

PLAN OF OPERATION
(California Mine ID #91-12-0060)

General Information

Project: Charles Bar/Larabee Creek
Renewal of Permit #CUP-23-92/SMP-03-92 (Attachment 1)

Applicant: Humboldt County Public Works Department
1106 Second Street
Eureka, CA 95501

Parcel: Assessor Parcel #217-053-04 (33 acres)
Assessor Parcel #217-053-05 (190 acres) (Attachment 2)

Property Owner: Charles Mountain Ranch (Attachment 3)
29415 Alderpoint Road
Blocksburg, CA 95514

Volume: Permitted: 25,000 cubic yards every 3-5 years
Proposed: 25,000 cubic yards as frequently as annually

Acres: Permitted: Unknown
Proposed: 18 acres

Introduction

The project is extraction of gravel from the gravel bar for use in county road maintenance activities in the region. This permit renewal application proposes extraction of up to 25,000 cubic yards (cy) of gravel, as frequently as annually, for a period of 15 years.

Location

The Charles gravel bar on Larabee Creek (stream mile 19-20) is located 5.5 miles north of Blocksburg, and 14.6 miles south of Bridgeville (Attachment 4). Access to the bar is off Alderpoint Road. It is in Section 36, Township 1 South, Range 4 East, HB&M and can be seen on the Blocksburg 7.5' USGS quadrangle map (Attachment 5). The area to be mined is on Assessor's Parcel Numbers 217-053-04 and 05.

Past Mining Activities

A surface mining permit was issued by the Humboldt County Planning Commission on July 22, 1993 (Permit #CUP23-92/SMP03-92) for the extraction of 25,000 cubic yards (cy) of gravel from the bar every 3-5 years for 15 years.

HCPW has performed four extractions at the site since issuance of the surface mining permit (total 39,945 cy). The most recent completed extraction was in 2005, for a total of 9,539 cy of gravel. The extraction method was a dry trench consisting of a series of

pools and riffles as suggested by National Marine Fisheries Service (NMFS) staff. Permanent monitoring cross sections were established on the bar in 1996 (Attachment 6). These cross sections were surveyed annually from 1997 to 2003. In 2004 surveying frequency decreased to any year in which an extraction is performed, as required by the Corps of Engineers individual permit issued that year.

HCPW is currently performing another trench extraction on the Charles Bar. Work started on July 7, 2008 and completion is anticipated by August 31, 2008. This extraction consists of excavation of a 1,150 foot (ft) long x 6 ft deep x up to 100 ft wide trench with a 3 ft deep low flow channel in the trench floor. Total volume to be extracted is ~25,000 cy. A portable crusher assembly is set up on the bar and will crush gravel for stockpiling in the previously established stockpile location at the intersection of Alderpoint Road and the gravel bar access road, and a second location north of the gravel bar along an existing private ranch road.

Proposed Mining Activities

HCPW proposes to extract up to 25,000 cy of gravel, as frequently as annually, for a period of 15 years. This increase in extraction frequency is supported by the large volume of gravel currently at the site, and continuous gravel recruitment from two tributaries to Larabee Creek. See attached Site Plan (Attachment 7) for site layout, and Photographs (Attachment 8) for views of the site.

Extraction Activities

Pre-Extraction Design

Dry trenching is the extraction method used for this site, based on extraction history and NMFS recommendations. The volume, configuration, and location of the trench will be determined using the recommendations made by the County of Humboldt Extraction Review Team (CHERT) and the capabilities of the equipment used.

In the spring, CHERT will visit the site with HCPW staff to evaluate the best location for an extraction, volume to be extracted, trench configuration, and dimensions. Following the CHERT site visit, a pre-extraction report will be prepared for CHERT and other participating regulatory agencies. New pre-extraction cross sections, and the pre-established monitoring cross sections will be surveyed and super-imposed on a recent aerial photograph of the site. The monitoring cross section survey results will be compared with survey results from the last extraction. A discussion of the proposed extraction methodology will also be included in the report, along with a work plan for the proposed action.

Upon approval of the pre-extraction report, and prior to extraction, survey cut stakes will be set throughout the extraction area to guide equipment and set boundaries for the operation.

General Extraction Details

Extractions will be done in summer when the bar is dry and will take 4-6 weeks to complete. Work will be done by heavy equipment consisting of a bulldozer or excavator, front-end loader, haul truck, and dump trucks. Trench excavation will typically start near the downstream end of the designed trench and proceed upstream. A bulldozer/excavator will excavate the trench and a front-end loader will transport

excavated gravel to the crusher. Crushed gravel will be transported via dump trucks to the designated permanent stockpile areas.

Access, Stockpiling, and Crushing

Access

Access to the gravel bar from Alderpoint Road will be the existing private road through the ranch property to the bar, which is fully developed.

Haul Road

The haul road consists of the established access road from Alderpoint Road to the gravel bar, and a temporary haul road on the bar. The haul road on the bar will run from the bar access point along the extraction area upstream and downstream, and will be the most direct route from the crusher to the location of extraction activities. Haul road construction will consist of minor grading of the bar where necessary to accommodate the equipment and off-road haul truck. The haul road will be watered periodically to minimize dust.

Crushing

Gravel crushing will typically be done on the bar. A portable crusher assembly will be set up on the bar, usually south of the proposed trench alignment, and immediately downstream of the bar access point. The crusher assembly consists of jaw and cone crushers, conveyors, and a generator trailer (Attachment 9). Crushing will take place concurrently with trench excavation. A haul truck will transport gravel to the crusher from the point of extraction. Gravel will be temporarily stockpiled at the crusher. A front-end loader will transport the gravel from the temporary piles to the crusher, and load crushed gravel into dump trucks for transport to permanent stockpiles.

