

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2008-0146

WASTE DISCHARGE REQUIREMENTS
FOR
GRANITE CONSTRUCTION COMPANY
CAPAY AGGREGATE PLANT
YOLO COUNTY

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

1. Granite Construction Company (hereafter "Discharger") submitted a Report of Waste Discharge (RWD), dated 6 September 2006 to apply for revised Waste Discharge Requirements (WDRs) to regulate the discharge of aggregate wash water at its Capay Aggregate Plant aggregate mining and processing facility. Additional information was submitted on 16 February 2007 to complete the RWD.
2. The Capay Aggregate Plant is at 15560 County Road 87 near Esparto on Assessor's Parcel Numbers 048-200-18, 048-140-40, 048-200-16. The site comprises portions of Section 13 of T10N, R2W and Section 18 of T10N, R1W, MDB&M, as shown on Attachment A, which is attached hereto and made part of the Order by reference.
3. Order No. 96-276, which prescribed requirements for land discharge of aggregate wash water, was adopted by the Regional Water Board on 6 December 1996. This Order is no longer adequate because the Discharger wishes to designate all former, existing, and future mining areas as potential sediment and wash water discharge areas.

Facility and Discharge

4. The Discharger mines sand and gravel from the historical channel of Cache Creek. The Conditional Use Permit issued by Yolo County allows the Discharger to sell up to 1.2 million tons of processed aggregate per year, but no more than 10 million tons in ten years. The Yolo-Solano Air Quality Management District permit currently allows the Discharger to process up to 16,000 tons per day and 2.52 million tons per year.
5. Approximately 13% of the total mined material is fine-grained soil (silt and clay, or "fines"), which is removed during aggregate washing. The Discharger does not currently recover gold from the gravel.
6. The facility site includes former, current, and future gravel pits and extends 1.7 miles along the north bank of Cache Creek.
7. The mining operation will lower the existing land surface to a maximum depth of 150 feet (to approximately 40 feet above mean sea level). The site has been divided into several discrete areas that define the mining phases. At the beginning of each phase, approximately 2.5 feet of soil overburden is removed and stockpiled for later use in reclamation. Mining is then performed above the water table using excavation

equipment, and the aggregate is transported by conveyor systems to the processing plant.

8. Once dry excavation is completed, mining continues below the water table using a floating electric clamshell dredge. The mined aggregate is washed and dewatered on board the dredge and then transported to the processing plant by a conveyor system.
9. The dredge is equipped with cyclones to separate the fines from the sand and gravel. Fines-laden wash water from the cyclones is pumped to a dedicated clarifier to which a polymer flocculant is added. Clarified water from the dredging operation is returned to the dredge pond and the thickened fines sludge is conveyed to a previously mined pit called the "silt pond" or "settling pond" for permanent disposal.
10. At the processing plant, the aggregate is screened to separate coarse and fine aggregates. Cobbles are either stockpiled for sale or crushed and combined with the screened material for further processing. After the material is further classified, the various products may be washed again. Wash water generated at the processing plant is conveyed to two clarifiers, which also use polymer flocculant. The clarified wash water is returned by gravity to the plant supply tank for recycling, and the fines sludge is pumped to the settling pond.
11. As mining progresses across the site, any former pit may be used as a settling pond. No polymers or other flocculants are added directly to the settling ponds, but the Discharger may wish to do so in the future. As additional sludge is discharged to the pond, the pit fills with fines to the level prescribed in the Discharger's reclamation plan. Excess water in the settling pond may be recycled for use as wash water. Past, current, and future mining phases and settling pond locations are shown on Attachment B, which is attached hereto and made part of the Order by reference.
12. The aggregate washing process generates up to 1.2 million gallons per day (mgd) of slurried wash water that is discharged to the ponds, and up to 1,600 pounds of polymer flocculant is used per week.
13. Settling Pond 1 is no longer being used and is currently being reclaimed (labeled Former Pond 1 on Attachment B). Pond 2 is currently being used for wash water settling while the Discharger mines the Phase 1A area. When the Phase 1A mining is complete, that area will become the settling pond and mining will commence in the Phase 1B area. When the phase 1B mining is complete, Phase 2 mining will commence. As Phase 2 progresses, the water level will rise to cover the berm separating the Phase 1A and 1B areas, providing a larger but shallower settling pond to be used throughout Phase 2 mining.
14. A supply well near the center of the site supplies makeup water to replace water retained in the products or lost to percolation and evaporation.

15. The RWD provided analytical data to characterize the wash water discharged to the settling ponds, as tabulated below. Results for the current settling pond are based on two sampling events in January 2007. Those samples were filtered prior to preservation.

Constituent	Units	Range of Analytical Results	Potential Water Quality Limit ¹
Calcium	mg/L	33	NA
Magnesium	mg/L	28	NA
Potassium	mg/L	2.6	NA
Sodium	mg/L	44	69
Bicarbonate	mg/L	180	NA
Carbonate	mg/L	<5	NA
Hydroxide	mg/L	<5	NA
Total Alkalinity	mg/L	180	NA
Chloride	mg/L	35	106 ²
Fluoride	mg/L	0.20	1.0
Sulfate	mg/L	31	250 ²
Total dissolved solids	mg/L	290	450 ²
Electrical Conductivity	umhos/cm	510	700 ²
pH	Std.	8.08	6.5 to 8.4
Nitrate as NO ₃	mg/L	3.8	45
Hardness	mg/L	200	NA
Barium	ug/L	82 to 86	1,000
Cadmium	ug/L	< 0.20 to 0.22	0.07

NA Not applicable.

