2 Comment:

Impact on the Russian River environment: The Russian River is a fragile environment and the build-up of the gravel bars is a natural phenomenon that supports and sustains aquatic life and the river ecosystem. The Russian River is the wildest river close to the Bay Area and we believe it is essential that Sonoma County do everything possible to preserve it for future generations. The massive removal of gravel (ten years, sixteen-hours a day) would forever alter that ecosystem and no amount of environmental remediation could offset the short and long-term impacts. We would lose the fish and with them the ospreys, herons, and bald eagles that call the region home. This would be a loss for the State of California but a much greater loss for the residents of Sonoma County who have chosen to live here in no small part because of our ability to live close to nature in an agricultural region of unprecedented productivity and beauty.

Response: A complete discussion of the impacts and mitigation measures (where appropriate) of the proposed project on the ecosystem is described in Sections 3.3, Vegetation and Wildlife, and 3.4, Fisheries Resources, of the DEIR.

Ospreys, herons and eagles are identified in Table 3.3-2 on pages 3.3-11 to 3.3-14 of the DEIR as special-status species potentially occurring in the study area. As stated in Impact 3.3-6 on pages 3.3-36 to 3.3-37, the proposed project could diminish habitat quantity and quality for nesting and migratory special-status bird species. Implementation of Mitigation Measure 3.3-6, which would require bird surveys and establishment of a buffer if necessary to protect nesting birds, would reduce this impact to a less-than-significant level.

Special-status fish species potentially occurring in the Alexander Valley reach of the Russian River are listed in Table 3.4-1 on pages 3.4-5 to 3.4-6 of the Draft EIR. As stated in the fisheries impact analysis on pages 3.4-11 to 3.4-29, the proposed project could adversely affect fisheries habitat and result in the direct loss of fish, including special-status species. Where necessary, the Draft EIR identifies mitigation measures to reduce impacts on both wildlife and fisheries resources to less-than-significant levels. The proposed project would also implement river enhancement activities that would result in long-term beneficial impacts on aquatic habitat and fisheries.

The commenter's opinion that the wild character of the river would be lost permanently because of the project is not correct. First, the concept that the Russian River is a "wild" river is largely a misperception. While there are aspects of the Russian River that lend it a wild character, the river channel and much of the watershed in fact are substantially altered environments as a result of over 150 years of agricultural development, woodland removal, urban and other land development, mining, water resource development, and other uses. The river has large reservoirs

in the upper watershed, and weirs and diversions are present in the lower watershed: these facilities modify the river's natural flow. Pollutant discharges diminish water quality, and the river is classified as an impaired water body. The river channel has been highly altered in form and sediment for purposes of flood control, bridge crossings, vineyards and aggregate mining. As is noted in the Geomorphology, Hydrology, and Water Quality section of the EIR, the river channel in the project reach, as well as other reaches both upstream and downstream of the project area, has been substantially altered and the natural floodplain has been substantially reduced in width and modified in form. Natural riparian vegetation and wetlands have been substantially diminished along much of the river. In sum, the Russian River is not a wild river, as in the character of designated Wild and Scenic Rivers. The commenter is correct in the statement that the river possesses high sensitivity with respect to biological resources, in part as a result of those changes that have occurred in the watershed and in the channel.

The proposed mining project would introduce additional disturbance to a portion of the river channel, the impacts of which are discussed in the Draft EIR. If not mitigated, that disturbance could result in significant irreversible alteration of habitat and other attributes of the river. These effects are described in this EIR as potentially significant impacts of the project. However, there are four aspects of the project that would result in changes that are not permanent and substantial.

(1) The proposed mining methods and activities of the mining project would confine the area of disturbance to the bars such that the degree of change would be moderated by the limitations on bar form itself, as described in the Draft EIR on pages 1-15 through 1-55. Recognizing that the river is a dynamic system, subsequent changes to the bars sediment and vegetation cover in the mined areas of bars would be expected to occur, as described in the Geomorphology, Hydrology and Water Quality discussion as well as in Vegetation and Wildlife, Aesthetics and other sections.

(2) The proposed mining would be guided by an adaptive management strategy in which annual monitoring of conditions would form the basis for deciding on the locations and extent of planned mining operations in the river in a given year as well as any mitigative adaptive management actions. The adaptive management plan, described in the Draft EIR on pages 1-64 through 1-70 would be a check to ensure that substantial irreversible damage to the river does not result from the project.

(3) Specific mitigation measures for the anticipated impacts on river resources are presented in the topical impact discussions of the Draft EIR and are summarized in Table 2-1, Impact and Mitigation Summary, on pages 2-13 through 2-75. These mitigation measures are specific and directed to reducing the impacts to a less than significant level. It is important to note that all potentially significant impacts can be mitigated to less than significant levels, with the exception of traffic, PM_{10} emissions, and noise, which are deemed significant and unavoidable. However, each of these significant and unavoidable impacts are not permanent effects, as they are related to seasonal activities of the project and would not persist after the design life of the project is reached.

(4) Syar has proposed to undertake certain river enhancement measures directed to achieving ecological improvement and restoration objectives, as described in the Draft EIR on pages 1-55 through 1-58.

In sum, as a result of these considerations, the finding of the EIR is that the proposed project, with mitigation, is deemed likely to not result in any significant permanent (irreversible) adverse impact on the river and its habitat.

K-3 Comment:

Economic Impact: The economic impact of the Syar proposal on the region would be profound. The noise, dust, and traffic caused by the heavy construction equipment and removal trucks would have a major negative effect on the region's appeal to tourists. Geyserville, which has become a major Wine Country destination, would quickly lose its appeal to quieter, more settled communities elsewhere in the region. The economic balance between permanent and part-time residents, local business, and the wine industry would be seriously impacted by the Syar plan. Instead of a quiet weekend destination for tourists from all over the world, Geyserville and the northern Alexander Valley would come to resemble an Appalachian strip mine with hundreds of trucks filled with gravel clogging narrow streets and disrupting the life of the community.

Response: CEQA Guideline Section 15151(a) requires that "[e]conomic or social effects of a project shall not be treated as significant effects on the environment." The proposed project would not result in economic effects to Geyserville or the project area sufficient to cause any substantial adverse physical changes in the environment. Instead, the Draft EIR explains that commercial gravel mining has occurred within the Russian River in the Alexander Valley since the early 1900s. (See pages 3.2-11, 3.2-16.) It notes that the rate of instream mining increased from the 1940s to the 1980s and that from 1981 to 1993, gravel extraction removed an average of 680,000 tons per year, with rates over 900,000 in some years. (See page 3.2-11.) This mining apparently did not destroy Geyserville's tourist appeal, much less turn it into "an Appalachian strip mine."

By contrast, the project proposes to remove no more than 350,000 tons per year during the dry season only, on weekdays only, and for no more than 15 years. No mining would occur on weekends or federal holidays, and the Draft EIR includes numerous measures to mitigate project impacts on noise, air quality, and other environmental values. As a result, the project would result in far less economic or social effects than past mining in the project area, and would not result in economic or social effects sufficient to cause significant adverse physical changes in the environment.

K-4 Comment:

River Road and Local Residents: Finally, the proposal would effectively ruin the quality of life for the residents of River Road and areas on the opposite side of the Russian River north of the Geyserville Bridge. We purchased our home ten years ago as a retreat from the noise and traffic of the Bay Area. We fully expected that the Russian River would remain in its wild state and that Sonoma County, with its long and unique commitment to the preservation of wild habitats and open space, would never allow the River environment to be destroyed. We are now faced with an enormous industrial proposal that would transform our neighborhood into a huge,

open-air mine. Instead of bird calls, we would be subjected to the noise of construction vehicles. Instead of the smells of our garden and the vineyards, we would be subjected to diesel fumes and clouds of dust from the bulldozers and trucks needed to mine and remove the gravel. Instead of a calm retreat and a planned retirement home, we would be stuck with a devalued property and a subsequent devastating impact on our estate. Our plan to become full-time residents in 2011 and to create a retirement home would be ruined. The air quality alone would not allow either of us to remain.

Response: The comment may overstate potential project impacts on the commenters' future retirement home. The commenters' property is adjacent to Sensitive Receptor 9, shown on Figure 3.7-1, Sensitive Receptor Locations: Reach 1, on page 3.7-27 of the Draft EIR. Sensitive Receptor 9 is approximately 900 feet northeast of the gravel mining site at Bar S-9. Bar S-9 held 163,391 tons of aggregate in 2008. (Page 1-17.) Bar S-9 would not be skimmed every year, but rather on a six-year cycle depending on winter high flows and recharge rates. (Page 1-15 to -16.) Mining would occur only during weekday, daylight hours; no mining would occur during nighttime or on weekends or federal holidays. Mining would only occur from June 15 to either October 15 or November 1. (Page 1-16.)

The commenters correctly note that their property would experience equipment noise when Bar S-9 is mined. But the Draft EIR explains at page 3.9-16 that noise at Sensitive Receptor 9 would be less than significant and below the daytime and nighttime noise standards set forth in the Sonoma County General Plan. Mitigation Measure 3.9-1 specifically limits equipment use to the daytime hours, and requires temporary noise blankets to shield receptors from excessive noise. The Draft EIR further explains that it evaluated conservative modeled noise levels, and that and actual noise levels would likely be lower because of changes in wind direction, shielding provided by the riverbank, and the duration of daily instream mining activities. Additionally, ambient noise levels in the project vicinity are expected to increase during seasonal agricultural activities involving heavy-duty agricultural equipment, such as tractors and sprayers.

The commenters also express concern regarding diesel PM emissions. The Draft EIR explains at page 3.7-33 that project-generated diesel PM emissions would not expose nearby existing sensitive receptors to substantial pollutant concentrations. Emissions of diesel exhaust would be seasonal, vary in location year to year, and would be highly dispersive in nature.

The commenters also state that the project would result in "clouds of dust." In fact, as discussed in Chapter 2 of this Response to Comments Document, with mitigation the project would result in less than significant emissions of particulate matter.

K-5 **Comment:** For these reasons we strongly urge the Permit and Resource Management Department to reject the proposal of Syar Industries and to urge the corporation to enter into negotiations to convey the Russian River north of the Geyserville Bridge to the Conservation District. This unique local ecosystem should be preserved for future generations and not mined and destroyed. Sonoma County is a truly special place and we are all under obligation to preserve and protect it. Syar Industries has heretofore respected that commitment to preservation and we are dismayed that the company has now presented such a singularly destructive

proposal for open-air mining. We hope that all sides can find a reasonable compromise that will preserve the Russian River habitat, the local economy, and the quality of life that is so precious to those of us who live here.

Thank you for receiving our comments on the Syar Industries proposal.

Response: The commenters again express their opposition to the proposed project, and urge the PRMD to reject it because it would "destroy" the local ecosystem. The PRMD does not have the authority to approve or deny the project. The proposed project will instead be approved or denied by the Board of Supervisors, following a recommendation by the Sonoma County Planning Commission. As set forth in the Draft EIR and this Response to Comments Document, the proposed project would result in adverse impacts but would not "destroy" the local ecosystem. The rest of the comment is noted, and will be considered by the decisionmakers.

L. DEBORAH AND MICHAEL BAILEY

L-1 **Comment:** My husband and I live at ____ Lytton Station Rd., Geyserville, Calif. 95441. We are on the proposed Haul Route 2, whereby gravel trucks will go from one of many gravel bars to Hassett Lane, to Lytton Station Rd., to Lytton Springs Rd. and then to Hwy. 101 and vice versa. We have lived in Sonoma County for 35 years, but it was only in December of 2009, that we moved into our home on Lytton Station. We chose this location because of its rural nature, peace, and tranquility. It was not disclosed to us that it had been designated as a possible gravel truck route. When we received notice of the completion of the DEIR we were **shocked!**

Response: The commenters make a general comment regarding their opposition to the use of Lytton Station Road as a haul route. The commenter is referred to the other responses that follow with respect to specific issues raised, and to Chapter 2 of this Response to Comments Document, which explains that the applicant has revised its project to eliminate hauling on Lytton Station Road.

L-2 **Comment:** We do not think that a "Roadway Level of Service" was addressed where Hasset meets Lytton Station. There is a large amount of traffic on Lytton Station Rd. in the mornings and evenings when people are going to and from work. There would certainly be an impact upon traffic flow on Lytton Station by the introduction of 240 round trips, or 480 single trips of gravel trucks and it needs to be evaluated.

Response: Syar has revised its project description in a letter to the County on July 27, 2010 to eliminate the use of Haul Route 2 (Olivier Road, Hassett Lane, and Lytton Station Road). By removing this haul route, all impacts associated with the project on this route are eliminated. See Chapter 2 of this Response to Comments Document for further detail.

L-3 **Comment:** We do not think that a "Roadway Level of Service" was analyzed or addressed where our driveway meets Lytton Station. Our driveway is the first driveway on the south-east side of Lytton Station after the 90 degree turn is made. It is often difficult to safely enter or leave our driveway during the morning and evening hours when people are commuting to and from work. Shortly after we moved to our home, I contacted the public works dept. and asked that they address this problem. We thought that a reduction in the speed limit would help; but this has not occurred as yet. There would certainly be an impact upon our ability to safely enter or exit our

driveway with the addition of 480 gravel trucks per day! It is impossible to mitigate this issue even if the gravel trucks reduce their speed somewhat as proposed in the mitigation! The chances of being in an accident as we, our family, and or guests enter or leave our property, is almost certain.

Response: Syar has revised its project description in a letter to the County on July 27, 2010 to eliminate the use of Haul Route 2 (Olivier Road, Hassett Lane, and Lytton Station Road). By removing this haul route, all impacts associated with the project on this route are eliminated. See Chapter 2 of this Response to Comments Document for further detail.

L-4 **Comment:** What type, if any historical collision data was collected on
A. the Hasset to Lytton Station intersection? And
B. the 90 degree angle turn on Lytton Station?
(In the short amount of time that my husband and I have lived here there has already been 1 accident and several close calls. Drivers often take the curve too quickly and stray into the opposite lane. It is essentially a blind curve and that makes the situation even worse). As stated in section 2 above, the chances of additional accidents occurring on this curve as the result of the introduction of the gravel trucks is greatly increased!

Response: Syar has revised its project description in a letter to the County on July 27, 2010 to eliminate the use of Haul Route 2 (Olivier Road, Hassett Lane, and Lytton Station Road). By removing this haul route, all impacts associated with the project on this route are eliminated. See Chapter 2 of this Response to Comments Document for further detail.

L-5 **Comment:** The draft EIR mentions a mitigation measure for the 90 degree angle turn on Lytton Station. In section 3.6-3.c it states that the road would have to be widened by Syar obtaining a Right of Way onto our property & removing trees. As current owners of the property, we have not been approached by Syar and we have no desire to issue them a right of way. We bought our property in large part because of the beautiful large trees and the privacy they afford. As stated in the EIR, if mitigation can not be accomplished by obtaining a right of way, the traffic impacts would be significant! To put it simply, it will not be a viable travel route for the gravel trucks!

Response: Syar revised its project description in a letter to the County on July 27, 2010 to eliminate the use of Haul Route 2 (Olivier Road, Hassett Lane, and Lytton Station Road). By removing this haul route, all impacts associated with the project on this route are eliminated. See Chapter 2, Revisions to the Draft EIR, in this document for further detail.

L-6 **Comment:** As noted in sections 3.6-4, the road condition on Hasset is poor with a bridge that is old and unstable. Lytton Station Rd. is in only fair condition. Furthermore, neither road is very wide. Currently, it is dangerous to walk, bike or ride a horse on Lytton Station. In spite of that fact, it still remains a favorite route for the above recreational activities. Even if these two roads are improved with a layer of asphalt, gravel trucks going back in forth in each direction will surely lead to a large increase in pedestrian, biking, & equestrian accidents and fatalities.

Response: See Response to Comment L-5.

L-7 **Comment:** Our home, and my husband and I are the noise sensitive receptors on Route 2: We were not approached by anyone doing an acoustical analysis. Nonetheless, in Section 3.9-3, it is stated that acoustical studies were performed and the results indicated that haul trucks will expose the existing sensitive receptors on route 2 to significant increases in traffic noise. "Noise that will exceed the standard exterior threshold." Quite frankly, that is quite an understatement! Prior to our moving to Lytton Station, my husband and I and our three daughters lived on Windsor River Road in Windsor, CA. For about 10 years we were subjected to the "increase in traffic noise" generated by the almost constant traveling of gravel trucks on Windsor River Rd. The constant rumbling was unnerving & many times I would describe that noise as statistically significantly unpleasant and downright unhealthy! Furthermore, since we enjoy spending much of our days outside, mitigation measures such as double pane windows, while helping to dampen the noise indoors, will do nothing to dampen the noise outdoors. In addition, we like to sleep with our windows open so we can enjoy the sounds of nature and feel the gentle breezes. Can you imagine being awakened every weekday morning at 6:00 a.m. to the sound of gravel trucks on the move, six months out of the year from June through November, and then not having that noise cease until 9:30 p.m.? Once in a lifetime for 10 years was enough! We did not have this in mind to experience again, especially during our retirement years!

Response: Syar has revised its project description in a letter to the County on July 27, 2010 to eliminate the use of Haul Route 2 (Olivier Road, Hassett Lane, and Lytton Station Road). By removing this haul route, all impacts associated with the project on this route are eliminated. See Chapter 2 of this Response to Comments Document for further detail.

L-8 **Comment:** Was the dust that will be generated from the gravel trucks addressed in this EIR? We do not think so. The levels of dust created by the sheer magnitude and number of gravel trucks using Lytton Station Rd. daily will be quite high. We know this from past experience, and it will be impossible to be mitigated. I have existing allergy problems. This dust will only exacerbate my symptoms and make my daily life very uncomfortable.

Response: Both the Draft EIR and this Response to Comments Document address dust (PM_{10}) generated from haul trucks on unpaved roads, and on public roads. The overwhelming majority of project-generated dust would stem from hauling on unpaved roads. See page 3.7-23 of the Draft EIR and Chapter 2 of this Response to Comments Document. See Response to Comment L-5 regarding Lytton Station Road.

L-9 **Comment:** Was the economic impact to our property ever evaluated in this EIR? We think not. We have a very large economic investment in our home. The proposed running of gravel trucks for several years will certainly decrease the value of our home. There is no proposed mitigation measures for this certain eventuality.

Response: Syar has revised its project description in a letter to the County on July 27, 2010 to eliminate the use of Haul Route 2 (Olivier Road, Hassett Lane, and Lytton Station Road). By removing this haul route, all impacts associated with the project on this route are eliminated. See Chapter 2 of this Response to Comments Document for further detail.

L-10 **Comment:** We realize that gravel is an important and necessary commodity in Sonoma County. It is important for Sonoma County's growth and for its economic health. But, should it be at the expense of the health, happiness, economic health of its individual citizens? We certainly hope that this will not be the case. We therefore respectfully request that if this EIR is approved, that proposed Route 2 be eliminated and that (1) Syar be required to construct a private haul road that will not impact any personal property owners without their consent, or (2) that Route 3 be used for the gravel trucks instead of Route 2, if all those who will be affected on Route 3 agree.

Response: The commenters request that proposed Haul Route 2 be eliminated if the EIR is certified and project is approved. As noted above, the applicant has revised its project to eliminate Haul Route 2.

M. JACQUELINE LUDERS

M-1 **Comment:** My Husband and I live at ____ Lytton Station Road., Geyserville, Ca. 95441, along the proposed Hall Route 2, and I just wanted to write in to express my concern over this route.

As a child, I lived along a gravel route in Windsor and am well aware of not only the noise they can produce, but, dust, traffic, disturbance of peace to one lifestyle, as well as safety issues they can pose for little ones (as I was once one - try crossing a street whether on a bike with friends or walking with neighbors it is difficult to feel safe when you have these huge semi's barreling down on you). My Husband and I plan on one day having children of my own and this is not the future we had in mind for them...240 round trips down Lytton Station Rd, no thank you!

I hope you will reconsider the Hall Route 2, I am sure there is another road the gravel can be transported on, that would be more warmly supported, and infring less on the residing residents.

Response: The commenter expresses concern regarding noise, dust, traffic, and safety issues along proposed Haul Route 2. The commenter is referred to Responses to Comments L-1 through L-10 with respect to specific issues raised. In addition, the commenter should be advised that the project applicant has revised its project to forego use of Haul Route 2. This change would seem to address the commenter's concerns. Please see Chapter 2 and Appendix C of this Response to Comments Document for more information.

N. UNSIGNED LETTER

N-1 **Comment:** I am a resident in close proximity to where the extraction will take place. I have no interest in any entity aligned with or against the project and nor do I have any conflict of interest other than as a private citizen who resides in Alexander Valley. I have read the EIR documents and seek to understand and comment on what is contained therein.

While I would prefer no mining, I do not feel this is fair to Syar, the construction industry, or, for that matter, to the interests of progress and free enterprise.

Response: The commenter makes a general comment that he would prefer no mining but does not feel this is fair to various entities. This comment is noted. The

commenter is referred to the other responses that follow with respect to specific issues raised.

N-2 **Comment:** However, many aspects of this project trouble me. In the first place. the project is said to be able to work 5 days a week from 6:00 am to 9:30 pm or "as daylight allows". There is a proposal to also work Saturdays.

I believe this language is dangerously vague as it pertains to setting hourly limits of the work day. I also believe it is too generous in its allowance of the hours that can be worked. 15 plus hours per day for up to 15 years is a onerous amount of time to have the residents -human and otherwise- of the Valley be subjected to.

My position is that the maximum amount of hours of work should be 8, and none of the hours should be in the early morning or in the evening. The hours of 7 am to 3:30 pm would be more harmonious with people's lifestyles along the river. It should not be forgotten that even at 10 years- instead of the proposed 15- the impact of this project is long term and will drastically alter the quiet enjoyment and lifestyle of the residents of this valley. This is true even if a 8 hour workday is approved.

Parenthetically, I can tell you that a single small tractor on the upper valley floor can be heard amazingly well from houses in The Vineyard's subdivision. It should be understood that the aural impact goes beyond just the residents of the Valley floor. If the 15 hour work day is allowed to stand, at the very least the language should be changed -eliminate the "or as daylight allows" term and specifically disallow any work before sunrise or after sunset.

Response: The comment incorrectly identifies daylight as a relaxation of the hours of operation. In fact, daylight limits those hours of operation. The Draft EIR explains at page 1-62 that the project may operate to 9:30 p.m. or as daylight allows. Since the sun sets at 8:35 p.m. on June 21st, the longest day of the year, nighttime operations would cease before 9:30 p.m. for most of the operating season as "daylight hours" only extend ½ hour before sunrise and after sunset. (StarDate, University of Texas McDonald Observatory).

N-3 **Comment:** As far as I can tell, the EIR does not mention the impact on wildlife such long hours would have. Besides the special status species, the plethora of other wildlife that would be impacted is obvious. According to State CEQA quidelines, as seen on page 26, section C, any impediment to wildlife by a project designates that project as having "significant impact". I believe the long hours serve to create a impediment to vital sustenance for the wildlife, and the hours should be reduced.

To deny, for example, a newly born quail access to the river for 15 hours is a sentence of certain death. It would not even attempt the journey after sunset. There are many other species that would be afflicted.

Many of the proposed gravel transport roads on the river bank travel parallel to the river. The trucks up to 25 per day- and the mining noise would present a formidable barrier if one is going from the woodlands to the river. Reducing the work day to 8 hours, would help, and I would also like to see aquifers (water stations) set up in strategic locations, whether it's the proposed 15 hours or more beneficial 8 hour work day.

Response: Page 3.3-26 of the Draft EIR identifies the criteria used to determine significant impacts for biological resources. As stated in the Draft EIR, impacts on wildlife movement are considered significant when determined to be substantial. The commenter is not correct in assuming that any impediment to wildlife movement is significant under CEQA. Potential impacts on special-status birds, including noise resulting from mining and enhancement activities, are discussed on page 3.3-36 of the DEIR. Mitigation Measure 3.3-6 identifies measures that would reduce this impact to a less-than-significant level. No additional mitigation is necessary to reduce impacts on wildlife movement.

N-4 **Comment:** As to Alternative 4, I endorse the exclusion of S-9 and S-10, which are just upriver from the bridge. There are approximately 100 people living adjacent to these bars. There are 9 domiciles on River Road directly adjacent to S-9, so this bar is literally in their backyard.

Others, approximately 10 houses, are on River Lane, situated just across the river from S-9. The noise, dust, and smoke would drastically curtail the lifestyle all the above people have grown accustomed to, and will do so for many years.

S-9 itself at 163,000 tons represents 6520 one way truck loads, at the maximum (as set forth in the EIR) of 25 tons per truck load. S-10 is very large, at more than 400,000 tons or 16,000 one way truck loads. You can double these numbers for the trucks as they have to return empty for the next load.

I personally know of elderly individuals as well as infants that live within the above described confines. The EIR reports that vehicle emissions will be significantly higher than the maximum amount allowed, and this could seriously affect the well being of these individuals. Furthermore, and perhaps to a much greater extent, the people on Hamilton lane in Geyserville would be impacted by the trucks coming from S9 and S10.

Response: The commenter endorses a prohibition of mining Bars S-9 and S-10. These comments are noted. They do not address the adequacy of the Draft EIR, but will be considered by the decisionmakers.

The commenter states that mining of 400,000 tons at Bar S-10 will result in 16,000 one-way truck trips year. In fact, the project proposes to skim no more than 350,000 tons per year, regardless of bar size.

The commenter states that vehicle emissions will be significantly higher than the maximum allowed. In fact, the Draft EIR explains at pages 3.7-24 to 3.7-34 (Impacts 3.7-2, 3.7-3 and 3.7-5) that project-generated vehicle emissions would not exceed thresholds of significance.

The commenter states that the trucks coming from Bars S-9 and S-10 would affect people on Hamilton Lane in Geyserville. Per its letter to the Sonoma County Permit and Resource Management Department dated July 27, 2010, the project sponsor has decided to eliminate Haul Route 5 (which includes Hamilton Lane) from the proposed project. No project traffic would occur along Hamilton Lane, and therefore no traffic impacts resulting from the project would occur to people on the road.

N-5 **Comment:** There is a sentiment among some people that S-9's and S-10's gravel removal would protect the bridge, and thus should be allowed to proceed. I did not read where the EIR addressed this specifically, and I would like to hear from an expert at the June meeting as to whether or not this is a fact.

Meanwhile, it seems to be the common belief-which has a ring of truth- that gravel removal increases the speed of the current. If so, the extraction of gravel above the bridge would seem to heighten the risk to the bridge as the extraction would serve to send it faster towards the bridge's west side. This west side is already giving way, as seen last winter, and, to me, the extraction of S9 and SI0 would only exacerbate this.

On this same subject, downstream of where the old Piombo Brothers site use to be, in between S9 and SI0, the river bank is eroding faster, so it seems, for each year that passes. You can view this from the first big curve (if going upriver) on River Road. It has lost 8-10 feet of river bank in the last 3 years.

This part of land serves as an abutment from floodwaters to the houses situated just downriver. Without the abutment, these houses are in serious jeopardy during flooding. I did not see whether the EIR has addressed the impact the inevitable erosion (from faster flows) would have on this particular area.

Response: The Draft EIR does not directly address whether gravel removal would protect the Geyserville Bridge. However, as part of a larger plan to control the ongoing erosion on the upstream side of the bridge (right bank), gravel mining could help with reducing the rate of erosion, and assist with preventing an out-flanking of the bridge abutments.

As discussed in the Draft EIR under Impact 3.2-8, Reduced Lateral Bank Erosion at Point Bars (pg 3.2-58), gravel mining can help alleviate erosion by straightening the flow pathway and reducing shear stress that erodes the bank, potentially including the bank opposite Bar S-9 just upstream from the bridge. The comment incorrectly states that gravel removal would increase the flow velocity; please see Response to Comment G-8.

N-6 **Comment:** Lastly, having major mining operations on S-9 within site of the highway and while crossing the bridge is a blight to the eyes and as such would affect tourist's perception of the valley. Together with one's view of the Casino, a perception of "overdeveloped" may prevail and erode the very basis -natural scenic beauty - by which many people come here to visit.

Response: Section 3.8, Aesthetics, of the Draft EIR explains that the proposed project would not construct any permanent structures, and would be inevident or subordinate to most viewer groups most of the time. Mining operations at Bar S-9 would be visible from the Geyserville Bridge, but views from motor vehicles and bicycles would be short in duration because of the rate of speed. (See page 3.8-11.) In addition, mining operations at Bar S-9 would be seasonal and temporary; mining would occur only during weekday and daylight hours, and mining equipment would be completely removed at the end of the season. (See page 3.8-14.) As a result, mining of Bar S-9 would not affect tourists' perception of the entire project area sufficient to cause any substantial adverse physical changes in the environment. Please see Response to Comment K-3 for additional information.

N-7 **Comment:** For these reasons, I strongly urge that Alternative 4 be approved.

I also endorse the lowering of total extraction amounts for the entire project, as the EIR alternatively proposes. The Russian River is the only remaining corridor of sanctuary for many species, threatened or not, and all of them are under great human duress with or without the project. The impact on human "receptors" as the EIR likes to call us, is also profound, and I have outlined some of them already.

Response: The commenter expresses his support for Alternative 4 and lowering total extraction amounts to reduce impacts on human and wildlife species. These comments are noted. They do not address the adequacy of the Draft EIR, but will be considered by the decisionmakers.

N-8 **Comment:** Some of the old time residents like to speak whimsically of the time when the river would dry up every summer, making the analogy that digging in a now flowing river bed, no matter what the impact, is less damaging than the old days of when there was no water at all. They conclude that even with no water, the overall health of the environment was just fine, so all the current talk of turbidity, harm to wildlife, lack of spawning fish, etc. is, in effect, hogwash.

Yes, but in "those days" you had 100 times less people, 100 times the open space and 100 times more avenues of escape, in contrast to today with super highways, roads, high vineyard fences, dogs, houses, etc. And the salmon and steel head population was much, much higher, so that one "good" winter, like the last one, would produce an explosion of fish that would sustain the population for years. If the river was "dry" today, with low fish numbers returning, the fish would be extinct soon after.

Moreover, orchards and vegetable farms (as was present in the "old days") are supporting wildlife over the seas of vineyards we have presently. The seasonal dry river analogy used in support of the project is myopic, much to the detriment of common sense.

Response: The commenter relates an argument he says he has heard from "old time residents," and identifies reasons he disagrees with their "whimsical" conclusions. These comments are noted. They do not appear to address the adequacy of the Draft EIR, but will be considered by the decisionmakers.

N-9 **Comment:** Finally, the Casino for several years has threatened to start on a major resort upgrade which, if brought to life, will undoubtedly triple the traffic and congestion on our roadways.

Response: The Draft EIR identifies the proposed River Rock Casino expansion as part of the cumulative setting at page 4-6, and analyzes cumulative traffic impacts at pages 4-13, 4-14, and Table 4-1. As discussed therein, implementation of the proposed project, as mitigated, would not result in a significant traffic congestion impact, even when evaluated against a very conservative cumulative projection of a 1.5% per year increase in area traffic (which equates to an approximately 30% increase over baseline over the life of the project) due to cumulative development specifically including the proposed casino expansion.

N-10 **Comment:** This is another reason why the flexible AMS should be incorporated, as this resort is a wild card -pardon the pun- to consider as the gravel project unfolds.

Response: The commenter states that he believes the flexible AMS should be incorporated into any approved project. This comment is noted. This comment does not address the adequacy of the Draft EIR, but will be considered by the decisionmakers.

N.a. WILLIAM BAGLEY

N-11 **Comment:** I. No extraction from s-9 and s-I 0 due to the number of people living around these bars

Response: The commenter states that he believes Bars S-9 and S-10 should not be mined. This comment is noted. It does not address the adequacy of the Draft EIR, but will be considered by the decisionmakers.

N-12 **Comment:** 2. 15 hours per day is too long of a period to tolerate the noise and too long for animals to wait for access to the river to obtain water. 7:00 am to 3:30 pm is the most logical work day, and if they have to work Saturday as the only way to get this concession to happen, I will reluctantly endorse this.

Response: The commenter again expresses his concerns about the noise impacts on wildlife. The commenter is referred to Responses to Comments N-2 and N-3. The commenter's remaining comments are noted. They do not address the adequacy of the Draft EIR, but will be considered by the decisionmakers.

N-13 **Comment:** 3. The language for using Haul Road five if the other haul roads are "not available" is too vague and could potentially send all 100,000 plus truck trips right through the residential corridor on each side of S-9 and S-I0. Haul Road 5 cannot be used by the truck up stream of the Geyserville bridge unless some severe occurrence creates this need.

Response: The commenter expresses his opposition to the use of Haul Route 5 if other haul routes are unavailable. The commenter should be advised that in response to comments, the applicant has revised the proposed project to preclude use of Haul Route 5. Please see Chapter 2 and Appendix C of this Response to Comments Document for more information. That change appears to address the commenter's concerns.

N-14 **Comment:** 4. Finally, if S-9 and S-I0 are approved, they should be done last, year 10 or year 15.

Response: The commenter's recommendation regarding the timing of mining Bars S-9 and S-10 is noted. The comment does not address the adequacy of the Draft EIR, but will be considered by the decisionmakers.

O. STEVEN H. OLIVER

O-1 **Comment:** Thank you for the time and courtesies extended on the phone to me yesterday regarding the subject Draft Environmental Impact Report and Proposed Mining Project. My understanding is much clearer after discussing with you the

issues involved in this proposed operation. The most important item that you confirmed for me is that all extractions (i.e., removal of gravel from the river bed via truck and transport) will be taken from the west side of the river to whatever eventual disposition location. There will be no truck support for this operation operated off of River Road north of Highway 128. This is a small rural road in which not only my residence and newly created foundation have frontage, but many of my neighbors. All of us have incredible concerns about trucking operations on this narrow rural road and the inappropriate nature of that if it happened. You have assured me that that's not part of the application and that trucking will be allowed on the west side only. As part of your recommendation to the hearing board, please add this letter to any other public responses so that that board may understand how important this is to all of us who use River Road regularly and rely upon its clear and unimpeded functional use.

Response: As the commenter learned from staff, the project does not propose the use of River Road for any hauling or related activities. No haul trucks or heavy equipment associated with this project would use River Road.

P. STEPHEN D. MCLEOD AND MARION FAYMONVILLE

P-1 **Comment:** We received notice of the DEIR and Sonoma County ARM plan amendments that have been completed for the Syar Alexander Valley instream mining project. Our review of the documents available online indicate that the proposal specifies that all traffic generated by activity on the project, particularly trucks engaged in gravel removal and heavy equipment for infrastructure support will be required to approach and depart directly to and from the west side of the Russian River.

This condition is of particular importance to residents in the vicinity of the _____ River Road area of the proposed project. River Road is a small rural road that cannot support trucking operations. Moreover, such use of River Road and the access road opposite the 22375 River Road property that connects it to the Russian River would generate unacceptable levels of noise for residents and guests.

As part of your recommendation to the hearing board, we would request that the condition that trucking activity be restricted to the river's west side is emphasized, so that the board understands the importance of this issue to the residents of River Road.

Response: Please see Response to Comment O-1.

Q. KAREN WAELDE

Q-1 **Comment:** Homeowner on the East side of Russian River

Business owner on the West side of Russian River in Downtown Geyserville.

I have lived here in Geyserville for 30 years, I have enjoyed fishing, kayaking and horseback riding on the Russian River.

As President of the Vineyard Valley View Property Owners Association/The Vineyard Subdivision, I am speaking for over 110 property owners. River Road is our only

access to the Geyserville Bridge and Hwy 128. This section of River Road is also the access for an additional 75 taxpayers who rely on River Road.

Our carbon footprint was extremely high that year for that year for an event that was preventable. More importantly was the fact that our Geyserville Fire Department and Emergency Services where all on the other side of the river in town. We have many elderly homeowners, which in an emergency that extra time travel for an EMT could mean life or death, it was not comforting. Thankfully the Geyserville Fire Department made arrangements to set up a team on the east side for all homeowners effected.

The first bend in the road and the edge of the riverbank is now only 137 feet apart. This County road now is in great danger of being washed out by the next heavy rain season. We have watched in the last couple of winters the river eating away at the bank and a tremendous amount of area that was fish habitat and was a bird habitat destroyed again over something that could have been avoided. There is a Golden Bald Eagle that I watch every morning going to work who is also in danger of losing its home.

Now when this does happen, the road is washed out and we can't get to our homes is the County going to build us a bridge as quickly as CAL TRANS did in 9 months?????

Let's allow a local business help protect our neighbor's property, avoid the potential of River Rd being damaged, The Geyserville Bridge going out again and protect the current fish habitat at SYAR'S EXPENCE.

Let's use common sense and help keep the river flowing and unblock Gill Creek from years of gravel building so fish can return to spawn again.

It is with this conscience planning On behalf of the Vineyard Valley View Property Owners and Vineyard Club I support the Syar Industry's gravel skimming project.

I'd like to provide photos showing the bend in the road and closeness to the river, along with my photo of our neighborhood Bald Eagle. I welcome you to take a drive to Geyserville and see for yourself, look out over the bridge and see just what I am speaking of on River Road and walk down Gill Creek.

Thank you for your time and consideration.

Response: Comments in favor of the project will be provided to the decision making bodies. For comments related to potential impacts of the "No Project Alternative," please see Master Response 2.

Q.a. MALCOLM & JOAN ROSS (EMAIL ATTACHED TO KAREN WAELDE'S LETTER)

Karen: I intended to be at the PRMD meeting on 6/17/10 but can not for medical reasons. I do hope, however, that you are able to express to The Department our full support of the Syar proposed Alexander Valley Instream Mining Project.

We have been Sonoma County taxpayers for 47 years, yes, even when prunes and pears were king instead of grapes. We live in Geyserville and love it here. I am a member of the Geyserville Planning Committee, and have seen many changes in the

local environment---none more elemental to our way of life than changes in the Russian River. The River makes this Valley what it is but,' as we have seen, with one storm can take back much of what it has given.

We live on the East side of Geyserville and rely on River Road for ingress and egress to our home. That route, you will hear from anyone who depends on it, is about to be taken back by The River and we wonder if the County is prepared to rescue and maintain our entire Community when River Road, indeed, becomes a River? Certainly, a much better solution is removing some of debris that now blocks The River's old channel---this to be done without cost to the County or surrounding property-owners and also, at the same time, will protect our new Geyserville Bridge; the short term viability of which is another pressing channelization problem.

We remember when Gill Creek was a good fishing stream with Salmon and Steelhead spawning every year. It is now devoid of fish because gravel blocks its outlet. We eagerly await the very positive environmental result that will occur when that blockage is removed so that Steelhead and Salmon can return to their native environment in Gill Creek once again.

Gravel is a fundamental construction material, as you know. Does it make sense to go elsewhere for a commodity so necessary for the growth and well being of the County when it is overly plentiful at our doorstep? We would like to call The Department's attention to the added costs involved in outsourcing this needed material not to mention the environmental damage caused by off-loading from barges or other containers plus long haul trucking.

It appears to us that to protect our safety, our environment and our economic well being it is definitely in the County's best interest to move this proposal forward.

Response: Comments in favor of the project will be provided to the decision making bodies. For comments related to potential impacts of the "No Project Alternative," please see Master Response 2.

R. JEFF COLLINS (ASTI WINERY)

R-1 **Comment:** My name is Jeff Collins, and I'm the General Manager of Asti Winery in Cloverdale. In high school, we used to camp out along the Russian River in Healdsburg and Geyserville, and the only river habitat I worried about was having enough brush along the bank to hide us, so we could dive bomb the folks in canoes floating by, in order to turn over their canoes and steal their beer as the cans bobbed down the river.

As we grow older, sometimes and in some areas, we gain wisdom through knowledge and experience. At one time, I would've said that a sure way to stabilize your riverbank would be through the jacks used by the Corp of Engineers, through old car bodies, or through rip-rap. And indeed, some areas of our bank at Asti are still secured through those jacks and rip-rap, and have held through all these years.

Response: The commenter makes general comments about bank restoration. The comments are noted.

R-2 **Comment:** But after a gravel bar started to build up in the late 90's, and began eroding the bank behind the historic Villa Pompeii at Asti, we sought out the help of Evan Engber and his Bioengineering group, and made the decision to do the right thing. Now, I'll admit that I was somewhat skeptical at first, but in working with Evan and his team, I began to learn, and my perspective began to change. I began to see the bank stabilization as a holistic process, involving the health of the Russian River, fish habitat, and livelihood of the landowner.

In order to stabilize a small portion of our bank, Bioengineering had to re-channel the river, and basically remove a huge gravel bar. They reshaped our bank and restored the fish habitat that was lost to erosion over the 5 years that it took to get the project approved… (and that is another story, but one that is also crucial to address going forward…)

Through the first year the stabilized bank survived and thrived, and I watched as the willow mattress that had been placed on the bank took root, and felt my anxiety ease as the first winter passed without damaging Bioengineering's work. But then came the second winter, the big flood of 2005. In the course of that one season, and in particular the flood week around the new year, the gravel bar that Bioengineering had removed had returned, and with a vengeance. It has continued to grow each year, and the erosion has returned with it, placing vital parts of our property at risk, including the section that Bioengineering had stabilized.

Response: The comment provides direct testimony regarding bank stabilization efforts, flood damage, and erosion at the commenter's property. These comments are noted.

R-3 **Comment:** The fish habitat doesn't lie along the gravel bar, it lies along the bank and in the creeks and streams that join the river. But the gravel bar erodes that habitat, and has forced fish to spawn in our vineyard during the winter, instead of up Crocker Creek across the other side, which now is forced to flow upstream across the gravel bar in order to meet the river. The water has found the low spot; our bank. That's how high the bar has gotten. (Luckily all Asti vineyards are certified as 'fish friendly farmed'.)

Response: Comment noted. The Draft EIR discusses in detail fish habitat in Section 3.4.

R-4 **Comment:** If you are truly a Fan of the River, you would look at the science behind what Syar is proposing both in terms of the hydrology and geomorphology and in terms of how they plan to restore fish habitat, and see that we have an opportunity here for a genuine win win. By sustainably managing these huge gravel bars through skimming the tops down, we will maintain fish habitat along the banks instead of allowing the flows off the bar to erode that habitat; we will keep that fine silt that erodes out of those banks from hurting river health and fish habitat; we will save property and money, both public and private, so that episodes such as the Geyserville bridge don't happen again; we will maintain the beautiful tree-lined banks that folks see as they fish or canoe down the River; we will keep jobs local by having Sonoma County workers bring in the material skimmed from gravel bar management, rather than those jobs taking place in mining work along rivers hundreds of miles to our north; and finally, by sustainably managing these gravel bars, we can avoid the very painful and potentially damaging interventions that will

continue to come in the form of emergency re-channeling of the River. In short we will prove that a balance can be found between environmental concerns, land ownership concerns, and business concerns, through true sustainable management of our resources, OUR RUSSIAN RIVER.

Response: The comment states that the commenter supports the project. These comments are noted. They did not address the adequacy of the Draft EIR, but will be considered by the decisionmakers.

S. BIOENGINEERING ASSOCIATES

S-1 **Comment:** Our company, Bioengineering Associates, a State of California Licensed Engineering Contractor has been involved in restoring erosion problems in watersheds since 1982.

We have worked on numerous sites within the Russian River basin with many projects on tributaries to the River and with five large riverbank restoration projects on the main stem Russian and one on the West Fork. Five of these projects were for wineries with vineyards along the river and one was for a privately held recreation club.

These projects were in Redwood Valley, Asti, Healdsburg and Guerneville with a total of repair work along more than 7000 feet of riverbank. In many cases land loss was as high as hundreds of feet of stream bank and riparian terrace along thousands of feet of bank.

In almost every case both in small and mainstem sites the key driving force pushing the erosion problems has been an inside curve gravel bar that especially under drought year conditions has become heavily vegetated and in fact stronger than the opposing stream bank which is almost always a silty or sandy loam.

When these bars occupy too much channel space erosion problems on the opposite bank begin and good farm land is lost to the river.

It is clear to us that responsible management of the gravel resource is essential to the health of the river.

Response: The erosion control work described by Bioengineering Associates supports the conceptual model of fluvial processes that cause meandering and associated lateral bank erosion opposite aggrading bars, which is fully explained in the Draft EIR (see Impact 3.2-8, Reduced Lateral Bank Erosion at Point Bars, page 3.2-58 to 3.2-59, and Section 3.2A Setting, Geomorphology, page 3.2-11 to 3.2-29).

T. BRET MUNSELLE AND BILL MUNSELLE (MUNSELLE VINEYARDS)

T-1 **Comment:** We are writing this letter to give a brief description of the river bank / riparian area that has been lost over the last eight years just upstream of the Geyserville Bridge. The specific area that I will describe is the east bank of the Russian River located at 21505 River Road, Geyserville , with Assessor Parcel Numbers 141-190-008 and 141-190-086, also known as the River Ranch. Munselle Vineyards, LLC is the current property owner on record. We have continued to monitor the river banks movement east since we purchased this property in 2004.

Attached with this letter is an aerial photo from the spring of 2000, including our vineyard, the home located on this property, the river, and the gravel bar. We have overlaid our property lines, based on the legal description, as a point of reference. In March of 2008 my father, Bill Munselle, and I took measurements to define the existing river bank. Our measurements are by no means exact or done by a professional, but should give a fairly good representation of the existing river bank. With the help of an engineer we superimposed these measurements onto the same aerial photo. The shaded area shows both the bank in the spring of 2000 and the bank as it is in March of 2008.

Next, we calculated the acreage loss of river bank / riparian habitat that has occurred in the last eight years at our River Ranch. With the help of our engineer we calculated the total acres of this area to be 6.9 acres. We measured the depth of this area, checking at several locations along the bank, to be an average of 13 feet. Taking the surface acreage with and average depth of 13 feet, we came up with 144,716 total cubic yards of soil that have flowed down the river from our location. To look at this from another direction, an average truck and trailer load of soil is 20 cubic yards. This would be approximately 7,235 truck and trailer loads of soil that have flowed down the river from this one location. From the experiences of my Grandfather, Father, and myself this is not an isolated incidence, but rather one that we have witnessed up and down the river channel from the Alexander Valley Bridge to just upstream of the Geyserville Bridge. If siltation of the Russian River is of any concern this needs to be addressed

So far we have only really focused on the loss of land to the encroachment of the river, but the Riparian habitat that no longer exists should be a consideration as well. When we purchased the property in 2004, there was approximately 260-300 feet of Riparian habitat between our vineyard and the river bank. As of March 2008, there is a section of vineyard 260 feet long that has absolutely no Riparian habitat, with the bank of the river being only 27 feet away from our first vineyard row, at its closest point.

Our hope by writing this letter and describing the degree of loss, over such a short time period, is that we can find a way to stop the this river encroachment and decrease the silt load that enters the Russian River. It seems to us that there should be a reasonable approach, one that would allow us to actively manage these issues in a way that is advantageous to all interests. As it is now we can only watch as the erosion continues to take place.

Response: The information and data provided regarding the commenter's property concur with the information provided in the Draft EIR. The Draft EIR notes that erosion is prevalent along the Russian River, particularity in the Lower Alexander Valley. The erosive forces generally occur during the winter months with high flows. As bar heights have increased since 1994, smaller floods (1-2 year events) have become far more effective in eroding banks. This lateral erosion occurs throughout the project reach, mainly at the outer edges of the river along meander bends opposite gravel bars where hydraulic forces are directed towards the outer banks. These forces have been responsible for claiming many acres of mature riparian forest and some agricultural land.

U. WES BRUBACHER

U-1 **Comment:** My name is Wes Brubacher and I'm a 23 year resident of Geyserville. My home is situated such that I have an extensive view of the Russian River, both up- and down-stream from my property which is approximately 3/4 mile upstream from the Geyserville bridge.

Over the years I've lived here I have watched with absolute and utter dismay the allowed build-up of the gravel bars both above and below the Geyserville bridge. This in turn has caused very extensive erosion of the softer soils of the river banks as well as major course changes of the river itself. This is not good for slower reaches of the river downstream of the areas of erosion because of sediment settlement and it's not good for the economy of this County. In the Alexander Valley the land bordering the River is mostly vineyard land. For every acre of land that has gone "down the river" - and there have been many, many hundreds of acres lost this way - it means that that much less land is available to produce a crop which contributes to the economy of the County.

Response: Please see Master Response 3 for a discussion of the process of lateral channel migration, which causes erosion of banks and loss of agricultural lands.

U-2 **Comment:** As for the gravel bars, and I want you all to make sure you understand what 1'm saying, fish don't spawn on dry gravel bars!! I repeat, fish don't spawn on dry gravel bars!! Additionally, fish don't usually spawn in the main river, they go to the slower water of the tributaries!! If the fish were to spawn in the main river the entire area of the gravel bars would be of absolutely no use to them because the gravel bars would be high and dry. Remember, under present rules the gravel companies are not allowed to take gravel levels down lower than one foot above the "summer low flow" level. This is absolutely ludicrous!! This restriction does nothing to alleviate the problem of bank erosion because by the time the water starts to spread out over the gravel bars it is moving much faster and starting to chew away at the softer bank soils. Equally ludicrous is the notion that working in the river at the gravel bars is going to destroy fish habitat. There is no fish habitat on the gravel bars because as I just said, fish don't spawn on dry gravel bars!!

The only satisfactory way to provide for viable fish habitat in the main river - if the fish were in fact to use the main river for spawning - is to allow gravel removal down to the level of the stream bed. This then would create additional viable habitat.

Response: Although it is true that "fish do not spawn on dry gravel bars," protection of the basic form of the gravel bar by retaining the head of bar and side bar buffers is extremely important to the fluvial processes that help to maintain important components of fish habitat. The bar form causes the adjacent pool to form and to persist by causing the specific channel hydraulics that result in bed scour opposite the bar apex. Deep pools provide critical rearing habitat for salmonids and other fish species. Without the bar form, the bed would not scour sufficiently to maintain the adjacent pool.

Gravel mining below the baseline level (i.e., closer to the channel bed elevation) and without regard to maintaining side bar buffers would immediately result in a wider, shallower channel during summer flows. This would reduce pool depths, potentially causing warmer water and degrading summer rearing habitat. Additionally, if mining

occurs below base-level control points, it can create a knickpoint in the channel bed, which would cause channel incision that would progress upstream (ie, headcutting). Channel incision over-steepens streambanks, potentially causing accelerated bank erosion and also lowers the groundwater table. This type of channel incision occurred during the 1940s-1970s in the Middle Reach in response to dredging gravel from the channel bed.

U-3 **Comment:** As a further emphasis on why the gravel bars must be taken down to stream bed level, and maintained at that level, is the damage done to and ultimate replacement of the Geyserville Bridge as a result of the New Years Day 2006 high water. Particularly hard hit were the schools and all emergency services, to say nothing of the additional time and driving - with its - resultant 6- to 10-fold increase in vehicle fuel use", required to travel between town and the east side of the river. But the destruction of the bridge in the high water would never have happened if the huge gravel bar immediately upstream of the bridge had been kept down and the river kept in its proper alignment and approach to the bridge. At the Geyserville Bridge the river has shifted between 500 and 1,000 feet west of where it was 20 years ago. As outlined in my January 2006 "Letter to the Editor" of the Healdsburg Tribune and to CalTrans, and attached here, so long as the river is not returned to a course that has it passing under the bridge at a right angle close to the east end of the bridge, we will continue to experience problems up to and including catastrophic bridge failure. We don't need or want another $11,000,000 bridge replacement bill. And we don't need any more $1,000,000 band-aids for shoring up crumbling and washed away bridge abutments as we saw this past winter.

River control is equally important for those landowners adjacent to the river. Because of the gravel bar build-ups, up and down the Valley, many have seen their protective trees and berms washed away by the ill-directed higher water flows. This has to be stopped and these otherwise natural barriers restored.

The only way we will ever avoid these types of problems and provide for the better health of the River is to allow gravel removal down to stream bed level, I repeat, stream bed level, and the restoration and installation of stream bank barriers against higher water flows!!

Response: Master Response 2 addresses comments regarding potential impacts to the Geyserville Bridge (Highway 128 bridge over the Russian River).

V. JOHANNA VANONI

V-1 **Comment:** My name is Johanna Vanoni. My family's ranch has been owned by us since 1902. We own one mile of property in the Russian River 4½ miles north of the Geyserville Bridge. We agree with Karen Waelde's comments! When this bridge was closed and rebuilt we experienced first hand the long trip through the east part of the Alexander Valley in order to travel to Ukiah or Santa Rosa.

We wholeheartedly support Syars plans to harvest Russian River sand and gravel.

We have lived through numerous river floods. We have large sand and gravel deposits in our areas which causes the river to zig-zag and cut into vineyards.

Response: The commenter expresses wholehearted support for the proposed project. This comment is noted. It does not address the adequacy of the Draft EIR, but will be considered by the decisionmakers.

V-2 **Comment:** Our area experiences many small earthquakes. This loosens soil and rock. It is a main cause of erosion.

We have a fault line and this ground continually moves down hill.

Every winter this soil moves to our creeks and the Russian River.

Response: As stated on page 3.1-2 of the Draft EIR, the study area is located within a seismically active region of California. The Rodgers Creek-Healdsburg Fault is located approximately one mile east of the study area, and the San Andreas Fault is approximately 30 miles to the west. As stated in the discussion of Impact 3.1-1 on page 3.1-7 of the Draft EIR, secondary impacts associated with earthquakes include seismically induced ground shaking, liquefaction, bank failure, and landslides. Soil and gravel that moves downslope contributes to the aggregate material that accumulates in the Russian River. Within the study area, the Draft EIR concludes that seismic events would not adversely affect skimming operations or subject workers to significant hazard, and because the study area is generally flat, the potential for landslide hazards would be less than significant (Draft EIR page 3.1-7). Additionally, the likelihood that proposed mining would induce any earthquake activity is deemed very low because earthquakes generally are the result of immensely larger tectonic events.

V-3 **Comment:** Don McInhill stated the removal of gravel from the Russian River will never be a permanent fix.

Maybe not but is the best management tool we have right now.

The Russian River will always transport silt and gravel from its watershed to the ocean.

Syars plans for gravel removal plus fish habitat enhancement needs to be given a chance to work.

Response: The commenter again expresses support for the proposed project as "the best management tool we have" to address accumulated gravel. This comment is noted. The comment does not address the adequacy of the Draft EIR, but will be considered by the decisionmakers.

W. LARRY HEIGES

W-1 **Comment:** We live across the Geyserville Bridge and suffered through the destruction and rebuilding process. While It went as smoothly as possible, it proved to us that this is a life saving bridge in many ways. We are very dismayed as the current scouring going on right now. It is obvious that this bridge will fail in the near future.

We plead with you to not allow this to happen. Please allow the gravel removal to prevent this.

I have a medical condition that requires I be closer to a hospital than is allowed if the bridge is out.

Response: Comments in support of the project will be provided to the decision making bodies. Please see Master Response 2.

X. RICHARD TRUSENDI

X-1 **Comment:** I am writing in support of the DEIR for Syar Alexander Valley Instream Mining Project. I have been observing the Russian River in Geyserville for over fifty years. For twenty years, I have watched the erosion of land adjacent to the river at the Geyserville Bridge. It seems obvious that removal of gravel is long overdue. If the gravel operation had not been discontinued years ago, the old bridge would still be standing. As a Sonoma County property taxpayer, I stand in favor of issuing the necessary permits to Syar.

Response: Comments in support of the project will be provided to the decision making bodies. Please see Master Response 2.

Y. MIKE ROSE

Y-1 **Comment:** I am writing to comment on the proposal to surface mine the Russian River gravel bar proposed by Syar. I was raised in Geyserville and still own property there. When I was young and the Army Corps of Engineers excavated the channel to keep it straight and help control floods Basalt (now Syar) also surface mined the gravel bars to remove excess buildup. This needs to be done on a continuing basis to control the river channel. Also when this is done do not have any willows or other vegetation in the center of the river bed as it causes gravel buildup and changes the channel - the result was the wash out of the previous bridge (which my Dad helped build) and if not corrected is going to wash out Hwy. 128. So I am all for surface mining to keep the gravel build up in check.

Response: The comment supporting the project does not address the adequacy of the Draft EIR but will be considered by the decision makers. Regarding the comment about planting of willows or other vegetation in the center of the river channel: gravel bars and the associated vegetation are part of a normal riverine system, and provide essential wildlife habitat, shading of the river channel, and a source of large woody debris. As described in the project description, Syar proposes to transplant stands of living, native riparian vegetation from the skimming areas. In addition, the Draft EIR included Mitigation Measure 3.3-8 that further describes the transplanting activities prior to mining, and also includes monitoring requirements of the transplanted vegetation. See Response to Comment J-2 for a revision to the transplanting of vegetation prior to mining.

Z. ROLAND OSMON

Z-1 **Comment:** I am totally for gravel mining. I have lived on my property for 81 years and I have seen the take our land little by little, but not as bad as it has since Corps & NEMPs got into the act. I was one of 5 Cloverdale Flood Control Directors for 7 years till we turned control to the Corps. 7 years later when they built Coyote Dam. In the times past that about every 4 years the Co. would have a Cat clear the willow whips off the edge of the river (that kept the river keeled in its natural channel). Now

over yrs those whips are now huge trees trapping gravel, sand, and debris. To create a new channel forcing the flood water against our banks and cutting them away. The river bed used to have 3 or 4 riffles, and gravel bottom pools between. Now all that behind our properties is one big mud hole & bank is so high & steep you can't get to river. Also, now that ridge of gravel, etc. is as high as our banks. It is also the cause of the river being keeled around the bend, & directly into the Co. park at end of McCray Rd. resulting in the destruction of edge of park, & trail & it will do it again unless its removed. I welcome you to come view this. Its a domino effect created politics.

Response: The commenter expresses support for gravel mining as a means to avoid large ridges of gravel and resulting impacts to public property. These comments are noted. The comments do not address the adequacy of the Draft EIR, but will be considered by the decisionmakers.

AA. PETITION TO SUPPORT GRAVEL BAR SKIMMING IN THE ALEXANDER VALLEY REACH OF THE RUSSIAN RIVER

AA-1 **Comment:** The undersigned recognize the importance of in-stream maintenance, including gravel bar skimming, for the purposes of enhancing salmonid habitat, bank stabilization, and flood control particularly in the Alexander Valley reach of the Russian River. The lands immediately adjacent to the Alexander Valley reach are important ecosystems that support riparian life and are the foundation for agriculture activity.

These lands include a landscape that are vital to thousands of acres of prime vineyards, riparian areas and wetlands that support two protected salmonid species. These lands, and the numerous species that rely on these habitats, largely persist today due to the positive agriculture management practices of the farmers that have owned and manage their lands with the commitment to a health future for these working landscapes; These lands with their economic and environmental values are critical to Sonoma County.

We the undersigned declare that it is our goal to work together to protect and enhance agricultural landscapes in Alexander Valley and enhance habitat for listed Chinook and steelhead trout by supporting strategic and National Marine Fisheries Services (NMFS) recommended skimming techniques in specific reaches of the Russian River in the Alexander Valley.

Response: The comment is a petition supporting the project signed by 253 citizens. The petition is noted. It does not address the adequacy of the Draft EIR, but will be considered by the decision makers.

CC. PAULA COOK

CC-1 **Comment:** For my own clarification, am I correct that the 1994 ARM Plan contemplates projected aggregate demand through 2010, and is there a proposed comprehensive update planned, or is the plan only updated through proposed amendments and triggered by permit applications?

Response: There is no proposed comprehensive update planned.

CC-2 **Comment:** 1. Please explain the amendment history of the 1994 ARM Plan: how many amendments to the Plan have been approved by the Board of Supervisors?

1A. Have other permit term extensions been approved? Denied? If so, how many?

Response: The 1994 ARM Plan has been updated five times previously. It was amended in 1995 to add parcels to the Gualala designated mining area, in 1998 to amend the map and revegetation standards, and twice in 2004, for the Austin Creek, and Gualala mining plans. In 2008 the Board of Supervisors amended the Plan to allow an extension of time to complete the Syar Phase VI terrace mining project.

CC-3 **Comment:** 2. Please explain the rationale for the 15-year proposed permit term. Staff Report, page 5, paragraph 2 refers to the 2004 NOAA Fisheries Sediment Removal Guidelines as the basis for the proposed exceptions to the mining standards of the ARM Plan and SMARO. Please explain the 10 versus 15 year permit rationale, and how the NOAA guidelines support this proposed permit term extension.

2A. If approved, would the 15-year permit term be available to other owners with vested rights not currently mining? Would those with current 10-year permits be eligible to apply for and receive permit term extensions of 15 years?

Response: The applicant has requested a 15 year permit. The Adaptive Management Strategy provides for an annual review that will allow the County and other agencies very tight control over whether mining occurs in any given year. Vested rights operators already have permanent rights to mining that are not tied to County regulations. They are permitted by the State. Other operators could apply for longer mining periods when they apply for new use permits for gravel skimming. Any such potential future requests would be evaluated on their individual merits.

CC-4 **Comment:** 3. Issue #5 Traffic Circulation: what is the status of the right-of-way on the Lytton Station Curve?

Response: Please see Response to Comment BB-39 for a discussion of the right of way requirement on Lytton Station Road.

CC-5 **Comment:** 4. Issue # 10 Hazards and Hazardous Materials" (in light of the BP fiasco in the Gulf of Mexico) has the applicant had any previous reported spills into the RR requiring implementation of the SPFL Plan?

Response: County staff are not aware of any spills by the applicant into the Russian River that required implementation of the Spill Prevention Fueling and Lubrication Plan. It may be important to recall that the project does not propose oil drilling or any direct release of hazardous materials. As discussed in Section 3.11, Hazards and Hazardous Materials, project impacts are limited to the potential inadvertent release of small amounts of petroleum products (e.g., fuels, lubricants, and antifreeze) necessary for machinery and haul trucks. The project thus does not appear comparable to oil drilling off the Gulf of Mexico.

CC-6 **Comment:** 5. Page 5, Changes to Permit Procedures for the ARM Plan #4: The River Enhancement Plan appears to be extremely positive. I am unclear about the basis of comparison between the amount of the requested fee deferral. Including

back fees from the 1990s (not the purview of the PC, I understand) and the costs associated with at least partial implementation of the proposed Enhancement Plan.

Response: Please see Responses to Comments G-15 and H-18.

CC-7 **Comment:** How might Enhancement Plan activities be affected or modified if a 10-year permit is approved?

Response: The applicant has requested a 15-year permit from the County. The Draft EIR explains at page 4-33 that approval of a 10-year permit may result in a reduced number of river enhancement activities. The applicant has proposed to implement the 3 oxbows, 3 alcoves, and 11 acres of riparian planting, and submitted conceptual mining and enhancement plans (Figures 1-8a through 1-8h of the Draft EIR) showing the locations of oxbows and alcoves at Bars SD-5, S-7, S-9, S-13, and S-14. Implementation of these enhancements is tied to the mining of these bars. In addition, during the life of the permit, the applicant may have opportunities to partner with local interest groups, agencies, grantors, to assist in implementing enhancements permitted through this EIR process.

5.2 PUBLIC HEARING COMMENTS ON THE DRAFT EIR AND RESPONSES

BB. COMMENTS FROM THE JUNE 17, 2010 PUBLIC HEARING

BB-1 **Comment:** MR. LARRY CADD: My name is Larry Cadd. Is this on? Can you hear me? My name is Larry Cadd. I live in Alexander Valley now my entire life. I know just about every inch of all of the river that you have seen there, and I pretty much agree entirely with what Mitch just presented. I'm hear to speak in support of this plan because of -- we are afraid that in time that we're just going to lose -- you know, we're going to lose our whole ranch or something major will happen. And so there's no -- you know, the world came in when we built Coyote Dam; we've paved over every street and highway; we've changed the river enormously over the years, and there's no maintenance plan; there's no management. The Corps of Engineers was going to maintain it. Well, they left. The County was going to maintain it. They're gone. We have no choice but to ask for something like this. And here you have private industry come in and make a little money on it and perhaps do some good things for the fish.

Those creeks that he described, last year I would say in those two streams there were probably 50 to 60 fish stranded in the creek and the gravel bar where the water goes underground after a rainstorm. They can't get in the river; they can't get out of the river.

So I think there's some good that can come from this and, you know, we're really kind of looking for our livelihood to stay together here, because this river will destroy, you know, huge amounts of land if it gets out of the channel and it has. Thank you.

Response: The commenter expressed support for the proposed project as a means to avoid impacts to private property and fish stranding. These comments are noted. The comments do not address the adequacy of the Draft EIR, but will be considered by the decisionmakers.

BB-2 **Comment:** THE WITNESS: Okay. My name's Ray Pigoni. We live _____, which is a mile and a quarter north of Geyserville, a quarter of a mile north of Canyon Road. My dad bought the property in 1920. And all of a sudden, the last few years, I've got a concern that we may lose part of it. There's been a few changes, but, as you can tell, nothing drastic like in the last five or six years. We've got things happening there that if it had been 10, 12 years ago, the farmers and the County would have took care of it. But for some unknown reason now we've got these other organizations; you've got a river keeper, and we can't agree on what needs to be done and what has to be done. We can't agreed on it, so nothing's being done. As you hear over and over again -- and I'm not going to repeat it again -- we've got problems, bad problems that need to be taken care of. The one big problem is gravel. It's a shame. Here a few years ago when I could walk down the lower part of our ranch with hip boots on, be in water up to my knees, look across the cottonwood trees, seeing the gravel bar two and three feet up dry with the rabbits and the deer and everything else running around wondering how they're going to get out of there because they're landlocked. But anyhow, that is the one thing. I know Syar does not want to come in and dig these big holes. They won't dig the big holes because we the farmers will get -- climb on their equipment and stop them. We don't want that either. We do want them to remove some of that gravel. They say -- that word skirmish or something like that. I'd love to see a little bit more. Skirmish to me is six, eight inches. I'd like to see a foot and a half or two feet, and you're still five or six feet above the water's level.

For you on this board, you've got a big job ahead of you making decisions. You can sit here all day in this stuffy old room, look at pictures, hear people like myself come up and complain. What I'd love for you to do -- and do it during the week so you'll get paid for it -- take a canoe trip. Start at the Asti Bridge -- I mean the summer crossing. Take a canoe trip down as far as the Alexander Valley Bridge. Make a connection. By the time you get to the Geyserville Bridge, we'll be underneath the new bridge. We might meet you there with a picnic or something. But that way you can get a bird's-eye view. As you're coming down that river slow, slow, you think we're going to be lost because you can't really see that much because you're down here and the gravel's up there. There's actually two or three times there when you're going to be headed north. You might say "Hey, I thought we were supposed to be headed south." But the river does that. And you'll get a bird's-eye view, a firsthand view of what is facing this river. And I think you will have a lot better understanding.

You made one comment about -- or someone did -- is this a recurring deal, this gravel and one thing and the other? The gentleman back here from Cloverdale got up -- and he'll probably speak again later -- about what happened there at Sulfur Creek seven, eight years ago when it flooded. A lot of the people there on Wilson Road -- something that had never happened. It was unpredictable, and it's unpredictable this year and next year or 20 years down. A big slide come off the Hill Ranch up there; I mean a tremendous slide. It blocked Sulphur Creek for awhile. The water built up and built up and then boom, it washed out. As it washed out, it took all the mud, gravel, rocks, trees, and everything else to the lower part of Sulphur Creek where Sulphur Creek meets the Russian River. The gravel company had about four years of gravel there before they actually got back to where they were before. So nobody, not me, not Syar or anybody else is going to guarantee that once we take the gravel out, that's going to cure the situation, because we don't know what's happening up north.

So take all them things under consideration, but we have a problem: Gravel is the problem. We have people that will do it in the right way. Let's go with it, please. Thank you.

Response: The commenter expressed support for the proposed project for the reasons stated in his testimony. These comments are noted. They do not address the adequacy of the Draft EIR, but will be considered by the decisionmakers.

BB-3 **Comment:** MR. McENHILL: Good afternoon, Chairman Williams and members of the Commission. My name is Don McEnhill, and I'm here as the Executive Director of Russian Riverkeepers. I'd like to start today by thanking staff of PRMD and the staff and consultants from Syar Industries for meeting with us prior to the release of the Draft EIR and to outline the project for us and listen to our comments. There's no disagreement that there are serious problems with flooding and erosion in the project area and, indeed, along the entire length of the Russian River and on most tributaries. I understand and support that we have to do something to address the problems in the river, and contrary to what a lot of landowners and, certainly, the directors of the property owners' association like to say about me, a Riverkeeper, we absolutely have no desire to see damage to property or infrastructure. We certainly disagree on how we can prevent that.

Response: The commenter thanked staff for meeting with him prior to the release of the Draft EIR, noted “serious problems with flooding and erosion in the project area,” and said the members of his organization “absolutely have no desire to see damage to property or infrastructure.” These comments are noted. They do not address the adequacy of the Draft EIR, but will be considered by the decisionmakers.

BB-4 **Comment:** Let's be real clear: We make no money from any position we take for or against gravel mining here. Syar is in the business of providing gravel to construction, and there's nothing wrong with that, as construction requires gravel.

The Draft EIR does a very good job of demonstrating that most of the flooding and erosion impacts in the lower Alexander Valley are due to the channelization of the river and the loss of roughly 50 percent of the meander belt, resulting in bank collapse, poor aquatic habitat, exposure of vulnerable bridges and wells and farms to flooding. The flooding and erosion are certainly not caused by the lack of mining. Mining -- pardon me. The aggradation of gravel is a symptom of a distressed river. Certainly mining played some part in the present condition of the river today.

Response: The Draft EIR speaks for itself with regard to the causes of flooding and erosion in the lower Alexander Valley. Flooding and erosion are both natural processes, and to some extent flooding and erosion have been exacerbated by various land uses, which include past gravel mining practices prior to the 1994 ARM Plan.

The comment is incorrect in stating that aggradation of gravel is a symptom of a distressed river. Gravel aggradation is a natural process that reflects the sediment supply and the flow of the Russian River. In the Alexander Valley, the equilibrium between sediment supply and flow is expressed as a meandering (and prior to channelization a braided) river form characterized by large point and alternate bar forms that are key sediment storage sites in the channel. The sediment storing bar

forms are responsible for the meandering planform of the river; this is not characteristic of a “distressed” river.

BB-5 **Comment:** It is a critical point that is well-documented in the EIR that the mined areas will refill with gravel after high flows showing us that any potential reduction in erosion or flooding will be temporary. If we choose gravel mining to address the problems caused by what the Draft EIR calls an artificial and narrow -- greatly narrowed channel, then it can only work if we never stop gravel mining, leading to another project after this one, and so on. This is a major cumulative impact that is not studied or addressed in the Draft EIR. It should be clear to this Commission and to property owners in the project reach, that gravel mining only temporarily treats some of the symptoms.

Response: The commenter repeated his claim, stated in writing as Comment G-74, that hypothetical future mining activities must be studied in this EIR as cumulative projects. Please see Response to Comment G-74. As explained therein, hypothetical future mining is speculative, does not exist, has never been proposed or applied for, and is not properly part of CEQA’s analysis of cumulative impacts.

In addition, the Draft EIR explains that gravel recharge patterns have changed over time and vary greatly year-to-year because episodic large events carry most of the sediment. (See page 3.2-4.) The Draft EIR also explains that the average annual extraction rate in the Alexander Valley substantially decreased from 1994 to 2001, and that no mining permits have been sought and no mining has occurred in the lower Alexander Valley since 2001. (See page 3.2-11.) As a result, it does not appear fair to assume that gravel mining will continue forever in the lower Alexander Valley, much less in the same locations or amounts as past projects or the proposed project, using the same mining methods, or resulting in the same impacts as past projects or the proposed project. Instead, as explained in the Draft EIR and Master Response 1, over the last several decades commercial gravel mining in the Russian River has occurred less often, in smaller amounts, and with far more rigorous environmental protections and enhancements. Hypothetical future mining, if ever proposed, may follow this pattern and look quite different than the proposed project.

BB-6 **Comment:** It should be noted in the slides that Mitch showed, he talked about aggradation, but in the Draft EIR and in a lot of the cross-sections figures which we reviewed, there's also a lot of gravel lost in this exact reach, and we do need to recognize and acknowledge that.

Response: The Draft EIR includes a discussion of the history of the river, and the channel degradation that has occurred from past practices. In addition, see Master Response 1.

Please see Response to Comment G-39 with regard to Figures 3.2-3a, 3.2-3b, and 3.2-3c.

BB-7 **Comment:** Simply put, the cause of the problem is that the river does not have enough room to move sediment and not necessarily that we are not mining enough. Using gravel mining to treat the problems in Alexander Valley is like having a car that's out of alignment and solving that problem by buying new tires every week, rather than correcting the alignment.

Response: The commenter reiterated his opposition to mining activities and compared the proposed project to buying new car tires "every week." Please see Responses to Comments BB-5 and BB-9.

BB-8 **Comment:** Mining is a temporary fix and will only work if the community is willing to endure hundreds of gravel trucks every day for five months and eat the dust for every summer for five months, forever. At 350,000 tons per year and 450 plus truck trips a day at peak mining, the impacts are quite clear.

Response: Please see Response to Comment G-61, which discusses the truck trip generation as described in the Traffic and Circulation section of the Draft EIR (Section 3.6), and notes that the identified scenario is a conservative worst-case approach that overstates likely truck trips and their resulting impacts. The impacts of dust generation from hauling is described and mitigated in Section 3.7, Air Quality, of the Draft EIR, and addressed further in Chapter 2 and Response to Comments G-63 through G-66.

BB-9 **Comment:** All that said, mining could be a very important component in efforts to address the causes of flooding and erosion in the project area, but until there is movement towards long-term solutions, it is going to be hard for our organizations to support perpetual application of bandaids to the problems that exist in the lower Alexander Valley.

Response: The commenter stated that he recognizes that "mining could be a very important component" in addressing the causes of flooding and erosion in the project area, but that he and his organization will not support "perpetual application of bandaids" without "movement toward long-term solutions." These comments are noted. The project does not propose the "perpetual application of bandaids." The project proposes fifteen years of gravel mining in one specific reach of the Russian River. Per this EIR, this mining would be bounded by mitigation measures and performance standards, reviewed on an annual basis per the AMS, and coupled with river enhancement activities that some commenters view as movement toward long-term solutions to river issues.

BB-10 **Comment:** Critical questions of this project need to be answered, such as: How much will the various project alternatives actually reduce flooding and erosion for how long? I remember quite clearly, during the scoping meeting several years ago in Geyserville, one of the speakers talking about how the river jumped its banks and ran through his vineyard during a period of extensive mining. Let's be clear: Mining might reduce erosion, but it's not going to eliminate it.

The reduction of erosion and flooding are the benefits and objectives of the project, according to the Draft EIR. But if we do not know the magnitude or the duration of these benefits, how can the public or decision-makers be fully informed in the way the project impacts against the purported benefits. If the project results in a two percent decrease in erosion or flooding for two years, is that worth the impacts?

Response: Please see Responses to Comments G-8, G-33, and I-15.

BB-11 **Comment:** If the project's habitat improvements only last for a few months or years and then have to be mined again to provide the supposed benefits, is it really adequate mitigation? And continued disturbance of these so-called habitat areas are

not going to produce quality habitat. The insect and macro-invertebrate populations are going to be greatly impacted by repeated mining. The whole concept is to provide areas where there's forage habitat for out-migrating fish. Continued disturbance will work against that.

Response: The habitat improvements (as described in the REP) are not mitigation measures, but are proposed as part of the project. Separate mitigation measures are presented throughout the DEIR to reduce potentially significant and significant impacts to a less-than-significant level. Disturbance of habitat areas for fish and macroinvertebrates would generally occur in dry areas that are outside of the low flow channel and, therefore, there would be no disturbance when the species are actively utilizing the habitats. These habitats may become seasonally inundated during high flow conditions; however, the project proposes to restore all site conditions at the end of each mining season. Analysis of disturbance-related impacts to fish and macroinvertebrates is provided in the DEIR (see Impacts 3.4-3, 3.4-5, 3.4-7, 3.4-7b, 3.4-8, 3.4-10, and 3.4-11).

BB-12 **Comment:** Even after a second layer of mitigation is applied, the project would generate over 38,000 tons of PM 10 particulate air pollution during the 110-day operating season, while regulations state that a project should only be allowed to generate 15,000 tons over 365 days. The health impacts of PM 10 are quite clear. They cause respiratory disease, asthma, and also lead to higher death rates in the elderly and children. This the human -- pardon me.

Response: The comment incorrectly stated that the proposed project would generate 38,000 tons per year of PM_{10} emission and exceed a threshold of significance of 15,000 tons per year. The Draft EIR actually stated that the project could generate 38 tons per year of PM_{10} emissions, above the relevant 15 tpy threshold. Please see Chapter 2 of this Response to Comments Document, which describes a supplemental analysis of PM_{10} emissions to account for changes in the proposed project.

BB-13 **Comment:** While we understand the potential benefits of the Adapted Management Strategy, we are also quite concerned about the potential for the project description to change without any public review or comment in the middle of the project period. This is illegal under CEQA, and has been well-supported by several court cases. In addition, the Adaptive Management Strategy only addresses future projects through changes in mining methods or stopping mining, but how does that mitigation address any impacts from failure to meet performance standards from previous mining?

Response: Please see Response to Comment G-13. As explained therein, the AMS does not provide for changes to the project description without public review or comment. The EIR preparers are not aware of any authority prohibiting adaptive management as a matter of law.

BB-14 **Comment:** The habitat improvements proposed in the River Enhancement Plan, which are mostly areas of deeper excavation intended to provide backwater or citennial (phonetic) habitat seemed quite temporary based on our observation of the mined areas after high flows have moved sediment around in the river. The Draft EIR offers no studies to show how long these potential benefits might last, and how many fish might benefit from them. It was interesting to note on the slide of Gill Creek in 1993 when the river was right up against the creek, there was no water in the creek.

What good is opening up a tributary that's dry. It's quite possible that these habitat areas excavated during the summer mining season could refill during the November through February high flows and provide zero habitat by the time fish are out migrating in spring or provide any rearing during the summer.

Response: Please see Responses to Comments G-16, G-18, and G-19 for additional information on this subject. Further, as discussed in the Draft EIR (see pages 3.4-3 and 3.4-4), several fish species, including anadromous salmonids, utilize habitats in the study area on a seasonal basis.

BB-15 **Comment:** MR. McENHILL: The last point I'd like to bring up is the applicant is requesting to waive the DeWitt mining liability of $82,000, and now that Syar's on the hook, they are looking at pushing that into -- or waiving it in order to bring about -- or pardon me -- and replacing that with the River Enhancement Plan. The mining has already occurred, and waiving this amount for future mitigation is illegal under CEQA guidelines. The County might want to review the Appellate Court findings in Communities for a Better Environment versus the City of Richmond.

Response: Please see Responses to Comments G-15 and H-18.

BB-16 **Comment:** MS. WAELDE: Good afternoon. My name is Karen Waelde. I reside at _____ in Geyserville, in the Vineyard Subdivision. I've been a property owner and homeowner here in Geyserville for 30 years. As President of the Vineyard Valley View property owners, I'm speaking on their behalf, for over 110 property owners.

River Road is our only access to our homes, and there's a section of River Road that is in danger. If Syar is not allowed to reduce some of the bars that are in front of the Munselle property, the County's going to lose their County road, and then we're going to be out of having an opportunity to have ingress and egress to our properties. Along with the 110 property owners, there's at least another 75 to 100 property owners that own property that have to have access to this area.

The bend in the road and to the river bank is only 137 feet. Now, we heard earlier today that at least 70 feet went out on one area overnight. And it's very possible that with another heavy rain, that corner of River Road isn't going to be there any longer.

Now, when it does happen, is the County going to come over and rescue all the homeowners? Build us a road, like Caltrans did overnight? Do we have the funds available? That could be prevented and avoided if we do some smart gravel skimming.

Let's allow a local business person help protect our neighbors' property, avoid the potential of River Road being damaged, protect the new Geyserville Bridge, that is ongoing, that we're having to be delayed to getting crossing over because the river continues to eat out the bank, help protect the fish and the habitat at Syar's expense. Let's use common sense and keep the river flowing, unblock Gill Creek from years of gravel building up so the fish can return and spawn, which is in our backyard.

It is with this conscientious planning, that Syar's put together, that we support the Syar skimming project.

I've provided, also, my own pictures of River Road at the turn where the bank is where a bald eagle lives, and that's where the 137 feet is. So we're losing fish habitat. Those trees came down in a matter of one night, and that's habitat for the fish, as well as for our eagles. So let's be smart. I thank you for the opportunity.

Response: The commenter's verbal presentation follows the written statement submitted to the Planning Commission, which supports the project and comments on the "No Project Alternative." Please see Response to Comment Q-1 and Master Response 2.

BB-17 **Comment:** MS. BOSWORTH: I'm afraid this probably isn't the right place to do this, but it's very short. My name is Karen Bosworth, and I live in Geyserville. My husband and I live on the east side of the river. The only problem is that our three businesses, Bosworth & Son, Olive Hills Cemetery, and The Waterworks are on the west side of the river. So during that time, our commute that is five minutes to work turned into thirty-five. It was for sure an inconvenience, but what it mostly was very scary when I husband would have to get up at night and go check the water system all the way in Geyserville and go all the way around. So the bridge is very important to us and we don't want it to ever go out again.

The bridge washed out in 2006 due to gravel collecting above the bridge. The problem still exists, and now the river is a threat to the approach end to River Road. County flood control used to take care of these problems, but now the gravel extractors are the only ones left to work the river. A plan is needed.

It looks like Syar has a plan. Let's let Syar remove and rearrange gravel for the benefit of the fish, the farmers, Caltrans and the County works. Thank you. Let's let them do it. Thank you.

Response: The commenter's verbal comments support the project and stated concern for the bridge. Please see Master Response 2.

BB-18 **Comment:** MR. BRUBACHER: My name is Wes Brubacher. I'm a 23-year resident of Geyserville. My only situation is such that I have an extensive view of the Russian River both up and downstream of my property which is approximately three quarters of a mile above the Geyserville Bridge. I might add that it's only a few -- a couple hundred yards above this turn that Karen Waelde has mentioned as being one of the most washed-out turns along the river. I, too, have watched that over the years the total beautiful stand of trees in there getting washed downstream.

But over the years that I've lived here, I've watched with absolute and utter dismay the allowed buildup of the gravel bars both above and below the Geyserville Bridge. This, in turn, has caused very extensive erosion of the softer soils of the river banks as well as major course changes to the river itself.

And I'm going to abbreviate my comments by saying I have only two major comments to make about the EIR. One is, I don't feel that the gravel height above the riverbed or above the low summer flow is reasonable. I think it should be taken down to stream bed level. This is the only way that we're going to be able to keep the river within its bed and, at least, partially, if not totally, eliminate the tremendous erosion along the softer soils of the banks.

Response: Gravel mining without controls on the volume of gravel removed, or the manner in which it is removed (such as maintaining buffers at the head and side of the bars and controlling the depth to which bars can be skimmed), can cause substantial adverse changes in the river morphology. These adverse changes can include channel incision, increased bank erosion, lowering of the groundwater table, a wider, shallower, and warmer low-flow channel that is a degradation of fish habitat. See Response to Comment U-2.

BB-19 **Comment:** The other is that any work that is done around the Geyserville Bridge must be done in both the gravel bar above and below the bridge at the same time; the reason being the stream -- and it's included in the comments -- in the second part of the comments that I have submitted. The reason for this is that the alignment of the river must be returned to the eastern end of the bridge so it is at a right angle to the bridge and not coming in at 45-degree angle as it is now and as it has been for several years. This is the only way that you're going to keep from having the destruction or the possibility of the destruction of the bridge, the new one, replaced at a cost from anywhere -- I've heard from 11 to 17 million dollars and the continual million dollar band-aids that we saw this last winter with the rock that was put in there on the western end.

With those comments, I thank you for your time and chance to speak.

Response: A specific plan to address protecting the Geyserville Bridge is not part of the proposed project, and has not been prepared. However, the project objectives include "Conserving valuable agricultural lands and help protect public infrastructure." Mining activities on the bars upstream and downstream from the bridge could assist with adjusting the alignment of the river, as described in the comment, to reduce bank erosion and potential outflanking of the bridge abutments. This would be accomplished by redirecting the high flow pathway and thereby reducing the lateral erosion that has been occurring upstream from the bridge opposite Bar S-9 as that bar has aggraded. However, it is likely that a comprehensive plan to protect the bridge would need to rely on implementing several erosion control activities in addition to adjusting the river alignment through the mining process.

BB-20 **Comment:** MR. FANUCCHI: My name's David Fanucchi. I reside in Alexander Valley on a 40-acre ranch adjoining the Russian River. I'm a fourth generation -- third generation -- pardon me -- farmer on this property.

Thank you for the opportunity, Mr. Chairman and Board, to express my views.

You can see by what everybody's saying that they're not really interested in the EIR. They want to tell their story. They want this damn thing fixed as soon as they can get it fixed. So I apologize for the insistence of all of us wanting to tell you our story. I don't have to worry about telling my story, Mr. Swanson did an excellent job. He stole all my -- what do you call that? Yeah, he did that. Anyhow, I'm not trying to be funny. This is really serious stuff.

I approve of the EIR immensely. It doesn't go far enough. It cost Syar probably more than a million dollars to do this. No single landowner could take this thing on themselves to get the river fixed. It takes a company. And Syar owns a tremendous amount of the bars in Alexander Valley. I'm an independent property owner. I own

my own bar. I wanted to come before this Board and ask permission to get my bar removed, and I was told: It's crazy. You can't afford what you're going to have to go through.

So Syar is going to do the job for us. I witnessed no bar skimming in the '50s and '60s on my property; saw the gravel and heavy logs come in to our orchards. We have vineyards now. We can't deal with gravel and large logs in our vineyards that are going to come off these high bars. Nobody did any -- I saw no mining. I saw mining flat to the water table all across the bar. The river could take a hell of a lot of water after he did that, and we had a minimum amount of lateral erosion. And then I've seen mining done -- it's not called not mining -- I'm sorry -- bar skimming done to two percent slope. It helped. It was a lot better than not doing anything.

Right now I have about 14 feet of gravel above my water table on the river; I have a channel, and I have a huge bar higher than my land. It's just waiting for an explosion for that to come in my field.

So the EIR could have even done a better job. They could even take a little more out than they're going to do. I think Syar has done a wonderful job, spent a lot of money, and I'm in agreement and I hope you give them your blessing. Thank you.

Response: The commenter expressed support for the proposed project. These comments are noted. They did not address the adequacy of the Draft EIR, but will be considered by the decisionmakers.

BB-21 **Comment:** MR. LEWERS: My name's David Lewers, and I want to thank the Commission for allowing me to speak this afternoon.

The first thing I'd like to address is the Adaptive Management Strategy, which I'm in support of. We had none before. We're going to have one now.

I'm going to break this down in a little bit of common sense. If I go gown to the river on December 1st and drive a ten-foot steel stake in the ground and take a five-gallon bucket of gravel and take it home, can I go back the next year on December 1st and get another five-gallon bucket of gravel in exactly the same place? The answer's: Yes, I can. That would mean that gravel is a renewable resource. By definition, it's a renewable resource, and we need to harvest it like we would harvest any other renewable resource.

The other question is: Could we stop this flow of gravel if we wanted to? The answer to that is: No. That's mother nature naturally bringing it downstream and building up the gravel.

The next -- my next comment would be on Issue Number 4, the Fisheries Resources. Now, there's been a lot of talk today about fish and habitat and different things. The problem is, that if you're trying to save something from extinction you need to make people quit killing it. By the Fish and Game's own admission, 1.7 percent of every fish that's released into the river dies. That's in direct violation of the Endangered Species Act which states, and I quote, "It's against the law to harm, harass, or attempt to harm or harass any threatened or endangered species." And we're allowing this to happen on and on. They're not letting us go down and kill a few Condors for fun. Okay? And we're in the same situation here. You have a threatened

species. When you throw your fishing line into the water, you don't know what you have on the end of it until you've harmed it, hooked it, harassed it for 20 minutes, drug it up on the gravel bar. "Oh, this is a native steelhead. I'm going to have to turn it loose." Violated a federal law.

Response: The commenter expressed support for the proposed project. These comments are noted. They did not address the adequacy of the Draft EIR, but will be considered by the decisionmakers.

BB-22 **Comment:** MR. FOPPIANO: Good afternoon. I'd like to thank everybody for giving me the opportunity to speak today. I'm going to speak on behalf of the bridge in Geyserville as just an example of what is going to be happening in the future. I happen to live just south of Healdsburg at _____. My family's been farming that land since 1896, six generations worth now. And being backed up on the river our whole lives, the river evolves over time and always changes.

If you drive over that freeway bridge now and look south at Healdsburg, what do you see? You see a big mountain of gravel. You can stand on that mountain of gravel and look into our property. Since 1987 it's filled up over 25 feet down there. That river's going to come out there, and we're going to be looking at the same issues we have in Geyserville. And I think we really need to use Geyserville as a good example of how to do this right. And I think Syar's taken great steps, as far as protecting the environment after the mining, because this is not going to go away. There's going to be other issues on this river in other places. And I think we need to do this right and I think they're taking the right steps.

We have so much riparian wildlife area which, as a farmer, is not what we want along the river, but as a person and living there, when you can go down on any given night of the year and see falcons cruising around the vineyard, you can see rabbits, bobcats, coyotes, black tail deer, I think that's very important.

When that river jumps that channel, all that area is going to be gone, like it was on the Munselle property now, and I like my four-year old daughter to see those animals in the evening. And we support Syar. Thank you very much.

Response: The commenter's verbal comments support the project. He also states concerns that the "No Project Alternative" does not adequately address impacts. Please see Master Response 2.

BB-23 **Comment:** MR. AL CADD: Good afternoon, and thank you for listening to me. I'm representing today -- my name is Al Cadd, and I'm representing today the Russian River Property Owners Association which has a membership of over -- in excess of 100 members, landowners mostly. Since the Riverkeeper talked over time, I'll try to make up for it. Our organization fully supports this EIR to the fullest extent. It was done with sound science and common sense.

For my written comments, I have here a petition signed two years ago -- we didn't know it was going to take this long to go through this process -- with 263 signatures of people who are definitely interested in getting some gravel removed. So I'll hand this in. And thank you very much.

Response: Comment noted. See Response to Comment AA-1 with regard to the petition.

BB-24 **Comment:** MS. VANONI: Thank you, and good afternoon. My name is Johanna Vanoni, and we have a ranch that's four and a half miles north of the Geyserville Bridge. We've been there since 1902, so we have a little experience back to when the river was completely natural.

Some of the comments that I wanted to make have already been made. And I thoroughly agree with Karen Waelde, because she's one of my neighbors over in the Vineyard that's next door. It's a second home -- well, there's a lot of permanent homes there now. And we all travel that road, and we all experienced the bad time when the bridge was out and we had to go clear down and around. And it was a long ways to go from Ukiah, down around to Alexander Valley and back up to get to our place.

Okay. We wholeheartedly support Syar's plan to harvest Russian River gravel. We have lived through numerous floods, and we've got large gravel deposits on our place. And we can stand on our river land, where we pasture cattle, and the gravel is up over our heads out there. So one of these days it's going to come in and it's going to chew up our land again.

Okay. We've also lost the deep holes that the river used to have before the Coyote Valley Dam went in. We had deep holes; there was large wood and debris. And I can remember the boats coming down with the tourists and they would get caught in this whirlpool. And anyway, it was kind of funny to watch them, but that's gone.

We have part of Gill Creek on our place, and very few fish make it up Gill Creek. So Syar's plan to open this creek so fish can migrate up and down is a great idea. Also Don McEnhill commented on Gill Creek saying about bad things that happen to it. Well, the worst thing that happened to it was when we got the Vineyard Subdivision and they put a bridge across Gill Creek, and it was too narrow. Well, it narrowed the creek, so right below the creek it started cutting down. Well then, once they did that, the fish couldn't migrate up the creek. And on top of that, we had the big gravel buildup down lower Gill Creek. So unless the fish could go across country on dry ground, they couldn't get up and down the creek. Then the baby fish never made it.

Okay. They talk about noise. Most businesses do create a certain amount of noise and dust. And I was going to say for years we used to listen to the Geysers. Okay. There's nothing any of you could have done with the Geysers. They went 365 days out of the year, and they blew, and we could hear them like blue blazes. Syar's things might cause some noise, but it's not going to be for that many hours a day and for that many months out of the year.

Okay. We don't feel the No Project choice is a good one, because those of us know that the river needs to be managed. We were promised flood control; we were promised river management by the Army Corps of Engineers and everything else, and it's not happening. And we can't adopt what we call the Stream Way Plan, which means to let the thing migrate all over wherever it wants to go. And some night I don't want to see it going down the railroad tracks in Geyserville. And that used to be river bottom, all down the railroad tracks in Geyserville, which is probably a quarter of a mile or more away from the main stem of the Russian River, to where it's trying to

cut off the Geyserville Bridge again and River Lane and River Road. Anyway, I thank you for the opportunity to comment.

Response: The commenter reiterated her wholehearted support for the proposed project because of concerns including future flooding and fish passage up Gill Creek. These comments are noted. They did not address the adequacy of the Draft EIR, but will be considered by the decisionmakers. See also Responses to Comments V-1, V-2, and V-3, which respond to the commenter's written testimony.

BB-25 **Comment:** The EIR is quite comprehensive, although I've never understood why they leave humans out of it. Are we not considered wildlife?

Response: The EIR evaluates a number of environmental effects that affect humans, including impacts on traffic, air quality, noise, aesthetics and recreation. Additionally, as part of the air quality analysis, a human health risk assessment was prepared to evaluate potential cancer risks from diesel particulate matter emissions associated with proposed gravel mining.

BB-26 **Comment:** Anyway, Alternative Number 1, No Project, I feel is really under-addressed, because we all know with this past winter how serious jeopardization there is to flood. So to say simply we would have to find alternate sources of gravel is the only impact of No Project, I think is kind of insulting anyway.

We all know what happened when the bridge went out in terms of the traffic, the air pollution, the noise, the aesthetics, and -- just to address the existing issues, and then the cumulative impact of all that driving around and the casino traffic and so forth.

So I'd just like to say I felt that the EIR was deficient in the No Project aspect, what it really means to all of us if they don't do anything.

Response: The commenter's verbal comments focus on the impacts from the "No Project Alternative." She feels that they need to include some analysis of the impacts of the Geyserville bridge failing again. Please see Master Response 2.

BB-27 **Comment:** MR. SNYDER: First of all, I'd like to thank the Commissioners for hearing us this afternoon. My name is Chris Snyder. I'm with the Operating Engineers Local 3. We represent the construction industry in Northern California in this area. We have about 2,000 members. And if I could have some of those guys stand up. These are the guys that have been doing -- dredging the river for the last hundred years, and it's been a managed resource. And these are the guys right now that are suffering 30 percent unemployment, and they're losing their houses in Sonoma County and in the surrounding areas. And I know this is about the Environmental Impact Report, but what we do here in the next couple months is going to impact real people's lives.

So Local 3 is here to support the Draft EIR. We're here to support the planned amendment to the ARM, which would basically, from what I've seen, allow a positive environmental impact in allowing the fish bows and reconnecting those creeks for the wildlife habitat or the fish.

The river, like I said, it's been a managed resource for a long time and, you know, our friends that oppose this seem to admit that there's a problem; everybody here's

talked about the problem. I don't want to beat the guys -- beat a dead horse. The Geyserville Bridge issue's been brought up a lot. So the solution to the problem -- I mean, what is the solution? We have a problem and this -- this gravel mining seems to be able to hit a couple solutions -- solve a few problems. One of the problems, you know, if you don't do anything -- you guys talked about the impact of the air quality of bringing aggregate from out of town, and kind of the nimbyism of that is in some way self-centered and in some way self-detrimental, because the global impact of bringing aggregate -- because a lot of the aggregate resources -- everybody talks about being a localvor, as far as, like, food and eating locally and stuff like that, I think we could take that concept and apply it to aggregate as well, because when you have Canadian aggregate coming down to supply the needs because we're not allowing our local producers, we're denying ourselves jobs, Number 1. Number 2, we're denying ourselves local aggregate from our own sources. And this could solve the problems of some of the things we talked about today, but it would also create jobs and lessen the carbon footprint of bringing aggregate from Canada or outlining areas.

So once again, Local 3 is here to support this project fully. The members of Local 3 fully support this project. And I really do thank you for your time and consideration. Have a good afternoon.

Response: The commenter expressed support for the proposed project. These comments are noted. They did not address the adequacy of the Draft EIR, but will be considered by the decisionmakers.

BB-28 **Comment:** MR. BAGLEY: Afternoon. Thank you very much for putting this together. You will be relieved to know that I'm just going to speak directly and specifically to the EIR.

I am a landowner on River Road there in the Alexander Valley, and I basically -- I'm not wholeheartedly in support of the project, unlike some of my neighbors. I happen to live right where S-9 and S-10 is, which is, basically, a stone's throw from my house, and me and probably a hundred other people are in that same area. So in that specific regard to S-9 and S-10, which I think is Alternative Number 5, I had a problem with some of the language in the EIR. And I understand it is on the table that that may be excluded as part of the project, but it also says, in very fine print -- I think it's on Page 26 -- that if for some reason the haul road north of the bridge is unavailable, the haul road S Number 5 will be used, which means even if S-9 and S-10 are not part of the project, hundreds of thousands of truckloads will be coming right through that property, which pretty much eliminates any advantage of having S-9 and S-10 eliminated. So I just want to address the language specifically on that issue.

Also, I may have missed it somewhere in the EIR, but the amount of hours that this project on a daily basis -- I believe it's 15 hours -- 6:00 a.m. to 9:30 p.m., I also had problems with the language on that, too, where it said "or as daylight allows." So you're already talking 15 hours. So you add the additional verbiage there about as daylight allows, so in my interpretation of the clause you could go another hour each way prior to daylight and subsequent to sunset. So you're talking about 17 hours worth of noise and -- and impediment on wildlife getting to the water, which is one of my main concerns about those long hours. And I just also want to add that I wouldn't

mind them working Saturdays, shorter hours, but Saturdays. That wasn't addressed in the EIR, so I thought that would be something we could look at.

Response: The commenter reiterated his concerns, also expressed in Comment Letter N, regarding the use of Haul Route 5, the project's hours of operation, the timing of mining of Bars S-9 and S-10, and impacts to the Geyserville Bridge. Please see Response to Comment N-13 regarding the use of Haul Route 5. Please see Response to Comment N-2 regarding project hours of operation. Please see Responses to Comments N-11 and N-14 regarding the mining of Bars S-9 and S-10. Please see Response to Comment N-5 regarding the Geyserville Bridge.

