



Concrete Washout Selection and Estimating Guideline

Summary Report

December 2005

CTSW-RT-05-138-04.1

California Department of Transportation
Division of Environmental Analysis, Storm Water Program,
1120 N Street, Sacramento, California

<u>Section</u>	<u>Page No.</u>
1.0 Purpose.....	1
1.1 Background	1
1.2 Regulatory Requirements.....	1
1.3 Definition of Waste.....	2
1.4 Units and Conversion Factors	2
2.0 Summary of Concrete Waste Generation	2
2.1 PCC Paving Operations	3
2.2 Structure Construction	4
2.2.1 Bridge Decks	4
2.2.2 Columns and Footings	5
2.2.3 Walls	5
2.2.4 Structural Summary	6
2.3 Median Barriers	9
2.4 Minor Concrete	9
3.0 Concrete Washout Size & Associated Costs.....	9
3.1 Above Grade Concrete Washout	11
3.2 Below Grade Concrete Washout	12
3.3 Portable Concrete Washout.....	13
3.4 Vendor Supplied Concrete Washout	13
3.5 Concrete Washout Costs Summary	14
4.0 Location	15
5.0 Concrete Washout Selection & Cost Estimation.....	15
5.1 Sample Problem 1	18
5.2 Sample Problem 2.....	20
5.3 Limitations	22
5.4 Conclusion.....	22
6.0 Contractor Interview Summary	22
Appendix A-Site Visits	
Appendix B-Contractor Interviews	

1.0 Purpose

This report is a guideline for Caltrans Office of Storm Water Management to use in estimating costs associated with construction site water pollution control, specifically for concrete washout facilities. The information herein will provide Caltrans staff with a better understanding of the types of concrete washouts most suitable for a particular project and also will assist in more accurately estimating the total number of washouts and their respective costs for a project.

1.1 Background

Contractors are required to use Best Management Practices (BMPs) to prevent residual contaminants from washing down concrete placement equipment such as concrete trucks, pump trucks, mixers, and their respective components from discharging into storm drain systems, groundwater, and contaminating surrounding soils. The primary ingredient in ready-mix concrete is Portland Cement, which contains Aluminum, Barium, Chromium, Hexavalent Chromium (Chromium 6), Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Selenium, Sodium, Vanadium, and Zinc. Washout wastewater carrying this concrete is highly caustic with a pH of 12 and as such requires proper handling and disposal. Current practices include: above grade, below grade, portable, and vendor supplied washout facilities.

This report is based on site observations throughout Northern and Southern California where a total of 29 ongoing Caltrans construction projects were visited. The site visits included observations of concrete washout procedures for Storm Water Pollution Prevention Plan implementation. Data was gathered by interviewing Caltrans Resident Engineers, Caltrans site inspectors, and the Caltrans contractors. Copies of the project site checklists and interview information are located in the Appendices.

In addition to the site visits eight chief estimators from Contractors who were familiar with Caltrans projects were interviewed by phone regarding contractor's individual preferences and procedures for estimating costs for washout facilities. Section 6.0 of this report details the findings from these interviews. These surveys are located in Appendix B.

1.2 Regulatory Requirements

Concrete washout facilities requirements shall be provided in accordance with:

- Caltrans Statewide NPDES Permit (Provision C-2, E and H)

- Caltrans Storm Water Management Plan (Sections 3 and 4, May 2003)

1.3 Definition of Waste

The term “waste” used in this report refers to all of the debris accumulated in a concrete washout during washout operations. It is comprised of the water used during washout operations, residual concrete, and solid pieces of concrete removed from concrete placement equipment. In general, the residual concrete and solids made up a fraction of the volume of total waste.

The water gage from the concrete truck was used in determining the amount of water used during washout operations. This resulted in a conservative number as the amount of waste collected in a washout facilities was actually less because of the splattering caused by use of the high-pressure hose.

1.4 Units and Conversion Factors

For the purpose of this report Imperial units will be used except in the Section 5.0 sample problems where Metric units are used. Site observations include both types of units but for analysis all metric units were converted.

The following conversion factors were used:

1 cubic meter=1.308 cubic yard

1 cubic foot = 7.48 gallons

1 cubic yard=201.98 gallons

2.0 Summary of Concrete Waste Generation

The volume of the concrete placing operations observed averaged approximately 64 cubic yards of concrete placed at each of the 29 projects. The total volume observed at any project site ranged between 2 – 224 cubic yards. Data was collected from a broad range of different types of Caltrans projects. However, due to Caltrans scheduling constraints the data obtained from this study was primarily from PCC paving operations and structural projects consisting of bridge abutments, bridge decks, columns, footings, retaining walls, and sound barriers.

2.1 PCC Paving Operations (See Appendix A, Site Visits 1-7)

The Caltrans PCC paving projects observed consisted of highway entrance and exit ramps, freeway widening projects, and HOV lane additions. A total of seven PCC paving sites were visited.

Average water consumption during the washing out of concrete trucks during PCC paving operations was 17 gallons per truck. In addition it was estimated that a total of 3 gallons of solid concrete waste accumulated, on average, during each of these seven project visits. Approximately 0.2% of the total volume of observed concrete placed was solid waste and 0.8% liquid waste, for a total combined waste of approximately 1.0% from washing the concrete trucks.

Concrete placement equipment was observed being cleaned on only two of the seven sites visited for PCC paving. Equipment cleaned included a clamshell bucket and pump truck. Two and 25 gallons of water were consumed respectively for this washout operation.

Average contract costs for these projects is \$37.7 million, with an average of \$9.1 million being set aside as direct concrete costs. This results in an average percentage of total concrete cost to the total project cost for PCC paving operations of 24%. See Table 1 and 2 for summary of observations.

Table 1 – Summary of Waste Data Collected from PCC Site Visits

Site Visit No.	Concrete Observed Placed (cy)	Concrete Observed Placed (gal)	Total Waste Water (gal)	Avg. Waste Water (gal)	% Waste Water	Total Waste Concrete (gal)	Avg. Waste Concrete (gal)	% Waste Concrete	Avg. Waste from Placement Equipment (gal)
1	20	4040	32	16	0.79%	6	3	0.15%	not observed
2	20	4040	34	17	0.84%	6	3	0.15%	not observed
3	30	6059	41	14	0.68%	9	3	0.15%	2
4	218	44032	327	15	0.74%	87	4	0.20%	25
5	20	4040	30	15	0.74%	6	3	0.15%	not observed
6	100	20198	238	25	1.18%	21	2	0.10%	not observed
7	37	7473	not noted			not noted			not observed
Average	64			17	0.83%		3	0.15%	

Table 2 – Summary of Cost Data Collected from PCC Site Visits

Site Visit No.	Washout Type	Concrete Washout Cost (ea)	Contract Concrete Cost	Total Contract Cost
1	below grade		\$18,000,000	\$83,710,000
2	above grade	Included in concrete	\$655,500	\$5,477,000
3	below grade	\$ 3,000	\$20,000,000	\$52,000,000
4	above grade			\$71,306,488
5	portable	Included in concrete	\$11,500,000	\$20,000,000
6	below grade	\$ 2,200	\$2,800,000	\$13,500,000
7 ¹	none	\$9000 (Total)	\$1,451,950	\$17,876,106
Average		\$ 2,600	\$9,067,908	\$37,695,656

1. No washout was observed onsite. Trucks were observed being washed out onto the ground at the batch plant.

2.2 Structure Construction (See Appendix A, Site Visits 8-25, 29)

Figure 2 – Construction of Column



2.2.1 Bridge Decks (See Appendix A, Visits 8-14)

Average water consumption used during the washing out of concrete trucks during the six bridge construction projects was 25 gallons. It was estimated that a total of 5 gallons of solid concrete waste accumulated, on average, during each of these washout periods. Approximately 0.2% of the total volume of observed concrete placed was solid waste and 1.2% liquid waste, for a total combined waste of 1.4% from washing the concrete trucks.

Concrete placement equipment was observed being cleaned on one of the six sites. Concrete pump trucks were used to place the concrete at the site and observations included washing of the hopper, boom, and truck. The concrete waste accumulated from washing out this equipment was 5 gallons.

Average contract costs for these projects were \$65.4 million, with an average of \$11.3 million as direct concrete costs. This resulted in an average percentage of total concrete cost to the total cost of the project of 17%.

2.2.2 Columns and Footings (See Appendix A, Site Visits 15-19)

Average water consumption used during the washing out of concrete trucks during the five column or footing construction projects was 13 gallons. It was estimated that a total of 3 gallons of solid concrete waste accumulated, on average, during each of these washout periods. Approximately 0.2% of the total volume of observed concrete placed was solid waste and 0.6% liquid waste, for a total combined waste of 0.8% from washing the concrete trucks.

Concrete placement equipment was observed being cleaned on four of the five sites. Concrete pump trucks were used to place the concrete at all site and observations included washing of the hopper, boom, and truck. The average concrete waste accumulated from washing out this equipment was 29 gallons.

Average contract costs for these projects were \$26.3 million, with an average of \$3.2 million being set aside as direct concrete costs. This resulted in an average percentage of total concrete cost to the total cost of the project of 12%.

2.2.3 Walls (See Appendix A, Site Visits 20-25, & 29)

Average water consumption used during the washing out of concrete trucks during the seven wall construction projects was 16 gallons. It was estimated that a total of 3 gallons of solid concrete waste accumulated, on average, during each of these washout periods. Approximately 0.2% of the total volume of observed concrete placed was solid waste and 0.8% liquid waste, for a total combined waste of 1.0% from washing the concrete trucks.

Concrete placement equipment was observed being cleaned on one of the seven sites. Concrete pump trucks were used to place the concrete at the site and observations included washing of the hopper, boom, and truck. The concrete waste accumulated from washing out this equipment was 50 gallons.

Average contract costs for these projects were \$38.1 million with an average of \$10.4 million being set aside as direct concrete costs. This resulted in an average percentage of total concrete cost to the total cost of the project of 27%.

2.2.4 Structural Summary

On average, 17 gallons of water were consumed during washout of concrete trucks for structural concrete. On average 3 gallons accumulated in the washout from solid waste. For all structural sites observed 0.2% of the total volume of concrete placed was solid waste and 0.9% liquid waste, for a total combined waste of 1.1% from washing the concrete trucks. The average amount of waste produced from washout of concrete placement equipment was 28 gallons.

The structural work observed during this study ranged from bridge abutments, bridge decks, columns, footings, retaining walls, and sound barriers. The data from this study reflects that concrete washout waste volumes were reasonably comparable for all of the different types of structural work. See Tables 3 through 5 for a summary of observations.

Table 3 – Summary of Waste Data Collected from Structural Site Visits (Bridge)

Site Visit No.	Placement Method	Concrete Observed Placed (cy)	Concrete Observed Placed (gal)	Total Waste Water (gal)	Average Waste Water (gal)	% Waste Water	Total Waste Concrete (gal)	Average Waste Concrete (gal)	% Waste Concrete	Average Waste From Placement Equipment (gal)
8	Truck, pump & boom, Bidwell finisher	224	45244	550	25	1.22%	110	5	0.24%	not observed
9	Truck, pump & boom	60	12119	49	8	0.40%	8	2	0.07%	not observed
10	Truck, pump & boom, Bidwell finisher	65	13129	140	20	1.07%	17	3	0.13%	not observed
11	Truck, pump & boom	46	9291	103	21	1.11%	47	9	0.51%	not observed
12	Truck, direct chute	22	4444	120	60	2.70%	6	3	0.14%	not observed
13	Truck, pump & boom	20	4040	37	17	0.92%	12	6	0.30%	5
14	Not Used									
Bridge Averages		73			25	1.24%		5	0.23%	5

Table 4 – Summary of Waste Data Collected from Structural Site Visits (Columns & Footing)

Site Visit No.	Placement Method	Concrete Observed Placed (cy)	Concrete Observed Placed (gal)	Total Waste Water (gal)	Average Waste Water (gal)	% Waste Water	Total Waste Concrete (gal)	Average Waste Concrete (gal)	% Waste Concrete	Average Waste From Placement Equipment (gal)
15	Truck, pump & boom	164	33125	180	11	0.54%	61	4	0.18%	22
16	Truck, pump & boom	50	10099	39	8	0.39%	13	3	0.13%	20
17	Truck, pump & boom	not observed	not observed	not observed	not observed	not observed	not observed	not observed	not observed	not observed
18	Truck, pump & boom	65	13129	117	18	0.89%	24	4	0.18%	22
19	Truck, pump & boom	123	24844	160	13	0.64%	23	2	0.09%	50
Column/Footing Averages		101			13	0.62%		3	0.15%	29

Table 5 – Summary of Waste Data Collected from Structural Site Visits (Walls)

Site Visit No.	Placement Method	Concrete Observed Placed (cy)	Concrete Observed Placed (gal)	Total Waste Water (gal)	Average Waste Water (gal)	% Waste Water	Total Waste Concrete (gal)	Average Waste Concrete (gal)	% Waste Concrete	Average Waste From Placement Equipment (gal)
20	Truck, direct chute	9	1818	15	15	0.83%	1	1	0.06%	not observed
21	Truck, pump & boom	18	3636	27	15	0.74%	2	1	0.06%	50
22	Truck, pump & boom	40	8079	74	19	0.92%	5	1	0.06%	not observed
23	Truck, direct chute	29	5857	29	10	0.50%	16	6	0.27%	not observed
24	Truck pump, hose, shotcrete	20	4040	20	10	0.50%	2	1	0.05%	not observed
25	Truck, pump & boom	70	14139	150	21	1.06%	31	4	0.22%	not observed
29	Truck, pump & boom	38	7675	10	5	0.13%	4	2	0.05%	not observed
Wall Averages		37			16	0.78%		3	0.13%	50
Structural Averages		62			17	0.86%		3	0.16%	

2.3 Median Barriers (See Appendix A, Site Visits 26-27)

Only two construction sites visited involved median barrier concrete placement. Average water consumption used during the washing out of concrete trucks during the two median barrier construction projects was 12 gallons. It was estimated that on average a total of 4 gallons of solid concrete waste accumulated during this washout period. The total combined liquid and solid waste was 16 gallons.

Washout of concrete placement equipment was not observed at either site visited. Concrete placement equipment included forms, mobile conveyor, and median barrier extruder.

The average contract cost for this project was \$28 million with an average of \$9 million being set aside as direct concrete costs. This resulted in an average percentage of total concrete cost to the total cost of the project of 32%.

2.4 Minor Concrete (See Appendix A, Site Visits 28, & 30)

Two sites were visited in which minor concrete was being placed. At one site they poured a sidewalk and some curb and gutter directly from a concrete truck and at the other site concrete was placed by hand using a wheelbarrow. Average water consumption used during the placement of concrete was 36 gallons. An average of 4 gallons of solid concrete waste accumulated during this washout period. Therefore the combined liquid and solid resulted in 40 gallons of waste being generated. Approximately 10% of total waste collected was solids from the concrete trucks. Since only two observations were made these results should not be considered typical results.

There was no additional concrete placement equipment onsite to observe.

One site provided contract costs. The cost for the project was \$8.1 million with an average of \$1.1 million being set aside as direct concrete costs. This resulted in an average percentage of total concrete cost to the total cost of the project of 14%.

3.0 Concrete Washout Size & Associated Costs

There are essentially four different types of concrete washout facilities available for the Contractor to choose from.

- 1) Above grade
- 2) Below grade

- 3) Portable-Contractor supplied
- 4) Portable-Vendor supplied

Large concrete washouts are preferred over small washouts because they are more economical. However, concrete washout unit size is limited on restricted project sites. On occasion, washouts may need to be removed from the construction site on a daily basis, limiting the contractor to smaller or portable washouts. For these reasons, there is no optimal size for a concrete washout that would fit every project. See Table 6 for a comparison of washouts measured during site observations, and the volume of waste they will hold.

It was observed that the total volume of waste produced during concrete washout procedures is independent of the type of construction being performed. For this reason, when formulating the procedure to use in determining the quantity of concrete washouts units required for a project, the volume of waste generated from all types of concrete placement operations have been averaged. This provides a more thorough representation of the volumes of waste collected during concrete washout procedures.

