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CALIFORNIA TROUT

KEEPER OF THE STREAMS

April 20, 1992

Mr. Donald C. Tuttle, Manager
Environmental Services
Humboldt County Department of Public Works
1106 Second Street
Eureka, CA 95501-0579

RE: DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT ON GRAVEL REMOVAL FROM THE LOWER EEL RIVER

Dear Mr. Tuttle:

California Trout submits the following comments on the Draft EIR on Gravel Removal from the lower Eel River. Additional comments from California Trout's Streamkeeper, Mr. Fred Neighbor, are being submitted in a separate letter, and this letter incorporates those comments by reference.

California Trout is a non-profit, charitable, conservation organization with 4,200 dues-paying members and sixty three affiliated angling clubs statewide. Several hundred of our members reside within twenty-five miles of the project area identified in the DEIR, and these members, in addition to our San Francisco Bay Area members, recreate extensively on the Eel River, both in the project area and in tributaries upstream from the project area.

Since the 1960s California Trout (CalTrout) has worked to protect and restore wild trout, native steelhead, and their waters in California, and to provide high quality angling for the public's enjoyment. CalTrout has been especially active on the Eel river since it galvanized efforts to defeat the proposed Dos Rios Dam in the late 1960s. Most recently, in February 1992, California Trout co-sponsored with the American Fisheries Society and the California Department of Fish and Game a symposium on the environmental threats facing the Eel River.

CalTrout is concerned about the proposed project's possible impact on the integrity of the river channel. The reaches of the Eel and Van Duzen Rivers in the project area serve a variety of purposes that are key to the survival of salmonids in this area. These purposes include providing a migration corridor for salmon and steelhead, holding areas for adult fish returning to spawn upriver, and rearing areas for juvenile fish that may spend up to two years in these reaches before migrating out to the Pacific Ocean.

CalTrout is not categorically opposed to the extraction of

gravel from riverine areas. CalTrout is opposed to the removal of gravel from streams when such operations place the integrity of the stream channel in jeopardy, and thus pose a threat to salmonids that reside in the stream. It shouldn't need pointing out that California's anadromous salmonids are in the historically most depressed state ever. In the face of the recent closure of the commercial salmon season on the North Coast it would be insanely irresponsible to permit any land use activity that threatens salmon and steelhead populations.

In theory it is possible to extract gravel from a stream and not upset the delicate balance between stream flows and the quantities of bedload that over time have defined the river system that is used by salmonids. This theory is, however, quite general and in need of substantial corroboration by scientifically appropriate empirical data. CalTrout believes the County of Humboldt has not provided such data in the DEIR; in fact it is this organization's opinion, based on discussions with at least two expert fluvial geomorphologists, that there is still no consensus among the experts about an accurate method for assessing the potential to extract gravel instream on a sustained yield basis. 159

CalTrout believes the repeated references to the Dames and Moore report are scientifically inappropriate for the purpose of analyzing the annual recruitment of gravel. The purpose of the Dames and Moore report was to provide a worse case scenario for scouring flows with respect to the placement of a pipeline in the river bed. The Dames and Moore report makes assumptions based on a statistically spurious extrapolation of the 1964 flood event to postulate volumes of water in 100 year events which CalTrout finds extremely unlikely. The overall effect of the DEIR's application of the Dames and Moore data is to exaggerate the Eel River's potential gravel supply rate, and, at the same time, underestimate the effects of instream gravel extraction. 160

CalTrout also finds the putative benefits from instream gravel extraction operations to the Eel River estuary spurious, even misleading. The DEIR fails to substantiate a functional relationship between the gravel extraction operations and the enlargement of the tidal prism. 161

CalTrout suggests that the County has put the cart before the horse in the preparation of this Programmatic DEIR. Modeling (as opposed to the mere reuse of the inappropriate Dames and Moore data) should have been done and included in the DEIR. It would be wrongheaded to programmatically approve permits for instream gravel extraction and expect to amend those permits contingent upon future information. (Not to mention that the monitoring proposed is not extensive enough to be of any value. Cf. Dunne, Thomas & William Dietrich, Neil Humphrey, & Donald Tubbs, "Geologic and Geomorphic Implications for Gravel Supply", in Salmon Spawning Gravel: A Renewable Resource in the Pacific Northwest? Pullman, 1981.) 162 163

In closing California Trout strongly recommends that the

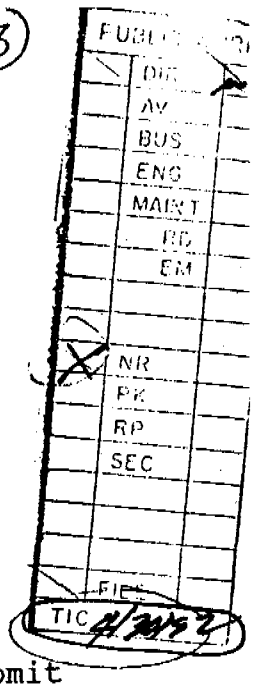
County extend the period of public review of this document, and submit the document to peer review by experts in the fields of fluvial geomorphology, hydrology, fisheries biology, and riparian ecology. California Trout will be glad to help the County in identifying experts in these fields. CalTrout is concerned that not enough talent is being focused on a programmatic document that could make, break or do nothing for the Eel River. The anadromous fisheries of Eel River are simply too valuable a resource to be compromised by land use practices permitted with too little useful information. 164

California Trout thanks the County of Humboldt for this opportunity to submit these comments.

Sincerely,

James Hamilton
Conservation Director

(13)



CALIFORNIA TROUT

KEEPER OF THE STREAMS

April 20, 1992

Mr. Donald Tuttle
Environmental Services Manager
1106 Second Street
Eureka, CA 95501

Re: DEIR for Gravel Removed From the Lower Eel River/Van Duzen River

Dear Don:

California Trout appreciates this opportunity to submit comments regarding the above-referenced project. We know you have personally put great effort into this matter. We commend your effort, given the time constraints, financial constraints and the political climate in which you've had to work.

At the onset, we want to emphasize the importance of the Eel River as an anadromous fishery resource. It was primarily for this value that it was designated a Wild and Scenic River by both the federal government and our state. It hosts the largest run of summer steelhead in California in it's middle fork reach, which for years has precariously hovered at a population between 500-1200 fish. The project section of the Eel River is historically one of the most frequented angling areas for salmon and steelhead in our state. In the late 40's and early 50's, this portion of the Eel River was nationally famous for its fantastic sport angling. In 1980 your own Department deemed the annual value of Eel River King salmon alone to our local economy, in excess of $22 million dollars. Add in the steelhead sport angler's costs, and this figure would go up considerably.

For many reasons, the anadromous salmonid fishery has recently experienced serious declines. We no longer have the luxury or "cushion" of sheer numbers of fish when assessing adverse impacts. It's come to a point when any number of "straws" can break the camel's back. It is with this in mind that we offer our comments.

I. PROJECT DESCRIPTION.

An accurate project description is the "sine qua non of an informative and legally sufficient EIR." (County of Inyo v. City of Los Angeles, 71 C.A. 3d. 185, 193) The DEIR description of the project lists eleven gravel operations as the components of the project and the volumes of extracted material from each site. We question the accuracy of the stated volumes. For site "2", the DEIR lists 200K cubic yards, however, we are aware that the County

165

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has recommended approving extraction of volumes of up to 350K cubic yard for this site. Similarly, we understand that Mr. Hansen, at site "8", has requested a vested right for extraction of 100K cubic yards. We question the validity of the volume for site "4". In light of the fact that this site is being operated without any county or state use or SMARA permits, we have reservations as to the stated amount. 166

Further, the DEIR fails to include Arcata ReadiMix's proposed extraction on Singley Bar for the amount of 150K cubic yards. These projects alone account for additional extraction volumes in excess of 300K cubic yards of the volume stated in the DEIR. 167

The project description and related impact assessments should also account for reasonably foreseeable future phases of proposed projects. (Laurel Heights Improvement Association of San Francisco v. Regents of the University of California., 47 Cal. 3d. 376) As indicated by the recent application by Arcata ReadiMix, which has had to seek new sources of river gravel due to the conditions on the Mad River, it is reasonable to assume that there will be more gravel projects planned for the Eel and Van Duzen River systems. Only four years ago, Eureka Southern applied for a permit to extract 1 million cubic yards of gravel from the Eel River. Most recently the County entertained bids to lease the Worswick Bar for extraction of gravel which required that it be sold and transported out of the County. We feel that the DEIR is deficient in addressing these reasonable developments. 168

The project description is unclear as to the amount of water that the processing operations utilize. In one section the DEIR states such plants will use 200 gallons per hour and at another, 200 gallons per minute. This should be clarified as the discrepancy has significant environmental repercussions. 169

We feel that the DEIR is silent as to what the lifetime of this project is. We realize that the lifetime is linked to the hydraulic dynamics of the river, but essentially, there is no discussion about the time parameters of this project. 170

We also feel that haul routes and associated truck and equipment transportation has the potential to adversely impact access to the river and the recreational benefits of the river. In this regard we feel that the DEIR has inadequately assessed the magnitude of traffic impacts (particularly in the riverine environment). Page 65 of the DEIR estimates 200 trucks per day for site "6" alone. Arcata ReadiMix's proposal estimates 75 trips a day. Thus, from only 2 components of the project, almost 300 trips per day are generated. This amount is substantial and requires further assessment. 171

II. ENVIRONMENTAL SETTING.

Of critical importance to this project is a valid assessment of gravel recruitment in the project area. The project extraction volumes are all based on certain assumptions of what the river will yield. Overestimating the river's potential could result in significant adverse impacts. Further, the Humboldt County General Plan specifically requires that instream gravel extraction be undertaken on a sustained yield basis. While the term "sustained yield" is not further defined by the General Plan, the plain meaning of the term would require extraction volumes equal to what is recruited to the harvest areas. As stated by the Department of Conservation's Division of Mines and Geology..."Given the present state-of-the-science of river gravel management, avoidance of significant impacts can best be attained through a sustained yield approach to aggraded gravel...". (Letter to Don Tuttle, 3-27-92.)

Despite the County's General Plan mandate, the DEIR appears inadequate in addressing the issue of "sustained yield". The DEIR relies on criteria from a Dames and Moore study which was used to assess "scour" potentialities regarding the ARCO gas pipeline. It was never intended that this criteria would serve as a formula for determining bedload supply and gravel replenishment amounts. Nevertheless, this study seems to be the primary substantive basis for the DEIR's description of the river's potential to deliver harvestable gravel to the project area. We feel that your reliance on this report has the potential to result in adverse impacts. Much more definite studies are necessary to establish what is actually happening as far as recruitment of harvestable material. We are particularly concerned that other existing studies are not consistent with the apparent conclusions of the DEIR. While Harvey Kelsey's study of 1977 is cited, its substantive findings are not discussed. Dr. Kelsey concluded that..."Destructive storms such as December 1964 are infrequent events. The peak runoff of 1964 flood has a recurrence interval of approximately 100 years (Helley and La March, 1973) but the slope and channel changes caused by the 1964 storm and flood recur less frequently...Hence it appears that major landslide-triggering and sediment transporting storms on the north coast have a recurrence interval of approximately 200 to 600 years...(p. 335, Landsliding, Channel Changes, Sediment Yield and Land Use in the Van Duzen River Basin, North Coastal California, 1941-1975, Harvey M. Kelsey, 1977). This conclusion, that sediment transport occurs very infrequently, is further reiterated in a study by Robert H. Hawkins, (1982) wherein the author states, "...The result of this study indicate a large portion of geomorphic work in northern California coastal streams is accomplished by relatively infrequent flows." 172

The DEIR needs to assess with much more specificity the potential of infrequent gravel recruitment. Based on the final EIR, and other documentation, the operators will be granted permits entitling them to extract what appears to be definitive amounts of 173

gravel. The economics of the gravel business will make it very difficult for operators, three or four years from now, to substantially cut back in their operations, should the river fail to provide sufficient recruitment. Therefore, the DEIR needs to expand it's technical assessment and discussion of "sustainability". The CEQA Guidelines at 15125 subd.(b), state that if a particular project is inconsistent with a county's general plans, its impacts would normally be considered significant. Because the DEIR does not provide adequate information to support a finding that the component projects are harvesting at a "sustainable" level, the associated impacts must be considered "significant". 174

III. UNAVOIDABLE SIGNIFICANT ENVIRONMENTAL EFFECTS.

A DEIR must describe those significant adverse environmental impacts for which either no mitigation or only partial mitigation is feasible. Where the only means of avoiding such impacts would be to impose an alternative design on a proposed project, but the lead agency nevertheless decides not to require such design changes, the DEIR must describe the implicatioans of impacts involved and the agency's reasons for choosing to tolerate them rather than requiring the alternative design. (CEQA Guidelines, Section 15126 subd. (b)).

The DEIR identifies as an effect which cannot be avoided "...the potential for long term lowering of the bed of the river...". While the DEIR only assesses this effect in terms of man-made structures, there is documentation which substantiates that bed degradation can impact the water quality and fisheries of a river. 175

The DEIR fails to discuss any meaningful mitigation for bed degradation and/or the County's reasons for choosing to tolerate "bed degradation" rather than requiring an alternative design. This failure of the DEIR, again stems from the failure of an adequate assessment of whether the proposed extraction volumes are in harmony with recruitment rates. 176

In essence, what the County is implicating, is that current information is either non-existent or inadequate to assess the impacts of the project and that further (after approval) studies are necessary. The deferral of environmental assessment until after project approval violates CEQA's policy that impacts must be identified before project momentum reduces or eliminates the agency's flexibility to subsequently change its course of action. (Sundstrom v. County of Mendocino, 202 Cal. App. 3d. 296) Given the precarious condition of the Eel River anadromous fishery, it would seem prudent that all potential adverse impacts should be assessed now. 177

IV. FISHERY HABITAT AND THE FISHERY OF THE EEL RIVER.

The Heritage Conservation and Recreation Service, in its 1980 evaluation report on the eligibility of five California rivers, commented that..."the Eel River is an outstandingly remarkable anadromous fishery...The main Eel is especially important for providing the migration route to the middle fork of the Eel for the largest spring-run of steelhead in California." (P. II-27) "...The Eel River estuary and adjacent lands are especially noted to be excellent wildlife habitat...". (P. II-28)

It was primarily for its value as an anadromous fishery that the Eel River was included in both the state and federal Wild and Scenic River Systems. However, since its inclusion, the anadromous runs have precipitously declined. The AFS report of 1991 (Nehlsen, et. al.) lists all species of anadromous salmonids of the Eel as "stocks of concern", with the Van Duzen and the North Fork Eel summer run steelhead listed at a "high risk of extinction". Given these conditions, and the unique status of the Eel and Van Duzen Rivers (Wild and Scenic designation) we feel that potential adverse impacts to the fishery must be thoroughly assessed. We do not feel the DEIR has presented a thorough assessment. | 178

The DEIR states that Chinook runs are estimated at 103,000 fish and Coho at 42,000. Are these figures historical estimates? What is the current estimate of these fish populations? | 179

The U.S. Forest Service has deemed the summer run Middle Fork Eel steelhead as a "species of concern". The California Department of Fish and Game has enacted special regulations to protect these fish. The DEIR devotes all of one sentence to this critical stock. | 180

I know from personal experience and discussion with other anglers, that summer steelhead are caught in the area between the mouth of the Van Duzen and 12th Street hole, as late as July. Thus, these fish are moving though the project site during the period of peak operation. What potential impacts are there in this regard? | 181

We feel that the DEIR's statement that the lower Eel is of "little significance for spawning..." (P. 29) is without substantiation. Where is the authority for this conclusion? Despite current fishery conditions, did the lower Eel historically provide spawning habitat? This question needs to be assessed as it is the policy of our state to enhance all our anadromous fisheries. Also, the project area includes two projects, #10 and #11, which by California statute are deemed to exist in a "spawning area". (Fish and Game Code Section 1505 includes those areas above Yager Creek on the Van Duzen River as salmon spawning areas.) Thus, the DEIR's conclusions are erroneous with respect to these areas. | 182 | 183

Recent field assessments on the Smith River indicate that spawning takes place in the main Smith River below Dr. Fine Bridge and down to the mouth of Rowdy Creek (Pers. Com. with Dr. Bill Trush and Dr. Terry Roelofs). For a long time the general consensus was that the lower Smith was also nothing but a "migratory route". But these recent findings challenge this assumption. More evidence is necessary to document the DEIR's conclusion that no significant spawning occurs in the lower Eel River. 18'

We also have serious reservations regarding the DEIR's treatment of downstream smolts and their utilization of the river in the project area. Studies contradict the DEIR's conclusion that smolts, like adults, only utilize the project area as a migration route. Steelhead have been found throughout the summer in the riverine habitat at the top of the tide water on the Eel (Puckett, 1977). Murphy and DeWitt (1951) found that steelhead remained in residence in pools and riffles below the Van Duzen. Chinook showed a peak in abundance in the riverine subsystem in June and July (Puckett, 1977) during outmigration. Murphy and DeWitt (1951) describe schools of 50-100 chinook feeding in Singley and Dungan pools throughout the summer.