BB-29 **Comment:** Finally -- I hope I'm not deviating too much -- I wonder if we -- also, in regards to Alternative Number 5 where S-9 and S-10 will not be part of the project, if it is part of the project, if it could be put near the end. Instead of doing it at the beginning of the 10- or 15-year term, since there's so many people that live around that area, just for aesthetics or peace of mind. If we could at least know that it's coming at the end of the project, maybe we could address that in the EIR as well.

And finally, as to the bridge itself -- again, I may have missed this in the EIR, but I haven't see any independent studies or hydrology done on specifically whether the extraction of the gravel will actually affect the flow enough to save the bridge. And a gentleman said earlier, it's the direction of the water more than the actual flow of the water. And unless I missed that in the EIR, I'd like to see an independent hydrologist or expert of some kind address that issue as to whether that will save the bridge or not. That's it. Thank you very much.

Response: See Response to Comment BB-19.

BB-30 **Comment:** MS. BAILEY: Good afternoon, and thank you for the opportunity to speak. My husband and I live at ____ Lytton Station Road.

MR. WILLIAMS: Could you state your name, please?

MS. BAILEY: Sure. Debra I. Bailey, B, as in boy, a-i-l-e-y.

My husband and I live at ____ Lytton Station Road in Geyserville. We are in the proposed haul route Number 2 whereby gravel trucks will go from one of many gravel bars to Hassett Lane, to Lytton Station Road, to Lytton Springs Road, and then to Highway 101 and vice-versa.

We have lived in Sonoma County for 35 years, but it was only in December 2009 that we moved to our home on Lytton Station. We chose this location because of its rural nature, peace and tranquillity. It was not disclosed to us that it had been designated as a possible gravel truck route, and when we received notification of the completion of the DEIR, we were shocked and extremely distressed because of the potential consequence.

There are several areas of concern that we have with the D EIR. One, we don't think that a roadway level of service was addressed where Hassett meets Lytton Station. There's a large amount of traffic on Lytton Station Road in the mornings and evenings when people are going to and from work. There would certainly be an

impact upon traffic flow on Lytton Station by the introduction of 240 round trips or 480 single trips of gravel trucks, and it needs to be evaluated.

2. We don't think the roadway level of service was analyzed or addressed where our driveway meets Lytton Station. Our driveway is the first driveway on the southeast side of Lytton Station after the 90-degree turn is made. It's often difficult to safely enter or leave our driveway during the morning and evening hours when people are commuting. Shortly after we moved to our home, I contacted the Public Works Department and asked if they had addressed this problem. We thought that a reduction in the speed limit would help, but this has not occurred as yet. There would certainly be an impact upon our ability to safely enter or exit our driveway with the addition of 480 gravel trucks a day. It's impossible to mitigate this issue even if the gravel trucks reduce their speed somewhat as proposed in the mitigation. The chances of being in an accident, as we, our family or our guests enter or leave our property is almost certain.

3. What type of, if any, historical collision data was collected on, A, the Hassett to Lytton Station intersection, and, B, the 90-degree angle turn on Lytton Station.

In the short amount of time my husband and I have lived here, there already has been one accident and several close calls. Drivers often take this curve way too quickly and they stray into the opposite lane. It's essentially a blind curve and that makes the situation worse. As I just stated above, the chance of additional accidents occurring on this curve as the result of the introduction of gravel trucks is greatly increased.

4 -- and I apologize for reading this. I just couldn't do it without. The Draft EIR mentions a mitigation measure for the 90-degree angle turn on Lytton Station. In Section 3.6-3.c, it states that the road would have to be widened by Syar obtaining a right-of-way onto our property and removing some of our trees. As current owners of the property, we haven't been approached by Syar, and we really didn't have any desire to issue right-of-ways to anybody. We bought our property, in large part, because of its beautiful, large trees and the privacy they afford. As stated in the EIR, if mitigation cannot be accomplished by obtaining the right-of-way, the traffic impact would be significant. To put it simply, it is not a viable travel route for the gravel trucks.

Then 5. As noted in Section 3.6-4, the road conditions on Hassett are poor with a bridge that is old and unstable. Lytton Station Road is only in fair condition. Furthermore, neither road is very wide. Currently, it's dangerous to walk, bike, or ride a horse on Lytton Station. In spite of that fact, it still remains the favored route for the above-mentioned recreational activities. Even if these two roads were improved with a layer of asphalt as proposed, gravel trucks going back and forth in each direction will surely lead to an increase in pedestrian, biking, and equestrian accidents and fatalities.

6. When were the traffic studies conducted? I couldn't find in the report a date or a year. And it probably was there, but it was a really comprehensive report, so it was difficult for me to go through the 200 pages. In any event, there's a good deal of casino traffic that goes back and forth on those roads, so I was just wondering if a traffic study had been done more recently, because I think that would be important.

7. Our home, and my husband and I are the noise sensitive receptors on Route 2. We weren't approached by anyone doing an acoustical analysis. Nonetheless, in Section 3.9-3, it is stated that the acoustical studies were performed and the results indicated that haul trucks will exposed the existing sensitive receptors on Route 2 to significant noise increases in traffic noise, and then I quote "Noise that will exceed the standard exterior threshold." Quite frankly, that is quite an understatement.

Prior to our moving to Lytton Station, my husband and I and our three daughters lived on Windsor River Road in Windsor, California. For about ten years we were subjected to the increase in traffic noise that was generated by the almost constant traveling of gravel trucks on Windsor River Road. The constant rumbling was unnerving and many times I would describe that noise as statistically significantly, unpleasant and downright unhealthy.

Furthermore, since we enjoy spending much of our days outside, mitigation measures, such as double-paned windows, while helping to dampen the noise indoors, will do nothing to dampen the noise outdoors. In addition, we like to sleep with our windows open so we can enjoy the sounds of nature and feel the gentle breezes. Can you imagine being awakened every weekday morning at 6:00 a.m. to the sound of gravel trucks on the move, six months of the year from June to November, and then not having that noise cease until 9:30 p.m. Once in a lifetime for ten years was enough for us. We didn't have in mind this experience again, especially during our retirement years.

Just a couple more, and then I'm done.

Was the dust that will be generated from the gravel trucks addressed in the EIR? The levels of dust created by the sheer magnitude and the number of gravel trucks using Lytton Station Road daily will be quite high. We know this from our past experience, and it will be impossible to mitigate. I have existing allergy problems as do my children. This dust will only exacerbate our symptoms and make our lives very uncomfortable.

Was the economic impact of our property ever evaluated in this EIR? We think not. We have a very large economic investment in our home. The proposed running of gravel trucks for several years will certainly decrease the value of our home. There are no proposed mitigation measures for this certain eventuality.

And finally, we realize that gravel is a very important and necessary commodity in Sonoma County. It's important for Sonoma County's growth, for its economic health, and it's important for the health of the river. And I sympathize with all the vineyard owners here. But should this mining or -- be allowed at the expense of the health, happiness and economic health of some of its individual citizens? We certainly hope that this is not the case. We, therefore, respectfully request that if the Draft EIR is approved, that proposed Route 2, either be eliminated, and that Syar be required to construct a private haul road that will not impact any personal property owners without their consent. Or, two, that perhaps Route 3 be used for the gravel trucks instead of Route 2, if all those who will be affected on Route 3 agree.

And then finally, I just want to say that I got a great deal of help from staff personnel, I think her name was Melinda. She was wonderful. But I would like to address one comment that she -- is Melinda here -- that was made while she was wrapping things

up. And she said that mitigation measures -- when she was referring to Lytton Station -- will make -- the issues raised less than -- that they would have less than a significant impact. But to us, my husband and I and my family, they would still remain a very important impact.

Response: The commenter read most of the letter submitted. See Responses to Comments L-1 through L-10 for detailed responses. Please note that as described in Chapter 2 of this Response to Comments Document, Syar has revised its project description to remove the haul route that passes Mrs. Bailey's residence on Lytton Station Road. Staff appreciate the comment concerning help provided to the commenter by County staff.

BB-31 **Comment:** MR. HARRIS: Hello. My name's Kelly Harris and I'm here to represent Bioengineering Associates. We're a State of California licensed engineering contractor, and we've been involved in restoring erosion problems in watersheds since 1982.

We've worked on numerous sites within the Russian River basin and many projects on tributaries to the river with five large riverbank restoration projects on the mainstem of the Russian and one on the West Fork. Five of these projects were for wineries with vineyards along the river, and one was for a privately held recreation club.

These projects were in Redwood Valley, Asti, Healdsburg, and Guerneville with a total repair work along more than 7,000 feet of riverbank.

In many cases, land loss was as high as hundreds of feet of stream bank and riparian terrace along thousands of linear feet of bank.

In almost every case, both in small and mainstem sites, the key driving force pushing the erosion problems has been an inside curve gravel bar that, especially under drought year conditions, has become heavily vegetated and, in fact, stronger than the opposing stream bank which is almost always a silty or sandy loam.

When these bars occupy too much channel space, erosion problems on the opposite bank begin and good farmland is lost to the river.

It's clear to us that responsible management of the gravel resource is essential to the health of the river. Thank you.

Response: The commenter noted his firm, Bioengineering Associates, has implemented bank restoration projects in the Russian River. The commenter also noted the land and riparian vegetation loss as a result of bank erosion. The processes that give rise to bank erosion are discussed in great detail in the Draft EIR at Chapter 3.2, Geomorphology, Hydrology, and Water Quality. The commenter also expressed support for management of the gravel resource as a mechanism to maintain the health of the river. This comment will be considered by the decision makers.

BB-32 **Comment:** MR. STUHLMULLER: Good afternoon. My name is Roger Stuhlmuller, and I'm in the Alexander Valley below the Jimtown Bridge.

Appropriate that this young man that just spoke about one of the projects that his firm worked on, was on our property. And we've had a two-time occurrence and lost about seven acres of property. And not just -- not vineyard property. More tragically, along with one of the earlier speakers, it's all riparian. So while that is a buffer to the vineyard that's been diminished. I'm also a fisherman, and a really very avid one. And I still am perplexed at the somewhat -- the worst thing in the world, in my opinion, all this eluvial soil going into the river and how that impacts the fishery.

So I would support this program to help mitigate bank erosion. Thank you.

Response: The commenter noted the loss of seven acres of land and associated riparian vegetation from bank erosion on his property downstream of the Jimtown Bridge. The commenter expressed support for the project to help mitigate bank erosion. This comment will be considered by the decision makers.

BB-33 **Comment:** MR. SANTUCCI: Good afternoon, Commission. My name's Bob Santucci. I've lived on the Russian River for the last 50 years. I live on the end of Almond Way which is directly adjacent to Bar 2 in Healdsburg. I've lived right in the middle of the skimming operation twice in the last 15 years. The street that runs in front of my house is the main access to Bar 2 and Syar -- I haven't even seen them come and go. You see them come through at the beginning of the operation, stage the area. They keep the dust down. We've seen no dust, no impact during the day. Trucks are coming in and out of there. They're washed down; they're handled well.

Right now my daughter's down in that area swimming. So this is about a year after they've done their mining operation. The riverbed's improved.

The history of the river's been handed down to me directly from generations of people on how it should be handled. It has been mined. We have to continue to mine it. It's going to be an ongoing thing. The old skimming operations we found weren't as good as they could be. The pit mining we know is a total disaster, and we have to stop that. This is clearly one of the best options that we have. The easiest way to go in and determine -- it's pretty much common sense -- you go out on the Geyserville Bridge, look north or south. I do support going ahead and mining both ends of that at the same time.

We're seeing more fish in the last few years going along through Bar 2 that was recently mined. My neighbors have caught six that I know of directly. I didn't see any before that for about 8 or 10 years. It just wasn't -- it wasn't done well.

We have a combination of a shallow part of the river, which I understand is good for spawning, as well as deep pools on the far side. They've replanted with willow.

I used to supply the equipment to Bioengineering. I was in the rental business. I know that they contain all the fuels, everything else is managed really, really well.

So to address the Environmental Impact Report as far as traffic goes, I live 200 yards away from where they've worked for the last 15 years, and I have seen zero impact as far as the traffic goes. As far as the dust goes, not anymore than usual in a standard year. As far as the fisheries improving, I've seen that improve, and it has to be managed.

As far as Geyserville goes, I'm a member of the Chamber of Commerce up there, and I've spent a lot of time in that riverbed. And it's really clear that this has to be addressed at this point immediately. The cost of lives that could have been lost when the bridge was gone, I think far outweigh any of the other options. So thank you very much.

Response: The commenter said he has lived on the Russian River for 50 years directly adjacent to Bar 2, and described evidence of the benefits of recent mining of Bar 2. In addition, the commenter stated that he saw no impacts from past mining related to traffic and dust. The commenter expressed support for the project. These comments are noted, and will be considered by the decision makers.

BB-34 **Comment:** MR. CARNATION: Hello. My name is Joe Carnation, and I'm the Superintendent of the Geyserville Unified School District. And I'm not here today as any kind of a river expert, but out of concern for the impact of the river on the bridge that serves Geyserville and Geyserville schoolchildren.

As you recall, the bridge had to be closed and was not available for use for a period of about ten months. As a consequence of that failure, the Geyserville School District was forced to spend many, many thousands of unreimbursed dollars to transport students long distances around the river to get them to school and, again, to get them back home.

Children were forced to spend long hours on bus rides as they were transported from one side of the river to the other. The school lunch program had to become a cold lunch program, as there was no way to sufficiently transport hot food from one side of the river to the other in time for lunch and to be able to meet standards. The school staff, many of whom live in the Cloverdale to Ukiah area, again, were forced to travel long distances to reach school.

Transport buses and growers graciously kept their vehicles off narrow road Route 128 during the time our school buses then had to use that road, all of which I'm sure was at great expense to them in having to rearrange all of their business and routes so that they didn't conflict with school buses on that narrow road at the same time.

In addition, the increased cost of fuel, the increased cost of driver salaries, all strained the district budget. Additional mileage added regularly to the time our student athletes had to spend on the road. Our athletes participate in leagues involving Potter Valley and Alexander Valley -- excuse me -- Anderson Valley, long distances. Now they had to travel even greater distances, and then we had to deliver them back to both sides of the river. This was the only way they could meet their athletic obligations. And in some cases, given the travel involved, they had to be dismissed from school early, missing school time as a result of that.

In short, many school programs, from parent participation, field trips, assemblies, and athletics were greatly impacted.

Finally, the nation's current economic conditions have required our school district, as with many, to have to now lay off teachers, classified staff, and cut vital programs and services to the children of this community.

I really and truly wish I had the dollars that were lost due to that bridge closure and could keep those services intact for those kids. That's why I'm here today and that's why I want to protect that bridge.

The bridge is not old at all, yet there is always encroachment going on on both sides of the bridge up to River Road and also Highway 128. Caltrans has been asked about this, and they've said, "We'll just extend the bridge." Well, to me that means another bridge closure, additional unreimbursed expense, interruption to the educational experience for the children of Geyserville.

I would please ask that you take necessary actions to keep the river from continually encroaching. Thank you.

Response: The commenter's verbal comments focus on the impacts of the failure of the Geyserville bridge to the Geyserville School District and asked that these be considered when looking at impacts from the "No Project Alternative." Please see Master Response 2.

BB-35 **Comment:** MR. MUNSELLE: I have a little photo I'll set right here so you guys can see.

My name is Bret Munselle. I'm a fifth generation wine grape grower in Alexander Valley. There's nothing I'd like more than to tell you our story and tell you why I support Syar's skimming experience, but I'll stick to the if-we-don't-do-anything part of the EIR.

This is a photo from 1994 with a drawn in riverbank line of what has been lost in time. And more specifically, from 2004 to 2008, in that four-year window, about 7 acres, of the 10 to 12 that's represented in this photo, was lost. During that one flood in, I think, it was 2006, when the Geyserville Bridge was lost, I would guess that we lost somewhere like 5 to 6 acres of land right off our bank, all the riparian, all of that which everyone spoke about.

Doing nothing, as an alternative for this project, leads to this kind of problem. It's a problem for us as property owners. We got a response to an article that was in the paper recently that was the green property owners are planting vines right up to the edge of the river. When we bought this property in 2004, the river was approximately 300 feet from the last end post. Today, it's about 15. That's one rain. Next year we'll start taking out vines.

What Karen Waelde spoke about with River Road, in that one storm, it was well over 150 feet of bank that was lost. Right now from that bank to River Road is approximately 150, 160 feet. So very easily I can see that property being lost and that road being lost with one serious storm. The 2006 rain wasn't that big of a storm; certainly not the biggest I've seen and it's not the biggest that has been in my grandparents' life, who I talk to every day about the river.

So I just want it to be perfectly clear that doing nothing on a system that's impaired isn't going to function. We need to do something. This is a plan that's in front of us that seems to be very environmentally conscientious. We don't have another option, at least not one that I've heard of. So very much, I'm in favor of this project and just wanted to share that with you.

Thank you very much.

MR. WILLIAMS: Thank you. Is it possible for you to leave the picture with staff because it will corroborate the information that you've put in your written comments?

MR. MUNSELLE: There's a map with engineered calculations on the back of this, and then this one is a handwritten description to give us an idea.

Response: The commenter's verbal comments focused on the impacts of the "No Project Alternative." Please see Response Comment T-1 and Master Response 2.

BB-36 **Comment:** MR. HINES: My name is Brian Hines. I'm a resident of Santa Rosa, and Secretary of Trout Unlimited of California. We represent 10,000 conservationist anglers in the State. And we have a local chapter which has about 500 members in the immediate area, including the Russian River watershed, which is probably our main concern.

I have a letter where we've identified a number of problems with the Draft EIR, and hopefully I can get through most of these points in five minutes, and let you know why we think the document is inadequate at this point, and we'd really like to see these issues addressed in a new document.

I want to thank the County for inviting us to the meeting on the plan and giving us a copy of the EIR and letting us have an opportunity to comment on it.

The Redwood Empire chapter of Trout Unlimited has reviewed the Syar Alexander Valley Instream Mining Project and the Sonoma County ARM Plan Amendments Draft Environmental Impact Report. It has determined that it is inadequate for the following reasons: We recommend that the Planning Commission not approve the DEIR until these issues have been addressed and provide more time to comment.

The draft plan does not adequately address the need for a sediment budget for the Russian River watershed, although this has been continuously called for since 1994. A sediment budget, which was repeatedly proposed to be included in the Russian River Watershed Adaptive Management Plan, would identify the sources of sediment in the watershed and the existing barriers to their natural transport. The Draft EIR has too small a focus, only looking at impacts in the mining reach itself, which has unnatural constrictions that restrict aggregate transport, including the Geyserville Bridge, the Jimtown Bridge, and vineyard development in areas that were once river channel. Impacts above and below the mining reach have been ignored.

The EIR does not identify where the aggregate to be mined comes from or what the natural aggregate accumulation would be in the mining reach if numerous barriers to aggregate transport were not existing, such as Coyote Dam, Warm Springs Dam, and hundreds of small dams on the watershed tributaries. The blockage of sediment transport by these dams has made the Russian River a sediment-starved system according to Sonoma County's own report, "A History of the Decline of Salmonids in the Russian River." If you haven't read this report, from 1996, I'd really recommend that you read the Morphology chapter.

This report was published by the Sonoma County Water Agency in 1996. The Morphology chapter in this report has been purposefully ignored in this EIR. The

Sonoma County Water Agency document does not even appear in the list of publications reviewed in the 3.2 Geology, Hydrology and Water Quality section. This is intentional, as the Sonoma County Water Agency document makes it clear that aggregate mining in the Russian River is not consistent with salmonid species recovery and, in fact, has been a key factor in the decline of the Russian River's listed salmonids species: Chinook Salmon, Coho Salmon, and Rainbow Steelhead Trout.

The "Hungry Water" concept is also inadequately addressed in the Draft EIR. This is the condition where barriers to sediment transport, such as the Russian River's dams, reduce the sediment load in the river to a level far below normal for the river's power to move sediment. The river is hungry for additional sediment to be in balance with its energy during its winter high flow. The river recovers this sediment to regain its balance by eroding stream banks and downcutting tributary streams. In this way, gravel mining adds to the problem of bank erosion by removing sediment from a sediment-starved system. The Russian River is starved for good sediment, gravel and cobble that are important habitat for the macro-invertebrates, that are salmonids primary food source. Clean, plentiful aggregate is also necessary for salmonids redds in which they lay their eggs. The Russian River is actually impaired or polluted by bad sediment; that is, fine sediment that clogs gravel beds, causes embeddedness and smothers salmonids eggs and eliminates macro-invertebrate habitat.

This problem is not adequately addressed in the Draft EIR, including impacts of the tributary streams in this reach including Gill, Miller, Rancheria and Gird Creeks. Downcutting in these tributaries would be damaging the threatened and endangered salmonids populations. Such downcutting is found in streams in the middle reach of the Russian River where Syar continues to mine Bar 2 and 13. Laurel Marcus has documented the effects in a report on the downcutting in Pistol Creek which flows past Hop Kiln Winery. This property recently lost a bridge to the 10 foot head cut that has been working its way up the stream. Tributary streams on the west shore of the Russian River in the middle reach have stream beds that are 10 feet above the river today. Box culverts suspended well above the river testify to the falsehood found in 3.2-58 where it is stated that "the river has largely recovered from these past mining practices." Tell that to the migrating salmonid trying to figure out how to jump into a box culvert suspended 10 feet above the river in the middle reach.

The words Chinook, Coho and Steelhead do not appear in the Sonoma County PRMD Staff Report or the Syar Draft EIR. This is unexpected, as these species were listed under the Endangered Species Act as follows: Chinook Salmon, 1999 federally listed as Threatened. Coho Salmon, 1996 federally listed as Endangered, and in 2005 State listed as Endangered. Rainbow Steelhead Trout, 2000 federally listed as Threatened.

The proposed mining will occur in the critical habitat of these species but the PRMD Staff Report does not even include mention of this important consideration to the appropriateness of this project.

The mining that has occurred upstream from this project by Shamrock has not been analyzed in this Draft EIR, although it acknowledges that the area from Sulphur Creek to Jimtown Bridge constitutes the same Alexander Valley reach of the river.

The cumulative effects of past and proposed future Shamrock mining must be evaluated in any EIR on mining in the Alexander Valley reach of the Russian River. This EIR does not do that.

Returns of Chinook Salmon have been declining since the Shamrock mining was done in the Alexander Valley reach, but that is not addressed in this Draft EIR. Large runs of Chinook Salmon were reported in the Smith and Columbia Rivers this year; making claims that poor ocean conditions effected Russian River Chinook returns questionable. Smith River, Columbia River, and Russian River Chinook Salmon live in the same Pacific Ocean. Degradation of fresh water critical habitat is the more likely reason for the Chinooks poor returns to the Russian in recent years. The impact of the Shamrock mining on the Chinook returns is not addressed in the Syar Draft EIR, although it is extremely relevant.

Habitat typing of Alexander Valley reach of the Russian River is proposed in the Draft EIR and is something that should be done as soon as possible by DFG with or without this project, as it has been done on almost all Russian River tributaries in recent years. The exception is Austin Creek below Ward Creek where gravel mining has also been permitted in recent years, see Appendix E. Habitat typing using the DFG protocol is fundamental to evaluation of salmonids habitat conditions and changes over time.

Areas of the proposed mining reach have much better habitat conditions than others, but this has not been addressed in the Draft EIR. The reach from Gill Creek to the Jimtown Bridge is in much better condition than the areas upstream. In this reach, riparian tree canopy extends over and cools the river's water and the channel is deeper. Between the Geyserville Bridge and Gill Creek the river is shallow, warm and would not support cold water species. This is not discussed in the Draft EIR, and how the narrow channel with adequate tree canopy must be restored in the entire Alexander Valley reach if we are to make progress on salmonid recovery.

MR. WILLIAMS: Mr. Hines, we've been trying to keep all the comments to a relatively short period of time. Everybody's been very accommodating in that regard. I notice you have quite a lengthy document there. You're certainly welcome to submit that document. It will be considered as part of the response to the EIR. Please do that. That would be very helpful.

MR. HINES: Can I just read my big finish here, the last paragraph?

MR. WILLIAMS: Yes, you can do that.

MR. HINES: Okay. Recovery of the fishery is the established goal in the Russian River watershed, not simply maintenance of the existing degraded conditions. That approach will never produce recovery.

We find the Syar Draft EIR incomplete and inadequate and urge the Planning Commission to reject it until the issues above have been addressed in a new document. So thank you for your time.

MR. WILLIAMS: Thank you. Will you submit that? Also, is that document prepared by the board of directors of your organization?

THE WITNESS: Right. We had a meeting last night and discussed it.

Response: The commenter's verbal comments closely mirror his written comments. Please see the Response to Comment H-1 through H-25.

BB-37 **Comment:** MR. COLLINS: Good afternoon. I'm Jeff Collins, the general manager of Asti Winery in Cloverdale. I'm here to speak as somebody who's done a bank stabilization and restoration program and the before and after effects of what I've seen in this experience and in support of this EIR.

In high school, we used to camp out along the Russian River in Healdsburg and Geyserville. Although I didn't really know much about habitat or care about it, except for as long as there was brush along the river so we could jump out and turn over the canoes and recover their bobbing beer cans down the river.

As we grow older, sometimes we get a little bit wiser and gain wisdom through knowledge and experience. At one time, I would have said that the jacks, the car bodies, and the rip rap that's used along the river bank were just what we needed. And, indeed, some areas of the bank along Asti still are stable because of those, but I think we all recognize that that's not the way to do it.

After a gravel bar started to build up in the late '90s and began eroding the bank behind the historic Villa Pompeii at Asti, we sought out the help of Evan Engber and his Bioengineering group and made the decision, as a company, to do the right thing. Now, I'll admit I was somewhat skeptical at first, but in working with Evan and his team, I began to learn, and my perspective began to change. I began to see that the bank stabilization was a holistic process, involving the health of the Russian River, fish habitat, and the livelihood of the landowner.

In order to stabilize a small portion of our bank, Bioengineering had to rechannel the river and basically remove a huge gravel bar. They reshaped our bank and restored the fish habitat that was lost to erosion over the five years that it took to get the project approved. And that's another story, but one that is also crucial to address going forward.

And through the first year the stabilized bank survived and thrived, and I watched as the willow mattress that had been placed on the bank took root, and I felt my anxiety ease as the first winter passed without damaging Bioengineering's work. But then came the second winter, the big flood of 2005. In the course of that one season, and in particular the big floods around New Year's Eve and New Year's Day, the gravel bar that Bioengineering had removed returned with a vengeance. It has continued to grow each year, and the erosion has returned with it, placing vital parts of our property at risk, including the section that Bioengineering had stabilized. The fish habitat doesn't lie along the gravel bar. As we can see in this picture, it's along where the trees and the bank give shade and shelter to the fish. But the gravel bar erodes that habitat by pushing that water up and taking away all that fish habitat and it's forced the fish to spawn in our vineyard during the winter, instead of up Crocker Creek, which is directly across from our vineyard. And Crocker Creek is now forced, instead of flowing down into the river, it has to go upstream across the gravel bar, because that's how high the gravel bar has gotten. And so the water has found its low mark, which is in our vineyard. And so the fish are swimming up and spawning in

grass rather than up in the creek area where they should be spawning. Luckily, though, all our vineyards are fish friendly farmed.

If you are truly a fan of the River, you would look at the science behind what Syar is proposing both in terms of the hydrology and geomorphology, and in terms of how they plan to restore fish habitat, and see that we have an opportunity here for a genuine win-win. By sustainably managing these huge gravel bars through skimming the tops down, we will maintain fish habitat along the banks instead of allowing the flows off the bar to erode that habitat; we will keep that fine silt that erodes out of those banks from hurting river health and fish habitat; we will save property and money, both public and private, so that episodes such as the Geyserville Bridge don't happen again; we will maintain the beautiful tree-lined banks that folks see as they fish or canoe down the river; and we will keep jobs local by having Sonoma County workers bring in the material skimmed from the gravel bar management, rather than those jobs taking place in mining work along rivers hundreds of miles to our north; and finally, by sustainably managing these gravel bars, we can avoid the very painful and potentially damaging interventions that will continue to come in the form of emergency rechanneling of the river. In short, we will prove that a balance can be found between environmental concerns, land ownership concerns, and business concerns through true sustainable management of our resources, our Russian River.

And I shouldn't say this in front of these trout folks, but that reach behind Asti is one of the best known for Steelhead, salmon fishing, et cetera. Don't tell anybody, okay? Just our secret.

Response: The commenter read his comment letter (Comment Letter R). Please see Responses to Comments R-1 through R-4 with respect to specific issues raised.

BB-38 **Comment:** MS. SCHAEFFNER: Does it address how if there is a dust issue, a hotline-type issue?

Response: Please see Response to Comment G-7.

BB-39 **Comment:** MS. SCHAEFFNER: Okay. And you had said that all the leases for where they're going to mine have been secured, but there was an issue about traffic and right-of-ways. I assume until there's a project, they wouldn't have all the right-of-ways secured at this point, right?

Response: The Commissioner inquired about the right of way process that would be needed for improvements to Lytton Station Road per Mitigation Measure 3.6-3c. The measure contemplated a negotiation between the applicant and property owner regarding the purchase of land needed to improve the road. However, since publication of the Draft EIR, Syar has revised the project description to exclude use of Haul Route 2 on Lytton Station Road. Please see Chapter 2, Revisions to the Draft EIR, for a full description of the changes to haul routes proposed by the applicant.

BB-40 **Comment:** MS. SCHAEFFNER: Right. Okay. And just so I'm clear -- I don't know if this is addressed in the EIR -- when you say they're going to mine one bar at a time, is that staging two, or is it they only mine these days and go to the next one? Will

they be staging those in advance? Where there will be overlap? Or is that something that's addressed in the EIR, because I didn't see that?

Response: The Commissioner inquired about staging and possible overlap of mining. Per the Draft EIR, mining would only occur on one bar at a time (up to four in one season), though preparation work for mining another bar may occur while the applicant completes mining on a previous bar.

BB-41 **Comment:** MR. BENNETT: I think that's about all the questions I had -- as far as questions that were brought up, but I do have one general area. I realize that the purpose of an EIR is hankering and finding problems and figuring out how to solve problems, and most of the testimony that we heard today was more positive impact from the project. And I think where that's relative -- it's important relative to this: If there were a No Alternative project -- and I think we talked about erosion. We had a lot of testimony today about soil erosion that needs to be corrected by a project of this type, and you go back into the EIR and everything about erosion is what's going to happen from the project itself in terms of impact from the erosion. And with things like erosion, the impact on flooding on properties, the no alternative, I would like to see that expanded more, because I think that's really relevant to what we're talking about here. So I want to stop with that comment.

Response: Please see Master Response 2.

BB-42 **Comment:** MS. DAVIS: Thank you. Can I ask just Melinda, there was a question that was raised about whether there's gravel mining happening upstream or not, and I'm just wondering what the time frame of that was, and if that has -- I guess what I'm interested in finding out: Does the upstream gravel mining have an impact on what's happening right now in the project area? And I guess that's not a question you need to answer, but --

MS. GROSCH: There is currently mining upstream. Shamrock Industries is mining upstream.

MS. DAVIS: Is there any way to look at whether that gravel mining upstream has any impact on what's happening further down the --

MS. BARRETT: Can I make a clarification? I believe there is a mining permit, but I do not believe that they've mined. Their permit expires, I think, next year.

Response: Please see Response to Comment H-9. As explained therein, the Draft EIR explicitly identified Shamrock's upstream mining project as part of the cumulative setting, and analyzed its cumulative effects throughout Chapter 4.0, Topical Issues and Impact Summaries. (See page 4-3.) The Draft EIR specifically discussed the Shamrock project's contribution to cumulative impacts at pages 4-9, 4-11, 4-12, 4-13, 4-17, and 4-18, among others. The Draft EIR found that the project's aesthetic and noise impacts would be significant on both a project-specific and cumulative level, but that Shamrock's upstream mining has not resulted in any other significant impacts to which the proposed project would make a cumulatively considerable contribution.

BB-43 **Comment:** MS. DAVIS: Again, somebody else brought up the point, and maybe I don't need to repeat what I've heard, but I'd like to see an adequate study related to

the traffic impact should right-of-way not be obtained. I didn't see that that was specifically addressed. But like -- it is a hefty document, so --

Response: The traffic section of the Draft EIR describes a mitigation measure (3.6-3c) requiring purchase of right of way to improve the curve at Lytton Station Road. Since publication of the Draft EIR, the applicant has revised the project description to eliminate the haul route that would have used Lytton Station Road. Please see Chapter 2, Revisions to the Draft EIR, for a full description of the changes to haul routes proposed by the applicant.

BB-44 **Comment:** Also, what I read is that some of these stated objectives are limited -- to limit erosion and flooding, and have those -- have the mitigation measures that are proposed been tested? Is there a way to demonstrate that those are effective? And, again, I'm not looking for answers, but to make sure it's addressed in there.

Response: The mining methods and mitigation measures have been implemented and tested at Austin Creek (see Appendix E), which is a tributary to the Russian River. Since 2003 the mining method, which follows the mining approach recommended by NMFS (previously NOAA) in its Sediment Removal Guidelines (NOAA, 2004), has resulted in the development of improved rearing and spawning habitat (Cluer, Holley, and Canelis, 2010). The main Sediment Removal Guidelines encourage mining practices that retain the geomorphic function of bars. Bars confine the low flow channel, scour and maintain the adjacent pool habitat, and sort sediment sizes. All of these fluvial processes help create and maintain good fish habitat. The head of bar buffer and side bar buffer are two key proposed project requirements that comport with the NOAA guidelines.

BB-45 **Comment:** And then also what happens when the project is over? It was raised here, and I have a question, too. If the sediment is moving down the river, are they going to backfill in? What kind of ongoing maintenance is going to be required for maintaining the benefit that this skimming is going to bring?

Response: As discussed in the Draft EIR, the proposed REP activities are not permanent enhancement features and would fill in over time. See Response to Comment G-19.

The benefits of bar skimming, including increased flood conveyance capacity and reduced bank erosion, would be similarly temporary, and decline as the bars re-aggrade with new sediments.

BB-46 **Comment:** And actually, again, the question was raised -- and I don't know if this is something that could be addressed in the EIR, if this would come further down the project if things move along, but is it appropriate to develop some kind of look at what the long-term solution is? You know, if we do some gravel mining as part of the restoration, in the long-term -- if we're not interested in continuing mining the river as a long-term solution, can we develop some kind of option? And I don't know if that's appropriate to include in an EIR.

Response: The ARM Plan envisions ongoing mining as a management strategy for the Russian River. This project includes some activities that are intended to provide protection of banks and infrastructure for longer than just the mining period. It is also hoped that the enhancement activities to provide additional riparian forest and to

reconnect the tributaries may have longer effects. However, it appears inappropriate to ask the applicant to develop an entire long-term river management plan. A river management plan would need to be developed by the various agencies that have jurisdiction over the river.

BB-47 **Comment:** MS. DAVIS: And this is probably an education question, but I know that in my understanding -- we had an agency meeting here a few months ago, where we talked about instream skimming, you know, different resources available in terms of gravel. And my understanding was that there are many places where we're getting out of the river, so how do they get designated that this particular reach is an area that is approved for instream as opposed to someplace else where we're getting out? And if we're getting out elsewhere, are we having the same kinds of problems in those areas?

Response: The ARM Plan designated this reach and other areas for instream mining based on their high rates of aggradation. The ARM Plan calls for the cessation of mining in terrace pits and for reduced reliance on gravel from rivers, but does not call for elimination of gravel bar skimming on the Russian River and other streams with high rates of aggradation.

BB-48 **Comment:** MS. DAVIS: All right. And the Adaptive Management Strategy, my understanding is that that's going to allow, you know, ongoing regular monitoring and that there could be -- depending on how things play out and how they're looking with the monitoring, that there could be a change in the mining methodology. Are those different types of mining all addressed in the EIR, or are they going to be subject to additional CEQA? Are all those different options going to be looked at in this EIR?

MR. BRAX: I think the intent is to cover all of those mining methods in the EIR. If something completely new or unforeseen is proposed, that that could trigger additional CEQA review, but the goal would be to analyze everything that's foreseeable at this time.

MS. BARRETT: If you look carefully at the graphic -- it's kind of confusing -- it shows the difference between our current mining methods and our proposed mining methods, what you'll see is the main difference is the buffers. The buffers are bigger on the outer bar and they're smaller on the header bar. The primary concern that we have is the header bar buffers, and so the kind of adaptive management that is envisioned maybe shrinking the mining area if it's too large to maintain the bar form.

MS. DAVIS: And PRMD will be the one making those judgment there?

MS. BARRETT: We are the mining authority and it is our determination, but we do that in consultation with the resource agencies, and we also have a scientific review consultant team that helps us analyze that situation, so, yeah.

Response: Please see Response to Comment G-13. As explained therein, the proposed mining methods are addressed in the Draft EIR. The horseshoe skim method is specifically explained at page 1-18, and the Effective Discharge Stage Height method at page 1-55. Visual representations of these techniques are provided at Figures 1-5, 1-6, 1-8a, 1-8b, 1-8c, 1-8d, 1-8e, 1-8f, 1-8g, and 1-8h. As discussed in part at the June 17, 2010 Planning Commission meeting, the EIR

attempts to disclose and evaluate all the proposed mining methods, while new or unforeseen events may trigger additional review under CEQA Guideline § 15162.

BB-49 **Comment:** MS. DAVIS: Okay. And then the oxbows and alcoves, have those been demonstrated as effective methods for -- in other mining operations for fish habitat, et cetera?

Response: The Austin Creek mining project is considered a demonstration project that has shown that these techniques were successful overall, see Appendix E. NOAA has been monitoring that project and the five year monitoring report was released this year. Some of the oxbow/alcove features in that project did not prove to be very long lasting but others have been very durable. Several were re-excavated and retention has been better after the second attempt to create them. Also, please see Responses to Comments I-13 and BB-44.

BB-50 **Comment:** So issue Number 6 related to the air quality. What would be required – and again, maybe this doesn't need an answer now, but I would like to see what would the project level be in order to meet the 1500 a day standard. Right now it's – the way the project is written, it would be 78 tons per day, I think it is, and so –

Response: As explained in part at the June 17, 2010 Planning Commission meeting, Alternative 4 identified 132,000 tons per year as the extraction volume thought necessary to meet the NSCAPCD's recommended standard of 15 tpy for PM_{10}. But as discussed in Chapter 2 and Appendix D to this Response to Comments Document, the applicant has proposed changes in the project and new mitigation measures have been imposed that are sufficient to reduce PM_{10} emissions to below the 15 tpy threshold.

BB-51 **Comment:** And so has there been any study or look at what the impact would be on downstream property owners?

Response: The Commissioner requested information regarding impacts to downstream property owners and greenhouse gas emissions. Please see Master Responses 1 and 3, and Responses to Comments G-9, G-64, and I-3.

BB-52 **Comment:** And then also, is aggregate slated for export out of the County or other areas of Sonoma where those other resources already exist? I'm thinking about greenhouse gas impacts here.

Response: Please see Responses to Comments G-4 and G-5.

BB-53 **Comment:** Ms. Davis: And finally, there's actually – actually all the alternatives that you guys came up with, I actually found one that isn't in here, and that would be the proposed project with a lower volume over a 10-year period.

Ms. Barrett: Lower volume based on –

Ms. Davis: The lower extraction volume. So Alternative 4 within a 10-year – so basically Alternative 4 for 10 years rather than 15.

Response: Please see Response to Comment E-2. As discussed therein, the comment does not identify a new alternative, but rather a variation and combination

of two alternatives already considered in the Draft EIR. Combining two alternatives would result in the impacts associated with both. For example, reducing the project timeframe per Alternative 3 (to 10 years or anything less than the proposed 15 years) would reduce the duration of aesthetic and noise impacts, but could also result in reduced beneficial impacts from habitat restoration, bank stabilization, and infrastructure protection. (See pages 4-32 to 4-33, 4-35 to 4-36.) Please see Response to Comment BB-50 with regard to Alternative 4.

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APPENDIX A

Written Comments on the Draft EIR

A

STATE OF CALIFORNIA
NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
(916) 657-5390 - Fax

Arnold Schwarzenegger, Governor

May 13, 2010

Chris Seppler
Sonoma County Permit and Resource Management
2550 Ventura Avenue
Santa Rosa, CA 95403-2829

RE: SCH#2006042101 Syar Alexander Valley In-Stream Mining Project and Sonoma County ARM Plan: Sonoma County.

Dear Mr. Seppler:

The Native American Heritage Commission (NAHC) has reviewed the Notice of Completion (NOC) regarding the above project. To adequately assess and mitigate project-related impacts on archaeological resources, the Commission recommends the following actions be required:

- Contact the appropriate Information Center for a record search to determine:
  - If a part or all of the area of project effect (APE) has been previously surveyed for cultural resources.
  - If any known cultural resources have already been recorded on or adjacent to the APE.
  - If the probability is low, moderate, or high that cultural resources are located in the APE.
  - If a survey is required to determine whether previously unrecorded cultural resources are present.
- ✓ If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
  - The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure.
  - The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological Information Center.
- ✓ Contact the NAHC for a Sacred Lands File Check.
  - **Check Completed with negative results, 05/11/10.**
    The absence of specific site information in the Sacred Lands File does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites (see below).
- ✓ Contact the NAHC for a list of appropriate Native American Contacts for consultation concerning the project site and to assist in the mitigation measures.
  - **Native American Contacts List attached**
    The NAHC makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend other with specific knowledge. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received. If you receive notification of change of addresses and phone numbers from any these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information.
- ✓ Lack of surface evidence of archeological resources does not preclude their subsurface existence.
  - Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) §15064.5 (f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities.

A-1

- Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans.
- Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code §7050.5, CEQA §15064.5 (e), and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

A-1

Sincerely,

Katy Sanchez
Program Analyst
(916) 653-4040

CC: State Clearinghouse

Native American Contact List
Sonoma County
May 11, 2010

Cloverdale Rancheria of Pomo Indians
Patricia Hermosillo, Chairperson
555 South Cloverdale Blvd., Suite Pomo
Cloverdale , CA 95425
clvrdler61@aol.com
(707) 894-5775
909-894-5727

Cloverdale Rancheria of Pomo Indians
Mario Hermosillo Jr., Tribal Environmental Planner
555 South Cloverdale Blvd., Suite Pomo
Cloverdale , CA 95425
mhermosillo@cloverdalerancheria.com
(707) 894-5775
707-894-5727

Dry Creek Rancheria of Pomo Indians
Harvey Hopkins, Chairperson
P.O. Box 607 Pomo
Geyserville , CA 95441
drycreek@sonic.net
(707) 473-2178

Mishewal-Wappo Tribe of Alexander Valley
Scott Gabaldon, Chairperson
PO Box 1794 Wappo
Middletown , CA 95461
scottg@mishewalwappo.
707-494-9159

Ya-Ka-Ama
7465 Steve Olson Lane Pomo
Forestville , CA 95436 Coast Miwok
info@yakaama.org Wappo
(707) 887-1541

Suki Waters
P.O. Box 53 Coast Miwok
Jenner , CA 95450 Pomo
(707) 865-2248

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources forthe proposed SCH# 2006042101 Syar Alexander Valley In-stream Mining Project and Sonoma County ARM Plan; Sonoma County.

B

TOMARAS & OGAS, LLP

10755-F SCRIPPS POWAY PARKWAY #281 • SAN DIEGO, CALIFORNIA 92131
TELEPHONE (858) 554-0550 • FACSIMILE (858) 777-5765 • WWW.MTOWLAW.COM

Kathryn A. Ogas
Brenda L. Tomaras

kogas@mtowlaw.com
btomaras@mtowlaw.com

June 19, 2009

VIA E-MAIL

Melinda Grosch
Permit and Resource Management
2550 Ventura Avenue
Santa Rosa, CA 95403

Re: Comments on Draft Environmental Impact Report for the Proposed Syar Alexander Valley Instream Mining Project

Dear Ms Grosch:

This comment letter is submitted on behalf of the Lytton Rancheria of California (hereinafter, "Lytton Tribe"), a federally recognized Indian tribe and sovereign government. The Lytton Tribe submits the following comments on the Draft Environmental Impact Report (DEIR) for or the Proposed Syar Alexander Valley Instream Mining Project. We request that these comments, as well as any subsequent comments submitted by the Lytton Tribe, be included in the record for approval of the Project.

REQUESTED NOTICE AND INVOLVEMENT

The Lytton Tribe formally requests, pursuant to Public Resources Code §21092.2, to be notified and involved in the entire environmental review process under CEQA during the mining Projects contemplated under this document. This includes adding the Tribe to the distribution list(s) for public notices and public circulation of all documents pertaining to the Project. The Tribe further requests to be directly notified of all public hearings and scheduled approvals concerning the Project.

B-1

THE LEAD AGENCY MUST INCLUDE INVOLVEMENT OF AND CONSULTATION WITH THE TRIBE IN ITS REVIEW PROCESS

It has been the intent of the Federal Government[1] and the State of California[2] that Indian

[1] See Executive Memorandum of April 29, 1994 on Government-to-Government Relations with Native American Tribal Governments and Executive Order of November 6, 2000 on Consultation and Coordination with Indian Tribal Governments.

tribes be consulted with regard to issues which impact cultural and spiritual resources, as well as other governmental concerns. The responsibility to consult with Indian tribes stems from the unique government-to-government relationship between the United States and Indian tribes. This arises when tribal interests are affected by the actions of governmental agencies and departments such as approval of Specific Plans and EIRs. In this case, it is undisputed that portions of the project lie within Lytton Tribe's traditional territory and the Tribe appreciates Sonoma County's willingness to consult with the Tribe on this Project, as well as to keep the Tribe informed of the progress of this Project. B-1

LYTTON TRIBAL CULTURAL AFFILIATION TO THE PROJECT AREA AND PROJECT IMPACTS TO CULTURAL RESOURCES

The Lytton Band is not opposed to this project. The Tribe's primary concerns stem from the project's likely impacts on Native American cultural resources. The Lytton Band has a legal and cultural interest in the proper protection of sacred places and all Pomo cultural resources. The Tribe is concerned about both the protection of unique and irreplaceable cultural resources, such as Pomo village sites and archaeological items which would be displaced by development, and with the proper and lawful treatment of cultural items, Native American human remains and sacred items likely to be discovered in the course of the mining project given the proximity to stream areas.

The Pomo people, and the Lytton Rancheria in particular, traditionally occupied the geographical area known today as the County of Sonoma for thousands of years, including the area of Alexander Valley and within the Town of Windsor. This is verified through stories and songs of the Pomo people that are cultural evidence of the Tribe's cultural affiliation with these lands. Occupation is also evidenced through the location of the Tribe's prior reservation, anthropological studies, archaeological studies, and histories of the area. In addition, Tribal ties to these territories have been maintained to the present day through cultural and governmental actions. B-2

While the cultural surveys for the DEIR, as noted previously the Tribe believes that the geographic terrain for the mining project demonstrates areas of sensitivity. There is a rich history of cultural resources within the County of Sonoma and an analysis of potential impacts to cultural resources is crucial. Given that Native American cultural resources may be affected by the Project, there should be adequate consultation with the Tribe in assessing the potential impacts and developing adequate mitigation for such impacts.

Finally, the Tribe believes that if human remains are discovered, State law would apply and the mitigation measures for the Project must account for this. According to the California Public Resources Code, § 5097.98, if Native American human remains are discovered, the Native American Heritage commission must name a "most likely descendant," who shall be consulted as to the appropriate disposition of the remains. B-3

[2] See California Public Resource Code §5097.9 et seq. and Cal. Govt. Code §§ 65351, 65352, 65352.3 and 65352.4.

DRAFT EIR AND MITIGATION MEASURES

Environmental Impact Reports must provide adequate protection for significant archaeological and cultural sites and adequately follow the provisions of CEQA and its Guidelines, including Calif. Pub. Res. Code § 21083.2(b) (avoidance as preferred method of preservation of archaeological resources), CEQA Guidelines § 15126.4(b)(3) (agencies should avoid effects on historical resources of archaeological nature), and CEQA Guidelines § 15020 (lead agency responsible for adequacy of environmental documents).

The Tribe requests the following revisions be made to the proposed mitigation measures (for ease of reading and to reduce space, portions of the measures which are not impacted by the revisions will be left out and noted with elisions):

MM 3.5-1a . . .

In the event that archaeological features such as pottery, arrowheads, midden, or … PRMD staff may consult and/or notify the appropriate tribal representative(s) from tribes known to PRMD to have interests in the area.. . . When contacted, a member of PRMD Project Review staff and the archaeologist, accompanied by those appropriate tribal representatives that so wish, shall visit the site to determine the extent of the resources and to develop and coordinate proper protection/mitigation measures required for the discovery.

B-4

The Lytton Tribe looks forward to working together with the Sonoma County Transportation Authority and other interested agencies in protecting any invaluable Pomo cultural resources found in the Project area. Should you have any questions, please do not hesitate to contact me.

Very truly yours,

TOMARAS & OGAS, LLP

Brenda L. Tomaras

Brenda L. Tomaras
Attorneys for the Lytton Rancheria of California

Chris Seppeler

From: Brenda L Tomaras [BTomaras@mtowlaw.com]
Sent: Monday, June 14, 2010 11:50 AM
To: Melinda Grosch
Cc: Jeffrey Brax; Chris Seppeler
Subject: RE: Comments on Syar Mining Project

Melinda,

Thank you for the response. Just so you know, the Lytton Rancheria considers consultation to be an on-going process and much broader than mere face-to-face meetings. That is why we reiterate our desire to continue the consultation process throughout the project. However, you are correct in that we are not asking for any face-to-face meetings or site visits at this point. Likely if resources are found during the conduct of the project, that will change.

Again, thank you for taking the time to clarify.

Brenda L. Tomaras
Tomaras & Ogas, LLP
10755-F Scripps Poway Parkway #281
San Diego, CA 92131
(858) 554-0550
(858) 777-5765 Facsimile

From: Melinda Grosch [mailto:MGROSCH@sonoma-county.org]
Sent: Monday, June 14, 2010 11:40 AM
To: Brenda L Tomaras
Cc: Jeffrey Brax; Chris Seppeler
Subject: RE: Comments on Syar Mining Project

Brenda,
Thank you for your comments on the Syar Alexander Valley Instream mining proposal. I need one point of clarification about the comment letter. It appears that you really have only one comment and that the first portion of the letter is reiterating your rights under various laws in regards to the project and noting that we have attempted to keep you apprised of the progress on the project. The comment has been added to our file to be addressed in the "response to comments" document, also known as the Final EIR. However, if you were really requesting consultation and need to visit the site with staff please let me know so that I can arrange that as soon as possible. The original notification went out some time ago and the Lytton Tribe only requested notification at that time, but as noted you still have the right to consultation.

Whether or not you need to visit the site we will continue to keep you apprised of the progress and hearings on the project. I appreciate your timeliness in providing your comments.

Melinda G.

From: Brenda L Tomaras [mailto:BTomaras@mtowlaw.com]
Sent: Wednesday, June 09, 2010 2:13 PM
To: Melinda Grosch
Subject: Comments on Syar Mining Project

Ms. Grosch,

Attached please find the Lytton Rancheria's comments on the DEIR for the above-referenced project.

Brenda L. Tomaras
Tomaras & Ogas, LLP
10755-F Scripps Poway Parkway #281
San Diego, CA 92131
(858) 554-0550
(858) 777-5765 Facsimile

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY ARNOLD SCHWARZENEGGER, GOVERNOR

DEPARTMENT OF TRANSPORTATION
111 GRAND AVE.
P. O. BOX 23660
OAKLAND, CA 94623-0660
PHONE (510) 622-5491
FAX (510) 286-5559
TTY 711

Flex your power!
Be energy efficient!

C

June 16, 2010

SON128074
SON-128-5.74
SON-101-38.56
SCH 2006042101

Mr. Chris Seppler
County of Sonoma
Permit & Resource Management Department
2550 Ventura Avenue
Santa Rosa, CA. 95403-2819

Dear Mr. Seppler:

Syar Alexander Valley In-stream Mining Project PLP08-0116 – Draft Environmental Impact Report

Thank you for including the California Department of Transportation (Department) in the environmental review process for the proposed project. We have reviewed the application and have the following comments to offer.

Encroachment Permit

Please be advised that any work or traffic control that encroaches on State right-of-way (ROW) requires an encroachment permit issued by the Department. Further information is available on the following website: http://www.dot.ca.gov/hq/traffops/developserv/permits/

To apply, a completed encroachment permit application, environmental documentation, and five (5) sets of plans clearly indicating State ROW must be submitted to the address below. Traffic-related mitigation measures should be incorporated into the construction plans during the encroachment permit process.

C-1

Office of Permits
California DOT, District 4
P.O. Box 23660
Oakland, CA 94623-0660

Please visit the website link below for more information.

Should you have any questions regarding this letter, please call Connery Cepeda of my staff at (510) 286-5535.

Sincerely,

LISA CARBONI
District Branch Chief
Local Development – Intergovernmental Review

c: Scott Morgan (State Clearinghouse)

D

STATE OF CALIFORNIA Arnold Schwarzenegger, *Governor*

PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

June 17, 2010

Chris Seppeler
Sonoma County PRM Department
2550 Ventura Avenue
Santa Rosa, CA 95403-2829

Re: Notice of Completion, Draft Environmental Impact Report (DEIR)
Sylar Alexander Valley In-stream Mining Project and Sonoma County ARM Plan Amendments
SCH # 2006042101

Dear Mr. Seppeler:

As the state agency responsible for rail safety within California, the California Public Utilities Commission (CPUC or Commission) recommends that development projects proposed near rail corridors be planned with the safety of these corridors in mind. New developments and improvements to existing facilities may increase vehicular traffic volumes, not only on streets and at intersections, but also at at-grade highway-rail crossings. In addition, projects may increase pedestrian traffic at crossings, and elsewhere along rail corridor rights-of-way. Working with CPUC staff early in project planning will help project proponents, agency staff, and other reviewers to identify potential project impacts and appropriate mitigation measures, and thereby improve the safety of motorists, pedestrians, railroad personnel, and railroad passengers.

The traffic impact study within the traffic and circulation (Railway Safety) section of the DEIR specifically addressed safety issues to at-grade railroad crossings as requested from our 2007 NOP comment letter. While we concur with the proposed mitigation measures on page 3.6-32 of the DEIR, a Safety Diagnostic will be required with CPUC, County and Railroad staff to finalize the proposed mitigation measures and include additional measures from the general category listed below if applicable following the Diagnostic.

D-1

General categories of such measures include:

- Installation of grade separations at crossings, i.e., physically separating roads and railroad track by constructing overpasses or underpasses
- Improvements to warning devices at existing highway-rail crossings
- Installation of additional warning signage
- Improvements to traffic signaling at intersections adjacent to crossings, e.g., traffic preemption

- Installation of median separation to prevent vehicles from driving around railroad crossing gates
- Prohibition of parking within 100 feet of crossings to improve the visibility of warning devices and approaching trains
- Installation of pedestrian-specific warning devices and channelization and sidewalks
- Construction of pull out lanes for buses and vehicles transporting hazardous materials
- Installation of vandal-resistant fencing or walls to limit the access of pedestrians onto the railroad right-of-way
- Elimination of driveways near crossings
- Increased enforcement of traffic laws at crossings
- Rail safety awareness programs to educate the public about the hazards of highway-rail grade crossings

D-1

Commission approval is required to modify an existing highway-rail crossing or to construct a new crossing.

It should be noted that the environmental documents (FEIR) will also be used by the Commission for final CEQA approval and compliance with all General Order requirements as they apply to this project. It is important that the CPUC staff continue to be involved in the process.

Thank you for your consideration of these comments. Please contact David Stewart, Utilities Engineer, at (916) 928-2515 or email at atm@cpuc.ca.gov for questions regarding the Safety Diagnostic and crossing modification process with the Commission.

If you have any other questions in this matter, please contact me at (415) 713-0092 or email at ms2@cpuc.ca.gov.

Sincerely,

Moses Stites
Rail Corridor Safety Specialist
Consumer Protection and Safety Division
Rail Transit and Crossings Branch
180 Promenade Circle, Suite 115
Sacramento, CA 95834-2939

State of California – The Natural Resources Agency
DEPARTMENT OF FISH AND GAME
Bay Delta Region
7329 Silverado Trail
Napa, CA 94558
(707) 944-5500
www.dfg.ca.gov

***ARNOLD SCHWARZENEGGER**, Governor*
***John McCamman**, Director*

E

June 17, 2010

Mr. Chris Seppeler
Sonoma County Permit and Resource Management Department
2550 Ventura Avenue
Santa Rosa, CA 95403

Dear Mr. Seppeler:

Subject: Syar Alexander Valley Instream Mining Project and Sonoma County ARM Plan Amendments, Draft Environmental Impact Report, SCH #2006042101, County of Sonoma

The Department of Fish and Game (DFG) has reviewed the draft Environmental Impact Report (EIR) for the Syar Alexander Valley Instream Mining Project and Sonoma County ARM Plan Amendments (Project). The draft EIR was received in our office on May 3, 2010.

The Project proposes an instream gravel mining operation along the Russian River in the lower Alexander Valley. The Project location is approximately 110 acres of gravel bars between River Mile 47.5 and River Mile 54. The Project also proposes an Alternative Management Strategy to allow for more precise control of potential impacts and a River Enhancement Plan to restore riparian and instream habitat. E-1

DFG is identified as a Trustee Agency pursuant to the California Environmental Quality Act (CEQA) Section 15386 and is responsible for the conservation, protection, and management of the State's biological resources. DFG is using our comments on the draft EIR as a means to inform the Lead Agency of our concerns regarding sensitive resources which could potentially be affected by the project.

Alternatives Analysis
A reasonable project alternative that should be considered in the final EIR, in addition to the five alternatives already identified, would be a proposed project with a ten-year time period and a lower extraction volume. As a combination of existing Alternatives 3 and 4, it could be identified in Section 15126.6(e)(2) of the *CEQA Guidelines* as the environmentally superior alternative to the No Project Alternative due to a decrease in duration and intensity of significant impacts. E-2

River Enhancement Activities
Syar proposes river enhancement activities to improve habitat and ecological conditions. Enhancement activities including, but not limited to, streambank enhancement, riparian forest planting, large woody debris jams and tributary enhancement should be developed in consultation with DFG and the *California Salmonid Stream Habitat Restoration Manual* (DFG, 1998). River enhancement activities should be designed to sustain and promote anadromous salmonids and other native fish species. E-3

Vegetation and Wildlife
Mitigation Measure 3.3-6 should be modified to require a 50-foot exclusion buffer for songbirds and a minimum exclusion buffer of 300 feet for raptor nests. Some species of raptor, like Osprey, may require a 0.25-mile buffer surrounding an active breeding nest. DFG recommends a qualified biological monitor be on-site to observe buffer efficacy and that DFG be consulted if modification to buffer size is needed for project activities. E-4

Mitigation Measure 3.3-7 should require that a qualified bat biologist delineate a minimum 300-foot buffer around a maternity roost. E-5

Lake and Streambed Alteration
For any activity that will divert or obstruct the natural flow, or change the bed, channel, or bank (which may include associated riparian resources) of a river or stream, or use material from a streambed, DFG may require a Lake and Streambed Alteration Agreement (LSAA), pursuant to Section 1600 et seq. of the Fish and Game Code, with the applicant. Issuance of an LSAA is subject to CEQA. DFG, as a responsible agency under CEQA, will consider the CEQA document for the project. The CEQA document should fully identify the potential impacts to the stream or riparian resources and provide adequate avoidance, mitigation, monitoring and reporting commitments for completion of the agreement. To obtain information about the LSAA notification process, please access our website at http://www.dfg.ca.gov/habcon/1600/ or to request a notification package, contact the Lake and Streambed Alteration Program at (707) 944-5520. E-6

California Endangered Species Act
Please be advised that a California Endangered Species Act (CESA) Permit must be obtained if the project has the potential to result in take of species of plants or animals listed under CESA, either during construction or over the life of the project. Issuance of a CESA Permit is subject to CEQA documentation; therefore, the CEQA document must specify impacts, mitigation measures, and a mitigation monitoring and reporting program. If the project will impact CESA listed species, early consultation is encouraged, as significant modification to the project and mitigation measures may be required in order to obtain a CESA Permit. E-7

DFG appreciates the opportunity to comment on the Syar Alexander Valley Instream Mining Project and Sonoma County ARM Plan Amendments. DFG staff is available to meet with you to further clarify our comments and provide technical assistance on any changes necessary to protect resources. If you have any questions, please contact Mr. Adam McKannay, Environmental Scientist, at (707) 944-5534, or Mr. Richard Fitzgerald, Coastal Habitat Conservation Supervisor, at (707) 944-5568. E-8

Sincerely,

Charles Armor
Regional Manager
Bay Delta Region

cc: State Clearinghouse

F

California Regional Water Quality Control Board
North Coast Region
Geoffrey M. Hales, Chairman

Linda S. Adams
Secretary for Environmental Protection

www.waterboards.ca.gov/northcoast
5550 Skylane Boulevard, Suite A, Santa Rosa, California 95403
Phone: (877) 721-9203 (toll free) • Office: (707) 576-2220 • FAX: (707) 523-0135

Arnold Schwarzenegger
Governor

June 16, 2010

Ms. Melinda Grosch
Sonoma County Resource and Management Department
2550 Ventura Avenue
Santa Rosa, CA 95405

Dear Ms. Grosch:

Subject: Comments on the Proposed Environmental Impact Report for the Syar Alexander Valley Instream Mining Project and Sonoma County ARM Amendments SCH 2006042101

Thank you for the opportunity to comment on the proposed Draft Environmental Impact Report (DEIR) for the Syar Alexander Valley Instream Mining Project and Sonoma County ARM Amendments. The North Coast Regional Water Quality Control Board (Regional Water Board) is a responsible agency for this project, with jurisdiction over the quality of ground and surface waters (including wetlands) and the protection of the beneficial uses of such waters. F-1

The proposed project consists of a Use Permit and a Reclamation Plan to mine 350,000 tons of river aggregate from deposits on 110 acres over 6.5 miles (river mile 47.5 to 54) of previously-mined gravel bars within the Russian River in the Alexander Valley.

The Regional Water Board staff appreciates the elements of the project that will help improve fish passage, water quality, and habitat, on the Russian River. The changes in mining techniques, including the techniques of "oxbows", "alcoves", and "horseshoe skim" mining, will be an improvement over past practices. Additionally, the DEIR includes more mitigation over previous mining efforts. This additional mitigation is described within the River Enhancement Program, which proposes improvements to riparian habitat, increase in flood plain, bioengineered stream bank stabilization, large woody debris placement, salmonid habitat enhancement projects, and removal of invasive species such as Arundo donax (Giant Reed). Regional Water Board staff has been involved with an interagency work group for the past several years which has worked with Syar in the development of the revised mining techniques and River Enhancement Program techniques. F-2

In general, we also want to ensure that potential impacts to water quality are avoided, minimized or mitigated. The proposed DEIR describes the general scope of work intended to occur and identifies some potentially significant environmental impacts of the proposed project and mitigation measures to address these impacts. The proposed F-3

project includes extensive grading that may disturb sediment and remove riparian vegetation. In addition, the close proximity to an impaired waterbody could have potential impacts on the beneficial use of the Russian River. F-3

Impaired Waters

This project is within the Russian River watershed. Please note that the Russian River, including its tributaries, is listed on the Regional Water Board's 303(d) list as impaired due to sedimentation/siltation. Sources of impairment include land development, channelization, streambank modification, erosion, surface runoff, non-point source runoff, and urban runoff. F-4

Storm Water

The EIR should include BMPs to prevent the release of sediment or hazardous materials during project activities, and to prevent sediment and other pollutants reaching surface waters or leaving the site in storm water runoff. These BMPs should include scheduling grading activities to take place during the dry season, identifying staging areas for work vehicles that are separated from sensitive areas, training employees in procedures for cleaning up spills of hazardous materials, and utilizing erosion and sediment control techniques. F-5

The following permits may be required for this project:

Water Quality Certification (401 Certification): Permit issued for activities resulting in dredge or fill within waters of the United States. All projects must be evaluated for the presence of jurisdictional wetlands and other waters of the State. Destruction of, or impacts to, these waters must be avoided. Under the Clean Water Act Sections 401 and 404, disturbing waters requires a permit from the United States Army Corps of Engineers (ACOE) and a State 401 Certification. This project will require a 401 Certification, as have past gravel mining operations by Syar. F-6

In summary, Regional Water Board staff supports the improvements in mining and mitigation over past practices within this reach of the Russian River. If you have any questions or comments, please contact Stephan Bargsten at (707) 576-2653 or sbargsten@waterboards.ca.gov. F-7

Sincerely,

Stephen Bargsten
Environmental Scientist

100616_TMC_SyarAlexanderValleyMiningProject

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RUSSIAN RIVERKEEPER®
"We're On It!"

June 17, 2010

Chairman Williams & Members
Sonoma County Planning Commission
2550 Ventura Avenue
Santa Rosa, CA 95403

Re: Comments on Syar Alexander Valley Instream Mining Project and Sonoma County ARM Plan Amendments - Draft EIR

Dear Chairman Williams and Members of the Planning Commission,

I am submitting these comments on behalf of Russian Riverkeeper and our 1400 members in support of our mission to work with the community to advocate, educate and uphold our environmental laws to ensure the protection and restoration of the Russian River for the health and benefit of all who use and enjoy it.

Due to the length of the DEIR for the Syar Alexander Valley Instream Mining Project (Project) we were not able to complete our review or write up our citations and references for our comments. We will be submitting additional comments prior to the release of the FEIR and will forward those comments to the applicant to allow them time to review and respond to them. We have retained several consultants to review the technical aspects of the DEIR and accompanying studies and reports but those comments could not be completed prior to today's deadline so again we will submit those comments to the record prior to the release of the FEIR and forward them to the Applicant to ensure they have time to review and respond prior as soon as possible. We would appreciate more time for review but as the process has complied with legal notice requirements we will simply make a request to allow more time in order for the FEIR to respond to all comments and issues raised. G-1

1.4 Project Setting and Locale

Alexander Valley Reach Gravel Mining History

Has the ARM Plan study on annual gravel "recharge" ever been verified in the field or was this the product of a modeling exercise? Is sediment recharge in this study referring to annual sediment inflows or annual changes in sediment storage volume? Have any previous gravel mining projects resulted in impacts to the Russian River? G-2

1.5 Project Description

Project Purpose:

What is the applicant's definition of "sustainable yield of aggregate" that is used in the Project DEIR? Assuming the authors are referring to sustainable yield as taking less than annual aggradation above some baseline, why is that baseline sustainable? How did the authors determine the amount of "natural" replenishment of gravel and have the authors G-3

determined how much replenishment is natural and how much is induced by past incision, mining and other activities? G-3

Project Objectives:

In reference to the state and local policies of meeting local aggregate demand with local sources, what is the basis for those policy determinations? Is the basis for these local source policies environmental impacts, assurance of supply for local projects and or some other basis? Are these policies mandates or suggestions? We did not see any direct references to the policies mentioned above where are the references to the actual policies cited and the actual citations? In these policies referenced, what is the definition of "local aggregate demand" and "local sources"? Is local demand proximate to the Healdsburg area and does it include southern Sonoma Count or western Sonoma County? What are the impacts from moving aggregate long distances to areas already served by existing sources closer to the place of use? G-4

The 2007 Annual Report on Aggregate Production in Sonoma County (Production Report) is the most recent public report on production and demand for aggregates in Sonoma County. The report has no breakout of demand for ACC& PCC, which are the primary types of gravel that come from river sources such as the proposed Project. The Production Report also does not delineate the types of aggregate that are imported to Sonoma County. The Production Report also has no data on the place of use for various types of aggregate within Sonoma County. This leaves DEIR reviewers with no published information on how much PCC & ACC is required to supply the North County area that is most feasibly served at the lowest environmental and traffic impacts by the proposed Project. The Project objectives state that there is a need for local high quality (ACC& PCC) aggregate but reviewers have no way to determine the level of that demand and therefore whether the actual need or size of the proposed project is in line with demand or will grossly oversupply the market. G-5

In light of several unavoidable impacts if the proposed project is approved the issue of clearly defining local demand and local sources is very important to the ability to evaluate impacts and whether over-riding considerations are warranted. Residents living in the Project area will feel most of the Project impacts such as PM10 emissions, traffic and aesthetics. Those impacted residents deserve to know if they will endure impacts while the DEIR states that a project purpose if to reduce impacts from importation, what about the impacts from exporting gravel to market served by existing sources? What is the delineation of the area for "local aggregate demand", is it the entire Sonoma County, the entire North Bay or some area surrounding the plant until it overlaps another local source? For instance, if there was demand for gravel for a project in Petaluma and there are existing sources in Petaluma, would this project still be considered a "local source" for that market? G-6

The recent economic downturn has reduced construction according to the number of active building permits and construction employment and this has produced a significant reduction in aggregate demand. This is clearly visible in the amount of trucks hauling gravel from the Syar distribution facility in Healdsburg where truck traffic is down significantly. The 2007 Production Report only considers production and not demand and although production has not fallen as far as building activity this could be due to producers increasing stockpiles and not increasing or stable demand. Has the volume of this project even considered the market demands? How much has gravel demand been reduced in the recent economic downturn? Is the requested volume proportional to actual demand in the "local" area given the reduction in demand that will likely persist for years? Lastly, two other mining operations are mentioned in the DEIR also located in north Sonoma County, Shamrock Materials in upper Alexander Valley and Syar Middle Reach vested rights projects. How will these operations G-7

affect the local market supply of gravel, will all projects combined oversupply the "local market"? G-7

In reference to the fourth objective beginning with "Conserve valuable agricultural lands..." what studies have been performed that demonstrate the project will maintain flood channel capacity and reduce bank erosion? How can the project demonstrate it is conserving agricultural lands? How can it demonstrate meeting this objective when the Project could result in increase downstream erosion and loss of agricultural lands downstream of the project area? How can the project reduce erosion when reducing gravel bars essentially reduces friction and allows the river to increase speed, which normally leads to more erosion? G-8

The final project objective to avoid traffic, air quality & other environmental impacts from importing gravel makes a huge assumption that this project would produce lower impacts. Since the basis of this objective is reducing impacts to the community the applicant should demonstrate that this project would produce lower impacts than importing gravel, where is the analysis to support the DEIR conclusion that impacts from local sources are less than imports? What is the distance from the Project area to major markets and what are the distances from other existing sources? Has any study been conducted to evaluate the impacts of transporting gravel from current existing sources to end markets in various areas of the local market area? G-9

One of the biggest impacts from gravel mining is transportation due to highly impacted traffic loads on Highway 101. A local freight railroad operation NCRA is planning to open up dormant rail lines along Highway 101 and would open up Sonoma County markets to other gravel sources due to lower financial and environmental costs with railroads versus trucking. What effect on traffic and air quality would occur from the ability to use railroads to import gravel to Sonoma County? G-10

Mining Operations:

What is the margin of error for the site-specific DTM analysis conducted by Syar in individual gravel bars? How large were the planes used for interpreting aerial photographs? Was LIDAR used for digital terrain models? G-11

What is the basis for the sequence of gravel mining in the first 6 years? Has the project evaluated using any other sequence of mining? What the environmental impacts from the proposed sequence of mining versus mining bars in a more widely distributed manner, i.e.: rather than mine two bars adjacent to each other why not mine one at the upper end and one at the lower end of the reach to distribute impacts and possible lessen them? G-12

Mining Methods:

In the recent history of regulated gravel mining in the Russian River various mining methods have been employed and often in successive years methods are changed in response to impacts or failure to meet required performance standards. While the idea of Adaptive Management Strategy (AMS) and even using effective discharge height in the Project are not necessarily bad ideas but they do create a situation where the public is cut-off from evaluating potential impacts and reviewing project changes without any opportunity for public input or comments. This circumvents critical CEQA goals for the public to be fully informed of a project's impacts. How is the public able to evaluate a stable project description as required by CEQA if changes are made in the middle of the project period and the public has no ability to review and comment on changes? In light of the great potential for a changed project description, how can the EIR be adequate if the success or failure of mitigation efforts depend upon mining techniques or plans that have yet to be formulated and have never been subject to analysis and review within the EIR? If plans need to be G-13

altered the successive years then it would seem that previous mitigations have failed. So how does the Project mitigate failures after the fact if the DEIR indicates that failures would be addressed through either stopping mining or changing the future mining methods? AMS is NOT mitigation unless damages are prevented but the whole concept is about changing practices due to failure to meet performance standards, which are in themselves supposed mitigation. Stopping mining and/or changing mining methods would not cure many impacts that already occurred so how are those impacts that occurred in previous years mitigated as required by CEQA? In light of nothing in the DEIR to address this issue we would suggest that adding funds to the REP or performing additional beneficial mitigations would be a start towards addressing impacts that have already occurred. How does the project plan to track or monitor mitigations and ensure they fulfill obligations? Would mitigation monitoring be reported to the public for all mitigations rather than the limited set presented in the annual Scientific Review Team reports? How does project rectify mitigations that do not meet criteria? G-13

What is the volume of mining that would reduce ALL Project impacts to less than significant? G-14

River Enhancement Plan:

Mining that occurred previously in the DeWitt reach has already been performed and the impacts already incurred resulting in a debt to the Russian River Gravel Mitigation Fund of $82,006. Syar is requesting to waive this amount owed to Sonoma County. This is illegal as it is deferred mitigation as the mining has occurred and Syar in purchasing the DeWitt operation knew it would be their liability that they took on fully aware. There is no justification for deferring the payment of the amount owed and it should be paid to the county prior to any mining occurring under this Project. Why has the amount not been paid and why is it not considered deferred mitigation? G-15

We appreciate the concept of the River Enhancement Plan (REP) to create active mitigation projects while mining is occurring rather than pay into a fund that might not directly address the impacts of mining. We do however have questions concerning the REP.

Regarding the REP features designed to improve access to Gill Creek, Miller Creek and Rancheria Creek we have the following questions.

What is the number of tributary miles that the REP will open up with the alcoves and oxbows?

Are there any migration barriers or instream impoundments that would limit areas available to fish in tributaries in question?

What are the fish populations of the tributaries that the REP will create improved access to? G-16

How many additional days or hours of access will the REP projects provide to these tributaries over current conditions since fish can still access these tributaries as high flows?

What is the percent of individual fish and tributary miles out of the total Russian River systems do these tributaries in the REP represent?

What is the importance of these tributaries in the overall scheme of fish restoration?

What is the condition of the potential rearing and spawning areas in the tributaries that will be affected by the REP? In these tributaries is there any documentation that adequate flow is present throughout the summer and if so how many miles of suitable habitat exist on these tributaries?

How long will the improved access to these tributaries persist until access is equivalent to current access?

Regarding the REP elements that focus on enhancing habitat in the mainstem of the River we have the following questions.

The funding for the REP activities will come from a $0.30 per ton fee, how was that figure determined? G-17

Is there a study or analysis that provided this figure such that it would be adequate to offset any impacts from the Project or was it just a number that worked economically for the applicant?

Of the proposed activities under the REP, has any studies been prepared or judgments made on the number of fish it would benefit? G-18

How long will the proposed REP features persist given the average frequency of sediment mobilization events in the last 50 years? G-19

In our experience we have seen the cost figures for most restoration activities on the Russian River and are not convinced that all the REP activities can be completed for the projected $1,575,000. Have the proposed projects, 3 alcoves, 3 oxbows and 11 acres of riparian enhancement been studied for feasibility and cost and will the REP provide adequate funding to complete all these activities? G-20

The total figure cited in the DEIR for the REP $1,575,00 is based on total mining of 5,250,000 tons of gravel, which is the maximum possible amount of mining requested and yet the Adaptive Management Strategy could very well limit the amount of mining to much less than that amount. How will the Project address such a shortfall in REP funding? G-21

Would the REP activities be reduced if tonnage falls below 5,525,000 and which activities would be reduced or eliminated? In pre DEIR release meetings with the applicant and PRMD it was stated that in the first seven years of the Project there would be $2,500,000 spent on restoration and planting but the DEIR only refers to the potential $1,575,000 generated from the REP funding, what is the actual amount funds being committed to restoration and planting and where can we find the cost figures for these projects? G-22

Are there other ways to enhance the fisheries and riparian habitat other than gravel mining? G-23

The DEIR states in several sections that the Russian River in the reach proposed for mining is "artificial" and poses numerous problems for biological resources, public infrastructure and valuable farmlands, wouldn't widening channel decrease flooding and erosion as well as provide the space and ability for the River to create the side channel and backwater habitat envisioned in the REP? Why isn't the project addressing only the symptoms and not the causes of the problems cited from imbalanced sediment transport? G-24

The REP states that it will keep 75% of "topsoil and overburden" or what we would call fine sediment stockpiled for use in various enhancement activities. In discussing bioengineering projects to stabilize eroding banks along the Russian River the principle of Bioengineering Associates informed us that using fine grained sediment with higher organic content makes no sense since normal active channel vegetation has evolved to grow in sand and gravel with minimal organic content. Since the Russian River is listed as impaired under the Clean Water Act section 303(d) for sediment we are concerned that any release will exacerbate the sediment impairment. How will the project ensure that any topsoil or overburden does not end up in the River? Why is topsoil and overburden being used since riparian plants have adapted to growing in sand and gravel and not topsoil? G-25

3.2 Geomorphology, Hydrology and Water Quality

General Comments and Questions:

What is the width required for the river in the Project reach to pass a flood flow of the magnitude of the New Years 2006 flood without overtopping channel banks? G-26

How much water will the Project require for dust control and where will the water come from? How will the project ensure that water applied for dust control does not run-off to surface waters or create a nuisance for property owners? G-27

2005 Geomorphic Analysis and Mining Plan for Lower Alexander Valley

The Swanson Hydrology and Geomorphology 2005 report performed a historic sediment flux calculation, is this defined as inflow or change in storage? In the same 2005 report, what is the basis for the aggradation calculation and assessment of historic sediment flux? Why didn't this evaluation look at downstream conditions and possible impacts? Where is the support for the assertions on page 25 of the 2005 report regarding channel widening? Is it appropriate to have the downstream boundary for the RAS model so close to the analysis reach? Since the models in this report analyzed sand and gravel transport separately, won't this understate transport rates leading to higher than actual aggradation? Why hasn't the model been run with the actual sand and gravel percent of sand and gravel found in the mining reach? Aren't there bimodal transport equations available to apply so that model results are more accurate? G-28

A. Setting:

Land and Water Use:

In the DEIR it is noted that past farming and flood control activities have taken at least 50% of the Rivers meander belt area and narrowed the River channel and this has increased incision and erosion as a result. These are the very causes of the un-natural buildup of gravel in lower Alexander Valley. Since reducing flooding and erosion impacts is a stated project objective, why hasn't the Project or REP addressed the cause of sediment build-up? It would seem that one of the most beneficial projects that the REP could undertake is widening the channel to alleviate the flooding and erosion problems for the long-term. Why isn't widening the meander belt a project alternative or mitigation? Since gravel mining only treats a symptom of a narrowed channel, gravel buildup, and not the cause does this mean that using mining to address flooding and erosion mean we have to keep mining forever? G-29

The mention of the damage to the Geyserville Bridge in 2006 is not accompanied by any in depth examination of the cause of the damage other than the mention of riverbed scour. Since one of the project objectives involves protecting public infrastructure why hasn't the DEIR studied the cause to determine the proper remedy? G-30

The DEIR goes on to state that gravel mining has the effect of maintaining an "artificially straight and narrow channel" so why will continued gravel mining improve the river channel? The DEIR continues to state that the channelization has "profoundly altered it natural fluvial process" and increased erosional rates through disconnecting the River from its floodplain. The DEIR also states that this condition has led to overall simplification of aquatic habitat. Again this clearly points to the channelized nature of the river in the Project reach as a severely degraded and unnatural condition. G-31

Why is this severely degraded river condition an acceptable baseline for this Project? G-32

In fact on page 3.2-14 the DEIR discusses the policy option in the 1994 ARM plan of a "streamway concept" that was rejected because it would encroach on valuable farmlands and potentially cause damage to infrastructure but this was not the consensus of the community and this concept was not well studied. Does the river already encroach on farmlands during floods currently? At the Project scoping meeting one speaker stated that in the 1950's the river jumped it's banks and created a new channel through his vineyard. Didn't this event G-33

occur during a period of very active gravel mining? Doesn't this show that mining has not and will not prevent flooding? Will this project at the maximum volume stop flooding of farmlands? If not then how can the project objective of reducing or preventing flooding be attained? If the answer is to reduce the frequency of flooding, what is the reduction in frequency and what is the source of the analysis? Is the goal of flood prevention attainable through this project? If the answer is yes, then where is the analysis to demonstrate this fact? G-33

In the land and water use section there is no mention of the extensive mining that occurred in other areas such as the Diggers Bend/ Rio Linda section of the river where Syar extensively mined in early 1980's leading to major property loss along Redwood Drive on Fitch Mountain and numerous landowner mining and "bar management" activities carried out by property owners such as Passalaqua Ranch. The loss of land and lowering of the riverbed in this area has 30 years later not returned to it's pre-mining state showing that the area below the Project reach is still in a sediment deficit that would be impacted by this project. Why hasn't the DEIR or Syar reviewed channel conditions and impacts in areas downstream of the project? G-34

Geomorphology

Sediment Budget and Aggregate Recharge

The discussion of "safe yield" in this section is completely disconnected from the previous section where the DEIR admits the river channel is in a severely degraded condition. How can there be any "safe yield" of gravel extraction that purports to have no impacts if the channel is already in a severely degraded state? Where is the evaluation and analysis of 'safe yield" and "natural recharge" versus the percent of sediment that is induced recharge from the degraded condition of the River? G-35

The DEIR goes on to state that a characteristic of the channel in the Project reach is reduction in sediment transport from channel narrowing and the artificial state of the channel. Considering the 'artificial" channel, how can any sediment buildup be called natural? G-36

On page 1-13 on the DEIR it states that the 1994 ARM Plan studies found that annual recharge is 200,000 cubic yards or 300,000 tons but on page 3.2-15 it states that the 1994 ARM Plan studies showed recharge was 50,000 cubic yards or 100,000 tons, which figure is in error? Also the first citation uses a different conversion factor for tons to cubic yards or gravel, which figure is in error? G-37

How will the Project effect downstream sediment budgets? Will the Project reduce sediment supply downstream of the Project reach? If not what studies demonstrate this contention? Have any studies been performed to indicate what the downstream sediment supply would be with other mining projects in upper Alexander Valley and the Middle Reach active? What studies have been performed to demonstrate your conclusions? G-38

What are the error rates for the Digital Terrain Model (DTM) referred to on page 3.2-15? Why doesn't the DEIR mention only that DTM has shown "dramatic increases" in gravel bar height but does not mention that some areas show dramatic decreases in bar height? Doesn't this bias the uninformed reader to believe that bars are only growing? Looking at figures 3.2-3a-c it is clear that dramatic decreases in sediment volume have also occurred. In Figure 3.2-3b the scale used for highlighting change in bar elevation is not equal for increases and decreases as the decrease scale bottoms out at greater than 8ft but the other side tops out at 12-16 ft again giving a highly biased view of the change in bar heights. Why did the DEIR use G-39

different scales for figure 3-2-3b? What are the error rates for these figures and where is the calculation for that error rate? G-39

Reference (Baseline) Elevations

Referring to the discussion of using low-flow water surface elevations for a baseline, how does the calculations factor in channel width? If the channel becomes wider won't it reduce the surface elevation? G-40

We question again why it is appropriate to use the 1994 elevations as a baseline since it represents a severely degraded condition? CEQA guidelines state that a degraded baseline means that the environmental condition is already impacted so any new impacts are cumulative and significant, so how can mining occur if the baseline condition is severely degraded? Why isn't the baseline from 1940 being used or 1950? G-41

Erosion

Rivers operate in a continuum but the erosion section only focuses on the Project reach and ignores downstream areas that are also eroding. Readers are not fully informed as to exactly how the DEIR arrives at conclusions that the Project and proposed mitigations will reduce erosion along the River. Exactly what is the basis of those conclusions? Have conceptual models been run that predict the potential for erosion? Have those models been run with the post-mining conditions or pre-mining conditions? If any models were run using post-mining conditions, were all the elements of the Project incorporated into that post-mining scenario? Have the models been run using conditions representative of all Project alternatives in the DEIR? If no models have been run using post-mining conditions, why haven't they and without some level of modeling how can the DEIR arrive at the conclusion that the Project will reduce mining? The DEIR seems to take the position that erosion is the sum of many variables and is a complex process so what are the error rates and underlying assumptions of all models used or referred to in the DEIR to predict changes in erosion as a result of the Project? Is the DEIR stating that erosional impacts from past and proposed mining are somehow confined to the Project reach? If yes, where are the specific references or studies that determined that erosional impacts are confined to the project reach? One of the project objectives is to reduce erosion, what studies have been conducted to demonstrate that the proposed gravel mining will reduce erosion in the Project reach and if not why? It would seem that if a project objective is to decrease erosion some form of studies would have performed to quantify the change in erosion so what is the predicted decrease in erosion and what methods were used to determine this? What area of the River is covered by studies to determine whether erosion will decrease from Project activities? Has the DEIR or project applicant performed studies to determine the potential for increases or decreases in erosion downstream of the Project area? Did those studies look at site-specific areas downstream of the Project reach? Since one of the Project's objectives is to reduce erosion and damage to public infrastructure, what studies or modeling has been performed to predict the change in erosion for the eroding area upstream of the western fill ramp to the Geyserville Bridge? Have any studies been performed on the various project alternatives on the predicted erosion rates for the Jimtown bridge and if not why? If any predictions on erosion potential have been performed for this Project that are based on best professional judgment, what is the basis for those judgments? G-42

Flooding

While previous sections of the DEIR discuss the causes of flooding including channel narrowing from encroachment by farmers and structures, this section only discusses flooding as factored by sediment storage. Why hasn't the channel narrowing impact discussed here? G-43

Doesn't this bias the reader into believing that only gravel mining can reduce flooding? Would widening the river channel reduce flooding and sediment deposition? Wouldn't widening the river be a viable strategy for reducing flooding? Additionally if farming operations and infrastructure were moved away from the river any impacts from flooding would be reduced, is that a correct statement? For the proposed project what studies or modeling have been performed to demonstrate that the Project will decrease flooding and if not why? What is the predicted decrease in flooding for post-project conditions over the non-project alternative? G-43

Water Quality

It is stated that gravel mining is one of the activities that is a potential source of sediment pollution and goes on to state that soil discharge from disturbed slopes and loose or unstable slopes after mining. We could not agree more. In the past we have seen bar buffer edges at steep angles rapidly erode in high flows. Past turbidity monitoring by Syar in the middle reach seemed inconclusive and the feasibility of monitoring a high flow event right when it covers the bar for the first time it logistically difficult. This does not mean that turbidity is not increased from mining it just means it is difficult to effectively monitor. The mining plan and the interior bar slope of 2:1 will readily erode in high flows, how does the project plan to mitigate this impact? Are there any studies that show that any existing erosion is offset by mining, since it claims to reduce erosion and therefore sedimentation? G-44

Additionally the DEIR and Project claim that no downstream erosion will occur from Project mining, how was this determined? Where are the studies that demonstrated that the Project would not increase downstream erosion? G-45

One water quality impact from fine sediment is embeddedness that essentially means larger coarser gravels favored by ESA listed Chinook Salmon that use them for spawning nests (redds) are covered with finer material that fills the voids between rocks. Embeddedness impacts salmon and other aquatic organisms by not allowing oxygen to circulate in the coarse gravels or allow waste to be carried away leading to mortality or abnormal growth rates. Why isn't this water quality impact being evaluated for potential significant impacts? Has the DEIR investigated this issue and if so what are existing conditions and how will project ensure embeddedness does not increase and impact aquatic habitats? G-46

C. Potential Impacts and Mitigation

Criteria for determining significance

What is the source of these criteria? Why isn't causing increases in erosion considered a significant impact especially since it can result in property loss? Why isn't perpetuating a degraded and narrowed channel considered an impact, especially since the DEIR has admitted this results in inferior aquatic habitat? G-47

Impact 3.2-2

On page 3.2-46 there is discussion concerning Bar 2 that Syar mined in 2007 and the DEIR states that the larger bar head, "which prevented a new high flow channel from forming". Where is the source of this conclusion? I walk my dog near that bar every week and when the River rose during late January of 2010 and receded in early February a high flow channel through the interior of the bar was clearly evident and even some isolated pools developed in the interior-most section of the bar where ESA listed fish could have been stranded. In fact on a April 5 kayak trip which was filmed part of the team paddled right down the middle of bar 2 so we question this conclusion that the head of bar retained on bar 2 in 2007 was adequate – three years after mining. G-48

Mitigation measure 3.2.2
In light of what we observed at bar 2 we question how the 8 ft height at head of bar would allow mining of the upper half of the bar without causing an interior chute channel to form. Where has this been successful in the past? Where is the study, report or document that lead to the conclusion that the impact after mitigation is less than significant? In light of the failure of the bar 2 mitigation in 2007, how will can an impact be mitigated if mitigation fails as it had on bar 2? How does the Project propose to address past failures of this type? We would suggest again that fines be applied to failed mitigations to be paid into a fund for restoration. G-49

Mitigation Measure 3.2.3
While the mitigation proposed might ensure that side bar buffers are not completely wiped out in high flows, how can the impact of the 2:1 slopes be less than significant if those slopes are eroded down in high flows resulting in increases in turbidity? G-50

Impact 3.2-5 – Adaptive Management Strategy (AMS)
Here the discussion focuses on the quality of data collected that is pertinent but completely misses the issue we raised earlier about AMS allowing failure. The proposed AMS is essentially saying that the mining method will be adjusted to prevent the impact from recurring but how does that address impacts that already occurred resulting in changes in mining methods? Once again it appears that AMS is a rear-view mirror mitigation and if say the head of buffer retained blows out leading to channel braiding or some other impact and the AMS says retain a larger buffer in next years mining, how does it cure the fact that the channel became braided? Producing better quality data will not make the river whole again so just how does this mitigate impacts from failures to meet performance standards?
In the Impact Significance After Mitigation section for 3.2-5 it offers nothing as mitigation if performance standards are not met so where is the actual mitigation for failing to meet standards? This whole concept is circular and will not mitigate impacts as required under CEQA. G-51

Impact 3.2-7 Over-mining and Depleting the Sediment Supply
This DEIR has stated that the river in the Project reach is severely degraded and artificial and provides poor aquatic habitat so in light of our assertion that the baseline used only perpetuates a degraded condition what is the definition of "over-mining" in this section? Is it not mining below the degraded baseline? How does defining over-mining in the Project reach and the proposed mitigations protect downstream property owners from increased erosion from decreased sediment transport? How do the mitigations ensure that no induced sediment recruitment, in other words erosion, occurs outside the Project reach? G-52

Impact 3.2-8 Reduced Lateral Erosion at Point Bars
It is a commonly understood fact that as rivers are straightened and gravel bars flattened by mining that the river speeds up due to less friction. So any benefit to reducing erosion on point bars would be offset by increased erosion due to increases in river velocity, how is this impact mitigated? G-53

Impact 3.2-9 Temporal Increases in Flood Capacity
The DEIR claims there is no mitigation needed for this as it is a beneficial impact but wouldn't a limited increase in flood capacity slow the River down and cause it to drop it's bedload? Isn't the unnatural aggradation from the narrow and hourglass shape of the river discussed earlier as a cause for gravel building up on bars? What is the magnitude or volume of the predicted temporal increases in flood capacity and what studies have been performed G-54

to determine this? Will the Project result in a 1% increase in flood capacity or 5%? What studies were performed to determine the actual increase in flood capacity? G-54

Impact 3.2-10 Increased Erosion Downstream

It is welcome to see this impact addressed in the Project reach but how does it make actual property owners living downstream of the Project and REP reach whole again if they suffer erosion? The mitigation measures either assumes all erosion caused by the Project will occur within the Project reach or that mitigation measures to plant vegetation to increase erosion resistance in the project reach would somehow cure all impacts. The project will interrupt sediment supply and transport downstream of the project reach so exactly how will the proposed mitigation protect or make whole a property owner who lives 2 miles downstream of the Project reach? If the answer is erosion will not occur downstream of the Project reach where again is the analysis that shows this won't occur? If the Project proponents are confidant that no increase in downstream erosion will occur are they willing to post a bond if it does occur to mitigate for impacts to downstream property owners. G-55

Impact 3.2-12 Alteration of Water Quality

On Page 3.2-62 it states that, *"However, sediment input and turbidity generated in association with the bar skimming activities from the mined bar surface is expected to be nominal in comparison to the natural sediment input and turbidity generated by the watershed"*. This statement is grossly misleading since there is a sever sediment pollution impairment so ANY increase in sediment that causes or contributes to the continuing impairment is by definition and case law a significant impact. G-56

The data Syar collected during 2002, 2003 and 2008 is only result data and does not show if the sampling had a Quality Assurance Project Plan and whether the methods employed were sufficient to even gather meaningful data. Regardless in our experience as stated previously it is nearly impossible to take single grab samples at a point in time and draw conclusions from them. G-57

3.4 Fisheries Resources

Why hasn't the Russian River Biological Opinion or the Draft Coho Recovery Plan or Draft Steelhead Recovery Plan findings been included in the setting? One of the impacts from channel incision from past and continued gravel mining is induced recruitment from mainstem incision working up tributaries and creating migration barriers. Laurel Marcus and others have documented this. This incision working up tributaries is also implicated in increase bed scour that has reduced the quantity and quality of spawning gravels in tributaries. Has the DEIR evaluated potential impacts from using a deeply incised state as a baseline due to potential effects of tributary gravels needed by ESA listed fish? G-58

Chinook Salmon spawning has been documented in the Project area and their success depends on the embeddedness of the gravel substrate in the Project area. What is the baseline for embeddedness of the spawning areas in the Project reach? What studies have been performed to determine potential Project impacts on gravel embeddedness and if not why haven't they? What studies have been conducted on the changes in embeddedness downstream of the Project reach and if none why haven't they been performed? G-59

In the REP projects why are rock stream barbs being used instead of only wood structures? Isn't wood preferable to Salmon and Steelhead? In our observations we find primarily warm water species such as pike minnow and smallmouth bass near rock structures even during G-60

cool months so why not use wood for all structures if the intended beneficiary are Salmon and Steelhead? G-60

3.6 Traffic and Circulation

It is stunning to imagine over 450 trucks per day coming and going from the Project mining area to the processing plants, that's over a truck every 2 minutes for the operating hours listed in the DEIR. How will the aesthetic impacts from all those trucks be mitigated? Will this increase in trucks lead to an increase in accidents? How will these gravel haul trucks ensure they do not drop rocks and gravel and cause car damage to other vehicles? G-61

Mitigation Measure 3.6-6a Where necessary widen all the portions of Geyserville Avenue We appreciate this mitigation measure. Since plans, permits and approvals are required for this mitigation measure when would these improvements be made and what assurance does the public have that they will be completed? Some areas that would need to be widened appear to be private property, how can we be assured that permission will be granted and improvements made? G-62

3.7 Air Quality

The increase in particulate air pollution caused by the Project poses a serious health risk to humans, according to studies in the UK a small 6% increase in PM2.5; a component of PM10 is associated with a 6% increase in death rates. Additionally according to the California Air Resources Control Board:

- PM10 is among the most harmful of all air pollutants. When inhaled these particles evade the respiratory system's natural defenses and lodge deep in the lungs.
- Health problems begin as the body reacts to these foreign particles. PM10 can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections.
- Although particulate matter can cause health problems for everyone, certain people are especially vulnerable to PM10's adverse health effects. These "sensitive populations" include children, the elderly, exercising adults, and those suffering from asthma or bronchitis.
- Of greatest concern are recent studies that link PM10 exposure to the premature death of people who already have heart and lung disease, especially the elderly.

G-63

Considering the potentially harmful and even lethal effects of PM10 pollution generated by the Project, have any studies been conducted to estimate the possible health effects to local residents from the PM10 generated by the Project? If no such studies have been performed why not since it without them it is impossible to evaluate the potential human health impacts from this Project? Since dust particles often are not just soil particles, what studies have been performed to identify the individual components of the PM10 that will be generated by the Project? Has any evaluation been performed on the percent of silica dust component of the Project generated PM10? Does the DEIR air quality analysis include emissions from trucks moving gravel from Syar distribution facility to end use points? If not why? It would seem that since one of the Project objectives is to minimize air quality impacts the Project should demonstrate that it could supply the end use locations with lower air quality impacts. Why hasn't that type of analysis been conducted? The project will create this impact whereas no G-64

project will not...and since Syar is making argument that their project will create lower emissions than imports but have not analyzed this conclusion is unsupported. G-64

The Project DEIR shows that emissions in Sonoma County, not including up-wind sources, are 22.80 & 10.93 tons per day respectively for PM10 and PM2.5. Using the DEIR figures of mining operations occurring over 110 days and the 75,000 tons per year project emissions of PM10 it appears that project level daily emissions of PM10 would be 682 tons per day of PM10. Current sources according to the DEIR emit 22.80 tons per day of PM10 so adding 682 tons per day for the Project is a major significant impact that effects public health and has to be reduced. Even after mitigation is applied the Project would still generate over 357 tons per day of PM10, which is still a 94 percent increase in PM10 emissions in a local are over levels throughout the entire county! Since the exceedance of the threshold is so significant how can that impact meet Project objectives to avoid air quality impacts? How can such a major impact be the subject of overriding considerations? How can such a great impact to the public be in their best interest? G-65

Although PM2.5 is a subset of PM10 both are in non-attainment status for the region and PM2.5 particles penetrate even deeper in lung tissue than PM10 so have far greater human and animal health impacts. Where are calculations, evaluation and mitigations for PM2.5 that will be generated by the Project? Lastly, have any studies been conducted on PM10 effects on local wildlife? What would the effect of Project generated PM10 be on wildlife? G-66

Any reliance on ARM Plan PEIR evaluation and mitigation of air quality impacts preceded today's understanding of the significance of GHG's and Climate Change. It is still not clear that current and proposed regulations governing GHG's would result in reducing climate change impacts to less than significant. Mobile construction equipment is a major source of GHG's and it is not clear that proposed mitigations will reduce this impact to less than significant. G-67

Mitigation Measure 3.7-5
The proposed mitigation for climate change includes a Greenhouse Gas Reduction Plan to conform to the 25% reduction mandated by the Sonoma County General Plan. In the DEIR it states that the plan will be developed in the future. It is illegal to defer mitigation and this plan should be developed prior to completion of the FEIR so that the public is fully informed about the projects effects. G-68

One potential mitigation for all GHG impacts would be to limit the transport to aggregate to the area most efficiently served by local sources. By limiting or prohibiting exports to points of use beyond 20 miles it would greatly mitigate impacts from GHG emissions. Why hasn't the Project proposed such mitigation and if not how does the project propose to mitigate GHG emissions? G-69

How will public complaints about fugitive dust be addressed and what actions will be taken? G-70

Impact 3.7-3 Exposure of sensitive Receptors to Emissions of Toxic Air Contaminants
In the DEIR the analysis strictly focuses on human health impacts, what studies or evaluation was performed on impacts from Toxic Air Contaminants on wildlife along the river? G-71

3.8 Aesthetics

Since the Project area is a major tourism destination that highly values the aesthetic of the Wine Country, how can the Project mitigate the significant impact to aesthetics from the daily haul truck traffic on major tourist roads? How can the project mitigate the loss to the aesthetic from clouds of dust from disturbing gravel bars or bicyclists having to avoid gravel dropped from haul trucks? G-72

4.2 Cumulative Impacts

Any PM10 violations that occur in winter indicate that local receptors are already stressed and any additional PM10 even during the summer months when levels might be lower is a cumulative impact in addition to already high winter PM10 levels. How will the project mitigate the PM10 emissions? In addition, other cumulative projects including the Shamrock Materials mining area in upper Alexander Valley and Syar Industries vested rights mining area in the middle reach need to be evaluated for all air quality issues including PM10, GHG's and TAC's. Farming operations create a large amount of dust from plowing and tilling fields, equipment driven on dirt roads and other farming associated activities conducted primarily on unpaved roads. Have the PM10 impacts from farm operations in the project area been evaluated cumulatively with Project generated PM10? Northern Sonoma County has many dirt roads that are used by rural residents and each vehicle trip on these roads generates dust & PM10. Have the PM10 impacts from vehicle use on non-farm county roads been evaluated in addition to Project generated PM10? G-73

Most of the arguments for the project and addressing geomorphic impacts revolve around mining being the only solution for the problems in this reach from flooding and erosion and a feasible means to improve aquatic habitat. Looking at the past history of mining in this reach and following the logic above, if the current Project is approved it would lead to a strong likelihood that future mining projects will be permitted. This is a potential cumulative impact that is not disclosed or evaluated thus violating CEQA.