Table 6 – Summary of Washout Size & Volumes Observed

Below Grade					
Site Visit No.	Length, ft	Width, ft	Depth, ft	Volume, yd³	Volume, gal
6	20	7	4	20.7	4189
9	20	15	3	33.3	6733
9	15	15	3	25.0	5049
22	33	17	3	62.3	12590
25	20	15	3	33.3	6733
Average Volume				34.9	7058.8
Above Grade					
Site Visit No.	Length, ft	Width, ft	Depth, ft	Volume, yd³	Volume, gal
2	10	10	1	3.7	748
2	10	10	1	3.7	748
10	8	4	2	2.4	479
10	8	4	3	3.6	718
10	8	4	3	3.6	718
10	8	4	3	3.6	718
10	8	4	3	3.6	718
17	10	10	1	3.7	748
24	10	10	1	3.7	748
25	5	3	2	1.1	224
Average Volume				3.3	656.8
Portable-Contractor Supplied					
Site Visit No.	Length, ft	Width, ft	Depth, ft	Volume, yd³	Volume, gal
5	10	5	4	7.4	1496
8	10	10	1	3.7	748
28	8	6	1.5	2.7	539
Average Volume				4.6	927.6
Portable-Vendor Supplied					
Site Visit No.	Length, ft	Width, ft	Depth, ft	Volume, yd³	Volume, gal
11	4	4	2	1.2	239
19	12	8	2	7.1	1436
Average Volume				4.1	837.8

3.1 Above Grade Concrete Washout

Typical above grade constructed washouts include wood framing and a 10mil plastic liner. These facilities are simple to construct and typically

require 2 workers and about 1 hour of time to construct. The estimated average cost of construction for an above grade washout is \$300-\$400. By comparison, on average, contractors have been charging approximately \$2,000 for construction of this type of concrete washout facility (per contractor interviews and the two sites that provided costs for above grade facilities). Typically the above grade washout units have a capacity of around 500 gallons considering that the unit needs to be replaced when it is at 75% capacity. These facilities are well suited for sites where spacing restrictions limit the construction of larger below grade concrete washouts. Figure 3 shows a typical above grade facility.

Figure 3 – Above grade washout facilities



3.2 Below Grade Concrete Washout

Below grade concrete washouts are well suited for sites where there is a need for the larger volume of a below grade facility. Typically these facilities have a capacity of around 5,250 gallons considering that the unit needs to be replaced when it is at 75% capacity. The estimated average cost of construction for a below grade washout is \$450-\$500 based on excavation and hauling of 35 cubic yards of soil as well as a 10mil plastic liner product. Figure 4 shows a typical below grade washout unit.

Figure 4 – Below Grade Facility



3.3 Portable Concrete Washout

The portable concrete washout unit consists of a trailer attached to a truck. This is a viable option when the washout facilities need to be removed from the site on a daily basis due to site spacing restrictions. The estimated cost of this setup is \$400-600 which includes a 10mil plastic liner in the trailer container as well as the cost for a 6 x 8 x 4 ft container, trailer, and use of a truck. Typically these containers have a capacity of around 1050 gallons considering that the unit needs to be replaced when it is at 75% capacity. These facilities are also ideal for construction projects that have little or no room for construction equipment to remain on site outside construction hours.

3.4 Vendor Supplied Concrete Washout

An attractive feature of the vendor supplied concrete washout unit is that it allows for more efficiency in cleaning of concrete placement equipment. Ramps can be attached to these units to allow pump trucks to back over the washout area more easily than other concrete washout types. Costs for renting above grade facilities vary depending on the project location. In some instances vendor supplied units may not be a feasible option due to the lack of a nearby supplier. The cost typically includes cleaning out or replacing the concrete washout. The estimated average cost of renting a vendor-supplied washout is approximately \$350-\$475. Typically the vendor supplied concrete washout units have a capacity of around 800

gallons considering that the unit needs to be replaced when it is at 75% capacity. Despite the smaller volume provided by these washouts, they are typically more effective in containing concrete waste. Figure 5 shows a typical vendor supplied washout unit.

Figure 5 – Vendor supplied facility



3.5 Concrete Washout Costs Summary

In 2004, the Caltrans Contract Cost Data Book indicated that for the 78 projects Caltrans collected data on they paid on average \$1800 for each concrete washout provided for the contract. Our estimated costs for the different types of washouts shown in Table 7 are based on actual time, manpower, and equipment required to construct the washout facility observed during the site visits, or what was quoted to us from a vendor for renting containers, trailers, or hiring them as a turn-key service.

Table 7 – Summary of Concrete Washout Costs

Type	Cost ²
Above Grade Constructed ¹	\$300 - \$400
Above Grade (Vendor Supplied)	\$350 - \$475
Below Grade Constructed ¹	\$450 - \$500
Portable ¹	\$500 - \$600

¹ Does not include cost of cleaning out washout and/or removing from site

² All costs are approximate and include overhead and profit. Costs may vary depending on location.

4.0 Location

The locations for the concrete washout facilities varied depending on the site constraints and specifics of the project. Some projects had enough space to place concrete washouts at construction exits, while others were forced to locate the washout facilities further away, sometimes across a freeway. Four of the seven PCC sites placed washouts at or near the exit/entrance, while two were placed within $\frac{1}{4}$ - $\frac{1}{2}$ mile away, and the last site placed the washout at the batch plant.

Nine of the eighteen structural sites visited placed washouts in the vicinity of the pour with the remainder being placed near construction site exit/entrances.

Contractors placed washouts in areas where they conflicted the least with other construction operations and provided easy access. This typically coincided with the construction entrance and exit. Although there were a couple of sites visited where, due to limited space, the washouts were placed a considerable distance from the concrete placement. At one location a washout was observed to be placed across a freeway from a PCC pour for a freeway off-ramp, and another time the Contractor used portable washouts placed approximately $\frac{1}{2}$ mile from the site of a PCC paving operation on a busy section of freeway during a night pour.

5.0 Concrete Washout Selection & Cost Estimation

Twenty-nine construction sites were visited in both Northern and Southern California. The number of gallons of water used to washout a concrete truck was observed and averaged for a variety of construction activities. Based on the sites that were visited, the average quantity of waste generated was approximately 15 gallons for PCC Paving, structural, and median barrier work (an approximation of 15, 17, and 12 gallons for PCC, Structural, and Median work, respectively).

The following is our recommended procedure to determine the number of required concrete washout facilities for a particular Caltrans project. Two sample problems follow the procedure. They were formulated using the Engineer's Estimate for Caltrans projects 04-0T1444 and 11-091804, and were also visited as part of this report. (Site Visits No.23 and No.6 respectively). All units in the sample problem are metric units.

Step 1

Determine total concrete to be placed. Convert all bid items not conventionally measured by volume to volume of concrete placed.

Step 2

Calculate total volume of waste. Table 8 is a summary of what percentage of the total volume of concrete placed is waste based on site observations. Not enough information was collected to determine percentages for barrier and grout placement operations. It is assumed that barrier concrete is placed with a chute and the structural chute percentage calculation of 1.5% is used. It is assumed grout produces a similar amount of waste as minor concrete. Only two minor concrete sites were visited but the 10% waste observed appears non-typical, therefore a conservative 2.0% is used for the sample problems. Caltrans may wish to revise these percentages in the future.

Table 8- Average Percent Waste of Total Volume of Concrete Placed

Type of Concrete	Avg. % Waste
PCC	0.98%
Structural (chute)	1.50%
Structural (pump)	0.97%
Barrier ¹	1.50%
Minor, Grout ²	2.00%

1. Percentage assumed based on chute delivery of concrete.
2. Percentage is conservative assumption.

Step 3

Select type of washout facility using selection criteria that meets your project site. Generally there are two types of washouts: Small above grade or portable washouts, and large below grade washouts. Small washouts are best suited for small projects (not much disturbed soil area (DSA)), projects with limited space, and projects where the removal of waste in a timely manner is critical. Large below grade washouts are best suited for medium to large projects (projects with large DSA) where space is not limited.

Caltrans requires that concrete washout facilities only be used until they are 75% full. They then must be replaced or emptied. Based on the summary of washout size and volumes presented in Table 6, 2M³ is used as the 75%-full volume for estimating the number of small washouts required and 20M³ is used as the 75%-full volume for estimating the number or large washouts that are needed onsite. The engineer may use all one type or a combination of both types of washouts based on specific site constraints.

Step 4

Determine the number and total cost of washout facilities. The sample problem is broken down by type of concrete to give the Engineer flexibility to consider items such as the number of pours required for the same type of concrete placement, pour location, site constraints, etc.

Cost data for washout facilities is based on the 2004 Caltrans Contract Cost Data Book for temporary concrete washouts and should be updated as needed. Currently all washouts, regardless of type or size, are \$1800/each.

5.1 Sample Problem 1-Caltrans Project 04-0T1444 (Site Visit 23)

Step 1 - Determine Total Volume of Concrete Placed

Item No	Item Code	Item	Unit	Quantity	Concrete Volume ¹ (M ³)	Concrete Volume (M ³) By Type of Concrete				
						Minor Concrete	Structural (Chute)	Structural (Pump)	Barrier	Grout
46	152430	ADJUST INLET	EA	1	1	1				
47	152440	ADJUST MANHOLE	EA	1	1	1				
50	155003	CAP INLET	EA	1	1	1				
96	490657	600 MM CAST-IN-DRILLED HOLE CONCRETE PILING	M	1,430	404		404			
97	049130	1.68 M CAST-IN-DRILLED HOLE CONCRETE PILING	M	159	352		352			
98	049131	2.14 M CAST-IN-DRILLED HOLE CONCRETE PILING	M	146	525		525			
106	029851	406 MM CAST-IN-DRILLED HOLE CONCRETE PILING	M	2,790	361		361			
108	510051	STRUCTURAL CONCRETE, BRIDGE FOOTING	M ³	2,802	2,802			2,802		
109	510053	STRUCTURAL CONCRETE, BRIDGE	M ³	18,183	18,183			18,183		
110	510060	STRUCTURAL CONCRETE, RETAINING WALL	M ³	848	848			848		
111	510072	STRUCTURAL CONCRETE, BARRIER SLAB	M ³	209	209			209		
112	510086	STRUCTURAL CONCRETE, APPROACH SLAB (TYPE N)	M ³	764	764			764		
113	510502	MINOR CONCRETE (MINOR STRUCTURE)	M ³	107	107	107				
118	517961	SOUND WALL (BARRIER) (MASONRY BLOCK)	M ²	3,800	429					429
119	518002	SOUND WALL (MASONRY BLOCK)	M ²	1,300	147					147
134	561009	920 MM CAST-IN-DRILLED HOLE CONCRETE PILING	M	24	16		16			
173	719589	MINOR CONCRETE (BACKFILL)	M ³	8	8	8				
177	721810	SLOPE PAVING (CONCRETE)	M ³	105	105			105		
179	731502	MINOR CONCRETE (MISC CONSTRUCTION)	M ³	250	250	250				
180	731517	MINOR CONCRETE(GUTTER)	M ³	10	10	10				
188	833183	CONCRETE BARRIER (TYPE 27SV)	M	1,260	315				315	
192	839701	CONCRETE BARRIER (TYPE 60)	M	2,370	1,003				1,003	
193	839702	CONCRETE BARRIER (TYPE 60A)	M	526	222				222	
194	839720	CONCRETE BARRIER (TYPE 732)	M	191	49				49	
195	049134	CONCRETE BARRIER (TYPE 732 MODIFIED)	M	2,186	555				555	
Totals					27,668	378	1,659	22,911	2,144	576

1. See calculations below to convert items not conventionally measured by volume to volume of concrete placed.

Step 1 Calculations

Item No	Item Code	Item	Unit	Quantity	Concrete Volume Calculation (M ³)
96	490657	600 MM CAST-IN-DRILLED HOLE CONCRETE PILING	M	1430	404.32392 = 3.1416*.3*.3*1430
97	049130	1.68 M CAST-IN-DRILLED HOLE CONCRETE PILING	M	159	352.4573606 = 3.1416*.84*.84*159
98	049131	2.14 M CAST-IN-DRILLED HOLE CONCRETE PILING	M	146	525.1354046 = 3.1416*1.07*1.07*146
106	029851	406 MM CAST-IN-DRILLED HOLE CONCRETE PILING	M	2790	361.1995224 = 3.1416*.203*.203*2790
118	517961	SOUND WALL (BARRIER) (MASONRY BLOCK)	M ²	3800	429.4 = 3800*.113
119	518002	SOUND WALL (MASONRY BLOCK)	M ³	1300	146.9 = 1300*.113
134	561009	920 MM CAST-IN-DRILLED HOLE CONCRETE PILING	M	24	15.95430144 = 3.1416*.46*.46*24
188	833183	CONCRETE BARRIER (TYPE 27SV)	M	1260	315 = .25*1260
192	839701	CONCRETE BARRIER (TYPE 60)	M	2370	1002.51 = .423*2370
193	839702	CONCRETE BARRIER (TYPE 60A)	M	526	222.498 = .423*526
194	839720	CONCRETE BARRIER (TYPE 732)	M	191	48.514 = .254*191
195	049134	CONCRETE BARRIER (TYPE 732 MODIFIED)	M	2186	555.244 = .254*2186

Step 2 - Calculate Total Volume of Waste

	Type of Concrete Placement					Total
	Minor Concrete	Structural (Chute)	Structural (Pump)	Barrier	Grout	
Volume of Concrete Placed (M ³)	378	1,659	22,911	2,144	576	27,668
Waste as a percent of volume	2.00%	1.50%	0.97%	1.50%	2.00%	
Volume of Waste Generated (M³)	8	25	222	32	12	298

Step 3 - Select Type of Washout Facility

Washout Type	75% Volume (M ³)	Selection Criteria
Above Grade Constructed	2.0	Best suited for relatively small pours where space is limited
Above Grade Vendor Supplied	2.0	Best suited where space is critical and removal of waste in a timely manner important
Portable	2.0	Best suited for medium sized pours where removal of waste in a timely manner important
Below Grade Constructed	20.0	Best suited for large pours where space is not a problem

Step 4- Determine Number and Total Cost of Washout Facilities

Washout Type	Number of Washout Facilities Selected					Total Washouts	75% Volume (M ³)	Total Waste (M ³)	Cost/Each	Cost
	Minor Concrete	Structural (Chute)	Structural (Pump)	Barrier	Grout					
Above Grade Constructed	3	18				21	2.0	42.0	\$1,800	\$37,800
Above Grade Vendor Supplied					5	5	2.0	10.0	\$1,800	\$9,000
Portable				3		3	2.0	6.0	\$1,800	\$5,400
Below Grade Constructed			12			12	20.0	240.0	\$1,800	\$21,600
Totals	3	18	12	3	5	41		298.0		\$73,800

5.2 Sample Problem 2-Caltrans Project 11-091804 (Site Visit 6)

Step 1 - Determine Total Volume of Concrete Placed

Item No	Item Code	Item	Unit	Quantity	Concrete Volume ¹ (M ³)	Concrete Volume (M ³) By Type of Concrete				
						Minor Concrete	Structural (Chute)	Structural (Pump)	Barrier	Grout
68	401000	CONCRETE PAVEMENT	M ³	6,320	6,320		6,320			
71	510051	STRUCTURAL CONCRETE, BRIDGE FOOTING	M ³	565	565			565		
72	510053	STRUCTURAL CONCRETE, BRIDGE	M ³	2,290	2,290			2,290		
73	510060	STRUCTURAL CONCRETE, RETAINING WALL	M ³	530	530			530		
74	510085	STRUCTURAL CONCRETE, APPROACH SLAB (TYPE EQ)	M ³	47	47			47		
75	510314	CLASS 4 CONCRETE (BACKFILL)	M ³	85	85		85			
76	510502	MINOR CONCRETE (MINOR STRUCTURAL)	M ³	120	120	120				
85	561009	920MM CAST-IN DRILLED-HOLE CONCRETE PILE	M	20	13		13			
105	721430	CONCRETE (CHANNEL LINING)	M ³	50	50	50				
106	49122	SLOPE PAVING (STAMPED CONCRETE)	M ²	802	82		82			
107	731502	MINOR CONCRETE (MISCELLANEOUS CONSTRUCTION)	M ³	1,020	1,020		1,020			
108	731519	MINOR CONCRETE (STAMPED CONCRETE)	M ²	4,050	413		413			
121	833142	CONCRETE BARRIER (TYPE 26 MODIFIED)	M	186	97				97	
126	839701	CONCRETE BARRIER (TYPE 60)	M	1,140	482				482	
127	839704	CONCRETE BARRIER (TYPE 60D)	M	150	24				24	
128	839705	CONCRETE BARRIER (TYPE 60E)	M	60	12				12	
129	839725	CONCRETE BARRIER (TYPE 736)	M	150	42				42	
Totals					12,191	170	7,933	3,432	656	0

1. See calculations below to convert items not conventionally measured by volume to volume of concrete placed.

Step 1 Calculations

Item No	Item Code	Item	Unit	Quantity	Concrete Volume Calculation (M ³)
85	561009	920 MM CAST-IN-DRILLED HOLE CONCRETE PILING	M	20	13.3 =3.1416*.46*.46*20
106	49122	SLOPE PAVING (STAMPED CONCRETE)	M ²	802	81.804 =0.102*802
108	731519	MINOR CONCRETE (STAMPED CONCRETE)	M ²	4,050	413.1 =0.102*4050
121	833142	CONCRETE BARRIER (TYPE 26 MODIFIED)	M	186	96.72 =0.52*186
126	839701	CONCRETE BARRIER (TYPE 60)	M	1,140	482.22 =0.423*1140
127	839704	CONCRETE BARRIER (TYPE 60D)	M	150	23.55 =0.157*150
128	839705	CONCRETE BARRIER (TYPE 60E)	M	60	12 =0.200*60
129	839725	CONCRETE BARRIER (TYPE 736)	M	150	41.55 =.277*150

Step 2 - Calculate Total Volume of Waste

	Type of Concrete Placement					Total
	Minor Concrete	Structural (Chute)	Structural (Pump)	Barrier	Grout	
Volume of Concrete Placed (M ³)	170	7,933	3,432	656	0	12,191
Waste as a percent of volume	2.00%	1.50%	0.97%	1.50%	2.00%	
Volume of Waste Generated (M³)	3	119	33	10	0	166

Step 3 - Select Type of Washout Facility

Washout Type	75% Volume (M ³)	Selection Criteria
Above Grade Constructed	2.0	Best suited for relatively small pours where space is limited
Above Grade Vendor Supplied	2.0	Best suited where space is critical and removal of waste in a timely manner important
Portable	2.0	Best suited for medium sized pours where removal of waste in a timely manner important
Below Grade Constructed	20.0	Best suited for large pours where space is not a problem

Step 4- Determine Number and Total Cost of Washout Facilities

Washout Type	Number of Washout Facilities Selected					Total Washouts	75% Volume (M ³)	Total Waste (M ³)	Cost/Each	Cost
	Minor Concrete	Structural (Chute)	Structural (Pump)	Barrier	Grout					
Above Grade Constructed	2		7			9	2.0	18.0	\$1,800	\$16,200
Above Grade Vendor Supplied						0	2.0	0.0	\$1,800	\$0
Portable				4		4	2.0	8.0	\$1,800	\$7,200
Below Grade Constructed		7				7	20.0	140.0	\$1,800	\$12,600
Totals	2	7	7	4	0	20		166.0		\$36,000

5.3 Limitations

The following factors were observed, which can affect the concrete waste produced for each site visited.

