

RESPONSES TO COMMENTS RECEIVED

ON DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT

FEDERAL AGENCIES

Corps of Engineers - Letter No. 1/Response to Comment Number:

1. Objectives 4 and 5 were deleted from the Draft Environmental Impact Report (DEIR). Upon reading this comment it was decided that the project was the extraction of gravel. We agreed that it has not been proven that beneficial impacts to the estuary will occur from proposed gravel extraction.
2. Additional information and analysis has been added to the DEIR in response to this comment. The request to analyze terrace mining is rejected because that would cause irreparable significant adverse and environmental effects, particularly in the lower Eel River which contains some of the finest dairy lands in the world. Mining gravel bars at alternative locations on the Eel River has been added to the document.
3. Oblique aerial photos and site maps have been added to the document to better describe the study area.
4. The sections on environmental setting and potential impacts have been revised to increase the clarity as suggested in the comment.
5. The main purpose of the Program EIR is to describe the project and potential effects. A River Management Plan which would include a monitoring program should be a separate document from the EIR.
6. Additional data has been included in the FEIR describing the existing channel elevations particularly at the bridges. Predicted bed level changes are discussed throughout the Program EIR.
7. Page 10 was corrected to reflect 200 gallons per hour as noted.
8. The estimated 700,000 to 1,000,000 cubic yards only occurred a few times and was not an annual quantity.
9. This suggested change was made in the document.
10. We agree and have changed the document as requested.
11. It is agreed and true that a monitoring plan would only identify effects of the gravel removal. The remedial action would consist of actions by agencies with

jurisdiction following review of the data collected. The River Management Plan will require the County Planning Department retain annual review authority over all extraction projects.

12. The decreased extraction rate alternative has been changed and redefined as an alternative that would involve determining the new amount of gravel stored at each site each year following the winter flows. Following determination of the amount of gravel stored above some slope line, such as 1.5 to 3 percent. That would be the actual amount of gravel that would be permitted to be extracted.
13. We agree, and as noted above, an action plan would have to be included in the River Management Plan to assure that changes were made to reduce identified impacts.
14. Most of the Dames & Moore calculations were removed from the DEIR.
15. This table was removed from the DEIR.
16. This error has been corrected in the FEIR. As noted from further studies, attempts at predicting bedload in the Eel River range so widely that they are probably not very useful and only indicate qualitatively that the Eel River does produce a tremendous amount of bedload.
17. Channel morphology is illustrated in the final EIR through the addition of several oblique aerial photos of the project area.
18. The riparian vegetation shows up well in the new aerial photos added to the FEIR. We do not agree that a detailed description of the riparian habitat was necessary for this document.
19. We agree with this comment and have changed all of the conflicting names to one name for each species of fish.
20. This typographical error has been corrected.
21. Additional discussion has been added to the FEIR on birds, mammals, reptiles and amphibians. Historically, long lists of birds, mammals, amphibians, etc., used to be contained in EIR's. Over the past 20 years it has been concluded that long lists were really not useful to the reader. A list of vertebrate species detected by the biologist in the field has been added to the FEIR. We believe it most important to identify and discuss species of concern and those that are threatened and endangered or candidate species.

22. This contradiction has been corrected and additional information has been added to the FEIR.
23. Additional information has been added to the FEIR for all candidate and listed species contained in the U.S. Fish & Wildlife Service letter of January 24, 1992.
24. New information on air quality was added to the FEIR.
25. We do not agree that a valuation of the impacts of historical floods is necessary.
26. This question was not clear. We can only recommend the author read paragraphs on page 37.
27. All of the noted contradictions have been clarified through a rewriting of most of the paragraph mentioned in this comment.
28. Many of these points mentioned in the comment are covered in the FEIR.
29. The entire statement was deleted from the DEIR and the paragraph rewritten.
30. The sentence mentioned in the comment was deleted from the DEIR.
31. The discussion of channel degradation was added to appropriate sections of the FEIR so the impacts of channel degradation to anadromous fish, riparian vegetation, groundwater and wildlife could be considered.
32. This table has been removed from the FEIR.
33. This cross-section was removed from the FEIR.
34. This portion of the FEIR has been rewritten to reflect changes in channel morphology that have occurred.
35. As mentioned earlier, the River Management Plan should be a document separate from the EIR. We agree that fisheries habitat monitoring should be fully explained in that document which will be prepared separately at a later date.
36. The substantiation for benefits from an increased size in estuary has been added to the FEIR.
37. In response to this comment, several paragraphs and additional information were added to the DEIR.
38. Additional paragraphs were added to the DEIR to quantify the incremental benefit of increased flood control.

39. Additional information was added to the FEIR following discussions with the North Coast Unified Air Quality Management District.
40. Cumulative impacts to fish and wildlife have been added to the FEIR.

U.S. Fish & Wildlife Service - Letter No. 2/Response to Comment Number:

41. Twelve additional gravel removal operations volumes within the Eel River Watershed were added to the DEIR. These can be seen in Table 1 which also was added to summarize volumes of gravel proposed or permitted throughout the basin.
42. The no project alternative has been redefined to read, "The no project alternative would have to be defined as no expansion of the gravel volume of 557,000 cubic yards per year currently under permit".
43. A field survey was made following publication of the DEIR to respond to the concerns of the U.S. Fish & Wildlife Service. The results of that survey are included in the FEIR.
44. Additional analysis and discussion of potential impacts on the Green Sturgeon and Western Snowy Plover have been included in the cumulative impact section of the FEIR. Additional discussion has been added to the FEIR regarding impacts on the White Footed Vole, Pacific Fisher, California Wolverine and Western Big Eared Bat.
45. The multitude of surveys for the candidate species listed could take 12 months or longer and involve several different biologists. As there are no funds for this at this time we can only state that the service may have to require these surveys conducted as part of the Supplemental EIR's in the future on individual projects.
46. Additional information was added to the wildlife section of the EIR regarding the possibility of nest sites and activity centers of the Northern Spotted Owl.
47. We agree with this comment and have rewritten the DEIR section with this assumption. It is important to note that there is no historical data in existence to show population trends of avian species over the past 40 years during which gravel has been extracted from the project area.
48. It would be very expensive to monitor some 210 avian species and their populations in the project area. Monitoring the instream aquatic invertebrate community

would be more feasible. Monitoring wildlife utilization patterns of all wildlife species in the adjacent riparian habitat could become very expensive. Again, this may require a wildlife biologist to virtually live on the ground for several months. Many different types and sizes of traps would have to be set and checked daily.

49. The current time schedule does not permit the County to submit a revised DEIR for review by the staff of the U.S. Fish & Wildlife Service.

National Marine Fisheries Service - Letter No. 3/Response to Comment Number:

50. Much additional information has been added to the FEIR in an attempt to provide sufficient scientific information describing potential impacts of current gravel operations and proposed operations and various alternatives.
51. The main function of the Program EIR was to describe the proposed project and the potential effects it may have on the environment. We have decided that it is not proper to attach a River Management Plan to the EIR. We think that the plan should be prepared immediately after the Program EIR, as a separate document.
52. Additional information on the gravel mining projects near Garberville will be contained in supplemental environmental documents. These projects are mentioned in the Program EIR.
53. This project has been submitted to the Planning Department. Additional information and analysis will be required in a supplemental EIR in order for the Planning Department to accept the application as complete.
54. We believe it would be infeasible for the County to develop a bedload sampling program that would provide reliable estimates of bedload. To date all of the literature we have read and all of the consultants we have spoken to have indicated there is no acceptable method for measuring bedload.
55. It is probable that the County Planning Department will manage gravel extraction during years when no gravel replenishment occurs by allowing only gravel that exists above an imaginary plane to be removed. If there is no gravel above that 1.5 to 3 percent sloping plane, then no gravel would be permitted to be removed. Permits will have to be reviewed on an annual basis.
56. Skimming is the current preferred method of gravel removal. Trenching is so new that only the results of one or two years are available.

57. We agree that a River Management Plan should be developed for the lower Eel River. The plan may cost more than is economically feasible depending on how complicated the plan could be. We estimate it would cost around \$250,000 to prepare this plan. Funds are not available in the County coffers for this nor has a sinking fund been developed by charging each gravel operator in the past some nominal amount per cubic yard.
58. The monitoring program has been removed from the DEIR. Again, the County believes it would more appropriate for the monitoring program to be included in a River Management Plan developed as a separate document.