¹ Most stringent of the potential water quality limits to protect the beneficial uses of groundwater as set forth in the Basin Plan. Site-specific studies would be needed to determine the applicable water quality limits for this site. The most stringent potential water quality limits are listed as a screening tool to evaluate whether a water quality threat might exist.

² These parameters are indicative of the salinity of the discharge. Their presence in water can be growth limiting to certain agricultural crops and can affect the taste of water for human consumption. EC is a general indicator of the other salinity constituents. The secondary MCL for EC is 900 umhos/cm as a recommended level, 1600 umhos/cm as an upper level, and 2200 umhos/cm as a short-term maximum. Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985) indicates that irrigation with water with an EC of 700 umhos/cm is protective of salt sensitive crops. Most other crops can tolerate higher EC concentrations without harm. However, as the salinity of the irrigation water increases beyond 700 umhos/cm, more crops are potentially harmed by the EC, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

16. The RWD also characterized the fines discharged to the settling ponds, as tabulated below. Results are based on a single sample obtained in January 2007. The sample was subject to the California Waste Extraction Test (WET) using deionized water as the extractant.

Constituent	Units	Analytical Result	Potential Water Quality Limit ¹
Calcium	mg/L	7.4	NA
Magnesium	mg/L	4.1	NA
Sodium	mg/L	5.2	69
Bicarbonate	mg/L	35	NA
Carbonate	mg/L	<5	NA
Hydroxide	mg/L	<5	NA
Total Alkalinity	mg/L	35	NA
Chloride	mg/L	2.4	106 ²
Fluoride	mg/L	0.11	1.0
Sulfate	mg/L	1.9	250 ²
Total dissolved solids	mg/L	120	450 ²
Electrical Conductivity	umhos/cm	78	700 ²
pH	Std.	8.16	6.5 to 8.4
Nitrate as NO ₃	mg/L	0.54	45
Hardness	mg/L	36	NA
Barium	ug/L	470	1,000

NA Not applicable.

¹ See Finding 15, Footnote 1.

² See Finding 15, Footnote 2.

Other Processes and Waste Streams

17. Domestic wastewater is discharged to a septic system, which is permitted by the Yolo County Environmental Health Department.
18. Support vehicles are refueled from a 1,000-gallon aboveground storage tank that contains diesel fuel. The Discharger has prepared a Spill Prevention, Control, and Countermeasure (SPCC) Plan for the tank in accordance with Title 40 of the Code of Federal Regulations, Part 112. Heavy equipment refueling and lubrication is performed using trucks that are not stored on-site.

Site-Specific Conditions

19. The site is bounded on the north by the West Adams Canal, which transports water diverted from Cache Creek at Capay Dam.
20. The topography of the site is disturbed due to ongoing excavation and reclamation. The ground surface north of the property boundary is at an elevation of approximately 180 to 200 feet above mean sea level (MSL).
21. Soils at the site are Cache Creek stream channel deposits underlain by the Tehama Formation, which consists primarily of poorly consolidated sands and gravels up to 150 feet thick.
22. The average annual precipitation in the vicinity is 23 inches. Storm water runoff at the site drains towards mined areas. All storm water is retained on-site and percolates or evaporates.
23. The site is protected from the 100-year flood by the existing stream channel banks and a small constructed embankment at the southeastern end of the site.
24. The surrounding land is zoned for agricultural use.

Groundwater Conditions

25. Order No. 96-276 did not require groundwater monitoring, but the Discharger has been monitoring groundwater quality at the site since 1995. The groundwater monitoring program was established to comply with Yolo County Off-Channel Surface Mining ordinance (Title 10, Chapter 4) and will continue for ten years following final site reclamation.
26. The Discharger has installed five groundwater monitoring wells to monitor the first hydrostratigraphic zone beneath the site, as shown on Attachment B (MW1, MW2, MW3, MW4B, and MW5). One additional well (MW4A) monitors deeper groundwater at the eastern end of the site. Currently, two of the wells (MW1 and MW2) and the active pit pond are monitored per the Yolo County ordinance.
27. Based on the Discharger's groundwater monitoring data, shallow groundwater occurs at approximately 135 to 148 feet MSL. The groundwater flow direction is generally eastward (parallel to Cache Creek), but varies from northeastward to east-southeastward.
28. Monitoring well MW1 is typically upgradient of the site and MW-2 is generally downgradient of the current excavation below the water table. Wells MW3, MW4A, MW4B, and MW5 are farther downgradient and will be monitored as appropriate when excavation below the water table proceeds into other areas in accordance with the County ordinance. Groundwater analytical data provided in the RWD are summarized below.

