CALIFORNIA COASTAL COMMISSION
NORTH COAST DISTRICT OFFICE
710 E STREET • SUITE 200
EUREKA, CA 95501-1865
VOICE (707) 445-7833
FACSIMILE (707) 445-7877

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| Filed: | July 28, 2009 |
| 49th Day: | September 15, 2009 |
| 180th Day: | January 23, 2010 |
| Staff: | Melissa B. Kraemer |
| Staff Report: | July 30, 2009 |
| Hearing Date: | August 13, 2009 |
| Commission Action: | |

## STAFF REPORT: REGULAR CALENDAR

APPLICATION NO.: **1-09-011**

APPLICANT: **Charles Hansen**

AGENT: Doug Dinsmore, Granite Construction Company

PROJECT LOCATION: At river mile 13.5 on the lower Eel River near 2404 Sandy Prairie Road, west of Highway 101, Rohnerville area, Humboldt County (APN 201-211-03).

PROJECT DESCRIPTION: Continued seasonal extraction of up to 50,000 cubic yards of river run aggregate (sand and gravel) per year for a period of five years from the dry river channel.

LOCAL PLAN DESIGNATION: Agriculture Exclusive (AE) as designated by the Eel River Area Plan

LOCAL ZONING DESIGNATION: (1) Natural Resources with riparian protection combining zone (NR/R), and (2) Agricultural Exclusive, 60-acre minimum parcel size, with archaeological, flood hazard, riparian protection and transitional agricultural combining zone (AE-60/A,F,R,T).

APPROVALS RECEIVED: (1) Humboldt County Vested Rights Determination (SP 46-912) issued July 14, 1992 for the annual removal of up to 50,000 cubic yards of gravel; (2) Humboldt County Reclamation Plan No. RP 02-912X; (3) Humboldt County Surface Mining & Reclamation Plan No. SMR-03-912; and

(4) Approval of Financial Assurances guaranteeing reclamation of the site.

OTHER APPROVALS NEEDED:

1. U.S. Army Corps of Engineers Section 404 Clean Water Act Letter of Permission (LOP 2009);
2. California Department of Fish & Game Section 1600 Streambed Alteration Agreement;
3. North Coast Regional Water Quality Control Board Section 401 Water Quality Certification (for 2010-2014 gravel extraction seasons);
4. State Lands Commission General Lease (for seasonal crossing installation); and
5. County of Humboldt Extraction Review Team (CHERT) approval.

SUBSTANTIVE FILE DOCUMENTS:

1. Final Program Environmental Impact Report (EIR) on Gravel Removal from the Lower Eel River, adopted 1992, and Supplemental EIR, certified July 24, 1992;
2. *Interim Monitoring Program and Adaptive Management Practices for Gravel Removal from the Lower Eel and Van Duzen Rivers (IMP)*, July 2, 1996;
3. *Biological Assessment for the U.S. Army Corps of Engineers LOP-2009 Aggregate Extraction Operations Lower Eel River and Van Duzen River, Humboldt County, California*, prepared by Alice Berg & Associates, Clio, CA, May 6, 2009;
4. *Lower Eel River Gravel Mining and Extraction Activities Biological Assessment (Western Snowy Plover)*, prepared by Winzler & Kelly, Eureka, CA, March 9, 2009;
5. NOAA-Fisheries Formal Consultation/ Final Biological Opinion for LOP-2009;
6. U.S. Fish & Wildlife Service Formal Consultation/Final Biological Opinion for LOP-2009;
7. *Analysis of Eel River Cross Sections at Gravel Mining Sites, 1997-2007*, prepared by County of Humboldt Extraction Review Team (CHERT), January 2009;
8. Humboldt County certified Local Coastal Program.

## SUMMARY OF STAFF RECOMMENDATION

Staff recommends approval with special conditions of the proposed gravel extraction project.

The project site is located at the Hansen gravel bar on the lower Eel River, at approximately river mile 13.5 off of Sandy Prairie Road, west of Highway 101, in the Alton area, approximately 5 miles south of Fortuna. The site is approximately 1.5 miles downstream of the Van Duzen River confluence and 0.5-mile upstream of the Sandy Prairie landform (see Exhibit Nos. 1 and 2).

The 94-acre parcel stretches along approximately 1,500 lineal feet of the river, and extends easterly approximately three-fourths of a mile to Sandy Prairie Road and Highway 101. The

western boundary of the parcel is defined by the centerline of the active channel of the river, which currently is migrating westerly. The parcel extends easterly from the center of the active summer channel across the gravel bar, which is crossed by various secondary overflow channels, which are typically dry at the peak of the summer. The Hansen property covers a portion of the Hauck/Hansen gravel bar.

The applicant proposes the continued, on-going seasonal extraction of aggregate (sand and gravel) from the Hauck/Hansen Bar. The applicant proposes to extract up to a maximum of 50,000 cubic yards of aggregate per year. As proposed, the specific extraction site would depend on morphological conditions, evaluation of gravel replenishment data, and biological evaluations and other agency requirements. Gravel is proposed to be extracted using a bulldozer, front-end loader, and dump trucks. To access areas of the bar, the applicant is also seeking authorization to construct seasonal crossings over secondary or overflow channels of the Eel River. Crossings would consist of railroad flat cars placed side by side over the channels with gravel abutments using either washed gravel or gravel scraped from surrounding areas. Brow logs or large concrete blocks would be utilized to front, or stabilize, abutment fill and decrease encroachment of the aggregate fill into the wetted channel. Crossings would be located at points of the channel where potential salmonid spawning sites are not projected to occur, to be determined annually by a qualified fisheries biologist in consultation with the reviewing resource agencies. See Exhibit No. 4 for full project details, and see Appendix B for a description of gravel extraction methods.

The proposed annual extraction amount of 50,000 cubic yards is proposed as an upper limit, is consistent with the PEIR for the lower Eel River, and is based upon evaluation of additional information as well as the data collected under the Humboldt County PEIR and Interim Management Programs. This project has been described to permit adaptive management of the project area. In any given year, project extraction volumes, locations, and methods would be submitted by the project consultants for approval by local, state, and federal agencies, including the County of Humboldt, Department of Fish and Game, and the Army Corps of Engineers. Annual assessments and site evaluations would be used to determine where aggregate could be excavated without causing long-term river bed degradation, the levels and volume of recruitment, and appropriate extraction volumes. No mining would occur at any location until after specific mining and reclamation plans are developed on the basis of annual environmental assessments and monitoring of the proposed project site.

The Hansen Bar has been mined for sand and gravel on an intermittent basis since the 1960's (see Table 1 below), though the last time that the site was mined was in 2003. In 1992 the County approved a vested right to extract a maximum of 50,000 cubic yards annually from the site.

The gravel extraction areas on the bar are generally not visible from Highway 101, the principal public road in the area. Parts of the existing processing plant (equipment towers) are remotely visible. The proposed project would not modify the processing plant.

The Lower Eel River has been used for gravel extraction since 1911. Currently, approximately six gravel operations are located along a 9-mile stretch of the lower Eel River, and three

additional operations are located on the lower reaches of the Van Duzen River, which flows into the Eel River at Alton (Exhibit No. 3). All of the operations along the Eel River and the portion of the lowest-most operation on the Van Duzen River west of the Van Duzen River Railroad Bridge are within the coastal zone. All of the gravel operations on the lower Eel and lower Van Duzen Rivers are interrelated in the sense that all of the gravel bars derive their material from the same upstream sediment sources. Brown and Ritter (1972) determined that the Eel River was a "hydraulically-limited" rather than "sediment-limited" river. This means that replenishment is more a factor of the size and duration of winter flows than the production of sediment in the watershed. This determination was based on the calculated high amounts of sediment that currently exist in active land sliding occurring in the watershed.

Humboldt County developed a strategy for controlling the cumulative impacts of the gravel operations on riverbed degradation and bank erosion. At the heart of the strategy is an annual administrative approval of extraction plans that specifies the particular method and location of extraction. The "CHERT" (County of Humboldt Extraction Review Team), which is composed of independent fluvial geomorphologists, hydrologists, biologists, and botanists, has the authority for the County to review all annual mining plans and prescribe changes to those plans as deemed necessary. CHERT integrates all the monitoring data developed by the gravel operators for geomorphic evaluations of the streambed and also evaluates and recommends practices designed to preserve and enhance vegetation and wildlife habitat.

In January of 2009, CHERT released a 10-year analysis (Exhibit A) of river channel cross sections taken at various sites along the Eel and Van Duzen Rivers near mining sites (including the lower, middle, and South Fork reaches of the Eel River and the lower Van Duzen River). The report represents the longest-term geomorphic analysis completed to date examining the potential effects of gravel mining operations on river channel morphology. The report finds that "While certain methods of mining and locally excessive volumes can affect instream habitat in the short term, the river does not appear to suffer from long term or broad scale channel bed degradation from gravel mining. Furthermore, the CHERT adaptive management program authorized by the IMP specifically addresses preventing local over-extraction and avoids/minimizes mining methods that cause aquatic and riparian habitat damage" (page 2). The report concludes that "…we did not discern any large scale, persistent effects of Eel River gravel mining on channel thalweg elevations, mean bed elevations, or scour…Gravel mining effects in the Eel River are probably limited to short term, localized effects which the adaptive management program and federal and state oversight attempt to avoid or minimize. Refinement of project-scale minimization measures will continue to be a fundamental component of the adaptive management process, as will instream habitat improvement projects associated with gravel extraction operations" (page 24).

In an effort to streamline the processing of Clean Water Act permits for the numerous in-stream gravel operations within Humboldt County, the U.S. Army Corps of Engineers adopts a Letter of Permission (LOP) procedure for authorizing such projects. An applicant for a project covered by the LOP must submit yearly gravel plans and monitoring information to the Corps for approval under the procedure. The Corps incorporates the County's CHERT review process into its LOP procedure.

As with all "federal actions" that might adversely impact rare, threatened, and endangered fish and wildlife, the LOP process and the Corps' review of individual Section 404 permits is also subject to consultations with applicable natural resource trustee agencies as required under Section 7 of the Federal Endangered Species Act (FESA). The exposed cobble in the gravel bars adjacent to the low-flow channels provides roosting and/or nesting habitats for the federally listed western snowy plover (*Charadrius alexandrinus nivosus*). Additionally, the Eel River and its tributaries support three federally threatened fish species: Coho salmon (*Oncorhynchus kisutch*), Chinook salmon (*Oncorhynchus tshawytscha*), and steelhead trout (*Oncorhynchus mykiss*). The lower Eel River, including the project area, is mainly utilized by the anadromous fish as a migration route to and from the upstream spawning grounds. In addition, the lower Eel River supports summer rearing habitat for juvenile salmonids, especially steelhead yearlings and fall Chinook sub-yearlings, and holding areas for adult summer steelhead as well as spawning and nursery habitat for marine fishes and invertebrates. The formal consultations conducted by NOAA-Fisheries and the FWS provide critical evidence for the Commission's review of the proposed gravel mining operations on the lower Eel and Van Duzen Rivers that the operations will not result in significant adverse impacts on threatened and endangered species.

On July 27, 2009, NOAA-Fisheries transmitted its preliminary conclusions and draft terms and conditions to minimize the amount or extent of "take" of threatened salmonids (Exhibit D). The final Biological Opinion for LOP-2009 for proposed gravel extraction operations on the Eel and Van Duzen Rivers is anticipated to be issued in late August. The preliminary conclusion states that the gravel mining proposed under LOP 2009 for the five-year permit period is not likely to jeopardize the continued existence of threatened salmonids and is not likely to adversely modify or destroy designated salmonid critical habitat. The preliminary conclusion of NOAA-Fisheries notes that the measures instituted in 2004 have worked well, and the agency does not anticipate any significant changes the requirements and recommendations to the Corps that will be included in the final Biological Opinion for LOP-2009. Additionally, the FWS has informed staff that it does not anticipate that its recommended conditions for western snowy plover will be significantly different than those included in the 2005 Biological Opinion (see Exhibit F). The FWS preliminarily concludes that the proposed gravel operations will not jeopardize the continued existence of the plover or adversely modify or destroy its designated critical habitat. The FWS final Biological Opinion is expected to be issued by August 12, 2009. Staff recommends Special Condition No. 14 to require the applicant to submit, prior to permit issuance, final Biological Opinions in support of the gravel extraction authorized by this permit and that are consistent with all terms and conditions of this permit.

Staff believes that, with the recommended conditions described below, the proposed gravel extraction operation is consistent with the requirements of Section 30233 of the Coastal Act, in that feasible mitigation measures have been provided to minimize adverse environmental effects. The gravel extraction limitations and performance standards imposed through Special Condition Nos. 1, 3, and 5 are designed to prevent impacts to river morphology, riparian vegetation, threatened and endangered species, and water quality. Together with the requirements of Special Condition Nos. 6 and 7 to prohibit placement of material into the active channel and limit the extraction season, the project is conditioned to ensure that significant adverse impacts to the Eel

River from the proposed gravel extraction operation will be avoided. Therefore, staff believes that the proposed project as conditioned is consistent with the requirements of Sections 30231, 30233, and 30240 of the Coastal Act, as well as all other applicable policies of the Coastal Act.

**The Motion to adopt the Staff Recommendation is found on Pages 6-7.**

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# STAFF NOTES

## 1. Exhibits A through F are Common to Agenda Items Th-6c through Th-6f

Exhibits A through F are common to agenda items Th-6c (CDP Application No. 1-09-005, Eureka Ready Mix), Th-6d (CDP Application No. 1-09-006, Eureka Ready Mix), Th-6e (CDP Application No. 1-09-011, Charles Hansen), and Th-6f (CDP Application No. 1-09-022, Mercer-Fraser Co.). A single combined exhibit packet has been prepared for the four applications and is included under separate attachment.

## 2. Jurisdiction & Standard of Review

The project site is located in the Commission's retained permit jurisdiction. The County of Humboldt has a certified Local Coastal Program (LCP), but the site is within an area shown on State Lands Commission maps over which the State retains a public trust interest. Therefore, the standard of review that the Commission must apply to the project is the Chapter 3 policies of the Coastal Act.

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# I. MOTION, STAFF RECOMMENDATION, & RESOLUTION

The staff recommends that the Commission adopt the following resolution:

**Motion:**

*I move that the Commission approve Coastal Development Permit No. 1-09-011 pursuant to the staff recommendation.*

**Staff Recommendation of Approval:**

Staff recommends a **YES** vote. Passage of this motion will result in approval of the permit as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

**Resolution to Approve Permit with Conditions:**

The Commission hereby approves a coastal development permit for the proposed development and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act. Approval of the permit complies

with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

## II. STANDARD CONDITIONS: See Appendix A.

## III. SPECIAL CONDITIONS:

### 1. Extraction Limitations

Extraction of material shall be subject to the following limitations:

(A) Consistent with the proposed project description, the permittee shall extract no more than 50,000 cubic yards of gravel annually from the project site;

(B) The permittee shall only extract material by traditional skims, horseshoe skims, inboard skims, narrow skims, alcove extractions, wetland pits, wet trenches for salmonid habitat improvement purposes only, and/or dry-trenches in the manner described Appendix B and in the U.S. Army Corps of Engineers Letter of Permission Procedure 2009 (LOP-2009) Public Notice dated February 19, 2009 (No. 2007-00857). If wet trenching methods for salmonid habitat improvements are used, the trenching within the wet channel shall be limited to the trenching configuration and extraction volume that is the minimum amount necessary for improving salmonid habitat. If dry trenching methods are used, a barrier such as silt fencing, or a gravel berm shall be constructed and maintained during trenching along the entire length of the excavated area to prevent turbid water from entering the flowing river. After completion of gravel extraction operations, the permittee shall remove the berm in several locations to prevent the creation of fish traps;

(C) Excavation shall not occur in the active channel (area where water is flowing unimpeded through the river channel);

(D) Extraction quantities shall not exceed (1) the proposed cubic yards per year of gravel extraction, (2) any specific allocation limit required by the Army Corps of Engineers, and (3) the long-term average sustained yield based on estimates of mean annual recruitment, as utilized by CHERT;

(E) Gravel extraction operations shall not disturb or remove any of the riparian vegetation on the river banks;

(F) Gravel extraction operations shall not disturb or remove any of the riparian vegetation on the gravel bar that is either: (1) part of contiguous riparian vegetation complex 1/16-acre or larger, or (2) one-inch-in-diameter at breast height (DBH) or greater;

(G) Horseshoe extractions shall occur on the part of the gravel bar that is downstream from the widest point of the bar and must be set back from the low flow channel with vertical offsets;

(H) Dry trench extractions shall be (1) limited to excavation on an exposed dry gravel bar; (2) either shallow and stay above the water table, or deep and extend below the water table, and (3) breached on the downstream end and connected to the river to prevent fish stranding after excavation when the sediment in the trench has settled;

(I) Alcove extractions shall be (1) located on the downstream end of gravel bars where naturally occurring alcoves form and provide refuge for salmonids; (2) regularly shaped or irregularly shaped to avoid riparian vegetation; (3) open to the low flow channel on the downstream end to prevent fish stranding; and (4) extracted to a depth either above or below the water table;

(J) Any bar-skimming extractions that are consistent with subsection (B) above that are proposed adjacent to the low flow channel shall have a minimum skim floor elevation at the elevation of the 35% exceedence flow;

(K) The upstream end of the bar (head) shall not be mined or otherwise altered by gravel extraction operations. The minimum head of the bar shall be defined as that portion of the bar that extends from at least the upper third of the bar to the upstream end of the bar that is exposed at summer low flow; and

(L) The location of wetland pits shall be above the two-year flood frequency elevation.

**2. <u>Seasonal Crossings</u>**

Any proposed crossing of the low flow channel or secondary channels that could be expected to maintain flow year-round shall be subject to the following criteria:

(A) The crossing shall be of the railroad flatcar or bridge variety placed in a manner so as to span the channel with a minimum clearance of three (3) feet above the water surface;

(B) Stream channel crossing locations shall be determined on a site-specific basis. Special consideration shall be given to the proposed placement of the channel crossings at riffles and based on findings from CHERT that the location will minimize adverse effects to salmonids;

(C) No portion of the abutments or bridge supports shall extend into the wetted channel except in shallow flat-water areas;

(D) The presence of heavy equipment in the wetted low-flow channel shall be minimized by limiting the number of heavy equipment crossings during each crossing installation or removal. A maximum of two crossings per installation and two crossings per removal is allowed, although one crossing is preferred. Heavy equipment shall not be used in the wetted low-flow channel except for channel crossing installation and removal;

(E) Channel crossings shall only be placed after June 30 of each year; and

(F) Channel crossing removal shall be completed by October 15 of each year or by the extended date approved by the Executive Director pursuant to Special Condition No. 5.

**3. <u>Annual Gravel Extraction Plan</u>**

(A) **PRIOR TO THE START OF EACH YEAR'S GRAVEL EXTRACTION OPERATIONS**, the applicant shall submit, for the review and written approval of the Executive Director, a final gravel extraction plan for that gravel extraction season consistent with the terms and conditions of this permit and that contains the following:

1. A gravel extraction plan of the annual gravel extraction operation containing cross-sections, maps, and associated calculations that accurately depict the proposed extraction area, demonstrates that the proposed extraction will be consistent with the extraction standards and limitations specified in Special Condition Nos. 1, 2, 4, 5, 6, and 7 and is prepared in conformance with the requirements of the U.S. Army Corps of Engineers Letter of Permission Procedure 2009 (LOP-2009) Public Notice dated February 19, 2009 (No. 2007-00857);

2. A pre-extraction vertical rather than oblique aerial photo of the site taken during the spring of the year of mining at a scale of 1:6000 and upon which the proposed extraction activities have been diagrammed;

3. A botanical survey prepared by a qualified biologist with experience in riparian and wetland vegetation mapping, for the review and approval of the Executive Director, that maps all vegetation found in potential extraction areas of the site and highlights the location and extent of all vegetated areas containing woody riparian vegetation that is either (i) part of a contiguous riparian vegetation complex 1/16-of-an-acre or larger or (ii) one-inch-in-diameter at breast height (DBH) or greater. If the areas proposed for extraction are devoid of vegetation, the applicant may substitute the submittal of photographs (including aerial) that are sufficient in the opinion of the Executive Director to demonstrate that no vegetation exists in the proposed extraction areas in lieu of the botanical survey;

4. A copy of the gravel extraction plan recommended by the County of Humboldt Extraction Review Team (CHERT) for the site for the subject year, unless review by CHERT is not required by the County, and evidence that the final gravel extraction plan is consistent with the recommendations of CHERT as well as consistent with all standard and special conditions of this permit;

5. A post-extraction survey of the prior year's mining activities (if any) conducted following cessation of extraction and before alteration of the extraction area by flow following fall rains, that includes the amount and dimension of material excavated from each area mined and is prepared in conformance with the requirements of the U.S. Army Corps of Engineers Letter of Permission Procedure 2009 (LOP-2009) Public Notice dated February 19, 2009 (No. 2007-00857);

6. The results of biological monitoring report data required by the U.S. Army Corps of Engineers Letter of Permission Procedure 2009 (LOP-2009) Public Notice dated February 19, 2009 (No. 2007-00857);

7. Pre-extraction snowy plover surveys that have been completed in accordance with Special Condition No. 4 and U.S. Fish and Wildlife Service Biological Opinion for the LOP-2009 for any development at the project site proposed to occur prior to September 15;

8. A plan for run-off control to avoid significant adverse impacts on coastal resources. The runoff control plan shall include, at a minimum, the following components;

   (a) The plan shall demonstrate that:

      (1) Run-off from the gravel mining extraction and stockpiling sites shall not increase sedimentation in coastal waters;

      (2) Run-off from the gravel mining extraction and stockpiling sites shall not result in pollutants entering coastal waters;

      (3) Best Management Practices (BMPs) shall be used to prevent entry of polluted stormwater runoff into coastal waters during the transportation and storage of excavated materials, including but not limited to:

      (4) A suite of the following temporary erosion and runoff control measures, as described in detail within in the "California Storm Water Best Management Commercial-Industrial and Construction Activity Handbooks, developed by Camp, Dresser & McKee, et al. for the Storm Water Quality Task Force, shall be used during mining: Spill Prevention and Control (CA12), Vehicle and Equipment Fueling (CA31), Vehicle and Equipment Maintenance (CA32), Employee / Subcontractor Training (CA40), and Dust Control (ESC21);

   (b) A narrative report describing all temporary runoff control measures to be used during mining;

   (c) A site plan showing the location of all temporary runoff control measures; and

   (d) A schedule for installation and removal of the temporary runoff control measures; and

9. Evidence demonstrating that any proposed wet trenching proposed for instream salmonid habitat restoration purposes is limited to the trenching configuration and extraction volume that is the minimum amount necessary for improving salmonid habitat, including, but not limited to, written approval of the proposed wet trenching from NOAA-Fisheries and/or the Department of Fish and Game.

B. The permittee shall undertake development in accordance with the approved final gravel extraction plan. Any proposed changes to the approved final gravel extraction plan shall be reported to the Executive Director. No changes to the approved final gravel extraction plan shall occur without a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

**4. <u>Protection of Western Snowy Plover</u>**

(A) If gravel extraction commences before September 15, gravel extraction operations shall occur at least 1,000 feet from suitable plover habitat. Except as specified below, daily plover surveys by an U.S. Fish and Wildlife Service (FWS)-approved biologist, according to FWS survey protocol, shall be conducted prior to commencement of daily on-site activities and continue consistent with subsections 1-2 below:

1. If plovers or an active plover nest is within the area of planned operations or a 1,000-foot buffer area, activities within 1,000 feet of the plovers or nest shall be delayed until the nest has hatched and the plovers have moved to a distance greater than 1,000 feet away (hazing is not authorized).

2. Extraction activities within 1,000 feet of plover habitat may only occur if three consecutive days of FWS-approved plover surveys conducted by a FWS-approved biologist are completed with no detections of plovers or nests. Operators must ensure that extraction activities do not occur when plovers or nests are within 1,000 feet of the extraction site.

(B) All pre-extraction activities conducted in suitable nesting habitat prior to August 22 of each year shall be preceded by plover surveys completed each day pre-extraction activities are planned to occur. The surveys shall be completed according to FWS survey protocol by a biologist approved by the FWS prior to daily initiation of any pre-operational activities (i.e. topographic surveys). Other surveys (i.e. hydrologic and biological resources) not directly conducted in suitable habitat, but needing access through or near suitable habitat, may be conducted without intensive plover surveys so long as the FWS is consulted first and the surveys are conducted according to the procedures for working in or near suitable plover habitat areas identified by FWS.

(C) Vehicle use in suitable plover habitat shall be minimized to the maximum extent feasible during the plover nesting season prior to September 15.

