

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2013-0008

WASTE DISCHARGE REQUIREMENTS

FOR
BUTTE SAND AND GRAVEL
MOREHEAD LAND LLC, BEGONIA MCPHERRIN,
ROSE MCPHERRIN AND ANNA MCPHERRIN
SOUTH BUTTE QUARRY
SUTTER COUNTY

The California Regional Water Quality Control Regional Board, Central Valley Region, (hereafter Central Valley Water Board) finds that:

1. On 1 May 2012, Butte Sand and Gravel submitted a Report of Waste Discharge (RWD) that describes modifications to the facility operations and expansion of the Butte Sand and Gravel facility, an existing aggregate mine. The existing Butte Sand and Gravel quarry was expanded to include the existing, adjacent Butte Ranch Quarry to create a single mining operation renamed as the South Butte Quarry.
2. Butte Sand and Gravel (owner/operator of the aggregate mine) and Morehead Land LLC, Begonia McPherrin, Rose McPherrin, and Anna McPherrin (land owners) are hereafter jointly referred to as "Discharger" and are responsible for compliance with these Waste Discharge Requirements (WDRs).
3. The South Butte Quarry facility is located at 10373 South Butte Road in Sutter County (Section 12, T15N, R1E, MDB&M), as shown on Attachment A, which is attached hereto and made part of this Order by reference. The South Butte Quarry site consists of the following Assessor's Parcel Numbers (APN) listed below and their locations are shown on Attachment B, which is attached hereto and made part of this Order by reference:

<u>APN</u>	<u>Landowner</u>	<u>Location</u>
13-080-018	McPherrin	Former Butte Sand and Gravel site
13-080-019	Morehead	Former Butte Ranch Quarry
13-080-020	McPherrin	Former Butte Sand and Gravel site
13-080-021	McPherrin	Former Butte Sand and Gravel site
13-080-046	Morehead	Former Butte Sand and Gravel site
13-080-047	Morehead	Former Butte Sand and Gravel site
13-080-081	Morehead	Former Butte Sand and Gravel site
13-080-082	Morehead	Former Butte Sand and Gravel site
13-140-018	Morehead	Former Butte Ranch Quarry
13-140-017	Morehead	Former Butte Sand and Gravel site

4. On 16 June 2000, the Central Valley Water Board adopted WDRs Order 5-00-174, which prescribes requirements for the discharge of aggregate wash water from a

gravel crushing operation to a closed, recirculation pond system consisting of two settling ponds; and recycling of the process wastewater through reuse in the main washing plant and/or irrigation of pasture land. Order 5-00-174 allows a monthly average dry weather process wastewater flow up to 220,000 gallons per day (gpd) into the settling pond system. The Butte Sand and Gravel facility has expanded to include Butte Ranch Quarry. WDRs Order 5-00-174 no longer reflects the current facility operations. Therefore, WDRs Order 5-00-174 will be rescinded and replaced with this Order.

Existing Facility and Discharge

5. Aggregate mining at the Butte Sand and Gravel facility was established in 1956. Under a 1981 Surface Mining Permit/Reclamation Plan (SMRP), mining operations were limited to approximately 186 acres of the 516-acre site. The facility mines sand and gravel of volcanic origin on the southern rampart of the Sutter Buttes. Mining is performed above the water table using loaders, dozers, haul trucks, and similar equipment. The mined material is washed and screened. Oversized gravels are crushed to meet size specifications. Finished products include sand, base rock, and similar construction materials.
6. Butte Ranch Quarry was established in 1974. A 1979 SMRP limited mining operations to approximately 30 acres of the 120-acre site. In 1988, the SMRP was revised and approved to include an additional 12 acres of mining. The quarry performed crushing and dry processing operations. No wash water was generated. Butte Ranch Quarry was not previously regulated under WDRs.
7. A January 2007 Reclamation Plan was certified for the South Butte Quarry, which allowed the two adjacent aggregate mining facilities to operate as one facility and increased the mining and reclamation area from 186 acres to approximately 320 acres. The fines placement area located in the former Butte Ranch Quarry operates under a Conditional Use Permit. A site plan of the South Butte Quarry is provided on Attachment B.
8. Material processing rates vary based on market demand. Mining at the facility is expected to occur through 2066.
9. The South Butte Quarry is composed of three separate sets of equipment and functions: the Class III (1-inch Wash Plant), Class II (Crushing Plant), and the Sand and Gravel Wash Plant. Concrete batch operations are not performed at the facility.
10. Process wastewater is generated from the aggregate washing operations. The aggregate washing operations use approximately 220,000 gallons per day (gpd) of water, which is mostly recycled. Prior to 2006, wash water was discharged into a series of two Settling Ponds. Clarified wash water was then decanted from the Settling Ponds, stored in the Clean Water Pond, and reused for aggregate washing

operations or discharged to the Designated Irrigation Areas (DIAs). As the Settling Ponds became filled with sediment and silt, the fines were dried, and sold as byproduct or used in reclamation of the site or to backfill excavation areas.

11. The DIAs are open space irrigation areas consisting of approximately 133 acres (owned by Morehead Land LLC) located immediately south of the facility, as shown on Attachment A. Three separate land application areas make up the DIAs.

The DIAs are flood irrigated and can receive irrigation water from the existing Clean Water Pond or water directly from the Deep Well (referred to as the Main Well in WDRs Order 5-00-174). The Discharger proposes to cease irrigation of the DIAs with water from the Clean Water Pond or other process water generated from the aggregate washing operations.

12. In 2006, changes were made to the aggregate wash water and fines management process, which are discussed below.
 - a. A clarifier was added to the wash water and recycling system. Wash water generated from the washing plant is pumped to the clarifier, where polymers are added to enhance solids settling.
 - b. Water decanted from the clarifier is returned to the existing Clean Water Pond for reuse as aggregate wash water or irrigation water for the DIAs.
 - c. Fines from the clarifier are sent to the fines placement area, referred to as the Silt Drying Beds, covering approximately 70 acres. Fines are allowed to dry in place or used in reclamation of the site or excavated areas. Cattle are allowed to graze within the placement area. Any free water retained in the fines gravity flows to the south end of the placement area where it collects in the Silt Pond and any remaining solids settle out. Water collected in the Silt Pond is returned to the existing Clean Water Pond for reuse.
 - d. Wash water is no longer discharged directly into the former Settling Ponds. The former north Settling Pond has been partially filled with fines. The former south Settling Pond remains empty and will serve as a back-up fines placement area when needed.
13. The meter located at the Deep Well is used to estimate process wastewater flows. The Deep Well supplies make up water to the aggregate washing operations, water for dust control operations, and irrigation water for the DIAs and other pasture land.

14. The following table summarizes influent flow rates at the South Butte Quarry facility.

Historical Influent Flow Data, gpd			
Year	Yearly Mean	Daily Maximum	Daily Minimum
2001	116,703	185,597	32,848
2002	152,170	213,192	23,588
2003	126,970	228,150	18,375
2004	188,142	602,240	41,959
2005	213,323	437,806	99,186
2006	175,599	251,100	97,244
2007	184,080	369,755	85,425
2008	140,318	191,400	58,925
2009	111,453	173,760	61,089
2010	104,809	213,207	18,071
2011	59,496	136,720	12,343

The average monthly 220,000 gpd influent flow limit was occasionally exceeded between 2003 and 2007 due to increased production demand and water needed to raise the water levels within the Settling Ponds for minimum pumping requirements.

The Discharger has requested that the flow limits of the WDRs be increased from 220,000 gpd to 400,000 gpd. However, the mining facility reuses the wash water and only draws new water from the Deep Well when needed. In addition, the former south Settling Pond, which remains empty, provides additional capacity to capture storm water runoff and overflows from the existing Clean Water Pond. Therefore, imposing a minimum freeboard requirement on all ponds and excavation areas will be sufficient to prevent an overflow or berm failure, and no flow limitation is necessary.

15. Prior to 2006, wastewater samples were obtained from the Settling Pond. Since the installation of the clarifier, samples are currently obtained from the Clean Water Pond. Wastewater samples are analyzed quarterly for pH and electrical conductivity (EC). Historical data is summarized below:

Year	Wastewater Quality Data	
	Yearly Mean pH (std. units)	Yearly Mean EC (umhos/cm)
2001	8.42	677
2002	8.29	723
2003	7.61	590

Year	Wastewater Quality Data	
	Yearly Mean pH (std. units)	Yearly Mean EC (umhos/cm)
2004	5.65	465
2005	8.01	530
2006 ¹	8.01	635
2007 ¹	7.98	735
2008 ¹	8.20	673
2009 ¹	8.14	750
2010 ¹	8.08	645
2011 ¹	7.82	653

¹ Samples obtained from the Clean Water Pond.

The data above indicates pH concentrations are within the Secondary Maximum Contaminant Level (MCL) range of 6.5 to 8.5. EC concentrations have not exceeded the Secondary MCL of 900 µmhos/cm.