- 1) The varying degree of diligence among concrete truck operators while cleaning out their equipment. Some truck operators may use more water than others and consequently produce more waste.
- 2) The speed of placement had an effect on the time allowed for each washout. The faster the concrete placement operation was, the less time the operator had to clean the equipment, consequently, less volume of waste was produced.

5.4 Conclusion

In general, Contractor costs associated with construction of above and below grade washouts have been determined to be inflated. These BMPs are simple to construct and most of the equipment and labor is readily available on-site. Estimated costs for these washout facilities should not exceed \$300-\$500 per unit.

6.0 Contractor Interview Summary

Interviews were conducted with chief estimators of eight general contractors located throughout California. Each contractor was familiar with Caltrans contracts and all have completed contract work that included concrete operations requiring washout facility construction and maintenance. Concrete operations include PPC paving, structure construction, median barrier construction, batch plant operations, shotcrete applications, and miscellaneous concrete applications. The interviews focused on determining trends in how contractors determine the number of concrete washout facilities required for a project and how costs associated with them are developed during project bidding.

Contractors estimate concrete washout facilities costs in two ways. By direct time and materials or incidental to the contract lump sum. Preference for how to bid concrete washouts is split between bidding them as a line item and no preference.

When estimating the potential quantity of washouts needed for concrete operations seven contractors indicated they use daily concrete placement volumes per type of operation and one contractor uses the total amount of concrete placed for the contract. Contractors that provided portable bins or trailers computed required containment volumes based on either daily or total project waste quantities, while others provided a washout sized per Caltrans standard WM-8 or similar, and planned on a minimum of one washout facility per pour or shift required to complete work, or a minimum of one facility for each pour location.

Two contractors indicated that a separate facility was needed for properly cleaning pumping equipment, forms, screen, etc.

The one contractor that computed the total quantity of concrete waste for the entire project based their estimates on past experience that waste from structures construction is typically 3-5% of total volume. This contractor provides 20 cubic yard portable bins that each hold waste from 35 concrete trucks where each concrete truck is estimated as holding 9 cubic yards. The total number of trucks depends on the estimated volume of concrete for the project. Another contractor estimates the number of 10' x 7' x 2' portable trailers required for each planned pour based on 1 cubic foot of waste is generated per 9 cubic yard concrete truck. The required volume of containment and bin availability correlates closely to the construction schedule.

The common criteria used to locate the concrete washout facilities in order of precedence are: Access to and proximity to concrete pour, space available on-site, space available off-site. Other factors include protection from traffic, multiple truck usage, and whether or not the washout facility is portable.

Seven contractors provided and maintained the concrete washout facilities, and one contractor made the subcontractor responsible. Either superintendents or labor foreman were made responsible for the facilities. The persons responsible had some form of environmental compliance training, but it was not always formal. None of the contractors interviewed knew whether or not the Association of General Contractors provided any formal environmental training, but all of the contractors were aware of multiple programs available to train personnel as needed. Half of the contractors impose penalties on subcontractors who neglect to use or abuse concrete washout facilities and half the contractors also indicated that large structural concrete placement and PCC paving operations are the most challenging to stay in compliance. PCC paving is a particular concern because of the difficulty in locating the facilities because of the large volume, speed and length of concrete placement.

No significant insight was gained toward future concrete washout facilities or any industry standard or practice that could result in minimizing the amount of concrete waste for any given practice. Good communication with the ready-mix company about environmental compliance issues and correctly estimating the number of concrete trucks required reduces spill potential and improper disposal of excess concrete waste.

Appendix A

Site Visits

**CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO. 1**

<p>Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138</p>	<p>PM: George Gipe, P.E.</p>
<p>Client: State of California DOT Division of Environmental Analysis</p>	<p>PM: Tim Sobelman, P.E.</p>
<p>DOT Project Name: Vineyard to Johnson Bridge replacement and Freeway Improvements.</p> <p>EA No.: 07-0607U4</p> <p>Project Location: 07-Ven-101-35.4/38.6 (KM)</p> <p>Resident Engineer: Dragon Buha (Scott Sylvan)</p> <p>Project Designer: O.C. Lee, STE</p>	<p>Project description: Existing 3-lane freeway to be widened to 6-lanes; bridges to be reconstructed or widened and interchange to be reconstructed.</p>
<p>Contractor's Name: MCM Security Paving, JV</p> <p>Home office address & phone number:</p> <p>P.O. Box 620 North Highlands, CA 95660 (909) 875-0533</p> <p>Field office address and phone number:</p> <p>Job site (805) 981-2246</p> <p>Project Superintendent: Steve Wilcox, MCM/Albert Mattivi Sec.Pav.</p>	<p>Applicable Subcontractors</p> <p>None</p>
<p>Project Cost</p> <p>Contract Award: \$83,710,000</p> <p>Value of contract project concrete: \$18,000,000</p> <p>Value of contract concrete washout facilities: Not bid item.</p>	<p>Applicable Change Orders</p> <p>None</p>

PROJECT SITE CHECKLIST SITE VISIT NO. 1

Completed by: Mike O'Shea
Date: 6/8/2005

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation? Only portion involved with concrete placement.

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.)
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants.
- Slope protection, channel lining (shot crete)

Please describe the operation narratively; Paving offramp for southbound 101 at Johnson Ave. in Oxnard.

- b) What methods of concrete placement did you observe for each construction operation? Rear pour.
- c) What concrete placement equipment was used for each operation?
Chute.
- d) What volume of concrete was placed during the period of observation for each operation? Total poured=100 cubic meters (131 cubic yards).
Observed=20cy
- e) What kind of concrete delivery equipment was used for each operation?
Truck(Vulcan)
2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- Concrete wash out service (full turn key service by outside vendor).
- Above grade washout facility (installed at designated location).
- 1 Below grade washout facilities (installed at designated locations)
- Contractor supplied portable washout facilities
- No washout facilities onsite

3. Where were the concrete washout facilities located that were observed during the placement operation?
 - In the vicinity of the concrete pour.
 - Near construction site exits / entrances.
 - Conveniently throughout the job site.
 - At the batch plant
 - Contractor's yard opposite freeway.

4. For each concrete operation that was observed: (attach additional pages for each operation observed).
5.
 - a) Did delivery trucks wash out between each load? Yes.
 - b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Approximately 500 yard away in Contractor's yard.
 - c) How many gallons of water were used to wash out each truck?
First Truck=16 gallons, Second Truck=16 gallons
 - d) What volume of concrete waste was generated during each truck washout?
3 gallons. (Estimate 20% of total water used)
 - e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A.
 - f) Washout facilities are not being used. Is there an obvious reason for such.
N/A.
 - g) Other?
N/A.

5. Maintenance;
 - a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? Yes.
 - b) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor?
General contractor.
 - c) Is the contractor proactive with replacement facilities upon reaching 75% capacity?
Yes.

6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities?
Yes-during meetings.

7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? Crusher. Debris is being incorporated into project and done by JV.
8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities? Yes.
9. Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. No, but concrete drivers know where it is.
10. Have the concrete washout facilities been placed in such a location to be;
 - Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse? Yes.
 - Located outside of travel way or access areas? Yes.
 - Provide berming for secondary containment? Yes, berm, although not all spraying of chute is done over washout.
11. Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. Yes.

**CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO. 2**

Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138	PM: George Gipe, P.E.
Client: State of California DOT Division of Environmental Analysis	PM: Tim Sobelman, P.E.
DOT Project Name: EA No.: 07-148004 Project Location: Los Angeles Resident Engineer: Reda Karout (626) 338-3430 Project Designer: Mahinda Ram	Project description: Concrete median barrier to be constructed and existing median barrier to be repaved with PCC.
Contractor's Name: Peterson Chase General Engineering Construction Inc. Home office address & phone number: 1792 Kaiser Ave. Irvine, CA 92614-5706 (949) 252-0441 Field office address and phone number: Same as above. Project Superintendent: Julian Estrada	Applicable Subcontractors None
Project Cost Contract Award: \$5,477,000 , awarded 2/17/04 Value of contract project concrete: \$655,500 Value of contract concrete washout facilities: Included	Applicable Change Orders None

PROJECT SITE CHECKLIST SITE VISIT NO. 2

Completed by: Mike O'Shea

Date: 6/1/2005

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation? Only portion involved with concrete placement.

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.)
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants.
- Slope protection, channel lining (shot crete)

Please describe the operation narratively; Observed paving for median, median barrier to be constructed (Also potentially used for future HOV lane.)

- b) What methods of concrete placement did you observe for each construction operation? Ready-mix trucks, direct chute discharge.
- c) What concrete placement equipment was used for each operation?
Rear chute discharge.
- d) What volume of concrete was placed during the period of observation for each operation? Total poured=100cy, observed 2 pours (20cy).
- e) What kind of concrete delivery equipment was used for each operation?
Truck
2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- Concrete wash out service (full turn key service by outside vendor).
- 2 Above grade washout facility (installed at designated location).
- Below grade washout facilities (installed at designated locations)
- Contractor supplied portable washout facilities
- No washout facilities onsite

- Washout was 3Mx3M box approximately 12" high lined with plastic.
- Two washouts onsite. One in use and one in reserve.

3. Where were the concrete washout facilities located that were observed during the placement operation?
- In the vicinity of the concrete pour.
 - Near construction site exits / entrances. Approx. 300yds from pour.
 - Conveniently throughout the job site.
 - At the batch plant
4. For each concrete operation that was observed: (attach additional pages for each operation observed).
- a) Did delivery trucks wash out between each load? Yes.
 - b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? 300yds from pour.
 - c) How many gallons of water were used to wash out each truck?
15gal Truck #1, 19gal Truck #2
 - d) What volume of concrete waste was generated during each truck washout?
3 gal (Estimate 20% of total water used)
 - e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A
 - f) Washout facilities are not being used. Is there an obvious reason for such.
N/A
 - g) Other?
N/A
5. Maintenance;
- a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? Yes.
 - b) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor?
General contractor.
 - c) Is the contractor proactive with replacement facilities upon reaching 75% capacity?
Yes.
6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities?
Yes-during meetings.

7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? Hauled offsite, not recycled into job.
8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities? Yes.
9. Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. No, however washout facility was easy to spot.
10. Have the concrete washout facilities been placed in such a location to be;
 - Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse? Yes.
 - Located outside of travel way or access areas? Yes.
 - Provide berming for secondary containment? Extra plastic to collect spattering.
11. Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. Not observed.

PHOTOS:





CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO. 3

Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138	PM: George Gipe, P.E.
Client: State of California DOT Division of Environmental Analysis	PM: Tim Sobelman, P.E.
DOT Project Name: EA No.: 11-080904 Project Location: San Diego at interchange I-15/56 Resident Engineer: Abu-Bakr H. Al Jafri (858)748-2613 Project Designer:	Project description: PCC Paving
Contractor's Name: Coffman Specialties Home office address & phone number: 4375 Jutland Dr., Suite 260 San Diego, CA 92117-3632 Field office address and phone number: Project Superintendent:	Applicable Subcontractors Malcolm Drilling Condon Johnson
Project Cost Contract Award: 52M Value of contract project concrete: 20M Value of contract concrete washout facilities: 3K/washout	Applicable Change Orders None

PROJECT SITE CHECKLIST SITE VISIT NO. 3

Completed by: Matt Kyler
Date: 6/15/05

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation? Portions.

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.)
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants.
- Slope protection, channel lining (shot crete)

Please describe the operation narratively; Each truck would back up to 1 yard bucket and unload. A crane hoisted bucket 1 at a time to be placed between formwork and existing wall. When truck was empty it proceeded to washout where driver cleaned chute and truck.

- b) What methods of concrete placement did you observe for each construction operation? Train/crane/bucket
 - c) What concrete placement equipment was used for each operation? Camlever bucket/RTC-80100 crane/Hansen truck
 - d) What volume of concrete was placed during the period of observation for each operation? Observed 3 trucks. (30cy)
 - e) What kind of concrete delivery equipment was used for each operation?
Truck
2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- Concrete wash out service (full turn key service by outside vendor).
- Above grade washout facility (installed at designated location).
- 2 Below grade washout facilities (installed at designated locations)
- Contractor supplied portable washout facilities
- No washout facilities onsite

3. Where were the concrete washout facilities located that were observed during the placement operation?
- In the vicinity of the concrete pour.
 - X Near construction site exits / entrances.
 - Conveniently throughout the job site.
 - At the batch plant
4. For each concrete operation that was observed: (attach additional pages for each operation observed).
- a) Did delivery trucks wash out between each load? Yes.
 - b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? 400 yards from pour.
 - c) How many gallons of water were used to wash out each truck?
Truck 1: Start=23 gal, End=35 gal, Total=12 gallons
Truck 2: Start=0 gal, End=14 gal, Total=14 gallons
Truck 3: Start=12 gal, End=27 gal, Total=15 gallons
 - d) What volume of concrete waste was generated during each truck washout?
Truck 1 =2 gallons, remaining liquid waste
Truck 2 = 5 gallons, remaining liquid waste
Truck 3 = 2 gallons, remaining liquid waste
 - e) What volume of concrete waste was generated during the cleanup of placement equipment? 2 gallons
 - f) Washout facilities are not being used. Is there an obvious reason for such.
N/A
 - g) Other?
N/A
5. Maintenance:
- a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? As needed.
 - b) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor?
General Contractor's excavation team.
 - c) Is the contractor proactive with replacement facilities upon reaching 75% capacity?
Yes.

6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities? Yes.
7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? Debris trucked offsite for disposal.
8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities? Yes.
9. Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. Yes, clearly labeled.
10. Have the concrete washout facilities been placed in such a location to be;
 - Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse? Yes.
 - Located outside of travel way or access areas? Yes.
 - Provide berming for secondary containment? No.
11. Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. Yes.

Bucket is washed out onto tarp surrounded by dirt berm. Tarp debris is then placed in washout.