1. Vehicle use in suitable plover habitat shall be restricted to 10 mph, unless on a an established access/haul road, where speeds shall be restricted to 30 mph. The first three vehicle trips on access/haul roads in suitable habitat each day shall not exceed 10 mph.

2. Vehicle use in suitable plover habitat associated with gravel extraction operations shall be restricted to the daytime, between 0.5-hour before sunrise and 0.5-hour past sunset.

3. Parking, staging, and maintenance of vehicles and equipment shall occur at least 1,000 feet away from suitable plover habitat.

(D) Access roads owned or controlled by the gravel operator shall be gated and locked during the plover nesting season (between March 1 and September 15) when no active extraction and hauling is occurring, including at night, to help prevent recreational vehicles from impacting western snowy plovers. The gate shall be designed to block vehicles only and shall allow for pedestrian access, unless the applicant obtains additional authorization from the Commission to block pedestrian access.

**5. Extraction Season**

Extraction and all reclamation required by Special Condition No. 7 must be completed by October 15th of each season. The Executive Director may approve either a one or two week extension of gravel extraction and reclamation activities beyond that date to as late as November 1 if the permittee has submitted a request for an extension in writing, the Executive Director determines that dry weather conditions are forecast for the extension period, and any necessary extensions of time have been granted by the Department of Fish and Game, the U.S. Army Corps of Engineers, and NOAA Fisheries. No extraction or reclamation activities shall occur after October 15th unless the permittee has first received approval of an extension of time in writing from the Executive Director. The permittee must have reclaimed all portions of the seasonal development area except for removal of any authorized seasonal crossings before an extension can be authorized.

**6. Resource Protection**

The gravel extraction and processing operations shall not disturb or remove any of the established riparian vegetation habitat along the banks of the river, nor any of the riparian vegetation areas on the gravel bar limited by Special Condition No. 1. No new haul roads shall be cut through the habitat. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete, oil or petroleum products, or other organic or earthen material from any gravel extraction or reclamation activities shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into river waters.

**7. Seasonal Site Closure**

The seasonal development area must be reclaimed before October 15th, or by the extended date approved by the Executive Director pursuant to Special Condition No. 5. The site must be reclaimed when extraction has been completed. Reclamation includes: (a) filling in depressions created by the mining that are not part of the approved extraction method; (b) grading the excavation site according to prescribed grade; and (c) removing all seasonal crossings and grading out the abutments to conform with surrounding topography and removing all temporary fills from the bar. After October 15th, the development area must be reclaimed daily except for the removal of authorized seasonal crossings.

**8. State Lands Commission Review**

**PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the applicant shall submit to the Executive Director, a written determination from the State Lands Commission that:

(A) No State lands are involved in the development; or

(B) State lands are involved in the development and all permits required by the State Lands Commission have been obtained; or

(C) State lands may be involved in the development, but pending a final determination an agreement has been made with the State Lands Commission for the project to proceed without prejudice to that determination.

**9. DFG Streambed Alteration Agreement**

**PRIOR TO THE START OF EACH YEAR'S GRAVEL EXTRACTION OPERATIONS**, the permittee shall submit a copy of any necessary Section 1603 Streambed Alteration Agreement or other approval required by the Department of Fish and Game (DFG) for that gravel extraction season which is consistent with all terms and conditions of this permit. The applicant shall inform the Executive Director of any changes to the project required by the Department. Such changes shall not be incorporated into the project until the applicant obtains a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

**10. Regional Water Quality Control Board Water Quality Certification**

**PRIOR TO THE START OF EACH YEAR'S GRAVEL EXTRACTION OPERATIONS**, the permittee shall submit a copy of any necessary CWA Section 401 Water Quality Certification (WQC) or other approval required by the North Coast Regional Water Quality Control Board for that gravel extraction season which is consistent with all terms and conditions of this permit. The applicant shall inform the Executive Director of any changes to the project required by the Board. Such changes shall not be incorporated into the project until the applicant obtains a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

**11. Annual Army Corps of Engineers Approvals**

**PRIOR TO THE START OF EACH YEAR'S GRAVEL EXTRACTION OPERATIONS**, the permittee shall submit a copy of any authorization issued by the U.S. Army Corps of Engineers granting approval for that year's gravel extraction season which is consistent with all terms and conditions of this permit, or evidence that no seasonal authorization is required. The applicant shall inform the Executive Director of any changes to the project required by the Corps. Such changes shall not be incorporated into the project until the applicant obtains a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

**12. Permit Termination Date**

The gravel operations authorized by this permit shall terminate on November 1, 2013. Continued gravel operations after that date shall require a new coastal development permit.

**13. Final Army Corps of Engineers Approval of LOP-2009**

**PRIOR TO COMMENCEMENT OF ANY DEVELOPMENT AUTHORIZED BY THIS COASTAL DEVELOPMENT PERMIT**, the permittee shall provide to the Executive Director a copy of a permit issued by the Army Corps of Engineers, or letter of permission, or evidence that no permit or permission is required. The applicant shall inform the Executive Director of any changes to the project required by the Army Corps of Engineers. Such changes shall not be incorporated into the project until the applicant obtains a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

**14. Final Biological Opinions**

**PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the applicant shall submit evidence, for the review and approval of the Executive Director, that the National Marine Fisheries Service (NOAA-Fisheries) and the U.S. Fish and Wildlife Service have issued final Biological Opinions in support of the gravel extraction authorized by this permit and that are consistent with all terms and conditions of this permit. The applicant shall inform the Executive Director of any changes to the project required by the agencies. Such changes shall not be incorporated into the project until the applicant obtains a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

## IV. FINDINGS & DECLARATIONS

The Commission hereby finds and declares as follows:

### A. Environmental Setting

#### (1) *Background on the Lower Eel River*

The lower Eel River from the city of Rio Dell downstream to the estuary is a depositional reach bordered by open pastures and some urban development. The average channel width of the lower Eel is 1,900 feet, and summer fog influences water temperatures in the river. Historically, the channel in much of the project area was significantly deeper than it is currently, and through the first half of the 20th century the river was navigable by shallow draft boats for commercial shipping. Historical analyses of gradient and riffle conditions in the lower Eel provide additional evidence that the river is severely aggraded relative to historic conditions. The Eel River at its confluence with the Van Duzen River (just upstream of the project site) is aggraded to the point that, in some years (e.g., 1994 and 2001), salmonids holding in the lower Eel River cannot migrate upstream in late fall due to subsurface flows. This same situation has occurred just below the Sandy Prairie levee approximately two to four miles downstream of the project site. In the past, the Department of Fish and Game (DFG) has requested that gravel operators open up the channels to allow for fish passage.

Bank protection and levee structures placed in the lower Eel River have limited the river's ability to migrate and overflow its banks. The river's meandering ability during high flows has been

influenced by the past land uses in the area, including construction of the Sandy Prairie levee in 1959 and the Grizzly Bluff levee following the 1964 flood, plus the cutting of the old original channel sometime in the 1860's at Fernbridge (approximately 7 river miles downstream of the project site). Levees separate potential overflow areas from the main channel and concentrate the high flow energy of floods to a narrower part of the river bed, thereby moving more bedload material through the project area. When available sediment exceeds the channel carrying capacity, sediment deposition (channel aggradation) occurs. The braided section of the channel between river mile 10.5 and 13.1 (which is just downstream of the project site) contains the largest available area to store bedload during the 50- to 100-year flows.

**(2) *Project Area Location***

The project site is located at the Hansen gravel bar on the lower Eel River, at approximately river mile 13.5 off of Sandy Prairie Road, west of Highway 101, in the Alton area, approximately 5 miles south of Fortuna. The site is approximately 1.5 miles downstream of the Van Duzen River confluence and 0.5-mile upstream of the Sandy Prairie landform (see Exhibit Nos. 1 and 2).

The applicant proposes to conduct gravel extraction at Hansen Bar on an annual basis for a period of five years. The Hansen Bar has been mined for sand and gravel on an intermittent basis since the 1960's (see Table 1 below), though the last time that the site was mined was in 2003. In 1992 the County approved a vested right to extract a maximum of 50,000 cubic yards annually from the site.

The proposed gravel extraction would occur roughly in the middle of the Hauck/Hansen gravel bar, which extends from a point just downstream of the confluence of the Van Duzen and Eel Rivers approximately to a point several hundred yards downstream of the Hansen property. A separate gravel company, Eureka Ready Mix, currently mines the upstream end of the bar (see CDP Application No. 1-09-006).

Seven other gravel operators are located in the coastal zone along an approximately 9-river-mile reach upstream and downstream of the project site, all of which extract sand and gravel from the rivers (i.e., at Singley, Worswick, Drake, Canevari, Sandy Prairie, and Hauck Bars along the lower Eel River). Additionally, three other gravel operations are located upstream of the project site on the Van Duzen River, including a portion of the Leland Rock bar, which is within the coastal zone (see Exhibit No. 3). Tables 1 and 2 below summarize the permitting and gravel extraction history of the lower Eel River over the years.

The 94-acre parcel stretches along approximately 1,500 lineal feet of the river, and extends easterly approximately three-fourths of a mile to Sandy Prairie Road and Highway 101. The western boundary of the parcel is defined by the centerline of the active channel of the river, which currently is migrating westerly. The parcel extends easterly from the center of the active summer channel across the gravel bar, which is crossed by various secondary overflow channels, which are typically dry at the peak of the summer. The Hansen property covers a portion of the Hauck/Hansen gravel bar.

At the end of the eastern most overflow channel, a bank rises steeply 15 to 25 feet to a terrace that extends eastward approximately 300 feet to the Sandy Prairie Levee, a flood control improvement installed by the U.S. Army Corps of Engineers after the disastrous 1964 floods on the Eel River. This terrace area west of the levee is occupied by an existing sand and gravel processing yard that serves the Hansen operation. Processing activities include washing, sorting, crushing, and stockpiling gravel. Existing structures at the site include two wooden buildings and several equipment towers. Other associated improvements at the 9.5-acre processing area include concrete pads, stockpile bulkheads, and ancillary machinery.

East of the Sandy Prairie Levee, the terrace area extends another 2,000 feet to Sandy Prairie Road. This area to the east of the levee is devoted to agricultural pasture land with a barn complex located at the extreme eastern edge of the parcel.

The gravel extraction areas on the bar are not visible from Highway 101, the principal public road in the area. Parts of the existing processing plant (equipment towers) are remotely visible. The proposed project would not modify the processing plant.

The site is planned and zoned in the Humboldt County LCP either Natural Resources (NR) with a Streams and Riparian Corridors Combining Zone (NR/R) or Agriculture Exclusive (AE), with minimum parcel sizes of 60 acres (AE-60), with Flood Hazard (F), Archaeological Resources (A), Streams and Riparian Corridors (R), Coastal Wetland Areas (W), and Transitional Agricultural Land (T) combining zones.

Although the Humboldt County zoning for the property includes an archaeological combining zone (indicating the area is considered to have the potential for archaeological resources), no known archaeological resources exist at the site. Much of the terrace land along this area has been subject to disturbance as agricultural lands and has been inundated during major flood events. Areas of gravel bars, within the bank full channel, are generally not considered conducive to the establishment or preservation of archaeological sites due to the high incidence of inundation and fluvial reworking.

The entire property is located within the coastal zone and the western-most approximately two-thirds of the parcel lies within the Commission's retained jurisdictional area. The boundary between the Commission's coastal development permit jurisdiction and that of the County runs generally north-south, just east of the Sandy Prairie Levee. Therefore, all of the gravel extraction activities and proposed summer gravel truck crossings are within the Commission's jurisdiction and are the subject of Coastal Development Permit No. 1-09-011.

**(3) *Habitat Types & Special-Status Species***

The proposed gravel extraction area is within the current boundary of "ordinary high water." The area within the OHW boundary is subject to change based upon natural river processes (e.g., erosion, accretion, and meander). Habitat types that occur in the area include the exposed gravel bars, North Coast riparian scrub, North Coast black cottonwood forest, and the low-flow river channel.

The exposed cobble in the gravel bars adjacent to the low-flow channels provides roosting and/or nesting habitats for at least two avian species, killdeer (*Charadrius vociferus*) and western snowy plover (*Charadrius alexandrinus nivosus*), but otherwise represents one of the sparsest habitats in terms of wildlife diversity and numbers. The western snowy plover has been listed under the federal Endangered Species Act as a threatened species since 1993. Though originally thought to inhabit primarily open beach strand environments, plovers have also been observed roosting and nesting on gravel bars on the lower Eel River. The plover sightings on the Eel River have been in the months of April through early September, during the nesting season. Unlike many avian species which nest in trees, plovers establish their nests on the open gravel bars.

In general, the riparian vegetation lining the lower Eel River is perhaps the single-most important element for the natural environment in the area, providing habitat for many birds and mammals. The presence of two different kinds of riparian habitat, riparian scrub and black cottonwood forest, provides habitat for a greater number of wildlife species than a more uniform and simple habitat structure would. In addition to its habitat value, the riparian corridor also provides water quality protection, bank stabilization through root penetration, and flood protection.

The North Coast riparian scrub habitat in the project area fluctuates in size, density, location, and maturity in response to flow events, sediment deposition, and natural meandering of the river channel. The vegetation growing within this habitat type is dominated by coyote brush (*Bacharris pilularis*), a sparse covering of small trees (including cottonwood and willow), and various (mostly weedy annual) grasses and herbs. Riparian scrub habitat supports a variety of wildlife species, including a number of small mammals such as raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), gray fox (*Urocyon cinereoargenteus*), rodents and rabbits, and many bird species that use the habitat for foraging, nesting, and cover.

North Coast black cottonwood (*Populus balsamifera* ssp. *trichocarpa*) forest lines the river banks and terraces, maintaining natural channel confinement in the absence of large flood events. This habitat type is a broad-leaved, winter deciduous forest dominated by black cottonwood, with lesser amounts of willow (*Salix* spp.) and red alder (*Alnus rubra*). The forest has a dense canopy as well as a dense shrub layer and herbaceous understory. The stands of North Coast black cottonwood forest in the area range back to 45 years old, established following major flooding of the Eel River that occurred in 1964. The cottonwood forest represents the most structurally complex habitat in the area, which in turn supports a higher number and diversity of wildlife species than the other habitats. The North Coast black cottonwood forest provides valuable foraging, breeding, roosting, and shelter habitat for a wide variety of wildlife species, including at least nine bird species, eight mammalian species, two amphibian species, and one reptile species.

Although none have been detected at the project site, the black cottonwood forest offers suitable habitat for a state-listed endangered species, the willow flycatcher (*Empidonax traillii*), as well as four "species of special concern," including black-shouldered kite (*Elanus caeruleus*), Cooper's hawk (*Accipiter cooperii*), yellow warbler (*Dendroica petechia*), and yellow-breasted chat (*Icteria virens*).

In general, the riparian zone along the lower Eel River provides migration routes for wildlife. Over 200 different species of birds and 40 different species of mammals have been observed in the Eel River Delta, most of which utilize portions of the riparian corridor. Riparian vegetation also is critical to the survival of salmonids residing in and migrating through the lower Eel River.

The Eel River and its tributaries are ranked among the most significant anadromous fisheries in Northern California. Coho salmon (*Oncorhynchus kisutch*), Chinook salmon (*Oncorhynchus tshawytscha*), and steelhead trout (*Oncorhynchus mykiss*) are among the most important species with regard to commercial and sport fisheries. The coho was listed by the federal government as a "threatened species" along the northern California and southern Oregon coastlines in May of 1997, with critical habitat designated in May of 1999. Additionally, the Southern Oregon – Northern California Coasts Evolutionarily Significant Unit coho (SONCC coho) is currently listed as a threatened species in areas between Punta Gorda and the California-Oregon border under the California Endangered Species Act (CESA). Chinook salmon was federally listed as "threatened" in September of 1999, with critical habitat designated in February of 2000. Finally, steelhead trout was listed as "threatened" in June of 2000.

The lower Eel River, including the project area, is mainly utilized by the anadromous fish as a migration route to and from the upstream spawning grounds. In addition, the lower Eel River supports summer rearing habitat for juvenile salmonids, especially steelhead yearlings and fall Chinook sub-yearlings, and holding areas for adult summer steelhead as well as spawning and nursery habitat for marine fishes and invertebrates. A reference to the project site in the Biological Assessment prepared for the lower Eel River (Berg 2009, Exhibit C)[1] states as follows:

> "A primary habitat enhancement goal at this site is to expand riparian habitat on the east bank of the Eel River at the extraction site to improve riparian function including sediment control and soil stabilization. A second habitat goal is to restore or maintain a single thread channel to maintain channel confinement through the extraction reach. A plan is being developed to expand the riparian corridor along the east side of the river (from the river towards the stockpile/processing area)." [page 32].

Other fish species in the river that are listed by the California Department of Fish and Game as "species of special concern" include coastal cutthroat trout (*Oncorhynchus clarki*), Pacific lamprey (*Lampetra tridentata*), and Green sturgeon (*Acipenser medirostris*).

The riverine habitat of the river channels on the project site and the occasional ponds that form under summer low water conditions provide habitat not only for fish, but also for invertebrates, amphibians, invertebrate-eating birds, and various mammals including river otters, mink, and other mammals that come to the river to forage (e.g., deer and raccoon).

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[1] Berg, A. 2009. *Biological Assessment for the U.S. Army Corps of Engineers LOP 2009 Authorizing Aggregate Extraction Operations in The Lower Eel River and Van Duzen River, Humboldt County, California*. Draft BA prepared by Alice Berg & Associates for County of Humboldt, Drake Materials, Eureka Ready-Mix, Hanson Sand & Gravel, Van Duzen River Ranch, Mercer-Fraser Company, Rock & Gadberry Sand & Gravel, Thomas R. Bess Asphalt, Sand & Gravel. [See Exhibit C.]

## B. Background on Past & Current Permitting of Gravel Operations on the Lower Eel & Van Duzen Rivers

The Lower Eel River has been used for gravel extraction since 1911. Currently, approximately six gravel operations are located along a 9-mile stretch of the lower Eel River, and three additional operations are located on the lower reaches of the Van Duzen River, which flows into the Eel River at Alton (Exhibit No. 3). All of the operations along the Eel River and the portion of the lowest-most operation on the Van Duzen River west of the Van Duzen River Railroad Bridge are within the coastal zone. As stated above, the Hansen Bar is one of the upper-most of all the gravel operations on the lower Eel River (i.e., the portion of the Eel River below its confluence with the Van Duzen River).

All of the gravel operations on the lower Eel and lower Van Duzen Rivers are interrelated in the sense that all of the gravel bars derive their material from the same upstream sediment sources. Brown and Ritter (1972) determined that the Eel River was a "hydraulically-limited" rather than "sediment-limited" river. This means that replenishment is more a factor of the size and duration of winter flows than the production of sediment in the watershed. This determination was based on the calculated high amounts of sediment that currently exist in active land sliding occurring in the watershed.

Thus, over-extraction by all of the projects in the lower Eel River combined with multiple low winter flow years can contribute cumulatively to erosion of the bed and banks of the river, which in turn can erode adjacent riparian and other habitat areas, interfere with fishery resources, undermine bridge supports, and cause other significant adverse impacts. However, as noted in the County Programmatic Environmental Impact Report (PEIR) referenced below, these same impacts can and have occurred when excessive deposition from high winter flow/duration events occur. Besides the cumulative impacts resulting from river morphology changes, other significant cumulative adverse impacts include habitat degradation from the installation of new gravel processing operations and access roads within environmentally sensitive habitat adjacent to the exposed gravel bars, exclusion of recreational use of the river banks, and noise. These types of impacts typically do not occur if the area is properly managed.

### (1) *1991 Programmatic Environmental Impact Report*

Until 1991, there had been very little coordinated review of the combined effects of the various gravel mining operations. Permits granted in the past by the various approving agencies were site-specific and granted with little knowledge of the cumulative impacts of gravel mining throughout the lower Eel River.

Gravel mining operations on the Eel River now require the approval of a number of different local, state and federal agencies. The initiation of coordinated review began to change in 1991. That year, Humboldt County considered the granting of a gravel lease from the County-owned bar at Worswick (on the lower Eel River approximately three miles downstream of the subject site). To comply with environmental review requirements under the California Environmental Quality Act (CEQA) the County prepared a Program Environmental Impact Report (PEIR) to

describe and analyze the potential environmental effects resulting from the 13 gravel removal operations in the lower Eel River-Van Duzen watersheds. The document was certified in July 1992 and was intended to be incorporated by reference into future environmental documents prepared for individual gravel extraction projects in the area.

As part of that effort, the County initiated a comprehensive review of the status of County permits for each of the operators to reach a final determination as to which operations were proceeding according to valid vested rights or County permits, and which ones required further review. The Department of Fish and Game also began to insist that the operators demonstrate that they had all necessary County approvals before the Department would issue annual Fish and Game Code Section 1603 Streambed Alteration Agreements.

As a result, information was documented about the significant cumulative adverse impacts of the gravel mining operations. The PEIR showed that little change in the bed had occurred over the previous 75 years. Annual monitoring as well as analyses of additional sources of historic bed elevations subsequently substantiated this finding. A late-1990's comparative study by the U.S. Army Corps of Engineers repeating cross sections at locations that were surveyed in 1969 showed overall little change in bed elevations and gradient over the previous 30 years.

**(2) *County of Humboldt Extraction Review Team (CHERT)***

The County developed a strategy for controlling the cumulative impacts of the gravel operations on riverbed degradation and bank erosion. At the heart of the strategy is an annual administrative approval of extraction plans that specifies the particular method and location of extraction. The primary mitigation measure recommended by the PEIR is for the County to prepare a River Management Plan that includes, as a primary component, an annual monitoring program to make annual decisions on where and how much gravel can be removed from the lower Eel and Van Duzen Rivers without adversely affecting the rivers. As described in the PEIR, the monitoring program was to be conducted by a consulting firm using funds provided by the gravel operators. The monitoring program would involve periodic biological surveys, creating cross-sections and thalweg profiles, and taking aerial photos and ground photos each year for each gravel operation. This information would be compiled and compared to data from previous years to determine gravel recruitment, changes in channel morphology, and impacts on wildlife and fisheries. The implementation of this program is currently occurring through the Corps' permitting process and the Humboldt County Interim Management Program. Much of this information is being collected by consultants for the gravel operators as part of the annual monitoring requirements of permitting and reviewing agencies before the commencement of mining each season.

In 1997, the County established its "Lower Eel River Interim Monitoring Plan" (IMP) for use until such time that the River Management Plan is developed. The monitoring plan incorporated and refined the reporting and monitoring requirements that were originally developed in 1991. The Plan also calls for the establishment of a review team to provide the County and other oversight agencies with scientific input on the gravel operations. The Committee that was established is known as "CHERT" (County of Humboldt Extraction Review Team) and is composed of independent fluvial geomorphologists, hydrologists, biologists, and botanists.

CHERT has the authority for the County to review all annual mining plans and prescribe changes to those plans as deemed necessary. CHERT integrates all the monitoring data developed by the gravel operators for geomorphic evaluations of the streambed and also evaluates and recommends practices designed to preserve and enhance vegetation and wildlife habitat.

In January of 2009 CHERT released a 10-year analysis (Exhibit A) of river channel cross sections taken at various sites along the Eel and Van Duzen Rivers near mining sites (including the lower, middle, and South Fork reaches of the Eel River and the lower Van Duzen River).[2] The report represents the longest-term geomorphic analysis completed to date examining the potential effects of gravel mining operations on river channel morphology. The report finds that "While certain methods of mining and locally excessive volumes can affect instream habitat in the short term, the river does not appear to suffer from long term or broad scale channel bed degradation from gravel mining. Furthermore, the CHERT adaptive management program authorized by the IMP specifically addresses preventing local over-extraction and avoids/minimizes mining methods that cause aquatic and riparian habitat damage" (page 2). The report concludes that "…we did not discern any large scale, persistent effects of Eel River gravel mining on channel thalweg elevations, mean bed elevations, or scour…Gravel mining effects in the Eel River are probably limited to short term, localized effects which the adaptive management program and federal and state oversight attempt to avoid or minimize. Refinement of project-scale minimization measures will continue to be a fundamental component of the adaptive management process, as will instream habitat improvement projects associated with gravel extraction operations" (page 24).

**(3) *U.S. Army Corps of Engineers Letter of Permission Procedure***

In the fall of 1993, due to an amendment to its Clean Water Act (CWA) regulatory program, the Corps became more involved in regulating gravel extraction operations. Whereas previously the Corps' regulatory review of many in-stream gravel extraction operations focused mainly on the installation of channel crossings and stockpiling of material on the river bar, in 1993, the Corps began actively regulating incidental fill related to gravel mining activities themselves. In an effort to streamline the processing of CWA permits for the numerous in-stream gravel operations within Humboldt County, the Corps adopted a Letter of Permission (LOP) procedure for authorizing such projects (LOP 96-1). The LOP was adopted after a series of interagency and public meetings. An applicant for a project covered by the LOP must submit yearly gravel plans and monitoring information to the Corps for approval under the procedure. The Corps incorporated the County's CHERT review process into its LOP procedure.