This project is being proposed as a solution to maintaining flood capacity and reducing erosion and the DEIR states that annual recharge will continue to occur, which over time will re-accumulate and create likely need to mine gravel again in the future as it has in the past. This and the fact that many REP features will need to be "maintained" points to the extreme likelihood that mining will continue in the future. Why hasn't the DEIR evaluated the impacts from continued mining in the future after expiration of the permit sought in this DEIR? G-74

We appreciate your consideration of our comments.

Sincerely,

Don McEnhill
Executive Director

References:

Cardiovascular Disease and Air Pollution. Committee on the Medical Effects of Air Pollution (COMEAP), Dept of Health, UK, 2005
http://www.advisorybodies.doh.gov.uk/comeap/pdfs/finallongtermeffectsmort2009report.pdf

H

REDWOOD EMPIRE TROUT UNLIMITED
POB 3237
Santa Rosa, CA 95402
866-788-6322
redwoodempiretu.org

June 17, 2010

Sonoma County Planning Commission
2550 Ventura Avenue
Santa Rosa, CA 95403

Dear Sonoma County Planning Commission:

The Redwood Empire Chapter of Trout Unlimited has reviewed the Syar Alexander Valley Instream Mining Project and Sonoma County ARM Plan Amendments Draft Environmental Impact Report and has determined that it is inadequate for the following reasons. We recommend that the Planning Commission not approve the DIER until these issues have been addressed and provide more time for comment. H-1

1) The draft plan does not adequately address the need for a Sediment Budget for the Russian River watershed although this has been continuously called for since before 1994. A Sediment Budget which was repeatedly proposed to be included in the Russian River Watershed Adaptive Management Plan, would identify the sources of sediment in the watershed and the existing barriers to their natural transport. The Draft EIR has too small a focus only looking at impacts in the mining reach itself which has unnatural constrictions that restrict aggregate transport including the Geyserville Bridge, the Jimtown Bridge, and vineyard development in areas that were once River channel. Impacts above and below the mining reach have been ignored. H-2 H-3

2) The EIR does not identify where the aggregate to be mined comes from or what the natural aggregate accumulation would be in the mining reach if numerous barriers to aggregate transport were not existing such as Coyote Dam, Warm Springs Dam and hundreds of small dams on the watershed tributaries. The blockage of sediment transport by these dams has made the Russian River a H-4 H-5

"sediment starved" system according to Sonoma County's own report, "A History of the Decline of Salmonids in the Russian River". This report was published by the Sonoma County Water Agency in 1996. The Morphology chapter in this report has been purposefully ignored in this EIR. The SCWA document does not even appear in the list of publications reviewed in the 3.2 Geology, Hydrology and Water Quality section. This is intentional as the SCWA document makes it clear that aggregate mining in the Russian River is not consistent with salmonid species recovery and in fact has been a key factor in the decline of the Russian River's listed salmonids species: Chinook Salmon, Coho Salmon and Rainbow Steelhead Trout. H-5

3) The "Hungry Water" concept is also inadequately addressed in the draft EIR. This is the condition where barriers to sediment transport such as the Russian River's dams reduce the sediment load in the River to a level far below normal for the River's power to move sediment. The River is "hungry" for additional sediment to be in balance with it's the energy during its winter high flow. The River recovers this sediment to regain its balance by eroding stream banks and downcutting tributary streams. In this way, gravel mining adds to the problem of bank erosion by removing sediment from a "sediment starved system". The Russian River is starved for "good" sediment, gravel and cobble that are important habitat for the macro-invertebrates that are salmonids primary food source. Clean plentiful aggregate is also necessary for salmonids redds in which they lay their eggs. The Russian River is actually "impaired" or polluted by "bad" sediment. That is fine sediment that clogs gravel beds, causes imbeddedness and smothers salmonids eggs and eliminates macro-invertebrate habitat. H-6

4) This problem is not adequately addressed in the draft EIR including its impacts of the tributary streams in this reach including Gill, Miller, Rancheria and Gird creeks. Down cutting in these tributaries would be damaging to threatened and endangered salmonids populations. Such downcutting is found is streams in the middle reach of the Russian River where Syar continues to mine Bar 2 and Bar 13. Laurel Marcus has documented the effects in a report on the downcutting in "Pistol" Creek which flows past Hop Kiln Winery. This property recently lost a bridge to the 10 foot head cut that has been working its way up the stream. Tributary streams on the ~~east~~ west shore of the Russian River in the Middle Reach have stream beds that are 10 above the river today. Box culverts suspended well above the River testify to the falsehood found in 3.2-58 where it is stated that, "the river has largely recovered from these past mining practices". Tell that to migrating salmonid trying to figure out how to jump into a box culvert suspended 10 feet above the River in the Middle Reach. H-7

5) The words Chinook, Coho and Steelhead do not appear in the Sonoma County PRMD Staff Report on the Syar Draft EIR. This is unexpected as these species were listed under the Endangered Species Act as follows:

Chinook Salmon, 1999 federally listed as Threatened.
Coho Salmon, 1996 federally listed as Endangered, 2005 State listed as Endangered.
Rainbow Steelhead Trout, 2000 federally listed as Threatened.

The proposed mining will occur in the Critical Habitat of these three species but the PRMD Staff Report does not even include mention of this important consideration to the appropriateness of this project. H-8

6) The mining that has occurred upstream from this project by Shamrock has not been analyzed in this Draft EIR although it acknowledges that the area from Sulphur Creek to Jimtown Bridge constitutes the same Alexander Valley reach of the River. The cumulative effects of past and proposed future Shamrock mining must be evaluated in any EIR on mining in the Alexander Valley reach of the Russian River. This EIR does not do that. H-9

7) Returns of Chinook salmon have been declining since the Shamrock mining was done in the Alexander Valley reach but that is not addressed in this Draft EIR. Large runs of Chinook Salmon were reported in the Smith and Columbia Rivers this year makes claims that poor "ocean conditions" effected Russian River Chinook returns questionable. Smith River, Columbia River and Russian River Chinook Salmon live in the same Pacific Ocean. Degradation of fresh water Critical Habitat is the more likely reason for the Chinooks poor returns to the Russian in recent years. The impact of the Shamrock mining on the Chinook returns is not addressed in the Syar Draft EIR although it is extremely relevant. H-10

8) "Habitat typing" of the Alexander Valley reach of the Russian River is proposed in the Draft EIR and is something that should be done as soon as possible by DFG with or without this project as it has been done on almost all Russian River tributaries in recent years. Except the Austin Creek below Ward Creek where gravel mining has also been permitted in recent years. "Habitat typing using the DFG protocol is fundamental to evaluation of salmonids habitat conditions and changes over time. H-11

9) Areas of the proposed mining reach have much better habitat conditions than others but this is not addressed in the Draft EIR. The reach from Gill Creek to the Jimtown Bridge is in much better condition than the areas upstream. In this reach riparian tree canopy extends over and cools the River's water and the H-12

channel is deeper. Between the Geyserville Bridge and Gill Creek the River is shallow warm and would not support cold water species. This is not discussed in the Draft EIR and how the narrow channel with adequate tree canopy must be restored in the entire Alexander Valley reach if we are to make progress on salmonid recovery. H-12

10) The Russian River is impaired by many factors including temperature, fine sediment and mercury. The Draft EIR does not address how this project will address those conditions in the project reach. H-13

11) Reducing temperatures will require healthy wide riparian forests along the River which is inconsistent with bar skimming. A 200 foot wide setback from the mainstem of the Russian River is needed as a minimum to allow for the return of riparian forest and its critical function in salmonids habitat. A 200 foot setback along the Russian River mainstem was recommended by the Sonoma County Planning Commission and the Citizen's Advisory Committee during the Sonoma County 2020 General Plan process. Salmonid recovery will not happen with adequate riparian forest in the hot Alexander Valley for water temperature control. The NMFS Coho Recovery Plan makes note of the problem of high ambient temperatures in the Alexander Valley. An 80% tree canopy over the water will be necessary to reduce water temperatures and eliminate the temperature impairment. This is not discussed in the Draft EIR. H-14

12) Fine sediments will be added to the River in the wake of bar skimming the aggregate off the bars leaving the fine sediment exposed. This condition was observed on Bar 2 after Syar mined it recently. This fine sediment is washed into the River during high flows and fills the pools downstream of the mined bar. This EIR does not address that. It also does not discuss "V Star" sediment testing of the downstream pools. V Star is the accepted protocol for measuring fine sediment in pools but it does not receive mention in the Draft EIR. H-15 H-16

13) The Russian River is also impaired by Mercury which is a troubling condition given the River is the drinking water source for 600,000 Californians. Removing the aggregate from gravel bars can facilitate the mobilization of mercury on these bars into the water during high flows. Bar skimming can also facilitate the conversion of mercury to methyl mercury, its most hazardous form. This has not been addressed in this Draft EIR. H-17

14) The EIR proposes that Syar will pay for a Mitigation Enhancement Plan but does not discuss the fact that Syar has refused to pay the money it has owed to the H-18

Russian River Mitigation Fund since its purchase of Dewitt years ago. It now proposes to not pay into the Mitigation Fund at all for this project. H-18

15) The failure of these bar skimming techniques on the LP Bar upstream which was over-mined by Shamrock is not discussed in this EIR even though this project would leave less of the bar head than is required by the ARM Plan. Over-mining of the LP Bar led to collapse of the bar head and serious braiding of the stream. This was just the sort of impact that was predicted for the Shamrock project which was permitted with a Mitigated Negative Declaration. On the LP Bar, this turned into an unmitigated disaster. The Draft EIR proposes that a wider buffer on the bar edge will prevent this from happening in the Syar project but does not say how reducing the head of the bar from ½ to 1/3 in violation of the ARM Plan will prevent this from happening. H-19

16) The Syar Plan also violates the ARM Plan by proposing a 15 year term when 10 years is maximum. The Draft EIR does not describe the long deliberations and reasoning behind the ARM Plan's ½ of the bar head requirement or the 15 year term requirement. Why were these requirements considered a good idea in 1994 but not now? H-20

17) Adaptive Management "as proposed by Syar" is accepted as mitigation by this Draft EIR. There is a failure to discuss why the Russian River Adaptive Management Plan, which went through years of taxpayer, sponsored development and a 10 year multi-stakeholder process never was completed or implemented. The Plan would have provided guidelines for projects such as this but was left unsupported and has disappeared. The failure of such attempts at adaptive management for the Russian River watershed is not discussed in this EIR. H-21

18) "Extensive monitoring" is proposed for mitigation in this plan but we have seen the emptiness of this promise at both the Shamrock mining site where lack of monitoring led to the failure of the LP Bar and at the Austin Creek mining project where the "extensive annual monitoring" was slapped together just before a recent meeting on the Syar project only because its existence was questioned during the comment period on renewal of the Austin Creek mining permit. The extensive annual monitoring reports were not available during the NCRWCB permit comment period because they had never been done. A report covering the entire 5 year project was produced after the NCRWCB comment period was closed. This Draft EIR does not discuss the sad history of previously promised "extensive H-22

annual monitoring" and the complete disinterest in monitoring by the responsible agencies, Sonoma County PRMD and the Army Corp of Engineers. H-22

19) Previously suggested alternatives to instream gravel mining in the critical habitat of three salmonids species are not considered in this Draft EIR including the importation of aggregate from the Yuba Gold Fields near Marysville by rail. Such an alternative would protect the Russian River, improve the Yuba River and provide economic stimulus for the return of energy efficient rail freight transport to the Redwood Empire. The Yuba Goldfields has enough aggregate to supply California for 100 years. There is no need to be mining in the critical habitat of three species of listed salmonids in the Russian River given this alternative. H-23

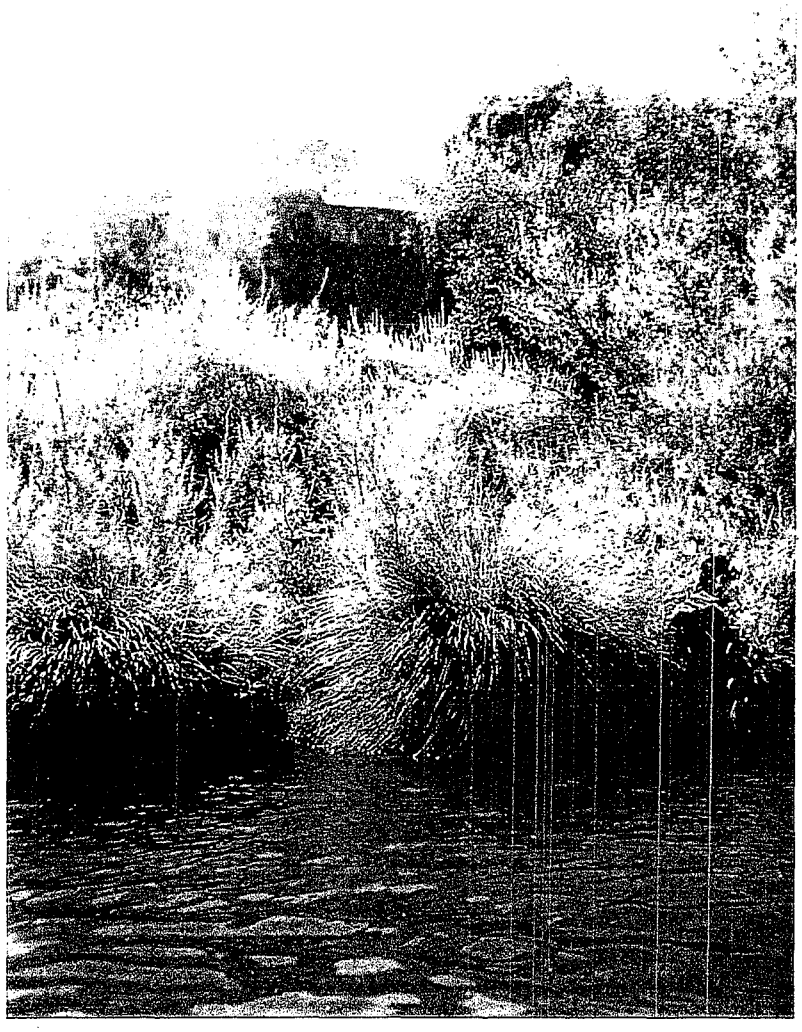
20) The alternative of greater use of locally available recycled aggregate products such as "Eco-crete" was not considered as an alternative. Both these alternatives would help meet Sonoma County's carbon emissions and green building goals while promoting recovery of the Russian River's once great salmonid fishery. H-24

RECOVERY of the fishery is the established goal in the Russian River watershed, not simply maintenance of the existing degraded conditions. That approach will never produce recovery. H-25

We find the Syar Draft EIR incomplete and inadequate and urge the Planning Commission to reject it until the issues above have been addressed in a new document.

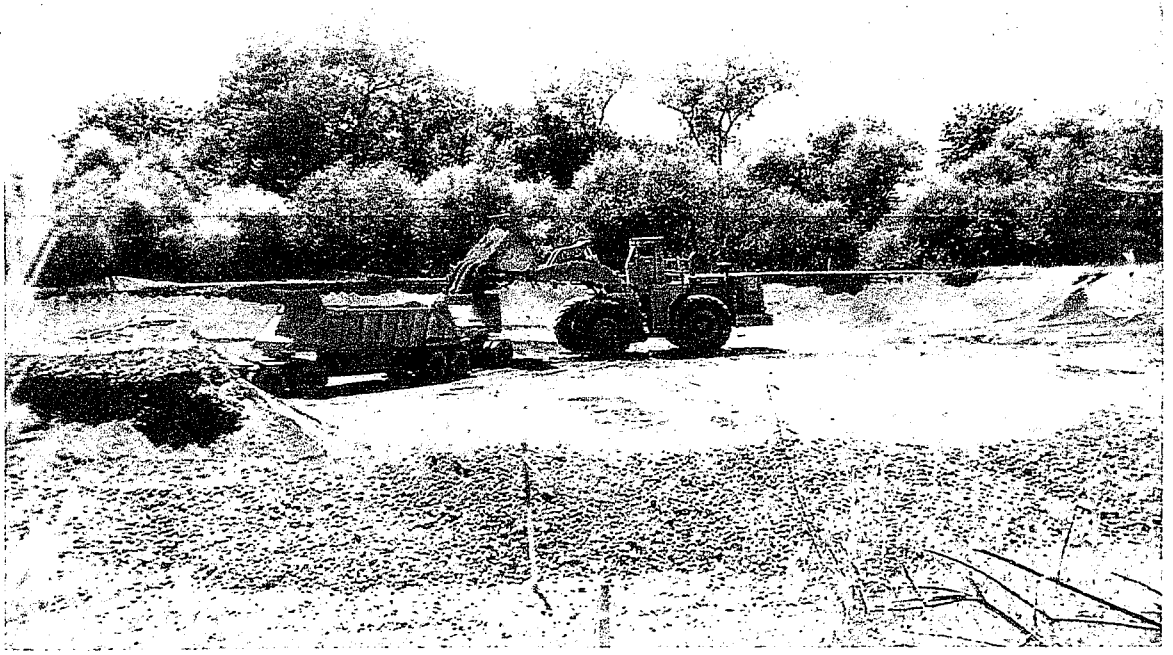
Sincerely,
REDWOOD EMPIRE CHAPTER
TROUT UNLIMITED

R. Brian Hines
Board of Directors



CULVERT ABOVE DOWNCUT RIVER

IN MIDDLE REACH



SYAR OVERMINING BAR 13

IN MIDDLE REACH

I

FAX TRANSMITTAL

TO: Chris Seppeler
Environmental Review Division
Sonoma County Permit and
Management Department
2550 Ventura Avenue
Santa Rosa, CA 95403-2829

FAX NO.: (707)565-1103

FROM: Carolyn Weston
Richard Weston
[redacted]

DATE: June 17, 2010

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CONCERNING: Response to Draft EIR for Syar Alexander Valley Instream Mining Project

[redacted] 2

June 17, 2010

Chris Seppeler
Environmental Review Division
Sonoma County Permit
and Resource Management Department
2550 Ventura Avenue
Santa Rosa, CA 95403-2829

RE: Draft EIR for Syar Alexander Valley Instream Mining Project

Dear Sir:

We are the representatives for a property situated only a few miles downstream from the Jimtown Bridge, the southern end of the Syar project reach. This property has been owned by the same family since the 1950's. Its boundary line extends down the middle of the Russian River for about 1,600 feet.

The Syar Alexander Valley Instream Mining Project Draft EIR is very lengthy and written in unfamiliar, complicated and technical language. Also, we were unable to receive a copy relatively easy to read until 10 days before the public response deadline. Therefore, we can only present an outline of our criticisms of the draft prepared by AECOM. But if given an opportunity, we would provide fuller argumentation and supporting documents for the issues surrounding the inadequate and inaccurate presentations of this DEIR. I-1

Our main criticism is that despite the provisions of the CEQA Guidelines the AECOM staff does not provide a comprehensive and balanced discussion of the potential for off-site as well as on-site impacts caused by instream mining activities in Alexander Valley. This deficiency is particularly noticeable with issues involving hydrologic and geomorphic changes to the river channel upstream and downstream from the project reach. I-2

Our section of the river suffered a significant amount of damage from the downcutting and sidecutting of the river channel in the late 1980's through the 1990's at the same time that extensive and intensive gravel mining was being allowed in Alexander Valley. The degradation of our river I-3

frontage was not just a coincidence but can reasonably be attributed to three adverse impacts of this gravel mining:

(a) The natural tendency of the river to seek equilibrium in its flow-regime by reasserting a slow wide meandering channel across a low gradient flood plan was deterred too many times and in too great a degree by widespread agricultural encroachment on the flood plain and flood control methods such as levees, bank armoring and filling of side channels. The river was forced into a narrower, straighter and deeper confinement. Another form of economic exploitation, instream gravel mining, could be rationalized as vitally necessary to maintain the unnatural, degraded river channel. As a result, the flow velocity of the river increased considerably downstream from the mining reach with a commensurate increase in scouring action on the bed and banks (especially the bank of the outer curve of the river bend) where we are located. In particular, high flood stages from large winter storm runoffs greatly exaccerbated this increased hydraulic pressure. I-3

(b) The properties in the vicinity of the overmined river reach at Jimtown Bridge and above suffered enough bank erosion and failure that their owners had to harden them with rock riprap and other armoring, which practice further disrupted natural fluvial process, reduced energy dissipation there of stormwater and accelerated the river flow even more. We have not armored our frontage because of the expense and because of consideration for probable impacts on our downstream neighbors. I-4

(c) Another consequence of extensive and even intensive gravel mining and channelization upstream from us was the hungry water effect or sediment-deficient flow which led to downcutting and sidecutting of our channel area. Two reasons were likely for this degradation to occur in addition to the widespread appropriation of runoff by many reservoirs (large and small) in the watershed upstream and upslope from Alexander Valley. By not accurately forecasting the annual variations of gravel replenishing that actually occur in the river channel, the operators of the gravel mines extracted excessive tonnages of gravel that were not sustainable yields. No surplus gravel remained to be removed in a suspended I-5

state downstream during the following winter so that the channel along the way received more than normal scouring.

In addition, at times such as the 1986 flood year, abnormally high amounts of sediment entered the river system, but the normal sediment transport process of the river had become so disrupted that sediment began to accumulate on point bars in an aggrading river channel. If this accumulating bank of deposited gravel was afterwards withdrawn entirely and if an estimated replenishment rate of new gravel was annually removed, very little surplus sediment was allowed to be available for restoring a degraded channel reach downstream. This sediment deficiency certainly will recur if the Syar instream mining project proceeds as proposed in the 6.5-mile long project reach. I-5

Our section of the river channel is not degrading at the rate it was in the 1990's (probably because there has been much less gravel mining permitted upstream recently). With the resumption of large-scale mining our channel has very little potential for aggrading. I-6

Even though AECOM claims that Alexander Valley has since recovered from past practices and large gravel bars have now accumulated, none of the offending gravel has flowed downstream to our river frontage which has not recovered from the original assault. The resumption of removing 350,000 tons of gravel/year will no doubt once again cause our frontage to degrade. I-7

This Syar EIR relies too heavily on Syar's consultant, Mitchell Swanson, for hydrologic and geomorphologic analysis. Swanson has a vested interest in project approval. I-8

What expertise does the AECOM staff possess to be able to critically and independently evaluate the various complex controversies involved in the hydrology and geomorphology of instream gravel mining?

The EIR presents no evidence that any of the experts cited in the text has a geology or engineering license generally accepted as necessary for the drafting of mining plans. A check of the records of the State licensing board @ www.pels.ca.gov is particularly illuminating for Mr. Swanson's status. I-9

This EIR claims that all impacts of removing 350,000 tons of gravel/year will be mitigated by the creation of oxbows, alcoves, the placement of LWD (large woody debris), the transplanting of riparian trees over 1" in diameter and new vegetation plantings on perhaps 11 acres despite the strong possibility that all this window dressing could be washed away in the next high flood winter. I-10

No information is provided as to how many tons of gravel will be removed in the creation of oxbows and alcoves. Will this be part of the annual 350,000 tons or exceed it? I-11

This new mining technique is not supported by technical documents outside of this county.

No technical reports are provided that prove the impacts of gravel mining can be reversed by the placement of LWD, the transplantation of riparian vegetation, the planting of new vegetation on unspecified land, or the creation of oxbows and alcoves. I-12

The in-county trials for the "horseshoe skimming" mining technique are limited in scale and in monitoring. One failure is described where the buffer zone collapsed and the main channel migrated into the mined pit creating a straight channel. Is the 6.5-mile long project reach actually going to be a large-scale experiment? I-13

No study of the 2006 flood is provided to show how much property was actually eroded in Alexander Valley as was done by Simons, Li & Associates for the years 1981 to 1986. According to the Healdsburg Tribune and the Press Democrat no vineyard land was eroded in 2006. In providing pictures of eroded river frontages, the EIR does not substantiate the claim that the damage was confined to the 2006 flood event instead of being an accumulation of erosion suffered over a period of time (perhaps even when mining was occurring). I-14

No alternative project is suggested by the EIR whereby gravel on point bars would be removed only to the degree necessary for flood control, i.e. where Syar's consultant Swanson believes that removing gravel above 10 feet on a bar would relieve hydraulic pressure against the opposite bank and thereby prevent bank erosion, bridge failure and vineyard flooding. Under this alternative, the annual tonnage of gravel to be extracted could be I-15

considerably reduced from 350,000 tons and made more conformable to actual annual replenishment rates. I-15

No detailed assessment of the height and area of each gravel bar to be mined is presented. I-16

This EIR is very lengthy, however, it does not provide technical support studies for its major opinions (e.g., the ENTRIX annual monitoring reports). I-17

This EIR provides no cumulative tabulation of gravel mining extraction in other areas of the river channel or reports how these other projects will or will not add to the impacts of removing 350,000 tons/year from Alexander Valley. I-18

No documented economic analysis has been provided in the EIR to substantiate the claim that no "import source of FCC grade aggregate... can economically be provided to the Sonoma County market". I-19

Essentially this EIR is entirely limited to the area involved in gravel mining as if there is no river channel above or below it. I-20

No acknowledgement is made on the impact of gravel mining on the entire river system. In evaluating this project's environmental impacts, the EIR should follow the guidelines of the California Watershed Assessment Manual, sponsored by the State of California. In Volume 2, the introduction to Chapter 3, Fluvial and Geomorphological Processes (by Joan Florsheim, UC Davis) states: I-21

"A watershed approach toward assessment of fluvial processes and morphology requires utilization of methods that may be put into a framework to both incorporate data collected locally as well as to illustrate the processes that link the area under investigation to upstream/upslope and downstream areas within the watershed. Many aspects of fluvial processes and morphology may be measured to help assess a watershed's condition; however, individual measurements are difficult to interpret unless they are placed within the watershed's temporal and spatial context...

"The goal of developing a watershed scale framework for assessment of fluvial processes and morphology is to develop a coherent process-based, dynamic picture of how everything is connected (or linked), and how processes create and modify morphology within the watershed unit."

Swanson has studied the occurrence of aggradation and degradation in the mining reach above Jimtown Bridge, but no comprehensive surveying and assessment has been made by field reconnaissance of the area between Jimtown Bridge and Healdsburg. The fluvial features and processes of this latter reach should be analyzed as soon as possible, even if only Digger Bend may have mining potential, because this area represents an important link between two heavily mined reaches. The research findings (preferably produced by public agencies) should be made an integral part of the AMS process connected with the Syar mining permit. I-22

Who pays for ENTRIX's annual monitoring of the river mining reaches and what is the scope of its services for the County? In its reports does ENTRIX provide an independent evaluation of the mined areas that is easily available to the public? I-23

Does the ENTRIX staff working on the contract with Sonoma County include licensed professional engineers and geolgists? Since ENTRIX serves as the only member of the County's Scientific Review Committee, how can diverse and even conflicting opinions among experts on mining issues be represented on that committee? I-24

Will any ongoing public imput into the AMS be allowed? At least shouldn't the AMS process be reviewed by a peer review committee whose members have no economic conflict of interest with the gravel mining industry? I-25

Will there be any ongoing public imput into the Interagency Group decisions concerning the Alexander Valley gravel mining? I-26

Can the 350,000 tons/year limit be increased through AMS? I-27

The EIR prepared by AECOM should address the questions asked above in order to better assess whether the ENTRIX-SRC and the AMS can function successfully to correct any problems that may arise over time with the Syar gravel mining permit. I-28

In its bibliography and particularly at the beginning of its geomorphology, hydrology and water quality section, the EIR lists some of the authorities in these fields who hold opinions differing from those of Mr. Swanson. However, in the text the EIR preparers do not include those opposing opinions in a comprehensive discussion of the geomophological and I-29

related aspects of the Syar gravel mining proposal. Therefore, we have attached to this letter an appendix containing a small sample of statements made by those authorities that are applicable to instream gravel mining and especially to downstream impacts. I-29

No government body could make a sufficiently informed and balanced decision based upon the information contained in this EIR. I-30

We regret that we had so little time to prepare a response to the AECOM DEIR that we could not critically evaluate that lengthy document more thoroughly and systematically.

Sincerely,

Carolyn Weston

Richard Weston

Carolyn Weston

Richard Weston

APPENDIX

Simons, Li & Associates in "Hydrologic impacts of gravel mining on the Russian River" (1991) state that in many cases gravel mining can have effects elsewhere and alter channel behavior "both upstream and downstream. Mining can change the river gradient as has been reported in Dry Creek..." I-31

Phillip Williams & Associates in "Geomorphic and hydrologic conditions in the Russian River, California: historic trends and existing conditions" (Revised 1995 also cited as Florsheim, J. and Goodwin, P. who were employed by the Sonoma County Planning Department for a similar study) listed among other factors that will affect the future of the Russian River:

"* Reduced sediment supply to downstream reaches will continue to cause channel incision and subsequent bank erosion as bank heights are increased. The rate of future incision will depend on the rate of gravel extraction allowed on bars in the channel" I-32

In addition Florsheim and Goodwin concluded that "If current gravel extraction levels continue" in Mendocino and Sonoma Counties the river channel "will incise until it reaches bedrock, and then it will widen, by bank erosion since erosion of the bed is no longer possible."

The Westons have watched this happen to their river frontage. I-33

Steiner Environmental Consulting in "A history of the salmonid decline in the Russian River" (August 1996) states:

"Decreased sediment supply causes shifts in a river's equilibrium that lead to channel changes. With a decreased sediment load, the ability of water to carry sediment is greater than the actual sediment supply. To compensate for this discrepancy, the "hungry" water picks up sediment from the channel. This constant scour caused the channel to downcut. Mainstem river downcutting causes bank erosion, tributary downcutting, and a drop in associated ground water levels... I-34

"Channel incision causes an interruption between the active river channel and its associated flood plains... Veritical bank formation effectively cuts off natural floodplain function. In a 'natural' situation, the floodplain acts to slow down water velocity and dissipate energy during high discharges. Floodplains also act as water retention features. Water from a floodplain is slowly returned to the channel, and retained water may

create seasonal wetland habitat. Floodplains isolated from the river by channel incision are only inundated on very large flows; in most flow events they fail to slow water velocity or retain water, and hence, downriver flooding increases...

"Channel morphology and the physical processes of the river system control all aspects of the biological system. Changes in sediment load or flow will cause channel adjustments. Continued gravel extraction compounds existing problems caused by reservoir sediment retention and past gravel extraction."

I-34

G. Mathias Kondolf states in "Hungry water: effects of dams and gravel mining on river channels" (1997):

"Instream mining directly alters the channel geometry and bed elevation and may involve extensive clearing, diversion of flow, stockpiling of sediment, and excavation of deep pits... Instream mining may be carried out by excavating trenches or pits in the gravel bed, or by gravel bar skimming (or scalping), removing all the material in a gravel bar above an imaginary line...

"By removing sediment from the channel, instream gravel mining disrupts the preexisting balance between sediment supply and transporting capacity, typically inducing incision upstream and downstream of the extraction site.

Concerning the management of mining Kondolf states:

I-35

"Strategies used to manage instream mining range widely... One strategy is to define a redline, a minimum elevation... without stating these limits in terms of actual elevations above a permanent datum. Thus the extraction limits have migrated vertically downward as the channel incises.

"Another approach is to estimate the annual bedload sediment supply from upstream (the replenishment rate) and to limit annual extraction to that value... but bedload transport can be notoriously variable from year to year. Thus, this approach is probably better if permitted extraction rates are based on new deposition that year rather than on long-term average bedload yields. More fundamentally, however, the notion that one can extract at the replenishment rate without affecting the channel ignores the continuity of sediment transport through the river system. The mined reach is the... sediment source for downstream reaches, so mining at the

replenishment rate could be expected to produce hungry water conditions downstream. Habitat managers in Washington state have sought to limit extraction to 50% of the transport rate as a first-cut estimate of safe yield to minimize effects upon salmon spawning habitat... I-35

"In 1995, the US Department of Transportation issued a notice to state transportation agencies indicating that federal funds will no longer be available to repair bridges damaged by gravel mining..." I-36

The Sonoma County Planning Department's ARM Plan FEIR (October 1981) found "potential effects of... mining operations on the river's hydrology illustrated by... Problems with erosion... during the winter of 1977-78 in the vicinity of Geyserville Bridge." Two mining operations, one near the bridge "were regularly extracting gravels during the drought years of 1976-77 and a total of six to eight acres of vineyard and riparian lands was lost. Emergency measures were undertaken by the Water Agency to prevent further damage.

Simons, Li & Associates state in a table that in 1981-82 31.1 acres with 8 sites were lost to bank erosion in Alexander Valley. In 1982-83 34.5 acres with 6 sites were lost to erosion, in 1983-4 9.5 acres with 2 erosion sites, none in 1984-85 and 57.3 acres in 1985-86 with 11 erosion sites. There were said to be 10 mining sites in 1981, 15 in 1982, 8 in 1983, 8 in 1984, and 12 in 1985. I-37

This study also states that in 1984-85 there was very little replenishment. Channel changes also took place.

"Some significant channel changes occurred during the study period especially in the Alexander Valley Reach... Most of the gravel bars in the Alexander Valley that were accessible by equipment were mined at some time during the study period. All major bank erosion occurred in the Alexander Valley Reach especially between river miles 53 to 57 and between 46 to 51. In these two subreaches gravel bar migration (down-valley migration of the meander bends) was observed. In general, the bars moved about 1,400 feet in the 5 year period."

The 1994 ARM Plan EIR (February 1994) states that in 1981 543,600 tons of gravel were extracted, in 1982 541,800 tons, 1983 494,400 tons, 1985 I-38

590,300 tons, 1986 1,016,000 tons, 1987 886,500 tons, 1988 954,700 tons, 1989 905,100 tons, and 1990 364,700 tons. Channel changes included:

"In some locations, the low flow channel has switched across to the opposite side of the active channel. For example, upstream of the confluence with Gill Creek, the low flow channel has migrated from the west bank in 1973 toward the east bank in 1991. South of Gill Creek, the low flow channel meandered in 1973 but is straighter and located toward the center of the active channel in 1991.

"Channel bars upstream and downstream of the Geyserville or State Highway 128 Bridge support more riparian vegetation in 1991 than in 1973. The low flow channel migrated from the east side of the active channel in 1973 toward the west side of the active channel in 1991. I-38

"Upstream of the Jimtown Bridge, the 1991 aerial photograph exhibits recent skimming activities on the alternate gravel bars. The active channel appears to have widened both upstream and downstream of the bridge between 1973 and 1991...

"Channel degradation occurred primarily at the upstream and downstream end of the Alexander Valley Reach between 1971 and 1991...

"Data show River Mile 52 as the only surveyed Cross-section location in the Alexander Valley where aggradation occurred between 1971 and 1991...

"The surveyed Cross-sections between River Mile 46 and River Mile 51 all exhibited some degradation. The maximum measured degradation of about 12 feet occurred between 1971 and 1982 at River Mile 50. Smaller depths of degradation, about 2 to 5 feet, occurred between River Miles 50 and 51..."

Marcus, L. and Gaffney, K. (Russian River Resource Enhancement and Public Access Plan, Enhancement Alternatives: Middle Reach, Russian River 4/35/94) state:

"The 1950-1970's brought the advent of reservoirs and gravel mining as well as floodplain reclamation and the narrowing of the channel in its upper reaches. All these changes result in the "hungry" water of the river causing significant channel downcutting, bank erosion and scour of riparian forest during most storms, and a drop in ground water levels and backcutting up tributary streams. These changes have been measured over the I-39

entire Mendocino County reach, portions of the lower and upper Alexander Valley and the entire Middle Reach."

I-39

Florsheim and Goodwin state:

"Comparison of aerial photographs for the Alexander Valley Reach between 1973 and 1991 was conducted to show changes in channel morphology. The river channel pattern is meandering and contains point bars and some alternate bars. The low flow channel has migrated across the active channel in some locations such as downstream of Cloverdale, upstream of the confluence of Gill Creek, and near the Geyserville Bridge. Many portions of the Alexander Valley Reach exhibit simmilar channel patterns in 1973 and in 1991...

"Comparison of longitudinal profiles of the thalweg surveyed in 1971 by the COE and a longitudinal profile compiled using cross-sectional data surveyed by the Sonoma County Water Agency in 1991 indicate degradation throughout the Alexander Valley except near the Geyserville Bridge... Data are sparse between River Mile 62 and 57 and between River Mile 50 and 46, however, some trends are evident. Degradation in the lower portion of the Alexander Valley (approximately River Mile 50) reaches 12 feet in the 20 year period. Aggradation at the Geyserville Bridge (approximately River Mile 52) is about 8.0 feet. The aggradation near the Geyserville Bridge is coincident with observations of local channel widening. Evaluation of the longitudinal profile suggest that sediment accumulated in the lower portion of the Alexander Valley in 1971 (indicated by the convexity in the profile between the Geyserville Bridge and the Jimtown Bridge) but was eroded by 1991...

I-40

"Repetitive cross-sections surveyed in the Alexander Valley Reach by the Sonoma County Water Agency between 1973 and 1991... indicate a general lowering of the thalweg elevation in cross-sections where the thalweg has migrated across the channel. In many cases, the earlier channel has filled while the new channel is at a lower elevation than the old channel. At the cross-section at the Geyserville Bridge (River Mile 52) widening of over 300 feet occurred in the 22 year period betyween 1973 and 1991... Cross-sections 50.5, 50.2, 49.8 also show signicant widening. An analysis of changes in stored sediment in the Alexander Valley Reach between 1981 and 1990 indicates that there has been a volumetric decrease of about 630,000 tons/year... This loss suggests that less sediment is available for

transport to downstream reaches.

"Bank erosion in the Alexander Valley was noted in a study of channel change during the period from Fall 1981 to Spring 1986 (Simons, Li & Associates, 1991) which found that a total of 150 acres were lost to bank erosion during the 5 year period. Most of this erosion occurred during high magnitude flows in March, 1983 and in February, 1986 between River Miles 53 to 57 and 46 to 51. The estimated rate of meander migration of 280 feet/year... during the period from 1981 to 1986. The Sonoma County Water Agency estimated the rate of meander migration to be 375 feet/year (Einstein Report for Sonoma County Water Agency, 1972).

"...On the average, bank height increased in the Alexander Valley Reach by about 5.0 feet (average rate of increase is 0.3 feet/year)." I-40

The California Department of Fish and Game's 2002 Draft Russian River Basin Fisheries Restoration Plan states in Appendix B:

"Gravel mining is known to be the second major cause (next to Coyote and Warm Springs Dams) of sediment deficit in the Russian River basin. Park Steiner, in Steiner Environmental Consulting's 1996 report... does an excellent job of outlining the impacts of gravel mining as follows:...

"In-channel and terrace mining each have unique problems, but both remove gravel from a sediment-starved system, further decreasing sediment supply. Lake Mendocino blocks approximately 200,000 tons of sediment per year (SCWA 1985), and Warm Springs Dam blocks approximately 400,000 tons of sediment per year (COE 1973). In-channel mining removes gravel at rates significantly in excess of replenishment, hence contributing to channel incision... I-41

"Recently, Shamrock Materials was granted a ten-year permit to remove up to 131,000 tons per year from the Alexander Valley Reach. Several other ten-year permit applications are pending which, when added together, could far exceed the most recently monitored sediment deposition amounts (Sonoma County Water Agency, unpublished data).

The North Coast Regional Water Quality Control Board's "Overview of the Russian River watershed: its characteristics, salmonid populations, and sediment and salmonid habitat water quality concerns" I-42
(August 2, 2006) states:

"In addition to the influence of the dams, gravel extraction has reduced the supply of sediment available to downstream reaches of the Russian River watershed. Florsheim and Goodwin (1995) in their report on **Geomorphic and Hydrologic Conditions in the Russian River, California: Historic Trends and Existing Conditions**, summarized studies focusing on degradation along the mainstem Russian River. Their evaluation, including an analysis of aerial photographs, topographic maps, repetitive cross-section data and longitudinal profiles derived from a number of sources indicate that channel incision has occurred since the 1940s... Channel incision or downcutting is about eighteen feet in the Ukiah Valley, twelve feet in the Alexander Valley (which also experienced aggradation of approximately eight feet in a short reach near the Geyserville Bridge), and up to twenty feet of degradation in the middle Reach."

I-42

Swanson Hydrology + Geomorphology

PH 831.427.0288
FX 831.480.5854

A California Corporation

124 Glenview St. Santa Cruz, CA 95062

J

June 17, 2010

Melinda Grosch
Sonoma County PRMD
2550 Ventura Ave
Santa Rosa, CA 95403

RE: Comments on Behalf of Syar Industries – Draft EIR - Syar Alexander Valley Instream Mining Project, River Enhancement Plan, and ARM Plan Amendments

Dear Ms. Grosch,

On behalf of Syar Industries and its consultant team, I appreciate the opportunity to provide comments on the Draft EIR prepared by Sonoma County for this project. We look forward to working with the County as the project proceeds through the EIR process, and offer these comments on the Draft EIR for the County's consideration.

1) **River Enhancement Plan:** As noted in the staff report, the River Enhancement Plan, which includes a variety of activities to improve river habitat and ecological conditions, is a major component of the project as proposed by Syar. The Final EIR should include revisions to reflect the status of the River Enhancement Plan as a critical component of the project as proposed by Syar. The title of the Final EIR should be revised to refer to the "Syar Alexander Valley Instream Mining Project, River Enhancement Plan, and Sonoma County ARM Amendments." Also, the River Enhancement Plan is included in the project description, including the many graphics, as a major component of the project. This should also be reflected in the summary description of the project set forth in section 1.1. J-1

2) **Page 1-17, first bullet below table 1-1, first sentence, Page 1-18, in paragraph below three bullet points, center of page, first sentence; and page 1-63, last bullet bottom of page**. Delete references to Syar planting the head of bar buffer with transplanted willows and cottonwoods or new willow stakes. It is usually not practical or useful to plant the head of bar buffer since scour and soil moisture conditions are usually not favorable. Also, if vegetation were to become established, it could result in island formation and/or scour holes that could isolate fish. J-2

3) **Page 1-55, 3rd paragraph:** This paragraph should be rewritten to clarify the proposed REP contribution fee and the implementation of REP projects to be concurrent and adjacent to mined bars. We suggest the following revised text to clarify this discussion:

> *Each of the proposed enhancements would only be constructed adjacent to and concurrently with mining of bars in order to avoid additional and more widespread impacts, as shown in Figures 1-8a, 1-8b, 1-8c, 1.8e, 1.8f, 1.8-g, 1.8-f. The schedule for which bars and adjacent REP projects would be completed will be determined as part of the AMS annual mining plan process. This allows for flexibility to address the most critical sites along the river where bar skimming would help reduce lateral erosion and increase flood capacity and where aquatic habitat improvements are most needed.*
>
> *Figure 1-8c shows a proposed Year 1 mining and enhancement project plan for Bar S-9, which is located immediately upstream of the Geyserville Bridge. This Bar S-9 plan would add to the proposed first six-year period projects. The Bar S-9 plan was developed through the AMS process having undergone several field and office reviews and revisions in 2009. With the present EIR and permitting schedules, this project would be initiated in the summer of 2011. The 3.4-acre wetland and the area surrounding the alcove would be planted to willow and cottonwood forest.*
>
> *The first six REP projects have a market value of $2.2 million, which exceeds six year of $0.30/ton fee by $1.5 million. However, this assumes that mining will occur at the maximum rate of 350,000 tons per year; if mining were reduced per year, then the scale and/or number of the enhancement projects would be reduced proportionately.*
>
> *After the first six years Syar, would contribute a fee for enhancement projects of $0.30 per ton mined. The fee could be a direct contribution of money, or as valued by Syar contributing equipment, design expertise, and/or materials for completion of annual enhancement projects.*
>
> *For bank protection and other larger projects whose cost exceed the fee available in a given year, Syar would have landowner partners and additional funding provided by grants or landowners who may benefit.*

J-3

Page 1-55 , 4th paragraph: Syar provided evidence several years ago (letter from Mitchell Swanson to John Perry, June 2, 2005) to show that DeWitt's operations did not cause a reduction in riparian forest cover and that DeWitt installed bank protection as

J-4

part of his operations. This should be reflected in discussion of the $82,006 fee. This fee should be waived in light of the REP projects which are designed to help off set legacy impacts. Alternatively, the following statement should be added:

"The proposed first six years of REP enhancement projects will greatly exceed the original ARM Plan River Mitigation Fee. The proposed first six projects have a market value in 2008 of $2.2 million. Syar has proposed the River Enhancement Plan in order to offset "legacy impacts" of past mining and land reclamation. In light of these contributions in excess of the contested amount, the County should consider this issue resolved and waive the $82,006."

J-4

4) **Page 1-58 last paragraph last sentence:** This sentence as currently drafted is incorrect. After dewatering and construction is complete, the upstream and downstream berms will be notched so that the next winter's flow will overtop and breach the berms and allow for natural restoration of flow to the low flow channel. The low flow channel will not be graded after construction nor will the berms be removed. This avoids a second dewatering and fish capture routine, which is an impact avoidance measure.

J-5

5) **Page 1-59 under "Equipment"**: Syar probably will not use Moto grader since they would not be able to drive directly to the Syar Plant, unlike the Middle reach haul road which is dedicated to hauling only. The material would be scooped up with a loader then directly loaded onto hauling trucks which would be driven off the bar and directly to the plant in Healdsburg.

J-6

6) **Page 1-64 second paragraph**: The citation should be for NOAA 2004 sediment removal guidelines for the Southwest Region, rather than the 2003 National Guidelines.

J-7

7) **Page 1-67, third paragraph entitled "Pools":** A specific description of residual pool depth should be added. i.e. it is the length between the lowest point in a riffle and the deepest part of the pool immediately upstream.

The reference to use of a hydraulic model to determine residual pool depth should be removed, as it would not factor into the calculation. Only surveying and the possible use of AutoCad would be needed.

J-8

8) **Page 1-70 bullets under "should performance criteria be exceeded":**

   a. The words "suspend mining" should be deleted as the potential effects of previous year's mining will be known well before PRMD approves the following year's plan. The wording should say that the proposed mining plan would not be

J-9

implemented until PRMD in consultation with SRC and resource agencies agree that the proposed plan will address concerns.

Some suggested wording:

The only type of circumstance which would "suspend" mining would be during a mining operation when it is apparent that the approved mining plan is not being implemented (e.g. vegetation that was suppose to be preserved is removed, the depth and configuration of mining is deeper or covers a wider area, or if it is discovered that wildlife found within the area of potential effects, such as nesting birds or isolated aquatic species in backwater pools or scour holes). In these cases, modification to the operations and/or mining plan, if needed, would be completed before mining proceeds.

J-9

9) **Alternatives: Page 1-72: Alternative 1; Pages 2-8, 2-9; Page 4-25, 3rd paragraph:** The discussion of the No Project Alternative in the EIR should reference and briefly describe continuing geomorphic trends of bar growth, erosion and risk of channel avulsion. If the No Project Alternative is adopted, these continuing trends could significantly reduce flood protection and destroy riparian forest and agricultural land. In addition to the loss of economically valuable aggregate, the discussion should note that that the existing trend towards more aggradation will risk other significant impacts and economic losses.

The 1997 EIR/EIS for Syar's Middle Reach project in its evaluation of the no project/no action alternative, found a significant unavoidable impacts to flood protection and erosion and consequent loss of high bank riparian habitat and agricultural lands. This would also certainly continue to be the case in the Alexander Valley if the No Project Alternative is adopted.

J-10

The Syar project itself can only address these issues one bar at a time but at least critical areas can be prioritized and repeated mining can maintain better conditions than letting the bars continue to aggrade. The No Project and other alternatives that reduce the volume of mining will to a greater degree be deficient in managing the existing channel.

10) **The Environmentally Superior Alternative, Page 2-10:** The discussion of the environmentally superior alternative should recognize the effects of ongoing aggradation of bars, erosion, loss of flood capacity and flood protection and risks of channel avulsion. These are very likely possibilities of No Project and mining at lower rates of mining (Alternative 4). Alternative 4 may not be economically viable. The EIR should discuss how the ARM Plan objectives have not been met without mining, and note that there are very serious risks to landowners due to erosion, loss of soils,

J-11

farmland and production, loss of riparian habitat, and the economic costs of installing bank protection or other measures. J-11

11) **Impact 3.2-1, page 3.2-40 first paragraph second sentence**. Add:"200 cfs" at end of sentence J-12

12) **Page 3.2-46, 3rd paragraph:** The paragraph discusses the occurrence of braiding at Bar 2 in Middle Reach as a result of mining the bar and leaving the head of bar buffer. The EIR says that this was caused by too low of a head of bar buffer (6 feet), when the actual cause was that the head of bar was unconsolidated material that were easily eroded when overtopped.

The paragraph acknowledges that no changes in the adjacent riffle and pool occurred and the bar refilled aggraded 6-8 feet and was mined again with larger head of bar buffer without impact. J-13

The key lessons from the 2002 Bar 2 mining are that the head of bar buffer can be compacted by grading equipment in order to avoid braiding in small floods and that despite the braiding, the channel retained its location and width and depth.

13) **Page 3.2-47, second paragraph, 2nd to last sentence:** The project already has a 10:1 slope from the top of the head of bar buffer to the skim floor, so this measure is already included in the project. Suggest adding the phrase "consistent with the project description" J-14

14) **Page 3.2-52, first bullet "monitoring" under 3.2-5b Channel Vertical Stability, and under Mitigation 3.2-5e Pool depth:**

Suggested language change: " The water surface elevation and thalweg shall be measured by collecting elevation data points at intervals that document the breaks in slope".

The requirement that data points be collected every ten feet is excessive. This will greatly increase costs and complicate analysis by increasing the number of survey points significantly. There are no calculations that would benefit from such dense surveying points. J-15

The key to surveying the water surface and thalweg is to catch the inflections of topography or breaks in slope. These points are used in Auto Cad to create the topographic maps, which will ignore all of the other points in constructing the map.

Adding a large number of points will make the files harder to process and will take considerable time to survey in the field (on land for edge of water and in boat for thalweg surveys). The larger areas can be accurately measured from the DTM topography with supplemental points to test the accuracy of the aerial topographic survey.

Accordingly, the requirement for data points every ten feet should be deleted. The key is to have a performance criteria that are measureable with the accuracy of DTM maps +/- 0.5 feet for contours over the project and extended reaches. Adding wse points at key points where the breaks in slopes occur provides the needed precision, but these measurements have far less density than every 10 feet. J-15

The thalweg surveys catch the deepest part of the pool and riffle for calculation of residual pool depth, which is the only factor measured for pool depth. Adding hundreds of field survey points will not improve the resolution and is a distraction from the important task.

The monitoring plan also has to be practical to implement. Adding a point every 10 feet will not add precision, but will add substantially to the time and expense of the monitoring plan.

15) **Page 3.2-53, mitigation measure 3.2-5b, bullet #3**: The statement should be changed to say "...evaluate the average (not potential) changes and trend in vertical stability....over the entire monitoring reach." J-16

16) **Page 3.2-54, mitigation 3.2-5 e, under bullet "monitoring"** should delete the 10-foot requirement per the comment above and state that field measurements will be taken at the breaks in slope of the water surface elevation. J-17

The last sentence should be corrected to say that "...the measured **maximum** depths **below** the **lowest point of** the controlled riffle crest."

17) **Page 3.2-54, under mitigation 3.2-5e, under "performance criteria"** a decrease of 5% is very small, possibly as low as 0.3 feet or 4 inches for a 6 foot deep pool over the entire permitted reach. This should be changed to 15%, which is within more likely within the potential measurement precision and outside of likely natural variation. J-18

18) **Page 3.2-55, 5th paragraph under "impact significance after mitigation:** The sentence should be corrected to say that monitoring of the permitted reach due in year 7 would J-19

be combined with the extended reach survey in year 6. This would account for the baseline year 1 survey.

The sequence will be, extended reach survey Year 1 as baseline, which would include the permitted and mining reaches, three years later, Year 4 would repeat permitting reach, the year 7 permitting reach would be covered by the extended reach survey in year 6 (five years after baseline). This sequence would change in case there were a 5 year flood and again if there were a 10-year flood. What is important is to cover the permitted reach surveys when the extended reach surveys occur. J-19

19) **Page 3.2-56, first paragraph, last two sentences:** Add the following sentence: *Bar Aggradation can also cause lowering of thalweg and low flow water surface such that groundwater could be affected; thus mining the bars can help maintain groundwater elevations.* J-20

20) **Page 3.2-57, 1st paragraph, 3rd sentence to end of paragraph:** The discussion uses average annual gravel supply. A more complete picture would include the occurrence of larger floods. Suggest adding the following: *The gravel bars are replenished in floods larger than average annual, and depending upon the climatic period (i.e. wet, normal, or dry streamflow years), the amount of gravel in excess and available for mining will vary.* J-21

21) **Page 3.2-57, 3rd paragraph 1st sentence**: the statement is incorrect. It states that "geomorphic features will be maintained as long as excessive sediment (beyond what can be naturally replenished) is not removed through mining." It should read: *"geomorphic features will be maintained as long as only the excess sediment is mined and there is sufficient supply left afterward."* J-22

22) **Page 3.2-58, 5th paragraph, Impact 3.2-8; first sentence:** the term "low flow channel" should be changed to "flood channel" i.e. the large channel that includes the bars and the low flow channel and is contained by terraces (i.e. 10-year flood or greater before flow overtops the banks and floods the valley floor). The low flow channel meander will not be changed by mining, in fact the whole idea of the buffers to prevent changes to the low flow and bankfull channels such that small flood hydraulics are maintained and pool riffles and other features are maintained. J-23

23) **Pages 3.2-59 and 60, Impact 3.2-10 carry over paragraphs:** J-24

This impact should be deleted or revised to reflect the following, which is supported by scientific evidence and reasoning:

No increase in erosion would occur downstream of mined bars since: 1) flow area upstream is going to increase with bar mining, such that flow velocities overall will decrease, not increase; and 2) the bar downstream of a mined bar will have head of bar buffers to backwater flow over the riffle and before flow would enter enters the next pool. Hydraulic modeling of the proposed mine projects show no hydraulic impact downstream or upstream. J-24

It should be pointed out that erosion does increase with aggradation of bars; this is shown in hydraulic modeling and in observations of erosion made over past several years, most notably at bars S-9 and S-10 above Geyserville Bridge.

The statement that "strengthening banks is needed to reduce localized erosion impacts of mining activities" should be deleted. Mining as proposed will not increase erosion. The removal of the bar actually reduces erosive force against the bank thereby improving bank stability – mining with NOAA criteria will not cause more erosion.

24) **Page 3.2-64, first paragraph below table 3.2-6, first sentence:** The word "inundation" should be replaced with: **"....preventing downstream flow over the skimmed bar surface...before the 11,000 cfs flow".**

It is likely and stated on the previous page (Page 3.2-63, 2nd paragraph 3rd sentence) that during floods, water will backwater through the downstream end of the mined bar, which is about 1 foot above low water and the mined area will be ponded before flow overtops the head of bar buffer and at that point exposes the skimmed area to downstream flow (which has greater velocity). J-25

We appreciate the opportunity to comment, and would be happy to provide further information regarding any of these comments.

Sincerely,

Mitchell Swanson

President, Swanson Hydrology + Geomorphology

K

John M. Cash and Brian C. Petrie
[redacted]

June 14, 2010

Sonoma County Permit and
Resource Management Department
2250 Ventura Avenue
Santa Rosa, CA 95403
Attn : Ms. Melinda Grosch

Subject : PRMD File Number : PLP08-0116

Dear Ms Grosch :

We are writing to comment on the proposal by Syar Industries to conduct a major extraction of the gravel bars on the Russian River north of the Geyserville Bridge on Route 128. Syar Industries has been an excellent neighbor of ours for more than ten years. They have maintained the riparian habitat along the river, have strongly discouraged the use of all-terrain vehicles on the gravel bars, and have been responsive to the community. Nevertheless, the proposal currently under consideration for gravel extraction would have an unimaginable negative impact on the Russian River and on the way of life of those of us who live along it. We must regretfully write in strong opposition to the proposal of Syar Industries.

K-1

Our opposition to the proposal has three components:

1. Impact on the Russian River environment: The Russian River is a fragile environment and the build-up of the gravel bars is a natural phenomenon that supports and sustains aquatic life and the river ecosystem. The Russian River is the wildest river close to the Bay Area and we believe it is essential that Sonoma County do everything possible to preserve it for future generations. The massive removal of gravel (ten years, sixteen-hours a day) would forever alter that ecosystem and no amount of environmental remediation could offset the short and long-term impacts. We would lose the fish and with them the ospreys, herons, and bald eagles that call the region home. This would be a loss for the State of California but a much greater loss

K-2

for the residents of Sonoma County who have chosen to live here in no small part because of our ability to live close to nature in an agricultural region of unprecedented productivity and beauty. K-2

2. Economic Impact: The economic impact of the Syar proposal on the region would be profound. The noise, dust, and traffic caused by the heavy construction equipment and removal trucks would have a major negative effect on the region's appeal to tourists. Geyserville, which has become a major Wine Country destination, would quickly lose its appeal to quieter, more settled communities elsewhere in the region. The economic balance between permanent and part-time residents, local business, and the wine industry would be seriously impacted by the Syar plan. Instead of a quiet weekend destination for tourists from all over the world, Geyserville and the northern Alexander Valley would come to resemble an Appalachian strip mine with hundreds of trucks filled with gravel clogging narrow streets and disrupting the life of the community. K-3

3. River Road and Local Residents: Finally, the proposal would effectively ruin the quality of life for the residents of River Road and areas on the opposite side of the Russian River north of the Geyserville Bridge. We purchased our home ten years ago as a retreat from the noise and traffic of the Bay Area. We fully expected that the Russian River would remain in its wild state and that Sonoma County, with its long and unique commitment to the preservation of wild habitats and open space, would never allow the River environment to be destroyed. We are now faced with an enormous industrial proposal that would transform our neighborhood into a huge, open-air mine. Instead of bird calls, we would be subjected to the noise of construction vehicles. Instead of the smells of our garden and the vineyards, we would be subjected to diesel fumes and clouds of dust from the bulldozers and trucks needed to mine and remove the gravel. Instead of a calm retreat and a planned retirement home, we would be stuck with a devalued property and a subsequent devastating impact on our estate. Our plan to become full-time residents in 2011 and to create a retirement home would be ruined. The air quality alone would not allow either of us to remain. K-4

For these reasons we strongly urge the Permit and Resource Management Department to reject the proposal of Syar Industries and to urge the corporation K-5

to enter into negotiations to convey the Russian River north of the Geyserville Bridge to the Conservation District. This unique local ecosystem should be preserved for future generations and not mined and destroyed. Sonoma County is a truly special place and we are all under obligation to preserve and protect it. Syar Industries has heretofore respected that commitment to preservation and we are dismayed that the company has now presented such a singularly destructive proposal for open-air mining. We hope that all sides can find a reasonable compromise that will preserve the Russian River habitat, the local economy, and the quality of life that is so precious to those of us who live here. K-5

Thank you for receiving our comments on the Syar Industries proposal.

Sincerely,

John M. Cash

Brian C. Petrie

L

June 14, 2010

Sonoma County Permit and Resource Management Department
2550 Ventura Ave.
Santa Rosa,CA. 95403

Attention: Melinda Grosch

Re: the DEIR for the Proposed Syar Alexander Valley Instream Mining Project

Dear Ms. Melinda Grosch,

My husband and I live at [redacted] Lytton Station Rd., Geyserville, Calif. 95441. We are on the proposed Haul Route 2, whereby gravel trucks will go from one of many gravel bars to Hassett Lane, to Lytton Station Rd., to Lytton Springs Rd. and then to Hwy. 101 and vice versa. We have lived in Sonoma County for 35 years, but it was only in December of 2009, that we moved into our home on Lytton Station. We chose this location because of its rural nature, peace, and tranquility. It was not disclosed to us that it had been designated as a possible gravel truck route. When we received notice of the completion of the DEIR we were **shocked**! L-1

There are several areas of concern that we have. They are as follows:

1. We do not think that a "Roadway Level of Service" was addressed where Hasset meets Lytton Station. There is a large amount of traffic on Lytton Station Rd. in the mornings and evenings when people are going to and from work. There would certainly be an impact upon traffic flow on Lytton Station by the introduction of 240 round trips, or 480 single trips of gravel trucks and it needs to be evaluated. L-2

2. We do not think that a "Roadway Level of Service" was analyzed or addressed where our driveway meets Lytton Station. Our driveway is the first driveway on the south-east side of Lytton Station afer the 90 degree turn is made. It is often difficult to safely enter or leave our driveway during the morning and evening hours when people are commuting to and from work. Shortly after we moved to our home, I contacted the public works dept. and asked that they address this problem. We thought that a reduction in the speed limit would help, but this has not occurred as yet. There would certainly be an impact upon our ability to **safely enter or exit** our driveway with the addition of 480 gravel trucks per day! It is impossible to mitigate this issue even if the gravel trucks reduce their speed somewhat as proposed in the mitigation! The chances of being in an accident as we, our family, and or guests enter or leave our property, is almost certain. L-3

3. What type, if any historical collision data was collected on
   A. the Hasset to Lytton Station intersection? and
   B. the 90 degree angle turn on Lytton Station? L-4

(In the short amount of time that my husband and I have lived here there has already been 1 accident and several close calls. Drivers often take the curve too quickly and stray into the opposite lane. It is essentially a blind curve and that makes the situation even worse). As stated in section 2 above, the chances of additional accidents occurring on this curve as the result of the introduction of the gravel trucks is greatly increased! L-4

4. The draft EIR mentions a mitigation measure for the 90 degree angle turn on Lytton Station. In section 3.6-3.c it states that the road would have to be widened by Syar obtaining a Right of Way onto our property & removing trees. As current owners of the property, we have not been approached by Syar and we have no desire to issue them a right of way. We bought our property in large part because of the beautiful large trees and the privacy they afford. As stated in the EIR, if mitigation can not be accomplished by obtaining a right of way, the traffic impacts would be significant! To put it simply, it will not be a viable travel route for the gravel trucks! L-5

5. As noted in sections 3.6-4, the road condition on Hasset is poor with a bridge that is old and unstable. Lytton Station Rd. is in only fair condition. Furthermore, neither road is very wide. Currently, it is dangerous to walk, bike or ride a horse on Lytton Station. In spite of that fact, it still remains a favorite route for the above recreational activities. Even if these two roads are improved with a layer of asphalt, gravel trucks going back in forth in each direction will surely lead to a large increase in pedestrian, biking, & equestrian accidents and fatalities. L-6

6. **Our home, and my husband and I** are the **noise sensitive receptors** on Route 2: We were not approached by anyone doing an acoustical analysis. Nonetheless, in section 3.9-3, it is stated that acoustical studies were performed and the results indicated that haul trucks will expose the existing sensitive receptors on route 2 to significant increases in traffic noise. "Noise that will exceed the standard exterior threshold." Quite frankly, that is quite an understatement! Prior to our moving to Lytton Station, my husband and I and our three daughters lived on Windsor River Road in Windsor, CA. For about 10 years we were subjected to the "increase in traffic noise" generated by the almost constant traveling of gravel trucks on Windsor River Rd. The constant rumbling was unnerving & many times I would describe that noise as statistically significantly unpleasant and downright unhealthy! Furthermore, since we enjoy spending much of our days outside, mitigation measures such as double pane windows, while helping to dampen the noise indoors, will do nothing to dampen the noise outdoors. In addition, we like to sleep with our windows open so we can enjoy the sounds of nature and feel the gentle breezes. Can you imagine being awakened every weekday morning at 6:00 a.m. to the sound of gravel trucks on the move, six months out of the year from June through November, and then not having that noise cease until 9:30 p.m? Once in a lifetime for 10 years was enough! We did not have this in mind to experience again, especially during our retirement years! L-7

7. Was the dust that will be generated from the gravel trucks addressed in this EIR? We do not think so. The levels of dust created by the sheer magnitude and number of gravel trucks using Lytton Station Rd. daily will be quite high. We know this from past experience, and it will be impossible to be mitigated. I have existing allergy problems. This dust will only exacerbate my symptoms and make my daily life very uncomfortable. L-8

8. Was the economic impact to our property ever evaluated in this EIR? We think not. We have a very large economic investment in our home. The proposed running of gravel trucks for several years will certainly decrease the value of our home. There is no proposed mitigation measures for this certain eventuality. L-9

9. We realize that gravel is an important and necessary commodity in Sonoma County. It is important for Sonoma County's growth and for its economic health. But, should it be at the expense of the health, happiness, economic health of its individual citizens? We certainly hope that this will not be the case. We therefore respectfully request that if this EIR is approved, that proposed Route 2 be eliminated and that (1) Syar be required to construct a private haul road that will not impact any personal property owners without their consent, or (2) that Route 3 be used for the gravel trucks instead of Route 2, if all those who will be affected on Route 3 agree. L-10

Sincerely Yours,

Deborah and Michael Bailey
[redacted]

M

Chris Seppeler

From: Melinda Grosch
Sent: Thursday, June 17, 2010 5:10 PM
To: Chris Seppeler; Jeffrey Brax
Subject: FW: Hall Route 2

Another one.

Melinda G.

From: Jacqui Bailey [mailto:[redacted]]
Sent: Thursday, June 17, 2010 4:56 PM
To: Melinda Grosch
Subject: Hall Route 2

Dear Ms. Grosch,
My Husband and I live at [redacted] Lytton Station Road., Geyserville, Ca. 95441, along the proposed Hall Route 2, and I just wanted to write in to express my concern over this route.
As a child, I lived along a gravel route in Windsor and am well aware of not only the noise they can produce, but, dust, traffic, disturbance of peace to one lifestyle, as well as safety issues they can pose for little ones (as I was once one - try crossing a street whether on a bike with friends or walking with neighbors it is difficult to feel safe when you have these huge semi's barreling down on you). My Husband and I plan on one day having children of my own and this is not the future we had in mind for them...240 round trips down Lytton Station Rd, no thank you!
I hope you will reconsider the Hall Route 2, I am sure there is another road the gravel can be transported on, that would be more warmly supported, and infring less on the residing residents.

M-1

Thank you for your consideration in this matter.

Warmest Regards,
Jacqueline Luders

Sonoma County Permit and Resource Management Department

2550 Ventura Ave., Santa Rosa, CA 95403

Attn: Melinda Grosch

N

Proposed Syar Extraction Project 6/11/2010

Dear Melinda

I am a resident in close proximity to where the extraction will take place. I have no interest in any entity aligned with or against the project and nor do I have any conflict of interest other than as a private citizen who resides in Alexander Valley. I have read the EIR documents and seek to understand and comment on what is contained therein.

N-1

While I would prefer no mining, I do not feel this is fair to Syar, the construction industry, or, for that matter, to the interests of progress and free enterprise.

However, many aspects of this project trouble me. In the first place, the project is said to be able to work 5 days a week from 6:00 am to 9:30 pm or "as daylight allows". There is a proposal to also work Saturdays.

I believe this language is dangerously vague as it pertains to setting hourly limits of the work day. I also believe it is too generous in its allowance of the hours that can be worked. 15 plus hours per day for up to 15 years is a onerous amount of time to have the residents –human and otherwise- of the Valley be subjected to.

N-2

My position is that the maximum amount of hours of work should be 8, and none of the hours should be in the early morning or in the evening. The hours of 7 am to 3:30 pm would be more harmonious with people's lifestyles along the river. It should not be forgotten that even at 10 years- instead of the proposed 15- the impact of this project is long term and will drastically alter the quiet enjoyment and lifestyle of the residents of this valley. This is true even if a 8 hour workday is approved.

Parenthetically, I can tell you that a single small tractor on the upper valley floor can be heard amazingly well from houses in The Vineyard's subdivision. It should be understood that the aural impact goes beyond just the residents of the Valley floor. If the 15 hour work day is allowed to stand, at the very least the language should be changed –eliminate the "or as daylight allows" term and specifically disallow any work before sunrise or after sunset.

As far as I can tell, the EIR does not mention the impact on wildlife such long hours would have. Besides the special status species, the plethora of other wildlife that would be impacted is obvious. According to State CEQA quidelines, as seen on page 26, section C, any impediment to wildlife by a project designates that project as having "significant impact". I believe the long hours serve to create a impediment to vital sustenance for the wildlife, and the hours should be reduced.

N-3

To deny, for example, a newly born quail access to the river for 15 hours is a sentence of certain death. It would not even attempt the journey after sunset. There are many other species that would be afflicted.

Many of the proposed gravel transport roads on the river bank travel parallel to the river . The trucks – up to 25 per day- and the mining noise would present a formidable barrier if one is going from the woodlands to the river. Reducing the work day to 8 hours, would help, and I would also like to see aquifers (water stations) set up in strategic locations, whether it's the proposed 15 hours or more beneficial 8 hour work day. N-3

As to Alternative 4, I endorse the exclusion of S-9 and S-10, which are just upriver from the bridge. There are approximately 100 people living adjacent to these bars. There are 9 domiciles on River Road directly adjacent to S-9, so this bar is literally in their backyard.

Others, approximately 10 houses, are on River Lane, situated just across the river from S-9. The noise, dust, and smoke would drastically curtail the lifestyle all the above people have grown accustomed to, and will do so for many years.

S-9 itself at 163,000 tons represents 6520 one way truck loads, at the maximum (as set forth in the EIR) of 25 tons per truck load. S-10 is very large, at more than 400,000 tons or 16,000 one way truck loads. You can double these numbers for the trucks as they have to return empty for the next load. N-4

I personally know of elderly individuals as well as infants that live within the above described confines. The EIR reports that vehicle emissions will be significantly higher than the maximum amount allowed, and this could seriously affect the well being of these individuals. Furthermore, and perhaps to a much greater extent, the people on Hamilton lane in Geyserville would be impacted by the trucks coming from S9 and S10.

There is a sentiment among some people that S-9's and S-10's gravel removal would protect the bridge, and thus should be allowed to proceed. I did not read where the EIR addressed this specifically, and I would like to hear from an expert at the June meeting as to whether or not this is a fact.

Meanwhile, it seems to be the common belief-which has a ring of truth- that gravel removal increases the speed of the current. If so, the extraction of gravel above the bridge would seem to heighten the risk to the bridge as the extraction would serve to send it faster towards the bridge's west side. This west side is already giving way, as seen last winter, and, to me, the extraction of S9 and S10 would only exacerbate this. N-5

On this same subject, downstream of where the old Piombo Brothers site use to be, in between S9 and S10, the river bank is eroding faster, so it seems, for each year that passes. You can view this from the first big curve (if going upriver) on River Road. It has lost 8-10 feet of river bank in the last 3 years.

This part of land serves as an abutment from floodwaters to the houses situated just downriver. Without the abutment, these houses are in serious jeopardy during flooding. I did not see whether the EIR has addressed the impact the inevitable erosion (from faster flows) would have on this particular area.

Lastly, having major mining operations on S-9 within site of the highway and while crossing the bridge is a blight to the eyes and as such would affect tourist's perception of the valley. Together with one's view of the Casino, a perception of "overdeveloped" may prevail and erode the very basis –natural scenic beauty- by which many people come here to visit. N-6

For these reasons, I strongly urge that Alternative 4 be approved.

I also endorse the lowering of total extraction amounts for the entire project, as the EIR alternatively proposes. The Russian River is the only remaining corridor of sanctuary for many species, threatened or not, and all of them are under great human duress with or without the project. The impact on human "receptors" as the EIR likes to call us, is also profound, and I have outlined some of them already. N-7

Some of the old time residents like to speak whimsically of the time when the river would dry up every summer, making the analogy that digging in a now flowing river bed, no matter what the impact, is less damaging than the old days of when there was no water at all. They conclude that even with no water, the overall health of the environment was just fine, so all the current talk of turbidity, harm to wildlife, lack of spawning fish, etc. is, in effect, hogwash.

Yes, but in "those days" you had 100 times less people, 100 times the open space and 100 times more avenues of escape, in contrast to today with super highways, roads, high vineyard fences, dogs, houses, etc. And the salmon and steelhead population was much, much higher, so that one "good" winter, like the last one, would produce an explosion of fish that would sustain the population for years. If the river was "dry" today, with low fish numbers returning, the fish would be extinct soon after. N-8

Moreover, orchards and vegetable farms (as was present in the "old days") are supporting wildlife over the seas of vineyards we have presently. The seasonal dry river analogy used in support of the project is myopic, much to the detriment of common sense.

Finally, the Casino for several years has threatened to start on a major resort upgrade which, if brought to life, will undoubtedly triple the traffic and congestion on our roadways. N-9

This is another reason why the flexible AMS should be incorporated, as this resort is a wild card - pardon the pun- to consider as the gravel project unfolds. N-10

N.a

Sonoma County Permit and Resource Management Department

2550 Ventura Ave., Santa Rosa, CA 95403

Attn: Melinda Grosch

Proposed Syar Extraction Project 6/16/2010

Dear Melinda,

I have some points to make for the record:

1. No extraction from s-9 and s-10 due to the number of people living around these bars N-11
2. 15 hours per day is too long of a period to tolerate the noise and too long for animals to wait for access to the river to obtain water. 7:00 am to 3:30 pm is the most logical work day, and if they have to work Saturday as the only way to get this concession to happen, I will reluctantly endorse this. N-12
3. The language for using Haul Road five if the other haul roads are "not available" is too vague and could potentially send all 100,000 plus truck trips right through the residential corridor on each side of S-9 and S-10. Haul Road 5 cannot be used by the truck up stream of the Geyseville bridge unless some severe occurrence creates this need. N-13
4. Finally, if S-9 and S-10 are approved, they should be done last, year 10 or year 15. N-14

William Bagley

[redacted]

O

STEVEN H. OLIVER

May 26, 2010

Sonoma County
Permit and Resource Management Department
2550 Ventura Avenue
Santa Rosa, CA 95403-2829

Attn: Melinda Grosch

Subject: Syar Alexander Valley Instream Mining Project
Sonoma County, CA

Dear Ms. Grosch,

Thank you for the time and courtesies extended on the phone to me yesterday regarding the subject Draft Environmental Impact Report and Proposed Mining Project. My understanding is much clearer after discussing with you the issues involved in this proposed operation. The most important item that you confirmed for me is that all extractions (i.e., removal of gravel from the river bed via truck and transport) will be taken from the west side of the river to whatever eventual disposition location. There will be no truck support for this operation operated off of River Road north of Highway 128. This is a small rural road in which not only my residence and newly created foundation have frontage, but many of my neighbors. All of us have incredible concerns about trucking operations on this narrow rural road and the inappropriate nature of that if it happened. You have assured me that that's not part of the application and that trucking will be allowed on the west side only. As part of your recommendation to the hearing board, please add this letter to any other public responses so that that board may understand how important this is to all of us who use River Road regularly and rely upon its clear and unimpeded functional use.

O-1

Thank you very much.

Very Truly Yours,

Steven H. Oliver

cc: Stephen McLeod and Marion Faymonville

P

[redacted]

June 3, 2010

Sonoma County Permit and Resource Management Department
2550 Ventura Avenue
Santa Rosa, CA 95403

Attn. Melinda Grosch

Subject: Draft Environmental Impact Report (DEIR) for the Syar Alexander Valley instream mining project, Sonoma County

Dear Ms. Grosch,

We received notice of the DEIR and Sonoma County ARM plan amendments that have been completed for the Syar Alexander Valley instream mining project. Our review of the documents available online indicate that the proposal specifies that all traffic generated by activity on the project, particularly trucks engaged in gravel removal and heavy equipment for infrastructure support will be required to approach and depart directly to and from the west side of the Russian River.

This condition is of particular importance to residents in the vicinity of the [redacted] River Road area of the proposed project. River Road is a small rural road that cannot support trucking operations. Moreover, such use of River Road and the access road opposite the 22375 River Road property that connects it to the Russian River would generate unacceptable levels of noise for residents and guests. P-1

As part of your recommendation to the hearing board, we would request that the condition that trucking activity be restricted to the river's west side is emphasized, so that the board understands the importance of this issue to the residents of River Road.

Sincerely,

Stephen D. McLeod

Marion Faymonville

cc: Steven H. Oliver

RECEIVED
JUN 14 2010
PERMIT AND RESOURCE MANAGEMENT DEPARTMENT
COUNTY OF SONOMA

Q

Karen Waelde
[redacted]
Geyserville, The Vineyard Subdivision / Vineyard Club

Homeowner on the East side of Russian River
Business owner on the West side of Russian River in Downtown Geyserville.

I have lived here in Geyserville for 30 years,
I have enjoyed fishing, kayaking and horseback riding on the Russian River.

I am speaking as ~~I am the~~ President of the Vineyard Valley View Property Owners Association/The Vineyard Subdivision ~~representing~~ over 110 property owners ~~at the very end of River Road which dead ends~~. River Road is our only access to the Geyserville Bridge and Hwy 128. This section of River Road is also the access for an additional 75 taxpayers who rely on River Road.

Q-1

~~When the Geyserville Bridge~~ was taken out in 2006 ~~myself and~~ my ~~neighbors had a 60 mile round trip from~~ home to downtown ~~Geyserville~~. Our carbon footprint was extremely high that year for an event that was preventable. More importantly was the fact that our Geyserville Fire Department and Emergency Services where all on the other side of the river in town. We have many elderly homeowners, which in an emergency that extra time travel for an EMT could mean life or death, it was not comforting. Thankfully the Geyserville Fire Department made arrangements to set up a team on the east side for all homeowners effected.

~~I mentioned that the only access for approximately 200 taxpayers is River Road.~~ The first bend in the road and the edge of the riverbank is now only 137 feet apart. This County road now is in great danger of being washed out by the next heavy rain season. We have watched in the last couple of winters the river eating

away at the bank and a tremendous amount of area that was fish habitat and was a bird habitat destroyed again over something that could have been avoided. There is a Golden Bald Eagle that I watch every morning going to work who is also in danger of losing its home.

Now when this does happen, the road is washed out and we can't get to our homes is the County going to build us a bridge as quickly as CAL TRANS did in 9 months????? ~~I don't think so.~~ That is a different pocket of money. ~~We are lucky when our pot~~ holes are ~~filled on the county road~~!

Let's ~~stop being so narrow minded and~~ Allow a local business help protect our neighbor's property, avoid the potential of River Rd being damaged, The Geyserville Bridge going out again and protect the current fish habitat at SYAR'S EXPENCE. Q-1

Let's use common sense and help keep the river flowing and unblock Gill Creek from years of gravel building so fish can return to spawn again.

It is my understanding that all the gravel will be removed from the Westside of the river, ~~trucks will not be on River Road~~, Will not be crossing the bridge, will not be going into downtown and will not effect any wineries. It is also my understanding that all gravel skimming will only take place during working hours and NOT on weekend or holidays so bike riders and wine tasters will not be affected on their weekends.

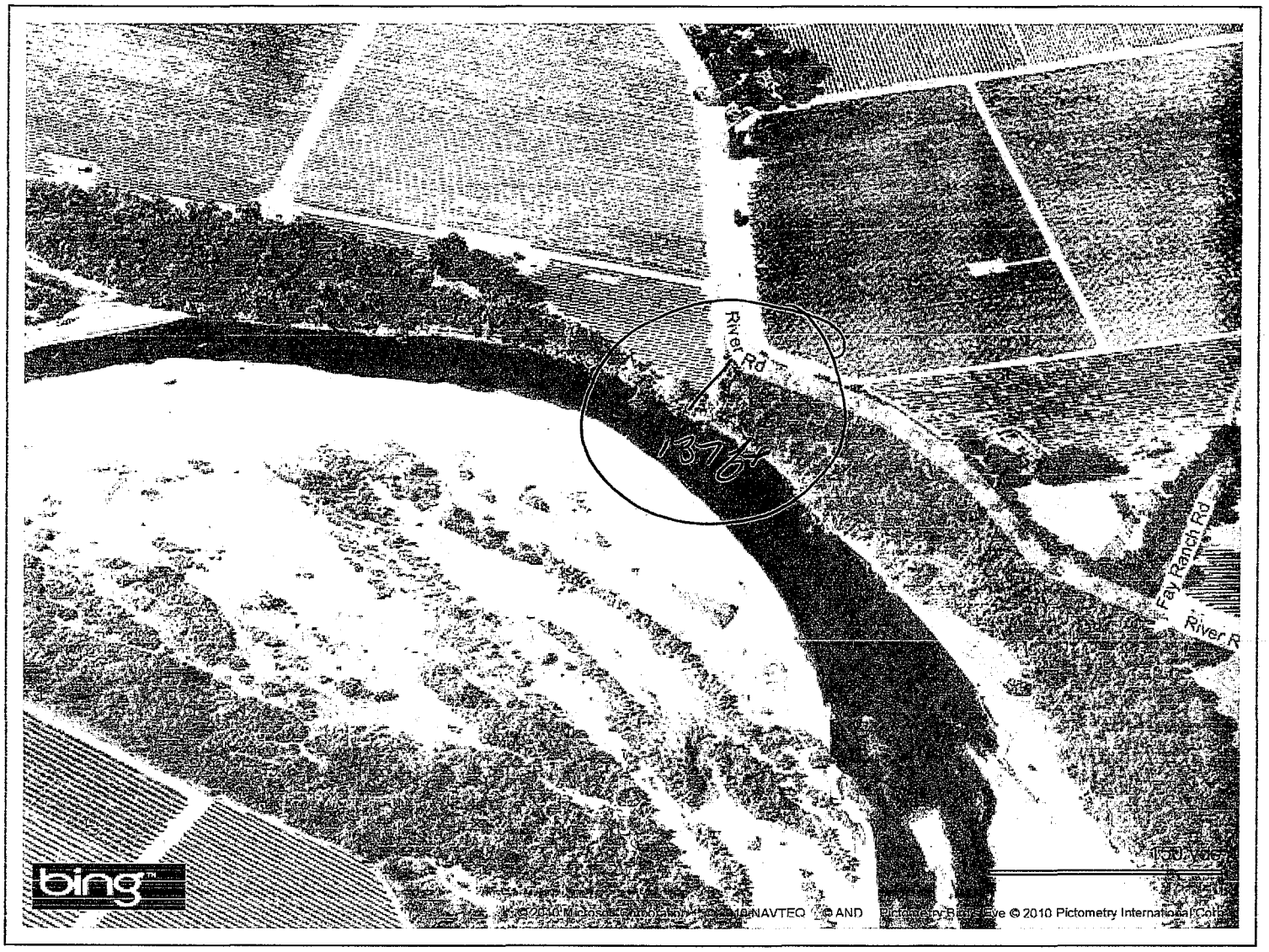
It is with this conscience planning On behalf of the Vineyard Valley View Property Owners I support the Syar Industry's gravel skimming project ~~and I encourage you too~~.

and Vineyard Club

I'd like to provide photos showing the bend in the road and closeness to the river, along with my photo of our neighborhood Bald Eagle. I welcome you to take a drive to Geyserville and see for yourself, look out over the bridge and see just what I am speaking of on River Road and walk down Gill Creek. Q-1

Thank you for your time and consideration.

Mapped Listings Report



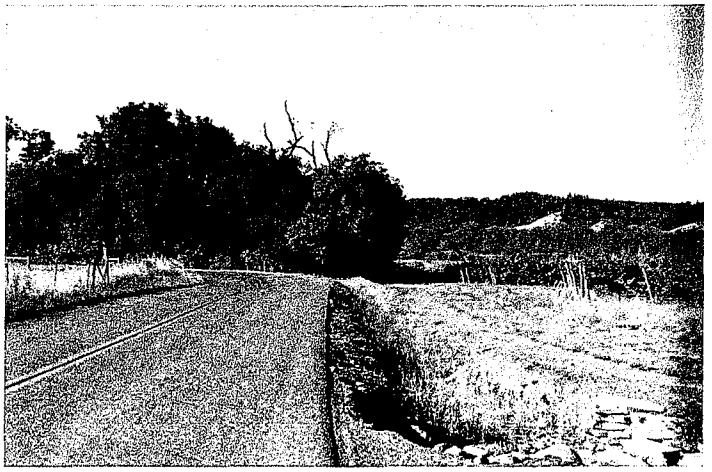
Listings

#	Listing #	Status	Address	City	List/Sell $
1	21012954	Contingent - Show	23278 Vineyard Rd Geyserville, CA 95441	Geyserville	840,000

Brown address listings belong to your company

Presented By: Karen L Waelde Lic:00785915//North County Properties Phone: 707-857-1728 Lic:00785915

River Road, Geyserville



Bald Eagle off River Road, Geyserville

Q.a

Write Message

Send | Save as a draft | Cancel

Email Addresses from Address Book or enter nicknames (separated by commas)

To "Karen" <[redacted]>,

Cc "Barbara Scavullo" <[redacted]>, Show Bcc

Subject PRMD File Number PLP08-0116

Add attachments: Choose File no file selected
(10MB message size limit)

☑ Save a copy to your 'Sent' folder.

Plain Text

Karen: I intended to be at the PRMD meeting on 6/17/10 but can not for medical reasons. I do hope, however, that you are able to express to The Department our full support of the Syar proposed Alexander Valley Instream Mining Project.

We have been Sonoma County taxpayers for 47 years, yes, even when prunes and pears were king instead of grapes. We live in Geyserville and love it here. I am a member of the Geyserville Planning Committee, and have seen many changes in the local environment---none more elemental to our way of life than changes in the Russian River. The River makes this Valley what it is but, as we have seen, with one storm can take back much of what it has given.

We live on the East side of Geyserville and rely on River Road for ingress and egress to our home. That route, you will hear from anyone who depends on it, is about to be taken back by The River and we wonder if the County is prepared to rescue and maintain our entire Community when River Road, indeed, becomes a River? Certainly, a much better solution is removing some of debris that now blocks The River's old channel---this to be done without cost to the County or surrounding property-owners and also, at the same time, will protect our new Geyserville Bridge; the short term viability of which is another pressing channelization problem.

Q.a-1

We remember when Gill Creek was a good fishing stream with Salmon and Steelhead spawning every year. It is now devoid of fish because gravel blocks its outlet. We eagerly await the very positive environmental result that will occur when that blockage is removed so that Steelhead and Salmon can return to their native environment in Gill Creek once again.

Gravel is a fundamental construction material, as you know. Does it make sense to go elsewhere for a commodity so necessary for the growth and well being of the County when it is overly plentiful at our doorstep? We would like to call The Department's attention to the added costs involved in outsourcing this needed material not to mention the environmental damage caused by off-loading from barges or other containers plus long haul trucking.

It appears to us that to protect our safety, our environment and our economic well being it is definitely in the County's best interest to move this proposal forward.

Sincerely, Malcolm & Joan Ross

[redacted]

Send | Save as a draft | Cancel

R

Good afternoon.
My name is Jeff Collins, and I'm the General Manager of Asti Winery in Cloverdale.
In high school, we used to camp out along the Russian River in Healdsburg and Geyserville, and the only river habitat I worried about was having enough brush along the bank to hide us, so we could dive bomb the folks in canoes floating by, in order to turn over their canoes and steal their beer as the cans bobbed down the river.

R-1

As we grow older, sometimes and in some areas, we gain wisdom through knowledge and experience. At one time, I would've said that a sure way to stabilize your riverbank would be through the jacks used by the Corp of Engineers, through old car bodies, or through rip-rap. And indeed, some areas of our bank at Asti are still secured through those jacks and rip-rap, and have held through all these years.

But after a gravel bar started to build up in the late 90's, and began eroding the bank behind the historic Villa Pompeii at Asti, we sought out the help of Evan Engber and his Bioengineering group, and made the decision to do the right thing.
Now, I'll admit that I was somewhat skeptical at first, but in working with Evan and his team, I began to learn, and my perspective began to change. I began to see the bank stabilization as a holistic process, involving the health of the Russian River, fish habitat, and livelihood of the landowner.

In order to stabilize a small portion of our bank, Bioengineering had to re-channel the river, and basically remove a huge gravel bar. They reshaped our bank and restored the fish habitat that was lost to erosion over the 5 years that it took to get the project approved…(and that is another story, but one that is also crucial to address going forward…)

R-2

Through the first year the stabilized bank survived and thrived, and I watched as the willow mattress that had been placed on the bank took root, and felt my anxiety ease as the first winter passed without damaging Bioengineering's work. But then came the second winter, the big flood of 2005. In the course of that one season, and in particular the flood week around the new year, the gravel bar that Bioengineering had removed had returned, and with a vengeance. It has continued to grow each year, and the erosion has returned with it, placing vital parts of our property at risk, including the section that Bioengineering had stabilized.

The fish habitat doesn't lie along the gravel bar, it lies along the bank and in the creeks and streams that join the river. But the gravel bar erodes that habitat, and has forced fish to spawn in our vineyard during the winter, instead of up Crocker Creek across the other side, which now is forced to flow upstream across the gravel bar in order to meet the river. The water has found the low spot; our bank. That's how high the bar has gotten. (Luckily all Asti vineyards are certified as 'fish friendly farmed'.)

R-3

If you are truly a Fan of the River, you would look at the science behind what Syar is proposing both in terms of the hydrology and geomorphology and in terms of how they plan to restore fish habitat, and see that we have an opportunity here for a genuine win-

R-4

win. By sustainably managing these huge gravel bars through skimming the tops down, we will maintain fish habitat along the banks instead of allowing the flows off the bar to erode that habitat; we will keep that fine silt that erodes out of those banks from hurting river health and fish habitat; we will save property and money, both public and private, so that episodes such as the Geyserville bridge don't happen again; we will maintain the beautiful tree-lined banks that folks see as they fish or canoe down the River; we will keep jobs local by having Sonoma County workers bring in the material skimmed from gravel bar management, rather than those jobs taking place in mining work along rivers hundreds of miles to our north; and finally, by sustainably managing these gravel bars, we can avoid the very painful and potentially damaging interventions that will continue to come in the form of emergency re-channeling of the River. In short we will prove that a balance can be found between environmental concerns, land ownership concerns, and business concerns, through true sustainable management of our resources, OUR RUSSIAN RIVER.

Thank you.

R-4

S

Our company, Bioengineering Associates, a State of California Licensed Engineering Contractor has been involved in restoring erosion problems in watersheds since 1982.

We have worked on numerous sites within the Russian River basin with many projects on tributaries to the River and with five large riverbank restoration projects on the mainstem Russian and one on the West Fork. Five of these projects were for wineries with vineyards along the river and one was for a privately held recreation club.

These projects were in Redwood Valley, Asti, Healdsburg and Guerneville with a total of repair work along more than 7000 feet of riverbank. In many cases land loss was as high as hundreds of feet of streambank and riparian terrace along thousands of feet of bank. S-1

In almost every case both in small and mainstem sites the key driving force pushing the erosion problems has been an inside curve gravel bar that especially under drought year conditions has become heavily vegetated and in fact stronger than the opposing streambank which is almost always a silty or sandy loam.

When these bars occupy too much channel space erosion problems on the opposite bank begin and good farm land is lost to the river.

It is clear to us that responsible management of the gravel resource is essential to the health of the river.

T

MUNSELLE VINEYARDS, LLC

3660 Hwy 128
Geyserville, CA 95441
Office: (707) 857-4234
Fax: (707) 857-3199

Set's Copy

March 26, 2008

To Whom It May Concern:

We are writing this letter to give a brief description of the river bank / riparian area that has been lost over the last eight years, just upstream of the Geyserville Bridge. The specific area that I will describe is the ~~west~~ east bank of the Russian River located at 21505 River Road, Geyserville, with Assessor Parcel Numbers 141-190-008 and 141-190-086, also known as the River Ranch. Munselle Vineyards, LLC is the current property owner on record. We have continued to monitor the river banks movement east since we purchased this property in 2004.

Attached with this letter is an aerial photo from the spring of 2000, including our vineyard, the home located on this property, the river, and the gravel bar. We have overlaid our property lines, based on the legal description, as a point of reference. In March of 2008 my father, Bill Munselle, and I took measurements to define the existing river bank. Our measurements are by no means exact or done by a professional, but should give a fairly good representation of the existing river bank. With the help of an engineer we super imposed these measurements onto the same aerial photo. The shaded area shows both the bank in the spring of 2000 and the bank as it is in March of 2008. T-1

Next, we calculated the acreage loss of river bank / riparian habitat that has occurred in the last eight years at our River Ranch. With the help of our engineer we calculated the total acres of this area to be 6.9 acres. We measured the depth of this area, checking at several locations along the bank, to be an average of 13 feet. Taking the surface acreage with and average depth of 13 feet, we came up with 144,716 total cubic yards of soil that have flowed down the river from our location. To look at this from another direction, an average truck and trailer load of soil is 20 cubic yards. This would be approximately 7,235 truck and trailer loads of soil that have flowed down the river from this one location. From the experiences of my Grandfather, Father, and myself this is not an isolated incidence, but rather one that we have witnessed up and down the river channel from the Alexander Valley Bridge to just upstream of the Geyserville Bridge. If siltation of the Russian River is of any concern this needs to be addressed

So far we have only really focused on the loss of land to the encroachment of the river, but the Riparian habitat that no longer exists should be a consideration as well. When we purchased the property in 2004, there was approximately 260-300 feet of Riparian habitat between our vineyard and the river bank. As of March 2008, there is a section

of vineyard 260 feet long that has absolutely no Riparian habitat, with the bank of the river being only 27 feet away from our first vineyard row, at its closest point.

Our hope by writing this letter and describing the degree of loss, over such a short time period, is that we can find a way to stop the this river encroachment and decrease the silt load that enters the Russian River. It seems to us that there should be a reasonable approach, one that would allow us to actively manage these issues in a way that is advantageous to all interests. As it is now we can only watch as the erosion continues to take place. T-1

Sincerely;

Brad Munselle & Bill Munselle

RIVERBANK EXHIBIT

21505 RIVER ROAD
GEYSERVILLE, CA 95441

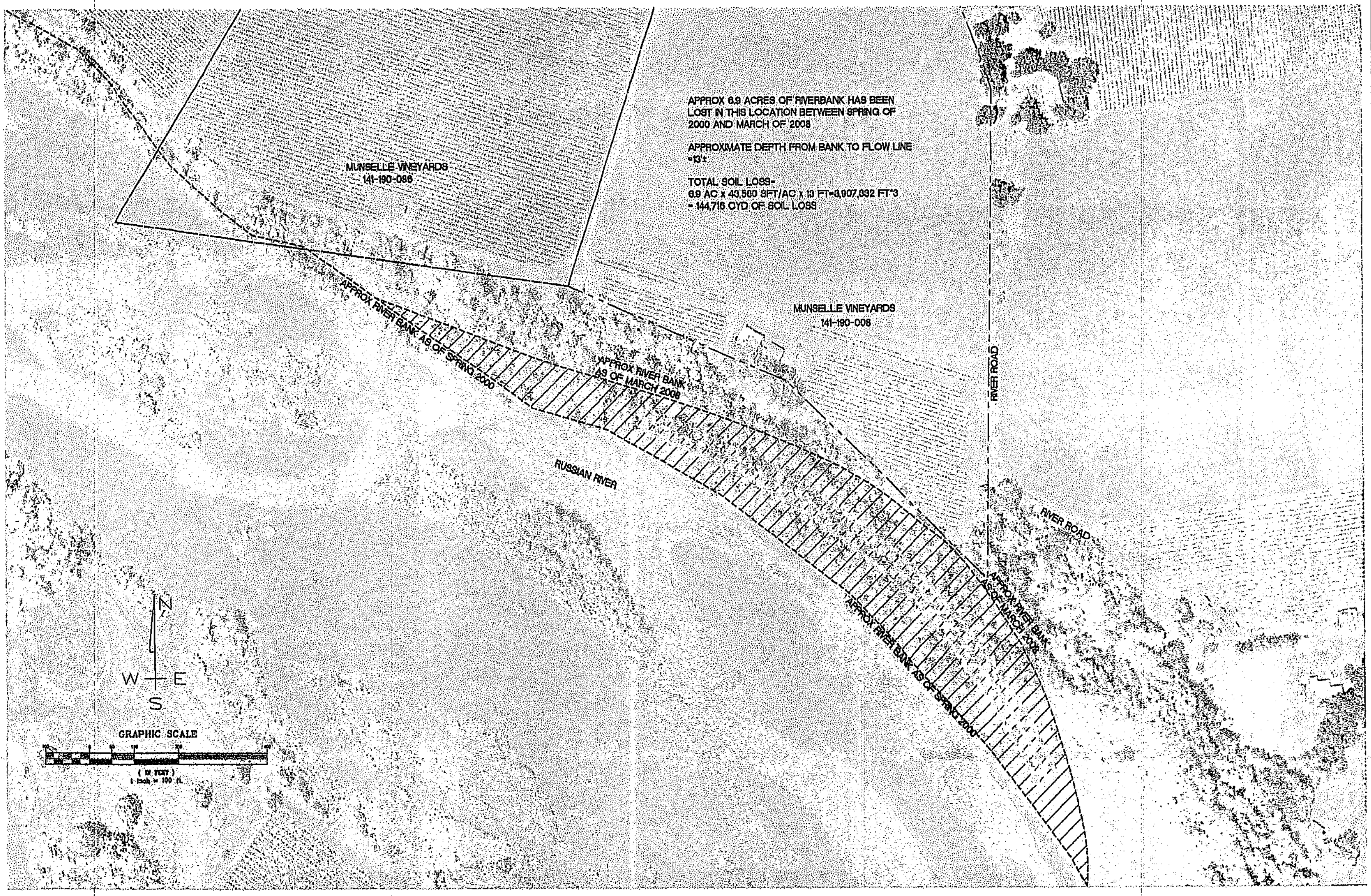


PHOTO BY SONOMA COUNTY SPRING 2000

REVISION	DESCRIPTION	BY	DATE

MUNSELLE CIVIL ENGINEERING
CIVIL ENGINEERING • LAND PLANNING
485 HEALDSBURG AVE
CLOVERDALE, CA 95425
(707) 280-0474

CORT L. MUNSELLE DATE
RCE 05941

RIVERBANK EXHIBIT
21505 RIVER ROAD
GEYSERVILLE, CA

MARCH 2003

JOB NO. 04-07

SHEET NO. 1
1

U

SoCoPRMD, attn; Melinda Grosch
2550 Ventura Ave.
Santa Rosa Ca 95403

Re and subj: PRMD File # PLP08-0116, Alexander Valley Instream Mining Project

Remarks prepared for the 6/17/10 Planning Commission Hearing on this subject.

