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Filed:	6/3/15
180th day:	11/30/2015
Staff:	K. Sirkin-A
Staff Report:	7/31/15
Hearing Date:	8/13/15

STAFF REPORT: REGULAR CALENDAR

Application No:	**1-15-0277**
Applicant:	**Mercer Fraser Company**
Location:	Lower Eel River at the middle to upper (southern) end of the Sandy Prairie landform, west of Fortuna, Humboldt County (APNs 106-041-02,-14,-16; 200-352-02,-03; 200-361-02,-03; 200-362-11; 200-341-05,-08,-09, &-10).
Project Description:	Seasonal extraction of up to 270,000 cubic yards of river run aggregate (sand and gravel) per year for a period of five years (up to 70,000 cy per year at Plant A and up to 200,000 per year at Plant B).
Staff Recommendation:	Approval with Conditions

SUMMARY OF STAFF RECOMMENDATION

The applicant proposes to perform seasonal extraction of up to 270,000 cubic yards (cy) of river run aggregate from the Sandy Prairie landform within the lower Eel River, between river miles 10 and 12, west of the city of Fortuna in Humboldt County (up to 70,000 cy per year at Plant A and up to 200,000 cy per year at Plant B). Plant A is located on the "Pedrazzini Bar" at the upper (southern) end of the landform on the west side of Riverwalk Drive (formerly 12th Street) and Plant B is located on the properties of Canevari & Christen at the middle of the landform, at the end of Dinsmore Drive. The applicant has operated at Plant A for over 40 years and has a County-approved vested right for annual extraction of up to 70,000 cubic yards at this site. Plant B has been in operation since 1993 (previously under the operation of Canevari Timber

Company) and been leased by the applicant since 1999. The proposed annual extraction amount is proposed as an upper limit, is consistent with the Humboldt County Programmatic Environmental Impact Report (PEIR) for the lower Eel River and is based upon evaluation of data collected under the PEIR and Interim Management Programs. In any given year, project extraction volumes, locations, and methods would be submitted by the project consultants for annual review and approval by local, state, and federal agencies, consistent with the terms and conditions of their prior authorizations. including the County of Humboldt, California Department of Fish and Wildlife, and the U.S. Army Corps of Engineers. See Exhibit 4 for full project details.

The major coastal act issue raised by this application is whether the proposed gravel extraction activities will be conducted in a manner that will protect environmentally sensitive habitat areas (ESHA) and riverine resources within and adjacent to the project site consistent with Sections 30230,30231, 30233, and 30240 of the Coastal Act.

Staff believes that, with the recommended conditions described below, the proposed gravel extraction operation has been limited to ensure that: (1) no dredge or fill activities will occur within ESHA; (2) only stream alterations that will improve fish habitat will be undertaken; and (3) permissible development will avoid significant degradation of adjacent ESHA. The development as conditioned is consistent with limitations and protocols for lower Eel River gravel extraction projects developed by a multi-agency review team of local, state, and federal agencies pursuant to the U.S. Army Corps of Engineers approval process. The limitations and protocols are based in part on information and recommendations from the National Marine Fisheries Service and U.S Fish & Wildlife Service developed as part of formal consultation process on threatened and endangered species required by the Federal Endangered Species Act. Staff believes that the proposed project as conditioned is consistent with the requirements of Sections 30230, 30231, 30233, 30236 and 30240 of the Coastal Act, as well as all other applicable policies of the Coastal Act.

The motion to adopt the staff recommendation of approval of Coastal Development Permit (CDP) 1-15-0277 with special conditions is found on page 4.

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APPENDICES

EXHIBITS

Note: The following 3 exhibit are included in a combined exhibit packet prepared for CDP Application Nos. 1-15-0204, 1-15-0205, and 1-15-02077, attached separately

I. MOTION AND RESOLUTION

The staff recommends that the Commission adopt the following resolution:

Motion:

*I move that the Commission **approve** Coastal Development Permit 1-15-0277 pursuant to the staff recommendation.*

Staff recommends a **YES** vote on the foregoing motion. 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:

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

This permit is granted subject to the following standard conditions:

1. **Notice of Receipt and Acknowledgment**. 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 period 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 or 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.

III. SPECIAL CONDITIONS

This permit is granted subject to the following special conditions:

1. Extraction Limitations. Extraction of material shall occur within the date limitations prescribed by Special Conditions 4, 5 and 11 and shall be subject to the following limitations:

(A) Consistent with the proposed project description, the permittee shall extract no more than 270,000 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 in the U.S. Army Corps of Engineers (Corps) Letter of Permission Procedure 2015 (LOP-2015) Public Notice dated March 3, 2015 (No. 2007-00857-N). 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 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 U.S. Army Corps of Engineers (Corps), and (3) the long-term average sustained yield based on estimates of mean annual recruitment, as utilized by the County of Humboldt Extraction Review Team (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 during gravel extraction shall be subject to the following requirements:

(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. 6.

3. Annual Gravel Extraction Plan.

A. PRIOR TO THE START OF EACH YEAR'S GRAVEL EXTRACTION OPERATIONS, the permittee 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, 7, and 8 and is prepared in conformance with the requirements of the Corps Letter of Permission Procedure 2015 (LOP-2015) Public Notice dated March 3, 2015 (No. 2007-00857-N);

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 1:6,000 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 CHERT 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 Corps Letter of Permission Procedure 2015 (LOP-2015) Public Notice dated March 3, 2015 (No. 2007-00857-N);

6. The results of biological monitoring report data required by the Corps Letter of Permission Procedure 2015 (LOP-2015) Public Notice dated March 3, 2015 (No. 2007-00857-N);

7. 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) Provisions demonstrating that:

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

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

      (iii) 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:

      (iv) 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

8. 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 California Department of Fish and Wildlife (CDFW).

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. **Protection of Western Snowy Plover.** No gravel extraction activities shall occur during the Western snowy plover nesting season (between March 1 and September 15).

5. **Protection of Western Yellow Billed Cuckoo.** No gravel extraction operations shall occur during the yellow billed cuckoo breeding season (between April 30 and September 15).

6. **Extraction Season.**

   A. No gravel extraction operations shall occur prior to September 15.

   B. All extraction and reclamation must be completed by October 15th of each season. The Executive Director may approve up to a 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 CDFW, the Corps, 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.

7. **Resource Protection.** The gravel extraction and processing operations shall not disturb or remove any of the established riparian vegetation habitats 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.

8. **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. 6. All other portions of 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.

9. **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.

10. **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 FWS 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.

11. **Authorized Development Termination Date.** The gravel operations authorized by this permit shall terminate on December 31, 2019. Continued gravel operations after that date shall require a new coastal development permit.

12. **Final Army Corps of Engineers Approval of LOP-2015**. PRIOR TO COMMENCEMENT OF ANY DEVELOPMENT AUTHORIZED BY THIS COASTAL DEVELOPMENT PERMIT, the permittee shall provide to the Executive Director a copy of the final LOP issued by the Corps. The permittee 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.

13. **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 Corps 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.

IV. FINDINGS AND DECLARATIONS

The Commission hereby finds and declares as follows:

A. PROJECT DESCRIPTION

The Mercer Fraser Company proposes to conduct seasonal gravel extraction of up to 270,000 cubic yards (cy) of aggregate per year, for five years, from two sites (plant A and plant B) on the Sandy Prairie landform, between river miles 10 and 12 on the lower Eel River, west of the city of

Fortuna in Humboldt County (Exhibit No. 2). Extracted aggregate would be transported to an existing processing site outside of the Coastal Commission's jurisdiction. The applicant also proposes to install seasonal railroad flatbed crossings over low-flow river channels to facilitate gravel transport and the reclamation of extraction areas. The location of crossings would be based upon river morphology and avoidance of sensitive riverine habitat elements. Estimated abutment fill volume would be less than 400 cubic yards total for both ends of each crossing. Upon bridge removal, all fill materials would be removed and abutment areas would be reclaimed to pre-crossing conditions. See Exhibit No. 4 for full project details.

The applicant proposes to conduct gravel extraction at two different sites on the Sandy Prairie landform referred to as Plant A and Plant B. Plant A, where the applicant proposes to extract up to 70,000 cubic yards of sand and gravel annually, is located on the "Pedrazzini Bar" at the upper (southern) end of the landform on the west side of Riverwalk Drive (formerly 12th Street). The bar is approximately 1,754 feet in length (as measured along the center-line of the stream, adjacent to the bar). Plant B, where the applicant proposes to extract up to 200,000 cubic yards of sand and gravel annually, is located on the properties of Canevari & Christen at the middle of the landform, at the end of Dinsmore Drive. The bar is approximately 3,507 feet in length (as measured along the center-line of the stream, adjacent to the bar). Based on the amount of exposed gravel existing with the river's current configuration, there are approximately 208 acres of exposed gravel bar subject to extraction within the project boundaries of Plant A and approximately 185 acres of exposed gravel bar subject to extraction within the project boundaries of Plant B. Based on current river configuration and recent extraction plans, approximately 100 acres at each site may be disturbed annually. The exact location and area would vary each year depending on annual river conditions.

As proposed, up to 70,000 cy of aggregate would be extracted annually from locations at plant A and up to 200,000 cy of aggregate would be extracted annually at locations at plant B. These amounts are proposed as upper limits and are based upon evaluation of information and data collected under the Humboldt County Programmatic Environmental Impact Report (PEIR) and Interim Management Programs. See table 1 for the 2015 specific mining proposal. Future mining proposals will vary in response to annual recruitment volumes, river geomorphology, and instream conditions.

Table 1. Specific mining proposal for the 2015 gravel extraction season.

	Location	Type of extraction	Acres	Size (width and depth)	Extraction Volume (cy)
Plant A	A1	Trench	1.47	90'wx 4' d	8,507
	A2	Trench	0.95	90'wx 12'd	14,182
	A3	Trench	0.87	70'wx 12'd	12,130
	A4	Skim	2.48	147'wx 5'd	16,293
	A5	Trench	1.4	90'wx 11'd	18,800
Plant B	B1	Skim	0.63	237' wx 6.0'd	2,600
	B2	Skim	3.18	238'wx 4.5'd	13,160
	B3	Skim	2.71	237'wx 4.7'd	11,700

In any given year, project extraction volumes, locations, and methods would be submitted by the applicants and reviewed for consistency with the current Army Corps of Engineers (Corps) Letter of Permission Procedure (LOP-2015) and approval by local, state, and federal agencies, including the County of Humboldt, California Coastal Commission (CCC),the California Department of Fish and Wildlife (CDFW) and NOAA-Fisheries. Annual assessments and site evaluations would be used to determine: (1) where aggregate could be excavated without causing long-term river bed degradation; (2) the levels and volume of recruitment; and (3) appropriate extraction volumes. No mining would occur at any location until after specific mining and reclamation plans are developed and approved on the basis of annual environmental assessments and monitoring of the proposed project site.

Proposed gravel extraction operations would utilize several different kinds of extraction methods, including traditional skimming, narrow skims, secondary channel skims, low terrace extractions, wetland pits, alcoves, and trenching for the purpose of salmonid habitat enhancement (See Appendix B for detailed extraction methods). The annual mining would include one or more of the above methods, depending on factors such as extraction site location, salmonid habitat enhancement needs, annual replenishment of aggregate, and other environmental factors. Most gravel extraction operations would utilize the traditional skimming extraction method. Traditional skimming extraction areas typically would be located on the inside of meanders, on point bars or side channel bars. The head of the bar, upstream riffle, and channel cross-over would be preserved by locating extractions on the lower two-thirds of the bar, downstream of such features. Minimum extraction floor elevations would be designed to maintain at least 20-inches of depth over riffles. Extractions from deposits bordering dry secondary channels would be designed with minimum extraction floor elevations no less than one foot above the adjacent secondary channel thalweg.

Extraction activities in areas containing woody vegetation would be managed to protect vegetation from removal or disturbance by the extraction processes or low to moderate flow events. This would be achieved by adjusting extraction boundaries to avoid vegetation and by maintaining horizontal buffers around vegetation patches in a manner that would reduce erosion.

The project proposes to maintain extraction area channel confinement to the elevation of the 35 percent exceedance flow of the Eel River in order to maintain confined stream depth for migrating salmonids, as is required by LOP-2015 and the terms and conditions of NOAA-Fisheries.

On-bar stockpiling of aggregate would occur in designated areas that would be delineated during the pre-extraction agency site visits. Any on-bar stockpiling would be temporary until transport to the processing facility could be coordinated. Extraction operations conducted after October 15th in any given mining year would maintain reclaimed conditions at the end of each working day and temporary stockpiles would be no larger than the volume of aggregate that could be removed from the bar surface during the current work day.