Stockpiling

The existing stockpile area located at the intersection of the bar access road and Alderpoint Road will be used to permanently stockpile crushed gravel. A second stockpile area is proposed for a location north of the bar, near the ranch road that runs along the bar. This stockpile area will be along the road, at least 150 ft away from any areas of established riparian vegetation. The established stockpile area adjacent to the bar access point will be phased out for permanent gravel storage, although gravel may be temporarily stockpiled in this area.

Reclamation

Post –Extraction Reclamation

Once each extraction and associated crushing activities are complete, the following reclamation activities will commence:

Any incidental holes or depressions created during extraction activities will be graded smooth.

The crusher will be disassembled and removed from the site. The crusher site will be scarified to reduce compaction.

Post-extraction cross sections will be surveyed and a post-extraction report filed with CHERT and regulatory agencies.

Interim Management During Idle Periods

There is an Interim Management Plan (IMP) (Attachment 10) in place for the Charles Bar, and interim measures from the plan will be implemented every time the site goes

idle. These measures include regular site inspections and maintaining limited access to the bar.

Final Reclamation

An updated reclamation for the Charles Bar is being submitted for approval with the permit renewal application (Attachment 11). Reclamation of the gravel bar will be ongoing, completed after each extraction. Other final reclamation activities will consist of removing any remaining stockpiles from the stockpile sites.

Financial Assurances

Financial Assurances are summarized below. The Financial Assurances were recalculated when the Reclamation Plan was updated to reflect the change in extraction method in 2004. These assurances were updated and approved by the Planning Division on February 2, 2008, and by the Humboldt County Board of Supervisors on June 10, 2008 (Attachment 12). While the Reclamation Plan is being updated again (to reflect changes in the area and frequency of extractions), the actual reclamation activities have not changed because final reclamation is completed after each individual extraction is completed. Therefore, the Financial Assurances as approved by the Planning Division and Board of Supervisors reflect the reclamation activities stated in the most recent proposed Reclamation Plan and have not been recalculated.

ACTIVITY	COST (\$)
Direct Costs	
Primary Reclamation Activities (grading bar, maintaining stockpiles)	1,743.60
Equipment Removal Costs (dismantle crusher)	3,341.90
Monitoring Costs (surveyed cross sections, 1 year)	581.20
Indirect Costs	
Contingencies (10%), Etc.	1,598.31
Total Estimated Cost	\$7,265.01

SURFACE MINING RECLAMATION PLAN
(AMENDED September 15, 2008)
Charles Bar/Larabee Creek
APN 217-053-04, 217-0053-05

Operator

Humboldt County Public Works Department
1106 Second Street
Eureka, CA 95501
707-445-7741

Owners/Surface Rights

Charles Mountain Ranch
29415 Alderpoint Road
Blockburg, CA 95514

General Mining Operation Information

Mined Mineral Commodity

Gravel

Estimated Annual Production

Up to 25,000 cubic yards annually

Estimated Total Production

375,000 cubic yards

Total Acres to be Disturbed

Total 18 acres. Individual extractions will be ~3 acres in size.

Total Acres to be Reclaimed

18 acres

Maximum Anticipated Depth of Mining

Up to 10 feet

Date of Start Up

July 22, 1993

Estimated Date of Closure

July 22, 2023 unless this permit is renewed.

Location

(2008) The Charles gravel bar on Larabee Creek (stream mile 19-20) is located 5.5 miles north of Blocksburg, and 14.6 miles south of Bridgeville. Access to the bar is off Alderpoint Road. It is in Section 36, Township 1 South, Range 4 East, HB&M and can be seen on the Blocksburg 7.5' USGS quadrangle map. The area to be mined is on Assessor's Parcel Numbers 217-053-04 and 05 (see Exhibit 1, Figures 1, 2, & 4).

Site Description

Larabee Creek is tributary to the Eel River. It is 23 miles long, originating in Section 20, Township 2 South, Range 5 East. Its confluence with the Eel River is in Section 3, Township 1 South, Range 2 East, approximately four miles downstream of the confluence of the Middle and South Forks of the Eel River.

The project area, referred to as the Charles bar, is a gravel filled valley which was created by the introduction of massive sediment loads from the tributary watersheds of Thurman, Boulder Flat, and Hayfield Creeks. The length of the bar is about 2,500 feet; width is up to 600 ft. It has been estimated that up to 1,000,000 cubic yards of gravel are stored at this site (Berg et. al. 2002). There are no alternating or discrete gravel bars at this location. The Larabee Creek channel is poorly confined and braided in this area (See Exhibit 2, Photographs). During the summer months, the flow goes completely subsurface to a depth of up to 16 feet [Humboldt County Department of Public Works (HCPW) 1993].

~~There is a permanent stockpile site adjacent to the gravel bar access road approximately 50 feet south of the streambank, and a second, upland stockpile site adjacent to Alderpoint Road. There is a stockpile area located at the intersection of the bar access road (ranch road) and Alderpoint Road that is used to permanently store crushed gravel. A second stockpile area is located north of the bar, near an existing ranch road that runs along the bar at least 150 ft away from the streambank.~~

Description of Environmental Setting

Geology/Soils

The Charles bar consists of rock and colluvial land, which is basically riverwash material of sedimentary origin (California Forest and Range Experiment Station 1955). The predominant geologic formation of the region is the Franciscan formation, which consists of massive graywacke and minor amounts of platy, dark-gray shale, thin bedded chert, greenstone where undifferentiated, and glaucophane schist (Strand 1962). The Humboldt County Seismic Safety Map, Plate I identifies the area as Zone E: bedrock. Characteristics of earthquake shaking consist of higher accelerations but of relatively short periods, shorter duration or shaking (Humboldt County Planning Division 1979). While the area surrounding the gravel bar has high slope instability, the bar itself has low slope instability (Humboldt County Planning Division 2008). The nearest earthquake fault is the potentially active Freshwater Fault, located approximately four miles west of the gravel bar. The Falor-Korbel Fault Zone, which is an active fault, is located about seven miles northeast of the bar.