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Constituent	Units	Analytical Result					
		Pre-discharge Baseline (1995) ¹			Recent Results ²		
		MW1	MW2	MW4B	MW1	Active Pit	MW2
Alkalinity	mg/L	200	180	190	230	173	183
Hardness	mg/L	220	180	200	220	165	180
Total dissolved solids	mg/L	290	250	260	297	240	237
Electrical conductivity	umhos/cm	620	490	550	497	405	400
pH	Std.	7.8	8.1	7.8	7.6	8.4	7.7
Calcium	mg/L	38	33	34	40	28	31
Magnesium	mg/L	27	27	27	28	25	24
Iron	ug/L	330	10	260	520	2,337	1,172
Manganese	ug/L	7.9	350	6.1	50	60	33
Potassium	mg/L	2.8	3.7	1.9	2.2	2.2	2.0
Sodium	mg/L	39	33	34	33	29	23
Chloride	mg/L	42	26	30	22	24	17
Fluoride	mg/L	0.19	0.25	0.16	0.11	0.17	0.14
Nitrate	mg/L	0.97	0.6	0.9	11.3	3.0	6.2
Sulfate	mg/L	25	<10	23	19	20	16
Chromium	ug/L	<7	36	<7	<20	5	<20
Other metals ³	ug/L	ND	ND	ND	ND	ND	ND
Petroleum hydrocarbons ⁴	mg/L	ND	ND	ND	ND	ND	ND
Total coliform organisms ⁵	MPN/100mL	--	--	--	23	300	130
Fecal coliform organisms ⁵	MPN/100mL	--	--	--	2	23	<2
E. coli ⁵	MPN/100mL	--	--	--	2	110	4

¹ Based on a single sample obtained in November 1995.

² Mean of three samples obtained in 2005 and 2006.

³ Includes arsenic, lead, selenium, thallium, antimony, barium, beryllium, cadmium, cobalt, copper, mercury, molybdenum, nickel, silver, vanadium, and zinc.

⁴ Includes TPH-diesel, TPH-motor oil, benzene, toluene, ethylbenzene, and xylenes.

⁵ With the exception of the pit water, results for fecal coliform and E. coli were often non-detect. The highest result is tabulated.

Based on these data, it appears that mining activities at the site may have degraded shallow groundwater quality in a limited manner:

- a. For iron, pre-discharge detections ranged from 10 to 330 ug/L in shallow groundwater. Recent detections in both the active pit and groundwater upgradient and downgradient of the pit varied greatly with up to 630 ug/L in the upgradient well, 6,500 ug/L in the active pit, and 2,300 ug/L in the downgradient well. However, iron was reportedly 2,200 ug/L in the upgradient well and 5,300 ug/L in MW5 in January 1999 ¹, so the data do not conclusively demonstrate degradation caused by the discharge. Degradation, if verified, may be due to the use of steel in the dredge and processing plant equipment.
- b. Active mining below the water table appears to have created a source of coliform organisms, including fecal coliform and E. coli, which are detectable downgradient of the active pit. However, although coliform organisms were consistently detected in both the upgradient and downgradient monitoring wells, fecal coliform and E. coli detections have been sporadic, and downgradient results are very similar to upgradient results.

For nitrate, both background and downgradient concentrations appear to have increased since mining began. There is no evidence indicating that mining activities or the discharge have caused this change.

It is appropriate to require that the Discharger continue monitoring groundwater quality in accordance with the Yolo County ordinance, and provide an evaluation of background groundwater quality and potential degradation. The Discharger currently monitors groundwater quality once yearly, which is not frequent enough to allow the Discharger to adequately evaluate spatial and temporal trends. Therefore, it is appropriate to require quarterly groundwater testing for a brief period before reverting to the yearly testing protocol.

Basin Plan, Beneficial Uses, and Regulatory Considerations

29. 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 Resources Control Board (State Board). Pursuant to Section 13263(a) of the California Water Code, waste discharge requirements must implement the Basin Plan.
30. Surface water drainage in the vicinity of the facility is to Cache Creek. The Basin Plan designates the beneficial uses of Cache Creek as municipal and domestic supply; agricultural supply; industrial supply; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; spawning, reproduction, and/or early development; and wildlife habitat.

¹ Excavation below the water table did not commence until after that time.

31. The Basin Plan designates the beneficial uses of underlying groundwater as municipal and domestic, industrial, and agricultural supply.
32. The Basin Plan establishes numerical and narrative water quality objectives for surface water and groundwater within the basin. Numerical water quality objectives are maximum limits directly applicable to the protection of designated beneficial uses of the water. The Basin Plan requires that the Regional Water Board, on a case-by-case basis, follow specified procedures to determine maximum numerical limitations that apply the narrative objectives when it adopts waste discharge requirements.
33. The Basin Plan includes a water quality objective for Chemical Constituents that, at a minimum, requires waters designated as domestic or municipal supply to meet the maximum contaminant levels (MCLs) specified in the following provisions of Title 22, California Code of Regulations: Tables 64431-A (Inorganic Chemicals) and 64431-B (Fluoride) of Section 64431, Table 64444-A (Organic Chemicals) of Section 64444, Table 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) of Section 64449, and 64449-B (Secondary Maximum Contaminant Levels-Ranges) of Section 64449. The Basin Plan's incorporation of these provisions by reference is prospective, and includes future changes to the incorporated provisions as the changes take effect. The Basin Plan recognizes that that the Regional 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.
34. The Basin Plan contains narrative water quality objectives for Chemical Constituents, Tastes and Odors, and Toxicity. The Toxicity objective, in summary, requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial uses. The Chemical Constituents objective requires that groundwater "shall not contain chemical constituents in concentrations that adversely affect beneficial uses". The Tastes and Odors objective requires that groundwater "shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses". Chapter IV, Implementation, of the Basin Plan contains the "Policy for Application of Water Quality Objectives". This Policy specifies, in part, that compliance with narrative water quality objectives may be evaluated considering numerical criteria and guidelines developed and/or published by other agencies and organizations.
35. State Board Resolution No. 68-16 does not allow degradation of groundwater quality 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 cause exceedance of one or more water quality objectives; and