STATE AGENCIES

California Coastal Commission - Letter No. 4/Response to Comment Number:

59. We agree with the comment and added the language contained in the letter to the final EIR.

Regional Water Quality Control Board - Letter No. 5/Response to Comment Number:

- 60, 61, 62, 63 & 64. We agreed with these comments and replaced previous language on pages 45, 46, and 47 with the language suggested in this letter.

Department of Transportation, Division of Structures - Letter No. 6/Response to Comment Number:

65. This alternative was added to the FEIR. It should be recognized that this alternative would have a very significant adverse economic effect on the general economy of Humboldt County. The gravel industry provides the necessary material that drives much of the construction industry. The money generated by the gravel industry has a multiplier effect of around 2.8. The second problem is that it would be difficult for the County legally to deny use of Conditional Use Permits and Vested Rights that have already been granted for some 557,000 cubic yards.
66. The second alternative did not mean to indicate that permissible amounts of gravel to be extracted each year were based on predicted replenishment. It is actually based on the amount of gravel that was stored the prior season as reflected in the detailed cross-sections that would be run prior to the initiation of gravel extraction at the beginning of the new season.

67. The second paragraph of comment of #66 is exactly what we had in mind. The third alternative was deleted from the EIR and replaced with a new one. The new one involves searching other areas of the Eel River and its tributaries for gravel bars that contain stored gravel above an agreed upon base line and sloping imaginary planes and for valleys that were buried during the 1955 and 1964 floods.
68. A new alternative was added to the EIR discussing alternative sources of rock and the problems involved with that rock in meeting Caltrans Standard Specifications.
69. This part of the draft EIR has been changed because additional analysis indicated that measurements at the bridges, particularly those on the Van Duzen, do indicate a trend towards lowering of the bed.
70. We agree and have changed the draft EIR to reflect these measurements and cross-sections.
71. We agree that the potential lowering of the bed and the resulting impacts to these bridges must be avoided. The only way to avoid this is to tie the Conditional Use Permit to the River Management Plan. The River Management Plan would be based on the results of detailed monitoring of the bed each season.
72. We agree that a monitoring program consisting of cross-sections and profile thalweg would only delineate the affects of gravel removal. As mentioned above, these measurements would have to be tied to the River Management Plan, which in turn have to be linked to the conditional use permits granted by the Humboldt County Planning Commission. Discussion on this concept has been added to the FEIR.
73. We agree that estimated yields or rates of replenishment in the literature do not substantiate the proposed volumes that may be removed from the project area. For this reason the EIR does not rely on calculated replenishment rates. Instead the concept of actually measuring in the field what occurs during each winter season is the best method to determine volumes available for extraction.
74. The hydrology section of the draft EIR was re-written and corrected. The 1986 FEMA Flood Insurance Study was utilized and we believe the estimates in there to be more accurate than those that were determined by Dames & Moore.

75. We agree with this comment and have removed all of the material from the draft EIR that was based upon the HEC-6 model.
76. We agree and have included these sites.
77. The Arcata Readimix project has been included in the Final EIR.
78. This detailed type of information will have to be supplied in supplemental environmental documents.
79. We agree with this concept and have tried to describe a procedure to be included in the River management Plan which would be prepared as a separate document.
80. We understand the problem that may be caused at various bridge piers by gravel extraction. We believe it might be hard to prove the nexus or linkage between gravel extraction and the scouring or lowering of the bed around the piers.

Caltrans, Local District - Letter No. 7/Response to Comments Number:

81. The final EIR contains new sections identifying the gravel hauling routes for each extraction site and the potential effects on capacity and level of service at the intersections of identified haul routes. The new information was obtained through discussions with the Traffic Division of Caltrans, District 1, in Eureka.
82. The draft EIR has been corrected to consider traffic noise as a steady source.

Department of Conservation, Division of Mines and Geology - Letter No. 8/Response to Comment Number:

83. We agree with the comment regarding requirements of information to be put into the River Management Plan.
84. The River Management Plan can be based on some acceptable limit for channel degradation over a general reach of the river. It should be recognized that elevations of this section of the Eel River have varied over time, particularly following the large floods of 1955 and 1964. What often happens is that immediately following the floods 10 to 15 feet of gravel is added to the main thalweg portion of the river and then over the following 10 years the river slowly trends back to the equilibrium elevation. Because there has not been a flood in several years, the physical limit of the lowering of the bed should be limited to 4 or 5 feet until better information has been collected.

85. The quantity limit of physical change we believe to be acceptable until better information is collected, is 4 to 5 feet.
86. We believe the limit acceptable to channel lowering along the channel thalweg should be between 4 and 5 feet.
87. It should be pointed out that in the past there have been statements made about deep pools existing along certain portions of the lower Eel River which provided habitat for anadromous fish and green sturgeon. If the River Management Plan is too restrictive, it may be that these deep pools would never be recreated. Therefore caution is advised as to being held strictly to a 4 to 5 feet lowering limitation along the entire stretch of the thalweg.
88. The final EIR notes the changes in sediment supplies due to mining will cause adjustments in the general channel morphology.
89. We agree in general with this concept and plan to implement a safe yield approach through identification of a baseline thalweg and imaginary plane at something between 1.5 and 3 percent slope emanating out from the baseline.
90. Depths of gravel ranging from 18 to 62 feet were measured in the ARCO report 1/4 to 1/2 mile south of the mouth of the Van Duzen River across a point where the main Eel River first enters the delta. There is a ridge line east and west of the seismic refraction line indicating that the main Eel River has cut through a rapidly uplifting portion of land and therefore one would expect the gravel to be relatively shallow. For exact location of the seismic refraction line see Plate No. 1 in Appendix B of the ARCO Report.
91. Additional paragraphs were added in the Final EIR to note that within the last 3 years large amounts of gravel were removed, utilizing the trenching method. The final EIR focuses on the proposed amount of gravel to be removed, i.e. 923,000 cubic yards, which obviously far exceeds historical annual amounts.
92. The County-owned Worswick gravel bar will be excavated by skimming because trenching will trigger the requirement for a Section 404 permit from the Corps of Engineers. It is not known at this time whether the Corps of Engineers will approve trenching. It could be that in the 404 environmental review process the Corps may determine that an EIS is required. This could delay gravel removal from the Worswick bar for two years or more.

93. The comment assumes that trenching will be permitted. It is the intent of the County to adopt a safe yield approach based on a different concept. We have discussed various concepts with operators that have trenched on whether they would be willing to accept lower amounts of extraction in order to allow material to move downstream to another gravel operator. So far we have not been able to determine a fair and reasonable approach.
94. The final EIR includes new material addressing the economic feasibility of utilizing alternative upland materials and notes the limitations on certain material to meet Caltrans specifications.
95. The hydraulic evaluation by Dames & Moore utilized in the draft EIR has been deleted from the final.
96. The River Management Plan can include provisions for tracking this minor effect.
97. The second paragraph on page 58 of the draft EIR stated what would need to be done to properly answer the question of whether the bed levels have changed over time. That paragraph did not say that cross-sections taken in 1900 had actually been found. Elevation data does exist on maps published by the Corps of Engineers in early 1937 and mid 1942. These maps have been added to the final EIR and can be used by authors of supplemental environmental documents on specific sites. For example, when cross-sections are taken of the gravel bed at site #9, the elevations shown on the map published June 20, 1942, can be compared to the new elevations to ascertain changes in the river bed over 40 or 50 years. The elevations and cross-sectional data in the January 6, 1937 map could be compared to the cross-section shown in the Arcata Readimix application, provided that the cross-sections in the Arcata Readimix application are tied to either MSL or mean lower low water datum. It is not clear in Exhibit 4 of their application whether the cross-sections are tied to a known vertical control. If the vertical control of the +10 line is based on MSL, then the present day elevations of the gravel bar on the Arcata Readimix site appear similar to those that existed in 1937. It should be noted that sections appearing in the January 7, 1937 report would have actually been taken in 1935 or 1936 prior to the 1937 flood.
98. In reviewing the Surface Mining and Reclamation Act of 1975 it is noted that the legislative intent was to create an effective surface mining and reclamation policy to assure that adverse environmental effects are prevented or minimized and that mined lands are reclaimed to a useable condition which is readily adaptable to alternative uses. They also intended that the production

and conservation of minerals are encouraged while giving consideration to values relating to recreation, watershed, wildlife, range and forage and aesthetic enjoyment. The final EIR contains additional information added under permits expanding on the use and concept of the reclamation plan.