PHOTOS:





CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO. 4

Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138	PM: George Gipe, P.E.
Client: State of California DOT Division of Environmental Analysis	PM: Tim Sobelman, P.E.
DOT Project Name: 680 and 780 Interchange EA No.: 04-006064 Project Location: 04-SOL-680-.3/1 Resident Engineer: Ken Lee Project Designer:	Project description: In Solano and Contra Costa Counties, In Benicia and Martinez, on routes 680 and 780, interchange construct bridge interchange
Contractor's Name: C. C. Meyers Home office address & phone number: 2000 Park Road Benicia CA 94510 Field office address and phone number: Project Superintendent::	Applicable Subcontractors
Project Cost Contract Award: \$ 71,306,488 Value of contract project concrete: Value of contract concrete washout facilities:	Applicable Change Orders

PROJECT SITE CHECKLIST

SITE VISIT NO. 4

Completed by Ronald Wurz
Date: 5/12/05

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation? The portion that involved the Concrete placement

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.)
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants.
- Slope protection, channel lining (shot crete)

Please describe the operation narratively; Concrete was pumped to the deck surface with a concrete pump truck, in which a Bidwell spread the concrete.

b) What methods of concrete placement did you observe for each construction operation?
The Concrete pump truck

c) What concrete placement equipment was used for each operation? The concrete pump truck and the Bidwell (only saw the Bidwell operation from pump truck location.)

c) What volume of concrete was placed during the period of observation for each operation?
167 cubic meters (218 cubic yards)

d) What kind of concrete delivery equipment was used for each operation? Concrete Truck with Rotating drum

2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- Concrete wash out service (full turn key service by outside vendor).
- Above grade washout facility (installed at designated location).
- Below grade washout facilities (installed at designated locations)
- Contractor supplied portable washout facilities
- No washout facilities onsite

3. Where were the concrete washout facilities located that were observed during the placement operation?
- In the vicinity of the concrete pour.
 - Near construction site exits / entrances.
 - Conveniently throughout the job site.
 - At the batch plant
4. For each concrete operation that was observed: (attach additional pages for each operation observed).
- a) Did delivery trucks wash out between each load? Yes
 - b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Near the Entrance / Exit of the Site
 - c) How many gallons of water were used to wash out each truck? From 10 to 15 Gallons
 - d) What volume of concrete waste was generated during each truck washout? Approximately $\frac{1}{4}$ to $\frac{1}{2}$ Cubic feet (Light weight aggregate)
 - e) What volume of concrete waste was generated during the cleanup of placement equipment? Between $\frac{1}{4}$ and $\frac{1}{2}$ cubic yard and 20 to 25 gallons of water. Because of the light weight concrete the amount of water was less than usual according to the pump operator. He stated that normally the volume of water would be approximately 50 gallons. Did not observe the cleaning of the Bidwell.
 - f) Washout facilities are not being used. Is there an obvious reason for such
 - g) Other?
5. Maintenance;
- a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? Yes
 - b) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor? General Contractor
 - c) Is the contractor proactive with replacement facilities upon reaching 75% capacity? Yes
6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities?

7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? The Contractor is hauling it away
8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities?
9. Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. Yes and No. There was a sign indicating the location of the Washout for the pump truck, where as there were no signs in the location of the concrete truck washouts. The Concrete Trucks must exit past the concrete washouts in order to return to the highway. The Washout are very obvious
10. Have the concrete washout facilities been placed in such a location to be;
 - Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse? Yes
 - Located outside of travel way or access areas? Yes
 - Provide berming for secondary containment? No
11. Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. There are separate washout facilities for the concrete trucks and the pump truck. The washouts are used to contain both the materials and rinsate from the concrete trucks and the pump truck.









CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO. 5

<p>Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138</p>	<p>PM: George Gipe, P.E.</p>
<p>Client: State of California DOT Division of Environmental Analysis</p>	<p>PM: Tim Sobelman, P.E.</p>
<p>DOT Project Name: Pavement Rehabilitation EA No.: 07-226204 Project Location: Los Angeles, 07-LA-5-0.0/18.5 Resident Engineer: Hussein Said (562) 401-3333 Project Designer: B. Patel</p>	<p>Project description: Existing concrete pavement being replaced.</p>
<p>Contractor's Name: All American Asphalt Home office address & phone number: 400 East 6th Street Box 2229 Corvina, CA 92878 (714) 994-3254 Field office address and phone number: Same as above. Project Superintendent: Steve Casselman (951) 757-8173</p>	<p>Applicable Subcontractors Penhall ALRET Barricades Larry Concrete Hale (batch plant)</p>
<p>Project Cost Contract Award: 20M, awarded 6/9/04 Value of contract project concrete: 11.5M Value of contract concrete washout facilities: Included</p>	<p>Applicable Change Orders None</p>

PROJECT SITE CHECKLIST SITE VISIT NO. 5

Completed by: Mike O'Shea

Date: 6/4/2005

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation? Entire job site.

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.)
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants.
- Slope protection, channel lining (shot crete)

Please describe the operation narratively; Replacement of existing concrete pavement (Approx. 30 panels tonight)

- b) What methods of concrete placement did you observe for each construction operation? Volumetric mixers, SLC short load concrete.
- c) What concrete placement equipment was used for each operation?
See above.
- d) What volume of concrete was placed during the period of observation for each operation? Total poured=184cy, observed=20cy
- e) What kind of concrete delivery equipment was used for each operation?
Truck
2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- ___ Concrete wash out service (full turn key service by outside vendor).
- ___ Above grade washout facility (installed at designated location).
- ___ Below grade washout facilities (installed at designated locations)
- 2 Contractor supplied portable washout facilities
- ___ No washout facilities onsite

Portable washout was trailer attached to pick-up truck 5'x10'x4' high. Hauled offsite everyday.

3. Where were the concrete washout facilities located that were observed during the placement operation?
- In the vicinity of the concrete pour.
 - Near construction site exits / entrances.
 - Conveniently throughout the job site.
 - At the batch plant
 - Neither-located approximately ¼ to ½ miles from pour near Florence Ave. offramp.
4. For each concrete operation that was observed: (attach additional pages for each operation observed).
- a) Did delivery trucks wash out between each load? Yes.
 - b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? ¼ to ½ mile from pour.
 - c) How many gallons of water were used to wash out each truck?
15gal Truck #1, 15gal Truck #2
 - d) What volume of concrete waste was generated during each truck washout?
3 gal (Estimate 20% of total water used)
 - e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A
 - f) Washout facilities are not being used. Is there an obvious reason for such.
N/A
 - g) Other?
N/A
5. Maintenance;
- a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? Scheduled basis. Washout trailers are brought back to Contractor's yard every night. No room for onsite storage.
 - b) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor?
General contractor. Penhall, the subcontractor handles concrete waste from saw cutting.
 - c) Is the contractor proactive with replacement facilities upon reaching 75% capacity?
Yes.

6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities?
Yes-during meetings.
7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? Debris is brought back to Contractor's yard every night. Every Wednesday waste is picked up and brought to crusher and recycled somewhere, but not into this particular job.
8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities? No formal training but many years of on the job training and work experience.
9. Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. No, however washout facility was easy to spot.
10. Have the concrete washout facilities been placed in such a location to be;
 - Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse? Yes.
 - Located outside of travel way or access areas? Yes.
 - Provide berming for secondary containment? Extra plastic to collect spattering.
11. Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. Not observed.

**CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO. 6**

Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138	PM: George Gipe, P.E.
Client: State of California DOT Division of Environmental Analysis	PM: Tim Sobelman, P.E.
DOT Project Name: Airway Road to Otay Mesa Border Crossing EA No.: 11-091804 Project Location: SR 905 at Siempre Viva Rd. Resident Engineer: Victor Cardenas Project Designer: Caltrans-Walter Lopez	Project description: Interchange Improvement Pave 1 lane on SR 905 at Siempre Viva bridge.
Contractor's Name: FCI Constructors Home office address & phone number: 2585 Business Park Dr. Vista, CA 92080-8831 Field office address and phone number: Andy Boswell (cell) (619) 778-9959 Project Superintendent: Andy Boswell	Applicable Subcontractors Concrete provided by Associated Ready Mix Concrete
Project Cost Contract Award: 13.5M Value of contract project concrete: 2.8M Value of contract concrete washout facilities: <ul style="list-style-type: none"> • Bid item \$20,000 • Unit price \$2,200/ea • 8 washouts facilities called out on plan • To date 8 have be constructed. RE predicts 10 will be needed by the end of the job. 	Applicable Change Orders None

PROJECT SITE CHECKLIST SITE VISIT NO. 6

Completed by: Gretchen Prouty

Date: 5/17/2005

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation? Observed placement of approximately 500' of PCC pavement.

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.)
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants.
- Slope protection, channel lining (shot crete)

Please describe the operation narratively; Trucks enter from the south and stage north of paving area. Two trucks back into paving area and unload by rear chute. They pull forward to washout facility to clean up and then pull forward to exit the site.

b) What methods of concrete placement did you observe for each construction operation? Paver, direct chute, hand touch-up, and hand finishing.

c) What concrete placement equipment was used for each operation?
PCC Paver (Gomaco Commander III)

d) What volume of concrete was placed during the period of observation for each operation? Placed=150 cubic meters, (196 cubic yards)
Observed=100cy.

e) What kind of concrete delivery equipment was used for each operation?
Truck

2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- ___ Concrete wash out service (full turn key service by outside vendor).
- ___ Above grade washout facility (installed at designated location).
- ___ 1 ___ Below grade washout facilities (installed at designated locations)
- ___ Contractor supplied portable washout facilities
- ___ No washout facilities onsite

Washout was an excavation (20'x7'x4') lined with black plastic and surrounded by a 1.5' berm. Plastic extended over berm and across pavement where trucks parked. Two trucks could washout simultaneously.

3. Where were the concrete washout facilities located that were observed during the placement operation?
- In the vicinity of the concrete pour.
 - Near construction site exits / entrances. Exit.
 - Conveniently throughout the job site.
 - At the batch plant

4. For each concrete operation that was observed: (attach additional pages for each operation observed).

TRUCK S#1 & #2

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Exit.
- c) How many gallons of water were used to wash out each truck?
25 gallons
- d) What volume of concrete waste was generated during each truck washout?
2 gal concrete waste, rest was liquid.
- e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A.
- f) Washout facilities are not being used. Is there an obvious reason for such.
N/A
- g) Other?
N/A

TRUCK #3

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Exit.
- c) How many gallons of water were used to wash out each truck?
25 gallons

- d) What volume of concrete waste was generated during each truck washout?
2 gal concrete waste, rest was liquid.
- e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A
- f) Washout facilities are not being used. Is there an obvious reason for such.
N/A
- g) Other?
Driver noted concrete mix was dry and required a heavier wash to get truck clean.

TRUCK #4

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Exit.
- c) How many gallons of water were used to wash out each truck?
Start 21 gal, end 49gal, Total used 28 gal.
- d) What volume of concrete waste was generated during each truck washout?
Minimal aggregate, mostly liquid waste.
- e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A
- f) Washout facilities are not being used. Is there an obvious reason for such
N/A
- g) Other?
Driver ensured entire chute located over washout. Minimal dripping on ground.

TRUCK #5

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Exit.
- c) How many gallons of water were used to wash out each truck?
Start 6 gal, end 30gal, Total used 24gal.
- d) What volume of concrete waste was generated during each truck washout?
1-2 gal concrete waste, rest was liquid.

- e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A
- f) Washout facilities are not being used. Is there an obvious reason for such
N/A
- g) Other?
Driver ensured entire chute located over washout. Minimal dripping on ground.

TRUCK #6

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Exit.
- c) How many gallons of water were used to wash out each truck?
Start 36 gal, end 59 gal, Total used 23 gal.
- d) What volume of concrete waste was generated during each truck washout?
5 gal concrete waste, rest was liquid.
- e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A
- f) Washout facilities are not being used. Is there an obvious reason for such
N/A
- g) Other?
Driver ensured entire chute located over washout. Some dripping on ground

TRUCK #7

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Exit.
- c) How many gallons of water were used to wash out each truck?
Start 18 gal, end 48 gal, Filled a 5 gallon bucket. Total used 25 gal.
- d) What volume of concrete waste was generated during each truck washout?
1 gal concrete waste, rest was liquid.
- e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A

- f) Washout facilities are not being used. Is there an obvious reason for such
N/A
- h) Other?
Some dripping on ground from washing exterior of chute.

TRUCK #8

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Exit.
- c) How many gallons of water were used to wash out each truck?
Start 14 gal, end 40 gal, Total used 26 gal.
- d) What volume of concrete waste was generated during each truck washout?
1 gal concrete waste, rest was liquid.
- e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A
- f) Washout facilities are not being used. Is there an obvious reason for such
N/A
- i) Other?
N/A

TRUCK #9

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Exit.
- c) How many gallons of water were used to wash out each truck?
Start 26 gal, end 50 gal, Total used 24 gal.
- d) What volume of concrete waste was generated during each truck washout?
5 gal concrete waste, rest was liquid.
- e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A
- f) Washout facilities are not being used. Is there an obvious reason for such
N/A
- j) Other?

N/A

TRUCK #10

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Exit.
- c) How many gallons of water were used to wash out each truck?
Start 24 gal, end 44 gal, Total used 20 gal.
- d) What volume of concrete waste was generated during each truck washout?
1 gal concrete waste, rest was liquid.
- e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A
- f) Washout facilities are not being used. Is there an obvious reason for such
N/A
- k) Other?
After 10 trucks complete. Washout is ¼ full. Some pooling of waste water around berm edges on plastic covering ground.

PCC Paver-Not observed but asked workers about cleaning the equipment.

- a) Did delivery trucks wash out between each load? No-washed at end of the day
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Not washed at washout. Plastic is laid down and equipment is sprayed clean. Concrete left to harden and removed by chipping off the next day.
- c) How many gallons of water were used to wash out each truck?
Not observed.
- d) What volume of concrete waste was generated during each truck washout?
Not observed.
- e) What volume of concrete waste was generated during the cleanup of placement equipment? Not observed.
- f) Washout facilities are not being used. Is there an obvious reason for such
Not practical.
- l) Other?
N/A

5. Maintenance;
- a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? Yes, Contractor only builds washouts as needed for each operation. Then they are disposed of or filled in after waste is removed.
 - b) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor?
General Contractor.
 - c) Is the contractor proactive with replacement facilities upon reaching 75% capacity?
Contractor said they try to. RE observed washout filled to top and sometimes used for concrete disposal. Observed one overflow. Over all, Contractor is pretty good at maintaining the facilities.
6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities?
- Coordination meetings.
 - On-site inspections by superintendent.
 - Contractor tries to coordinate washout location with where sub is doing the work to encourage them to use it. Contractor will relocate washout if needed.
7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? Contractor is keeping debris onsite. Plans to break up concrete and use as fill for the embankment.
8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities? Yes-SWPPP trained.
9. Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. Yes.
10. Have the concrete washout facilities been placed in such a location to be;
- Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse? Yes.
 - Located outside of travel way or access areas? No.
 - Provide berming for secondary containment? Yes.
11. Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. Yes.

CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO. 7

Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138	PM: George Gipe, P.E.
Client: State of California DOT Division of Environmental Analysis	PM: Tim Sobelman, P.E.
DOT Project Name: Widen Fourth Street Off Ramp EA No.: 04-248214 Project Location: 04-SF-80-4.6/5 Resident Engineer: Project Designer:	Project description: In the city and county of San Francisco from 0.1 km South of Harriet Street to Fourth Street.
Contractor's Name: R & L Brosamer Inc. Home office address & phone number: P. O. Box 238 Alamo CA 94507 (925) 837-5600 Fax: (925) 837-8387 Field office address and phone number: Project Superintendent::	Applicable Subcontractors
Project Cost Contract Award: \$ 17,876,106 Value of contract project concrete: \$1,451,950 Value of contract concrete washout facilities: \$ 9,000	Applicable Change Orders

PROJECT SITE CHECKLIST

SITE VISIT NO. 7

Completed by Ronald Wurz
Date: 5/25/05

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation? The portion that involved the Concrete placement

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.)
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants.
- Slope protection, channel lining (shot crete)

Please describe the operation narratively;

b) What methods of concrete placement did you observe for each construction operation?
Concrete is pumped to deck of overcrossing on ramp from Hwy 80

c) What concrete placement equipment was used for each operation? Concrete pumped with pump truck with boom and spread with Bidwell

c) What volume of concrete was placed during the period of observation for each operation?
Approximately 28 Cubic meters, (37 cubic yards)

d) What kind of concrete delivery equipment was used for each operation?
Concrete trucks with rotating drum.