During any given extraction year, gravel mining would not occur until after July 22nd, consistent with U.S. Fish and Wildlife Service (FWS) recommendations for minimizing disturbance of the

western snowy plover and the yellow-billed cuckoo during their breeding seasons. Extraction operations would be completed in any given mining year by October 31st at the latest. 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 bankfull channel by November 1st or earlier if declared by the Corps, NOAA-Fisheries, and/or the CDFW. 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.

Access to the site would be provided by existing haul roads to the downstream, middle and upstream end of the extraction areas and temporary flatcar bridges are proposed to cross the river. Proposed crossings would be constructed using a 90-foot flatcar spanning a portion of the mainstem lower Eel River. Approximately 200 cubic yards of gravel would be scraped from adjoining areas to form the abutments for each end of the crossings. The bridges will be constructed to maintain a minimum of 3 feet clearance from bridge to water surface at the time of construction. The crossings would be removed at the end of each extraction season and the abutment material would be regraded to blend in with surrounding topography. Following completion of the extraction and removal of the bridge, the approaches and the channel will be restored to the fullest extent feasible.

B. ENVIRONMENTAL SETTING

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.

The project site includes 260 additional acres of land located primarily to the east outside of the coastal zone, which includes 4 acres of exposed cobble, 3 acres of riparian scrub, 39 acres of black cottonwood, 106 acres of river terrace (located west of the project site within the coastal zone but not part of the extraction area), 54 acres of agricultural lands, and 54 acres devoted to processing the extracted aggregate material (including stockpiling, crushing, washing, sorting, screening, and asphalt concrete production).

The project site is located on the Sandy Prairie landform within the lower Eel River between river miles 10 and 12, west of the city of Fortuna in Humboldt County, on both sides (north and south) of the Fortuna sewage treatment plant, at the general location of the confluence of Strongs Creek with the Eel River (Exhibit No. 2). The total project area is approximately 735 acres in size, with a 424-acre project area associated with Plant A and a 311-acre project area associated with Plant B. The larger properties of Plant A and Plant B (totaling 995 acres) include processing areas and additional agricultural and river terrace land located primarily outside of the coastal zone. The extraction sites are on both sides of the Eel River and generally within the limits of "ordinary high water." Based on the amount of exposed gravel existing with the river's current configuration, there are approximately 208 acres of exposed gravel bar subject to extraction within the project boundaries of Plant A and approximately 185 acres of exposed gravel bar

subject to extraction within the project boundaries of Plant B. Based on current river configuration and recent extraction plans, approximately 100 acres on Plant A and 100 acres of Plant B may be disturbed annually. The exact location and area vary each year depending on annual river conditions. The total project area is approximately 735 acres in size, with a 424-acre project area associated with Plant A and a 311-acre project area associated with Plant B. The larger properties of Plant A and Plant B (totaling 995 acres) include processing areas and additional agricultural and river terrace land located outside of the coastal zone. The extraction sites are on both sides of the Eel River and generally within the limits of "ordinary high water."

The Sandy Prairie landforms was produced by deposition of large quantities of aggregate materials in the main and overflow channels of the lower Eel River and has persisted as such since at least 1916. The active channel of the Eel River is about 4,600 feet wide within this depositional reach and has multiple braids. The main low flow channel typically alternates location to the east and west side of a relatively large island (known as Canevari Island). The landform contains multiple channels that are separated by islands at high flows. The Sandy Prairie landform is located two miles upstream of the zone of tidal influence and is also at a transition point in the river where the channel slope decreases from points further upstream. Large quantities of sand and gravel carried in suspension in the Eel River are annually deposited at the Sandy Prairie landform due to its proximity to the zone of tidal influence and the decrease in slope.

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 (approximately 2 river miles 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 12th Street levee in the vicinity of the project site. In the past, the CDFW 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 5 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, where the subject project area is located, contains the largest available area to store bedload during the 50- to 100-year flows.

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.

Habitat Types and Special Status Species. 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 (ESA) 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*). Although these species have not been detected, the Western Yellow-billed cuckoo (*Coccyzus americanus*), a federally-listed threatened species, has been detected in the larger concentrations of riparian vegetation that are adjacent to the project site. Federally listed in 2014, the yellow-billed cuckoo has been observed in the lower Eel River area since 2000, and may be utilizing the riparian forest areas along the river as breeding habitat.

In general, the riparian zone along the lower Eel River provides migration routes and breeding habitat 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 Southern Oregon – Northern California Coasts Evolutionarily Significant Unit of coho salmon (SONCC coho) is currently listed as a threatened species in areas between Punta Gorda and the California-Oregon border under the both the Federal Endangered Species Act (ESA) and the state of California Endangered Species Act (CESA). SONCC coho salmon were listed by the federal government in May of 1997, with critical habitat designated in May of 1999. Additionally, California Coastal Chinook salmon were federally listed as "threatened" in September of 1999, with critical habitat designated in February of 2000. Finally, North Coast steelhead trout were listed as "threatened" in June of 2000.

The lower Eel River, including the project area, is mainly utilized by anadromous fish as a migration route to and from the upstream spawning grounds. In addition, the lower Eel River provides 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 (Stillwater 2015)[1] states as follows:

> "Habitat adjacent to the Hauck Bar consists primarily of flatwater units with several small age 2+ steelhead habitat units and one adult holding pool just downstream of the confluence of the Van Duzen River. The primary habitat goal is to enhance upstream salmonid migration habitat through development or maintenance of a fish passage channel through the Van Duzen River delta." [page 36].

Other fish species in the river that are listed by the CDFW as "species of special concern" include coastal cutthroat trout (*Oncorhynchus clarki*) and Pacific lamprey (*Lampetra tridentata*).

[1] Stillwater Sciences. 2015. Biological Assessment for Aggregate Extraction Operations in the Eel, South Fork Eel, Van Duzen, and Trinity Rivers, Humboldt County, California. Prepared for Mercer-Fraser, Randall Sand and Gravel, Eureka Ready Mix, Tom Bess, Jack Noble, Leland Rock, Wallan and Johnson, and Klamath-Trinity Aggregates.

The Northern population of Green sturgeon (*Acipenser medirostris*) is dually listed under CESA and the ESA.

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).

C. BACKGROUND

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. 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 Van Duzen Rivers are interrelated in the sense that all of the gravel bars derive their material from the same upstream sediment sources. The Eel River is considered to be 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. 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 if not properly managed.

Regulation History

Humboldt County. Gravel mining operations on the Eel River require the approval of a number of different local, state and federal agencies. The initiation of coordinated review of gravel mining began in 1991, when to comply with environmental review requirements under the California Environmental Quality Act (CEQA), Humboldt County prepared a PEIR that described and analyzed the potential environmental effects resulting from the ongoing gravel removal operations in the lower Eel and Van Duzen River watersheds. The PEIR was certified in July 1992 and is still used in the management of gravel extraction projects in the area today.

Subsequent to the adoption of the PEIR, Humboldt County began regulating gravel operations through a comprehensive monitoring and management strategy that was established to control the cumulative impacts of approved gravel operations on riverbed degradation and bank erosion. At the heart of the strategy is an administrative approval process that annually reviews the proposed extraction plans, including proposed methods and locations of extraction. Additionally, the strategy includes a long-term monitoring component that provides data for use when making annual decisions on where and how much gravel can be removed from the lower Eel and Van Duzen Rivers without adversely affecting the rivers. The monitoring program involves periodic biological surveys, annual cross-sections and thalweg profiles, and annual aerial and ground photography at each gravel operation site. The information is then complied and compared to previous year's data to determine quantities of gravel recruitment, changes in channel morphology, and potential impacts on wildlife and fisheries.

In addition to the monitoring component of the approval process, the County has established an extraction review team (CHERT) to provide the County and other agencies with scientific input on on-going gravel operations. CHERT is composed of independent fluvial morphologists, hydrologists, biologists, and botanists and the group has the authority to review all annual gravel extraction plans and identify the need for changes to those plans as deemed necessary by the monitoring data. CHERT plays an active role in the annual approval process, and works with the gravel mining operators to establish annual extraction quantities and extraction methods that comply with local, state and federal regulations and permit requirements.

U.S. Army Corps of Engineers (Corps). In addition to local government approval, the gravel extraction operations on the lower Eel and Van Duzen Rivers require authorization from the Corps. To coordinate and expedite this process for the numerous in-stream gravel extraction operations in Humboldt County, the Corps adopted a Letter of Permission (LOP) procedure for authorization of such projects. The LOP procedure includes incorporation of the County's CHERT review process. An applicant who wants to be covered by the LOP must submit annual gravel plans and monitoring information to the Corps for approval under the procedure. LOP's have been issued for gravel extraction operations since 2002, with the last LOP authorization expiring following the 2014 gravel extraction season.

With the expiration of LOP 2009, the planning process for a new LOP procedure began in the spring of 2014. In March of 2014, the Corps issued a new LOP procedure notice (No. 2007-0857-N), 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 2015-1. The new LOP 2015 announcement is very similar to LOP 2009 in its terms and conditions. See Appendix B for a list of the LOP 2015 gravel extraction terms and limitations.

National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (FWS). As with all "federal actions" that might adversely impact rare, threatened, and endangered fish and wildlife species, the LOP process is subject to consultations with the applicable natural resource trust agencies as required under Section 7 of the Endangered Species Act (ESA). Consultations are conducted by the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (FWS) who are the trust agencies responsible for species listed under the ESA. Section 7 of the ESA 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.

The consultation process consists of the applicant developing a biological assessment (BA) that details the current status of the fish and wildlife species in the subject area, as well a preliminary assessment of the likely effects of the action on those species. The BA is then submitted to the resource agencies assigned the responsibility for protecting the ESA-listed species. Following review and analysis of the information provided in the BA, the agencies issue a Biological Opinion (BO) regarding impacts of the proposed action on listed fish and wildlife species, in this

case, gravel extraction operations. In past gravel extraction operation approvals, the Commission has relied upon the BOs issued by the agencies when considering gravel extraction operation permit applications. NOAA's consultation covers the following threatened and endangered species: Southern Oregon/Northern California Coho salmon (*Oncorhynchus kisutch*), California Coastal Chinook salmon (*Oncorhynchus tshawytscha*), and Northern California steelhead trout (*Oncorhynchus mykiss*). The Southern Oregon – Northern California Coasts Evolutionarily Significant Unit of coho salmon (SONCC coho) is currently listed as a threatened species in areas between Punta Gorda and the California-Oregon border under the both the Federal Endangered Species Act (ESA) and the state of California Endangered Species Act (CESA). SONCC coho salmon were listed by the federal government in May of 1997, with critical habitat designated in May of 1999. Additionally, California Coastal Chinook salmon were federally listed as "threatened" in September of 1999, with critical habitat designated in February of 2000. Finally, North Coast steelhead trout were listed as "threatened" in June of 2000.

The FWS has been providing consultation on the western snowy plover since it was listed as threatened in 1993, and on the Lower Eel River since plovers were first discovered nesting on Eel River gravel bars near Fernbridge in June of 1996. Since the last consultation that was performed in 2009, the Western Yellow-billed cuckoo has been listed as threatened (August 2014) and critical habitat for the species has been proposed in the Lower Eel and Van Duzen Rivers in areas including the project site. In response to this listing, the Corps has requested consultation on both the western snowy plover and the western Yellow-billed cuckoo under the current LOP procedure.

The consultations provide critical evidence that proposed gravel mining operations on the Lower Eel and Van Duzen Rivers will not result in significant adverse impacts on threatened and endangered species. In past actions on coastal development permits for gravel mining on the Lower Eel and Van Duzen Rivers, the Commission has relied upon the biological opinions to find consistency of the gravel mining projects with the Coastal Act.

Coastal Commission Permits. Over the past two decades, the Commission has issued at least 30 permits for gravel extraction operations on the lower Eel and Van Duzen Rivers, as summarized in Appendix C. In general, actual annual extraction volumes in the lower Eel River have been lower than the annual approved volumes over the last decade. See Appendix C for extraction volume information. Gravel extraction operations have historically varied with market demands and river conditions. Actual annual extracted volumes have consistently been lower than approved volumes. From 1997 through 2014, a total of 3,366,790 cubic yards of aggregate was extracted from the Lower Eel River (averaging 187,044 cubic yards annually), which is only 65 percent of the total approved volume of 5,193,634 cubic yards. Appendix C, table 3 shows the volume of gravel approved for extraction and actually extracted at the Mercer Fraser sites. Between 2004 and 2014, a combined total of 1,216,644 cubic yards was extracted from the Sandy Prairie Landform, with an annual average of 110,604 cubic yards.

D. 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, as required by Public Resources Code Section 30519(b) and Commission regulation section

13166(c), the standard of review that the Commission must apply to the project is the Chapter 3 policies of the Coastal Act.