Department of Fish & Game - Letter #9/Response to Comment Number:

99. The rest of the gravel operations within and outside of the project area have been disclosed and included in the document.
100. See pages 50 and 51 in the draft EIR.
101. See pages 59 in the DEIR.
102. See pages 65, 66, and 67 in DEIR.
103. Additions have been made to the section on alternatives.
104. The Department of Public Works has no knowledge of nor information on timber company operations within the Eel River watershed. Also, we no information on Humboldt Bay Gravel's proposal to relocate its equipment to an area next to the Humboldt Creamery.
105. The comment is correct.
106. Current volumes contained in the table summarizing volumes and extraction are based on numbers supplied by the various operators to the Planning Department. In some cases operators do not remove the maximum permitted volume each and every year.
107. The DEIR has been changed to state that there has been changes in river morphology over the last 30 years.
108. We agree with the comment.
109. See pages 50 and 51 in the DEIR.
110. We have no information on APN 106-111-11. It appears to be somewhere near the mouth of the Van Duzen River.
111. See page 52 in the DEIR, third paragraph.
112. See page 59 in the DEIR, last paragraph.
113. A discussion of the effects of water temperature resulting from the two known extraction techniques has been added under Water Quality.

114. We are not aware of any water diversions taken directly from the river for the 13 operations covered in this FEIR. Of the water diversions observed in the field, they were all existing in isolated pits dug specifically for that purpose. This removes the chance of sucking in any fish fry or fingerlings.
115. We do not agree that gravel extractors should shoulder the responsibility of replacement of riparian vegetation removed over the last 140 years. Gravel extraction operations have removed a very small percentage of riparian vegetation relative to that removed from about 1862 through 1890 by the first settlers when they cleared the land and established their dairy ranches. As noted on page 57 in the DEIR, Fred Sundberg stated trees a couple of thousand years old on the river banks fell into the river or were removed by land owners following the filling of the river with silt and gravel. The planting of riparian vegetation on private lands adjacent to the river would require permission from all of the land owners. Most of this planting would have to occur along the south and west bank of the river. A majority of the gravel operations occur along the east bank of the river, much of which consists of a levee upon which no riparian vegetation can be placed.
116. A discussion of impacts from dust on vegetation was added to the DEIR on page 67 after the second paragraph. The actual acres of riparian vegetation affected by dust is low compared to the total acres of riparian vegetation in the project area. This is particularly true of the two operations on the Van Duzen River.
117. Detailed analysis of this project will be contained in the supplemental EIR. This final program EIR can only address impacts to the level of detail known.
118. We have no record of this proposal.
119. A section was added to the EIR regarding impacts on the riparian corridor resulting from truck traffic utilizing the existing haul road.
120. The FEIR contains information on those processing sites that were known. The FEIR covers all of the known sites as of its preparation date.
121. Additional impact discussion was added to the bottom of page 59 of the DEIR. The 1603 agreement should include a condition requiring the operator to check the trench after these low flow fluctuations and to take appropriate measures to assure that fish populations are not stranded.

122. The FEIR contains several additional sections addressing the issue of what happens when there is very little gravel recruitment into the project area. Essentially, the River Management Plan would contain procedures directing that when the monitoring results show that little or no gravel has moved into the area, the condition in the Conditional Use Permit shall require the operator to locate gravel elsewhere in the watershed and apply for a Conditional Use Permit to remove it. An additional section has been added to the section called, "Relationship between local Short Term Uses of Man's Environment and the Maintenance and Enhancement of Long Term Productivity," as requested.
123. The DEIR has gone through a major revision in response to all the comments received.

#### LOCAL AGENCIES

##### Humboldt County Planning Department - Letter No. 10/Response to Comment Number:

124. The project description has been rewritten in the main FEIR and also in the summary as requested. Basically, it was noted that the granting of permits and approvals of reclamation plans by the Planning Commission is a project as defined in Section 21065 (c) of the CEQA. It was also pointed out the lease of the Humboldt County owned bar at Worswick constitutes a project as defined in Section 21065 (a) of the CEQA.
125. We believe this table would be too difficult to prepare.
126. This has been done in the FEIR.
127. This has been done in the FEIR.
128. This has been done in the FEIR.
129. A discussion was added in the FEIR regarding the opportunity to remove gravel from some of the buried valleys and streams in the upper portions of the Eel River watershed.
130. Three qualified fishery biologists were consulted.
131. Staff of the Department of Public Works, Natural Resources Division have been involved in watershed management and river analysis for 20 years. In addition, this project has been discussed with other hydrologists and open channel flow experts.
132. It is not practical to return the lower Eel River to its natural condition.

133. As noted above in response 129, there is an opportunity to remove gravel from portions of the upper watershed that were buried under a massive influx of sediment and bedload during the 1955 and 1964 floods.
134. A discussion has been added and included in the FEIR establishing a base line consisting of the profile of the thalweg and an imaginary plane running out both directions at slopes of 1.5 to 3 percent with a maximum permissible lowering of the bed between 4 and 5 feet from its current level.
135. It is not clear whether a lowering of the river bed will improve fishery habitat, particularly during the summer months.
136. This has been done in the FEIR.
137. This has been done in the FEIR.
138. This has been done in the FEIR.
139. The Planning Department provided as many detailed project site maps as they had in their files. For some of the sites detailed maps are not yet available because the applications are still under preparation.
140. This suggestion would require a major reorganization of the document and we decided it would take too long.
141. Much of this section that was contained in the DEIR has been deleted because other agencies had determined that the type of hydraulic analysis utilized by Dames & Moore was inappropriate for this particular project area.
142. This has been done in the FEIR.

Eel River Resource Conservation District - Letter No. 11/Response to Comment Number:

143. We agree with the comment.
144. The potential for bank erosion may occur if mining greatly exceeds deposition into the project area. This type of effect would be identified in the River Management Plan which will contain monitoring requirements and procedures that link back to the Conditional Use Permit to insure changes.
145. We agree with this comment.
146. We agree with this comment.

147. Yes, the gravel operators will bear costs of the monitoring program and preparation of the river management plan.
148. Challenges to causes of bank erosion will be based upon new information gathered during monitoring required by the River Management Program. The new detailed information will permit much better analysis of the probable cause of bank erosion.
149. During preparation of the final program EIR, it was decided that the monitoring program should be in the River Management Plan prepared later as a separate document, not included in the EIR. Suggestions in this letter will be used to develop an appropriate detailed monitoring plan.
150. The present goal is to maintain the current bed elevation until sufficient data is gathered to indicate any general trend toward the continuous lowering of the bed.
151. Facts mentioned in the comments have been added to the FEIR. They are very germane to discussions on whether the estuary would be enlarged following massive gravel extraction.
152. The reason that past extraction or floods has not significantly altered the bed elevation of the river at Fernbridge may be due to the fact that the longitudinal profile of all streams and rivers tends to follow a so-called universal profile. What this means is that if you add a tremendous amount of bedload to a stream it will track towards equilibrium towards the universal longitudinal profile. The same could be said if you extract below this profile the river will tend to fill the bed and trend back towards the universal profile. This is discussed in an article titled "Rivers" by Luna Leopold in a journal called the American Scientist. Our copy was undated but we believe it was written in the mid 1960's.
153. The reason it is unclear which methods of extraction will be utilized is due to the fact that each operator has their own preferred method of extraction. Recently, State and Federal agencies have indicated trenching may lead to the requirement for a Section 404 permit from the Corps of Engineers. This in turn could trigger an EIS required by the Corps which could take up to two years to prepare and even then there would be no promise that trenching would be permitted.
154. The mining method may be determined indirectly by the potential required permits from various agencies. An operator may choose skimming because that method will not

require a Section 404 permit and may be the only method acceptable to other trust agencies.