There is no soil on the gravel bar, which is made up of fine to coarse gravel and cobble. Soils in the vicinity of the bar are primarily of the Josephine series. Josephine soils are 30-60 inches deep, slightly to moderately acidic loam to clay loam soils. These soils have high to very high timber production value, and moderate range production value. In fact, portions of the ranch land surrounding the bar are under Williamson Act protection as agricultural preserve (Humboldt County Planning Division 2008). However, work is confined to the gravel bar, existing access roads and stockpile sites, and an adjacent parcel not under Williamson Act.

Vegetation

There are no federally listed threatened or endangered plants in the Blocksburg 7.5' USGS quadrangle (USFWS 2008). The California Natural Diversity Database (CNDDB) contains records for one rare or sensitive plant species in the area covered by the Blocksburg USGS 7.5' quadrangle: Howell's montia (*Montia howellii*). Howell's montia is ranked List 2.2 by the California Native Plant Society (fairly threatened in California, common elsewhere). It can be found in meadows, North Coast coniferous forest, vernal pools, and vernal wet sites. The gravel bar does not contain habitat for Howell's montia and it is not likely to be found there.

Wildlife

The following species of wildlife are listed by the US Fish & Wildlife Service (USFWS) as threatened or are candidates for listing for the Blocksburg 7.5' USGS quadrangle as of July 2008.

USFWS Species List for Blocksburg Quadrangle

SCIENTIFIC NAME	COMMON NAME	STATUS	CRITICAL HABITAT
Fish			
<i>Oncorhynchus kisutch</i>	S. OR/N. CA coho salmon	Threatened (1997)	Yes (1999)
<i>Oncorhynchus mykiss</i>	Northern California steelhead	Threatened (2000)	Yes (2005)
<i>Oncorhynchus tshawytscha</i>	CA coastal chinook salmon	Threatened (1999)	Yes (2005)
Birds			
<i>Brachyramphus marmoratus</i>	marbled murrelet	Threatened (1992)	Yes (1996) Revision Proposed (2006)
<i>Coccyzus americanus</i>	western yellow-billed cuckoo	Candidate	No
<i>Strix occidentalis caurina</i>	northern spotted owl	Threatened (1990)	Yes (1992)
Mammals			
<i>Martes pennanti</i>	fisher, West Coast DPS	Candidate	No

Chinook Salmon/Steelhead Trout – Chinook salmon and steelhead trout are known to inhabit Larabee Creek (Coho salmon are only found in the lowest reaches of the stream). Chinook have been observed in Larabee Creek as far upstream as Smith Creek (stream mile 6). Above Smith Creek is a one-mile long gorge which is believed to be a barrier to chinook passage, and chinook are unlikely to be found in the vicinity of the Charles Bar (Berg 2000). Steelhead can pass the barrier and are known to inhabit Larabee Creek both upstream and downstream of the gravel bar.

Habitat typing of the Charles bar by Jensen (2000) describes the area as a large aggraded gravel/cobble expanse with no surface flows (Berg 2002). California Department of Fish & Game (CDFG) stream survey in 1988 typed the Charles bar reach

as C1 and D2 (Rosgen system): aggraded and sand/silt with low gradient and low to moderate manipulation potential (Preston 1988). There is riparian vegetation along portions of the stream banks at this location, however little vegetation exists on the bar that could provide shade to low flow channels. Because of the severe aggradation and low gradient, stream flow goes subsurface during the summer months, producing a complete barrier to fish passage, ~2,500 ft in length.

Northern Spotted Owl – The project area does not contain habitat for northern spotted owls. However, northern spotted owls are known to inhabit the project vicinity. The CNDDDB Biogeographic Information System (BIOS) contains three records of northern spotted owl occurrences within three miles of the project area.

Marbled Murrelet – The project does not contain habitat for marbled murrelets. As of July 1008, CNDDDB BIOS does not contain any recorded occurrences of murrelets in the project vicinity. However, designated critical habitat for marbled murrelet can be found 2.3 miles southwest (374 acres) of the bar, and potential habitat may be found west of Alderpoint Road.

Western Yellow-Billed Cuckoo – The extraction area does not contain habitat for western yellow-billed cuckoos. However, there is habitat for cuckoos in the vicinity of the bar.

West Coast DPS Fisher – The extraction area does not contain habitat for fishers. However, there is habitat for fishers in the vicinity of the bar.

Review of occurrences of rare and sensitive wildlife species recorded in CNDDDB (July 2008) for the Blocksburg 7.5' USGS quadrangle revealed one species of bird, osprey (*Pandion haliaetus*), for which there is no habitat and no recorded occurrences in the project area or vicinity

Hydrology/Water Quality

The Lower Eel River and tributaries (including Larabee Creek) were listed on the California Clean Water Act Section 303(d) list in 1992 due to elevated sediment and temperature. In December 2007 the Total Maximum Daily Loads (TMDL) for Temperature and Sediment for the Lower Eel River were approved.

Temperature monitoring in Larabee Creek just below the Charles Bar for the Lower Eel River TMDL found water in the range of 17°C to 19°C (USEPA 2007). Temperatures in Hayfield and Thurman/Boulder Flat Creeks (at the confluence with Larabee Creek) were measured in mid-July at 25.6°C and 30°C, respectively (Preston 1988). Temperatures greater than 19°C are considered unsuitable for steelhead.

Larabee Creek at the Charles Bar is heavily aggraded due to mass wasting of unstable slopes in the Thurman and Boulder Flat Creek watersheds, which has occurred since at least 1969 (Berg 2002). Gravel volume estimates, based on monitoring cross section surveys from 1997 to 2008 show that even with intermittent extractions of gravel, the amount of gravel on the bar has remained about the same.