16. No change in wash water quality is anticipated. A water sample from the Silt Pond and Clean Water Pond was collected on 22 March 2012. The analytical results reported in the RWD are summarized below and contrasted with potential water quality objectives.

<u>Parameter</u>	<u>Units</u>	<u>Silt Pond</u> ^{1,5}	<u>Clean Water Pond</u> ^{2,5}	<u>Potential Water Quality Objective</u>
Total Alkalinity	mg/L	87	83	--
Bicarbonate	mg/L	87	83	--
Carbonate	mg/L	<5.0	<5.0	--
Hydroxide	mg/L	<5.0	<5.0	--
Chloride	mg/L	180	180	250 - 600 ⁴
Specific conductance	µmhos/cm	760	740	900 – 2,200 ⁴
Fluoride	mg/L	0.26	0.25	--
Hardness	mg/L	280	260	--
Nitrate as NO ₃	mg/L	2.2	2.2	45
pH	mg/L	7.53	8.53	6.5 – 8.5 ⁴
Sulfate	mg/L	8.7	8.2	250
Total dissolved solids	mg/L	580	550	500 – 1,500 ⁴
Mercury	µg/L	<0.2	<0.2	2 ³

<u>Parameter</u>	<u>Units</u>	<u>Silt Pond</u> ^{1,5}	<u>Clean Water Pond</u> ^{2,5}	<u>Potential Water Quality Objective</u>
Aluminum	µg/L	<50	<50	200 ⁴
Antimony	µg/L	<50	<50	6 ⁴
Arsenic	µg/L	3.2	3.5	10 ³
Barium	µg/L	660	600	1,000 ³
Beryllium	µg/L	<5.0	<5.0	4 ³
Cadmium	µg/L	<10	<10	--
Calcium	mg/L	44	41	--
Chromium	µg/L	<10	<10	50 ³
Cobalt	µg/L	<20	<20	--
Copper	µg/L	<10	<10	1,000 ⁴
Iron	µg/L	<100	<100	300 ⁴
Lead	µg/L	<5.0	<5.0	15 ³
Magnesium	mg/L	42	39	--
Manganese	µg/L	250	55	50 ⁴
Molybdenum	µg/L	<20	<20	--
Nickel	µg/L	<20	<20	100 ³
Potassium	mg/L	8.1	7.1	--
Selenium	µg/L	<5.0	<5.0	50 ³
Silver	µg/L	<10	<10	100 ⁴
Sodium	mg/L	42	38	--
Thallium	µg/L	<1.0	<1.0	2 ³
Vanadium	µg/L	<20	<20	--
Zinc	µg/L	22	<20	5,000 ⁴
Boron	µg/L	37	33	--

¹ Representative of aggregate wash water.

² Representative of recycled wash water blended with make-up water from the Deep Well.

³ Primary MCL.

⁴ Secondary MCL.

⁵ Samples were filtered prior to preservation; results are dissolved concentrations.

With the exception of manganese, constituent concentrations in the Silt Pond and the Clean Water Pond are similar and do not exceed potential water quality objectives. The dissolved manganese concentrations detected in the ponds exceeded the 50 µg/L Secondary MCL (samples were filtered prior to preservation). The Discharger states that the manganese detections may be the result of accumulated vegetation growth

within the ponds. Vegetation growth can lead to anoxic and reducing conditions within the ponds, as decaying organic material accumulates at the bottom of the ponds. Reducing conditions in combination with very small particle sizes present in the ponds, mobilizes manganese that is present in the natural mineral composition of the silts and clays. However, when water from the Silt Pond is pumped to the Clean Water Pond or used for aggregate processing, the water becomes aerated again and the manganese concentrations in the water declines. The Discharger anticipates that managing the vegetation in the ponds through a maintenance program, to include removing any dead plant material or excess vegetation within and around the perimeter of the ponds, will minimize the potential for groundwater degradation with respect to manganese.

17. Surface water drainage is to an irrigation/drainage ditch known as Poodle Creek, as shown in Attachment A. Poodle Creek flows east to west, towards the Sutter Bypass. Monitoring of Poodle Creek is required under MRP 5-00-174. Historical data are summarized below:

Surface Water Monitoring Data				
Year	SW-1 ¹ , Poodle Creek West		SW-2 ² , Poodle Creek East	
	pH mean (std. units)	EC mean (umhos/cm)	pH mean (std. units)	EC mean (umhos/cm)
2001	7.99	468	7.92	483
2002	8.17	499	7.92	505
2003	7.93	487	7.72	495
2004	7.59	496	7.53	496
2005	8.10	428	7.80	438
2006	7.58	485	7.51	509
2007	7.79	479	7.69	519
2008	7.96	555	7.96	586
2009	7.75	642	7.72	652
2010	7.70	458	7.67	468
2011	7.68	583	7.89	593

¹ SW-1 west – Poodle Creek 100 downstream from the eastern boundary of the DIAs. Sample point location shown on Attachment A.

² SW-2 east – Poodle Creek 100 feet upstream from the eastern boundary of the DIAs. Sample point location shown on Attachment A.

Based on the data above, the discharge has not impacted surface water quality. EC values in Poodle Creek upstream of the DIAs are not significantly different than the values downstream of the DIAs. The same appears true for pH. Therefore, continued

annual monitoring of Poodle Creek is not necessary to determine any potential impacts to surface water due to the discharge.

18. A domestic sewage disposal system serves the facility's office. This system consists of a septic tank with leachfields and is regulated by the Sutter County Environmental Health Department.

Proposed Changes in the Facility and Discharge

19. The Discharger proposes to cease irrigation of the DIAs with water from the Clean Water Pond and/or any process water generated from the aggregate washing operations. Therefore, this Order will prohibit discharges of aggregate wash water to the DIAs. The closed, recirculation process wastewater flow diagram is shown on Attachment C, which is attached hereto and made part of this Order by reference.
20. An existing ridge separates the mining and processing operations area from the fines placement area. Mining operations allow storm water drainage to be contained within the mining area. Runoff from the processing area and stockpiles is generally directed to the Clean Water Pond for reuse as aggregate wash water. Storm water runoff is diverted around the Silt Drying Beds and collected in the Silt Pond.
21. The Discharger proposes changes to the facility's storm water operations to eliminate collection of storm water runoff in the Clean Water Pond and Silt Pond. Storm water at the facility will be managed in accordance with applicable storm water regulations under a Storm Water Pollution Prevention Plan. Storm water diversions and conveyance structures will be designed in accordance with applicable regulations with the Surface Mining and Reclamation Act and Office of Mine Reclamation standards.

Site-Specific Conditions

22. The facility is located on the southern buttness of the Sutter Buttes, east of the Sutter Bypass. The maximum surface elevation of the mining area is approximately 350 ft msl and the minimum elevation is approximately 50 ft msl.
23. An existing fresh water/storm water pond, referred to as the Jaeger Stock Pond, is located at the northeastern section of the property as shown on Attachment B. Although located within the fines placement area, the Jaeger Stock Pond will not be reclaimed. The pond is isolated from the Silt Drying Beds and mining facility. The Jaeger Stock Pond receives storm water runoff from the upslope areas of the Sutter Buttes. Overflow from this pond is into an existing channel east of the fines placement area and eventually into Poodle Creek and is not regulated by this Order.
24. The Discharger is in the process of revising the facility's Reclamation Plan. The Proposed Reclamation Plan, which is pending approval by Sutter County, is shown on

Attachment D, which is attached hereto and made part of this Order by reference. The Discharger is anticipating approval of that plan in late 2013.

25. The native material beneath the site consists of volcanic sandstone, tuff, tuff breccia, and andesite. These volcanic deposits were formed from landslides, ash flows, and ash falls from the Sutter Buttes.
26. Mining at this site has reached a maximum depth close to sea level (0 ft msl) without encountering regional groundwater. Minor perched lenses of water have been encountered above tuffaceous layers, however persistent flow into the mine pit has not been observed.
27. Surrounding land uses are primarily agriculture, including cattle grazing. There are occasional residences and a few scattered natural gas wells. The facility is located outside of any flood zones mapped by the Federal Emergency Management Administration. Annual precipitation in the vicinity averages approximately 22 inches, the 100-year total annual precipitation is approximately 40 inches, and the reference evapotranspiration rate is approximately 53 inches per year.