My name is Wes Brubacher and I'm a 23 year resident of Geyserville. My home is situated such that I have an extensive view of the Russian River, both up- and down-stream from my property which is approximately 3/4 mile upstream from the Geyserville bridge.

Over the years I've lived here I have watched with absolute and utter dismay the allowed build-up of the gravel bars both above and below the Geyserville bridge. This in turn has caused very extensive erosion of the softer soils of the river banks as well as major course changes of the river itself. This is not good for slower reaches of the river downstream of the areas of erosion because of sediment settlement and it's not good for the economy of this County. In the Alexander Valley the land bordering the River is mostly vineyard land. For every acre of land that has gone "down the river" - and there have been many, many hundreds of acres lost this way - it means that that much less land is available to produce a crop which contributes to the economy of the County. U-1

As for the gravel bars, and I want you all to make sure you understand what I'm saying, fish don't spawn on dry gravel bars!! I repeat, fish don't spawn on dry gravel bars!! Additionally, fish don't usually spawn in the main river, they go to the slower water of the tributaries!! If the fish were to spawn in the main river the entire area of the gravel bars would be of absolutely no use to them because the gravel bars would be high and dry. Remember, under present rules the gravel companies are not allowed to take gravel levels down lower than one foot above the "summer low flow" level. This is absolutely ludicrous!! This restriction does nothing to alleviate the problem of bank erosion because by the time the water starts to spread out over the gravel bars it is moving much faster and starting to chew away at the softer bank soils. Equally ludicrous is the notion that working in the river at the gravel bars is going to destroy fish habitat. There is no fish habitat on the gravel bars because as I just said, fish don't spawn on dry gravel bars!! U-2

The only satisfactory way to provide for viable fish habitat in the main river - if the fish were in fact to use the main river for spawning - is to allow gravel removal down to the level of the stream bed. This then would create additional viable habitat.

As a further emphasis on why the gravel bars must be taken down to stream bed level, and maintained at that level, is the damage done to and ultimate replacement of the Geyserville Bridge as a result of the New Years Day 2006 high water. Particularly hard hit were the schools and all emergency services, to say nothing of the additional time and driving - with its resultant 6- to 10-fold increase in vehicle fuel use - required to travel between town and the U-3

east side of the river. But the destruction of the bridge in the high water would never have happened if the huge gravel bar immediately upstream of the bridge had been kept down and the river kept in its proper alignment and approach to the bridge. At the Geyserville Bridge the river has shifted between 500 and 1,000 feet west of where it was 20 years ago. As outlined in my January 2006 "Letter to the Editor" of the Healdsburg Tribune and to CalTrans, and attached here, so long as the river is not returned to a course that has it passing under the bridge at a right angle close to the east end of the bridge, we will continue to experience problems up to and including catastrophic bridge failure. We don't need or want another $11,000,000 bridge replacement bill. And we don't need any more $1,000,000 band-aids for shoring up crumbling and washed away bridge abutments as we saw this past winter. U-3

River control is equally important for those landowners adjacent to the river. Because of the gravel bar build-ups, up and down the Valley, many have seen their protective trees and berms washed away by the ill-directed higher water flows. This has to be stopped and these otherwise natural barriers restored.

The only way we will ever avoid these types of problems and provide for the better health of the River is to allow gravel removal down to stream bed level, I repeat, stream bed level, and the restoration and installation of stream bank barriers against higher water flows!!

If any of you on this committee want to see firsthand what I've talked about let me know and we'll meet at the Geyserville Bridge where I can show you a vivid example of what is happening in the River.

Thank you for allowing me to speak and for your time to listen.

Wes Brubacher
[redacted]

Note - This letter was sent as a "Letter to the Editor" of the Healdsburg Tribune and also to the District Chief Engineer of CalTrans in Oakland.

January 2006

Geyserville Bridge -

The damage to and subsequent closing, for an undefined period of time, of the Highway 128 bridge at Geyserville because of the recent storms was totally unnecessary and happened thanks to all who have blocked the mining of Russian River gravel.

We in the Geyserville area who live/work on the east side of the river and need to access Geyserville on the west side, or vice versa, now have a minimum 26 mile and 50 to 60 minute round trip instead of the 2 miles and five minutes we previously had, with most of the drive over narrow and winding country roads.

Telephone service to all on the east side and natural gas supplies to residences near the schools and the high school/middle school complex are threatened. The school district has been forced to revise class schedules and times because of the requirements of time and distance for busing students back and forth. The Fire Department has a whole new set of problems in order to respond to emergency calls on the east side of the river, including heavy call volumes to the casino, lack of volunteers who live and/or work on the east side and the strategic location of equipment. The CHP, Sheriff's Department and ambulance services are faced with the same response problems.

Bridge piers, such as but not limited to the one that failed at the Geyserville bridge, are not designed to have water impacting them at a severe angle as has been the case with the Geyserville bridge for too many years. Bridge piers are designed to present as streamlined a profile as possible to the water in order to maintain a "slipstream" effect with the water flowing past. Because the monstrous gravel bar was allowed to build up upstream of the bridge the river was forced westward into an unnatural approach to the bridge which has resulted in the water crossing under the bridge at approximately a forty five degree angle, therefore impacting the long side of the piers and creating scouring of the river bed around the piers. In fact the channel of the river was under the fourth and fifth spans of the bridge (counted from the west side) fifteen years ago and perpendicular to the bridge. It now approaches the bridge from well west of the first pier and goes under the first and second spans of the bridge. The continuation of this action will soon affect Highway 128 and River Lane.

Another byproduct of this change in the course of the river has been the chewing away of the west bank for hundreds of yards upstream of the bridge resulting in hundreds of

thousands of yards of soil and debris being washed downstream and further fouling of the river.

The only true solution to the problem is to get the river back into an approach to the bridge that guarantees its flow at the necessary right angle to the bridge and parallel with the piers. This means mining out the huge upstream gravel bar to river depth – not just a foot or two above the low water level - and returning the channel to the east side. It also requires that the channel below the bridge be mined out so it matches up to the restored upstream channel. Along with the realignment of the stream bed a means of maintaining this alignment must also be implemented. If these two items are not accomplished simultaneously it will be wasted money to make any sort of repairs to the bridge as the same scenario will be repeated in years to come.

Those of us who drive over the bridge every day have recognized for many years that we were headed for a catastrophic occurrence at the bridge if the westward migration of the river wasn't stopped. Well the catastrophe has happened. Why haven't CalTrans engineers recognized the problem and said/done something about it??? Are we going to get a band-aid that is doomed to failure or a long term permanent solution???

Remember, what happened at Geyserville can and will eventually happen in other similar situations.

Wes Brubacher
[redacted]

V

So Co. PRMD Attn: Melinda Grosch
2550 Ventura Ave
Santa Rosa, CA 95403

Date: June 17, 2010

Re + Subj. PRMD File # PLP08-0116
Alexander Vly. Instream Mining
Project

Planning Commission Hearing

My name is Johanna Vanoni
My family's ranch has been
owned by us since 1902. We
own one mile of property
in the Russian River 4½ miles
north of the Geyserville Bridge.
We Agree with Karen Waelde's comments! V-1
When this bridge was closed
and rebuilt we experienced
first hand the Long Trip
Through the east part of the
Alexander Valley in order to
travel to Ukiah or Santa Rosa.

We wholeheartedly support Syars plans to harvest Russian River sand & gravel.

We have lived through numerous river floods. We have large sand & gravel deposits in our area which causes the river to zig-zag & cut into vineyards

V-1

Our area experiences many small earthquakes. This loosens soil & rocks. It is a main cause of erosion.

We have a fault line and this ground continually moves down hill. V-2

Every winter this soil moves to our creeks & the Russian River.

Don McInhill stated the removal of gravel from the Russian River will never be a permanent fix.

Maybe not but is the best management tool we have right now.

The Russian River will always transport silt & gravel from its watershed to the ocean. V-3

5 years plans for gravel removal plus fish habitat enhancement needs to be given a chance work.

Thank you.

Johanna Vanoni

Johanna Vanoni

[redacted]

W

Commissioners
PRMD Hearing – Syar Gravel Removal
6/17/2010

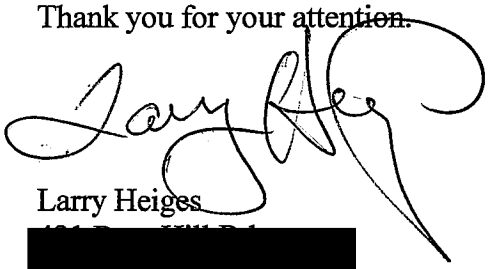
We live across the Geyserville Bridge and suffered through the destruction and rebuilding process. While it went as smoothly as possible, it proved to us that this is a life saving bridge in many ways. We are very dismayed as the current scouring going on right now. It is obvious that this bridge will fail in the near future.

We plead with you to not allow this to happen. Please allow the gravel removal to prevent this.

W-1

I have a medical condition that requires I be closer to a hospital than is allowed if the bridge is out.

Thank you for your attention.



Larry Heiges
[redacted]

JUNE 11, 2010

Re: PRMD FILE NUMBER PLP08-0116

I am writing in support of the DEIR for Syar Alexander Valley Instream Mining Project. I have been observing the Russian River in Geyserville for over fifty years. For twenty years, I have watched the erosion of land adjacent to the river at the Geyserville bridge. It seems obvious that removal of gravel is long overdue. If the gravel operation had not been discontinued years ago, the old bridge would still be standing. As a Sonoma County property taxpayer, I stand in favor of issuing the necessary permits to Syar. X-1

Thank you for your attention.

Richard Trusendi

RICHARD TRUSENDI
[redacted]
[redacted]

Y

RECEIVED
JUN 16 2010
PERMIT AND RESOURCE MANAGEMENT DEPARTMENT
COUNTY OF SONOMA

To Sonoma County PRMD;

I am writing to comment on the proposal to surface mine the Russian River gravel bar proposed by Syar. I was raised in Geyserville and still own property there. When I was young the Army Corps of Engineers excavated the channel to keep it straight and help control floods. Basalt (now Syar) also surfaced mined the gravel bars to remove excess buildup. This needs to be done on a continuing basis to control the river channel. Also when this is done do not leave any willows or other vegetation in the center of the river bed as it causes gravel buildup & changes the channel - the result was the wash out of the previous bridge (which my Dad helped build) and if not corrected is going to wash out Hwy 128. So I am all for surface mining to keep the gravel build up in check.

Y-1

Mike Rose
Healdsburg, Ca.

RE: GRAVEL MINING
ON RUSSIAN RIVER

ROLAND L. OSMON
[redacted]

Z

6-11-10

PLANNING COMMISSION,

I AM TOTALY FOR GRAVEL MINING. I HAVE LIVED ON MY PROPERTY FOR 81 YRS. & I HAVE SEEN THE TAKE OUR LAND LITTLE BY LITTLE, BUT NOT AS BAD AS IT HAS SINCE CORPS & NEMPS GOT INTO THE ALT. I WAS ONE OF 5 CLOVERDALE FLOOD CONTROL DIRECTORS FOR 7 YRS TILL WE TURNED CONTROL TO THE CORPS. 7 YRS LATER WHEN THEY BUILT COYOTE DAM. IN THE TIMES PAST THAT, ABOUT EVERY 4 YRS THE CO. WOULD HAVE A CAT CLEAR THE WILLOW WHIPS OFF THE EDGE OF THE RIVER (THAT KEPT THE RIVER KEELED IN ITS NATURAL CHANNEL. NOW OVER YRS THOSE WHIPS ARE NOW HUGE TREES TRAPING GRAVEL, SAND, & DEBRIS, TO CREATE A NEW CHANNEL FORCEING THE FLOOD WATERS AGAINST OUR BANKS & CUTTING THEM AWAY. THE RIVER BED USED TO HAVE 3 OR 4 RIFFELS, & GRAVEL BOTTOM POOLS BETWEEN. NOW ALL THAT BEHIND OUR PROPERTIES IS ONE BIG MUD HOLE & BANK IS SO HIGH & STEEP YOU CANT GET TO RIVER. ALSO, NOW THAT RIDGE OF GRAVEL ETC. IS AS HIGH AS OUR BANKS. IT IS ALSO THE CAUSE OF THE RIVER BEING KEELED AROUND THE BEND, & DIRECTLY INTO THE CO PARK AT END OF MCCRAY RD, RESULTING IN THE DISTRUCTION OF EDGE OF PARK, & TRAIL & IT WILL DO IT AGAIN UNLESS ITS REMOVED. I WELCOME YOU TO COME VIEW THIS. ITS A DOMINO EFFECT CREATED POLITICS.

Z-1

SINCERLY
Roland L Osmon

AL C^DO [redacted]

AA

Petition to Support Gravel Bar Skimming in the Alexander Valley Reach of the Russian River

The undersigned recognize the importance of in-stream maintenance, including gravel bar skimming, for the purposes of enhancing salmonid habitat, bank stabilization, and flood control particularly in the Alexander Valley reach of the Russian River. The lands immediately adjacent to the Alexander Valley reach are important ecosystems that support riparian life and are the foundation for agriculture activity.

These lands include a landscape that are vital to thousands of acres of prime vineyards, riparian areas and wetlands that support two protected salmonid species. These lands, and the numerous species that rely on these habitats, largely persist today due to the positive agriculture management practices of the farmers that have owned and managed their lands with the commitment to a healthy future for these working landscapes. These lands with their economic and environmental values are critical to Sonoma County.

AA-1

We the undersigned declare that it is our goal to work together to protect and enhance agricultural landscapes in Alexander Valley and enhance habitat for listed Chinook and steelhead trout by supporting strategic and National Marine Fisheries Services (NMFS) recommended skimming techniques in specific reaches of the Russian River in the Alexander Valley.

253 signatures

PC COMMENT

Chris Seppeler

From: Melinda Grosch
Sent: Thursday, June 17, 2010 4:46 PM
To: Chris Seppeler; Jeffrey Brax
Subject: FW: I will be absent for PC today - Syar questions

CC

The only thing Syar related in my inbox today.

Melinda G.

From: Paula Cook [mailto:[redacted]
Sent: Thursday, June 17, 2010 12:56 PM
To: Jennifer Barrett; Melinda Grosch
Cc: Paula Cook
Subject: I will be absent for PC today - Syar questions

Hi Jen and Melinda,

Thanks for your email. I am still ill and unable to be in public, so will not be able to attend today's hearing. I have a few questions on Syar. Because it is so late today, if you can enter them into the record I won't need a staff response today:

For my own clarification, am I correct that the 1994 ARM Plan contemplates projected aggregate demand through 2010, and is there a proposed comprehensive update planned, or is the plan only updated through proposed amendments and triggered by permit applications? CC-1

For the record:

1.Please explain the amendment history of the 1994 ARM Plan: how many amendments to the Plan have been approved by the Board of Supervisors? CC-2

1A.Have other permit term extensions been approved? Denied? If so, how many?

2. Please explain the rationale for the 15-year proposed permit term. Staff Report, page 5, paragraph 2 refers to the 2004 NOAA Fisheries Sediment Removal Guidelines as the basis for the proposed exceptions to the mining standards of the ARM Plan and SMARO. Please explain the 10 versus 15 year permit rationale, and how the NOAA guidelines support this proposed permit term extension. CC-3

2A. If approved, would the 15-year permit term be available to other owners with vested rights not currently mining? Would those with current 10-year permits be eligible to apply for and receive permit term extensions of 15 years?

3. Issue #5 Traffic Circulation: what is the status of the right-of-way on the Lytton Station Curve ? CC-4

4. Issue #10 Hazards and Hazardous Materials" (in light of the BP fiasco in the Gulf of Mexico) has the applicant had any previous reported spills into the RR requiring implementation of the SPFL Plan? CC-5

5. Page 5, Changes to Permit Procedures for the ARM Plan #4: The River Enhancement Plan appears to be extremely positive. I am unclear about the basis of comparison between the amount of the requested fee deferral. Including back fees from the 1990s (not the purview of the PC, I understand) and the costs associated with at least partial implementation of the proposed Enhancement Plan. How might Enhancement Plan activities be affected or modified if a 10-year permit is approved? CC-6 CC-7

Many thanks,
Paula
--

Paula Cook, Executive Director
Community Housing Sonoma County
[redacted]

APPENDIX B

Transcript of June 17, 2010 Public Hearing on the Draft EIR

APPENDIX C

Letters from Project Sponsor Confirming Changes to the Proposed Project

SYAR INDUSTRIES, INC.
2301 NAPA-VALLEJO HWY. • P.O. BOX 2540 • NAPA, CA 94558-0524
PHONE: 707/252-8711 • FAX: 707/224-5932

July 27, 2010

Mr. Chris Seppelar
Sonoma County Permit and Resource Management Department
2550 Ventura Avenue
Santa Rosa, CA 95403-2829

Re: SCH# 2006042101 - Syar's Alexander Valley In-Stream Mining Project – Haul Routes

Dear Mr. Seppelar,

We appreciated the number of comments that have been made on our project and in response to several of them we feel that it would be appropriate to limit the haul routes and eliminate Haul Route #2. Syar Industries, Inc. (Syar) now feels that this haul route should not be used, even though this was the historic haul route for Dewitt Sand and Gravel. The amount of effort to use this haul route and the potential impacts to the citizens in the area does not justify any benefits this route has to the project.

Syar is also willing to agree not to Haul Route #5. Syar would use Haul Route #4 (Banti Lane) instead of using Haul Route #2 and #5 for transporting the gravel from Bars # SD-1, SD-2, SD-4, SD-5, S-4 and S-5. The gravel from these bars would be transported on in-channel gravel bars or land immediately adjacent to the channel on land owned or leased by Syar to Haul Route #4. Instead of using Haul Route #5, Syar would use Haul Route #4 as an Alternative Haul Route in the event that other designated haul routes for the project are not available for all of the other gravel bars. Haul Routes #6, #7 and #8 would remain as alternative routes in the event Haul Route #4 is not available for removal of gravel from the gravel bars north of the Geyserville Bridge. Haul Route #3 would be used as a backup route for Haul Route #4. In our view, if the project is revised to remove these routes, the project would remain fully in the scope of the analysis in the DEIR.

By using the haul routes above and below the town of Geyserville the traffic impacts on the town will be minimized. Since the DEIR has already analyzed the impacts of trucks traveling along the gravel bars in the river to the different haul routes, we feel this proposal to use Haul Route #4 should reduce the impacts and streamline the delivery of the gravel to Syar's Healdsburg processing facility.

Please let me know when we can meet to discuss this proposal further.

Sincerely,

John F. Perry
Vice President, Engineering

cc: James M. Syar
Michael Zischke
Jeff Brax

SYAR INDUSTRIES, INC.

August 23, 2010

Mr. Chris Seppeler
County of Sonoma, Permit and Resource Management Department
2550 Ventura Avenue
Santa Rosa, CA 95403-1103

RE: Alexander Valley Instream Mining Project, Sonoma County, California

Dear Mr. Seppeler,

At the request of the County, this letter is being written to discuss the issue of graveling dirt access roads that are associated with the above reference project. According to the DEIR circulated for this project, the issue of dust generation on access routes has been raised during the Response to Comments. Due to the concerns, Syar has proposed the following change to lessen the impact of dust generation during mining and reclamation activities. The description of graveling access roads is as follows:

Dirt access roads will be improved at the start of the mining season using the following process. The unimproved dirt access road will be used for the initial staging of mining equipment at the gravel bar. During this time, the dirt road will be watered and otherwise maintained to minimize dust. The first loads of aggregate off of the bars being skimmed will be used to gravel the access road for that bar. Gravel will be loaded into haul trucks at the bar being skimmed and hauled to the access road. The gravel will be dumped on the access road and spread using a motor grader and other earth moving equipment to form a gravel road surface of approximately 6 inches in depth. A water truck will be used throughout the gravel road surface construction to minimize dust. While the improved gravel road is used for mining and reclamation operations, the gravel surface of the road will be maintained through regular watering, regular smoothing of the surface and adding additional gravel as needed to maintain adequate gravel depth. When the access road is no longer needed for mining and reclamation activities in that mining season, the gravel will remain in place for future access unless

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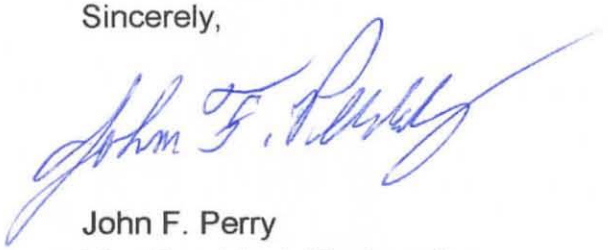
the landowner requests that it be removed. In the event the gravel road surface is removed, wheel loaders and other equipment will load the gravel into haul trucks, which will then haul the gravel to the Healdsburg Plant for processing. Where the gravel road surface remains in place, it will be inspected prior to any future use for mining and reclamation and any work necessary to bring the gravel road surface into a useable condition will be performed at the initial stages of that year's operations.

If there are any questions please do not hesitate to call me at 707-259-5826 or email me at jperry@syar.com.

Sincerely,



John F. Perry
Vice President, Engineering

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APPENDIX D

In-Stream DEIR Fugitive Particulate Matter Emissions from Truck Travel

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality

505 Petaluma Boulevard South
Petaluma, California 94952

Tel: 707-766-7700 *Fax: 707-766-7790*
www.Illingworthrodkin.com *illro@illingworthrodkin.com*

September 1, 2010

Chris Seppeler
Senior Environmental Specialist
Sonoma County Permit and Resource Management Department (PRMD)
2550 Ventura Avenue
Santa Rosa, CA 95403-2829

Subject: In-Stream DEIR Fugitive Particulate Matter Emissions from Truck Travel

Dear Chris:

This letter describes results of an analysis of fugitive dust particulate matter emissions generated by Syar's proposed Alexander Valley Instream Mining Project. Our analysis evaluates information provided in the DEIR and assesses changes in emissions from new information from Syar regarding truck haul route changes and rocking portions of haul routes provided by the County.

This analysis assumed that each year Syar would remove a maximum of 350,000 tons of material. Assuming 25 tons per truck load, a total of 28,000 one-way trips would occur. This analysis assumed 14,000 unloaded and 14,000 loaded trips would occur each year, regardless of which gravel bar was mined.

This analysis calculated fugitive emissions of PM_{10} and $PM_{2.5}$ from quarry truck travel associated with in-stream mining of gravel in and along the Russian River. The calculations were based on equations of fugitive dust travel developed by U.S. EPA, truck travel projections and estimates of truck travel in Geyserville on gravel roads, unpaved haul roads, and paved rural roadways.

Fugitive Dust Emissions Equations

The U.S. EPA Compilation of Emission Factors (AP-42) contains methods for computing fugitive dust emissions from vehicle travel. Equation 1a in Section 13.2.2 was used to develop emission factors for unpaved roads. These include gravel haul roads in the riverbed and haul routes through vineyards that link the riverbed to paved roads accessing the freeway. Equation 1

in Section 13.2.1 was used to develop emission factors for paved roads. Table 1 provides the computed emission factors using the methods described below.

Unpaved Roads

Equation 1a in Section 13.2.2 for unpaved roads is as follows:

$$E = k(s/12)^a*(W/3)^b$$

Where,

E = the emission rate of PM_{10} in pounds per vehicle mile traveled;
k = an empirical constant that is dependent on particle size (0.15 for $PM_{2.5}$ and 1.5 for PM_{10});
s = the silt content of the roadways (4.8% gravel roads and graveled dirt haul roads);
a = an empirical constant that is dependent on particle size (0.9 for $PM_{2.5}$ and PM_{10});
W = the weight of the vehicle (15 tons or 40 tons); and
b = an empirical constant (0.45)

The mean silt content of the unpaved roadway types were based on data published by EPA in AP-42. Syar initially reported a silt content of 1.4%, based on measurements at its Healdsburg plant. However, we used the 4.8% EPA reports for unpaved roads at gravel processing areas since Syar's measurements are based on their gravel product. A silt content of 4.8% was also used to represent graveled haul routes through vineyards. This analysis is conservative: use of the lower silt content reported by Syar would have resulted in substantially lower emission rates.

Syar reports that unloaded vehicles weigh 15 tons and loads are 25 tons. Emission factors were developed for unloaded inbound truck trips (15 tons) and loaded (40 tons) for outbound trips.

Paved Roads

Equation 1 of AP-42, Section 13.2.1 is as follows:

$$E = k(sL/2)^{0.65}*(W/3)^{1.5} - C$$

Where,

E = the emission rate of $PM_{2.5}$ or PM_{10} in pounds per vehicle mile traveled;
k = an empirical constant that is dependent on particle size (0.004 for $PM_{2.5}$ and 0.16 for PM_{10});
sL = silt content of the roadways (0.1 grams per square meter for rural roads);
W = the weight of the vehicle; and
C = Exhaust, break wear and tire wear emission rate (0.00036 lbs $PM_{2.5}$/mile and 0.00047 lbs PM_{10}/mile).

The truck vehicle weight described above was used for this equation. This analysis employed a silt loading factor of 0.100 grams per meter that represents rural type roads.

Note that a natural soil moisture correction was applied to unpaved and paved emission computations. This adjustment factor was based on the number of days with rain between June 1 and November 1, a 153-day period.

Travel Distances

Travel distances were measured using aerial photos and measuring the path lengths along the river bed from the gravel bars to the haul routes. As a worst-case scenario, Haul Route 3 or 4 were assumed to be used for all gravel bars. Haul Route 8 was also assumed to be used for gravel bars S-9 through S-14. Table 2 provides the haul distances used in this analysis.

Mitigation

The DEIR identified Mitigation Measure 3.7-1 to reduce fugitive dust emissions. The primary measures that would reduce dust entrainment from truck travel on these roadways include watering and reduced truck speeds.

The DEIR assumed these measures would reduce emissions by 50%. A minimal 50% reduction is typically considered when basic mitigation measures are applied to construction sites (see BAAQMD CEQA Air Quality Guidelines), but appropriate watering of haul routes and reduced speed can provide greater reductions for ongoing operations. The effectiveness of watering is a function of the amount of water applied, the frequency of water application and the evaporation rate. Watering is effective and can reduce emissions nearly 100% right after application. The effectiveness will decrease following application by a rate of about 5 to 14% per hour. If gravel and haul roads would be kept moist (e.g., watering at least twice daily during full workdays), this would reduce emissions by about 70 to 90 percent. Reducing vehicle speeds below 25 miles per hour would also reduce emissions, but mostly when the effectiveness of watering is lower (i.e., slow vehicle speeds have little effect on very damp roads that have low emissions). The combination of a reasonable watering plan and reduced vehicle speed should provide an overall 75% reduction in fugitive dust PM_{10} emissions.

Emissions Calculations

Tables 3 through 6 provide summaries of worst-case emissions for mining each gravel bar. These calculations assume that mining would occur at one gravel bar each year and 350,000 tons of material would be mined from each bar in one season. Calculations were provided for two scenarios: (1) Haul Routes 3 or 4 and 6/7/8 are used and (2) only Haul Routes 3 or 4 are used. Haul Routes 4 and 8 are presented in Tables 3 through 6 to provide a conservative analysis; Haul Route 3 has the same river access point and unpaved road length as Haul Route 4, and Haul Route 6 and 7 are similar to Haul Route 8 and would generate slightly less emissions. These emissions are also added to other fugitive dust emissions and exhaust emissions.

The DEIR correctly explained that NSCAPCD recommends a 15-ton per year (tpy) significance threshold for PM_{10}. The North Sonoma County Air Pollution Control District has not identified a CEQA significance threshold for $PM_{2.5}$, but the Bay Area Air Quality Management District recently adopted a new CEQA air quality significance threshold of 10 tpy for $PM_{2.5}$. This new

threshold may not be appropriate for use in NSCAPCD; the Bay Area is nonattainment for $PM_{2.5}$ at both the State and national level but the northern Sonoma County is in compliance with both State and national ambient quality standards. Use of the Bay Area's 10 tpy threshold would be conservative for this project. As set forth in Tables 5 and 6, however, the project's annual $PM_{2.5}$ emissions fall well below this threshold and should not be considered significant.

Reduced Impact Alternative

We were requested to identify the amount of mining that could be conducted at each gravel bar without exceeding the 15 tpy threshold. Other than the amount of material mined, this analysis did not consider other possible project changes to reduce emissions (e.g., use of dust suppressants, or paving).

* * *

This concludes our analysis of the fugitive emissions from truck travel during in-stream mining along the Russian River near Geyserville. Please let us know if you have any questions or comments.

Sincerely,

James A. Reyff
Senior Consultant
Illingworth & Rodkin, Inc.

10-109

Attachment:

Tables

Table 1	Fugitive Dust Emission Rates for Truck Travel
Table 2	Haul Distances
Table 3	Fugitive PM_{10} Dust Emissions (Scenario: Haul Routes 4 and 8)
Table 4	Fugitive PM_{10} Dust Emissions (Scenario: Haul Routes 4 only)
Table 5	Fugitive $PM_{2.5}$ Dust Emissions (Scenario: Haul Routes 4 and 8)
Table 6	Fugitive $PM_{2.5}$ Dust Emissions (Scenario: Haul Routes 4 only)
Table 7	Computed Production Limits to Remain Below 15 tpy PM_{10}

Illingworth & Rodkin Bio

Resume of James Reyff

Table 1 Fugitive Dust Emission Rates for Truck Travel

Emission Rate (lbs/VMT):

	Inbound			Outbound		
	Gravel	**Unpaved**	**Paved**	**Gravel**	**Unpaved**	**Paved**
$PM_{2.5}$	0.13	0.13	0.01	0.20	0.20	0.03
PM_{10}	1.29	1.29	0.02	2.01	2.01	0.11

Unpaved Industrial Road*

$$E = k(s/12)^{a} * (W/3)^{b}$$

Where				
k =	0.15	PM2.5 and	1.5	PM10
s =	4.8	% gravel rds	4.8	% graveled haul rds
a =	0.9	PM2.5 and	0.9	PM10
W =	40	loaded	15	unloaded
b =	0.45	PM2.5 and	0.45	PM10

*Using EPA AP-42 (13.2.2) Equation 1a - Unpaved surfaces at Industrial sites

Paved Road**

$$E = k(sL/2)^{0.65} * (W/3)^{1.5} - C$$

Where				
k =	0.004	PM2.5 and	0.016	PM10
sL =	0.1	gm/m2		
W =	40	loaded	15	unloaded
C =	0.00036	PM2.5 and	0.00047	PM10

**Using EPA AP-42 (13.2.1) Equation 1 - Paved Roads

Moisture Correction Factor

		Days w/Rain	Days
0.95	June	1	30
	July	0	31
	August	0	31
	September	1	30
	October	5	31
	Total	7	153

Table 2 Haul Distances

Haul Distances in miles

From County (Syar)				I&R measured					
BAR #*	MILES OF GRAVEL ROADS	MILES UNPAVED	MILES PAVED ROADS**	Unpaved Route	Gravel Route Distance	Unpaved Route	Gravel Route Distance	Unpaved Route distance	Paved Road Distance
SD-1	3.9	0.6	0.07	Route 3/4	2.6	Route 3/4	2.6	0.6	0.2
SD-2	3.6	0.6	0.07	Route 3/4	2.3	Route 3/4	2.3	0.6	0.2
SD-4	1.4	0.6	0.07	Route 3/4	1.4	Route 3/4	1.4	0.6	0.2
SD-5	1.1	0.6	0.07	Route 3/4	1.1	Route 3/4	1.1	0.6	0.2
4	0.7	0.6	0.07	Route 3/4	0.7	Route 3/4	0.7	0.6	0.2
5	0.3	0.6	0.07	Route 3/4	0.4	Route 3/4	0.4	0.6	0.2
6	0.1	0.6	0.07	Route 3/4	0.2	Route 3/4	0.2	0.6	0.2
7	0.7	0.6	0.07	Route 3/4	0.6	Route 3/4	0.6	0.6	0.2
8	1	0.6	0.07	Route 3/4	1	Route 3/4	1	0.6	0.2
91	1.6	0.6	1.1	Route 6/7/8	1.6	Route 3/4	1.5	0.6	1.3
10	1.8	0.6	0.07	Route 6/7/8	1.1	Route 3/4	1.9	0.6	1.3
11	2.2	0.6	0.07	Route 6/7/8	0.9	Route 3/4	2.2	0.6	1.3
12	2.3	0.6	0.07	Route 6/7/8	0.78	Route 3/4	2.3	0.6	1.3
13	2.5	0.6	0.07	Route 6/7/8	0.43	Route 3/4	2.5	0.6	1.3
14	3	0.6	0.07	Route 6/7/8	0.14	Route 3/4	2.9	0.6	1.3
Average	1.7	0.6	0.1	Average	1.1		1.5	0.6	0.6

Table 3 Fugitive PM_{10} Dust Emissions (Scenario: Haul Routes 4 and 8)

Scenario: Haul Routes 4 and 8

		Unmitigated PM10 Emissions (tpy)*								
		Inbound Trips			Outbound Trips					Mitigated***
Bar No.	via Haul Route	Unpaved Gravel	Unpaved Haul	Paved Local	Unpaved Gravel	Unpaved Haul	Paved Local	Total**	Significance Threshold	Total**
SD-1	4	23.7	5.4	0.0	36.8	8.5	0.1	75.3	15.0	**19.6**
SD-2	4	20.7	5.4	0.0	32.1	8.5	0.1	67.7	15.0	**17.7**
SD-4	4	12.2	5.4	0.0	19.0	8.5	0.1	46.1	15.0	12.3
SD-5	4	9.5	5.4	0.0	14.8	8.5	0.1	39.2	15.0	10.5
S-4	4	6.1	5.4	0.0	9.4	8.5	0.1	30.4	15.0	8.3
S-5	4	3.2	5.4	0.0	4.9	8.5	0.1	23.0	15.0	6.5
S-6	4	1.4	5.4	0.0	2.1	8.5	0.1	18.3	15.0	5.3
S-7	4	5.6	5.4	0.0	8.7	8.5	0.1	29.2	15.0	8.0
S-8	4	9.1	5.4	0.0	14.1	8.5	0.1	38.0	15.0	10.2
S-9	8	14.5	5.4	0.2	22.5	8.5	1.0	52.9	15.0	14.7
S-10	8	10.0	5.4	0.2	15.5	8.5	1.0	41.3	15.0	11.8
S-11	8	8.2	5.4	0.2	12.7	8.5	1.0	36.7	15.0	10.7
S-12	8	7.1	5.4	0.2	11.0	8.5	1.0	33.9	15.0	10.0
S-13	8	3.9	5.4	0.2	6.1	8.5	1.0	25.8	15.0	7.9
S-14	8	1.3	5.4	0.2	2.0	8.5	1.0	19.1	15.0	6.3
							Average:	38.5		10.7

* Assuming 28,000 one-way truck trips that is based upon 350,000 tons of material mined annually and 25 tons per outbound haul trip.

**Includes 0.8 tons from other fugitive and exhaust emissions (see Table 3.7-4 and Appendix H of the DEIR). Approximately 0.6 tpy from handling, storage and wind erosion of material, while 0.2 tpy from equipment and truck exhaust.

*** Assuming 75% reduction due to mitigation measures. Adequate watering would provide over 90% reduction immediately, but will decrease at a rate of up to 14% per hour in dry conditions. So watering should occur twice daily during a full day. Reduced speed (less than 25 mph) would also reduce emissions.

Table 4 Fugitive PM_{10} Dust Emissions (Scenario: Haul Route 4 only)

Scenario: Haul Route 4 only

		Unmitigated PM10 Emissions (tpy)*								
		Inbound Trips			Outbound Trips					Mitigated***
Bar No.	via Haul Route	Unpaved Gravel	Unpaved Haul	Paved Local	Unpaved Gravel	Unpaved Haul	Paved Local	Total**	Significance Threshold	Total**
SD-1	4	23.7	5.4	0.0	36.8	8.5	0.1	75.3	15.0	**19.6**
SD-2	4	20.7	5.4	0.0	32.1	8.5	0.1	67.7	15.0	**17.7**
SD-4	4	12.2	5.4	0.0	19.0	8.5	0.1	46.1	15.0	12.3
SD-5	4	9.5	5.4	0.0	14.8	8.5	0.1	39.2	15.0	10.5
S-4	4	6.1	5.4	0.0	9.4	8.5	0.1	30.4	15.0	8.3
S-5	4	3.2	5.4	0.0	4.9	8.5	0.1	23.0	15.0	6.5
S-6	4	1.4	5.4	0.0	2.1	8.5	0.1	18.3	15.0	5.3
S-7	4	5.6	5.4	0.0	8.7	8.5	0.1	29.2	15.0	8.0
S-8	4	9.1	5.4	0.0	14.1	8.5	0.1	38.0	15.0	10.2
S-9	4	13.6	5.4	0.0	21.1	8.5	0.1	49.6	15.0	13.1
S-10	4	17.2	5.4	0.0	26.8	8.5	0.1	58.9	15.0	**15.5**
S-11	4	19.9	5.4	0.0	31.0	8.5	0.1	65.8	15.0	**17.2**
S-12	4	20.8	5.4	0.0	32.4	8.5	0.1	68.1	15.0	**17.8**
S-13	4	22.7	5.4	0.0	35.2	8.5	0.1	72.8	15.0	**18.9**
S-14	4	26.3	5.4	0.0	40.9	8.5	0.1	82.0	15.0	**21.2**
							Average:	51.0		13.5

* Assuming 28,000 one-way truck trips that is based upon 350,000 tons of material mined annually and 25 tons per outbound haul trip.

**Includes 0.8 tons from other fugitive and exhaust emissions (see Table 3.7-4 and Appendix H of the DEIR). Approximately 0.6 tpy from handling, storage and wind erosion of material, while 0.2 tpy from equipment and truck exhaust.

*** Assuming 75% reduction due to mitigation measures. Adequate watering would provide over 90% reduction immediately, but will decrease at a rate of up to 14% per hour in dry conditions. So watering should occur twice daily during a full day. Reduced speed (less than 25 mph) would also reduce emissions.

Table 5 Fugitive $PM_{2.5}$ Dust Emissions (Scenario: Haul Routes 4 and 8)

Scenario: Haul Routes 4 and 8

		Unmitigated PM2.5 Emissions (tpy)*								
		Inbound Trips			Outbound Trips					Mitigated***
Bar No.	via Haul Route	Unpaved Gravel	Unpaved Haul	Paved Local	Unpaved Gravel	Unpaved Haul	Paved Local	Total**	Significance Threshold	Total**
SD-1	4	2.4	0.5	0.0	3.7	0.8	0.0	8.3	10.0	2.7
SD-2	4	2.1	0.5	0.0	3.2	0.8	0.0	7.5	10.0	2.5
SD-4	4	1.2	0.5	0.0	1.9	0.8	0.0	5.4	10.0	2.0
SD-5	4	1.0	0.5	0.0	1.5	0.8	0.0	4.7	10.0	1.8
S-4	4	0.6	0.5	0.0	0.9	0.8	0.0	3.8	10.0	1.6
S-5	4	0.3	0.5	0.0	0.5	0.8	0.0	3.0	10.0	1.4
S-6	4	0.1	0.5	0.0	0.2	0.8	0.0	2.6	10.0	1.3
S-7	4	0.6	0.5	0.0	0.9	0.8	0.0	3.7	10.0	1.6
S-8	4	0.9	0.5	0.0	1.4	0.8	0.0	4.5	10.0	1.8
S-9	8	1.4	0.5	0.1	2.3	0.8	0.2	6.2	10.0	2.4
S-10	8	1.0	0.5	0.1	1.5	0.8	0.2	5.0	10.0	2.1
S-11	8	0.8	0.5	0.1	1.3	0.8	0.2	4.6	10.0	2.0
S-12	8	0.7	0.5	0.1	1.1	0.8	0.2	4.3	10.0	1.9
S-13	8	0.4	0.5	0.1	0.6	0.8	0.2	3.5	10.0	1.7
S-14	8	0.1	0.5	0.1	0.2	0.8	0.2	2.8	10.0	1.5
							Average:	4.7		1.9

* Assuming 28,000 one-way truck trips that is based upon 350,000 tons of material mined annually and 25 tons per outbound haul trip.

**Includes 0.8 tons from other fugitive and exhaust emissions (see Table 3.7-4 and Appendix H of the DEIR). Approximately 0.6 tpy from handling, storage and wind erosion of material, while 0.2 tpy from equipment and truck exhaust.

*** Assuming 75% reduction due to mitigation measures. Adequate watering would provide over 90% reduction immediately, but will decrease at a rate of up to 14% per hour in dry conditions. So watering should occur twice daily during a full day. Reduced speed (less than 25 mph) would also reduce emissions.

Table 6 Fugitive $PM_{2.5}$ Dust Emissions (Scenario: Haul Route 4 only)

Scenario: Haul Route 4 only

		Unmitigated PM2.5 Emissions (tpy)*								
		Inbound Trips			Outbound Trips					Mitigated***
Bar No.	via Haul Route	Unpaved Gravel	Unpaved Haul	Paved Local	Unpaved Gravel	Unpaved Haul	Paved Local	Total**	Significance Threshold	Total**
SD-1	4	2.4	0.5	0.0	3.7	0.8	0.0	8.3	10.0	2.7
SD-2	4	2.1	0.5	0.0	3.2	0.8	0.0	7.5	10.0	2.5
SD-4	4	1.2	0.5	0.0	1.9	0.8	0.0	5.4	10.0	2.0
SD-5	4	1.0	0.5	0.0	1.5	0.8	0.0	4.7	10.0	1.8
S-4	4	0.6	0.5	0.0	0.9	0.8	0.0	3.8	10.0	1.6
S-5	4	0.3	0.5	0.0	0.5	0.8	0.0	3.0	10.0	1.4
S-6	4	0.1	0.5	0.0	0.2	0.8	0.0	2.6	10.0	1.3
S-7	4	0.6	0.5	0.0	0.9	0.8	0.0	3.7	10.0	1.6
S-8	4	0.9	0.5	0.0	1.4	0.8	0.0	4.5	10.0	1.8
S-9	4	1.4	0.5	0.0	2.1	0.8	0.0	5.7	10.0	2.1
S-10	4	1.7	0.5	0.0	2.7	0.8	0.0	6.6	10.0	2.3
S-11	4	2.0	0.5	0.0	3.1	0.8	0.0	7.3	10.0	2.5
S-12	4	2.1	0.5	0.0	3.2	0.8	0.0	7.6	10.0	2.5
S-13	4	2.3	0.5	0.0	3.5	0.8	0.0	8.0	10.0	2.6
S-14	4	2.6	0.5	0.0	4.1	0.8	0.0	8.9	10.0	2.9
							Average:	5.8		2.1

* Assuming 28,000 one-way truck trips that is based upon 350,000 tons of material mined annually and 25 tons per outbound haul trip.

**Includes 0.8 tons from other fugitive and exhaust emissions (see Table 3.7-4 and Appendix H of the DEIR). Approximately 0.6 tpy from handling, storage and wind erosion of material, while 0.2 tpy from equipment and truck exhaust.

*** Assuming 75% reduction due to mitigation measures. Adequate watering would provide over 90% reduction immediately, but will decrease at a rate of up to 14% per hour in dry conditions. So watering should occur twice daily during a full day. Reduced speed (less than 25 mph) would also reduce emissions.

Table 7 Computed Production Limits to Remain Below 15 tpy PM_{10}

Computed production limits to remain under 15 tpy

		Haul Routes 4 & 8		Haul Route 4 only	
Bar No.	Via Haul route	Mitigated PM10 Levels*	Maximum Production to Stay under 15.0 tpy	Mitigated PM10 Levels*	Maximum Production in thousand tons to Stay under 15.0 tpy
SD-1	4	**19.6**	244	**19.6**	244
SD-2	4	**17.7**	288	**17.7**	288
SD-4	4	12.3	--	12.3	--
SD-5	4	10.5	--	10.5	--
S-4	4	8.3	--	8.3	--
S-5	4	6.5	--	6.5	--
S-6	4	5.3	--	5.3	--
S-7	4	8.0	--	8.0	--
S-8	4	10.2	--	10.2	--
S-9	8	14.7	--	13.1	--
S-10	8	11.8	--	**15.5**	339
S-11	8	10.7	--	**17.2**	299
S-12	8	10.0	--	**17.8**	285
S-13	8	7.9	--	**18.9**	258
S-14	8	6.3	--	**21.2**	204

* In tons per year. Includes 0.8 tpy for exhaust and other fugitive sources

Attachment 2
Illingworth & Rodkin Bio

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality
505 Petaluma Boulevard South
Petaluma, California 94952
Tel: 707-766-7700 *Fax: 707-766-7790*
www.Illingworthrodkin.com *illro@illingworthrodkin.com*

AIR QUALITY

In 1995 Illingworth & Rodkin, Inc. was expanded to include air quality and meteorological capabilities. The bulk of the firms' air quality work involves environmental air quality studies that are in support of both private and public projects. Air quality studies for land use projects to support Environmental Impact Reports are most common. Types of projects include specific plans for a variety of land use types, office centers, construction activities, wastewater treatment facilities, waste management facilities, quarries, and other industrial facilities. The firm also assists local communities in developing air quality policies for incorporation into General Plans.

For air quality, many projects involve the analysis of air quality impacts from both direct and indirect sources of air pollutants. Indirect sources include transportation facilities, which Illingworth & Rodkin's staff has considerable experience evaluating. Through years of conducting environmental noise and air quality studies for local, state and federal agencies, the firm has developed considerable experience in dealing with both the technical and policy issues involved with air quality. While transportation projects can involve considerable air quality technical aspects, the regulatory challenges can be quite complex. This is especially true in the case with federal projects, where SIP conformity issues arise. Illingworth & Rodkin Inc.'s staff have dealt successfully with these issues on a wide variety of projects ranging from large new freeway projects to simple urban intersection modifications. Conformity issues can be the largest hurdles for urban projects, especially those that involve federal action. Illingworth & Rodkin, Inc. has the right staff experience to tackle both the technical and regulatory air quality issues in both a quality and cost-effective manner.

The firm also conducts assessments to evaluate the air pathway health risk from common toxic air contaminants. This includes analysis of contaminants and $PM_{2.5}$ from traffic and construction equipment as well as common stationary sources.

Environmental Studies
- Assessments for environmental studies (EIR, IS, EIS, EA)
- Transportation projects
- New residential developments
- Control plans and ordinances
- Ordinance compliance
- Conformity determinations
- Peer Review

Computer Modeling
- Air Pollutant emissions estimation using EMFAC2002, Mobile, AP-42
- Microscale air quality traffic modeling using CALINE4, CAL3QHC
- Stationary air pollution source modeling using EPA-approved models (e.g., SCREEN3 and ISCST)
- Analysis of meteorological data

Field Monitoring
- Aerometrics and Air toxics
- Meteorological conditions
- Fence line monitoring (e.g., particulates)

Attachment 3
Resume of James Reyff

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality

505 Petaluma Boulevard South
Petaluma, California 94952

Tel: 707-766-7700 *Fax: 707-766-7790*
www.Illingworthrodkin.com *illro@illingworthrodkin.com*

JAMES A. REYFF

Mr. Reyff is a Meteorologist with expertise in the areas of air quality and acoustics. His expertise includes meteorology, air quality emissions estimation, transportation/land use air quality studies, air quality field studies, and environmental noise studies. He is familiar with federal, state and local air quality and noise regulations and has developed effective working relationships with many regulatory agencies.

During the past 22 years, Mr. Reyff has prepared Air Quality Technical Reports for over 10 major Caltrans highway projects and conducted over 100 air quality analysis for other land use development projects. These projects included carbon monoxide microscale analyses, the calculation of project emissions (e.g., ozone precursor pollutants, fine particulate matter, and diesel particulate matter), seasonal field monitoring, and preparation of air quality conformity determinations. Mr. Reyff advised decisions of federal and local air quality agencies regarding impact assessment methodologies and air quality conformity issues. He has conducted air quality evaluations for specific plans and General Plan updates. Recently, he prepared the air quality analysis for the NASA Ames Research Park, which included a Federal SIP Conformity analysis.

Mr. Reyff has been responsible for a variety of meteorological and air quality field investigations in support of air permitting and compliance determinations. He has conducted air quality analyses of diesel generators in support of regulatory permitting requirements and environmental compliance issues. Mr. Reyff has designed and implemented meteorological and air quality monitoring programs throughout the Western United States including Alaska. Programs include field investigations to characterize baseline levels of air toxics in rural areas, as well as regulatory air quality and meteorological monitoring. He was the Meteorologist involved in a long-term monitoring program at the Port of Oakland that evaluated meteorological conditions and fine particulate matter concentrations in neighborhoods adjacent to the Port.

Mr. Reyff has conducted over 15 major acoustical technical studies for transportation systems. He has managed several research studies for Caltrans including a noise study that evaluated long-range diffraction and reflection of traffic noise from sound walls under different meteorological conditions. Mr. Reyff has also evaluated noise from power plants, quarries and other industrial facilities. He has also been actively involved in research regarding underwater sound effects from construction on fish.

PROFESSIONAL EXPERIENCE

1995-Present	Illingworth & Rodkin, Inc.
Project Scientist	Petaluma, California
1989-1995	Woodward-Clyde Consultants (URS)
Project Meteorologist	Oakland, California
1988-1989	Oceanroutes (Weather News)
Post Voyage Route Analyst	Sunnyvale, California

EDUCATION

1986 San Francisco State University
B.S., Major: Geoscience (Meteorology)

PROFESSIONAL SOCIETIES

American Meteorological Society
Institute of Noise Control Engineering

AWARDS

FHWA Environmental Excellence Award – 2005
Caltrans Excellence in Transportation, Environment - 2005

APPENDIX E

Results from Implementing New Instream Mining Methods 2003-2009 in Austin Creek, CA

Results from Implementing New Instream Mining Methods 2003-2009 in Austin Creek, CA.

May 5, 2010

Prepared by:

Brian Cluer, Fluvial Geomorphologist,
Thomas Holley, Hydrologist,
NOAA's National Marine Fisheries Service
Science and Technology Program
Habitat Conservation Division
Santa Rosa, CA

with information supplied by:

Homer Canelis,
Austin Creek Materials
Cazadero, CA

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INTRODUCTION

Austin Creek is a major tributary to the Russian River located in western Sonoma County, California. The Austin Creek watershed is 68.7 mi.^{2} with its headwaters in the Coast Range, draining in a southerly direction towards the Russian River. Austin Creek is important habitat for federally listed anadromous salmonids including, Central California Coast Steelhead (Oncorhynchus mykiss), California Coastal Chinook salmon (O. tshawytcsha), and captively reared Coho salmon (O. kisutch) outplanted from the Russian River Coho Salmon Captive Broodstock Program. Physical habitat for these species has been degraded throughout the 20th century due to human economic activity within the watershed. This report focuses on the physical habitat changes resulting from implementing new instream aggregate mining methods within a reach of Austin Creek that extends 1.5 mi. upstream from the confluence with the Russian River.

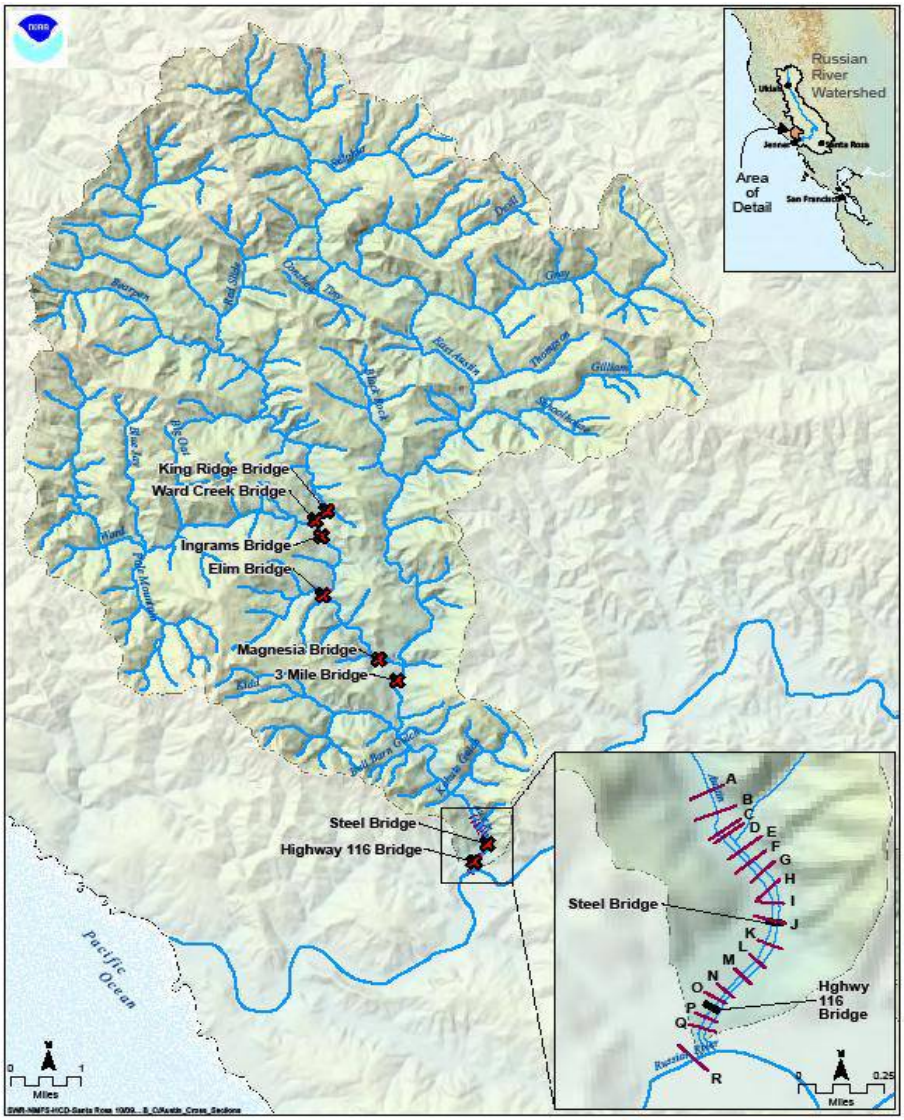

Figure 1. The Austin Creek watershed. Bridge cross-section locations and mining study reach are shown in the inset map, bottom right. Data: CDFG, 2001, Hydrology: CDFG, 2003.

Historic Watershed Disturbances and Changes to Salmonid Habitat

NOAA's National Marine Fisheries Service (NMFS) identified several problems with Austin Creek salmonid habitat that have been exacerbated by past and present watershed management activities. Initial disturbance occurred when the first settlers altered the stream bed for the purposes of a wagon road to travel between Duncans Mills and Cazadero. Mining for chromite and magnesite from 1900 – 1945 was followed by intensive logging practices in the Austin Creek watershed that peaked between 1940-1960 (Marcus 2005). The use of heavy machinery during this time resulted in widespread damage to hill slopes and stream channels. These practices, combined with highly erosive geology and wildfires contributed excessive sediment to the channel that aggraded the bed of Austin Creek (NMFS 2008).

Additional channel bed disturbance resulted from the annual construction of summer dams beginning around 1880 with initially one dam, and expanding to approximately 37 dams during the 1980-90's (Figure 2).

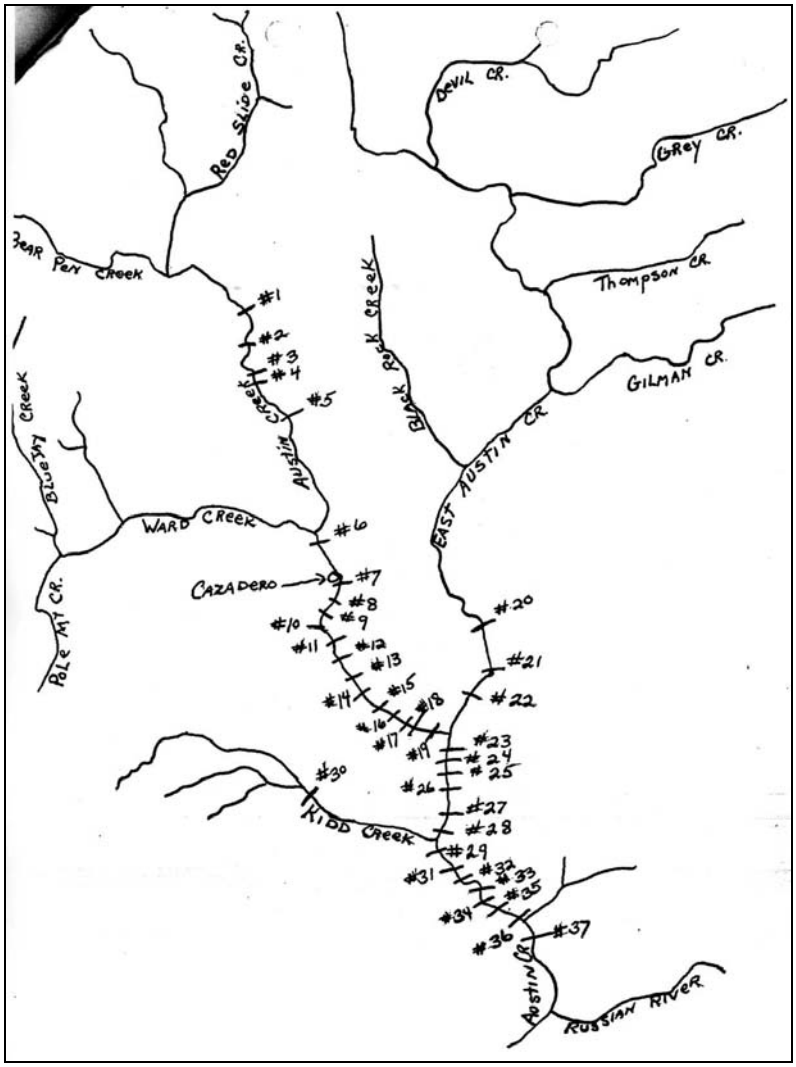

Figure 2. Summer dams in the Austin Creek watershed, 1986. Source: Thes Canelis.

Initial dam construction was by means of hand placement of sand bags and boards. Starting around 1945, tractors were used to excavate the entire width of the channel (Figure 3) to a depth of approximately 3' below the water table (Figure 4). The excavated gravel was used to build a dam across the width of the creek. The impounded body of water was approximately 3 to 4' higher than the normal summer flow which encroached upon the adjacent banks and inundated willow islands upstream of the excavated area. Dam building in the channel destroyed bars and the low flow channel in the vicinity of each dam, and also disrupted the geomorphic processes that form habitat for some additional distance upstream and downstream. The building of annual summer dams ceased in 1996.

Figure 3. Dozer building a summer dam in Austin Creek, ca. 1970. Source: Homer Canelis.

Figure 4. Dozers building a summer dam on Austin Creek, ca. 1970. Source: Homer Canelis.

Figure 5. Matched photographs from Tuorady Dam (#5 on Figure 2). Left photo is ca 1970, right is April 2010. The fruit tree in center right was retained during dam construction, and is still evident today.

With the decline of the timber industry and new forestry regulations, and the cessation of summer dam construction, the channel bed has been slowly recovering since the late 1970's (Figure 5). See Appendix III for detailed cross section data. However, because of the legacy effects of past channel management and logging, the aggraded mouth of Austin Creek has typically gone dry each fall for at least the past 60 years. Fish access at the mouth of Austin Creek was blocked each summer/fall season, and Coho salmon were last recorded in 1996. See figures 6 and 7.

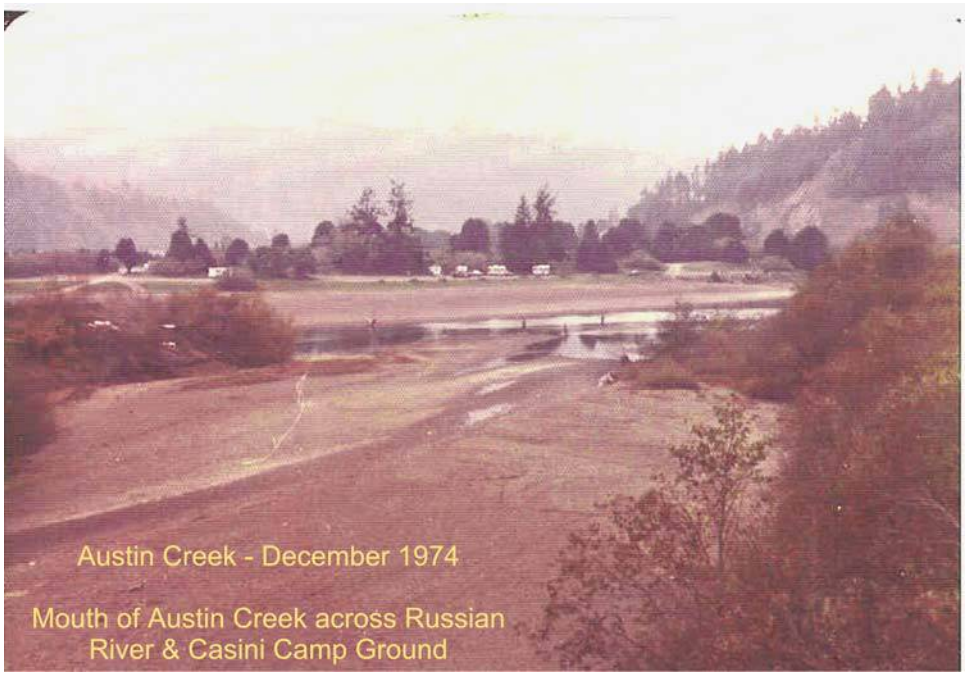

Figure 6. Mouth of Austin Creek looking downstream from the Hwy 116 bridge, in December 1974 showing disconnection from the Russian River, a condition typical for several decades.

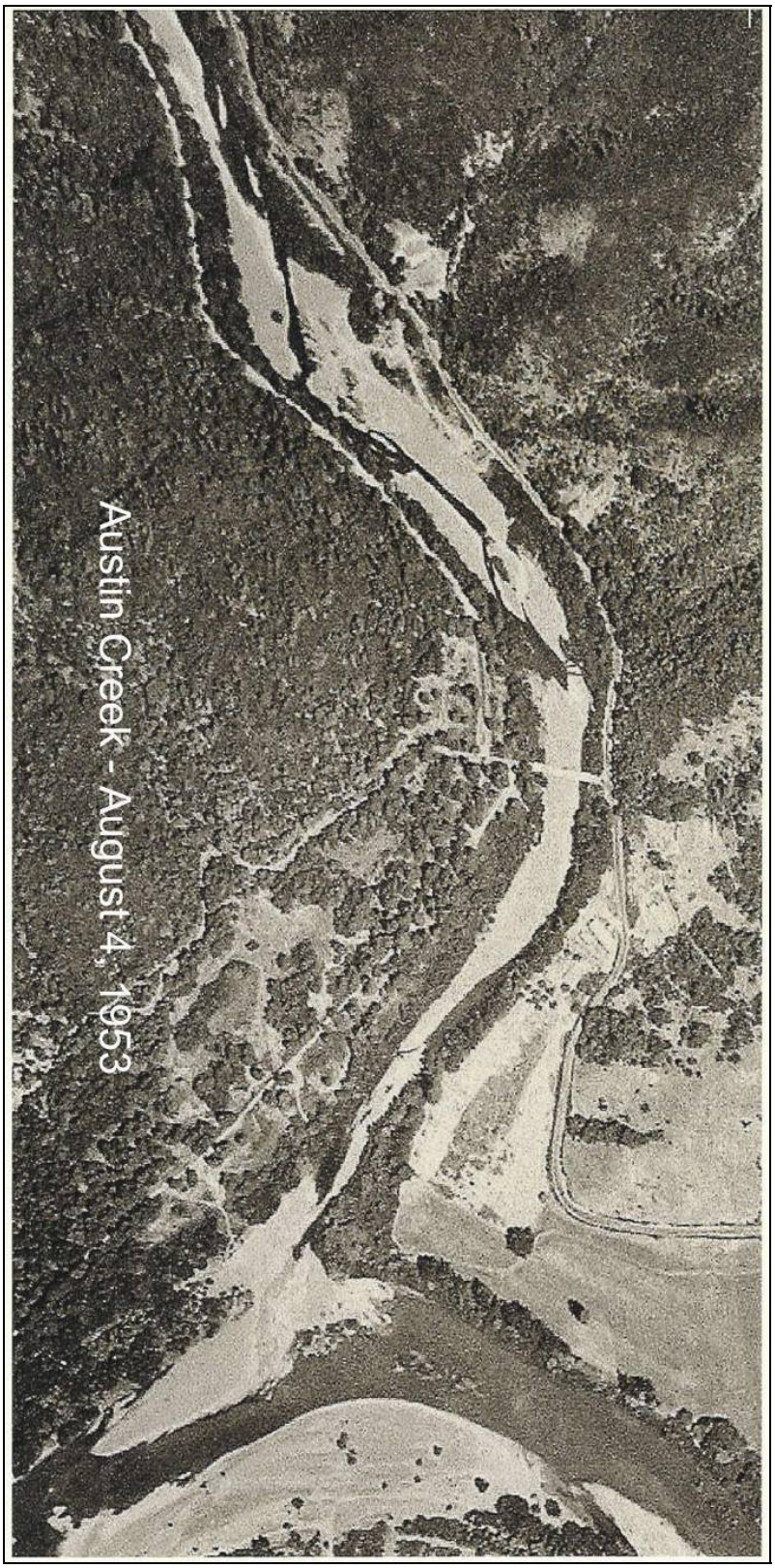

Figure 7. Lower Austin Creek mining reach, showing the aggraded delta at its confluence and hydraulic disconnection with the Russian River. August 1953.

The lower 1.5 miles of Austin Creek have been mined continuously for over 60 years by Bohan and Canelis / Austin Creek Ready Mix, and periodically by early predecessors including the railroad to Cazadero and the Sonoma County Road Department. Since 1949, approximately 1.5 million tons of aggregate material has been mined from lower Austin Creek (detailed record of mining activity available in Appendix I). Instream aggregate mining removed sediment from the channel and was thought by many people to be beneficial. However, mining was following practices that diminished habitat formation and was locally exacerbating aggradation of the channel thalweg, a pervasive problem in the mining reach. For many years prior to NMFS involvement with a Biological Opinion issued in 2002, the standard mining practice was to skim aggregate accumulated in alluvial bars beginning at the low flow channel and extending toward the stream banks at a shallow slope (Figures 8-12). This practice was permitted by the relevant regulatory agencies and was compliant with the Sonoma County Aggregate Resource Management Plan standards.

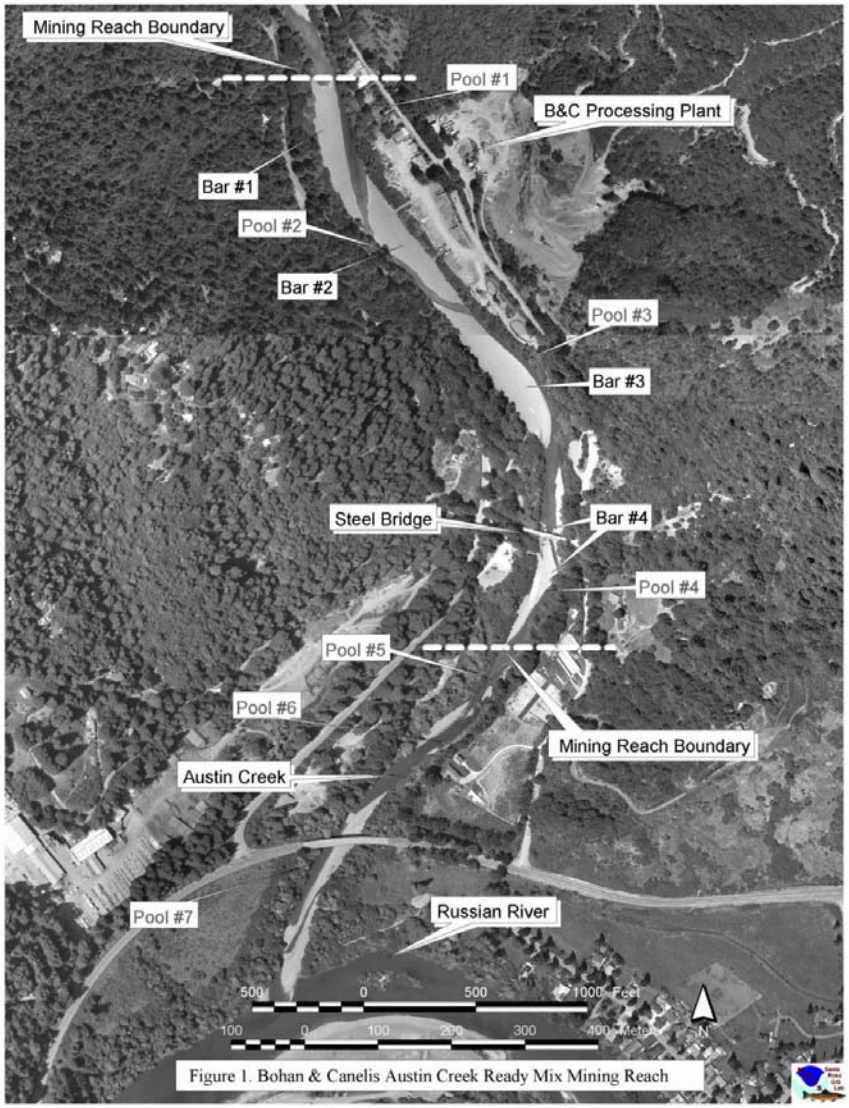

Figure 8. Mining reach site map and feature naming scheme.

To better manage for the geomorphic problems evident within the mining reach of Austin Creek, NMFS recommended changes in mining practices that followed the NMFS's 2004 Southwest Region Sediment Removal Guidelines. The overarching goal of the recommendations in the Sediment Removal Guidelines was to encourage mining practices that retain (or help develop) to the maximum practical extent the geomorphic function of bars. Bars confine the low flow channel, scour and maintain pool habitat, and sort sediment sizes, thereby locally optimizing physical processes that create and maintain fish habitat. Streams with well developed bars and confined low flow channel are more capable of transporting coarse sediment through the reach, and are therefore more resilient to inter annual climatic variation and to watershed disturbances.

Figure 9a. Bar 1, looking upstream. Notice the low relief bar form, broad shallow thalweg, and isolated pool remaining after skimming, November 2002.

Figure 9b. Bar 1 looking downstream. Notice the low relief bar form, broad shallow thalweg, and isolated pool remaining after skimming in November 2002.

Figure 10a. Bar 2 looking downstream. Another example of post bar skimming conditions. Low bar relief and broad shallow thalweg.

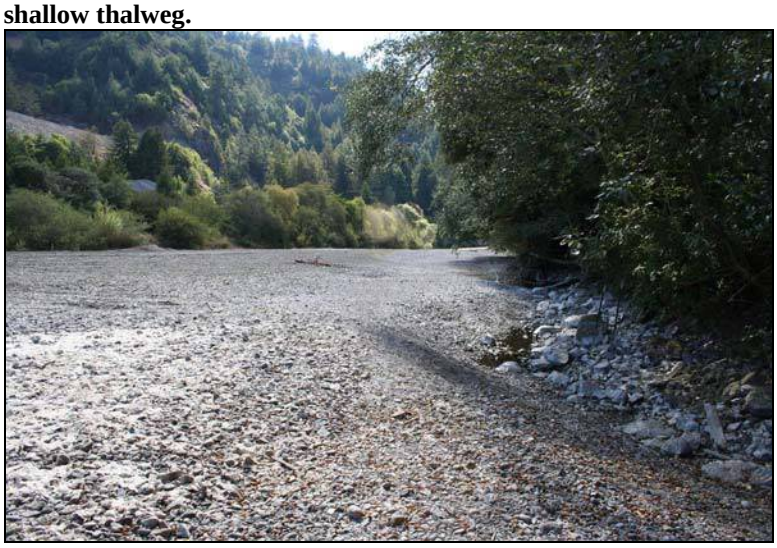

Figure 10b. Bar 2 looking downstream August 31 2007. Close match to above photo, showing improved low flow channel.

Figure 11a. Bar 3 looking downstream. Notice the poor thalweg definition and low bar relief following skimming.

Figure 11b. Bar 3 looking downstream. Close match to above photo, taken on August 31 2007, showing improved thalweg definition.

Figure 12a. The "redwood stump pool" opposite to Bar 2. This was the only pool in the mining reach where scour processes still operated throughout the bar skimming period.

Figure 12b. Bar, post skimming, adjacent to the redwood scour pool.

Austin Creek Mining Plan

Beginning in 2003 the Austin Creek bars were mined by excavating a trench located at the longitudinal crown of bars, parallel to the stream beginning at the high bench elevation, and opening at the downstream end (Figure 13). At some bars the elevation crown develops in the upstream ½ of the bar, at others it develops in the lower ½. The maximum height of bars was retained regardless of the location of the crown. The side buffers were determined by locating the break in slope on the bar top, looking in cross section view, where the low flow channel slope transitions to the bar top surface, and retaining an additional width of at least 25 feet. The bank edge of bars was excavated to within a 2:1 slope of the riparian edge, and in some cases where the banks are resistant to erosion and failure, mining occurred under the riparian canopy. This definition of 'mineable' area resulted in varying outlines of mined areas from year to year. The resulting excavated area was called an alcove. Typically, the downstream ½ of alcoves was excavated about 3-4 feet below the summer water level, the upsteam ½ remaining about 1 foot above the water level. The final alcove opening to the stream was carefully removed after at least a day of time for turbidity to settle.

Figure 13. View looking downstream at Bar #2 showing excavated trench in highest part of bar, well away from the low flow channel on the right. November 2003.

Specific goals for the Austin Creek mining improvement project were to improve habitat using annual excavation and as-needed habitat structure placements (in cooperation with California Fish and Game) to (1) immediately improve upstream passage opportunities for adult coho salmon by excavating a small low flow channel at the mouth that would facilitate fall migration, (2) progressively improve the hydraulic connectivity between Austin Creek and the Russian River through strategic excavations and structure placements to achieve sustainability of the passage channel, (3) protect passage improvements by promoting the natural recovery of bar-form and the associated low flow channel, (4) improve rearing and migration habitat conditions for juvenile and smolt salmonids throughout the mining reach, (5) experiment with a variety of excavation techniques and structures, and (6) adaptively manage mining to optimize habitat on an annual basis.

This report presents the results of implementing new mining methods, in the context of the history of channel changes in the mainstem of Austin Creek upstream from the mining reach.

MONITORING METHODS

Cross Sections at Bridges

Channel cross sections have been measured at bridge crossings in Austin Creek upstream from the mining reach since 1978. The locations of the bridge cross sections is shown in figure 1. Typically, data for bridge cross sections above the mining reach (from King Ridge to 3 Mile Bridge) extend for the years 1978-1984, 2001, and 2008. Bridges within the mining reach (Steel Bridge, and Highway 116) have longer records, generally from 1975-2008. Additional historical cross section data were also taken within the mining reach, labeled 1-5 and A; these can be seen in Figure 14.

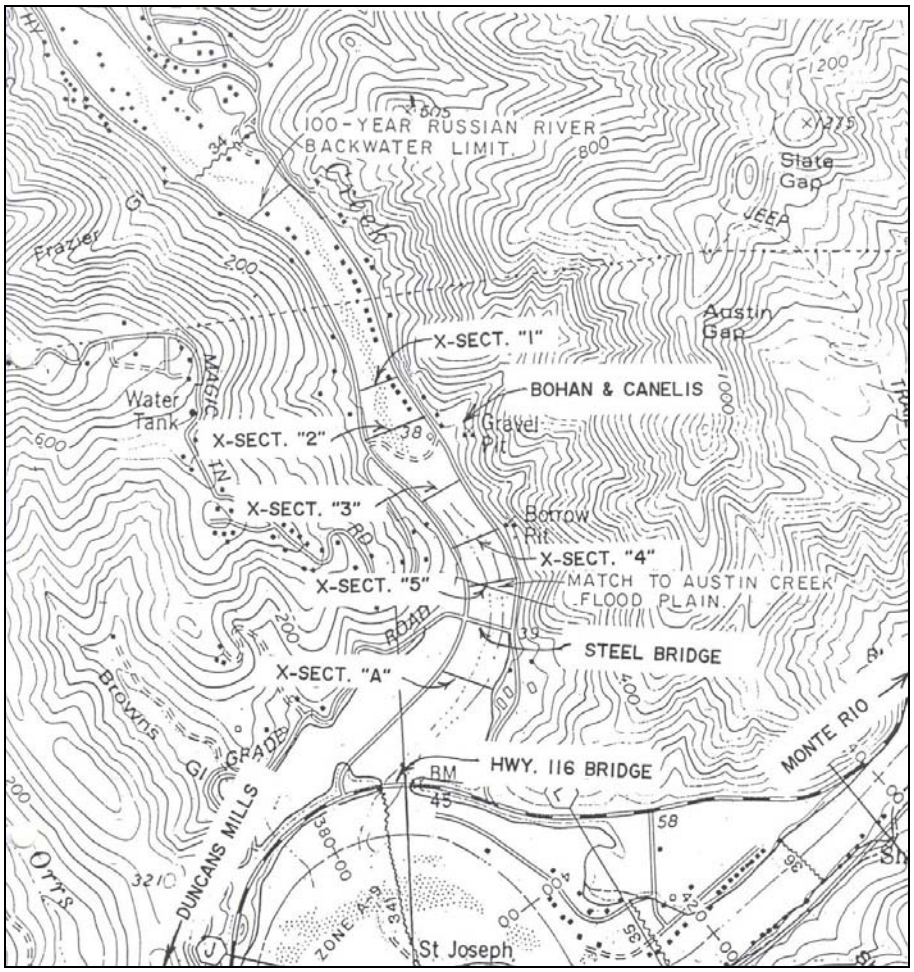

Figure 14. Cross-Sections locations within the mining reach. Cross sections labeled 1, 2, 3, 4, 5, and A were renamed in 2003 to B, C, E, G, H, and K respectively (as seen in figure 1). California Department of Water Resources.

All Cross-Section measurements were taken from left to right, looking downstream. Cross sections consisted of referenced measurements below a benchmarked position on each bridge (not mean sea level) taken during the summer before mining activities.

For each cross section, statistics were calculated to show trends over time. Average vertical distance was calculated by averaging each cross section for each year. Maximum vertical distance is the maximum depth (or thalweg) at each cross section. The Max.-Min. ratio was calculated by dividing the maximum depth by the minimum depth, a simple measure of habitat complexity for each year at each cross section. Limited qualitative assessments of conditions at each cross-section for some years were also provided.

DTM's in the Mining Reach

The responses of the channel to the mining standard changes in the lower 1.5 miles of Austin Creek have been monitored using digital terrain models (DTM's) created before and after mining each year 2003-2009. DTM's represent channel topography in map format, and allow for analysis and comparisons between models. In 2003, GPS and electronic total station (ETS) surveying techniques were used to establish local geodetic control points, to geodetically reference preexisting cross section monuments, and to collect the first year topography of the entire active channel. Since 2004, ETS has been employed to map the channel topography, and monitor locations of placed wood and stone features.

Topographic relief is related to habitat qualities such as pool depth, or vertical relief between pools and bars, and width of the low flow channel and its confinement by bars. The DTM maps (see appendix II) document conditions after the passing of winter storm flows and following mining in 2003-2009. This report summarizes the results of seven years adaptive management and implementation of excavation recommendations outlined in the 2004 NMFS Sediment Removal Guidelines.

RESULTS

The Austin Creek Watershed has undergone a sediment production episode since its settlement by Europeans. This was observed in the stream channels as a wave of deposition. The first major wave of sediment contributed to the channel was from oxen logging and burning techniques in the late 1800's. Railroad and wagon roads continued to provide excess sediment to the channel. Widespread tractor logging began after WWII in the upper watershed. This period of logging with heavy machinery in the mid 20th century contributed the vast majority of sediment that has aggraded the channel.

Past episodes of sediment aggradation and the recent recovery trend of upper and lower Austin Creek are confirmed by anecdotal accounts and historical cross section data. During mining operations, old railroad tracks abandoned in 1933 were found buried beneath 6 feet of gravel (near cross-section 5 in figure 14). Farther upstream, above the

town of Cadazero, Alder stumps were found buried beneath 4-5 feet of gravel. In the 1980's these stumps were exposed and noticeable bed lowering has occurred around them. There has also been evidence of grain sizes increasing in the upstream near Ingram's Bridge reach from 1" to 10" (Bohan and Canelis, 2002).

Channel Changes Upstream From the Mining Reach

Because of the incomplete data set, comparison through time is limited for the cross sections above the mining reach. However, comparison of the morphology in the period of 1978-1984 to 2001 and 2008, shows a clear trend of channel exhumation (See figure 15 and Appendix III).

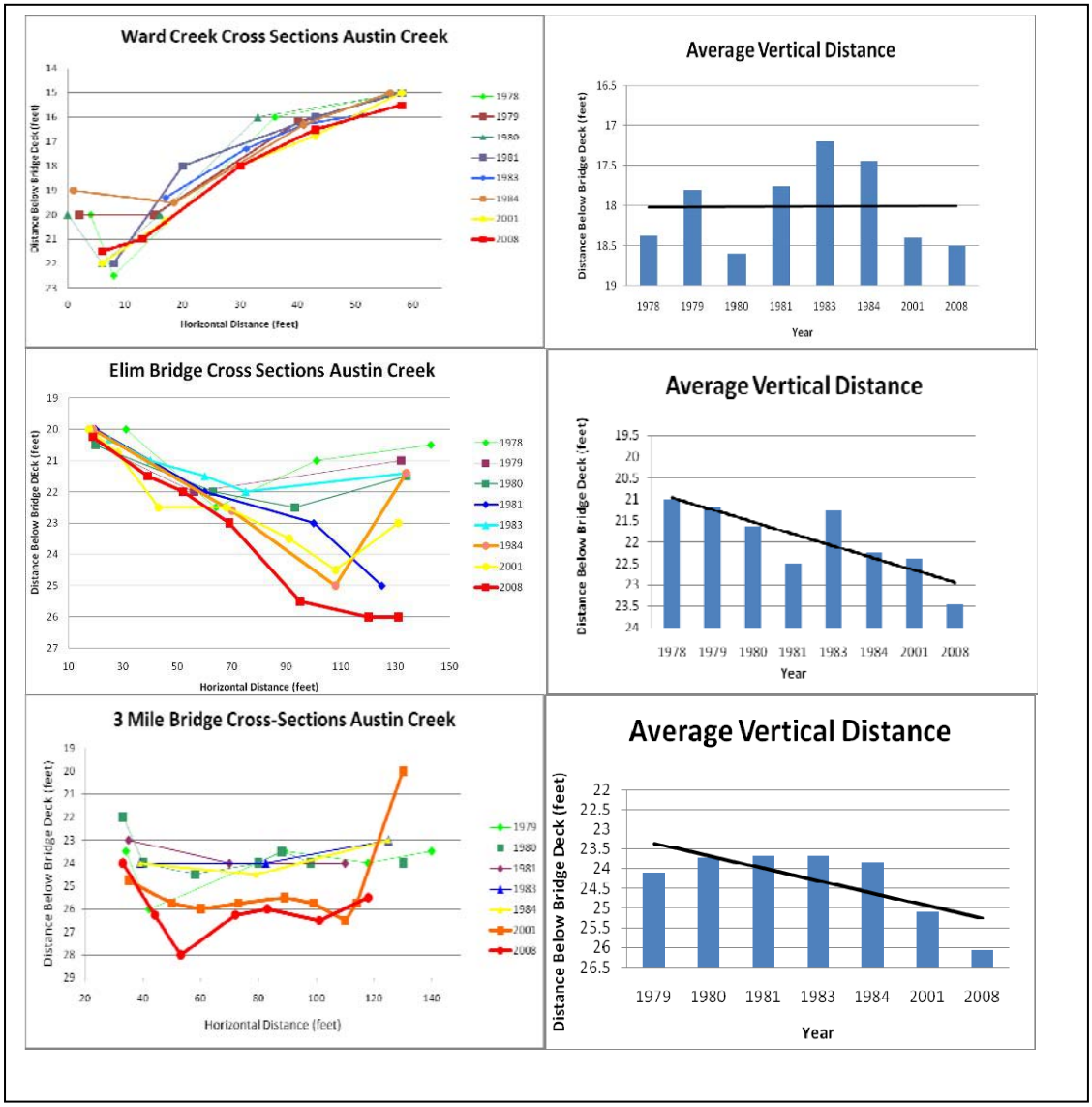

Figure 15. Historical Cross Section data for three bridges upstream from the Austin Creek mining reach. Average vertical distance with trend line shown to the right of each cross section.

In general, the two most upstream cross sections, King Ridge and Ward Creek, showed the least amount of exhumation over this time period, while downstream bridge cross sections showed a stronger trend. This is likely a result of a decreased rate of exhumation, as the majority of the sediment pulse had passed downstream before 1978. Although the channel bed has generally been lowering, habitat complexity, as represented by the max./min. ratio has not generally been improving (Appendix III). One notable exception is Elim Bridge cross section where scour has steadily deepened the thalweg while the bar has remained relatively stationary. The increased scour and sediment sorting at this cross-section is analogous to the processes that have been established within the mining reach.

Changes in the Mining Reach 1975-2002

Cross sections were measured at 2 bridges within the mining reach, Steel Bridge and Hwy 116 Bridge (Figure 16). Generally these data were collected more frequently, usually once every two years starting in 1975. There were also six additional cross-sections taken within the reach labeled stations 1-5 and A, with similar records (Figure 14). The cross sections within the mining reach show the same trend of recent bed lowering as the reach upstream (Figure 16, Appendix III). The channel at Steel Bridge and Hwy.116 Bridge has lowered on average, 3.4 and 2.3 feet respectively, since 1975.

Similarly to the reach upstream, no distinct trend in min./max. depth ratio was found in the mining reach, although a significant downward trend in bed elevation was shown (See appendix III).

Monitoring the channel prior to implementing this program consisted of non-referenced cross sections measured each summer, prior to mining. Geomorphic and habitat conditions resulting from mining were not monitored. Therefore, baseline data do not exist from which to begin comparisons and observations of topographic recovery trends. However, photographs taken in 2002 (figures 9-12) allow for a qualitative assessment of conditions created each fall that early winter salmon migrants would have encountered.

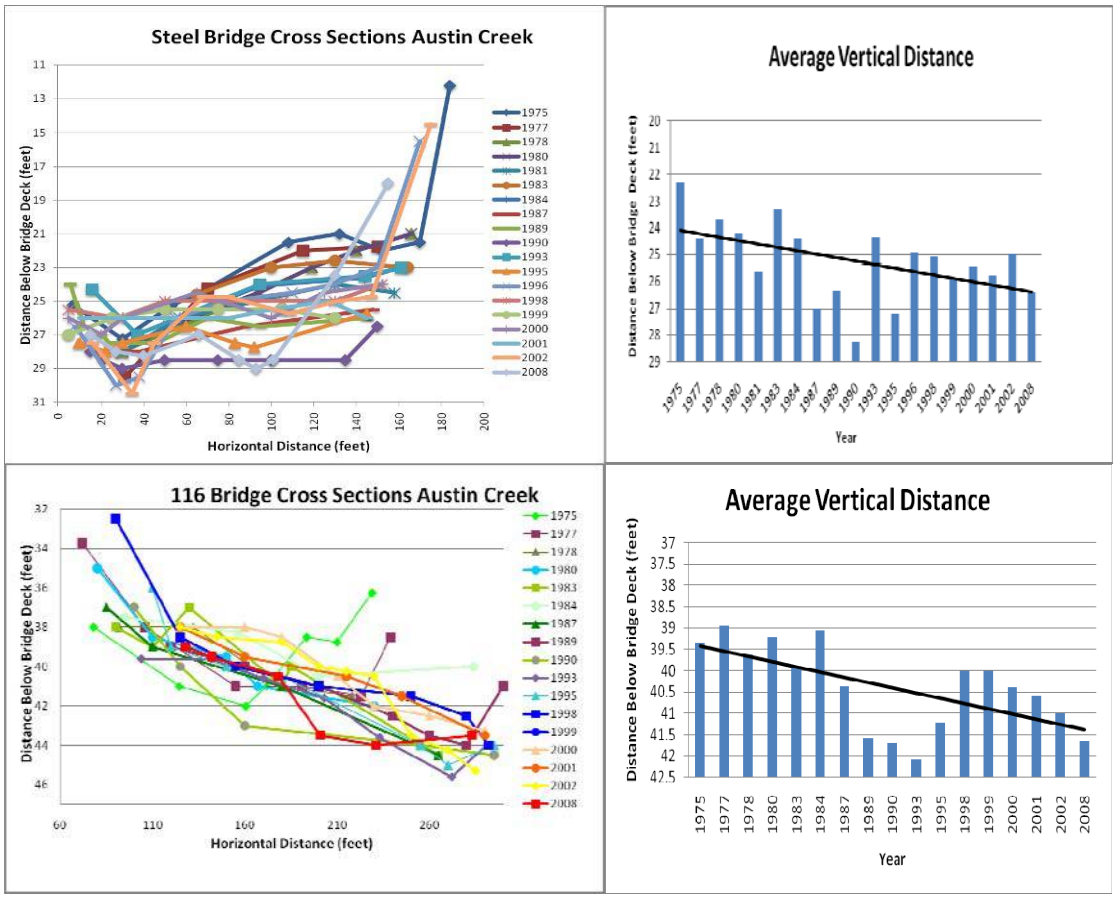

Figure 16. Historical cross section data for two bridges within the Austin Creek mining reach. Average vertical distance with trend line shown to the right of each cross section, confirming exhumation following earlier sediment pulses.

Changes in the Mining Reach Since 2003

Historical observations indicate that the mouth of Austin Creek had perennial flows (personal communication with Bob Schneider). Aggradation of the mouth in the mid-twentieth century from upslope disturbances resulted in the more recent pattern of a seasonally dry channel in the lowermost mile of stream. Although the dry-season water elevation of the Russian River is partially controlled by management of the estuary bar by the Sonoma County Water Agency, perching tributary mouths is a common occurrence when the estuary is drained for flood management. As fall flows recede, the frequency and duration of disconnections increases. In 2005, the mouth of Austin Creek remained hydraulically connected to the Russian River through summer and fall, for the first time in decades (personal communication with Homer Canelis). The hydraulic connection has persisted since 2005 (Figure 17). Analysis of the annual topographic maps (see Appendix I) shows that the connection is due to the progressive increase in depth and volume of the low flow channel in the lowest part of the mining reach from 2003 to 2009 (Figure 18). There was some infilling in the lowest elevations in 2008-2009, but the mouth of Austin Creek has remained hydraulically connected to the Russian River

through 2009. Several wood and rock structures were placed in an excavated low flow channel in the lowest reach in fall 2003 and 2004. These have helped retain pockets of greater depth where flows scour around them during winter.

Figure 17. Mouth of Austin Creek on July 19 2008, showing hydraulic connection during a dry year.

Bar Rebuilding and Channel Shape

The difference in elevation between bar tops and adjacent pool bottoms (bar/pool relief) is a simple and meaningful measure of habitat quality. Larger bars confine greater discharges, improving fish passage opportunities for a given flow. Larger bars and the associated more defined low flow channel increase pool scour and drive sediment sorting processes that create rearing pools and spawning gravel patches, and riffles downstream.

The relief of the upstream four bar/pool complexes has increased between 2003 and 2009 (Figure 19). The mean relief increased from approximately 5.3 feet to 8.8 feet for Bar #'s 1-4, a 165% increase.

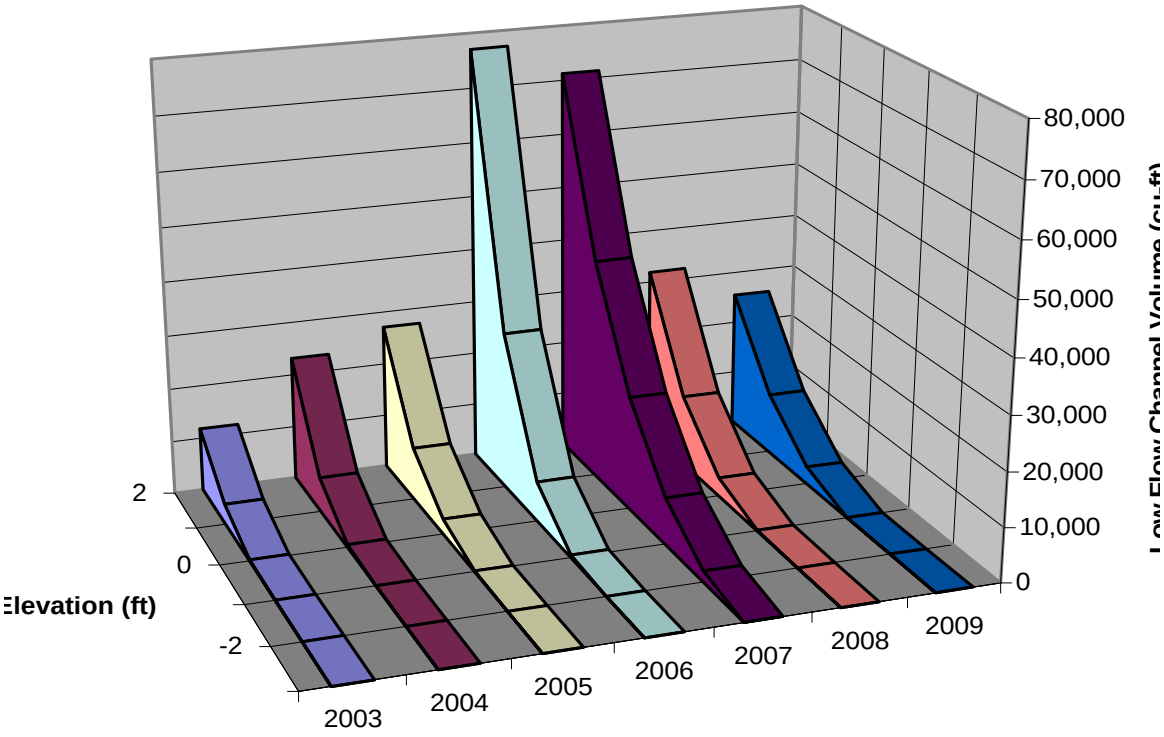

Figure 18. Volume of the low flow channel for elevations ranging from 2 to -3 feet, 2003 - 2009.

Since 2003, implementing new mining standards at Austin Creek has resulted in bar rebuilding, evident in the field and confirmed by the data. Additional observations of details not represented in the DTM's show that pools have become deeper and longer, and more associated with riparian cover along the stream banks. The open end of excavation trenches have formed naturalized alcoves that persist until spring/summer and provide velocity and thermal refuge utilized by juvenile salmonids.

Overall in the project reach there is greater topographic complexity, the elevation difference from bar top to adjacent pool bottom. This is a direct measure of habitat quality. There are also more pools, pools of greater depth and area, and a more confined and deeper low flow channel. A number of continually wet pools and improved low flow channel habitat developed between 2003 and 2009.

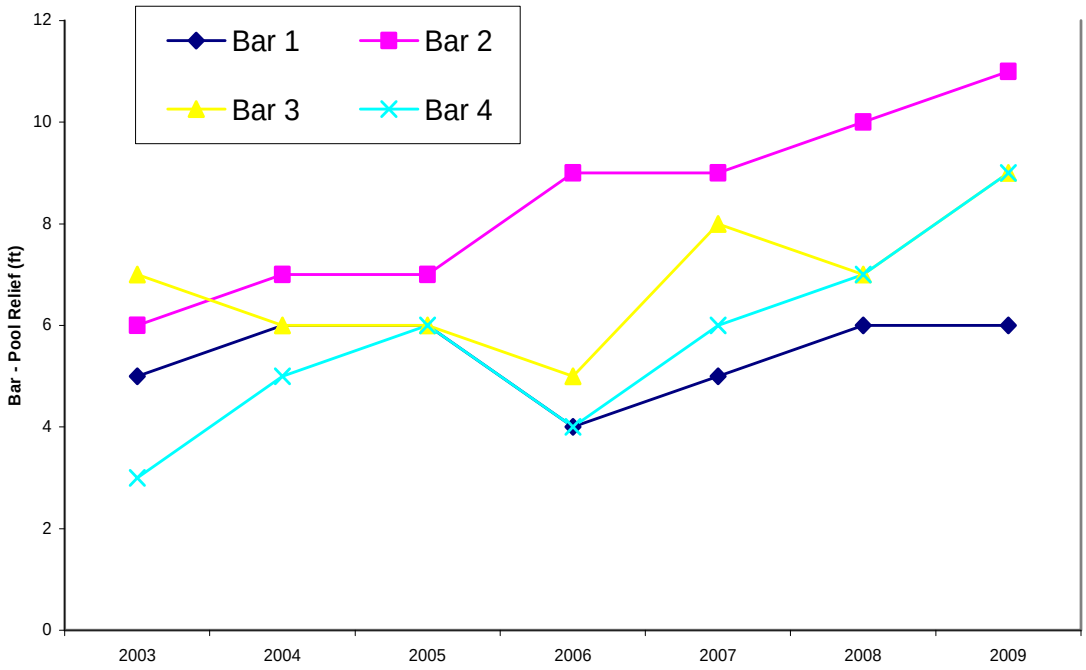

Figure 19. Relief between top of bar and bottom of pool elevations, for Bar #'s 1-4, from 2003 through 2009.