- d. The discharger employs best practicable treatment and control of the discharge to minimize degradation.
36. Although it is within the Regional Water Board's purview to allow a discharger to utilize some or all of the assimilative capacity of groundwater, it is the Regional Water Board's long-standing practice not to do so unless the discharger has first demonstrated that it would satisfy State Board Resolution No. 68-16. Notwithstanding the apparent low potential for exceedance of water quality objectives, the Discharger has not provided the required demonstration to be allowed to cause groundwater degradation. Therefore, none is authorized.
37. The Discharger's waste characterization and groundwater monitoring data indicate that the discharge has some potential to degrade groundwater with various inorganic constituents. However, groundwater monitoring data submitted in the RWD are not sufficient to allow determination of background groundwater quality or detect potential groundwater degradation. It is possible that degradation of groundwater will occur from evapoconcentration and natural geochemical processes associated with exposure of groundwater to the atmosphere. It is therefore appropriate to require that the Discharger formally determine background groundwater quality and evaluate whether the discharge has degraded groundwater quality.
38. Section 13267(b) of California Water Code states that: "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, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of discharging, or who proposes to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional 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 monitoring and reporting program required by this Order in the attached Monitoring and Reporting Program No. R5-2008-0146 is necessary to ensure compliance with these waste discharge requirements. The Discharger operates the facility that discharges the waste subject to this Order.
39. On 28 July 1996, the Yolo County Board of Supervisors approved the Yolo County Off-Channel Mining Plan, the Off-Channel Surface Mining Ordinance, and the Surface Mining Reclamation Ordinance. A Programmatic Environmental Impact Report (PEIR) for all aggregate mining operations along Cache Creek was certified on 20 August 1996 in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, et seq.) and the State CEQA Guidelines.

40. On 17 December 1996, the Yolo County Board of Supervisors certified a Final Project EIR for the Discharger's aggregate mining operation in accordance with CEQA.
41. On 26 November 2002, the Yolo County Board of Supervisors certified a Final Supplemental EIR (FSEIR) for the project. The FSEIR evaluated impacts associated with the following proposed changes to the project:
 - a. Increasing the allowed depth of mining;
 - b. Decreasing the mined area;
 - c. Revisions to the mining phases;
 - d. The proposed addition of ready-mixed concrete and asphaltic concrete plants;
 - e. The proposed addition of a concrete recycling plant; and
 - f. Modifications to the approved reclamation plan.
42. The applicable Mitigation Measures for water quality are:
 - a. Complete specific bank modifications to prevent pit capture;
 - b. Obtain a Flood Hazard Development Permit;
 - c. A temporary 700-foot setback requirement pending completion of the bank modifications;
 - d. Implement as specific channel bank and levee maintenance program;
 - e. Construct impermeable liners for all concrete wash water discharge areas; and
 - f. Submit a septic system design for approval prior to installation.
43. Implementation of the specific mitigation measures set forth in the FEIR and the FSEIR and compliance with waste discharge requirements will mitigate or avoid significant impacts to water quality.
44. The Discharger has no immediate plans to operate a ready-mixed concrete plant, and the RWD did not include a design for a concrete wash water containment system. Therefore, it is appropriate to prohibit operation of a concrete plant under this Order.
45. The Discharger has filed a Notice of Non-Applicability to terminate coverage under the State Board's Water Quality Order No. 97-03-DWQ National Pollutant Discharge Elimination System (NPDES), General Permit No. CAS 000001, Waste Discharge Requirements (WDRs) for Discharges of Storm Water Associated with Industrial Activities (excluding construction activities). Action on the notice is pending.
46. The Discharger will continue to implement the approved Reclamation Plan to comply with Section 272 of the Surface Mining and Reclamation Act.

47. This discharge is exempt from the requirements of *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, CCR, Division 2, Subdivision 1, Section 20005, et seq., (hereafter Title 27). The exemption pursuant to Section 20090(b), is based on the following:
- a. The Regional Water Board is issuing these waste discharge requirements, which implement the Basin Plan;
 - b. The Discharger will comply with these waste discharge requirements; and
 - c. The wastewater does not need to be managed according to Title 22 CCR, Division 4.5, and Chapter 11, as a hazardous waste.
48. Pursuant to California 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

49. 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.
50. The Discharger and interested agencies and persons have been notified of the intent to prescribe waste discharge requirements for this discharge, and they have been provided an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
51. All comments pertaining to the discharge were heard and considered in a public meeting.

IT IS HEREBY ORDERED that Order No. 96-276 is rescinded and that, pursuant to Sections 13263 and 13267 of the California Water Code, Granite Construction Company and its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

[Note: Other prohibitions, conditions, definitions, and methods of determining compliance are contained in the attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements" dated 1 March 1991.]

A. Discharge Prohibitions:

1. Discharge of wastes to surface waters or surface water drainage courses is prohibited.
2. Discharge of storm water to surface waters or surface water drainage courses from operational areas, areas used to stockpile products and wastes, and areas disturbed by operations is prohibited unless the Discharger first obtains coverage under State Water Board Order No. 97-03-DWQ.
3. The use of metallic salts (such as alum) for aggregate wash water coagulation is

prohibited.