E. OTHER AGENCY APPROVALS

State Lands Commission
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 holds 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 carry out the project and to comply with the terms and conditions of this permit, the Commission attaches Special Condition No. 9 which requires that the applicant submit evidence that any necessary authorization from the State Lands Commission has been obtained prior to commencement of any development related to the construction of summer bridge crossings.

Humboldt County

Humboldt County Use Permit
The County approved a renewal of the Conditional Use, Coastal Development and Surface Mining permit (CDP-10-02/CUP-10-01/SMP-10-01/RP-10-01) on February 2, 2012. The renewal will expire on July 22, 2026.

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 CHERT. The CHERT in turn makes specific recommendations including recommendations that 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 annual gravel extraction plan recommended for approval by CHERT each year is the same as the annual gravel extraction plan 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.

California Department of Fish and Wildlife (CDFW)
The project requires a Section 1603 Streambed Alteration Agreement from the CDFW. The applicant received the approved agreement (#1600-13-0355) on June 19, 2014. The agreement is for a five-year term and expires on January 31, 2019.

Regional Water Quality Control Board
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. 2003-0017-DWQ for gravel extraction activities on June 9, 2015, expiring on June 1, 2020.

U.S. Army Corps of Engineers (Corps)

Final LOP-2015 Approval
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). As discussed above, the project requires review and authorization by the Corps. 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 Corps, 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 2015 (LOP 2015). The Corps posted the LOP 2015 for public comment on March 3, 2015. 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.

Annual Review
Permittees using the LOP will be required to submit annual gravel plan and monitoring information to the Corps for approval prior to each year's gravel extraction activities. To ensure that the annual gravel extraction plan 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. 13, 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. 11 to specify an authorization termination date of November 1, 2019, which corresponds to the project termination date listed in the ESA Section 7 consultation submitted by the Corps to NOAA-Fisheries.

U.S. Fish and Wildlife (FWS) and NOAA-Fisheries (NMFS)
The project requires final Biological Opinions being issued by the NOAA-Fisheries and the FWS. As discussed above, the Biological Opinions are being prepared as a result of formal consultations between the Corps and NOAA-Fisheries and FWS pursuant to Section 7 of the ESA. The NOAA-Fisheries BO is expected to be finalized by the end of July 2015, and the FWS BO is expected to be finalized by the early September 2015. To ensure that the project ultimately approved by the agencies is the same as the project authorized herein, the Commission attaches Special Condition No. 10, 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.

F. REVIEW OF EEL RIVER IN-STREAM GRAVEL EXTRACTION PROJECTS UNDER THE COASTAL ACT

Several coastal resource protection policies of the Coastal Act apply to gravel extraction projects along the Eel River. The applicant's gravel extraction project is typical of most of the gravel extraction operations on the lower Eel River in that it includes (a) traditional skimming of gravel bars that are dry and exposed in the summer but inundated during high winter flows, (b) trenching of gravel bars that may extend into the wetted channel even during the dry season, (c) the placement of gravel along the edges of secondary channels to create abutments for seasonal railroad flat car crossings for vehicles used in the gravel extraction operations, and (d) stockpiling, staging, and/or processing operations in upland areas adjoining the river and adjacent to existing riparian areas. As discussed in the findings below, the skimming of gravel bars outside ESHA constitutes permissible fill and dredge of seasonal wetlands pursuant to Section 30233. The limitations of both Section 30233 and 30240(a) prohibit the skimming of the gravel bar in locations containing environmentally sensitive habitat area such as nesting habitat for the Western snowy plover, or developed riparian habitat. The trenching of gravel bars containing ESHA that extends into the wetted channel may only be authorized if it is a permissible alteration of a river or stream as set forth in Section 30236. Finally most of the elements of the gravel extraction operation are adjacent to various kinds of ESHA, including salmonid habitat within the waters of the river, nesting snowy plover habitat on the gravel bars, riparian habitat on the bars and along the river banks, and yellow billed cuckoo breeding habitat within some of the afore-mentioned riparian habitat. As such, these elements of the gravel extraction operations are subject to the requirements of Section 30240(b) that development adjacent to ESHA be sited and designed to prevent impacts which would significantly degrade those areas and shall be compatible with the continuance of those habitat and restoration areas.

For the reasons discussed in the findings below, the Commission reviews (a) development undertaken outside ESHA involving the skimming of the dry gravel bars and the placement of gravel along the edges of secondary channels to create abutments for seasonal railroad flat car crossings under Section 30233 in Finding G, "Gravel Extraction Operations Within Riverine Wetlands," below, (b) the trenching of gravel bars containing ESHA that extend into the wetted channel under Section 30236 in Finding H, "Development Within Coastal River and Streams," below, and (c) all of the elements of the gravel extraction operations that are adjacent to ESHA in the mitigation discussion of Finding G and in Finding I, "Protection of Environmentally Sensitive Habitat Areas.

G. GRAVEL EXTRACTION OPERATION WITHIN RIVERINE WETLANDS

The proposed development involves the extraction of sand and gravel from the lower Eel River. Sections 30230, 30231, and 30233 of the Coastal Act address the protection of wetlands from the impacts of development such as gravel mining activities. These sections require, in part, that

marine resources (including salmonids) and coastal wetlands be maintained, enhanced, and where feasible restored. Sections 30230 and 30231 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 of the Coastal Act 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. In addition, the temporary installation of gravel abutments for seasonal crossings of secondary channels to gain access to extraction areas partially within flat water areas of these channels is a form of filling a wetland.

Section 30233 of the Coastal Act allows the dredge and fill of wetlands for mineral extraction outside ESHA, stating 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 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.*

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.*

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.

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 and temporary filling for the mining of gravel aggregate materials. Mineral extraction 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 activities will avoid environmentally sensitive areas, the proposed gravel extraction operation is consistent with the use limitations of Section 30233(a)(5).

The multi-year gravel operation proposes to use a variety of extraction techniques that have been established by the previous Corps LOP and recommended by NOAA Fisheries as techniques that would avoid significant impacts to salmonids. 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 wetted river channel. The sole exception is the wet trenching technique, which would involve diverting the stream flow to a secondary channel location and then excavating sediment directly from portions of the channel. 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. Although the wet trenching technique would involve excavation within salmonid ESHA habitat, and thus would not be permissible under Section 30233(a)(5) , the Commission evaluates this aspect of the proposed development under Section 30236 of the Coastal Act in Section IV-G of the findings below because the wet trenching method proposed is a permissible alteration of a river or stream proposed for the improvement of fish habitat.

There are various types of environmentally sensitive habitats around 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 habitat that is breeding habitat for the federally threatened western Yellow-billed cuckoo 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) exposed gravel bars

adjacent to the flowing water that provide 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. For example, as discussed further below, as part of the gravel extraction operations, the applicant also proposes to install seasonal crossings with piled-up gravel abutments that could extend into shallow flat-water portion of the channel. Although these flat water areas are wetlands and inundated even during the summer months, the flat water areas do not support threatened salmon species or other threatened or endangered species and are not considered ESHA under the Coastal Act. Descriptions of the habitats in the project area and their use by wildlife are found in the Findings Section IV-B, "Environmental Setting: Habitat Types & Special-Status Species," of this report.

i. No Dredge or Fill of Flowing River Channel 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 macroinvertebrates 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 federal- and state-listed salmonids.

The perennially-inundated areas within the river also meet the second criterion in that diversion, dewatering, fill, and dredging activities for gravel extraction, such as proposed by the applicant, can quickly disturb and degrade the affected habitat areas the mining activities come in contact with. Trenching can also destabilize the river channel and cause erosional impacts that can degrade the perennially inundated areas within the river on a more permanent basis long after the initial excavation work is completed.

In past permit actions the Commission has previously determined that such riverine perennial channels that support 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 salmonid species and other aquatic life forms. Therefore, the Commission has generally

applied the environmentally sensitive area designation only to the portions of the river containing live flow.

Not all portions of the river containing live flow during the summer-early fall gravel mining season necessarily qualify as environmentally sensitive. Although salmonids are found in the lower Eel at most times of the year, the edges of the shallow flat-water areas do not support 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 salmonid species. Instead, salmon pass through the area during migration periods to spawn further upstream. 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 juvenile 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 shallow reaches of long pools are avoided by juvenile salmonids since they do not have the necessary oxygen and food concentrations, lack cover, and do not provide relief from higher water temperatures.

More specifically, the use of the lower Eel River by threatened salmonid species has been established during surveys performed pursuant to the Corps LOP process and has been documented in previous Biological Opinions prepared for the proposed gravel operations. The site-specific surveys provide a basis for demonstrating that salmonids do not inhabit the shallow flat-waters of the lower Eel River during the summer months though the results cannot be generalized to other river systems where no such surveys have occurred. Therefore, the Commission finds that during the summer and early fall, the edges of the shallow flat-water areas of the lower Eel River channel are not environmentally sensitive, as they do not provide juvenile salmonid habitat.

None of the proposed extraction techniques except “wet trenching” described below in Section IV-G 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 CHERT gravel mining recommendations 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 and adult holding habitats do not exist. NOAA-Fisheries and CHERT annually review the proposed bridges placement and determine where the bridges 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.

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 No. 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. No Dredge or Fill of Riparian Vegetation Environmentally Sensitive Habitat

The Coastal Commission has previously determined 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. 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. 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. Riparian areas also 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 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 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 can eliminate more stands of riparian 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 habitat.

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 riparian areas 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 the CDFW 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. The one restriction of the Corps LOP for gravel mining on the Eel River concerns riparian vegetation and 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 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 limits mineral extraction in wetlands and open coastal waters differently than Section 30233 of the Coastal Act 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. Conversely, the Corps can allow mineral extraction in an environmentally sensitive area so long as mitigation is provided. 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 CDFW 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. No Dredge or Fill of Exposed Gravel Bars Environmentally Sensitive Habitat

Another form of environmentally sensitive habitat that has the potential to occur 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. Overall, population numbers, nests, and fledged chicks are dropping. Compared to 2006 high totals of 50 birds and 44 nests on Humboldt County beaches and 18 birds with 13 nests on the lower Eel River gravel bars, there were 42 birds and 59 nests on the beaches and 0 birds with 0 nests on the Lower Eel River in 2014. Results from surveys upstream from Leland to Sandy Prairie bars from 2010 to 2014 resulted in no snowy plovers detections. There appears to be a shift from the 2001 high of 39 birds and 39 nests on the lower Eel River to a preference for the local beaches for breeding.

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 not commence until after September 15. Special Condition No. 4 will ensure that gravel extraction operations that could harm plovers are not conducted during the entire plover nesting season between March 1 and September 15.

iv. 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).

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 determined that there are no feasible less environmentally damaging alternatives to the project as conditioned by Special Condition Nos. 1-13. 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.

i. 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.

ii. 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 PEIR there are few quarries in the vicinity where it would be economically feasible to obtain material of sufficient quality and quantity as compared 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.

iii. 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 materials to upland rock quarries. However, extracting gravel from these terrace deposits would create its own adverse environmental impacts. Much of the 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 habitats. 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.

iv. 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 avoid the dredge or fill of wetlands within ESHA. Additionally, 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.

v. 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).

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 extraction 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. Potential 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:

i. Measures To Avoid Significant Degradation of Fisheries Habitat

Gravel extraction activities undertaken within the flowing river channel in the form of trenching have the potential to have both direct and indirect adverse impacts on threatened salmonid species through:(a) water quality degradation associated with increased turbidity and sedimentation; (b) fish injuries and or mortality 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 fish to concentrate in trench excavations that afford little or no cover from predators and poachers.

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 ESA. 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 downstream 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 higher discharges. 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, 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 juvenile rearing habitat by impeding or altering channel stream flow dynamics.

The impacts of gravel mining operations on 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 geomorphology together with the cumulative adverse impacts on sensitive fish species from all of the various gravel mining operations occurring along the river. An assessment of the significant adverse indirect and cumulative impacts of gravel mining operations along the lower Eel River on sensitive fish species is discussed within the Biological Opinion issued by NOAA-Fisheries (Appendix D).

The Corps formally requested that NOAA-Fisheries prepare a Biological Opinion to analyze the LOP Procedure 2015 for proposed gravel extraction on Humboldt County rivers over the next five years (through 2019). The draft Biological Opinion reportedly will be finalized by the end of August 2015 and is expected to contain salmonid protection measures similar to both the Commission's prior approval at the subject site and the prior Biological Opinion relating to the protection of salmonids along the lower Eel River. Through the LOP process, mitigation measures have been developed for abutments that enter the wetted channel. During construction, the gravel mining 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 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. Based on the biological information collected as part of the consultation, NOAA-Fisheries staff indicates in discussions with Commission staff that the 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.

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 attaches Special Condition Nos. 1 and 3 which incorporate specific elements of the proposed LOP 2015. These elements have been identified by NOAA-Fisheries as important for minimizing impacts to channel form and function, as well as protecting fish habitat.