Temperature Effects

Water Temperature monitors were placed in Pool 2 and an adjacent alcove created by instream aggregate mining in Bar 1. Water temperatures were measured throughout the summer of 2005, until the alcove no longer contained any surface water, occurring on the 21st of August. Figure 20 shows the 7-day average of daily maximum temperature (7DADM) in both the pool and adjacent alcove. The alcove was consistently 2-3° C cooler than the adjacent pool throughout the summer. The temperature difference is biologically significant for Coho and steelhead rearing success. EPA (2003) gives 16°C as a maximum limit for juvenile salmon and trout to prevent lethal temperature effects, provide optimal conditions for juvenile growth, and prevent diseases during summertime rearing. Temperatures in the alcove were consistently below this threshold while the pool remained above 17° C throughout the summer.

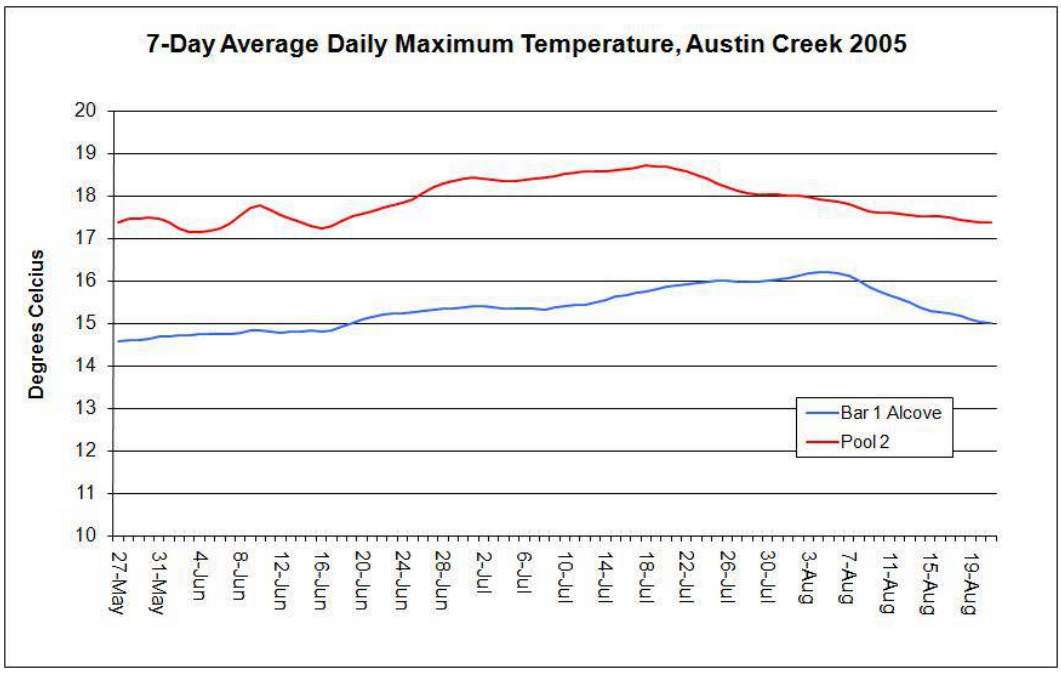

Figure 20. 7DADM temperature measured in pool 2 (red line) and adjacent alcove created by instream aggregate mining (blue line) during the summer of 2005 in Austin Creek. Temperatures were 2-3° cooler in the adjacent alcove throughout the summer.

DISCUSSION

The most important issue in the management of instream mining at Austin Creek is providing access to the watershed, and upstream passage for adult salmonids during fall and early winter storm flows. The previous practice of skimming bars close to the thalweg enlarged the channel cross section and the hydraulic capacity of the low flow channel. This channel change, in the context of an aggraded channel, resulted in shallower depths over wider cross sections for a given flow.

This condition increased the probability that adult Coho salmon would not have sufficient depth of flow during the early winter months, because it created the need for larger storm events to provide such passage. In years with no significant storm events in early winter, this can significantly impair successful migration. Only years with significant early winter storms (such as 2006 and 2008, figure 21) may have mobilized bed material and scoured a low-flow channel significant enough to allow for salmonid migration during the earliest part of the migration run. Years with relatively low peak discharge (2005, 2007, 2009, figure 21) may have offered poor Coho migration opportunity, potentially preventing that year class of fish from successfully spawning in Austin Creek. . Even during years such as 2006 and 2008 where large early season storms were powerful enough to scour a low-flow channel, stream competency is highly dependant on the management actions at the Russian River estuary bar. If the Russian River estuary bar is closed, the River can backwater into Austin Creek, causing sediment deposition instead of scour during large fall storm events.

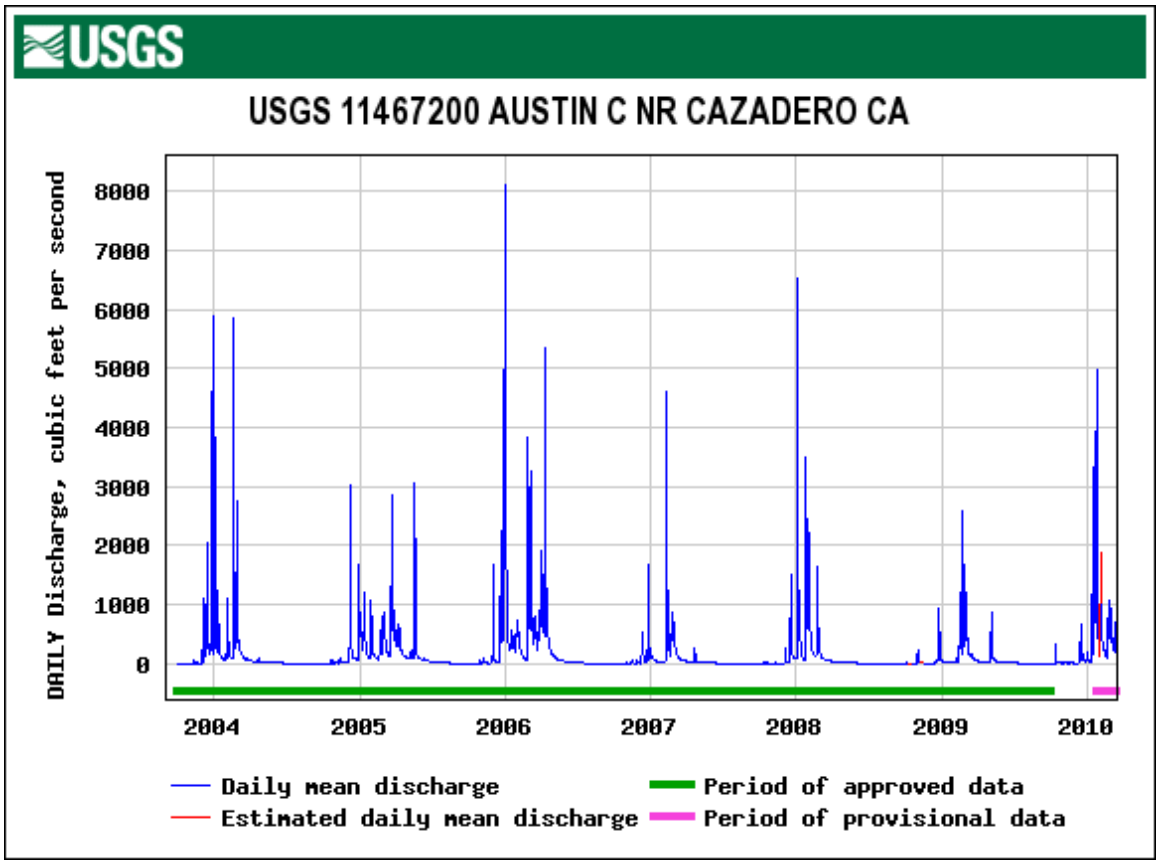

Figure 21. Average daily discharge in Austin Creek from October 2004 to March 2010. USGS 2010.

Because large bed material transport events are dependent on El Nino climate cycles (Andrews and Antwieler 2006), skimmed bars can persist in their diminished size and function for several years to decades. Mining standards that retain the dimensions of bars can safeguard fish passage during early winter storms, but also optimize passage during droughts or long periods between bar forming climatic events. This approach to instream mining thereby reduces impacts on migrating salmonids, and extinction risk to each year class and therefore the population as a whole.

Although the mining methods changed dramatically, the volume mined from the reach has not changed appreciably with the new mining methods (see Appendix I). The grain size distribution of the mined materials has not changed either (Homer Canelis, personal communication, 1-20-2010).

Next Steps

Maintaining the DTM surveys and using that information for continuing to adapt management of the reach to benefit fish habitat should be the first goal in the next phase of permits and monitoring. Adaptive management of the Austin Creek mining operation

can continue to maintain the riparian forest, the strength of the stream banks, and habitat elements, and has potential to deliver ongoing habitat improvements.

The redwood stump at Pool #2 is a natural analogue for LWD structures that provide increased scour, sediment sorting, and unparalleled cover habitat for fish. This analog should be the basis for design and implementation of additional scour enhancing and cover producing structures in the reach.

Sustainability of the low flow channel at the confluence is an ongoing concern with the fluctuations of Russian River stage as the estuary bar is managed for local flood prevention interests. Maintaining a deep low flow channel with persistent hydraulic connectivity is naturally compromised by two processes; the backwater effect of the Russian River, and the nature of bed sediment transport. Bed sediment moves in waves and those waves come to rest where the flow that carries them is no longer effective. The mining method implemented in this project increases the energy of flows in the confluence area of Austin Creek, by confining the low flow channel between larger bars. This channel configuration can more effectively transport bed sediment to the Russian River, and will contribute to maintaining a long linear self scouring low flow channel at the confluence.

The reach upstream from the mining reach exhibits low bar relief and discontinuous hydraulic connection similar to the conditions found in the mining reach prior to 2003. The techniques and lessons learned while implementing the 2003-2009 Austin Creek project should be a good model for adaptively managing the improvement of the reach upstream. Enlarging the adaptive management area to incorporate the 1-1.5 mile reach upstream could result in improved passage opportunities and habitat conditions from the mouth upstream to the locally important bedrock scour pool near Kohute's Gulch.

SUMMARY

Sediment production, due to intensive logging practices in the watershed, aggraded the lower reaches of Austin Creek, blocking low flow passage and preventing salmonids from accessing historic spawning habitat. In the latter half of the 20th century recovery from these sediment pulses was evident in historic cross-sections; however the low-flow channel continued to be hydraulically disconnected from the Russian River. Habitat conditions also showed little signs of improvement both within and outside of the mining reach. Cooperative restoration actions were undertaken by NMFS and Austin Creek Materials to improve habitat complexity and maintain a low-flow channel even in the driest years.

NMFS sediment removal guidelines were implemented within the mining reach starting in 2003, with the goal of improving and retaining the geomorphic function of bars. A deeper low flow channel has been established has been established and it has remained wet throughout the dry season in the lower part of the project reach, the area most crucial for attracting Coho salmon into Austin Creek. Bar height and area have been increased,

which has forced greater pool scouring processes and formation of a more confined low flow channel. These improvements provide for an extended smolt migration period and improved summer rearing habitat for juvenile salmonids (increased depth and cover provide greater avoidance from predators), as well as improved adult spawner migration conditions. Additionally, voluntary riparian vegetation is now taking hold at the edge of bars, comparable to what has occurred upstream since these areas are recovering from the channel disturbances of logging and summer dam building eras.

The upper reaches of Austin Creek are on a trajectory of recovery from the channel disturbances that occurred during the logging and summer dam building eras of 2-3 decades ago. The low flow channel has greater definition and confinement between bars that have reformed. The larger bars are more stable, this in turn allows riparian vegetation to encroach on bars and to reach maturity on the banks, and the canopy is closing in many locations. The channel is recovering from increased sediment loading and from annual disturbance of channel features in a progression from upstream to downstream, as the bed sediment is transferred out of the watershed. The increased complexity of instream habitat is clearly observed in the upstream reaches of Austin Creek and its tributaries, and less observable in the lower reaches. The mining methods implemented in the lowest reach act to accelerate the natural recovery of habitat.

In summary, the results of applying the new mining method beginning in 2003 exhibit the most potential for development of desirable steam habit characteristics, as is occurring in the upper watershed, compared to prior mining methods.

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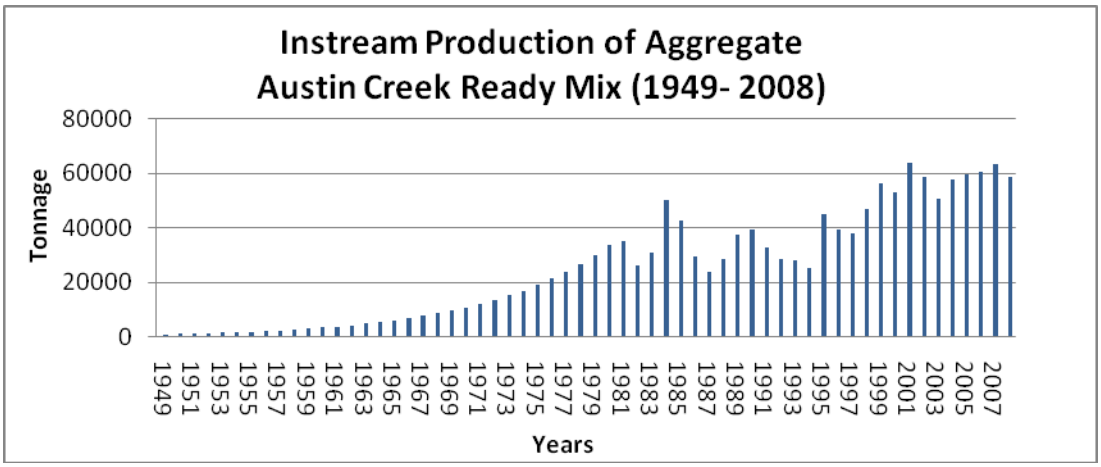
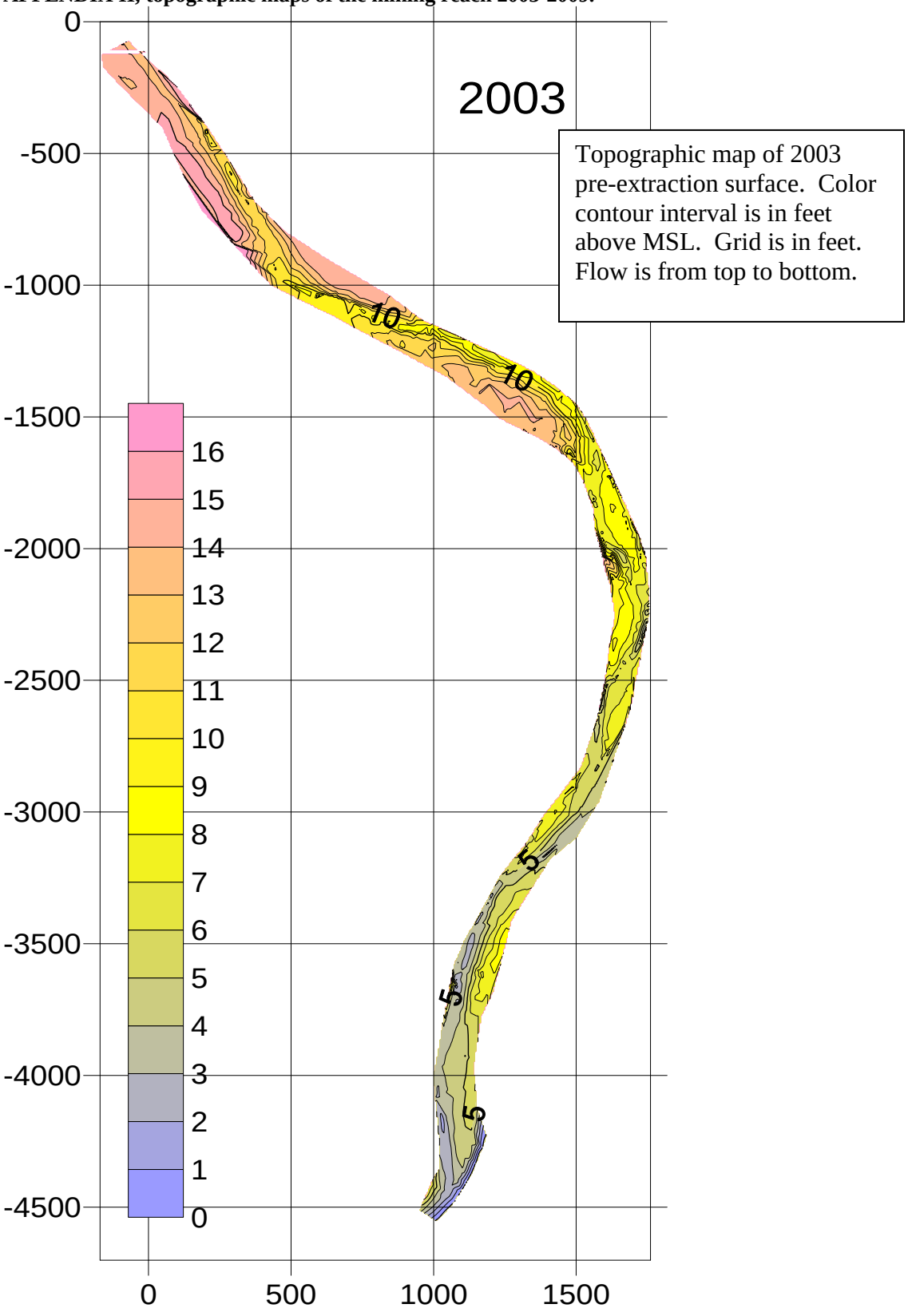
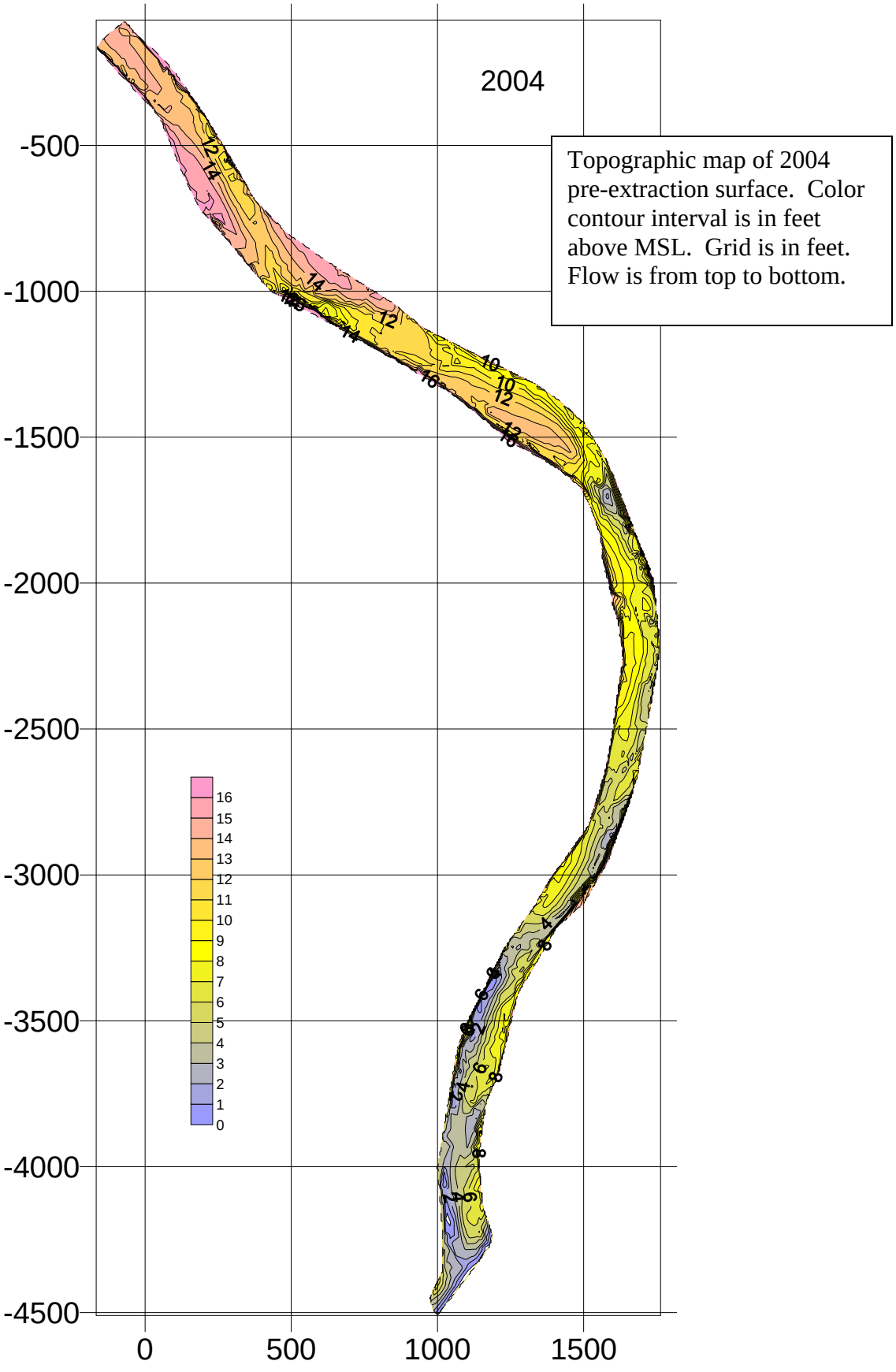
United States Environmental Protection Agency (EPA). 2003. EPA Region 10 Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards. EPA 910-B-03-002. 49 pp.

APPENDIX I, Gravel extraction totals (tons) from lower Austin Creek 1949-2008 (Austin Creek Ready Mix, 2008).

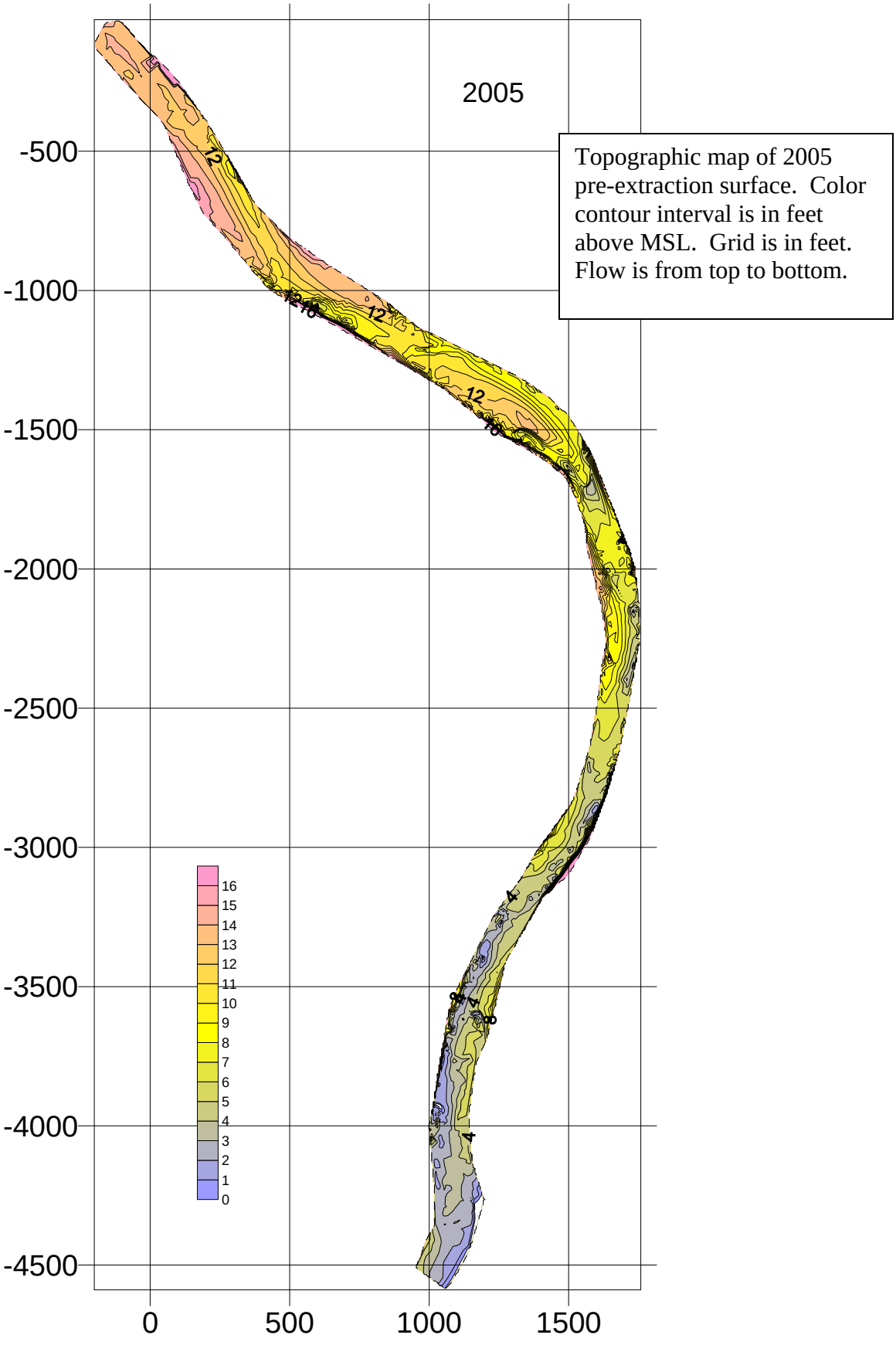


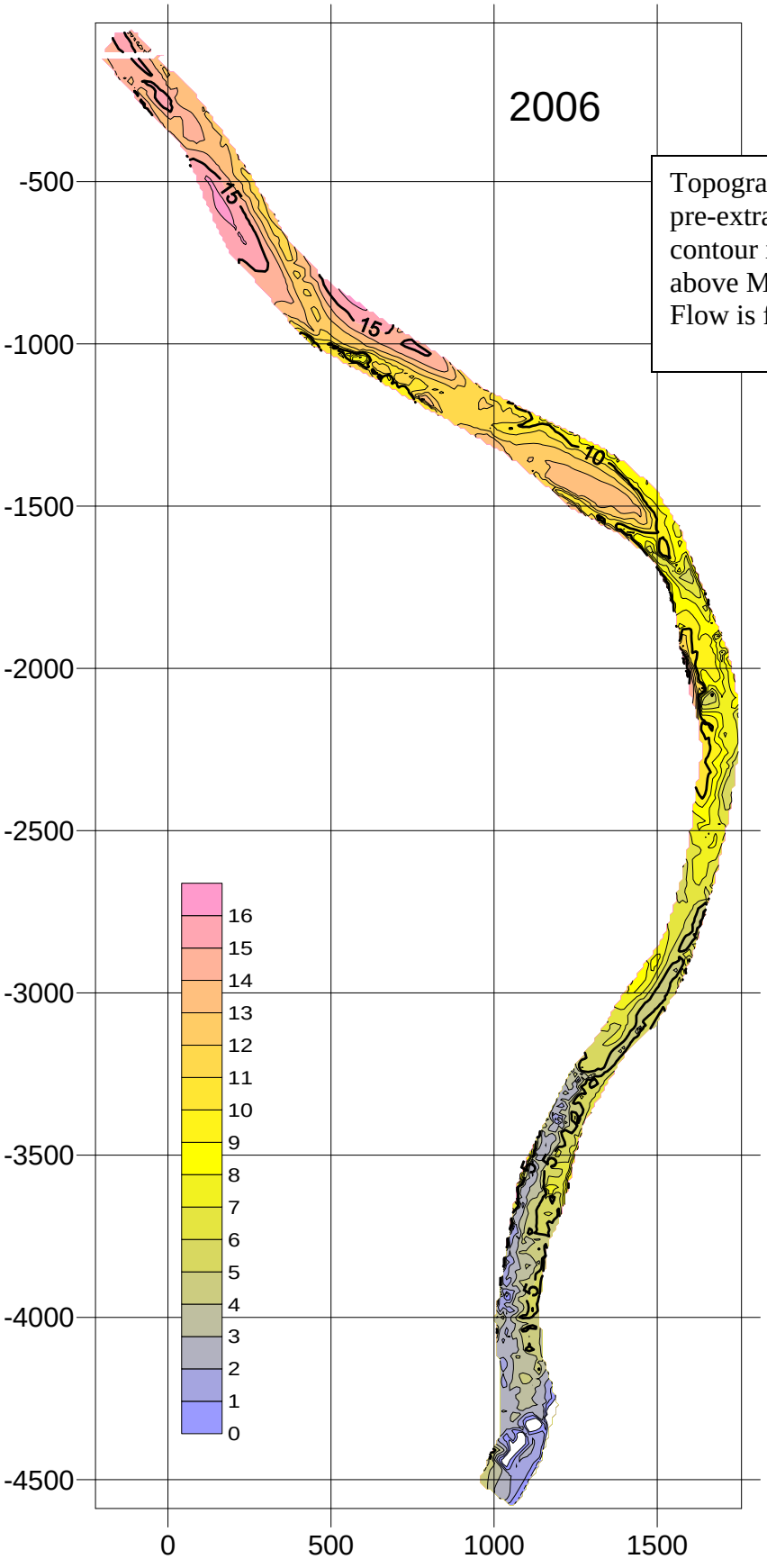
APPENDIX II, topographic maps of the mining reach 2003-2009.





Topographic map of 2004 pre-extraction surface. Color contour interval is in feet above MSL. Grid is in feet. Flow is from top to bottom.


2005
Topographic map of 2005 pre-extraction surface. Color contour interval is in feet above MSL. Grid is in feet. Flow is from top to bottom.
-500
-1000
-1500
-2000
-2500
-3000
-3500
-4000
-4500
0
500
1000
1500
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0



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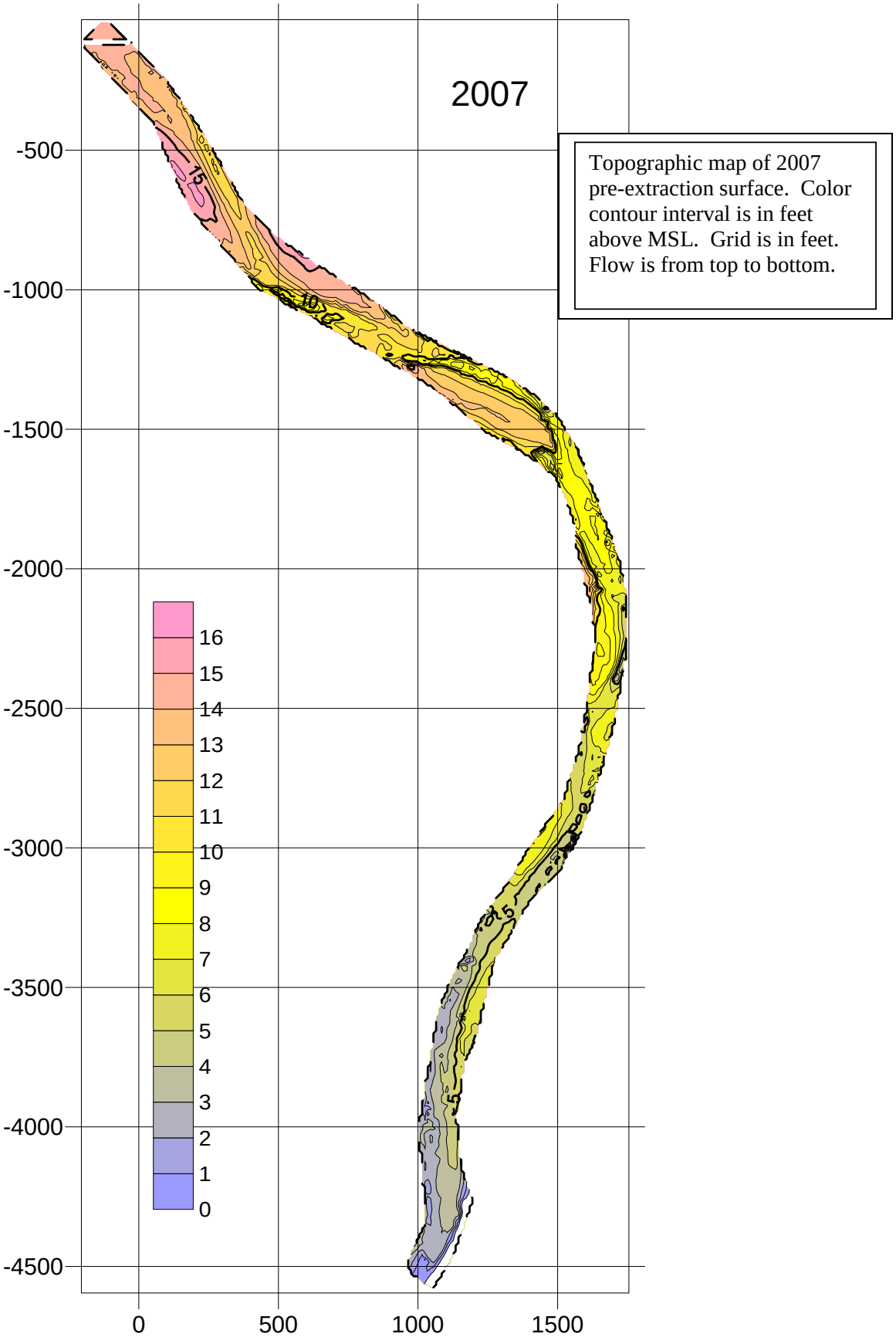
2007
Topographic map of 2007 pre-extraction surface. Color contour interval is in feet above MSL. Grid is in feet. Flow is from top to bottom.
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-1000
-1500
-2000
-2500
-3000
-3500
-4000
-4500
0
500
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16
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7
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3
2
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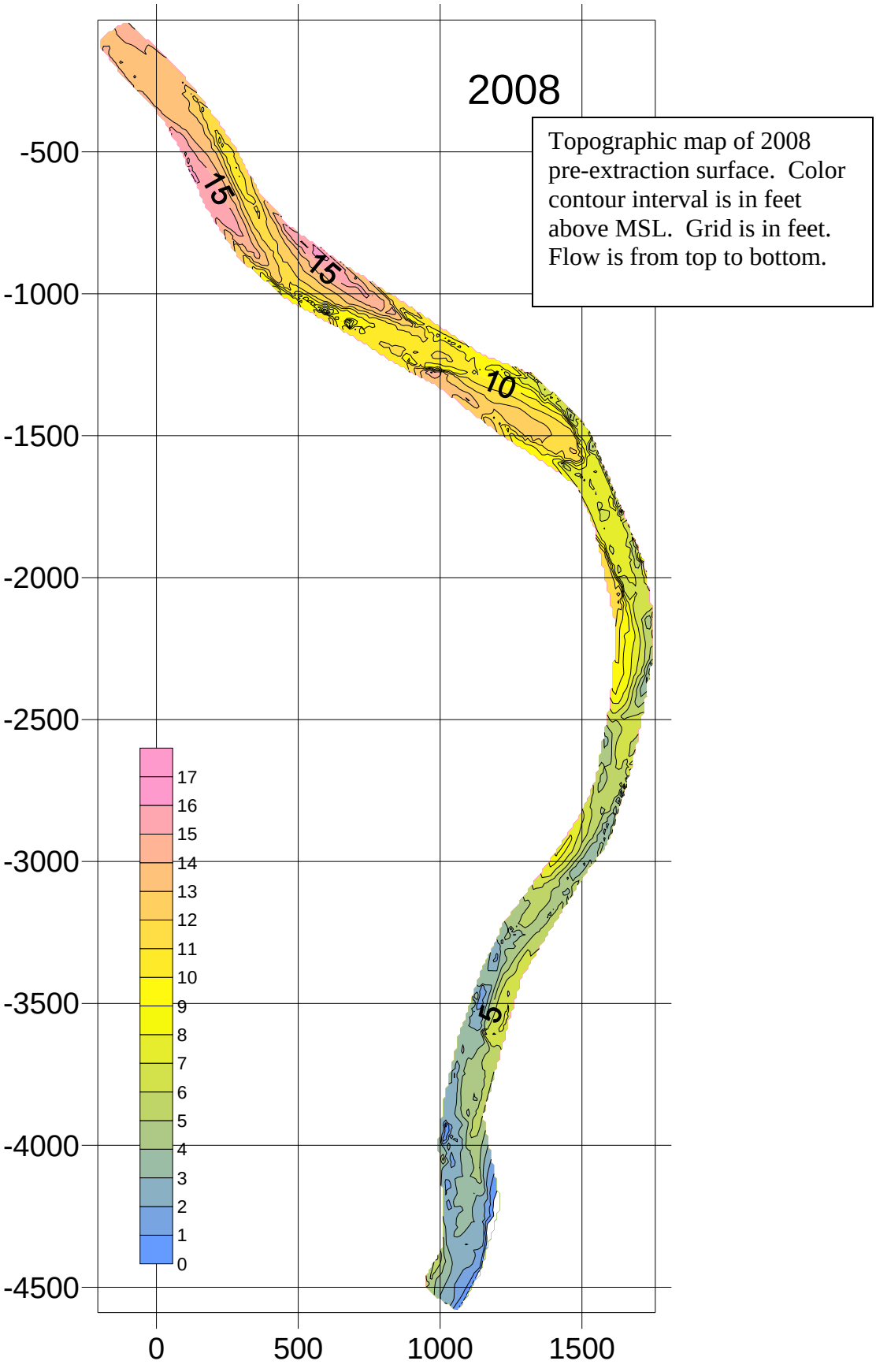
2008
Topographic map of 2008 pre-extraction surface. Color contour interval is in feet above MSL. Grid is in feet. Flow is from top to bottom.
-500
-1000
-1500
-2000
-2500
-3000
-3500
-4000
-4500
0
500
1000
1500
15
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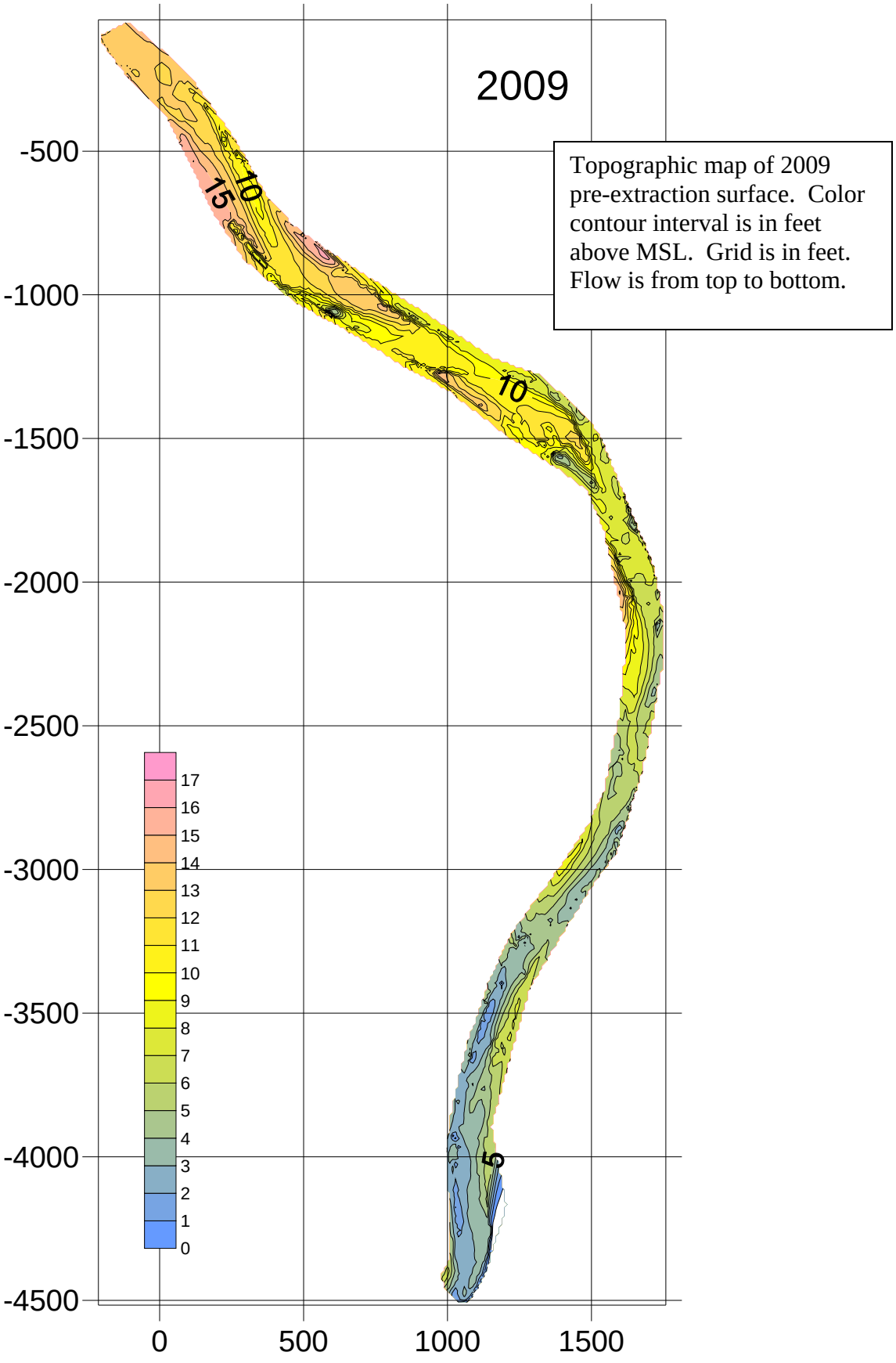
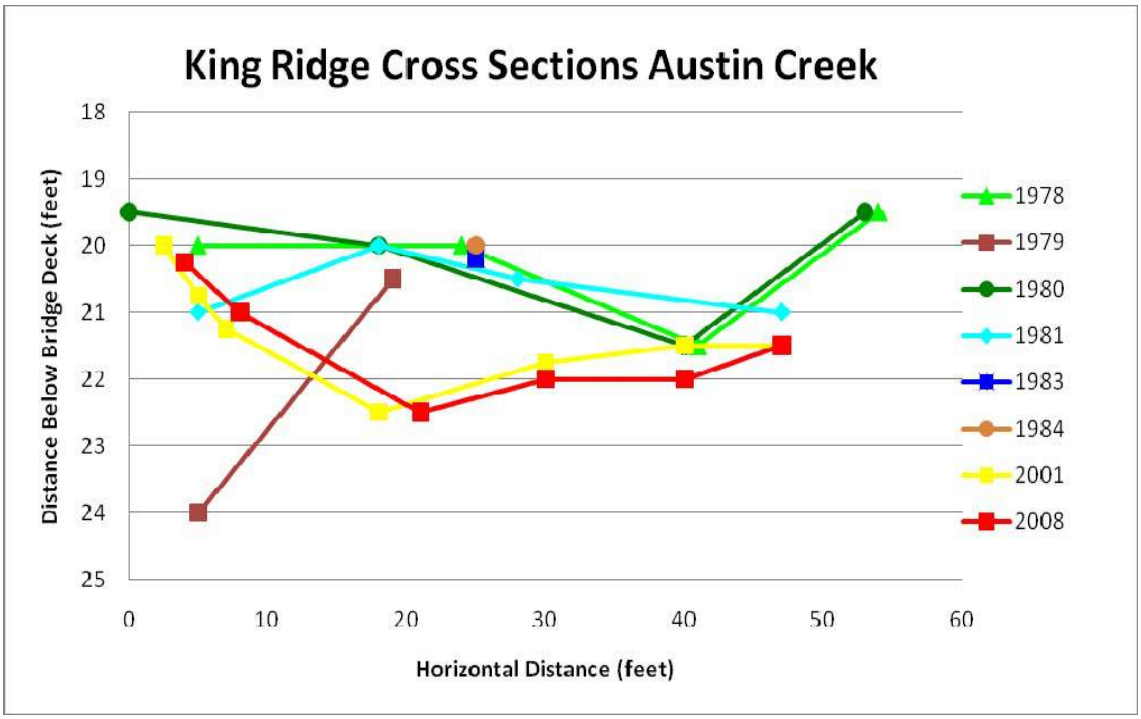
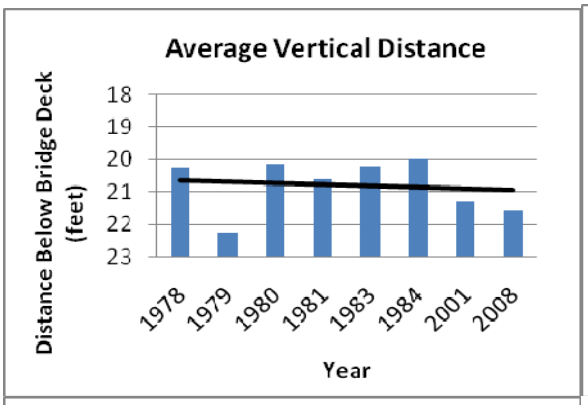
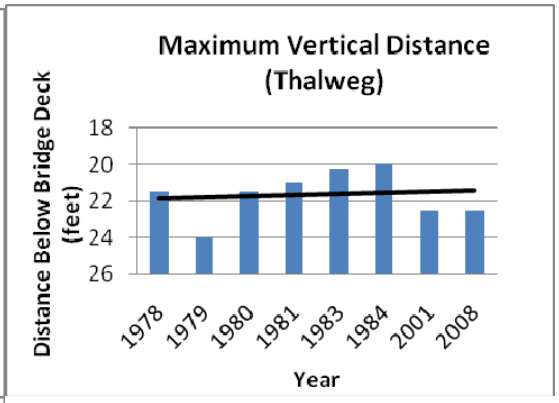


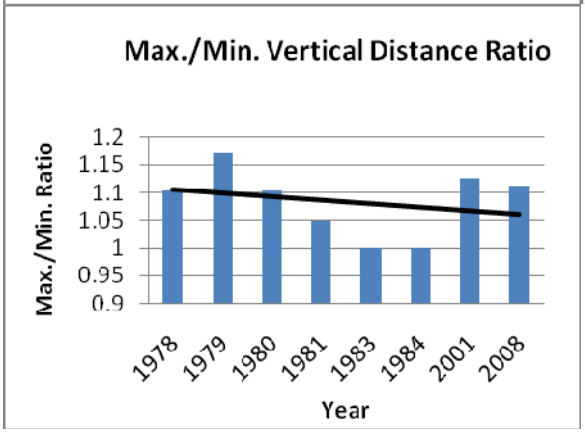
Topographic map of 2009 pre-extraction surface. Color contour interval is in feet above MSL. Grid is in feet. Flow is from top to bottom.

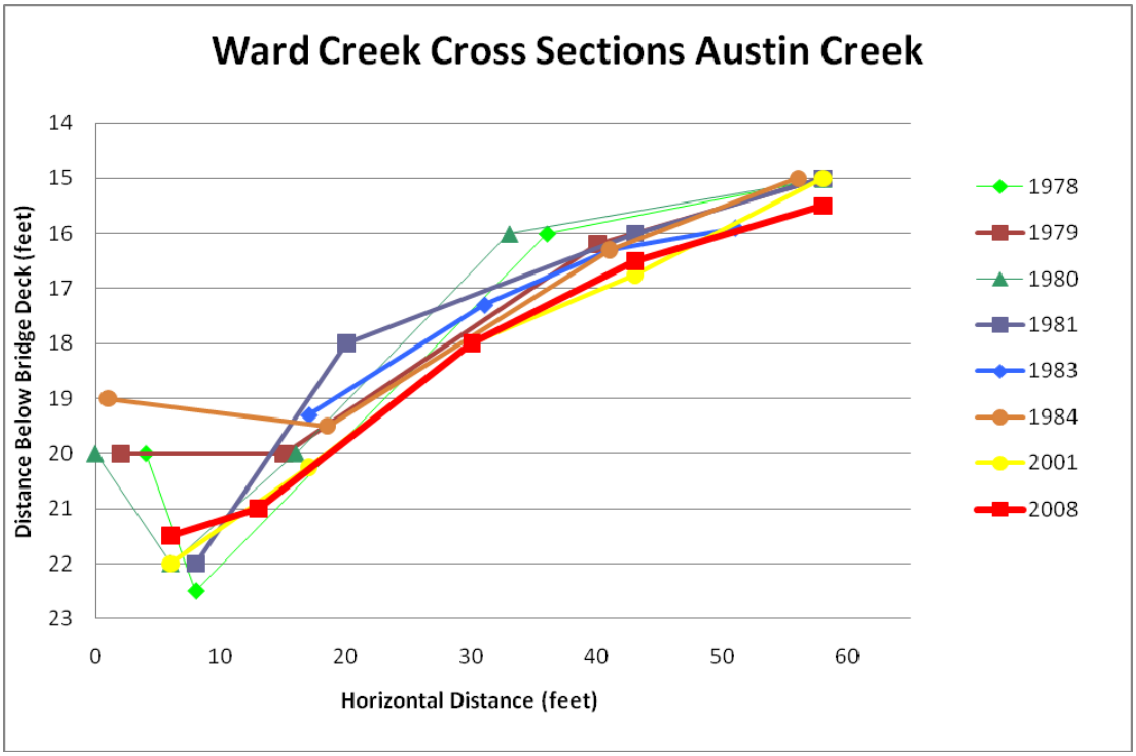
APPENDIX III, cross section analysis for bridges along Austin Creek. Data supplied by Homer Canelis.










Ward Creek Cross Sections Austin Creek
Distance Below Bridge Deck (feet)
14
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17
18
19
20
21
22
23
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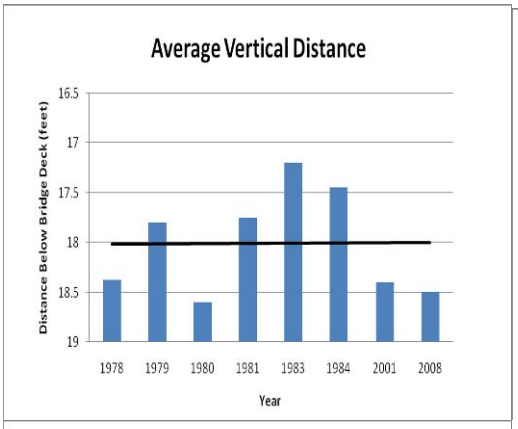
10
20
30
40
50
60
Horizontal Distance (feet)
1978
1979
1980
1981
1983
1984
2001
2008


Average Vertical Distance
Distance Below Bridge Deck (feet)
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17.5
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19
1978
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1980
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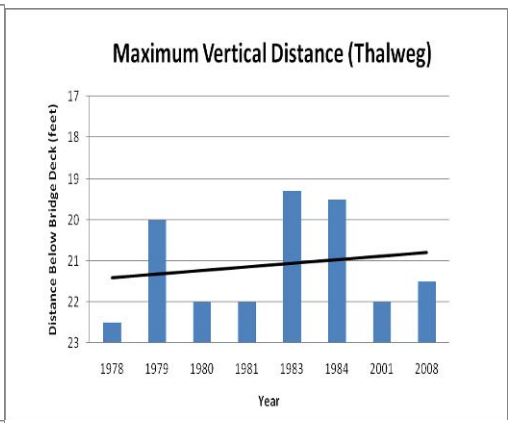
1983
1984
2001
2008
Year


Maximum Vertical Distance (Thalweg)
Distance Below Bridge Deck (feet)
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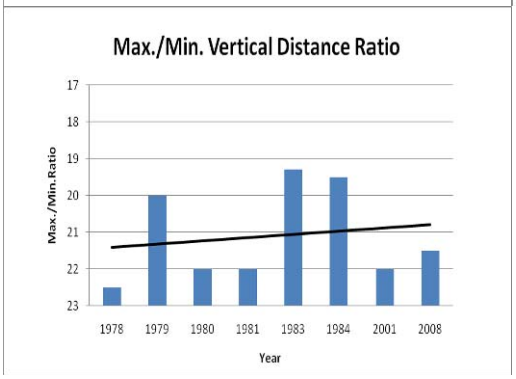
Year


Max./Min. Vertical Distance Ratio
Max./Min.Ratio
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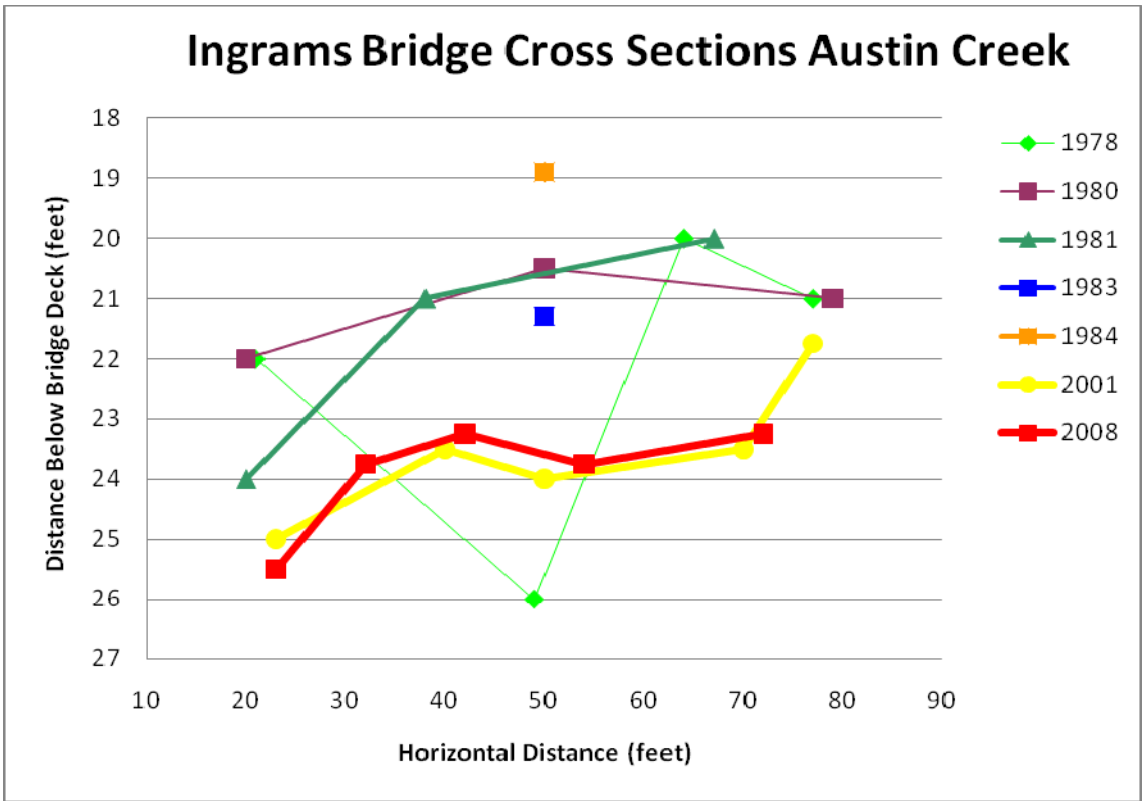
2008
Year


Ingrams Bridge Cross Sections Austin Creek
Distance Below Bridge Deck (feet)
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80
90
Horizontal Distance (feet)
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1981
1983
1984
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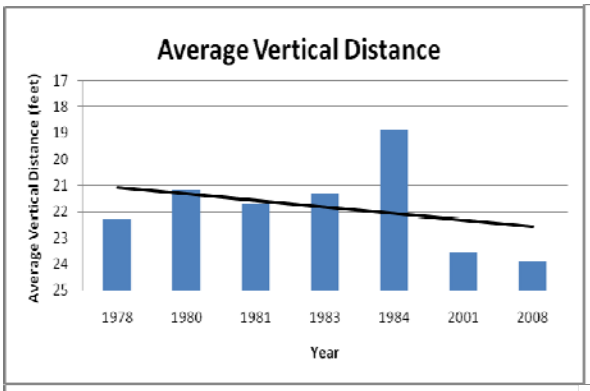
2008


Average Vertical Distance
Average Vertical Distance (feet)
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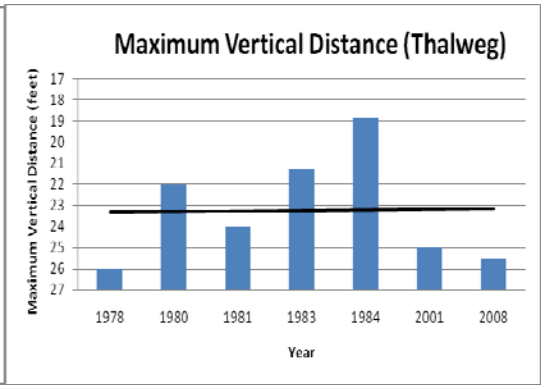
2008
Year


Maximum Vertical Distance (Thalweg)
Maximum Vertical Distance (feet)
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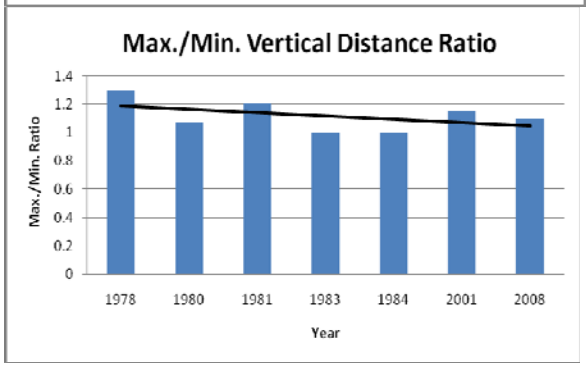
2008
Year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Max./Min. Ratio
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0.2
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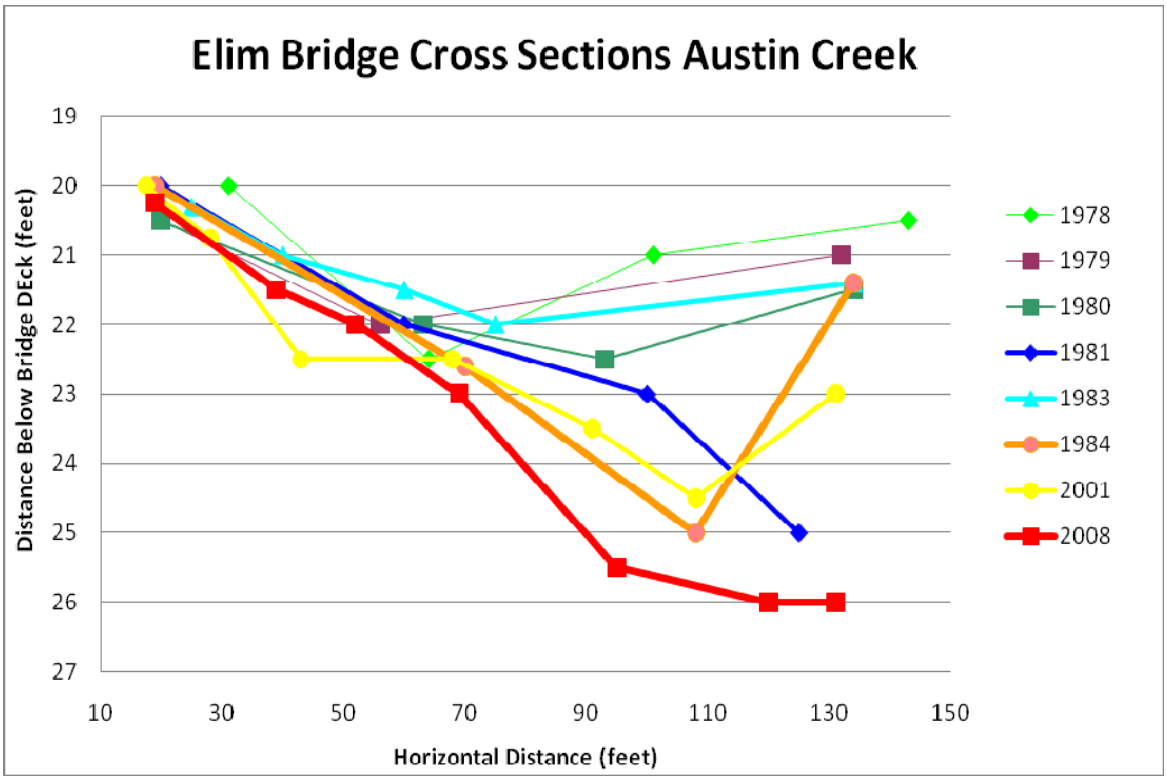
2008
Year


Elim Bridge Cross Sections Austin Creek
Distance Below Bridge DEck (feet)
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Horizontal Distance (feet)
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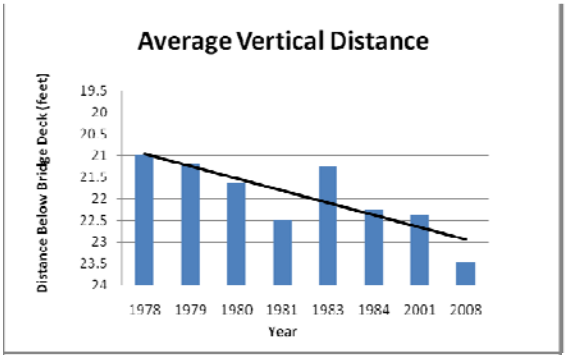
1983
1984
2001
2008


Average Vertical Distance
Distance Below Bridge Deck (feet)
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20
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23.5
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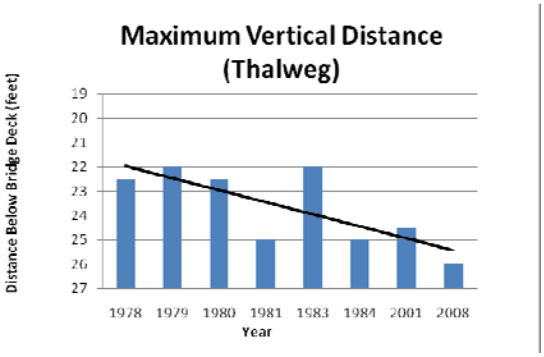
1978 1979 1980 1981 1983 1984 2001 2008
Year


Maximum Vertical Distance (Thalweg)
Distance Below Bridge Deck (feet)
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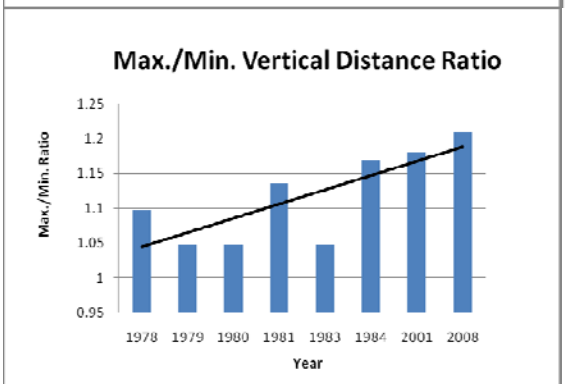
1978 1979 1980 1981 1983 1984 2001 2008
Year


Max./Min. Vertical Distance Ratio
Max./Min. Ratio
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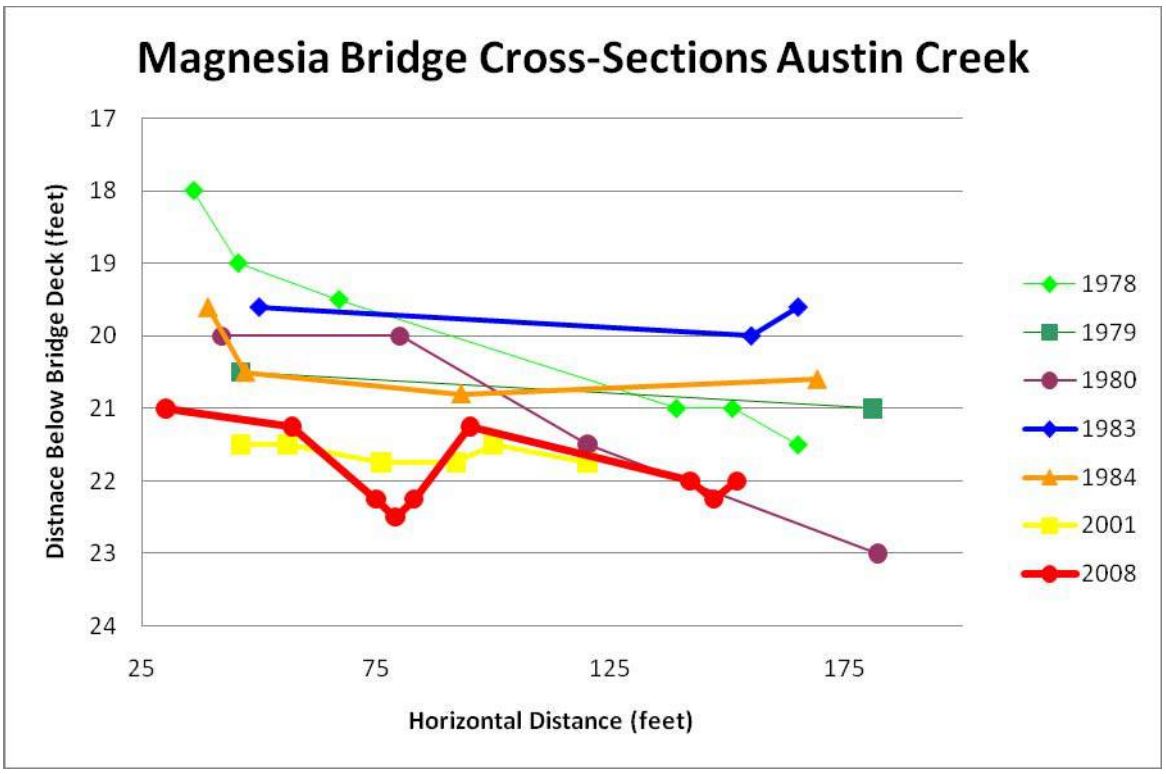
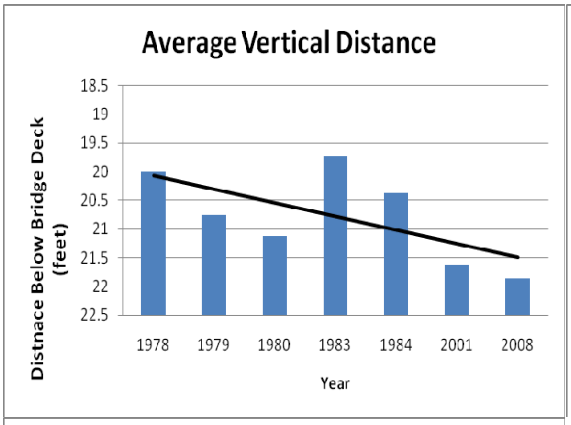
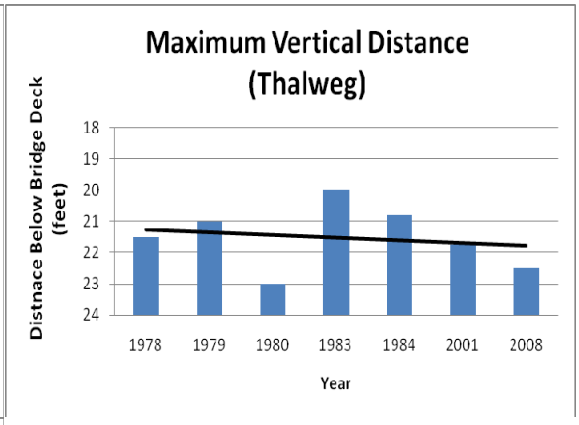
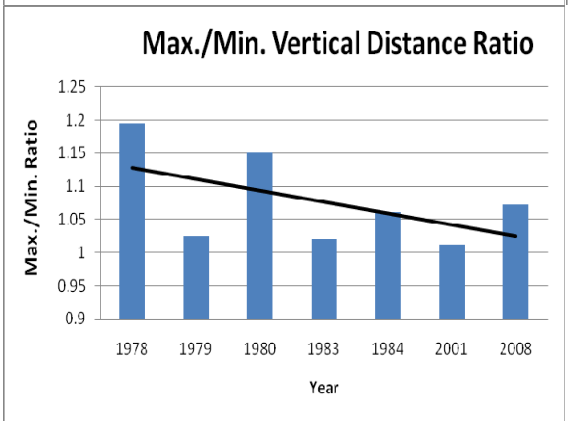
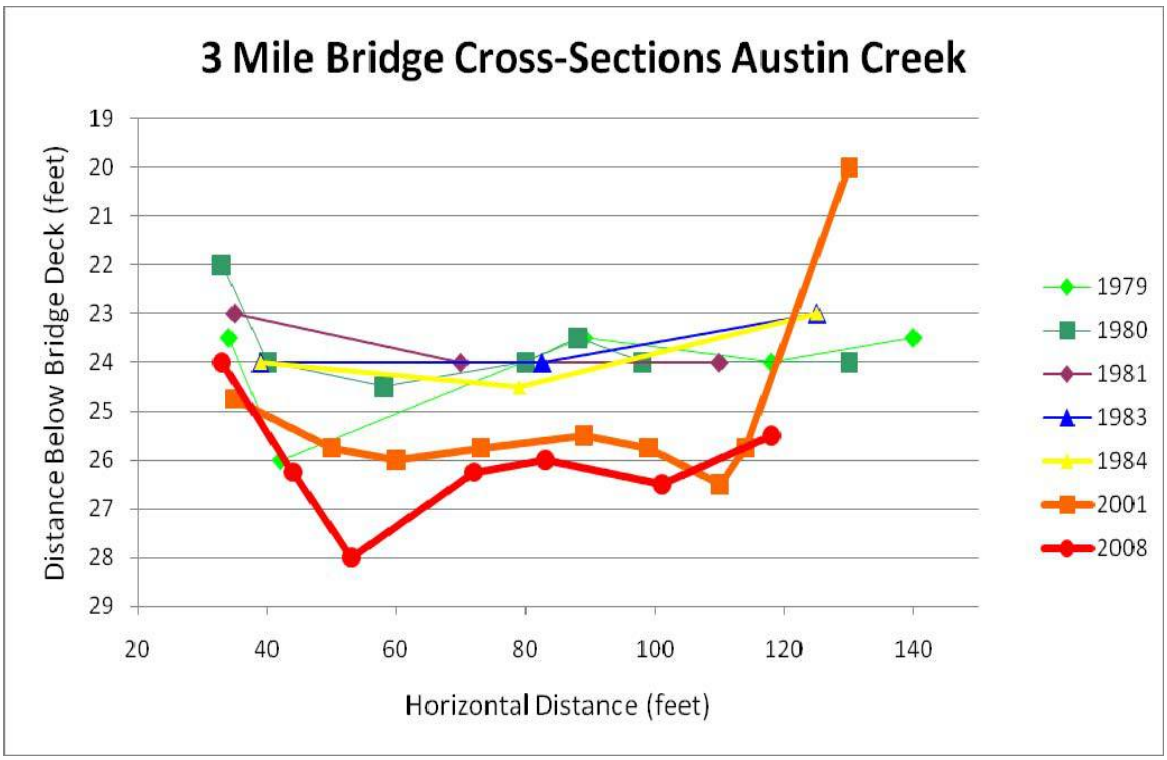
1.2
1.15
1.1
1.05
1
0.95
1978 1979 1980 1981 1983 1984 2001 2008
Year

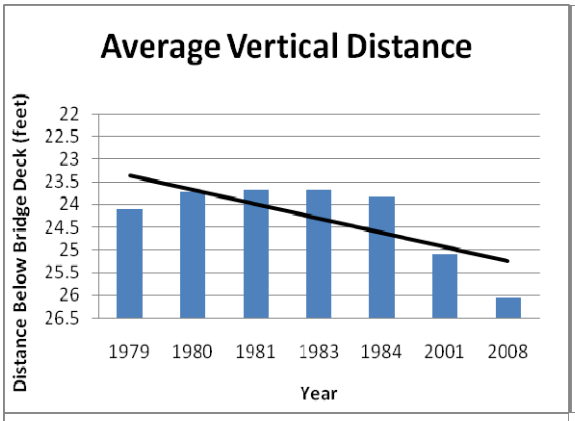

Magnesia Bridge Cross-Sections Austin Creek
Distnace Below Bridge Deck (feet)
17
18
19
20
21
22
23
24
25
75
125
175
Horizontal Distance (feet)
1978
1979
1980
1983
1984
2001
2008

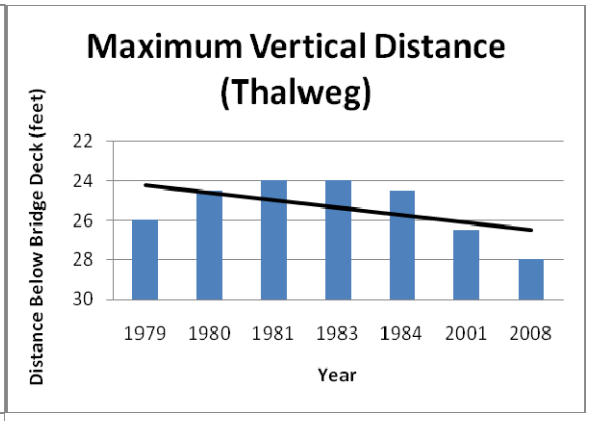

Average Vertical Distance
Distnace Below Bridge Deck (feet)
18.5
19
19.5
20
20.5
21
21.5
22
22.5
1978
1979
1980
1983
1984
2001
2008
Year

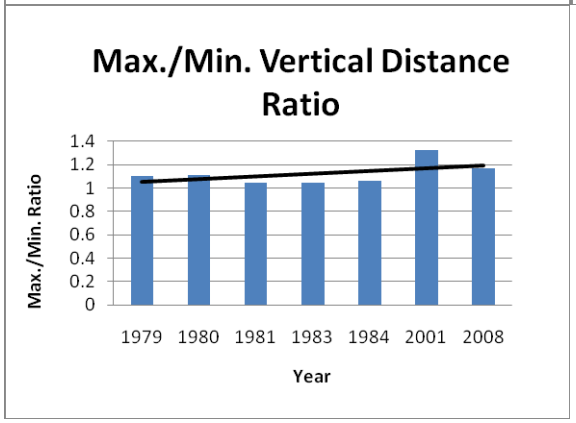

Maximum Vertical Distance (Thalweg)
Distnace Below Bridge Deck (feet)
18
19
20
21
22
23
24
1978
1979
1980
1983
1984
2001
2008
Year

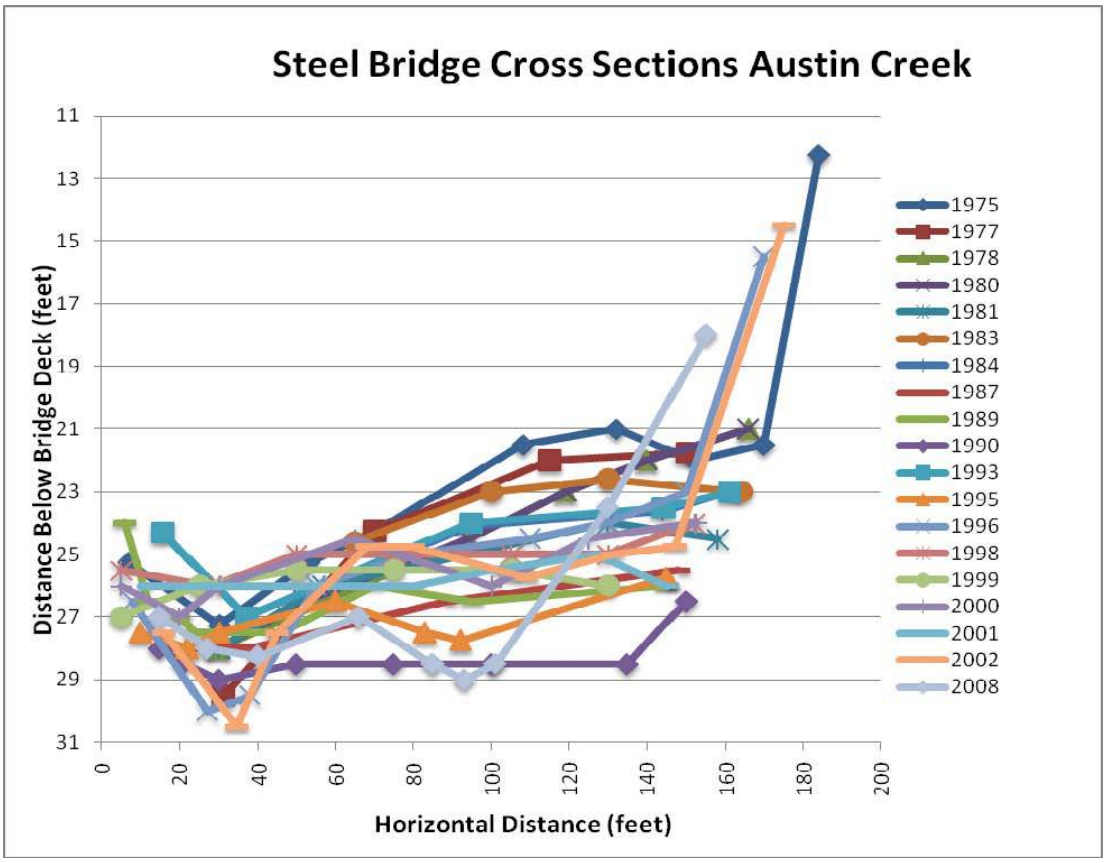

Max./Min. Vertical Distance Ratio
Max./Min. Ratio
1.25
1.2
1.15
1.1
1.05
1
0.95
0.9
1978
1979
1980
1983
1984
2001
2008
Year

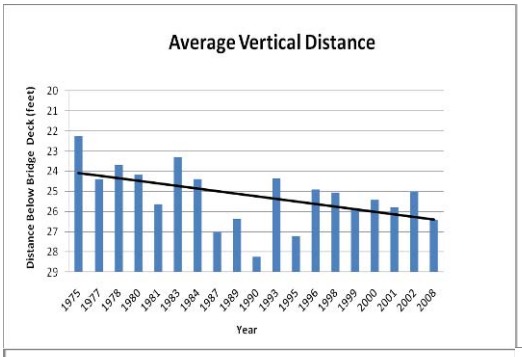

3 Mile Bridge Cross-Sections Austin Creek
Distance Below Bridge Deck (feet)
19
20
21
22
23
24
25
26
27
28
29
20
40
60
80
100
120
140
Horizontal Distance (feet)
1979
1980
1981
1983
1984
2001
2008

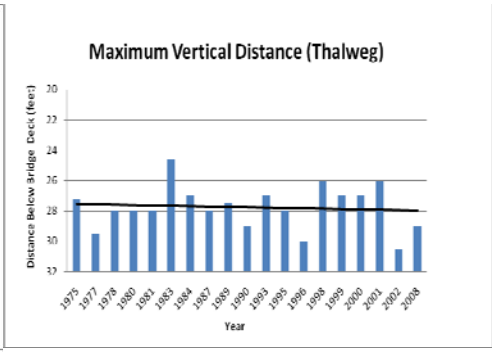

Average Vertical Distance
Distance Below Bridge Deck (feet)
22
22.5
23
23.5
24
24.5
25
25.5
26
26.5
1979
1980
1981
1983
1984
2001
2008
Year

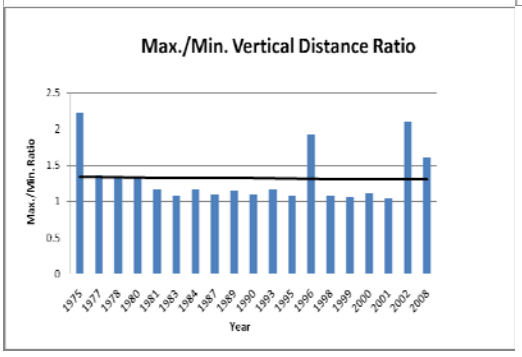

Maximum Vertical Distance (Thalweg)
Distance Below Bridge Deck (feet)
22
24
26
28
30
1979
1980
1981
1983
1984
2001
2008
Year

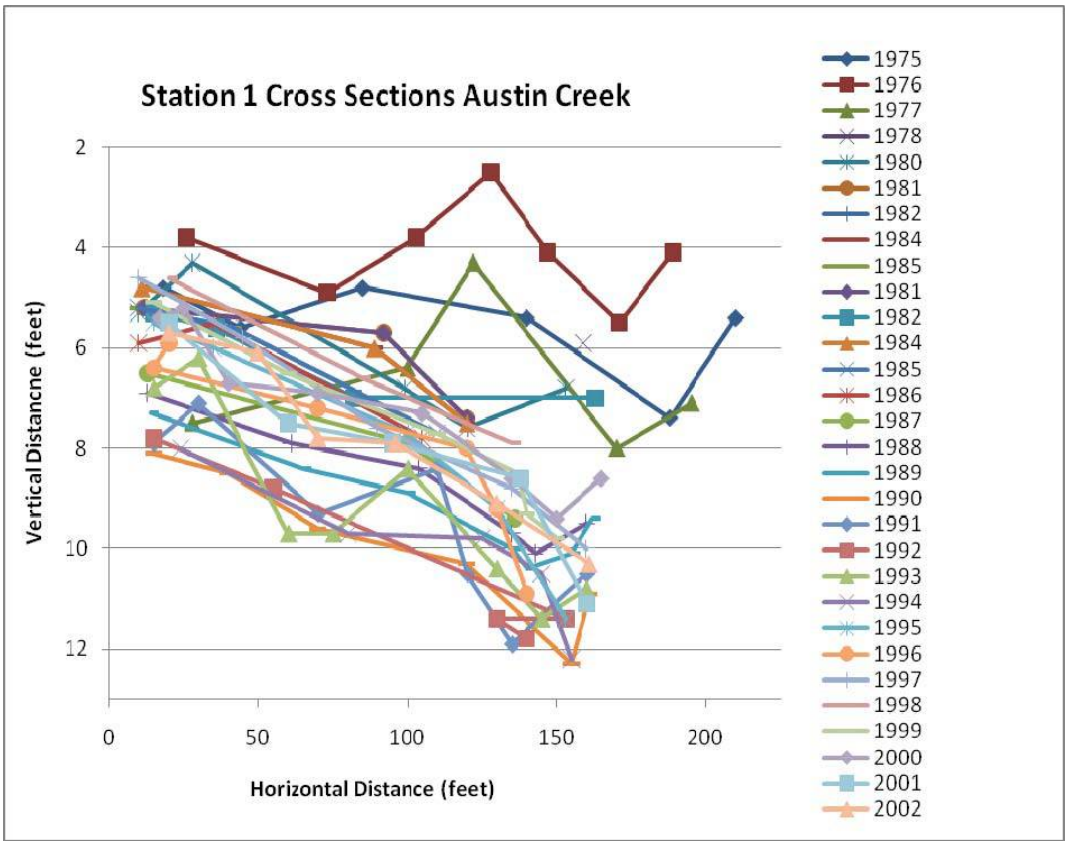

Max./Min. Vertical Distance Ratio
Max./Min. Ratio
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1979
1980
1981
1983
1984
2001
2008
Year

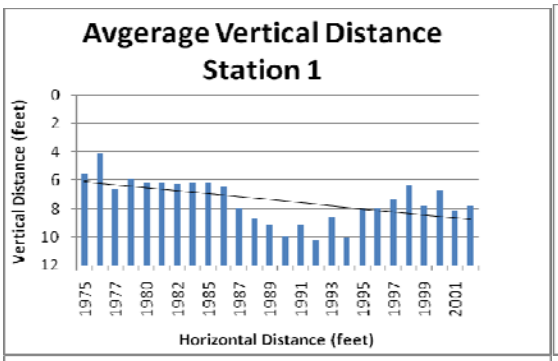

Steel Bridge Cross Sections Austin Creek
Distance Below Bridge Deck (feet)
11
13
15
17
19
21
23
25
27
29
31
0
20
40
60
80
100
120
140
160
180
200
Horizontal Distance (feet)
1975
1977
1978
1980
1981
1983
1984
1987
1989
1990
1993
1995
1996
1998
1999
2000
2001
2002
2008

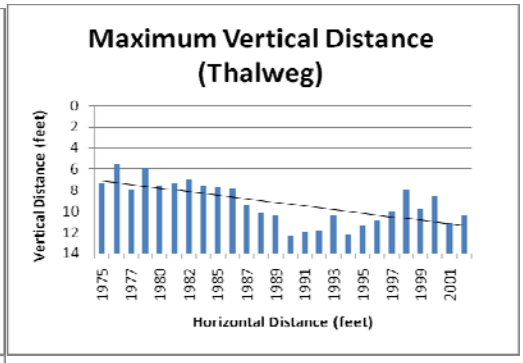

Average Vertical Distance
Distance Below Bridge Deck (feet)
Year

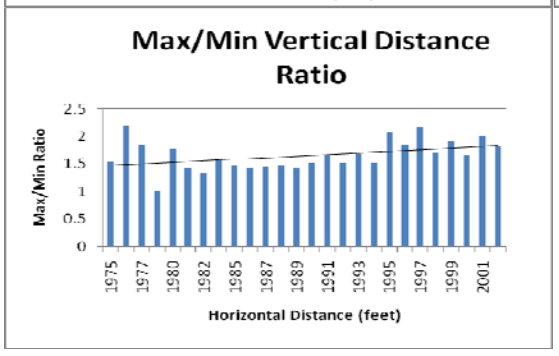

Maximum Vertical Distance (Thalweg)
Distance Below Bridge Deck (feet)
Year

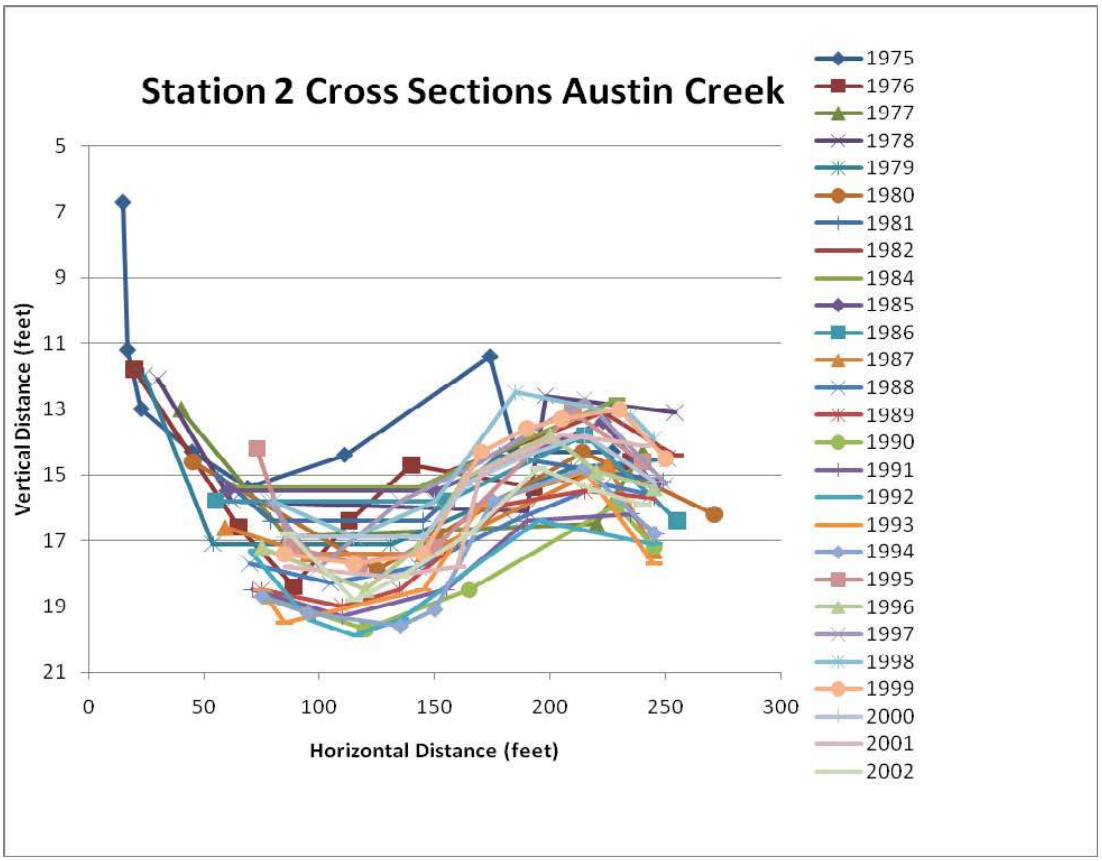

Max./Min. Vertical Distance Ratio
Max./Min. Ratio
Year

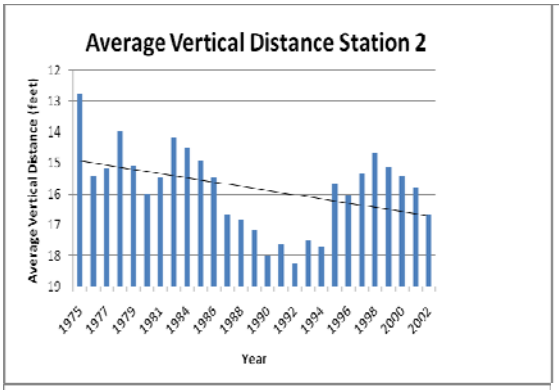

Station 1 Cross Sections Austin Creek
Vertical Distancne (feet)
Horizontal Distance (feet)
0
50
100
150
200
2
4
6
8
10
12
1975
1976
1977
1978
1980
1981
1982
1984
1985
1981
1982
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002

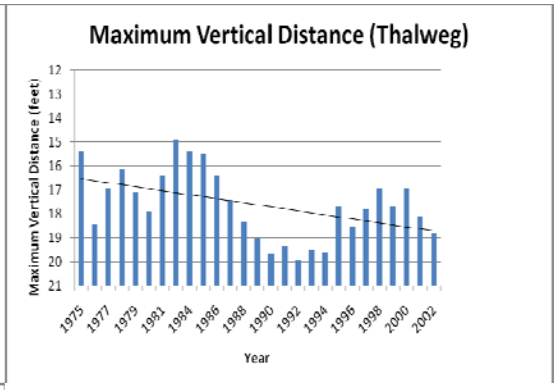

Avgerage Vertical Distance Station 1
Vertical Distance (feet)
Horizontal Distance (feet)
0
2
4
6
8
10
12
1975
1977
1980
1982
1985
1987
1989
1991
1993
1995
1997
1999
2001

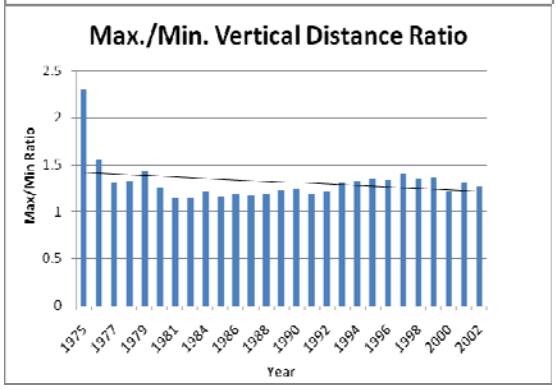

Maximum Vertical Distance (Thalweg)
Vertical Distance (feet)
Horizontal Distance (feet)
0
2
4
6
8
10
12
14
1975
1977
1980
1982
1985
1987
1989
1991
1993
1995
1997
1999
2001

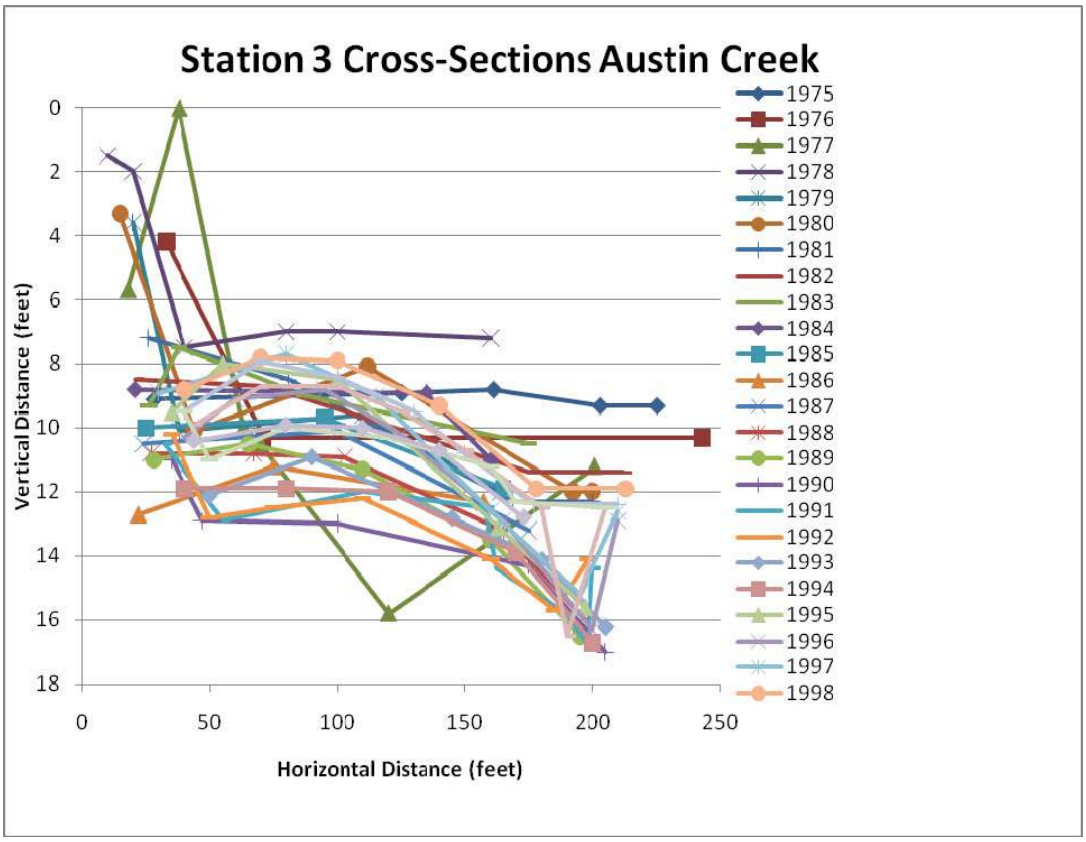

Max/Min Vertical Distance Ratio
Max/Min Ratio
Horizontal Distance (feet)
0
0.5
1
1.5
2
2.5
1975
1977
1980
1982
1985
1987
1989
1991
1993
1995
1997
1999
2001

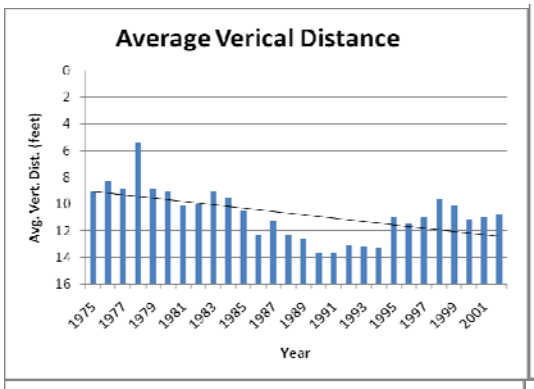

Station 2 Cross Sections Austin Creek
Vertical Distance (feet)
5
7
9
11
13
15
17
19
21
0
50
100
150
200
250
300
Horizontal Distance (feet)
1975
1976
1977
1978
1979
1980
1981
1982
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002

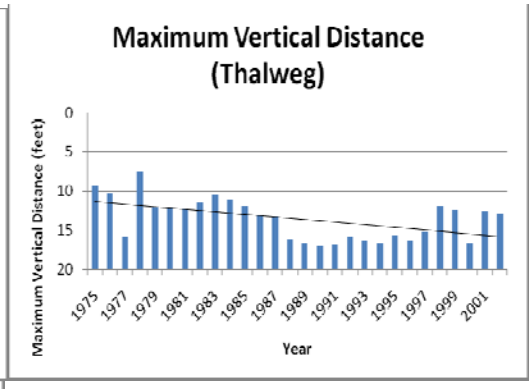

Average Vertical Distance Station 2
Average Vertical Distance (feet)
Year

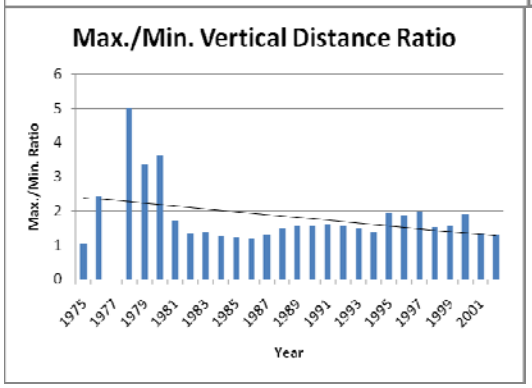

Maximum Vertical Distance (Thalweg)
Maximum Vertical Distance (feet)
Year

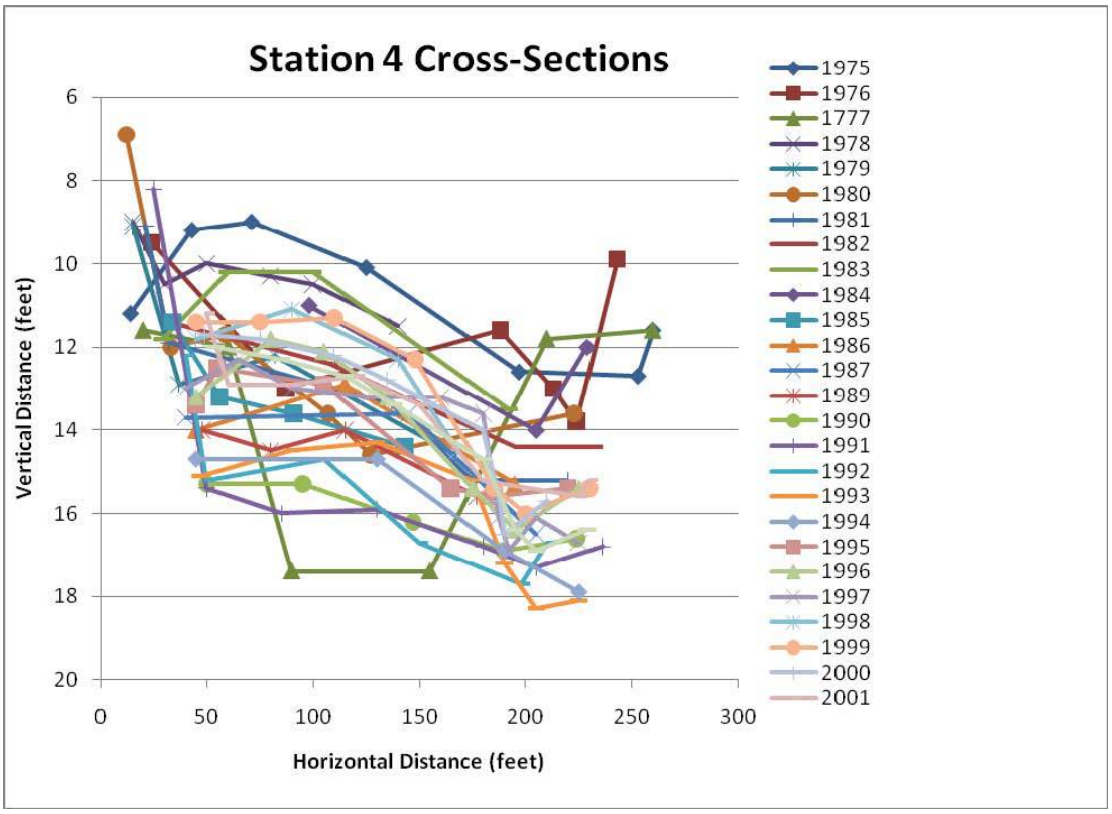

Max./Min. Vertical Distance Ratio
Max/Min Ratio
Year

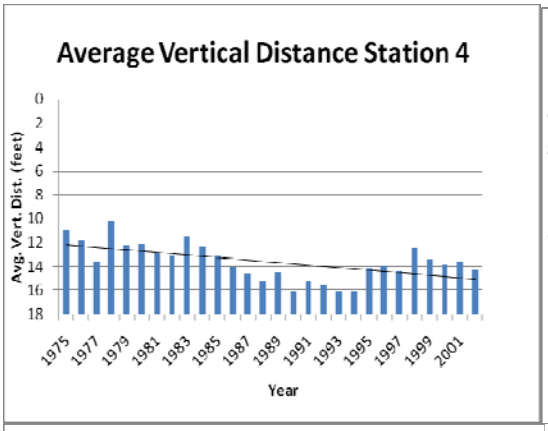

Station 3 Cross-Sections Austin Creek
Vertical Distance (feet)
Horizontal Distance (feet)
0
2
4
6
8
10
12
14
16
18
0
50
100
150
200
250
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998