4. The use of mercury or other hazardous materials for gold recovery is prohibited.
5. Discharge of concrete wash water or wastes containing unhydrated Portland cement is prohibited.
6. Discharge of domestic waste to the aggregate wash water ponds is prohibited.
7. Discharge of waste classified as hazardous, as defined in Section 2521(a) of Title 23, CCR, Section 2510, et seq., (hereafter Chapter 15) is prohibited.
8. Discharge of waste classified as 'designated', as defined in Section 13173 of the California Water Code, is prohibited except as expressly authorized herein.
9. Discharge or deposit of waste materials at this site other than inert waste as defined in Title 27, CCR, Section 20230 is prohibited.

B. Discharge Specifications:

1. The Discharger shall process no more than 2.52 million tons of aggregate per year in accordance with the permit issued by the Yolo-Solano Air Quality Management District.
2. Water or process wash water, if used for on-site dust control or landscape irrigation, 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.
3. The discharge shall remain within the designated storage and disposal areas at all times. Additional settling ponds and fines deposition areas may be constructed as needed outside of the 100-year floodplain, and within the confines of the facility site as defined on Attachments A and B.
4. No waste discharge shall occur within the 100-year floodplain.
5. The Discharger shall operate all systems and equipment to optimize the quality of the discharge.
6. The ponds shall be managed to prevent breeding of mosquitoes. In particular,
 - a. An erosion control program should assure 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 the water surface.
7. The wash water containment system shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

8. All stockpiled wastes and products shall be managed to prevent erosion of sediment to surface water drainage courses.
9. Newly constructed or rehabilitated levees or berms that hold back water shall be designed and constructed under the direct supervision of a California Registered Civil Engineer or Engineering Geologist.
10. The freeboard in any pond that receives or has received wash water shall never be less than two feet as measured vertically from the water surface to the lowest point of potential overflow.
11. The wash water ponds shall have sufficient capacity to accommodate wash water flows and design seasonal precipitation. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with the historical rainfall patterns.
12. On or about **1 November** of each year, available pond storage capacity shall at least equal the volume necessary to continuously comply with Discharge Specifications B.9 and B.10.
13. Neither the treatment nor the discharge shall cause a nuisance or condition of pollution as defined by the California Water Code, Section 13050.
14. Septage shall be discharged only to a permitted municipal wastewater treatment or equivalent facility. All transportation of septage or other wastewater shall be performed by a duly authorized service.

C. Groundwater Limitations

The discharge shall not cause the groundwater beneath or beyond the site to contain any constituent in a concentration greater than background groundwater quality (as determined by an approved background groundwater quality study).

D. Solids Disposal Requirements:

1. Sludge and solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, CCR, Division 2, Subdivision 1, Section 20005, et seq.
2. Any proposed change in solids disposal practice from a previously approved practice shall be reported to the Executive Officer in the next monthly monitoring report.

E. Provisions:

1. The following reports shall be submitted pursuant to Section 13267 of the California Water Code and shall be prepared as described in Provision E.2:
 - a. By **30 November 2008**, the Discharger shall submit a copy of the groundwater monitoring plan that has been approved by Yolo County. The submittal shall include well boring logs and construction diagrams for all groundwater monitoring wells, a description of the function of each well (e.g., which wells are used as piezometers and which are sampled), and a sampling and analysis plan.
 - b. By **30 March 2010**, the Discharger shall submit a *Background Groundwater Quality Study Report*. For each groundwater monitoring parameter/constituent identified in the County-approved groundwater monitoring plan, the report shall present a summary of all historical monitoring data for all existing monitoring wells (including groundwater elevations and analytical results), groundwater elevation contour maps for the last eight water level monitoring events, calculation of the concentration in background monitoring wells, and comparison of background groundwater quality to that in wells used to monitor the facility. Determination of background quality shall be made using the methods described in Title 27, Section 20415(e)(10). For each monitoring parameter/constituent, the report shall compare measured concentrations for compliance monitoring wells with the calculated background concentration. If sufficient pre-discharge monitoring data are available, intrawell analyses may be used to assess potential degradation
2. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geological sciences, shall be prepared by, or under the direction of, persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1. To demonstrate compliance with section 415 and 3065 of Title 16, CCR, all technical reports, must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
3. The Discharger shall comply with the Monitoring and Reporting Program No. R5-2008-0146, which is a part of this Order, and any revisions thereto as ordered by the Executive Officer.
4. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements", dated 1 March 1991, which are attached hereto and by reference a part of this Order. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."

5. The Discharger shall submit to the Regional Water Board on or before each compliance report due date the specified document, or if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is reported, then the Discharger shall state the reasons for noncompliance and shall provide a schedule to come into compliance.
6. The Discharger shall report promptly to the Regional Water Board any material change or proposed change in the character, location, or volume of the discharge.
7. In the event of any change in control or ownership of land or waste discharge facilities owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by certified letter, a copy of which shall be forwarded to this office.
8. The Discharger shall comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Regional Water Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.
9. A copy of this Order shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.
10. The Regional Water Board will review this Order periodically and may revise requirements when necessary.

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 11 September 2008.