2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- Concrete wash out service (full turn key service by outside vendor).
- Above grade washout facility (installed at designated location).
- Below grade washout facilities (installed at designated locations)
- Contractor supplied portable washout facilities
- No washout facilities onsite

3. Where were the concrete washout facilities located that were observed during the placement operation?
- In the vicinity of the concrete pour.
 - Near construction site exits / entrances.
 - Conveniently throughout the job site.
 - At the batch plant
4. For each concrete operation that was observed: (attach additional pages for each operation observed).
- a) Did delivery trucks wash out between each load? Yes
 - b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? At the batch plant
 - c) How many gallons of water were used to wash out each truck? It was very difficult to gage the amount of water used to washout the chute etc. A high pressure hose was used, that was also used to add the water to the truck after the mix was loaded at the batch plant. There was a large amount of water used to clean the chute and the back of the truck. There was no way to accurately estimate the volume. An estimate would be 50+ gallons.
 - d) What volume of concrete waste was generated during each truck washout? Again there was no way to estimate the amount of waste generated. There was no washout, just an area where the washout took place. There were no apparent facilities to contain the water, or debris.
 - e) What volume of concrete waste was generated during the cleanup of placement equipment? Did not observe the clean-up of the placement equipment
 - f) Washout facilities are not being used. Is there an obvious reason for such. The most apparent reason for not washing out at the Project site, is the lack of room. There was little room to maneuver the delivery trucks to the pumper. The size of the pour was approximately 1000 cubic meters, and the number of standard concrete washout needed for a pour this size would be 2 just based on the size of the pour. There may have been more required for convenience and safety. Traffic was a major problem during the time of observation, and not having a washout near the Pump truck set-up, would create an increased hazard to the truck operators, and the public.
 - g) Other? Several photos were taken at the Batch Plant to show the area surrounding the washout area.
5. Maintenance;
- a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? As per the Resident Engineer No.
 - b) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor? No.

- c) Is the contractor proactive with replacement facilities upon reaching 75% capacity? Could not tell from this pour
6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities?
7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? Could not tell from this pour
8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities?
9. Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. There were no Washout in the area. There were no signs at the batch plant
10. Have the concrete washout facilities been placed in such a location to be;
- Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse?
 - Located outside of travel way or access areas?
 - Provide berming for secondary containment?
11. Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. No







Note the piles of concrete. These were a result of cleaning the chute prior to returning to the batch plant





This is the Washout location at the Batch Plant. The water on the ground is NOT from rain. The clouds are just overcast. The water on the ground is a result of washing the concrete trucks. The following pictures are the area to the left of this location.







**CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO. 8**

Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138	PM: George Gipe, P.E.
Client: State of California DOT Division of Environmental Analysis	PM: Tim Sobelman, P.E.
DOT Project Name: I-15 Managed Lanes-Unit 2 EA No.: 11-080914 Project Location: South of W. Bernardo Dr. Resident Engineer: Paul Hsu Project Designer: Caltrans, Paul Chung & Marcelo Peinado	Project description: Rancho Bernardo bridge deck pour.
Contractor's Name: FCI/BBCI JV Home office address & phone number: Rick Finken (760) 727-9767 Field office address and phone number: 15950 Bernardo Center Dr. Suite N San Diego, CA 92127 Project Superintendent: Doug Bixel	Applicable Subcontractors None
Project Cost Contract Award: \$66,670,234 Value of contract project concrete: \$19,110,710 Value of contract concrete washout facilities: 38 washouts @ \$1700/ea. Total=\$64,600	Applicable Change Orders None

PROJECT SITE CHECKLIST SITE VISIT NO. 8

Completed by: Mike O'Shea

Date: 5/16/2005

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation? Only portion involved with concrete placement.

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.)
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants.
- Slope protection, channel lining (shot crete)

Please describe the operation narratively; Bridge deck construction.

- b) What methods of concrete placement did you observe for each construction operation? Boom truck with Bidwell finisher.
- c) What concrete placement equipment was used for each operation?
Boom truck with Bidwell finisher.
- d) What volume of concrete was placed during the period of observation for each operation? Total observed=224cy.
- e) What kind of concrete delivery equipment was used for each operation?
Truck.
2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- ___ Concrete wash out service (full turn key service by outside vendor).
- ___ Above grade washout facility (installed at designated location).
- ___ 1 ___ Below grade washout facilities (installed at designated locations)
- ___ 1 ___ Contractor supplied portable washout facilities 10'x10'x1'
- ___ No washout facilities onsite

3. Where were the concrete washout facilities located that were observed during the placement operation?
- In the vicinity of the concrete pour. 1 facility located on each side of bridge.
 - Near construction site exits / entrances.
 - Conveniently throughout the job site.
 - At the batch plant
4. For each concrete operation that was observed: (attach additional pages for each operation observed).
- 5.
- a) Did delivery trucks wash out between each load? Yes.
 - b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? In the vicinity of the concrete pour.
 - c) How many gallons of water were used to wash out each truck?
25 gallons.
 - d) What volume of concrete waste was generated during each truck washout?
5 gallons (Estimate 20% of water waste).
 - e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A.
 - f) Washout facilities are not being used. Is there an obvious reason for such.
N/A.
 - g) Other?
N/A.
5. Maintenance;
- a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? Yes, they even cover the facility before rain.
 - b) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor?
General contractor.
 - c) Is the contractor proactive with replacement facilities upon reaching 75% capacity?
Yes.
6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities?
Yes-during pre-construction meetings. Subs are made aware by being provided contract requirements before job is awarded. Once awarded, they must sign a form

from general contractor stating they are aware of and will comply with the requirements.

7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? Portable washout vendor could not keep up with the demand so the Contractor constructed lined pits below grade. Spoils are taken offsite to stockpile and sent to crusher to be recycled into another mix as aggregate.
8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities? Yes-train the trainer.
9. Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. No, but obvious.
10. Have the concrete washout facilities been placed in such a location to be;
 - Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse? Yes.
 - Located outside of travel way or access areas? Yes.
 - Provide berming for secondary containment? Yes.
11. Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. Not observed.

PHOTOS:



CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO. 9

Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138	PM: George Gipe, P.E.
Client: State of California DOT Division of Environmental Analysis	PM: Tim Sobelman, P.E.
DOT Project Name: 16/91 and 215 Interchange Project EA No.: 08-334844 Project Location: Highway 215 at new interchange Resident Engineer: Joe Lopez Project Designer: Caltrans	Project description: Observed pouring overpass bridge deck
Contractor's Name: Washington-Obayashi Home office address & phone number: 875 Martin Luther King Blvd. Riverside, CA 92507 (951) 779-9843 Field office address and phone number: Same as above. Project Superintendent: Brian Ohri	Applicable Subcontractors Robertos Ready Mix (Batch)
Project Cost Contract Award: 186M Value of contract project concrete: unknown Value of contract concrete washout facilities: \$2100/ea	Applicable Change Orders None

PROJECT SITE CHECKLIST SITE VISIT NO. 9

Completed by: Gretchen Prouty

Date: 5/18/2005

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation? 1 Bridge deck section.

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.) Bridge deck
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants.
- Slope protection, channel lining (shot crete)

Please describe the operation narratively; Concrete trucks back up to hopper two at a time then pull out and wash before exiting site.

b) What methods of concrete placement did you observe for each construction operation? Pumped onto overpass/bridge deck.

c) What concrete placement equipment was used for each operation?
Truck with hopper/boom/pump (Merli SHWING 55M)

d) What volume of concrete was placed during the period of observation for each operation? Observed=60cy.

e) What kind of concrete delivery equipment was used for each operation?
Truck.

2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- ___ Concrete wash out service (full turn key service by outside vendor).
- ___ Above grade washout facility (installed at designated location).
- 2 Below grade washout facilities (installed at designated locations)
- ___ Contractor supplied portable washout facilities
- ___ No washout facilities onsite

- #1 washout was a 15'x20'x3' deep, 1.5' earthen berm, plastic lined depression.
- #2 washout was a 15'x15'x3' deep, 1.5 earthen berm, plastic lined depression.
- Upon arrival #1 empty and #2 ¼ full.
- Upon departure #1 empty and #2 ½ full.

3. Where were the concrete washout facilities located that were observed during the placement operation?

- In the vicinity of the concrete pour.
- Near construction site exits / entrances. ¼ mile away from pour.
- Conveniently throughout the job site.
- At the batch plant

4. For each concrete operation that was observed: (attach additional pages for each operation observed).

TRUCK #1

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Exit.
- c) How many gallons of water were used to wash out each truck?
Start 1 gal, end 5 gal, Total used 4 gal.
- d) What volume of concrete waste was generated during each truck washout?
< 1 gal concrete waste, rest was liquid.
- e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A.
- f) Washout facilities are not being used. Is there an obvious reason for such.
N/A.
- g) Other?
Driver noted best method is below ground with hay bale embankment. Dirt embankments get wet and fail allowing waste to spill. Driver pulled rig up to washout so entire chute was over facility.

TRUCK #2

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Exit.
- c) How many gallons of water were used to wash out each truck?
Start 15 gal, end 22 gal, Total used 7 gal.
- d) What volume of concrete waste was generated during each truck washout?

< 1 gal concrete waste, rest was liquid.

- e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A.
- f) Washout facilities are not being used. Is there an obvious reason for such.
N/A.
- g) Other?
Driver pulled up to washout so entire chute was over facility-minimal spill on ground.

TRUCK #3

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Exit.
- c) How many gallons of water were used to wash out each truck?
Start 8 gal, end 15gal, Total used 7 gal.
- d) What volume of concrete waste was generated during each truck washout?
<1 gal concrete waste, rest was liquid.
- e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A.
- f) Washout facilities are not being used. Is there an obvious reason for such
N/A.
- g) Other?
Same comment as Truck #2.

TRUCK #4

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Exit.
- c) How many gallons of water were used to wash out each truck?
Can't read gauge. Approximately 5-7 gallons used.
- d) What volume of concrete waste was generated during each truck washout?
<1 gal concrete waste, rest was liquid.
- e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A.

- f) Washout facilities are not being used. Is there an obvious reason for such
N/A.
- g) Other?
Same comment as Truck #2.

TRUCK #5

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Exit.
- c) How many gallons of water were used to wash out each truck?
Start 6 gal, end 20 gal, Total used 14 gal.
- d) What volume of concrete waste was generated during each truck washout?
2 gal concrete waste, rest was liquid.
- e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A.
- f) Washout facilities are not being used. Is there an obvious reason for such
N/A.
- g) Other?
Same comment as Truck #2.

TRUCK #6

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Exit.
- c) How many gallons of water were used to wash out each truck?
Start 3 gal, end 13 gal, Total used 10 gal.
- d) What volume of concrete waste was generated during each truck washout?
2 gal concrete waste, rest was liquid.
- e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A.
- f) Washout facilities are not being used. Is there an obvious reason for such
N/A.
- h) Other?

Asked Roberts foreman about cleaning hopper and pump. He said they clean it onsite at washout at end of the day. Driver pulls rig up to washout so entire chute over it.

5. Maintenance;
 - a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? As needed.
 - b)
 - c) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor?
General Contractor.
 - d) Is the contractor proactive with replacement facilities upon reaching 75% capacity?
Yes.
6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities?
Superintendent was not available. Subcontractor (Roberts) noted use of washouts is discussed in pre-pour meetings. Generally are located where there is room near the exit.
7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? Unknown-Superintendent not available.
8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities? Unknown-Superintendent not available.
9. Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. No.
10. Have the concrete washout facilities been placed in such a location to be;
 - Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse? Yes.
 - Located outside of travel way or access areas? Yes.
 - Provide berming for secondary containment? Yes.
11. Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. Yes, at end of workday.

CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO.10

Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138	PM: George Gipe, P.E.
Client: State of California DOT Division of Environmental Analysis	PM: Tim Sobelman, P.E.
DOT Project Name: Douglas Interchange EA No.: 03-375604 Project Location: 03-PLA-80-1.4/2.6 Resident Engineer: Clark Martin Project Designer: Howard Michael	Project description: Build Tunnel and Single Lane Flyover Bridge
Contractor's Name: R and L Brosamer Inc Home office address & phone number: P. O. Box 238 Alamo CA 94507-0238 (925) 837-5600 Field office address and phone number: 333 Sunrise, Ste 725 Roseville CA 95661 Project Superintendent: Roger Giles (916) 774-4248	Applicable Subcontractors CTM Bleyco Pisor D. W. Young Drill Tech Avar
Project Cost Contract Award: 22,572,488.05 Value of contract project concrete: \$ 4,500,000 Value of contract concrete washout facilities: \$ 45,000	Applicable Change Orders

PROJECT SITE CHECKLIST

SITE VISIT NO. 10

Completed by Ronald Wurz
Date: 5/26/05

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation? The portion that involved the Concrete placement

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.)
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants.
- Slope protection, channel lining (shot crete)

Please describe the operation narratively; The operation involved the pour of a Bridge deck.

b) What methods of concrete placement did you observe for each construction operation?
The Concrete was pumped with a boom pump truck, and was spread with a bidwell machine.

c) What concrete placement equipment was used for each operation? A boom type pumper truck, and a bidwell machine.

c) What volume of concrete was placed during the period of observation for each operation? The entire pour was approximately 400 cubic meters. The amount of concrete placed during the observation was approximately 50 cubic meters (65cy).

d) What kind of concrete delivery equipment was used for each operation? Rotating Drum Concrete Trucks.

2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- Concrete wash out service (full turn key service by outside vendor).
- Above grade washout facility (installed at designated location).
- Below grade washout facilities (installed at designated locations)
- Contractor supplied portable washout facilities
- No washout facilities onsite

There was one (1) concrete washout that was 4' wide by 8' long, and 2' in height. There were four (4) concrete washouts that were 4' wide by 8' long, and 3' in height.

3. Where were the concrete washout facilities located that were observed during the placement operation?
- X In the vicinity of the concrete pour.
 - X Near construction site exits / entrances.
 - Conveniently throughout the job site.
 - At the batch plant
4. For each concrete operation that was observed: (attach additional pages for each operation observed).
- a) Did delivery trucks wash out between each load? Yes
 - b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Near the pumping operation, and near the exit from the job site.
 - c) How many gallons of water were used to wash out each truck? Approx. 20 gal.
 - d) What volume of concrete waste was generated during each truck washout? Approximately ¼ wheel barrow for four trucks that washed out. That equates to approximately 1.5 cubic feet, or approximately 1/3 Cubic feet per load.
 - e) What volume of concrete waste was generated during the cleanup of placement equipment? Did not watch the cleanup of placement equipment. Interviewing the operator of the pump truck, the amount can vary from ½ cubic yard to a wheelbarrow load, or just under a ¼ cubic yard.
 - f) Washout facilities are not being used. Is there an obvious reason for such
 - g) Other?
5. Maintenance;
- a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? The Contractor is maintaining the concrete washouts. They are being maintained sufficiently to pass the SWPPP inspection.
 - b) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor? The Contractor is maintaining the washouts.
 - c) Is the contractor proactive with replacement facilities upon reaching 75% capacity? The Caltrans personnel stated "yes in general".
6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities?

7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? The Contractor is hauling it off.
8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities?
9. Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. No. There are no designated washout locations on the plans, and there are no signage required on the plans or SWPPP.
10. Have the concrete washout facilities been placed in such a location to be;
 - Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse? Yes.
 - Located outside of travel way or access areas? Yes.
 - Provide berming for secondary containment? No.

Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used.

Washouts are being used to clean chutes. Pump trucks wash out in pits lined with plastic.

CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO. 11

Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138	PM: George Gipe, P.E.
Client: State of California DOT Division of Environmental Analysis	PM: Tim Sobelman, P.E.
DOT Project Name: In Tulare County in Goshen at 0.64KM South of Goshen Overcrossing. EA No.: 06-455504 Project Location: 06-TUL-99-40.4 Resident Engineer: Raul Lopez Project Designer:	Project description: Construct Pedestrian Overcrossing
Contractor's Name: Agee Construction Corporation Home office address & phone number: Hobblitt Ave. Clovis CA 93613 (559) 299-3290 Field office address and phone number: Project site (559) 217-1365 Project Superintendent: Howard Asbury	Applicable Subcontractors Allante Fence BDS Construction Bill Marvin Electric D S I Franklin Reinforcing Steel J and M Land Restoration Malcolm Drilling Statewide Safety and Signs
Project Cost Contract Award: \$ 2,758,761 Value of contract project concrete: \$ 1,392, 300 Value of contract concrete washout facilities: Included in the Water Pollution Control bid item \$ 4,000	Applicable Change Orders

PROJECT SITE CHECKLIST

SITE VISIT NO. 11

Completed by: Ronald Wurz
Date: 6/20/05

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation?
a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.)
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants
- Slope protection, channel lining (shotcrete)

Please describe the operation narratively; _For the first half of the concrete pour, the Concrete was delivered to the job site on the west side of Highway 99 near the end of the southbound on ramp of the Goshen overcrossing in concrete mixer trucks with rotating drums. Placed concrete in hopper of concrete pumper truck with boom. The concrete pumper truck placed the concrete in the forms of the overcrossing. The empty concrete truck would proceed to a near by portable washout, where the operator would scrape out any loose material from the chute. The concrete truck would Proceed down Highway 99 to the next exit, and return toward the construction site, passing the construction site and crossing the freeway on the Goshen Overcrossing. The concrete truck would proceed to the job site on the east side of the freeway, where the concrete washout facilities were located.