This information would indicate that the project area may serve as an important component in smolt rearing. It may therefore be important to provide suitable habitat and food sources in these areas. The DEIR fails to assess this matter. Particularly in light of recent extraction by trenching and the future prospect of "pitting", an accurate assessment of smolt utilization of this project area is critical. 18.

It is our understanding that squawfish have been found as low as tidewater in the Eel River. Thus, it's very likely they would utilize the project area in suitable habitat areas. We are concerned that trenching or pitting extraction would result in creating still/warm water habitat which is preferred by the squawfish and remove riffles and runs. We think this potential impact needs more assessment. 18(

V. WILD AND SCENIC RIVER STATUS.

In 1980, the Eel River was included in the Federal Wild and Scenic Rivers System. At the time of inclusion it was mandated that "the values which cause the river to be qualified for the National System must be assured of permanent protection and management by or pursuant to the state statute...the state must adopt a program of action which will provide permanent protection for the natural and cultural qualities of the river...". (DEIS for Inclusion of Five Northcoast Rivers, U.S. Dept. of Interior, 1980). Specifically, the state statute requires that..."no department or agency of the state shall assist or cooperate, whether by loan, grant, license or otherwise with any department or agency of the

federal, state or local government, in the planning or construction of any dam, reservoir, diversion, or other water impoundment facility that could have an adverse effect on the free-flowing condition and natural character of the river segments designated in 5093.54 as included in the system." (Public Resources Code Section 5093.56)

It is clear from the project description and the various extraction methods used by the gravel operators, that trenching, pitting and even skimming result in a man-made diversion and to some extent impoundment of the river. Certainly these operations alter the free flowing and natural character of the Eel River. 187

Particularly in permitting trenching and pitting, we feel the County, as a state agency, is violating the provisions of the Wild and Scenic Rivers statutes. 188

Clearly, trenches over 1,000 feet long, to which the river flow is intentionally diverted constitutes a man-made diversion. The active/natural river channel is left high and dry. The flora and fauna of the active channel die off and the river is funneled through a sterile trench. This activity seems to strike at the heart of Wild and Scenic River law and policy. The DEIR fails to assess in a meaningful way this issue. It can be argued that the mere preparation of the DEIR which contemplates the permitting of trenching and river diversion is illegal under Wild and Scenic River law. 189

In this same vein, the State Constitution grants the public a constitutional right to fish in all the waters of the state and a corresponding right of access over state lands to get to the water (State v. San Luis Obispo Sportsman Ass'n., 22 Cal. 3d. 440). California Trout has long been an advocate of the public's right to fish. We feel that under various scenarios, in which all the component operations of the project were operating at full capacity and utilizing trenching and/or pitting operations, that such operations in themselves would impede the public's implied right of access to the river. The public has a right to fish the natural river. By diverting the river into trenches and/or pits, this right is significantly impaired. The DEIR needs to assess this. 190

Thank you for your consideration in reviewing these comments.

Sincerely,

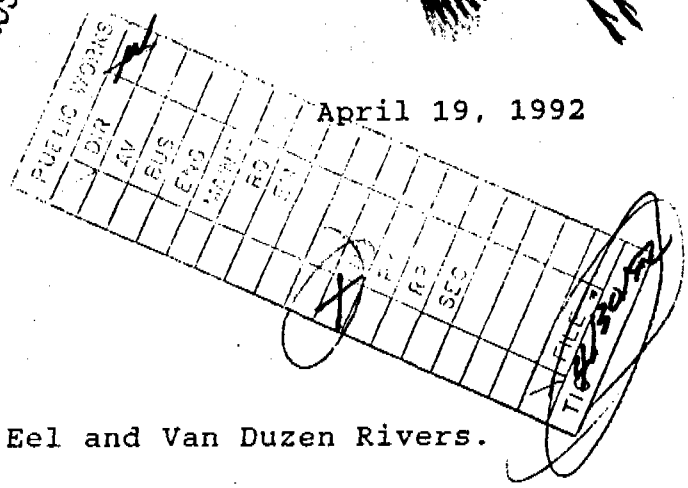
Fred Neighbor

Fred Neighbor
California Trout

(14)

REDWOOD REGION AUDUBON SOCIETY

P.O. BOX 1054, EUREKA, CALIFORNIA 95502



April 19, 1992

Mr. Don Tuttle
Natural Resources Division
Humboldt County Public Works Department
1106 Second Street
Eureka, CA 95501

RE: DRAFT EIR, Gravel Removal from the Eel and Van Duzen Rivers.

Dear Mr. Tuttle,

Thank you for providing the RRAS with copies of the program DEIR for Commercial Gravel Removal Operations on the Lower Eel River. We are cognizant and appreciative of the amount of work that went into this project, and the information that was assembled, given the imposed constraints of time and money. Our remarks are loosely organized under the following topics: 1. Adequacy of scope; 2. Data analyses, Inconsistencies & Assumptions; 3. Mitigation Measures; 4. Alternative Projects; 5. Signficant & Nonsignificant Impacts.

1. ADEQUACY OF SCOPE

One of the primary purposes of a Program EIR as contrasted with an individual project EIR is supposed to be its ability to concentrate on a project's "long-term cumulative impacts." Towards this end it should try to avoid minimizing the cumulative impacts and minimizing the number and intensity of projects likely to occur under its purview. This DEIR significantly understates the potential amount of gravel mining on the Eel River in the near future. | 19

First, it fails to include a major project currently being considered for approval by the Planning Department (Arcata ReadiMix) for an estimated 150,000 cubic yards annually. Secondly, the high bid for the lease at the County's Worswick Lease site that was proposed for acceptance on 11/22/91 was for 325,500 cubic yards, not 200,000. Two hundred thousand cubic yards was the advertised minimum bid acceptable, a maximum amount was not specified. In the not too distant past, the County has contemplated even greater extraction amounts than 325,000 cubic at this particular site, and even now reserves the right in their bid contracts to mine quantities in addition to whatever figure the lessee removes. | 19

Some additional small discrepancies have been noted which in combination with others that have undoubtedly been overlooked may add up to significant amounts. For example, Charlie Hansen is requestin a vested right determination for an annual 100,000 cubic yards rather than the 75,000 cubic yards indicated on page 15 of the DEIR, and Pacific Lumber is requesting an exemption from SMARA and a County Use Permit for extraction of an unspecified amount of gravel from sites on the Eel near Scotia.

2. DATA ANALYSES, INCONSISTENCIES & ASSUMPTIONS

On page i. of the summary it is stated that "If all seven of the gravel processing plants were operating at once, this would require 0.052 cfs, which is equal to about 0.05% of the low summer flow occurring in this particular stretch of the Eel River." while on page 10 it is stated that "The water demand can reach 200 gallons per minute which equals 0.4456 cubic feet per second. ...this would equal 3.12 cubic feet per second which represents about three percent of the low summer flow volume in that portion of the Eel. River. In addition to the sizeable discrepancy in numbers, the important topic of potential effects of the water withdrawals on the fisheries is not addressed at all, either with original collected data or citeable references.

page ii. There are no assessments of how many years extraction can occur at the projected levels of 1,220.000, or the more realistic projections of 1,500.000 to 2.000.000, at current conditions before the integrity of the bridge piers would be endangered. This is a serious omission, as it would be an important safeguard and ingredient in determining the extent and duration of any County issued extraction permits or contracts. To admit that the problem is foreseeable, yet suggest that the only feasible or best mitigation measure is to study and monitor it further, is inadequate.

page ii. The potential impacts on fishery habitat from skimming operations is seriously understated. Continued skimming operations are likely to have a significant effect on channel morphology and flow depth. And although it may not have a direct impact on that particular season's low flow channel, it is highly likely to be affecting the low flow channels of subsequent years. I would think that potential effects of this nature had been reasonably well documented in Collins, Brian and Dunne (1990) and elsewhere

The possibility that deeper pools, and enhanced habitat in the gravel operating areas would or would not improve the overall fisheries of the Eel is a topic that is unfortunately given scant treatment in this DEIR, although at several points it is noted that the Calif. Dept. of Fish & Game think that it might have an enhancing effect. Is there no extant data which weigh the probabilities in one direction more so than another in your estimation?

Is there a possibility that the channel through this stretch of the river would be more highly used if in fact it were better habita and what contribution are or could the gravel operations be making to either degrade or enhance this possibility? Throughout this DEIR,

this important question (given project objective #5) is avoided. Perhaps the data bearing directly on the question is poor and sketchy, but then its deficiencies should at least have been addressed and remedial suggestions for data collection bearing directly on habitat values noted. Addressing the question directly, and with supporting data would appear to me to be essential. For example, the DEIR proposes no informed guesses or estimates of whether gravel extraction by trenches will enhance or impact fishery habitat, suggesting that until a significant storm comes along it will be impossible to say even if gravel recruitment occurs or not. Sadly, unless a proposal for measuring impact on habitat values independent of simple gravel recruitment is proposed in this EIR and subsequently used, it will prove to be impossible to estimate impact values on habitat even after the expected significant storm and large flow event. Gravel recruitment figures are not a simple one-on-one correlate for habitat value, but throughout this report they seem to be treated as if they are.

In addition, data from sources not cited in the DEIR indicate that the habitat value of this section of the Eel River was not always simply a passageway to somewhere else for anadromous fish. Higgins (1991) indicates that Murphy and DeWitt (1951) described schools of 50-100 juvenile Chinook feeding in Singley pool throughout the summer. Steelhead were reported as resident throughout the summer in the stretch between the estuary and the mouth of the Van Duzen. By 1977, however, schooling and feeding yearling Chinook were no longer reported to be using these pools after downstream migration in early summer. And early outmigration of salmon juveniles is known to have a very substantial and deleterious effect on anadromous fish survival in the ocean.

Higgins also reports that Eulachon may have used the lower reaches of the Eel river for spawning when clean pea gravel substrates were more extensive or abundant in the area. Is there no possible or potential linkages between gravel extraction in the lower reaches of the Eel and the presence of clean pea gravel substrates in the lower reaches of the Eel River for Eulachon? Impacts on possible, potential, or historical sturgeon spawning are also totally ignored in this DEIR.

Inconsistency ---- pg. iii. "Each year ....various types of annual plants grow sporadically on the gravel bars. There are about 2,700 acres of dry gravel bar with this type of vegetation between the mouth of the Van Duzen and mouth of the Eel River. Seven out of the nine operations on the Lower Eel River could conceivably disturb up to 105 acres of this type of vegetational community. This represents about 4% of the existing."

First we believe that the characterization of this habitat as merely places where annual plants grow sporadically is to misunderstand the dynamics of succession and natural changes in the morphology of rivers. Second the figures do not square with the facts. For example, on page 27 of the DEIR it is indicated that some 200 acres are likely to be disturbed in a skimming operation in a single year by just one of the proposed operations (Worswick Bar). By itself this is double the acreage figure quoted above.

Semantics --- At times this DEIR seems to be bending over backwards to avoid describing and labeling a significant impact in a neutral and easily understandable fashion. A good example occurs in the summary (iii). In that section, noise levels generated by gravel operating plants are described as "not enhanc(ing) the riparian area adjacent to them ...". The issue of enhancement is clearly not appropriate in this context, the issue of a significant negative impacts are. 20.

Overall gross gravel recruitment seems to have been placed in a pronounced central position in this DEIR. Although it is an issue of importance, it's central position may be somewhat overemphasized, because at best it only defines the parameter of absolute maximum amounts available for extraction. It says nothing about where gravel and sand could best be taken out of the riverbed, nothing about the best or least damaging and disturbing methods of extraction, and certainly relates only in the most minimal and indirect way with specific effects on habitat values, groundwater discharge, flood damage control, agricultural soil replenishment, etc..... Yet despite its spotlighted and elevated status in this DEIR, the topic of overall gravel recruitment seems to have eluded both satisfactory analysis or qualified even tentative conclusions. 2(

The Dames & Moore model is described in considerable detail. Its relevance, given a very unusual set of assumptions, is not all that clear except to indicate that bedload transport of gravel in sufficient quantities to result in aggradation does not ordinarily occur at significant levels except when very large storm events occur (the 80 to 100 year storm event). This *in*appropriate model, developed to estimate maximum scour, seems to be being used in this DEIR to suggest that great quantities of gravel may still be available for extraction. The facts seem to belie that possibility. Actual measurements at points that have been monitored, e.g. at the bridges appear to show minor degradation of the river, i.e. more gravel either transported past or excavated than has deposited over the last 50 years despite the occurrence of the unusual storm events of 1964, 1972 and 1974. The discussion of this matter in the DEIR could be clearer, and the actual cross section data taken at Fernbridge should have been provided for the reader to be able to assess the situation first hand. But it remains unclear to me what exactly the description of Dames & More model has added of relevance to the discussion of whether the proposed gravel mining program will result in aggradation or degradation of the Eel River, and whether that will mean an enhancement or impairment of environmental values. 2(2(

In contrast, the best estimate of annual average bedload described in this DEIR are far lower than the projected excavation levels of 1.25 million cubic yards and even further below the more realistic projection of 1.5 million cubic yards. The estimate of approximately 234,400 cubic yards of annual bedload derived from Appendix #1 of the cited 1970 USDA publication is some 20% of the projected extraction levels. And the annual bedload estimate of 1,994,241 cubic yards on page 27 of the DEIR which is very much large seems to be based on a simple arithmetic error. The multiplication is 2(

faulty. One percent of 19,942,412 cubic yards equals 199,424 cubic yards of annual bedload transport.

In sum, the sounder estimates of bedload sediment indicate that continuing gravel extractions anywhere near the scale contemplated in this DEIR is unsustainable, and may result in potentially serious damage and degradation in the not too distant future. Indeed the DEIR seems to admit as much on page 78. Consequently, the prudent approach would seem to be to both limit the amount extracted and establish a comprehensive monitoring and analytic program. Only if the results of a monitoring plan indicate unambiguously that gravel replenishment was occurring at greater rates than extraction should amounts greater than the historic averages, not the historic maximums, be permitted. At least that would be the conclusions I would draw from the existing, but admittedly, inconclusive data presented in the DEIR.