Groundwater Considerations

28. Two major soil series exist below the site: Olashes sandy loam (0 to 2 percent slopes) and Palls-Stohiman stony sand loams (9 to 30 percent slopes). Typical surface layer of the Olashes soil is pale brown sandy loam about 4 inches thick, subsoil is pale brown and light yellowish brown sandy clay loam about 48 inches thick, with an underlying material of a yellowish brown sand at a depth of approximately 60 inches or more. Permeability of the Olashes soil is moderately slow to a depth of 52 inches and rapid below this depth. The Palls soil is primarily in the hills, elevation 75 to 1,500 feet. The surface layer is brown and light brownish gray stony sandy loam about 8 inches thick, subsoil is light brownish gray and pale brown gravelly sand loam about 23 inches thick. Hard andesitic lahar is at a depth of 31 inches, and bedrock ranges from 20 to 40 inches. The Palls soil is moderately deep and well drained.
29. WDRs 5-00-174 do not require groundwater monitoring and no groundwater monitoring wells were installed at the facility. Based on information from the Department of Water Resources, the shallow groundwater elevation at the site vicinity is approximately 30 ft msl. In the vicinity of the Sutter Buttes, the groundwater gradient is very flat, but the flow direction is southward.
30. The facility receives its water supply from the Deep Well, which was reportedly drilled to a depth of approximately 234 feet below ground surface, or approximately - 170 ft msl.

31. The Deep Well was sampled on 22 March 2012 and the results were provided in the RWD, which are summarized below. Sample results from the shallow perched groundwater within the mining area, the aggregate wash water from the Silt Pond, and the wash water/make-up mixture from the Clean Water Pond taken on the same day are included for comparison.

<u>Parameter</u>	<u>Units</u>	<u>Deep Well^{1.7}</u>	<u>Mine Pit Groundwater^{2.7}</u>	<u>Silt Pond^{3.7}</u>	<u>Clean Water Pond^{4.7}</u>	<u>Potential Water Quality Objective</u>
Total Alkalinity	mg/L	170	100	87	83	--
Bicarbonate	mg/L	170	100	87	83	--
Carbonate	mg/L	<5.0	<5.0	<5.0	<5.0	--
Hydroxide	mg/L	<5.0	<5.0	<5.0	<5.0	--
Chloride	mg/L	130	87	180	180	250 – 600 ⁶
Specific conductance	µmhos/cm	620	510	760	740	900 – 2,200 ⁶
Fluoride	mg/L	0.23	0.18	0.26	0.25	--
Hardness	mg/L	220	220	280	260	--
Nitrate as NO ₃	mg/L	15	14	2.2	2.2	45
pH	mg/L	7.44	7.45	7.53	8.53	6.5 – 8.5 ⁶
Sulfate	mg/L	7.2	4.7	8.7	8.2	250
Total dissolved solids	mg/L	510	430	580	550	500 – 1,500 ⁶
Mercury	µg/L	<0.20	<0.2	<0.2	<0.2	2 ⁵
Aluminum	µg/L	<50	<50	<50	<50	200 ⁶
Antimony	µg/L	<50	<50	<50	<50	6 ⁶
Arsenic	µg/L	4.9	3.3	3.2	3.5	10 ⁵
Barium	µg/L	560	550	660	600	1,000 ⁵
Beryllium	µg/L	<5.0	<5.0	<5.0	<5.0	4 ⁵
Cadmium	µg/L	<10	<10	<10	<10	--
Calcium	mg/L	39	32	44	41	--
Chromium	µg/L	<10	<10	<10	<10	50 ⁵
Cobalt	µg/L	<20	<20	<20	<20	--
Copper	µg/L	<10	<10	<10	<10	1,000 ⁶
Iron	µg/L	<100	<100	<100	<100	300 ⁶
Lead	µg/L	<5.0	<5.0	<5.0	<5.0	15 ⁵
Magnesium	mg/L	31	34	42	39	--

<u>Parameter</u>	<u>Units</u>	<u>Deep Well^{1,7}</u>	<u>Mine Pit Groundwater^{2,7}</u>	<u>Silt Pond^{3,7}</u>	<u>Clean Water Pond^{4,7}</u>	<u>Potential Water Quality Objective</u>
Manganese	µg/L	<20	<20	250	55	50 ⁶
Molybdenum	µg/L	<20	<20	<20	<20	--
Nickel	µg/L	<20	<20	<20	<20	100 ⁵
Potassium	mg/L	6.9	6.9	8.1	7.1	--
Selenium	µg/L	<5.0	<5.0	<5.0	<5.0	50 ⁵
Silver	µg/L	<10	<10	<10	<10	100 ⁶
Sodium	mg/L	38	20	42	38	--
Thallium	µg/L	<1.0	<1.0	<1.0	<1.0	2 ⁵
Vanadium	µg/L	33	<20	<20	<20	--
Zinc	µg/L	<20	<20	22	<20	5,000 ⁶
Boron	µg/L	42	23	37	33	--

¹ Representative of ground water.

² Representative of local percolation through the material being mined and shallow perched water.

³ Representative of aggregate wash water.

⁴ Representative of recycled wash water blended with make-up water from the Deep Well.

⁵ Primary MCL.

⁶ Secondary MCL.

⁷ Samples were filtered prior to preservation; results are dissolved concentrations.

The data above indicates that the aggregate processing operation and use of polymers do not contribute significant levels of waste constituents to the supply water. However as mentioned in the earlier findings, dissolved manganese concentrations detected in the Silt Pond and Clean Water Pond exceed the Secondary MCL and the concentration detected in the supply water.

Basin Plan, Beneficial Uses, and Regulatory Considerations

32. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins*, Fourth Edition (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Board. Pursuant to Water Code section 13263(a), waste discharge requirements must implement the Basin Plan.
33. Local drainage is to an irrigation/drainage ditch known as Poodle Creek, which is a tributary to the Sutter Bypass and Feather River. The beneficial uses of the Sutter Bypass and Feather River, as stated in the Basin Plan, are agricultural irrigation;

water contact recreation; warm freshwater habitat; migration of aquatic organisms; spawning; reproduction; and/or early development; and wildlife habitat.

34. The Basin Plan designates the beneficial uses of underlying groundwater as municipal and domestic supply, agricultural supply, and industrial supply.
35. The Basin Plan establishes narrative water quality objectives for chemical constituents, tastes and odors, and toxicity in groundwater. It also sets forth a numeric objective for total coliform organisms.
36. The Basin Plan's numeric water quality objective for bacteria requires that the most probable number (MPN) of coliform organisms over any seven-day period shall be less than 2.2 per 100 mL in MUN groundwater.
37. The Basin Plan's narrative water quality objectives for chemical constituents, at a minimum, require waters designated as domestic or municipal supply to meet the MCLs specified in Title 22 of the California Code of Regulations (hereafter Title 22). The Basin Plan recognizes that the Central Valley Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.
38. In summary, the narrative toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, animal, plant, or aquatic life associated with designated beneficial uses. Quantifying a narrative water quality objective requires a site-specific evaluation of those constituents that have the potential to impact water quality and beneficial uses.
39. The Basin Plan states that when compliance with a narrative objective is required to protect specific beneficial uses, the Central Valley Water Board will, on a case-by-case basis, adopt numerical limitations in order to implement the narrative objective.
40. In the absence of specific numerical water quality limits, the Basin Plan methodology is to consider any relevant published criteria. General salt tolerance guidelines, such as *Water Quality for Agriculture* by Ayers and Westcot and similar references indicate that yield reductions in nearly all crops are not evident when irrigation water has an EC less than 700 $\mu\text{mhos/cm}$. There is, however, an eight- to ten-fold range in salt tolerance for agricultural crops and the appropriate salinity values to protect agriculture in the Central Valley are considered on a case-by-case basis. It is possible to achieve full yield potential with waters having EC up to 3,000 $\mu\text{mhos/cm}$ if the proper leaching fraction is provided to maintain soil salinity within the tolerance of the crop.

Antidegradation Analysis

41. State Water Resources Control Board Resolution 68-16 (“Policy with Respect to Maintaining High Quality Waters of the State”) (hereafter Resolution 68-16) prohibits degradation of groundwater unless it has been shown that:
 - a. The degradation is consistent with the maximum benefit to the people of the state.
 - b. The degradation will not unreasonably affect present and anticipated future beneficial uses.
 - c. The degradation does not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives, and
 - d. The discharger employs best practicable treatment or control (BPTC) to minimize degradation.
42. Degradation of groundwater by some of the typical waste constituents associated with discharges from aggregate mining facilities, after effective source control, treatment, and control measures are implemented, is consistent with the maximum benefit to the people of the state. The economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State, and provides sufficient justification for allowing limited groundwater degradation that may occur pursuant to this Order.
43. The Discharger has not been monitoring groundwater since operation of the facility and was not required to monitor groundwater under the previous WDRs. Therefore, it is not possible to determine pre-1968 groundwater quality.
44. The materials used in the Discharger’s operation are natural earth materials subjected to a classification and separation process using recycled wash water and site groundwater. Polymers are used to enhance fines settling and appear to add some dissolved solids to the wastewater. However, because the Discharger directly recycles clarified wash water and no longer discharges to the Settling Ponds, the potential for evapoconcentration and potential migration to the water table will be reduced.
45. Based on the data included in the RWD, the only constituent of concern that has the potential to degrade groundwater is manganese. Manganese is present in most soils in relatively insoluble forms. The natural leaching processes from the rock and minerals mined and processed at the facility is another potential source of the manganese. It is possible that the unlined ponds could provide conditions conducive to the conversion of insoluble manganese to more soluble forms. Vegetation is present within the ponds and along its perimeter. The accumulation of decaying

organic matter present at the bottom of the ponds can cause reducing conditions. As a result, higher manganese concentrations are detected in the water.