For the second half of the pour, the concrete pump truck was relocated on the east side of the freeway, relatively near the concrete washout facilities.

- b) What methods of concrete placement did you observe for each construction operation? Concrete placed by concrete pump truck with boom.
- c) What concrete placement equipment was used for each operation? No special equipment other than the concrete pump truck with boom, hand tools and a manual screed.
- c) What volume of concrete was placed during the period of observation for each operation? Approximately 35 cubic meters (45cy). The entire pour was 87 cubic meters
- d) What kind of concrete delivery equipment was used for each operation? The Concrete mixing truck, with rotating drum.

2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- Concrete wash out service (full turn key service by outside vendor).
- Above grade washout facility (installed at designated location).
- Below grade washout facilities (installed at designated locations)
- Contractor supplied portable washout facilities
- No washout facilities onsite

3. Where were the concrete washout facilities located that were observed during the placement operation?

- In the vicinity of the concrete pour.
- Near construction site exits / entrances.
- Conveniently throughout the job site.
- At the batch plant

Other: See Item 1-a for the answer to this question.

4. For each concrete operation that was observed: (attach additional pages for each operation observed).
 - a) Did delivery trucks wash out between each load? Yes.
 - b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? For the first half of the pour, the washout was not in a convenient location, see narrative in item 1-a. For the second half of the pour, the concrete pumper truck was located on the East side of the freeway, in a closer location to the washouts.
 - c) How many gallons of water were used to wash out each truck? Averaged 20.5 gallons per load.
 - d) What volume of concrete waste was generated during each truck washout? Approx. 1.25 cubic feet.
 - e) What volume of concrete waste was generated during the cleanup of placement equipment? Did not observe.
 - f) Washout facilities are not being used. Is there an obvious reason for such
 - g) Other?

5. Maintenance;
 - a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? As Needed.
 - b) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor? By General Contractor.
 - c) Is the contractor proactive with replacement facilities upon reaching 75% capacity? Yes.

6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities? Yes.

7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? Stock piling, and hauling off to Land Fill.

8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities? Yes.

9. Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. Yes.

10. Have the concrete washout facilities been placed in such a location to be;
- Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse? Yes.
 - Located outside of travel way or access areas? Yes.
 - Provide berming for secondary containment? No.
11. Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. Yes.

Other observations not included with the other comments:

- (1) The pumper truck pumped approximately 6" to 8" into one of the 4'x4' portable concrete washout containers at the start of the job. The pump operator stated that it is necessary to prime the tubes of the pumper with water prior to the pumping operation, in order to wet the surfaces of the tubes. This water must be pumped out prior to concrete pumping operations, in order to avoid overly wet concrete in the structure. Once the water is removed from the tubes the concrete pour can begin. There is a picture of the concrete pumped into the portable washout. It is estimated that there was approximately 9.4 cubic feet in the portable washout. Each truck deposited between $\frac{1}{4}$ to $\frac{3}{8}$ cubic feet of debris in the fixed concrete washout facility, and from observation the amount of concrete scraped into the other portable washout amounted to approximately $\frac{1}{8}$ of a cubic foot per truck. Based on that the average amount of concrete waste per truck appears to be based on a 10 truck delivery to the project as follows: .94 CF/truck from the pump at the beginning of the job, .30CF/truck at the washout, .12CF/truck at the portable washout, assume that $\frac{1}{4}$ CY, or 8 CF is deposited when the pump truck cleans out. The result would be that a total of $.94 + .30 + .12 + .68 = 2.04$ CF of waste per truck. For larger pours, this would be less per truck.
- (2) It was noticed at this site, and other sites that not all of the rinsate goes into the concrete wash out. It is estimated that 95% to 99% of the water used to clean the chute goes into the washout. It was also noticed that most of the water from cleaning the outside of the drum in the area of the hopper went onto the ground outside of the washout. This may very well be a problem in the future, if it is not addressed. I estimate that from 10 – 15% of the water used to clean the truck at the washout is used to clean the drum and other parts of the truck in which the water does not go into the washout. On this project that would amount to approximately 2 gallons per truck.



























CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO. 12

Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138	PM: George Gipe, P.E.
Client: State of California DOT Division of Environmental Analysis	PM: Tim Sobelman, P.E.
DOT Project Name: In Trinity County in Hayfork from 0.1KM North of Morgan Hill Road to Clinic Avenue EA No.: 02-364104 Project Location: 02-TRI-3-6.5 Resident Engineer: Eric Chaffee Project Designer: Lori Evens	Project description: Replace Bridge (Scour)
Contractor's Name: Shasta Construction Home office address & phone number: 4150 Fig Tree Lane Redding CA 96002 Field office address and phone number: Corner of Tule Creek Road and Highway 3 Project Superintendent: Paul Geist	Applicable Subcontractors
Project Cost Contract Award: \$4,499,996 Value of contract project concrete: \$1,365,820 Value of contract concrete washout facilities: \$450	Applicable Change Orders

PROJECT SITE CHECKLIST

SITE VISIT NO. 12

Completed by: Ronald Wurz
Date: 6-28-05

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation?

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.)
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants
- Slope protection, channel lining (shotcrete)

Please describe the operation narratively; The Contractor was placing Concrete for the Bridge Railing.

b) What methods of concrete placement did you observe for each construction operation?
Concrete was placed directly from the truck into the forms from the chute.

c) What concrete placement equipment was used for each operation?
None.

c) What volume of concrete was placed during the period of observation for each operation?
22 cubic Yards.

d) What kind of concrete delivery equipment was used for each operation?
Concrete Mixer truck with rotating drum.

2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- Concrete wash out service (full turn key service by outside vendor).
- Above grade washout facility (installed at designated location).
- Below grade washout facilities (installed at designated locations)
- Contractor supplied portable washout facilities
- No washout facilities onsite

3. Where were the concrete washout facilities located that were observed during the placement operation?
- X In the vicinity of the concrete pour.
 - Near construction site exits / entrances.
 - Conveniently throughout the job site.
 - At the batch plant
4. For each concrete operation that was observed: (attach additional pages for each operation observed).
- a) Did delivery trucks wash out between each load? Yes.
 - b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? The wash out was located at the contractors yard near the construction site.
 - c) How many gallons of water were used to wash out each truck? Approximately 60 gallons. It is estimated that at least half of the 60 gallons went into the mixer.
 - d) What volume of concrete waste was generated during each truck washout? Approximately 3/8 of a cubic foot.
 - e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A.
 - f) Washout facilities are not being used. Is there an obvious reason for such
 - g) Other?
5. Maintenance;
- a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? Yes.
 - b) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor? General Contractor.
 - c) Is the contractor proactive with replacement facilities upon reaching 75% capacity? Yes.
6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities? Yes The Contractor is doing all of the concrete work.

7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? The washout debris is being used as Rip Rap at a near by creek. I was informed that the Fish and Game needed to reinforce some of the banks of the creek, and issued permits to place the waste concrete as rip rap in the specified areas.
8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities? Yes.
9. Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. Yes.
10. Have the concrete washout facilities been placed in such a location to be;
 - Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse? Yes.
 - Located outside of travel way or access areas? Yes.
 - Provide berming for secondary containment? No.
11. Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. Yes.

















CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO. 13

Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138	PM: George Gipe, P.E.
Client: State of California DOT Division of Environmental Analysis	PM: Tim Sobelman, P.E.
DOT Project Name: I-5/805 Widening EA No.: 11-0301U4 Project Location: San Diego at I-5/805 Interchange Resident Engineer: Mohammed Khan Project Designer: Arturo Jacobo	Project description: Widening I-5/805
Contractor's Name: Yeager Skanska Home office address & phone number: (858) 794-5484 Field office address and phone number: Project Superintendent: Richard Ruder	Applicable Subcontractors Coffman Specialties (PCC)
Project Cost Contract Award: 110M Value of contract project concrete: 30M Value of contract concrete washout facilities: 100K	Applicable Change Orders None

PROJECT SITE CHECKLIST

SITE VISIT NO. 13

Completed by: Matt Kyler
Date: 7/1/05

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation? Portions.

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.) Bridge
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants.
- Slope protection, channel lining (shot crete)

Please describe the operation narratively; As few as one truck and as many as two would back up to pump truck where concrete was pumped into place. Truck proceeded to washout then returned to batch plant for the next load.

b) What methods of concrete placement did you observe for each construction operation? Truck/pump/boom.

c) What concrete placement equipment was used for each operation?
SHWING pump truck.

d) What volume of concrete was placed during the period of observation for each operation? 20cy.

e) What kind of concrete delivery equipment was used for each operation?
Truck.

2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- Concrete wash out service (full turn key service by outside vendor).
- Above grade washout facility (installed at designated location).
- 1 Below grade washout facilities (installed at designated locations)
- Contractor supplied portable washout facilities
- No washout facilities onsite

3. Where were the concrete washout facilities located that were observed during the placement operation?

- X In the vicinity of the concrete pour. 100 yards from pump truck onsite
- Near construction site exits / entrances.
- Conveniently throughout the job site.
- At the batch plant

4. For each concrete operation that was observed: (attach additional pages for each operation observed).

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? 100 yards from pour.
- c) How many gallons of water were used to wash out each truck?
Truck 1: Start=15 gal, End=40 gal, Total=25 gallons.
Truck 2: Start=23 gal, End=35 gal, Total=12 gallons.
- d) What volume of concrete waste was generated during each truck washout?
Truck 1 =5gallons, remaining liquid waste.
Truck 2 = 7gallons, remaining liquid waste.
- e) What volume of concrete waste was generated during the cleanup of placement equipment? 5 gallons.
- f) Washout facilities are not being used. Is there an obvious reason for such.
N/A.
- g) Other?
N/A.

5. Maintenance:

- a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? As needed. After each major pour, washout is replaced.
- b) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor?
General Contractor.
- c) Is the contractor proactive with replacement facilities upon reaching 75% capacity?
Yes.

6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities? Yes.
7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? Debris is crushed and reused as base material.
8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities? Yes.
9. Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. No.
10. Have the concrete washout facilities been placed in such a location to be;
 - Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse? Yes.
 - Located outside of travel way or access areas? Yes.
 - Provide berming for secondary containment? No.

Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. Chutes are cleaned at washout. Pumping equipment washed out into concrete truck which then dumps into the washout.

PHOTOS:





CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO. 15

Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138	PM: George Gipe, P.E.
Client: State of California DOT Division of Environmental Analysis	PM: Tim Sobelman, P.E.
DOT Project Name: In Amador County in and near Sutter Creek and Amador City from junction Route 104 to 0.3 KM south of Rancheria Creek Bridge EA No.: 10-049944 Project Location: 10-AMA-49-R7.0/R11.0 Resident Engineer: Mike Homna Project Designer: Patricia Teczon	Project description: Construct Expressway
Contractor's Name: VIKING STIMPEL A JOINT VENTURE Home office address & phone number: P O BOX 492335 REDDING CA 960492335 (530) 223-6605 Field office address and phone number: Project Superintendent: Miguel Lepe	Applicable Subcontractors Central Fence Chrisp Company Dywidag Systems Foundation Constructors George Reed Inc. J and M Land Restoration M Bumgarner Inc. Quimo Contracting Regional Field Corp. Richard A Heap Electric
Project Cost Contract Award: \$ 22,259,188.00 Value of contract project concrete: \$ 3,900,350 Value of contract concrete washout facilities: Imbedded in the \$ 120,000 Water Pollution Control Item.	Applicable Change Orders

PROJECT SITE CHECKLIST

SITE VISIT NO. 15

Completed by: Srnivas Muktevi
Date: 6/13/05

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation? The portion that involved the Concrete placement.

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.)
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants
- Slope protection, channel lining (shotcrete)

Please describe the operation narratively; Concrete was delivered to the pump truck, and was pumped into the forms for the column footing.

b) What methods of concrete placement did you observe for each construction operation? The concrete placement was done with the concrete pump truck.

c) What concrete placement equipment was used for each operation? The concrete pump truck (Conco).

c) What volume of concrete was placed during the period of observation for each operation?
125 Cubic meters (164cy).

d) What kind of concrete delivery equipment was used for each operation? Truck with Rotating Drum (Amador Transit Co).

2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- Concrete wash out service (full turn key service by outside vendor).
- Above grade washout facility (installed at designated location).
- Below grade washout facilities (installed at designated locations)
- Contractor supplied portable washout facilities
- No washout facilities onsite

3. Where were the concrete washout facilities located that were observed during the placement operation?
- X In the vicinity of the concrete pour.
 - X Near construction site exits / entrances.
 - Conveniently throughout the job site.
 - At the batch plant
4. For each concrete operation that was observed: (attach additional pages for each operation observed).
- a) Did delivery trucks wash out between each load? Yes
 - b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Exit
 - c) How many gallons of water were used to wash out each truck? 11 Gallons
 - d) What volume of concrete waste was generated during each truck washout?
Approximately ½ cubic foot
 - e) What volume of concrete waste was generated during the cleanup of placement equipment? Approximately 3 cubic feet
 - f) Washout facilities are not being used. Is there an obvious reason for such
 - g) Other?
5. Maintenance;
- a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? Yes
 - b) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor? The General Contractor
 - c) Is the contractor proactive with replacement facilities upon reaching 75% capacity? Yes
6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities?

-
7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? Hauling it to Landfill
 8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities?
 9. Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. Yes
 10. Have the concrete washout facilities been placed in such a location to be;
 - Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse? Yes
 - Located outside of travel way or access areas? Yes
 - Provide berming for secondary containment? No
 11. Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. Yes



















CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO. 16

<p>Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138</p>	<p>PM: George Gipe, P.E.</p>
<p>Client: State of California DOT Division of Environmental Analysis</p>	<p>PM: Tim Sobelman, P.E.</p>
<p>DOT Project Name: 57/60 Interchange Improvement EA No.: 07-1257U4 Project Location: Diamond Bar, 57/60 Interchange Resident Engineer: Martin Sandoval Project Designer: Caltrans</p>	<p>Project description: Interchange Improvement Observed pouring column</p>
<p>Contractor's Name: C.C. Meyers Home office address & phone number: 500 South Old Brea Canyon Rd. City of Industry, 91789 (909) 860-3159 Field office address and phone number: Same as above. Project Superintendent: Steve Meyers</p>	<p>Applicable Subcontractors Condon-Johnson (columns) Larry Concrete Hale (batch plant)</p>
<p>Project Cost Contract Award: 56M Value of contract project concrete: unknown Value of contract concrete washout facilities: Bid as part of SWPPP plan:</p> <ul style="list-style-type: none"> • SWPPP Plan Bid : \$350,000 (lump sum) • SWPPP broken down, but too hard to manage because Contractor submitted plan at 30% completion. • Paying Contractor by % complete for work pertaining to SWPPP. 	<p>Applicable Change Orders SWPPP maintenance payment Additional SWPPP requests</p>

PROJECT SITE CHECKLIST

SITE VISIT NO. 16

Completed by: Gretchen Prouty

Date: 5/24/2005

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation? Portions.

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.) Column observed
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants.
- Slope protection, channel lining (shot crete)

Please describe the operation narratively; Trucks back up to hopper two at a time then pull forward to washout. Concrete is placed with pump and boom into a pipe suspended by a crane into column.

- b) What methods of concrete placement did you observe for each construction operation? Placed with hopper/boom/pump. Final delivery through suspended pipe into column
- c) What concrete placement equipment was used for each operation?
Truck with hopper/boom/pump was a SCHWING 32XL.
- d) What volume of concrete was placed during the period of observation for each operation? Total poured=240cy Observed=50cy
- e) What kind of concrete delivery equipment was used for each operation?
Truck
2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- ___ Concrete wash out service (full turn key service by outside vendor).
- ___ Above grade washout facility (installed at designated location).
- ___ Below grade washout facilities (installed at designated locations)
- ___ 1 ___ Contractor supplied portable washout facilities
- ___ No washout facilities onsite

Portable washout was 20'x10' plastic lined metal container.

3. Where were the concrete washout facilities located that were observed during the placement operation?
- In the vicinity of the concrete pour.
 - Near construction site exits / entrances.
 - Conveniently throughout the job site.
 - At the batch plant
4. For each concrete operation that was observed: (attach additional pages for each operation observed).

TRUCK #1

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Entrance.
- c) How many gallons of water were used to wash out each truck?
Start 10 gal, end 18 gal, Total used 8 gal.
- d) What volume of concrete waste was generated during each truck washout?
5 gal concrete waste, rest was liquid.
- e) What volume of concrete waste was generated during the cleanup of placement equipment? 20 gal- Boom and pump rinsed before start of pour into bucket loader. Some spilled on ground.
- f) Washout facilities are not being used. Is there an obvious reason for such.
N/A
- g) Other?
Bucket loader put waste from boom/pump into washout. Not rinsed. Went back to moving dirt.