As discussed in more detail below, the Corps issued an LOP to cover gravel mining in Humboldt County for the 2002-2008 gravel extraction seasons (LOP 2004-1) and has issued a new LOP Procedure 2009 (LOP-2009) Public Notice dated February 19, 2009 (No. 2007-00857) to cover gravel mining in Humboldt County for the next five years. The LOP-2009 is still in process (pending final Biological Opinions from NOAA-Fisheries and the U.S. Fish and Wildlife

[2] County of Humboldt Extraction Review Team (CHERT). January 2009. *Analysis of Eel River Cross Sections at Gravel Mining Sites, 1997-2007*. Unpublished report prepared by Randy Klein, Doug Jager, Andre Lehre, and Bill Trush. 24 pp (Exhibit A).

Service) and is expected to be issued in late August or early September, before the end of this summer's gravel mining season.

As with all "federal actions" that might adversely impact rare, threatened, and endangered fish and wildlife, the LOP process and the Corps' review of individual Section 404 permits is also subject to consultations with applicable natural resource trustee agencies as required under Section 7 of the Federal Endangered Species Act (FESA). FESA Section 7 directs all federal agencies to use their existing authorities to conserve threatened and endangered species, and, in consultation with other federal agencies possessing ecological expertise regarding ecology and habitat requirements for these plants and animals, ensure that their actions do not jeopardize listed species or destroy or adversely modify critical habitat. Section 7 applies to management of federal lands as well as other federal actions that may affect listed species, such as federal approval of private activities through the issuance of federal permits, licenses, or other actions such as the LOP gravel mining and authorization procedure and the issuance of individual Section 404 permits.

The consultation process primarily consists of the agency undertaking the action of compiling biological assessment (BA) data detailing the current status of the fish and wildlife species within the area subject to the federal agency action, and a preliminary assessment of the likely effects of the action on those species. This information is then submitted to the particular resource agencies assigned the responsibility for ensuring protection to the various FESA-listed species. The National Marine Fisheries Service (NOAA-Fisheries) prepares and issues a Biological Opinion (BO) regarding impacts of gravel extraction to the listed salmonid species. The western snowy plover, a listed threatened species, also requires consultation with the U.S. Fish and Wildlife Service (FWS). Based on the findings of the NOAA-Fisheries and FWS reviews, mitigation measures required by the FESA are incorporated into extraction requirements. As more information is gathered on the species and the direct, indirect, and cumulative effects on species individuals and their habitat, these mitigation requirements are revised as necessary.

a. Federal ESA Section 7 Consultations with NOAA-Fisheries

NOAA-Fisheries originally issued a BO in July of 1997 for the Letter of Permission Procedure for Gravel Mining and Excavation Activities within Humboldt County, California (LOP 96-1). The LOP 96-1 was authorized for a five-year term, expiring in August 2001. Several FESA listing actions occurred subsequent to the issuance of NOAA-Fisheries' 1997 BO, including designation of critical habitat for Southern Oregon/Northern California Coastal (SONCC) coho salmon, listing of California Coastal (CC) Chinook salmon as threatened and designation of critical habitat, and listing of Northern California (NC) steelhead as threatened. As a result of the listing of additional salmonid species and designation of critical habitat in 1999, the Corps requested reinitiation of Section 7 ESA consultation, and NOAA-Fisheries prepared a revised BO (dated May 1, 2000). In June of 2001, the Corps extended the expiration date of LOP 96-1 to October 31, 2001 and requested an amendment to the duration of the 2000 BO, which analyzed the extended duration of the proposed gravel extraction activities.

NOAA-Fisheries began working with the Corps, other agencies, and Humboldt County gravel operators and their consultants during the winter of 2001-2002 on a replacement LOP procedure anticipated to be in place for the 2002-2007 extraction seasons (originally enumerated as LOP 2002-1). A draft LOP 2002-1 was circulated for public comment in May 2002, at which time it became apparent to involved agencies that several issues could not be resolved prior to the 2002 mining season. As a result, the Corps decided to further extend LOP 96-1 through December 31, 2002 to provide an authorization process for the 2002 gravel mining season and again requested that NOAA-Fisheries amend the 2000 BO to analyze the extended duration of LOP 96-1.

On November 26, 2002, the Corps issued a public notice announcing re-initiation of its efforts for authorization of a new Humboldt County LOP process, re-enumerated as LOP-2003-1. Concurrent with the announcement, the Corps again requested a FESA Section 7 consultation from NOAA-Fisheries.

On June 11, 2003, NOAA-Fisheries issued a draft BO for LOP-2003-1. The Draft BO incorporated newly available information that was not previously analyzed in the 2000 BO and its subsequent revisions issued for the LOP's 2001 and 2002 administrative extensions. In addition, the draft BO further detailed the potential adverse direct, indirect, and cumulative effects of gravel mining and extraction activities on listed salmonid species that might occur under the proposed five-year duration of LOP 2003-1.

In the draft BO, NOAA-Fisheries concluded that authorization of LOP 2003-1 procedures as proposed by the Corps for gravel mining during the 2003-2007 seasons, "is likely to jeopardize the continued existence of threatened SONCC (Southern Oregon/Northern California) coho salmon, NC (Northern California) steelhead, and threatened CC (Central California) Chinook salmon, and is likely to adversely modify SONCC coho salmon critical habitat." As required by the FESA, accompanying the "jeopardy opinion" were "reasonable and prudent alternatives" (RPAs) to the proposed LOP protocols. If followed, NOAA-Fisheries believed gravel mining pursuant to LOP-2003-1 would avoid the likelihood of jeopardizing the continued existence of listed species or destruction or adverse modification of critical habitat. With such program alterations in place, NOAA-Fisheries could issue an "incidental take statement" that would allow the Corps to undertake the LOP process without being found in conflict with the provisions of the FESA.

However, in subsequent meetings with the mining applicants, the public, and with Corps, NOAA-Fisheries, USFWS, and other permitting agency staff, several of the mining applicants expressed their concerns over the possible future difficulties that might be encountered should the five-year LOP procedure be authorized under a jeopardy opinion. Additional concerns were voiced as to whether NOAA-Fisheries had adequately considered and analyzed the information collated over the years by the miners on the effects of gravel mining on FESA-listed fish species. As a result, the Corps decided to extend once again LOP 96-1 through December 31, 2003 to provide an authorization process for the 2003 gravel mining season and again requested that NOAA-Fisheries amend the 2000 BO to analyze the extended duration of LOP 96-1. In addition, the Corps modified the procedures and terms of LOP 96-1 to include the reasonable and

prudent alternatives identified within the draft BO for LOP 2003-1 in the interest of avoiding a jeopardy opinion also being issued for the 2003 extension of LOP 96-1.

On August 29, 2003, NOAA-Fisheries issued its BO on the modified LOP procedure for gravel mining (modified LOP 96-1). The BO concluded that gravel mining under the modified LOP 96-1 procedure for the 2003 mining season was not likely to jeopardize the continued existence of threatened SONCC coho salmon, NC steelhead, and threatened CC Chinook salmon, and was not likely to adversely modify or destroy SONCC coho salmon critical habitat. In addition, NOAA-Fisheries issued an accompanying "incidental take statement" subject to three "reasonable and prudent measures" that set certain procedural requirements for the implementation of LOP 96-1, but did not require substantive changes to the limitations on mining contained in modified LOP 96-1.

In the winter of 2003-2004, the Corps issued a public notice announcing once again, re-initiation of its efforts for authorization of a new Humboldt County LOP process, re-enumerated as LOP-2004-1. The 2004-1 LOP notice was prepared after extensive consultation with NOAA-Fisheries on changes in procedures to further reduce impacts on threatened salmon species and to enhance critical habitat. The new procedures placed an emphasis on (1) ensuring that the floor elevation of gravel bar skimming operations remain above the water surface elevation of the 35 percent exceedence flow for each site, on an annual basis, to further reduce the chances of river bed alterations from mining, and (2) encouraging the use of alternative extraction methods such as alcove extractions at the down stream end of grave bars to provide velocity refuge for fish during high flows and trenching in desiccated stream channel areas to improve fish passage. The LOP set forth certain extraction limitations that all operators planning to mine under the LOP must follow (e.g., see those listed below for LOP-2009). Concurrent with the announcement of the new LOP, the Corps again requested a FESA Section 7 consultation from NOAA-Fisheries. On August 13, 2004, NOAA-Fisheries transmitted its completed BO of the LOP 2004-1 for proposed gravel extraction operations on Humboldt County rivers and its effects on SONCC coho salmon and its designated critical habitat, CC Chinook salmon, and NC steelhead pursuant to Section 7(a)(2) of the Endangered Species Act (Exhibit E). The BO concluded that after reviewing the best available information, the LOP Procedure 2004-1 as proposed, would not likely jeopardize the continued existence of the three salmonid species or result in the destruction or adverse modification of SONCC coho salmon designated critical habitat. NOAA-Fisheries also evaluated the proposed project for potential adverse effects to essential fish habitat (EFH) for federally managed fish species. The BO concluded that the proposed action may adversely affect EFH. However, the opinion stated that NOAA-Fisheries had no conservation measures to recommend over what was currently proposed. The BO noted that conservation recommendations provided in past gravel mining consultations had been incorporated into the proposed action.

The last time the Commission approved coastal development permits for gravel mining on the lower Eel and lower Van Duzen Rivers was in 2004, the same year that the Corps issued the LOP. Based on the Biological Opinion issued by NOAA-Fisheries that the seasonal extraction of gravel on the lower Eel and lower Van Duzen Rivers over the five years proposed under LOP-2004-1 would not result in more than incidental take of threatened salmon species and would not

jeopardize their continued existence, the Commission approved the projects, having determined that the proposed 5-year gravel mining projects proposed for the lower Eel and lower Van Duzen Rivers that would be performed in accordance with the procedures described in the LOP notice and NOAA-Fisheries Biological Opinion would avoid impacts on sensitive fish species consistent with the requirements of Sections 30233 and 30240 of the Coastal Act. LOP-2004-1 expired at the end of 2008. In addition, the six gravel mining permits granted by the Commission in 2004 only authorized gravel mining through the summer of 2008.

b. Federal ESA Section 7 Consultations with the U.S. Fish & Wildlife Service

Similar to NOAA-Fisheries consultation on the Corps LOP process, the U.S. Fish and Wildlife Service (FWS) has consulted in the past on the LOP process with regard to impacts on the western snowy plover. The western snowy plover has been listed under the federal Endangered Species Act as a threatened species since 1993, and plovers were first discovered nesting on Eel River gravel bars near Fernbridge in June of 1996. Since that time the FWS has provided technical assistance to the Corps regarding its actions relative to the effects of gravel extraction on plovers.

In August of 1996, the FWS, in response to an informal consultation request from the Corps regarding LOP 96-1, concurred with the Corps' determination that the LOP 96-1 procedure was not likely to adversely affect the western snowy plover. This determination was based on various operating requirements being implemented including, but not limited to, not commencing gravel extraction operations prior to September 15 in the absence of plover surveys and maintenance of a minimum 300 meter buffer between identified plover habitat and gravel operations.

In July of 2001 the Corps requested formal Section 7 consultation on the extension of LOP 96-1 and its effect on the plover, but the FWS responded with a letter dated August 17, 2001 that more information was necessary to initiate formal consultation. Additional recommendations were provided by the FWS for the draft LOP 2002-1, including those mentioned above plus additional details such as speed limits and time-of-day restrictions on operations.

Formal consultation on the plover was again requested by the Corps in May of 2004. In September 2004 the FWS explained that the agency was unable to complete consultation on the LOP 2004-1 before the 2004 extraction season, but confirmed that plover chicks had vacated the gravel bars for the 2004 year, and gravel extraction was not likely to adversely affect plovers. Also in September 2004 the FWS concurred with the Corps' determination that issuance of an individual permit to Eureka Ready Mix for gravel extraction activities at Hauck Bar (at river mile 14, just downstream of the confluence of the Eel and Van Duzen Rivers) was not likely to adversely affect plovers, provided various protective measures were followed.

In September of 2005 the FWS issued its Biological Opinion for gravel operations on the lower Eel River covered under LOP 2004-1 (Exhibit F), at which time the LOP 2004-1 was republished with the Incidental Take Statement (ITS) attached as Appendix E. The terms and conditions of the ITS included various measures to protect plovers from activities associated with gravel extraction on the lower Eel River. The Biological Opinion expired at the end of 2008.

In its approval of various gravel mining permits in 2004, the Coastal Commission determined that the proposed 5-year gravel mining projects proposed for the lower Eel and lower Van Duzen Rivers that would be performed in accordance with the procedures described in the LOP-2004-1 notice and the FWS Biological Opinion would avoid impacts on the western snowy plover, consistent with the requirements of Sections 30233 and 30240 of the Coastal Act.

**(4)** ***Permits and Consultations for the 2009-2014 Gravel Extraction Seasons***

With the expiration of LOP-2004-1 at the end of 2008, the planning process for a new Humboldt County LOP procedure began in the spring of 2008. In February of 2009, the Corps issued a new LOP procedure notice (No. 2007-00857), which describes standardized procedures for gravel extraction activities, temporary stockpiling of gravel, associated salmonid habitat improvement activities, and construction of seasonal road crossings for the five-year implementation period of LOP-2009. The new LOP-2009 announcement is very similar to LOP-2004-1 in its terms and conditions. The Biological Assessments (BA) prepared by the applicants to assist the Corps, NOAA-Fisheries, and the FWS in their review of the proposed gravel operations to be permitted under LOP-2009, however, was required to include a detailed assessment of the effects of the gravel extraction activities authorized under the previous LOP (LOP-2004-1). The BA also was to list and quantify habitat enhancement activities undertaken during the five-year implementation period of LOP-2004-1 to determine a rough target of enhancement activities for the LOP-2009 implementation period.

The gravel extraction terms and limitations set forth in proposed LOP-2009 include, in part, the following:

- All applicants shall use the CHERT process for annual review and recommendations.
- A minimum head-of-bar length, generally defined as that portion of the bar that extends from at least the upper third of the bar to the up-stream end of the bar as exposed at summer low flow shall not be mined or otherwise altered.
- The minimum skim floor elevation will remain above the water surface elevation of the 35% exceedence flow for each site, on an annual basis.
- Temporary channel crossings locations will avoid known spawning areas. Where bridges are not able to span the entire wetted channel, the crossing location will be determined on a site-specific basis.
- Temporary crossings will be placed after June 30 only. All crossings and associated fills will be removed after excavation ceases but before October 15 on the Eel River with possible extensions of time.
- The amount of time heavy equipment is in the wetted channel shall be minimized by limiting the number of equipment crossings to two (2) occurrences during placement and removal of the crossing structures.
- Temporary storage of excavated material may occur on the gravel bar, but must be removed by October 1. In order to minimize the turbidity associated with excavating wet

sediment, all wet excavated sediment must be stockpiled on the gravel bar away from the low flow channel and allowed to drain prior to hauling across the temporary channel crossing.

- All riparian woody vegetation and wetlands must be avoided to the maximum extent possible. Any riparian vegetation or wetland that is to be disturbed must be clearly identified by mapping. Woody vegetation that is part of a contiguous 1/8-acre complex, or is at least 2 inches diameter breast height (DBH) that is disturbed must be mitigated;
- Gravel removal must remain a minimum distance of 500 feet from any structure (i.e. bridge, water intake, dam, etc.) in the river. For bridges, the minimum setback distance is the length of the bridge or 500 feet, whichever is greater; Gravel removal may encroach within this setback if approval is given by owners of these structures and approved by the Corps;
- The project area must be regraded, if necessary, before the water levels rise in the rainy season and must be completed by October 15 each year. Regrading includes filling in depressions, grading the construction/excavation site according to the approved configuration, leaving the area in a free-draining configuration (no depressions and sloping toward the low flow channel), and removing all temporary fills from the project area.
- Unless the Letter of Permission is specifically modified, gravel extraction shall cease by October 15 each year. Regrading, if necessary, shall be completed prior to October 15th. Requests for a extension will be reviewed by the Corps on a case by case basis. The applicant, however, must have regraded the site before an extension can be authorized.
- All applicants shall submit, as part of the application, a written assessment by a qualified biologist describing the potential effects of the project on federally threatened, endangered, or proposed species under the Endangered Species Act.
- There is a potential for gravel operations downstream of the confluence of the Eel River and the Van Duzen River to adversely affect the western snowy plover. Appendix E (of the LOP-2009 public notice) contains requirements necessary to assure the extraction activities (including pre-season surveys) are not likely to adversely affect the western snowy plover.
- There is a potential for operations anywhere in the rivers and streams of Humboldt County to adversely affect SONCC coho salmon, CC Chinook salmon and NC steelhead. Appendix M (of the LOP-2009 public notice) contains the most recent NOAA-Fisheries Biological Opinion. The BO contains restrictions (reasonable and prudent measures), which are mandatory conditions of the LOP-2009. [This measure anticipates issuance of the NOAA-Fisheries Biological Opinion, which has not yet occurred.]
- The actions authorized by this LOP are expected to include certain activities at project areas, during extraction seasons, that will enhance habitat for salmonids and other riverine species. The specific details of such habitat enhancement activities shall be determined during, and follow, the same multiagency pre-extraction design review process that is used for gravel extraction operations. Many of the habitat enhancement

activities shall be consistent in scope, size and cost impact as restoration activities that have occurred in the past under LOP-2004. These activities included, but were not limited to, trenching designed to improve salmon migration, alcove construction, placement of edge water large woody debris, and construction of wetland pits to improve aquatic and riparian habitat. Some habitat enhancement activities will be new to this LOP, including, but not limited to, riparian planting and strategic placement of large wood and boulders in the stream.

- Large woody debris (LWD) in the wetted channel and on floodplains and terraces is an important component of aquatic and riparian habitat. However, it is common practice for LWD to be gathered by local residents for firewood and other uses. To reduce the adverse effects of this longstanding practice, educational signing regarding the importance of LWD for salmonids shall be placed at access roads owned, controlled, or utilized by the gravel operators. In addition, in order to protect LWD deposited on mined gravel bars, all access roads owned or controlled by commercial gravel operators shall be gated and locked to reduce access; the County shall be exempt from this requirement. Operators should consult with NMFS for suggestions on the wording and design of this sign.

- Impacts to snowy plovers shall be avoided to the maximum extent possible. Appendix E (of LOP-2009 public notice) further describes the operating requirements that are required for gravel activities, including pre-extraction planning and surveys. The Corps will not participate in on-site pre-extraction reviews until after September 15 or after the plover biologist provides the Corps written confirmation that the pre-extraction surveys have been completed in accordance with the FWS final Biological Opinion for LOP-2009 and Appendix E of the LOP.

- Alternative extraction techniques shall be preferred over traditional skimming (bar scalping). These alternative techniques may include, but are not limited to horseshoe extractions, wetland pits, trenches, and dry-trenches, as described in the Appendix L of the LOP.[3]

- In addition to the alternative extraction techniques listed above, narrow skims that are adjacent to the low flow channel but provide for protection of the adjacent cross-over riffle by limiting extraction to the areas away from the entire riffle will also be considered for the lower Eel River on a case-by-case basis. These narrow skims may have a minimum vertical offset of 2 feet above the water surface elevation of the low flow channel. Narrow skim widths will be determined on a site specific basis, but narrow skims must: (1) not increase channel braiding; (2) not lower the elevation at which flows enter secondary channels; (3) avoid the higher portions of the annually inundated bar surface; and (4) must promote channel confinement. The CHERT recommendation shall include a summary of the reasoning, along with sufficient biological, hydrological, and sediment transport rationale to support the recommended width.

Shortly after the announcement of the new LOP, the Corps again requested a FESA Section 7 consultation from NOAA-Fisheries and the FWS. The formal consultations conducted by

[3] For a description of gravel extraction methods referenced in the LOP, see Appendix B.

NOAA-Fisheries and the FWS provide critical evidence for the Commission's review of the proposed gravel mining operations on the lower Eel and Van Duzen Rivers that the operations will not result in significant adverse impacts on threatened and endangered species. In previous actions on coastal development permits for gravel mining on the lower Eel and Van Duzen rivers, the Commission has relied upon those biological opinions to find consistency of the gravel mining projects with Section 30233 of the Coastal Act and to approve the projects.

On July 27, 2009, NOAA-Fisheries transmitted its preliminary conclusions and draft terms and conditions to minimize the amount or extent of "take" of threatened salmonids (Exhibit D). The final Biological Opinion for LOP-2009 for proposed gravel extraction operations on the Eel and Van Duzen Rivers is anticipated to be issued in late August. The preliminary conclusion states that

> *"After reviewing the best available scientific and commercial information, the current status of SONCC coho salmon, CC Chinook salmon, NC steelhead, and their designated critical habitats, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the biological opinion of NMFS that gravel mining under LOP 2009 for the five-year permit period, ending December 31, 2013, is not likely to jeopardize the continued existence of threatened SONCC coho salmon, threatened NC steelhead, and threatened CC Chinook salmon, and is not likely to adversely modify or destroy SONCC coho salmon, CC Chinook salmon or NC steelhead designated critical habitat."*

The preliminary conclusion of NOAA-Fisheries notes that the measures instituted in 2004 have worked well, and the agency does not anticipate any significant changes the requirements and recommendations to the Corps that will be included in the final Biological Opinion for LOP-2009.

The FWS final Biological Opinion is expected to be issued by August 12, 2009. The FWS has informed staff that it does not anticipate that its recommended conditions for western snowy plover will be significantly different than those included in the 2005 Biological Opinion (see Exhibit F). The FWS preliminarily concludes that the proposed gravel operations will not jeopardize the continued existence of the plover or adversely modify or destroy its designated critical habitat. As discussed in more detail in Finding IV-O below, the Commission attaches Special Condition No. 14, which requires the applicant to submit, prior to permit issuance, final Biological Opinions in support of the gravel extraction authorized by this permit and that are consistent with all terms and conditions of this permit. Any changes required by the agency shall be reported to the Executive Director and not incorporated into the project until the applicant obtains any necessary amendment to the coastal development permit.

**(5)** ***History of Coastal Commission Permits for Gravel Extraction on the Lower Eel & Van Duzen Rivers***

Over the past two decades, the Commission has issued at least 28 permits for gravel extraction on the lower Eel and Van Duzen Rivers, as summarized in Table 1. In general, actual annual extracted volumes in the lower Eel have consistently been lower than approved volumes every

year over the past decade, as seen in Table 2. From 1997 through 2007, a total of 2,273,959 cubic yards of aggregate was extracted from the lower Eel (averaging 206,724 cubic yards annually), which is only 62 percent of the total approved volume of 3,685,802 cubic yards (see Table 2).

**Table 1.** Summary of gravel operations in the coastal zone on the lower Eel and Van Duzen Rivers, from approximately River Mile (RM) 5 on the lower Eel up to just beyond the confluence of the Eel and Van Duzen Rivers (up to RM 0.7 on the lower Van Duzen River).

| Location (Bar & River Mile) | List of Current & Past Applicants | Coastal Development Permit Nos. | Approved Maximum Annual Volumes (cubic yards) |
|---|---|---|---|
| **Singley Bar** (RM 5-6) | Eureka Ready Mix (aka Eureka Sand & Gravel); Arcata Readimix | 1-92-157<br>1-97-068<br>1-04-022<br>1-09-005* | 150,000 |
| **Worswick Bar** (RM 7) | Humboldt County Public Works Dept.; Humboldt Bay Gravel, Inc.; Eureka Southern Railroad Co. | 1-90-195<br>1-96-062<br>1-00-055<br>1-04-024<br>1-09-014* | 25,000 |
| **Drake Bar** (RM 9) | Mallard Pond Sand & Gravel; Drake Materials; Drake Sand & Gravel | 1-94-079<br>1-01-046<br>1-02-162<br>1-04-046 | 250,000 |
| **Sandy Prairie Plant B** (RM 10-11) | Mercer-Fraser; Canevari Timber Co. | 1-94-006<br>1-94-006-A1 | 200,000 |
| **Sandy Prairie Plant A** (RM 11-12) | Mercer-Fraser | 1-94-035<br>1-00-009<br>1-03-014<br>1-04-020<br>1-09-022* | 70,000 |
| **Hansen Bar** (RM 13.5) | Charles Hansen | 1-97-017<br>1-02-023<br>1-03-030<br>1-09-011* | 50,000 |
| **Hauck Bar** (RM 14) | Eureka Ready Mix (aka Eureka Sand & Gravel) | 1-96-053<br>1-02-022<br>1-02-164<br>1-04-011<br>1-09-006* | 150,000 |
| **Near the confluence of Van Duzen & Eel Rivers** (up to Van Duzen RM 0.7) | Rock & Dwelley | 1-96-068<br>1-02-006<br>1-03-048<br>1-04-045<br>1-09-021* | 100,000 |

* Permit applications are pending approval.