Description of Proposed Action

Gravel extraction on the Charles Bar requires permit coverage from a number of environmental regulatory agencies. All proposed actions will conform to and comply with the requirements and conditions of all issued permits.

Pre-Extraction Design

Dry trenching is the extraction method used for this site, based on extraction history and National Marine Fisheries Service (NMFS) recommendations (See Exhibit 1, Figure 3). The volume, configuration, and location of the trench will be determined using the recommendations made by the County of Humboldt Extraction Review Team (CHERT) and the capabilities of the equipment used.

In the spring, CHERT will visit the site with HCPW staff to evaluate the best location for an extraction, volume to be extracted, trench configuration, and dimensions. Following the CHERT site visit, a pre-extraction report will be prepared for CHERT and other participating regulatory agencies. New pre-extraction cross sections, and the pre-established monitoring cross sections will be surveyed and super-imposed on a recent aerial photograph of the site. The monitoring cross section survey results will be compared with survey results from the last extraction. A discussion of the proposed extraction methodology will also be included in the report, along with a work plan for the proposed action.

Upon approval of the pre-extraction report, and prior to extraction, survey cut stakes will be set throughout the extraction area to guide equipment and set boundaries for the operation.

General Extraction Details

Extractions will be done in summer when the bar is dry and will take 4-6 weeks to complete. Work will be done by heavy equipment consisting of a bulldozer or excavator, front-end loader, haul truck, and dump trucks. Trench excavation will typically start near the downstream end of the designed trench and proceed upstream. A bulldozer/excavator will excavate the trench and a front-end loader will transport excavated gravel to the crusher. Crushed gravel will be transported via dump trucks to the designated permanent stockpile areas.

Access

Access to the gravel bar from Alderpoint Road will be the existing private road through the ranch property to the bar, which is fully developed.

Haul Road

The haul road consists of the established access road (ranch road) from Alderpoint Road to the gravel bar, ~~and~~ a temporary haul road on the bar, and an existing ranch road that runs north of the bar. The haul road on the bar will run from the bar access point along the extraction area upstream and downstream, and will be the most direct route from the crusher to the location of extraction activities. To access the stockpile area north of the bar, the existing ranch road which leads to the stockpile area will be used as a haul road. Haul road construction will consist of minor grading of the bar where necessary to accommodate the equipment and off-road haul truck. The haul road will be watered periodically to minimize dust.

Crushing

Gravel crushing will typically be done on the bar. A portable crusher assembly will be set up on the bar, usually south of the proposed trench alignment, and immediately downstream of the bar access point. The crusher assembly consists of jaw and cone crushers, conveyors, and a generator trailer (see Exhibit 1, Figure 4). Crushing will take place concurrently with trench excavation. A haul truck will transport gravel to the crusher from the point of extraction. Gravel will be temporarily stockpiled at the crusher. A front-end loader will transport the gravel from the temporary piles to the crusher, and load crushed gravel into dump trucks for transport to permanent stockpiles.

Stockpiling

The existing stockpile area located at the intersection of the bar access road and Alderpoint Road will be used to permanently stockpile crushed gravel, as well as. ~~A a second stockpile area is proposed for a location north of the bar, near the ranch road that runs along the bar. This stockpile area will be along the road, at least 150 ft away from any areas of established riparian vegetation. The established stockpile area adjacent to the bar access point will be phased out for permanent gravel storage, although gravel may be temporarily stockpiled in this area.~~

Interim Activities

After each extraction is completed, before winter rains, the bar is reclaimed, the stockpile sites are winterized, and all equipment, including the crusher assembly is removed.

Following surveying of post-extraction cross sections, the area around the extraction is graded to fill in depressions. Equipment and temporary stockpiles are removed from the bar, ~~and the haul roads are scarified to reduce compaction, unless other~~ recommendations are made by CHERT and regulatory agencies.

The stockpile sites are surrounding with berms of rock material or hay bales and filter fabric to contain fine material mobilized by storm water runoff.

An Interim Management Plan will be filed in accordance with SMARA (See Exhibit 3, Interim Management Plan).

Financial Assurances

See Exhibit 4 for financial assurances.

Reclamation Activities

Post-Extraction Reclamation Activities

Reclamation on the gravel bar is ongoing and is completed at the end of each extraction event. Reclamation activities consist of the following:

1. Any incidental holes or depressions created during extraction activities will be graded smooth.
2. The crusher will be disassembled and removed from the site. The crusher site will be scarified to reduce compaction.
3. Post extraction cross sections will be surveyed and a post-extraction report filed with CHERT and regulatory agencies.

Final Reclamation Activities

Final reclamation activities will commence when mining on the Charles Bar by HCPW under this Reclamation Plan has ceased. Final reclamation will consist of the following activities (additional to post-extraction reclamation):

1. Haul Roads – Haul roads on the gravel bar used exclusively for mining will be decommissioned by scarifying to eliminate compaction, unless the property owner directs otherwise. Haul roads that serve as pre-existing ranch roads will be improved or graded for continued post-mining use as ranch roads, unless the property owner directs otherwise.
2. Stockpile Areas – The stockpile area north of the gravel bar will be reclaimed by removing remaining stockpiled gravel, scarifying the area, resoiling with imported topsoil if necessary, seeding with native pasture grasses, and mulching with weed-free straw. If the property owner indicates he intends to stockpile his own gravel at this site for ranch road maintenance, this stockpile area may be left unreclaimed. In this case, the area will be bermed on the south side to ensure no sediment from stockpiles will migrate to the stream. The berm will be seeded with native grasses and mulched with weed-free straw. The stockpile area at the intersection of Alderpoint Road and the gravel bar access road, while receiving crushed gravel from the Charles Bar is a long established permanent stockpile area, independent from the mining operation. No final reclamation is proposed for this facility.
3. Equipment Storage Area – The equipment storage area near the entrance to the gravel bar, while used as a storage and staging area during gravel extraction activities, is used year-round by the property owner for storage of ranch-related equipment and materials, as well as ranch maintenance activities. It will continue to be used by the property owner after gravel mining under this permit/Reclamation Plan has ceased. No final reclamation of this area is proposed.