TRUCK #2

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Entrance.
- c) How many gallons of water were used to wash out each truck?
Start 0 gal, end 8 gal, Total used 8 gal.
- d) What volume of concrete waste was generated during each truck washout?
< 1 gal concrete waste, rest was liquid.

- e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A
- f) Washout facilities are not being used. Is there an obvious reason for such.
N/A
- g) Other?
Diver spilled some on edge. Only cleans truck until next truck arrived. Time spent cleaning was less than 5 minutes.

TRUCK #3

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Entrance.
- c) How many gallons of water were used to wash out each truck?
Start 9 gal, end 17gal, Total used 8 gal.
- d) What volume of concrete waste was generated during each truck washout?
3 gal concrete waste, rest was liquid.
- e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A
- f) Washout facilities are not being used. Is there an obvious reason for such
N/A
- g) Other?
Only cleans truck until next truck arrived. Time spent cleaning was less than 5 minutes.

TRUCK #4

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Entrance.
- c) How many gallons of water were used to wash out each truck?
Can't read gauge. Approximately 8-10 gallons used.
- d) What volume of concrete waste was generated during each truck washout?
1 gal concrete waste, rest was liquid.
- e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A

- f) Washout facilities are not being used. Is there an obvious reason for such
N/A
- g) Other?
Only cleans truck until next truck arrived. Time spent cleaning was less than 5 minutes.

TRUCK #5

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Entrance.
- c) How many gallons of water were used to wash out each truck?
Start 15 gal, end 20 gal, Total used 5 gal.
- d) What volume of concrete waste was generated during each truck washout?
3 gal concrete waste, rest was liquid.
- e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A
- f) Washout facilities are not being used. Is there an obvious reason for such
N/A
- g) Other?
Only cleans truck until next truck arrived. Time spent cleaning was less than 5 minutes.

- 5. Maintenance;
 - a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? As needed. Washout is easily portable.
 - b) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor?
General Contractor.
 - c) Is the contractor proactive with replacement facilities upon reaching 75% capacity?
Yes, usually replaces washout at < 50% capacity.
- 6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities?
Yes- Contractor discusses in pre-pour meeting. It is included with pour plan also.
- 7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? Not using. Waste is hauled offsite.

8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities? Yes.
9. Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. No.
10. Have the concrete washout facilities been placed in such a location to be;
 - Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse? Yes.
 - Located outside of travel way or access areas? Yes.
 - Provide berming for secondary containment? No.
11. Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. Yes. Rinse boom/pump into bucket loader to take to washout.

Urban site. Inspector explained that they are very concerned about slurry spill. Can't risk a spill leaking onto traffic lanes and causing an accident. Concrete waste management very important.

**CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO. 17**

<p>Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138</p>	<p>PM: George Gipe, P.E.</p>
<p>Client: State of California DOT Division of Environmental Analysis</p>	<p>PM: Tim Sobelman, P.E.</p>
<p>DOT Project Name: LA County 0.1km West of Center St. Undercrossing to Alameda St. Overcrossing</p> <p>EA No.: 07-1199U4</p> <p>Project Location: Los Angeles, South 101 off Commercial St. Near Alameda</p> <p>Resident Engineer: Simon Wang</p> <p>Project Designer: MTA/Caltrans/City of LA</p>	<p>Project description: New ramp and realignment of freeway.</p>
<p>Contractor's Name: Brutoco Engineering and Construction</p> <p>Home office address & phone number:</p> <p>P.O. Box 429 Fontana, CA 92334 (213) 626-1846</p> <p>Field office address and phone number:</p> <p>Same as above.</p> <p>Project Superintendent: Paul Sullivan</p>	<p>Applicable Subcontractors</p> <p>Malcom-structural</p>
<p>Project Cost</p> <p>Contract Award: 14M</p> <p>Value of contract project concrete: unknown</p> <p>Value of contract concrete washout facilities: Included in SWPPP lump sum</p>	<p>Applicable Change Orders</p> <p>None</p>

PROJECT SITE CHECKLIST SITE VISIT NO. 17

Completed by: Gretchen Prouty

Date: 6/13/2005

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation? Only portion involved with concrete placement.

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.) Column
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants.
- Slope protection, channel lining (shot crete)

Please describe the operation narratively; Pouring the foundation of four columns.

- b) What methods of concrete placement did you observe for each construction operation? Trucks/hopper/boom and pumps
- c) What concrete placement equipment was used for each operation?
See above.
- d) What volume of concrete was placed during the period of observation for each operation? Total poured=20cy,
- e) What kind of concrete delivery equipment was used for each operation?
Truck
2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- ___ Concrete wash out service (full turn key service by outside vendor).
- __1__ Above grade washout facility (installed at designated location).
- ___ Below grade washout facilities (installed at designated locations)
- ___ Contractor supplied portable washout facilities
- ___ No washout facilities onsite

Washout per Caltrans WM-8 (10'x10'x1' high)

3. Where were the concrete washout facilities located that were observed during the placement operation?

- X In the vicinity of the concrete pour. Adjacent to column, also near exit.
- X Near construction site exits / entrances.
- Conveniently throughout the job site.
- At the batch plant

4. For each concrete operation that was observed: (attach additional pages for each operation observed). Pour schedule changed. Could not observe pour. All information collected is from resident engineer, onsite inspector and contractor interview.

- a) Did delivery trucks wash out between each load? Unknown.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Unknown.
- c) How many gallons of water were used to wash out each truck?
Unknown.
- d) What volume of concrete waste was generated during each truck washout?
Unknown.
- e) What volume of concrete waste was generated during the cleanup of placement equipment? Unknown.
- f) Washout facilities are not being used. Is there an obvious reason for such.
Unknown.
- g) Other?
Contractor moves washout as close as possible to column being poured.

5. Maintenance;

- a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? As needed.
- b) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor?
General contractor.
- c) Is the contractor proactive with replacement facilities upon reaching 75% capacity?
Yes-Caltrans inspects regularly.

6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities?
According to superintendent, it isn't discussed at meetings. They employ personnel for a long duration. Personnel are familiar with washout procedures per company policy. Also uses same subcontractor repeatedly.
7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? Hauled offsite, not recycled into job.
8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities? No formal training, SWPPP compliance based on job experience. Contractor has SWPPP team to maintain site. Caltrans requires an inspection checklist to be submitted monthly.
9. Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. No.
10. Have the concrete washout facilities been placed in such a location to be;
 - Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse? Yes.
 - Located outside of travel way or access areas? Yes.
 - Provide berming for secondary containment? No.
11. Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. If washout is located nearby they use it, otherwise they rinse pump into a bucket load and put it into the washout.

CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO. 18

Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138	PM: George Gipe, P.E.
Client: State of California DOT Division of Environmental Analysis	PM: Tim Sobelman, P.E.
DOT Project Name: In Sonoma County in Petaluma From Petaluma River Bridge to 0.2 KM North of 101 and 116 Separation and Overhead EA No.: 04-276004 Project Location: Petaluma Resident Engineer: James Cameron Project Designer: R. J. Noda	Project description: Replace Bridge and Improve on Ramp
Contractor's Name: Diablo Contractors Inc. Home office address & phone number: 7 Crow Canyon Court Ste 100 San Ramon, CA 94583 Field office address and phone number: 1717 Lakeville Hwy Petaluma CA 94954 Project Superintendent: Larry Brant	Applicable Subcontractors AC Dike Avar Construction C T M Cooper Crane & Rigging Elijah Electric Harris Salinas Linear Options
Project Cost Contract Award: \$ 9,764,196.50 Value of contract project concrete: \$ 2,503,560 Value of contract concrete washout facilities: \$ 2,000	Applicable Change Orders

PROJECT SITE CHECKLIST

SITE VISIT NO. 18

Completed by : Srinivas Muktevi
Date: 6/10/05

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation? The portion that involved the Concrete placement.

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.) Column and Footing
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants
- Slope protection, channel lining (shotcrete)

Please describe the operation narratively; The Concrete Trucks were placing the concrete into the hopper of the boom type concrete pumper truck, and the pumper was placing the concrete into the column forms.

b) What methods of concrete placement did you observe for each construction operation?

The Concrete was placed with a pump.

c) What concrete placement equipment was used for each operation? A Concrete Pump Truck small CIFA.

d) What volume of concrete was placed during the period of observation for each operation? 50 cubic meters (65cy).

e) What kind of concrete delivery equipment was used for each operation? Concrete Truck with rotating drum (Shamrock).

2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- Concrete wash out service (full turn key service by outside vendor).
- Above grade washout facility (installed at designated location).
- Below grade washout facilities (installed at designated locations)
- Contractor supplied portable washout facilities
- No washout facilities onsite

3. Where were the concrete washout facilities located that were observed during the placement operation?
- X In the vicinity of the concrete pour.
 - X Near construction site exits / entrances.
 - Conveniently throughout the job site.
 - At the batch plant
4. For each concrete operation that was observed: (attach additional pages for each operation observed).
- a) Did delivery trucks wash out between each load? Yes
 - b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Near the Job Entrance/Exit
 - c) How many gallons of water were used to wash out each truck? 18 Gallons
 - d) What volume of concrete waste was generated during each truck washout? Approximately ½ cubic Foot
 - e) What volume of concrete waste was generated during the cleanup of placement equipment? Approximately 3 Cubic Feet for the Pump truck
 - f) Washout facilities are not being used. Is there an obvious reason for such
 - g) Other?
5. Maintenance;
- a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? Yes
 - b) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor? The General Contractor
 - c) Is the contractor proactive with replacement facilities upon reaching 75% capacity? Yes
6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities?

7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? Hauls it to a Landfill
8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities?
9. Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. No
10. Have the concrete washout facilities been placed in such a location to be;
 - Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse? Yes
 - Located outside of travel way or access areas? Yes
 - Provide berming for secondary containment? No
11. Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. The primary washout facility is a trailer lined with polyethylene film. It is used primarily for the concrete mixer trucks to clean out their chutes. A separate washout facility is used for the pump truck. It is a pit lined with polyethylene film.





















CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VIST NO. 19

Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138	PM: George Gipe, P.E.
Client: State of California DOT Division of Environmental Analysis	PM: Tim Sobelman, P.E.
DOT Project Name: Imola Bridge Project EA No.: 04-253804 Project Location: Napa CA Resident Engineer: Darin Kishiyama Project Designer: Emanuel Caluya	Project description:
Contractor's Name: C. C. Meyers Inc Home office address & phone number: P. O. Box 2948 Rancho Cordova CA 95741 Field office address and phone number: Project Superintendent::	Applicable Subcontractors
Project Cost Contract Award: \$ 29,737,903 Value of contract project concrete: Value of contract concrete washout facilities:	Applicable Change Orders

PROJECT SITE CHECKLIST

SITE VISIT NO. 19

Completed by Ronald Wurz
Date: 5/26/05

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation? The portion that involved the Concrete placement.

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.)
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants.
- Slope protection, channel lining (shot crete)

Please describe the operation narratively; Concrete was placed in metal forms for Footing No. 10.

b) What methods of concrete placement did you observe for each construction operation? The concrete was placed with a boom type concrete pumping truck

c) What concrete placement equipment was used for each operation? Concrete pump truck

d) What volume of concrete was placed during the period of observation for each operation? 94 Cubic Meters (123cy)

e) What kind of concrete delivery equipment was used for each operation? Rotating drum delivery truck

2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- X Concrete wash out service (full turn key service by outside vendor).
- X Above grade washout facility (installed at designated location).
- Below grade washout facilities (installed at designated locations)
- Contractor supplied portable washout facilities
- No washout facilities onsite

3. Where were the concrete washout facilities located that were observed during the placement operation?
- In the vicinity of the concrete pour.
 - Near construction site exits / entrances.
 - Conveniently throughout the job site.
 - At the batch plant
4. For each concrete operation that was observed: (attach additional pages for each operation observed).
- a) Did delivery trucks wash out between each load? Yes.
 - b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Near pour and near exit.
 - c) How many gallons of water were used to wash out each truck? The trucks observed averaged approximately 13 gallons. Not all of the water went into the washout, some of the water went into and remained in the drum.
 - d) What volume of concrete waste was generated during each truck washout? There was approximately ¼ cubic foot of concrete waste generated.
 - e) What volume of concrete waste was generated during the cleanup of placement equipment? The Concrete Pumper was observed during cleanup, and approximately ¼ cubic yard of concrete was generated.
 - f) Washout facilities are not being used. Is there an obvious reason for such
 - g) Other?
5. Maintenance;
- a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? Yes.
 - b) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor? General Contractor.
 - c) Is the contractor proactive with replacement facilities upon reaching 75% capacity? Yes.
6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities?
7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? The Contractor is stockpiling the debris and hauling it off to a landfill.
8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities?
9. Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. No

10. Have the concrete washout facilities been placed in such a location to be;
- Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse?
Yes
 - Located outside of travel way or access areas?
 - Provide berming for secondary containment? No
11. Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. The concrete mixing trucks used the portable washout facility, while a temporary washout facility was created for the concrete pumping truck.

The Pump operator elaborated on washouts. He talked about various types of facilities he has used to wash out the pump truck. He stated that the pit type of facility was the worst type of facility for the concrete boom type truck. The operator does not have adequate access to easily and safely washout the equipment. The operator must hang off different portions of the equipment in order to attempt to adequately washout the equipment.

The operator prefers the low formed (temporary) washout facility, usually formed with 2x12s, with a polyethylene liner (visquien) This allows the operator to back the pump truck over the washout facility, and to drain the pump into it. It also allows the operator to have adequate access to the rear of the pump truck at ground level.

The operator also stated the drop box (portable) type of washouts are generally too high to use. He mentioned one occasion in which he used a portable wash out. The contractor told the operator to lift the pumping truck as high as he could with his out riggers, and the contractor placed the portable washout facility under his truck during washout, and removed it when he was finished. (good if nothing else is available, but impractical and expensive)









The Pump Operator had to repair the washout prior to using.



The Repaired concrete washout facility





CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO. 20

Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138	PM: George Gipe, P.E.
Client: State of California DOT Division of Environmental Analysis	PM: Tim Sobelman, P.E.
DOT Project Name: Highway 680 So. Of Mococo overhead to Benicia Martinez Bridge and overhead EA No.: 04-006054 Project Location: 04-CC-680-23.9/24.9 Resident Engineer: Bill Shedd Project Designer:	Project description:
Contractor's Name: F C I Constructors Inc. Home office address & phone number: 90 Great Oaks Blvd. Ste. 105 San Jose CA 95119 (408) 227-2735 Field office address and phone number: 2100 Goodyear Rd Benicia CA 94510 Project Superintendent::	Applicable Subcontractors
Project Cost Contract Award: \$ 39,272,830 Value of contract project concrete: \$ 260,992 Value of contract concrete washout facilities: \$27,000	Applicable Change Orders

PROJECT SITE CHECKLIST
SITE VISIT NO. 20

Completed by Ronald Wurz
Date: 5/17/2005

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation? Just portion involving concrete pour.

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.)
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants.
- Slope protection, channel lining (shot crete)

Please describe the operation narratively; Poured Barrier Wall at the base of a retaining wall. _____

b) What methods of concrete placement did you observe for each construction operation? Placed by chute into forms.

c) What concrete placement equipment was used for each operation? Concrete Truck with Rotating Drum.

d) What volume of concrete was placed during the period of observation for each operation? Approximately 7 cubic meters (9cy).

e) What kind of concrete delivery equipment was used for each operation? Concrete Truck with Rotating Drum.

2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- Concrete wash out service (full turn key service by outside vendor).
- Above grade washout facility (installed at designated location).
- Below grade washout facilities (installed at designated locations)
- Contractor supplied portable washout facilities
- No washout facilities onsite

3. Where were the concrete washout facilities located that were observed during the placement operation?
- X In the vicinity of the concrete pour.
 - Near construction site exits / entrances.
 - Conveniently throughout the job site.
 - At the batch plant
4. For each concrete operation that was observed: (attach additional pages for each operation observed).
- a) Did delivery trucks wash out between each load? Yes.
 - b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? In Vicinity.
 - c) How many gallons of water were used to wash out each truck? Approximately 15 Gallons.
 - d) What volume of concrete waste was generated during each truck washout? Approximately 2 shovels full.
 - e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A.
 - f) Washout facilities are not being used. Is there an obvious reason for such
 - g) Other?
5. Maintenance;
- a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? Yes.
 - b) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor? By General Contractor.
 - c) Is the contractor proactive with replacement facilities upon reaching 75% capacity?
Yes.
6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities?