The existing WDRs do not require groundwater monitoring or wastewater monitoring for manganese. Therefore, there is no historical manganese data available. Dissolved manganese was not detected in the Deep Well or mining pit samples also obtained on 22 March 2012. Additional information is needed to determine whether the manganese concentrations detected in the wastewater can cause or contribute to an exceedance of a water quality objective for the protection of a beneficial use. This Order requires monitoring the discharge for manganese and monitoring the supply well. In addition, this Order requires the Discharger to implement best management practices to minimize the reducing conditions that pose a threat to groundwater with respect to manganese and submit a *Manganese Evaluation Minimization Report*.

46. This Order imposes limitations for the mining facility that will ensure that discharges will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan. Quarterly monitoring of the wastewater indicates no significant changes in quality. However, wastewater monitoring is limited to electrical conductivity and pH, and impacts to groundwater with respect to manganese are unknown. As indicated by the Discharger, the high manganese detections may be the result of excessive vegetation growth within the ponds. These WDRs require the Discharger to implement management practices to reduce vegetation growth within the ponds. The requirements of this Order do not allow any degradation to occur, except for manganese, for which degradation up to the Secondary MCL is allowed.
47. The Discharger provides treatment and control of the discharge that incorporates the following:
 - a. The Discharger recycles the aggregate wash water. Wash water is pumped to a clarifier. Clarified water is then discharged directly into the Clean Water Pond for reuse in the aggregate washing operations, eliminating the need for settling ponds; therefore reducing the potential for evapoconcentration and potential migration through the underlying soils at those areas.
 - b. The Discharger will implement a pond maintenance program to remove vegetation within and around the perimeter of the ponds.

Other Regulatory Considerations

48. Title 27 of the California Code of Regulations (hereafter Title 27) contains regulatory requirements for the treatment, storage, processing, and disposal of solid waste. However, Title 27 exempts certain activities from its provisions. Discharges regulated by this Order are exempt from Title 27 pursuant to provisions that exempt domestic sewage, wastewater, and reuse. Title 27, section 20090 states in part:

The following activities shall be exempt from the SWRCB-promulgated provisions of this subdivision, so long as the activity meets, and continues to meet, all preconditions listed:

(...)(b) Wastewater - Discharges of wastewater to land, including but not limited to evaporation ponds, percolation ponds, or subsurface leachfields if the following conditions are met:

(1) the applicable RWQCB has issued WDRs, reclamation requirements, or waived such issuance;

(2) the discharge is in compliance with the applicable water quality control plan; and

(3) the wastewater does not need to be managed according to Chapter 11, Division 4.5, Title 22 of this code as a hazardous waste. (...)

49. The discharge authorized herein is exempt from the requirements of Title 27 as follows:
- a. The Clean Water Pond, Silt Drying Beds, and Silt Pond are exempt pursuant to Title 27, section 20090(b) because they are wastewater land discharge areas and:
 - i. The Central Valley Water Board is issuing WDRs.
 - ii. The discharge is in compliance with the Basin Plan, and;
 - iii. The treated effluent discharged to the ponds does not need to be managed as hazardous waste.
50. Although the facility is exempt from Title 27, the statistical data analysis methods of Title 27, section 20415 are appropriate for determining whether the discharge complies with Groundwater Limitations specified in this Order.
51. The State Water Board adopted Order 97-03-DWQ (NPDES General Permit CAS000001) specifying waste discharge requirements for discharges of storm water associated with industrial activities, and requiring submittal of a Notice of Intent by all affected industrial dischargers. Storm water discharges at the facility are regulated

under NPDES General Permit CAS000001. Changes to the facility's storm water operations are anticipated; and the Discharger must update the Storm Water Pollution Prevention Plan to reflect changes to the operations in compliance with the NPDES General Permit CAS000001.

52. Water Code section 13267(b) states:

In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposes to discharge within its region ... shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.

The technical reports required by this Order and the attached Monitoring and Reporting Program R5-2013-0008 are necessary to ensure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharges the waste subject to this Order.

53. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells (hereafter DWR Well Standards), as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981). These standards, and any more stringent standards adopted by the state or county pursuant to Water Code section 13801, apply to all monitoring wells used to monitor the impacts of wastewater storage or disposal governed by this Order.
54. The action to adopt waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality Act (CEQA), in accordance with the California Code of Regulations, title 14, section 15301.
55. A Final Environmental Impact Report (FEIR) for the Sutter County General Plan dated February 2011, was prepared in accordance with the CEQA (Pub. Resources Code, § 21000 et seq.). The FEIR prohibits the establishment of any new mining operations in the Sutter Buttes. Two existing mining facilities make up the South Butte Quarry, and the facility is therefore exempt from the provisions of CEQA, in accordance California Code of Regulations, title 14, section 15301, which exempts the "operation, repair, maintenance, [and] permitting ... of existing public or private structures, facilities, mechanical equipment, or topographical features" from environmental review.
56. Pursuant to Water Code section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

Public Notice

57. All the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing the following conditions of discharge.
58. The Dischargers and interested agencies and persons have been notified of the Central Valley Water Board's intent to prescribe waste discharge requirements for this discharge, and they have been provided an opportunity to submit written comments and an opportunity for a public hearing.
59. All comments pertaining to the discharge were heard and considered in a public hearing.

IT IS HEREBY ORDERED that Order 5-00-174 is rescinded except for purposes of enforcement, and, pursuant to Water Code sections 13263 and 13267, Butte Sand and Gravel, Morehead Land LLC, Begonia McPherrin, Rose McPherrin, and Anna McPherrin, their agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the Water Code and regulations adopted hereunder, shall comply with the following:

A. Discharge Prohibitions

1. Discharge of wastes, including wastewater and wastewater stormwater mixtures, to surface waters or surface water drainage courses is prohibited.
2. Discharge of waste classified as 'hazardous', as defined in California Code of Regulations, title 22, section 66261.1 *et seq.*, is prohibited.
3. Discharge of waste classified as 'designated', as defined in Water Code section 13173, is prohibited.
4. The bypass or overflow of wastewater from the clarifier is prohibited.
5. Discharge of waste at a location or in a manner different from that described in the Findings is prohibited.
6. Discharge of toxic substances into the wash water system is prohibited.
7. Discharge of waste from an asphaltic concrete or Portland cement concrete plant is prohibited.

8. Use of chemical gold recovery methods including amalgamation, cyanide leaching, or any other chemical method is prohibited. Gold recovery using gravimetric methods is permissible.
9. Discharge of domestic waste to anything other than a septic system or regularly serviced portable toilets is prohibited.
10. Discharge of anything other than domestic wastewater to the septic system is prohibited.
11. Discharge of process wash water to the former DIAs is prohibited.

B. Discharge Specifications

1. No waste constituent shall be released, discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of the Groundwater Limitations of this Order.
2. The discharge shall not cause degradation of any water supply.
3. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050.
4. The discharge shall remain within the permitted waste treatment/containment structures at all times.
5. The Discharger shall operate all systems and equipment to optimize the quality of the discharge.
6. All conveyance, treatment, storage, and disposal systems shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
7. The Discharger shall operate and maintain all ponds sufficiently to protect the integrity of containment dams and berms and prevent overtopping and/or structural failure. Unless a California Registered Civil Engineer certifies (based on design, construction, and conditions of operation and maintenance) that less freeboard is adequate, the operating freeboard in any pond shall never be less than two feet (measured vertically from the lowest possible point of overflow). As a means of management and to discern compliance with this requirement, the Discharger shall install and maintain in each pond a permanent staff gauge with calibration marks that clearly show the water level at design capacity and enable determination of available operational freeboard.
8. The treatment, storage, and disposal ponds or structures shall have sufficient capacity to accommodate allowable wastewater flow, design seasonal

precipitation, and ancillary inflow and infiltration during the winter while ensuring continuous compliance with all requirements of this Order. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.