Post Reclamation Land Use

Parcel #217-053-04 is zoned Agriculture Exclusive, with a Humboldt County General Plan land use designation of Agriculture, Grazing; Framework Plan. Parcel #217-053-05 is zoned Agriculture Exclusive, Timber Production Zone, with a land use designation of Timberland, Agriculture, Grazing (Humboldt County Planning Division 1984). The extraction area is gravel bar below ordinary high water, and naturally contains no vegetation appropriate for grazing or timber production. There will be no activity on the portions of the parcels appropriate for grazing or timber production.

Time Schedule

Reclamation is completed immediately after each extraction and associated post-extraction surveying, and before winter rains begin. Final reclamation will be completed immediately after the final extraction and associated surveying. Reclamation after each extraction (and final reclamation) takes approximately 1-2 days to complete.

Topography

The gravel bar in the area of the extraction will be graded smooth, removing any depressions outside the finished trench.

Resoiling

The site does not contain topsoil. Resoiling of the site is not a part of the reclamation activities.

Revegetation

There is no vegetation in the extraction area. Revegetation is not a part of the reclamation activities.

Impact of Reclamation on Future Mining in Area

Reclamation of the gravel bar will not affect the possibility of future mining at this site. Continued erosion upstream of the Charles Bar will continue to contribute gravel material to the site.

Impact of Reclamation on Public Health and Safety

The final topography of the site once reclamation is completed will not pose a hazard to the public. All equipment including the crusher assembly will be removed from the site. Any contaminated material will have been removed, therefore there will be no risk of exposure to hazardous materials. The site is privately owned. The access road to the site will be gated to restrict public access.

Reclamation Performance Standards

Wildlife Habitat: Objective – Improvement of habitat for anadromous fish. Extractions will be designed, with the assistance of CHERT and NMFS, to improve fish passage habitat through the use of strategically placed and designed trenches. Gravel bar grading after extraction will eliminate depressions that could result in fish stranding.

Backfilling, Regrading, Slope Stability, and Recontouring: Objective – Reduce possibility of fish stranding. The bar area around the trench will be regraded to remove depressions.

Revegetation: Objective – Re-establish vegetation consistent with seasonally inundated gravel bar. There is little to no vegetation on this gravel bar. The bar will be allowed to revegetate naturally.

Drainage, Diversion Structures, Waterways, and Erosion Control: Objective – Re-establish natural waterway of Larabee Creek, protect creek from fine sediment input due to extraction activities. Extraction activities will be completed before the site is inundated by winter high flows. Reclamation after each extraction will remove depressions from around trench excavation.

Prime Agricultural Land: Objective – No loss of prime agricultural land. The gravel bar does not constitute prime agricultural land.

Other Agricultural Land: Objective – No loss of other agricultural land. The gravel bar does not constitute other agricultural land.

Building, Structure, and Equipment Removal: Objective – Remove all structures and equipment associated with the mining and reclamation operation. All equipment used in the mining and reclamation of the gravel bar, including the crusher assembly will be removed from the site when reclamation is completed.

Stream Protection: Objective – Return stream to natural condition. After extractions, the bar will be graded smooth, removing depressions.

Topsoil Salvage, Maintenance and Redistribution: Objective – Resoil extraction area to support revegetation and post-reclamation land use. There is no topsoil on the gravel bar. No topsoil placement will be done.

Tailings and Mine Waste Management: Objective – Mine waste and tailings will be disposed of or reclaimed. Waste will consist of fine material in the “reject” pile from crushing activities. This material will be removed from the gravel bar at the

end of each extraction and used or disposed of in an upland location to be determined.

Closure of Surface Openings: Objective – Protect wildlife and the public from open wells, shafts, etc. There will be no drill holes, water or monitoring wells, shafts, tunnels, or other surface openings to underground workings to be abandoned or closed.

Sources Cited

Berg, Alice, D. Halligan, K. Hess. 2002. Biological Assessment for Southern Oregon/Northern California Coasts Coho Salmon, California Coastal Chinook Salmon, Northern California Steelhead that may be Affected by LOP 02-1 Gravel Extraction Operations in Humboldt County, CA. Alice Berg & Associates. Eureka, CA.

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General Mining Operation Information

Mined Mineral Commodity

Gravel

Estimated Annual Production

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Estimated Total Production

375,000 cubic yards

Total Acres to be Disturbed

Total 18 acres. Individual extractions will be ~3 acres in size.

Total Acres to be Reclaimed

18 acres

Maximum Anticipated Depth of Mining

Up to 10 feet

Date of Start Up

July 22, 1993

Estimated Date of Closure

July 22, 2023 unless this permit is renewed.

Location

~~(2008)~~ The Charles gravel bar on Larabee Creek (stream mile 19-20) is located 5.5 miles north of Blocksburg, and 14.6 miles south of Bridgeville. Access to the bar is off Alderpoint Road. It is in Section 36, Township 1 South, Range 4 East, HB&M and can be seen on the Blocksburg 7.5' USGS quadrangle map. The area to be mined is on Assessor's Parcel Numbers 217-053-04 and 05 (see Exhibit 1, Figures 1, 2, & 4).

Site Description

Larabee Creek is tributary to the Eel River. It is 23 miles long, originating in Section 20, Township 2 South, Range 5 East. Its confluence with the Eel River is in Section 3, Township 1 South, Range 2 East, approximately four miles downstream of the confluence of the Middle and South Forks of the Eel River.