3. MITIGATION MEASURES.

Monitoring is not mitigation. It is clear that a monitoring program is required for this gravel extraction program. But discovering that a problem is greater or smaller than was believed, does nothing to rectify or prevent the problem either in the first place or after it is discovered. Mitigation measures should at least specify the steps that will be taken after the problems become more apparent, if the assessment is made that they are not at that stage already. If that is not done, the major purpose of an EIR would be nullified. For example, if monitoring should discover that gravel replenishment to Worswick Bar was insufficient to replenish the amount extracted in the first year a meaningful mitigation measure would be that the contract would automatically be cancelled. A provision could then be written into the contract at a time when it would be binding and the lessee would be forewarned. The same would hold for designing conditions of project approval for other gravel operations. Mitigation measures of this type would make monitoring meaningful rather than simply an exercise in data and salary collection. Realistically, as proposed in this DEIR, that is all your mitigation-monitoring measures amount to. 208

For some acknowledged significant impacts no mitigation measures appear to have been proposed. For example, pg. iv. ....it was determined that long-term (130-years) cumulative impacts on riparian vegetation along the eastern side of the Eel River from Fernbridge to the mouth of the Van Duzen river is significant. Of interest, the amount of riparian vegetation remaining along the west side of the river in 1991 is greater than that which existed in 1940." No mitigation measures are proposed to deal with the cumulative impacts of lost riparian habitat on the eastern side of the river. Considering that one of the most recent losses of significant riparian habitat appears to have occurred on the County's property which it proposes to lease for gravel extraction it is difficult to see why more positive mitigation measures for riparian losses are not proposed in this DEIR. Presumably even small measures might mitigate for small losses and relieve the obviously large cumulative effects somewhat. 209

Nor is it clear why no significant mitigation measures have been proposed for the significant impacts on recreational use as the result of increased noise levels, changing aesthetics of the river bed, and decrease in the accessibility to some parts of the river channel etc. The assumption that putting standard mufflers on the trucks and extraction equipment would reduce the noise impacts to insignificance is unsupported by any data including data that would indicate that the trucks are currently operating without mufflers. If your observations lead you to believe that they are operating without mufflers, perhaps the imposition of significant fines or loss of operating permits would actually have a significant effect on the noise level and might qualify as a mitigation measure if formulated in an enforceable manner. 21

The issue of safety impacts on fisherman and recreational boaters by trenching, extraction equipment and trucks, summer bridges etc. seems to have been given at best only superficial attention. Responsibility seems to have been relegated to other agencies.

4. ALTERNATIVE PROJECTS

The list of project alternatives seems to be particularly skimpy in this DEIR. Proposed are regulating overall amounts of gravel extracted based on unspecified and undescribed analyses of annual monitoring of gravel recruitment. This hardly seems to qualify as an alternative to the proposed project. Perhaps it is better characterized as a minimal monitoring arrangement required under AB 3180,if the project as proposed could be approved. It would seem to be that a non-monitoring alternative might be illegal if it were true as stated in the DEIR that bridge structures could be affected by excessive gravel extraction. Moreover, as the County General Plan requires that "extraction of instream sand and gravel is not to exceed the average annual replenishment level (annual bedload)" [Section 2553(9)] it would seem that a monitoring plan ought to have been legally required, and in place since at least 1985. To claim that monitoring would be either a mitigation measure or a project alternative is stretching these CEQA concepts beyond permissible bounds. 21

Decreasing allowable amounts of gravel extraction volumes without monitoring, seems to be the chief alternative presented in the DEIR. It would appear that unless the overall reduction in quantities extracted would be very drastic, a possibility not discussed in this DEIR, proceeding even with a reduced overall extraction quantity, without monitoring, is likely to be illegal so its feasibility is nil. Moreover given the status of enforcement and current lack of monitoring on the river, it is probably not realistic to expect that a reduced quantity policy could be effectively implemented without a monitoring program. 21

Since one of primary advantages of a Program EIR is supposed to be the opportunity it provides for a more exhaustive consideration of alternatives than would be practical in an individual project EIR, th short list of constrained alternatives is disappointing in another sense. At least one of the alternatives should have explored a

program designed with the primary purpose of directly enhancing fishery habitat values. Dredging portions of the estuary or other means of directly expanding the scope of the tidal prism would seem to be an obvious example of a type of alternative which could have been at least outlined. 213

Although, as noted above, monitoring should be a legal requirement of any gravel extraction program and project, regardless of size, and the costs of such a program borne by the operators, financing it through a simple yield tax as outlined in the DEIR will not work properly. Tying the amount of funds generated for monitoring to the amount of gravel extracted will invariably result in pressures to increase the amount to be mined to support an increasing important monitoring program whose findings will inevitably be biased in favor or more funding rather than decreased extractions. A yield tax is not a bad idea, but the levy should be sufficient great to generate funds far in excess of what is actually needed for an unbiased monitoring program. The excess could go toward fishery enhancement measures, purchase of easement accesses, replanting of riparian corridors etc. if these values were being impacted by gravel extraction.

Substantial financial support of a comprehensive monitoring program is obviously a primary requisite. Linking it too directly to the quantity of gravel to be extracted would be a serious error.

5. SIGNIFICANT & NONSIGNIFICANT IMPACTS

From *Citizens to Preserve the Ojai v. Board of Supervisors* (1985)

> "...it is vitally important that an EIR avoid minimizing the cumulative impacts. Rather, it must reflect a conscientious effort to provide public agencies and the general public with adequate and relevant detailed information about them." ... A cumulative impact analysis which understates information concerning the severity and significance of cumulative impacts impedes meaningful public discussion and skews the decisionmaker's perspective concerning the environmental consequences of a project, the necessity for mitigation measures, and the appropriateness of project approval. .. An inadequate cumulative impact analysis does not demonstrate to an apprehensive citizenry that the governmental decisionmaker has in fact fully analyzed and considered the environmental consequences of its action."

For certain determinations, the discussion of significant and insignificant impacts by federal and state agencies, for approvals within their designated areas of responsibility, must take into account that the Eel has been designated a Wild and Scenic River and sustains a significant fishery resource. It is assumed that impacts on fisheries and recreational uses would then become major issues. But these matters are inadequately discussed and definitely not resolved in this DEIR.. With respect to fisheries, our comments on the inadequacy of the analyses were noted above, with respect to recreation, it is clear that issues of important concern, with the single exception of noise levels were slighted in this DEIR. 214

For example on the question of gravel operations impairing public easements to river access, no assessment seems to have been made of any potential problems or mitigation measures with the exceptions that shorter excavated trenches might provide easier access in some instances and the provision of a phone number and name of a contact person at the State Lands Commission in San Francisco (pg. 48).

Likewise the implications of other bits of information within the DEIR are neither discussed or explained. For example, on page 34 it is indicated that "The North Coast riparian forest has a high inventory priority as designated in the List of Communities of the Natural Diversity Data Base. It was noted that it may be possibly threatened, but that more information was needed in order to give it a proper designation." The obvious questions follow up questions are not addressed in this DEIR: If it were listed what significance would this have for gravel operation approvals in this area? What significance might it have for restoration of riparian habitat on the east and north banks of the Eel?

On page 47 of the DEIR it is mentioned that "It is unknown at this time what the impacts of trenching will be as there was no analysis done or CEQA document prepared prior to the initiation of trenching." It would seem to me that a very appropriate place for such a CEQA analysis of trenching would be in this DEIR. But the analysis seems to have again been put off to some point after project approvals. 21

Obviously we do not think this document fulfills its CEQA responsibilities as a program EIR, and our tone has been censorious. Yet I would like to repeat what was suggested at the beginning of these comments: we are truly amazed at how much you have achieved in such a short time, and with such limited resources. Unfortunately the task of reconciling a healthy and progressive economy with healthy and sustainable natural systems is not an easy one, and seems to require more time and energy than any of us can easily afford.

Thank you for your attention to these at times discursive and critical comments.

Sincerely,

Lewis L. Klein

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April 8, 1992

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Don Tuttle
Natural Resources Division
Humboldt County Public Works Department
1106 Second Street
Eureka, CA 95501

Re: Draft EIR, Gravel Removal from the Lower Eel River

Dear Don:

Thank you for providing the North Group with a copy of the DEIR for review and comment. We appreciate the effort you made in preparing this document and the amount of information its contains. At the direction of the Board of Supervisors, but without either sufficient time or budget to adequately address this extremely complex issue, you did a commendable job. However, because of the constraints under which the document was developed, it understandably has some shortcomings.

The project description must be accurate and should also account for reasonably foreseeable future proposed projects. [Guide to the California Environmental Quality Act, Remy, et al., 1991, pp. 180,182, hereinafter referred to as "Guide"] The DEIR considers eleven gravel mining operations on the Van Duzen and lower Eel with a combined annual extraction of 1.2 million cubic yards. Projects presently under review include these eleven operations, plus the one for Arcata ReadiMix at 150,000 cu.yds., and an expanded operation on the County's bar at Worswick, which would be an addition 125,000 cu.yds. This additional volume increases the project to nearly 1.5 million cu.yds. 216

What are the foreseeable future extraction levels in the Eel? With increasing demands for gravel, both statewide and locally, and reductions in availability in other areas, such as Sonoma County, due to depletion and concern for other values, the only reasonable foreseeable scenario is increased gravel production in Humboldt county. Even while you were preparing this document, the Arcata ReadiMix proposal for extraction of 150,000 cu.yds. was submitted to the county. Will this program EIR serve as an adequate assessment of conditions and impacts for future expansion of operations on the Eel? Without a realistic project description of foreseeable extraction

volumes, it is not possible to assess impacts, particularly cumulative impacts, which is an issue of major concern. The final EIR needs to describe the project and assess its impacts within the expected scope of operations and volumes, or, perhaps, more appropriately, within the scope of what has been determined as sustainable and environmentally acceptable. 21

The project description covers the eleven operations in less than three pages; this is hardly adequate for meeting CEQA which requires a general description of a project's technical, economic, and environmental characteristics. [Guide, p. 180] Without a more comprehensive description of those operations which constitute the larger protect, it is not possible to adequately display and assess potential impacts or outline mitigation measures. 2

The objectives of gravel mining are listed on page seven. Certainly the first three objectives are correct, i.e., economic return, jobs, and development. However, I doubt seriously whether operators would propose mining projects simply to meet objectives 4 and 5, which have to do with enlarging the estuary and enhancing fish habitat. 2 If environmental restoration were to be the primary objective of gravel mining operations and economics\development simply a spinoff benefit of the first objective, then the manner in which operations are conducted would, I suspect, be far different than the way they are currently conducted. Data gathering and research would be required before project initiation to determine just what methods, sites, and amounts would be beneficial for the fish. Under present management of gravel mining, no data are required and no research is needed for operators to dig rows of trenches 1,000 feet long, 60 feet wide, and 20 feet deep, or skim large areas of river bars. It is simply not possible to make any predictions, whatsoever, as to the beneficial nature of such an operation on fish habitat. The objective of these gravel mining operations is solely economic return and not restoration of fish habitat.

The summary section states that historic maximum amounts of gravel removed from the project area appear to range from 700,000 cu.yds to 1,000,000 cu.yds. [p.ii] Pages 38-44 contain a detailed description of aerial photo review, but, unless I missed it, there is no documentation of extraction quantities to substantiate the given range or to indicate trends. 2 Since the County has been theoretically overseeing gravel mining since 1963, it should have a record of the quantities taken out of the lower Eel annually during the past thirty years. This information in graph and table form would be extremely helpful to our understanding of the size of previous operations and trends that indicate what should be expected in the foreseeable future.

Since the numbers are so nebulous and low-flow conditions hav been the rule for the past five years or so, it is not possible t predict the environmental significance of proposed mining on the river's morphology based on the past thirty years. [p. ii] This is particularly so because the volumes proposed for removal and the

volumes that we can anticipate will be removed in the future far exceed past levels. If 700,000 cu.yds. represents the annual extraction level up to 1987, then what is currently being proposed is more than double historic levels. The impacts of that level of mining on the river's morphology could be significant and might not show up for some years to come and only after a few years of normal rainfall or a major storm event.

The DEIR proposes a monitoring program as a way to "minimize and control potential significant adverse effects from lowering of the river bed due to over extraction above replenishment." [p. vi] Does this mean that the amount that any one operation could remove in a summer would be based on the amount of replenishment from the previous winter? If so, this assumes that the baseline data used in the first year of monitoring is the "correct" condition, i.e., that this is the way the river channel should be and an objective for management. Do we know enough about the river--its channel morphology and its historic uses by fish and other aquatic life--to make such a decision? Is it appropriate to work from and towards a condition that represents a severely impacted ecosystem, rather than from a historic vision? 22

> From the face of the plateau, above and near the forks of the river [Van Duzen and Eel], the view was perhaps the most favorable we could have had. It embraced the mountains and the sea. Below us meandered through rich bottoms, the clear Eel river sinuous as its name, all the alluvial margin fringed with a growth of alder....The Eel river is at present quite a slender stream, averaging about 40 yards in width and fordable in places....Near its mouth it opens into a lagoon of considerable size, constituting something of a harbor....[The Daily Alta California, 26 Aug. 1851]

The DEIR is unclear about annual bedload [pp. 25,26], but if we were to assume that the 234,400 cu.yds. figure on page 25 is reasonably accurate, then the proposed removal of 1.5 million cu.yds. is obviously excessive--more than six times replenishment! Since the DEIR acknowledges that removal of gravel without regard to the previous season's replenishment could lower the bed of the river to a point that could "endanger the integrity of the bridge piers," [p. ii] what justification could the County use, already knowing that proposed operations would exceed bedload replenishment, to approve mining projects on the Eel? 22

The DEIR cites the Dames and Moore report, prepared as part of project development for the ARCO pipeline. I do not have the expertise to critique the Dames and Moore models, but I find it difficult to understand how the three scenarios presented in Table 2.1 (p. 19) relate to real conditions experienced by the Eel river. Sediment movement is associated with peak flows, not steady flows 22

and is a 100-year storm event likely to last for fifteen days? I can't even comment on the third scenario because I don't understand it. Dames and Moore uses a figure of 18% to determine the bedload portion of total sediment; Tom Lisle indicated that 10% might be more appropriate. In any event, sediment deposition is not the same thing as sediment transport and deposition is the issue of concern. 2

"Like the requirement to describe mitigation measures within an EIR, the requirement to set forth project alternatives within the document is also crucial to CEQA's mandate that avoidable significant environmental damage be substantially lessened or avoided where feasible." The DEIR must describe a range of reasonable alternatives and evaluate the comparative merits of each. [Guide, pp. 201,202]

Alternatives in the DEIR are discussed in the space of about one page. [pp. 76,77] Three of the four alternatives address various levels of extraction; the fourth is the use of upland quarries, which is dismissed as infeasible due to local geology. The purpose of developing alternatives is to explore all the reasonable possibilities which meet project objectives while reducing or avoiding environmental impacts. For gravel extraction, there needs to be an alternative that looks at various sites within the bankfull channel, assuming that extraction at some sites is more harmful or less harmful than at other sites. It is vital to the objective of minimizing impacts that alternative methods of extraction be fully discussed and analyzed. A river alternative should be developed t[illegible] uses gravel operations as part of a long-term strategy for protecting and restoring the river and its ecosystem functions. 2

I believe this last approach is the only acceptable way to manage river mining. A vision of what these rivers once were, documented through historic research, can provide us with a vision of what they can be again and objectives for management. River management plans, based on the goal of restoration, would determine whether mining can contribute to that effort and, if so, how and where it will occur.

Although noise, traffic, and visual impacts are highly important consequences of gravel mining projects, these issues pale when the health of the river and its ecosystem functions are considered. The anadromous fishes of the Eel are a priceless gift which we have shamefully squandered. The description of fishery use of the project area and the estuary [pp. 29-33] and of project impacts [p. 59,60] is woefully inadequate because there are no data. The statement is made that the lower river is of little or no significance for spawning. [p. 29] Is this the historic situation or the current one? When was the last time anybody looked at possible spawning use of the lower river? What does history say? 2

Estuary use by juvenile fish is extremely important for growth and enhanced survival in the ocean, as demonstrated by studies on Redwood creek, the Mattole, and the Klamath. There is no reason to

think that the Eel's estuary is not used in a similar manner by downstream migrants; certainly this important area is far more than a migration corridor. And there are other organisms associated with the estuary. 22.