9. On or about **1 October** of each year, available capacity shall at least equal the volume necessary to comply with Discharge Specifications B. 7 and B.8.
10. All ponds and open containment structures shall be managed to prevent breeding of mosquitoes and/or reducing conditions. Specifically:
 - a. An erosion control program shall be implemented to ensure that small coves and irregularities are not created around the perimeter of the water surface.
 - b. Weeds shall be minimized through control of water depth, harvesting, or herbicides.
 - c. Dead algae, vegetation, and debris shall not accumulate on or below the water surface.
 - d. The Discharger shall consult and coordinate with the local Mosquito Abatement District to minimize the potential for mosquito breeding as needed to supplement the above measures.
11. Newly constructed or rehabilitated berms or levees (excluding internal berms that separate ponds or control the flow of water within a pond) shall be designed and constructed under the supervision of a California Registered Civil Engineer.
12. Wastewater contained in any unlined pond shall not have a pH less than 6.5 or greater than 9.0.
13. Additional settling ponds and fines placement areas may be constructed as needed within the confines of the quarry and processing facility site as defined on Attachment B, and as allowed under the Conditional Use Permit.
14. All stockpiled products shall be managed to prevent erosion of sediment to surface water drainage courses.
15. Any waste material derived from gold recovery or quantification operations (such as laboratory assay) shall be contained and disposed of off-site at an appropriate facility.
16. Process wash water used for on-site dust control shall be used in a manner that will not cause erosion or discharge of sediment in storm water runoff to be discharged to areas not controlled by the Discharger.

C. Groundwater Limitations

Effective immediately, the discharge, in combination with other sources, shall not cause underlying groundwater to:

1. Contain waste constituents in concentrations statistically greater than existing background water quality, except for manganese, as specified below.
2. Contain manganese at a concentration greater than 50 mg/L.
3. Exceed a total coliform organism level of 2.2 MPN/100mL.
4. Exhibit a pH of less than 6.5 or greater than 8.4 pH units.
5. Contain taste or odor-producing constituents, toxic substances, or any other constituents in concentrations that cause nuisance or adversely affect beneficial uses.

D. Provisions

1. The following reports shall be submitted pursuant to Water Code section 13267 and shall be prepared as described in Provisions D.4.
 - a. By **1 April 2013**, the Discharger shall submit a letter that certifies staff gauges are in place for each pond where freeboard monitoring is required.
 - b. By **1 February 2015**, the Discharger shall submit a *Manganese Minimization Evaluation Report*. The report shall address the sources of high manganese detections in the ponds, include a summary and assessment of the wastewater monitoring data and the potential to impact groundwater quality, and evaluate the current best management practices implemented to reduce manganese concentrations. If dissolved manganese concentrations within any pond still exceed the secondary MCL of 50 µg/L, the report shall specify the additional actions that will be taken or demonstrate that further action is not feasible and/or not necessary. The implementation schedule shall not extend beyond **1 February 2016**.
2. If the wastewater or water supply monitoring results show that the discharge of waste causes groundwater to contain any waste constituents in concentrations statistically greater than the Groundwater Limitations of this Order, within 120 days of the request of the Executive Officer, the Discharger shall submit a Best Practicable Treatment and Control (BPTC) Evaluation Workplan that sets forth the scope and schedule for a systematic and comprehensive technical evaluation of each component of the facility's waste treatment and disposal system to determine best practicable treatment and control for each waste constituent that exceeds a Groundwater Limitation. The workplan shall contain a preliminary evaluation of

each component of the facility and effluent disposal system and propose a time schedule for completing the comprehensive technical evaluation. The schedule to complete the evaluation shall be as short as practicable, and shall not exceed one year.

3. A discharger whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment, collection, and disposal facilities. The projections shall be made in January, based on the last three years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in four years, the discharger shall notify the Central Valley Water Board by **31 January**.
4. In accordance with California Business and Professions Code sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain workplans for investigations and studies, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Discharger shall bear the professional's signature and stamp.
5. The Discharger shall submit the technical reports and work plans required by this Order for consideration by the Executive Officer, and incorporate comments the Executive Officer may have in a timely manner, as appropriate. Unless expressly stated otherwise in this Order, the Discharger shall proceed with all work required by the foregoing provisions by the due dates specified.
6. The Discharger shall comply with Monitoring and Reporting Program R5-2013-0008, which is part of this Order, and any revisions thereto as ordered by the Executive Officer. The submittal dates of Discharger self-monitoring reports shall be no later than the submittal date specified in the MRP.
7. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements", dated 1 March 1991, which are attached hereto and made part of this Order by reference. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."
8. The Discharger shall comply with all conditions of this Order, including timely submittal of technical and monitoring reports. On or before each report due date, the Discharger shall submit the specified document to the Central Valley Water Board or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, then

the Discharger shall state the reasons for such noncompliance and provide an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board in writing when it returns to compliance with the time schedule. Violations may result in enforcement action, including Central Valley Water Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.

9. The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by the Discharger when the operation is necessary to achieve compliance with the conditions of this Order.
10. The Discharger shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with this Order.
11. As described in the Standard Provisions, the Discharger shall report promptly to the Central Valley Water Board any material change or proposed change in the character, location, or volume of the discharge.
12. The Discharger shall report to the Central Valley Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986."
13. The Discharger shall not allow pollutant-free wastewater to be discharged into the wastewater collection, treatment, and disposal systems in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.
14. At least **90 days** prior to termination or expiration of any lease, contract, or agreement involving disposal or recycling areas or off-site reuse of effluent, used to justify the capacity authorized herein and assure compliance with this Order, the Discharger shall notify the Central Valley Water Board in writing of the situation and of what measures have been taken or are being taken to assure full compliance with this Order.
15. In the event of any change in control or ownership of the facility, the Discharger must notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.

16. To assume operation as Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the Water Code. If approved by the Executive Officer, the transfer request will be submitted to the Central Valley Water Board for its consideration of transferring the ownership of this Order at one of its regularly scheduled meetings.
17. A copy of this Order including the MRP, Information Sheet, Attachments, and Standard Provisions, shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.
18. The Central Valley Water Board will review this Order periodically and will revise requirements when necessary.

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement, may issue a complaint for administrative civil liability, or may take other enforcement actions. Failure to comply with this Order may result in the assessment of Administrative Civil Liability of up to \$10,000 per violation, per day, depending on the violation, pursuant to the Water Code, including sections 13268, 13350 and 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at:

http://www.waterboards.ca.gov/public_notices/petitions/water_quality

or will be provided upon request.

WASTE DISCHARGE REQUIREMENTS ORDER R5-2013-0008
BUTTE SAND AND GRAVEL, MOREHEAD LAND LLC/BEGONIA, ROSE & ANNA MCPHERRIN
SOUTH BUTTE QUARRY
SUTTER COUNTY

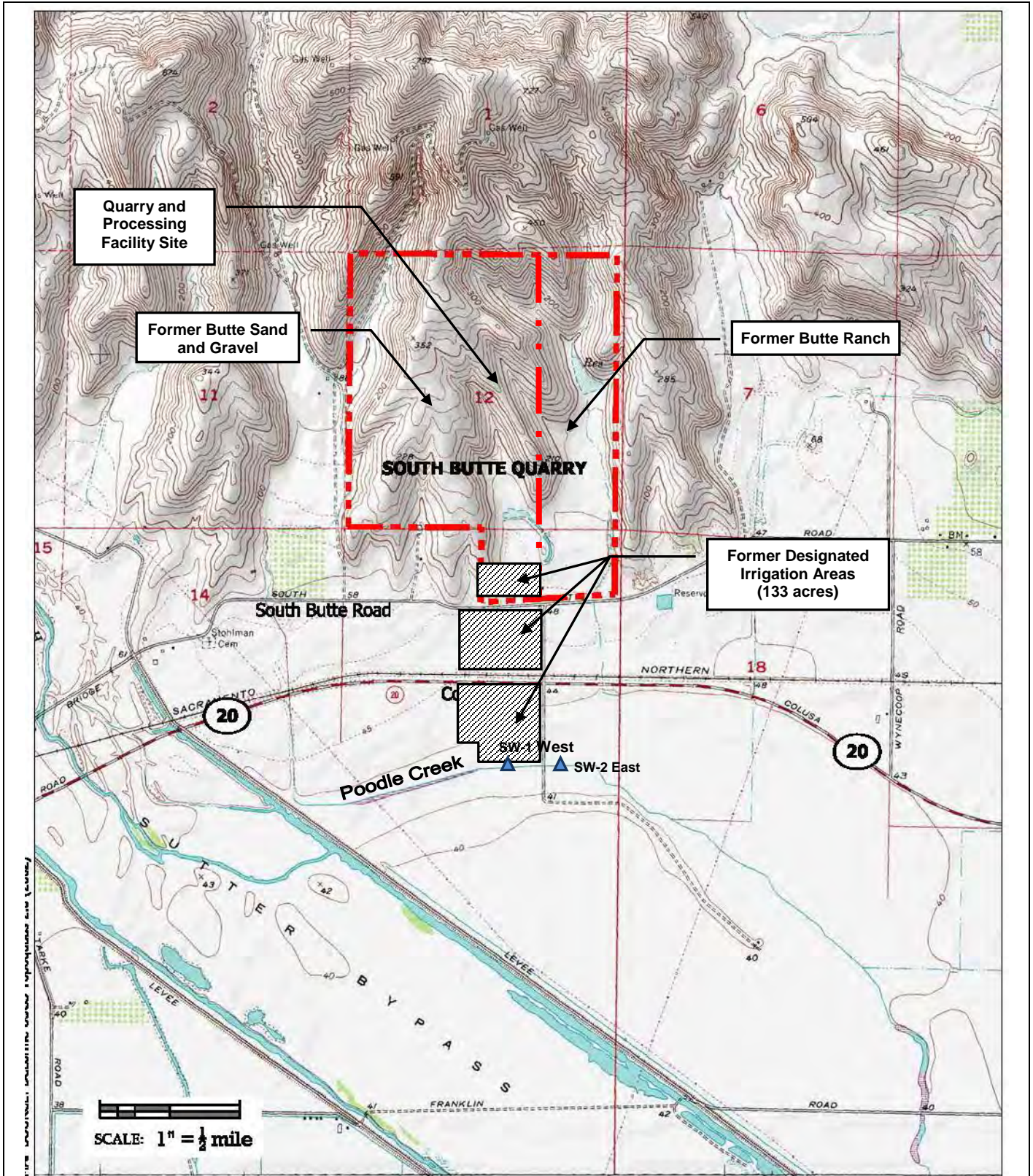
-24-

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 1 February 2013.