The project area, referred to as the Charles bar, is a gravel filled valley which was created by the introduction of massive sediment loads from the tributary watersheds of Thurman, Boulder Flat, and Hayfield Creeks. The length of the bar is about 2,500 feet; width is up to 600 ft. It has been estimated that up to 1,000,000 cubic yards of gravel are stored at this site (Berg et. al. 2002). There are no alternating or discrete gravel bars at this location. The Larabee Creek channel is poorly confined and braided in this area (See Exhibit 2, Photographs). During the summer months, the flow goes completely subsurface to a depth of up to 16 feet [Humboldt County Department of Public Works (HCPW) 1993].

There is a permanent stockpile site adjacent to the gravel bar access road approximately 50 feet south of the streambank, and a second, upland stockpile site adjacent to Alderpoint Road. There is a stockpile area located at the intersection of the bar access road (ranch road) and Alderpoint Road that is used to permanently store crushed gravel. A second stockpile area is located north of the bar, near an existing ranch road that runs along the bar at least 150 ft away from the streambank.

Description of Environmental Setting

Geology/Soils

The Charles bar consists of rock and colluvial land, which is basically riverwash material of sedimentary origin (California Forest and Range Experiment Station 1955). The predominant geologic formation of the region is the Franciscan formation, which consists of massive graywacke and minor amounts of platy, dark-gray shale, thin bedded chert, greenstone where undifferentiated, and glaucophane schist (Strand 1962). The Humboldt County Seismic Safety Map, Plate I identifies the area as Zone E: bedrock. Characteristics of earthquake shaking consist of higher accelerations but of relatively short periods, shorter duration or shaking (Humboldt County Planning Division 1979). While the area surrounding the gravel bar has high slope instability, the bar itself has low slope instability (Humboldt County Planning Division 2008). The nearest earthquake fault is the potentially active Freshwater Fault, located approximately four miles west of the gravel bar. The Falor-Korbel Fault Zone, which is an active fault, is located about seven miles northeast of the bar.

There is no soil on the gravel bar, which is made up of fine to coarse gravel and cobble. Soils in the vicinity of the bar are primarily of the Josephine series. Josephine soils are 30-60 inches deep, slightly to moderately acidic loam to clay loam soils. These soils have high to very high timber production value, and moderate range production value. In fact, portions of the ranch land surrounding the bar are under Williamson Act protection as agricultural preserve (Humboldt County Planning Division 2008). However, work is confined to the gravel bar, existing access roads and stockpile sites, and an adjacent parcel not under Williamson Act.

Vegetation

There are no federally listed threatened or endangered plants in the Blocksburg 7.5' USGS quadrangle (USFWS 2008). The California Natural Diversity Database (CNDDDB) contains records for one rare or sensitive plant species in the area covered by the Blocksburg USGS 7.5' quadrangle: Howell's montia (*Montia howellii*). Howell's montia is ranked List 2.2 by the California Native Plant Society (fairly threatened in California, common elsewhere). It can be found in meadows, North Coast coniferous forest, vernal pools, and vernal wet sites. The gravel bar does not contain habitat for Howell's montia and it is not likely to be found there.

Wildlife

The following species of wildlife are listed by the US Fish & Wildlife Service (USFWS) as threatened or are candidates for listing for the Blocksburg 7.5' USGS quadrangle as of July 2008.

USFWS Species List for Blocksburg Quadrangle

SCIENTIFIC NAME	COMMON NAME	STATUS	CRITICAL HABITAT
Fish			
<i>Oncorhynchus kisutch</i>	S. OR/N. CA coho salmon	Threatened (1997)	Yes (1999)
<i>Oncorhynchus mykiss</i>	Northern California steelhead	Threatened (2000)	Yes (2005)
<i>Oncorhynchus tshawytscha</i>	CA coastal chinook salmon	Threatened (1999)	Yes (2005)
Birds			
<i>Brachyramphus marmoratus</i>	marbled murrelet	Threatened (1992)	Yes (1996) Revision Proposed (2006)
<i>Coccyzus americanus</i>	western yellow-billed cuckoo	Candidate	No
<i>Strix occidentalis caurina</i>	northern spotted owl	Threatened (1990)	Yes (1992)
Mammals			
<i>Martes pennanti</i>	fisher, West Coast DPS	Candidate	No

Chinook Salmon/Steelhead Trout – Chinook salmon and steelhead trout are known to inhabit Larabee Creek (Coho salmon are only found in the lowest reaches of the stream). Chinook have been observed in Larabee Creek as far upstream as Smith Creek (stream mile 6). Above Smith Creek is a one-mile long gorge which is believed to be a barrier to chinook passage, and chinook are unlikely to be found in the vicinity of the Charles Bar (Berg 2000). Steelhead can pass the barrier and are known to inhabit Larabee Creek both upstream and downstream of the gravel bar.

Habitat typing of the Charles bar by Jensen (2000) describes the area as a large aggraded gravel/cobble expanse with no surface flows (Berg 2002). California Department of Fish & Game (CDFG) stream survey in 1988 typed the Charles bar reach

as C1 and D2 (Rosgen system): aggraded and sand/silt with low gradient and low to moderate manipulation potential (Preston 1988). There is riparian vegetation along portions of the stream banks at this location, however little vegetation exists on the bar that could provide shade to low flow channels. Because of the severe aggradation and low gradient, stream flow goes subsurface during the summer months, producing a complete barrier to fish passage, ~2,500 ft in length.

Northern Spotted Owl – The project area does not contain habitat for northern spotted owls. However, northern spotted owls are known to inhabit the project vicinity. The CNDDDB Biogeographic Information System (BIOS) contains three records of northern spotted owl occurrences within three miles of the project area.

Marbled Murrelet – The project does not contain habitat for marbled murrelets. As of July 1008, CNDDDB BIOS does not contain any recorded occurrences of murrelets in the project vicinity. However, designated critical habitat for marbled murrelet can be found 2.3 miles southwest (374 acres) of the bar, and potential habitat may be found west of Alderpoint Road.