155. Most of the trenches were done towards the middle of the channel away from banks. It would be easy to require any trenching to be towards the middle of the channel so as not to trigger or lead to bank erosion.
156. We believe structures that constrict the natural bed of the river tend to reduce the deposits of gravel through that area because confining structures create a more energy efficient channel to move bedload material through the restricted area.
157. If skimming is permitted below a 3% imaginary plane, then it could lead to spreading of the flowing river over a wider area. This paragraph did not mean to imply that continued extraction was necessary to maintain a single low flow channel. A flow that has a return frequency of roughly once every two years should be a bank full flow. In that situation the energy of the river is spread fairly evenly over the bed where the channel is 1,200 to 1,400 feet wide. The river behaves differently in the section near Fortuna where the river has wandered over a 6,000 foot wide area.
158. It is possible that the trenches could trap fish in the event that a high flow of brief duration occurs in late October. Normally the barriers at both ends of the trenches are removed as directed by the Department of Fish & Game. The barriers need to be completely removed so that the trenches do not become traps for fish after the flow recedes.

#### ENVIRONMENTAL ORGANIZATIONS

##### California Trout - Letter No.12/Responses to Comment Number:

159. We agree that there is no consensus among experts on the proper or accurate methods for assessing impacts from gravel extraction on a sustained yield basis. That is why we are recommending gravel only be removed that is stored above a baseline and imaginary plane sloped up and away said baseline.
160. The analysis done by Dames & Moore has been removed from the EIR.
161. The comment is not clear. It appears that Cal Trout believes removal of gravel from the project area will not decrease the amount of bedload reaching the estuary which has been seriously filled in during the last 20 to 30 years. The FEIR recognizes recent studies which have shown the particle size of material deposited in the

estuary over the past 20 to 30 years is too large to be removed by tidal action.

162. Discussion of the feasibility of attempting to model the lower Eel with other experts indicates that it would be an exercise in futility and a large expenditure of money. A good example of one attempt was that done by Dames & Moore.
163. It will be recommended that a River Management Plan be done following adoption of the EIR. The management plan would contain a monitoring program that would provide necessary data to permit annual amendments to Conditional Use Permits and 1603 Streambed Alteration Agreements to reflect what is actually happening in the river channel from season to season.
164. Since the preparation of the draft EIR, much more talent was consulted during preparation of the FEIR.

California Trout - Letter No. 13/Response to Comment Number:

- 165 & 166. The FEIR has some revised volumes which are based on the best information available for each site.
167. The FEIR includes Arcata Readimix's proposed project.
168. Of the 13 projects that are contained in the FEIR we are not aware of any future expansions or phases of any of the proposed projects.
169. This error has been corrected in the FEIR. The proper number is 200 gallons per hour.
170. The lifetime of each of the 13 projects was impossible to predict or estimate. It will be dependent upon the amount of gravel brought into the area by the river and the economic situation of each operator.
171. Traffic impacts were analyzed and added to the FEIR.
172. Most of the Dames and Moore study was deleted and removed from the draft EIR and is not contained in the final EIR.
173. The assumption that operators will be granted permits entitling them to extract diminutive amounts of gravel forever is incorrect. The River Management Plan will restrict the amount of gravel that can be extracted to that which is available above a base line.
174. It is obvious there will be periods of drought when the river will not contain gravel above the base line. The

issue of sustainable comes out of the County General Plan. It is doubtful that a sustainable level can be ascertained in light of the argument by Kelsy and others that large floods, such as the 1964 flood, occur only once every 200 - 600 years. We believe it is more probable that flood events with recurrent intervals of 20-30 years will move sufficient amounts of bedload to allow the river to trend towards an equilibrium longitudinal profile as detailed by Luna Leopold. However, that does not mean that adequate amounts of gravel will be stored from those events to meet the demands of all of the projects described in this FEIR.

175. The potential for long-term lowering of the bed will only occur if all of the current permitted projects are allowed to continue to remove 557,000 cubic yards per year and proposed projects are also permitted. It is doubtful that many of these projects will be able to receive permits from the Coastal Commission, State Lands Commission, and Corps of Engineers for the amounts of gravel that have been removed during the last 4-5 years. It is true there is documentation that bed degradation impacts water quality and the fisheries of some rivers. Portions of the Eel River, particularly in the upper watershed, were buried with gravel and debris following the flood. Several tributaries enter the gravel at the top end of a valley, go underground, then reappear again downstream. These stream tributaries are totally blocked and clogged with gravel and would be an example where lowering of the bed back to its natural condition would improve the water quality and fisheries. Other areas of the river would be exactly the opposite, so it would be important to know what documentation you have that substantiates bed degradation as having an adverse effect on fisheries. We suspect it is related to the Mad River.
176. The FEIR contains new additional information regarding responses to any bed degradation discovered in the monitoring program which would be part of the River Management Plan. The river management program would have a mechanism that would not permit bed degradation to the point where it would endanger bridge piers. It also would contain monitoring information that would be related to fisheries and invertebrates so that changes in gravel extraction volumes or methods, could be made through the annual review of the Conditional Use Permit by the County and the annual reissuance and negotiation of the 1603 Streambed Alteration Agreement.
177. Historical information such as detailed profiles of the thalweg and cross-sections following each major storm event and following gravel extraction are non-existent. That is why this information was not in the DEIR. The

FEIR covers all potential adverse impacts as they are known.

178. We believe that potential adverse impacts to the fishery have been assessed in the FEIR.
179. These numbers are from a report written in 1980 and were the best estimates in that year.
180. It is not clear why the Department of Fish & Game does not list the Middle Fork Eel River summer run steelhead as a species of concern.
181. Potential impacts on summer steelhead residing just below the Van Duzen in the main Eel as late as July would be related to trenches (if they are still permitted) located immediately adjacent to the low flow channel whereby the barriers blocking the trench from the low flow channel were broken during a small rise and fall in the Eel River due to a summer shower. Potential impacts include the summer steelhead being trapped in the trench after the river recedes. The River Management Plan will have a special section addressing this to insure that trapped fingerlings and other fish are either removed from the trench or at least reconnected to the low flow channel.
182. The significance of the project area for spawning was discussed with Doug Parkinson who snorkeled the area. Pat Higgins Fisheries Biologist; Peter Moyle, Ph.D., Fisheries Biologist; and Larry Brown, Ph.D., Fisheries Biologist.
183. This comment was unclear and therefore, we are not able to respond.
184. We would expect the lower Smith River to be significantly different than the lower Eel River. The Smith River watershed is largely intact and one of the finest, clearest rivers left in the State of California. The watershed also contains a different type of geology than that of the Eel River. The bed of the Eel River has a high sand and silt content coming from its watershed that is generating one of the highest rates of sediment production of any river in the world. It is this high component of silt and clay that makes the bed of the river through the project area so tight that it does not provide good spawning gravel with two to three inch cobbles completely free and clear of fine particles.
185. If trenching is still to be permitted by the trust agencies, additional assessment of smolt utilization should be covered in supplemental environmental assessments related to those specific projects. Based on observations in late May 1992 in the trenches in the Mad

River, smolts may not utilize trenches. However, smolts were utilizing the trench at the Emmerson Bar soon after they were released from the Mad River Hatchery.

186. We agree that squaw fish do prefer warm, still water. It is not clear if water in the trenches connected by ground water to the low flow channel actually exhibit significantly higher temperatures. It would also be tricky for the squaw fish to get over in to the trench unless there were a summer shower causing the low flow channel to rise and connect with the trench due to breakage of the barrier.
187. It is not clear how skimming would create a man-made diversion of the low flow channel, since skimming is always conducted up away from the low flow channel. We agree that trenching and pitting definitely alter the natural character of the river. Historically when pits appeared on aerial photographs, it was noted that, following the winter season, there was no sign of the pit, so the actual alteration of the free flowing aspect of the river may be quite brief during a flood flow or bank full flow.
188. It is our understanding that the Department of Fish & Game permitted the trenching through the 1603 Streambed Alteration Agreement.
189. The FEIR addresses the issue of river channels being left high and dry following diversion into a trench, such as occurred on the Mad River. This phenomenon has not been observed on the Eel River. The main purpose of the draft EIR was to describe a proposed project and its potential effects.
190. The FEIR assesses the impacts on the public access to the river due to the various aspects of the gravel extraction operation.

Redwood Region Audubon Society - Letter No. 14/Response to Comment Number:

191. The FEIR contains much new information which we believe properly states the potential amount of gravel mining that is proposed on the Eel river in the near future.
192. The Arcata Readimix project is now included in the FEIR. The issue of the Worswick lease is such that it is impractical to attempt to remove any amount larger than 200,000 cubic yards. This is because it would take a very long time to prepare all the necessary supplemental studies for a supplemental EIR, then proceed to get a Conditional Use Permit, if possible; a Coastal Development Permit from both the Planning Commission and

the Coastal Commission; a permit from the State Land Commission, if necessary; and a Streambed Alteration Agreement from the Department of Fish & Game.