Limiting operations to the period between May 1 and October 1 and assuming that this adequately protects the fish in the Eel from any mining impacts avoids the crying need for good information on fish use of the river and its estuary, historic conditions, and the impacts of mining. The complexity of a river system, especially one with tidal waters, makes assessment of impacts very difficult. It may not be possible, given the state of current knowledge, to predict with any reasonable confidence what the effects of the project will be over the long term and whether cumulative effects, resulting from past, present, and future operations, will cause major detrimental changes to the system's physical and ecological characteristics. But one thing we do know is that human activities have had a devastating effect on the anadromous fish stocks of the Pacific coast. To imply that the proposed gravel operations, which are conducted solely for economic purposes, pose no significant risk to the river system and its fisheries or that they will actually "enhance" fishery habitat is totally unsubstantiated. 22B 22C

Recreational use of the project area is significant as anyone who has been there during the fall and early winter months will attest. Salmon support that use and it was this value that qualified the Eel as a component of both the State and Federal Wild and Scenic Rivers systems. The DEIR is significantly lacking in its failure to discuss the legal mandates that Wild and Scenic status provides or the compatibility of gravel mining with such a designation. 23C

Section 10 of the federal act requires that each component of the system shall be administered in a manner that protects and enhances the values which caused it to be included in the system. That places a special responsibility on managers, including the County, to ensure that they permit no activities which will impact the salmon and the recreational use of the river. Philosophically, one could certainly ask whether heavy equipment, truck traffic, 20-foot-deep-1000-foot-long trenches, processing plants, dust, noise, lights, and the removal of a million and half cubic yards of gravel from the bankfull channel are compatible with a river that has been selected because is possesses "outstandingly remarkable...values... [and]...that shall be protected for the benefit and enjoyment of present and future generations?"

I fully appreciate the fact that neither time nor money was adequate for preparing this DEIR and the result is a document that is not CEQA sufficient. Furthermore, it fails to supply the information County decisionmakers need to determine whether mining activities should be conducted on the Eel river and, if so, how and where they should be conducted to protect and restore the river. 23

Thank you for consideration of these comments.

Sincerely yours,

Susie

Susie Van Kirk,
Conservation Chair

Sch # 92013033 (16)

Comments on EIR on Gravel Removal in the Lower Eel and Van Duzen Rivers

[redacted]imation of bedload supply to the Lower Eel: Annual yields of bedload sediment taken from several literature sources are presented without evaluation. I suspect that the lower values, e.g., the 230,000 tons from USGS data, are most accurate. The soft sediments of the Franciscan Formation tend to break down rapidly in transport over relatively short downstream distances, reducing gravelly bedload to sand and silt carried as suspended load. In light of data from smaller rivers, e.g., Redwood Creek at Orick which transports approximately 10% of its load as bedload, I strongly suspect that 18% is a large overestimation of the bedload fraction of the lower Eel. Furthermore the 1970 USDA sediment paper, which gives a large value for bedload, is widely disregarded by many professionals in northern California. For example it ascribes the most voluminous source of sediment to deer. Accurate estimates of annual bedload yield could be derived from the flow record at the Scotia gaging station in combination with a two-dimensional bedload transport model. It would be instructive to estimate the rate of channel erosion due to the annual deficit in gravel supply caused by future mining. It would also be instructive to estimate how much gravel has been mined up to the present, since an argument has been made that impacts up to the present have been slight. 232

2. Effects on fish populations: The most threatened resource is the valuable fisheries of the Eel system. It is highly probable that the estuary is a critical habitat for juvenile salmonids maturing before they enter the ocean. While the nature of effects of riverbed mining are unknown at this time, particularly on juvenile salmonids migrating into the estuary over the summer and using it as rearing habitat, this does not justify disregarding this issue. No relevant studies have been conducted or are planned and there is are no measurements of fish or their habitats included in the monitoring plan. How would morphological changes affect fish passage? How would the substrate and water quality of the estuary be affected? What organisms live in the intergravel envrironment and what is their importance to fish ecology? Most importantly, how, where, and when do fish use the Lower Eel and its estuary.? 233

3. Monitoring of channel changes: Measuring sediment extraction with aerial photos is an appropriate approach. [redacted]ss sections at mining sites to ground-truth air-photo measurements of volumes extracted is also sound. [redacted]ever, it is also important to survey cross sections upstream and downstream of the sites in order to monitor the response of the riverbed to depletion of sediment. 234

4. Exporting Eel River gravel: It seems inappropriate to me to be exporting gravel when impacts of riverbed mining may be hurting fisheries and threatening bridges in the Eel, Mad, and other rivers. Plans to export gravel negate the argument that Humboldt County needs to mine riverbeds in order to support local construction. The monitoring program should be financed from a tax on gravel mining. 235

APR 3 1992

Thomas E. Lisle, PhD.

Dept. of Geology
HSU

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TIC 4-30-92

1699 I Street
Arcata, California 95521
April 1, 1992

Humboldt County Public Works Department
Natural Resources Division
1106 Second St.
Eureka, California 95501

Hello:

I am responding to the Draft Program Environmental Impact Report on Gravel Removal from the Lower Eel River dated February 1992. As a geologist who has worked in Humboldt County for 14 years, I feel I have the experience to address some of the issues raised in this document.

In general, I could see there was much information gathered for this report, but some of the reports used were outdated (for example, U.S. Department of Agriculture, 1970) and more recent information was not used. Much of the hydraulic analyses were based on a Dames and Moore study used for a proposed gas transmission pipeline crossing the Eel River. Without being able to read the report itself, I am assuming the numbers reported are correct; however, I am hesitant that a report designed for a localized pipeline project is adequate to evaluate cumulative effects of gravel mining over a long reach of river. 236

I have several specific comments on the report, listed in no specific order of importance. Dames and Moore estimated 100 year floods based on the existing period of record. Those numbers could be checked by independent methods, such as comparing the estimated discharges in cfs/mi2 with other known peak discharges in adjacent watersheds. The basis for their hypothetical sequences of flows was unclear. Bedload discharge is very sensitive to the magnitude of peak flows, so assuming a dominant flow of 9000 cfs for 360 days will not 237

replicate what really happens in a river. Likewise, a 100-year event lasting 15 days is unlikely. Another sequence of flows was used by multiplying by a constant of 1.34, for reasons unknown to me (p. 18). The estimated flow velocity during a 100-year flood was 22 ft/sec, which approaches the maximum ever measured in the United States in steep gorges. Is this realistic for the Eel, and what assumptions about changing bed roughness during high flows were used? It is stated that sediment discharge is closely related to high flows (p. 22); however sediment discharge is not to be confused with sediment deposition, and the resulting hypothesis ("...major floods should result in channel aggradation and degradation would occur during periods of moderate flows with relatively clean water") may not hold. 237

The USGS measured suspended sediment discharge. An assumption that bedload represented 18% of the total suspended load seems too high to me, based on my experience in other rivers. It is stated that the Eel River's gradient is 4.44 ft/mi. Based on the gradient, the friable nature of the bed material, and USGS bedload measurements in other areas, I think 5-10% is a more reasonable estimate of bedload. Because I have problems with the assumptions that went into the flow modeling, I don't put much faith in the estimated changes in bed elevations listed in Table 3.2, nor those in Table 3.5. 238

Water requirements for crusher plants were listed as 200 gallons/minute on page 10, but were reduced to 200 gallons/hour in the summary. This translates into a decrease of 3% of summer flow (which may locally stress aquatic life) to a 0.05% decrease (not significant). Which is correct? 239

The February 1986 flood was mentioned as the only good-sized flow in recent years. What is the recurrence interval of that flow for the Eel River? It is difficult to put effects of that flood in perspective without knowing the relative importance of the flow.

On page 51 the document states that "sediment moves as long linear waves." Although that may occur in some basins, such waves may very well be nondiscernable in the Eel River, especially when several influences (land use, floods), and several inputs from many good sized tributaries have combined effects in a large basin like the Eel. Considering past changes in the Eel River, I would hesitate to call on "equilibrium" (p. 52) for smoothing out slopes, especially when the "natural" river channel is not a smooth slope, but a series of riffles and pools. It is implied that aggradation will increase meandering. In 240 241 242

fact, braiding of a river channel is the more common effect of aggradation. One possible effect of trenching was not mentioned. If at high flows the trench becomes the main channel and the old main channel is abandoned, the channel length is shortened, channel gradient becomes steeper, the river then has more stream power to transport sediment, and less deposition would occur than predicted. The implications of trenching may be much broader than just a loss of invertebrate habitat. Paragraph 2 on p. 52 discusses the lack of bedload reaching the County-owned site unless there is a 15-20 year frequency flow. What is the expected gravel transport during such flows? 242 243

It was unclear what the impacts of pit mining were. What high flows occurred after pit mining (p. 52) and what was meant by "integrity of the stream bed"? 244

Bed degradation was considered a probable result of gravel mining, and yet the only concern was the scour of bridge piers. Although that is indeed a concern, many other effects are possible. Downcutting can lead to bank erosion and loss of riparian vegetation. It can cause changes in pool-riffle distributions and channel geometry. It can cause a change in the size distribution of bed material. A broader look at the implications for fish and other aquatics should be taken. One of the reasons for the proposed mining is to improve fish habitat, especially in the estuary, and yet there was little supporting data or discussion on this topic. How much would the tidal prism be enlarged? Will that area be usable habitat in terms of cover, bed material, etc.? How will a decrease in bedload transport into the estuary affect estuary dynamics? Would short-term increases in fines affect the estuary? 245

Predictions of the effects of removing 1,220,000 million yards of sediment annually are partially based on effects of past mining; however, past mining intensity didn't approach this value except in a few years. Recent mining has not been put to the test of a decent flow, and it is very much an unknown as to how the Eel River will respond to the next high flood. 246

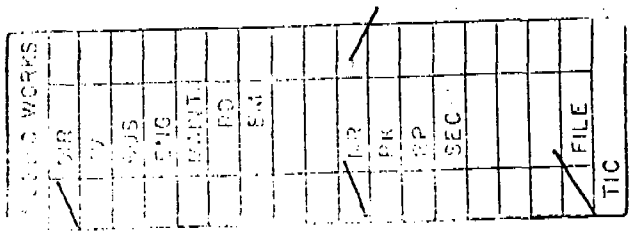
I congratulate the County on insisting on a monitoring program for gravel mining. I would suggest that in addition to cross sections located on the mined gravel bar that cross sections be established upstream and downstream of the mined reach. Will there be any sampling of size distribution of bed and bar material? How will trenching be evaluated in terms of success? How soon will the monitoring results be available so that the County can evaluate the effects of mining? 247

APR 16 199

(18)

April 8, 1992

772 Hiller Road
McKinleyville, CA 95521



Don Tuttle
Humboldt County Public Works Dept.
Natural Resources Division
1106 Second Street
Eureka, CA 95501

Dear Mr. Tuttle,

I would like to comment on the Draft Program Environmental Impact Report (EIR) on Gravel Removal From the Lower Eel River, February 1992. I have worked in Humboldt County as a geologist for the past 10 years. My work has addressed local stream and fisheries issues and I feel qualified to provide comments on the EIR.

Most of the hydraulic analyses for gravel extraction is based on a 1991 Dames and Moore report evaluating a proposed gas transmission pipe line across the Eel River near Site #7. It is difficult to evaluate the hydraulic study without reviewing the original report. However, I am concerned that the models used cannot adequately address the long-term cumulative impacts of multiple gravel extraction projects on the channel within, upstream and downstream of the mined reach. In addition, I question whether the models are suitable for modeling effects of the current trenching techniques. 248

Dames and Moore assumed bedload was 18% of the total measured sediment discharge. This value seems high. Other researchers, Hawley and Jones 1969 and U.S. Dept. Agriculture 1970, used four and one percent respectively for estimating the percent bedload from suspended load on the Eel River (pg 25). There are also other methods for determining bedload transport rates. Perhaps to get the best estimate of the annual bedload transport rate, these other techniques should be employed and compared.

Most of the background data and literature cited in this report were from the early to mid 1970's. I think much of this material is dated and more recent studies should be consulted.

An objective of the proposed gravel extraction is to increase the tidal prism of the estuary of the Eel River; however, the estuary was not discussed in any detail. What is the present tidal prism of the estuary and how much will gravel extraction increase this. What are the specific benefits to the fish and wildlife in the estuary. Also will changes in the estuary due to gravel extraction be monitored on some level. 249

The report indicated that little was known about the use of the estuary by juvenile anadromous fish. Juvenile fish studies have been conducted on the Mattole River and Redwood Creek estuary. 250

Due to the lack of data for the Eel River estuary, these studies may shed some light on the use and importance of the Eel River estuary to juvenile fish.

An objective of the proposed gravel extraction is to enhance the quality of the fish habitat in the lower Eel River. However, the fisheries issues and conditions were not well addressed in the report. I am not sure how the gravel extraction will improve the quality of the fish habitat. What specific species are of concern and what life stage? What is the condition of the present fish habitat and what is the expected increase in the quality of the fish habitat? Will this also be monitored? 25C

The most obvious problem I see with the proposed gravel extraction is that the proposed volume of 1,220,000 cubic yards is <u>five</u> times the estimated annual bedload transport (234,400 cubic yards, pg 25). This has serious implications. If annual gravel replenishment rates are low and extraction is in excess of replenishment rates then bed degradation will occur. Adverse impacts of lowering of the bed elevation are: 1. undermining bridge supports and in-channel structures, 2. change channel morphology, riffle-pool sequences and channel geometry, 3. create bank instability and loss of riparian habitat, 4. lower the water table which may kill riparian vegetation. All these changes can affect the riparian and aquatic resources of the stream. 25

The analysis of past gravel extraction impacts does not necessarily represent future impacts that might occur due to a sustained annual extraction of 1,220,000 cubic yards of material in the lower Eel River. While historic maximum amounts of gravel appear to range from 700,000 to 1,000,000 cubic yards, these large amounts only occurred in two isolated time periods. In addition, the trenching technique has only been employed in the last two years. The impacts of this type of gravel extraction and channel modification has not been addressed because the trenches have not been tested by moderate to high winter flows.

The EIR states that the impacts of past gravel excavation has had no significant change on channel morphology of the river. However, the EIR also states that some operators had to switch from skimming to the trenching method because the gravel bars had run out of available volume of gravel above the 2-3% line (pg 52). This indicates that replenishment rates are lower than the extraction rates and has serious implications as mentioned previously. If there is no available gravel above the 2-3% line perhaps no extraction should occur. 25

Alternative forms of gravel extraction other than skimming and trenching should also be addressed. Perhaps new extraction methods could be investigated which would have less impact on the aquatic habitat. 25

Will gravel size distribution be monitored? Will gravel extraction result in changes in the grain size distribution in the reach?

It is essential to develop a sound monitoring program that can be used to manage gravel extraction from rivers. The Gravel Harvest Monitoring Plan in Appendix A is well thought out. I would like to see the monitoring expanded to the gravel bars immediately upstream and downstream of the mined reach. It is critical that the monitoring data is analyzed immediately and results interpreted and presented in a usable form to the county and regulatory agencies in a timely fashion. Annual monitoring results should be received by the county by a set deadline or due date. Gravel monitoring results should be used to determine the appropriate rates and location of future mining operations.

While it is important to establish a sound monitoring plan, it is equally important for one agency, the county, to be responsible and committed to analyzing the data to address cumulative impacts of multiple operations on the channel. It easy to let monitoring data pile up and it is essential that personnel be assigned to analyze the data and address the above issue in a timely fashion.

254

The county needs to assign some level of acceptable risk criteria to gravel extraction. If cumulative impacts can be documented, the county needs to determine what is the acceptable level of risk of the expected long-term effects on the stream resources.

I am concerned that the proposed funding for the monitoring program is based solely on the total amount of sediment mined from the river each year. While I think it is appropriate that the mining operators pay for the monitoring program, the level of monitoring will be tied to extraction rates. Monitoring will potentially become prey to a feast or famine funding source. I think to adequately address the management of gravel extraction in rivers, a stable funding source should be established for the monitoring program.

I appreciate the opportunity to review the draft EIR. I am pleased that the county is beginning to addressing gravel mining issues and mining impacts on the lower Eel River.