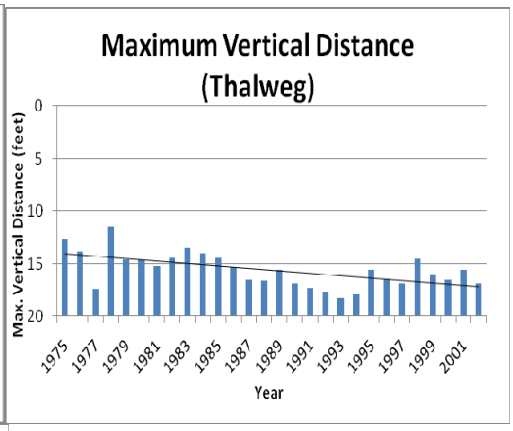

Average Verical Distance
Avg. Vert. Dist. (feet)
Year

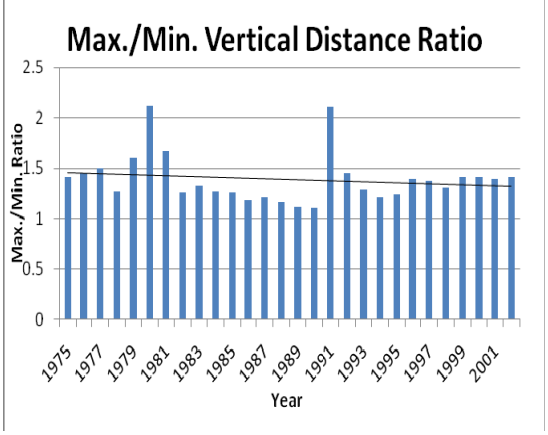

Maximum Vertical Distance (Thalweg)
Maximum Vertical Distance (feet)
Year

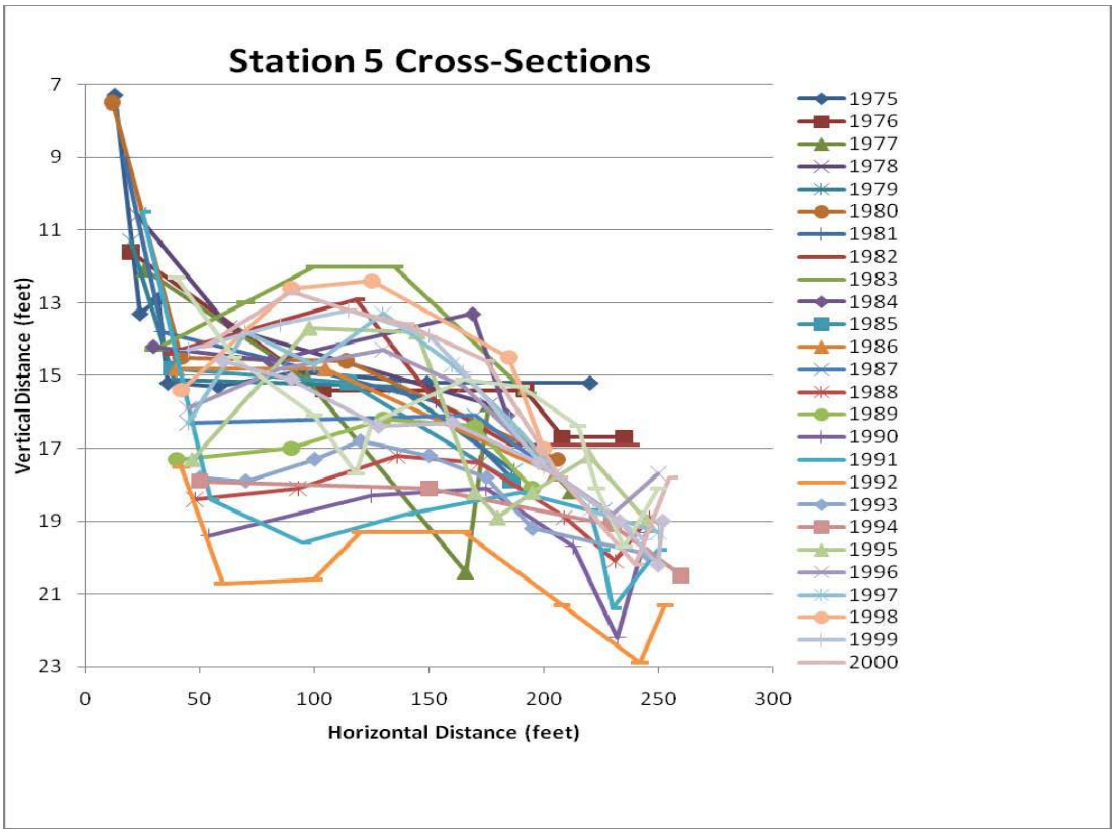

Max./Min. Vertical Distance Ratio
Max./Min. Ratio
Year

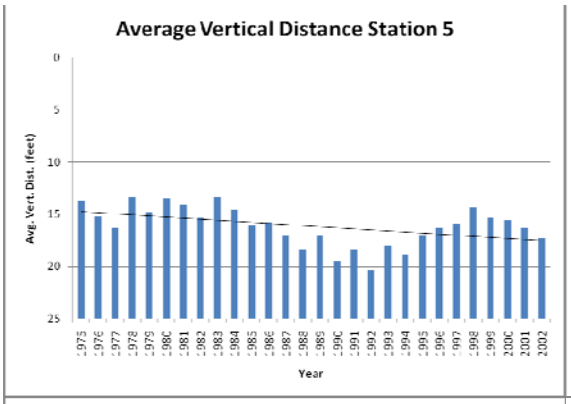

Station 4 Cross-Sections
Vertical Distance (feet)
Horizontal Distance (feet)
6
8
10
12
14
16
18
20
0
50
100
150
200
250
300
1975
1976
1777
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001

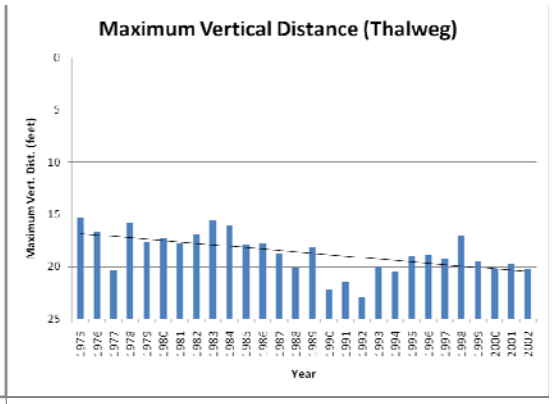

Average Vertical Distance Station 4
Avg. Vert. Dist. (feet)
Year

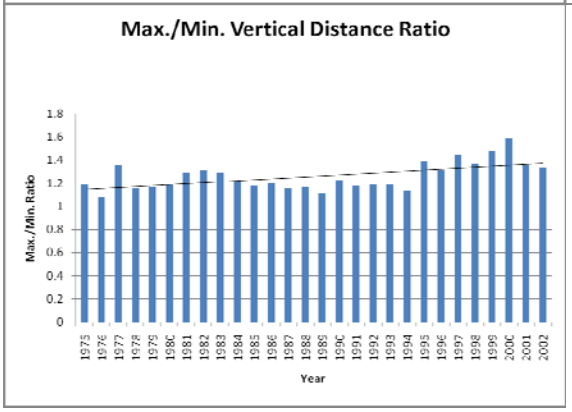

Maximum Vertical Distance (Thalweg)
Max. Vertical Distance (feet)
Year

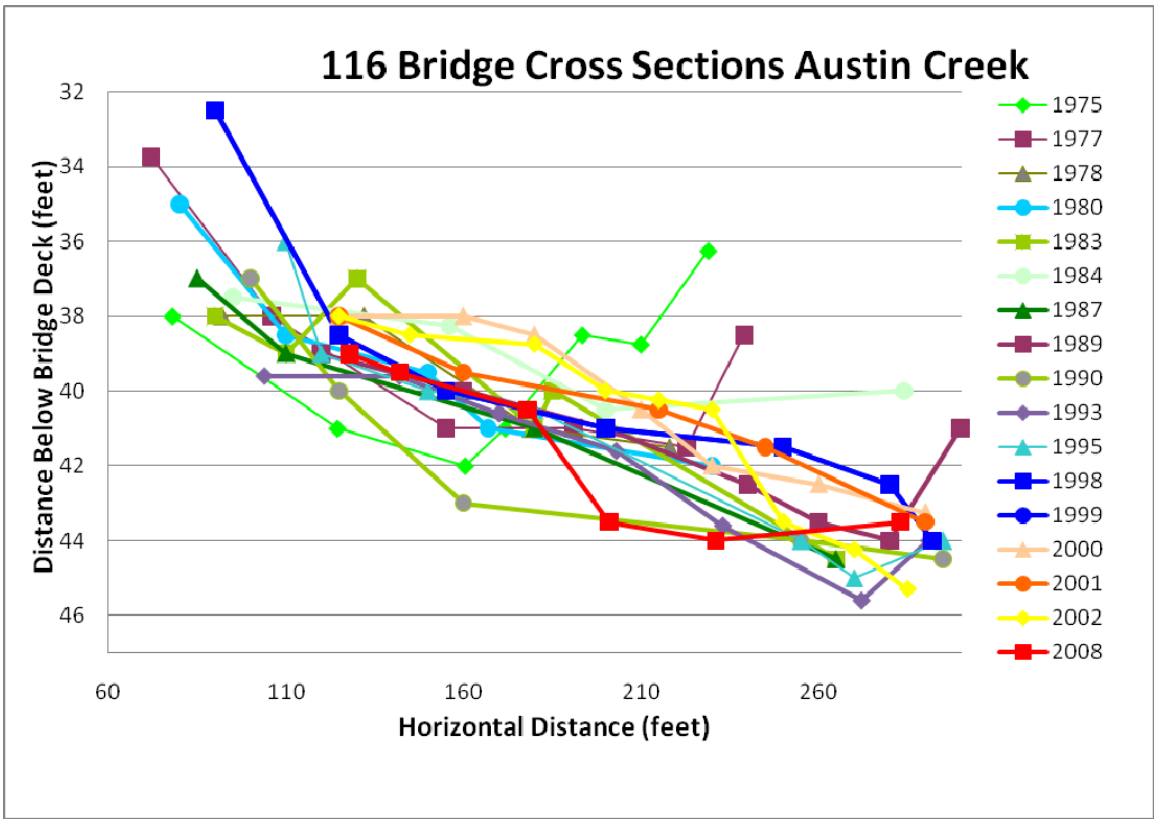

Max./Min. Vertical Distance Ratio
Max./Min. Ratio
Year

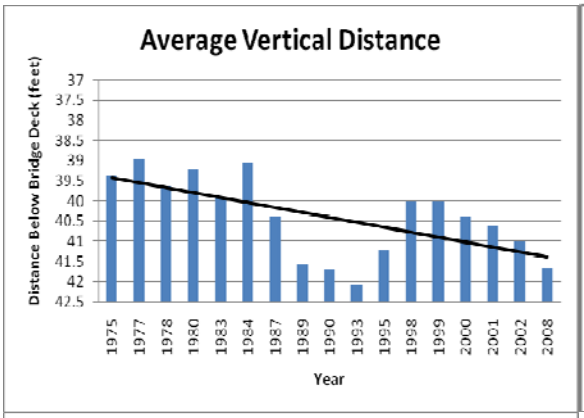

Station 5 Cross-Sections
Vertical Distance (feet)
7
9
11
13
15
17
19
21
23
0
50
100
150
200
250
300
Horizontal Distance (feet)
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000

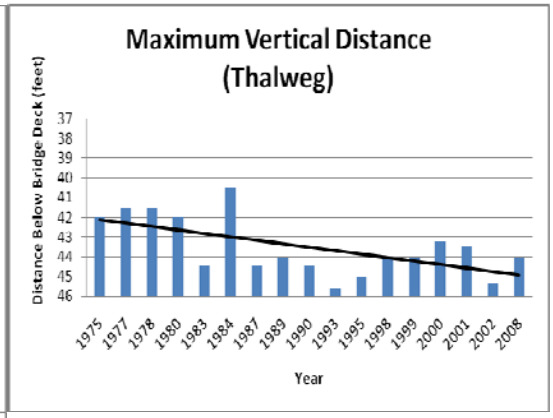

Average Vertical Distance Station 5
Ave. Vert. Dist. (feet)
Year

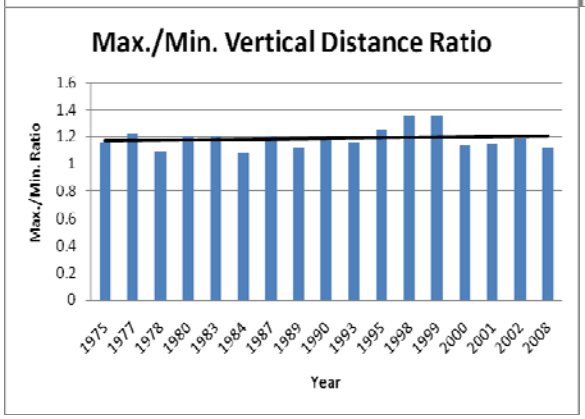

Maximum Vertical Distance (Thalweg)
Maximum Vert. Dist. (feet)
Year


Max./Min. Vertical Distance Ratio
Max./Min. Ratio
Year


116 Bridge Cross Sections Austin Creek
Distance Below Bridge Deck (feet)
32
34
36
38
40
42
44
46
60
110
160
210
260
Horizontal Distance (feet)
1975
1977
1978
1980
1983
1984
1987
1989
1990
1993
1995
1998
1999
2000
2001
2002
2008


Average Vertical Distance
Distance Below Bridge Deck (feet)
Year


Maximum Vertical Distance
(Thalweg)
Distance Below Bridge Deck (feet)
Year


Max./Min. Vertical Distance Ratio
Max./Min. Ratio
Year

APPENDIX F

Consultant Resumes

MARK F. WINSOR, PhD
Principal

EDUCATION
Ph.D., Physical Geography/ Geomorphology, University of Wisconsin

B.A., Geography, Arizona State University

Graduate Studies at the University of Freiburg, Germany

Faculty, Department of Geography and Human Environmental Studies, San Francisco State University

Instructor, extension programs, University of California, Berkeley, and University of San Francisco

AFFILIATIONS
Society of American Military Engineers

American Water Resources Association

National Association of Environmental Professionals

Association of Environmental Professionals

Integrated Watershed Management Council

Soil and Water Conservation Society

PUBLICATIONS
Contributing author to Environmental Analysis, The NEPA Experience, Stephen Hildebrand and Johnnie Cannon, eds., Lewis Publishers, 1993

Co-instructor of the course on public involvement process in environmental decisions titled "Who Speaks for the People?" University of San Francisco Environmental Management Program.

PROFESSIONAL INSTRUCTION
San Francisco State University, Department of Geography and Human Environmental Studies

University of Freiburg-im-Breisgau, Germany, Geographisches Institut I

University of California, Berkeley, Extension Program: "CEQA Policy and Practice"

University of San Francisco, Extension Program: "Who Speaks For the People?", public involvement in environmental planning

University of California, San Francisco, Extension Program: Environmental Analysis and Design: "Integrating CEQA and NEPA in Land Use Planning"

Santa Clara Valley Water District: "Making Effective Use of CEQA Mitigated Negative Declarations and NEPA FONSIs"

University of California, Berkeley, Extension Program: "CEQA Policy and Practice"

University of California, Berkeley, Extension Program: "CEQA and NEPA Processes in Land Use Planning"

Mr. Winsor has directed and participated in more than 500 environmental studies for planning, facility design, environmental compliance and resource management. With 27 years experience in environmental consulting, he is a senior project manager with extensive background in work program design and leadership for large interdisciplinary investigations, technical aspects of research design in practical applications, technical review and editing, public involvement and interagency coordination. Mr. Winsor has extensive experience in compliance with the National Environmental Policy Act and California Environmental Quality Act. He is a geomorphologist who specializes in impact assessment, planning and permitting, and design support for land development projects, master plans and specific plans, flood zone management, and water/wastewater and energy system infrastructure projects. Mr. Winsor has conducted geomorphological investigations in widely diverse environments including fluvial systems, arid lands, coastal zones, and mountain environments in both urban and rural areas.

SELECTED PROJECT EXPERIENCE

Llagas Creek Watershed Project Supplemental EIR/EIS, Morgan Hill, CA
Project Director
CLIENT: Santa Clara Valley Water District and U.S. Army Corps of Engineers
Directed preparation of CEQA/NEPA documentation and including preparation of a Biological Assessment and Section 401 Certification related to flood management plans for nine miles of lower Llagas Creek to protect urban (City of Morgan Hill) and agricultural areas; prepared for the Santa Clara Valley Water District. The Santa Clara Valley Water District, in cooperation with Natural Resources Conservation Service and US Army Corps of Engineers proposed flood conveyance improvements on the main stem of Llagas Creek from Morgan Hill to near Gilroy. The project included evaluation of design options, fish passage, and related structures as well as a geomorphic alternative that entailed a natural watercourse concept. The project was intended to protect urbanizing areas and agricultural lands in the Llagas Watershed. The work program included public outreach and involvement of concerned citizens groups in decision making. Key issues were focused on impacts to biological resources including steelhead and red-legged frog, water quality, traffic, noise and soils and erosion.

Fort Baker Plan Final Environmental Impact Statement, San Francisco, California
Principal Investigator
CLIENT: US National Park Service
The Plan included conversion to conference center and recreational uses of the historic facilities on the former Army base, now included within the Golden Gate National Recreation Area. Mr. Winsor conducted a geomorphological assessment and hazards evaluation of the 335-acre site for the Final EIS. Mr. Winsor provided facility design recommendations and recommended mitigation requirements for the facilities and grounds.

Lucky Drive Levee EIR/EIS, Marin County, California
Project Director
CLIENTS: County of Marin, City of Larkspur, Town of Corte Madera
Project director for the proposed construction of flood protection facilities along Corte Madera Creek. The project entailed alternatives development, environmental review permitting assistance, and public outreach for a controversial levee project in a residential, commercial, industrial and public

open space area adjacent to Larkspur Landing Ferry Terminal and cut by US Highway 101. Sensitive visual impact and access issues were important aspects of the analysis. Additionally, fill in Corte Madera Marsh required US Army Corps of Engineers Section 404 permitting, interagency coordination and alternatives planning for impacts to on wetlands and habitat of salt marsh harvest mouse, California clapper rail, California black rail and the Pt. Reyes bird's beak.

South San Francisco Bay Salt Ponds Restoration Project and Programmatic EIR/EIS, California
CEQA/NEPA Project Director
CLIENTS: Phillip Williams Associates, California State Coastal Conservancy, US Fish and Wildlife Service, US Army Corps of Engineers
Director overseeing preparation of the PEIR/EIS for the proposed ecological restoration of former salt ponds to natural tidal and marsh habitat. The PEIR/EIS addresses the full 30-year program for restoration of 15,000 acres combined with an additional 25,000 acres included in the USACOE South San Francisco Bay Shoreline Study flood management program. A project level EIR/EIS, embedded in the PEIR/EIS will address a Phase 1 project. Focus issues include flood management, Bay circulation, native biological resources, invasive species control, recreation, sediment transport, water quality (especially mercury), levee maintenance, and cultural resources.

EIR on the Quarry Lakes Rehabilitation Project, Fremont, California
Project Director and Principal Investigator
CLIENT: Alameda County Water District
Comprehensive environmental assessment for improvements to groundwater recharge facilities for water supply and salinity intrusion prevention, and surface water diversions from Alameda Creek in Fremont, CA. Analysis of diversions using the rubber dams on Alameda Creek. Also, environmental evaluation of development of the recharge lakes as public recreational facilities for the East Bay Regional Park system. Also principal investigator of geology, erosion and sedimentation, hydrology, and water quality.

Santa Clara Valley Water District Stream Maintenance Program and EIR/EIS, Santa Clara County, California
Project Director
CLIENT: Santa Clara Valley Water District
Project Director for the Environmental Studies for the Santa Clara Valley Water District Stream Maintenance Program. EDAW assisted the District in information development, analysis and policy development for a long term program of routine maintenance activities on 790 miles of stream channels and flood control facilities within Santa Clara County, CA. The county is comprised of a mixture of highly urbanized (San Jose, Santa Clara), agricultural and watershed lands. Maintenance activities include sediment management, bank stabilization, and vegetation and habitat management. Important issues include protections of both tidal and freshwater jurisdictional wetlands, control of water quality, protection of aquatic resources particularly anadromous fisheries (salmonids are federally protected endangered species in this region), protection and enhancement of riparian vegetation, as well as public recreational uses. The project included extensive public involvement with a large stakeholders group that includes federal, state and local agencies, such as the US Army Corps of Engineers, US Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish and Game, the Regional Water Quality Control Board, special interest and local community groups and others. EDAW prepared an Environmental Impact Report/Environmental Impact Statement on the program.

Penn Mine Long Term Solution Project EIR, Calaveras County, California
Project Manager
CLIENT: East Bay Municipal Utility District and Central Valley Regional Water Quality Control Board
Manager for CEQA compliance and impact assessment for biological resources, air quality, noise, traffic, energy and other sections for the EIR evaluating alternatives for site remediation, water quality protection and toxic pits clean-up for an abandoned copper mine with severe acid mine drainage and metals contamination of Camanche Reservoir; included the Section 404 permitting assistance with the Corps of Engineers, Biological Assessment and site restoration planning. The 24-acre mine was a major source of severe acid rock drainage including metals into the water body owned by the East Bay Municipal Utilities District. The mine had been the subject of extensive regulatory actions by the Central Valley Regional Water Quality Control Board and EPA and was the subject of litigation by environmental organizations. The investigation involved identification of and detailed environmental evaluation of 7 alternatives for management of more than 200,000 cubic yards of mine wastes that create acid mine drainage to the Mokelumne River from an abandoned copper and zinc mine. The solution was development of a landfill cover for the acid mine wastes with site ecological restoration.

Falcon to Gonder 345kV Transmission Project Planning and Environmental Impact Statement, Nevada
Principal Investigator and NEPA Compliance Advisor
CLIENT: Sierra Pacific Power Company and USDI Bureau of Land Management
Technical investigator of geology, soils, seismic hazards, and water resources for the EIS on the Falcon-to-Gonder, NV, transmission project. Senior advisement on National Environmental Policy Act compliance and cumulative impact assessment. Prepared by EDAW for the UDSI Bureau of Land Management for NEPA compliance in consideration of Sierra Pacific Power Company's application for a 200-mile transmission line in central and eastern Nevada. A key consideration was crossing to two of the key geothermal development fields in Nevada at Beowawe and Oxbow. Impacts on field and power plant operations were evaluated, as well as opportunities and costs for linking the geothermal plants into the transmission project. Provided team guidance on compliance with content and procedural aspects pursuant to NEPA and CEQ requirements.

Salt Lake City International Airport Master Plan Update, Permitting and Environmental Assessment, Salt Lake City, Utah
Project Director
CLIENTS: Federal Aviation Administration/Salt Lake City International Airport Authority
Direction of the Section 404 Permit Application to the U.S. Army Corps of Engineers and the NEPA Environmental Assessment for the Salt Lake City International Airport Master Plan Update. Soils investigation and oversight for wetlands delineation, mitigation development, and comprehensive environmental impact evaluations for a major expansion program at the airport.

San Jose International Airport Master Plan Environmental Impact Report/Environmental Impact Statement, San Jose, California
Team Leader and Director
CLIENT: San Jose International Airport/Federal Aviation Administration
Provided geotechnical, flood hazard and water quality investigations for the Analysis of proposed facilities development, airfield operations and expansion of services in a major regional airport at San Jose, California.

MARK F. WINSOR, PhD

Clear Lake Basin 2000 Phase II Wetlands Restoration Project EA, Lake County, California
Project Director
CLIENTS: Lake County Sanitation District and U.S. Environmental Protection Agency
Project Director for feasibility and design studies and NEPA compliance review of the study, which included site selection for 16 constructed and/or enhanced wetland sites (total of 110 acres) along the northern side of Clear Lake in Lake County, CA, and at the Northwest Regional Wastewater Treatment Plant (NRWTP). The study evaluated restoration potential using recycled effluent from the NRWTP to supply the restored wetlands and to polish secondary-treated wastewater. Two general design concepts were developed: the sloped wetland cell and level wetland cell. Wetland water balances were developed for each site. The NEPA EIS on the project addressed impacts of the proposed wetlands and associated 24-mile water supply pipeline. Particular emphasis was given to water quality, displacement of habitat, sensitive species, odors, mosquito control, silt generation, erosion control and construction impacts.

Upper San Joaquin Basin Cumulative Impacts Report (PEIR/PEIS), Sierra Nevada, California
Project Director and Principal Investigator
CLIENT: State Water Resources Control Board and USDA Forest Service
Direction of the resource inventory and environmental impact assessment for the hydrologic diversions and hydroelectric power projects permit renewal application in the entire 1,200 square mile upper watershed of the San Joaquin River. Cumulative environmental impact assessment prepared for the State Water Resources Control Board Division of Water Rights (for the Programmatic EIR) and the U.S. Forest Service (for the Programmatic EIS) covering comprehensive impacts of all land use components including roads, adits and tunnels, quarries, spoils heaps and tailings, diversions, dams and reservoirs, powerhouses and recreational facilities developed over an 80-year period. Conducted soils and geologic hazards assessments.

Camp Roberts, California, National Guard Facility Environmental Management Analysis Program (EMAP), Monterey and San Luis Obispo Counties, California
Project Director and Principal Investigator
CLIENT: National Guard Bureau
Directed comprehensive mapping of land use, environmental and training activity use of the 44,000-acre Army National Guard base near Paso Robles, CA. EMAP program evaluation of environmental management plan compliance with all federal and state laws and regulations. Important components included evaluation of all aspects of field training and aircraft operations (transport and operational airplanes and helicopters) including training and operational activities, fueling, maintenance, materials storage, and all aspects of use of aircraft and the airstrip with impacts on air quality, noise, health and safety, hazardous materials and waste, runoff and water quality and effects on sensitive biological resources. Conducted soils, geology, erosion and sediment transport issues.

Westley-Tracy Transmission Project Corridor Siting Study and EA/EIR, Central Valley, California
Task Leader and Principal Investigator
CLIENTS: Turlock Irrigation District, Modesto Irrigation District, and Western Area Power Administration
Task Leader for biological resources, geology, soils, air quality, noise, and hazardous materials for site selection studies and an environmental impact

assessment of 200 miles of corridors for a 230-kV transmission line and related facilities.

Flying Cloud Landfill Environmental Investigation, Eden Prairie, Minnesota
Principal Investigator
CLIENT: BFI Corporation
Principal investigator of slope erosion and stability. The project was a plan for expansion of the largest municipal landfill serving the Minneapolis-St. Paul, MN, metropolitan area. The project was controversial because of its location adjacent to a residential subdivision and its site on the northern bank of the Minnesota River which in that area is part of a federal Wildlife Refuge and popular recreational area. Special concerns existed regarding potential hazards for slope failure, erosion and contamination of the Minnesota River from the landfill. In response to orders of the court, Mr. Winsor evaluated both bank stability of the river and slope stability of the landfill considering the 300-year time frame mandated under court proceedings. The studies were coordinated with ecological and water quality studies.

Altamont Landfill Reclassification and Resource Recovery Facility Expansion EIRs, Livermore, California
Task Leader/Principal Investigator
CLIENT: Alameda County Planning Department
Principal investigator for geological hazards and water quality impacts for the reclassification of part of the Altamont Sanitary Landfill from Class III to Class II and analysis of the 850-acre expansion of the Altamont Landfill to accept 196 million tons of waste. The EIRs were prepared for the County of Alameda and included both a long term development plan and expansion plan with multiple alternatives for the largest municipal solid waste disposal facility in the San Francisco Bay Area. One of the key issues was the potential effect on surface water and groundwater systems. Mr. Winsor developed an impact assessment based on land fill operations, failure scenarios under earthquakes and extreme weather events and addressed long term monitoring and mitigation requirements.

Ash Disposal Site EIR, Sutter County, California
Investigator
CLIENT: Sutter County
Environmental study of a proposed Class II landfill adjacent to Sutter Buttes. The ash source was from cogeneration facilities that burn rice straw and other biofuels. The ash contains crystalline silica that is a hazardous substance. Evaluated site geologic constraints and hydrologic impacts including potential impacts to wetlands.

Town of Windsor EIR on the Drainage Element of the Specific Plan, Windsor, California
Project Director and Principal Investigator
CLIENT: Boyle Engineering Corporation and County of Sonoma
Project manager for screening of alternatives and EIR for Drainage Element of the Windsor Specific Plan, comprehensive environmental analysis of over 10 near miles of floodways and adjoining flood hazard zones in an area undergoing transition from agricultural to urban uses; impact evaluations of channel modifications on bank stability, channel morphology, sensitive species and other issues.

Ecological Characterization of the North and Central Coast of California, Del Norte to Santa Barbara Counties, California
Principal Investigator
CLIENT: USDI Fish and Wildlife Service
Comprehensive inventories and modeling of hydrology, flood hazards, water

quality, geology, soils, sedimentation hazards, topography, littoral transport and other issues for an environmental data base encompassing all watersheds and off-shore areas between the Oregon border and Santa Barbara, CA.

Mission Bay Alternatives Development and EIR In San Francisco, California
Task Manager/Principal Investigator
CLIENT: City and County of San Francisco
Prepared geological hazards, hydrologic and water quality impact analyses for the development of Mission Bay and directed the soils, geology and seismic hazards evaluation of the site. Prepared the EIR sections for the award winning environmental planning document. The project proposed development of a 260-acre industrial area with extensive soil contamination as a mixed use plan area.

Bombay Site Plan and EIR, Santa Cruz, California
Principal Investigator
CLIENT: City of Santa Cruz
Principal investigator of geomorphology, soils, erosion hazards and seismic hazards, flood hazards and water quality for the proposed residential development project on a 400-acre site near the University of California Santa Cruz. The site encompassed a series of marine coastal terraces cut by entrenched steep-walled river canyons which presented significant constraints to development in addition to those posed by important ecological habitat. Mr. Winsor provided geomorphologic and hazards mapping of the site and an opportunities/constraints assessment to guide potential development of the site in residential, public park and open spaces uses. Studies included appropriate development sites on the property and an investigation of septic drainage system capacity. An EIR was prepared for the final development plan and alternatives derived from the site planning studies.

Chiron Corporation Long-Range Development Plan EIR, City of Emeryville, California
Task Manager/Principal Investigator
CLIENT: City of Emeryville
Task manager and director for physical environment sections of the EIR for the expansion of the 500,000 square foot campus to 2.2 million square feet. The project was development of a major campus for biomedical research and product development. Directed sections of the EIR related to assessing seismic and flood hazards, risk management, hydrology, water quality and biological resources. The EIR evaluated health and safety aspects of the expanded biotechnology research and development activities.

Seven Oaks Dam and Eastside Reservoir Environmental Review, Riverside County, California
Project Manager
CLIENT: Morrison & Foerster LLP
Consultant to a private client to review environmental effects of a major off-stream water supply reservoir in the Domenigoni Valley. Principal investigator for hydrology, water quality, geology and seismic hazards.

Pine Creek Detention Basin EIR, Contra Costa County, California
Principal Investigator
CLIENT: Contra Costa Flood and Water Conservation District
Principal technical investigator of soils, erosion and sedimentation, water quality and hydrology, and visual resources for construction and long-term operation and maintenance of a 48-acre storm water detention basin and stream channel modifications.

EIR on Novato Community Hospital, Novato, California
Team Leader, Principal Investigator
CLIENT: City of Novato
Principal investigator of flood hazard, water quality, geologic and seismic hazards for the Novato Community Hospital and Medical Offices Project EIR. Detailed investigations of flood inundation hazards at the hospital and medical offices site in a low lying area adjacent to Novato Creek and bayside wetlands and access to the site from portions of US Highway 101 which periodically floods. Investigation of settlement and seismic hazards related to severe ground shaking and other secondary hazards of earthquakes.

EIR on Knowland Park Zoo Expansion Project In Oakland
Team Leader, Principal Investigator
CLIENT: City of Oakland Zoo
As apart of a team preparing an administrative draft EIR on a zoo expansion program, led tasks related to the physical environment sections of the document prepared for the Oakland Zoo. Wrote the geology, soils, seismic hazards, hydrology and water quality sections of the document. The steep slopes on part of the site created significant constraints and potential impacts related to erosion and sedimentation. Parts of the zoo are located within the earthquake rupture hazard zone of the Hayward Fault. The project included a proposed expansion of existing facilities including exhibits, parking, concessionaire facilities and infrastructure. The project was withdrawn before the EIR was published.

U.S. Naval Civil Engineering Laboratory Port Hueneme Reuse Plan EIR/EIS, Port Hueneme, California
Principal Investigator / Task Manager
CLEINT: City of Port Hueneme
Principal investigator of surface water, groundwater, water quality, geology, soils and seismic hazards for reuse of the site of the U.S. Naval Civil Engineering Laboratory Port Hueneme on the Pacific coast. Existing conditions and hazards evaluations, constraints analysis and environmental impact evaluation for alternative plans for the base closure and reuse of the harbor, offices, laboratories, warehouses, parking and other uses.

Port of San Francisco Waterfront Plan EIR, San Francisco, California
Principal Investigator / Task Manager
CLEINT: Port of San Francisco
Team manager and principal investigator of geology, soils and seismic hazards for the comprehensive master plan of all port lands of the City of San Francisco. Evaluated redevelopment alternatives for all lands of the Port of San Francisco. Special focus on stability issues related to piers, liquefaction hazards, sea wall degeneration, differential settlement and other hazards.

Sycamore Ranch Aggregate Mine EIR, Ventura County, California
Project Manager/Investigator
CLIENT: County of Ventura
Project manager and principal investigator of geology, soils, seismic hazards, surface hydrology, groundwater and water quality impacts for the EIR on the proposed Sycamore Ranch Quarry in Ventura County. The proposed aggregate mining project was highly controversial with regard to earth and water resources issues because of its location on an active alluvial apron drained by two high gradient streams, the presence of nearby active earthquake faults and the use of groundwater in a major agricultural area. The EIR evaluated long-term reuse of the site following mining for citrus production.

CHRIS FITZER
Fisheries Biologist

EDUCATION

MURP, Environmental Planning (Watershed/Water Resource Concentration), University of Colorado, Denver, CO, 2003

BA, Geography (Environmental Concentration), Texas Tech University, Lubbock TX, 1995

Resource Mgmt. and Sustainable Development (Field Course), Institute for Central American Development Studies, San Jose, Costa Rica, 1994

TRAINING / ACCREDITATION

Fluvial Geomorphology: Principles and Applications to River Restoration. University of California White Mountain Research Station, Bishop, CA. October 2004

Aquatic Ecological Bioassessment Workshop. University of California, Davis, CA. September 2005

COLLECTION PERMITS

California Department of Fish and Game Scientific Collection Permit #SC008241

Nevada Department of Wildlife Scientific Collection Permit #S29686

AFFILIATIONS

American Fisheries Society

Society for Ecological Restoration

PUBLICATIONS

Pitt, J., Fitzer, C.H., Force, L. 2002. New Water for the Colorado River: Economic and Environmental Considerations for Replacing the Bypass Flow. Water Law Review, Volume 6, Issue 1.

PRESENTATIONS

Fishkill Assessment for the Little Sackville River, Halifax, Nova Scotia, Canada. Radio Interview for Canada Broadcasting Company (CBC-Nova Scotia). November 2002

Biology of Streams and Lakes. Colorado Parks and Recreation Association, Annual Conference (Platform Presentation). Greeley, CO. April 2003

Flooded Islands Restoration Feasibility – Issues and Alternatives for Modifying Franks Tract. CALFED Science Conference (Poster Presentation). Sacramento, CA. October 2006

Feather and Bear River Levee Setback Project – Balancing Flood Protection And River Restoration In The California Central Valley. American Fisheries Society Conference. San Francisco, CA. September 2007.

Bear River Setback Levee – Opportunities and Challenges with Restoring Floodplain Habitat for Sensitive Fish Species. Riparian Habitat Joint Venture Conference. Sacramento, CA. December 2007.

PAST EMPLOYMENT

Aqua Sierra, Inc., Fishery and Water Consultants, Morrison, CO, USA
June 1996 to February 2004, Project Manager / Fisheries Biologist

Environmental Defense Fund (Rocky Mountain Office), Boulder, CO, USA
Summer 2001, Intern (Colorado River instream Flows Project)

Oregon Department of Fish and Wildlife, Florence, OR, USA
Oct 1995 to Jan 1996, Biological Technician

Chris Fitzer has over 14 years experience in aquatic resource assessment management and planning, aquatic ecology, and fisheries investigations. Aquatic resource studies completed by Mr. Fitzer include but are not limited to impact assessment, habitat evaluation, restoration and enhancement, population studies, and mitigation plans. Habitat evaluation and restoration projects encompass complete inventory, evaluation (limiting factor analysis), restoration design plans and specifications (construction detail), permitting, and construction oversight. Aquatic resource studies incorporate complete physical, biological, and chemical survey design, implementation, and analysis. Physical parameters include survey and analysis of habitat features, hydrology, and geomorphology. Biological parameters include survey and analysis of fisheries, aquatic invertebrates, and aquatic vegetation. Fisheries studies include analysis of population dynamics, community structure, and condition factors. Aquatic invertebrate studies include population dynamics, community structure, and indices for measuring and monitoring water quality/ stream health. Chemical parameters include survey and analysis of water chemistry interrelations with aquatic life. Mr. Fitzer is proficient in document preparation and permitting for projects requiring California Environmental Quality Act (CEQA), Clean Water Act (CWA) Section 404, and Endangered Species Act (ESA) Section 7 compliance. Mr. Fitzer has also led or assisted in the development of several land/resource management plans.

PROJECT EXPERIENCE

American River Lower Sunrise Side Channel Project, Sacramento, CA

CLIENT: Sacramento Area Water Forum

Project Manager/Fisheries Biologist. The Lower Sunrise side channel is an intermittent side channel adjacent to the south bank of the American River. The channel currently becomes inundated at flows of about 4,500 cubic feet per second (cfs), and is used by spawning steelhead. Rapid reductions in flow from the upstream dam cause the channel to prematurely dry out, stranding redds and isolating or stranding some fish. The DFG, Sacramento Water Forum, and SAFCA (the Client Team) want to modify the channel so that it will become inundated at around 1,500 cfs and therefore remain wet for long enough to sustain steelhead spawning and rearing. AECOM, Phil Williams and Associates, and Restoration Resources are teamed to provide grant application assistance, CEQA documentation, permitting, design including plans and specifications, construction implementation, and monitoring services for this project. Key issues include maximizing spawning and rearing habitat for steelhead and chinook salmon, permit and construction implications for working in the main channel of the American River, channel stability over the long term, revegetation, and public support. Mr. Fitzer has developed physical habitat criteria for steelhead, was responsible for providing input into the fisheries habitat restoration designs, and prepared a Biological Assessment (BA) with National Marine Fisheries Service (NMFS) to comply with ESA requirements. The BA covered Central Valley steelhead and Chinook salmon.

La Grange Powerhouse Repairs Biological Assessment, Tuolumne River, Stanislaus County, CA

CLIENT: Turlock Irrigation District (TID)

Fisheries Biologist. AECOM provided restoration design guidance and permitting services for this project. The project consisted of the repair of a draft tube for the LaGrange Powerhouse and habitat restoration design on a bypass channel and tailrace side channel of the Tuolumne River below La Grange Dam.

CHRIS FITZER

USDA Forest Service, Lowell, OR, USA
Jul 1995 to Oct 1995, Biological Technician

Oregon Department of Fish and Wildlife, Florence, OR, USA
May 1995 to June 1995, Biological Technician

Habitat restoration designs included spawning habitat enhancement and channel improvements to eliminate nuisance holding and stranding of chinook salmon and steelhead. Mr. Fitzer prepared a Biological Assessment (BA) with National Marine Fisheries Service (NMFS) to comply with ESA requirements. The BA covered Central Valley steelhead and chinook salmon.

Delta Irrigation Diversion Fish Entrainment Risk Evaluation, Sacramento County, CA
CLIENT: The Nature Conservancy
Project Manager/Fisheries Biologist. AECOM is conducting an evaluation of the potential for fish entrainment into irrigation siphon and pump intakes located in waterways surrounding two islands in the Delta. The evaluation focuses on the potential for entrainment of fish species that are protected under California and federal Endangered Species Act (ESA) and/or deemed commercially or recreationally important. The evaluation includes 1) a characterization of aquatic habitats and fish use in the water bodies directly adjacent to the islands; 2) a characterization and description of the siphons, and intake pumps around the islands; and 3) an evaluation of the potential for fish entrainment into the siphons and intake pumps. Recommendations that consider operational adjustments and additional studies/monitoring are also being provided.

50-Acre Sport Fishery Mitigation Pond at Salton Sea, Imperial County, CA
CLIENT: San Diego County Water Authority/FUSCOE
Project Manager/Senior Fisheries Biologist. AECOM is a critical part of the team evaluating and designing a 50-acre sports fishery mitigation pond at a previously identified site within DFG's Wister Management Unit, on the southwest edge of the Salton Sea. The pond is intended to be stocked with various game fish species and will be open to the general public for shoreline sports fishing access. Providing services related to source water quality evaluation, planning and design of fish habitat structures, re-vegetation, irrigation system, water quality treatment, and fish stocking/management.

Bouquet Canyon Creek Reestablishment and Road Improvement Project, Los Angeles County, CA
CLIENT: Los Angeles County Department of Public Works
Fisheries Biologist. Served as fisheries specialist for proposed creek reestablishment and road improvement project. Analyzed potential project-related effects on unarmored threespine stickleback and Santa Ana sucker. The proposed project would involve re-aligning a segment of Bouquet Canyon Creek and making improvements to road that was damaged during flood.

Delta Conveyance Improvement Studies Summary Report: Franks Tract, Through-Delta Facility, and Delta Cross Channel Reoperation Projects, Sacramento County, CA
CLIENT: California Department of Water Resources
Assistant Project Manager/Fisheries Biologist. AECOM prepared a summary report for the Department of Water Resources to meet a documentation requirement under CalFed Stage 1. AECOM reviewed all available technical, engineering, and fisheries study reports pertaining to Franks Tract, Through Delta Facility, and Delta Cross-Channel Reoperation projects and summarized each study for inclusion in this document. The report was completed in December, 2007, and an update report will be prepared in 2008. Mr. Fitzer reviewed and prepared summaries for studies focused on fisheries and water quality issues in the Delta.

CHRIS FITZER

Lake Success Dam Rehabilitation Project, Tulare County, CA
CLIENT:: U.S. Army Corps of Engineers
Project Manager / Fisheries Biologist
The U.S. Army Corps of Engineers (USACE) owns and operates Success Dam for flood control purposes on the Tule River. USACE is evaluating alternatives, including constructing a new dam, to meet seismic safety standards. In addition to other services, AECOM is preparing the fisheries resources mitigation and enhancement plan for the proposed project. The plan includes several components to address issues for different stages of the overall project. An initial component of the plan addresses issues during construction and includes measures to minimize fish mortality and habitat degradation (water quality) during construction (lake draw-down). A second component of the plan includes measures to restore the fishery after construction is complete and includes guidelines for habitat restoration and enhancement, re-stocking of native and game fish species, and monitoring to measure achievement of plan goals.

Alternative Intake Project EIR/EIS, San Joaquin and Contra Costa Counties, CA
CLIENT: Contra Costa Water District
Fisheries Biologist. AECOM is leading the environmental compliance effort to protect and improve water quality for CCWD customers. The proposed project includes the construction of a new intake and fish screen in the Central Delta, a pumping plant, and an associated conveyance facility from the new intake to CCWD's Old River Pumping Plant on Old River. This new Delta location would provide CCWD with better water quality at times than is currently obtained from its Old River and Rock Slough intakes. The proposed project would involve adding a new point of diversion to certain existing water rights held by CCWD and by Reclamation. AECOM's role includes conducting environmental feasibility studies; preparing an alternatives analysis report; preparing a joint EIR/EIS; coordinating all federal, state, and local environmental permitting; and contributing to all aspects of project planning, organization, and public outreach. Because CALFED funding is anticipated, environmental regulatory assistance includes preparing an Action-Specific Implementation Plan evaluating project compliance with CALFED regulatory requirements, including ecosystem and species recovery goals. Reclamation is an active participant in the project and is overseeing preparation of the EIS and water rights application to add the new point of diversion.

Franks Tract EIR/EIS, Contra Costa and Sacramento Counties, CA
CLIENT: California Department of Water Resources (DWR)
Fisheries Biologist. Modeling studies have shown that altering hydrodynamics in the vicinity of Franks Tract may provide a significant reduction in salinity at the State Water Project pumping facilities in the Delta. DWR has proposed constructing a gate project to demonstrate and measure the success of this endeavor, and to help guide operation of this or other facilities. AECOM and a team of subconsultants are preparing CEQA/NEPA documents (EIR/EIS), conducting field surveys (biological, cultural, bathymetric, geotechnical), preparing federal and state permit packages, conducting public stakeholder outreach, preparing technical memoranda, and facilitating technical working group meetings (fisheries, modeling).

Shasta Lake Water Resources Investigation Plan Formulation Report and EIS/EIR, Shasta County, CA
CLIENT: U.S. Bureau of Reclamation
Fisheries Biologist. As a subcontractor to an engineering firm, AECOM provided environmental planning and impact analyses for the Shasta Lake

Water Resources Investigation (SLWRI). If constructed, the project would feature a dam raise from 6.5 to 18.5 feet and the relocation of numerous recreation facilities surrounding Shasta Reservoir. The project seeks to increase the survival of anadromous fish downstream as well as provide ecosystem restoration, recreation, flood control, and hydropower improvements. Mr. Fitzer analyzed potential impacts of project alternatives on downstream fisheries and aquatic resources and prepared the initial draft of the fisheries and aquatic resources technical report. The report addressed potential project-related construction and operation impacts on the Sacramento River and major tributaries including impacts that could result from changes in flows, water temperatures, and ecological processes (e.g., geomorphic processes, floodplain and flood bypass innundation). Mr. Fitzer also was involved in presenting the proposed approach and preliminary results of the project's Action Specific Implementation Plan to an interagency workgroup.

Lake Tahoe Shorezone Ordinance Amendments Final Environmental Impact Statement and Response to Comments, Tahoe Basin, CA and NV
CLIENT: Tahoe Regional Planning Agency
AECOM assisted TRPA in preparing a Supplemental Draft Environmental Impact Statement (DEIS) and Final EIS which evaluated five alternatives for amendments to the Shorezone Ordinance relating to shorezone development/ facilities (piers, buoys, floating docks, slips), scenic resources, water quality, fish habitat, recreation, and other issue areas. AECOM assisted TRPA in preparing a Supplemental DEIS to present a sixth alternative, which was crafted based on public and agency comments from the five previous alternatives. AECOM is assisting TRPA with the public comment and response process and is preparing the FEIS and the final set of Shorezone Ordinances. Mr. Fitzer provided an assessment of the Shorezone Ordinance effects on fisheries resources, water quality, and hydrology.

Oroville Hydroelectric Relicensing, Northern California
CLIENT: California Department of Water Resources (DWR)
Fisheries Biologist. In a joint venture with Montgomery Watson Harza (MWH), AECOM is assisting DWR in designing, managing and implementing a comprehensive program to obtain a new license from the Federal Energy Regulatory Commission (FERC) for the Oroville Facilities. Oroville is a key water storage and electrical generation facility for the State Water Project, which delivers water for agriculture, cities, and industries; provides flood control and hydroelectric power; enables recreation; improves water quality; and protects and enhances fish and wildlife. The team is completing 21 separate tasks for this relicensing process, including developing relicensing strategy, facilitating stakeholder and resource agency meetings, performing extensive environmental field studies, and drafting the license application and Preliminary Draft Environmental Assessment, which was submitted to FERC in 2005. In terms of field studies, AECOM has been responsible for developing and implementing 19 recreation and socioeconomics studies, five land use/aesthetic studies, and five cultural resource studies. Each study plan requires multiple levels of review under stringent deadlines. Mr. Fitzer provided technical input into the cumulative impact analysis of the overall effort.

San Luis Reservoir State Recreation Area General Plan, Resource Management Plan, EIR/EIS, Merced County, CA
CLIENT: California State Parks and USBR, Mid-Pacific Region
Fisheries Biologist. AECOM prepared a joint State Park General Plan and Reclamation Resource Management Plan and EIR/EIS for San Luis Reservoir State Recreation Area, a major Central Valley recreation area of 27,000 acres. The project area studied includes the water surfaces of San Luis Reservoir, O'Neill

Forebay, and Los Banos Reservoir. The lands are jointly managed by the California Department of Water Resources and State Parks. State Parks is responsible for recreation and resource management while providing activities for thousands of visitors annually including camping, windsurfing, swimming, fishing and hiking. DWR manages the water supply facilities responsible for furnishing approximately 1.25 million acre-feet of water as irrigation to some 600,000 acres. The joint Plan serves to guide recreation management and resource protection for the next 25 years. It incorporates input from a variety of stakeholders and multi-agency jurisdictions to find solutions for balancing the protection and management of natural resources with the demand for expanded recreation within the context of water supply and distribution. The plan work includes the preparation of a joint, program level EIR/EIS to comply with CEQA/NEPA. Key biological issues addressed in the EIR/EIS include effects associated with development of new visitor facilities and increased public use. Mr. Fitzer assisted with the preparation of fisheries and aquatic resource-related components of the Plan and EIR/EIS.

California State Prison, Centinela, El Centro, CA
CLIENT: California Department of Corrections and Rehabilitation (CDCR)
Fisheries Biologist. Provided fisheries analysis for an initial study that evaluated potential impacts associated with proposed upgrades to the existing Centinela wastewater treatment plant, which included an increase in permitted treatment capacity, construction of new plant headworks and sludge drying beds, and conversion from a gaseous to a liquid effluent disinfection. Primary issues of concern focused on water quality and fisheries biology. Mr. Fitzer provided the analysis of project-related effects on desert pupfish, a fish species listed as Endangered under federal and state ESA.

Laguna Creek Watershed Protection Program, Sacramento County, CA
CLIENT: Sacramento County
Aquatic Ecologist. Mr. Fitzer is assisting the project team in implementation of the Laguna Creek Watershed Protection Program Grant. The project is aimed at protecting and improving the health of the creek and its tributaries by engaging watershed residents and agency stakeholders in the development of a watershed management plan which recommends a balanced mix of protection, restoration, and stewardship projects for implementation. Specifically, Mr. Fitzer is assisting in preparing a Project Assessment/ Evaluation Plan (PAEP), Quality Assurance Project Plan (QAPP), and monitoring plan (MP); conducting a comprehensive watershed assessment (including reviewing existing data and conducting field assessments), identifying and evaluating projects and management strategies, preparing a watershed management plan, providing on-going support for "Adopt a Creek" groups and creek projects, and securing necessary environmental permits including a Categorical Exemption under CEQA and a Scientific Collection Permit from California Department of Fish and Game (DFG).

Lower Putah Creek Watershed Management Action Plan and Streamlined Permitting, Yolo, and Solano Counties, CA
CLIENT: Lower Putah Creek Coordinating Committee (LPCCC)
Aquatic Resource Specialist/Project Manager. AECOM conducted the resource assessment and development of a watershed management action plan (WMAP) and prepared the environmental compliance documentation and permit applications for the Lower Putah Creek watershed, including its tributaries. The WMAP covers a variety of resources and issues, including sensitive biological resources, cultural resources, invasive plant species, hydrology, geomorphology, water quality, bank stability, illegal dumping, and terrestrial and aquatic habitat restoration needs. The project was funded by a CALFED

Bay-Delta Authority grant, including funding for development and expansion of an Adopt-A-Reach program involving university, school, and community groups as volunteer stewards in restoration, invasive weed abatement, and monitoring projects. AECOM consulted with agencies and prepared the CEQA documents and applications for CWA Section 404 Nationwide Permit 27, Fish and Game Code Section 1601 Streambed Alteration Agreement, and CWA Section 401 Regional Water Quality Control Board (RWQCB) Certification for invasive weed abatement and habitat restoration activities. AECOM was able to secure a unique, multi-year programmatic permit covering the 40-mile watershed for wildlife and fish habitat restoration activities, allowing restoration activities to take place in as yet unidentified locations throughout the watershed. This streamlines the process and allows more of the budget to be spent on implementation. Mr. Fitzer assisted in preparing several chapters of the resource assessment document and is serving as Project Manager for the WMAP Update.

Yolo Bypass Wildlife Area Land Management Plan and CEQA Compliance, Yolo County, CA
CLIENT: California Department of Fish and Game
Project Manager/Fisheries Biologist. AECOM was contracted to provide overall project management and take the lead for preparation of the Land Management Plan (LMP) and the CEQA document for the Yolo Bypass Wildlife Area (YBWA). The LMP provides comprehensive guidance for management of natural resources, public access, interpretation, and restoration projects in the YBWA. The AECOM team conducted detailed reviews, made recommendations, identified data gaps, and developed management direction for at least the following areas: soil analysis and mapping; vegetation mapping; wildlife resources inventory; sensitive species/habitat inventory and mapping; cultural resources identification and mapping; restoration plan, mapping, and phasing; fire management; property boundaries, leases, agreements, and rights of way; public use and access; flood control plans, reclamation plans; and existing management plans, agreements and contracts. AECOM also conducted all phases of CEQA compliance, including facilitation of the public scoping and preparation of the draft and final CEQA document. Mr. Fitzer served as Project Manager for the AECOM team.

Chico Landing Subreach Restoration Project Environmental Impact Report, Butte/Glenn Counties, CA
CLIENT: The Nature Conservancy of California
Aquatic Resources Specialist. In an example of how federal, state, public and private entities collaborate to restore riparian habitat, AECOM is providing environmental planning services to The Nature Conservancy for a proposed 832-acre riparian restoration project on three active and former agricultural parcels recently acquired by the U.S. Fish and Wildlife Service (USFWS) Sacramento River National Wildlife Refuge. The parcels are in a largely unleveed and meandering reach of the Sacramento River that is subject to annual flooding of farmed floodplain and riparian woodland areas. The California Bay-Delta Authority is the lead agency for the Environmental Impact Report (EIR). Primary issues addressed in the CEQA analysis include hydrology, agricultural and land use, biological resources, and other issues. Mr. Fitzer prepared the fisheries and hydrology, geomorphology, and water resources analysis section of the EIR.

Tahoe City Marina EIR/EIS, Placer County, CA
CLIENT: Tahoe Regional Planning Agency
Fisheries Biologist/Water Quality Specialist. AECOM is prepared an EIR/EIS for the Tahoe City Marina Expansion Master Plan. The expansion has been

planned through the Tahoe Regional Planning Agency (TRPA) master plan steering committee process, and the EIR/ Environmental Impact Statement (EIS) was prepared with continued steering committee consultation. The marina expansion involved an additional 144 boat slips built in two phases. Additional space would be provided for water taxi and excursion boats using the marina to reach Tahoe City as a destination. Key project issues include water quality, attainment of TRPA thresholds, compliance with the Basin 208 Plan and water quality regulations, scenic effects, traffic and parking, site coverage, and pedestrian/bicycle circulation. Mr. Fitzer provided analysis support related to fisheries and water quality issues addressed in the EIR/EIS.

Tallac, Taylor, and Spring Creeks Watershed Assessment, Tahoe Basin, CA
CLIENT: Lake Tahoe Basin Management Unit, U.S. Forest Service
Fisheries Biologist. AECOM prepared an Ecosystem Assessment Report (EAR) and Restoration Plan for the Taylor, Tallac, and Spring Creek Watersheds for the U.S. Department of Agriculture (USDA) Forest Service. This effort included the development of a thorough understanding of ecosystem function in the watersheds, assessment of how the system departs from natural, pre-disturbance function, development of a long-term plan to help restore ecosystem processes, and identification of appropriate restoration projects. The AECOM team conducted assessments of geomorphic and hydrologic processes, wetland function and processes, beach processes, forest health, logging history, fire history, soils, vegetation and wildlife communities and their interrelationships with each other. The EAR includes a range of conceptual plans and drawings designed to help restore natural ecosystem processes. Mr. Fitzer was responsible for providing an assessment of fisheries and aquatic invertebrate resources for the study.

Nimbus Hatchery Weir Replacement, Folsom, CA
CLIENT: U.S. Bureau of Reclamation
Fisheries and Water Quality Specialist. The U.S. Bureau of Reclamation proposes to replace the existing weir at the Nimbus Fish Hatchery. There are several alternatives, including replacing the existing weir with an extended fish ladder. The U.S. Bureau of Reclamation has contracted with AECOM to prepare an EA to comply with National Environmental Policy Act (NEPA). Mr. Fitzer prepared the water quality analysis section of the EA.

Natomas Levee Evaluation Project, Sutter County, CA
CLIENT: Sacramento Area Flood Control Agency
Fisheries Biologist. AECOM was a member of a study team assembled by SAFCA to identify improvements necessary to provide 200-year flood protection to the Natomas Basin. The study included approximately 25 miles of levees on the Sacramento and American Rivers and the Natomas Cross Canal and consisted of two main components, problem identification and alternatives analysis. AECOM's efforts during problem identification included building a GIS database of sensitive resources in the study area, incorporating measures into the study design to ensure the protection of sensitive environmental resources, preparing documentation to support the filing of a notice of exemption from California Environmental Quality Act (CEQA) for the study program, and performing surveys and monitoring. For the alternatives analysis, AECOM identified environmental constraints associated with the potential site-specific treatments, advised SAFCA on possible mitigation requirements and costs, and contributed to the development of site treatments to enhance environmental values within the study area. The study included consideration of several configurations of levee setbacks and associated habitat creation opportunities. AECOM also participated in extensive and varied scoping and

public and agency outreach efforts as part of the project. Mr. Fitzer also led the SRA design.

Flooded Islands Feasibility Study, Sacramento County, CA
CLIENT: California Department of Water Resources
Assistant Project Manager/Fisheries Biologist. AECOM managed the overall project team to investigate the feasibility of restoring deep flooded islands to tidal marsh habitat on Lower Sherman Lake, Big Break, and Franks Tract with the objectives of restoring ecosystem values, improving water quality conditions for water supply, and enhancing recreation and other social values of the flooded islands. The AECOM team developed and evaluated innovative and cost-effective Delta tidal marsh restoration concepts to re-create dendritic channels and provide ecological benefits for native plants, fish, and wildlife, and impede the success of invasive, non-native fish and aquatic plants. The team also evaluated restoration of shoreline levees with strategically located openings to beneficially alter the salt-trapping and mixing characteristics of the three flooded islands while retaining tidal flow to the island interiors. Mr. Fitzer prepared the fisheries, hydrology, and water quality sections of the baseline report and served as assistant project manager for the development of the final feasibility report.

Northstar-at-Tahoe Expansion Projects, Placer County, CA
CLIENT: East West Partners and Northstar Mountain Properties, LLC
Fisheries Biologist. AECOM is conducting environmental review, CEQA documentation, extensive biological studies, agency consultation, revegetation and restoration plans, Geographic Information Systems (GIS) data base and mapping services for numerous proposed Northstar-at-Tahoe expansion projects. AECOM is participating in key biological strategy coordination with the other developers proposing projects within the Martis Valley General Plan. Also participating in the development of a proposed Phased Approach for Community Enhancement program for managing expansion of Northstar Community, and development of mitigation monitoring and reporting program and field construction management structure for adherence to mitigation measures. Mr Fitzer has prepared several fisheries and water quality and hydrology sections for environmental documents and has prepared a BA with U.S. Fish and Wildlife Service to comply with ESA requirements. The BA covered Lahontan cutthroat trout.

Cedar Grove Apartments Affordable Housing Project EIR/EIS, Tahoe Vista, CA
CLIENT: Tahoe Regional Planning Agency
Water Quality Specialist. Project is proposed to build an affordable housing community in the Basin. AECOM is preparing the EIS/EIR and directing the supporting technical studies to meet requirements of CEQA, Placer County Environmental Review Ordinance, and TRPA's Code of Ordinances and Rules of Procedure. AECOM will develop alternative site plans and designs to be analyzed in the EIR/EIS. The EIR/EIS analysis will include close coordination with TRPA and Lahontan RWQCB staff. Process includes public involvement opportunities for stakeholders, agencies, and the concerned public through public hearings and community meetings. Mr. Fitzer is preparing the hydrology and water quality analysis section of the EIS/EIR.

Feather and Bear River Levee Setback Project, Yuba County, CA
CLIENT: Yuba County Water Agency / Department of Water Resources
Fisheries Biologist/Water Quality. AECOM is leading a consulting team in preparing a Land Acquisition and Management Plan (LAMP) and a project-specific EIR as key elements of the Yuba-Feather Supplemental Flood Control

Program in one of the most floodprone areas of the state: the Yuba and Feather River systems. The $50 million program has the purpose of reducing the existing flood threat to Marysville, Yuba City, and the surrounding areas. The levee setback project is a key element of the overall program and involves multiple stakeholders and coordination with the U.S. Army Corps of Engineers' (USACE's) Sacramento and San Joaquin River Basins Comprehensive Study, CALFED, and DWR's Oroville Project relicensing efforts. The levee setback involves setting back levees on the Feather and Bear rivers. The LAMP will provide information on land ownership, acquisition, uses, and management. Continued agricultural usage of the flooded area will be evaluated against potential opportunities to restore or enhance the natural environment along the flood channel. A project-specific EIR is being prepared on the levee setback project and the LAMP. Key issue areas will include fisheries, wildlife and vegetation, fish stranding issues, habitat restoration, recreation, and continued or modified agricultural uses. The project involves substantial consultation with DFG, the USFWS, and NMFS; coordination with DWR, the USACE, and FERC; and coordination with numerous public interest groups and other stakeholders. Mr. Fitzer has prepared a BA with NMFS and 2081 permit application with DFG to comply with federal and state ESA requirements. The BA covered spring-run Chinook salmon, winter-run Chinook salmon, steelhead, and green sturgeon; the 2081 permit covered spring-run Chinook salmon.

CEQA Compliance for Vineyard Water Rights, Napa/Sonoma Counties, CA
CLIENT: Private Clients and State Water Resources Control Board (SWRCB)
Project Manager/Fisheries. Numerous vintners in Central Coast watersheds require water right permits or modifications to a permitted or licensed appropriative water right from the SWRCB. Typically, these water rights are to divert or temporarily store water for irrigation and frost control. The SWRCB is requiring that these water right applicants comply with CEQA for their projects. AECOM is currently working on several of these projects where the SWRCB serves a lead agency for the CEQA document, but AECOM is under contract with the applicant to perform the requisite work. Many of these projects involve fisheries issues including: salmon and steelhead populations, instream flows, fish migration, rearing, and spawning habitat. Mr. Fitzer has been managing several of these projects and providing fisheries and hydrology/water quality analysis support for several others.

River Islands at Lathrop Biological Assessment, San Joaquin County, CA
CLIENT: City of Lathrop
Fisheries Biologist. AECOM prepared an EIR and is currently providing permitting services for this Project. The project consists of a mixed-use development on approximately 4,900 acres in the Sacramento/San Joaquin River Delta. The project is surrounded with water on three sides and includes construction of numerous back bays, set back levees, piers, docks, and other water features. Mr. Fitzer has prepared a BA with NMFS and USFWS to comply with ESA requirements. The BAs cover Central Valley steelhead, three runs of Central Valley chinook salmon, green sturgeon, delta smelt, riparian brush rabbit, and giant garter snake.

Fountaingrove Lake Aquatic Resource Survey and Management Plan, Santa Rosa, CA
CLIENT: City of Santa Rosa
Fisheries Biologist. Mr. Fitzer designed and implemented a complete aquatic resource survey and management plan for a lake located in Santa Rosa. The survey and resource management plan encompassed physical, chemical, and biological parameters and provided long-term management recommendations for future management. Key elements of the project were working with

municipal (City) and private (Golf Course Development) co-owners on defining problems and generating solutions for management.

Fisheries Resource Study, Russian River Basin
CLIENT: Confidential
Project Manager/Fisheries Biologist. AECOM is conducted a preliminary impact assessment and prepared a summary report for a water right application project located in the Russian River Basin. The report provides information on the current status of steelhead and salmon including a description of the species, biological requirements, factors of decline, and current local population information. Analysis includes identification of potential impacts from the proposed project. Mitigation measures are also provided. Mr. Fitzer served as Project Manager and lead author on this project.

Bear River Habitat Restoration, Enhancement, and Management Plan, Evanston WY
CLIENT: Kingfisher Bend Ranch
Project Manager/Fisheries Biologist. Mr. Fitzer was Project Manager on a habitat restoration and enhancement project located along the Bear River near Evanston, Wyoming. Key elements of the river plan included preserving native Bonneville cutthroat trout populations, restoring heavily grazed and eroded banks, and repairing and preventing oxbow bend loss through channel migration. The project included survey design and implementation, fisheries analysis, aquatic invertebrate analysis, habitat classification and mapping (aerial photos and AutoCAD), complete designs and specifications for restoration and enhancement, CWA Section 404 permitting, and initial construction oversight.

South Platte River Habitat Restoration and Enhancement Plan, Lake George, CO
CLIENT: Lake George Company
Project Manager/Fisheries Biologist. Mr. Fitzer prepared a complete habitat restoration plan for a portion of the South Platte River on the first private land holding downstream of Elevenmile Canyon. Goals of the project were to enhance production of resident trout species including Snake River cutthroats. The project encompassed digitizing aerial photos into AutoCAD, formulating and carrying out inventory of existing conditions (physical habitat attributes and creel survey), designing and specifying appropriate habitat enhancement structures, and providing narrative on prioritizing and phasing components of the overall project.

Wahatoya Creek Habitat Restoration and Enhancement Plan, La Veta, CO
CLIENT: Big Wall Ranch / Wahatoya Valley Property Owners
Project Manager/Fisheries Biologist. Mr. Fitzer provided complete project management services for a stream restoration and enhancement project on three adjacent land holdings in the Wahatoya Valley on the foothills of the Spanish Peaks near La Veta, Colorado. Key elements of the project included enhancing habitat for restoration of native cutthroat trout. Project responsibilities included initial feasibility study, survey design and implementation, habitat restoration and enhancement plan, project permitting (CWA Section 404), and construction oversight.

Roaring River Ranch Aquatic Resource Creation, Aspen, CO
CLIENT: Roaring River Ranch
Project Manager / Fisheries Biologist. Mr. Fitzer played a lead role in design of an artificial stream course, pumping system and series of ponds located near Aspen, Colorado. Goals of the project were to create quality trout fishery within

a completely closed loop re-circulating system. Mr. Fitzer provided complete designs and specifications for the stream course creation and habitat features, and pumping system that includes a series of three large pumps designed to run at different times of the year to mimic the natural hydrograph. Project construction was completed in September of 2003 followed by aquatic invertebrate establishment in Fall of 2003 and fishery establishment in the Spring of 2004.

Fishery Survey and Management Recommendations for Rawhide Reservoir, Wellington, CO
CLIENT: Platte River Power Authority, Rawhide Power Station
Fisheries Biologist. Mr. Fitzer participated in a complete fishery survey and evaluation on a 500-surface acre reservoir used for cooling plant water for a coal-fired power plant. The fishery survey included sampling fish populations using boat electroshocking gear. Analysis of the fish communities included relative abundance, relative biomass, relative weights (i.e., condition factors), and catch per unit effort. Several individuals from each species sampled were harvested for laboratory tissue analysis to determine bio-accumulation of different elements.

University of Colorado, Mountain Research Station Expansion, Land Suitability Analysis, Boulder County, CO
CLIENT: University of Colorado, Boulder
Fisheries Biologist. Mr. Fitzer independently provided analysis and conservation guidance for a small but extremely important population of greenback cutthroat trout that inhabit an isolated reach of Como Creek in Boulder County, CO. Mr. Fitzer worked with a team of University faculty and graduate students that conducted a land suitability analysis for expansion of the University of Colorado, Mountain Research Station (MRS). The high alpine MRS site is located in the Como Creek drainage. Como Creek provides critical habitat for one of only a few original remaining genetically pure populations of the federally threatened fish species. Mr. Fitzer provided analysis and formulated management measures to insure protection and long-term conservation. The effort included the creation of a riparian conservation corridor of Como Creek which flowed through the project site, guidelines for watershed management, and measures for mitigating impacts associated with facilities expansion and increased use.

Coastal Salmon Spawning Survey, Siuslaw River Basin, Florence, OR
CLIENT: Oregon Department of Fish and Wildlife (ODFW)
Fisheries Biologist. Mr. Fitzer conducted a Coastal Salmon Spawning Survey on predefined rivers and creeks throughout the central Oregon coast to monitor long-term salmon and steelhead population trends and migration behavior. Fish and spawning nests (redds) were identified and counted and snouts, tags, and scales were collected. Steelhead were trapped, tagged, and released.

Aquatic Habitat Inventory, Forest-wide Watershed Analysis, Willamette National Forest, Lowell, OR
CLIENT: U.S.D.A. Forest Service (USFS)
Fisheries Biologist. Mr. Fitzer conducted aquatic habitat inventories for a forest-wide watershed analysis. Data were collected on hydrology, geomorphology, water quality, and physical and biological habitat attributes of streams. Fish populations were sampled using backpack electroshocking and snorkeling techniques. All data were entered into a GIS database and reach summary documents were prepared.

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Fishery Distribution Survey, Siuslaw River Basin, Florence, OR
CLIENT: Oregon Department of Fish and Wildlife (ODFW)
Fisheries Biologist. Mr. Fitzer conducted a fish distribution survey and migration barrier evaluation. Upper reaches of area creeks were sampled to determine fish species distribution and presence and absence. Potential artificial migration barriers (road culverts) were identified and potential habitat quality and quantity above barriers was evaluated.

Healdsburg WWTP Upgrade EIR, Sonoma County, CA
CLIENT: City of Healdsburg
Fisheries Biologist. AECOM prepared an EIR and supporting technical studies for the upgrade to the existing City of Healdsburg Wastewater Treatment Plant. The proposed project included a new treatment, storage, and either disposal of water by current means (Basalt pond) or construction of a water recycling distribution pipeline to dispose of some or all treated wastewater. Mr. Fitzer surveyed Phase I/II pond to determine site-specific aquatic resources. Sampled fish species using gillnets and beach seines to determine fish species presence and relative abundance. The EIR was certified in July, 2005.

Calaveras Dam Replacement EIR/EA and Permitting Assistance, Alameda County, CA
CLIENT: San Francisco Public Utilities Commission
AECOM in combination with its JV Partner is preparing CEQA and NEPA documentation for the proposed replacement of the Calaveras Dam proposed by the San Francisco PUC. The project is one of the key components of the Water System Improvement Program to provide seismic upgrades for water supply facilities that serve 2.4 million people in the Bay Area. The project is replacement of the seismically unsound earth fill dam at a location downstream of the current dam. The project when completed will restore storage to 96,800 acre-feet and provided releases of up to 6,300 acre-feet per year for fisheries enhancement. The EIR is being prepared under direction of the City Planning Department Major Environmental Analysis and the EA is being prepared for the US Army Corps of Engineers. The environmental documents and permits address a wide range of environmental issues including impacts on wetlands and riparian habitats, threatened and endangered species, anadromous steelhead, historic and archaeological resources, water quality, recreation, geology, construction traffic, air quality and other issues. AECOM also is leading the program for securing permits for the project. Mr. Fitzer is addressing project-related effects on fisheries and aquatic resources, including resident rainbow trout and steelhead.

Lower Sherman Island Wildlife Area Land Management Plan, Sacramento County, CA
CLIENT: California Department of Fish and Game
AECOM is preparing the Department of Fish and Game's Land Management Plan (LMP) for the Lower Sherman Island Wildlife Area (LSIWA), a 3,115 acre area of upland, riparian, marsh and aquatic habitats acres immediately upstream from the confluence of the Sacramento and San Joaquin Rivers. The purpose of this plan is to establish a set of management goals and tasks that will ensure the long-term protection of wildlife and, where appropriate, provide or allow for compatible public uses. AECOM also summarized associated operations and their cost and prepared the project Initial Study/Mitigated Negative Declaration. Mr. Fitzer assisted in preparation of fisheries and aquatic resources-related elements of the LMP.

Truckee River Corridor Access Plan, Tahoe City to Truckee, CA
CLIENT: Placer County
AECOM is currently preparing a public access Study Plan on the Truckee River from Tahoe City to the Town of Truckee. The Study Plan will address recreation access to the river including fishing and boating, as well as multiple-use recreation trails throughout the river corridor. The Study Plan will also address opportunities for riparian restoration along the river. The Study Plan process is of great interest to neighboring communities and many resource agencies, necessitating an active public involvement process. Chris provided fisheries and aquatic resource input into the Study Plan.

Lake Tahoe Shorezone Ordinance Amendments Final Environmental Impact Statement and Response to Comments, Tahoe Basin, CA and NV
CLIENT: Tahoe Regional Planning Agency
AECOM assisted TRPA in preparing a Supplemental Draft Environmental Impact Statement (DEIS) and Final EIS which evaluated five alternatives for amendments to the Shorezone Ordinance relating to shorezone development/facilities (piers, buoys, floating docks, slips), scenic resources, water quality, fish habitat, recreation, and other issue areas. AECOM assisted TRPA in preparing a Supplemental DEIS to present a sixth alternative, which was crafted based on public and agency comments from the five previous alternatives. AECOM is assisting TRPA with the public comment and response process and is preparing the FEIS and the final set of Shorezone Ordinances. Mr. Fitzer provided an assessment of the Shorezone Ordinance effects on fisheries resources, water quality, and hydrology.

Fish Translocation and Salvage, Southern Nevada
CLIENT: Confidential
Fisheries Biologist. AECOM is providing environmental compliance, ecological restoration planning, agency consultation and permitting, and construction monitoring services for a project located in Southern Nevada. Mr. Fitzer has been leading efforts to address fisheries issues associated the various activities. These efforts include fisheries surveys and monitoring, and translocation and salvage of two sensitive fish species (desert sucker and speckled dace) associated with stream channel realignment along a large wash. As part of this effort, Mr. Fitzer developed and implemented a protocol for conducting fish surveys and translocation activities for the project that was accepted by several resource agencies (i.e., USFWS, BLM, EPA, NDOT). The protocol also included measures for removal and eradication of nonnative aquatic species (e.g., sunfish, mosquitofish, bullfrogs).

Santa Ana River Watershed Water Rights and Groundwater Management Plan Environmental Impact Report and Water Rights Assistance, San Bernardino County, CA
CLIENT: San Bernardino Valley Water Conservation District
Fisheries Biologist. The San Bernardino Valley Water Conservation District (District) has filed a water rights application with the State Water Resources Control Board to appropriate water from the Santa Ana River and Mill Creek in San Bernardino County, California. The District has filed this application to protect its historic water use, consisting of groundwater recharge activities at the upper end of the Santa Ana River wash since 1912 and on Mill Creek. The water rights application also provides a vehicle for the SWRCB to clarify the terms and conditions under which the Seven Oaks Dam may be operated. The District is also preparing a groundwater management plan. AECOM is preparing an Environmental Impact Report to address the environmental impacts from implementing these actions. Key environmental issues include groundwater recharge quantity and quality; historic, existing, and future water

rights; hydrology; land use; and special-status species. AECOM is also representing the District before the SWRCB on any environmental issues associated with the water rights application. Mr. Fitzer assisted with analysis of project-related effects on Santa Ana sucker.

Lindsey Slough/Calhoun Cut Ecological Reserve Habitat Restoration Project, Solano County, CA
CLIENT: Solano Land Trust
AECOM and Phil Williams Associates (PWA) are assisting the Solano Land Trust (SLT) in conducting the Calhoun Cut Ecological Reserve Habitat Restoration Project to restore extensive freshwater tidal marsh and other habitats on the Reserve located in Solano County, California. The restoration of this complex tidal freshwater marsh with its diverse habitats and hydrologic conditions is intended to re-establish important rare natural habitats and improve ecological values for native vegetation, fish, and wildlife. The project is funded by the California Bay Delta Authority (CBDA) Ecosystem Restoration Program (ERP) and forms part of a larger initiative led by SLT, "Restoring Ecosystem Integrity in the Northwest Delta". The Sacramento-San Joaquin River Delta (Delta) lies at the tidal confluence of California's two largest rivers, the Sacramento and San Joaquin. Historically, the Delta comprised a vast tule marsh, however, over 97% of the habitat has been lost. Calhoun Cut Ecological Reserve includes portions of Barker Slough, Calhoun Cut, and the upper reaches of Lindsey Slough. AECOM is assessing existing conditions, evaluating opportunities and constraints, developing goals, objectives, and performance criteria, formulating and evaluating three restoration concept alternatives, selecting a preferred alternative, developing an environmental compliance and permitting strategy, and preparing the biological sections for a Feasibility Report which will be developed by PWA. AECOM is also coordinating with stakeholders to identify key stakeholder roles, interests, and concerns relevant to the successful planning and implementation of the restoration project. Mr. Fitzer has been working closely with the project team to provide analysis of fisheries resources including the potential to restore and enhance valuable spawning habitat for delta smelt and other sensitive fish species.

Upper Truckee River Restoration and Golf Course Relocation Project EIR/EIS/EIS, South Lake Tahoe, CA
CLIENT: California State Parks, Sierra District
AECOM is preparing a Joint EIR (CEQA)/EIS (NEPA)/EIS (TRPA) for a proposed restoration project along the reach of the Upper Truckee River in Washoe Meadows State Park and Lake Valley State Recreation Area (SRA). The purpose is to restore natural planform, profile, and geomorphic processes and to reduce the river's suspended sediment discharge to Lake Tahoe. The proposed project would require relocation of several of the golf course holes to reduce the area of stream environment zone occupied by the golf course and allow for establishment of a buffer area between the golf course and the river. The key environmental issues addressed include hydrology, geomorphology, water quality, biological resources, cultural resources, recreation, land use, and scenic resources. Mr. Fitzer is providing analysis of fisheries and aquatic resources including conducting fish surveys (snorkeling) and bioassessment.

Tahoe Vista Partners LLC Affordable Housing and Interval Ownership Development Project EA/EIR, Tahoe Vista, Placer County, CA
CLIENT: Tahoe Regional Planning Agency and Placer County
Water Quality Specialist. The applicant proposes to construct a combination resort and affordable housing community in Tahoe Vista on a site currently occupied by a campground and recreation vehicle (RV) park. The project would result in removal of the campground and redevelopment of the site with 45

tourist accommodation (timeshare) units, a clubhouse/administration building, 10 affordable residential/employee housing units, and commercial building space. The project would also include modifications to the two-story building fronting North Lake Tahoe Boulevard (SR 28), new parking, landscaping, street frontage improvements, and granting an easement to the California Tahoe Conservancy for a potential future bike trail. Key environmental issues to be addressed include loss of a privately owned campground/RV park and associated recreational capacity; potential scenic impacts due to the site location on a TRPA-designated scenic highway and its partial visibility from Lake Tahoe; water quality; the effect on buildings of potential historic value; the land use impacts related to the subdivision of the property, change of use, and consistency with the community plan; and cumulative development in Tahoe Vista. Mr. Fitzer provided analysis of project-related effects on hydrology and water quality.

Pacific Flyway Center CEQA Services, Yolo County, CA
CLIENT: Yolo Basin Foundation
Water Quality Specialist. The Pacific Flyway Center (PFC) is a proposed visitor and environmental education center to be constructed on an approximately 69-acre site located adjacent to the Yolo Bypass west levee approximately 3 miles south of Interstate 80. The site will include approximately 60 acres of restored permanent and seasonal wetlands, upland game areas, and an agricultural buffer. An access road to be constructed to facilitate access to the site from Mace Boulevard is part of the project as well. Once constructed, the Pacific Flyway Center will serve as headquarters of the Yolo Bypass Wildlife Area, and will serve approximately 5,000 school children a year who will learn about the Pacific Flyway and the importance of wetlands and agriculture. In addition to the main Visitor Center building and restored wetlands, facilities will include the a maintenance yard and shed, site interpretive structures, site pedestrian walkways, roads, drives, and parking facilities to accommodate approximately 200 cars and bus parking, including overflow parking facilities. Walks and paving to access the building and site will also be required. Additional facilities will include bicycle access and circulation, site infrastructure to provide services to all structures, site landscaping, irrigation, and drainage, and repairs of the existing house located on the site. AECOM is currently preparing an Initial Study/Mitigated Negative Declaration for the proposed project in compliance with CEQA. Important issues addressed in the IS/MND include potential loss of Swainson's hawks foraging habitat due to habitat conversion and loss of agricultural lands due to construction of roads and facilities and implementation of habitat restoration. Mr. Fitzer provided analysis of project-related effects on hydrology and water quality.

Manteca WQCF Phase III/IV Expansion Project EIR, Manteca, CA
CLIENT: City of Manteca
Fisheries Biologist. The City of Manteca proposed the Manteca Water Quality Control Facility (WQCF) Phase III/IV Expansion Project. The project called for the expansion of the existing Manteca WQCF from 6.95 to 9.87 mgd to accommodate projected growth in Manteca through 2012; improvement of solids handling processes at the WQCF; development of on-site nitrification-denitrification facilities to reduce ammonia in treated effluent being discharged to the San Joaquin River; and amendment of the General Plan land use designation and zoning of a purchase area adjacent to the WQCF site to allow for treatment plant uses. The project would help implement the City's adopted 1995 WQCF Master Plan. AECOM prepared the project-level EIR. The EIR evaluated the proposed expansion of the WQCF facilities and improvements to wastewater treatment processes, and identified the anticipated impacts to water quality and fisheries of the San Joaquin River and Delta. Because the City

proposed to seek low-interest loan funding for facility improvements through the SRF program, the EIR is consistent with the environmental compliance requirements of the SWRCB's Environmental Review Process Guidelines for SRF Loan Applicants. The EIR was certified and proposed project approved in June 2001.

Cache Creek Levee Setback Project Environmental Compliance, Yolo County, CA
CLIENT: California Department of Water Resources
Fisheries Biologist. AECOM provided comprehensive environmental compliance for the Cache Creek Levee Setback Project. The project, proposed by DWR, involved construction of three separate setback levees along Cache Creek to protect three critical erosion sites. AECOM provided two joint CEQA/NEPA compliance documents, as well as prepared and submitted all major environmental permitting documents, including ESA Section 7 and State Historic Preservation Office documents. Mr. Fitzer prepared the fisheries analysis section of the CEQA/NEPA documents.

Colusa Subreach Master Plan, Colusa, CA
CLIENT: The Nature Conservancy
Fisheries Biologist. AECOM is providing master planning and environmental services for the Sacramento River Colusa Subreach and Ward Tract/Colusa Sacramento River State Recreation Area. The addition of the Ward Tract to the Colusa Sacramento River State Recreation Area will create a unique recreational opportunity within easy reach of local and regional residents. While local stakeholders have great interest in this opportunity, private landholders and others in the subreach have concerns regarding the effects of adjacent conservation and/or recreation lands on local farm practices and land values, including pest issues, endangered species, regulatory issues, and trespass. By conducting community-based master planning for recreation and natural resource uses on the lands, there will be a strong likelihood of developing amenities that are held in high esteem by residents, businesses, and governments in the region. Mr. Fitzer is providing technical support related to fisheries and aquatic resources issues that pertain to the project.

Lake Tahoe Beach Club EIS, Douglas County, NV
CLIENT: Tahoe Regional Planning Agency
Fisheries Biologist. The applicant is proposing a 143-unit residential development on 20 acres at the existing Tahoe Shores Mobile Home Park near Stateline, Nevada. The site has 217 lineal feet of lakefront, and is currently occupied by the Tahoe Shores Mobile Home Park with 155 mobile home sites. The project would remove the mobile homes and redevelop the site with 143 residential units in 14 detached structures, including 124 market rate units and 19 moderate-income housing units. The project would also include a beach club with a pool, restaurant, bar, gym, and a banquet room for 200 guests. The existing 109-foot private-use pier would be reconstructed into an operational multi-use pier and extended approximately 275 feet into Lake Tahoe with a floating pier. In addition, a buoy field with approximately 30 mooring buoys would be created. An open space component would provide Stream Environment Zone restoration adjacent to the existing meadow on the US Forest Service parcel to the north. The EIS is analyzing the proposed project as well as two other build alternatives and two no-project alternatives. The EIS is being prepared in compliance with the TRPA Code of Ordinances and Rules of Procedure. Key issues addressed include: population and housing, shorezone impacts, hydrology and water quality, and scenic impacts. Mr. Fitzer conducted analysis on project-related effects on fisheries resources.

CHRIS FITZER

Feather River Levee Repair Project EIR, Yuba County, CA
CLIENT: Three Rivers Levee Improvement Authority (TRLIA)
Fisheries Biologist. AECOM prepared the draft and final EIRs on the Feather River Levee Repair Project, an element of the Yuba-Feather Supplemental Flood Control Project. The project would increase flood protection in the Reclamation District (RD) 784 area of Yuba County. RD 784 is bounded by the Yuba River on the north, the Feather River on the west, the Bear River on the south, and the Western Pacific Interceptor Canal on the east. The project would address identified deficiencies in the Feather River levee and would make related improvements to the Yuba River levee near its confluence with the Feather River. The EIR addresses three project alternatives at an equal level of detail. Alternative 1 involves strengthening existing levees within the entire project area. Alternatives 2 and 3 involve levee strengthening in two project segments, and construction of a setback levee in another area. Alternatives 2 and 3 differ in the alignment of the setback levee. TRLIA will use the EIR to assist in selecting a preferred alternative. Key issues addressed in the EIR include flood control, impacts to upstream and downstream flood stage elevations, endangered species, wetlands, fisheries, conversion of agricultural land, and potential impacts to known cultural resources sites. EIR was certified and project was approved in November 2006. Mr. Fitzer prepared the fisheries analysis section of the EIR.

Natomas Levee Evaluation Project, Sacramento and Sutter Counties, CA
CLIENT: Sacramento Area Flood Control Agency (SAFCA)
Fisheries Biologist. AECOM is a member of a study team assembled by SAFCA to identify improvements necessary to provide 200-year flood control protection to the Natomas Basin. The study includes approximately 25 miles of levees on the Sacramento and American Rivers and the Natomas Cross Canal and consists of two main components, problem identification and alternatives analysis. AECOM's efforts have included building a GIS database of sensitive resources in the study area, incorporating measures into the study design to ensure the protection of sensitive environmental resources, preparing documentation to support the filing of a notice of exemption from CEQA, and performing surveys and monitoring. AECOM is assisting in the identification of environmental constraints associated with the potential site-specific treatments, advising SAFCA on possible mitigation requirements and costs, and contributing to the development of site treatments that will enhance environmental values within the study area. AECOM has also participated in extensive and varied scoping and public and agency outreach efforts as part of the project. Mr. Fitzer is involved in conducting analysis of project-related effects on fisheries resources in the study area.

Gray Creek Restoration Projects, Mt. Rose Wilderness, NV
CLIENT: nhc/Truckee River Watershed Council
Aquatic Ecologist. This steep river canyon area is a major sediment source into the Truckee River. The Truckee River Watershed Council is evaluating the potential for restoration projects to improve water quality and provide habitat enhancement for special status species. AECOM is preparing an aquatic and riparian habitat analysis to evaluate restoration potential within the watershed from the Mount Rose wilderness to Interstate 80 in western Nevada. Field studies and reports include identifying potential habitat for special status species, mapping invasive plant populations, evaluating various areas for potential restoration projects, and developing conceptual restoration plans. Northwest Hydraulic Consultants is the prime consultant and is providing the geomorphology and evaluating erosion hazards such as landslides. Mr. Fitzer is involved in developing a meaningful rapid biological assessment protocol to efficiently and cost effectively assess watershed conditions.

CHRIS FITZER

Humboldt Road Burn Dump Initial Study and EIR, Butte County, CA
CLIENT: City of Chico
Aquatic Ecologist. AECOM prepared an Initial Study and EIR for the Humboldt Road Burn Dump Closure. Portions of the 160-acre site were historically used as the city dump and were known to contain metals, primarily lead, at levels that are regulated by the state. Hazardous wastes occurred on other portions of the site. Approximately 30 acres of the site were covered with glass, tires, cans, wire, rusted metal, concrete, and ash debris. The primary tasks of the impact analysis included identifying the water quality effects of waste consolidation activities on the adjacent Dead Horse Slough; determining the extent of disturbance and providing Endangered Species Act Section 7 consultation for a number of threatened species including the Butte County meadowfoam, valley elderberry longhorn beetle, and vernal pool fairy shrimp; identifying potential airborne lead dispersal anticipated with waste disturbance for adjacent residential neighborhoods; and characterizing the changes in the visual environment with construction of a large waste-consolidation mound. AECOM is currently preparing permit applications for USACE for use of Nationwide Permit (NWP) 38, pursuant to Section 404 of the Clean Water Act (CWA), Streambed Alteration Agreement from CDFG pursuant to Section 1601 of the Fish and Game Code, and a Water Quality Certification from the Regional Water Quality Control Board pursuant to Section 401 of the CWA. AECOM prepared wetland delineation report to submit to USACE in support of request to use NWP 38. Mr. Fitzer has prepared a restoration plan for Dead Horse Slough to fulfill requirements of Section 1601 of the Fish and Game Code and Section 404 of CWA. Project monitoring is ongoing.

Upper Truckee River and Wetland Restoration Project Planning and Environmental Review, South Lake Tahoe
CLIENT: California Tahoe Conservancy
Fisheries Biologist. AECOM is working with the California Tahoe Conservancy (Conservancy) and DGS, RESD in developing plans for the restoration of a highly altered reach of the Upper Truckee River, in South Lake Tahoe, California. AECOM is leading an interdisciplinary team of specialists in habitat restoration, wetland ecology, wildlife biology, landscape architecture, recreation planning, and public involvement in developing the restoration plan and in evaluating potential impacts of the project. The Upper Truckee River is the largest tributary to Lake Tahoe, draining the largest watershed in the Tahoe Basin. The project has four major goals: restore natural river and wetland processes; preserve and enhance habitat for wildlife and sensitive plant species; improve water quality; and provide public access, recreation, and environmental education opportunities consistent with natural resources sensitivities. The Conservancy is considering a number of improvements, including reestablishment of natural river morphology; increased wetting of the floodplain meadow; management of public access; and improvements in trails and interpretive facilities in appropriate locations. The work includes an extensive public involvement program and interagency coordination process, involving a Citizens Advisory Group and Agency Advisory Group. In addition, the Conservancy has assembled a Science Advisory Team to assist in investigating key technical issues. Public and agency input will be sought during three design charettes and other small group meetings. The team is preparing project objectives and desired outcomes, opportunities and constraints, and alternative concept plans. Following selection of a preferred concept plan, AECOM will prepare necessary environmental review documents and permit applications, including a joint NEPA/CEQA/TRPA/ environmental document for the proposed project. Mr. Fitzer is assisting with the development of a watershed-wide monitoring plan for the Upper Truckee watershed. The

CHRIS FITZER

plan will include specific protocols and procedures for monitoring projects in the watershed to ensure data consistency and comparability.

Alviso Slough Restoration Planning Study EIR/EA
CLIENT: Santa Clara Valley Water District
Fisheries Biologist. AECOM is providing planning and environmental compliance services for the restoration of Alviso Slough in the South Bay. The objective of this plan is to balance biological/habitat needs with recreation and boating access and flood protection. Mr. Fitzer is providing support on this project related to fisheries and aquatic ecology including habitat inventory and typing, sampling of the macroinvertebrate community, and developing a fish-habitat relationship model.

Marseilles Lock and Dam Project Detailed Action Report, Marseilles, IL
CLIENT: Marseilles Land and Water Company
Project Manager / Fisheries Biologist. AECOM assisted the Marseilles Land and Water Company (MLWC) in requesting consultation with the Illinois Department of Natural Resources (IDNR) for the proposed Marseilles Lock and Dam Project (Project) – a small hydropower project on the Illinois River. The proposed project would use a Kaplan turbine for power generation, which is efficient in low head conditions and has consistently low mortality rates for fish that are entrained into the turbine. Mr. Fitzer prepared the Detailed Action Report to review proposed project activities in sufficient detail to determine to what extent these activities could potentially affect the State listed fish species, river redhorse and greater redhorse, under the jurisdiction of IDNR. This assessment was prepared in accordance with requirements of the Illinois Endangered Species Protection Act (ESPA), Illinois Natural Areas Preservation Act, and Title 17 Illinois Administrative Code Part 1075.

Santa Clara Valley Water District Steven's Creek Corridor Restoration Project, Cupertino California
CLIENT: Santa Clara Valley Water District (SCVWD)
Fisheries Biologist and Project Manager. Mr. Fitzer along with other AECOM fisheries biologists assisted the Santa Clara Water District in the relocation of fish from an approximate 2,225 linear-foot area of Stevens Creek, located in Blackberry Farm in the City of Cupertino as part of the Stevens Creek Corridor Restoration Project. Central Coast Steelhead (Oncorhynchus mykiss) along with other native fish species were captured by qualified AECOM fisheries biologists using electrofishing equipment and were relocated to other reaches of the creek. During relocation efforts a comprehensive biological and water quality monitoring protocol was implemented to minimized stress on the captured fish. Thousands of native fish were relocated during this effort including thousands of steelhead and three-spine stickleback (Gasterosteus aculeatus), sucker and sculpin species.

Mitchell R. Katzel

SENIOR CONSULTANT

DISCIPLINE/SPECIALTY

- Surface water hydrology
- Fluvial geomorphology and hydraulics
- Watershed Assessment
- Environmental planning
- NEPA and CEQA documentation

EDUCATION

- M.L.A., Environmental Planning , University of California, Berkeley, 1990
- B.S. Psychology, Syracuse University, 1975

SUMMARY OF QUALIFICATIONS

Mr. Katzel has 18 years of experience as a hydrologist and fluvial geomorphologist directing water resource investigations for state and federal agencies, local governments, utilities, irrigation districts, and environmental organizations. His practice relies on a field-based approach to geomorphic assessments in order to identify land use effects on fluvial processes and aquatic habitat. His areas of technical expertise include sediment transport analyses, channel geomorphic characterization and classification, assessment of spawning gravel quality and stability, hydrologic monitoring and analyses, and stream restoration. Mr. Katzel has directed consultations with state and federal permitting agencies, and public stakeholder groups for environmental assessments associated with reservoir and hydroelectric operations, urban development, gravel mining, grazing, logging, pipeline construction, and flood control channel maintenance practices. He has conducted sediment studies to characterize channel conditions, identify spawning gravel suitability and availability, identify physical processes that influence channel morphology, and characterize impacts of land-use and project changes on fluvial processes. Many of these studies are for the purposes of restoring fluvial processes and geomorphic conditions in order to provide stable bed and banks, enhance aquatic habitat, improve water quality, and provide fish passage. The studies range from reach scale analyses to watershed assessments.

Mr. Katzel has supervised construction activities and prepared erosion control plans associated with watershed and stream restoration projects. In support of field-based analytical methods, he uses a suite of HEC and other models to evaluate channel hydraulic and hydrologic conditions, including HEC-RAS, HEC-HMS, HEC-FFA, WinXspro, and FishXing. In addition, Mr. Katzel has prepared environmental review documents for NEPA and CEQA, Exhibit E for hydroelectric relicensing, biological assessments (BAs) for Section 7 Consultation with NMFS, and Habitat Conservation Plans

RELEVANT EXPERIENCE

Principal Geomorphologist – Aggregate Resources Management Monitoring and Russian River Scientific Review Consultant, Sonoma County, CA.

Mr. Katzel is the lead geomorphologist for the Russian River Scientific Review Consultant (RRSRC), responsible for evaluating the geomorphic, aquatic and riparian habitat effects of instream gravel mining plans on the Middle Reach of the Russian River. The RRSRC works collaboratively with NOAA Fisheries, Regional Water Quality Control Board, Department of Fish and Game, US Corps of Engineers, Sonoma County, and mining operators to recommend mining plan revisions, mitigations, and monitoring activities. Entrix, Inc is also responsible for the analysis of data and preparation of an Annual Monitoring report as required by the County ARM Plan, to determine the effects of instream mining in the Alexander Valley and Middle Reach of the Russian River. Entrix, Inc has been preparing the annual monitoring reports since 2002.

Principal Investigator - Effects of Flood Control Operations on Channel Geomorphology of the Russian River and Dry Creek, Sonoma County, California

The effects of flood control operations at Warm Springs Dam and Coyote Valley Dam on the Russian River and Dry Creek were evaluated for the USACE and Sonoma County Water Agency in support of a Section 7

Consultation with the National Marine Fisheries Service. The evaluation included an analysis of changes in magnitude and frequency of peak flows, and determination of effects on scour of spawning gravels, streambank erosion, and channel maintenance/geomorphology.

Senior Geomorphologist – Mill Creek EIR/EA and Restoration Plan, Mendocino County, CA
Mr. Katzel directed the geomorphic assessment of channel effects for Mendocino County for an EIR due to an inadvertent sediment release from a reservoir on Mill Creek, a tributary to the Russian River. The EIR/EA evaluates the impacts/benefits of dam removal on channel stability and aquatic habitat, and identified options to restore the channel and provide mitigation.

Deputy Project Manager Pit 3,4,5 Project, California
Mr. Katzel is the deputy project manager for the Pit 345 project addressing compliance management and monitoring Plans for the Pit River. Mr. Katzel is responsible for project scheduling, assisting with consultation with federal and state agencies, NGO's, and Tribes, preparing for stakeholder and internal PG&E meetings, and for review of monitoring and management Plans. Mr. Katzel is also preparing several of the Plans, including the Streamflow Plan, Erosion and Sediment Control Plan, Large Woody Debris management Plan, Gravel Augmentation Plan, and is assisting with the Road Management Plan and the Tunnel Spoil Pile Management Plan.