Original signed by

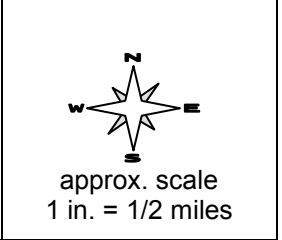
PAMELA C. CREEDON, Executive Officer

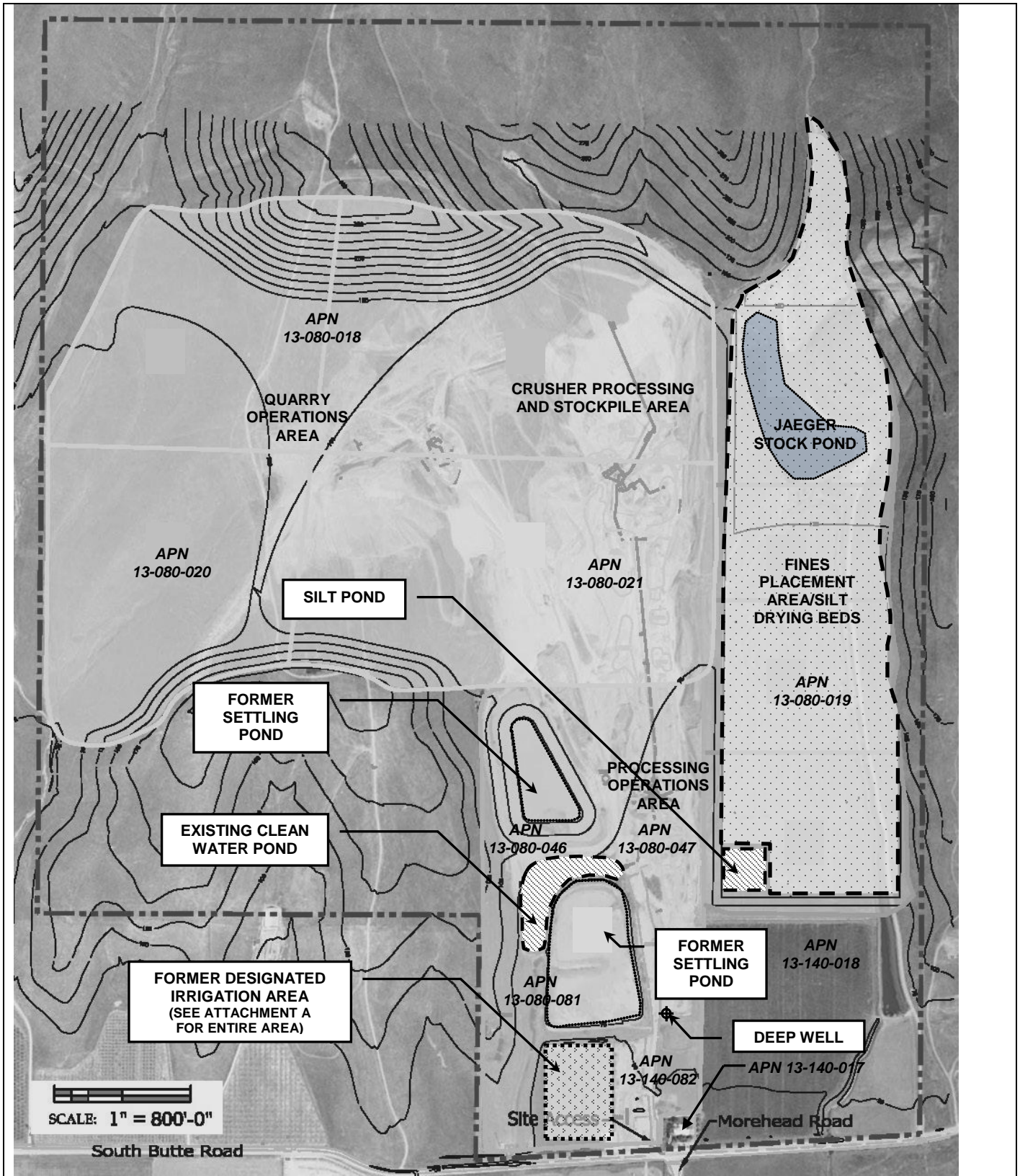
LLA: 122012



Drawing Reference:
 U.S.G.S
 DeLorme, CA
 Topographic Map
 7.5 Minute Quad

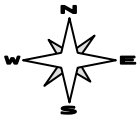
VICINITY MAP
 BUTTE SAND AND GRAVEL
 SOUTH BUTTE QUARRY
 SUTTER COUNTY

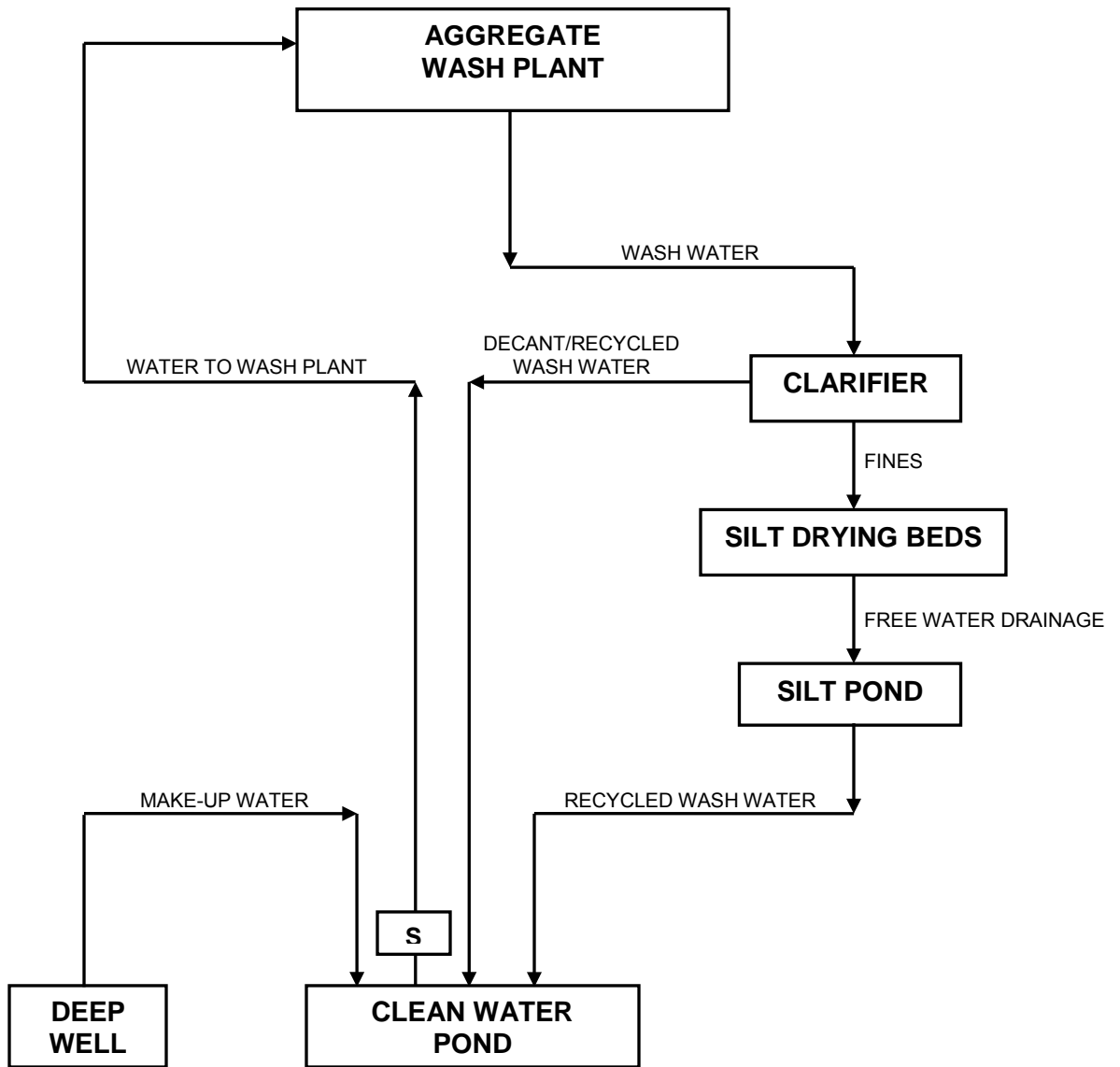




Drawing Reference:
 Reclamation Plan
 South Butte Quarry
 January 2007

FACILITY SITE MAP
 QUARRY AND PROCESSING FACILITY
 BUTTE SAND AND GRAVEL
 SOUTH BUTTE QUARRY
 SUTTER COUNTY

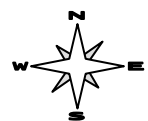

 approx. scale
 1 in. = 800 ft.