Western Yellow-Billed Cuckoo – The extraction area does not contain habitat for western yellow-billed cuckoos. However, there is habitat for cuckoos in the vicinity of the bar.

West Coast DPS Fisher – The extraction area does not contain habitat for fishers. However, there is habitat for fishers in the vicinity of the bar.

Review of occurrences of rare and sensitive wildlife species recorded in CNDDDB (July 2008) for the Blocksburg 7.5' USGS quadrangle revealed one species of bird, osprey (*Pandion haliaetus*), for which there is no habitat and no recorded occurrences in the project area or vicinity

Hydrology/Water Quality

The Lower Eel River and tributaries (including Larabee Creek) were listed on the California Clean Water Act Section 303(d) list in 1992 due to elevated sediment and temperature. In December 2007 the Total Maximum Daily Loads (TMDL) for Temperature and Sediment for the Lower Eel River were approved.

Temperature monitoring in Larabee Creek just below the Charles Bar for the Lower Eel River TMDL found water in the range of 17°C to 19°C (USEPA 2007). Temperatures in Hayfield and Thurman/Boulder Flat Creeks (at the confluence with Larabee Creek) were measured in mid-July at 25.6°C and 30°C, respectively (Preston 1988). Temperatures greater than 19°C are considered unsuitable for steelhead.

Larabee Creek at the Charles Bar is heavily aggraded due to mass wasting of unstable slopes in the Thurman and Boulder Flat Creek watersheds, which has occurred since at least 1969 (Berg 2002). Gravel volume estimates, based on monitoring cross section surveys from 1997 to 2008 show that even with intermittent extractions of gravel, the amount of gravel on the bar has remained about the same.

Description of Proposed Action

Gravel extraction on the Charles Bar requires permit coverage from a number of environmental regulatory agencies. All proposed actions will conform to and comply with the requirements and conditions of all issued permits.

Pre-Extraction Design

Dry trenching is the extraction method used for this site, based on extraction history and National Marine Fisheries Service (NMFS) recommendations (See Exhibit 1, Figure 3). The volume, configuration, and location of the trench will be determined using the recommendations made by the County of Humboldt Extraction Review Team (CHERT) and the capabilities of the equipment used.

In the spring, CHERT will visit the site with HCPW staff to evaluate the best location for an extraction, volume to be extracted, trench configuration, and dimensions. Following the CHERT site visit, a pre-extraction report will be prepared for CHERT and other participating regulatory agencies. New pre-extraction cross sections, and the pre-established monitoring cross sections will be surveyed and super-imposed on a recent aerial photograph of the site. The monitoring cross section survey results will be compared with survey results from the last extraction. A discussion of the proposed extraction methodology will also be included in the report, along with a work plan for the proposed action.

Upon approval of the pre-extraction report, and prior to extraction, survey cut stakes will be set throughout the extraction area to guide equipment and set boundaries for the operation.

General Extraction Details

Extractions will be done in summer when the bar is dry and will take 4-6 weeks to complete. Work will be done by heavy equipment consisting of a bulldozer or excavator, front-end loader, haul truck, and dump trucks. Trench excavation will typically start near the downstream end of the designed trench and proceed upstream. A bulldozer/excavator will excavate the trench and a front-end loader will transport excavated gravel to the crusher. Crushed gravel will be transported via dump trucks to the designated permanent stockpile areas.

Access

Access to the gravel bar from Alderpoint Road will be the existing private road through the ranch property to the bar, which is fully developed.

Haul Road

The haul road consists of the established access road (ranch road) from Alderpoint Road to the gravel bar, ~~and a temporary haul road on the bar, and an existing ranch road that runs north of the bar.~~ The haul road on the bar will run from the bar access point along the extraction area upstream and downstream, and will be the most direct route from the crusher to the location of extraction activities. To access the stockpile area north of the bar, the existing ranch road which leads to the stockpile area will be used as a haul road. Haul road construction will consist of minor grading of the bar where necessary to accommodate the equipment and off-road haul truck. The haul road will be watered periodically to minimize dust.

Crushing

Gravel crushing will typically be done on the bar. A portable crusher assembly will be set up on the bar, usually south of the proposed trench alignment, and immediately downstream of the bar access point. The crusher assembly consists of jaw and cone crushers, conveyors, and a generator trailer (see Exhibit 1, Figure 4). Crushing will take place concurrently with trench excavation. A haul truck will transport gravel to the crusher from the point of extraction. Gravel will be temporarily stockpiled at the crusher. A front-end loader will transport the gravel from the temporary piles to the crusher, and load crushed gravel into dump trucks for transport to permanent stockpiles.

Stockpiling

The existing stockpile area located at the intersection of the bar access road and Alderpoint Road will be used to permanently stockpile crushed gravel, as well as. ~~A a second stockpile area is proposed for a location north of the bar, near the ranch road that runs along the bar. This stockpile area will be along the road, at least 150 ft away from any areas of established riparian vegetation. The established stockpile area adjacent to the bar access point will be phased out for permanent gravel storage, although gravel may be temporarily stockpiled in this area.~~

Interim Activities

After each extraction is completed, before winter rains, the bar is reclaimed, the stockpile sites are winterized, and all equipment, including the crusher assembly is removed.

Following surveying of post-extraction cross sections, the area around the extraction is graded to fill in depressions. Equipment and temporary stockpiles are removed from the bar, and the haul roads are scarified to reduce compaction, unless other recommendations are made by CHERT and regulatory agencies.

The stockpile sites are surrounding with berms of rock material or hay bales and filter fabric to contain fine material mobilized by storm water runoff.

An Interim Management Plan will be filed in accordance with SMARA (See Exhibit 3, Interim Management Plan).

Financial Assurances

See Exhibit 4 for financial assurances.