**Table 2**. Approved and extracted gravel mining volumes in the lower Eel River (excluding the Rock and Dwelley operation on the lower Van Duzen River) since 1997 (from CHERT 2009, Exhibit A).

| Year | Approved Volume (cubic yards) | Extracted Volume (cubic yards) | Percent |
|---|---|---|---|
| **1997** | 561,700 | 326,500 | 58 |
| **1998** | 399,100 | 273,000 | 68 |
| **1999** | 471,400 | 290,500 | 62 |
| **2000** | 291,300 | 208,600 | 72 |
| **2001** | 389,900 | 119,300 | 31 |
| **2002** | 387,300 | 220,000 | 57 |
| **2003** | 318,300 | 163,900 | 51 |
| **2004** | 188,840 | 120,305 | 64 |
| **2005** | 199,370 | 166,280 | 83 |
| **2006** | 235,495 | 208,240 | 88 |
| **2007** | 243,097 | 177,334 | 73 |
| **Totals** | **3,685,802** | **2,273,959** | **62** |
| **Years** | **11** | **11** | **---** |
| **Annual Averages** | **335,073** | **206,724** | **62** |

At the project site, gravel extraction operations historically have varied with market demands and river conditions, but similar to the trend seen in the lower Eel in general, actual annual extracted volumes at the project site have consistently been lower than approved volumes every year. The last time gravel was extracted from the site was in 2003.

## C. Detailed Project Description

The applicant proposes the continued, on-going seasonal extraction of aggregate (sand and gravel) from the Hauck/Hansen Bar. The applicant proposes to extract up to a maximum of 50,000 cubic yards of aggregate per year. As proposed, the specific extraction site would depend on morphological conditions, evaluation of gravel replenishment data, and biological evaluations and other agency requirements. Gravel is proposed to be extracted using a bulldozer, front-end loader, and dump trucks. To access areas of the bar, the applicant is also seeking authorization to construct seasonal crossings over secondary or overflow channels of the Eel River. Crossings would consist of railroad flat cars placed side by side over the channels with gravel abutments using either washed gravel or gravel scraped from surrounding areas. Brow logs or large concrete blocks would be utilized to front, or stabilize, abutment fill and decrease encroachment of the aggregate fill into the wetted channel. Crossings would be located at points of the channel where potential salmonid spawning sites are not projected to occur, to be determined annually by a qualified fisheries biologist in consultation with the reviewing resource agencies. See Exhibit No. 4 for full project details.

The trucks would haul extracted material from the extraction site off the bar via existing access road that rises up the bank through the riparian forest area to the upland terrace for stockpiling and processing. Processing of the extracted gravel would be performed at the existing processing yard on the terrace between the bank full channel and the Sandy Prairie Levee. As this processing yard predates the Coastal Initiative and no new development is proposed at the yard,

the application does not seek authorization of this facility. All proposed haul roads under this application are existing and established, but periodic grading and dust watering of roads would occur as necessary each extraction season to maintain safe and efficient travel.

The proposed annual extraction amount of 50,000 cubic yards is proposed as an upper limit, is consistent with the PEIR for the lower Eel River, and is based upon evaluation of additional information as well as the data collected under the Humboldt County PEIR and Interim Management Programs. This project has been described to permit adaptive management of the project area. In any given year, project extraction volumes, locations, and methods would be submitted by the project consultants for approval by local, state, and federal agencies, including the County of Humboldt, Department of Fish and Game, and the Army Corps of Engineers. Annual assessments and site evaluations would be used to determine where aggregate could be excavated without causing long-term river bed degradation, the levels and volume of recruitment, and appropriate extraction volumes. No mining would occur at any location until after specific mining and reclamation plans are developed on the basis of annual environmental assessments and monitoring of the proposed project site.

The applicant is seeking authorization to use several different kinds of extraction methods, including skimming, secondary channel skims, high terrace extractions, wetland pits, alcove extractions, oxbow extractions, horseshoe extractions, inboard skims, and dry trenching (see Appendix B for method descriptions). The annual mining plan that would be prepared prior to the start of mining each year would use one or more of the above methods, depending on factors such as extractions site location, salmonid habitat protection needs, annual replenishment of aggregate, and other environmental factors.

Extraction operations conducted after October 15$^{th}$ in any given mining year would maintain reclaimed conditions at the end of each working day. This involves grooming and smoothing the extraction areas to prevent potential fish stranding and to promote a predictable flow pattern over the site upon inundation. Following final reclamation each year, all equipment and vehicles would be removed from the bank full channel by November 1$^{st}$ or earlier if declared by the Corps, NOAA-Fisheries, and/or the DFG. This coincides with the onset of the rainy season and rise in the river, which likely will inundate the extraction areas and/or prompt the upstream migration of adult salmonids.

## D. Protection of the Riverine Environment

The proposed project involves the surface mining extraction of sand and gravel from the Hansen Bar of the lower Eel River using mechanized heavy equipment for grading and dredging operations. Several Coastal Act policies address protection of the portion of the river environment below the ordinary high water mark from the impacts of development such as gravel mining. Coastal Act Sections 30230 and 30231 require, in part, that marine resources (including salmonids) and coastal wetlands be maintained, enhanced, and where feasible restored. These policies specifically call for the maintenance of the biological productivity and quality of marine resources, coastal waters, streams, wetlands, and estuaries necessary to maintain optimum populations of all species of marine organisms and for the protection of

human health. Section 30233 applies to any diking, filling, or dredging project in a river and other coastal waters. Gravel extraction within a river bed is a form of dredging within a wetland.

Section 30230 of the Coastal Act states, in applicable part:

> *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.* [Emphasis added.]

Section 30231 of the Coastal Act states as follows:

> *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

Section 30233 of the Coastal Act provides, in applicable part, as follows:

> *(a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:*
>
> …
>
> *(5) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.* [Emphasis added.]
>
> …
>
> *(c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary…*

Section 30240 of the Coastal Act states as follows:

> *(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*
>
> *(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

Section 30107.5 of the Coastal Act defines "environmentally sensitive area" as encompassing:

> *…any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.*

When read together as a suite of policy directives, Sections 30230, 30231, and 30233 set forth a number of different limitations on what types of projects may be allowed in coastal wetlands. For analysis purposes, the limitations applicable to the subject project can be grouped into four general categories or tests. These tests require that projects that entail the dredging, diking, or filling of wetlands demonstrate that:

1. the purpose of the filling, diking, or dredging is for one of the seven uses allowed under Section 30233;
2. feasible mitigation measures have been provided to minimize adverse environmental effects;
3. the project has no feasible less environmentally damaging alternative; and
4. the biological productivity and functional capacity of the habitat shall be maintained and enhanced where feasible.

**(1) *Permissible Use for Dredging and Filling of Coastal Waters***

The first test set forth above is that any proposed fill, diking, or dredging must be for an allowable use as enumerated under Section 30233 of the Coastal Act. The proposed project involves dredging for mineral extraction. The multi-year gravel operation proposes to use a variety of extraction techniques that would be allowed by the proposed Corps LOP and recommended by NOAA Fisheries as techniques that would avoid significant impacts to salmonids. Surface mining of gravel aggregate materials is specifically enumerated as a permissible use in the above-cited policy [Section 30233(a)(5)], provided the activity is not undertaken in environmentally sensitive areas. Therefore, to the extent that the proposed gravel extraction will avoid environmentally sensitive areas, the proposed project is consistent with the use limitations of Section 30233(a)(5).

All but one of the proposed gravel extraction techniques would involve excavation on dry portions of the gravel bars without encroachment into the salmon habitat of the river channel. The sole exception is the wet trenching technique, which would involve excavating sediment directly from portions of the channel, after the stream flow has been diverted to a secondary channel location. The wet trenching method of extraction would only be used when there is the objective of improving instream salmonid habitat by the limited use of sediment removal, and where the diversion of the low flow channel into a secondary channel that provides salmonid habitat is possible. The wet trenching technique would involve excavation within salmonid ESHA habitat, and thus would not be permissible under Section 30233(a)(5). As the wet trenching method proposed is a form of substantial alteration of a river or stream proposed for the improvement of fish habitat, the Commission evaluates this aspect of the proposed development under Section 30236 of the Coastal Act in Section IV-E of the findings below.

a. <u>Mineral Extraction Allowed by Section 30233(a)(5)</u>

There are various types of environmentally sensitive habitats on the project site including: (a) the live (flowing) waters of the river, which is habitat for threatened salmonid species; (b) riparian habitat, including North Coast riparian scrub habitat occurring on high points within the bank-full channel of the river, and North Coast black cottonwood forest occurring on a large island and on the left bank of the river within the project site; and (c) nesting habitat for the federally threatened western snowy plover.

The proposed mining project will be located in areas that will avoid intrusion into these habitat areas and/or be performed at times when sensitive species will not be nesting and/or utilizing the site for habitat. Descriptions of the habitats and their use by wildlife are found in the Findings Section IV-A-(3), "Habitat Types & Special-Status Species," of this report.

*i. Flowing River Channel as Environmentally Sensitive Habitat*

Under Section 30107.5 of the Coastal Act, any area supporting a plant, animal, or habitat is environmentally sensitive if the area meets two main criteria: (1) the plant, animal, or habitat is either rare or of special value because of its special nature or role in the ecosystem, and (2) the area could be easily disturbed or degraded by human activities and developments.

The water column and river bottom substrate within the year-round low-flow channel of rivers provide habitat for a wide variety of resident and migratory fish and wildlife species at all trophic levels, ranging from aquatic macro-invertebrates to mammals. These perennially-inundated areas within the river meet the first criterion of the definition of environmentally sensitive area, because during the time that the proposed mining would be conducted within these riverine areas, the inundated areas of the reach may contain rare or endangered species, namely federal- and state-listed salmonids using this reach as a transit corridor between areas of holding habitat prior to the onset of upstream migration.

The perennially-inundated areas within the river also meet the second criterion in that diversion, dewatering, fill, and dredging activities for gravel extraction in the river, such as proposed by the applicant, can quickly disturb and degrade the habitat areas the mining activities come in contact with, at least during the mining activities. In addition, on a more permanent basis long after the initial excavation work is completed, trenching can also destabilize the river channel and easily cause erosional impacts that can degrade the perennially inundated areas within the river. Furthermore, most portions of the riverbed that remain wetted also qualify as environmentally sensitive areas because of their special role as a holding area and transit corridor for migrating threatened salmonids.

The Commission has previously determined in numerous permit actions that such riverine perennial channels supporting migrating threatened salmonids are environmentally sensitive areas. The Commission has consistently conditioned permits for development in and near such channels and along riparian woodlands within streams and rivers to avoid disturbances of such environmentally sensitive aquatic resources.

In the most comprehensive sense, the entire area between the banks of the river could be considered an environmentally sensitive area, at least during portions of the year when covered by higher flows. However, during the summer dry season when river waters are confined to the definable low-flow channels, the dry exposed areas within the stream banks become inaccessible to migratory threatened salmonid fish species and other aquatic life forms. In recognition of this situation and the resource-dependent nature of sand and gravel mining, for purposes of considering the proposed gravel mining's consistency with Section 30233(a)(5) and 30240, the Commission has generally applied the environmentally sensitive area designation only to the portions of the river containing live flow, whereas mining would occur during the dry season in the mid-summer to early fall.

Not all portions of the river containing live flow during the summer-early fall gravel mining season necessarily qualify as environmentally sensitive. The edges of the shallow flat-water areas in the lower Eel River do not support threatened migratory salmonid fish species during the summer to early fall gravel extraction season. Unlike other portions of the Eel River and other North Coast rivers, the lower Eel does not provide spawning habitat for the threatened salmonid species. Instead, salmon pass through the area during migration periods to spawn further upstream. The migration periods occur at other times of the year when gravel extraction is not occurring. However, salmonids are found in the lower Eel at most times of the year, including in limited numbers during the summer to early fall gravel extraction period, but they do not frequent all parts of the channel. During the summer and early fall, water temperatures in the lower Eel River are considered stressful for salmonids. As water temperatures increase, the amount of dissolved oxygen (DO) in the water decreases. Surveys conducted under the Corps LOP procedure have shown that salmonid habitat areas are located in riffles and at the head of pools, where dissolved oxygen and food concentrations are highest. Shallow flat-waters and the lower reaches of long pools are avoided by salmonids since they do not have the necessary oxygen and food concentrations, lack cover, and do not provide relief from higher water temperatures. Therefore, the Commission finds that the edges of the shallow flat-water areas of the channel during the summer and early fall are <u>not</u> environmentally sensitive, as they do not provide threatened salmonid habitat. This finding should not be construed as indicating that other shallow flat-waters of other coastal rivers or even other parts of the Eel River during the summer are similarly not environmentally sensitive. The specific use of the lower Eel River by threatened salmonid species has been surveyed pursuant to the Corps LOP process and the consultation process with NOAA-Fisheries and has been documented in Biological Opinions prepared for the gravel operations. The surveys provide a basis for demonstrating that the salmonids do not inhabit the shallow flat-waters during the summer months. The results cannot be generalized to other river systems where no such surveys have occurred. In addition, unlike other rivers, the lower Eel is not considered by NOAA-Fisheries to provide salmonid spawning habitat.

Based on discussions with NOAA-Fisheries, gravel mining activities undertaken directly within the flowing river channels in the form of trenching have the potential to have both direct and indirect significantly adverse impacts on threatened salmonid species through: (a) water quality degradation associated with increased turbidity and sedimentation of coastal waters; (b) fish injuries and or deaths from contact with excavation equipment; (c) fish injuries, deaths, and changes in behavior due to flow diversions; (d) decreased invertebrate production associated

with removal and/or degradation of habitat substrate; and (e) increased susceptibility to predation due to tendency of migratory fish to concentrate in trench excavations that afford little or no cover from predators and poachers.

None of the proposed extraction techniques except "wet trenching" described below in Section IV-E specifically include extraction within wetted channel. However, the applicants do propose to install seasonal crossings with abutments that could extend into shallow flat-water portions of the channel. The Biological Opinion prepared for the gravel extraction operations require that seasonal crossings be located where the temporary bridge structures would minimize the potential impact to sensitive salmonid habitats. The locations are determined based on identification by a fisheries biologist of where sensitive juvenile rearing, adult holding, and spawning habitats do not exist. NOAA-Fisheries and CHERT review the proposed bridge placement and determine where the bridge can be located to avoid salmonids. If the seasonal crossings cannot completely span the channel, the review process will direct the crossings to be located in shallow flat-water areas where salmonids are not present. The wider flat-water portions of the channel are usually too wide to be feasibly crossed by a seasonal crossing without some portions of the crossing abutments extending into the side of the channel. Through the LOP – Biological Opinion process, mitigation measures have been developed for abutments that enter the wetted channel. During construction, the operator is required to contain abutment fill behind a containment structure such as a K-rail, sill logs, concrete blocks, or other suitable material to avoid filling any more of the channel than is absolutely necessary. The nearside below-water abutment fill is required to consist only of clean washed gravel to minimize downstream turbidity. Bridge construction, use, and removal shall occur prior to the arrival of the upstream migrating adult salmonids.

To ensure that mineral extraction and associated activities such as the installation of seasonal crossings within an ESHA as precluded by Coastal Act Sections 30233(a)(5) and 30240 do not occur, the Commission attaches (1) **Special Condition No. 1-(C)**, which prohibits excavation from occurring within the active wetted channel, where sensitive salmonid species could be present, except for wet trenching performed for restoration of instream salmonid habitat authorized pursuant to Section 30236, and (2) **Special condition 2-(C)**, which prohibits any portion of the seasonal crossing abutments from extending into the wetted channel, except in shallow flat-water areas, which are not considered environmentally sensitive during the time of year when gravel extraction operations are permitted to occur.

*ii. Riparian Vegetation as Environmentally Sensitive Habitat*

The Coastal Commission has previously determined in numerous permit actions that most forms of riparian vegetation are environmentally sensitive, as riparian zones serve many critical ecosystem functions. First, riparian areas contribute important organic debris that is transformed into nutrients, which support the riverine food web. Wood, leaf litter, and other organic matter from riparian areas provide nutrients for life at the base of the food web. Riparian vegetation supports insects and other prey resources, which are eaten by juvenile salmon and other fish and wildlife. If these areas are altered or eliminated, the food supply and, thus, the abundance of fish is likely to be reduced. Additionally, riparian vegetation provides cover – both for shade and

protection purposes – for aquatic species such as salmonids, which need cool water temperatures for growth and survival and protection from predators. Furthermore, riparian areas capture contaminants; by absorbing or filtering contaminated stormwater runoff, soils and vegetation in riparian areas can prevent pollutants from entering coastal waters. Moreover, healthy riparian areas support rich and diverse communities of animals, including birds, amphibians, and mammals, that depend on the areas for feeding, breeding, refuge, movement, and migration. Importantly, riparian areas serve as buffers for human health and safety. The riparian functions of water quality, soil stability, and the ability to absorb the impacts of large storm events and other natural, physical processes have direct benefits to humanity. Flooding and storm events can be exacerbated in the absence of riparian areas, which can serve as protective buffers. The Commission has consistently conditioned permits for development near riparian woodlands along streams and rivers to avoid disturbances of riparian areas where mature vegetation exists.

Some of the riparian scrub vegetation on the gravel bar is inundated during high flows and is often uprooted and scoured by river flows. The hydrodynamics of the river can cause the channel itself to migrate over time, which in time can eliminate more stands of riparian scrub vegetation from one year to the next. As a result, much of the vegetation is young, having only grown a season or several seasons since the time of the last inundation severe enough to remove the plants previously growing there. Given that some of this riparian vegetation is very new and underdeveloped, it may not provide habitat values sufficient enough for the vegetation to be characterized as environmentally sensitive.

Under Section 30107.5 of the Coastal Act, as discussed above, any area supporting a plant, animal, or habitat is environmentally sensitive if the area meets two main criteria: (1) the plant, animal, or habitat is either rare or especially valuable because of its special nature or role in the ecosystem, and (2) the area could be easily disturbed or degraded by human activities and developments. The non-persistent, young riparian scrub-shrub areas clearly meet the second criterion in that gravel extraction on the river bar, such as proposed by the applicant, can quickly degrade or obliterate any of this habitat that extraction activities come into contact with. With regard to the first criterion, the young riparian scrub-shrub vegetation is not rare, as it generally does not contain rare or endangered species, and it can be found extensively on the many thousands of acres gravel bars along North Coast waterways. However, such vegetation can be considered especially valuable and therefore also meet the first criterion. In general, riparian vegetation must grow to a certain size and mass before it can begin to contribute significantly to the river ecosystem. A willow sprig growing in isolation that has just taken root and only rises a few feet out of the ground cannot serve the ecosystem functions discussed above such as contributing organic debris to the riverine food web (including supporting insects and other macro-invertebrates on which juvenile salmonids depend), capturing contaminants, providing forage area, nesting opportunities, or screening from predators for birds and wildlife, and other functions. As the plant grows taller, however, and as more riparian plants colonize the surrounding area, the developing vegetation begins to contribute more debris to the riverine food web, capture more contaminants, and provide more forage, nesting, and cover opportunities that make it especially valuable habitat and therefore an environmentally sensitive area.

There is no clear-cut answer to the question of just when in the growth and development of riparian scrub vegetation it reaches the point where it can be considered environmentally sensitive. In discussions with Department of Fish and Game staff, Commission staff has learned that no specific plant height and diameter, coverage, age, etc. thresholds exist for riparian vegetation that define when habitat value is sufficient to categorize the vegetation as environmentally sensitive. Part of the reason for this uncertainty is that there can be tremendous variability in the values of riparian vegetation of the same size from one location to the next depending on such factors as surrounding habitat and vegetation, surrounding land uses, river configuration, etc.

One existing standard that may provide useful guidance for determining when riparian scrub-shrub vegetation reaches the point of becoming environmentally sensitive is a standard imposed in the Corps LOP Procedure. One restriction of the Corps LOP for gravel mining on the Eel River concerns riparian vegetation. The restriction states as follows:

> "All riparian and woody vegetation and wetlands must be avoided to the maximum extent possible. Any riparian vegetation or wetland that is to be disturbed must be clearly identified by mapping. Woody vegetation that is part of a contiguous 1/8-acre complex or is at least two inches in diameter breast height (DBH) must be mitigated if it is disturbed. Impacts to other woody vegetation must be described and a summary submitted to the Corps and CHERT with the gravel extraction plans. These impacts may require mitigation at the discretion of the Corps…"

The above-referenced Corp LOP restriction establishes a threshold for when impacts to riparian vegetation must be mitigated. The threshold is reached any time the riparian area that would be disturbed contains woody vegetation that is part of a contiguous 1/8-acre complex or is at least two inches (2") in diameter at breast height.

The Corps administers its permit program under Section 404 of the Clean Water Act (and the related Section 10 of the Rivers and Harbors Act of 1899). This administration does not limit mineral extraction in wetlands and open coastal waters to the same extent that Coastal Act Section 30233 does. As previously stated, Section 30233(a)(5) only allows the dredge or fill of wetlands and open coastal waters for mineral extraction if the mineral extraction occurs outside of environmentally sensitive areas. Although the Corps can allow mineral extraction in an environmentally sensitive area so long as mitigation is provided, the Commission cannot allow mineral extraction within an environmentally sensitive area at all. Thus, the Corps' purpose in determining when mitigation should be required is not the same as determining when riparian vegetation reaches a level of growth and development such that it should be considered environmentally sensitive.

By requiring mitigation whenever a riparian vegetation area that is to be disturbed contains woody vegetation that is part of a contiguous 1/8-acre complex or is at least 2 inches DBH, the Corps LOP indicates that vegetation at this level already is providing habitat value. Otherwise, if the vegetation were not providing habitat value there would be no need for mitigation. Therefore, the Commission finds that the riparian vegetation must reach a form of growth and

development where it provides important habitat values at some point before the Corps threshold is reached. Acknowledgement of this fact is contained in the rest of the Corps standards which indicate that impacts to other woody vegetation not rising to the threshold level must also be described and submitted to the Corps and may require mitigation at the discretion of the Corps.

In discussions with DFG staff, Commission staff has discerned that under average growing conditions, a willow tree that is one inch (1") in DBH or part of a contiguous 1/16-acre complex would likely have survived for one growing season. Given that riparian vegetation is only becoming established during the first growing season, the vegetation may not provide significant habitat value at this point. On the other hand, vegetation that has survived more than one growing season would be established and likely to be used by wildlife. Therefore, the Commission finds that the riparian scrub-shrub vegetation should be characterized as an environmentally sensitive area when the vegetation contains woody vegetation that is part of a contiguous complex of 1/16-acre or larger or is one-inch or larger in DBH. In addition, by restricting extraction in vegetated areas that are essentially half as developed as the riparian vegetation for which mitigation is indicated under the Corps LOP, the Commission will minimize the chances that any riparian vegetation providing significant habitat value will be disturbed by the proposed gravel extraction.

To ensure that mineral extraction proposed by the applicant each year is not performed within an area of environmentally sensitive riparian vegetation, thereby remaining an allowable use under Coastal Act Section 30233(a)(5), the Commission attaches **Special Condition Nos. 1-(E) & 1-(F)**, which further state that gravel extraction operations shall not disturb or remove any area of riparian vegetation growing on the river banks or on the gravel bar meeting either the aerial extent or plant girth criteria discussed above. Furthermore, the Commission attaches **Special Condition No. 3** which requires the applicant to submit annually for the review and approval of the Executive Director a final gravel extraction plan for the gravel extraction season that is consistent with the extraction limitations of Special Condition No. 1, which include the aforementioned limitations on extracting gravel in riparian areas.

*iii. Exposed Gravel Bars as Environmentally Sensitive Habitat*

Another form of environmentally sensitive areas that has the potential for occurrence on the exposed gravel bars is seasonal nesting habitat of the western snowy plover. As noted previously, the western snowy plover is a federally listed threatened species, which in the past has been observed nesting on gravel bars of the lower Eel and Van Duzen Rivers during April through early September. The FWS has overseen surveying on the gravel bars within the Eel River during the April to September breeding season window. Surveys conducted in 2008 indicate that a total of only four adult plovers constructed a total of two nests along the Eel River gravel bars with 100 percent of resulting chicks hatching out (see Exhibit B). The number of plovers sighted on gravel bars has declined over the past several years, though the overall number of plovers sighted on local beaches has increased.