During their consultation, NOAA-Fisheries reviewed the extraction methods and techniques described in LOP 2015 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, none of the above methods would 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 threatened salmonid species habitat, 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 NOAA Fisheries Staff recommendations and Corps permit requirements.

The use of vertical offsets of the gravel extraction area from the low flow channel of the river 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 and river flows for spawning, migration, and other life-cycle habitat needs. Artificially introducing large amounts of sediment at times of the year when natural entrainment is otherwise low would 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 to the beginning of significant movement of fine bed load material in the river that occurs during winter months. The general benefit of increased skim floor elevations is that effects associated with sediment inputs are reduced as the elevation of the skim floor increases. The applicant

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 draft 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 CDFW Section 1600 Streambed Alteration Agreements issued for gravel extraction at the project site, CDFW 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 are lowest. CDFW can choose to extend the operations until November 1 if dry weather conditions prevail. The 2015 NOAA-Fisheries Biological Opinion is also anticipated to allow for completion of gravel mining operations by October 15, with similar extensions to November 1 if possible.

Therefore, the Commission attaches Special Condition No. 6 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 conditions are forecasted and the permittee has received all necessary approvals to extend gravel operations from CDFW, the Corps, and NOAA-Fisheries.

NOAA-Fisheries staff also is of the opinion that the proposed gravel mining is not likely to destroy or adversely modify SONCC coho salmon designated critical habitat (Exhibit D). To ensure this opinion and the other recommendations of NOAA Fisheries staff has not changed in a manner inconsistent with the Commission's approval by the time the Biological Opinion are issued, the Commission attaches Special Condition No. 10, 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 amendments to the coastal development permit.

Therefore, the Commission finds that as conditioned, the proposed gravel mining project would avoid significant disturbance of sensitive fish species consistent with the requirements of Sections 30231, 30233, 30236 and 30240 of the Coastal Act.

ii. Measures to Avoid Significant Degradation of River Morphology

As discussed above, a potential 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, the river may spread across the bar during higher flows, thereby reducing the depth of the channel and may result in channel migration or channel "braiding." Channel braiding can also result in 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 applicant proposes to extract an amount of gravel that is small relative to the overall permitted gravel mining activity along the Eel River, approval of extraction operations without consideration of potential effects on river morphology could cause bed degradation and riverbank erosion.

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). 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 found 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 interim management plan specifically addresses preventing local over-extraction and avoiding/minimizing mining methods that cause aquatic and riparian habitat damage" (page 2). The report concludes that "…we did not discern any large scale, persistent adverse 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).

More recently, channel profiles taken following the 2013 gravel mining season show modest amounts of fill and scour within the active channel area of the lower reach of the Eel River as compared to channel profiles taken in 2009. The reworking of the low flow channel, as seen in the more recent channel profiles, is not an unexpected occurrence in a semi-unconstrained alluvial channel. The higher elevation channel margins and channel banks of the monitoring cross sections appear stable in profile as these areas are not subject to regular inundation and flow energy that generates scour and fill. The higher elevation alluvial surfaces of the site are also protected by herbaceous and woody vegetation which tends to reduce high flow energy and provide armoring of the surface sediments. Therefore, the comparative data depicts a stable channel form that is not being adversely affected by gravel mining operations at the site.

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 staff that gravel operations conducted in accordance with the LOP-2009 procedures would 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-2015 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-2015 will be used to help preserve channel form and minimize bank and bar erosion that would degrade fishery habitat. Special Condition No. 1 limits the use of gravel extraction techniques to those recommended by NOAA-Fisheries. In addition, 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 annual gravel extraction plans be submitted for the review and approval of the Executive Director and section (A)(4) of that condition requires that the submitted plans be consistent with the recommendations of CHERT. These requirements will ensure that disturbance of the active channel will be avoided.

iii. Measures to Avoid Significant Degradation of Environmentally Sensitive Riparian Vegetation

To ensure that disturbances to riparian habitat are prevented, 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. 7, 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, significant degradation of all of the adjacent environmentally sensitive riparian vegetation in the vicinity of the project will be avoided.

iv. Measures To Avoid Significant Degradation of Western Snowy Plover

The western snowy plover (*Charadrius alexandrinus nivosus*) was listed as a threatened species by the 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 CDFW 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 individuals have been found on the gravel bars from early April until early September. Overall, population numbers, nests, and fledged chicks are dropping. Compared to 2006 high totals of 50 birds and 44 nests on Humboldt County beaches

and 18 birds with 13 nests on the Lower Eel River gravel bars, there were 42 birds and 59 nests on the beaches and 0 birds with 0 nests on the Lower Eel River in 2014. Results from surveys upstream from Worswick Bar from Leland to Sandy Prairie bards from 2010 to 2014 resulted in no snowy plovers detections. There appears to be a shift from the 2001 high of 39 birds and 39 nests on the Lower Eel River to a preference for the local beaches for breeding (LACO 2015). 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 directly contributed to 41 percent of Eel River plover nest failures over the previous four years.

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 significant degradation of plover habitat, the Commission attaches Special Condition No. 4. Special Condition No. 4 requires that gravel mining shall not start before September 15. 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 degradation of the western snowy plover habitat.

v. Measures to Avoid Significant Degradation of yellow billed cuckoo habitat

The western Yellow-billed Cuckoo (*Coccyzus americanus*) was listed as a threatened species by the U.S. Fish and Wildlife Service (FWS) in 2014 and is also listed as a California Endangered Species and a U.S. Forest Service Region 5 Sensitive Species. Critical habitat for the species was proposed by the FWS in 2014 and is not yet finalized. Critical habitat in the Lower Eel River was proposed in 2014 and if designated would comprise an 8-mile long continuous segment of willow-cottonwood riparian vegetation from west of the town of Fortuna (Sandy Prairie) downstream to a point in the estuary (Cock Robin Island) of the lower Eel River in Humboldt County, California. Proposed designated critical habitat for this species consists of riparian stands of more than 37 acres and more than 325 feet in width. 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 yellow-billed cuckoo during the breeding season when the birds are present constitute ESHA.

Proposed gravel mining activities will require the use of heavy equipment, and vehicles, all of which introduce high levels of noise and human activity into the environment that could disrupt potential yellow-billed cuckoo habitat within the riparian areas. Disturbance from human presence or activities during the breeding season may potentially disrupt yellow-billed cuckoos essential breeding behaviors in adjacent riparian areas that may be used for breeding by causing (1) abandonment of the breeding effort by failure to initiate nesting or to complete incubation; (2) noise disruption of the established breeding territory; and (3) frightening adults from utilizing potential nesting areas. Potential effects depend on frequency, timing, location and intensity of activities.

Because the Yellow-billed cuckoo is a federally listed threatened species, the FWS coordinates with the Corps to provide guidance and regulatory review to gravel extraction operators on the lower Eel River. The FWS is developing as part of the Federal Endangered Species Act biological consultation process with the Army Corps of Engineers on the Corp's proposed issuance of the proposed LOP for proposed gravel extraction operations over the next five year on the lower Eel River. The biological opinion is not anticipated to be issued until mid-September, 2015. In the absence of more specific recommendations that may be contained in the biological opinion that is ultimately issued, to avoid the significant degradation of yellow-billed cuckoo habitat, the Commission attaches Special Condition No. 5. Special Condition No. 5 requires that no gravel mining operations shall be allowed during the yellow billed cuckoo breeding season (April 30 – September 15).

vi. Measures to Avoid Significant Adverse Impacts on Water Quality

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, 7, and 8. Special Condition No. 1 requires the applicant to perform the mining project on the exposed gravel bar in order 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 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. 7 prohibits placing any material into the river during gravel extraction activities. Special Condition No. 8 requires

that all materials be promptly removed from the river bar 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.

vii. 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 6 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. 7 and 8 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 30230, 30231, and 30233 of the Coastal Act.

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 30230, 30231, and 30233 of the Coastal Act.

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 30230, 30231, and 30233 of the Coastal Act.

H. 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 undertaken in an annual gravel extraction plan if authorized by NOAA-Fisheries and CDFW, 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 encourages the use of trenching on the lower Eel and lower Van Duzen Rivers to assist salmonid migration through dry river reaches. A migration trench is essentially a designed channel mimicking a natural channel, which permits salmonid migration and water flow through a dry 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 or downstream emigration. 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 restrictions described above, including but not limited to, written approval of the proposed wet trenching from NOAA-Fisheries and/or the CDFW.

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. Such extraction is consistent with Section 30236, provided that the best mitigation measures feasible also are incorporated into the project. Special Condition Nos. 1, 3, 6, 7, and 8 discussed above require use of the best feasible extraction standards and limitations, methods of extraction, and the timing of extraction to avoid and minimize significant adverse environmental effects on salmonid habitat.

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.

I. PROTECTION OF ADJACENT ENVIRONMENTALLY SENSITIVE HABITAT AREAS

Section 30240(b) of the Coastal Act states that development in areas adjacent to environmentally sensitive habitat 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 areas. 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.

As discussed above in Finding G, "Gravel Extraction Operations within Riverine Wetlands," the proposed annual extraction operations as conditioned will not be performed within environmentally sensitive habitat either within or outside of the bank-full channel of the river. Although the gravel extraction operations will not be performed directly within ESHA, the development will occur adjacent to several kinds of ESHA as discussed above, including sensitive salmonid habitat in the river, possible western snowy plover habitat in areas of the gravel bars that will be restricted from gravel mining activities, riparian habitat that has become established on the gravel bars and along the banks of the river, and those portions of the riparian habitat that may be used by the yellow billed cuckoo for breeding. As conditioned, the approved gravel extraction operations will be sited and designed to prevent significant disruption of these ESHA habitats.

i. Salmonid Habitat

As discussed in detail within the above referenced Finding F, the gravel extraction operations as conditioned will avoid significant degradation of sensitive fish species consistent with the requirements of Sections 30230, 30231, 30233, 30236 and 30240 of the Coastal Act.

ii. Riparian Habitat

Gravel extraction operations have been conducted adjacent to the riparian habitat along the lower Eel River for several decades. In April of 2009, McBain and Trush conducted a study of woody

riparian vegetation trends of the Eel and Van Duzen Rivers for the period of 1995-2008 that demonstrates that the riparian habitat along the river continues to thrive in the presence of the adjacent gravel extraction operations. The Hauck Bar project area was included in the 2,800 acre study area that extended from Fox Creek on the Van Duzen River to Fernbridge on the Eel River. The study results concluded that over the period of study (1995-2008), the combined percent acreages of the open riparian categories (floodplain, woodland, and terrace) remained relatively stable, suggesting that gravel extraction did not have a detectable effect on overall woody riparian vegetation acreage. The study also noted that the total area of annual extraction within the lower Eel River study area was quite small and therefore changes in vegetation acreage relative to the size of the lower Eel River extraction reach and study area are likely undetectable. The combined area of proposed extraction operations within the lower Eel River study area would remain at low levels during the five-year period of authorization of this coastal development permit.

A comparison of photos of the project site between 2009 and 2014 shows that vegetation density and overall area have increased significantly at the project site between 2009 and 2014. To ensure that the gravel extraction operation continues to avoid significant degradation of adjacent riparian habitat, Special Condition No. 1, prohibits 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, Special Condition No. 7 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. Existing haul roads through the riparian areas must be used to truck gravel from the bar to the stockpiling and processing facility.

iii. Yellow Billed Cuckoo Habitat

The yellow billed cuckoo may use the riparian areas adjacent to gravel mining operations along the lower Eel River. Breeding habitat may exist in areas adjacent to gravel operations and haul roads that have been previously established. The western Yellow-billed Cuckoo (*Coccyzus americanus*) was listed as a threatened species by the U.S. Fish and Wildlife Service (FWS) in 2014 and is also listed as a California Endangered Species and a U.S. Forest Service Region 5 Sensitive Species. Critical habitat for the species was proposed by the FWS in 2014 and is not yet finalized. Critical habitat in the Lower Eel River was proposed in 2014 and if designated would comprise an 8-mile long continuous segment of willow-cottonwood riparian vegetation from west of the town of Fortuna (Sandy Prairie) downstream to a point in the estuary (Cock Robin Island) of the lower Eel River in Humboldt County, California. Proposed designated critical habitat for this species consists of riparian stands of more than 37 acres and more than 325 feet in width. According to the 2015 biological assessment prepared for the Lower Eel River gravel mining projects, riparian habitat adjacent to the project site appears suitable in size and width to meet minimum size requirements for a yellow-billed cuckoo breeding area. 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 yellow-billed cuckoo during the breeding season when the birds are present constitute ESHA.