193. It is our understanding that Charlie Hansen's request for a vested right for 100,000 cubic yards has been denied.
194. This discrepancy has been corrected in the FEIR. The correct number is 200 gallons per hour. 200 gallons per hour is such a low flow that it does not impact water available to the fisheries in the low flow channel. Most of the water is withdrawn from isolated pits specifically dug for that purpose.
195. Because it would not take long to endanger the bridge piers with the annual extraction volumes, the alternative of only permitting gravel to be removed that exists above an established base line and imaginary plane will be the recommendation made to the Board of Supervisors.
196. Skimming operations conforming to the base line of the thalweg and the imaginary plane sloped upward and away from the thalweg at three percent should protect against the creation of a flat river bed such as that experienced at Mad river.
197. The only information we are aware of is a verbal report stating that in the 1950s there were deep pools to a depth of 15-30 feet in portions of the river from Scotia to Singly. Inspection of cross sections taken in 1936 do not indicate any pools deeper than approximately 12 feet at Singly. It is probable that if an operator were ever permitted to extract gravel in a manner to create a deep pool, it could offer enhancement to fisheries the following season if it were somehow put in the proper place and connected to the low flow channel.
198. Objective No. 5 was deleted from the draft EIR.
199. The FEIR contains additional information and discussion regarding the potential effects of trenching on fishery habitat.
200. We are aware of the report by Murphy & Dewitt in 1951. It should be noted that the Eel River in 1951 was considerably different than it is in 1992 with regard to stocks of fish and number of deeper pools. Further, the estuary had not been decreased in volume at that time.
201. There may be a possible linkage between gravel extraction and amount of pea gravel substrate available in the lower reaches of the Eel river. The FEIR contains additional new information on green sturgeon.

202. Page 27 of the DEIR was read twice and it was impossible to ascertain how you got 200 acres. The current distance from the north bank to the water is about 1250 feet. If an operator skimmed gravel from an area 1200 feet long and 600 feet wide this would equal 16-1/2 acres. Part of the Worswick gravel bar lies within the Section 10 jurisdiction of the Corps of Engineers according to the 1971 data sheet utilized by the regulatory branch of the Corps of Engineers.
203. We agree that it was an inappropriate choice of words. This has been corrected.
204. During the continuation of analysis following the draft EIR, it was ascertained that prediction of gravel recruitment was not the best way to approach the entire issue of gravel extraction through this portion of river. It was decided that a River Management Plan should be developed as a separate document from the EIR and that the River Management Plan would include several things such as the monitoring program and the procedures for linking back to the Conditional Use Permit. The Conditional Use Permit would be reviewed on an annual basis for the purpose of determining how much gravel could safely be taken from the 13 sites analyzed in this document. The amount of gravel is based on that which would exist above a base line elevation established through the use of a longitudinal profile of the Thalweg and an imaginary plane sloping outward 1 1/2 to 3 percent from that line.
205. We agree now that the Dames & Moore model was inappropriate. It has been removed from the document.
206. The cross-section data taken at Fernbridge has been included from the FEIR under the section describing changes in riverbed elevation over time. In addition, five other figures containing cross-sections taken at other bridges have been added.
207. This arithmetic error has been corrected in the FEIR.
208. This problem has been addressed by noting that a River Management Plan must be prepared that contains the necessary mechanisms to provide changes in gravel extraction to assure that damages will not occur to the fishery habitat, general river morphology, and bridge piers.
209. The reason mitigation measures were not proposed is because the gravel extractors are not the ones that removed the riparian vegetation. The EIR was merely stating a fact. It is true that a strip of riparian vegetation was removed in violation of the contract

between the operator and the County at Worswick. It is our understanding the person that removed the vegetation has replanted this area as a settlement in the law case.

210. Noise levels generated by vehicles on highways are under the jurisdiction of the California Highway Patrol through the Vehicle Code. The County Planning Department can control noise levels of gravel removal equipment through enforcement of conditions attached to the Conditional Use Permit. It is possible that trucks that are not utilized on the highways may not be required to have mufflers holding their noise levels to that required to vehicles licensed for highway travel. The mechanism for enforcement is difficult to implement in this situation. Noise levels could be measured as part of the monitoring program.
211. The section on alternatives in the DEIR has been added to significantly in preparation of the FEIR.
212. This alternative was deleted from the FEIR.
213. Please see the section on alternatives.
214. We do not believe the description and assessment of impacts related to fisheries and recreation were slighted in the EIR.
215. The FEIR contains additional information assessing the impacts of trenching.

Sierra Club - Letter No. 15/Response to Comment Number:

216. The project description that appeared in the DEIR was rewritten for the FEIR.
217. The FEIR assesses the impacts of the project within the scope of operations and known volumes.
218. The project description now includes the first 40 pages of the FEIR.
219. Objectives 4 & 5 have been deleted from the EIR.
220. The County does not have a record of quantities taken out of the lower Eel by all gravel extractors annually over the past 30 years.
221. One could argue that we will never know enough about the river to make a decision as to what goal to work towards in restoring the river. There is a problem with trying to make the river the way it was historically. It would be impossible to return it to that condition. Historically the watershed contained much more vegetation

than present and the Eel River Delta also was covered with a thick tangle of vegetation including spruce trees and redwood trees. These two characteristics dictated that the runoff from the watershed was considerably different and the behavior of the river channel would have been significantly different in the Delta due to the tremendous increased roughness of the floodplain due to the vegetation. The river used to overflow into Salt River during floods. Now levees constrict the flow to the main channel. Removing the levees would subject many dairy farms and the city of Fortuna to flood damage.

222. The County would have no justification to approve mining projects that would guarantee disruption of the bridge piers. This is the reason a River management Plan is recommended.
223. The hydraulic model and calculations done by Dames & Moore have been removed from the EIR.
224. We agree.
225. The alternatives in the EIR have been expanded and modified.
226. The issue of the lower Eel River having little significance for spawning is the current situation. The last time it was looked at was during the preparation of the draft EIR when Doug Parkinson checked the river utilizing snorkel gear. Historical accounts indicate that the lower river had deeper pools which were probably utilized by green sturgeon and a lot of other species of fish including all the anadromous fish and the rare summer steelhead of the Middle Fork Eel river.
227. We agree that the estuary is more important than just a migration corridor. The use of the term migration corridor referred to the area above the estuary, particularly from the mouth of the Van Duzen River down to the Arcata Readimix site.
228. We agree that the river system is extremely complex, making it difficult to assess impacts. This is the reason for the recommendation that a base line be established along with an imaginary plane below which no gravel should be removed.
229. The FEIR does not imply that the proposed gravel operations pose no significant risk to the river system and the fishery.
230. Material has been added to that which appeared in the draft EIR on the Wild & Scenic River data.

231. We believe the FEIR is sufficient to meet the general requirements of CEQA as it relates to program EIR's.

LETTERS FROM INDIVIDUALS:

Tom Lisle - Letter No. 16/Response to Comment No:

232. Average annual bed load estimates for the lower Eel vary for many reasons. Investigators use various assumptions, methodologies, and periods of record. Various gravel operators are claiming rights to extract gravel from the river. The total of these claims may exceed the average annual bedload recruitment and certainly exceeds recruitment during low-flow years. When gravel extraction exceeds recruitment channel degradation occurs. Channel degradation may be desirable or acceptable at some sites but not at others. It may be desirable to build up sand and gravel deposits in some locations and to reduce sand and gravel deposits in other locations. Because annual gravel supply (recruitment) and industry demand fluctuates and because river resource management objectives may make site-specific changes in local channel morphology desirable it is unreasonable to expect the annual harvest of gravel to exactly equal annual recruitment. During low-recruitment years some operators may have to limit extraction in order to protect river resources. And, during high recruitment years it may be desirable to increase or otherwise alter extraction to enhance river resources. A sophisticated River Management Plan can be developed which can benefit the gravel industry and the regional economy while protecting river resource values. This plan will include a monitoring program. To succeed there will have to be good cooperation between industrial operators and agencies with responsibilities for regulating or protecting river resource values. Data collected and analyzed during the monitoring effort will allow reasonable estimates of bedload recruitment in the project area above a base line.
232. The channel monitoring program will extend downstream of the project area well into the estuary. It will also extend upstream of the project area as well. Studies of the aquatic resources of the Eel River and estuary will be encouraged. Details of a flexible monitoring program will be developed in the near future.
234. A carefully designed and flexible river monitoring program and management plan will be developed. The details of the monitoring program and management plan can be developed in the in the near future. See response 232 above for additional comments.