PAMELA C. CREEDON, Executive Officer

ALO:09/26/08

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2008-0146

FOR
GRANITE CONSTRUCTION COMPANY
CAPAY AGGREGATE PLANT
YOLO COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring aggregate wash water ponds, aggregate wash water, and groundwater. This MRP is issued pursuant to Water Code Section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer.

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

1. The operator is trained in proper use and maintenance of the instruments;
2. The instruments are calibrated prior to each monitoring event;
3. The 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 the MRP.

PIT AND SETTLING POND MONITORING

Each pit and settling pond that receives wash water or fines shall be inspected weekly and monitored as follows:

<u>Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Freeboard	0.1 Feet	Measurement	Weekly	Monthly
Berm condition	N/A	Observation	Weekly	Monthly

PIT AND WASH WATER MONITORING

A grab sample shall be obtained from each active pit and wash water settling pond, and shall be monitored as follows:

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Electrical conductivity	umhos/cm	Grab	Monthly	Monthly
pH	std.	Grab	Monthly	Monthly

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Standard Minerals ¹	mg/L	Grab	Semi-annually	Monthly ²

¹ Standard Minerals shall include alkalinity, hardness, total dissolved solids, calcium, magnesium, potassium, sodium, chloride, fluoride, nitrate, sulfate, and chromium.

² Results shall be included in the monthly report for the last month of the calendar quarter.

GROUNDWATER MONITORING

The Discharger shall monitor groundwater quality, and shall analyze groundwater samples for all of the parameters required by Yolo County. Effective immediately, all monitoring wells shall be sampled quarterly. Upon completion of four consecutive quarters of groundwater monitoring, the frequency shall be reduced to once per year. Regardless of the sampling frequency, groundwater monitoring results shall be submitted in the Annual Monitoring Report.

Groundwater elevations shall be measured prior to purging. Each well shall be purged of at least three well volumes until pH and electrical conductivity have stabilized prior to sampling. Depth to groundwater shall be measured to the nearest 0.01 feet. Water table elevations shall be calculated based on surveyed wellhead elevations and used to determine groundwater gradient and direction of flow. Groundwater samples shall be collected and analyzed using approved EPA methods. With the exception of samples to be tested for coliform organisms, samples shall be filtered prior to preservation.

REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., pit, settling pond, groundwater), 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.

As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all groundwater quality evaluations shall be prepared under the direct supervision of a Registered Engineer or Geologist and signed by the registered professional.

A. Monthly Monitoring Reports

Monthly Monitoring Reports shall be submitted to the Regional 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 Monthly Monitoring Report shall include:

1. Total weight of material processed in tons.
2. Results of pit and pond monitoring.
3. A current scaled map depicting the locations of all active pits, settling ponds, the locations where freeboard is measured, and wash water sampling locations.
4. A comparison of monitoring data to the discharge specifications and an explanation of any violation of those requirements. Data shall be presented in tabular format.
5. Copies of laboratory analytical report(s).
6. A calibration log verifying calibration of all field monitoring instruments used.

B. Annual Monitoring Report

An Annual Monitoring Report shall be submitted to the Regional Water Board by **1 February** each year. The Annual Monitoring Report shall include the following:

1. Results of all groundwater monitoring, including all groundwater elevation and water quality data obtained in accordance with the mining permit issued by Yolo County.
2. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the groundwater monitoring. The narrative shall be sufficiently detailed to verify compliance with the WDRs, this MRP, and the Standard Provisions and Reporting Requirements. The narrative shall be supported by field logs for each well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged;
3. For each groundwater monitoring event, calculation of groundwater elevations, groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends if any;
4. A narrative discussion of the analytical results for all groundwater locations monitored including spatial and temporal trends, with reference to summary data tables, graphs, and appended analytical reports (as applicable);
5. A comparison of monitoring data to the groundwater limitations and an explanation of any violation of those requirements;
6. Summary data tables of all historical and current water table elevations, flow direction, and groundwater analytical results;
7. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum;
8. Copies of laboratory analytical report(s) for groundwater monitoring.
9. An evaluation of the groundwater quality;

10. A discussion of compliance and the corrective actions taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements;
11. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.

A transmittal letter shall accompany each self-monitoring report. The letter shall discuss any violations during the reporting period and all actions taken or planned for correcting violations, such as operation or facility modifications. 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.

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

PAMELA C. CREEDON, Executive Officer

11 September 2008
(Date)

INFORMATION SHEET

ORDER NO. R5-2008-0146
GRANITE CONSTRUCTION COMPANY
CAPAY AGGREGATE PLANT
YOLO COUNTY

Granite Construction Company owns and operates an off-channel aggregate mine and aggregate processing plant along the north bank of Cache Creek near Esparto. The Discharger mines sand and gravel from the historical channel of Cache Creek, and is permitted to process up to 2.52 million tons per year. The site is protected from the 100-year flood by the existing stream channel banks and a small constructed embankment at the southeastern end of the site.

The mining operation will lower the existing land surface by approximately 150 feet. Mining is performed both above and below the water table. The aggregate is screened to separate coarse and fine aggregates. Cobbles are either stockpiled for sale or crushed and combined with the screened material for further processing. After the material is further classified, the various products may be washed again.