Proposed gravel mining activities will require the use of heavy equipment, and vehicles, all of which introduce high levels of noise and human activity into the environment that could disrupt potential yellow-billed cuckoo habitat within the riparian areas. Disturbance from human presence or activities during the breeding season may potentially disrupt yellow-billed cuckoos essential breeding behaviors in adjacent riparian areas that may be used for breeding by causing (1) abandonment of the breeding effort by failure to initiate nesting or to complete incubation; (2) noise disruption of the established breeding territory; and (3) frightening adults from utilizing potential nesting areas. Potential effects depend on frequency, timing, location and intensity of activities.

Because the Yellow-billed cuckoo is a federally listed threatened species, the FWS coordinates with the Corps to provide guidance and regulatory review to gravel extraction operators on the lower Eel River. The FWS is developing as part of the Federal Endangered Species Act biological consultation process with the Army Corps of Engineers on the Corp's proposed issuance of the proposed LOP for proposed gravel extraction operations over the next five year on the lower Eel River. The biological opinion is not anticipated to be issued until mid-September, 2015. In the absence of more specific recommendations that may be contained in the biological opinion that is ultimately issued, to avoid significant degradation of yellow-billed cuckoo habitat, the Commission attaches Special Condition No. 5. Special Condition No. 5 requires that no gravel mining operations shall be allowed during the yellow billed cuckoo breeding season (April 30 – September 15).

iv. Western Snowy Plover Habitat

As discussed above in Finding G, "Gravel Extraction Operations within Riverine Wetlands," the endangered western snowy plover will sometimes nest on the gravel bars within the Eel River. Gravel operations could lead to plover mortality if nesting plovers are present during the gravel extraction operation.The plover nesting season begins in March and ends by mid-September. The end of the plover nesting season coincides closely with the end of the breeding season for the yellow billed cuckoo, which as described above runs from April 30 to mid-September. The prohibition imposed by Special Condition No. 5 against commencing gravel extraction operations prior to September 15 to avoid significant impacts to the Yellow billed cuckoo will also protect nesting plovers. To ensure that gravel extraction operations that could harm plovers are not conducted during the full plover nesting season (which begins two months prior to the Yellow billed cuckoo breeding season), Special Condition No. 4 requires that no gravel extraction operations occur during the plover nesting season, i.e. between March 1 and September 15.

In permits previously granted for gravel extraction operations along the Eel River, the Commission has allowed for the possibility for gravel extraction to begin prior to the close of the plover nesting season on September 15 if plover surveys were to demonstrate that no plover nests exist within the gravel extraction area. These allowances for earlier commencement of gravel extraction were based on FWS recommendations contained in biological opinions prepared by FWS at that time. The new FWS biological opinion anticipated to be issued by mid-September may contain similar allowances for earlier commencement of gravel extraction. However, as Special Condition No. 5 already prohibits commencement of gravel extraction prior

to September 15 in order to protect the yellow billed cuckoo, which was only recently listed federally as a threatened species in 2014, allowances for earlier commencement of gravel extraction cannot be made even though under certain circumstances earlier commencement of extraction would not result in significant adverse impacts to the plover.

Therefore, for the reasons discussed above, the Commission finds that the project as conditioned will be sited and designed to prevent impacts which would significantly degrade adjacent ESHA and will be compatible with the continuation of these habitat areas consistent with Section 30240(b).

J. 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 be (a) sited and designed to protect views to and along the ocean and scenic coastal areas, and (b) visually compatible with the character of surrounding areas.

The gravel extraction area and processing facilities generally are not visible from Highway 101 or any other public coastal viewing areas. The extraction operation has existed at the site for many years, and the proposed project will not be any more prominent than the gravel extraction that has occurred at the site in the past.

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.

K. PUBLIC ACCESS

Section 30210 of the Coastal Act states:

> *In carrying out the requirements of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*

Section 30211 of the Coastal Act states:

> *Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*

Section 30212 of the Coastal Act states, in applicable part:

> *(a) Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where:*

(1) It is inconsistent with public safety, military security needs, or the protection of fragile coastal resources,

(2) Adequate access exists nearby, or,

(3)Agriculture would be adversely affected. Dedicated accessway shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the accessway.

Section 30214 of the Coastal Act states:

(a) The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case including, but not limited to, the following:

(1) Topographic and geologic site characteristics.

(2) The capacity of the site to sustain use and at what level of intensity.

(3) The appropriateness of limiting public access to the right to pass and repass depending on such factors as the fragility of the natural resources in the area and the proximity of the access area to adjacent residential uses.

(4) The need to provide for the management of access areas so as to protect the privacy of adjacent property owners and to protect the aesthetic values of the area by providing for the collection of litter.

(b) It is the intent of the Legislature that the public access policies of this article are carried out in a reasonable manner that considers the equities and that balances the rights of the individual property owner with the public's constitutional right of access pursuant to Section 4 of Article X of the California Constitution. Nothing in this section or any amendment thereto shall be construed as a limitation on the rights guaranteed to the public under Section 4 of Article X of the California Constitution.

(c) In carrying out the public access policies of this article, the commission and any other responsible public agency shall consider and encourage the utilization of innovative access management techniques, including, but not limited to,

agreements with private organizations which would minimize management costs and encourage the use of volunteer programs.

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 is 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. The prime fishing season occurs in the spring or wet season when gravel extraction is not occurring.

Other public access and recreational uses of this stretch of the river include canoeing and recreational boating. Kayakers and canoeists are generally able to stop at seasonal crossings and portage around the crossings. However, during most of the gravel extraction season that is authorized by this permit, seasonal crossings may be put in place as early as July 1 and remain in place as late as October 15. During any given season, four of the six gravel operations on the lower Eel and lower Van Duzen rivers are likely to have seasonal crossings over the main channel of the rivers, some with multiple crossings. The cumulative impacts on boaters having to stop and portage around the seasonal crossings of the various gravel operators on the lower Eel would be significant. Therefore, the Commission attaches Special Condition No. 2 which will ensure that any seasonal crossings 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 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 3-foot vertical clearance is maintained above the surface of the water so that canoes and kayaks are 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 and yellow billed cuckoo, the FWS proposes terms 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). These requirements have 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. Therefore, the Commission finds that the project, as proposed without new public access, is consistent with the public access policies of the Coastal Act.

L. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

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 Commission's administrative regulations 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). 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 Coastal Commission's review and analysis of CDP applications has been certified by the Secretary of Resources as being the functional equivalent of environmental review under CEQA. As a responsible agency, the Commission conducted its analysis of the potential impacts of the proposed development that the Commission is authorized by the Coastal Act to review. The Commission has reviewed the relevant coastal resource issues associated with the proposed project and has identified appropriate and necessary conditions to assure protection of coastal resources consistent with the requirements of the Coastal Act. The staff report discusses the relevant coastal resource issues with the proposed development. All public comments received to date have been addressed in the staff report, including staff's oral presentation and the findings adopted by the Commission. The Commission incorporates its findings on Coastal Act consistency at this point as if set forth in full. As conditioned, there are no additional feasible

alternatives or feasible mitigation measures available, beyond those required, which would substantially lessen any significant adverse environmental effect that approval of the proposed project, as modified, would have on the environment. Therefore, the Commission finds that the proposed repair and maintenance project can be found to be consistent with the Coastal Act and CEQA Section 21080.5(d)(2)(A).

APPENDIX A

SUBSTANTIVE FILE DOCUMENTS

Application File for Coastal Development Permit No. 1-15-0277

Final Program Environmental Impact Report (EIR) on Gravel Removal from the Lower Eel River, adopted 1992, and Supplemental EIR, certified July 24, 1992

Biological Assessment for Aggregate Extraction Operations in the Eel, South Fork Eel, Van Duzen, and Trinity Rivers, Humboldt County, California. Stillwater Sciences, February 2015

Lower Eel River Gravel Mining and Extraction Activities Biological Assessment (Western Snowy Plover and Yellow Billed Cuckoo), prepared by Gary S. Lester, LACO Associates February 28, 2015

Analysis of Eel River Cross Sections at Gravel Mining Sites, 1997-2007, prepared by County of Humboldt Extraction Review Team (CHERT), January 2009

Humboldt County certified Local Coastal Program.

APPENDIX B

GRAVEL EXTRACTION METHODS, TERMS AND LIMITATIONS DESCRIBED IN THE U.S. ARMY CORPS OF ENGINEERS LETTER OF PERMISSION PROCEDURE LOP 2015-1

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.

Gravel extraction terms and limitations set forth in proposed LOP 2015-1

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 an 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.

- 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.

APPENDIX C

Table 1. Summary of gravel operations in the coastal zone on the Lower Eel and Van Duzen Rivers.

Location (Bar and 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 1-97-068 1-04-022 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 1-96-062 1-00-055 1-04-024 1-09-014	25,000
Drake Bar (RM 9)	Mallard Pond Sand & Gravel; Drake Materials; Drake Sand & Gravel	1-94-079 1-01-046 1-02-162 1-04-046	250,000
Sandy Prairie Plant B (RM 10-11)	Mercer-Fraser; Canevari Timber Co.	1-94-006 1-94-006-A1 1-94-035 1-00-009 1-03-014 1-04-020	200,000
Sandy Prairie Plant A (RM 11-12	Mercer-Fraser	1-09-022 1-09-022-A1	70,000
Hansen Bar (RM 13.5)	Charles Hansen	1-97-017 1-02-023 1-03-030 1-09-011	50,000
Hauck Bar (RM 14)	Eureka Ready Mix (aka Eureka Sand & Gravel)	1-96-053 1-02-022 1-02-164	150,000

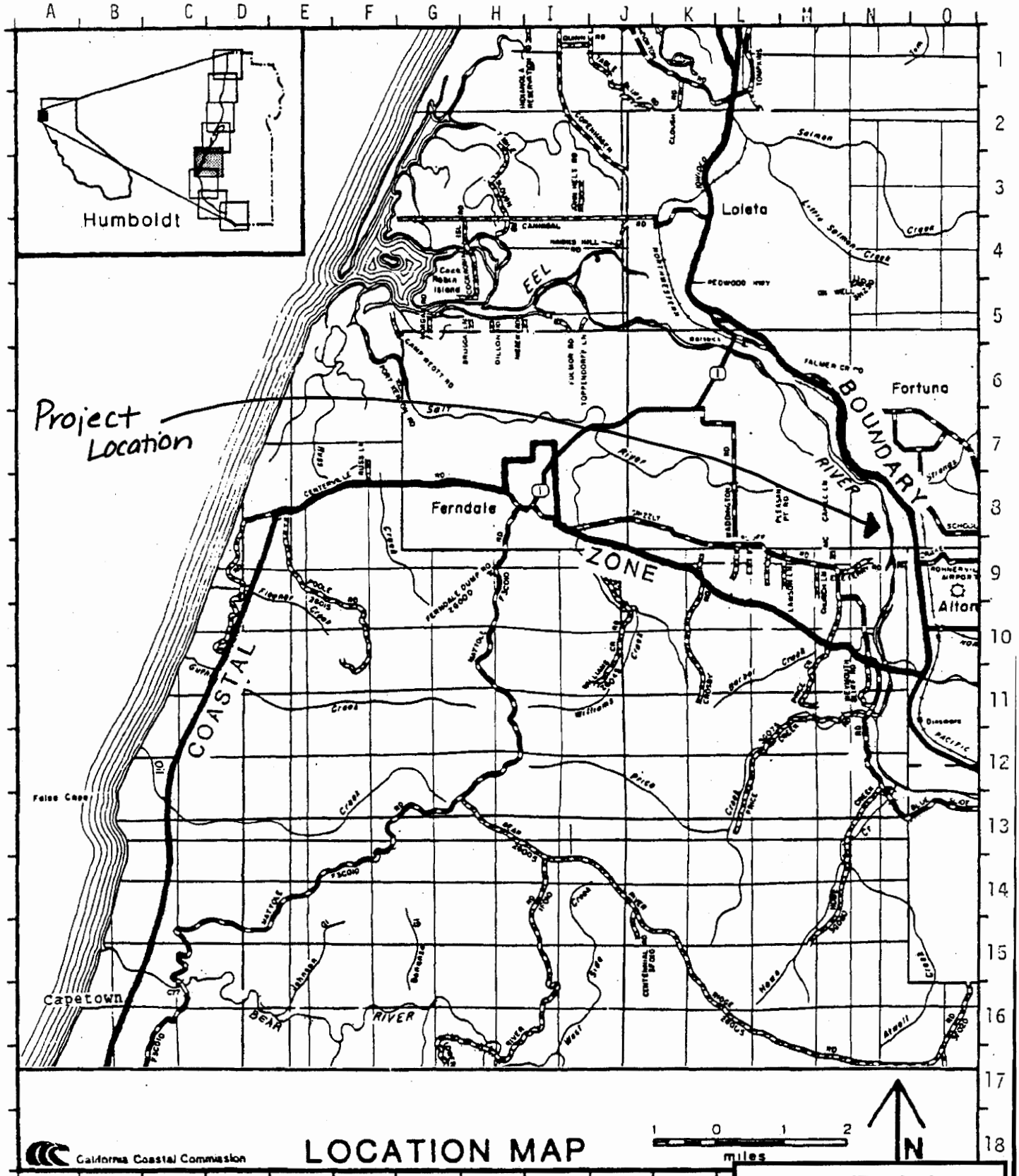
		1-04-011 1-06-006 1-09-006-A1	
Near the confluence of Van Duzen & Eel Rivers (up to Van Duzen RM 0.7)	Rock & Dwelley	1-96-068 1-02-006 1-03-048 1-04-045 1-09-021 1-09-021-A1	100,000

Table 2. Approved and extracted gravel mining volumes in the Lower Eel River (excluding Rock and Dwelley operation on the Lower Van Duzen River) since 1997 (CHERT 2014).