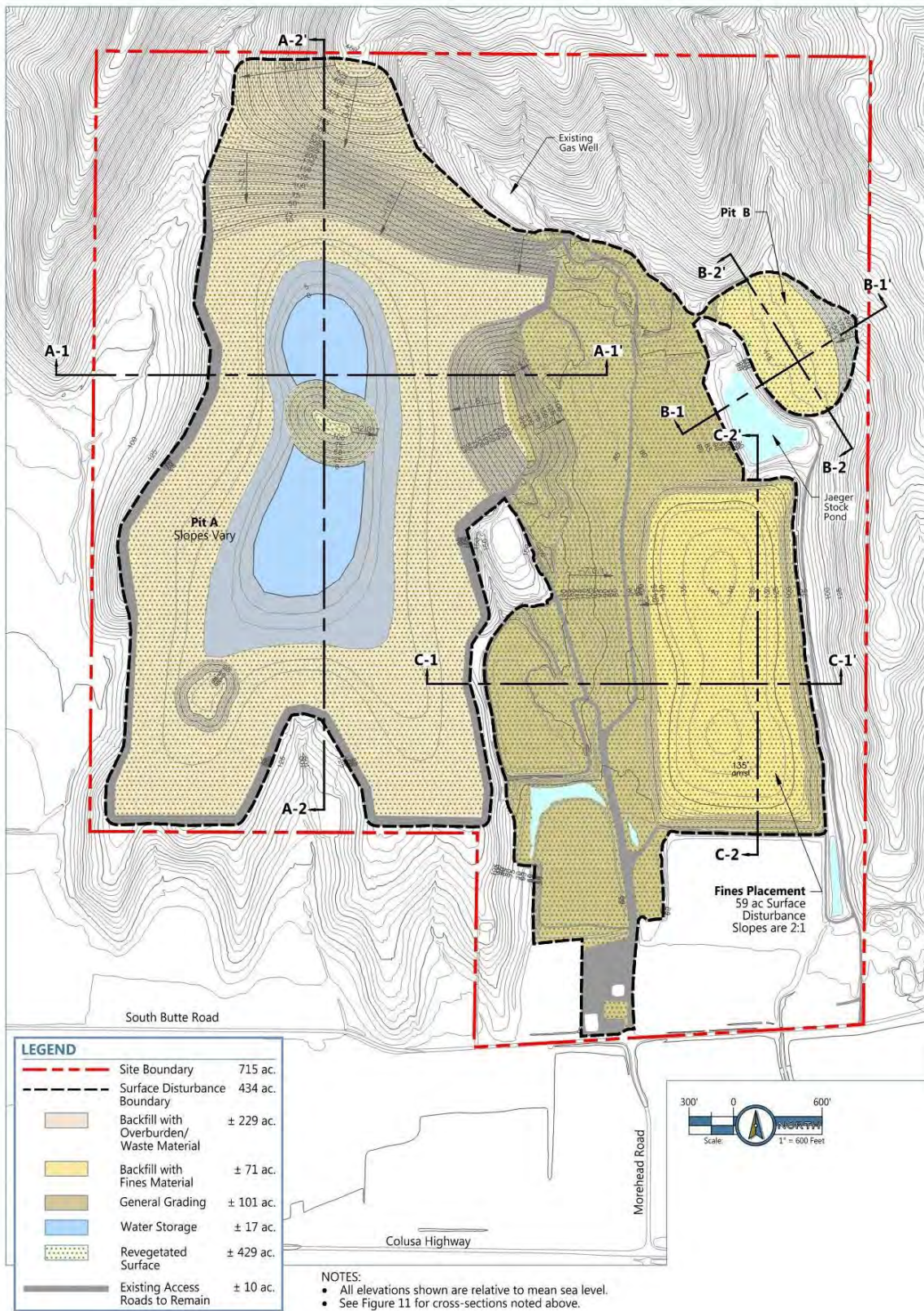
LEGEND
S – SAMPLE LOCATION

Drawing Reference:
Report of Waste Discharge
South Butte Quarry
1 May 2012

PROPOSED PROCESS FLOW DIAGRAM
BUTTE SAND AND GRAVEL
SOUTH BUTTE QUARRY
SUTTER COUNTY

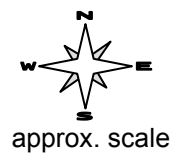


Not to Scale



Drawing Reference:
 Benchmark Resources
 South Butte Quarry
 2012

PROPOSED REVISED RECLAMATION PLAN
 (Pending Approval by Sutter County)
 BUTTE SAND AND GRAVEL
 SOUTH BUTTE QUARRY
 SUTTER COUNTY



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2013-0008

BUTTE SAND AND GRAVEL
MOREHEAD LAND LLC,
BEGONIA MCPHERRIN, ROSE MCPHERRIN AND ANNA MCPHERRIN
SOUTH BUTTE QUARRY
SUTTER COUNTY

This monitoring and reporting program (MRP) incorporates requirements for monitoring the ponds, wastewater, and water supply. This MRP is issued pursuant to Water Code Section 13267. The Discharger shall not implement any changes to this MRP unless and until a revision is issued by the Executive Officer.

All wastewater samples shall be representative of the volume and nature of the discharge. The time, date, and location of each sample shall be recorded on the sample chain of custody form. Field test instruments (such as pH and dissolved oxygen) may be used provided that:

1. The operator is trained in the proper use and maintenance of the instrument;
2. The instruments are field calibrated prior to each use;
3. Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
4. Field calibration reports are submitted as described in the "Reporting" section of this MRP.

POND MONITORING

The Clean Water Pond and Silt Pond shall be inspected weekly and monitored as follows:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Freeboard ¹	feet (± 0.1)	Measurement	Weekly	Monthly
Odors	--	Observation	Weekly	Monthly
Berm seepage ²	--	Observation	Weekly	Monthly

¹ Freeboard shall be measured vertically from the surface of the pond water to the lowest elevation of the surrounding berm and measured to the nearest 0.1 feet.

² Containment levees shall be observed for signs of seepage or surfacing water along the exterior toe of the levees. If surfacing is found, then a sample shall be collected and tested for electrical conductivity.

WASTEWATER MONITORING

Samples shall be collected from the Clean Water Pond and Silt Pond and monitored as follows:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
pH	pH units	Grab	Quarterly ²	Monthly ²
Electrical conductivity	µmhos/cm	grab	Quarterly ²	Monthly ²
Manganese ¹	mg/L	Grab	Quarterly ²	Monthly ²

¹ Samples shall be filtered prior to digestion, preservation, and analysis.

² Quarterly samples shall be collected in the months of January, April, July and October and shall be reported in the monthly monitoring reports for the month during which samples were obtained.

WATER SUPPLY MONITORING

A grab sample of water from the supply well (referred to as the Deep Well) shall be obtained and monitored as follows:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
pH	std.	Grab	Annually ¹	Annually ¹
Electric conductivity	µmhos/cm	Grab	Annually ¹	Annually ¹
Standard Minerals ²	mg/L	Grab	Annually ¹	Annually ¹
Metals ³	mg/L	Grab	Annually ¹	Annually ¹

¹ The annual sample shall be collected during the fourth quarter of each calendar year and reported in the Annual Report.

² Standard minerals shall include, at a minimum, the following: chloride, potassium, and sodium.

³ Metals shall include, at a minimum, the following: arsenic, lead, iron, and manganese. Samples shall be filtered prior to digestion, preservation, and analysis.

If after four consecutive annual samples there appears to be no significant temporal variability, the Discharger may request revision to this MRP to reduce the number of constituents monitored. A written request to the Executive Officer shall be submitted.

REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., effluent, etc.), and reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with waste discharge requirements and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported in the next scheduled monitoring report.