Sincerely,

Vicki Ozaki

Vicki Ozaki

(19)

D.R. KETRON, PE
Mining Engineering
P.O. Box 12
Volcano, California 95689
(209) 296-7735

March 26, 1992

Mr. Donald C. Tuttle
Environmental Services Manager
Humboldt County Dept. of Public Works
1106 Second Street
Eureka, CA 95501-0579

Re: Draft EIR concerning gravel removal from the lower Eel River

Dear Mr. Tuttle:

I have read through the DEIR your office has prepared concerning the subject of gravel harvesting off the banks of the lower Eel and Van Duzen Rivers. I would like to commend you on your efforts and their results. Although I have no doubts you will hear many disparaging remarks, and many of the comments received will be negative and perhaps derogatory, please be reminded that such comments will likely emanate from parties who have special interests not consistent with the use of natural resources.

The only comments I would like to present to you at this time concern the paragraph titled "Economic Effects of the Project". I think you have given short shrift to the subject. Certainly the economic benefits of a project may well provide an adequate mitigation to any environmental effects which cannot be mitigated. (This might be true as well for social benefits).

255

In the case at hand, the recovery of gravels will have a significant economic impact. It can be demonstrated that somewhere around 50% of the value of new mineral production ultimately ends up in the public treasuries-local, State, and Federal. In addition, with minor exceptions, the production of timber and minerals is the only way to create money; that is, to increase the money supply in this country without creating an inflationary pressure.

For the County-owned parcel alone, the production of 200,000 cubic yards of gravel will create some $2,000,000 of new monies. The County will receive direct royalties as well as a portion of the State sales taxes from that $2 million. The County will receive property taxes on the installations and equipment owned by the leasor. Wages will be paid out of the $2 million, and portions of these wages will go to paying local, State, and

Federal taxes. Almost the entire $2 million will circulate within Humboldt County several times before leaving, and each time a portion is spent by an employee or by the leasor, a portion of the sales taxes is rebated to the County.

The same does occur for current operations, and will occur for future operations. Because of the significant impact, I think this subject should be more completely addressed in the Final Environmental Impact Report.

255

In addition to the significant economic impacts, it might be well to include a paragraph on the social impacts of job creation, and perhaps the impacts of having these materials made available at a favorable cost. For instance, what would be the impacts on the public on your department alone if there were no gravels available locally for road construction and repair, and this material had to be imported from other jurisdictions?

Sincerely,

D. R. Ketron

Douglas R. Ketron

(20)

April 5th, 1992.

Don Tuttle
Humb. Co. Public Works
Eureka, Calif

Re: Mad River Draft management E.I.R. comments.

Dear Mr. Tuttle:

In response to comments, I would like to submit the following:

256 | 1. Aerial photo's (1~~947~~ 1964) as alluded to in draft show previous activity on site #10 suggesting vested gravel extraction.

257 | 2. Current estimates of 40,000 cubic yards at site #10 may be increased as reconstruct amounts are determined, after initial overflow channel excavation is accomplished.

258 | 3. 1975 Federal study and U-2 flights have addressed the need for retention on the Lay Outer.

I offer the following subject to further oral statements at the public hearings.

J. K. Nolte

Jack K. Nolte re: site 10
P. O. Box 508
Carlotta Ca 95528
707-768-3739

(21)

TRINITY RESTORATION ASSOCIATES INC
RIVERINE, FISHERIES AND WETLAND RESTORATION
Environmental Planning • Fluvial Geomorphology • Fisheries Management • Riparian and Wetland Ecology
Administrative Office: P.O. Box 820, Arcata, CA 95521, (707) 826-0351 / FAX: 826-1742
Regional Office: P.O. Box 3972, Sonora, CA 95370, (209) 536-1176 / FAX: 536-1180

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April 20, 1992

COMMENTS TO THE DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT ON GRAVEL REMOVAL FROM THE LOWER EEL RIVER, February 1992.

ALTERNATIVES (page 76):

259 The project described in the DEIR is the "proposed removal on an annual basis of a total of 1,308,000 cubic yards from the Eel River system." Specifically the description should be limited to the Lower Eel River system. The alternatives discussion in the DEIR is inadequate, it has not explored sufficiently alternatives to the project, nor discussed potential significant impacts or there lack of in each alternative. The DEIR discussion does not include currently feasible alternative extraction methods, aggregate sources or locations. Alternatives to the proposed project such as those that are currently utilized elsewhere by the aggregate industry of Northern California and available to the aggregate industry in Humboldt County, should be evaluated.

260 Implied in the DEIR discussion of the proposed project is that aggregate extraction will be conducted on a sustainable basis. of a frequent nature Yet the alternative discussion does not explore non sustainable mining as opposed to sustainable harvesting or sustainablitiy on less frequency such as 10, 25, 50 or 100 year events.

261 The methods. location and equipment discussed and evaluated in the alternatives discussion should not be limited to what is proposed by the existing operations.

A brief overview of some potential but not all potential alternatives not discussed but which could accomodate the project description are;

262 A. Extraction of aggregate from other than active and dynamic river channel of the exposed gravel bars from the low flow waters edge to the ordinary highwater mark (bankfull channel) should be considered. This would mean extracting aggregate from areas less frequently inundated such as storage sites of alluvium from 3 to 100 year events. Extraction impacts from these areas are more quantifiable and possibly mitigatable. This would mean a departure from "sustainable harvest" of aggregate from annual bedload transport. This would reduce or eliminate the need to measure and quantify bedload rates and volumes, hence eliminating predictions based on models of limited empirical data and vulnerable assumptions of bedload modeling. Extraction in this area of the river environment would allow for other extraction methods such as borrow pit mining. There would be a host of potential impacts to wildlife and riparian habitats that would need to be addressed.

B. Extraction from geological recent deposits of Eel River alluvium in the valley portion of the lower Eel River. Extraction of aggregate in other areas of Northern California have exhausted in river sources for a variety of reasons. However,

aggregate mining still occurs in these area supplying materials at equal or greater volumes from sources adjacent to the current river channels. These areas usually are utilized as agricultural areas. The overburden in these areas is stripped and stockpiled while aggregate mining proceed to what ever depth is possible until an impermeable layer is reached. Their would be different impacts than are currently experienced in the Eel River mining, that would need to be addressed. Volumes of aggregate from this source would need to be quantified.

C. Alternative extraction methods other than skimming or the limited discussion of narrow linear trenching need to be explored. Trenching can be designed to provide a varied morphology on a regional basis. Extraction methods and area need to account for the morphology in three dimensions with a scale that is not limited to the applicant property boundaries. Designing the shape of the river's morphology must be done at a minimum of one meander wavelength and realistically on a regional basis for the entire lower Eel River. The river is a dynamic system responding to changes in discharge, sediment supply, bank stability and channel dimensions. Extraction methods can influence this dynamic system positively or negatively depending on design. Pit extraction of controlled dimensions in certain location of the active channel can recreate former deep pools or runs. Photographic evidence of this extraction method from past operations could supply guidance as to how and where this method would be appropriate. Dragline, suction dredge or excavators are alternative extraction equipment to skimming that would provide alternative extraction capabilities, not discussed sufficiently in the DEIR. 262

1. NO PROJECT. Of the 11 projects described in the DEIR, 3 projects (site # 4, 7, and 10) do not have CUP's, or approved Reclamation Plans. These are illegal projects at this time and should be removed from the analysis as current projects. This alternative would not be defined as "no expansion of gravel volumes currently under permit." This alternative would be described as a reduction from the immediate past and current extraction volumes, a net reduction of past gravel extraction volumes for the entire project area consisting of 11 sites. The impact of the no project alternative would be a reduction of current impacts from legally permitted and illegal projects. 263

2. SITE SPECIFIC VARIABLE ANNUAL EXTRACTION VOLUMES. This alternative's discussion is not sufficiently developed. It appears that this alternative relies on the monitoring plan in appendix"A". It is not implicit that this alternative "assumes it is environmentally correct to maintain the present bed slope and elevation from the mouth of the Van Duzen to Fernbridge". Setting annual extraction volumes and method of extraction on a site specific basis for each bar is based on establishing on an annual basis the volume, and location of deposition on each bar. Recruitment of aggregate at each bar will be influenced by the morphology of the bar at the time of sediment transport the magnitude and duration of the discharge, the amount and particle size of the sediment in transport. As each of the sites in the DEIR is not in its natural state a three dimensional "baseline" must be established for the entire channel morphology of the project reach, from the mouth of the Van Duzen to Fernbridge. Only when material is recruited above the "baseline" topography can extraction proceed. The amount of extraction would be variable from bar to bar and year to year. Determining the ""baseline" morphology would have to incorporate processes of fluvial 264

geomorphology necessary to maintain flood capacity, fish, wildlife, riparian, floodplain and channel habitats. Monitoring will determine if an action or mitigation was implemented and whether the action or mitigation was successful. The parameters to be measured for each purpose may be different. Monitoring of its self does ensure competent analysis or interpretation. Any monitoring program used for management of a dynamic system such as a riverine environment should be include an analysis team of hydraulic engineer, fluvial geomorphologist, fishery and wildlife biologist and botantist at a minimum. 264

3. EXTRACTION VOLUME REDUCTION. This alternative states "All of the previously discussed and described impacts would exist, but to a lower degree." does this assume that the reduction in extraction volume will not result in a lowering of significant impacts to less than the threshold for significant impacts. What and were are the thresholds used in the DEIR for establishing the presence or absence of significant impacts? 265

4. BACK-UP UPLAND QUARRIES. The DEIR states that " geology in Humboldt County does not lend itself to this alternative because most of the County..." where do road construction projects in other parts of the County get their aggregate? Is all of the geology of the county as described, how many existing or potential hard rock quarries are there in the county, what is their potential volumes to contribute to the counties aggregate needs? 266

In closing, alternatives to the proposed project should be identified and evaluated to consider how aggregate extraction can be accomplished by other means. Instream mining of aggregates can be managed either as a sustainable "harvest", relying on extraction balancing replenishment at each site, or as non-sustainable "mining", extracting aggregate materials stored from past episodic events and not replenished annually. The project's proposed rate, volume and location of extraction may exceed the Eel River's short term bedload supply. The environmental effects from a project which "mines" rather than "harvests" are different and should be assessed accordingly. Additionally, alternate locations of aggregate extraction whether instream, or from the present floodplain or terraces will cause different environmental effects. Extraction by alternative means such as dredging, skimming, trenching or creating borrow pits will also have a wide range of environmental effects on the wetted channel, gravel bars, floodplain or terraces. Another alternative to extracting aggregate would be to produce aggregate from bedrock or non-alluvium sources. 267

Proposing specific extraction volumes of aggregate on an annual basis implies that there is annual replenishment of material available for extraction at the project sites. Predicting annual aggregate volumes generated from a watershed via runoff based on models of suspended sediment to bedload is inappropriate to maintaining a dynamic riverine ecosystem. Suspended sediment ratios to bedload for the Eel River and for a range of discharges through the various morphological strata of the Eel River has not been empirically established. In order for instream harvesting to not significantly effect the river morphology, habitat or natural processes, the establishment of a site-specific, three dimensional "base line" morphology must be developed capable of maintaining present fluvial processes. The amount of aggregate available for harvesting at each site would depend on the amount in

storage, or recruited annually, that exceeds this "base line" morphology. Aggregate harvest could become a cyclic event ranging from zero extraction to whatever the physical limitations of the storage site. This may require that "harvesting" become the mode of operation, not "mining" of aggregate reserves. If possible a combination of the two systems may be employed to mitigate significant environmental effects to the river ecosystem.

267

MONITORING (APPENDIX "A"):

The Sample Monitoring Program presented in Appendix "A" was authored by Trinity Restoration Associates In.. The monitoring plan is presented out of context, it was developed for site specific monitoring needs of individual gravel bars for the purpose of quantifing extraction location, dimensions and volumes. As such it would provide the Coounty and CDF&G the tool with which to measure compliance to mining conditions. It was not intended as a monitoring program for an entire region such as the Lower Eel River system, nor to measure bedload rates or volumes. It is suitable for measurement of recruitment of aggregate at an individual bar. Monitoring plans such as ours are adequate for reporting needs of agencies but are not intended to replace analysis. Analysis of data generated requires analysis by a multi-disciplinary team. A river corridor management plan starting from a historical context and incorporating numerous disiplines such as fluvial geomorphology, fisheries, wildlife, etc. is required inorder to conduct meaniful land use and environmental planning here.

268

Submitted by

Aldaron Laird
Natural Resource Planner

(22)

April 6, 1992

Elbert Land
7802 Lake Shore Drive
Roseville, California 95661
(916) 965-5341

Re: Comments on Draft Environmental Impact Report
Gravel Removal From The Eel River, Humboldt
County, State of California

To Whom It May Concern:

Attached hereto are my comments concerning information presented in the draft EIR on the proposed gravel removal from the lower Eel River dated February, 1992.

I have operated a gravel removal business, without interruption, at site number 6, since the early 1950s. I enjoy vested rights to conduct surface mining operations as identified in Humboldt County Code, section 391-3(b) at site number 6. In addition, I enjoy vested rights pursuant to Cal. Pub. Res. Code, section 2776.

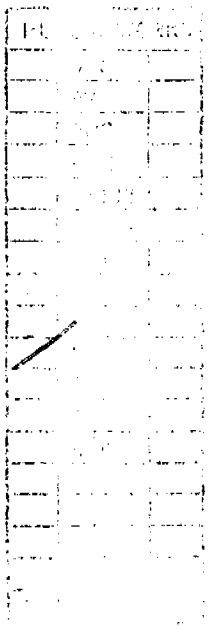
Set forth in the attached are my comments and observations regarding the information and statements contained in the draft EIR.

Sincerely,

Elbert Land, owner
Fortuna Sand & Gravel

EL/dp
Enclosure as noted.

APR 6 1992



Comments on Draft EIR, Gravel Removal From The Lower Eel River, Humboldt County, State of California

Prepared by: Elbert Land, 7802 Lake Shore Dr., Roseville, Ca. 95661 (916) 965-5341.

SUMMARY

Page ii: "A phenomenon observed on the Mad River following trenching could also conceivably occur in the Eel River. The situation occurs when the river rises following the first major storm in the fall such that the trenches are connected with the main flowing channel. Then as the river drops after the storm, the river adopts the trench as the main channel and abandons the old original channel." 269

Comment: The Army Corps of Engineers, in the winter 1970/1971 cut trenches through the river bed and course to make repairs at the upper end of site 6, and these trenches filled back in during that winter flow. The Eel river has never adopted the trench as the main channel, nor abandoned the old original channel as a result of trenching. The statements as referenced are mere speculation, and do not in fact occur on the Eel River at site 6.

Page iii: "If a proposed gravel processing yard is placed in the heart of the riparian area on the west side of the river as proposed by Elbert Land (site 6), it is predicated that some riparian vegetation would have to be removed. This removal and increase in noise levels is predicated to have an impact on wildlife living in that area." 270

Comment: The 40 acres at site 6 were cleared in the early 1960s with no adverse impact on wildlife. In fact, the 1960 clearing activity resulted in opening the area to deer and quail populations which were not previously abundant.

Page iv: "The only operation proposing a new site is Mr. Land at site #6 over in the western riparian forest." 271

Comment: Site 6 is not a new site. The 40 acres which comprise a part of site 6, has been a gravel mining operation since 1953.

Page v.: "The proposed location of a gravel processing plant related to site #6 in the heart of the 600 acre riparian forest along the west side of the Eel River..." 272

Comment: Site 6 is not for processing. The forty (40) acres on

site 6 is for stockpiling and equipment storage during removal season. Sportsman and other users can drive around the trenches without difficulty. 272

Page 6: The 6th project site is proposed as a new gravel extraction site to be operated by Fortuna Sand & Gravel ..." 273

Comment: Site 6 has been in operation since 1953, and the forty (40) acres is for stockpiling only, no processing is contemplated at this time at this site.

Page 28: "The low flow channel width a site #6 is 450 feet wide. The bed is 1,450 feet wide." 274

Comment: The bed is 4,800 feet wide, not 1,450 feet wide.

Page 36: Paragraph 4. "Noise levels (site 6) could reach 60 dBA at the park from future processing plant." 275

Comment: No processing is contemplated at site 6 at this time.