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
2008	237,955	215,760	91
2009	229,386	106,467	46
2010	208,286	188,730	91
2011	301,537	214,730	71
2012	226,520	188,994	83
2013	176,477	80,918	46
2014	127,671	97,232	76
Totals	**5,193,634**	**3,366,790**	**65**
Years	**18**	**18**	**--**
Averages	**288,535**	**187,044**	**65**

Table 3. 2004-2014 CHERT-approved versus actual extracted gravel volumes for the Eureka Ready Mix project site (CHERT 2014).

Year	Approved Volume (cubic yards)	Extracted Volume (cubic yards)	Percent
2004	91,815	44,585	49
2005	125,810	109,980	87
2006	169,755	153,025	90
2007	210,008	144,591	69
2008	167,645	126,498	75
2009	100,649	33,524	33
2010	141,162	137,382	89
2011	224,888	162,698	74
2012	207,682	167,966	81
2013	163,952	70,129	33
2014	92,915	66,266	61
Totals	**1,696,281**	**1,216,644**	**67**
Years	**11**	**11**	**--**
Averages	**154,207**	**110,604**	**67**



California Coastal Commission

LOCATION MAP

County of Humboldt

EXHIBIT NO. 1

APPLICATION NO.
1-15-0277
Mercer-Fraser Company
REGIONAL LOCATION MAP

HUMBOLDT COUNTY
GEOGRAPHIC INFORMATION SYSTEMS
ONLINE MAPPING

Humboldt County Web GIS Map

Prosperity!

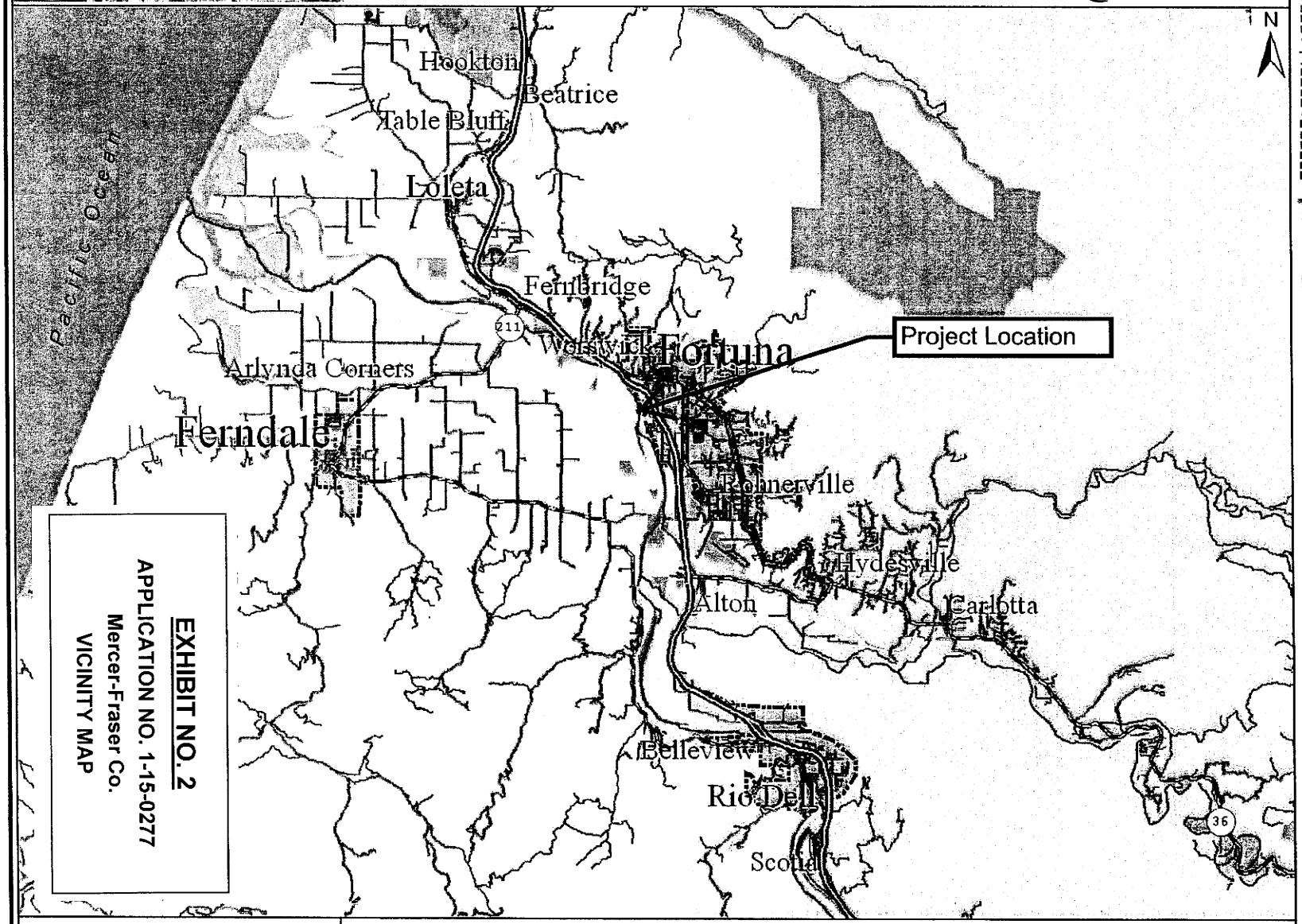


EXHIBIT NO. 2

APPLICATION NO. 1-15-0277

Mercer-Fraser Co.

VICINITY MAP

Freeance PDF Printing System
Humboldt County Web GIS
http://gis.co.humboldt.ca.us

Map Disclaimer: While every effort has been made to assure the accuracy of this information, it should be understood that it does not have the force and effect of law, rule, or regulation. Should any difference or error occur, the law will take precedence. Humboldt County assumes no liability or responsibility in the use, or misuse, of this data.

Legend

Land Use
- Parcels
- Zoning
- General Plan Land Use
- Williamson Act Preserves

100 YR
- SRA - State Responsibility Area
- LRA - Local Responsibility Area
- FRA - Federal Responsibility Area

Coastal Zone
- Coastal Zone Boundary

Jurisdiction
- State
- Appeal
- Local
- Inland

Categorical Exclusion
- AG - Agricultural
- LLA - Lot Line Adjustment
- LLA/AG
- SFD - Single Family Dwelling
- SFD/ LLA
- SFD/ LLA/AG
- Coastal Zone Access Points
- Coastal Zone Scenic Views
- Coastal Zone Scenic Areas

Natural Resources

Blue Line Streams
- Perennial Stream or River
- Intermittent Stream
- Subsurface
- Streamside Management Area
- Wetlands

Coastal Wetland Areas
- Agriculture Preserve (APS)
- Coastal Commercial Timberland
- Dredged Spoils Disposal Area
- Prime Habitat
- Dune Hollow (Wetland)
- Estuarine Subtidal Mud
- Estuary
- Farmed Wetland
- Natural Resource
- Potential Dune Hollow Restoration
- Public Land/Public Recreation
- Riparian
- Riparian Forest
- Sand Bar/Gravel Bar
- Transitional Agriculture Land
- Wetland
- Prime Agricultural Soils

Hazards

Fire Rating (County)
- Extreme
- High
- Moderate
- Low
- Nil

Fire Hazard Severity (SRA)
- Very High
- High
- Moderate

FEMA Flood Zones
- A - 100 Year
- B - 500 Year
- ANI; CE CITY; D
- Floodway

Seismic Safety

Slope Stability
- 3 - High Instability
- 2 - Moderate Instability
- 1 - Low Instability
- 0 - Relatively Stable

Slope (USGS/1 DAR)
- 15-20%
- 20 - 30%
- 30%
- Historic Landslides

Earthquake Faults
- Alquist Priolo Fault
- Alquist Priolo Zone

Jurisdictional Boundaries
- Incorporated City
- Fire Districts
- Supervisorial Districts
- School Districts
- Community Service Districts
- Election Precincts

General Map Themes
- Place Labels
- City Boundary

Highways and Roads

Functional Class
- Principal Arterials
- Minor Arterials
- Major Collectors
- Minor Collectors
- Local Roads
- Private or Unclassified

Public Lands
- Public Lands
- Native American Reservation

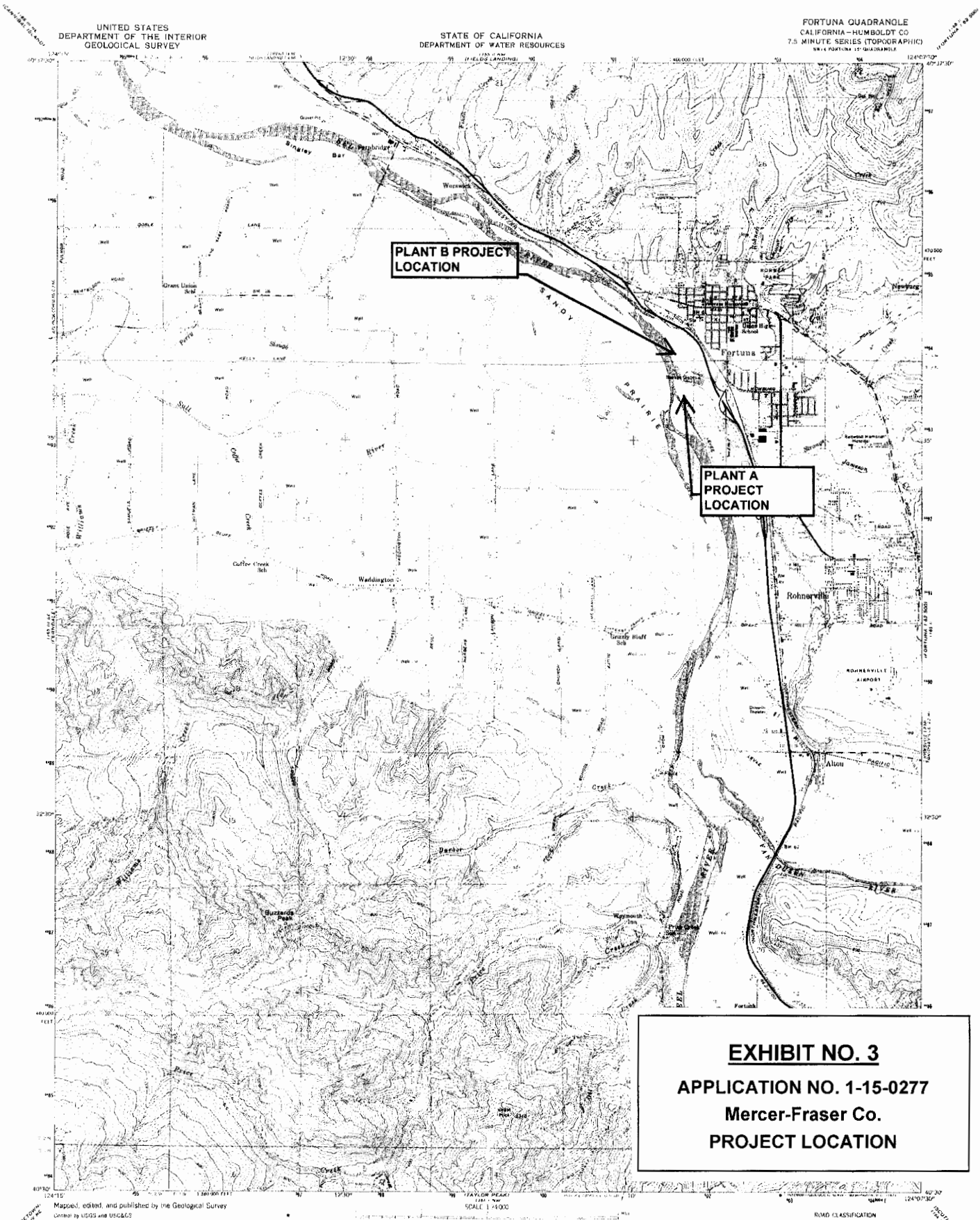


EXHIBIT NO. 3

APPLICATION NO. 1-15-0277

Mercer-Fraser Co.