As the habitat of rare and endangered species meets the definition of environmentally sensitive areas pursuant to Section 30107.5 of the Coastal Act, the Commission finds that any areas

utilized by the western snowy plover during the nesting season when the birds are present constitute ESHA. Therefore, the Commission attaches **Special Condition No. 4**, which requires that gravel extraction operations avoid western snowy plover habitat by either not commencing until after the nesting season, or commencing only after a biologist approved by the FWS has surveyed the site and either found no plover nests, or has found some but will conduct daily surveys to ensure a 1,000-foot buffer area is maintained around the nests that are found. Furthermore, Special Condition No. 4 requires daily surveys prior to pre-extraction activities occurring in suitable habitat and restricts vehicle use to prevent adverse impacts to plovers. This condition is consistent with the recommendations of the FWS to avoid disturbance of the threatened bird species. The requirements of Special Condition No. 4 will ensure that mineral extractions will not impact western snowy plover habitat during the time of nesting, when such areas constitute environmentally sensitive areas.

b. Conclusion on Use Limitations of Coastal Act Section 30233(a)

Therefore, as conditioned herein, the proposed gravel extraction operation is consistent with the use limitations of Section 30233 of the Coastal Act on dredging in coastal water bodies, as the proposed gravel extraction is for mineral extraction in areas that are not environmentally sensitive, consistent with Section 30233(a)(5).

**(2) *Alternatives Analysis***

The second test set forth by the Commission's dredging and fill policies is that the proposed dredge or fill project must have no feasible less environmentally damaging alternative. In this case, the Commission has considered the various identified alternatives, and determines that there are no feasible less environmentally damaging alternatives to the project as conditioned by Special Condition Nos. 1-12. A total of four possible alternatives have been identified, including: (a) the "no project" alternative; (b) obtaining sand and gravel from quarry operations; (c) obtaining sand and gravel from terrace deposits in the Eel River floodplain; and (d) modifying the proposed project. As explained below, each of these alternatives is infeasible and/or more environmentally damaging than the proposed project as conditioned.

a. No Project Alternative

The no project alternative means that no gravel extraction would occur at the site. Without extraction from the site, an equivalent amount of sand and gravel materials would be obtained from other sources to meet regional demand for cement and concrete aggregate products for the construction of roads, buildings, and other development. Increasing production from other river bar extraction operations would have environmental impacts similar to or greater than the proposed project.

The proposed project is located in an area where gravel has historically been accumulated and mined. Mining in many other parts of the river where gravel does not accumulate could lead to changes in river geomorphology which, in turn, could cause a variety of adverse impacts such as increased sedimentation, the undermining of bridge supports, and bank erosion resulting in the loss of environmentally sensitive riparian habitat areas and/or adjacent agricultural lands.

As discussed below, obtaining additional sand and gravel terrace deposits from the valley floors of local rivers would also create adverse environmental impacts similar to or greater than the proposed project. The Commission therefore finds that the "no project" alternative is not a feasible less environmentally damaging alternative to the project as conditioned.

b. Obtaining Sand and Gravel from Quarry Operations

Excavation from the river could be avoided if an equivalent amount of sand and gravel could be obtained from upland quarries. As discussed in the Final Programmatic EIR on Gravel Removal from the Lower Eel River certified by Humboldt County in 1992, there are few quarries in the vicinity where it would be economically feasible to obtain material of sufficient quality and quantity to that available at the project site. The substrate of nearby areas of Humboldt County is composed mostly of the Franciscan formation, which is comprised of large masses of greywacke and sandstone interspersed with less competent (for construction applications) clay and silt materials. This composition of material generally does not lend itself to quarrying. The quarries that are found in the region are generally located in remote areas with limited water supplies and where no nearby processing facilities are available. The unprocessed materials would need to be transported greater distances resulting in increased traffic, air quality, and greenhouse gas emissions impacts. The Commission therefore finds that substituting gravel extracted from quarry operations is not a feasible less environmentally damaging alternative to the project as conditioned.

c. Obtaining Sand and Gravel from Terrace Deposits

Excavation from the river could be avoided if an equivalent amount of sand and gravel products could similarly be obtained from terrace deposits in the floodplain of the lower Eel, Van Duzen, or Mad Rivers. The floors of these river valleys are underlain by substantial amounts of gravel deposited over thousands of years and provide upland rock quarries. However, commencing gravel extraction from these terrace deposits would create its own adverse environmental impacts. Much of the undeveloped valley floor of each of these rivers is developed with agricultural and timber production uses. Converting productive coastal agricultural lands or forest lands to gravel extraction or other uses would not be consistent with Coastal Act policies, which call for the maintenance of lands suitable for agriculture and timber production. Most of the remaining undeveloped areas of these river valleys are currently covered with riparian habitat and other environmentally sensitive habitats. Extracting gravel from such areas would result in far more impacts to environmentally sensitive habitat than extraction at the project site as conditioned by the permit to avoid all riparian habitat. Therefore, the Commission finds that substituting gravel extracted from terrace deposits in local river valleys is not a feasible less environmentally damaging alternative to the proposed project as conditioned.

d. Modifying the Proposed Project as Conditioned

Various modifications to the project as proposed and conditioned could be made in an attempt to reduce the environmental effects. One such modification would be to mine in different locations at the project site. However, this modification would not result in less significant adverse impacts

than the project as conditioned under this permit. As discussed previously, the proposed project has been conditioned to restrict mining to areas that would avoid significant adverse impacts to coastal resources. Therefore, modifying the proposed gravel extraction project to require mining in different locations at the project site could result in greater impacts to coastal resources and would not be a feasible less environmentally damaging alternative. No other feasible modification to the proposed extraction scheme has been identified. Therefore, the Commission finds that modifying the proposed gravel extraction project as conditioned is not a feasible less environmentally damaging alternative.

Conclusion

For all of the reasons discussed above the Commission finds that there is no less environmentally damaging feasible alternative to the development as conditioned, as required by Section 30233(a).

**(3)** ***Feasible Mitigation Measures***

The third test set forth by the dredging and fill policy of the Coastal Act is whether feasible mitigation measures have been provided to minimize the adverse environmental impacts of the proposed project.

Depending on the manner in which the gravel operation is conducted, the portions of the proposed project to be conducted below the ordinary high water mark could have five potentially significant adverse effects on the natural environment of the lower Eel River. These impacts include: (a) direct and indirect impacts on fisheries; (b) alteration of the riverbed and increased bank erosion; (c) impacts on environmentally sensitive riparian vegetation; (d) impacts on western snowy plover; and (e) impacts on water quality. The potential impacts and their mitigation are discussed in the following sections:

a. Impacts on Fisheries

As noted previously, the Eel River and its tributaries are ranked among the most significant anadromous fisheries in Northern California and include coho salmon, Chinook salmon, and steelhead trout, all federally listed threatened species under the federal Endangered Species Act. The project area and the lower Eel River are important for these anadromous fish as a migration route to and from upstream spawning grounds. In addition, the lower Eel River supports summer rearing habitat for juvenile salmonids, especially steelhead yearlings and fall Chinook sub-yearlings, and holding areas for adult summer steelhead as well as spawning and nursery habitat for other marine fishes and many invertebrates.

Gravel extraction from river bars can adversely affect fisheries in a number of ways. Poorly designed extractions can alter the river channel or even cause capture of the channel into extraction areas in a manner that can lead to significant downstream erosion of stream banks and greater sedimentation of the river. In addition, NOAA-Fisheries has indicated that juvenile and adult salmonid stranding could occur as a result of certain extraction methodologies depending on how the methodology is implemented and the manner in which the extraction area is

reclaimed following extraction. For example, the various on-bar and secondary channel trenching techniques could result in salmonid stranding once river waters rise following the end of the mining season and then subsequently drop during the following spring. The potential for salmonid stranding is minimized if the trenches are breached on their down-stream ends to provide the fish with a connection back into the river's main channel.

NOAA-Fisheries staff has also indicated that gravel mining has the potential to result in elevated turbidity levels and increased sedimentation. Fine sediments can become entrained in runoff from skimmed bar surfaces, as skimming typically exposes finer sediment that would be inundated during lower discharges. According to NOAA-Fisheries, increased sedimentation can adversely impact salmonid spawning habitat by filling pores spaces, which decreases hydraulic conductivity of the gravel, thus reducing the supply of oxygenated water to incubating eggs.

Construction and removal of channel crossings and the use of heavy equipment can adversely affect salmonids. Heavy equipment is required to operate in the wetted, low-flow channel to construct and remove the crossings, which are typically placed at riffle locations. According to NOAA-Fisheries, death or injury of salmon through direct contact with such heavy equipment is likely during installation and removal of the crossing structures. In addition, Chinook salmon build redds and spawn in riffles, and the redds could be subject to a pulse of fine sediment during removal of the channel crossing in late fall. In addition, the operation of heavy equipment has the potential to result in disturbance to salmonids caused by noise and vibration in the extraction work area. Furthermore, stream crossings can also impact rearing salmon habitat by impeding or altering channel stream flow dynamics.

The impacts of gravel mining operations on sensitive fish species include more than just the direct gravel mining activities within or in proximity to the low flow channel or the individual impacts of a particular gravel mining operation at one site. Often of greater significance are the indirect effects of gravel mining on physical riverine form together with the cumulative adverse impacts on sensitive fish species from all of the various gravel mining operations occurring along the river. Accurately assessing significant adverse indirect and cumulative impacts of the various gravel mining operations on sensitive fish species and/or their habitat can be a difficult task for any one operator to perform.

An assessment of the significant adverse indirect and cumulative impacts of gravel mining operations permitted by the U.S. Army Corps of Engineers (Corps) along the lower Eel River on sensitive fish species does exist in the form of Biological Opinions issued by the National Marine Fisheries Service (NOAA-Fisheries). These Biological Opinions are issued as a result of formal consultations between the Corps and NOAA-Fisheries pursuant to Section 7 of the Federal Endangered Species Act.

As discussed previously in Finding IV-B, on June 17 2009, the Corps formally requested that NOAA-Fisheries prepare a Biological Opinion to analyze the Corps LOP Procedure 2009 for proposed gravel extraction on Humboldt County rivers over the next five years (through 2014). NOAA-Fisheries anticipates issuing its Biological Opinion by the end of August 2009.

Based on the biological information collected as part of the FESA Section 7 consultation, NOAA-Fisheries staff concludes that the proposed seasonal extraction of gravel over the next five years will not result in more than incidental take of threatened salmonid species and will not jeopardize their continued existence. In its July 27, 2009 draft preliminary conclusions and draft terms and conditions to minimize the amount or extent of "take" of threatened salmonids (Exhibit D), NOAA-Fisheries states that

> "*After reviewing the best available scientific and commercial information, the current status of SONCC coho salmon, CC Chinook salmon, NC steelhead, and their designated critical habitats, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the biological opinion of NMFS that gravel mining under LOP 2009 for the five-year permit period, ending December 31, 2013, is not likely to jeopardize the continued existence of threatened SONCC coho salmon, threatened NC steelhead, and threatened CC Chinook salmon, and is not likely to adversely modify or destroy SONCC coho salmon, CC Chinook salmon or NC steelhead designated critical habitat.*"

The preliminary conclusion of NOAA-Fisheries notes that the measures instituted in 2004 have worked well, and the agency does not anticipate any significant changes the requirements and recommendations to the Corps that will be included in the final Biological Opinion for LOP-2009, which is expected to be issued by late August of 2009.

To ensure that significant adverse impacts to salmonids from exceedance of incidental take of listed species does not occur during authorized mining operations, the Commission incorporates within the standards of **Special Condition Nos. 1 and 3** specific elements of proposed LOP Procedure 2009 that have been identified by NOAA-Fisheries as important for minimizing impacts to channel form and function, as well as protecting fish habitat.

As part of its review, NOAA-Fisheries has been reviewing the extraction methods and techniques described in LOP-2009 including, but not limited to, traditional skims, horseshoe skims, inboard skims, narrow skims, alcove extractions, wetland pits, wet trenches for salmonid habitat improvement purposes only, and dry-trenches. NOAA-Fisheries staff believes that although there is a preference for the non-skimming methods, all of the above methods would not adversely affect channel form and function in a manner that would be likely to jeopardize the continued existence of the sensitive fish species.

Therefore, to ensure that the mineral extraction proposed by the applicants use these proposed techniques to avoid degradation of the habitat of threatened salmonid species, the Commission includes within the requirements of **Special Condition No. 1-(B)** a limitation which requires use of only these extraction methods. This requirement will ensure that significant adverse disturbance of fish habitat from use of inappropriate extraction measures will be avoided.

Maintaining a head of the bar buffer, where gravel extraction would be precluded, is intended to provide protection of the natural stream flow steering effect provided by an undisturbed bar. According to the Biological Opinion, head-of-bar buffers reduce the potential for geomorphic changes to the river from sediment extraction. The buffer helps to maintain bar slope and form,

which in turn helps to guide stream flows that are effective at creating and maintaining habitats. Therefore, **Special Condition No. 1-(K)** precludes mining in the upper one-third of a gravel bar, consistent with the Biological Opinion and Corps permit requirements.

The use of vertical offsets of the gravel extraction area from the low flow channel of the river that exists during the summer mining season will also help minimize sedimentation impacts on the river. The natural entrainment of sediment into river flows in the dry summer and early fall seasons is minimal in comparison with natural entrainment in winter months, when heavy rains entrain large quantities of sediment into river flows. Anadromous fish depend on the natural variation in sedimentation of river flows for spawning, migration, and other life-cycle changes. Artificially introducing large amounts of sediment at times of the year when natural entrainment would be low will adversely affect the anadromous fish as discussed above. Therefore, certain vertical offsets need to be maintained to prevent the sediment in lower skimmed surfaces of the bars from becoming entrained prior the beginning of significant movement of fine bed load material in the river. The general effect of skim floor elevations is that effects associated with sediment inputs are reduced as the elevation of the skim floor increases. The application proposes to set minimum skim floor elevations to correspond to the water surface elevation of the flow that is exceeded 35 percent of the time in the historic record of daily average flows for rivers in Humboldt County. According to the Biological Opinion, the 35 percent exceedence flow is the flow where significant movement of fine bed load material begins in the rivers of Humboldt County. A skim floor at the 35 percent exceedence flow will provide confinement of the low flow channel until the stream is gaining in volume and naturally beginning to transport fine sediment. Therefore, **Special Condition No. 1-(J)** requires that any bar-skimming extractions that are proposed adjacent to the low flow channel shall have a minimum skim floor elevation at the elevation of the 35% exceedence flow.

In addition, gravel mining operations on the river bed need to cease before the rainy season to prevent significant adverse impacts to fisheries, as the runs of the various species of anadromous fish up and down the river increase in the fall with the rise in river water levels and remain at high levels through the early spring. In recent F&GC Section 1600 Streambed Alteration Agreements issued for gravel extraction at the project site, the Department of Fish and Game has limited gravel extraction operations to the dry season of June 1 through October 15 each year, which corresponds to the period when potential impacts to fisheries is lowest. The Department can extend the operations until November 1 if dry weather conditions prevail. The NOAA-Fisheries 2004 Biological Opinion also allows for completion of gravel mining operations by October 15, with similar extensions to November 1 if possible. The 2009 Biological Opinion, according to NOAA-Fisheries staff, would similarly allow for such extensions.

Therefore, the Commission attaches **Special Condition No. 5** that requires mining and all post-extraction bar grooming work and equipment removal be performed during the summer months and completed by October 15 to ensure no significant disturbance to anadromous fish. The Executive Director may approve a one or two week extension of gravel extraction and regrading activities to as late as November 1 if dry weather conditioned are forecasted and the permittee has received all necessary approvals to extend gravel operations over the extension period from the Department of Fish and Game, the U.S. Army Corps of Engineers, and NOAA-Fisheries.

The 2004 Biological Opinion also indicates that it is the opinion of NOAA-Fisheries that the proposed gravel mining under the project is not likely to destroy or adversely modify SONCC coho salmon designated critical habitat (Exhibit E). The 2009 Biological Opinion anticipated by NOAA-Fisheries staff will similarly conclude that the proposed gravel mining operation is not likely to destroy or adversely modify such critical habitat. As discussed in more detail in Finding IV-O below, the Commission attaches **Special Condition No. 14**, which requires the applicant to submit, prior to permit issuance, final Biological Opinions in support of the gravel extraction authorized by this permit and that are consistent with all terms and conditions of this permit. Any changes required by the agency shall be reported to the Executive Director and not incorporated into the project until the applicant obtains any necessary amendment to the coastal development permit.

Therefore, the Commission finds that as conditioned, the proposed gravel mining project would avoid significant cumulative adverse impacts on sensitive fish species consistent with the requirements of Sections 30231, 30233, and 30240 of the Coastal Act.

b. Impacts on River Morphology

As discussed above, a potential major impact of gravel mining operations is degradation of the riverbed and erosion of the riverbanks. Such impacts can occur if the amount of gravel extracted from a particular part of the river over time exceeds the amount of gravel deposited on the site through natural recruitment – the downstream movement of sand and gravel materials. Bed degradation and bank erosion can also result from the manner in which gravel is extracted. For example, if gravel bars are skimmed too close to the low-water surface or are left with a very shallow slope, at higher flow stages the river will tend to spread across the bar, reducing the overall depth of flow and resulting in rapid channel migration or instigation of a multi-channel "braided" configuration. This is also true of watercourse reaches where aggradation of materials is a problem. Such sites tend to trap gravel that would otherwise move downstream, potentially trapping or impeding fish migration up and down the river.

Although the applicants propose to extract an amount of gravel that is small relative to the overall permitted gravel mining activity along the Eel River, extraction without consideration of river morphology concerns could cause bed degradation and riverbank erosion.

As discussed above in Finding IV-B-2, in January of 2009 CHERT released a 10-year analysis of river channel cross sections taken at various sites along the Eel and Van Duzen Rivers near mining sites (including the lower, middle, and South Fork reaches of the Eel River and the lower Van Duzen River) (Exhibit A).[4] The report represents the longest-term geomorphic analysis completed to date examining the potential effects of gravel mining operations on river channel morphology. The report finds that "While certain methods of mining and locally excessive volumes can affect instream habitat in the short term, the river does not appear to suffer from

[4] County of Humboldt Extraction Review Team (CHERT). January 2009. *Analysis of Eel River Cross Sections at Gravel Mining Sites, 1997-2007*. Unpublished report prepared by Randy Klein, Doug Jager, Andre Lehre, and Bill Trush. 24 pp (Exhibit A).

long term or broad scale channel bed degradation from gravel mining. Furthermore, the CHERT adaptive management program authorized by the IMP specifically addresses preventing local over-extraction and avoids/minimizes mining methods that cause aquatic and riparian habitat damage" (page 2). The report concludes that "…we did not discern any large scale, persistent effects of Eel River gravel mining on channel thalweg elevations, mean bed elevations, or scour…Gravel mining effects in the Eel River are probably limited to short term, localized effects which the adaptive management program and federal and state oversight attempt to avoid or minimize. Refinement of project-scale minimization measures will continue to be a fundamental component of the adaptive management process, as will instream habitat improvement projects associated with gravel extraction operations" (page 24).

As discussed in the previous section, the proposed gravel extraction methods have been proposed to avoid significant adverse impacts to channel form and function. The determination of the NOAA-Fisheries Biological Opinion that gravel operations conducted in accordance with the LOP-2004 procedures will not result in more than an incidental take of listed species and will not likely threaten the continued existence of these species, and the opinion of NOAA-Fisheries staff that mining under the LOP-2009 would similarly not result in more than incidental take of listed species, is based in part on a finding that the extraction methods specified in LOP 2009 will be used to help preserve channel form and minimize bank and bar erosion that would degrade fishery habitat. **Special Condition Nos. 1 and 2** limit the use of gravel extraction techniques to those recommended by NOAA-Fisheries. In addition, the annual gravel extraction plans will be reviewed by CHERT in consultation with NOAA-Fisheries and the Corps to ensure that the particular methods proposed in any given year will minimize the chances of degradation of channel form based on conditions that exist at the time. **Special Condition No. 3** requires that the annual gravel extraction plan be submitted for the review and approval of the Executive Director and section (A)(4) of that condition requires that the submitted plan be consistent with the recommendations of CHERT. These requirements will ensure that disturbance of the active channel will be avoided.

c. Impacts on Environmentally Sensitive Riparian Vegetation

To prevent disturbances to riparian habitat, **Special Condition No. 1** includes the requirement that the mining be performed, on the portions of the gravel bar that do not contain or are in close proximity to riparian vegetation with environmentally sensitive habitat characteristics. Furthermore, the Commission attaches **Special Condition No. 6**, which reiterates that gravel extraction and processing operations shall not disturb or remove any area of environmentally sensitive vegetation growing on the gravel bar or river bank, and enumerates the threshold growth characteristics for when riparian vegetation becomes environmentally sensitive habitat. In this manner, disturbance to all of the environmentally sensitive riparian vegetation in the vicinity of the project will be avoided.

d. Impacts on Western Snowy Plover

The western snowy plover (*Charadrius alexandrinus nivosus*) was listed as a threatened species by the U.S. Fish and Wildlife Service (FWS) in 1993. A final rule for critical habitat for the species was published by the FWS in 2005. On the lower Eel River, designated critical habitat

for the plover includes seasonally exposed gravel bars located between the mouth of the Eel River upstream to its confluence with the Van Duzen River. At the State level, the western snowy plover has been classified by the Department of Fish and Game as a "species of special concern" throughout all of California since 1978.

Snowy plovers were first documented nesting on gravel bars along the lower Eel River in 1996, which prompted increased surveying and monitoring efforts to describe the seasonal and spatial use of the lower Eel River by plovers. Surveys have indicated that snowy plovers are distributed along the unvegetated portions of larger gravel bars from the mouth of the Eel River upstream to the mouth of the Van Duzen River and have been found on the gravel bars from early April until early September.

According to the western snowy plover Biological Assessment prepared for the gravel operators on the lower Eel River (Winzler & Kelly, March 9, 2009, Exhibit B), overall plover population numbers, nests, and fledged chicks along the lower Eel River gravel bars have been declining over the years. While in 2001 there were 39 birds and 39 nests detected on the lower Eel River, in 2008 there were only four birds and two nests on the lower Eel River (none of which were located on the Sandy Prairie landform). During the same time period however, plover nesting on local beaches increased. Although the reason for this apparent shift in habitat use from river bars to beaches is not understood, it is clear that some nest loss along the lower Eel has occurred due to river floods (high spring flows). Additionally, Colwell et al. (2005-2008) documented that recreational vehicle use of the gravel bars has directly contributed to 41 percent of Eel River plover nest failures over the past four years.

Because the plover is a federally listed threatened species, the responsibility for protecting the species rests with the U.S. Fish and Wildlife Service (FWS). The Service's Arcata office coordinates with the U.S. Army Corps of Engineers to provide guidance and regulatory review to gravel extraction operators on the lower Eel River. The FWS has set forth recommendations for plover protection based on current data. These recommendations have been incorporated as Special Condition No. 4 and are outlined below.

Western snowy plover adults, nests, and chicks are very cryptic, largely because of their ability to blend in with their surroundings as a defense strategy. All life stages of the plover are susceptible to death or injury by humans driving, operating equipment, and otherwise using occupied plover habitat. Disturbance from noise and activity associated with gravel extraction, vehicle use, and pre-gravel extraction activities may adversely affect western snowy plovers by altering their feeding and breeding behavior, reducing the suitability of nesting habitat, masking essential warning signs of predators, and attracting potential scavengers/predators.

According to the FWS, data from other portions of the western snowy plover's range suggest that activity and vehicle use in nesting and chick rearing habitat during low light and night conditions likely increases the risk of vehicle strikes to plovers, including adults. Activities associated with gravel extraction (including surveys for engineering, hydrology and biological resources) often need to be conducted prior to the initiation of gravel extraction activities. Because these pre-extraction activities require vehicular use and human presence in potential nest areas during the

nest season, the potential exists to adversely affect the western snowy plover through direct harm or harassment.

To avoid disturbance to the plovers from vehicle use and pre-extraction activities, the Commission attaches **Special Condition No. 4**. Special Condition No. 4 requires the following: (a) For activities occurring prior to September 15, daily plover surveys shall be conducted by a biologist approved by the FWS prior to daily initiation of any pre-extraction activities that occur in suitable plover habitat; (b) If plovers or an active plover nest is within the area of planned operations or a 1,000-foot buffer area, activities within 1,000 feet of the plovers or nest shall be delayed until the nest has hatched and the plovers have moved to a distance greater than 1,000 feet away (hazing is not authorized); (c) Extraction activities within 1,000 feet of plover habitat may only occur if three consecutive days of FWS-approved plover surveys conducted by a FWS-approved biologist are completed with no detections of plovers or nests, and operators must ensure that extraction activities do not occur when plovers or nests are within 1,000 feet of the extraction site; (d) All pre-extraction activities conducted in suitable nesting habitat prior to August 22 of each year shall be preceded by plover surveys completed each day that pre-extraction activities are planned to occur.