235. We agree. The local gravel industry is having trouble obtaining gravel to support local building needs. In light of recent events the County should reconsider its requirement in the lease agreement for Worsick that the operator export sand and gravel out of the County.

Mary Ann Madej - Letter No. 17/Response to Comment No.

236. The author of this letter and others expressed concern with the use of the USDA 1970 report. Bedload estimates vary. See response 230.

237. Much of the Dames & Moore study and reference to that study has been removed from the EIR.

238. We agree. Other studies indicate that the figure would be below 10 percent. Some investigators have used 1, 4, and 6 percent at Scotia.

239. The correct figure is 200 gph. An editorial correction has been made.

240. The reference to sediment moving in long linear waves merely supports the fact that the monitoring program must be carefully designed in order to gain a better understanding of the dynamics of sediment transport in the lower Eel River.

241. We have rewritten that paragraph.

242. We have rewritten that paragraph.

243. The discussion on trenches has been rewritten.

244. This paragraph has been rewritten.

245. Many questions on the effects of bed degradation in the lower Eel River have been raised. Most cannot be precisely answered at this time. A carefully designed River Management Plan and monitoring program should recognize and alleviate the problems inherent in gravel extraction operations while protecting the economic interests of the county and the gravel industry. Also see responses 233, 234, and 235.

246. A comprehensive River Management Plan with a monitoring program will be written for the lower Eel River which will monitor the effects and provide safeguards against over extraction.

247. Details of the monitoring program will be developed in the future. Interested individuals will be asked to

review and contribute to early drafts of the monitoring program.

Vicki Ozaki - Letter No. 18/Response to Comment No.

248. Most of the Dames & Moore report has been removed from the EIR.
249. This objective has been deleted from the EIR.
250. Fisheries values in the lower Eel are high. Monitoring will increase our knowledge of these resources. The River Management Plan will contain a feedback system resulting from analysis of data gathered following each winter. Agencies with jurisdiction will determine the locations and amounts of gravel that may be removed each season. This procedure will allow responsible agencies to protect these resources. See responses 233 and 234.
251. Many reviewers have expressed concern that the proposed maximum annual extraction rate exceeds some estimates of the annual bedload transport rate and that this rate of extraction will initiate channel degradation and various adverse environmental effects. The annual bedload transport and the annual gravel extraction rate will both vary. Careful monitoring and a flexible management plan based on a baseline at the thalweg and an imaginary plane sloping away from the thalweg and upwards at 1.5 to 3 percent will restrict gravel removal to that stored above the plane.
252. It is obvious that past gravel extraction, especially over the last five years, has modified channel dimensions. These changes may or may not be considered significant depending upon one's perspective. Some local fishermen have complained about the condition of the river.
253. Alternative extraction methods are available. When new methods are proved superior to current methods they can be adopted. There are procedures available for companies to propose modification of their extraction methods and reclamation plans.
254. The monitoring program has not been fully developed. There will be an opportunity to review the monitoring program as it is developed. See response number 245.

D.R. KETRON - Letter No. 19/Response to Comment Number:

255. The discussion on the economic effects, social impacts, and job creation of gravel extraction operations has been expanded.

Jack Nobel - Letter No. 20/Response to Comment Number:

256. It is possible that activity shown on aerial photographs may be used to help document a vested rights application.

257. It is possible that extraction rates will change over time as new information becomes available. Permit and reclamation plan modifications may be required when increases in extraction rates are desired.

258. It is well known that the bed of the Van Duzen River stored large amounts of gravel brought down in the 1955 and 1964 floods. However, it is difficult to prove to the agencies with jurisdiction, that removal of large amounts of gravel from an aggraded river bed is beneficial to the fish and wildlife. Aggraded channels have existing fisheries and other river resource values that must be protected from excessive gravel extractions.

Aldaron Laird - Letter No. 21/Response to Comment Number:

259. The FEIR discusses additional alternatives.

260. The annual harvest will vary. Factors that will influence the harvest will include the demand for the products, some measure of replenishment, and some objectives of a Management Plan that may dictate channel morphology objectives.

261. Methods and equipment may vary. Procedures exist to incorporate changes in reclamation plans as needed.

262. Alternative sources and methods have been considered in the FEIR.

263. A 'no project' alternative has been considered in the FEIR.

264. A River Management Plan will be developed. It is logical to assume that the plan will provide for site specific differences.

265. An extraction volume reduction would affect individual impacts at various locations to various degrees. One would need a great deal more site specific information before attempting to quantify the various impacts. A reduction in noise might influence a particular species at one site but not at another.

266. A discussion on the potential uses of upland quarries is included in the FEIR, in the alternatives.
267. A River Management Plan can guide a management team as they periodically evaluate alternate objectives, sites, methods, and extraction levels. A comprehensive monitoring program will provide the data needed for these evaluations.
268. The monitoring program will be developed in a separate document.

Elbert Land - Letter No. 22/Response to Comment Number:

269. Correct. The effects of gravel extraction trenches can be expected to vary with river morphology and runoff. Therefore, they will vary from site to site and year to year.
270. Incorrect. Clearing 40 acres of riparian habitat will have an adverse impact on some wildlife. The fact that some species seemed to benefit from such a clearing in the 1960's is evidence that other species were adversely affected by the clearing.
271. Perhaps a supplemental EIR for site 6 can clarify this point.
272. If this site is not going to be used for processing, then the projected impacts due to noise will be much less. The supplemental EIR for site 6 can clarify this point.
273. If this site is not going to be used for processing, then the projected impacts due to noise will be much less. The supplemental EIR for site 6 can clarify this point. An application for a CUP in at the County office indicates this area will contain a processing plant. If those plans have changed the applicant can address those changes before the Planning Commission. If there is to be no processing plant at this site there will be a reduction in noise impact on both humans and wildlife which the applicant can also address before the Planning Commission..
274. The bed at this site is very broad and is difficult to define.
275. See response 270.
276. This was an editorial error which has been corrected in the DEIR.
277. See response 273.

Bill Davis - Letter No. 23/Response to Comment Number:

278. Both the summary and the text have been rewritten to provide a more thorough and consistent description of the project.
279. Both the summary and the text have been rewritten to provide a more thorough and consistent description of the project.
280. The delta may be full of gravel but gravel extraction can still have adverse impacts. The point here is to review alternatives, identify the potential impacts and propose ways to mitigate the adverse ones.
281. There are many estimates of bed load transport for the Eel River and they can vary widely for a variety of legitimate reasons.
282. Gravel extraction does not have to be limited to annual replenishment. That is just one alternative.
283. The FEIR does not propose a fixed allocation between operators. However, gravel extraction may have to be limited in some areas and at some times in order to protect all river resources.
284. See responses 278, 279, 280, 281, 282, and 283.
285. The FEIR does not limit its discussion to one only one proposal for determining annual extraction rates. Where changes in channel morphology are desired the annual extraction rate should be different from the annual replenishment.
286. Your discussion on invertebrates is valid.
287. The vegetation patterns within the channel banks are dynamic. During low flow years the ephemeral community expands. During high flow years the perennial community recedes. The various successional stages, from very early to late all have significance and no single successional stage should be completely eliminated.
288. The riparian plant community is in a transition zone between the aquatic ecosystem and adjacent terrestrial ecosystems. This transition zone naturally expands and retreats with major hydrologic events (droughts and floods). The effects of man have reduced the areal extent of this most significant and diverse plant community. The FEIR does not imply that gravel operators

are the only forces contributing to changes in the extent of the riparian community.