Principal Hydrologist/Geomorphologist, Spring Gap Compliance Studies
Mr. Katzel has recently completed the compliance study plans for the Relief Reach Erosion investigation and the Spill Channel Turbidity and Erosion Monitoring Plan studies. He will be implementing those monitoring Plans in 2010.

Project Manager, El Dorado Irrigation District Project 184 Caples Lake Compliance Studies, California
Mr. Katzel is the Entrix project manager for compliance studies for the El Dorado Irrigation District on their Caples Lake project. The compliance studies focus on the magnitude of high flow releases needed for channel maintenance and on issues related to the stability of an eroding spillway channel segment. Mr. Katzel is responsible for the study plan design, stakeholder consultation, scheduling and conduct of these studies that will have a substantial effect on the water supply available to EID.

Project Manager - Geomorphic and Hydraulic Assessment of the North Fork Feather River, Chester, California
Mr. Katzel was responsible for the assessment of geomorphic conditions on the North Fork Feather River for Pacific Gas and Electric Company's (PG&E) re-licensing of hydropower facilities. The geomorphic assessment included evaluation of 15 miles of stream channel below two power generation facilities and diversions, using field based assessment techniques and hydraulic modeling. The project included evaluation of sediment transport, sediment recruitment characterization, identification of function of large woody debris, and a Rosgen Level II classification.

Principal Technical Investigator - Channel Geomorphology Study for Niles and Sunol Dam Removal, California
On behalf of the San Francisco Public Utilities Commission, ENTRIX personnel evaluated the potential for adverse impacts on channel geomorphology and fish passage based on conceptual engineering plans that recommended partial removal of Sunol and Niles dams, located on Alameda Creek. As part of the analysis, ENTRIX evaluated the likely disposition of sediments that would be released from storage to Alameda Creek under one of the dam removal scenarios. Potential effects on channel dimensions, bed and bank stability, particle size, fish habitat, and sediment transport capacity were considered. ENTRIX characterized existing channel geomorphology, rated channel responsiveness to a sediment pulse, conducted HEC-RAS hydraulic modeling, developed bed-and suspend-load sediment transport rating curves, and modeled bedload transport. ENTRIX consulted with stakeholders (NOAA fisheries, CDFG, and Alameda County Flood Control and Water Conservation District) throughout the study process to address the agencies' issues and concerns. Recommendations were provided and accepted by the stakeholders to revise the conceptual engineering plans in order to ensure that fish passage would be attained and that natural channel morphology was protected and restored.

Project Manager - Salinas River Channel Maintenance BA.
As Project Manager, Mr. Katzel was responsible for developing the Salinas River Channel Maintenance Program (SRCMP) for the last 5-year reauthorization of the USACE Regional General Permit. Working closely with local agricultural landowners and consulting with staff from NMFS, Mr. Katzel developed channel maintenance protocols and a channel flood-capacity based performance specification and screening process to determine eligibility for maintenance work. Mr. Katzel assisted with managing preparation of the SRCMP Biological Assessment. Recently, Mr. Katzel worked with local landowners to refine SRCMP protocols and to evaluate the geomorphic, riparian, and aquatic habitat changes associated with 4 years of SRCMP implementation.

Project Hydrologist/Geomorphologist - Upper Truckee River and Wetlands Restoration, Lake Tahoe, California
In the Tahoe Basin, Mr. Katzel prepared hydrologic, geomorphic, and sediment transport analyses to support restoration designs for the Upper Truckee River and Wetlands for the California Tahoe Conservancy. The analyses included an assessment of the extent to which lake levels control channel morphology.

Project Manager - Incline, Third, and Rosewood Creeks Watershed Geomorphic Assessment, Tahoe Basin at Incline Village, Nevada
Mr. Katzel was responsible for characterizing fluvial processes and identifying impacts to stream channel and riparian habitats resulting from historic and on-going land use activities on these three creeks located in the Tahoe Basin for the US Army Corps of Engineers (USACE). He identified sediment sources, relative magnitude of sediment contribution, and sediment transport capacity at the watershed-scale. He also evaluated changes in channel stability and measured extent of streambank erosion; classified channel segments using two different systems (i.e., Rosgen and Montgomery-Buffington); and developed a prioritized list of conceptual restoration plans to provide channel stability and restore aquatic habitat conditions.

Principal Geomorphologist - Homewood Erosion Control Project, Lake Tahoe, California
Mr. Katzel is currently leading an investigation of sediment sources from tributaries arising in the Homewood basin to Lake Tahoe. The investigation includes a determination of the extent to which bank erosion, mass-wasting, roads, and other processes contribute to sediment delivery. This study will also identify restoration opportunities to control and reduce sediment delivery to the lake.

Principal Geomorphologist - Rock Creek-Cresta Sediment Monitoring Program and Gravel Augmentation for PG&E, North Fork Feather River, California
Mr. Katzel is leading this ongoing 10-year monitoring program that began in 2002 with the preparation of a river Sediment Monitoring Plan as required by FERC license conditions. The Sediment Monitoring Plan evaluates the effectiveness of the Drum and Radial Gate Operating Plan to route sediments through Rock Creek and Cresta reservoirs. In addition the Plan includes measures for augmenting gravels in the Cresta and Rock Creek reaches. Mr. Katzel was responsible for selecting the monitoring sites and developing the monitoring methodology, and facilitating meetings with US Forest Service (USFS) personnel during development of the monitoring program. The monitoring program utilizes cross-section surveys, pebble counts, bulk sampling, gravel inventories, and photographic documentation to assess changes in the North Fork Feather River related to the Drum and Radial Gate Operating Plan. Mr. Katzel is responsible for supervising data collection protocols and data analysis for report preparation and results interpretation.

Project Manager - Gazos Creek Restoration Plan, San Mateo County Dept of Public Works, California
Mr. Katzel was responsible for the evaluation of impacts of flood control activities by San Mateo County Department of Public Works that removed large woody debris and for restoration plans on three miles of Gazos Creek, a coastal California stream that supports federally- and state-protected species, including steelhead trout, coho, salmon, and the California red-legged frog. The project assessed alterations to channel geomorphology, determined the amount of sediment released from debris jams and evaluated impacts to fish habitat conditions. Mr. Katzel oversaw the design and construction of restoration actions to remediate aquatic habitat impacts and provide streambank stability. These actions included placement of large woody debris to provide scour pools and cover, and installation of log revetments to protect streambanks. A two-year monitoring program tracked the success of the restoration program.

Project Manager - Big Sulphur Creek Surface Water Supply and Groundwater Re-Injection EIR/EIS
Mr. Katzel directed the preparation of a joint EIR/EIS to evaluate geotechnical, biological, hydrologic, and environmental constraints and opportunities associated with construction of a 110-ft. dam on Big Sulphur Creek, tributary to the Russian River, for the Northern California Power Agency.

Alameda Creek Weir Removal Plans, Alameda County, California
Mr. Katzel evaluated the likely effect of removal of two concrete weirs on Alameda Creek in the Camp Ohlone East Bay Regional Park on channel stability. The weirs were removed to restore the channel morphology and to improve steelhead migration to spawning areas. A design plan using a bioengineering approach was developed to ensure that the streambed and streambanks would not be de-stabilized by removal of the weirs. This project was successfully implemented by the East Bay Regional Park District in 2003, and the channel has remained stable since that time.

Senior Geomorphologist - Kings Beach, Lake Tahoe, California
Mr. Katzel is providing oversight for the assessment of present-day geomorphic conditions on Griff Creek. This project includes extensive hydraulic modeling to define stage-discharge relationships in potential floodplain areas, and an evaluation of the functionality of SEZ's.

Principal Investigator - Angora Creek, Lake Tahoe, California
Mr. Katzel is evaluating the potential impairment of fluvial processes on Angora Creek above Lake Tahoe Blvd for El Dorado County's Department of Transportation. The analysis includes historic aerial photographic interpretation, monitoring of stage-discharge during spring runoff, and field measurements of channel bankfull width, depth, slope, and bank-undercutting for comparison to stable reaches of the channel. The project will determine if restoration actions are warranted in order to restore fluvial processes and to reduce sediment delivery to Lake Tahoe.

Geomorphologist - Rush and Lee Vining Creek Restoration Plans, Mono Basin, California
In the Mono Basin, Mr. Katzel participated as part of an interdisciplinary team in the restoration planning and monitoring of channel geomorphic and aquatic habitat conditions on approximately 15 miles of stream on Lee Vining and Rush Creeks in the Sierra Nevada. Mr. Katzel coordinated the physical sciences subcommittee of the Restoration Planning Team charged with characterizing existing and historical geomorphic, hydrologic, and riparian conditions that existed on these streams prior to diversions in 1941 and under present-day conditions. Mr. Katzel conducted and supervised a systematic evaluation of alternative strategies to restore aquatic and riparian

CHANNEL GEOMORPHIC ASSESSMENTS AND RESTORATION PLANS

Mr. Katzel has conducted geomorphic studies to characterize channel conditions, identify spawning gravel suitability and availability, identify physical processes that influence channel morphology, and characterize impacts of land-use and project changes on fluvial processes. Mr. Katzel has been responsible for the preparation of fisheries and wetland habitat restoration plans that include restoring geomorphic conditions and fluvial process in order to improve fish habitat, provide for bed and bank stability, and design of measures to provide fish passage.

Principal Investigator - Hydraulic Assessment of Flood Control Channels and Maintenance Activities, Sonoma County, California
Mr. Katzel is currently completing a hydraulic assessment on over 20 miles of constructed flood control channels in order to determine the effects of various vegetation maintenance practices on flood capacity. HEC-RAS modeling was used to simulate channel and vegetative conditions to correspond with four different types of vegetation maintenance practices. The results of this study are being used to design a vegetation maintenance program that balances flood control requirements with development of a healthy riparian corridor to improve aquatic habitat for steelhead trout.

Project Manager - Navarro Watershed Assessment and Restoration Plan, Mendocino County, California
On behalf of the Mendocino County Water Agency and the California Coastal Conservancy, Mr. Katzel was responsible for directing and coordinating the comprehensive watershed assessment to provide recommendations for restoration of the salmonid fishery and water quality in the 300-square mile basin. The project incorporated an innovative approach to the preparation of a sediment budget to quantify sediment production sources and to

identify factors that are adversely impacting fish habitat. The watershed assessment and restoration planning process was designed to engage participation by the local community and to facilitate cooperation between government agencies and landowners.

Principal Technical Investigator - Geomorphic Analysis of the San Joaquin River Drainage, Shaver Lake, California
Mr. Katzel is responsible for quantitative assessments of geomorphic conditions on the San Joaquin River above Redinger Lake and on more than a dozen tributary drainages for SCE re-licensing of multiple hydropower facilities and diversions. The assessments include characterization of channel geomorphology for pre- and post-hydropower conditions covering nearly 100 miles of stream channels using field based assessment techniques. The quantitative assessments include evaluation of sediment transport and sediment supply, floodplain connectivity, recruitment and transport of spawning gravels, recruitment and transport of large woody debris, evaluation of riparian encroachment, and determination of a channel maintenance flow regime. Study methods include Rosgen Level II and Montgomery-Buffington channel classification, bed and suspended sediment sampling, V* assessment of residual pool volume to quantify sediment deposition, inventory of road conditions to estimate sediment supply contributed by roads, HEC-RAS and other hydraulic modeling techniques to determine stage-discharge relationships and floodplain connectivity. To support the geomorphic assessments, an analysis of regulated and unregulated flow regimes is being prepared. Mr. Katzel is also conducting the consultation and coordination with state and federal resource agencies that are responsible for approving the geomorphic study assessment methods.

Senior Geomorphologist - Ventura River Geomorphology and Stream Processes, Ventura County, California
An analysis of geomorphic conditions on the Ventura River was performed for a group of cooperating local and state agencies as part of a Habitat Conservation Plan and consultation with the National Marine Fisheries Service. The Ventura River was broadly classified using Rosgen stream typing to describe fluvial processes, identify the relative stability of channel and floodplain, and to assist with characterizing the potential for fish habitat improvement.

Senior Geomorphologist - Willow Creek Sediment Supply and Sediment Transport Assessment, Sonoma County, California
In Coastal California, Mr. Katzel evaluated sediment supply and sediment transport conditions in the 10 mi2 Willow Creek watershed, a tributary to the Russian River, for California Department of Parks and Recreation. The watershed has undergone significant land-use alterations, including logging, grazing, and road development, resulting in severe channel aggradation. His assessment included a Rosgen Level IV channel geomorphic condition determination, including measurements of bed and suspended load, and quantification of bank erosion rates. Recommendations were provided on opportunities to control erosion and on the feasibility of restoring channel geometry to transport sediments and provide coho salmon habitat.

Geomorphologist - Colorado Water Division I Channel Maintenance Flow Assessments, Roosevelt National Forest, Colorado
In the Roosevelt National Forest, Colorado, Mr. Katzel participated as part of a field study team for the US Forest Service and US Department of Justice collecting hydrologic and geomorphic data to support the Division I litigation associated with channel maintenance flow requirements on federal lands. Data collection included Rosgen stream channel typing, bed and suspended load measurements, bank stability characterization, and streamflow measurements. This work was performed under the direct supervision of Mr. Dave Rosgen and Dr. Luna B. Leopold.

Senior Geomorphologist - Alameda Creek Erosion Control Plan, Alameda County, California
Mr. Katzel prepared an Erosion Control Plan for one mile of Alameda Creek in the Camp Ohlone East Bay Regional Park. The stream channel had been de-stabilized by grading the streambed and banks and by construction of levees in an attempt to provide flood and erosion control. The Regional Water Quality Control Board, USFWS, ACOE, and CDFG required a plan to reduce the potential for erosion, loss of red-legged frog habitat, and to minimize possible sediment-related water quality impacts to a downstream water supply reservoir. The Erosion Control Plan focused on restoring channel geomorphic conditions to reduce the potential for erosion and to provide natural sediment deposition sites. Mr. Katzel supervised the remedial earth-moving construction work.

Project Manager - Asbury Creek Fish Passage Enhancement, Sonoma County, California
Developed a restoration design for a concrete box culvert that is an impediment to steelhead migration. The design included monitoring of streamflow conditions, hydraulic modeling of flood capacity, topographic surveys of the stream channel and culvert, and design of an off-set baffle system and boulder weirs to provide suitable jump heights, flow depths and velocities to improve passage.

Principal Investigator - Effects of Channel Maintenance Activities on Russian River and Dry Creek, Sonoma County, California
Evaluated the potential effects of channel maintenance activities on protected coho salmon, chinook salmon and steelhead in the Russian River drainage for the Sonoma County Water Agency Section 7 Consultation with the National Marine Fisheries Service. Four types of maintenance activities were addressed; sediment removal, channel clearing, vegetation maintenance, and bank stabilization.

HYDROLOGIC ANALYSES

Mr. Katzel routinely evaluates the hydrologic regime of coastal and high-elevation streams in California, Nevada, and Alaska. His experience includes measurement of rainfall and snowfall in remote, ungauged watersheds, water supply assessment, and quantitative analysis of the magnitude, frequency, and distribution of streamflow. Mr. Katzel is experienced in the design and implementation of studies that use automated flow and precipitation instrumentation.

Hydrology and Geomorphology Task Leader - Virgin River HCP Hydrologic and Geomorphic Analyses, Mesquite, Nevada
Mr. Katzel performed a hydrologic and geomorphic analysis on the Virgin River, a tributary to Lake Mead. This analysis includes an evaluation of surface water seasonal flow gains and losses, interaction of surface and groundwater, flood peak attenuation by floodplains, and the seasonal effect of surface water diversions. The geomorphic analysis is using historical aerial photography to evaluate how tamarisk colonization on the floodplain has altered channel morphology.

Lead Technical Investigator - San Joaquin River Basin Regional Flood Frequency Analysis, California
For the Big Creek hydroelectric relicensing project, Mr. Katzel developed a San Joaquin River Basin regional flood frequency curve in order to estimate the magnitude and frequency of unimpaired flows on multiple ungauged drainage basins. The regional flood frequency analysis was developed using procedures outlined by the USGS that include constructing a dimensionless frequency curve indexed to the mean annual flood, and drainage area relationships.

Senior Hydrologist - Fort Ross Creek Streamflow Monitoring, Fort Ross, California
Designed, installed, and conducted a flow monitoring program on a coastal stream for California State Parks using automated submersible pressure transducers and data loggers. Characterized flow conditions during the monitoring period in relation to historic runoff using long-term precipitation records.

APPENDIX G

Aggregate Availability and Production Reports

2007
ANNUAL REPORT ON AGGREGATE PRODUCTION IN SONOMA COUNTY

March 2009

Sonoma County
Permit and
Resource Management Department

2550 Ventura Avenue
Santa Rosa, CA. 95403
(707) 565-1900

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INTRODUCTION

This report is intended to provide a general overview of aggregate production and demand as well as a summary of aggregate permit activity in 2007. Key findings of the report are summarized below. Any questions about this report can be directed to Amy Wingfield of the PRMD Comprehensive Planning Division at (707)565-7389, or awingfie@sonoma-county.org.

EXECUTIVE SUMMARY

Aggregate Production
Operators reported mining 2,439,479 tons in 2007. This includes quarry and instream sources. No terrace mining occurred during 2007. Of this amount, 90 percent of aggregate was produced by quarries and 10 percent from instream sources.

Reported Aggregate Sales and Total Demand
Operators reported selling a total of 2.93 million tons of aggregate in 2007. Of this amount, 78 percent was sold by quarries and 22 percent from instream sources. No terrace mining occurred during 2007. The 2007 total demand for the county, which has been adjusted for importation and exportation, was 2,812,193 million tons.

Aggregate Importation
In 2007 aggregate producers reported 801,849 tons of importation, or 27.3 percent of the total reported sales. 528,980 tons were imported from in-county sites, and 272,869 tons from out of county sites. An adjustment was made for unreported importation which brings the total amount of importation to 725,000 tons.

Out-of-County Demand
About 572,480 tons of locally produced aggregate was sold or exported outside of the county in 2007, representing 20 percent of the total reported sales.

Instream Production
Operators reported mining a total of 244,683 tons from instream sources in 2007. This is significantly less than the 992,000 ton annual average that occurred in the 1980s and the 477,000 ton annual average that occurred in the1990s.

Quarry Production
Quarries reported mining a total of 2,194,796 tons in 2007. Quarries sold and/or exported a total of 2,300,690 tons in 2007, or 78 percent of the total reported sales. Quarry production may increase further as terrace mining is continued to be phased out and if instream mining continues to see reductions due to river recharge. However, it is still uncertain whether quarries can provide both the volume and/or quality aggregates for PCC purposes that were previously provided by instream and terrace sources.

Terrace Mining
No Terrace mining occurred in 2007, and no aggregate sales were reported.

Aggregate Recycling
Aggregate operations reported receiving a total of 320,765 tons of recycled material in 2007. This represents 10.9 percent of the total reported sales.

MINING PRODUCTION, SALES AND PRODUCTS

INSTREAM, TERRACE, AND QUARRY PRODUCTION

A total of 2,439,479 tons were mined in 2007. Quarries were responsible for 90 percent of the production, and instream mining for 10 percent, while no terrace mining occurred. With the exception of one permit extension and one site with vested rights, terrace mining has essentially been phased out. It was expected that instream and quarry production would both increase, however instream production was low due to limited aggregate recharge amounts and permit expirations. Overall, this is a marked decrease from last year in which 3.02 million tons were mined. The following table depicts the historical aggregate sources.

Table 1: Changes in Aggregate Sources

Type of mining	1960 to 1976	1981 to 1990	1991 to 2000	2006	2007
Terraces	68%	47%	37%	20%	0%
Quarries	15%	34%	51%	75%	90%
Instream	17%	19%	12%	5%	10%

REPORTED AGGREGATE SALES AND TOTAL DEMAND

A total of 2.93 million tons of aggregate were reported sold in 2007, compared to 3.38 million tons in 2006. Once adjustments for unreported importation are factored in, the total demand for 2007 was 2.81 millions tons, compared to 3.63 millions tons in 2006. Total demand reflects the true amount of aggregate demand for Sonoma County. The methodology, described in more detail below, includes the amount of aggregate imported from out-of-county sources and exported.

AGGREGATE IMPORTATION

In 2007 aggregate producers reported 801,849 tons of importation, or 27.3 percent of their reported sales. Of this amount 528,980 tons were imported from in-county sites, and 272,869 tons from out - of-county sites. Typically, this total does not include aggregate imported directly to job sites or to end users such as concrete and asphalt plants. Since 2004 an adjustment has been made to calculate the amount of unreported importation, as seen in Table 2 below. Importation is projected to steadily increase due to the reduction in local terrace and instream production. However, due to the overall economic downturn the estimate has been revised to show a steady amount of unreported importation. In 2007, 272,869 tons of imported aggregate was reported from out-of-county sources. This amount has been adjusted by 452,131 tons for unreported importation, bringing the amount of total importation for 2007 to 725,000 tons. This amount, combined with the amount of exportation, provides a total demand of 2.81 million tons for 2007 in Sonoma County.

Table 2: Aggregate Importation Adjustment and Total Demand, 2004-2007[1]

Year	Total Sold	Reported Importation[2]	Estimated Importation	Adjustment Amount	Exportation Amount	Total Demand
2004	4.21	329,000	700,000	+371,000	506,000	4.08
2005	3.85	334,000	725,000	+391,000	480,000	3.77
2006	3.38	116,214	750,000	+633,786	387,673	3.63
2007	2.93	272,869	725,000	+452,131	572,480	2.81

OUT OF COUNTY SALES

About 572,480 tons of locally produced aggregate was sold outside of the County in 2007, representing 19 percent of the total production. In 2006 a total of 387,673 tons were exported. As reported, approximately 95 percent of the exported aggregate went to either Napa or Marin County.

AGGREGATE RECYCLING

Local aggregate producers recycled a total of 320,765 tons in 2007. At this level, recycling provided about 10.9 percent of the total reported sales. The actual amount of recycled asphalt and concrete utilized in Sonoma County could be higher than reported if concrete or asphalt rubble is reused in place at construction sites without being brought to quarries for reprocessing. The fact that very little rubble is disposed of at the County Landfill suggests that most of the available concrete and asphalt rubble is recycled or reused. For purposes of this report, the recycled aggregate amounts are already reflected in the total reported sales of aggregate and no further adjustment is required.

END USES OF AGGREGATE

The sources of aggregate for various end uses have changed over the years. Tables 3, 4, and 5 show what percentage of each type of construction aggregate was supplied by each type of mining from 1995 through 2007. These tables show that the market share provided by quarries has increased over the last few years as the share provided by terraces has dropped off. It is also evident that terrace and instream sources provided most of the aggregate used for PCC and that these alluvial aggregates are seldom used for lower grade base or sub-base uses. Overall, it shows that the County is increasing its reliance on quarries as envisioned by the ARM Plan.

[1] Calculations revise previous reports reflecting the 2006 Total Demand and Importation amounts.
[2] Reported importation includes importation from out of county sources.

Table 3: Quarry Market Share by Product Category Based on Reported Sales

Product	95	96	97	98	99	00	01	02	03	04	05	06	07
PCC	2	1	0	0	1	0	0	1	6	4	5	6	12
Asphalt concrete	66	68	67	43	31	32	17	50	70	73	79	80	73
Road base	73	76	81	76	75	84	83	86	91	95	99	98	97
Road Sub-base	100	100	100	100	100	100	94	100	100	100	100	100	99

Table 4: Terrace Market Share by Product Category Based on Reported Sales

Product	95	96	97	98	99	00	01	02	03	04	05	06	07
PCC	70	83	69	84	88	94	93	83	82	75	80	82	0
Asphalt concrete	23	29	18	57	69	68	83	40	30	28	20	20	0
Road base	14	18	6	16	20	11	13	9	6	4	1	0	0
Road Sub-base	0	0	0	0	0	0	6	0	0	0	0	0	0

Table 5: Instream Market Share by Product Category Based on Reported Sales

Product	95	96	97	98	99	00	01	02	03	04	05	06	07
PCC	28	16	31	16	11	6	7	16	12	22	15	12	88
Asphalt concrete	11	3	15	0	0	0	0	10	0	0	0	0	27
Road base	13	6	13	8	5	5	4	5	3	1	1	2	3
Road Sub-base	0	0	0	0	0	0	0	0	0	0	0	0	1

HARDROCK QUARRY MINING

Quarries supplied 90% of the aggregate in 2007. There are currently 14 existing quarries; two are in reclamation, and four are in the process of obtaining a new use permit. In addition, a potential new quarry on Roblar Road is in the use permit process. The permitting process has proven to be lengthy and expensive for all aggregate operators. Ensuring an ongoing local supply of aggregate will necessitate approval of new and/or expanded quarry operations, especially those that can provide a wide variety of materials.

The reliance on quarries has increased in past years due to the phase-out of terrace mining and the reduction in instream mining. A few quarries are beginning to meet specification standards for PCC aggregate, which has typically been supplied by terrace mining. The 2005 CGS report indicates that there are fundamental problems associated with attempting to produce PCC-grade aggregate from hard rock quarries in Sonoma County due to stratigraphic and structural discontinuities in the geology, deep weathering and economies of scale. If sufficient high quality aggregate resources can be permitted, the CGS report indicates that quarries can meet the County's need for AC, Roadbase and Road Subbase, and a variety of other crushed rock products.

INSTREAM MINING

Aggregate operations are currently authorized to skim gravel bars at specific sites on the Russian River, Gualala River, and Austin Creek. The amount of instream mining was lower than expected for 2007 due to low recharge in the permitted river systems and a number of permits that expired.

The amount of instream mining has declined in recent years for several reasons. First, ARM Plan standards have limited the amount of mining by limiting the area in which mining is permitted and limiting the depth of mining so that extraction is effectively limited to the amount of recharge. In addition, there have been difficulties and delays in obtaining permit clearances from State and Federal regulatory agencies, as well as lower than normal recharge.

Instream mining operations are heavily regulated by the Department of Fish and Game, the Army Corps of Engineers, NOAA Fisheries and the Regional Water Quality Control Boards. The listing of the Coho and Steelhead salmon pursuant to the Endangered Species Act has heightened oversight and monitoring requirements. Partly as a result of these listings, ideas about the best management approach for regulating instream mining have shifted since 1994 such that different standards may be appropriate in some areas depending on the hydrologic setting and habitat characteristics.

Instream operators, regulators, and resource management agencies are considering a more flexible "Adaptive Management" approach to instream mining, monitoring and regulation. Such an approach is permitted in the ARM Plan if site-specific mitigation and/or mining standards are deemed to be more appropriate based on a project-specific environmental review and input from resource management agencies. This approach was used with mining approvals in the Middle Reach of the Russian River, Austin Creek, and the Gualala River although a site-specific ARM Plan amendment was needed because the management approach varied from several ARM Plan standards. By working with resource management agencies, instream mining and reclamation activities can help enhance and restore critical habitat.

Projects using these methods require innovative site-specific planning approaches, rather than a one-size-fits-all methodology. A variety of extraction methods are considered that depend on the site-specific hydrology conditions, bar morphology, riparian vegetation, and aquatic habitat enhancement opportunities. For example, these methods may depart from the ARM Plan's standards for slope, setbacks, depth, and area requirements in order to enhance pool and bar formation. Techniques may also include limited excavation below the water to create backwater alcoves desirable for habitat and flow refuge. Additionally, bank erosion repair and riparian revegetation projects may be incorporated to a reclamation plan to enhance the stream corridors.

Since both the ARM Plan and the new General Plan place high importance on minimizing the adverse impacts of mining, regulations or restrictions deemed necessary to avoid impacts or aid the

recovery of species could limit the availability of instream resources. Any change in the designated instream mining areas or instream mining methods would likely raise new land use and environmental issues.

TERRACE MINING

The ARM Plan established a ten-year phase-out period for terrace mining. The ten-year period commenced on the effective date of the first use permit issued for terrace mining on each side of the river following the adoption of the ARM Plan. The ten-year period on the east side of the Russian River expired on March 28, 2005.

The ten-year period on the west side of the Russian River expired on April 16, 2006. However, the recently approved Syar Phase VI terrace pit had not been completely mined by that date, with approximately 1.4 million tons remaining to be excavated. An ARM Plan amendment was approved to allow Syar Industries to extend the time allowed to complete the Phase VI pit (PLP05-0108). Due to pending litigation, no production occurred in 2007.

TABLE 6: Recent Permit Activity for Aggregate Operations

Location/Name		Status
Lakeville Quarry	Rec. Plan for 21 acre expansion on vested parcel;135,000 tons/yr	Mitigated Negative Declaration in preparation
Stony Point Quarry	Excavate up to 160 feet (10 million tons) below quarry floor;1,000,000 tons/yr	Application Submitted Jan, 2009
Roblar Road Quarry	New 70-acre quarry; up to 855,000 tons per year	EIR in preparation
Mark West Quarry	35± acre expansion; up to 750,000 tons/year	Revised Application in progress
Shamrock Materials	NACO, et al - bar skimming upper Alex. Valley	Expired 7/16/06
Syar Industries	Vimark, et al - bar skimming upper Alex. Valley	Expires 8/14/11
	Middle Reach - bar skimming	Vested right
	Lower. Alex. Valley- bar skimming (formerly Dewitt bar skimming site)	Application in progress
	Lower Alex. Valley- bar skimming RM 47.5 to 54.0	Application in progress
Bohan& Canelis/Austin Creek Ready Mix	Austin Creek- hard rock quarry	Vested rights
	Austin Creek - expanded area and revised pool/alcove mining	Expires 9/28/14
Bedrock Inc.	Gualala River-bar skimming renewal	Approved 9/10/08
Trinity Quarry	Updated Rec Plan for existing quarry, production of 50 tons/year.	Revised Application in progress

Spaletta Quarry	Hard rock quarry	Expires 4/20/09

APPENDIX A

Sonoma County Aggregate Mining Production - 1981 to 2007 (in millions of tons) / Percent of Total Production [3]

YEAR	QUARRIES	TERRACE	INSTREAM	TOTAL
1981	1.449 / 37%	1.703 / 43%	.809 / 20%	3.961
1982	1.522 / 41%	1.269 / 34%	.904 / 24%	3.696
1983	1.325 / 33%	1.837 / 46%	.867 / 22%	4.029
1984	1.738 / 33%	2.391 / 45%	1.145 / 22%	5.275
1985	1.340 / 28%	2.179 / 45%	1.322 / 27%	4.842
1986	1.534 / 29%	2.349 / 45%	1.325 / 25%	5.208
1987	1.809 / 32%	2.785 / 50%	.988 / 18%	5.582
1988	1.734 / 31%	2.888 / 51%	1.051 / 19%	5.674
1989	2.397 / 32%	3.941 / 53%	1.073 / 14%	7.411
1990	2.104 / 39%	2.861 / 53%	.434 / 08%	5.399
81-90 average	**1.695 / 34%**	**2.420 / 47%**	**.992 / 19%**	**5.108**
1991	2.007 / 52%	1.371 / 35%	.491 / 13%	3.870
1992	1.766 / 52%	.737 / 22%	.916 / 26%	3.420
1993	1.674 / 41%	1.939 / 48%	.428 / 10%	4.040
1994	1.376 / 43%	1.471 / 46%	.362 / 11%	3.209
1995	2.145 / 70%	.191 / 06%	.708 / 23%	3.045
1996	2.200 / 48%	2.049 / 45%	.308 / 07%	4.558
1997	2.238 / 46%	1.811 / 38%	.780 / 16%	4.830
1998	2.333 / 54%	1.622 / 38%	.330 / 08%	4.285
1999	2.309 / 51%	1.941 / 43%	.261 / 06%	4.512
2000	1.879 / 47%	1.947 / 49%	.151 / 04%	3.977
91-00 average	**2.024 / 51 %**	**1.455 / 37%**	**.477 / 12%**	**3.956**
2001	1.844 / 45%	2.170 / 53%	.080 / 02%	4.095
2002	2.550 / 51%	1.930 / 39%	.519 / 10%	5.000
2003	2.419 / 67%	.977 / 25%	.281 / 08%	3.604
2004	2.382 / 70%	.865 / 25%	.160 / 05%	3.407
2005	2.309 / 59%	1.510 / 39%	.090 / 02%	3.910
2006	2.253 / 75%	.615 / 20%	. 151 / 05%	3.019
2007	**2.194/90%**	**0/0%**	**.244/10%**	**2.439**
01-07 average	**2.278 / 65%**	**1.15 / 31%**	**.218 / 6%**	**3.639**

[3] "Aggregate Production" is a term defined as the amount mined.

APPENDIX B

Percent of Total Aggregate Sales from Local Sources Devoted to Specific End Uses

Product	81-90	94	95	96	97	98	99	00	01	02	03	04	05	06	07
PCC	30.1	18	19	27	28	28	32	32	31	31	21	23	20.3	21	18
AC	9.8	11	8.6	7.9	7.5	7.6	9	9.1	5.7	5.3	9.5	9.6	7.8	9	8
Road Base	22.3	22	22	25	28	28	32	27	25	30	28	29	30.1	19	25
Road Sub-base	7.1	10	15	11	8.8	7	8.4	6.5	9.8	5.3	7.5	6.5	7.6	14	14
Other[4]	30.7	39	36	29	29	30	19	26	29	28	34	32	34.2	37	35

Source of Aggregate Sold or Exported From 1994 to 2007 (in millions of tons)/% of Total

Year	Quarries	Terrace	Instream	Total	Imports	Total Demand[5]
1994	1.727 / 54%	1.206 / 37%	.280 / 09%	3.214 / 100%	NA	3.241
1995	2.483 / 61%	.882 / 22%	.670 / 17%	4.035 / 100%	NA	4.035
1996	2.480 / 57%	1.455 / 33%	.416 / 10%	4.350 / 100%	NA	4.035
1997	2.633 / 57%	1.145 / 25%	.835 / 18%	4.614 / 100%	NA	4.614
1998	2.761 / 54%	1.894 / 37%	.449 / 09%	5.104 / 100%	NA	5.104
1999	2.437 / 47%	2.298 / 44%	.448 / 09%	5.184 / 100%	NA	5.184
2000	2.685 / 50%	2.426 / 45%	.269 / 05%	5.380 / 100%	NA	5.380
2001	2.771 / 54%	2.123 / 42%	.221 / 04%	5.116 / 100%	NA	5.116
2002	2.737 / 56%	1.745 / 35%	.438 / 09%	4.926 / 100%	NA	4.926
2003	2.708 / 70%	.977 / 25%	.209 / 05%	3.894 / 100%	NA	3.894
2004	2.910 / 69%	.996 / 24%	.307 / 07%	4.213 / 100%	.506	4.085
2005	2.944 / 76%	.709 / 18%	.201 / 05%	3.854 / 100%	.480	3.777
2006	2.550 / 75%	.669 / 20%	.159 / 05%	3.380 / 100%	.387	3.626
2007	**2.300 / 79%**	**0/0%**	**.632/22%**	**2.932 / 100%**	**.572**	**2.812**

[4] "Other" includes rip-rap, jetty stone, drain rock, trench fill, sand, gravel, soil, and other fill materials.

[5] Total demand amounts from 2004 to 2007 have been adjusted for unreported aggregate importation. See "Aggregate Importation" for adjustment amount and methodology.

APPENDIX C

Instream Gravel Extraction From 1981 through 2007 (in thousand tons)

YEAR	ALEXANDER VALLEY[6]	MIDDLE REACH	RR TOTAL	OTHER STREAMS	TOTAL MINED[7]
1981	544	210	754	55	809
1982	542	323	865	39	904
1983	494	310	804	63	867
1984	967	99	1,066	79	1,145
1985	590	379	969	353	1,322
1986	1,016	235	1,251	74	1,325
1987	886	40	926	62	988
1988	955	40	995	56	1,051
1989	905	5	910	163	1,073
1990	365	0	365	69	434
1981-90 Ave.	**727**	**164**	**891**	**101**	**992**
1991	345	0	330	161	491
1992	859	0	825	91	916
1993	376	0	376	52	428
1994	309	0	309	53	362
1995	639	0	639	69	708
1996	233	0	233	75	308
1997	726	0	726	54	780
1998	<270	0	<270	74	330
1999	186	0	186	175	261
2000	81	0	81	70	151
1991-00 Ave.	**<410**	**0**	**<410**	**67**	**477**
2001	< 10	0	<10	70	80
2002	<165	<295	<460	59	519
2003	< 210	0	<210	71	281
2004	< 85	0	< 85	80	160
2005	0	0	0	90	90
2006	<60	0	<60	94	<154
2007	<200	0	<200	<70	<270
2001-07 Ave.	**<110**	**<42**	**<150**	**<76**	**<250**

[6] The Alexander Valley Reach totals include amounts along the lower portion of Big Sulphur Creek.

[7] Gravel extraction totals are considered proprietary data not subject to publication pursuant to Sonoma County Board of Supervisor's Resolution No. 96-1361 and State law. As only one Russian River instream operator had reported extraction in 1996, 1998 , and 2001 through 2007, these figures have been rounded up for purposes of this table.

MAP SHEET 52

(UPDATED 2006)

AGGREGATE AVAILABILITY IN CALIFORNIA

2006

DEPARTMENT OF CONSERVATION
California Geological Survey

CALIFORNIA GEOLOGICAL SURVEY
JOHN G. PARRISH, PH.D., *STATE GEOLOGIST*

MAP SHEET 52

(UPDATED 2006)

AGGREGATE AVAILABILITY IN CALIFORNIA

By

Susan Kohler

2006

DEPARTMENT OF CONSERVATION
CALIFORNIA GEOLOGICAL SURVEY
801 K Street, MS 14-34
Sacramento, CA 95814-3531

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INTRODUCTION

California Geological Survey (CGS) Map Sheet 52, scale 1:1,100,000, and this accompanying report provide general information about the current availability of California's permitted aggregate resources. Although the statewide and regional information on the map and in this report may be useful to local decision-makers, the more detailed information contained in each of the aggregate studies employed in the compilation of Map Sheet 52 should be used for land-use and decision making purposes.

Map Sheet 52 (2006) is an update of the original version published in 2002 (Kohler, 2002). This updated Map Sheet 52 summarizes data from reports compiled by the CGS for 31 aggregate study areas throughout the state. These study areas cover about 25 percent of the state and provide aggregate for about 90 percent of California's population. This report is divided into three parts: Part I provides data sources and methods used to derive the information presented, Part II compares the updated 2006 Map Sheet 52 to the original map, and Part III is an overview of construction aggregate. **All aggregate data and any reference to "aggregate" in this report and on the map pertain to "construction aggregate" defined for this report as alluvial sand and gravel or crushed stone that meets standard specifications for use in portland cement concrete (PCC) or asphalt concrete (AC).** (See *Aggregate Quality and Use* section).

PART I: DESCRIPTION OF MAP SHEET 52, AGGREGATE AVAILABILITY IN CALIFORNIA

Map Sheet 52 is a statewide map showing a compilation of data about aggregate availability collected over a period of about 28 years and updated to January 1, 2006. The purpose of the map is to compare projected aggregate demand for the next 50 years with currently permitted aggregate resources in 31 regions of the state. The map also highlights regions where there is less than 10 years of permitted aggregate supply remaining (red circles). The following sections describe data sources and methodology that were used in the development of the map.

Mineral Land Classification Reports and Aggregate Studies

Data regarding aggregate resources and projected aggregate demand shown on Map Sheet 52 are updated from a series of mineral land classification reports published as Special Reports (SR) and Open-File Reports (OFR) by CGS between 1981 and 2005. These reports are referenced in the Appendix. They were prepared in response to California's Surface Mining and Reclamation Act of 1975 (SMARA) that require the State Geologist to classify land based on the known or inferred mineral resource potential of that land. SMARA, its regulations and guidelines, are described in Special Publication 51(Division of Mines and Geology, 2000). The Mineral Land Classification process identifies lands that contain economically significant mineral deposits. The primary goal of mineral land classification is to ensure that the mineral resource potential of lands is recognized and considered in land-use planning. The classification process includes an assessment of the quantity, quality, and extent of aggregate deposits in a study area.

Mineral land classification reports may be specific to aggregate resources, may contain information about both aggregate and other mineral resources, or they may only contain information on minerals other than aggregate. Reports that focus on aggregate include aggregate resource classification and mapping, quantitative calculations of permitted and non-permitted aggregate resources, calculated 50-year demand for aggregate resources, and an estimate of when the permitted resources will be depleted. Map Sheet 52 is a statewide updated summary of 50-year demands and permitted resource calculations for all SMARA classification reports pertaining to construction aggregate.

Mineral land classification studies completed before 1989 used Production-Consumption (P-C) regions as the study area boundary. A P-C region is one or more aggregate production districts (a group of producing aggregate mines) and the market area they serve. The State Mining and Geology Board (SMGB) in 1989 changed the scope of the mineral classification studies from P-C regions to countywide studies because counties are one of the primary users of the reports. As a result of this change, classification reports became more user-friendly for local government planners.

Mineral land classification reports include information from one or more P-C regions, or from a county. For ease in discussion, the area covered by each P-C region or county aggregate study is referred to as an "aggregate study area". These areas are shown at the lower left-hand corner of the map along with their respective OFR or SR number and publication date. It should be noted that an OFR or SR may include more than one aggregate study area.

As provided by SMARA, the State Geologist is required to review mineral land classification every 10 years following the census to determine if new classifications are necessary. The projected 50-year forecast of aggregate demand in the region may also be revised. Seven updated classification studies have been completed. Updated studies were done by counties (Los Angeles, Orange, and Ventura) and by P-C regions (South San Francisco Bay, Monterey Bay, Western San Diego County, and Fresno). Since Los Angeles and Ventura counties had more than one P-C region, separate updated 50-year forecasts were made for each region. The Los Angeles County update (OFR 94-14) includes the San Fernando Valley, San Gabriel Valley, Saugus-Newhall, and the Palmdale P-C regions. The Ventura County update (OFR 93-10) included the Western Ventura and the Simi Valley P-C regions. The index map of aggregate studies shown in the lower left hand corner of Map Sheet 52 shows the latest reports that cover an aggregate study area. Earlier reports covering the same areas or portions of areas are referenced in the Appendix with an asterisk ("*").

Fifty-Year Aggregate Demand Forecast

The fifty-year aggregate demand forecast for each of the aggregate study areas is presented on Map Sheet 52 as a pie diagram (See *Fifty-Year Aggregate Demand Compared to Permitted Aggregate Resources* section), and also is presented in Table 1. The demand information may be new, or updated from previously published mineral land classification reports. The demand forecast information depicted on Map Sheet 52 is for the period January 1, 2006 through December 2055.

The aggregate study areas with the greatest projected future need for aggregate are the South San Francisco Bay, San Gabriel Valley, Temescal Valley-Orange County, Western San Diego County and San Bernardino. Each is expected to require more than a billion tons of aggregate by the end of 2055. Aggregate study areas that have small demands generally are located in less populated areas. These include the Sierra Nevada counties of Placer, Nevada, and El Dorado, and Merced and Tulare counties in the San Joaquin Valley.

AGGREGATE STUDY AREA [1]	**50-Year Demand** (million tons)	**Permitted Aggregate Resources** (million tons)	**Percentage of Permitted Aggregate Resources as Compared to the 50-Year Demand**
Bakersfield P-C Region	252	115	46
Barstow-Victorville P-C Region	179	133	74
Claremont-Upland P-C Region	300	147	49
El Dorado County	91	19	21
Fresno P-C Region	629	71	11
Glenn County	83	17	21
Merced County[2]			
Eastern Merced County	106	53	50
Western Merced County	53	Proprietary	<50
Monterey Bay P-C Region	383	347	91
Nevada County	122	31	25
Palmdale P-C Region	665	181	27
Palm Springs P-C Region	295	176	60
Placer County	171	45	26
North San Francisco Bay P-C Region	647	49	8
Sacramento County	733	67	9
Sacramento-Fairfield P-C Region	235	164	70
San Bernardino P-C Region	1,074	262	24
San Fernando Valley-Saugus-Newhall [3]	457	88	19
San Gabriel Valley P-C Region	1,148	370	32
San Luis Obispo-Santa Barbara P-C Region	243	77	32
Shasta County	122	51	42
South San Francisco Bay P-C Region	1,244	458	37
Stanislaus County	344	51	15
Stockton-Lodi P-C Region	728	196	27
Tehama County	72	36	49
Temescal Valley-Orange County [3]	1,122	355	32
Tulare County[2]			
Northern Tulare County	117	12	10
Southern Tulare County	88	Proprietary	<50
Ventura County [3]	309	106	34
Western San Diego County P-C Region	1,164	198	17
Yuba City-Marysville P-C Region	360	409	>100
Total	**13,536**	**4,343**	

[1] Aggregate study areas follow either a Production-Consumption (P-C) region boundary or a county boundary. A P-C region includes one or more aggregate production districts and the market area that those districts serve. Aggregate resources are evaluated within the boundaries of the P-C Region. County studies evaluate all aggregate resources within the county boundary.
[2] The County study has been divided into two areas, each having its own production and market area. A separate permitted resource calculation and 50-year forecast is made for each area.
[3] Two P-C regions have been combined into one study area.

Table 1. Comparison of 50-year demand to permitted aggregate resources for aggregate study areas as of January 1, 2006. (Study areas with less than ten years of permitted resources are in bold type).

Methodology

Before selecting a method for predicting a 50-year aggregate demand, historical aggregate use was compared to such factors as housing starts, gross national product, population, and several other economic factors. It was found that the only factor showing a strong correlation to historical aggregate use was population change. Consequently, a per capita aggregate consumption forecast model is used for most of the aggregate study projections. This method of forecasting aggregate consumption benefits from its simplicity and the availability of population forecast data. The California's Department of Finance (DOF) makes 50-year county population forecast using U.S. census data.

The steps used for forecasting California's 50-year aggregate needs using the per capita consumption model are: 1) collecting yearly historical production and population data for a period of years ranging from the 1960s through 2005; 2) dividing yearly aggregate production by the population for that same year to determine annual historical per capita consumption; 3) projecting yearly population for a 50-year period from the beginning of 2006 through 2055; and, 4) multiplying each year of projected population by the average historical per capita consumption, the sum of which equals a total 50-year aggregate demand. It should be noted that the years chosen to determine an average historical per capita consumption may differ depending upon historical aggregate use for that specific region. For example, in Shasta County, major construction projects from the 1940s through the 1970s caused historical per capita consumption rates to be extremely high and unrepresentative of future aggregate demand (Dupras, 1997). Consequently, an average historical per capita consumption rate for Shasta County was based on the years 1980-1995.

Effectiveness of the Per Capita Consumption Model

The assumption that each person will use a certain amount of aggregate every year is a simplification of actual usage patterns, but overall, an increase in the population leads to the use of more aggregate. Over a long enough period, perhaps 20 years or longer, the random impacts of major public construction projects and economic recessions tend to be smoothed out and consumption trends become similar to historic per capita consumption rates. Per capita consumption is a commonly used and accepted national, state, and regional measure for purposes of forecasting.

The per capita consumption model has proved to be effective for predicting aggregate demand in major metropolitan areas. The Western San Diego and the San Gabriel Valley P-C regions are examples of how well the model works, having only a 2 percent and a 5 percent difference, respectively, in actual versus predicted aggregate demand (Miller, 1994; 1996). However, the per capita model may not work well in county aggregate studies or in P-C regions that import or export a large percentage of aggregate resulting in a low correlation between production districts and aggregate market areas. When this happens, projections are based on a historical production model where 50-year aggregate demand is determined by extending a best-fit line of historical aggregate production data for a county or region. This model was used to project Yuba City-Marysville's 50-year demand because the region exports about 70 percent its aggregate into neighboring areas such as northern Sacramento County and Placer County.

Permitted Aggregate Resources

Approximately 4.34 billion tons of permitted aggregate resources lie within the 31 aggregate study areas shown on Map Sheet 52. Permitted aggregate resources (also called reserves) are aggregate deposits that have been determined to be acceptable for commercial use, exist within properties owned or leased by aggregate producing companies, and have permits allowing mining of aggregate material. A "permit" is a legal authorization or approval by a lead agency, the absence of which would preclude mining operations. Although some permitted resources face legal challenges, these resources are included in this study pending resolution of those challenges. In California, mining permits usually are issued by local lead agencies (county or city governments). Map Sheet 52 shows permitted aggregate resources as a percentage of the 50-year demand on each pie diagram (See *Fifty-Year Aggregate Demand Compared to Permitted Aggregate Resources* section). Beneath the study area name located next to its corresponding pie diagram is the amount of permitted resource in tons along with the amount of 50-year demand. These figures are also given in Table 1. Tonnages are not given for eastern Merced County and for the southern Tulare County to preserve company proprietary data.

Permitted aggregate resource calculations shown on the map and in Table 1 were determined from information provided in reclamation plans, mining plans and use permits issued by the lead agencies. When information was inadequate to make reliable independent calculations, CGS staff used resource estimates provided by mine operators or owners. These data were checked against rough calculations made by CGS staff, and any major discrepancies were discussed with the mine operators or owners. All permitted resource calculations are current as of the beginning of 2006.

Fifty-year Aggregate Demand Compared to Permitted Aggregate Resources

Fifty-year aggregate demand compared to currently permitted aggregate resources, is represented by a pie diagram for each of the 31 aggregate study areas shown on Map Sheet 52. Each pie diagram is located in the approximate center of the aggregate study area it represents. There are four different sizes of diagrams, each size representing a 50-year demand range. The smallest pie diagram represents 50-year demands ranging from 25 million to 200 million tons, while the largest diagram represents demands of over 800 million tons. The amount of 50-year demand in tons is shown on the map along with the amount of permitted resources beneath the study area name located next to its corresponding pie diagram (permitted resources, left / 50-year demand, right). The whole pie represents the total 50-year aggregate demand for a particular aggregate study area. The blue portion of the pie represents the permitted aggregate resource (shown as a percentage of the 50-year demand) while the purple-colored portion of the pie represents that portion of the 50-year demand that will not be met by the currently permitted resources. For example, if the blue portion is 25 percent and the purple portion is 75 percent of a pie diagram that represents a total demand of 400 million tons, the permitted resources are 100 million tons, and the region will need an additional 300 million tons of aggregate to supply the area for the next 50 years. The pie representing the Yuba City-Marysville aggregate study area (north-central California) is completely colored blue showing permitted aggregate resources are equal to or greater than the area's 50-year aggregate demand.

Except for Yuba City-Marysville, all of the aggregate study areas have less permitted aggregate resources than they are projected to need for the next 50-years. Twenty-five of the 31 aggregate study areas have less than half of the permitted resources they are projected to need.

Non-Permitted Aggregate Resources

Non-permitted aggregate resources are deposits that may meet specifications for construction aggregate, are recoverable with existing technology, have no land overlying them that is incompatible with mining, and currently are not permitted for mining. While not shown on Map Sheet 52, non-permitted aggregate resources are identified and discussed in each of the mineral land classification reports used to compile the map (See Appendix). There are currently an estimated 74 billion tons of non-permitted construction aggregate resources in the 31 aggregate study areas shown on the map. While this number is large, it is unlikely that all of these resources will ever be mined because of social, environmental, or economic factors. Aggregate resources located too close to urban or environmentally sensitive areas can limit or stop their development. These resources may also be located too far from a potential market to be economic. In spite of such possible constraints, non-permitted aggregate resources are the most likely future sources of construction aggregate potentially available to meet California's continuing demand. Factors used to calculate non-permitted resource amounts and to determine the aerial extent of these resources, are given in each of the aggregate classification reports listed in the Appendix.

Aggregate Production Areas and Districts

Aggregate production areas are shown on the map by five different sizes of triangle. A triangle may represent one or more active aggregate mines. The relative size of each symbol corresponds to the amount of yearly production for each mine or group of mines. Yearly production was based on data from the Department of Conservation's Office of Mine Reclamation (OMR) records for the calendar year 2005. The smallest triangle represents a production area that produces less than 0.5 million tons of aggregate per year. These triangles represent a single mine operation. About 85 percent of the production areas on the map fall into this category, and many are located in rural parts of the state. The largest triangle represents aggregate mining districts with production of more than 10 million tons per year. Only two aggregate production districts fall into this category – the Temescal Valley District in western Riverside County and the San Gabriel Valley District in Los Angeles County. The Temescal Valley Production District produced about 12 million tons of aggregate in 2005 and is the largest sand and gravel production district in the United States.

Aggregate Study Areas with Less than Ten Years of Permitted Resources

Four of the 31 aggregate study areas – North San Francisco Bay, Sacramento County, Fresno County, and northern Tulare County – are projected to have less than 10 years of permitted aggregate resources remaining. They are highlighted by red halos around the pie diagrams on Map Sheet 52 and appear in bold type in Table 1. Calculations of depletion years are made by comparing the currently permitted resources to the projected annual aggregate consumption in the study area on a year-by-year basis. This is not the same as dividing the total projected 50-year demand for aggregate by 50 because, as population increases, so does the projected annual consumption of aggregate for a study area. It should be noted that these numbers are estimates and they can quickly change. For example, if a neighboring region runs out of aggregate and begins to import aggregate from another region, a 20-year supply can quickly drop to just a few years.

PART II COMPARISONS BETWEEN THE ORIGINAL (2002) AND THE UPDATED (2006) MAP SHEET 52

The original Map Sheet 52 was completed in early 2001 and published in 2002. **Permitted aggregate resource data were current as of January 1, 2001.** Most of the data for the map were collected and compiled in 2000. The latest aggregate production and location data available during this time were from 1999 records. The aggregate demand projections for the original map were based on DOF county population projections from the 1990 U.S. census (2000 census data were not yet available). Fifty-year aggregate demand from January 1, 2001 through the year 2050 was determined for 34 study areas.

The updated Map Sheet 52 was completed and published in 2006. **Permitted aggregate resource data for the updated map is current as of January 1, 2006.** All work conducted for the updated study also took place during 2006. The latest aggregate production and location data available for the updated map are from 2005 records. The aggregate demand projections for the updated map were based on DOF county population projections from the 2000 U.S. census. Fifty-year aggregate demand from January 1, 2006 through the year 2055 was determined for 31 study areas.

Significant changes also have occurred in aggregate supply (permitted aggregate resources) and demand in the five years since the original Map Sheet 52 was completed. Changes in permitted aggregate resources between the original Map Sheet 52 (2002) and updated Map Sheet 52 (2006) are shown on Table 2. New mining regulations, mine closures, new mining permits, and five years of consumption have contributed to these changes.

Significant changes have also occurred in 50-year aggregate demand figures for several study areas due to updated aggregate production and county population projection. Table 3 compares the changes in demand between Map Sheet 52 (2002) and the updated 2006 map.

The updated map had three fewer aggregate study areas (a total of 31) because of aggregate shortages that caused changes in market areas. These changes are discussed in the following section.

Aggregate Study Area Changes

Six aggregate study areas on the original Map Sheet 52 have been modified for the updated map, resulting in three fewer study areas. They include the Southern California P-C regions of Orange County, Temescal Valley, San Fernando Valley, Saugus-Newhall, Western Ventura County, and Simi Valley. These P-C regions were modified because they no longer fit the definition of a production-consumption region. The Western Ventura County P-C region is depleted of permitted resources, and the Orange County, San Fernando Valley and Saugus Newhall regions are nearly depleted. When these regions began to run out of permitted aggregate resources, they became dependent on aggregate sources from neighboring regions, resulting in market areas that no longer were served by their original production district.

Orange County's permitted resources are nearly exhausted and now the county relies on Temescal Valley for much of its aggregate needs. These two P-C Regions were combined into the Temescal Valley-Orange County aggregate study area. Permitted resources for this new study area total

AGGREGATE STUDY AREA	**Permitted Aggregate Resources as of 1/1/01** (million tons) **Map Sheet 52, 2002**	**Permitted Aggregate Resources as of 1/1/06** (million tons) **Map Sheet 52, 2006**	**Percent Difference (%)**
Bakersfield P-C Region	167	115	-31
Barstow Victorville P-C Region	115	133	15
Claremont-Upland P-C Region	134	147	10
Eastern Merced County	15	53	253
El Dorado County	13	19	46
Fresno P-C Region	98	71	-27
Glenn County	56	17	-70
Monterey Bay P-C Region	243	347	43
Nevada County	35	31	-11
Northern Tulare County	12	12	0
North San Francisco Bay P-C Region	178	49	-73
Palmdale P-C Region	216	181	-16
Palm Springs P-C Region	70	176	151
Placer County	43	45	5
Sacramento County	65	67	3
Sacramento-Fairfield P-C Region	130	164	26
San Bernardino P-C Region	356	262	-26
San Fernando Valley-Saugus Newhall *	**154	88	-43
San Gabriel Valley P-C Region	241	370	54
San Luis Obispo-Santa Barbara P-C Region	93	77	-17
Shasta County	28	51	82
Southern Tulare County	196	Proprietary	Proprietary
South San Francisco Bay P-C Region	564	458	-19
Stanislaus County	35	51	45
Stockton Lodi P-C Region	260	196	-25
Tehama County	40	36	-10
Temescal Valley-Orange County*	**837	355	-58
Ventura County (combined Western Ventura County and Simi Valley P-C Region)*	**129	106	-18
Western Merced County	>50	Proprietary	Proprietary
Western San Diego County P-C Region	275	198	-28
Yuba City-Marysville P-C Region	>2,000	409	-80
Total	**6,848**	**4,343**	

* Two P-C Regions have been combined for updated Map Sheet 52

**Total for combined P-C Regions

Table 2. Comparison of permitted aggregate resources between Map Sheet 52, 2002 and Map Sheet 52, 2006.

AGGREGATE STUDY AREA	50-Year Demand as of 1/1/01 (million tons) Map Sheet 52, 2002	50-Year Demand as of 1/1/06 (million tons) Map Sheet 52, 2006	Percent Difference (%)
Bakersfield P-C Region	246	252	2
Barstow-Victorville P-C Region	165	179	8
Claremont-Upland P-C Region	270	300	11
Eastern Merced County	98	106	8
El Dorado County	85	91	7
Fresno P-C Region	565	629	11
Glenn County	79	83	5
Monterey Bay P-C Region	381	383	0.5
Nevada County	169	122	-28
Northern Tulare County	107	117	9
North San Francisco Bay P-C Region	648	647	-0.15
Palmdale P-C Region	172	665	287
Placer County	126	171	36
Palm Springs P-C Region	198	295	49
Sacramento County	686	733	7
Sacramento-Fairfield P-C Region	225	235	4
San Bernardino P-C Region	969	1,074	11
San Fernando Valley/Saugus Newhall *	** 732	457	-38
San Gabriel Valley P-C Region	1,250	1,148	-8
San Luis Obispo-Santa Barbara P-C Region	99	243	145
Shasta County	118	122	3
Southern Tulare County	77	88	14
Stanislaus County	311	344	11
Stockton Lodi P-C Region	337	728	115
South San Francisco Bay P-C Region	1,213	1,244	3
Tehama County	52	72	38
Temescal Valley-Orange County *	** 1,203	1,122	-7
Ventura County (combined Western Ventura County and Simi Valley P-C Regions) *	** 257	309	20
Western Merced County	49	53	8
Western San Diego County P-C Region	1,099	1,164	6
Yuba City-Marysville P-C Region	30	360	1,100
Total	**12,016**	**13,536**	

* Two P-C Regions have been combined for updated Map Sheet 52
**Total for combined P-C Regions

Table 3. Comparison of 50-year demand between Map Sheet 52, 2002 and Map Sheet 52, 2006.

355 million tons as compared to the total resources for both of the original P-C regions of 837 million tons. This results in a decrease of 58 percent (See Table 2).

Western Ventura County has depleted its permitted aggregate resources and now relies heavily on aggregate production from the Simi Valley area. For the updated map, these two regions have been combined to form the Ventura County aggregate study area. Permitted aggregate resources for this area decreased by about 18 percent since the original Map Sheet 52 (See Table 2). A shortage of coarse aggregate in Ventura County has resulted in rock being hauled up to 60 miles into the county from the Palmdale aggregate production region.

Both the San Fernando Valley and the Saugus Newhall P-C regions shown on the original map are rapidly running out of permitted aggregate resources. These two regions have been merged for the updated map to form the San Fernando Valley-Saugus Newhall aggregate study area. Loss of permitted aggregate resources because of mine closures in the Saugus Newhall P-C region has resulted in increased importation of aggregate into the region from the San Fernando Valley P-C region. This puts an additional drain on San Fernando Valley's permitted resources that already are in short supply. The new San Fernando Valley-Saugus Newhall aggregate study area, shown on the updated map, has 88 million tons of permitted resources, or 19 percent of its projected 50-year demand (See Table 1). The 88 million tons includes 56 million tons of newly permitted aggregate resources granted to CEMEX in 2004 for its Soledad Canyon operation in Los Angeles County.

Decreases in Permitted Aggregate Resources

Eighteen of the 31 study areas shown on the updated map experienced a decrease in permitted aggregate resources since the original map was completed (See Table 2). Included in these 18 areas are Western Merced County and Southern Tulare County. Permitted resources for both of these county study areas cannot be shown because they are proprietary. Six of the18 areas had significant decreases of over 50 percent. They include the Glenn County, North San Francisco Bay, Temescal Valley-Orange County, Western Merced County, Southern Tulare County, and Yuba City-Marysville aggregate study areas.

Total permitted resources for all 31 areas decreased from 6.848 billion tons to 4.343 billion tons – a loss of 2.5 billion tons. Most of this decrease was because of aggregate consumption and a large reduction in Yuba City-Marysville's permitted aggregate resources. Approximately 1.2 billion tons of aggregate has been consumed in the 31 study areas during the five-year period from 2001-2005. The Yuba City-Marysville area had a decrease in permitted aggregate resources of 1.6 billion tons despite the addition of over 100 million tons of newly permitted resources to the area. The submission of revised reclamation plans contributed to most of the decrease. Other reasons for reductions in permitted aggregate resources throughout the state include economic or environmental conditions causing mine closures, new in-stream mining regulations, natural changes in the quality of aggregate deposits, and haulage restrictions.

Increases in Permitted Aggregate Resource

Of the 31 study areas shown on the updated Map Sheet 52, 12 areas had increases in permitted aggregate resources. Most of these increases are because of newly permitted or expanded mining operations. An expansion may increase the footprint of the mine or, as in the case of San Gabriel

Valley, mining depth. Significant increases exceeding 50 percent occurred in the Eastern Merced County, Palm Springs, San Gabriel Valley, and Shasta County aggregate study areas (See Table 2).

Changes in Fifty-Year Demand

All but five study areas shown on the updated Map Sheet 52 had increases in 50-year demand (See Table 3). Only two study areas had any significant decrease; these are Nevada County and the new combined aggregate study area of San Fernando Valley-Saugus Newhall. The North San Francisco Bay, San Gabriel Valley, and the Temescal Valley-Orange County study areas had slight decreases.

Nevada County's demand decreased because updated population projections by DOF (based on 2000 census data) for the county were lower than those made by DOF using 1990 census data. The 2000 census-based DOF projections were not available at the time the original study for Map Sheet 52 was being conducted. In most growing areas such as the Palm Springs region and Placer County, the 2000 census-based projections were higher than the 1990 census-based projections.

The nearly depleted permitted resources in the San Fernando Valley-Saugus Newhall study area has resulted in importation of aggregate from the Palmdale P-C region. In order to better reflect aggregate consumption in the San Fernando Valley-Saugus Newhall aggregate study, the method used to calculate 50-year demand for the area was changed from a per capita consumption to a historical production model. (See *Effectiveness of the Per Capita Consumption Model* section.). The new model resulted in a 38 percent decrease in the study area's 50-year demand.

Changes in Permitted Aggregate Resources and Demand

Table 4 shows the percentages of permitted aggregate resources as compared to the 50-year demand for the 2002 and updated 2006 Map Sheet 52. The graphic representations of these ratios are shown on both maps as pie diagrams – the blue portion of the pie depicting percentage of the 50-year demand met with current permitted aggregate resources. An increase in percent between the original and the updated map shows that permitted resources have increased relative to demand. Three of the 31 study areas shown on Table 4 could not be compared to the 2002 map because they are newly combined study areas that did not exist on the 2002 map (See *Aggregate Study Area Changes* section). Increases occurred in 10 of the 28 study areas that could be compared: Barstow-Victorville, Eastern Merced County, El Dorado County, Monterey Bay, Nevada County, Palm Springs, Sacramento-Fairfield, San Gabriel Valley, Shasta County, and Stanislaus County. Except for Nevada County, increases were because of new or expanded permits resulting in additional permitted aggregate resource for that study area. Nevada County's permitted resources decreased slightly. The increase in the supply to demand ratio for Nevada County was caused by a decrease in the county's population growth estimate.

Sixteen of the 28 study areas including Southern Tulare County and Western Merced County, had decreases in supply to demand percentages between the original and the updated map (See Table 4). Large decreases occurred in the Glenn County, Palmdale, San Luis Obispo-Santa Barbara, Southern Tulare County, Stockton-Lodi, and the Western Merced County aggregate study areas. All of these areas also had large decreases in permitted aggregate resources.

AGGREGATE STUDY AREA	Percentage of Permitted Aggregate Resources as Compared to 50-Year Demand as of 1/1/01 Map Sheet 52, 2002	Percentage of Permitted Aggregate Resources as Compared to 50-Year Demand as of 1/1/06 Map Sheet 52, 2006
Bakersfield P-C Region	68	46
Barstow-Victorville P-C Region	70	74
Claremont-Upland P-C Region	50	49
Eastern Merced County	15	50
El Dorado County	15	21
Fresno P-C Region	17	11
Glenn County	71	21
Monterey Bay P-C Region	64	91
Nevada County	21	25
Northern Tulare County	11	10
North San Francisco Bay P-C Region	27	8
Palmdale P-C Region	>100	27
Palm Springs P-C Region	35	60
Placer County	34	26
Sacramento County	9	9
Sacramento-Fairfield P-C Region	58	70
San Bernardino P-C Region	37	24
San Fernando Valley-Saugus Newhall *	**	19
San Gabriel Valley P-C Region	19	32
San Luis Obispo-Santa Barbara P-C Region	94	32
Shasta County	24	42
Southern Tulare County	>100	Proprietary
South San Francisco Bay P-C Region	46	37
Stanislaus County	11	15
Stockton Lodi P-C Region	77	27
Tehama County	77	49
Temescal Valley-Orange County *	**	32
Ventura County (combined Western Ventura County and Simi Valley P-C Regions)*	**	34
Western Merced County	>100	Proprietary
Western San Diego County P-C Region	25	17
Yuba City-Marysville P-C Region	>100	100

* Two P-C Regions have been combined for updated Map Sheet 52
**No percentage due to combining of two P-C Regions

Table 4. Percentage of permitted aggregate resources as compared to 50-year demand for Map Sheet 52, 2002 and Map Sheet 52, 2006.

Comparison of Areas with Less than 10-Years of Permitted Aggregate Resources

The 2006 Map Sheet 52 shows four aggregate study areas – Sacramento County, Fresno County, Northern Tulare County, and the North San Francisco P-C Region, with less than a 10-year supply of permitted aggregate resources. The map shows these areas with red halos around the pie diagrams. The original Map Sheet 52 shows seven areas with less than a 10-year supply of permitted aggregate. Fewer short-supply areas (red circles) shown on the updated map does not mean that California's supply has improved relative to demand. Three of these short supply areas have been combined with neighboring regions. This resulted in all three areas extending their permitted resource life to more than ten years. When regions combine, transportation cost usually increases because of longer and or more time-consuming hauls.

PART III: OVERVIEW OF CONSTRUCTION AGGREGATE

Construction aggregate is the leading non-fuel mineral commodity produced in California, as well as in the nation. Valued at $1.63 billion, aggregate made up about 44 percent of California's $3.72 billion non-fuel mineral production in 2005. California is the nation's leading producer of construction aggregate with a total production of 235 million tons in 2005.

Aggregate Price

The price of aggregate throughout California varies considerably depending on location, quality, and supply and demand. The highest quality aggregate is that which meets the California Department of Transportation's specifications for use in Portland Cement Concrete (PCC). All prices discussed in this section are for PCC-grade aggregate at the plant site or FOB (freight on board). Transportation cost is discussed in the next section. Price variance makes it difficult to estimate the average price of PCC-grade aggregate for the state.

The highest priced aggregate in the state is in the San Diego area, where PCC-grade sand is in very short supply, causing prices to range from $20-$22 /ton. Coarse PCC-grade aggregate is more abundant in the area and averages about $15 per ton. San Diego has started to import sand from Mexico. The price of aggregate in the Northern San Francisco Bay area is up to $18/ton for PCC-grade sand and $16/ton for coarse PCC-grade aggregate. Most of this aggregate is mined from terrace or in-stream deposits of the Russian River located in Alexander Valley. Aggregate is more plentiful and the demand is greater in the South San Francisco Bay area (includes the San Jose metropolitan area). The cost of alluvial sand is about $16/ton, and gravel runs about $15/ton. The price of high strength crushed stone from limestone and diorite in this region is higher at $16 to $17/ton. Sand shortages and subsequent higher prices have resulted in the economical importation of sand from Canada to the San Francisco Bay Region. Aggregate shipped from Canada to the San Francisco Bay and loaded onto trucks costs about $18-$19/ton.

The greater Los Angeles area has some of the best quality sand and gravel in the state. Aggregate prices in the major metropolitan areas supplied by alluvial fan deposits in the San Gabriel Valley and San Fernando Valley average $13-$16/ton. Aggregate from the more sparsely populated but

rapidly growing Palmdale area (Northern Los Angeles County) averages about $10/ton. Much of the coarse aggregate consumed in Ventura County comes from the Palmdale Region – a haul distance of about 60 miles. The added cost for such a long haul is about $9/ton. The average cost for sand in Ventura County, supplied from the Simi Valley production region, is about $13-$16/ton – about the same as the greater Los Angeles area. Aggregate price in the Central Valley regions of Northern Tulare County and Fresno County ranges from $14-$18/ton. Aggregate shortages in the Fresno area have resulted in rock being imported into the area from Coalinga, a 60-mile haul. Aggregate prices in the Stockton-Lodi and Sacramento regions run about $10 and $11/ ton, respectively. The price of PCC-grade aggregate in the Yuba City-Marysville region averages about $7-$8/ton – some of the least expensive in the state. Relatively abundant aggregate in this region has kept aggregate prices low.

Transportation

Transportation plays a major role in the cost of aggregate to the consumer. Aggregate is a low-unit-value, high-bulk-weight commodity, and it must be obtained from nearby sources to minimize both the dollar cost to the aggregate consumer and other environmental and economic costs associated with transportation. If nearby sources do not exist, then transportation costs may significantly increase the cost of the aggregate by the time it reaches the consumer. For straight hauls with minimal traffic, the price of aggregate increases about 15 cents per ton for every mile that it is hauled from the plant. Currently, transporting aggregate a distance of 30 miles will increase the FOB price by about $4.50 per ton. For example, to construct one mile of six-lane interstate highway requires about 113,505 tons of aggregate. Transporting this amount of aggregate 30 miles adds $510 thousand to the base cost of the material at the mine. In major metropolitan areas, this rate is often greater because of heavy traffic that increases the haul time. Other factors that affect hauling rates include toll bridges and toll roads, road conditions, and elevation climbs. Transporting aggregate from distant sources also results in increased fuel consumption, air pollution, traffic congestion, and road maintenance. Moreover, transportation cost is the principal constraint defining the market area for an aggregate mining operation.

Increased Haul Distances

Throughout California, aggregate haul distances have been gradually increasing as local sources of aggregate diminish. Consequently, older P-C regions, most of which were established in the late 1970s have changed considerably since their boundaries were drawn. This is especially evident in Los Angeles, Orange, and Ventura counties where aggregate shortages have led to the merging of six P-C regions shown on the original map into three regions for the updated map (See *Aggregate Study area Changes* section).

The following lists some examples of aggregate hauls in Southern California that have caused significant transportation price increases:

- The Palmdale P-C Region in Northern Los Angeles County currently exports about half of its aggregate into the adjacent San Fernando Valley-Saugus Newhall Region. Some material from Palmdale also goes to downtown Los Angeles. Coarse aggregate from the Palmdale Region is hauled as far as 60 miles to the Western Ventura County.

- Aggregate from the San Gabriel Valley production district is hauled as far south as northern San Diego County.

- Although Orange County imports material mainly from Temescal Valley, some aggregate is hauled to Orange County from the San Bernardino, Upland-Claremont and the San Gabriel Valley production districts.

- Aggregate mined from the Claremont-Upland production district is hauled out of its region to downtown Los Angeles, Orange County and to San Bernardino.

- Northern San Diego County imports aggregate from the San Bernardino production area and from Temescal Valley.

- Aggregate is hauled from the Barstow-Victorville production district into San Bernardino.

- Aggregate is hauled from southwestern Imperial County into downtown San Diego, a distance of about 90 miles.

- Between 1 million and 2 million tons of aggregate are shipped annually by rail from the Cochella Valley area into Los Angeles County.

- Sand is being shipped by barge from Mexico into the San Diego Bay region.

Aggregate Quality and Use

Normally forming 80 to 100 percent of the material volume in the mix, aggregate provides the bulk and strength to PCC and AC. Rarely, even from the highest-grade deposits, is in-place aggregate raw material physically or chemically suited for every type of aggregate use. Every potential deposit must be tested to determine how much of the material can meet specifications for a particular use, and what processing is required. Specifications for PCC, AC, and various other uses of aggregate have been established by several agencies, such as the U.S. Bureau of Reclamation, the U.S. Army Corps of Engineers, and the California Department of Transportation to ensure that aggregate is satisfactory for specific uses. These agencies and other major consumers test aggregate using standard test procedures of the American Society for Testing Materials (ASTM), the American Association of State Highway Officials, and other organizations.

Most PCC and AC aggregate specifications have been established to ensure the manufacture of strong, durable structures capable of withstanding the physical and chemical effects of weathering and use. For example, specifications for PCC and concrete products prohibit or limit the use of rock materials containing mineral substances such as gypsum, pyrite, zeolite, opal, chalcedony, chert, siliceous shale, volcanic glass, and some high-silica volcanic rocks. Gypsum retards the setting time of portland cement; pyrite dissociates to yield sulfuric acid and an iron oxide stain; and other substances contain silica in a form that reacts with alkali substances in the cement, resulting in cracks and "pop-outs." Alkali reactions in PCC can be minimized by the addition of pozzolanic admixtures such as fly ash or naturally occurring pozzolanic materials. Pozzolan materials are defined as a siliceous or siliceous and aluminous material of natural or artificial origin that, in the presence of moisture, reacts with calcium hydroxide to form cementitious

compounds. Naturally occurring pozzalonic materials include diatomaceous earth, diatomite, volcanic ash, opaline shale, pumicite, tuff, and certain clays such as kaolinite.

Specifications also call for precise particle-size distribution for the various uses of aggregate that is commonly classified into two general sizes: coarse and fine. Coarse aggregate is rock retained on a 3/8-inch or a #4 U.S. sieve. Fine aggregate passes a 3/8-inch sieve and is retained on a #200 U.S. sieve (a sieve with 200 weaves per inch). For some uses, such as asphalt paving, particle shape is specified. Aggregate material used with bituminous binder (asphalt) to form sealing coats on road surfaces shall consist of at least 90% by weight of crushed particles. Crushed stone is preferable to natural gravel in asphaltic concrete (AC) because asphalt adheres better to broken surfaces than to rounded surfaces and the interlocking of angular particles strengthens the AC and road base.

The material specifications for PCC and AC aggregate are more restrictive than specifications for other applications such as Class II base, subbase, and fill. These restrictive specifications makes deposits acceptable for use as PCC or AC aggregate, the scarcest and most valuable aggregate resources. Aggregate produced from such deposits can be, and commonly is, used in applications other than concrete. PCC and AC-grade aggregate deposits are of major importance when planning for future availability of aggregate commodities because of their versatility, value, and relative scarcity.

Factors Affecting Aggregate Deposit Quality

The major factors that affect the quality of construction aggregate are the rock type and the degree of weathering of the deposit. Rock type determines the hardness, durability, and potential chemical reactivity of the rock when mixed with cement to make concrete. In alluvial sand and gravel deposits, rock type is variable and reflects the rocks present in the drainage basin of the stream or river. In crushed stone deposits, rock type is typically less variable, although in some types of deposits, such as sandstones or volcanic rocks, there may be significant variability of rock type within a deposit. Rock type may also influence aggregate shape. For example, some metamorphic rocks such as slates, tend to break into thin platy fragments that are unsuitable for many aggregate uses, while many volcanic and granitic rocks break into blocky fragments more suited to a wide variety of aggregate uses. Deposit type also affects aggregate shape. For example, in alluvial sand and gravel deposits, the natural abrasive action of the stream rounds the edges of rock particles, in contrast to the sharp edges of particles from crushed stone deposits.

Weathering is the in-place physical or chemical decay of rock materials at or near the Earth’s surface. Weathering commonly decreases the physical strength of the rock and may make the material unsuitable for high strength and durability uses. Weathering may also alter the chemical composition of the aggregate, making it less suitable for some aggregate uses. If weathering is severe enough, the material may not be suitable for use as PCC or AC aggregate. Typically, the older a deposit is, the more likely it has been subjected to weathering. The severity of weathering commonly increases with increasing age of the deposit.

Comparison of Alluvial Sand and Gravel to Crushed Stone Aggregate

The preferred use of one aggregate material over another in construction practices depends not only on specification standards, but also on economic considerations. Alluvial gravel is typically preferred to crushed stone for PCC aggregate because the rounded particles of alluvial sand and gravel result in a wet mix that is easier to work than a mix made of angular fragments. Also, crushed stone is less desirable in applications where the concrete is placed by pumping because sharp edges will increase wear and damage to the pumping equipment. The workability of a mix consisting of portland cement with crushed stone aggregate can be improved by adding more sand and water, but more cement must then be added to the mix to meet concrete durability standards. This results in a more expensive concrete mix and a higher cost to the consumer. In addition, aggregate from a crushed stone deposit is typically more expensive than that from an alluvial deposit due to the additional costs associated with the ripping, drilling and blasting necessary to remove material from most quarries and the additional crushing required to produce the various sizes of aggregate. Manufacturing sand by crushing is more costly than mining and processing naturally occurring sand. Although more care is required in pouring and placing a wet mix containing crushed stone, PCC made with this aggregate is as satisfactory as that made with alluvial sand and gravel of comparable rock quality. Owing to environmental concerns and regulatory constraints in many areas of the state, it is likely that extraction of sand and gravel resources from instream and floodplain areas will become less common in the future. If this trend continues, crushed stone may become increasingly important to the California market.

Factors Affecting Aggregate Demand

Strong economic growth may contribute to a faster rate of aggregate depletion than forecasted in the CGS classification reports. The nation's strong economy since the mid 1990s has brought about a resurgence of new home and business construction, as well as large construction projects such as airports, new roads, rail systems, and re-paving of existing roads.

Several factors may contribute to extending the life of California's permitted aggregate resources. A recession in the state's or the nation's economy will result in a decrease in construction activities. Also, an increase in the use of recycled aggregate for base rock will decrease the need for new aggregate. The importation of aggregate from other states and countries such as Canada and Mexico is also expected to extend the life of California's permitted aggregate resources. New state-of-the-art ships are capable of hauling up to 70,000 tons of aggregate. California currently imports about one percent of the aggregate it consumes.

SUMMARY

Construction aggregate is the largest non-fuel mineral commodity produced in California as well as in the nation. Aggregate production plays a major role in the economy of California. Demand for aggregate is expected to increase as the state's population continues to grow and infrastructure is maintained and improved. For the last 28 years, CGS has conducted on-going studies that identify and evaluate aggregate resources throughout the state. Map Sheet 52 (Updated 2006) is an updated summary of supply and demand data from these studies. The map presents a statewide overview of aggregate needs and permitted resources.

In a five-year period (2001-2005), permitted aggregate resources have decreased by about 2.5 billion tons. Also, during this same period, more aggregate study areas had decreases in permitted aggregate resources than increases. Decreases were caused by changes in permitted resource calculations, aggregate consumption, and social and economic conditions leading to mine closures.

Aggregate price at the plant site and transportation cost have increased significantly in the past five years. Areas throughout the state are experiencing shortages in local permitted aggregate resources and are being forced to transport aggregate longer distances, significantly increasing the FOB cost by the time it reaches its final destination. Areas in very short supply of permitted aggregate resources include Fresno, North San Francisco Bay, Southern Tulare County, and Sacramento County. The shortage of PCC-grade sand in the San Diego and the San Francisco Bay areas has driven up the price in both areas, making importation of sand from Canada and Mexico into these regions competitive.

CONCLUSIONS AND RECOMMENDATIONS

Construction aggregate is essential to the needs of modern society, providing material for the construction and maintenance of roadways, dams, canals, buildings and other parts of California's infrastructure. Aggregate is also found in homes, schools, hospitals and shopping centers. In 2005, California consumed about 235 million tons of construction aggregate or about 6.6 tons per person. Because transporting aggregate is a significant part of the total cost to the consumer, aggregate mines generally are located close to communities that consume the aggregate.

The following conclusions can be drawn from Map Sheet 52 and this accompanying report. Reference is made to the 31 aggregate consumption areas that are represented by the pie diagrams shown on Map Sheet 52:

- About 32 percent of the total projected 50-year aggregate demand identified for the 31 study areas is currently permitted.

- Only six percent of the total aggregate resources identified within the 31 study areas are currently permitted.

- California currently has about 4.3 billion tons of permitted resources identified in the 31 study areas shown on Map Sheet 52.

- In the next 50 years, California will need approximately 13.5 billion tons of aggregate. This figure does not account for accelerated construction programs as a result of major bond initiatives, or from reconstruction following a major, damaging earthquake.

- Four of the updated aggregate study areas are projected to have less than ten years of permitted aggregate resources remaining as of January 2006 (pie diagrams highlighted with red borders).

- Ten of the updated aggregate study areas show less than 25 percent of the aggregate resources to meet the projected 50-year aggregate demand.

- About one-half (16) of the updated aggregate study areas show that 25 to 50 percent of the aggregate resources are available to meet the 50-year aggregate demand.

- Three (one tenth) of the updated aggregate study areas show between 50 and 75 percent of the aggregate resources are available to meet the 50-year aggregate demand.

- One study area shows between 75 and 100 percent of the aggregate resources to be available to meet its 50-year aggregate demand.

- Only one of the study areas has adequately permitted aggregate resources to meet or exceed its projected 50-year demand. The 2002 map showed six areas.

The information presented on Map Sheet 52 and in the referenced reports is provided to assist land use planners and decision makers in identifying those areas containing construction aggregate resources, and to identify potential future demand for these resources in different regions of the state. This information is intended to help planners and decision makers balance the need for construction aggregate with the many other competing land use issues in their jurisdictions, and to provide for adequate supplies of construction aggregate to meet future needs.

REFERENCES CITED

California Department of Transportation, 1992, Standard Specifications.

Division of Mines and Geology, 2000, California surface mining and reclamation policies and procedures: Special Publication 51, third revision.

Dupras, D.L., 1997, Mineral land classification of alluvial sand and gravel, crushed stone, volcanic cinders, limestone, and diatomite within Shasta County, California.

Kohler, S.L., 2002, Aggregate Availability in California, California Geological Survey, Map Sheet 52, scale 1:1,100,000, 26p.

Miller, R.V., 1994, Update of mineral land classification of portland cement concrete aggregate in Ventura, Los Angeles, and Orange counties, California: Part II – Los Angeles County.

Miller, R.V., 1996, Update of minerals land classification: aggregate materials in the western San Diego County Production-Consumption Region.

APPENDIX: MINERAL LAND CLASSIFICATION REPORTS BY THE CALIFORNIA GEOLOGICAL SURVEY (Special Reports and Open-File Reports, with information on aggregate resources)

SPECIAL REPORTS

SR 132: Mineral Land Classification: Portland Cement Concrete-Grade Aggregate in the Yuba City-Marysville Production-Consumption Region.
By Habel, R.S., and Campion, L.F., 1986.

*SR 143: Part I: Mineral Land Classification of the Greater Los Angeles Area: Description of the Mineral Land Classification Project of the Greater Los Angeles Area.
By Anderson T. P., Loyd, R.C., Clark, W.B., Miller, R.M., Corbaley, R., Kohler, S.L., and Bushnell, M.M., 1979.

*SR 143: Part II: Mineral Land Classification of the Greater Los Angeles Area: Classification of Sand and Gravel Resource Areas, San Fernando Valley Production-Consumption Region.
By Anderson T.P., Loyd, R.C., Clark, W.B., Miller, R.M., Corbaley, R., Kohler, S.L., and Bushnell, M.M., 1979.

*SR 143: Part III: Mineral Land Classification of the Greater Los Angeles Area: Classification of Sand and Gravel Resource Areas, Orange County-Temescal Valley Production-Consumption Region.
By Miller, R.V., and Corbaley, R., 1981.

*SR 143: Part IV: Mineral Land Classification of the Greater Los Angeles Area: Classification of Sand and Gravel Resource Areas, San Gabriel Valley Production-Consumption Region.
By Kohler, S.L., 1982.

*SR 143: Part V: Mineral Land Classification of the Greater Los Angeles Area: Classification of Sand and Gravel Resource Areas, Saugus-Newhall Production-Consumption Region and Palmdale Production-Consumption Region.
By Joseph, S.E, Miller, R.V., Tan, S.S., and Goodman, R.W., 1987.

*SR 143: Part VI: Mineral Land Classification of the Greater Los Angeles Area: Classification of Sand and Gravel Resource Areas, Claremont-Upland Production-Consumption Region.
By Cole, J.W., 1987.

*SR 143: Part VII: Mineral Land Classification of the Greater Los Angeles Area: Classification of Sand and Gravel Resource Areas, San Bernardino Production-Consumption Region.
By Miller, R.V., 1987.

*SR 145: Part I: Mineral Land Classification of Ventura County: Description of the Mineral Land Classification Project of Ventura County.
By Anderson,T.P., Loyd, R.C., Kiessling, E.W., Kohler, S.L., and Miller, R.V., 1981.

*SR 145: Part II: Mineral Land Classification of Ventura County: Classification of the Sand, Gravel, and Crushed Rock Resource Areas, Simi Production-Consumption Region.
By Anderson,T.P., Loyd, R.C., Kiessling, E.W., Kohler, S.L., and Miller, R.V., 1981.

*SR 145: Part III: Mineral Land Classification of Ventura County: Classification of the Sand and Gravel, and Crushed Rock Resource Areas, Western Ventura County Production-Consumption Region.
By Anderson,T.P., Loyd, R.C., Kiessling, E.W., Kohler, S.L., and Miller, R. V., 1981.

*SR 146: Part I: Mineral Land Classification: Project Description: Mineral Land Classification for Construction Aggregate in the San Francisco-Monterey Bay Area.
By Stinson, M.C., Manson, M.W., and Plappert, J.J., 1987.

*SR 146: Part II: Mineral Land Classification: Aggregate Materials in the South San Francisco Bay Production-Consumption Region.
By Stinson, M.C., Manson, M.W., and Plappert, J.J., 1987.

*SR 146: Part III: Mineral Land Classification: Aggregate Materials in the North San Francisco Bay Production-Consumption Region.
By Stinson, M.C., Manson, M.W., and Plappert, J.J., 1987.

*SR 146: Part IV: Mineral Land Classification: Aggregate Materials in the Monterey Bay Production-Consumption Region.
By Stinson, M.C., Manson, M.W., and Plappert, J.J., 1987.

SR 147: Mineral Land Classification: Aggregate Materials in the Bakersfield Production-Consumption Region.
By Cole, J.W., 1988.

*SR 153: Mineral Land Classification: Aggregate Materials in the Western San Diego County Production-Consumption Region.
By Kohler, S.L., and Miller, R.V., 1982.

SR 156: Mineral Land Classification: Portland Cement Concrete-Grade Aggregate in the Sacramento-Fairfield Production-Consumption Region.
By Dupras, D.L., 1988.

*SR 158: Mineral Land Classification: Aggregate Materials in the Fresno Production-Consumption Region.
By Cole, J.W., and Fuller, D.R., 1986.

*SR 159: Mineral Land Classification: Aggregate Materials in the Palm Springs Production-Consumption Region.
By Miller, R.V., 1987.

*SR 160: Mineral Land Classification: Portland Cement Concrete-Grade Aggregate in the Stockton-Lodi Production-Consumption Region.
By Jensen, L.S., and Silva, M.A., 1989.

SR 162: Mineral Land Classification: Portland Cement Concrete Aggregate and Active Mines of All Other Mineral Commodities in the San Luis Obispo-Santa Barbara Production-Consumption Region.
By Miller, R.V., Cole, J.W., and Clinkenbeard, J.P., 1991.

SR 164: Mineral Land Classification of Nevada County, California.
By Loyd, R.C., and Clinkenbeard, J.P., 1990.

SR 165: Mineral Land Classification of the Temescal Valley Area, Riverside County, California.
By Miller, R.V., Shumway, D.O., and Hill, R.L., 1991.

SR 173: Mineral Land Classification of Stanislaus County, California.
By Higgins, C.T., and Dupras, D.L., 1993.

SR 198: Update of Mineral Land Classification: Aggregate Materials in Palm Springs Production-Consumption Region, California.
By Busch, L.L., 2006. (in progress).

SR 199: Update of Mineral Land Classification- Stockton Lodi Production-Consumption Region, San Joaquin County, California.
By Taylor, G.C., 2006. (in progress).

OPEN-FILE REPORTS

OFR 92-06: Mineral Land Classification of Concrete Aggregate Resources in the Barstow-Victorville Area.
By Miller, R.V., 1993.

OFR 93-10: Update of Mineral Land Classification of Portland Cement Concrete Aggregate in Ventura, Los Angeles, and Orange Counties, California: Part I - Ventura County.
By Miller, R.V., 1993.

OFR 94-14: Update of Mineral Land Classification of Portland Cement Concrete Aggregate in Ventura, Los Angeles, and Orange Counties, California: Part II - Los Angeles County.
By Miller, R.V., 1994.

OFR 94-15: Update of Mineral Land Classification of Portland Cement Concrete Aggregate in Ventura, Los Angeles, and Orange Counties, California: Part III - Orange County.
By Miller, R.V., 1995.

OFR 95-10: Mineral Land Classification of Placer County, California.
By Loyd, R.C., 1995.

OFR 96-03: Update of Mineral Land Classification: Aggregate Materials in the South San Francisco Bay Production-Consumption Region.
By Kohler-Antablin, S.L., 1996.

OFR 96-04: Update of Mineral Land Classification: Aggregate Materials in the Western San Diego County Production-Consumption Region.
By Miller, R.V., 1996.

OFR 97-01: Mineral Land Classification of Concrete Aggregate Resources in the Tulare County Production-Consumption Region, California.
By Taylor, G.C., 1997.

OFR 97-02: Mineral Land Classification of Concrete-Grade Aggregate Resources in Glenn County, California.
By Shumway, D.O., 1997.

OFR 97-03: Mineral Land Classification of Alluvial Sand and Gravel, Crushed Stone, Volcanic Cinders, Limestone, and Diatomite within Shasta County, California.
By Dupras, D.L, 1997.

OFR 99-01: Update of Mineral Land Classification: Aggregate Materials in the Monterey Bay Production-Consumption Region, California.
By Kohler-Antablin, S.L., 1999.

OFR 99-02: Update of Mineral Land Classification: Aggregate Materials in the Fresno Production-Consumption Region, California.
By Youngs, L.G. and Miller, R.V., 1999.

OFR 99-08: Mineral Land Classification of Merced County, California.
By Clinkenbeard, J.P., 1999.

OFR 99-09: Mineral Land Classification: Portland Cement Concrete-Grade Aggregate and Clay Resources in Sacramento County, California.
By Dupras, D.L., 1999.

OFR 2000-18: Mineral Land Classification of Concrete-Grade Aggregate Resources in Tehama County, California.
By Foster, B.D., 2001

OFR 2000-03: Mineral Land Classification of EL Dorado County, California.
By Busch L.L., 2001

***** These Mineral Land Classification reports have been updated and are not shown on the index map (lower left-hand corner of Map Sheet 52).

AGGREGATE AVAILABILITY IN CALIFORNIA

Fifty-Year Aggregate Demand Compared to Permitted Aggregate Resources

By

Susan L. Kohler

Department of Conservation
California Geological Survey

December 2006

Contributions By:
L. L. Busch and R. V. Miller

GIS Design and Map Layout By:
Milton Fonseca

Fifty-Year Aggregate Demand Compared to Permitted Aggregate Resources*

The pie diagrams show the projected 50-year demand for aggregate as of January 2006 compared to currently permitted aggregate resources (in short tons). The 50-year demand for a particular study area is graphically represented by one of four pie diagram sizes. Study area boundaries are shown on the index map of aggregate studies (lower left).

** Permitted aggregate resources (also called aggregate reserves) are those portions of the resources for which local lead agencies (counties and cities) have issued mining permits. Non-permitted aggregate resource information is given in each aggregate study report. See accompanying text for references to these reports.*

Legend

50-year demand that will not be met by existing permitted resources.
Permitted aggregate resources.

50-year demand is 25 to 200 million tons.

50-year demand is > 200 to 500 million tons.

50-year demand is > 500 to 800 million tons.

50-year demand is more than 800 million tons.

Examples

50-year demand for aggregate is 100 million tons; permitted resources total 25 million tons of the 50-year demand.

25/100 Million Tons (permited resources/ 50-year demand)

50-year demand for aggregate is 510 million tons; permitted resources are greater than or equal to the 50-year demand.

550/510 Million Tons (permited resources/ 50-year demand)

Areas With Short Term Aggregate Supply

< 10 years of permitted resources remaining in the study area.

Aggregate Production Areas

(Symbols represent one or more aggregate mines, tonnage represents 2005 annual production)

- < 0.5 Million Tons per Year
- 0.5 - 2 Million Tons per Year
- >2 - 5 Million Tons per Year
- >5 - 10 Million Tons per Year
- >10 Million Tons per Year

Population

1 Dot = 100 Persons
(based on 2000 Census Data)

- City
- Interstate Route
- U.S. Route
- State Route
- Primary Highway
- Secondary Highway
- County Boundary

N

20 0 20 40 60
Miles

20 0 20 40 60
Kilometers

Scale: 1:1,100,000

Projection: Teale Albers
Datum: NAD 27

Map Usage and Limitations

This map is intended to provide general information about the current availability of California's permitted construction aggregate resources to state, regional, and local land-use planners and decision-makers. It is designed to assist planning agencies in considering construction aggregate needs in the regional planning process. However, the map is not intended to be used as the sole source of information about construction aggregate availability, or as the basis for site-specific land-use decisions. Although the statewide and regional information on this map may be useful to local decision-makers, the more detailed information contained in the referenced aggregate studies should be used for local land-use decision-making purposes.

Aggregate Studies by California Geological Survey [1]

OFR = Open-File Report [2]
SR = Special Report [2]

- Shasta County OFR 97-03 (1996)
- Tehama County OFR 2000-18 (2001)
- Yuba City-Marysville SR 132 (1986)
- Glenn County OFR 97-02 (1997)
- Nevada County SR 164 (1990)
- Placer County OFR 95-10 (1994)
- Sacramento-Fairfield SR 156 (1988)
- El Dorado County OFR 2000-03 (2001)
- North San Francisco Bay SR 146, part III (1987)
- Sacramento County OFR 99-09 (1999)
- Stockton-Lodi SR 199 (In progress)
- Stanislaus County SR 173 (1993)
- South San Francisco Bay OFR 96-03 (1996)
- Merced County OFR 99-08 (1999)
- Monterey Bay OFR 99-01 (1999)
- Fresno OFR 99-02 (1999)
- Tulare County OFR 97-01 (1997)
- Bakersfield SR 147 (1988)
- Palmdale OFR 94-14 (1994)
- San Luis Obispo-Santa Barbara SR 162 (1991)
- Barstow-Victorville OFR 92-06 (1993)
- Saugus-Newhall OFR 94-14 (1994)
- San Bernardino SR 143 part VII (1987)
- Western Ventura County OFR 93-10 (1993)
- Palm Springs SR 198 (In progress)
- Simi Valley OFR 93-10 (1993)
- Temescal Valley SR 165 (1991)
- San Gabriel Valley OFR 94-14 (1994)
- San Fernando Valley OFR 94-14 (1994)
- Western San Diego County OFR 96-04 (1996)
- Claremont-Upland SR 143 part VI (1987)
- Orange County OFR 94-15 (1995)

FOOTNOTES:

[1] Study areas are displayed in several colors for clarity purposes.

[2] These reports can be obtained at:
Geologic Information and Publications
California Geological Survey
801 K Street, MS 14-34
Sacramento, CA 95814-3532
Tel: (916) 445-5716

BB

SONOMA COUNTY PLANNING COMMISSION
Syar Industries
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Thursday, June 17, 2010

Reported by: Rene Markarian, CSR #5606

COMMISSIONERS PRESENT

Bob Williams, Chair
Don Bennett
Lisa Schaeffner
Pamela Davis

Jeff Brax, County Counsel
Jennifer Barrett, Planning Director

At the Sonoma County Permit and Resource Management Department, 2550 Ventura Avenue, Santa Rosa, California, on Thursday, June 17, 2010, commencing at the hour of 1:21 p.m., thereof, before Rene Markarian, CSR, State of California, the following proceedings were reported:

- - -

MR. WILLIAMS: Good afternoon. File Number PLP08-0116, Syar Industries for the Environmental Impact Report.

This afternoon's discussion is primarily concerned with comments on the Environmental Impact Report that will be prepared and put into the final report. So this is not a discussion of the merits of the project; it's basically a look at the EIR and how much the EIR is going to be effective for the decision-making in the future. So first we will have staff report.

MS. GROSCH: Good afternoon, Chair Williams, County Commissioners, members of the public.

Before you today is the Draft EIR for Syar Industries' request for a use permit for an in-stream mining project to mine up to 350,000 tons of gravel annually from the Alexander Valley reach of the Russian River. The application includes a request for amendments to the ARM plan and SMARO. The purpose is to receive comments on the adequacy of the Draft EIR. I hope you all had adequate time to look at it. It's a fairly lengthy document.

After comments are received, they will be addressed in the Final EIR, and another hearing will be scheduled to discuss the merits of the project and the accuracy of the final EIR.

The project is located in the Alexander Valley in the Geyserville area. There are multiple parcels, and a number of property owners in this area where the project will occur. Syar has lease agreements or owns property where all mining will occur.

The Alexander Valley reach has General Plan designations of Resources and Rural Development with either 20-acre density or 40-acre density, and Land Intensive Agricultural of 20-acre density.