Page 39: Paragraph 3. "...mouth of the Mad River and across the Eel River." 276

Comment: The Mad River does not now, nor has it ever, crossed the Eel River.

Page 66: "...the only operation that is proposing a processing site in an existing riparian zone is Mr. Land at site #6." 277

Comment: Site #6 does not contemplate processing at this time.

End

(23)

DUN & MARTINEK
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EUREKA, CALIFORNIA 95501
(707) 442-3791
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April 6, 1992

Don Tuttle
Environmental Services Manager
Humboldt County Public Works Department
Natural Resources Division
1106 Second Street
Eureka, CA 95501

RE: Draft Program Environmental Impact Report on Gravel Removal from the Lower Eel River - public comments.

Dear Mr. Tuttle and staff,

The above law firm represents (either directly or as counsel to the local gravel extractors' association) a number of commercial enterprises in Humboldt County. Those operations include Mercer-Fraser, Mad River Sand and Gravel, Arcata Readimix, Eureka Sand and Gravel, Eureka Ready Mix Co., Redwood Empire Aggregates, Randall Sand and Gravel, R.H. Emmerson & Son, Sierra Pacific Industries, and Simpson Timber Company.

The draft EIR has immediate impact on the above named operators who (i) have existing sand and gravel mining operations in the area of the Eel River, (ii) have applied for reclamation plan and permit approvals for operations in the area of the Eel River, or (iii) who have operations that are effected by the availability of gravel from the Eel River and regulatory agencies and policies governing operations in the Eel River area. We appreciate the time constraints within which the EIR was produced and these comments are not intended as a criticism of the efforts of the Public Works staff.

One general concern of this firm and the operators with whom we have discussed this matter is the inconsistency of the statements in the DEIR regarding potential cumulative impacts and significant effects of gravel extraction in the Eel River basin. The summary indicates there are significant potential adverse effects and cumulative impacts. Both the summary and the text of the DEIR indicate there are either no significant cumulative or other effects or that those effects have been mitigated by present operators.

278

The entire discussion of Environmental Effects of the Project, beginning at page ii, appears to be inconsistent with the facts and findings in the text of the DEIR. For example, the summary states: "it is predicted that the bed of the river...could be lowered..." to the point that the bridges are endangered and "[f]ive years of extraction of significant amounts with no large flows to replace those amounts has resulted in the depletion of available gravel to extract by skimming." There is no evidence that the skimming operations are "depleted." Contradicting that "prediction" and the alleged "depletion," the text indicates the river has aggraded and that even after all the operations in the project area:

> "This effect [potential long-term lowering of the bed of the river] can only be predicted because available information does not indicate any long-term trend of the elevation of the river bed at these three bridges [Van Duzen Bridge, Fernbridge, Cock Robin Island Bridge]. Until better bedload information is obtained, one cannot predict with accuracy whether the bed will lower following the removal of 1.16 million yards per year from the six mile stretch of the Eel River below the mouth of the Van Duzen." (p. 75; also see p. 58)

279

The summary contradicts itself, stating at page ii:

> "On looking at the river over the past 30 years, it appears that past gravel extraction has not significantly changed the morphology of the river through the project area."

And, at p. 52, the text states:

> "The river tends to track towards equilibrium and thus tends to even out the general slope of the bed."

There has been no impact on local beaches from gravel extraction:

> "These beaches have not shown any changes over the past 20 years during which time gravel has been extensively taken from the project area." (p. 79)

In fact, the DEIR indicates that the entire Eel River basin is full of gravel:

> "Tremendous loads of material have historically moved down off of the 3,700 square mile highly erodible watershed of the Eel River for the past 5,000 years filling in the entire Eel River Delta. The depth of gravel and silts is reported to be 200 feet at the project area."

280

Significant degradation and present depletion affecting skimming operations are neither established facts nor necessary conclusions to be drawn from established facts. (Attached hereto and incorporated by this reference is a true and correct copy of a letter from Dr. Douglas Jager, hydrologist and professor of natural resources management at Humboldt State University, which indicates that the average annual bedload for the lower Eel is 3,388,000 cubic yards; not the approximately 2,000,000 indicated in the DEIR.) 281

Other matters of concern to our clients are:

a) As a distinct but related concern, the second paragraph (p. ii) of the summary indicates that annual replenishment of gravel is necessary to sustain gravel extraction, yet there is no consistent factual finding or analysis supporting that conclusion or that measure of appropriate annual yield in the text of the DEIR. This method of limiting annual extraction appears to be proposed as an alternative. (See the discussion of alternatives at p. vi; see discussion at pp. 52-53) 282

b) The consequences for future operations and the legality of an allocation, by the County, of a fixed annual extraction amount between existing operators, at p. vi, is not fully analyzed or explained. 283

c) Generally, therefore, the EIR is contradictory in asserting the evidence indicates the river bed is full of gravel while proposing limiting annual extraction amounts to annual bedload deposits. If the system has excessive volumes of sediment and gravel a net reduction could be a benefit. Secondly, annual deposit rates are underestimated in the DEIR. Average annual bedload deposit is more in the realm of 3,000,000 cubic yards according to Dr. Jager's interpretation of the relevant studies; particularly Ritter's which attempted to take into account variability of seasonal factors. The bedload and flow studies that are chiefly relied upon in the EIR appear to be only a few out of many studies of the Eel River (see the studies cited in the Arcata Readimix reclamation plan, a true and correct copy of which is attached hereto and is incorporated herein by this reference). At least one hydrologist has indicated that any assertion of flow rates is only accurate, if at all, based on the qualification that flow rates and bedload deposit rates vary radically over time. What degree of scientific validity and reliability, or levels of confidence, was given to the various studies in formulating the DEIR? 284

d) Perhaps the most important substantive defect, therefore, is the unjustified proposal that the amount of sand and gravel to be extracted annually is dependent on the amount of annual deposit of bedload material. As is implied in the March 9, 1992, Memo from 285

the County Planning and Building Department, this measure of permissible annual extraction amount is not appropriate. Making gravel extraction amounts a dependent variable, which quantity is determined by reference to the independent variable of estimated flow rates during drought years, is not scientifically accurate or reasonable. We support the conclusion of the DEIR, that in order to avoid such a speculative standard, a more appropriate measure may be developed over time and with proper monitoring. As a further example of the problems that arise when annual deposit rates are used as the determinant of extraction rates, there is no description of how trenching correlates with annual deposition rates as an appropriate method of extraction. The limitation of trench length should be done on a site specific basis and no uniform length limitation should be incorporated in the final EIR. 285

e) The conclusion that all the invertebrates are lost when the river enters a new channel is unfounded (p. ii). It appears logical that some of the invertebrates during the high flows must be swept down river in any case, some must die due to changes in water temperature, flow rates, and turbidity associated with seasonal changes, and others from up river must be washed into the new channel which would mitigate the loss of the old channel's invertebrates. There is no factual evidence that the temporary loss of such invertebrate animal life constitutes a significant impact on fish. 286

f) The DEIR states that Fish and Game considers the removal of transitory annual and perennial plant material to be improper or a "significant impact." (p. iv) During the last operating year Fish and Game told operators on the Mad River that valuable riparian environment includes weeds and annual grasses in areas that would be scoured clean each year by annual high waters. The local Fish and Game biologist has prevented any gravel operations where such transitory and apparently insignificant vegetation is present. The insignificant nature of transitory vegetation is appropriately identified in the DEIR (p. iii), but it would be appropriate to include in the final EIR an express discussion of the transitory willows, alders, and other perennial shrub growth on the bars. Many operating areas have such material as a result of the drought years. A conclusion which may be drawn is that such transitory material may be removed during extraction operations because of the overriding economic and flood control values implicit in the extraction operations. 287

g) The historical removal (during the last 200 years) of "riparian" material is not correlated to flood control programs in the past; e.g. the movement of gravel operations out of the immediate path of flood waters and the reason for the construction of the Sandy Prairie Levee in 1959 is not adequately described. (p. iii) See the discussion at p. 66: "Before the levee was constructed all of the riparian vegetation had been eroded from the bank of the river by the river during high flow..." and at p. 57: 288

"Mr. Fred Sundberg stated there were trees a couple of thousand years old on the river banks and when the center of the river filled with silt and gravel, the river spread out, scoured the banks, and cleared off and scoured the edges that contained trees." There is, therefore, an unfounded implication, in the wording of the DEIR, that the riparian vegetation was removed or destroyed by operators and without justification.

h) Further, the statement at page iv that "...long-term (130-years) cumulative impacts on riparian vegetation along the eastern side of the Eel River from Fernbridge to the mouth of the Van Duzen River is significant..." does not describe a causal relationship between any gravel operation or project and the removal of vegetation. Is the increase in vegetation on the west side of the river a factor which decreases the significance of the reduction in large plant material on the east side of the river? The finding of "significant cumulative impact" may be inappropriate if, for example, vegetation was in fact lost during floods (as described at p. 66) or due to other natural causes not resulting from or contributed to by the operations in the area. Does the presence of increased volumes of riparian material on the west bank mitigates loss on the east bank? 288

i) The entire project area is an industrial and farming area, and has been used as such for more than 100 years. Gravel extraction has occurred in the project area since at least 1911. (p. 79) The productive economic uses, as opposed to "passive" recreational uses, in the project area are important to the local and regional economy. The descriptions of "passive" recreational use and of wildlife behavior in the area do not emphasize the established historical use patterns. This is not a pristine "wilderness" area. The area is used by 4-wheelers and working families and individuals. During fishing season and tourist season the gravel bars are covered with vehicles. We are not familiar with any established scenic or aesthetic camping area in the project area. Wild animals and recreational users have historically coexisted with commercial users in the area. 289

j) The "June 1st and October 1st" operating season (mentioned throughout the summary) was imposed by Department of Fish and Game as part of the 1603 Agreement processes in the past. The Department has retracted its uniform policy for all operations in the region. (A uniform policy is not consistent with the wide variety of natural geological and variable climatological conditions; as described in the County Surface Mining and Reclamation ordinances, Title III, Div. 9, Ch. 1, 391-1 (d).) No such fixed operating season should be implied or expressly required by the final EIR. 290

k) The 2-3% slopes, mentioned in the DEIR at pp. 10 and 60, are also no longer a uniform regional operating requirement imposed Fish and Game. The statement that the 3% slope will prevent 291

widening of the river or produce any other positive result is unfounded. The 3% slope began at the edge of the low flow channel and, therefore, did not contribute or prevent significant widening of the river during both high and low flow periods. The 3% slope and fixed operating season are arbitrary and capricious, lacking foundation in analysis of site specific factors and were apparently imposed for ease of administrative review and enforcement by Fish and Game. 291

l) If the final EIR concludes that noise levels are significant and cannot be mitigated then a finding may be made to the effect that the economic significance of the operations and flood control values override any deleterious impact associated with noise. 292

m) The conclusion that "summer bridges, ...scrapers, front-end loaders, and 10-yard dump trucks create adverse visual impacts to recreationists..." is overbroad and unfounded. As stated in the Significant Effects summary, "Whether these are significant or not is in the eye of the beholder." Some recreationists, particularly the vast majority who drive their 4-wheel powered trucks all over the project area, may find the heavy equipment either unobtrusive or interesting. Young children may find the operations interesting to watch and to imitate with their own toy bridges, scrapers, loaders, and trucks. It is not fair to attribute the values of some people to all "recreationists" in the area. Again, the operating period (mentioned near the discussion of visual impacts) imposed by Fish and Game is not a proper topic for inclusion in the DEIR; that fixed regional operating period has recently been eliminated. 293

n) The statement that California Department of Transportation considers the potential long-term lowering of the bed of the river to be a significant effect (p. vi) is contradicted by the text which finds that no such lowering of the bed has resulted from historic operations. (See p. 58, paragraph 3: "Based upon analysis made by the County Public Works Department it would appear that past gravel extraction has not significantly changed the morphology of the river through the project area.") It is not clear why a potential finding by CalTrans (cited at p. vi) is, without substantiation, incorporated in the text of the DEIR. There is no reference to persons or written materials capable of substantiating this finding. 294

o) The same comments apply to the discussion of the possible finding by Fish and Game (at p. vi) regarding the proposed operation on the west side of the river. 295

p) The discussion of other regulatory agencies (at pp. 7-8, 44-50) is in the form of a legal conclusion that those agencies have jurisdiction over all of the operations. That discussion does not appear to be either factually or legally correct; it is not 296

necessary to the environmental assessment by the County. Table 1 on page 1 is, therefore, not appropriate for inclusion in the EIR. State Lands has indicated that some properties that were previously sold of transferred by the government or its predecessors (e.g. Mexican land grants patented by the U.S. government; lands transferred by the U.S. or state to railroads, schools, and towns; etc.) would not be subject to the agency's jurisdiction. (See Public Resources Code section 6403 exempting specific categories of land from Commission jurisdiction.) Army Corps of Engineers recently met with gravel extractors and described operating conditions under which it would not require a permit from operators on the Eel River. The Army Corps of Engineers has indicated that, under certain specified operating conditions, some of the operations might not come under corps jurisdiction above the Worswick Bar. 296

q) Generally, the DEIR does not describe the economic significance to the local and regional economies of gravel extraction and other industrial or farming uses in the project area. In a similar vein, the preference for protecting and preserving gravel extraction operations, implicit in the California Surface Mining and Reclamation Act and Humboldt County ordinances and general plan, are not adequately referenced. As a related matter, the "no-project" alternative must be considered in the light of the County ordinances and SMARA emphasis on the protection of gravel operations and utilization of the County's gravel resources. This is particularly important in Humboldt County because of the scarcity of upland quarries, as mentioned in the DEIR at p. 77. 297

r) While the DEIR addresses its potential utilization by subsequent applicants for extraction permits in the project area (pp. i, 1, 7), the consequences of approving this DEIR for operations outside of the project area or other agricultural users of the project area gravel and water resources do not appear to have been carefully investigated. Out of the area uses and other uses in the project area are not adequately addressed in the text of the DEIR. For example, there appears to have been no consideration of the impact of the EIR's findings regarding flow rates and bedload deposit rates on other kinds of industrial or farming operations in the entire Eel River basin; e.g. farm irrigation, small scale gravel extractions otherwise subject to exemption for farming activities (including timber management), small scale extractions for residential uses, timber harvest activities, etc. 298

s) The DEIR and other studies of the area describe the project area as having been impacted by large amounts of gravel deposits over the last 30 years (in particular during the 1964 flood and mid-1980's heavy seasonal flows). The DEIR does not clearly state that the river channel is full of gravel, to the detriment of flood control values, recreational values, and fish 299

and wildlife values. This gravel must be removed in the interest of the safety of the residents of Ferndale, Fortuna, Rio Del, Scotia, etc. The DEIR indicates that gravel extraction will have an insignificant effect on flood control. That conclusion is unfounded.

299

t) The flood hazard is verified in an Army Corps of Engineers study that is cited in the DEIR bibliography and specifically is incorporated in the Arcata Readimix Eel River Gravel Extraction Reclamation Plan (the Reclamation Plan and study are incorporated herein by this reference and a copy of the reclamation plan is attached; see the study cited at page 3 of the reclamation plan by the U.S. Corps of Engineers, 1980, Eel River Basin Resource Analysis, US Army Engineer District, San Francisco, California, pp. 1-25). Flood control values are discussed briefly in the DEIR at page 64.

u) The DEIR fails to reference presently filed reclamation plans for proposed gravel extraction operations on the Eel River (both inside and outside the defined project area). For example, there is no mention of the O'Neill application which was filed on February 7, 1992, (the proposed operation is described in the attached reclamation plan and environmental documents). There is no reason to approve or continue to consider the EIR without first at least referencing presently filed proposed operations.

300

v) As a related matter, the role of the local city governments in permitting operations in the program area or region is not addressed. Perhaps the County Planning Department, as the lead agency responsible for regulating gravel mining under SMARA, should play a significant role in preparing the final EIR. The SMARA process and the lead agency's role should certainly be emphasized.