289. It is true that some fishermen, some wildlife species, and some other users are accustomed to the noise and activity that takes place in this region. Others are not.
290. There are sound biological and physical reasons for imposing limits on the period of extraction.
291. There are sound biological and physical reasons for limiting skimming operations in order to maintain channel side slopes above certain levels (2 to 3 %). There are also site specific locations where it may be desirable to have lower side slopes. A management team can evaluate site specific alternatives.
292. Correct. And, perhaps the economic significance of gravel extraction can justify technology that can reduce the noise.
293. It is true. Some people like watching big equipment work.
294. Bridge safety is a consideration. The potential for adversely impacting bridge integrity is present and monitoring must be done to protect against these impacts.
295. The comment is not clear.
296. A section on permits and regulatory agencies has been added to the FEIR for clarification.
297. A discussion on the economic impacts of the project is included in the FEIR. A discussion on upland quarries is also included in the alternatives section.
298. Some discussion on operations outside of the project area was added to the FEIR.
299. The FEIR contains information on these topics.
300. The FEIR now includes all currently known proposed gravel operations in the project area.
301. The County is the lead agency and has prepared this FEIR.
302. These points are covered in the FEIR.

Rising Sun Enterprises - Letter 16/Response to Comment Number:

303. The objective of the Program EIR was to describe all the current and proposed projects and what their potential

effects on the environment could be. The EIR was triggered by an action the Board was requested to take by the Public Works Department. This action was the execution of an agreement to lease the Worswick bar to Seville-Trident Corporation for the annual extraction of up to 200,000 cubic yards.

304. The no-project alternative has been rewritten. It includes all of the currently permitted gravel extraction projects which total 557,000 yards, resulting in a continuation of many of the impacts described in the EIR.
305. Additional paragraphs were added to the FEIR stating that a massive amount of gravel would have to be removed in order to provide significant flood protection. Also, additional information was obtained from various fisheries biologists on the potential effects on fisheries of the current operation.
306. Based on the comments received, we were not able to limit the EIR to impacts on river geomorphology and fisheries. There were concerns stated by Caltrans regarding traffic impacts at various intersections, particularly in the Fortuna area, impacts on the bridge piers of the various bridges, and so on. Some of the environmental organizations were quite critical of the lack of information in the Draft EIR on impacts to recreationists and ease of access to this portion of the river. U.S. Fish and Wildlife Service was critical of the lack of information on species that could occur in this stretch of the river that are candidates for listing as a threatened species.
307. The FEIR contains additional information supplied to us by Caltrans that shows cross-sections taken over the past 40 to 50 years at the Highway 101 bridge over the Van Duzen River. These cross-sections indicate the bed has dropped substantially creating a threat to the stability of the bridge piers. Loss of the Highway 101 bridge over Van Duzen River is considered a potential significant adverse impact on the people of Humboldt County.
308. Some information is known on shipping that occurred on the Eel River 50 years ago. The ships that were used were shallow bottom boats. Photographs of horse carriages crossing the Eel River in summer time indicated that depths at riffles were only two feet deep. It is known that there were deep pools along certain stretches of the Eel River, particularly along the Scotia bluffs. Elevations and cross-sectional information obtained on the Eel River in 1936 and 1942 indicate the depth of pools near Fernbridge and a little bit downstream at Singley were in the 12 to 15 foot range. It is known that all these pools filled in following the floods of

1955 and 1964. What is lacking are profiles of the thalweg and cross-sections along the entire project area tied to U.S.G.S. bench marks taken 50 years ago. That kind of information is necessary to compare current bed elevations with those 50 years ago.

309. Information in the FEIR supports this statement.
310. The Department of Fish and Game is becoming more concerned about allowing skimming at slopes less than 3% based on their experiences on the Mad River. It is known that many heavy equipment operators cannot visually tell what a one foot in 100-foot slope looks like on the bed of the river. They have to have grade stakes to assist them. The Department of Fish & Game in the 1603 negotiations may allow slopes as low as 1.5% based on the performance of the operator in the past. The number of trenches constructed in 1991 versus the number constructed in 1990 versus the number constructed in 1989 may not be germane. The trench dug by Canevari in 1990 and in 1991 filled in during the mild high flow that occurred in late February/March 1991.
311. The noise levels of 60 dBA are about 20 dBA higher than current 40 dBA levels measured on the river bar.
312. The processing plant at Site No. 4 was included in the Draft EIR and Final EIR because it is one of the 13 operations operating within the project area. The noise impact of this particular site has extended all the way to a point downstream of Fernbridge. The noise levels of the plant, when operating, clearly exceed the natural sounds of this stretch of the river. Because this is a wild and scenic river, the environmental organizations and the agencies with jurisdiction consider all unnatural potentially adverse effects to be of significance and have requested that they be included in any environmental analysis.
313. The ambient levels on the river vary from about 35 to 45 dBA depending on one's distance from the freeway, direction of the wind, and nearness to a riffle. In other words, ambient levels on the river consist of natural sounds of that magnitude. Noise as an unwanted sound has been measured on the bars as high as 90 dBA at 50 feet when gravel extraction equipment is in the act of removing gravel. Processing plants generate levels of 60 to 65 dBA, when they are running, at distances of 1,000 feet, which is the distance that a recreationist is most likely to be from many of the processing plants.
314. We agree.

315. Based on new information supplied to us by Caltrans, scouring does appear to be occurring at the piers of the Highway 101 bridges over the Van Duzen River and the railroad bridge. Scouring also has occurred at the southerly edge of the Cock Robin Island Bridge. Caltrans considers the scouring of the piers to be significant.
316. We disagree with the comment and believe that some type of mitigation is warranted.
317. We agree with the comment and have also discovered that shorter trenches may cause the trench to function incorrectly hydraulically at the time the barriers are removed.
318. The annual cost of monitoring measurements have been estimated to run in the realm of \$50,000 to \$75,000 if all 13 sites were active. It has been recommended that a surcharge be charged on each ton or cubic yard removed from the river to generate the necessary funding. Some operators desire to do their own monitoring and do not wish to enter into an agreement whereby one consulting firm would do all of the monitoring for the entire stretch of the Lower Eel River.
319. The alternative section of the summary has been completely re-written.
320. It is becoming increasingly difficult to remove gravel from certain stretches of rivers in Humboldt County due to over-mining. Fishery biologists fear that mining of the rivers with no regard for rates of replenishment could lead to certain levels of river bed dropping down to the point where there is nothing but bed rock, such as occurred on the Russian River. Therefore, they feel that gravel should be treated as a natural resource that has a finite limit. It is almost impossible to make gravel from an upland quarry. Gravel must be created through miles of sorting and tumbling during floods and this process is difficult to duplicate in a crushing operation. The information in paragraph 2 on page 27 was incorrect in that the annual average of bed load per year should have been 199,424 cubic yards.
321. The Program EIR was intended to cover all 13 sites in the project area, not just the Worswick bar near Fernbridge owned by the County.
322. It is difficult to respond to this comment. It was not intended that the document would in any way jeopardize the rights of existing land owners. The mission of the EIR was to describe the projects and their potential effects. In reviewing comments received from agencies

with jurisdiction, it was found that many more concerns were not met in the Draft EIR. This is why the FEIR is considerably expanded.

323. The fourth paragraph on page 37 was not included in the summary because it was not a significant adverse effect. The seventh paragraph on page 37 has been added to in the FEIR. The sections do indicate that scour has occurred and that the bed has lowered, endangering the bridge piers of this bridge.

The third paragraph on page 38 is a statement of fact. 1990 and 1991 measurements at Cock Robin Island indicate serious scour has occurred along the south end of the bridge.

The sixth paragraph on page 39 is a statement of fact and therefore was not included in the summary.

The sixth paragraph on page 47 contains information on the positive and adverse effects of trenching. It is probably a matter of opinion as to whether this detailed information needed to be included in the summary.

Paragraph four on page 59 is a statement of opinion based on discussions with the Department of Fish & Game. Recent underwater investigations of trenches that were dredged on the Mad River would indicate that the impacts of trenches on fishery habitat may be significant. It was discovered that fish were not using them and that the substrate was covered with 1" to 1.5" of fine clay and silt.

The U.S. Fish and Wildlife Service vigorously disagreed with the statement made in the first paragraph on page 62 wherein it states that the 11 birds of concern have survived some 30 years of gravel extraction impacts. This paragraph has been re-written in the FEIR to reflect the lack of documentation to support this statement.

Paragraph eight on page 63 contains a discussion of riparian vegetation. The conclusion in this paragraph was challenged by biologists of the Corps of Engineers based on the fact that no inventory has been made of the populations and movements of wildlife in the riparian area. Therefore, the paragraph had to be re-written in the FEIR.