The zoning here is the General Plan designation with Resources and Rural Development, RRD, 20-acre and 40-acre density, RRD with agricultural, RRDWA, with 20-acre density, and Land Intensive Agricultural with 20-acre density. The zoning designation also includes the following combining districts where applicable: BR, Biotic Resources, F1, Floodway, F2, Floodplain, SR, Scenic Resources, VOH, Valley Oak Habitat, Z, Second Dwelling

Unit Exclusionary, and all areas to be mined in the MR, Mineral Resources, combining district.

This is an overview of the entire reach from Gill Creek to just above the Jimtown Bridge. It's approximately 6.5 miles. This is the northern portion of that reach. The haul routes are designated with the numbers, and the bars are the little squares. They also have numbers, but you cannot see them very clearly on this graph. Sorry about that. The middle section, same designations, bar with the gold triangles, and routes with the numbers. And the southern section.

The Syar proposal includes mining of any of the gravel bars within the Alexander Valley reach, with mining occurring on only one bar at a time, although up to four bars may be mined in a season. Bars to be mined will be determined using an Adaptive Management Strategy.

This represents sort of a general graphic of the proposed mining methods, many of which will require the ARM Plan and SMARO. Those are related to permit lengths. Syar's requesting a 15-year permit instead of a 10-year permit; the area of the head of bar buffer which is proposed as one-third instead of one-half of the bar; an increase to the side bar setbacks to 20 percent instead of just a straight 15 percent that is currently required; and a change in the point from which the outer bank buffer is measured from the top of the bank to the toe of the bank.

This diagram shows, again, the mining standards that Syar's requested, including the changed buffers, depth of gravel mining, placement -- and also a representation of where our placement of oxbows or alcoves might be, setbacks to the outer bank, et cetera.

Syar's also proposed extensive vegetation management from retention and transplanting to removal of Arundo, also called Giant Reed; replanting with native species, and restoration of riparian woodland. This is part of a River Enhancement Plan, which is a major component of Syar's request. These activities are focused on river and habitat improvements.

I'm going to run through these fairly quickly. They're a series of slides that show how the bars as they are currently -- or sort of currently -- I think these are a couple years old now -- how they exist and how they would be mined; where the enhancements would be. This shows the river, the bar to be mined, a portion of another bar. This is what we are referring to as the alcove and oxbow. Here's Gill Creek. This will do a couple things; hopefully reattach Gill Creek to the Russian River and provide fish habitats and refuge areas for them.

Down here we have another little area that won't be as extensively reshaped, but will provide a lower area

where it will stay damp longer and will establish a riparian forest.

Again, another conceptual mining plan showing that last area that we talked about and another one adjacent to it. These will also have other features, such as large wood debris piles out close to the river to provide fish habitat.

This is Bar S-9, which is just shown here, north of the Geyserville Bridge. It contains a large area where they've proposed a floodplain, wetland habitat area to be reestablished through this alcove that will allow water to get up into this area, and a fairly large amount of gravel is anticipated to be removed from this bar. This is an area where they probably will use some of the bioengineered bank stabilization along this side where the river's undercutting the bridge.

Bar S-8 is just downstream. Again, a very large bar where a lot of gravel will likely be removed. This area also includes the major staging area for a lot of the mining; another connection through another creek through an alcove, and another riparian forest habitat to be established. This bar is a little different. We've got the channel starting to break into two pieces, and there's also significant vegetation which actually will be retained on this bar.

Some more. This one shows how, even with one-third buffer left, there's sometimes a fairly significant portion of the bar that will remain. There's another one that connects -- Rancheria Creek is connected, again, by an alcove. There's a couple creeks that currently don't really connect to the river, but they're going to connect.

Enhancements projects are over and above the required reclamation activity and will occur within the first six years of the project. That's a brief overview of the mining.

Again, this hearing is focusing on the EIR and its adequacy in identifying all the potential, significant effects of the project on the physical environment; whether the EIR made a determination on the significance of those impacts; assessed the extent to which the significant effects can be reduced or avoided through mitigation measures or alternate activities, and identified feasible alternatives to this project.

I'm going to go through the issues that were raised both in the EIR and the staff report as briefly as possible.

Issue 1, is always consistency with General Plan, Zoning, and, in this case, the ARM Plan. The proposed project is consistent with the General Plan and Zoning

designations as they allow mining, as long as it's a designated reach, which this is, and the MR designation has been added. It is, however, inconsistent with the ARM Plan because proposed activities to maintain channel morphology, enhance fish habitat, minimize bank erosion, and allow the adaptive management strategy are not consistent with current ARM Plan and would need to be amended to allow these activities. The County, along with our Scientific Review Committee and input from the federal and state resource agencies has developed proposed amendments which would allow these activities.

Issue 2 is Geomorphology, Hydrology, and Water Quality, which are probably the primary concerns people would have when they hear about mining a river. Mining can result in a variety of impacts, such as water quality, changes that result in erosion and flooding that were unanticipated, and, of course, loss of habitat, scour downstream, and creation of a wide or shallow flow area that can elevate water temperatures.

There are five measures in the ARM Plan which would need to be modified. These are: Establishing a minimum baseline elevation beyond which mining cannot occur; restricting mining to the lower half of a bar; establishing a minimum size for side of bar buffers -- well, they're not modifying installation of a road and control measure -- and requiring participation in the Russian River Gravel Mitigation Fund.

Subsequent monitoring data indicate that these measures have been effective at preventing impacts on river hydrology and minimizing erosion, but they don't allow for current information which may result in the preservation of geomorphic processes that form pool and riffle habitat for endangered fish. So we would need to amend these.

The measures -- official mitigation measures have been established or proposed by the draft EIR. These include: Establishment of a minimum baseline elevation of one foot above the low flow water surface elevation for either the year 1997 or 2007, whichever elevation is higher; maintain a substantial bar head elevation of at least the height of the dominant discharge or at least the upper half of the bar where the bar head is less than eight feet high; maintain a side bar buffer of 20 percent of the maximum with the active channel, the widest point of the bar and low flow channel, but not less than 50 feet wide; changing the location of measurement of the outer bank buffer from the top of the bank to the toe of the bank. This buffer will be measured to include the dripline of existing riparian vegetation, so it may be more than the 30 feet minimum currently required;

extensive monitoring requirements for sediment storage, channel vertical stability, bar area, low-flow channel width, pool depth, and monitoring by aerial photography. Monitoring will be conducted for three different spacial areas at specific times. One of the monitoring areas is the entire reach from Jimtown Bridge to Gill Creek, and a little bit beyond in each of those instances. The second is just the reach, the six and a half miles in the proposed project, and the third, is the local mining reach, which is the bar that's being mined and the bar upstream and the bar downstream. There needs to be an amendment to allow for adaptive management, which is proposed by the applicant. So that if any of the performance criteria established for the monitoring program are exceeded in any given year, the mining program can be evaluated and stopped or changed as necessary to ensure that the river is not damaged and that the enhancement activities are successful.

Second, a Riparian Vegetation Planting Plan to strengthen river banks and increase riparian area. The mitigation will expand the riparian area to a total of 25 acres. Additionally, the mining method is intended to reduce stress on banks by lessening the angle of attack on the bank opposite the mined bar; erosion and settlement control measures for potential impacts related to temporary bridges and access roads down the river bank. And either the result of both the project proposal and the mitigation measures, it is intended that substantial beneficial impacts on geomorphology, hydrology, and water quality, should result as opposed to the opposite.

The third issue is Vegetation and Wildlife. A number of potentially significant impacts to vegetation and wildlife were identified. A number of mitigation measures have been identified, and the activities to improve habitat and remove invasive species, conjoined with replanting and improving channel morphology result in less than significant impact on those species.

Issue Number 4 was Fisheries Resources. Clearly, in-stream mining could damage anything that lives within the river and an impact was found there. The project proposes, actually, some new goals and objectives and standards that will be added to the ARM Plan that include the revised buffers, the Adaptive Management Strategy, and the River Enhancement Program, all intended to benefit fisheries. The oxbows and alcoves are also intended to benefit resources by allowing them to access the tributaries to the Russian River. And with additional mitigation measures, the Draft EIR finds that there's less than a significant impact on fishery resources.

Issue Number 5, Traffic and Circulation.

Clearly, the project will need to haul the gravel from the river to the Syar plant in Healdsburg, and this will result in a large number of truck trips which could potentially increase hazards and conflicts with other users of the road. The Draft EIR used a measurement of 480 one-way trips, or 240 round trips, to estimate traffic impact. This is considered a worst case scenario, and it is not anticipated that this number of trucks will actually be achieved on a daily basis. It is more likely to be a rarely achieved rate on an unusually productive and smooth running date.

The Draft EIR notes, however, that the contribution of project traffic to the Lytton Station Road curve would result in a significant unavoidable impact if the applicant is unable to acquire the right-of-way necessary to implement a specific mitigation measure. If that mitigation measure is allowed and able to be implemented, then there will be a less than significant impact from traffic.

Air Quality was the sixth issue. The project would generate long-term operational emissions of critical air pollutants such as carbon monoxide, particulate matter and reactive gases. We were able to mitigate most of the impacts to air quality; however, PM 10, particulate matter, was still exceeding the 15 tons per year standard and will be considered a significant and unavoidable impact. The project does not exceed the CO2 emission standard set by the Bay Area Air Quality Management.

Issue Number 7 was Noise. There will be some sensitive receptors close enough to the gravel mining areas that, in the year when that bar is mined, they would be subject to some noise impacts. Mitigation measures have been included which should reduce those impacts to less than significant. However, there are also significant impacts from noise from the trucks, and some of those impacts are more difficult to implement without the agreement of the person -- the private property owner upon which the impact is going to occur. However, with the implementation of those mitigation measures, they should be less than significant.

Issue Number 8, Aesthetics. Although for the most part much of the mining will not be seen on any given year, because it's in an area of the river that's not adjacent to public roadways, there are two key bars, Bar S-9 and Bar S-8, right next to the Geyserville Bridge which will both be highly visible during the year they're mined. They won't be mined in consecutive years, most likely, but there could be other areas of the river that are visible, at least briefly, from Highway 101 when the bars are being mined. Again, this is a seasonal impact,

but much like the ARM Plan EIR, this EIR found that this was a significant and unavoidable impact.

Issue 9, Recreation. There would be potential impacts for boating, fishing, wildlife viewing, swimming and sunbathing along the river. These would be limited to the specific area of mining in any given season, and mining is not going to occur on the weekends, so it will reduce the impact somewhat. The ARM Plan EIR implemented a mitigation measure that was a recreation fee, and if the -- that mitigation measure is applied here, this is found to be a less than significant impact.

10, Hazards and Hazardous Materials. This deals with things like fuels, antifreeze, and other things that could come off of mining equipment being spilled within the river channel mostly, although anywhere near the river could potentially also be a problem. The applicant has a Spill Prevention Fueling and Lubrication Plan which describes how it will handle any spills. A few additional mitigation measures were added, and this is considered to be a less than significant impact.

There are, therefore, a few significant impacts. Cumulative Impacts is the last thing that's been analyzed; this would be an impact on PM 10, which is a cumulative long-term impact for this area; potentially in traffic safety there might be a cumulative impact. So they were not considered to be able to be completely mitigated.

Alternatives to the project -- there were five identified. One is required by California State -- California Environmental Quality Act, the No Project Alternative. This is just that the project doesn't occur. However, there are other things that are analyzed when the project doesn't occur, and one of them is where would high quality aggregate be generated, and would there be any impacts from that. Air quality impacts might be increased because of the fact that you'd have to transport it from out of the area.

Alternative 2 was Gravel Mining in Compliance with the current ARM Plan standards. Under this alternative, Syar would mine aggregate resources along the proposed reach of the Russian River in accordance with the current operational standards and timeline as defined in the ARM Plan. These operating standards would not include the Adaptive Management Strategy which allows for flexibility in when mining occurs, where it occurs, and how it occurs, which is monitored on an annual basis by the County, the Scientific Review Committee, and the federal and state agencies.

Alternative 3, which is the proposed project but with a 10-year time period instead of a 15-year time period. They didn't find that there was a significant

reduction in the impacts identified as a result of the limitation in the time period.

Alternative 4 was the proposed project but a lower extraction volume. So most everything would remain the same; they would have the Alternative Management Strategy, the river enhancement, and the same time frame, but they would mine 132,000 tons per year instead of 350,000 tons per year. This did reduce the PM 10 to less than the significant threshold.

Alternative 5 is the proposed project without the mining of Bars S-9, S-10 and the use of Haul Route 5, which is where there was significant noise. This alternative would be similar to the proposed project, except there would be no mining of Bar S-9 and 10, and no use of Haul Route 5. And it would eliminate significant unavoidable noise being cast on several receptors near Bar S-9 and one receptor adjacent to Geyserville Avenue.

With that, I'll accept any questions that the Planning Commission may have, and recommend that we move on to public comment.

MR. WILLIAMS: Thank you. Do we have any additional comments from the Commission at this time prior to the testimony by the applicant?

MS. SCHAEFFNER: I have a question. Going through this, it's always amazing how many resource agencies have been dealt with. And so my question is: If the comment period closes at 5 o'clock tonight, have you received letters from either the resource agencies you spoke of and addressed in the EIR, or is there anything else that's been brought up-to-date?

MS. GROSCH: We've got comments from Caltrans --

MR. BRAX: PUC.

MS. GROSCH: -- PUC; we had a phone call from the Department of Fish and Game that they will be sending us a letter before 5:00 today; we got a letter from the water agency.

MR. BRAX: Regional Water Quality Control.

THE WITNESS: Regional Water Quality. And several comments from neighbors adjoining the project.

MR. WILLIAMS: Okay. Any further questions?

If there are no further questions, this is the time for the applicant to make a presentation, either with himself or with his representatives.

MR. ZISCHKE: Good afternoon, Commissioners. I'm Michael Zischke, and I'm working with Syar Industries on the CEQA compliance and the very thorough EIR that's been prepared by the County for this project.

I'm primarily going to introduce Mitch Swanson, who's going to make a presentation on the hydrology and the geomorphology behind the proposed project and the

river enhancements that are part of the project. Mitch has been working in and around the Russian River for 20 years, 7 years on this project, and he has been Syar's representative at a lengthy series of interagency meetings that have been set up by the County with all the various resource agencies, the water board, Department of Fish and Game, NOAA, basically the agencies that have jurisdiction over the fishery and related resources. And those meetings have resulted in many of the features that are included in the Environmental Impact Report. And Mitch has a Power Point presentation that he will give. Syar Industries is here, Jim Syar, and several others are here, not planning to speak, but here for the hearing.

And with that, I'll turn it over to Mitch Swanson.

MR. SWANSON: Thank you, Mike. Good afternoon, Commissioners. I'm Mitchell Swanson. I'm with Swanson Hydrology and Geomorphology, a consulting firm, and I've been working with Syar for about 15 years and about 7 years on this project. And I've also been involved in the interagency meetings with the County, Fish and Game, NOAA Fisheries, and the Regional Water Quality Control Board.

What I want to present today is just some highlights about the benefits of the project, and I also want to emphasize a context of where the river is today after all its gone through in the last 150 years as humans came to occupy this landscape and modify it. It turns out that the modifications to the river not only change its physical form, that is, you know, shrinking it and straightening it and all the things that were done to reclaim land for agriculture and extract gravel, but it also changes the way the river moves sediments and water, which is very important. And that's where this geomorphology business comes in.

And following that, is that all the wildlife species and vegetation species, that have made it desirable, are adapted to the processes of the river eroding, moving and depositing sediment. So what we have is a river that's been changed in a way that accommodated a lot of land use on the valley floor, and there was a lot of gravel mining during various periods that now has come back to very little gravel mining and the river trying to go back to where it was.

And so when we talk about a No Project Alternative, it turns out we're talking about something that is going to change very drastically, probably in the near future, and I'll show you some data that we recently collected and show you how quickly these things are happening now.

Just to give you some context, Syar, since 1994,

when they were working in the middle reach, when I got involved, they took up efforts to improve their data collection, to collecting digital terrain models, which is, essentially, is a one-foot contour map, a very detailed map of the river, above and below water. And they extended this data collection up into the Alexander Valley when they started their application process, about 2003. And we completed a report, which is incorporated as part of the project.

But in recent years, we've analyzed this data and we found that in the project reach these bars have grown in height about 8 feet, and 25 feet since 1994. And that's starting at a period when the bars were very intensively mined and skimmed, where they take the whole bar, and then let go. And this has resulted in aggradation of about 3 million cubic yards in the project reach over this time period, most of it coming in big floods, just, like, a few days of time, not just like every year, but in a big flood.

And what's happened is we've lost flood transport capacity, so we lose flood protection. The channel holds less flow and is less efficient at moving sediment. So it kind of feeds on itself; the less it moves sediment, the more sediment deposits, the less it moves sediment, and on and on and on. And this has resulted in changes in the form of the river and increased bank erosion. We're seeing some very dramatic changes in very small floods now because these bars are so built up.

And the big risk, besides a lot of flooding and a lot of erosion is that this river might just jump over a threshold, what geomorphologists call it, where it just changes form overnight in a big flood. And that would be to go from the kind of narrow, straight channel it is now to one that is broad, shallow and flat, as shown in historical maps, which actually is more its character considering the flow and sediment that comes in.

There's been a lot of effort, historically, to create the river we have today. It's doing its work to kind of get back to where it was, big, wide and shallow, but what it means is you give up a substantial portion of the valley bottom floor to the river if you allow that process to continue.

So I just want to emphasize that No Project is a choice for managing the river. We've done this stuff to the river, and so it's being managed, and No Project is a choice.

I've put together slides to kind of show a cartoon of what the changes have been. And this is looking eastward on the Alexander Valley project, showing the character as we interpret from the historic maps and

other information. And what you can see is a wide, sandy bed and patches of riparian forest and kind of a brazen channel. And this is indicating that the river is actually overcharged with sediment. It had more sediment than it could move in different periods. We see islands and all types of features like that.

As I put this in motion -- and hopefully Microsoft will work -- it will change to what it looks like today, and I'll do it several times. So you can see it going from the original wide belt to a much narrower and developed landscape in 2005. You can see that change in width is fairly significant. The change in width, changes how water moves. The way the change in water moves, that's how sediment moves and how gravel forms bars.

This is a snapshot of a map from 1861, overlayed on top of the 2005 aerial. It shows about a 50 percent loss in the active channel width of the river during this time. So the river was straightened and deepened and filled, and then bars were skimmed over time to maintain it. And then that just kind of stopped in about the late '90s.

So the width in the pattern of the river is out of sync with the natural balance of flow and sediment, and it wants to be in its former wide channel form. To equilibrate the process, what the river will do is to build up the bars further, increase lateral erosion, lose flood capacity and sediment, and then you have these abrupt changes that happen in a flood, where it goes from the little channel it is now to one big one overnight, or evulsion at four specific locations in the project reach.

This is some of the data that we've collected. It's a color coding of how much the bars have grown. This particular one shows how high the bars are above flowing water. Average is 11 to 14 feet, but up to 20 feet.

There's some numbers that we have by comparing 1994 to 2007 topography. We've had 28 -- 2,880,000 tons replenished, that's filling the bars, 15 bars, and then one and a half million tons were extracted by Syar in the late '90s, and that has to be added to that number to give a total supply. And this is a minimum replenishment rate. We don't know how much went out of the valley. So the minimum replenishment rate is 4.4 million tons. So there's a lot of sediment, a lot of gravel.

This concern with gravel mining, since the ARM Plan in 1994, is that we think we're over mining, and that's happened in the past. And whether we were or not, we couldn't tell in the early '90s, because we didn't have any data. Now we have a lot of data and we're seeing a lot of evidence that, in fact, there is a lot of material

available, and the balance has shifted toward aggradation rather than being depleted of sediments.

These are the same numbers in a different form. Again, about 4 million tons of material. This is a visual looking historically at aerial photographs from 1942, '74, and '95, and you can see the width of the riparian quarters down near the Jimtown Bridge. And in 1942, '74, and '95, you can see how the agricultural land has kind of moved in on the river. That changes how the river pushes sediment; it changes how it forms itself, and how it makes habitat. There's a lot of channel areas and so forth in this one, but also this area here, shows that -- it's about half its width, but it's natural tendency is to become this again, with these wide open bars. And it shows, this little graphic here, how that has narrowed.

So here's some of the impacts: One of them is bank erosion. This is due to the channel incising at first, the bars building up, and then we have vegetated banks that have been stripped of vegetation or they got undercut.

Here's a picture near the Geyserville Bridge in one of the more active areas. This shows the 1870 map, green overlay on top of the 2008 aerial photograph. You can see the difference in width of the active channel.

These are some of the bars, 9, 10, 11, 12, 13 upstream of the bridge. 9 and 10 have been some of the more active for erosion. There's been over 350 feet lost along this bank, which is the Munselle property. And Syar owns this piece down here. And this year there was an emergency repair by Caltrans for a million and a half dollars to prevent loss of the roadway and the bridge above it at the Geyserville Bridge, which was just replaced in 2006.

If you look at this graphic, what we did is just extend the current rates of erosion into the areas that they're heading right now, and you can see -- and some of this actually happened right here. If you just take the forces that are in motion right now and extend them, the river starts getting into the agricultural lands, and what it's wiping out, in the meantime, is a lot of mature riparian forest, which is actually really great habitat.

This is this year. In January we had just about a two-year flood, and we lost 180 feet of bank just upstream of the Geyserville Bridge; after this bar has gone up about 8 feet in a 15-year period, and overnight we lost 70 feet on that bank at Syar's location. So this really accelerates the process of depositing gravel over here. It has pushed the water into the soft bank and it erodes it. So a lot of our enhancement plan is trying to address things like this by skimming the bars to reduce

the force against the bank, and adding what we call bioengineer stabilization measures, which include vegetation and rock, which creates habitat as well as bank protection.

The Geyserville Bridge was destroyed in the 2005-2006 flood. That had a lot to do, I believe, with this bar building up and shooting the water at an angle under the bridge, which increases the scour on these piers. The bridge failed when these piers eroded and dropped and subsided, and the deck snapped.

Again, looking at the difference, the bridge actually takes up half of the original floodplain, and put roadway fill in. So all that water has to squeeze through that small area. It has tremendous force.

Now, looking at down valley, this is an example of a possible evulsion risk example. This would be an abrupt channel change overnight. So here we have the Jimtown Bridge, and this is that area -- I showed the old aerials -- where the river used to be quite a bit wider.

Here's the old map that shows the Jimtown Bridge. The riverbed is these tight lines. You can see these are islands. Again, indicating the oversupply of sediment. When you overlay that on top of the current aerial, you see the difference in location and in width. Actually, the river has been over here at times as well. It shifts across the valley floor through time.

It turns out, one of these four locations, where there's so big a gravel bar in such a tight, little spot that you can't move the gravel through it. It's like having a funnel and there's too much being shoved through the funnel and it can't get through the hole. So that will be a focal point of concern when a flood occurs.

Here's the channel filling up with water, and there's that constriction. This has a reduced ability to move water and sediment. The water goes over the bank, across the farmland, which is highly erodible, so it strips the soil. And that process feeds on itself: As more water goes down the bank, less goes down the channel, so this thing just fills more and more. And this water is just shooting across here. It's not really taking a very short path. And then what you end up with in the end is this kind of configuration, which is not unlike what the river looks like in the historic maps.

Gravel mining can lower the bar and kind of set the process back of building the bars up and causing that kind of thing from happening. So we see these trends and we carry those into the future.

The No Project alternative would have a significant and unavoidable impact to flood protection, erosion and loss of agricultural land, and this was a key

finding in the 1997 Syar middle reach EIR/EIF. And I think it might have an influence on which of the alternatives might be the environmentally superior alternative or which one is most desirable, but this information is in the EIR. We just wanted to reemphasize it, because we're working very closely with our partners to come up with a plan and not only deal with issues like losing bank erosion, channel stability, but also creating habitat.

Our operation is actually (inaudible) methods. The horseshoe skim method that's adopted in the EIR, and the benefits for river management we just went over by skimming bars. And we want to emphasize that these projects will not increase erosion upstream or downstream. That's been demonstrated with our hydrology studies.

In the old days, there was a lot of gravel removed from the Russian River helping build the Basalt Rock Company, which was Syar's predecessor. You can see that things were just pretty much done this way. This has not happened for 50 or 60 years. This is not the way we mine bars now.

The modern way is to actually take it from inside the bar, but leave these buffers, because these buffers allow the flow to push sediment through and scour off pools and maintain the aquatic habitat in the low-flow channel.

These have been tested in the middle reach at the Healdsburg bar, Bar Number 2. We had a bar down here in 1987 that mining was done on. It filled up to this blue line. We took the gravel in 2002; it came back up in 2006; we took it again, and it went back up. So there's a way to take this very safely without any impact to the riffles and pools from that bar. This has been highly monitored.

Another, Bar 13, did the same thing. This one went up about ten feet, we took it down, and it went back up.

So as long as we're in these areas where gravel is being deposited in larger floods, and the supply moves downstream, there's adequate supply to maintain downstream, then there should be no impact from the bar skimming.

This is Bar 9. It is proposed to be a year one project. This would help to relieve that erosion that's now back in here upstream of the Geyserville Bridge. There's a 3.4 acre wetland with this. The beauty about this is we take material, we make habitat. We need to get the land lower to the river so it's wetter. And that's what's happened, this river's gone down through time over the last 150 years. All this area has become too dry to

make riparian and floodplain wetlands; we see these things, in light of taking gravel.

This project would produce 330,000 tons of material with 51,000 tons from excavating the wetlands area and the alcove.

The Enhancement Plan was developed at the request of the County and resource agencies to be part of the project, such that a lot of mitigations can be taken care of. The real purpose of it was to try and address these latest impacts, over 150 years all the things that have happened, and try to turn things around, because, as you know, we have a lot of erosion. This isn't great habitat. We also have the Arundo problem which has taken over a lot of areas, so to try to get a step forward to do this.

And briefly what this means is that the six habitat restoration projects proposed in the first six years, which are alcoves and oxbows, are worth 2.2 million market value. If you were to walk out there and get a contract to design and implement this thing, it would cost $2.2 million, and it's coming with the project in this case.

Years 8 through 15, the project would be set at 30 cents per ton or $840,000 per year. This is assuming the mining rate is 350,000. If it is less than that, then it would have to be proportionately reduced at the time. The result of 26 acres riparian vegetation over a 15 year permit is likely going to be higher, but we have enough projects right now that we can do that. That represents 25 percent, roughly, of the mined area of the 15 bars. Additional plantings with year-to-year planning and then projects shared by Syar and other people, like the Munselles for the bank protection project, or some other landowner cooperation or other grant, working with the RCD getting rid of Arundo. Some of that money could be used for the proper usage or for leverage for more grant money. Again, it's based upon the 350,000 tons per year as a per ton limit.

You see the alcove pictures. This will give you a little real world idea. This is -- I believe it's Miller Creek. You can see this tributary running in and the water ends right here. So the fish are trying to get up here during a period of time, but can't get in because the water runs out, or fish trying to down migrate. You can see at Gill Creek, the depth stream, into the project. In 1993, the pool was right up against the tributary mouth. The tributary comes right here, and this is the river. And since then, this 25-foot high bar has built up. The river -- the fish are trying to get from here to there, and they can do it at times when it's flooding a lot, but it's very limited. So that alcove would actually

just connect it right there and provide other benefits, such as thermal refugia for juvenile fish and refugia for flooding.

Now it's not going to work.

The oxbows we talked about before -- and then it skips. Anyway, that's about the end of my presentation. There's a pretty picture at the end. How about that? Thank you.

MR. WILLIAMS: Do we have any questions for the expert with regards to this information? None.

I have a question. With regards to your historical data that you showed relative to some of the Healdsburg reaches where mining was occurring but the gravel came back, if not the same, in further amounts, higher amounts, does this suggest that this is going to go on for the foreseeable future, long beyond whatever is being mined at this time?

MR. SWANSON: It's going to go on, that's for sure. I mean, history has shown that -- there was an era that I call the bar skimming era, which was about the '70s to the '90s where the companies were going out and skimming these bars and maintaining the channel. And since that time, it's been let go. So at some point in time, if you decrease or suspend, you know, gravel mining as channel maintenance, then it will go back to what it is geologically.

MR. WILLIAMS: Thank you.

MR. SWANSON: This is, by the way, one of the fastest changing rivers I've ever witnessed in my 30-year career. This thing is changing really quickly.

MR. WILLIAMS: And it's going to continue to do so?

MR. SWANSON: Yes.

MR. WILLIAMS: Is there any further testimony from the applicant at this time?

Fine. Seeing now that we don't have any further questions from the Commission, this is a public hearing. And I'll reinforce again that this is a public hearing to gather information with regards to the EIR, not a hearing with regards to the merits of the project, which will be the subject of a further hearing in this room, and then before the Board of Supervisors.

I currently have 17 slips indicating persons who wish to speak. Can I see a show of hands for all those who wish to speak this afternoon? It's pretty close to the amount. I will read off the names, and I would appreciate it if you would line up against the far wall under the clock and that will move the process as efficiently as we can. And I would like to limit the testimony this afternoon to no more than five minutes per

individual, and also encourage you to submit written comments. If there are comments that are made by prior speakers and you can agree with them, it would also help by just indicating your approval and your willingness to go along with that prior comment.

So can I have those -- no indications of positive or negative reaction to any of the speakers this afternoon. If you do have an indication where want to make some kind of approval, you can raise your hand. But if we could keep the noise to nothing, I'd appreciate it.

So Mr. Swanson, if you would step up, please. That was him. Mr. Cadd -- Cado -- Cadd, Mr. Cadd.

MR. LARRY CADD: Larry or Al?

MR. WILLIAMS: Larry. You can go ahead and have a seat. Before you start, I'll get some of these other individuals, before we move on. Mr. Ray Pigoni, if you would please line up; Don McEnhill, Karen Waelde, Karen Bosworth, Wes Brubacher, David Fanucchi. That should get us a start. I'll read some further as we move through the list.

Yes, you can proceed. Please state your name.

MR. LARRY CADD: My name is Larry Cadd. Is this on? Can you hear me? My name is Larry Cadd. I live in Alexander Valley now my entire life. I know just about every inch of all of the river that you have seen there, and I pretty much agree entirely with what Mitch just presented. I'm hear to speak in support of this plan because of -- we are afraid that in time that we're just going to lose -- you know, we're going to lose our whole ranch or something major will happen. And so there's no -- you know, the world came in when we built Coyote Dam; we've paved over every street and highway; we've changed the river enormously over the years, and there's no maintenance plan; there's no management. The Corps of Engineers was going to maintain it. Well, they left. The County was going to maintain it. They're gone. We have no choice but to ask for something like this. And here you have private industry come in and make a little money on it and perhaps do some good things for the fish. BB-1

Those creeks that he described, last year I would say in those two streams there were probably 50 to 60 fish stranded in the creek and the gravel bar where the water goes underground after a rainstorm. They can't get in the river; they can't get out of the river.

So I think there's some good that can come from this and, you know, we're really kind of looking for our livelihood to stay together here, because this river will destroy, you know, huge amounts of land if it gets out of the channel and it has. Thank you.

MR. WILLIAMS: Thank you.

THE WITNESS: Okay. My name's Ray Pigoni. We live [redacted], which is a mile and a quarter north of Geyserville, a quarter of a mile north of Canyon Road. My dad bought the property in 1920. And all of a sudden, the last few years, I've got a concern that we may lose part of it. There's been a few changes, but, as you can tell, nothing drastic like in the last five or six years. We've got things happening there that if it had been 10, 12 years ago, the farmers and the County would have took care of it. But for some unknown reason now we've got these other organizations; you've got a river keeper, and we can't agree on what needs to be done and what has to be done. We can't agreed on it, so nothing's being done. As you hear over and over again -- and I'm not going to repeat it again -- we've got problems, bad problems that need to be taken care of. The one big problem is gravel. It's a shame. Here a few years ago when I could walk down the lower part of our ranch with hip boots on, be in water up to my knees, look across the cottonwood trees, seeing the gravel bar two and three feet up dry with the rabbits and the deer and everything else running around wondering how they're going to get out of there because they're landlocked. But anyhow, that is the one thing. I know Syar does not want to come in and dig these big holes. They won't dig the big holes because we the farmers will get -- climb on their equipment and stop them. We don't want that either. We do want them to remove some of that gravel. They say -- that word skirmish or something like that. I'd love to see a little bit more. Skirmish to me is six, eight inches. I'd like to see a foot and a half or two feet, and you're still five or six feet above the water's level. BB-2

For you on this board, you've got a big job ahead of you making decisions. You can sit here all day in this stuffy old room, look at pictures, hear people like myself come up and complain. What I'd love for you to do -- and do it during the week so you'll get paid for it -- take a canoe trip. Start at the Asti Bridge -- I mean the summer crossing. Take a canoe trip down as far as the Alexander Valley Bridge. Make a connection. By the time you get to the Geyserville Bridge, we'll be underneath the new bridge. We might meet you there with a picnic or something. But that way you can get a bird's-eye view. As you're coming down that river slow, slow, you think we're going to be lost because you can't really see that much because you're down here and the gravel's up there. There's actually two or three times there when you're going to be headed north. You might say "Hey, I thought we were supposed to be headed south." But the river does

that. And you'll get a bird's-eye view, a firsthand view of what is facing this river. And I think you will have a lot better understanding.

You made one comment about -- or someone did -- is this a recurring deal, this gravel and one thing and the other? The gentleman back here from Cloverdale got up -- and he'll probably speak again later -- about what happened there at Sulfur Creek seven, eight years ago when it flooded. A lot of the people there on Wilson Road -- something that had never happened. It was unpredictable, and it's unpredictable this year and next year or 20 years down. A big slide come off the Hill Ranch up there; I mean a tremendous slide. It blocked Sulphur Creek for awhile. The water built up and built up and then boom, it washed out. As it washed out, it took all the mud, gravel, rocks, trees, and everything else to the lower part of Sulphur Creek where Sulphur Creek meets the Russian River. The gravel company had about four years of gravel there before they actually got back to where they were before. So nobody, not me, not Syar or anybody else is going to guarantee that once we take the gravel out, that's going to cure the situation, because we don't know what's happening up north.

So take all them things under consideration, but we have a problem: Gravel is the problem. We have people that will do it in the right way. Let's go with it, please. Thank you.

BB-2

MR. WILLIAMS: I'll reinforce again we're here to discuss the EIR. If you have particular issues with regards to the information in the EIR that should be the primary focus of your comments.

Mr. McEnhill, please.

MR. McENHILL: Good afternoon, Chairman Williams and members of the Commission. My name is Don McEnhill, and I'm here as the Executive Director of Russian Riverkeepers.

I'd like to start today by thanking staff of PRMD and the staff and consultants from Syar Industries for meeting with us prior to the release of the Draft EIR and to outline the project for us and listen to our comments.

There's no disagreement that there are serious problems with flooding and erosion in the project area and, indeed, along the entire length of the Russian River and on most tributaries. I understand and support that we have to do something to address the problems in the river, and contrary to what a lot of landowners and, certainly, the directors of the property owners' association like to say about me, a Riverkeeper, we absolutely have no desire to see damage to property or infrastructure. We certainly disagree on how we can prevent that.

BB-3

Let's be real clear: We make no money from any position we take for or against gravel mining here. Syar is in the business of providing gravel to construction, and there's nothing wrong with that, as construction requires gravel.

The Draft EIR does a very good job of demonstrating that most of the flooding and erosion impacts in the lower Alexander Valley are due to the channelization of the river and the loss of roughly 50 percent of the meander belt, resulting in bank collapse, poor aquatic habitat, exposure of vulnerable bridges and wells and farms to flooding. The flooding and erosion are certainly not caused by the lack of mining. Mining -- pardon me. The aggradation of gravel is a symptom of a distressed river. Certainly mining played some part in the present condition of the river today. BB-4

It is a critical point that is well-documented in the EIR that the mined areas will refill with gravel after high flows showing us that any potential reduction in erosion or flooding will be temporary. If we choose gravel mining to address the problems caused by what the Draft EIR calls an artificial and narrow -- greatly narrowed channel, then it can only work if we never stop gravel mining, leading to another project after this one, and so on. This is a major cumulative impact that is not studied or addressed in the Draft EIR. It should be clear to this Commission and to property owners in the project reach, that gravel mining only temporarily treats some of the symptoms. BB-5

It should be noted in the slides that Mitch showed, he talked about aggradation, but in the Draft EIR and in a lot of the cross-sections figures which we reviewed, there's also a lot of gravel lost in this exact reach, and we do need to recognize and acknowledge that. BB-6

Simply put, the cause of the problem is that the river does not have enough room to move sediment and not necessarily that we are not mining enough. Using gravel mining to treat the problems in Alexander Valley is like having a car that's out of alignment and solving that problem by buying new tires every week, rather than correcting the alignment. Mining is a temporary fix and will only work if the community is willing to endure hundreds of gravel trucks every day for five months and eat the dust for every summer for five months, forever. At 350,000 tons per year and 450 plus truck trips a day at peak mining, the impacts are quite clear. BB-7 BB-8

All that said, mining could be a very important component in efforts to address the causes of flooding and erosion in the project area, but until there is movement towards long-term solutions, it is going to be hard for BB-9

our organizations to support perpetual application of bandaids to the problems that exist in the lower Alexander Valley. BB-9

Critical questions of this project need to be answered, such as: How much will the various project alternatives actually reduce flooding and erosion for how long? I remember quite clearly, during the scoping meeting several years ago in Geyserville, one of the speakers talking about how the river jumped its banks and ran through his vineyard during a period of extensive mining. Let's be clear: Mining might reduce erosion, but it's not going to eliminate it. BB-10

The reduction of erosion and flooding are the benefits and objectives of the project, according to the Draft EIR. But if we do not know the magnitude or the duration of these benefits, how can the public or decision-makers be fully informed in the way the project impacts against the purported benefits. If the project results in a two percent decrease in erosion or flooding for two years, is that worth the impacts? If the project's habitat improvements only last for a few months or years and then have to be mined again to provide the supposed benefits, is it really adequate mitigation? And continued disturbance of these so-called habitat areas are not going to produce quality habitat. The insect and macro-invertebrate populations are going to be greatly impacted by repeated mining. The whole concept is to provide areas where there's forage habitat for out-migrating fish. Continued disturbance will work against that. BB-11

Even after a second layer of mitigation is applied, the project would generate over 38,000 tons of PM 10 particulate air pollution during the 110-day operating season, while regulations state that a project should only be allowed to generate 15,000 tons over 365 days. The health impacts of PM 10 are quite clear. They cause respiratory disease, asthma, and also lead to higher death rates in the elderly and children. This the human -- pardon me. BB-12

While we understand the potential benefits of the Adapted Management Strategy, we are also quite concerned about the potential for the project description to change without any public review or comment in the middle of the project period. This is illegal under CEQA, and has been well-supported by several court cases. In addition, the Adaptive Management Strategy only addresses future projects through changes in mining methods or stopping mining, but how does that mitigation address any impacts from failure to meet performance standards from previous mining? BB-13

The habitat improvements proposed in the River Enhancement Plan, which are mostly areas of deeper excavation intended to provide backwater or citennial (phonetic) habitat seemed quite temporary based on our observation of the mined areas after high flows have moved sediment around in the river. The Draft EIR offers no studies to show how long these potential benefits might last, and how many fish might benefit from them. It was interesting to note on the slide of Gill Creek in 1993 when the river was right up against the creek, there was no water in the creek. What good is opening up a tributary that's dry. It's quite possible that these habitat areas excavated during the summer mining season could refill during the November through February high flows and provide zero habitat by the time fish are out migrating in spring or provide any rearing during the summer. BB-14

MR. WILLIAMS: Mr. McEnhill, we are looking at the timeline, indicating five minutes. I notice that you have written comments, and please if you would submit those, those will be addressed as part of --

MR. McENHILL: If I can beg your indulgence, I will quickly wrap up and hand in my written comments which are quite a bit more extensive.

MR. WILLIAMS: Please.

MR. McENHILL: The last point I'd like to bring up is the applicant is requesting to waive the DeWitt mining liability of $82,000, and now that Syar's on the hook, they are looking at pushing that into -- or waiving it in order to bring about -- or pardon me -- and replacing that with the River Enhancement Plan. The mining has already occurred, and waiving this amount for future mitigation is illegal under CEQA guidelines. The County might want to review the Appellate Court findings in Communities for a Better Environment versus the City of Richmond. BB-15

I thank you for your time and appreciate your consideration, and I will turn in my comments, and thank you for the extra time.

MR. WILLIAMS: Thank you. Karen Waelde, followed by Karen Bosworth, followed by Wes Brubacher.

MS. WAELDE: Good afternoon. My name is Karen Waelde. I reside at [redacted] in Geyserville, in the Vineyard Subdivision. I've been a property owner and homeowner here in Geyserville for 30 years. As President of the Vineyard Valley View property owners, I'm speaking on their behalf, for over 110 property owners. BB-16

River Road is our only access to our homes, and there's a section of River Road that is in danger. If Syar is not allowed to reduce some of the bars that are in

front of the Munselle property, the County's going to lose their County road, and then we're going to be out of having an opportunity to have ingress and egress to our properties. Along with the 110 property owners, there's at least another 75 to 100 property owners that own property that have to have access to this area.

The bend in the road and to the river bank is only 137 feet. Now, we heard earlier today that at least 70 feet went out on one area overnight. And it's very possible that with another heavy rain, that corner of River Road isn't going to be there any longer.

Now, when it does happen, is the County going to come over and rescue all the homeowners? Build us a road, like Caltrans did overnight? Do we have the funds available? That could be prevented and avoided if we do some smart gravel skimming.

Let's allow a local business person help protect our neighbors' property, avoid the potential of River Road being damaged, protect the new Geyserville Bridge, that is ongoing, that we're having to be delayed to getting crossing over because the river continues to eat out the bank, help protect the fish and the habitat at Syar's expense. Let's use common sense and keep the river flowing, unblock Gill Creek from years of gravel building up so the fish can return and spawn, which is in our backyard. BB-16

It is with this conscientious planning, that Syar's put together, that we support the Syar skimming project.

I've provided, also, my own pictures of River Road at the turn where the bank is where a bald eagle lives, and that's where the 137 feet is. So we're losing fish habitat. Those trees came down in a matter of one night, and that's habitat for the fish, as well as for our eagles. So let's be smart. I thank you for the opportunity.

MR. WILLIAMS: Thank you. You'll also submit your written comments for staff review.

MS. WAELDE: I didn't read everything.

MR. WILLIAMS: Thank you.

I'll remind the speakers, again, that there will be a second hearing in which the merits of the project will be discussed and the proposal will be reviewed and approved or disapproved at that time. This is only a review and comment on the EIR. So if you could limit your comments to those items that are taken up in the EIR, it would certainly help us all.

Next we have Karen Bosworth, followed by Wes Brubacher, followed by David Fanucchi, followed by David Lewers.

MS. BOSWORTH: I'm afraid this probably isn't the right place to do this, but it's very short. My name is Karen Bosworth, and I live in Geyserville. My husband and I live on the east side of the river. The only problem is that our three businesses, Bosworth & Son, Olive Hills Cemetery, and The Waterworks are on the west side of the river. So during that time, our commute that is five minutes to work turned into thirty-five. It was for sure an inconvenience, but what it mostly was very scary when I husband would have to get up at night and go check the water system all the way in Geyserville and go all the way around. So the bridge is very important to us and we don't want it to ever go out again. BB-17

The bridge washed out in 2006 due to gravel collecting above the bridge. The problem still exists, and now the river is a threat to the approach end to River Road. County flood control used to take care of these problems, but now the gravel extractors are the only ones left to work the river. A plan is needed.

It looks like Syar has a plan. Let's let Syar remove and rearrange gravel for the benefit of the fish, the farmers, Caltrans and the County works. Thank you. Let's let them do it. Thank you.

MR. WILLIAMS: Thank you. Mr. Brubacher, followed by Mr. Fanucchi, followed by Dave Lewers, followed by Mr. Foppiano, followed by Mr. Al Cadd.

MR. BRUBACHER: My name is Wes Brubacher. I'm a 23-year resident of Geyserville. My only situation is such that I have an extensive view of the Russian River both up and downstream of my property which is approximately three quarters of a mile above the Geyserville Bridge. I might add that it's only a few -- a couple hundred yards above this turn that Karen Waelde has mentioned as being one of the most washed-out turns along the river. I, too, have watched that over the years the total beautiful stand of trees in there getting washed downstream.

But over the years that I've lived here, I've watched with absolute and utter dismay the allowed buildup of the gravel bars both above and below the Geyserville Bridge. This, in turn, has caused very extensive erosion of the softer soils of the river banks as well as major course changes to the river itself. BB-18

And I'm going to abbreviate my comments by saying I have only two major comments to make about the EIR. One is, I don't feel that the gravel height above the riverbed or above the low summer flow is reasonable. I think it should be taken down to stream bed level. This is the only way that we're going to be able to keep the river within its bed and, at least, partially, if not totally,

eliminate the tremendous erosion along the softer soils of the banks. The other is that any work that is done around the Geyserville Bridge must be done in both the gravel bar above and below the bridge at the same time; the reason being the stream -- and it's included in the comments -- in the second part of the comments that I have submitted. The reason for this is that the alignment of the river must be returned to the eastern end of the bridge so it is at a right angle to the bridge and not coming in at 45-degree angle as it is now and as it has been for several years. This is the only way that you're going to keep from having the destruction or the possibility of the destruction of the bridge, the new one, replaced at a cost from anywhere -- I've heard from 11 to 17 million dollars and the continual million dollar band-aids that we saw this last winter with the rock that was put in there on the western end.

BB-18

BB-19

With those comments, I thank you for your time and chance to speak.

MR. WILL AIMS: Thank you. Your written comments are appreciated.

Mr. Fanucchi, David Fanucchi.

MR. FANUCCHI: My name's David Fanucchi. I reside in Alexander Valley on a 40-acre ranch adjoining the Russian River. I'm a fourth generation -- third generation -- pardon me -- farmer on this property.

Thank you for the opportunity, Mr. Chairman and Board, to express my views.

You can see by what everybody's saying that they're not really interested in the EIR. They want to tell their story. They want this damn thing fixed as soon as they can get it fixed. So I apologize for the insistence of all of us wanting to tell you our story. I don't have to worry about telling my story, Mr. Swanson did an excellent job. He stole all my -- what do you call that? Yeah, he did that. Anyhow, I'm not trying to be funny. This is really serious stuff.

BB-20

I approve of the EIR immensely. It doesn't go far enough. It cost Syar probably more than a million dollars to do this. No single landowner could take this thing on themselves to get the river fixed. It takes a company. And Syar owns a tremendous amount of the bars in Alexander Valley. I'm an independent property owner. I own my own bar. I wanted to come before this Board and ask permission to get my bar removed, and I was told: It's crazy. You can't afford what you're going to have to go through.

So Syar is going to do the job for us. I witnessed no bar skimming in the '50s and '60s on my property; saw the gravel and heavy logs come in to our

orchards. We have vineyards now. We can't deal with gravel and large logs in our vineyards that are going to come off these high bars. Nobody did any -- I saw no mining. I saw mining flat to the water table all across the bar. The river could take a hell of a lot of water after he did that, and we had a minimum amount of lateral erosion. And then I've seen mining done -- it's not called not mining -- I'm sorry -- bar skimming done to two percent slope. It helped. It was a lot better than not doing anything.

Right now I have about 14 feet of gravel above my water table on the river; I have a channel, and I have a huge bar higher than my land. It's just waiting for an explosion for that to come in my field.

So the EIR could have even done a better job. They could even take a little more out than they're going to do. I think Syar has done a wonderful job, spent a lot of money, and I'm in agreement and I hope you give them your blessing. Thank you. BB-20

MR. WILLIAMS: Thank you.

Mr. Lewers, Dave Lewers.

MR. LEWERS: That's me.

MR. WILLIAMS: Followed by Mr. Foppiano, followed by Mr. Cadd.

MR. LEWERS: My name's David Lewers, and I want to thank the Commission for allowing me to speak this afternoon.

The first thing I'd like to address is the Adaptive Management Strategy, which I'm in support of. We had none before. We're going to have one now.

I'm going to break this down in a little bit of common sense. If I go gown to the river on December 1st and drive a ten-foot steel stake in the ground and take a five-gallon bucket of gravel and take it home, can I go back the next year on December 1st and get another five-gallon bucket of gravel in exactly the same place? The answer's: Yes, I can. That would mean that gravel is a renewable resource. By definition, it's a renewable resource, and we need to harvest it like we would harvest any other renewable resource. BB-21

The other question is: Could we stop this flow of gravel if we wanted to? The answer to that is: No. That's mother nature naturally bringing it downstream and building up the gravel.

The next -- my next comment would be on Issue Number 4, the Fisheries Resources. Now, there's been a lot of talk today about fish and habitat and different things. The problem is, that if you're trying to save something from extinction you need to make people quit killing it. By the Fish and Game's own admission,

1.7 percent of every fish that's released into the river dies. That's in direct violation of the Endangered Species Act which states, and I quote, "It's against the law to harm, harass, or attempt to harm or harass any threatened or endangered species." And we're allowing this to happen on and on. They're not letting us go down and kill a few Condors for fun. Okay? And we're in the same situation here. You have a threatened species. When you throw your fishing line into the water, you don't know what you have on the end of it until you've harmed it, hooked it, harassed it for 20 minutes, drug it up on the gravel bar. "Oh, this is a native steelhead. I'm going to have to turn it loose." Violated a federal law.

BB-21

Thank you.

MR. WILLIAMS: Thank you, Mr. Lewers.

Paul Foppiano, followed by Wendell Trapp, followed by Victoria Heiges, followed by Chris Snyder. If those people can line up against the wall so we can move forward.

MR. FOPPIANO: Good afternoon. I'd like to thank everybody for giving me the opportunity to speak today. I'm going to speak on behalf of the bridge in Geyserville as just an example of what is going to be happening in the future. I happen to live just south of Healdsburg at [redacted]. My family's been farming that land since 1896, six generations worth now. And being backed up on the river our whole lives, the river evolves over time and always changes.

If you drive over that freeway bridge now and look south at Healdsburg, what do you see? You see a big mountain of gravel. You can stand on that mountain of gravel and look into our property. Since 1987 it's filled up over 25 feet down there. That river's going to come out there, and we're going to be looking at the same issues we have in Geyserville. And I think we really need to use Geyserville as a good example of how to do this right. And I think Syar's taken great steps, as far as protecting the environment after the mining, because this is not going to go away. There's going to be other issues on this river in other places. And I think we need to do this right and I think they're taking the right steps.

BB-22

We have so much riparian wildlife area which, as a farmer, is not what we want along the river, but as a person and living there, when you can go down on any given night of the year and see falcons cruising around the vineyard, you can see rabbits, bobcats, coyotes, black tail deer, I think that's very important.

When that river jumps that channel, all that area is going to be gone, like it was on the Munselle property now, and I like my four-year old daughter to see those

animals in the evening. And we support Syar. Thank you very much.

MR. WILLIAMS: Thank you.

I have Mr. Al Cadd, followed by Wendell Trapp, followed by Johanna Vanoni.

MR. AL CADD: Good afternoon, and thank you for listening to me. I'm representing today -- my name is Al Cadd, and I'm representing today the Russian River Property Owners Association which has a membership of over -- in excess of 100 members, landowners mostly.

Since the Riverkeeper talked over time, I'll try to make up for it. Our organization fully supports this EIR to the fullest extent. It was done with sound science and common sense.

For my written comments, I have here a petition signed two years ago -- we didn't know it was going to take this long to go through this process -- with 263 signatures of people who are definitely interested in getting some gravel removed. So I'll hand this in. And thank you very much.

MR. WILLIAMS: Thank you, sir.

Mr. Trapp, Wendell Trapp.

MEMBER OF THE PUBLIC: He stepped out for a minute.

MR. WILLIAMS: I'll come back.

Johanna Vanoni, followed by Victoria Heiges, Chris Snyder and William Bagley.

MS. VANONI: Thank you, and good afternoon. My name is Johanna Vanoni, and we have a ranch that's four and a half miles north of the Geyserville Bridge. We've been there since 1902, so we have a little experience back to when the river was completely natural.

Some of the comments that I wanted to make have already been made. And I thoroughly agree with Karen Waelde, because she's one of my neighbors over in the Vineyard that's next door. It's a second home -- well, there's a lot of permanent homes there now. And we all travel that road, and we all experienced the bad time when the bridge was out and we had to go clear down and around. And it was a long ways to go from Ukiah, down around to Alexander Valley and back up to get to our place.

Okay. We wholeheartedly support Syar's plan to harvest Russian River gravel. We have lived through numerous floods, and we've got large gravel deposits on our place. And we can stand on our river land, where we pasture cattle, and the gravel is up over our heads out there. So one of these days it's going to come in and it's going to chew up our land again.

Okay. We've also lost the deep holes that the river used to have before the Coyote Valley Dam went in.

BB-22

BB-23

BB-24

We had deep holes; there was large wood and debris. And I can remember the boats coming down with the tourists and they would get caught in this whirlpool. And anyway, it was kind of funny to watch them, but that's gone.

We have part of Gill Creek on our place, and very few fish make it up Gill Creek. So Syar's plan to open this creek so fish can migrate up and down is a great idea. Also Don McEnhill commented on Gill Creek saying about bad things that happen to it. Well, the worst thing that happened to it was when we got the Vineyard Subdivision and they put a bridge across Gill Creek, and it was too narrow. Well, it narrowed the creek, so right below the creek it started cutting down. Well then, once they did that, the fish couldn't migrate up the creek. And on top of that, we had the big gravel buildup down lower Gill Creek. So unless the fish could go across country on dry ground, they couldn't get up and down the creek. Then the baby fish never made it.

Okay. They talk about noise. Most businesses do create a certain amount of noise and dust. And I was going to say for years we used to listen to the Geysers. Okay. There's nothing any of you could have done with the Geysers. They went 365 days out of the year, and they blew, and we could hear them like blue blazes. Syar's things might cause some noise, but it's not going to be for that many hours a day and for that many months out of the year. BB-24

Okay. We don't feel the No Project choice is a good one, because those of us know that the river needs to be managed. We were promised flood control; we were promised river management by the Army Corps of Engineers and everything else, and it's not happening. And we can't adopt what we call the Stream Way Plan, which means to let the thing migrate all over wherever it wants to go. And some night I don't want to see it going down the railroad tracks in Geyserville. And that used to be river bottom, all down the railroad tracks in Geyserville, which is probably a quarter of a mile or more away from the main stem of the Russian River, to where it's trying to cut off the Geyserville Bridge again and River Lane and River Road. Anyway, I thank you for the opportunity to comment.

MR. WILLIAMS: Thank you.

Victoria Heiges is next, followed by Chris Snyder.

MS. HEIGES: Actually, it's Victoria Heiges.

The EIR is quite comprehensive, although I've never understood why they leave humans out of it. Are we not considered wildlife? BB-25

Anyway, Alternative Number 1, No Project, I feel is really under-addressed, because we all know with this BB-26

past winter how serious jeopardization there is to flood. So to say simply we would have to find alternate sources of gravel is the only impact of No Project, I think is kind of insulting anyway.

We all know what happened when the bridge went out in terms of the traffic, the air pollution, the noise, the aesthetics, and -- just to address the existing issues, and then the cumulative impact of all that driving around and the casino traffic and so forth. BB-26

So I'd just like to say I felt that the EIR was deficient in the No Project aspect, what it really means to all of us if they don't do anything.

MR. WILLIAMS: Thank you.

Mr. Snyder, Chris Snyder, followed by William Bagley.

MR. SNYDER: First of all, I'd like to thank the Commissioners for hearing us this afternoon. My name is Chris Snyder. I'm with the Operating Engineers Local 3. We represent the construction industry in Northern California in this area. We have about 2,000 members. And if I could have some of those guys stand up. These are the guys that have been doing -- dredging the river for the last hundred years, and it's been a managed resource. And these are the guys right now that are suffering 30 percent unemployment, and they're losing their houses in Sonoma County and in the surrounding areas. And I know this is about the Environmental Impact Report, but what we do here in the next couple months is going to impact real people's lives.

So Local 3 is here to support the Draft EIR. We're here to support the planned amendment to the ARM, which would basically, from what I've seen, allow a positive environmental impact in allowing the fish bows and reconnecting those creeks for the wildlife habitat or the fish. BB-27

The river, like I said, it's been a managed resource for a long time and, you know, our friends that oppose this seem to admit that there's a problem; everybody here's talked about the problem. I don't want to beat the guys -- beat a dead horse. The Geyserville Bridge issue's been brought up a lot. So the solution to the problem -- I mean, what is the solution? We have a problem and this -- this gravel mining seems to be able to hit a couple solutions -- solve a few problems. One of the problems, you know, if you don't do anything -- you guys talked about the impact of the air quality of bringing aggregate from out of town, and kind of the nimbyism of that is in some way self-centered and in some way self-detrimental, because the global impact of bringing aggregate -- because a lot of the

aggregate resources -- everybody talks about being a localvor, as far as, like, food and eating locally and stuff like that, I think we could take that concept and apply it to aggregate as well, because when you have Canadian aggregate coming down to supply the needs because we're not allowing our local producers, we're denying ourselves jobs, Number 1. Number 2, we're denying ourselves local aggregate from our own sources. And this could solve the problems of some of the things we talked about today, but it would also create jobs and lessen the carbon footprint of bringing aggregate from Canada or outlining areas. BB-27

So once again, Local 3 is here to support this project fully. The members of Local 3 fully support this project. And I really do thank you for your time and consideration. Have a good afternoon.

MR. WILLIAMS: Thank you.

I still have two slips here. Mr. Bagley, if he's still in the audience.

MR. BAGLEY: Afternoon. Thank you very much for putting this together. You will be relieved to know that I'm just going to speak directly and specifically to the EIR.

I am a landowner on River Road there in the Alexander Valley, and I basically -- I'm not wholeheartedly in support of the project, unlike some of my neighbors. I happen to live right where S-9 and S-10 is, which is, basically, a stone's throw from my house, and me and probably a hundred other people are in that same area. So in that specific regard to S-9 and S-10, which I think is Alternative Number 5, I had a problem with some of the language in the EIR. And I understand it is on the table that that may be excluded as part of the project, but it also says, in very fine print -- I think it's on Page 26 -- that if for some reason the haul road north of the bridge is unavailable, the haul road S Number 5 will be used, which means even if S-9 and S-10 are not part of the project, hundreds of thousands of truckloads will be coming right through that property, which pretty much eliminates any advantage of having S-9 and S-10 eliminated. So I just want to address the language specifically on that issue. BB-28

Also, I may have missed it somewhere in the EIR, but the amount of hours that this project on a daily basis -- I believe it's 15 hours -- 6:00 a.m. to 9:30 p.m., I also had problems with the language on that, too, where it said "or as daylight allows." So you're already talking 15 hours. So you add the additional verbiage there about as daylight allows, so in my interpretation of the clause you could go another hour each way prior to daylight and

subsequent to sunset. So you're talking about 17 hours worth of noise and -- and impediment on wildlife getting to the water, which is one of my main concerns about those long hours. And I just also want to add that I wouldn't mind them working Saturdays, shorter hours, but Saturdays. That wasn't addressed in the EIR, so I thought that would be something we could look at. BB-28

Finally -- I hope I'm not deviating too much -- I wonder if we -- also, in regards to Alternative Number 5 where S-9 and S-10 will not be part of the project, if it is part of the project, if it could be put near the end. Instead of doing it at the beginning of the 10- or 15-year term, since there's so many people that live around that area, just for aesthetics or peace of mind. If we could at least know that it's coming at the end of the project, maybe we could address that in the EIR as well.

And finally, as to the bridge itself -- again, I may have missed this in the EIR, but I haven't see any independent studies or hydrology done on specifically whether the extraction of the gravel will actually affect the flow enough to save the bridge. And a gentleman said earlier, it's the direction of the water more than the actual flow of the water. And unless I missed that in the EIR, I'd like to see an independent hydrologist or expert of some kind address that issue as to whether that will save the bridge or not. That's it. Thank you very much. BB-29

MR. WILLIAMS: Thank you.

I still have a slip for Mr. Wendell Trapp.

He's left.

I would like to say at this time if there's anyone else who cares to speak, we want to get everybody's testimony. So if you could have a slip, either after you speak or before, but if you could line up along the wall, I'll have anyone else who wishes to speak.

MS. BAILEY: Good afternoon, and thank you for the opportunity to speak. My husband and I live at [redacted] Lytton Station Road.

MR. WILLIAMS: Could you state your name, please?

MS. BAILEY: Sure. Debra I. Bailey, B, as in boy, a-i-l-e-y.

My husband and I live at [redacted] Lytton Station Road in Geyserville. We are in the proposed haul route Number 2 whereby gravel trucks will go from one of many gravel bars to Hassett Lane, to Lytton Station Road, to Lytton Springs Road, and then to Highway 101 and vice-versa. BB-30

We have lived in Sonoma County for 35 years, but it was only in December 2009 that we moved to our home on Lytton Station. We chose this location because of its rural nature, peace and tranquillity. It was not disclosed to us that it had been designated as a possible

gravel truck route, and when we received notification of the completion of the D EIR, we were shocked and extremely distressed because of the potential consequence.

There are several areas of concern that we have with the D EIR. One, we don't think that a roadway level of service was addressed where Hassett meets Lytton Station. There's a large amount of traffic on Lytton Station Road in the mornings and evenings when people are going to and from work. There would certainly be an impact upon traffic flow on Lytton Station by the introduction of 240 round trips or 480 single trips of gravel trucks, and it needs to be evaluated.

2. We don't think the roadway level of service was analyzed or addressed where our driveway meets Lytton Station. Our driveway is the first driveway on the southeast side of Lytton Station after the 90-degree turn is made. It's often difficult to safely enter or leave our driveway during the morning and evening hours when people are commuting. Shortly after we moved to our home, I contacted the Public Works Department and asked if they had addressed this problem. We thought that a reduction in the speed limit would help, but this has not occurred as yet. There would certainly be an impact upon our ability to safely enter or exit our driveway with the addition of 480 gravel trucks a day. It's impossible to mitigate this issue even if the gravel trucks reduce their speed somewhat as proposed in the mitigation. The chances of being in an accident, as we, our family or our guests enter or leave our property is almost certain. BB-30

3. What type of, if any, historical collision data was collected on, A, the Hassett to Lytton Station intersection, and, B, the 90-degree angle turn on Lytton Station.

In the short amount of time my husband and I have lived here, there already has been one accident and several close calls. Drivers often take this curve way too quickly and they stray into the opposite lane. It's essentially a blind curve and that makes the situation worse. As I just stated above, the chance of additional accidents occurring on this curve as the result of the introduction of gravel trucks is greatly increased.

4 -- and I apologize for reading this. I just couldn't do it without. The Draft EIR mentions a mitigation measure for the 90-degree angle turn on Lytton Station. In Section 3.6-3.c, it states that the road would have to be widened by Syar obtaining a right-of-way onto our property and removing some of our trees. As current owners of the property, we haven't been approached by Syar, and we really didn't have any desire to issue right-of-ways to anybody. We bought our property, in

large part, because of its beautiful, large trees and the privacy they afford. As stated in the EIR, if mitigation cannot be accomplished by obtaining the right-of-way, the traffic impact would be significant. To put it simply, it is not a viable travel route for the gravel trucks.

Then 5. As noted in Section 3.6-4, the road conditions on Hassett are poor with a bridge that is old and unstable. Lytton Station Road is only in fair condition. Furthermore, neither road is very wide. Currently, it's dangerous to walk, bike, or ride a horse on Lytton Station. In spite of that fact, it still remains the favored route for the above-mentioned recreational activities. Even if these two roads were improved with a layer of asphalt as proposed, gravel trucks going back and forth in each direction will surely lead to an increase in pedestrian, biking, and equestrian accidents and fatalities.

6. When were the traffic studies conducted? I couldn't find in the report a date or a year. And it probably was there, but it was a really comprehensive report, so it was difficult for me to go through the 200 pages. In any event, there's a good deal of casino traffic that goes back and forth on those roads, so I was just wondering if a traffic study had been done more recently, because I think that would be important. BB-30

7. Our home, and my husband and I are the noise sensitive receptors on Route 2. We weren't approached by anyone doing an acoustical analysis. Nonetheless, in Section 3.9-3, it is stated that the acoustical studies were performed and the results indicated that haul trucks will exposed the existing sensitive receptors on Route 2 to significant noise increases in traffic noise, and then I quote "Noise that will exceed the standard exterior threshold." Quite frankly, that is quite an understatement.

Prior to our moving to Lytton Station, my husband and I and our three daughters lived on Windsor River Road in Windsor, California. For about ten years we were subjected to the increase in traffic noise that was generated by the almost constant traveling of gravel trucks on Windsor River Road. The constant rumbling was unnerving and many times I would describe that noise as statistically significantly, unpleasant and downright unhealthy.

Furthermore, since we enjoy spending much of our days outside, mitigation measures, such as double-paned windows, while helping to dampen the noise indoors, will do nothing to dampen the noise outdoors. In addition, we like to sleep with our windows open so we can enjoy the sounds of nature and feel the gentle breezes. Can you

imagine being awakened every weekday morning at 6:00 a.m. to the sound of gravel trucks on the move, six months of the year from June to November, and then not having that noise cease until 9:30 p.m. Once in a lifetime for ten years was enough for us. We didn't have in mind this experience again, especially during our retirement years.

Just a couple more, and then I'm done.

Was the dust that will be generated from the gravel trucks addressed in the EIR? The levels of dust created by the sheer magnitude and the number of gravel trucks using Lytton Station Road daily will be quite high. We know this from our past experience, and it will be impossible to mitigate. I have existing allergy problems as do my children. This dust will only exacerbate our symptoms and make our lives very uncomfortable.

Was the economic impact of our property ever evaluated in this EIR? We think not. We have a very large economic investment in our home. The proposed running of gravel trucks for several years will certainly decrease the value of our home. There are no proposed mitigation measures for this certain eventuality.

And finally, we realize that gravel is a very important and necessary commodity in Sonoma County. It's important for Sonoma County's growth, for its economic health, and it's important for the health of the river. And I sympathize with all the vineyard owners here. But should this mining or -- be allowed at the expense of the health, happiness and economic health of some of its individual citizens? We certainly hope that this is not the case. We, therefore, respectfully request that if the Draft EIR is approved, that proposed Route 2, either be eliminated, and that Syar be required to construct a private haul road that will not impact any personal property owners without their consent. Or, two, that perhaps Route 3 be used for the gravel trucks instead of Route 2, if all those who will be affected on Route 3 agree.

BB-30

And then finally, I just want to say that I got a great deal of help from staff personnel, I think her name was Melinda. She was wonderful. But I would like to address one comment that she -- is Melinda here -- that was made while she was wrapping things up. And she said that mitigation measures -- when she was referring to Lytton Station -- will make -- the issues raised less than -- that they would have less than a significant impact. But to us, my husband and I and my family, they would still remain a very important impact.

Okay. Thank you, again, for your time.

MR. WILLIAMS: Thank you very much.

I have slips now from Kelly Harris, Roger

Stuhlmuller, Bob Santucci, Joe Carnation, and Bret Munselle. So Mr. Harris first.

MR. HARRIS: Hello. My name's Kelly Harris and I'm here to represent Bioengineering Associates. We're a State of California licensed engineering contractor, and we've been involved in restoring erosion problems in watersheds since 1982.

We've worked on numerous sites within the Russian River basin and many projects on tributaries to the river with five large riverbank restoration projects on the mainstem of the Russian and one on the West Fork. Five of these projects were for wineries with vineyards along the river, and one was for a privately held recreation club.

These projects were in Redwood Valley, Asti, Healdsburg, and Guerneville with a total repair work along more than 7,000 feet of riverbank.

In many cases, land loss was as high as hundreds of feet of stream bank and riparian terrace along thousands of linear feet of bank.

In almost every case, both in small and mainstem sites, the key driving force pushing the erosion problems has been an inside curve gravel bar that, especially under drought year conditions, has become heavily vegetated and, in fact, stronger than the opposing stream bank which is almost always a silty or sandy loam.

When these bars occupy too much channel space, erosion problems on the opposite bank begin and good farmland is lost to the river.

It's clear to us that responsible management of the gravel resource is essential to the health of the river. Thank you.

BB-31

MR. WILLIAMS: Thank you. You can also submit your written comments.

Mr. Stuhlmuller.

MR. STUHLMULLER: Good afternoon. My name is Roger Stuhlmuller, and I'm in the Alexander Valley below the Jimtown Bridge.

Appropriate that this young man that just spoke about one of the projects that his firm worked on, was on our property. And we've had a two-time occurrence and lost about seven acres of property. And not just -- not vineyard property. More tragically, along with one of the earlier speakers, it's all riparian. So while that is a buffer to the vineyard that's been diminished. I'm also a fisherman, and a really very avid one. And I still am perplexed at the somewhat -- the worst thing in the world, in my opinion, all this eluvial soil going into the river and how that impacts the fishery.

So I would support this program to help mitigate bank erosion. Thank you.

BB-32

MR. WILLIAMS: Thank you.

Bob Santucci, followed by Joe Carnation, and Bret Munselle.

MR. SANTUCCI: Good afternoon, Commission. My name's Bob Santucci. I've lived on the Russian River for the last 50 years. I live on the end of Almond Way which is directly adjacent to Bar 2 in Healdsburg. I've lived right in the middle of the skimming operation twice in the last 15 years. The street that runs in front of my house is the main access to Bar 2 and Syar -- I haven't even seen them come and go. You see them come through at the beginning of the operation, stage the area. They keep the dust down. We've seen no dust, no impact during the day. Trucks are coming in and out of there. They're washed down; they're handled well.

Right now my daughter's down in that area swimming. So this is about a year after they've done their mining operation. The riverbed's improved.

The history of the river's been handed down to me directly from generations of people on how it should be handled. It has been mined. We have to continue to mine it. It's going to be an ongoing thing. The old skimming operations we found weren't as good as they could be. The pit mining we know is a total disaster, and we have to stop that. This is clearly one of the best options that we have. The easiest way to go in and determine -- it's pretty much common sense -- you go out on the Geyserville Bridge, look north or south. I do support going ahead and mining both ends of that at the same time. BB-33

We're seeing more fish in the last few years going along through Bar 2 that was recently mined. My neighbors have caught six that I know of directly. I didn't see any before that for about 8 or 10 years. It just wasn't -- it wasn't done well.

We have a combination of a shallow part of the river, which I understand is good for spawning, as well as deep pools on the far side. They've replanted with willow.

I used to supply the equipment to Bioengineering. I was in the rental business. I know that they contain all the fuels, everything else is managed really, really well.

So to address the Environmental Impact Report as far as traffic goes, I live 200 yards away from where they've worked for the last 15 years, and I have seen zero impact as far as the traffic goes. As far as the dust goes, not anymore than usual in a standard year. As far as the fisheries improving, I've seen that improve, and it has to be managed.

As far as Geyserville goes, I'm a member of the

Chamber of Commerce up there, and I've spent a lot of time in that riverbed. And it's really clear that this has to be addressed at this point immediately. The cost of lives that could have been lost when the bridge was gone, I think far outweigh any of the other options. So thank you very much.

BB-33

MR. WILLIAMS: Thank you.

Joe Carnation, followed by Bret Munselle.

MR. CARNATION: Hello. My name is Joe Carnation, and I'm the Superintendent of the Geyserville Unified School District. And I'm not here today as any kind of a river expert, but out of concern for the impact of the river on the bridge that serves Geyserville and Geyserville schoolchildren.

As you recall, the bridge had to be closed and was not available for use for a period of about ten months. As a consequence of that failure, the Geyserville School District was forced to spend many, many thousands of unreimbursed dollars to transport students long distances around the river to get them to school and, again, to get them back home.

Children were forced to spend long hours on bus rides as they were transported from one side of the river to the other. The school lunch program had to become a cold lunch program, as there was no way to sufficiently transport hot food from one side of the river to the other in time for lunch and to be able to meet standards. The school staff, many of whom live in the Cloverdale to Ukiah area, again, were forced to travel long distances to reach school.

BB-34

Transport buses and growers graciously kept their vehicles off narrow road Route 128 during the time our school buses then had to use that road, all of which I'm sure was at great expense to them in having to rearrange all of their business and routes so that they didn't conflict with school buses on that narrow road at the same time.

In addition, the increased cost of fuel, the increased cost of driver salaries, all strained the district budget. Additional mileage added regularly to the time our student athletes had to spend on the road. Our athletes participate in leagues involving Potter Valley and Alexander Valley -- excuse me -- Anderson Valley, long distances. Now they had to travel even greater distances, and then we had to deliver them back to both sides of the river. This was the only way they could meet their athletic obligations. And in some cases, given the travel involved, they had to be dismissed from school early, missing school time as a result of that.

In short, many school programs, from parent

participation, field trips, assemblies, and athletics were greatly impacted.

Finally, the nation's current economic conditions have required our school district, as with many, to have to now lay off teachers, classified staff, and cut vital programs and services to the children of this community.

I really and truly wish I had the dollars that were lost due to that bridge closure and could keep those services intact for those kids. That's why I'm here today and that's why I want to protect that bridge. BB-34

The bridge is not old at all, yet there is always encroachment going on on both sides of the bridge up to River Road and also Highway 128. Caltrans has been asked about this, and they've said, "We'll just extend the bridge." Well, to me that means another bridge closure, additional unreimbursed expense, interruption to the educational experience for the children of Geyserville.

I would please ask that you take necessary actions to keep the river from continually encroaching. Thank you.

MR. WILLIAMS: Thank you. Bret Munselle.

MR. MUNSELLE: I have a little photo I'll set right here so you guys can see.

My name is Bret Munselle. I'm a fifth generation wine grape grower in Alexander Valley. There's nothing I'd like more than to tell you our story and tell you why I support Syar's skimming experience, but I'll stick to the if-we-don't-do-anything part of the EIR.

This is a photo from 1994 with a drawn in riverbank line of what has been lost in time. And more specifically, from 2004 to 2008, in that four-year window, about 7 acres, of the 10 to 12 that's represented in this photo, was lost. During that one flood in, I think, it was 2006, when the Geyserville Bridge was lost, I would guess that we lost somewhere like 5 to 6 acres of land right off our bank, all the riparian, all of that which everyone spoke about. BB-35

Doing nothing, as an alternative for this project, leads to this kind of problem. It's a problem for us as property owners. We got a response to an article that was in the paper recently that was the green property owners are planting vines right up to the edge of the river. When we bought this property in 2004, the river was approximately 300 feet from the last end post. Today, it's about 15. That's one rain. Next year we'll start taking out vines.

What Karen Waelde spoke about with River Road, in that one storm, it was well over 150 feet of bank that was lost. Right now from that bank to River Road is approximately 150, 160 feet. So very easily I can see

that property being lost and that road being lost with one serious storm. The 2006 rain wasn't that big of a storm; certainly not the biggest I've seen and it's not the biggest that has been in my grandparents' life, who I talk to every day about the river.

So I just want it to be perfectly clear that doing nothing on a system that's impaired isn't going to function. We need to do something. This is a plan that's in front of us that seems to be very environmentally conscientious. We don't have another option, at least not one that I've heard of. So very much, I'm in favor of this project and just wanted to share that with you. BB-35

Thank you very much.

MR. WILLIAMS: Thank you. Is it possible for you to leave the picture with staff because it will corroborate the information that you've put in your written comments?

MR. MUNSELLE: There's a map with engineered calculations on the back of this, and then this one is a handwritten description to give us an idea.

MR. WILLIAMS: Thank you very much.

I don't have any other slips, but I don't want to prevent anybody from the opportunity to speak. If we have another speaker who wants to speak, come forward and state your name.

MR. HINES: My name is Brian Hines. I'm a resident of Santa Rosa, and Secretary of Trout Unlimited of California. We represent 10,000 conservationist anglers in the State. And we have a local chapter which has about 500 members in the immediate area, including the Russian River watershed, which is probably our main concern.

I have a letter where we've identified a number of problems with the Draft EIR, and hopefully I can get through most of these points in five minutes, and let you know why we think the document is inadequate at this point, and we'd really like to see these issues addressed in a new document.

I want to thank the County for inviting us to the meeting on the plan and giving us a copy of the EIR and letting us have an opportunity to comment on it. BB-36

The Redwood Empire chapter of Trout Unlimited has reviewed the Syar Alexander Valley Instream Mining Project and the Sonoma County ARM Plan Amendments Draft Environmental Impact Report. It has determined that it is inadequate for the following reasons: We recommend that the Planning Commission not approve the DEIR until these issues have been addressed and provide more time to comment.

The draft plan does not adequately address the

need for a sediment budget for the Russian River watershed, although this has been continuously called for since 1994. A sediment budget, which was repeatedly proposed to be included in the Russian River Watershed Adaptive Management Plan, would identify the sources of sediment in the watershed and the existing barriers to their natural transport. The Draft EIR has too small a focus, only looking at impacts in the mining reach itself, which has unnatural constrictions that restrict aggregate transport, including the Geyserville Bridge, the Jimtown Bridge, and vineyard development in areas that were once river channel. Impacts above and below the mining reach have been ignored.

The EIR does not identify where the aggregate to be mined comes from or what the natural aggregate accumulation would be in the mining reach if numerous barriers to aggregate transport were not existing, such as Coyote Dam, Warm Springs Dam, and hundreds of small dams on the watershed tributaries. The blockage of sediment transport by these dams has made the Russian River a sediment-starved system according to Sonoma County's own report, "A History of the Decline of Salmonids in the Russian River." If you haven't read this report, from 1996, I'd really recommend that you read the Morphology chapter.

This report was published by the Sonoma County Water Agency in 1996. The Morphology chapter in this report has been purposefully ignored in this EIR. The Sonoma County Water Agency document does not even appear in the list of publications reviewed in the 3.2 Geology, Hydrology and Water Quality section. This is intentional, as the Sonoma County Water Agency document makes it clear that aggregate mining in the Russian River is not consistent with salmonid species recovery and, in fact, has been a key factor in the decline of the Russian River's listed salmonids species: Chinook Salmon, Coho Salmon, and Rainbow Steelhead Trout. BB-36

The "Hungry Water" concept is also inadequately addressed in the Draft EIR. This is the condition where barriers to sediment transport, such as the Russian River's dams, reduce the sediment load in the river to a level far below normal for the river's power to move sediment. The river is hungry for additional sediment to be in balance with its energy during its winter high flow. The river recovers this sediment to regain its balance by eroding stream banks and downcutting tributary streams. In this way, gravel mining adds to the problem of bank erosion by removing sediment from a sediment-starved system. The Russian River is starved for good sediment, gravel and cobble that are important habitat for the

macro-invertebrates, that are salmonids primary food source. Clean, plentiful aggregate is also necessary for salmonids redds in which they lay their eggs. The Russian River is actually impaired or polluted by bad sediment; that is, fine sediment that clogs gravel beds, causes embeddedness and smothers salmonids eggs and eliminates macro-invertebrate habitat.

This problem is not adequately addressed in the Draft EIR, including impacts of the tributary streams in this reach including Gill, Miller, Rancheria and Gird Creeks. Downcutting in these tributaries would be damaging the threatened and endangered salmonids populations. Such downcutting is found in streams in the middle reach of the Russian River where Syar continues to mine Bar 2 and 13. Laurel Marcus has documented the effects in a report on the downcutting in Pistol Creek which flows past Hop Kiln Winery. This property recently lost a bridge to the 10 foot head cut that has been working its way up the stream. Tributary streams on the west shore of the Russian River in the middle reach have stream beds that are 10 feet above the river today. Box culverts suspended well above the river testify to the falsehood found in 3.2-58 where it is stated that "the river has largely recovered from these past mining practices." Tell that to the migrating salmonid trying to figure out how to jump into a box culvert suspended 10 feet above the river in the middle reach. BB-36

The words Chinook, Coho and Steelhead do not appear in the Sonoma County PRMD Staff Report or the Syar Draft EIR. This is unexpected, as these species were listed under the Endangered Species Act as follows: Chinook Salmon, 1999 federally listed as Threatened. Coho Salmon, 1996 federally listed as Endangered, and in 2005 State listed as Endangered. Rainbow Steelhead Trout, 2000 federally listed as Threatened.

The proposed mining will occur in the critical habitat of these species but the PRMD Staff Report does not even include mention of this important consideration to the appropriateness of this project.

The mining that has occurred upstream from this project by Shamrock has not been analyzed in this Draft EIR, although it acknowledges that the area from Sulphur Creek to Jimtown Bridge constitutes the same Alexander Valley reach of the river. The cumulative effects of past and proposed future Shamrock mining must be evaluated in any EIR on mining in the Alexander Valley reach of the Russian River. This EIR does not do that.

Returns of Chinook Salmon have been declining since the Shamrock mining was done in the Alexander Valley reach, but that is not addressed in this Draft EIR. Large

runs of Chinook Salmon were reported in the Smith and Columbia Rivers this year; making claims that poor ocean conditions effected Russian River Chinook returns questionable. Smith River, Columbia River, and Russian River Chinook Salmon live in the same Pacific Ocean. Degradation of fresh water critical habitat is the more likely reason for the Chinooks poor returns to the Russian in recent years. The impact of the Shamrock mining on the Chinook returns is not addressed in the Syar Draft EIR, although it is extremely relevant.

Habitat typing of Alexander Valley reach of the Russian River is proposed in the Draft EIR and is something that should be done as soon as possible by DFG with or without this project, as it has been done on almost all Russian River tributaries in recent years. The exception is Austin Creek below Ward Creek where gravel mining has also been permitted in recent years. Habitat typing using the DFG protocol is fundamental to evaluation of salmonids habitat conditions and changes over time.

Areas of the proposed mining reach have much better habitat conditions than others, but this has not been addressed in the Draft EIR. The reach from Gill Creek to the Jimtown Bridge is in much better condition than the areas upstream. In this reach, riparian tree canopy extends over and cools the river's water and the channel is deeper. Between the Geyserville Bridge and Gill Creek the river is shallow, warm and would not support cold water species. This is not discussed in the Draft EIR, and how the narrow channel with adequate tree canopy must be restored in the entire Alexander Valley reach if we are to make progress on salmonid recovery. BB-36

MR. WILLIAMS: Mr. Hines, we've been trying to keep all the comments to a relatively short period of time. Everybody's been very accommodating in that regard. I notice you have quite a lengthy document there. You're certainly welcome to submit that document. It will be considered as part of the response to the EIR. Please do that. That would be very helpful.

MR. HINES: Can I just read my big finish here, the last paragraph?

MR. WILLIAMS: Yes, you can do that.

MR. HINES: Okay. Recovery of the fishery is the established goal in the Russian River watershed, not simply maintenance of the existing degraded conditions. That approach will never produce recovery.

We find the Syar Draft EIR incomplete and inadequate and urge the Planning Commission to reject it until the issues above have been addressed in a new document.

So thank you for your time.

MR. WILLIAMS: Thank you. Will you submit that? Also, is that document prepared by the board of directors of your organization?

THE WITNESS: Right. We had a meeting last night and discussed it.

MR. WILLIAMS: Thank you.

We have another speaker. If you could please come forward and state your name.

MR. COLLINS: Good afternoon. I'm Jeff Collins, the general manager of Asti Winery in Cloverdale. I'm here to speak as somebody who's done a bank stabilization and restoration program and the before and after effects of what I've seen in this experience and in support of this EIR.

In high school, we used to camp out along the Russian River in Healdsburg and Geyserville. Although I didn't really know much about habitat or care about it, except for as long as there was brush along the river so we could jump out and turn over the canoes and recover their bobbing beer cans down the river.

As we grow older, sometimes we get a little bit wiser and gain wisdom through knowledge and experience. At one time, I would have said that the jacks, the car bodies, and the rip rap that's used along the river bank were just what we needed. And, indeed, some areas of the bank along Asti still are stable because of those, but I think we all recognize that that's not the way to do it.

After a gravel bar started to build up in the late '90s and began eroding the bank behind the historic Villa Pompeii at Asti, we sought out the help of Evan Engber and his Bioengineering group and made the decision, as a company, to do the right thing. Now, I'll admit I was somewhat skeptical at first, but in working with Evan and his team, I began to learn, and my perspective began to change. I began to see that the bank stabilization was a holistic process, involving the health of the Russian River, fish habitat, and the livelihood of the landowner.

In order to stabilize a small portion of our bank, Bioengineering had to rechannel the river and basically remove a huge gravel bar. They reshaped our bank and restored the fish habitat that was lost to erosion over the five years that it took to get the project approved. And that's another story, but one that is also crucial to address going forward.

And through the first year the stabilized bank survived and thrived, and I watched as the willow mattress that had been placed on the bank took root, and I felt my anxiety ease as the first winter passed without damaging Bioengineering's work. But then came the second winter, the big flood of 2005. In the course of that one season,

BB-36

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and in particular the big floods around New Year's Eve and New Year's Day, the gravel bar that Bioengineering had removed returned with a vengeance. It has continued to grow each year, and the erosion has returned with it, placing vital parts of our property at risk, including the section that Bioengineering had stabilized. The fish habitat doesn't lie along the gravel bar. As we can see in this picture, it's along where the trees and the bank give shade and shelter to the fish. But the gravel bar erodes that habitat by pushing that water up and taking away all that fish habitat and it's forced the fish to spawn in our vineyard during the winter, instead of up Crocker Creek, which is directly across from our vineyard. And Crocker Creek is now forced, instead of flowing down into the river, it has to go upstream across the gravel bar, because that's how high the gravel bar has gotten. And so the water has found its low mark, which is in our vineyard. And so the fish are swimming up and spawning in grass rather than up in the creek area where they should be spawning. Luckily, though, all our vineyards are fish friendly farmed.

If you are truly a fan of the River, you would look at the science behind what Syar is proposing both in terms of the hydrology and geomorphology, and in terms of how they plan to restore fish habitat, and see that we have an opportunity here for a genuine win-win. By sustainably managing these huge gravel bars through skimming the tops down, we will maintain fish habitat along the banks instead of allowing the flows off the bar to erode that habitat; we will keep that fine silt that erodes out of those banks from hurting river health and fish habitat; we will save property and money, both public and private, so that episodes such as the Geyserville Bridge don't happen again; we will maintain the beautiful tree-lined banks that folks see as they fish or canoe down the river; and we will keep jobs local by having Sonoma County workers bring in the material skimmed from the gravel bar management, rather than those jobs taking place in mining work along rivers hundreds of miles to our north; and finally, by sustainably managing these gravel bars, we can avoid the very painful and potentially damaging interventions that will continue to come in the form of emergency rechanneling of the river. In short, we will prove that a balance can be found between environmental concerns, land ownership concerns, and business concerns through true sustainable management of our resources, our Russian River.

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And I shouldn't say this in front of these trout folks, but that reach behind Asti is one of the best known for Steelhead, salmon fishing, et cetera. Don't tell

anybody, okay? Just our secret.
Thank you very much.
MR. WILLIAMS: Thank you.
I do want to make sure that everybody who wanted an opportunity to speak on this issue of the EIR for this project has had an opportunity to do so.
Is there anyone in the audience who has not had an opportunity to speak but still wishes to do so?
Okay. Seeing none, normally this would be a time for the applicant to return.
We're going to take a break first. Just because of the fact this has gone on for a period of time, I would like to take a short break before we have the applicant return to make final comments before the public hearing's closed.
MR. ZISCHKE: We don't plan to have any further comments for the Commission.
MR. WILLIAMS: We do want to break. I will go ahead at this time and close the public hearing, and that concludes the issue with regards to any further public testimony on this part.
We will be back here in ten minutes in order to deliberate and make a decision.
(Recess.)
MS. SCHAEFFNER: Does it address how if there is a dust issue, a hotline-type issue?
MS. GROSCH: My recollection's a little slim right now. I believe that there's supposed to be a designated person on the site that you would call and a sign posted. They could always call PRMD as well.
MS. SCHAEFFNER: Okay. And you had said that all the leases for where they're going to mine have been secured, but there was an issue about traffic and right-of-ways. I assume until there's a project, they wouldn't have all the right-of-ways secured at this point, right?
MS. BARRETT: I believe they actually have contracts for most of the land -- certainly for all the land they a plan to mine and even for the haul routes out of the mining. Some of the land is actually owned by them. They do have a number of --
MS. SCHAEFFNER: Right. Okay. And just so I'm clear -- I don't know if this is addressed in the EIR -- when you say they're going to mine one bar at a time, is that staging two, or is it they only mine these days and go to the next one? Will they be staging those in advance? Where there will be overlap? Or is that something that's addressed in the EIR, because I didn't see that?
MS. GROSCH: I would like to direct that question

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to the actual operator, because I believe some of the things, like the bridges, would be put in at the beginning.

MS. SCHAEFFNER: Maybe that can be addressed later.

MS. BARRETT: I believe that it is addressed in the EIR. They will go in and stage in one area. If they're using the same haul route for the same bars that they intend to mine, they wouldn't need to stage again. But if they go to a different bar, it's from a different access point. They may need to -- the season is pretty long for them to be able to do that.

MS. SCHAEFFNER: And then I had a question about where the creeks go now, and I think those were addressed that they don't go anywhere. They all -- there's three, there's Gill, Rancheria, and there's one other.

MS. GROSCH: Miller.

MS. SCHAEFFNER: Okay. And that was addressed. So I think I'll look forward to seeing the comments that come back.

MR. WILLIAMS: Okay.

MR. BENNETT: I think that's about all the questions I had -- as far as questions that were brought up, but I do have one general area. I realize that the purpose of an EIR is hankering and finding problems and figuring out how to solve problems, and most of the testimony that we heard today was more positive impact from the project. And I think where that's relative -- it's important relative to this: If there were a No Alternative project -- and I think we talked about erosion. We had a lot of testimony today about soil erosion that needs to be corrected by a project of this type, and you go back into the EIR and everything about erosion is what's going to happen from the project itself in terms of impact from the erosion. And with things like erosion, the impact on flooding on properties, the no alternative, I would like to see that expanded more, because I think that's really relevant to what we're talking about here. So I want to stop with that comment. BB-41

MR. WILLIAMS: Okay. Thank you.

MS. DAVIS: I have a few questions, comments.

MR. WILLIAMS: Please proceed.

MS. DAVIS: Thank you. Can I ask just Melinda, there was a question that was raised about whether there's gravel mining happening upstream or not, and I'm just wondering what the time frame of that was, and if that has -- I guess what I'm interested in finding out: Does the upstream gravel mining have an impact on what's happening right now in the project area? And I guess that's not a question you need to answer, but -- BB-42

MS. GROSCH: There is currently mining upstream. Shamrock Industries is mining upstream.

MS. DAVIS: Is there any way to look at whether that gravel mining upstream has any impact on what's happening further down the --

MS. BARRETT: Can I make a clarification? I believe there is a mining permit, but I do not believe that they've mined. Their permit expires, I think, next year.

MS. GROSCH: Fairly soon.

MS. BARRETT: These mining permits are expected and anticipated to be renewed. It's just that we should take a look at the impacts and the mining every ten years in our ARM Plan, and, in this case, they're asking for 15.

MS. DAVIS: Again, somebody else brought up the point, and maybe I don't need to repeat what I've heard, but I'd like to see an adequate study related to the traffic impact should right-of-way not be obtained. I didn't see that that was specifically addressed. But like -- it is a hefty document, so --

Also, what I read is that some of these stated objectives are limited -- to limit erosion and flooding, and have those -- have the mitigation measures that are proposed been tested? Is there a way to demonstrate that those are effective? And, again, I'm not looking for answers, but to make sure it's addressed in there.

And then also what happens when the project is over? It was raised here, and I have a question, too. If the sediment is moving down the river, are they going to backfill in? What kind of ongoing maintenance is going to be required for maintaining the benefit that this skimming is going to bring?

And actually, again, the question was raised -- and I don't know if this is something that could be addressed in the EIR, if this would come further down the project if things move along, but is it appropriate to develop some kind of look at what the long-term solution is? You know, if we do some gravel mining as part of the restoration, in the long-term -- if we're not interested in continuing mining the river as a long-term solution, can we develop some kind of option? And I don't know if that's appropriate to include in an EIR.

MS. BARRETT: Through the Chair, if I could respond to that?

Our ARM Plan does envision instream mining -- bar skimming, I should call it, as a renewable resource and a local source of supply. So our ARM Plan does envision that instream mining would be renewed. It's just that they want to take another -- it's like a review every ten years to see what has changed and what new impacts and

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what we've learned. So it's part of river management, but it's not a comprehensive river management plan.

I don't think it would be appropriate to ask the operator to do a comprehensive river management plan. They're part of it, and a major part of it, and they've added more to it with the river enhancement components, but a long term solution to the erosion problem is -- you know, I think mining is a part of it; the bar skimming is a part of it.

The EIR does identify that bank stabilization is going to be needed in the area, and appropriate measures and appropriate techniques are identified by Syar and they have offered to assist, because they will have permits to be doing work in the river, and they will have equipment that is capable of assisting with that. So those projects have been looked at, conceptually, to help do bank stabilization work, but they're not exactly proposed by Syar, because it's not really part of their instream bar skimming operation. So the EIR does look at them as if they are possible, potential future projects, and has identified mitigation measures, primarily best management practices to avoid erosion and water quality impacts. And that's part of the long-term strategy for the river.

And lastly, I just want to say that we do have an ARM Plan amendment that has some changes in the objectives for the ARM Plan that include restoration and management of aquatic habitat, which we had not included before, and so that's part of our long-term solution. But I don't know that we could ask the operator to develop a long-term plan that's more comprehensive than that.

MS. DAVIS: And this is probably an education question, but I know that in my understanding -- we had an agency meeting here a few months ago, where we talked about instream skimming, you know, different resources available in terms of gravel. And my understanding was that there are many places where we're getting out of the river, so how do they get designated that this particular reach is an area that is approved for instream as opposed to someplace else where we're getting out? And if we're getting out elsewhere, are we having the same kinds of problems in those areas? BB-47

MS. BARRETT: The 1994 ARM Plan did address that, and there were certain reaches that were designated primarily because they were areas where aggradation is expected to occur. There was some over mining that has occurred historically, and there were agreements not to mine particular areas for a period of time because of that, mainly in the middle reach. And that time frame has, I think, expired.

There is a procedure to become a designated

mining area in the ARM Plan, but the areas that were identified were those areas that have aggradation and recharge from past experience. So, you know, the areas that people are concerned about are mostly downstream of this area.

MS. DAVIS: All right. And the Adaptive Management Strategy, my understanding is that that's going to allow, you know, ongoing regular monitoring and that there could be -- depending on how things play out and how they're looking with the monitoring, that there could be a change in the mining methodology. Are those different types of mining all addressed in the EIR, or are they going to be subject to additional CEQA? Are all those different options going to be looked at in this EIR?

MR. BRAX: I think the intent is to cover all of those mining methods in the EIR. If something completely new or unforeseen is proposed, that that could trigger additional CEQA review, but the goal would be to analyze everything that's foreseeable at this time.

MS. BARRETT: If you look carefully at the graphic -- it's kind of confusing -- it shows the difference between our current mining methods and our proposed mining methods, what you'll see is the main difference is the buffers. The buffers are bigger on the outer bar and they're smaller on the header bar. The primary concern that we have is the header bar buffers, and so the kind of adaptive management that is envisioned maybe shrinking the mining area if it's too large to maintain the bar form. BB-48

MS. DAVIS: And PRMD will be the one making those judgment there?

MS. BARRETT: We are the mining authority and it is our determination, but we do that in consultation with the resource agencies, and we also have a scientific review consultant team that helps us analyze that situation, so, yeah.

MS. DAVIS: Okay. And then the oxbows and alcoves, have those been demonstrated as effective methods for -- in other mining operations for fish habitat, et cetera? BB-49

MS. BARRETT: We did do a pilot project. It's called a demonstration project in Austin Creek, which is a much smaller system, but they did use these mining methods in that system. There was a report that came out this year, I think, from NOAA regarding the success of that project. And it is considered effective and successful, I mean, the bottom line is.

MS. DAVIS: All right. And a couple more here. Sorry.

So issue Number 6 related to the air quality.

What would be required -- and again, maybe this doesn't need an answer now, but I would like to see what would the project level be in order to meet the 1500 a day standard. Right now it's -- the way the project is written, it would be 78 tons per day, I think it is, and so -- BB-50

MR. WILLIAMS: 78 tons per year.

MS. DAVIS: Right. Did I say "day"?

MR. BRAX: Through the Chair, it's 78 tons a day without mitigation. With mitigation, I think would cut it in half, as I recall, which is still over the 15 tons per year threshold.

So Alternative 4 in the EIR, which starts at Page 435 discusses the proposed project with a lower extraction volume, and we based the lower extraction volume on what it would take to get below 1500. 132,000 tons of aggregate per year rather than 350,000. So a significant reduction.

MS. DAVIS: Okay. Thank you.

MR. BRAX: Sure.

MS. DAVIS: And so has there been any study or look at what the impact would be on downstream property owners? And then also, is aggregate slated for export out of the County or other areas of Sonoma where those other resources already exist? I'm thinking about greenhouse gas impacts here. BB-51 BB-52

And finally, there's actually -- actually all the alternatives that you guys came up with, I actually found one that isn't in here, and that would be the proposed project with a lower volume over a 10-year period. BB-53

MS. BARRETT: Lower volume based on --

MS. DAVIS: The lower extraction volume. So Alternative 4 within a 10-year -- so basically Alternative 4 for 10 years rather than 15.

MR. BRAX: And through the Chair, the alternatives are designed, in some sense, to be considered exactly that way, take various pieces of some and put them together. So I don't know if we have to list every possible permutation of it in the EIR, but we can discuss that specifically in the response to comments document.

MS. DAVIS: And with that, I'm done.

MR. WILLIAMS: Thank you. Do we have any further comments?

Seeing no further comments from the Commission, I think the direction's been provided to staff now and all of the written material's been presented as well as verbal testimony, and that will be all incorporated into a reformulation or --

MS. BARRETT: Final EIR.

MR. WILLIAMS: -- Final EIR.

Also, for those of you who presented testimony

with regards to the merits of the project, there are two further hearings, one to address the Final EIR and the merits of the project and, of course, it would go before the Board of Supervisors.

MS. BARRETT: Those hearings will be re-noticed. When the Final EIR's available, you'll get a notice of that and the hearing date.

MR. WILLIAMS: Seeing no further business, this hearing is adjourned.

MS. BARRETT: I just want to mention, if you didn't submit your comments in writing or you have additional comments in writing, the close is at 5:00 p.m. today.

(Whereupon, the proceeding was concluded at 4:08 p.m.)

REPORTER'S CERTIFICATE.

I, René Markarian, a Certified Shorthand Reporter, do hereby certify that the foregoing is a full, true and correct transcript of the proceedings had at the taking of said testimony.

I further certify that I am not of counsel or attorney for either or any of the parties in the above-mentioned cause, or in any way interested in the outcome of said cause.

I hereby affix my signature this 29th day of June, 2010.

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René Markarian

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