301

Conclusion

It would appear aggradation (accumulation of sand and gravel deposited in the project area by winter river flows) is in fact a flood control problem and hazard. The DEIR should not be approved in its present format without due reference being made to the flood control hazard and the benefits of gravel extraction in reducing flood control hazard and improving the estuary by limiting sedimentation which will adversely affect wildlife values. As mentioned in the Planning Department's comments, gravel extraction may enhance fisheries characteristics; e.g. by improving migration routes and resting ponds in the project area, by limiting sand and gravel flows into the estuary.

30?

The operators believe that the historically impacted Eel River is an exceptional environmental system where increased extraction of gravel may directly benefit the fishery while reducing flood hazard. The operators would, therefore, prefer that the benefits

of extracting gravel be specifically identified in the final EIR.

The DEIR indicates that proponents of gravel extraction attribute the large gravel deposits to logging operations. That is not the established view of the operators represented by this firm. The cause of the impaction appears to be a combination of factors; logging is only one factor, residential uses and natural erosion may be more significant factors.

Given (i) the affirmative preference for gravel mining in SMARA and the County ordinances; (ii) the absence of alternative upland quarries; and (iii) the presence of a flood hazard in the project area, the "no-project" or no-operation alternative is not a realistic or appropriate alternative in this case. The DEIR describes the no-project alternative in terms of continued operations at historical extraction rates. Even a complete cessation of all operations and reclamation of the area to a "natural" condition would be unsafe and improper given the flood hazard and other factors present in the project area and the local economy. The final EIR should expressly state that the Board of Supervisors has considered the matter and reached the conclusion that, because of flood hazard, economic necessity, and benefits to fish and the estuary from gravel extraction, the no-project alternative is not viable or appropriate in the case of the Eel River basin. Such a finding could be expressly set forth in the text of the EIR and the Executive Summary. 302

It is our opinion and it appears to be common knowledge that local organizations such as the Audobon Society, Sierra Club, and Cal-Trout have threatened to sue the County. Their goal is to "encourage" the County to take positions advocated by those organizations. Because of the threatened litigation and because the EIR may have significant long term consequences for gravel extractors and their customers and other commercial, private, and government users of the Eel River's water and mineral resources, it may be appropriate for the County Board of Supervisors or Public Works to consider appointment of independent counsel to review these preliminary legal and factual matters before approving the draft EIR.

These comments are offered in the interest of assisting the County in the responsible administration and utilization of the regions natural resources. Sand and gravel extraction is an essential part of the road and construction industry in the County and region. I look forward to your responses to these comments.

Very truly yours,

DUN & MARTINEK

William O. Davis

(24)

E N T E R P R I S E S

April 3, 1992

92-118

Attn: Don Tuttle
Division of Natural Resources
Department of Public Works
County of Humboldt
1106 Second Street
Eureka, CA 95501

Re: Comments on Draft Program EIR for Gravel Removal from the Lower Eel River, February, 1992.

Thank you for the opportunity to comment on this document. Overall it's a good beginning in compiling the information. However, I believe that its conclusions in the Summary are not based on the facts included in the document.

My comments are not meant to be critical since I realize the limited time frame and expansive scope of work that was involved. My overall concern is how this legal document may subsequently be used by people who have expressed a desire in stopping growth from occurring in Humboldt County. I believe a much more useful document would be obtained by focussing the scope as described by the following comments:

OVERALL COMMENTS

1. It is not clear when reading the Draft EIR what the objective of the EIR or the focus of the study is. As I understand it, the EIR was proposed by the Board of Supervisors in order to consider additional extraction levels on the Worswick bar. The EIR begins to focus on the cumulative impacts of gravel extraction. However, then the focus seems to expand to include the processing sites and associated noise, aesthetics, etc. The no project alternative should more clearly state that, even if the County doesn't extract on its bar (and other projects where approval is pending are not considered), there are the existing approved gravel extraction and/or processing sites along the river that gives this section of the river the appearance that it currently has and has had for decades. Furthermore, additional information should be provided analyzing whether the current situation is best for flood protection and fisheries. | 303 | 304 | 305

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2. I feel that the emphasis of the EIR should be limited to river geomorphology and fisheries and that additional information is needed to substantiate the negative conclusions described in the DEIR summary. However, as explained in the next section under Specific Comments, the EIR contains information which, if considered, would come up with a different conclusion than the DEIR summary - <u>that is that there is not substantial information that would indicate the potential for significant adverse impacts</u>. Monitoring information should, however, begin comprehensively along this section of the river to annually assess affects from gravel extraction and gravel recruitment. This has occurred in some sections since 1991. 306 307

3. One very important element that I do not see considered in the EIR sufficiently is comparing the current river conditions with what information is known about the past shipping that occurred on the Eel River 40-50 plus years ago. This seems relevant to both flood and fisheries concerns. 308

<u>SPECIFIC COMMENTS</u>

Summary

4. Page ii, Environmental Effects . . . paragraph 1 - This statement is not supported by information in the DEIR. 309

5. Page ii, Environmental Effects . . . paragraph 2 - Skimming was limited by new Department of Fish & Game requirements requiring a minimum 3% slope. Extraction by skimming at a 1% slope is still available and has been the mode of operation most years in the past. How many trenches were constructed in 1991? The text does not contain this information. The only trench I'm aware of was Canevari in 1990, which has filled in. 310

6. Page iv, paragraphs 4 and 5 - How do these noise levels compare to ambient noise levels adjacent to the river? Recreationists using this section of the river fish, drive four-wheel drive vehicles and motor bikes, and ride horses. Quality passive recreation experience is not something that has historically occurred in this section of the river. There are other places nearby that provide this type of recreation. 311

7. Page v, paragraph 6 - I do not understand why an existing processing plant which was recently reviewed by the City of Fortuna through a public hearing process where noise was not considered a significant impact relates to assessment of cumulative impacts of gravel extraction on this section of the river. 312

8. Page v, Significant Effects, paragraph 1 - The EIR contains no comparison of the natural or ambient levels on the river bar adjacent to the river. How can the comparison be made? 313

9. Page v, Significant Effects, paragraph 2 - "These activities have been ongoing for at least 30-35 years." This section of river is known for gravel extraction and not aesthetics. This activity was considered as part of the recreational status of the State Wild & Scenic Rivers Act. Other alternative locations are available for aesthetic experiences. 314

10. Page vi, paragraph 1 - Based on information in the EIR and on past gravel extraction activity, it does not appear scouring of the piers of the three bridges is occurring. Based on information in the EIR, this is not considered a significant impact and should not be included in this section. However, I agree that monitoring should occur to assess any bed level changes in the future, especially during periods of drought. 315

11. Page vi, Mitigation Measures, paragraph 1 - Limitations on processing is not warranted by information contained in the DEIR. Noise should not be considered a significant impact. No mitigation measure is necessary. 316

12. Page vi, Mitigation Measures, paragraph 2 - As stated in the comments on DEIR, most fishermen on the Eel River drive to the fishing spots. A standard requirement of maximum 400 feet, regardless of whether fishermen utilize a section of the river, would result in an increased number of but shorter channels. This should be analyzed by DFG on an annual basis. 317

13. Page vi, Mitigation Measures, paragraph 4 - The monitoring program is a good idea and should be implemented. However, it should be kept in mind that costs generated would be dependant on annual extraction amounts which may not reach the proposed 1,220,000 cubic yard level. 318

14. Page vi, Alternatives - These alternatives do nothing regarding the Summary's concerns for aesthetics, recreation and riparian. However, those issues should not be considered in this EIR. Other alternatives that should be analyzed include: 1) bringing in gravel from outside areas; 2) shutting down the gravel extraction operations; 3) using substitute materials; or 4) allowing pit excavation adjacent to the Eel River. These alternatives may be considered in the future but information contained in the DEIR indicates that there is not a significant adverse impact occurring from current gravel extraction activities. 319

15. Page VII, Areas of Controversy - ". . . gravel should be treated as a finite and potentially rare resource." How is this defined and what implications does it have to the County's viewpoint of gravel extraction? How does this compare to information in the DEIR, page 27, paragraph 2, and 320

elsewhere? The EIR does not indicate whether these "areas of concern expressed" are supplemented with actual documentation from these groups. The County should have asked for documentation prior to responding. The purpose expressed here "to respond to those comments" - Is this really the purpose of the Draft EIR? The objective of the EIR needs to be clearly stated and focussed and relate to expanded extraction on the County bar and in compilation with what is occurring with the presently permitted and pending permits. The area of controversy should be expanded to include the rights of gravel operators on the river as well - especially those with existing approved projects. It appears that in this document the rights of existing land owners and businesses as well as the reasonable growth and development of the County, is being jeopardized by unsubstantiated claims of non-existent quality passive recreation, rare gravel resources and other expressed concerns. 32 32 32

16. The summary of information in the EIR has left out many of the conclusions and statements contained elsewhere in the EIR, as follows:

Page 37, paragraphs 4-7
Page 38, paragraph 3
Page 39, paragraph 6
Page 47, paragraph 6
Page 59, paragraph 4
Page 62, paragraph 1
Page 63, paragraph 8
Page 67, paragraph 6
Page 71, paragraph 1 and 3
Page 79, paragraph 5 and 6
Page 79, last paragraph

32

See Specific Comments relative to these references.

Project Description

17. Page 7, paragraph 1 - There are other sites on the Eel River in Mendocino County that take out additional gravel from the Eel River. 32

18. Page 7, paragraph 5 - The 1,308,000 cubic yards plus the amount the County of Mendocino operations is the amount of gravel that is being analyzed under cumulative impacts. 32

19. Page 8, Table - Under the top headings, CUP - site 1 is SP 51-91. Under column 2, Reclamation Plan, site 1 is approved. Under CDP column, site 1 CDP is approved. Under the State requirements: CDP, sites that have vested rights are not required to get State Coastal Development permit. This would include site 1 and 5. Under SWP: these sites are not necessarily required to get permits if there currently is no discharge. Under St. Land Commission: for sites 1 and 2, this seems contrary to discussions on page 50 of the Draft EIR. 32

Furthermore, I would suggest eliminating the indication of what operations are required to obtain permits other than County. As an example, Federal permits are not required for every operation. The table could be revised to indicate who has what permits. 326

20. Page 10, paragraph 1 - The fourth sentence should be modified to read, "Trenching became the preferred method of the operator when gravel extraction by skimming was limited by Department of Fish & Game in 1990 to above the 3% grade line. 327

21. Page 13, under site 5 - Mercer, Fraser did not have two sediment settling ponds on the river bed, but rather these were water intake areas. 328

22. Page 13, Last paragraph, the sentence should be revised to read up to 200,000 cubic yards per year. 329

23. Page 15, paragraphs 1 and 2 - The eastern processing site is proposed to be a permanent facility, the western processing site will contain only portable facilities and only on an as-needed basis. 330

Environmental Setting

24. Page 16, paragraph 3 - This says that the sediment level in the river was high for 10 years following the 1964 flood. Is this attributable to the 1964 flood? 331

25. Page 22, paragraph 2 - This seems to refer only to gravel though sand is a major component of material extracted along the Eel River. Do the calculations regarding bedload replenishment and extracted amounts represent just the gravel portion or does it include consideration of all materials taken from the river bed? 332

26. Page 22, paragraph 4 - The calculation of bedload indicated was per day. How many days of deposition at this level occurred? 333

27. Page 22, last paragraph - This paragraph would indicate that aggregation only occurs during major floods and that degradation would occur most winters. Given the amount of replenishment of the gravel bars during normal rainfall years, it would appear that this is not a correct statement. 334

28. Page 25, paragraph 3 - As stated in the previous comment, this paragraph implies that several years of moderate stream flow does not result in much replenishment of gravel. How does this compare to annual extraction amounts taken by gravel operators? 335

29. Page 25, paragraph 4 - Do these figures represent only gravels or does it include sand? If these figures do not include the sand, given the percentage of materials extracted 336

that is sand, what would be the replenishment rates expected based on those studies?

30. Page 32, last paragraph - "Many report." What kinds of reports, what specific reports are being referred to? | 33

31. Page 33, paragraph 3 - Earlier Fish & Game 1603 Agreement required summer bridge crossings to be completed prior to sunset, since the majority of migration occurs after sunset. Is this no longer a valid assumption? It would appear that gravel extraction activities other than placement of summer bridge crossings would not have an impact on the concurrent migration of fish. | 33

32. In the analysis of what's happening in the river, I think more attention should be given to what is occurring at the mouth of the Eel River and the effects it has on fish migration. | 33

33. Page 34 - The information contained on this page would indicate that there are not concerns regarding birds and mammals, and rare and endangered species. | 34

34. Page 34, paragraph 6 - This paragraph is misleading. Are you stating that the riparian vegetation along the Eel River is threatened? If so, by what types of activities? If the riparian area is not threatened and is not officially classified as being threatened, then this paragraph should be rewritten. | 341

35. Page 35, paragraphs 1 and 2 - Are these species affected by gravel operations. The Western Snowy Plover is not currently a threatened species. Why has it not been listed as a threatened species? The sighting of the Snowy Plover on the gravel bar below Fernbridge occurred when? Is this relevant to the discussion? | 342

36. Page 35, paragraph 5 - "Minor air pollution." How is this term defined? Is it below a significant level? | 343

37. Page 35 - "Existing noise levels." I do not understand what the discussion of noise levels has on the cumulative impacts of gravel extraction on the Eel River. Many of the projects discussed have been in existence for a long period of time. Are you saying that increased activity on the County's gravel bar has the potential for causing a cumulative impact in regards to noise levels? Are the noise levels included in the report taken from actual noise readings or represent reduction in noise levels due to their distance from the sources, which may or may not include any attenuation factors? | 34

38. Page 36, paragraph 1 - How much of a factor does highway noises play in these noise levels? A noise study was | 1

conducted for this project and a public hearing was held. Noise was not considered to be an impact.

39. Page 36, paragraph 2 - What type of receivers are in this area? A noise study was completed for this project and a public hearing was held at the City of Fortuna. Noise levels were not considered to be an impact caused by the processing site. 346

40. Page 36, paragraph 4 - The eastern processing site is zoned Industrial. The project is capable of meeting County standards regarding noise levels. The City of Fortuna was aware of the County's Industrial zoning when they considered rezoning the property across the road. 347

41. Page 37, paragraphs 4 through 7 - This information is important and should be included up front in the summary. However, I don't understand how ships were able to go up the river past Fortuna 40-50 plus years ago and yet they are currently unable. It would appear that either the river channel filled in or the bed degraded to the bottom of the previous channel. Since cross-sections have not changed, it would appear that the channel, which was deep enough to allow ships of a good size to travel upstream has filled in. This alone would seem to indicate that the river is in an aggraded condition. 348

42. Page 37, paragraph 7 - Are these changes representative of gravel being removed from this location (i.e., there has been an intermittent gravel operation just downstream from the Van Duzen Bridge to where it meets with the Eel River)? 349

43. Page 37, last paragraph - This is a change of channel location and not necessarily scour. What affects did the 1964 flood have at this location. 350

44. Page 38, paragraph 3 - This information should be included in the summary and represents significant aggregation of the river in a one year period. 351

45. Page 38, paragraph 4 - This indicates that gravel operations have occurred since 1911 and that this river section has been used for long-term gravel extraction. This is important to note and indicates that the aesthetics is not what is discussed later in the report. 352

46. Pages 38 etc. - History of gravel extraction from the project area. The following discussion verifies the existence of gravel operations but does not verify the non-existence of gravel operations. Many of the dates of the photos are generally in non-extraction periods of the year. 353

47. Page 39, paragraph 6 - This statement should be referenced in the summary and included in the description of riparian habitat. 354

48. Page 40, paragraph 11 - The discussion about riparian vegetation found elsewhere in the report should represent that much of the riparian around the processing site appears to begin becoming established after 1966. 355

Permits

49. Page 45, paragraphs 4 and 7 - Many of the gravel extraction projects were in existence prior to the Coastal Act of 1972 and are grandfathered in and not subject to permitting activities unless the operation is expanded or changed in some manner. 356

50. Page 46, paragraph 2 - It should be noted that John Hannum from the CA Regional Water Quality Control Board, at a March 2, 1992 meeting held in Eureka, indicated that a stormwater permit would only be necessary if there was a discharge of stormwater from industrial activities through a conveyance into waters of the State. Many of the operations do not have a discharge of stormwater and some may not be required to submit a General Industrial Stormwater Permit application. 357

51. Page 47, paragraph 6 - This paragraph should be included in the analysis of impacts of gravel extraction. It would appear from these comments that continued gravel extraction is not the concern that is expressed in the summary. 358

52. Page 48 - State Lands Commission - It should be noted that they have long had the ability to require permitting for gravel extraction operations, but have never, that I am aware, issued a gravel extraction permit. The only recently issued permit was for the Arco pipe crossing (1991). 359

53. Page 49, paragraph 1 - The State Department of Natural Resources has annually issued consistency findings (as part of every 1603 Agreement) that gravel extraction on the Eel River is compatible with the Wild and Scenic Rivers Recreational designation. 360

54. Page 49, paragraph 3 - Allowing drainage of water is preferred but is not required to occur. Gravel from channel excavation can be loaded directly onto vehicles and transported to the processing site. Channel trenching and/or utilization of a clam shell occurred in the past in the Eel River. It is only a recent renewal of an old method. 361

55. Page 49, paragraph 5 - What are the potential affects of gravel extraction that NMFS is concerned with? Are they also concerned with the closure of the mouth of the Eel River. 362

56. Page 49, paragraph 6 - The question of cumulative impacts came up. How was it answered? 363

57. Page 50, paragraph 1 - In addition to the Worswick site, the area where Dave Trutalli extracts gravel did not appear to be 364

part of the original bed in 1850, and outside of State Lands Commission Jurisdiction.