The sixth paragraph on page 67 is a statement of fact and it was our opinion that it did not need to be restated in the summary.

Paragraphs one and three on page 71 are details related to Site No. 7 and we felt they should not be restated in the summary.

The fifth paragraph on page 79 relates to the enhancement of the estuary as a result of gravel extraction upstream. We still believe this to be true, but it was learned during preparation of the Final EIR that the grain size of material covering the substrate in the estuary is too large to be moved by tidal currents. Until a significant flood occurs, it will not be clear whether that larger grain material will move out of the estuary.

The sixth paragraph on page 79 relates to the potential effect of local beaches near the mouth of the river resulting from removal of gravel from the Lower Eel River. This is a secondary effect of gravel extraction that is of concern to the endangered species section of U.S. Fish & Wildlife Service. We felt it was enough to place it in the EIR and that it did not need to be mentioned in the summary.

The last paragraph on page 79 has been expanded and it is a matter of opinion as to how much of this needed to be placed in the summary.

324. We have no information on other sites in the Eel River Basin in Mendocino County nor Lake County.
325. The rest of the operations in the Eel River Basin within Humboldt County's borders were added to the Final EIR.
326. The data contained in this table was received from the Planning Department. Regarding Coastal Development Permits from the State Coastal Commission, our discussions with the attorney for the Commission informed us vested rights granted by a county do not transfer to the State. In other words, if you have vested rights given to you by a county that does not relieve you from requirements of obtaining either a Coastal Development Permit or filing for vested rights to the State Coastal Commission. Regarding Sites No. 1 and No. 5 not being required to get a Stormwater Pollution Permit, we were not aware whether the Regional Water Quality Control Board considered these operations to have discharges. In regard to Site No. 1 it is obvious there is no discharge, but Archie Mathews in charge of the program in Sacramento told us that a letter needed to be sent to him regarding that site stating there was no discharge.

The reason the table shows that permission from State Lands Commission is required for Sites No. 1 and No. 2 is that it is the opinion of the Commission. You are correct that it is contrary to that stated on page 50

which states that the County does not believe it needs any permission from State Lands Commission because the land was not State land when California became a State.

In checking with some of the State and Federal agencies, they felt that operations on the Lower Eel River that did not now have permits from those agencies will be required to obtain them. Therefore, we did not eliminate these permit requirements from the table for those operations which need to obtain various permits.

327. We agree.
328. We stand corrected.
329. Okay.
330. We agree, and the second paragraph reads, "The processing plant would be portable as this is within the Eel River floodplain."
331. Yes.
332. The calculations regarding bedload include all materials taken from the riverbed.
333. About three days.
334. Moderate flows with relatively clean water would not develop the necessary shear stress on the bed of the river to move large cobbles and rocks. The finer material tends to be removed from the interstices of the larger rocks forming a river bed pavement which is the type of substrate that forms good spawning beds.
335. Most of this hydraulic analysis by Dames & Moore was removed from the Draft EIR while we were preparing the Final EIR. This was at the request of several agencies that felt the method of calculation utilized was not appropriate for trying to predict what kind of bedload movement and bed elevation changes would occur through the seven to eight mile stretch of the project area.
336. It is our understanding these figures included sand.
337. Reports being referred to are those prepared over the years by the Department of Water Resources, Corps of Engineers, Department of Fish & Game, U.S. Fish & Wildlife Service, along with various masters thesis.
338. This is still a valid assumption.
339. We agree.

340. This section has been re-written in the final EIR. There are concerns regarding some birds, the red-legged frog, the foot-hill yellow-legged frog, northwestern pond turtle, and western snowy plover.
341. The paragraph states that north coast riparian forests may be possibly threatened in the eyes of the Department of Fish & Game's natural diversity data base staff. The paragraph does not say that riparian vegetation along the Eel River is threatened. The riparian vegetation along Eel River is north coast riparian forest. The paragraph is basically a statement of fact and notes that in order to determine whether north coast riparian forest are threatened more information is needed.
342. Species utilizing the riparian vegetation and riverine habitat such as the osprey are affected by gravel operations when gravel operations occur. The reason the western snowy plover has not been listed as a threatened species is because the U.S. Fish & Wildlife Service has not completed the process they must follow in order to place a species on the list. We do not know when J. Sterling sighted the snowy plover on the gravel bar below Fernbridge, but have been trying to reach him. We did talk to Stan Harris about it. It is relevant to the discussion in that the U.S. Fish & Wildlife Service endangered species section indicated their concerns and comments on the Draft EIR regarding this situation.
343. The use of the phrase "minor air pollution" defined a level of pollution generated in an area that was very minor. In discussing this with the staff of the North Coast Unified Air Quality Management district, they agreed that it was minor and below a level of significance. In fact, the only place in Humboldt County that air pollution is considered higher than that acceptable to the National and State standards is in Eureka and relates to particulate matter. This section of the EIR was expanded.
344. The cumulative impacts of noise levels is covered because of the length of the river impacted. Eleven operations all occurring at once between the mouth of the Van Duzen River to a point one to one and a half miles below Fernbridge essentially eliminates that stretch of the river during the summer recreation season from producing a so-called quality passive recreational area. This conflicts with the wild and scenic designation and the values for which the river was designated. The document is saying that increased activity over that which occurs through this stretch, has the potential for causing a cumulative effect on the current noise levels. Noise levels included in the report are taken from actual noise readings taken near the equipment and then reduced

according to the accepted drop of 6 dBA for each doubling of the distance. Attenuation factors were considered in predicting noise levels at the exterior wall of occupied residences plus noise levels received in the interior of the houses with windows open and closed.

345. Highway 101 creates a steady noise level in the eyes of Caltrans. The processing plants and equipment add to that steady noise level. We were not aware that a noise study was conducted for a project located along this stretch of the river and that a public hearing was held by either the Board of Supervisors, Planning Commission, Fortuna Planning Commission, or Fortuna City Council.
346. The receivers in the area are human beings, animals and wildlife.
347. No response necessary.
348. Ships were able to go up the river past Fortuna 40 to 50 years ago during high flow in very shallow draft boats that were quite small. This was prior to the massive amounts of material that moved down into the river following clear cutting and burning of thousands of acres of the watershed of the Eel River Basin. As we have no cross-sections prior to 1910, it is difficult to tell what the river channel actually looked like prior to that time. It is surmised that much of the gravel that came down is stored in the area where the channel ranges about 6,000 feet wide opposite Site No. 6.
349. Caltrans believes these changes do reflect gravel that has been removed from the bed of the Eel River immediately downstream of the mouth of the Van Duzen River.
350. We do not have any detailed cross-sections taken immediately after the 1964 flood.
351. It is true the river aggraded from two to 14 feet due to the flood that occurred in 1972; however, in 1992, the bridge suffered from severe scour along the south side.
352. We agree.
353. We agree.
354. We do not believe it is necessary to place this statement in the summary. However, it surely indicates the amount of riparian habitat roughly 40 years ago was less than it is today. The section of riparian vegetation was added to in the Final EIR.

355. The comment contains data that is different than that which we received from the staff of the Coastal Commission.
356. We agree, and have re-written the entire section regarding stormwater pollution prevention plans, permits, etc.
357. We agree.
358. This paragraph was challenged by the Corps of Engineers and had to be rewritten. They felt that no hard data had been presented regarding the benefits of trenching.
359. We agree with the comment.
360. No response necessary.
361. No response necessary.
362. See comment letter number three from National Marine Fisheries Service.
363. Staff of the Environmental Branch of the Regulatory Division have not made a determination to date on the significance of the cumulative impacts of the eleven projects.
364. We agree.
365. The proposed gravel removal is the 923,000 cubic yards proposed to be removed within the project area. It does not include the 557,000 cubic yards currently under permit.
366. There is no mention of the width of the river mouth in paragraph three referred to in this comment.
367. The effect of constructing the levees back in 1959 has obviously changed the aesthetics of the stretch of the Eel River from the mouth of the Van Duzen River to the Mercer Frazer operation.
368. Past gravel extraction prior to about five years ago occurred sporadically and not anywhere near the volumes occurring during the last five years nor those proposed. Even though the low flow river bed morphology appears similar to that which occurred in 1940, detailed cross sections would have to be taken and compared to cross sections taken in 1940 to prove whether the overall bed elevation has been lowered significantly, particularly over the last five years.
369. We agree.