Due to the significant adverse impacts that vehicle use on the gravel bars has on the federally threatened western snowy plover, the FWS proposes including in its Biological Opinion prepared for the Corps LOP-2009 term and conditions aimed at minimizing vehicle impacts. The FWS is requiring that vehicle use in suitable plover habitat shall be minimized during the plover nesting season (March 1-September 15), and that access roads owned, controlled, or utilized by commercial gravel operators shall be gated and locked during the plover nesting season when no active extraction and hauling is occurring (including at night). This requirement has been included as part of **Special Condition No. 4**, which specifies various measures to protect western snowy plover in the project area, as discussed above. The condition imposed by the Commission requires that the gates be designed to block vehicular access only and shall allow for pedestrian access, unless the applicant obtains additional authorization from the Commission to block pedestrian access. This condition will keep the vehicles that adversely affect the plovers off of the bars during the plover nesting season while protecting the pedestrian access to the shoreline consistent with the access policies of the Coastal Act. If the applicant desires to install gates that block pedestrian as well as vehicular access, the applicant must apply for additional authorization from the Commission so that the Commission can evaluate whether such gates in the specific location proposed would block the public's right of access inconsistent with the access policies of the Coastal Act.

The requirements of Special Condition No. 4 will ensure that gravel operations will not be performed in western snowy plover nesting sites or otherwise significantly disturb this threatened species. Therefore, as conditioned, the Commission finds that the project will avoid significant adverse impacts to the western snowy plover species.

e. <u>Impacts on Water Quality</u>

If properly managed, the proposed gravel operations should not significantly adversely affect the river's water quality. However, gravel extraction operations in close proximity to an open stream course could adversely impact water quality and ultimately the biological productivity and fisheries resources of the river. For example, pushing gravel materials or allowing sediment-laden water to drain from an excavation bucket into the river could degrade water quality and biological productivity by increasing the turbidity of the water. In addition, if not retained to allow settlement of suspended sediment, wash water from gravel processing activities could entrain soil materials which could result in sedimentation of coastal waters.

To prevent such occurrences, the Commission attaches Special Condition Nos. 1, 3, 6, and 7. **Special Condition No. 1** requires the applicant to perform the mining project on the exposed gravel bar, to avoid in-water activities that might result in sedimentation of the river. **Special Condition No. 3** requires that a runoff control plan be reviewed and approved by the Executive Director as part of the annual final gravel extraction plan ensuring that mining equipment be maintained and operated in such a manner as to not allow for release of petroleum products into the river, that spill clean-up materials be available on the worksite, and that operators and sub-contractors undergo spill contingency training. **Special Condition No. 6** prohibits placing any material into the river during gravel extraction activities. **Special Condition No. 7** requires that all materials be promptly removed from the river after the cessation of mining and prior to the start of the rainy season.

Therefore, as conditioned, the project will not result in significant adverse impacts to coastal water quality.

Conclusion

The Commission finds, as conditioned herein, the proposed gravel extraction operation is consistent with the requirements of Section 30233 of the Coastal Act in that feasible mitigation measures have been provided to minimize adverse environmental effects. The gravel extraction limitations and performance standards imposed through Special Condition Nos. 1, 3, and 5 are designed to prevent impacts to river morphology, riparian vegetation, threatened and endangered species, and water quality. Together with the requirements of Special Condition Nos. 6 and 7 to prohibit placement of material into the active channel and limit the extraction season, the project is conditioned to ensure that significant adverse impacts to the Eel River from the proposed gravel extraction operation will be avoided. Therefore, the proposed project as conditioned is consistent with the requirements of Sections 30231, 30233, and 30240 of the Coastal Act.

**(4)** ***Maintenance and Enhancement of Estuarine Habitat Values***

The fourth general limitation set by Sections 30231 and 30233 is that any proposed dredging or filling project in coastal waters must maintain and enhance the biological productivity and functional capacity of the habitat, where feasible.

As discussed in the section of this finding on mitigation, the conditions of the permit will ensure that the project will not have significant adverse impacts on fisheries resources, river morphology, environmentally sensitive riparian vegetation, western snowy plover, or water

quality. By avoiding impacts to coastal resources, the Commission finds that the project will maintain the biological productivity and functional capacity of the habitat consistent with the requirements of Sections 30231, 30233, and 30240 of the Coastal Act.

Conclusion

The Commission thus finds that the project is an allowable use, that there is no feasible less environmentally damaging alternative, that no additional mitigation is required for the impacts associated with the dredging of coastal waters, and that riverine habitat values will be maintained or enhanced. Therefore, the Commission finds that the proposed development, as conditioned, is consistent with Sections 30231, 30233, and 30240 of the Coastal Act.

## E. Development Within Coastal Rivers and Streams

Section 30236 of the Coastal Act states the following:

> *Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (l) necessary water supply projects, (2) flood control projects where no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat.* [Emphases added.]

Section 30236 sets forth a number of different limitations on what development may be allowed that causes substantial alteration of rivers and streams. For analysis purposes, a particular development proposal must be shown to be for one of three purposes: (1) for a necessary water supply project; (2) flood control projects where there is no other feasible methods for protection of existing structures within the floodplain and the project is necessary for public safety and the protection of existing development; or (3) primarily for fish and wildlife habitat improvement. In addition, the development proposed must provide the best mitigation measures feasible to minimize the significant adverse environmental effects of the subject channelization, damming, or other substantial alteration of a river or stream.

As discussed above, the wet trenching technique, which may be proposed in an annual gravel extraction plan if deemed appropriate by NOAA-Fisheries and DFG, would involve excavation within salmonid ESHA habitat, and thus would not be permissible under Section 30233(a)(5). However, Section 30236 allows substantial alteration of rivers and streams where the primary function is for the improvement of fish habitat. To the extent that use of the wet trenching technique is primarily for the improvement of fish habitat, the proposed wet trenching excavation is consistent with the use limitations of Section 30236, as explained below.

Trenching can be an effective tool for the enhancement of salmonid migration corridors and in providing cold water refuge adjacent to the wetted channel. NOAA-Fisheries has encouraged the use of trenching on the lower Eel and lower Van Duzen Rivers to assist salmonid migration through desiccated bar areas. Trenching adjacent to the low-flow channel also can provide adult holding habitat. A migration trench is essentially a designed channel mimicking a natural channel, which permits salmonid migration and water flow through a desiccated reach of a

stream. Meander and slope may be designed into the channel to control velocity and provide resting areas for fish. Large woody debris also may be placed within the channel to provide cover and refuge for salmonids during upstream migration. Connection of the designed channel at the upstream end must be carefully planned so that the existing channel area is not significantly diminished and so that low, pulse flows do not encourage fish migration into channel areas that are incapable of providing cover and protection from predation or upstream passage. The upstream connection to the existing channel should most likely form a narrow riffle to prevent pool dewatering.

To ensure consistency with the limited purpose for which Section 30236 allows substantial alteration of rivers and streams, the Commission attaches **Special Condition No. 1-(B)**, which states that if wet trenching methods for salmonid habitat improvements are used, the trenching within the wet channel shall be limited to the trenching configuration and extraction volume that is the minimum amount necessary for improving salmonid habitat. Additionally, the Commission attaches **Special Condition No 3-(A)-9**. This condition requires that, prior to the start of each year's gravel extraction operations, the applicant shall submit, for the Executive Director's review and approval, a final gravel extraction plan for that gravel extraction season that includes, among other things, evidence demonstrating that any proposed wet trenching for instream salmonid habitat restoration purposes is limited to the trenching configuration and extraction volume that is the minimum amount necessary for improving salmonid habitat, including but not limited to, written approval of the proposed wet trenching from NOAA-Fisheries and/or the Department of Fish and Game.

By limiting the trenching configuration and extraction volumes to the minimum amount necessary for improving salmonid habitat ensures that the primary function of the technique will be for the improvement of fish habitat, even though there may be incidental use of the gravel extracted for commercial purposes. This aspect of the mining is consistent with 30236, provided that the primary function of the extraction is for the improvement of fish habitat and the best mitigation measures feasible are incorporated into the project. Special Condition Nos. 1, 3, 5, 6, and 7 discussed above require the best feasible mitigation measures be taken relating to extraction standards and limitations, methods of extraction, and the timing of extraction to minimize significant adverse environmental effects on coastal resources such as sensitive species and riparian vegetation.

Therefore, the Commission finds that as conditioned herein, the proposed wet trenching excavation is consistent with the requirements of Section 30236 of the Coastal Act, in that the primary function of the wet trenching is the improvement of fish habitat, and the best feasible mitigation measures have been provided to minimize or avoid significant adverse environmental effects.

## F. Protection of Environmentally Sensitive Habitat Areas

Section 30240 of the Coastal Act states that environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values and that development in areas near

such sensitive habitat areas shall be sited and designed to prevent significant adverse impacts to these areas.

As discussed above in the section on permissible uses for dredging of wetlands and open coastal waters, the proposed project as conditioned will not adversely affect environmentally sensitive habitat either within or outside of the bank-full channel of the river. As conditioned, the proposed gravel mining project will not result in significant cumulative adverse impacts on sensitive fish species consistent with the requirements of Sections 30231 and 30233 of the Coastal Act. In addition, mining is limited by the provisions of **Special Condition No. 1**, which prohibit mining in those portions of the gravel bars where the riparian vegetation has reached a size and extent where there is an expectation of appreciable habitat values for nesting, forage and cover of wildlife being afforded. Furthermore, none of the riparian habitat along the banks of the river will be disturbed by the extraction operation itself. Existing haul roads through the riparian areas must be used to truck gravel from the bar to the stockpiling and processing facility. **Special Condition No. 6** requires that the proposed project not disturb or remove any of the established riparian vegetation at the site and prohibits the cutting of new haul roads through the habitat. Moreover, to help prevent potential impacts to the habitat afforded to nesting snowy plovers, **Special Condition No. 4** requires that gravel extraction operations avoid western snowy plover habitat by, among other means, either not commencing until after the nesting season (after September 15), or commencing only after a biologist approved by the FWS has surveyed the site for three consecutive days and either found no plovers or nests, or has found some but will continue to conduct daily surveys to ensure a 1,000-foot buffer area is maintained around the nests that have been found. The FWS recommends this protocol to avoid disturbance of the western snowy plover. The requirements of Special Condition No. 4 will ensure that gravel operations will not be performed in western snowy plover nesting sites or otherwise disturb this threatened species.

Therefore, the Commission finds that the project as conditioned is consistent with Section 30240 of the Coastal Act, as the project will avoid significant adverse impacts to the environmentally sensitive habitat areas found on the site.

## G. Protection of Visual Resources

Section 30251 of the Coastal Act provides in applicable part that the scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall: (a) be sited and designed to protect views to and along the ocean and scenic coastal areas, and (b) be visually compatible with the character of surrounding areas.

The gravel extraction operations would not be visible from Highway 101, the principal public road in the area, although the existing towers and the processing yard are visible from Highway 101. The processing yard has existed at the site for many years, and many of the approximately 13 gravel operations occurring along the lower Eel River and similarly visible from Highway 101 and other public roads. The proposed project would not be any more prominent than the gravel extraction and processing activities that have occurred in the past. Therefore, the

Commission finds that the proposed project is visually compatible with the character of the area as gravel extraction operations here and in the vicinity have long been part of the view shed.

Therefore, the Commission finds that, as conditioned, the proposed project is consistent with the visual resource policies of Section 30251 of the Coastal Act, as the project is compatible with the visual character of the surrounding area and will not block views to and along the coast.

## H. Public Access

Coastal Act Section 30210 requires in applicable part that maximum public access and recreational opportunities be provided when consistent with public safety, private property rights, and natural resource protection. Section 30211 requires in applicable part that development not interfere with the public's right of access to the sea where acquired through use (i.e., potential prescriptive rights or rights of implied dedication). Section 30212 requires in applicable part that public access from the nearest public roadway to the shoreline and along the coast be provided in new development projects, except in certain instances, such as when adequate access exists nearby or when the provision of public access would be inconsistent with public safety. In applying Sections 30210, 30211, and 30212, the Commission is limited by the need to show that any denial of a permit application based on these sections, or any decision to grant a permit subject to special conditions requiring public access, is necessary to avoid or offset a project's adverse impact on existing or potential public access.

The project site is located between the first public road (Highway 101) and the sea (the Eel River is considered to be an arm of the sea in this area).

Recreational use of the river in this particular section of the river is very limited, largely because there are very few access points to the river. The principal public access use of the project site that does occur is by fishermen who use the river channel for recreational fishing. Other public access and recreational uses of this stretch of the river include canoeing and recreational boating. The prime fishing season occurs in the spring or wet season when gravel extraction is not occurring. To the extent that canoeists and boaters do use the river channel during the extraction season, the Commission attaches Special Condition No. 8 which will ensure that any truck crossings of the channel installed by the applicants will not block passage down the river. The condition requires that any proposed seasonal crossing of the low flow or secondary channels that can be expected to maintain flow year round shall be of the railroad flatcar variety rather than culverted fill crossings. The condition also requires that the flatcar crossing be installed in such a manner that a minimum three-foot vertical clearance is maintained above the surface of the water. Canoes and kayaks would be able to pass through such a crossing.

Due to the significant adverse impacts that vehicle use on the gravel bars has on the federally threatened western snowy plover, the FWS proposes including in its Biological Opinion prepared for the Corps LOP-2009 term and conditions aimed at minimizing vehicle impacts. The FWS is requiring that vehicle use in suitable plover habitat shall be minimized during the plover nesting season (March 1-September 15), and that access roads owned, controlled, or utilized by commercial gravel operators shall be gated and locked during the plover nesting season when no

active extraction and hauling is occurring (including at night). This requirement has been included as part of **Special Condition No. 4**, which specifies various measures to protect western snowy plover in the project area, as discussed in Findings IV-D and IV-E above. The condition imposed by the Commission requires that the gates be designed to block vehicular access only and shall allow for pedestrian access, unless the applicant obtains additional authorization from the Commission to block pedestrian access. This condition will keep the vehicles that adversely affect the plovers off of the bars during the plover nesting season while protecting pedestrian access to the river consistent with the access policies of the Coastal Act. If the applicant desires to install gates that block pedestrian as well as vehicular access, the applicant must apply for additional authorization from the Commission so that the Commission can evaluate whether such gates in the specific location proposed would block the public's right of access inconsistent with the access policies of the Coastal Act.

Thus, as conditioned, the project will not significantly affect the fishermen, canoeists or other recreational boaters. Furthermore, gravel extraction operations have been occurring at the site for many years. The continued extraction authorized by this permit will not create any additional burdens on public access than have existed in the past. The project will not create any new demands for fishing access or other public access use.

The project as conditioned would have no significant adverse effect on public access. The Therefore, the Commission finds that the project, as proposed without new public access, is consistent with the public access policies of the Coastal Act.

## I. State Lands Commission Review

The project is located in the bed of the Eel River, a navigable river, between the ordinary high water marks. As such, the State of California may hold a public trust easement and other property interests at the site. Any such property interest would be administered by the State Lands Commission. To assure that the applicant has a sufficient legal property interest in the site to carryout the project and to comply with the terms and conditions of this permit, the Commission attaches **Special Condition No. 8** which requires that the applicant submit evidence that any necessary authorization from the State Lands Commission has been obtained prior to issuance of the permit.

## J. CHERT Review

Pursuant to the Corps LOP permit procedures and the County of Humboldt's surface mining regulations, in-stream gravel mining projects within Humboldt County are required to be assessed for potential direct and cumulative to riverine resources by an independent scientific panel known as the County of Humboldt Extraction Review Team, or "CHERT." The CHERT in turn makes specific recommendations to the County and the Corps with regard to appropriate actions that should be taken on the mining applications. Often during the review of mining plans for the upcoming mining season, CHERT may make constructive recommendations to the applicants in the interest of designing a mining proposal that will avoid and/or minimize significant adverse impacts to river resources. These recommendations may involve changes to the amount of gravel proposed to be extracted, the specific location(s) of the extraction area(s),

or the proposed mining techniques. To ensure that the project recommended for approval by CHERT is the same project that was reviewed under this permit by the Commission, and to ensure that extraction does not exceed the extraction limits established under Special Condition No. 1, the Commission attaches **Special Condition No. 3-A-(4)**, which requires the applicant to annually submit to the Executive Director for written review and approval a copy of the pre-extraction mining plan review comments obtained from the CHERT as part of the final gravel extraction plan as well as evidence that the final gravel extraction plan is consistent with all recommendations of CHERT and all terms and conditions of this permit.

## K. Department of Fish and Game Review

The project requires an annual Section 1603 Streambed Alteration Agreement from the Department of Fish and Game. Therefore, to ensure that the project area reviewed by the Department of Fish and Game each year is the same project area that was reviewed under this permit by the Commission, and to ensure that extraction does not exceed the extraction limits established under Special Condition No. 1, the Commission attaches **Special Condition No. 9**, which requires that prior to commencing each year's gravel operations, the applicant submit a copy of the Section 1603 agreement approved by the Department of Fish and Game. The condition requires that any project changes resulting from the agency's approval not be incorporated into the project until the applicant obtains any necessary amendments to this coastal development permit.

## L. Regional Water Quality Control Board Review

The project requires a Water Quality Certification (WQC) from the North Coast Regional Water Quality Control Board pursuant to Section 401 of the Clean Water Act. The Board issued WQC Order No. R1-2005-0011 (dated June 21, 2005) for gravel extraction activities during the 2009 extraction season, but the certification expires on June 21, 2010. Therefore, to ensure that the necessary approvals from the Board are in place for the 2010 through 2014 extraction seasons proposed to be covered by this coastal development permit, and to ensure that extraction does not exceed the extraction limits established under Special Condition No. 1, the Commission attaches **Special Condition No. 10**, which requires that prior to commencing each year's gravel operations, the applicant submit a copy of a WQC approved by the Board. The condition requires that any project changes resulting from the agency's approval not be incorporated into the project until the applicant obtains any necessary amendments to this coastal development permit.

## M. Annual U.S. Army Corps of Engineers Review

The project is within and adjacent to a navigable waterway and is subject to the authority of the U.S. Army Corps of Engineers under Section 404 of the Federal Water Pollution Control Act (33 USC 1251 et seq.) and Section 10 of the Rivers and Harbors Act (33 USC 403). Pursuant to the Federal Coastal Management Act, any approval granted by a federal agency for activities that affect the coastal zone must be consistent with the coastal zone management program for that state. To ensure that the project ultimately approved by the Corps each season is the same as the project specified in the annual gravel extraction plan approved by the Executive Director pursuant to Special Condition No. 1 herein, the Commission attaches **Special Condition No. 11**,

which requires the applicant, prior to commencing gravel extraction operations each year, to demonstrate that all necessary approvals from the Corps for the approved gravel extraction, as conditioned herein, have been obtained. The condition requires that any project changes resulting from the agency's approval not be incorporated into the project until the applicant obtains any necessary amendments to this coastal development permit. The Commission also attaches **Special Condition No. 12** to specify a permit termination date of November 1, 2013, which corresponds to the project termination date listed in the Endangered Species Act Section 7 consultation submitted by the Corps to NOAA-Fisheries.

## N. Final U.S. Army Corps of Engineers LOP-2009 Approval

As discussed above, the project requires review and authorization by the U.S. Army Corps of Engineers. Pursuant to the Federal Coastal Zone Management Act, any permit issued by a federal agency for activities that affect the coastal zone must be consistent with the coastal zone management program for that state. Under agreements between the Coastal Commission and the U.S. Army Corps of Engineers, the Corps will not issue a permit until the Coastal Commission approves a federal consistency certification for the project or approves a permit. The Corps is permitting the proposed gravel operations under its Letter of Permission Procedure 2009 (LOP-2009). To ensure that the project ultimately approved by the Corps is the same as the project authorized herein, the Commission attaches **Special Condition No. 13**, which requires the applicant to submit to the Executive Director evidence of the Corps' approval of the project prior to commencement of construction. The condition requires that any project changes resulting from the Corps' approval not be incorporated into the project until the applicant obtains any necessary amendments to this coastal development permit.

## O. Final Biological Opinions

The project requires final Biological Opinions being issued by the NOAA-Fisheries and the U.S. Fish and Wildlife Service. As discussed above, the Biological Opinions are being prepared as a result of formal consultations between the U.S. Army Corps of Engineers (Corps) and NOAA-Fisheries and FWS pursuant to Section 7 of the Federal Endangered Species Act. The NOAA-Fisheries BO is expected to be finalized by the end of August 2009, and the FWS BO is expected to be finalized by the middle of August 2009. To ensure that the project ultimately approved by the agencies is the same as the project authorized herein, the Commission attaches **Special Condition No. 14**, which requires the applicant to submit, prior to permit issuance, final Biological Opinions in support of the gravel extraction authorized by this permit and that are consistent with all terms and conditions of this permit. The applicant shall inform the Executive Director of any changes to the project required by the agencies. Such changes shall not be incorporated into the project until the applicant obtains a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

## P. California Environmental Quality Act

The County of Humboldt, as the lead agency, adopted a Programmatic Environmental Impact Report (PEIR) to describe and analyze the potential environmental effects resulting from the gravel extraction operations in the lower Eel and lower Van Duzen Rivers in 1992.

Section 13906 of the California Code of Regulation requires Coastal Commission approval of a coastal development permit application to be supported by findings showing that the application, as modified by any conditions of approval, is consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Public Resources Code Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available, which would significantly lessen any significant effect that the activity may have on the environment.

The Commission incorporates its findings on conformity with Coastal Act policies at this point as if set forth in full. These findings address and respond to all public comments regarding potential significant adverse environmental effects of the project that were received prior to preparation of the staff report. As discussed herein in the findings addressing the consistency of the proposed project with the Coastal Act, the proposed project has been conditioned in order to be found consistent with the policies of the Coastal Act. As specifically discussed in these above findings which are hereby incorporated by reference, mitigation measures which will minimize all adverse environmental impact have been required. These required mitigation measures include requirements that limit extraction to avoid environmentally sensitive habitat areas, rare and endangered species, migratory fish, and extractions that could lead to changes in river morphology. As conditioned, there are no feasible alternatives or feasible mitigation measures available, beyond those required, which would substantially lessen any significant adverse impact that the activity would have on the environment. Therefore, the Commission finds that the proposed project, as conditioned to mitigate the identified impacts, can be found consistent with the requirements of the Coastal Act and to conform to CEQA.

## V. EXHIBITS:

1. Regional Location Map
2. Vicinity Map
3. Aerial Photo of Gravel Operations on the Lower Eel and Van Duzen Rivers
4. Detailed Project Description

***Note: The following six exhibits are included in a combined exhibit packet prepared for CDP Application Nos. 1-09-005, 1-09-006, 1-09-011, and 1-09-022, attached separately.***

A. CHERT Analysis of Eel River Cross Sections at Gravel Mining Sites, 1997-2007
B. Western Snowy Plover Biological Assessment (Winzler & Kelly, March 12, 2009)
C. Salmonid Biological Assessment (Alice Berg & Associates, May 6, 2009)
D. NOAA-Fisheries Preliminary Conclusions and Draft Terms & Conditions
E. August 13, 2004 NOAA-Fisheries Biological Opinion for gravel operations on the lower Eel River during the 2004-2008 gravel extraction seasons
F. September 6, 2005 Fish and Wildlife Service Biological Opinion for gravel operations on the lower Eel River during the 2005-2008 gravel extraction seasons

# APPENDIX A

## STANDARD CONDITIONS

1. Notice of Receipt and Acknowledgement. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

2. Expiration. If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable amount of time. Application for extension of the permit must be made prior to the expiration date.

3. Interpretation. Any questions of intent of interpretation of any condition will be resolved by the Executive Director of the Commission.