PROJECT LOCATION

APPLICATION NO.: TBD (Previously 1-09-22-A1)

APPLICANT: MERCER, FRASER COMPANY

PROJECT LOCATION:

Plant A: At the upper (southern) end of the Sandy Prairie landform within the lower Eel River on the west side of 12th Street (Sandy Prairie), west of Fortuna, Humboldt County (APN's 106-041-15, -16; 200-352-02, 03; 200-361-02, -03; 200-362-11)

Plant B: At the middle of the Sandy Prairie landform within the lower Eel River, at the end of Dinsmore Drive, west of Fortuna, Humboldt County (APNs 106-041-02; 200-341-05,-08,-09,-10)

PROJECT DESCRIPTION:

Plant A: Seasonally extract up to 70,000 cubic yards of sand and gravel per year from river gravel bars and install up to two seasonal bridge crossings of the low water channel consisting of two flat cars each.

Plant B: Seasonally extract up to 200,000 cubic yards of sand and gravel per year from river gravel bars and install up to two seasonal bridge crossings of the low water channel consisting of two flat cars each.

LOCAL APPROVALS RECEIVED:

Plant A: Humboldt County Vested Rights Determination and Surface Mining/Reclamation Plan (SP-07-88), Program and Supplemental Environmental Impact Reports for Gravel Removal on the Lower Eel River (1992) and Interim Management Program and Adaptive Management Practices for Gravel Removal from the Lower Eel and Van Duzen Rivers (July 2,1996)

Plant B: Humboldt County Conditional Use Permit (CUP-13-008), Surface Mining and Reclamation Plan (SMP-13-001), Program and Supplemental Environmental Impact Reports for Gravel Removal on the Lower Eel River (1992) and Interim Management Program and Adaptive Management Practices for Gravel Removal from the Lower Eel and Van Duzen Rivers (July 2,1996)

OTHER APPROVALS REQUIRED:

A and B: State Lands Commission General Lease Renewal (permit pending); CA Dept. of Fish and Game Streambed Alteration Agreement 1600-2014-0066-R1; U.S. Army Corps of Engineers Section 404 Permit (LOP 2015-1, permit pending), Regional Water Quality Control Board 401 Certification 1B02100WNHU

SUBSTANTIVE FILE DOCUMENTS: Humboldt County LCP; Humboldt County PEIR (July 1992)

DATE: March 10, 2015

EXHIBIT NO. 4
APPLICATION NO. 1-15-0277
Mercer-Fraser Co.
PROJECT DESCRIPTION
1 of 13

PLANT A - GENERAL INFORMATION

1. Name of Mineral Property/Project Name

Pedrazzini Gravel Bar/Surface Mining Activity

2. Applicant

Mercer, Fraser Company
P.O. Box 1006
Eureka, CA 95502
(707) 443-6371

3. Property Owner(s)

Anna M. Genzoli Trust
c/o Corinna Pedrazzini
P.O. Box 123
Loleta, CA 95551

Corinna Pedrazini
720 D Capitola Ave.
Capitola, CA 95010

4. Agent of Process

Mercer, Fraser Company
P.O. Box 1006 Eureka, CA
95503 (707) 443-6371

5. Site Location

(W 1/4 Sec. 2 - Process site), SW % Sec. 2, N % Sec. 3, E 1/4 Sec. 4, T2N, R1W, H.B.M., on the Main Stem of the lower Eel River, River Mile 11-12, west of the City of Fortuna, Humboldt County. APNs 106-041-15-16; 200-352-02, 03; 200-361-02, 03; 200-362-11; 106-041-02; 200-341-05, 08, 09, 10.

6. Access Route

Access to the site is provided from 700 Riverwalk Drive just south of Strongs Creek Bridge.

7. Location and Vicinity Maps

See attached Project Vicinity Map (Figure 1), Project Location Map (Figure 2), Project Area/2014 Aerial Photograph (Figure 3).

PLANT B - GENERAL INFORMATION

1. Name of Mineral Property/Project Name

Canevari/Christen Gravel Bars/Surface Mining Activity

2. Applicant

Mercer, Fraser Company
P.O. Box1006 Eureka, CA
95503 (707) 443-6371

3. Property Owner(s)

Robert and Jennie Canevari
P.O. Box 686
Fortuna, CA 95540

Edward Christen
P.O. Box 411
Ferndale, CA 95536

4. Agent of Process

Mercer, Fraser Company
P.O. Box1006 Eureka, CA
95503 (707) 443-6371

5. Site Location

S ½ Sec. 34, E ½ Sec. 33, (SW¼ Sec, 35 - Process Site), T3N, R1W, H.B.M., on the Main Stem of the lower Eel River, River Mile 10-11, west of the City of Fortuna, Humboldt County. APNs 106-041-02; 200-341-05, -08, -09, -10

6. Access Route

Access to the site is provided at 200 Dinsmore Drive.

7. Location and Vicinity Maps

See attached Project Vicinity Map (Figure 1), Project Location Map (Figure 2), Project Area/2014 Aerial Photograph (Figure 3).

1. PROJECT AND SITE DESCRIPTION

a. Project Overview

The application proposal is for the continued extraction of aggregate (sand and gravel). Extracted aggregate will be stockpiled then removed. Material will be moved to existing process sites outside of Coastal Commission jurisdiction.

Mercer, Fraser has operated at the Plant A (previously Sandy Prairie) site for over 40 years and has a County approved vested right (1988) for annual extraction up to 70,000 cubic yards. In 1999, Mercer, Fraser leased the operations of the Plant B (previously Canevari) site, which has a County approved Use Permit for annual extraction of up to 200,000 cubic yards. This site has previously been operated by Canevari Timber Company since 1993. The operations have historically varied with market demands and river conditions. At present, monitoring information indicates that extraction at average historical levels is appropriate at this site and that such operations will not cause significant adverse environmental impacts, immediately or cumulatively. The proposal is to renew a coastal development permit and related approvals for the 70,000 cubic yards from Plant A and 200,000 cubic yards from Plant B. These amounts are consistent with the PEIR for the lower Eel River and are 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, as described in the Management Program below.

In any given year, project extraction volumes, locations, and methods will be submitted by the project consultants for approval by local, state and federal agencies, including the County of Humboldt, Dept. of Fish and Game, Coastal Commission and Army Corps of Engineers. This interagency process is more specifically described later in this report.

b. Project Description

The applicant proposes to continue the seasonal extraction of up to 70,000 cubic yards of aggregate from Plant A, and 200,000 cubic yards from Plant B, per year from the Sandy Prairie landform in a manner representing final reclamation and install seasonal crossings over low flow river channels to facilitate gravel transport.
Several areas are proposed for mining; however, activity has and will continue to occur primarily adjacent to the banks of the river in the Coastal Zone. The sites adjacent to the active channel of the river are subject to potentially frequent inundation resulting in annual replenishment. Areas adjacent to the active channel will continue to be mined using traditional and modified skimming techniques as the primary mode of extraction. Wet pit or trench mining may be an option but will be dependent on annual conditions and specific management purposes and subject to annual review and approval. Other locations include areas that are located west of the river on or adjacent to terraces. Some are partially outside of the Coastal Zone. These areas are subject to inundation only during high flows and floods and are expected to recruit gravel less frequently.

Most of the extraction area is currently west of the low flow channel of the Eel River. To allow access for extraction equipment and hauling trucks, the applicant proposes to install up to two seasonal crossings on the Plant A side and up to two on the Plant B side. Each crossing would consist of two railroad flatcars placed on abutments with a minimum clearance of three (3) feet above the water surface. Approximately 200 cubic yards of gravel would be scraped from adjoining areas to form the abutments for each of the crossings. The crossings will be removed at the end of each extraction season and the abutment material will be regraded to blend in with surrounding topography. Historically two crossings were required for the Plant A and one for Plant B; however more recently only one crossing has been installed for each of Plant A and B.

The extraction operations will be served by processing facilities located on Mercer Fraser Company's managed properties east of the riverbank. These processing facilities have existed since prior to 1959, are outside of the retained jurisdiction of the Coastal Commission and are subject to vested rights conditions, and City of Fortuna industrial zoning regulations. Under such approval, the processing/manufacturing will continue indefinitely and are designed as such under "subsequent use".

No mining in any given season will occur at any location until after preparation of a specific operating plan for mining and reclamation plan developed on the basis of annual environmental assessments and monitoring of the proposed project site and the entire Sandy Prairie landform. Annual assessments and site evaluation will be used to determine when aggregate can be extracted without causing long-term riverbed degradation. The proposed 70,000 cubic yards of annual gravel extraction from Plant A and 200,000 cubic yards from Plant B are upper limits. Annual monitoring and river conditions will determine the levels and volume of recruitment and identify areas of mining, as well as appropriate volumes.

The applicant will continue to develop cross-sectional data and other monitoring information based on field surveys in accordance with recently developed monitoring standards developed by Humboldt County, California Department of Fish and Game, National Marine Fisheries Service, U.S. Fish and Wildlife Service and U.S. Army Corps of Engineers. The extraction areas are located away from housing so that disruption to occupants will be kept to a minimum. The operating hours will be limited to daylight hours generally from 7:00 a.m. to 6:00 p.m., Monday through Friday. Occasionally Saturday extraction will occur contingent upon demand. The number of employees at the site will be limited to those necessary to operate machinery; generally three people to operate the scrapers or excavators, one person to operate the loader and a variable number (3-8) to operate dump trucks or off-road haulers. This may be increased at times of a reduced extraction season.

This project is an annual/ seasonal operation and will operate as set forth by permit provisions and governmental regulations. The operation will also be subject to seasonal flow conditions. There are no designated stockpiles of topsoil, overburden or waste involved in this project.

The specific mining proposals are as follows:

PLANT A (See attached 2014 mining plan)

PLANT B (See attached 2014 mining plan)

2. PROJECT MANAGEMENT PRINCIPLES AND PRACTICES

The following section describes the current ongoing management activity at the site

a. Management Summary

This adaptive management program, with its annual review, will regulate and monitor gravel extraction, gravel replenishment, and bed morphology to assure that a degree of dynamic equilibrium is maintained.

Extraction, as proposed herein, has been designed based on 2004-2014 conditions and monitoring information. High events, such as occurred in January and March of 1995, December of 1996, January 7,1997, December 31, 2005, December 2, 2012 and February 7, 2015 may alter specifics. Mining will follow the adaptive management strategies outlined below.

Extraction for a given season will occur after preparation of a specific operating plan for mining and reclamation developed on the basis of annual assessments and monitoring of the proposed project site. Annual assessments and site evaluation will be used to determine when, where and how aggregate can be excavated without causing long-term or cumulative riverbed degradation. The Army Corps of Engineers and the County of Humboldt have developed a monitoring and adaptive management program that includes reviews by a scientific team. This program, subject to annual revision, will continue to be followed.

The annual extraction of 70,000 cubic yards of gravel from Plant A and 200,000 cubic yards of gravel from Plant B are an upper limits. Monitoring and adaptive management strategies will determine the levels of annual replenishment and current bar configuration. Extraction plans will identify appropriate areas of mining, as well as appropriate volumes.

The applicant will continue to develop cross-sectional data and/or other monitoring information based on field surveys in accordance with accepted monitoring standards such as those developed in cooperation with Region 1 of the Department of Fish and Game, the Army Corps of Engineers, and the County of Humboldt. As information is analyzed these monitoring standards are subject to revision by resource agencies.

b. Extraction Standards

Since 1992 regulatory extraction standards have been modified on an almost annual basis, as techniques of monitoring and review are field tested and refined to suit site specific conditions on the local rivers. The extraction standards described below may, therefore, be modified during annual review processes if the operator, County, Department of Fish & Game and Army Corps of Engineers agree alternate standards will adequately protect river resource values.

The following standards have been incorporated into this Project's Proposed Mitigation Measures.

1. At the time of extraction, a vertical buffer (freeboard) of at least 1 foot will be maintained between the stream water surface and the extraction area.

2. The residual bar slope will:

    a. Generally follow the slope of the water level in an upstream and downstream

direction and maintain a vertical buffer of at least one foot; or

b. Generally follow the annual pre-extraction downriver bar slope; or

c. Slope towards the water with a grade of at least 0.5 percent.

3. Changes to the above may occur only after regulatory agency approval pursuant to the Army Corps annual approval process and the Dept. of Fish and Game Stream Alteration Agreement process.

c. Annual Bar Morphology Analysis

In 1992, seven monitoring cross-sections were established for Plant A. These were replaced in 1997. Ten new monitoring cross-sections were established for Plant A, encompassing potential extraction areas and beyond at approximately 500-foot intervals. When Mercer, Fraser Company leased operation of the Canevari site (Plant B), eight more cross sections were similarly established. They all occurred in a manner to be able to determine subsequent changes in bar and river configuration. When extraction is proposed to occur during the season the appropriate cross-sections will be re-measured and supplemented as necessary with additional cross-sections. After the extraction season, cross-sections will be used to monitor conformance to extraction prescriptions, volume extracted, and post-extraction bar configuration.