Environmental Impacts

58. Page 50 - Environmental Impacts, River Morphology - "Proposed gravel removal." How is this term defined? Does this represent the existing gravel removal that occurs on the river or the proposed addition that is being proposed on the County's bar? | 365

59. Page 50- Environmental Impacts, paragraph 3 - How has the width of the Eel River mouth changed since 1940? | 366

60. Page 51, paragraph 4 - How did these activities reflect the discussion of aesthetics? | 367

61. Page 51, paragraph 5 - This paragraph would indicate that past gravel extraction during low flows does not have an impact to the river bed morphology. | 368

62. Page 51, last paragraph - It should be noted that skimming of gravel bars until recently was allowed at a minimum 1% slope. | 369

63. Page 52, paragraph 3 - It should be noted that, historically, trenching or utilization of the clam shell occurred in this stretch of the river. When gravel drops in a hole, the river will pick up gravel again immediately downstream. Again, migration in a wave as described on the previous page, would occur. Deposits between Sites 3 through 7 could migrate downstream. | 370

64. Page 52, last paragraph - ". . . exceeds any historical amounts." This statement is based on what? Is there any bar storage in the area? Are there any areas on the river that still have storage? ". . . there is a cumulative affect of five years of gravel removal through the 1991 season." The question is whether it is significant. Based on the information in the EIR, it is not significant. It should also be noted that many permit limits have not been reached for several years and that the process is self-monitoring. There is an expressed concern that the Cock Robin Island Bridge may be affected by lowering of the bed; however, elsewhere in the report it indicates aggregation of 2-14 feet. Are these statements consistent? | 371

65. Page 58 - This information appears to be the meat of the draft EIR. It should be stated more clearly what the potential impacts are. Again, based on the analysis in the EIR, there does not appear to be impacts. There is information that there were holes in the river ranging from 20-50 feet deep and that shipping occurred in this stretch of the river. How does this compare to information contained in a Dames and Moore report? | 372

66. Page 57, paragraph 1 - These statements would indicate that the river channel was much deeper than is at present. Again, does this represent a highering or lowering of the river channel. 373

67. Page 58, paragraph 3 - Unless additional information is submitted showing to the contrary, the contents of the EIR would indicate that there is not a significant adverse impact occurring from past and present gravel extraction levels. The amounts indicated in paragraph 3 appear to be low. Are these levels for existing permitted operations or existing operations? A monitoring program should be instigated to monitor this stretch of river. However, again it does not appear from information contained in this draft EIR that there is sufficient evidence that there would be a significant adverse impact occurring as a result of the project. 374

68. Page 58, last paragraph - It would appear to be that the County is the agency that needs to make the decision on the allowable amounts of gravel. However, other agencies may get involved, depending on whether subsequent permitting is required. 375

69. Page 59 - Fishery habitat - What types of impacts does gravel extraction that occurs out of the stream have on fishery habitats? Why use the term "near negligible"? Are there not natural activities that occur which have more than a negligible level of impact? In regards to the limitation of dates, how do off-site gravel extraction activities affect fish migration. 376

70. Page 59, paragraph 4 - This information should be included in the summary. 377

71. Page 59, paragraph 5 - The two concerns discussed are raised by who? This paragraph and the following paragraph would indicate that there is no evidence that this is a problem. 378

72. Page 59, last paragraph - This paragraph states that invertebrates that were living in the low flow channel would be lost and represent a loss of fishery habitat. Does this not occur to a greater extent from a shallow wide river channel flowing during winter months only to dry up in the majority of its width during late summer? Do you have any information that would indicate that recolonization from upstream resources are slower than necessary? It would appear that reproduction rates of these invertebrates would be high and that, given new habitat, would reproduce at a higher rate. Also, channel bottoms in some locations tend to be sandy and may not provide a necessary rocky habitat of some of these invertebrates. 379

73. Page 60, paragraph 1 - I think it is important to note that this stretch of the river is important for migration. How much actual spawning occurs in this section? 380

74. Page 60, paragraph 2 - Would this sentence indicate that, since Singley Hole recently filled it should be replaced by deep excavation? | 381

75. Page 60, paragraph 5 - The beneficial impact would be better realized if the mouth of the Eel River became opened. | 382

76. Page 60, paragraph 6 - Based on this information and the high percentage of silt and sand, this would indicate that invertebrates in this section of the river would not be significantly affected. This paragraph indicates a beneficial impact of gravel extraction and should be included in the summary. | 383

77. Page 62, paragraph 1 - This also is an important finding of the EIR. It should be included in the summary. However, regarding removal of riparian vegetation, how much of this is a result of levee construction and floods. It does not appear that, compared to summary of aerial photographs discussed earlier, that this is significantly attributable to gravel extraction processing activities, but many other factors are involved. | 384

78. Page 62 - Overall information contained on this page would indicate that gravel extraction does not have a significant impact to wildlife. | 385

79. Page 63, paragraph 2 - The word "fortunately" is not necessary. | 386

80. Page 63, paragraph 8, last sentence - This sentence should be included in the summary. | 387

81. Page 64, paragraph 1 - Site #4 was reviewed and approved through the use permit process with the City of Fortuna. Since this was an Industrial zoned part of the City it was not considered an impact. The views of the site from Highway 101 occurred when CalTrans began vegetation clearing along that portion. The property owner demanded that CalTrans stop vegetation clearing activities on this section of Highway 101. | 388

82. Page 64, paragraph 2 - This is the beginning of comments regarding viewshed and recreational impacts. Those using the river for recreation and sports fishing utilize this section of the river for catching fish or driving off-road dirt bikes. Very little use for nature walks has been personally observed along the river, primarily due to the extensive width of gravel bars. | 389

83. Page 65, paragraph 5 - What is the total acreage of riparian habitat that occurred in 1950? What percentage still remains today? How is the remaining percentage defined as "very little"? | 390

84. Page 66, paragraph 6 - Western processing site is not vegetated with riparian species. The vegetation was not manually cleared to the best of my knowledge but occurred as a result of past floods. 391

85. Page 66, last paragraph - Based on information contained in the EIR, it would appear that a majority of riparian was lost by natural causes and that, from gravel extraction, this loss should not be considered cumulatively significant. 392

86. Page 67, paragraph 6, last sentence - This should be placed in the summary. 393

87. Page 67, last paragraph - This should be placed in the summary. 394

88. Page 68, paragraph 7 - Are these noise levels representative of measurements at 50 feet? 395

89. Page 69, paragraph 2 - The EIR should address what periods of the year the Eel River is closed to fishing. Most fishing that I have observed occurs until shortly after sunrise. By 8:00 many fisherman have already left. People who are interested in fishing in this location put up with the noise. People who are interested in nature experiences fish elsewhere. There are plenty of higher quality areas that people desiring this type of recreation can go. Historically, this stretch of the Eel River has been utilized primarily by those who drive their trucks and/or boat trailers at the river's edge and are willing to put up with shoulder-to-shoulder fishing amongst hundreds of others in order to <u>catch</u> <u>fish</u>. 396

90. Page 69, paragraph 3 - Levels of 60 dBA allows normal speech with someone to occur up to approximately 10 feet. This is within the normal distance where people converse without raising their voices. Conversation can still occur without shouting up to approximately 73 dBA 10 feet away (City of Arcata Noise Element Figure 3, 1985). 397

91. Page 69, paragraph 6 - What is the noise level adjacent to the River with and without the wind blowing? It would appear that in many sections of the river the ambient level is fairly high due to natural causes (water flowing, riffles, wind). Please state source of information. 398

92. Page 70, paragraphs 1 and 2 - The types of activities described here have been long-term and they are actually a historic part of the river. The recently constructed levee has more of an impact in distracting from the natural condition of the river. However, this was not considered a significant impact. 399

93. Page 70, paragraph 3 - Highway commercial type businesses were only recently designated in the plan. Past land use has been mill activities in industrial type use. 400

94. Page 70, paragraph 5 - Comments noted earlier regarding wildlife species was that they were not impacted. Preliminary application materials indicate that the crusher is not initially proposed. If one is proposed it is likely to be in the center of the cleared area, which is currently not vegetated with mature riparian species. 401

95. Page 71, paragraph 1 - How did these dates compare to the time that fishing is allowed on the river, particularly during recent low flow seasons? This paragraph should be moved to the summary. 402

96. Page 71, paragraph 3 - This paragraph would indicate that cumulative significant impacts do not occur. This paragraph should be included in the summary. 403

97. Page 72, paragraph 4 - "The project area has been classified recreational and is expected to have an environment that has been altered by developments along the river banks." Based on this definition, why the concern over noise/aesthetics/recreation? 404

98. Page 72, paragraph 5 - The majority of recreationists utilizing this section of river - how can you state that they have adverse affects on the viewshed when later in the same paragraph you state that it is in the "eye of the beholder." Obviously the past and historic use of this stretch of river for gravel extraction and processing has not deterred the recreationists who are interested in fishing in this stretch of the river. Again, there are other places that are better suited for those people desiring a higher quality of recreation. Information contained on this page would indicate that no significant impact would occur. 405

99. Page 73, last paragraph - It has been my experience that most fisherman who are utilizing the western bank of the river where channel observation has occurred drive in four-wheel drive vehicles. I think the EIR should discuss who these specific fisherman are and to what agency they are making complaints. 406

100. Page 74 - The photo shows fisherman in their pickup trucks and boat trailers, utilizing this section of the Eel River. This is the type of recreational use this portion of the river experiences. 407

101. Page 75, paragraph 1 - Minimum clearance is required for boaters. 408

102. Page 75 - Significant Effect Which Cannot be Avoided if the Proposal is Implemented - The project would appear to be specifically the extraction levels on the County bar, though gravel extraction and other impacts have been assessed on a cumulative basis. If the County does not go ahead with the project, the same impacts discussed here would occur. The 409

long-term trend is that past operations have not adversely affected three bridges.

103. Page 75 - Mitigation Measures Proposed to Minimize the Significant Effect - Decreasing the number of small stockpiles, are not necessary to minimize visual impacts. No mitigation measure is required. The limitations of dates recently required by the Department of Fish & Game do not represent long-term gravel extraction limitations. These dates do not result in cumulative impacts. Noise levels are not an impact. Limitations of operating dates for processing are not necessary. The focus of the EIR and based on existing information indicates that noise should not even be considered in this draft EIR. 410

104. Page 75, last paragraph - The Department of Fish & Game is also concerned with recreational use of the river. The Wardens review specific project which might affect fishing access. It is best to leave any requirements to site specific conditions determined by the Warden at the time of the 1603 Permit Application. 411

105. Page 76, paragraph 1 - This should be revised to read "to minimize the <u>potential</u> for adverse affects." There are no significant affects identified in the EIR. 412

106. Page 76 - Alternatives - 1) No Project - it is my feeling that no significant impacts have occurred. Based on information contained in the draft EIR, the no project alternative would not necessarily have any benefits. Since the river at one time had enough depth to it to allow boats up to Scotia, no expansion of gravel extraction that is currently occurring could allow further braiding of the river and seasonal closure of the mouth of the Eel River as has occurred in recent years. 413

107. The proposal for monitoring is good. However, it does not speak of what to do during an interim period. Again, I feel that the EIR has not disclosed any significant impacts. 414

108. Page 77 - Alternative 4 - Well testing that has occurred in this general area has indicated 200-300 feet deep of unconsolidated gravel materials. This alternative could be utilized in the future. However, given the aggraded conditions of the river, this shouldn't be necessary. 415

109. Page 77 - Short-Term Uses - The first paragraph is not supported by information contained in the EIR. In the second paragraph where it states the "proponents" I take to mean the County Public Works Department. This paragraph should be included in the summary. The paragraph should also be amended to include that a large load of gravel was brought down due to natural landslides as well as logging and road building activity. 416

110. Page 78 - "Significant Irreversible . . ." This activity has recently been concentrated due to Department of Fish & Game requirements. Better equipment and larger trucks can reduce the activity. Low flow and low gravel extraction amounts will also reduce activity. This is self-monitoring. 417

111. Page 78, paragraph 3 - The 40 acre site is a temporary site. It is not irreversible but, after extraction activities end, can be revegetated with riparian species. 418

112. Page 78, Growth Inducing Impacts - Much of the growth in the County does not follow construction of a new road. Using McKinleyville as an example, most recent construction was adjacent to existing roadways. Road construction generally occurs only after land use approvals. The unavailability of gravel requires more expansive alternatives and higher housing costs. More gravel, which results in less expensive gravel, does not generate growth inducement but makes housing more affordable. This is a primary goal of the State. 419

113. Page 78 - Cumulative Impacts - This information should be compared to the previous use of this section of the river by ships which are not able to make the same passage that they did 40-50 years ago. 420

114. Page 79, paragraph 1 - Is this good or bad? 421

115. Page 79, paragraph 2 - This paragraph needs further clarification as to its intended meaning. 422

116. Page 79, paragraph 3 - All nine sites are generally active and have historically been active at one time. Not all projects require summer bridges at all. Some projects don't require them every year. Noise levels on the river bed and impacts on views and aesthetics of the river bed for the six mile stretch is not determined to be a significant impact, according to information contained in the EIR. 423

117. Page 79, paragraph 4 - Previous information in the draft EIR indicated that water pollution was not a problem. The importance of this paragraph, I feel, is that "many of the current gravel extraction and gravel processing sites have been active almost every year since 1970." The year that the Wild and Scenic Rivers Act was implemented was December 20, 1972. These projects were considered during the designation of this section of the river. 424

118. Page 79, paragraph 5 - This paragraph should be included in the summary. 425

119. Page 79, paragraph 6 - This information is important in the consideration and analysis of impacts. Again, this supports that there is not a significant impact from past gravel extraction. This information should be included in the summary. 426

120. Page 79, last paragraph - A summary of this information should also be included in the summary.

121. Appendix A - This Monitoring Plan is a good description and should be implemented. However, costs associated with completing the requirements may be high. Estimates should be obtained from several sources. Some firms may be more familiar and have existing information that would lessen these costs. Costs per cubic yard will be higher than discussed when gravel extraction is not at the maximum allowable level.

Sincerely,

RISING SUN ENTERPRISES

Robert Brown, AICP
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