4. Assignment. The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

5. Terms and Conditions Run with the Land. These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

## APPENDIX B

## GRAVEL EXTRACTION METHODS DESCRIBED IN THE U.S. ARMY CORPS OF ENGINEERS LETTER OF PERMISSION PROCEDURE (LOP) 2009

Skims:

- **Traditional Skim**: Skimming or scalping of gravel from exposed gravel bars involves the use of excavating machinery to remove the uppermost layer of gravel. Historically, skimming may have been performed as far down as the water surface. However, to be eligible for authorization under LOP 2009, skimming shall be performed above the 35% exceedence flow water surface elevation of the low flow channel, and downstream from the Head of Bar Buffer (described below), and on exposed (dry) bars within the active channel that is typically inundated annually. After skimming the bar must be graded in order to be left smooth, free of depressions, and with a slope downstream and/or to the low-flow channel. Traditional skims are typically laid out as curvilinear benches along the outside of gravel bars and are typically no wider than about half the exposed bar surface width.
- **Horseshoe Skim**: This method would harvest gravel from the downstream two-thirds of gravel bars. A lateral edge-of water buffer is maintained along the low flow channel. The upper third of the bar will be left in an undisturbed state as an upper bar buffer. The finished grade of the extraction area will have a downstream gradient equal to the river and a flat cross slope and will be no lower than the 35% exceedence flow elevation. Cut-slopes will be left at a 2:1 (horizontal:vertical) slope except along the upstream side at the head-of-bar buffer where a 6:1 slope will be established. There will be at least a 15-foot offset buffer from the bank. The extraction surface shall daylight along the downstream one-third to one-fifth of the bar to facilitate drainage following high runoff events. The horizontal and vertical offsets are intended to remove the excavation area away from the low-flow channel and minimize effects on listed salmonid species by disconnecting the mined surface from frequent flow inundation. Due to less frequent flow inundation, horseshoe-shaped skims may take larger flow events to replenish than traditional skim designs, depending on the unaltered bar height between the excavation and the stream.
- **Inboard Skim**: This method is similar to the horseshoe except that it maintains a wider horizontal offset from the low flow channel where warranted. These areas would be excavated to a depth no lower than the water surface elevation offset, with a 0–0.5% cross slope, steeper (1:1) slopes on the sides, and gentle (10:1) slopes at the head of the excavation. The horizontal and vertical offsets are intended to remove the excavation area away from zones of frequent flow inundation. There would be a 15-foot offset buffer from the bank. The excavation may extend into the upper one-third of the head-of-bar buffer if sufficient rationale is provided to show that protection of the upstream riffle would be maintained.
- **Narrow Skims**: The narrow skims would be no more than one-third of the bar width, follow the shape of the bar feature, maintain the point of maximum height of the bar, and

trend in the general direction of streamflow. These skims would maintain a vertical offset corresponding to the discharge at 35% exceedence level. Finished skims would be free draining and slope either toward the low-flow channel or in a downstream direction. Furthermore, these skims would avoid the head of the bar, defined as the upstream one-third of the exposed bar surface. This buffer may be decreased on a case-by-case basis provided the extraction area narrows, tapering smoothly to a point and remains below the upstream cross-over riffle.

- Narrow skims along the lower two miles of the Van Duzen River shall be limited to a maximum width of 90 feet across the top of the extraction. This width is designed to contain average peak flows of 1,000 cfs commonly seen during the early period of adult salmonid migration in November and December. The minimum skim floor shall be equal to the water surface elevation of the 35% exceedence flow.
- Narrow skims that are adjacent to the low flow channel, but are not adjacent to entire riffle areas, will also be considered for the lower Eel River. These narrow skims may have a minimum vertical offset of 2 feet above the water surface elevation of the low flow channel. Narrow skim widths will be determined on a site specific basis, but narrow skims must: (1) not increase channel braiding; (2) not lower the elevation at which flows enter secondary channels; (3) avoid the higher portions of the annually inundated bar surface; and (4) must promote channel confinement.

- **Secondary Channel Skims**: These extractions are elongate, shallow skims in the area of dry, secondary channels, designed to be free-draining and open at either end so as to not impede fish passage/migration and to prevent any potential fish stranding. The upstream riffle crest, or elevation control of secondary channels shall not be affected by extraction proposals. The skim floor of these excavations shall be set at the 35% exceedence flow elevation. Secondary channel skims, with proper design, have a restorative function, as described in the section below.

Head of Bar Buffer:

The upstream end of the bar (head of bar) shall not be mined or otherwise altered by the proposed action. The minimum head of the bar shall be defined as that portion of the bar that extends from at least the upper third of the bar to the upstream end of the bar that is exposed at summer low flow. Therefore, the upstream one-third portion of the bar as exposed at summer low flow is provided as the minimum head of bar buffer. The intent of the head of bar buffer is to provide protection of the natural stream flow steering effect provided by an undisturbed bar. Variances to the minimum head of bar buffer may be considered on a case-by-case basis (e.g., for narrow skims) if the proposed alternative provides equal or greater protection. The specific nature of the proposed variance must be described, along with sufficient biological, hydrological, and sediment transport rationale to support the recommended alternative. Modifications in the default head-of-bar buffer dimension shall, at a minimum, provide for protection of the adjacent cross-over riffle by limiting extraction to the area downstream of the entire riffle.

Alcove:

Alcove extractions are located on the downstream end of gravel bars, where naturally occurring alcoves form and may provide velocity refuge for juvenile salmonids during high flows, and potential thermal refuge for juvenile salmonids during the summer season. Alcove extractions are irregularly shaped to avoid disturbance of riparian vegetation, and are open to the low flow channel on the downstream end to avoid stranding salmonids. Alcoves are extracted to a depth either above or below the water table, and are small in area and volume extracted, relative to other extraction methods.

Exposed Bar

The bar area subject to annual flow inundation and active sediment transport and replenishment cycles, lacking transitional vegetation colonization, grasses and shrubs. Area may contain sparse patches of widely scattered individual woody plants.

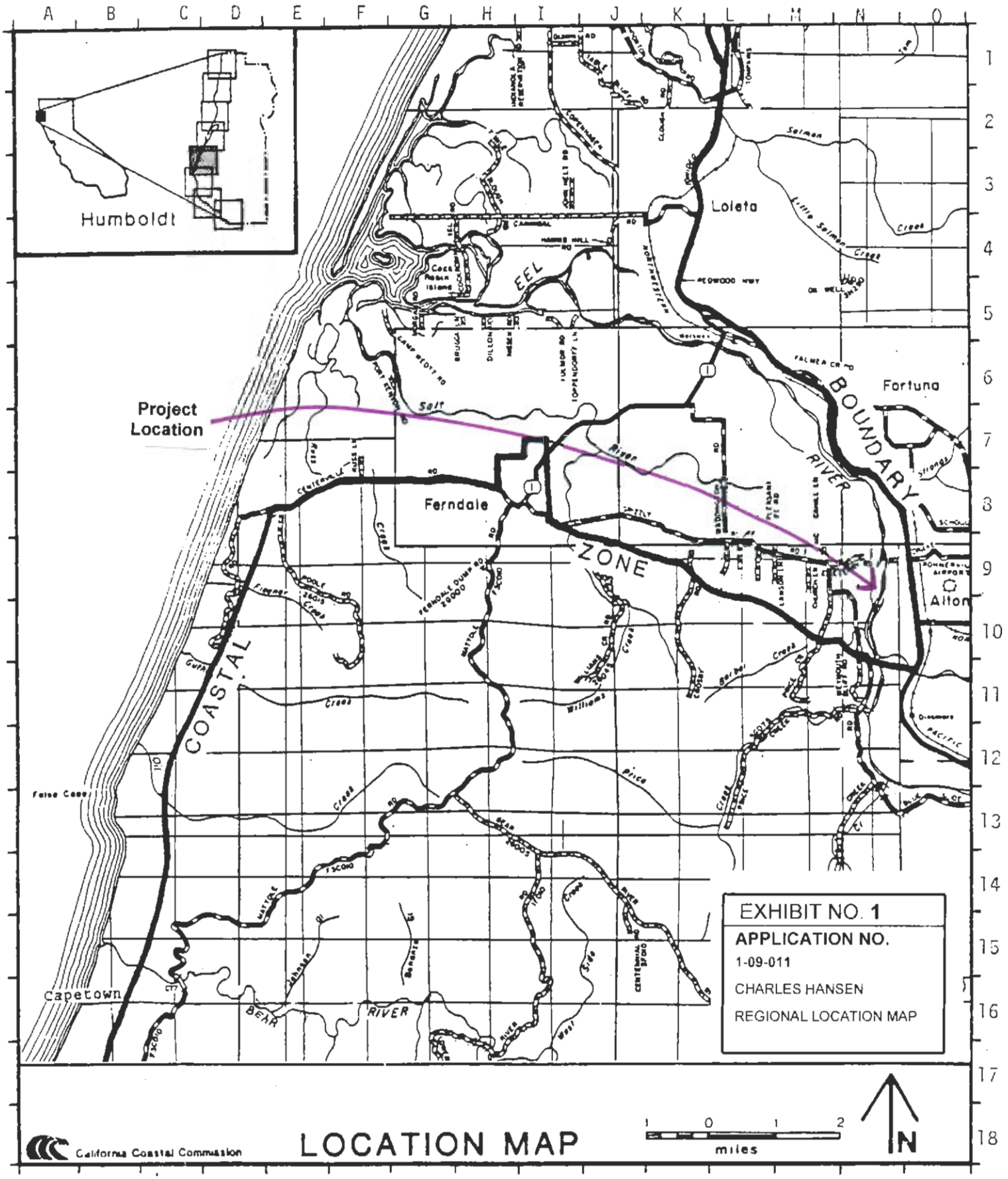
Wetland pits

Wetland pits are irregularly shaped excavations (to avoid excavating riparian vegetation) located on the 2-to-5 year floodplain surface. An excavator digs out the sediment below the water table and leaves the sides of the pit sloped. Wetland pits allow for gravel extraction away from frequently inundated gravel bar surfaces, and most salmonid habitat features. Wetland pits will only fill with sediment during high flow events, on the order of every 2-to-5 years, and typically over a multi-year period. Wetland pits must have vegetation, either existing or planted, around their perimeter, and must contain some type of cover elements, such as woody debris.

Trenching

- **Wet Trenching**: The wet trenching method of extraction is used to excavate sediment directly from portions of the channel, after the stream flow has been diverted to a secondary channel location. The wet trenching method of extraction would only be used when there is the additional objective of improving instream salmonid habitat by the limited use of sediment removal, and where the diversion of the low flow channel into a secondary channel that provides salmonid habitat is possible.

- **Dry Trenching**: The dry trenching method of extraction may be both shallow and stay above the water table, or deep and extend below the water table. The dry trenching method involves gravel bar excavation on the exposed (dry) bar surface. A gravel berm may be constructed with materials on site to isolate the trench from the channel, or the trench may be far enough from the low flow channel to not require a berm to separate it. Material is then excavated from inside the trench to a depth that is limited by the reach of the equipment, and by the annual, site specific recommendations provided by CHERT. After excavation, and when the sediment in the trench has settled, the berm is breached on the downstream end, and the trench is connected to the river to prevent fish stranding. Alternatively, the berm may be constructed to be naturally breached during normal fall flows.




County of Humboldt

EXHIBIT NO. 2

APPLICATION NO.
1-09-011

CHARLES HANSEN

VICINITY MAP

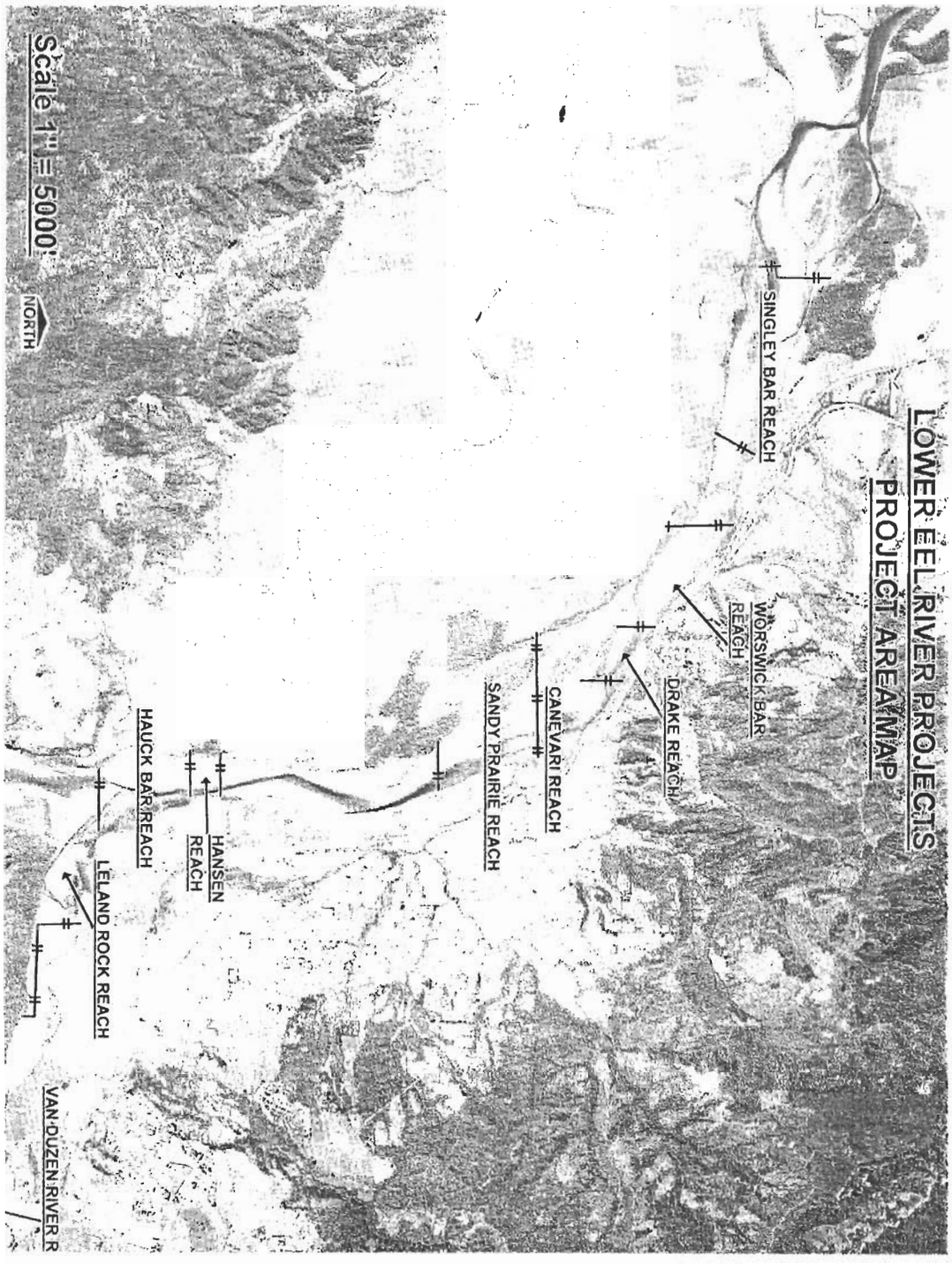



Figure 1. Lower Eel River Aggregate Extraction Operations.

EXHIBIT NO. 3
**APPLICATION NO.**
**1-09-011** - CHARLES HANSEN
AERIAL PHOTO OF GRAVEL OPERATIONS ON THE LOWER EEL & VAN DUZEN RIVERS
(1 of 2)

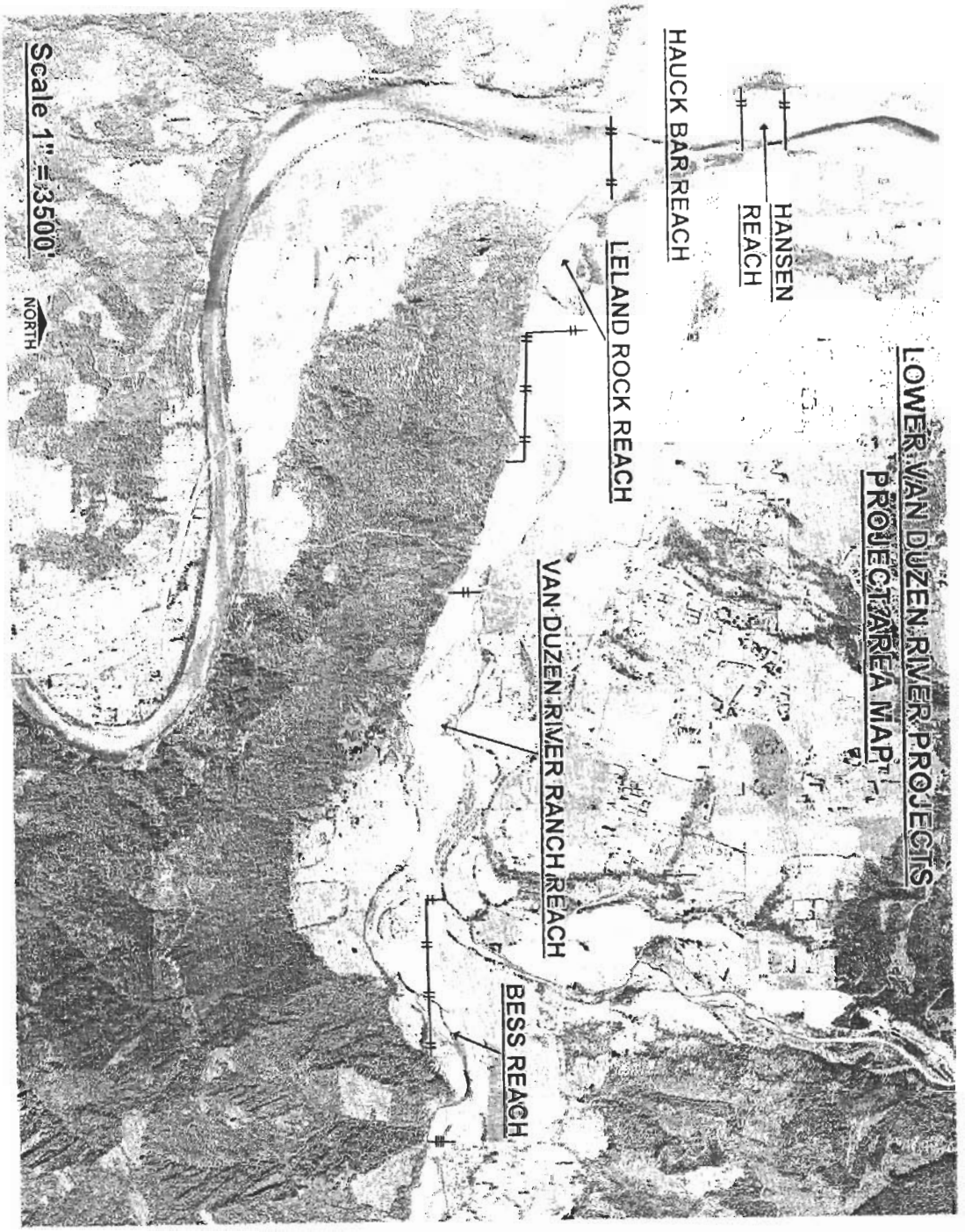



Figure 2. Lower Van Duzen River Aggregate Extraction Operations.

# ATTACHMENT A

**California Coastal Commission**
**Coastal Development Permit**

**Hansen Sand and Gravel**
**Hansen Bar, Eel River, Humboldt County CA**

EXHIBIT NO. 4
APPLICATION NO.
1-09-011
CHARLES HANSEN
DETAILED PROJECT DESCRIPTION (1 of 13)

## PROJECT/SITE INFORMATION

Hansen Sand & Gravel is applying for a five-year, California Coastal Commission, Coastal Development Permit for continued extraction of gravel and associated fines from the Hansen Gravel Bar (River Mile 13.5), located along the lower Eel River (herein after referred to as the Project/Proposed Action). The Project is permitted per Vested Rights (SMR-03-912), (RP-02-912) authorized by the County of Humboldt for removal of up to 50,000 cubic yards ($yd^3$) in July, 1992. The Proposed Action is for an annual volume not to exceed 50,000 $yd^3$, which corresponds to a maximum of 250,000 $yd^3$ for the five-year period of the permit. It should be noted that extraction volumes may fluctuate in response to annual replenishment, market conditions, and operational conditions affecting habitat protection goals. The Project has been ongoing (historic) as proposed, and has been subject to active review, monitoring, and management over the past 15 or more years. Since 1996, these operations have been subject to the ACOE authorization processes (see section titled "General Project Description") pursuant to Letters of Permission (LOP) and modifications pursuant to various biological opinions and concurrence letters issued by National Marine Fisheries Service (NMFS). The operation has provided data and information discussing and monitoring potential adverse affects, including historical data and comparisons of monitoring cross-sections. The subject gravel extraction operation is proposed to occur annually in accordance with all applicable permit requirements, federal, state, and local regulations and mitigation measures described later in this text. Historically, as part of the regulatory and monitoring conditions of authorization for on-going operations, gravel operations in the lower Eel River, many of which predate the 1960s, were mitigated for their time, place, manner of operation and volumes extracted. The duration of the gravel extraction operation will be seasonal, during low flow periods, and will extend into perpetuity.

The Project property, APN 201-211-003 is situated within Section 14, T2N, R1W, H.B. & M. The project site is located 5-miles south of Fortuna, California, on the west side of Sandy Prairie Road, ¼ mile north of the intersection of Highway 101 and 36. See Attachment B, Drawing GE0807-1201-02 for a vicinity and site map of the proposed Project. The property is approximately 108 acres, with 49 acres being agricultural land (pasture). A portion of the site (13 acres) is currently utilized for processing and stockpiling of aggregate from the adjacent bar. Most of the surrounding land use is industrial, agricultural, rural, and rural-improved. The river channel is defined by 15-25 foot vertical banks cut through agricultural lands with some

residences nearby. The upper terraces are covered with a mixture of vegetation. Groundwater is at river level except during winter when it raises due to seasonal rainfall. The climate is temperate and rainfall in the area averages 30-40 inches per years. The subject gravel bar is essentially an open active bar without topsoil or significant amounts of vegetation. Of the 108 acres included in the site, rarely are more than 18 acres disturbed annually within the bank-full channel by the Project. Natural bedload transport processes will be the major factor that will accomplish yearly reclamation with the advent of annual high velocity flows over the bar and reshaping and replenishing gravel and vegetation. However, annual site reclamation activities consist of finish grading of the gravel bar following extraction of sand and gravel to leave them shaped in a configuration consistent with permitted design criteria imposed by the U.S. Army Corps of Engineers (ACOE), California Department of Fish and Game (DFG), North Coast Regional Water Quality Control Board (NCRWQCB), National Marine Fisheries Service (NMFS), and County of Humboldt Extraction Review Team (CHERT).

## GENERAL PROJECT DESCRIPTION

The general Project description can be defined as the historic and continued removal of gravel and associated fines from the Hansen Bar. Excavation operations have been continuous and ongoing since the early 1960's or earlier. The proposed annual schedule of activities, involving intermittent temporary bridge crossings of the Eel River channel, extraction vehicle access, and excavation of flood washed gravels from the exposed gravel bars currently begins in June following juvenile salmonid downstream migration. In Humboldt County, the gravel extraction season extends from June 1st to November 1st (with approved extension). Gravel extraction activities are regulated by the U.S. Army Corps of Engineers (ACOE) under the Letter of Permission (LOP) procedure under Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) and Section 404 of the Clean Water Act (33 U.S.A. 1344) for discharges of dredged or fill material associated with gravel mining and other excavation activities in Humboldt County, California. In previous years under the LOP procedure, Regional Water Quality Control Board (RWQCB) certification was waived due to the mitigation measures and prohibited discharges required under the LOP by the operators. In 2002, a RWQCB certification was deemed necessary, thus, an application was applied for in May 2002, and issuance of a Clean Water Act Section 401 Certification was received on September 12th, 2002 and expired on December 31st 2007. Five-year duration, RWQCB certification is currently being applied for. Five-year duration, California Department of Fish and Game (DFG), Code Section 1600, Streambed Alteration Agreements (SAA) were applied for and issued in 2008. Five-year duration, California State Land, New General Lease, Right-Of-Way Use for the annual placement of a seasonal bridge crossing is currently being applied for.