Reclamation Activities

Post-Extraction Reclamation Activities

Reclamation on the gravel bar is ongoing and is completed at the end of each extraction event. Reclamation activities consist of the following:

1. Any incidental holes or depressions created during extraction activities will be graded smooth.
2. The crusher will be dissembled and removed from the site. The crusher site will be scarified to reduce compaction.
3. Post extraction cross sections will be surveyed and a post-extraction report filed with CHERT and regulatory agencies.

Final Reclamation Activities

Final reclamation activities will commence when mining on the Charles Bar by HCPW under this Reclamation Plan has ceased. Final reclamation will consist of the following activities (additional to post-extraction reclamation):

1. Haul Roads – Haul roads on the gravel bar used exclusively for mining will be decommissioned by scarifying to eliminate compaction, unless the property owner directs otherwise. Haul roads that serve as pre-existing ranch roads will be improved or graded for continued post-mining use as ranch roads, unless the property owner directs otherwise.
2. Stockpile Areas – The stockpile area north of the gravel bar will be reclaimed by removing remaining stockpiled gravel, scarifying the area, resoiling with imported topsoil if necessary, seeding with native pasture grasses, and mulching with weed-free straw. If the property owner indicates he intends to stockpile his own gravel at this site for ranch road maintenance, this stockpile area may be left unreclaimed. In this case, the area will be bermed on the south side to ensure no sediment from stockpiles will migrate to the stream. The berm will be seeded with native grasses and mulched with weed-free straw. The stockpile area at the intersection of Alderpoint Road and the gravel bar access road, while receiving crushed gravel from the Charles Bar is a long established permanent stockpile area, independent from the mining operation. No final reclamation is proposed for this facility.
3. Equipment Storage Area – The equipment storage area near the entrance to the gravel bar, while used as a storage and staging area during gravel extraction activities, is used year-round by the property owner for storage of ranch-related equipment and materials, as well as ranch maintenance activities. It will continue to be used by the property owner after gravel mining under this permit/Reclamation Plan has ceased. No final reclamation of this area is proposed.

Post Reclamation Land Use

Parcel #217-053-04 is zoned Agriculture Exclusive, with a Humboldt County General Plan land use designation of Agriculture, Grazing; Framework Plan. Parcel #217-053-05 is zoned Agriculture Exclusive, Timber Production Zone, with a land use designation of Timberland, Agriculture, Grazing (Humboldt County Planning Division 1984). The extraction area is gravel bar below ordinary high water, and naturally contains no vegetation appropriate for grazing or timber production. There will be no activity on the portions of the parcels appropriate for grazing or timber production.

Time Schedule

Reclamation is completed immediately after each extraction and associated post-extraction surveying, and before winter rains begin. Final reclamation will be completed immediately after the final extraction and associated surveying. Reclamation after each extraction (and final reclamation) takes approximately 1-2 days to complete.

Topography

The gravel bar in the area of the extraction will be graded smooth, removing any depressions outside the finished trench.

Resoiling

The site does not contain topsoil. Resoiling of the site is not a part of the reclamation activities.

Revegetation

There is no vegetation in the extraction area. Revegetation is not a part of the reclamation activities.

Impact of Reclamation on Future Mining in Area

Reclamation of the gravel bar will not affect the possibility of future mining at this site. Continued erosion upstream of the Charles Bar will continue to contribute gravel material to the site.

Impact of Reclamation on Public Health and Safety

The final topography of the site once reclamation is completed will not pose a hazard to the public. All equipment including the crusher assembly will be removed from the site. Any contaminated material will have been removed, therefore there will be no risk of exposure to hazardous materials. The site is privately owned. The access road to the site will be gated to restrict public access.

Reclamation Performance Standards

Wildlife Habitat: Objective – Improvement of habitat for anadromous fish. Extractions will be designed, with the assistance of CHERT and NMFS, to improve fish passage habitat through the use of strategically placed and designed trenches. Gravel bar grading after extraction will eliminate depressions that could result in fish stranding.

Backfilling, Regrading, Slope Stability, and Recontouring: Objective – Reduce possibility of fish stranding. The bar area around the trench will be regraded to remove depressions.

Revegetation: Objective – Re-establish vegetation consistent with seasonally inundated gravel bar. There is little to no vegetation on this gravel bar. The bar will be allowed to revegetate naturally.

Drainage, Diversion Structures, Waterways, and Erosion Control: Objective – Re-establish natural waterway of Larabee Creek, protect creek from fine sediment input due to extraction activities. Extraction activities will be completed before the site is inundated by winter high flows. Reclamation after each extraction will remove depressions from around trench excavation.

Prime Agricultural Land: Objective – No loss of prime agricultural land. The gravel bar does not constitute prime agricultural land.

Other Agricultural Land: Objective – No loss of other agricultural land. The gravel bar does not constitute other agricultural land.

Building, Structure, and Equipment Removal: Objective – Remove all structures and equipment associated with the mining and reclamation operation. All equipment used in the mining and reclamation of the gravel bar, including the crusher assembly will be removed from the site when reclamation is completed.

Stream Protection: Objective – Return stream to natural condition. After extractions, the bar will be graded smooth, removing depressions.

Topsoil Salvage, Maintenance and Redistribution: Objective – Resoil extraction area to support revegetation and post-reclamation land use. There is no topsoil on the gravel bar. No topsoil placement will be done.

Tailings and Mine Waste Management: Objective – Mine waste and tailings will be disposed of or reclaimed. Waste will consist of fine material in the “reject” pile from crushing activities. This material will be removed from the gravel bar at the

end of each extraction and used or disposed of in an upland location to be determined.

Closure of Surface Openings: Objective – Protect wildlife and the public from open wells, shafts, etc. There will be no drill holes, water or monitoring wells, shafts, tunnels, or other surface openings to underground workings to be abandoned or closed.

Sources Cited

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