A. Monthly Monitoring Reports

Monthly reports shall be submitted to the Central Valley Water Board on the **1st day of the second month following sampling** (i.e. the January Report is due by 1 March). At a minimum, the reports shall include:

1. Results of the pond and wastewater monitoring. The report shall include all results, including quarterly monitoring data, if quarterly samples were obtained that month. Data shall be presented in tabular format.
2. A comparison of monitoring data to the discharge specifications and an explanation of any violation of those requirements.
3. Copies of laboratory analytical report(s).
4. A calibration log verifying calibration of all hand held monitoring instruments and devices used to comply with the prescribed monitoring program.
5. A scaled map showing relevant structures and features of the facility, the locations of receiving water monitoring and all other sampling stations.

B. Annual Monitoring Reports

An Annual Report shall be prepared and submitted to the Central Valley Water Board by **1 February** each year. The Annual Report shall include the following:

1. Analytical results for the annual water supply monitoring, including copies of laboratory analytical report(s).
2. A discussion of specific pond maintenance work completed to prevent mosquito breeding and reducing conditions to comply with Discharge Specification B.10; an evaluation of manganese best management practices (BMPs); and proposed additional BMPs as required pursuant to Provision D.1.b.
3. Tabular and graphical summaries of all data collected during the year.
4. A discussion of compliance and corrective actions taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements.

A letter transmitting the self-monitoring reports shall accompany each report. Such a letter shall include a discussion of all WDRs violations during the reporting period, and actions taken or planned for correcting each violation. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain a statement by the Discharger, or the Discharger's authorized agent, under penalty of perjury, that to the best of the signer's knowledge the report is true, accurate and

complete pursuant to Section B.3 of the Standard Provisions and Reporting Requirements.

The Discharger shall implement the above monitoring program as of the date of this Order.

Original signed by

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

1 February 2013

(Date)

LLA: 122012

INFORMATION SHEET

ORDER R5-2013-0008

BUTTE SAND AND GRAVEL, MOREHEAD LAND LLC, BEGONIA MCPHERRIN,
ROSE MCPHERRIN, AND ANNA MCPHERRIN
SOUTH BUTTE QUARRY
SUTTER COUNTY

Background

Butte Sand and Gravel submitted a Report of Waste Discharge (RWD) that describes modifications to the facility operations and expansion of the existing Butte Sand and Gravel facility. The facility was expanded to include the existing, adjacent Butte Ranch Quarry to create a single mining facility renamed as the South Butte Quarry.

The Butte Sand and Gravel facility is regulated under Waste Discharge Requirements (WDRs) Order 5-00-174, which prescribes requirements for the discharge of aggregate wash water from a gravel crushing operation to a closed, recirculation pond system consisting of two settling ponds, and recycling through reuse in the main washing plant and/or irrigation of pasture land. Butte Ranch Quarry, which performs crushing and dry processing operations of mined sand and gravel, was not previously regulated under WDRs. A January 2007 Reclamation Plan was certified for the South Butte Quarry, which allows the two adjacent aggregate mining facilities to operate as one facility and increased the mining and reclamation area from 186 acres to approximately 320 acres. The Butte Sand and Gravel facility has expanded and WDRs Order 5-00-174 no longer reflects the current facility operations. Therefore, WDRs Order 5-00-174 will be rescinded and replaced with this Order.

South Butte Quarry is owned and operated by Butte Sand and Gravel. The facility is located on land owned by Morehead Land LLC, Begonia McPherrin, Rose McPherrin, and Anna McPherrin. In 2006, a clarifier was added to the wash water and recycling system. Aggregate wash water is currently pumped to the clarifier, where polymers are added to enhance fines settlement. Water decanted from the clarifier is returned to the existing Clean Water Pond for reuse as aggregate wash water or irrigation water for the Designated Irrigation Areas (DIAs). The Discharger proposes to cease irrigation of the DIAs with water from the Clean Water Pond and/or any process water generated from the aggregate washing operations. Fines from the clarifier are sent to the fines placement area, also referred to as the Silt Drying Beds, covering approximately 70 acres. Fines are allowed to dry in place and used in reclamation of the site or excavated areas. Any free water retained in the fines is collected in the Silt Pond and returned to the Clean Water Pond. The former north Settling Pond has been filled with fines. The former south Settling Pond remains empty and will serve as a back-up fines placement area.

The derivation of selected terms and conditions of the Order is discussed below.

BUTTE SAND AND GRAVEL, MOREHEAD LAND LLC, BEGONIA MCPHERRIN, ROSE MCPHERRIN,
AND ANNA MCPHERRIN
SOUTH BUTTE QUARRY
SUTTER COUNTY

Order Terms and Conditions

The antidegradation directives of State Water Board Resolution 68-16 require that waters of the State that are better in quality than established water quality objectives be maintained "consistent with the maximum benefit to the people of the State." Waters can be of high quality for some constituents or beneficial uses and not others. Policies and procedures for complying with this directive are set forth in the Basin Plan (including by reference State Water Board Resolution 68-16, "Statement of Policy with Respect to Maintaining High Quality Waters in California," or "Antidegradation" Policy). Resolution 68-16 prohibits degradation of groundwater unless it has been shown that:

- The degradation is consistent with the maximum benefit to the people of the state.
- The degradation will not unreasonably affect present and anticipated future beneficial uses.
- The degradation does not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives, and
- The discharger employs best practicable treatment or control (BPTC) to minimize degradation.

In allowing a discharge, the Central Valley Water Board must comply with Water Code section 13263 in setting appropriate conditions. The Central Valley Water Board is required to implement the Basin Plan and consider the beneficial uses to be protected along with the water quality objectives essential for that purpose. The Central Valley Water Board need not authorize the full utilization of the waste assimilation capacity of the groundwater (Water Code section 13263(b)) and must consider other waste discharges and factors that affect that capacity.

The material used in the Discharger's operation are natural earth materials subjected to a classification and separation process using recycled wash water and site groundwater. Polymers are used to enhance fines settling and appear to add some dissolved solids to the wastewater.

Based on wastewater quality data included in the RWD, the constituent of concern that has the potential to degrade groundwater is manganese. Dissolved manganese concentrations exceeding the 50 ug/L secondary MCL were detected in the sample obtained from the Silt Pond and Clean Water Pond. The Discharger attributes the high manganese concentrations to the vegetation growth at the ponds. Vegetation falls to the bottoms of the ponds, creating reducing conditions to mobilize the manganese already present in the natural mineral composition of the silts and clays. The Discharger proposes to implement the following best management practices (BMPs) to minimize the potential for reducing conditions.

BUTTE SAND AND GRAVEL, MOREHEAD LAND LLC, BEGONIA MCPHERRIN, ROSE MCPHERRIN,
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- Implement a pond maintenance program to remove vegetation and decaying matter from accumulating on or below the water surface or perimeter of the ponds.

The following treatment and control measures are implemented at the mining facility:

- The potential for evapoconcentration and potential migration has been reduced since operation of the clarifier and discontinued use of the Settling Ponds.

This Order establishes discharge prohibitions, discharge specifications, groundwater limitations, and monitoring requirements to assure protection of the beneficial uses of groundwater.

Groundwater Limitations C.1, C.2, C.3, C.4

Groundwater limitations are established to protect the beneficial uses of groundwater. With the exception of manganese, total coliform organisms, and pH, the WDRs will set narrative groundwater limits not to exceed concentrations statistically greater than existing background groundwater quality. The discharge, in combination with other sources, shall not cause underlying groundwater to:

- Contain manganese at a concentration greater than 50 mg/L.
- Exceed the Basin Plan's numeric water quality objective for total coliform organism of 2.2 MPN/100mL.
- Exhibit a pH of less than 6.5 or greater than 8.4 pH units.
- Contain taste or odor-producing constituents, toxic substances, or any other constituents in concentrations that cause nuisance or adversely affect beneficial uses.

Provisions D.1.b

To address the high manganese concentrations detected in the Silt Pond and Clean Water Pond and reduce the potential for reducing conditions, the Discharger will implement BMPs. In order to evaluate the effectiveness of the BMPs and ensure no potential impacts to groundwater, the Order requires submittal of a *Manganese Minimization Evaluation Report* and an annual evaluation.

Monitoring Requirements

The Order requires monitoring of the ponds, wastewater, and water supply. Additional wastewater monitoring includes manganese, the only constituent for concern. In addition, the Order requires monitoring the water supply, including pH, EC, arsenic, chloride, iron, lead, manganese, potassium, and sodium to assess any potential impacts to groundwater. If results of the monitoring reveal a previously undetected threat to water quality or indicate a change in waste character such that the threat to water quality is significantly increased, the Central

Valley Water Board may reopen this Order to reconsider groundwater limitations and other requirements to comply with Resolution 68-16.

Reopener

The conditions of discharge in the Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. If the information obtained from the monitoring activities indicate a significantly increased threat to water quality, it may be appropriate to reopen the Order to address compliance with the Basin Plan.

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