Wash water generated on the dredge and at the processing plant is conveyed to three clarifiers, which use polymer flocculant. Clarified water from the dredging operation is returned to the dredge pond and the thickened fines sludge is conveyed to a previously mined pit called the "silt pond" or "settling pond" for permanent disposal. The clarified wash water from the processing plant is returned to the plant supply tank for recycling, and the fines sludge is pumped to the settling pond. The aggregate washing process generates up to 1.2 million gallons per day (mgd) of wash water, and up to 1,600 pounds of polymer flocculant is used per week.

As mining progresses across the site, any former pit may be used as a settling pond. As sludge is discharged to the pond, the pit fills with fines to the level prescribed in the Discharger's reclamation plan. Excess water in the settling pond may be recycled for use as wash water.

The Discharger submitted a water balance for the facility that demonstrated adequate capacity for proposed wash water flows. Because the mining operation will leave large depressions even after reclamation is complete, the facility's true wash water storage and disposal capacity is far greater than required to prevent off-site discharge. Therefore, imposing minimum freeboard requirements on the settling pond system should be sufficient to protect water quality, and no flow limitation is necessary.

The previous WDRs (Order No. 96-276) did not require groundwater monitoring, but the Discharger has been monitoring groundwater quality at the site since 1995 in accordance with the Yolo County Off-Channel Surface Mining Ordinance. Shallow groundwater occurs at approximately 135 to 148 feet MSL (approximately 50 to 60 feet below the pre-mining site grade). The groundwater flow direction is generally eastward (parallel to Cache Creek).

Although some analytical data for both background groundwater and wastewater were submitted with the RWD, the RWD did not include a statistical analysis to formally determine background groundwater concentrations. Based on a preliminary evaluation of pre-discharge and recent groundwater data provided in the RWD, it appears that mining activities and/or the

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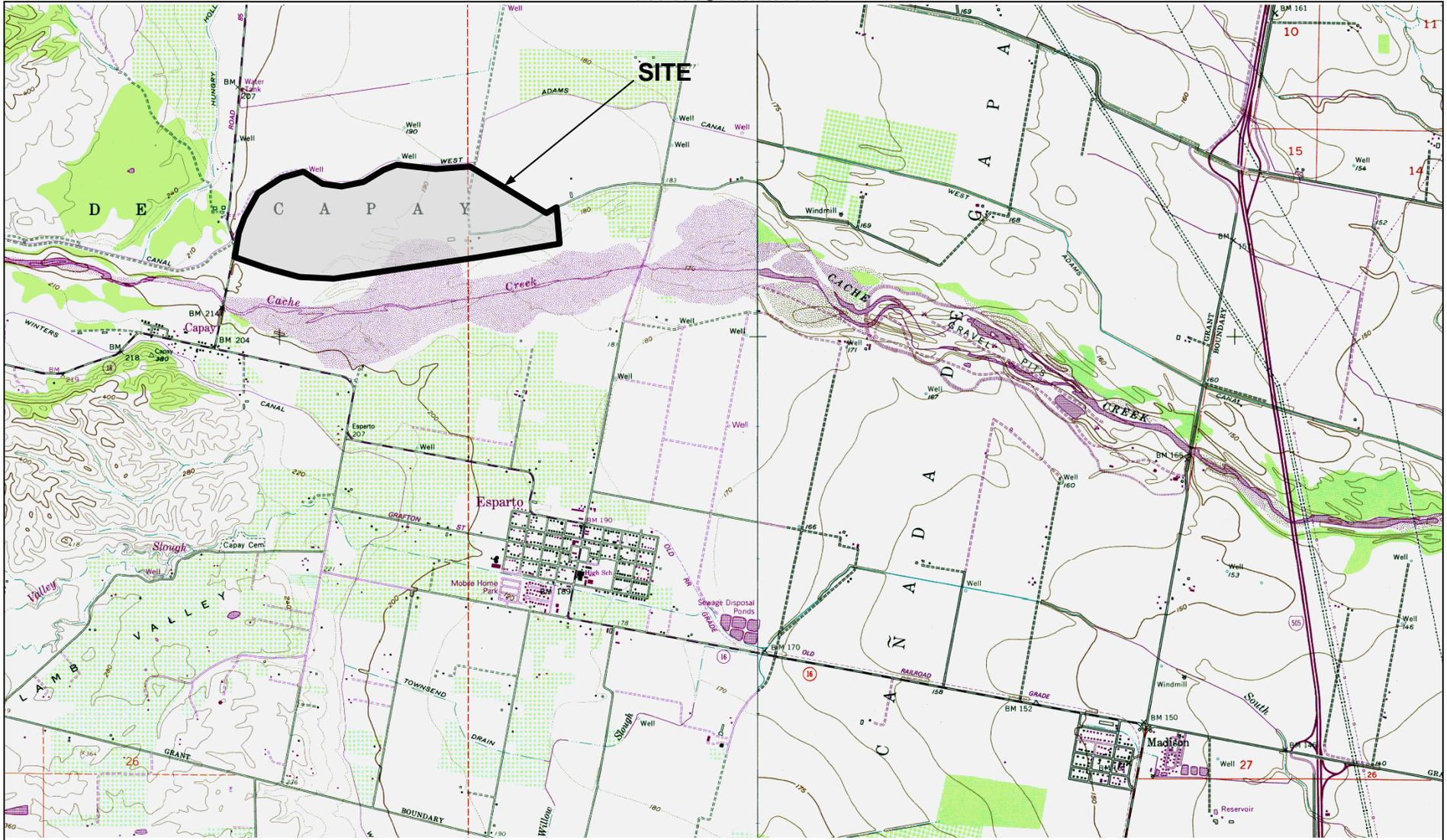
discharge may have degraded shallow groundwater quality with iron and coliform organisms. However, the data are not conclusive.