Data from monitoring cross-sections have been collected from 1992-2014. These cross-sections have been and will continue to be analyzed and utilized in developing annual extraction plans.

d. Management Principles and Practices

Dates of operation, elevation and slope limitations may change annually as approved by the County, the Department of Fish and Game or Army Corps of Engineers through extensions or modifications of operating conditions.

a. Extract adjacent to the live stream (or in existing secondary or overflow channels for an alternative source of material) by sloping away from the upriver end of the point bars (towards the downriver portions of the bars) while leaving the upriver ends at or near their present elevations.

b. Open small subsurface areas adjacent to the stream at the downriver ends of the point bars to enhance fishery values by creating a flowing, cooler rearing and holding area (thermal refuge) for smelts and adult salmonids. (This will only be proposed if recommended by a qualified fisheries biologist or agency personnel.)

c. Extract gravel in a manner that approximates a final reclamation configuration for the year.

d. Limit subsurface extraction below low water levels for specific management purposes described in, and supported by, annual assessments.

e. Design post-mining topography to be consistent and homogenous with the

upstream and downstream topography.

f. Potential Tools and Methodologies that will be periodically utilized to assist in Managing Aggregate Resources.

1. Annual reports of extraction/replenishment submitted to government agencies by operators and their consultants;

2. Annual record keeping and reporting of extraction volumes, finished site elevations and project area characteristics;

3. Periodic field inspections to identify fish and wildlife species presence/use at the sites;

4. Studies of fisheries resources and salmonid use of area;

5. Aerial photography, on-site photography and videotaping of site conditions;

6. Standardization of cross-section locations and methodologies;

7. Continuing compilation and analysis of historical and current data, particularly as a result of monitoring at the project site and in conjunction with information developed by others, including resource agencies;

8. Enhancement programs for the development of fishery and wildlife habitat, etc., to be implemented by the operator working in concert with agency personnel, river consultants and other professionals.

Standards and/or protocols for some of the physical and biological information listed above has been formalized and accepted by both Federal and State agencies. These will further define the monitoring/management that will occur at this site. Such standards, since they are subject to annual change, will become part of the project as required by the Army Corps "Letter of Permission" or the County Interim Monitoring Guidelines rather than incorporating them into the Project Description herein described.

3. SITE DESCRIPTION

a. Project Setting

The area that the applicant proposes to seasonally remove up to 270,000 cubic yards of river run sand and gravel per year and install seasonal crossings on the Eel River is located on a portion of the Sandy Prairie Landform within the lower Eel River, immediately west of Fortuna in Humboldt County. The site is just west of Highway 101 and is accessed via 700

Riverwalk Drive (formerly 12th Street) and 200 Dinsmore Drive.

The Sandy Prairie landform is a depositional feature with multiple channels at high flows, separated by islands. Sandy Prairie is located 1 -2 miles upstream of the zone of tidal influence and is also at a transition point in the river where the channel slope of the

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The Sandy Prairie landform is a depositional feature with multiple channels at high flows, separated by islands. Sandy Prairie is located 1 -2 miles upstream of the zone of tidal influence and is also at a transition point in the river where the channel slope of the

river decreases at a point just upstream of the project site. Large quantities of sand and gravel carried in suspension in the Eel River are annually deposited at the Sandy Prairie landform due to its proximity to the zone of tidal influence and the decrease in slope. The applicant's property includes the upper portion of the Sandy Prairie landform. This ongoing gravel extraction and processing operation has occurred at this location since prior to 1959.

On Plant A, the approximate 424-acre project area is part of a 609-acre property comprised of seven parcels (see Appendix B). On Plant B, the 311-acre project area is part of a 386-acre property consisting of five parcels (Appendix B). The extraction sites are on both sides of the Eel River within the confines of the Coastal Commission Retained Jurisdiction (CCRJ), which approximately follows the boundaries of the Ordinary High Water. Designated extraction areas include the active gravel bar, overflow channels and terrace deposits not exhibiting mature black cottonwood forests or developing riparian areas shows the various habitat types. Tables 1 and 2 summarize the acreages of Plant A and Plant B.

TABLE 1 PLANT A- DESCRIPTION OF APPROXIMATE PROJECT AREA (ACRES)

	Total in Property Boundaries	Total in Project Boundary (all w/in CCRJ)[1]	Other[2]
Processing Area	23	0	23
River	48	48	0
Exposed Cobble	212	208	4
N.C. Riparian Shrub	139	136	3
Cottonwood	56	32	24
River Terrace (west side)	106	0	106
Unmapped: Ag. Land/Outside Coastal Zone	25	0	25
Total	609 ac.	424 ac.	185ac.

[1] The project boundary has been defined as those areas within the project property boundaries that are also within the Coastal Commission Retained Jurisdiction (CCRJ), but excluding areas of cottonwood

vegetation on these boundaries.

[2] "Other" is not part of this project application. It includes areas that are outside the coastal zone, or outside the Coastal Commission Retained Jurisdiction or outside the defined project boundaries.

TABLE 2 PLANT B - DESCRIPTION OF APPROXIMATE PROJECT AREA (ACRES)

	Total in Property Boundaries	Total in Project Boundary (all w/in CCRJ)[1]	Other[2]
Processing Area	31	0	31
River	18	18	0
Exposed Cobble	185	185	0
N.C. Riparian Shrub	82	82	0
Cottonwood	41	26	15
Unmapped: Ag. Land/Outside Coastal Zone	29	0	29
Total	386 ac.	311 ac.	75 ac.

[1] The project boundary has been defined as those areas within the project property boundaries that are also within the Coastal Commission Retained Jurisdiction (CCRJ), but excluding areas of cottonwood vegetation on these boundaries.

[2] "Other" is not part of this project application. It includes areas that are outside the coastal zone, or outside the Coastal Commission Retained Jurisdiction or outside the defined project boundaries.

7.

The total project property area, including both Plant A and Plant B, occupies approximately 995 acres with 435 acres of Plant A property and 326 acres of Plant B (761 acres total) within the retained jurisdiction of the Coastal Commission. The project boundary has been defined as those areas within the property boundaries that are also within the Coastal Commission Retained Jurisdiction (CCRJ). Where cottonwoods were growing on the boundary of the CCRJ, they were excluded from the project boundaries. The total property area of Plant A is 609 acres with 424 acres within the project boundaries and 185 acres outside the project boundaries. The total area of Plant B is 386 acres with 311 acres within the project boundaries and 75 acres outside the project boundaries. The areas within the project boundaries will be subject to extraction activity depending on the location of the river and condition of the gravel bar each year.

Of the total 424 acres within the project boundaries of Plant A, 48 acres consist of the low-flow river channel, 208 acres are exposed cobble, subject to extraction, 136 acres are north coast riparian scrub habitat and 32 acres consist of an island terrace with cottonwood forest. Similarly, of the total 386 acres within the project boundaries of Plant B, 18 acres consist of the low-flow river channel, 185 acres are exposed cobble, subject to extraction, 82 acres are north coast riparian scrub habitat and 26 acres consist of small island terraces with cottonwood forest.

Approximately 23 acres of Plant A and 31 acres of Plant B located to the east of the project boundaries and outside the Coastal Zone, have been developed as aggregate processing facilities where processing activities, including stockpiling, aggregate crushing, washing, sorting, screening and asphalt and ready mix concrete production occur. There is some exposed cobble (2 acres) near the processing facility for Plant A that is outside the CCRJ, and project boundaries. The rest of the areas within the property boundaries around the processing sites were not mapped for habitat and are included in the "unmapped" category of Tables 1 and 2. There are also some unmapped agricultural lands on the east side of the project area, within the property boundaries that are also included under "unmapped." There are 24 acres of cottonwood forest on Plant A and 15 acres on Plant B, within both the CCRJ and property boundaries and adjacent to the project boundaries that were not included in the project boundaries because no cottonwood forests are disturbed by extraction activities. The remaining 106 acres of Plant A property outside the project boundaries consist of a river terrace covered with cottonwood riparian habitat.

The project site gravel bars are a depositional feature maintaining a bank-to-bank channel at flows exceeding +166,000 cfs and have existed somewhat similarly since prior to the 1940's, as documented in the earliest available historic aerial photos. Along this part of the river, the bed of the river at bankfull discharge (166,000 cfs) is approximately 1600 feet wide both upstream and downstream of the Sandy Prairie feature, increasing to almost 5000 feet wide at the primary extraction area. The low flow channel is approximately 50 to 300 feet wide during the dry season. Of the total 424 project acres on Plant A and 311 project acres on Plant B, approximately 208 acres of Plant A and 185 acres of Plant B may be used for gravel extraction based on the amount of exposed gravel bar existing with the river's current configuration. Based on current river configurations and recent extraction plans, approximately 100 acres on Plant A and 100 acres of Plant B may be disturbed annually. The exact location and area varies each year depending on annual river conditions.

The project areas are located almost completely below the bankfull discharge of the river. Reclamation strategy for the active gravel bar is to leave streamside extraction areas free of adverse depressions, fills and equipment. The proposed extraction is consistent with this strategy.

The surrounding properties to the west of the river are all devoted to agricultural grazing. U.S. Highway 101 lies adjacent to the subject property to the east, buffering the site from the developed portions of the City of Fortuna. The gravel extraction areas and

processing facilities are generally not visible from the highway due to the topography and roadside vegetation.

Biological studies have been performed and continue to produce an interactive and comprehensive baseline analysis of the habitat and wildlife in the area. This information is utilized to avoid project designs that would have an adverse impact on habitat and wildlife.

The applicant is applying for the renewal of Coastal Development permits from the Commission for ongoing gravel extraction and processing operations that have been occurring at these locations since prior to 1959 on Plant A and since at least 1993 on Plant B.

b. Environmental Setting

Sensitive Habitat:

Virtually the entire portion of the project area within the Coastal Zone is considered to be environmentally sensitive habitat. The sensitive habitat consists of several different kinds.

1) The riverine habitat of the river channels (48 acres on Plant A, 18 acres on Plant B) and the occasional ponds that form under summer low water conditions provide habitat for invertebrates, fish, amphibians such as frogs and salamanders, invertebrate-eating birds and various mammals including river otters and mink and other mammals that come to the river to forage (such as deer and raccoon).

2) The exposed cobble (208 acres on Plant A, 185 acres on Plant B) in the gravel bars adjacent to the low-flow channels provides roosting habitats for two avian species, killdeer and Western Snowy Plover, but otherwise represents one of the sparsest habitats in terms of wildlife diversity and numbers.

3) North Coast riparian scrub habitat occurs on "islands" between the low flow channels and is the most extensive plant community at the project site occupying a total of approximately 136 acres of Plant A and 82 acres of Plant B. Portions of this habitat are inundated every winter during high river flows. The vegetation growing within the North Coast riparian scrub habitat is dominated by coyote brush, which forms a dense shrub layer in some areas. The understory is comprised of weedy annual grasses and forbs. Only a sparse covering of small trees is found in the north coast riparian scrub communities (5%-25%), including black cottonwood and willows. The North Coast riparian scrub habitat of the Sandy Prairie Bar supports a variety of wildlife species, including a number of small mammals such as raccoon, striped skunk, gray fox, rodents and rabbits, and many bird species that use the habitat for foraging, nesting and cover.

Technical Memorandum

Geomorphic Impacts of Proposed Project. CDP Sandy Prairie
5/4/15

The most recent geomorphic analysis prepared by CHERT was performed in 2009 (see attached). The analysis was done comparing cross section data on five year intervals beginning in 1997, ending in 2007. A substitute year was used in the analysis for the Mercer-Fraser Sandy Prairie site so that analysis began in 1998. For the cross sections analyzed the report concludes that there are no large scale persistent effects of Eel River gravel mining on channel thalweg elevations, mean bed elevations or scour.

Referencing cross sections analyzed in the 2009 report 1, 7 and 11 vs data collected in the spring and fall of 2012, the trends and conclusions in the 2009 report stand. XS 7 shows a deepening of the thalweg of 5ft and little change to the MBE. XS 11 shows little change to the thalweg with the MBE having dropped at this section. Absent any significant storm events in the period being analyzed these results are to be expected and both show potential localized effects of mining at these sites but no long term degradation of the reach. The 2009 report conclusion that gravel mining effects are limited to localized short term effects that are mitigated or avoided thru the adaptive management program and federal and state oversight is correct. Cross sections from 2007 and 2012 are enclosed for review.

cc. file

attachments

EXHIBIT NO. 5
APPLICATION NO. 1-15-0277
Mercer-Fraser Co.
GEOMORPHIC IMPACTS