## PROCEDURES AND REVIEW PROCESS

- **Pre-Extraction**

The following is a detailed description of the procedures and process related to gravel extraction activities occurring on the Hansen Bar, Eel River within the primary permit jurisdiction of the ACOE. Annually, following the recession of winter flows on the Eel River (typically late April – May) and when the flow reaches approximately 3,800 cubic feet per second (CFS), the wetted stream elevation (WSE) is marked by either staking or painting the water's edge at increments longitudinal to the bar. It has been determined by NMFS that 3,800 CFS coincides with the 35% exceedence flow elevation and is the minimum elevation that skim type extractions can occur at that point on the bar. The elevations of the WSE points are then measured and recorded concurrently as the spring monitoring cross-section (MS) surveys are performed (June – July). Upon completion of the surveys, cross-sectional profiles are then developed and are used to determine bed load movement, gravel replenishment (to previously mined sites), meander, changes in width-to-depth ratios, channel/bar stability, and geomorphic changes. Depending on the time of year and flow conditions, the thalweg of the main channel may not be safely surveyed in the spring, in which case the survey is completed in the fall during low-flow conditions. The MS's are established from permanent benchmarks and control points and have been surveyed from the same locations since the early 1990's. MS's generated from the spring surveys are overlain upon the previous years post-extraction (fall) MS. The comparison of the successive profiles reveal areas of aggregate recruitment generated naturally during winter high flow, sediment transport events as well as identifying morphologic changes of the main and secondary channels including areas of scour or degradation. During the comparison of the seasonal profiles, delineation of potential extraction areas, proposed extraction depths and final slope gradients are proposed for the current seasonal extraction. From the data generated by the spring surveys, the operator calculates the estimated volume of extraction, based upon lines and grades established on the spring profiles. Adjustments to the proposed extraction limits, extraction depths, and final gradients are made at this time so that the proposed extraction does not cause degradation by over extraction or exceed the allowable permitted quantity. Concurrent with the spring profiles, a low-flow vertically oriented orthographic photo series is also produced, from which annual extraction area, base mapping is generated. A site photo, selected from the orthographic river photo series, is enlarged, typically to a scale of 1 inch equal to 500 feet. The aerial base mapping is then utilized by the operator and agency review team throughout the annual permit process. Property boundaries, proposed extraction limits, summer channel crossing locations, stockpile and processing areas, river profile locations, haul roads, horizontal and vertical survey control points, permanent project monuments, and other information deemed appropriate to delineate the seasons proposed extraction is drafted on the aerial base mapping. From these spring photos and MS's, extraction proposals are prepared and submitted for review and approval by the California Department of Fish and Game (DFG), the Army Corp of Engineers (ACOE), County of Humboldt Extraction Review Team (CHERT), and National Marine Fisheries Service (NMFS). Upon approval of the annual extraction plan by the agencies involved in the annual process (typically in July – August), the Site operator may then implement the approved seasonal extraction plan and begin extraction activities.

- **Typical Extraction Locations**

The entire bankfull channel area may be subject to extraction depending upon winter flow and the hydraulic dynamics of the site. In recent history, the Hansen gravel bar has maintained a single extraction at various locations on the bar, that being a deep skim along a secondary channel (See Attachment B, Drawing GE0807-1201-02).

- **Extraction Methodologies**

In general, permitted design criteria for the lower Eel River includes the following:

- **Skim Method:** Where skimming is proposed adjacent to the low-flow channel, skim widths would be no greater than one-half the exposed bar width. Skims would follow the shape of the bar feature and trend in the general direction of stream flow. These skims would maintain a vertical offset corresponding to the discharge at 35% exceedence level, or 3,800 cubic feet per second (cfs) for the Eel River. Finished skims would be free draining and slope either toward the low-flow channel or in a downstream direction. Furthermore, these skims would avoid the head of the bar, defined as the upstream one-third of the exposed bar surface. This buffer may be decreased on a case-by-case basis provided the extraction area narrows, tapering smoothly to a point and remains below the upstream crossover riffle.

- **Secondary Channel Skim Method:** Skimming of gravel may occur in secondary, or overflow channels away from the low-flow channel. These channels are dry during the extraction period and provide an extraction opportunity that is removed from the low-flow channel while avoiding higher elevation portions of the bar. A minimum vertical offset of one foot from the secondary channel thalweg may be necessary to allow for fish passage during higher winter flows when the channel is inundated. Finished skim floors would be left in a free draining condition and slope either toward that low-flow channel and/or downstream. Furthermore, extraction will not intrude into the upper portion of the secondary channel where the elevation control exists. In other words, the extraction along secondary channels will not increase the frequency at which flows overtop the upstream control and begin flowing into the channel. In addition to these measures, the overall width of the skim will not exceed one-half of the exposed bar width as measured at the widest point of the bar. The exposed bar surface is that area subject to annual flow inundation and active sediment transport and replenishment cycles, lacking transitional vegetation colonization, grasses and shrubs. The exposed bar may contain sparse patches or widely scattered individual woody plants.

- **High Terrace Skim Method:** This method extracts gravel from the 10-year or greater floodplain that is located at the downstream end of the lower bar. This area is to be excavated to the one-year flood elevation (below bankfull elevation) and in such a way as to promote backwatering and fine sediment deposition at higher flows. This extraction is expected to foster riparian vegetation development by creating a suitable seedbed that is at a low enough elevation so seedling roots can gain access to summer groundwater. The

intent is to utilize this method only one time during the permit period, primarily when instream sources are not sufficient to meet volume requirements.

- **Alcove Excavation Method:** This extraction method was designed by NMFS to minimize changes to bar geomorphology. Alcove extractions are generally located at the downstream end of point or side channel bars where naturally occurring features form, providing velocity refuge during high flows and thermal refuge during summer base flow. Alcove extractions are irregularly shaped to avoid disturbance to riparian vegetation and are open to the low-flow channel at the downstream end to avoid stranding of juvenile and adult salmonids. Alcoves may be extracted to depths above or below the water table, and are typically small in area and volume, relative to other extraction methods.

- **Oxbow Extraction Method:** Narrow (average low-flow channel or less), linear, off-channel excavations along historic channel locations, typically defined on aerial photographs by curvilinear vegetation colonization, muted secondary channels, or as the toe of a moderate to high terrace or valley margin. Extraction shall be located where a future channel would be desired in contrast to present channel pattern. Features should be located in the downstream half of bar to minimize channel capture and shall not be excavated deeper than the adjacent thalweg. Oxbow extractions located below the two-year flood terrace will be free draining so as not to impede fish passage, or they can be located on the two to five year flood terrace, similar to wetland pits.

- **Horseshoe Extractions Method:** This extraction technique involves removing material from the downstream interior portion of a bar, leaving a horizontal and vertical buffer along the low-flow channel. The horizontal buffer provides confinement of low to moderate flows. Horseshoe extractions would avoid intersecting secondary channels and would not intrude into the head of the bar buffer as described above. Extraction slopes on the sidewalls would be at least 6:1 to minimize headcutting.

- **Inboard Skim Method:** This method is similar to the horseshoe in that it maintains horizontal and vertical offsets from the low flow channel, and an opening to the channel at the most downstream end of the excavation. These areas are excavated to a depth above the water table, with steeper (3:1) slopes on the sides, and gentler (6:1) slopes at the head of the excavation. The horizontal and vertical offsets are intended to remove the excavation area away from frequent flow inundation and are intended to minimize effects to listed salmonid species by disconnecting the mined surface from frequent flow inundation. The excavation may extend into the upper 1/3 head of bar buffer if sufficient rationale is provided to show that protection of the upstream riffle is maintained.

- **Wet Terrace Pit:** Wetland pits are irregularly shaped excavations (to avoid excavating riparian vegetation) located on the one to three year floodplain surface. An excavator digs out the sediment below the water table and leaves the sides of the pit sloped. Wetland pits allow for gravel extraction away from frequently inundated gravel bar surfaces, and most salmonid habitat features. Wetland pits will fill with sediment only

during high flow events, approximately every one to three years, and typically over a multi-year period. Wetland pits may have vegetation, either existing or planted, around their perimeter, and may contain some type of cover elements, such as woody debris. Lower elevation wet pits may have a connection to the low flow channel or other frequently inundated secondary channel to reduce salmonid entrapment potential.

- **Dry Terrace Pit Method:** Dry terrace pits are irregularly shaped excavations (to avoid excavating riparian vegetation) located on the two to five year floodplain surface away and are not connected to the low flow channel by any secondary channels. An excavator digs out the sediment and leaves the sides of the pit sloped. The floor of the pit may either stay above or extend into the groundwater table. Dry terrace pits allow for gravel extraction away from frequently inundated gravel bar surfaces, and most salmonid habitat features. Dry terrace pits will only fill with sediment during high flow events, on the order of every two to five years, and typically over a multi-year period. Dry terrace pits may have vegetation, either existing or planted, around their perimeter, and may contain some type of cover elements, such as woody debris.

- **Extraction Protocol**

Prior to initiating excavation activities, the Project Manager, Engineer, and operator review all plans, permits/conditions, spill prevention plan, and grade/extraction boundary staking. Only after it has been established that the operator have a clear understanding of the Project will the project begin. The operator then determines the most efficient way to extract and achieve the proper final surface. Skims are the predominant method of extraction used at the Hansen site. Initially, extraction begins by bucking material into windrows with a dozer or front-end loader (scalping). The material is then loaded into haul trucks and transported to the stockpile area or processing site. In those years when material is stockpiled locally and outside the bankfull channel, the aggregate may be excavated with scrapers. These rubber-tired vehicles are driven through the area of extraction, excavating up to six inches of river-run aggregate per pass and are capable of removing approximately 15 to 17 $yd^3$ of aggregate per trip. These techniques apply to narrow skims, secondary channel skims, and a variety of other extraction methods as well.

Trenching at alcoves, along point bars, or on upper terraces may at times be the preferred method of excavation, particularly following winters with less than normal rainfall, resulting in minimal replenishment. Trenching has also been used by Granite, ERM and other operators to construct channels between the mainstem Mad River/Eel and fish bearing tributaries in an effort to enhance salmonid migration. Trenching may result in a smaller extraction footprint and can minimize impacts to surrounding features and habitat. When employing this method of excavation, the equipment of choice is a large excavator, front-end loader, and dump trucks. In the event a bridge is needed for transportation purposes, and the fact that the majority of the trenched material is excavated from a level below the water table, material shall be temporarily stockpiled and dried adjacent to the trench, a sufficient distance from the live channel to avoid runoff into the stream. After adequate drying time, it is then loaded and transported off-site to the designated stockpile area. All temporary stockpiles, if any, will be located away from the

wetted channel, above the 35% exceedence flow level, within the designated extraction boundaries, and will be removed by October 15th.

In years when trenching is the method of choice and if the trench is located adjacent to the wetted channel, a plan may be necessary to address salmonid stranding. After excavation, and when the sediment in the trench has settled, it may be necessary to breach the downstream end of the trench and connect it to the river to prevent fish stranding. A trench-monitoring plan may be implemented for salmonid stranding if deemed necessary by the agencies.

Watering of the haul roads is conducted as needed during dry periods to control fugitive dust as scrapers and/or dump trucks travel from the extraction site to the stockpile area and back throughout the operational hours of the extraction season. Operating hours during the extraction season are 6:00 a.m. to 6:00 p.m., Monday through Saterday.

Fueling and lubing shall only occur outside the bankfull channel, in an area noted in the annual extraction plan and approved by the agencies involved in the annual implementation process.

- **Haul Roads**

Primary access to the Hansen Bar is via a gravel access road located and beginning at the west side of the Hansen Truck Stop service yard (See Attachment B, Drawing GE0807-1201-02). Travel 0.3 miles west to the ACOE levee, continue through the stockpile/processing yard and enter the Project gravel bar along the west (right) bank. The route is over an existing haul road and would in certain years, includes construction of a low-water crossing of the Eel River, which is discussed later in this text. Furthermore, this access road is utilized frequently by the property owner, Charles Hansen, for access to his river property. Since extraction generally takes place upon the exposed, un-vegetated areas of the gravel bars, there has been no need to extend roads through areas of riparian vegetation. Seasonal haul roads constructed across the flood-washed portion of the gravel bar are reclaimed annually by seasonal high-flow events. There may be occasion when a haul road passes through an area of annual vegetation or sparse scrub/transitional vegetation but avoidance of woody vegetation is a priority during these instances.

- **Low Water Crossings**

As the channel meander patterns at the Project site changes, the operator may utilize railcar bridge crossings of the main channel to access gravel deposits, see Attachment B, Drawing GE0807-1201-02 for approximate bridge location and Attachment C, Drawing GE0807-1201-03 for bridge installation details. Appropriate culverts may be approved for use in secondary channels on a case-by-base basis. All seasonal, crossing locations are shown on the pre-extraction plan, are located in the field, and approved by a consulting Fisheries Biologist, DFG, NMFS, CHERT, and ACOE staff prior to installation. Channel crossing construction will not occur prior to June 30. The bridge structure is supported on the offside by embedding a single K-rail into the bank, immediately adjacent to the stream, to reduce the elevation of the bridge and to reduce the amount of material required to construct the abutment. The K-rail assures

containment of the fill material and eliminates fine sediment deposition into the stream during construction of that abutment. Native aggregate from the bar is used to construct the abutment. A front-end loader or dozer is used to form the ramp by skimming the bar and pushing the aggregate at an incline to the level of the bridge deck. Approximately 50 to 300 $yd^3$ of aggregate is needed to form each ramp depending on location and circumstance. The material will remain onsite when the bridge is removed. The nearside of the bridge will be support by three to six concrete blocks (2' x 2' x 6' lg.). If the bridge is not capable of spanning the wetted channel, the abutment will be formed by placing imported, washed aggregate or cobble inside previously installed K-rail wing walls to six-inches above the water surface elevation at time of construction. The imported material will be placed with 10-$yd^3$ dump trucks or end dumps. The remainder of the structure will be formed with native material, placed using a front-end loader or dozer. If in the event the bridge does span the wetted channel, the abutment will be formed entirely of native material (See Attachment C, Drawing GE0807-1201-03). Upon removal of the bridge, the (nearside) native fill material will be re-distributed across the bar and the imported material will be left in place. As the site is inundated by fall or early winter storm events, the course aggregate will be re-distributed across the bar and a portion of the fine sediment may be discharged downstream. Localized turbidity is insignificant in comparison to the amount of turbidity that is observed during the winter and after most storm events producing runoff, and may have little effect on salmonids (Halligan, 2001 and NMFS, 2000). A minimum of 24-inches clearance will be maintained from the bottom of the bridge to the water surface. An excavator and a front-end loader will be used to place and remove the bridge and abutments. Fording of the stream for construction and removal of the bridge will be kept to an absolute minimum. All trips made across the wetted channel by equipment are accompanied by personnel walking ahead of machinery as a means of scaring fish from the path of the equipment. It has been observed (Dinsmore 2007) that during bridge placement/removal activities, typically a time that coincides with minimal flow conditions (velocities), turbidity resulting from equipment fording the stream is local and sediment is in suspension for a minimal distance downstream of the construction site. Upon completion of annual excavation activities, the bridge will be removed by October 15$^{th}$, transported off-site, and stored at or above the 100-year floodplain.

- **Time Extensions, Post-Extraction, and Reclamation**

Seasonal reclamation commences on October 1$^{st}$, whereas all stockpiled material will be removed from the bars daily and sites will be smoothed to a reclaimed state at the end of each work day and until the extraction season terminates on October 15$^{th}$ unless an extension to the season is granted by ACOE, DFG, and NMFS. Approval of time extensions will be made on a case-by-case basis. Regrading of the site must be complete before an extension can be authorized. If in the event an extension is deemed appropriate, the engineer will notify the ACOE prior to October 15$^{th}$ and submit an amended extraction proposal to DFG which addresses the activities that will be conducted during the extension period. Upon issuance of an approved DFG, SAA extension, or exemption, ACOE will consult with NMFS before the extension is approved. The granting of extensions are dependant upon river flow and the upcoming weather forecasts, therefore the plan will describe a gauging method to determine when cessation of operations might occur.

At the conclusion of operation, whereas, the operator has removed the aggregate to the approved extraction design lines and grades, the extraction review team (i.e., DFG, NOAA, CHERT, ACOE,) and the operator conduct a post-extraction site visit. At such time, the extraction review team may provide additional recommendations reflecting seasonal extraction plan and reclamation plan conformity. Concurrently, the operator's river consultant conducts a site visit and provides any additional recommendations reflecting seasonal extraction plan and reclamation plan finalization. When the final surface of the site is graded and seasonally reclaimed, the operator may remove the summer crossings and leave the bankfull channel area to the natural reclamation process, which occurs during the high flow events of the proceeding winter.

When seasonal operations cease, post-extraction surveys are then conducted along the same cross-sectional lines as those surveyed in the spring. The end-of-season post-extraction surveys usually take place in October and early November. The data obtained from the post-extraction surveys will reflect the "as-built" conditions of the extraction site and conclude the physical compliance element of the annual extraction plan. A post-extraction report, including the excavated quantity, is generated from the engineer's site visit and post extraction surveys. Report and data, consistent with current ACOE requirements, are forwarded to the CHERT, DFG, ACOE, and NOAA Fisheries by December 1 of the extraction season. Annual Mine reports are also filed with the County of Humboldt and the State of California, Department of Mines and Geology.

- **Physical and Biological Monitoring**

Physical and biological monitoring will be conducted consistent with agency recommendations, terms, and conditions. Physical monitoring will continue to include full-channel monitoring cross-sections spaced through the Project reach and surveyed annually to provide documentation of annual channel changes and long-term channel trends (as described under "Procedures and Review Process"). Temporary cross-sections will also be established and surveyed to document the extent of excavation, to estimate the volume of aggregate removed, and to establish the existing site morphology for use in planning extractions in subsequent seasons. Numerous site inspections are also conducted by the engineer, consultants, and agency representatives to obtain information on site characteristics for the extraction planning process. Biological monitoring has and will include instream habitat mapping and presence/absence dive surveys. The habitat mapping documents existing conditions and will help track changes in habitat quantity and quality over time. Monitoring reports will be submitted to the DFG, ACOE, CHERT, and NMFS by December 31$^{st}$ annually.

Monitoring protocol for Western Snowy Plover-

US Fish & Wildlife (USFWS) requests assurance that the species is being protected during extraction planning activities such as Multi-Agency site visits, monitoring/extraction area surveying activities, fisheries habitat assessments, and during extraction related activities. Furthermore, USFWS requires an annual report listing the activities that were conducted at the site and accompanying Western Snowy Plover (WSP) sweep/clearance surveys.

If gravel extraction commences before September 15th, the operations shall be a minimum of 1,000-feet from any active plover area. Except as modified below, daily plover surveys by a USFWS approved biologist or surveyor shall be conducted prior to commencement of daily on-site activities and continue consistent with the conditions described below:

- If an active plover nest is within the area of planned operations or the 1,000-foot buffer area, activities within 1,000-feet of the nest shall be delayed until the nest hatches and the adult and chicks have vacated the area or the fate of the nest has otherwise been determined and the USFWS has provided approval to begin extraction activies.

- Extraction activities within plover habitat may begin after three consecutive days of plover surveys conducted by an approved biologist or surveyor are completed within the 1,000-foot buffer area and the area of operations with no detections of plovers or nests before operations can proceed without daily surveys.

- Failure to have three consecutive days of no plover detections within the area of operations and the 1,000-foot buffer area shall require daily surveys with gravel extraction operators at least 1,000-feet from active plover areas.

## AFFECTED AREA

All affects of the project, below the ordinary high water mark (OHW), are considered temporary, as winter flows will inundate the extraction site(s), haul road(s), and bridge crossing location, naturally reclaiming the area and providing replenishment of aggregate to the extracted bar surface. Temporarily affected areas associated with any extraction season at the Hansen Bar rarely if ever exceeds 18 acres, including extraction areas, haul roads, and bridge crossing locations below the OHW. Affected acreage will vary each season depending upon the location, depth, and proposed area and type of extraction.

## POTENTIAL IMPACTS

There are potential impacts associated with unregulated aggregate extraction. However, under the strictly regulated, sustained yield approach to gravel extraction utilized on the Eel River since the early 1990s, in concert with monitoring and mitigation measures developed under the current program, direct significant impacts have not been identified. The dynamic nature of the lower river system and numerous variables of the natural geomorphologic processes make it impossible to identify direct impacts caused by the extraction activities.

Removal of gravel by skimming or other methods may result in the mobilization of fine sediments during increases in flows that inundate bar surfaces. However, these events occur during the fall or early winter when the rivers are running in an already highly turbid state. Bridge placement activities involve equipment crossings of the main channel to secure abutments

of temporary railcar bridges. These activities may cause minor releases of fines from within river gravels. The minor release of sediment is temporary and deemed insignificant. The minor amount of turbidity that results are especially localized, dissipates quickly, and may have little effect on salmonids.

## IMPACT AVOIDANCE AND MITIGATION MEASURES

Impact avoidance and mitigation measures implemented to prevent or reduce indirect impacts include:

- ✓ The primary mitigations for the Project are locating and designing extractions on geomorphic features that will readily replenish (bar skimming, alcoves, and trenching) and that will either minimize effects to instream habitat, result in increased instream habitat complexity (such as deepening secondary channels or creating alcoves), improve adult Salmonid holding habitat or enhance salmonid migration.
- ✓ Maintain vertical and horizontal relief from the live channel to ensure low flow channel confinement, maintain sufficient water depth for migrating salmonids, and minimize impacts to water quality.
- ✓ Develop annual extraction plans that are complimentary to natural bar topography, minimize the potential for geomorphologic changes, and preserve or enhance the quality of fisheries and wildlife habitat.
- ✓ Utilize existing haul routes whenever possible, and limit the number of new haul roads to proposed extraction areas. New haul routes will be designed to avoid riparian woody vegetation and wetlands to the maximum extent possible.
- ✓ Construction and removal of all temporary channel crossings will be performed in a manner that consistently minimizes turbidity and fine sediment deposition into the stream. Bridge installation will be designed to minimize the quantity of fill material needed to construct abutments.
- ✓ Temporary stockpiles must be removed by October 1$^{st}$ and will be removed by the end of each workday during any extension period.
- ✓ The project areas will be re-graded, as necessary, before the water levels rise in the rainy season to ensure that depressions are filled and the area is left in a free-draining state, thus eliminating the possibility of salmonid stranding.
- ✓ Extracted material will be processed in a contained area away from the river channel to prevent the potential discharge or release of fine sediment to waters of the State.
- ✓ Post-extraction site inspections will be conducted with agency staff to ensure compliance with approved extraction/operational plans. Any additional reclamation or mitigation activities identified during the post-extraction inspection will be initiated and completed in a timely manner.

These criteria are adaptive and are applied as needed to avoid localized geomorphic and/or habitat affects, and "appear to be reasonably successful in avoiding impacts associated with historical mining methods" (Klein et al. 2001).

## ENVIRONMENTAL OBJECTIVES

The Eel River system has continued to experience a decline in ESA-listed steelhead (*O, mykiss*), coho salmon (*O. kisutch*), and Chinook salmon (*Oncorhynchus tshawytscha*) populations in recent years. Evidence indicates that instream gravel mining has not contributed to this decline whereas no direct significant impacts have been identified. More than likely, the decline can be contributed to issues and circumstances in the ocean environment. However, in the best interest of the Steelhead, coho salmon, and Chinook salmon (Species), it is foreseeable that the Hansen operation, in collaboration with NMFS and DFG, may in certain years; include Salmonid migration as an objective and vital part of the seasonal instream gravel mining activity and as a part of a recovery program to perpetuate the Species.

Historical photos suggest that intrusion into the established riparian buffer has occurred in the past in an effort to increase the stockpiling/processing area. A restoration plan has been developed whereas the existing riparian buffer along the east side (right bank) of the river will be expanded in the area north of the main gravel access road, described as the plant operations area. The existing gravel berm located at the edge of the riparian buffer, running the length of the processing area, and extending inboard towards the processing plant will be pulled away from the channel bank and lowered to an elevation equal to 24-36 inches above existing grade. Expansion of riparian growth will be accomplished by defining and establishing a work zone and off limit zone at the inboard edge of the berm. This effort will consist of posting "Riparian Zone" signage at intervals along the toe of the inboard edge of the berm. The established boundary will minimize the chance of material inadvertently being off-loaded within the riparian zone or material being pushed into the riparian zone and should allow for natural revegetation of the berm.

Riparian restoration is also planned in the area south of the plant operations area, whereas, the existing riparian buffer along the east side (right bank) of the river will be extended inboard for a total distance of 100-feet. This area is immediately south of the main gravel access road and is known as the stockpile area. The inboard edge of the proposed riparian buffer zone has been identified with orange, fluorescent marker paint at intervals through the length of the site. The existing berm running the length of the stockpile area will be removed. The entire area proposed for restoration, approximately 600' x 100' or 1.38 acres will be excavated to an elevation equal to the Q2 Ordinary High Water (OHW) mark, minus 0.5 feet. Determination of OHW mark elevations will be made by DFG Science Department staff and the ACOE. The berm material will then be wasted across the entire site and graded to a sloped, finished form, resulting in a final grade equal to the Q2 OHW mark. The area will then be restored with native plants at a ratio of 3:1 or with a planting density typical of historic conditions or at a level that will facilitate natural recruitment and recovery of native riparian species as set forth in a DFG approved revegetation plan. As described above, signage will be installed to ensure protection of this riparian zone.

Additionally, the main (central) haul road will be decommissioned, and will be barricaded at both ends after 2009 spring flows subside, but prior to the commencement of gravel extraction activity. At DFG discretion, the road may be scarified prior to barricading to promote

recruitment of natural species. The roadbed need not be return to a natural slope and will be left in its existing form per DFG. Decommissioning this road will further increase the riparian buffer adjacent to the processing area.

The Project is historic and continuous without significant alteration of activity or scope. This application is for the continuance of an existing activity under the strict regulation of numerous existing local, State and Federal agency programs. No significant change or cumulative augmentations of this activity are proposed.