Because aggregate wash water is discharged directly to groundwater exposed in the main excavation pit, it is appropriate to impose groundwater limitations. It is also appropriate to require that the Discharger perform routine monitoring of groundwater and water in the excavation pits and settling ponds allow ongoing evaluation of potential groundwater degradation.

This Order requires that the Discharger continue to monitoring groundwater quality in accordance with the Yolo County ordinance, and provide an evaluation of background groundwater quality and potential degradation. Once this evaluation is completed, an evaluation of beneficial use impacts and/or best practicable treatment and control measures can be required as appropriate to ensure compliance with State Board Resolution No. 68-16.

ALO:9/26/08

ATTACHMENT A



Drawing Reference:
USGS 7.5 minute quad map.
Esparto, CA

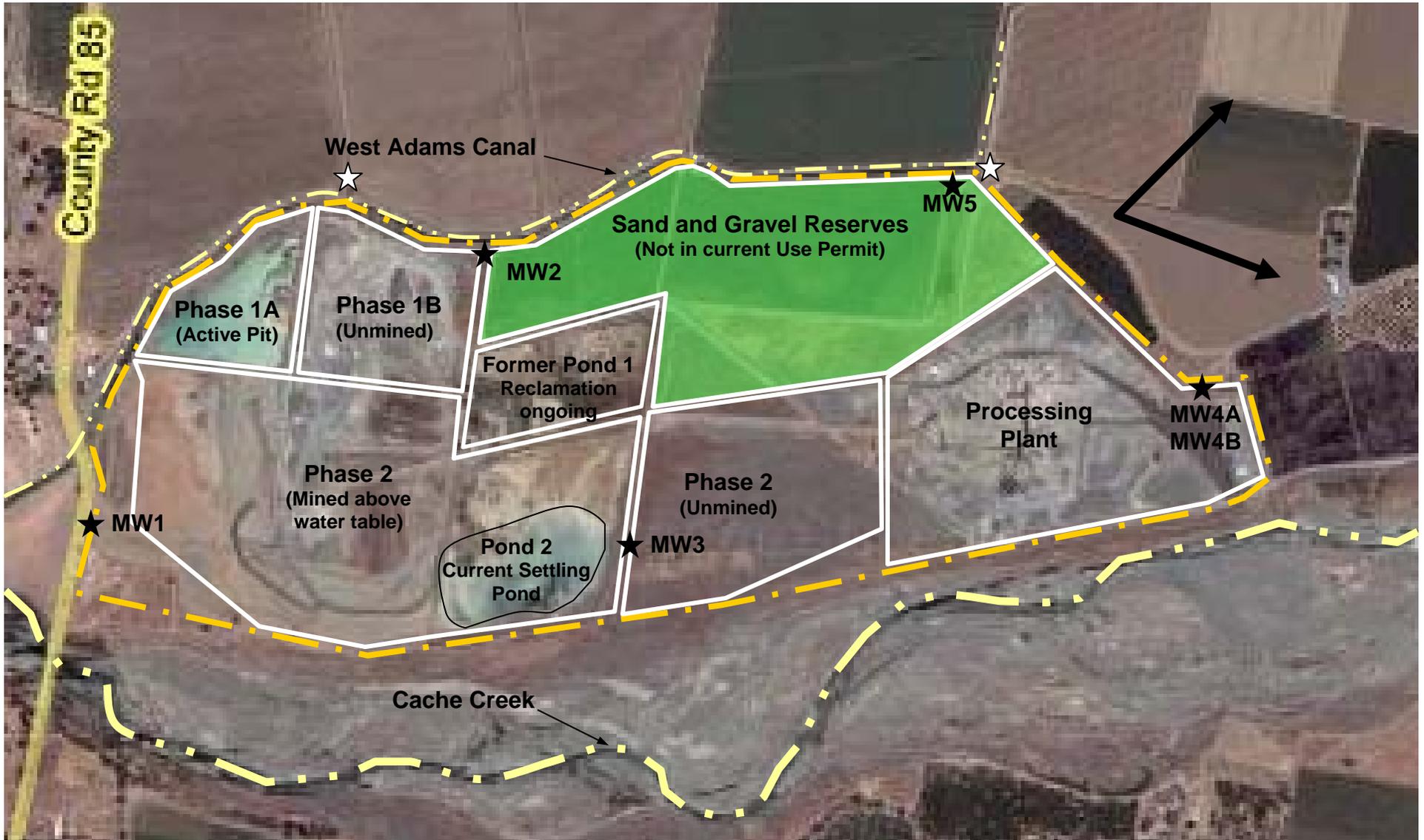
LOCATION MAP
GRANITE CONSTRUCTION COMPANY
CAPAY AGGREGATE PLANT
YOLO COUNTY

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Approx. Scale:
1" = 3,800'

ATTACHMENT B



Drawing Reference: Google Maps; RWD

- - - Site Boundary
- ★ Monitoring Well
- ☆ Production Well
- Groundwater Gradient

SITE PLAN
 GRANITE CONSTRUCTION COMPANY
 CAPAY AGGREGATE PLANT
 YOLO COUNTY

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N



Approx. Scale:
1" = 1,000'