7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project?
8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities?
9. Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. Yes.
10. Have the concrete washout facilities been placed in such a location to be;
 - Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse? Yes.
 - Located outside of travel way or access areas? Yes.
 - Provide berming for secondary containment? No.
11. Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. The type of washout facility was a portable unit, that was good for washing out Concrete truck chutes. There was no pump truck at this pour, thus there was no washout observed for a pump truck. A pump truck could not washout in this portable washout facility.

CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO. 21

Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138	PM: George Gipe, P.E.
Client: State of California DOT Division of Environmental Analysis	PM: Tim Sobelman, P.E.
DOT Project Name: In Contra Costa and Alameda Counties in San Ramon and Dublin From 0.6KM South to 0.7KM North of Alcosta Boulevard Overcrossing. EA No.: 04-228444 Project Location: 04-CC-680-R0.0/R0.6 Resident Engineer: Eddie Dike Project Designer:	Project description: Modify Interchange
Contractor's Name:_Bay Cities Paving and Grading Home office address & phone number: (925) 687-6666 P. O. Box 6227 Concord CA 94524-6227 Field office address and phone number: Project Superintendent::	Applicable Subcontractors
Project Cost Contract Award: \$6,654,100.65 Value of contract project concrete: \$1,191,588 Value of contract concrete washout facilities: \$12,250	Applicable Change Orders

PROJECT SITE CHECKLIST

SITE VISIT NO. 21

Completed by: Srinivas Muktevi
Date: 7-01-05

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation? Portions involving concrete placement.

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.) Retaining Wall
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants
- Slope protection, channel lining (shotcrete)

Please describe the operation narratively; Concrete was placed into the forms of the Retaining Wall by concrete pump truck.

b) What methods of concrete placement did you observe for each construction operation? The concrete was placed by pump truck.

c) What concrete placement equipment was used for each operation? Concrete pump Truck.

c) What volume of concrete was placed during the period of observation for each operation?
18 CY

d) What kind of concrete delivery equipment was used for each operation? Concrete mixer truck with rotating drum.

2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- Concrete wash out service (full turn key service by outside vendor).
- Above grade washout facility (installed at designated location).
- Below grade washout facilities (installed at designated locations)
- Contractor supplied portable washout facilities
- No washout facilities onsite

3. Where were the concrete washout facilities located that were observed during the placement operation?
- In the vicinity of the concrete pour.
 - Near construction site exits / entrances.
 - Conveniently throughout the job site.
 - At the batch plant
4. For each concrete operation that was observed: (attach additional pages for each operation observed).
- a) Did delivery trucks wash out between each load? Yes.
 - b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Near the entrance/exit.
 - c) How many gallons of water were used to wash out each truck? Approximately 15 gallons per truck.
 - d) What volume of concrete waste was generated during each truck washout? There was less than 1/8 cubic foot. The operators cleaned out most of the aggregate at the pump truck.
 - e) What volume of concrete waste was generated during the cleanup of placement equipment? Did not see pump truck clean up. Note that the Concrete pump truck initially filled his Hopper approximately 1/4 full of water, and pumped it into the tubing and hose to wet the tubing and hoses to prevent a plug-up during the pumping operation. The water is pumped out with concrete, until all of the water is pumped out. The picture with the concrete on the polyethylene sheeting is the result of purging the hose. It is estimated that was approximately 1/4 cubic yard.
 - f) Washout facilities are not being used. Is there an obvious reason for such
 - g) Other?
5. Maintenance;
- a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? Yes.
 - b) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor? General Contractor.
 - c) Is the contractor proactive with replacement facilities upon reaching 75% capacity? Yes.
6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities? The Project Superintendent was not available
7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? They haul it off to a landfill.

8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities? The Project Superintendent was not available.
9. Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. No.
10. Have the concrete washout facilities been placed in such a location to be;
 - Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse? Yes.
 - Located outside of travel way or access areas? Yes.
 - Provide berming for secondary containment? No.
11. Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. Yes.

**CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO. 22**

<p>Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138</p>	<p>PM: George Gipe, P.E.</p>
<p>Client: State of California DOT Division of Environmental Analysis</p>	<p>PM: Tim Sobelman, P.E.</p>
<p>DOT Project Name: I-15 Managed Lanes Unit 3</p> <p>EA No.: 11-080924</p> <p>Project Location: I-15 from 0.5km north of Rancho Bernardo Rd. to 0.7km. south of Via Rancho Parkway</p> <p>Resident Engineer: Cory Binns</p> <p>Project Designer: Luis Medina</p>	<p>Project description:</p> <p>The project consists of constructing four managed lanes within the existing I-15 median and one outside lane in both the southbound and northbound direction. The project length is 4.0km and will include the construction of 8 new bridge structures.</p> <p>The total contract value of the item work is \$81,952,560 and contract time is 700 working days. Plant establishment will continue for an additional 250 working days.</p>
<p>Contractor's Name: FCI/Balfour Beatty, a Joint Venture</p> <p>Home office address & phone number:</p> <p>2585 Business Park Dr. Vista, CA 92081 (760) 727-9767</p> <p>Field office address and phone number:</p> <p>15950 Bernardo Center Drive, Suite N San Diego, CS 92127 (858) 487-0248</p> <p>Project Superintendent: Chris Wyss</p>	<p>Applicable Subcontractors</p> <p>Malcolm Drilling Penhall Select Electrical</p>
<p>Project Cost</p> <p>Contract Award: \$81,952,560</p> <p>Value of contract project concrete: \$32,000,000</p> <p>Value of contract concrete washout facilities: \$105,000</p>	<p>Applicable Change Orders</p> <p>None</p>

PROJECT SITE CHECKLIST SITE VISIT NO. 22

Completed by: Gretchen Prouty

Date: 5/26/2005

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation? Portions.

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.) Wall observed
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants.
- Slope protection, channel lining (shot crete)

Please describe the operation narratively; Truck backs up to hopper, unloads and drives to washout on other side of overpass. Exits at top of overpass. Washout is located on overpass embankment.

b) What methods of concrete placement did you observe for each construction operation? Hopper/boom/pump

c) What concrete placement equipment was used for each operation?
Hopper/boom/pump (Merli)

d) What volume of concrete was placed during the period of observation for each operation? Observed 40cy.

e) What kind of concrete delivery equipment was used for each operation?
Truck.

2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- ___ Concrete wash out service (full turn key service by outside vendor).
- ___ Above grade washout facility (installed at designated location).
- ___ 3 ___ Below grade washout facilities (installed at designated locations)
- ___ Contractor supplied portable washout facilities
- ___ No washout facilities onsite

- 1 active washout was below grade pit with bermed sides and covered with plastic. Plastic was held in place with sandbags on sides of berm. (33'x17'x3')
- 2 washouts onsite and full.

3. Where were the concrete washout facilities located that were observed during the placement operation?
- In the vicinity of the concrete pour.
 - Near construction site exits / entrances. Exit/entrance on overpass
 - Conveniently throughout the job site.
 - At the batch plant

4. For each concrete operation that was observed: (attach additional pages for each operation observed).

TRUCK #1-BOOM & PUMP FLUSH

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Exit.
- c) How many gallons of water were used to wash out each truck?
Start=37 gal, End=62 gal, Total=25 gallons.
- d) What volume of concrete waste was generated during each truck washout?
1 gal concrete waste, rest was liquid.
- e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A.
- f) Washout facilities are not being used. Is there an obvious reason for such.
N/A
- g) Other?
Built Box 3'x3'x2' for rinsing hose (plastic lined).

TRUCK #2

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Exit.
- c) How many gallons of water were used to wash out each truck?
Start=29 gal, End=45 gal, Total=16 gallons.
- d) What volume of concrete waste was generated during each truck washout?
1-2 gal concrete waste, rest was liquid.
- e) What volume of concrete waste was generated during the cleanup of placement

equipment? N/A.

f) Washout facilities are not being used. Is there an obvious reason for such.
N/A.

g) Other?
N/A.

TRUCK #3

a) Did delivery trucks wash out between each load? Yes.

b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Exit.

c) How many gallons of water were used to wash out each truck?
Start 20 gal, end 45gal, Total used 25 gal.

d) What volume of concrete waste was generated during each truck washout?
Minimal aggregate, mostly liquid waste.

e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A.

f) Washout facilities are not being used. Is there an obvious reason for such
N/A.

g) Other?
N/A.

TRUCK #4

a) Did delivery trucks wash out between each load? Yes.

b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Exit.

c) How many gallons of water were used to wash out each truck?
Start 8 gal, end 16 gal, Total used 8 gal.

d) What volume of concrete waste was generated during each truck washout?
1 gal concrete waste, rest was liquid.

e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A.

f) Washout facilities are not being used. Is there an obvious reason for such
N/A.

- g) Other?
N/A
5. Maintenance:
- a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? Yes, only build washouts as needed.
 - b) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor?
General Contractor.
 - c) Is the contractor proactive with replacement facilities upon reaching 75% capacity?
Inspector has to tell Contractor washout is too full and they need to build a new one.
6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities? Contractor said they discuss washouts with subs. Caltrans Site inspector still has to make sure trucks washout. Contractor informs drivers about washout location but is not proactive about ensuring compliance.
7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? Plan to crush onsite and use as structural backfill.
8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities? SWPPP representative is responsible for washout and is SWPPP certified. Also delegated to site safety person.
9. Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. Yes.
10. Have the concrete washout facilities been placed in such a location to be;
- Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse? Yes.
 - Located outside of travel way or access areas? Yes.
 - Provide berming for secondary containment? Yes.
11. Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. Yes.

Street sweeper dumped liquid waste in washout from pavement saw cutting. Approximately 30 gallons.

CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO. 23

Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138	PM: George Gipe, P.E.
Client: State of California DOT Division of Environmental Analysis	PM: Tim Sobelman, P.E.
DOT Project Name: Highway 37 & 29 Interchange EA No.: 04-0T1444 Project Location: 04-SOL-37-9.3/10.5 Resident Engineer: Mahantesh Anigol Project Designer: D. B. Ocampo	Project description: IN SOLANO COUNTY IN VALLEJO FROM 0.1KM WEST OF ENTERPRISE STREET TO 0.6 KM EAST OF DIABLO STREET
Contractor's Name: O. C. Jones and Sons Inc. and MCM Construction Inc. A Joint Venture Home office address & phone number: 1520 Fourth Street Berkeley Ca 94710 Field office address and phone number: Project Superintendent::	Applicable Subcontractors
Project Cost Contract Award: \$34,967,241.60 Nov. 2002 Value of contract project concrete: \$ 11,742,007 Value of contract concrete washout facilities: \$ 14,800	Applicable Change Orders

PROJECT SITE CHECKLIST

SITE VISIT NO. 23

Completed by Ronald Wurz
Date: 5/26/05

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation? The portion that involved the Concrete placement

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.) Abutment 7 BackWall
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants.
- Slope protection, channel lining (shot crete)

Please describe the operation narratively; Placing Concrete in forms using chute from truck. The truck required the use of all of the operators chute extensions to adequately reach the forms.

b) What methods of concrete placement did you observe for each construction operation? Placed with chute from truck.

c) What concrete placement equipment was used for each operation? Concrete truck.

c) What volume of concrete was placed during the period of observation for each operation? 29 cubic yards.

d) What kind of concrete delivery equipment was used for each operation? Concrete truck with rotating drum.

2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- Concrete wash out service (full turn key service by outside vendor).
- Above grade washout facility (installed at designated location).
- Below grade washout facilities (installed at designated locations)
- Contractor supplied portable washout facilities
- No washout facilities onsite

3. Where were the concrete washout facilities located that were observed during the placement operation?
- In the vicinity of the concrete pour.
 - Near construction site exits / entrances.
 - Conveniently throughout the job site.
 - At the batch plant
4. For each concrete operation that was observed: (attach additional pages for each operation observed).
- a) Did delivery trucks wash out between each load? Yes.
 - b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? At the Job site entrance / exit.
 - c) How many gallons of water were used to wash out each truck? Approximately 10 gal.
 - d) What volume of concrete waste was generated during each truck washout? $\frac{3}{4}$ cubic foot.
 - e) What volume of concrete waste was generated during the cleanup of placement equipment? Not observed.
 - f) Washout facilities are not being used. Is there an obvious reason for such
 - g) Other?
5. Maintenance;
- a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? The Contractor is maintaining the washouts on an as needed basis.
 - b) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor? By the Contractor (see notes at end).
 - c) Is the contractor proactive with replacement facilities upon reaching 75% capacity? Yes (see notes at end).
6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities?

7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? The Contractor is hauling the debris to a landfill.
8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities?
9. Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. Yes.
10. Have the concrete washout facilities been placed in such a location to be;
 - Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse? Yes.
 - Located outside of travel way or access areas? Yes.
 - Provide berming for secondary containment? No.
11. Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. Yes.

A discussion with the Resident Engineer revealed that the number of washout facilities (4) listed in the bid documents was greatly underestimated for the size of the project. The Resident Engineer stated that the plans called for the hay bale type of washout structure, in which every time one becomes 75% full, a new one is needed. The old one is destroyed during clean-up. He further stated that at the time of the interview the state has paid for 34 washouts. The number of washouts estimated for this project was greatly underestimated. He recommended a lump sum amount for washout facilities.







CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO. 24

<p>Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138</p>	<p>PM: George Gipe, P.E.</p>
<p>Client: State of California DOT Division of Environmental Analysis</p>	<p>PM: Tim Sobelman, P.E.</p>
<p>DOT Project Name: 12-ORA-405-7.6/9.6 EA No.: 12-0695U4 Project Location: NB 405 at Bristol Resident Engineer: Bill Gillchrist Project Designer: CH2MHill</p>	<p>Project description: Accommodating HOV lane by widening 405</p>
<p>Contractor's Name: FCI/BBCI JV Home office address & phone number: P.O. Box 620 North Highlands, CA 95660-0620 Field office address and phone number: Same as above. Project Superintendent: Jack Lee (916) 919-4662</p>	<p>Applicable Subcontractors AVAR Construction Systems (Batch plant)</p>
<p>Project Cost Contract Award: 57M Value of contract project concrete: 15M Value of contract concrete washout facilities: Incidental to contract <ul style="list-style-type: none"> • Project has had about 100 washouts built at \$2000/ea. It takes 2 guys 0.5 hours to build each washout. </p>	<p>Applicable Change Orders CO #123- Washout facility requirements changed during project. (Thickness of plastic liner) The Contractor's estimate was very high. Caltrans decided to stay with original contract requirements.</p>

PROJECT SITE CHECKLIST SITE VISIT NO. 24

Completed by: Mike O'Shea & Gretchen Prouty

Date: 5/13/2005

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation? Only portion involved with concrete placement.

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.)
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants.
- X Slope protection, channel lining (shot crete)

Please describe the operation narratively; Tieback wall. Used four trucks for pour.

- b) What methods of concrete placement did you observe for each construction operation? Shot crete
- c) What concrete placement equipment was used for each operation?
Shot crete pumped from truck and sprayed with in place hose, compressor, and generator.
- d) What volume of concrete was placed during the period of observation for each operation? 20cy.
- e) What kind of concrete delivery equipment was used for each operation?
Truck
2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- ___ Concrete wash out service (full turn key service by outside vendor).
- 1 Above grade washout facility (installed at designated location). (10'x10'x1')
- ___ Below grade washout facilities (installed at designated locations)
- ___ Contractor supplied portable washout facilities
- ___ No washout facilities onsite

3. Where were the concrete washout facilities located that were observed during the placement operation?
 - In the vicinity of the concrete pour.
 - X Near construction site exits / entrances. 200 yards from pour.
 - Conveniently throughout the job site.
 - At the batch plant

4. For each concrete operation that was observed: (attach additional pages for each operation observed).
5.
 - a) Did delivery trucks wash out between each load? Yes.
 - b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Job entrance/exit.
 - c) How many gallons of water were used to wash out each truck?
10 gallons.
 - d) What volume of concrete waste was generated during each truck washout?
10 gallons-minimal aggregate <1 gal.
 - e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A.
 - f) Washout facilities are not being used. Is there an obvious reason for such.
N/A.
 - g) Other?
Looked like trucks washed out near placement equipment location in past. Indicated by dried concrete film on dirt. Water truck onsite and part of concrete truck equipment.

5. Maintenance;
 - a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? Yes, anytime they pour.
 - b) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor?
General contractor.
 - c) Is the contractor proactive with replacement facilities upon reaching 75% capacity?
Yes.

6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that

all subcontractors are informed of the required use of the washout facilities? Unknown. Could not contact contractor.

7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? All removed at once and taken back to yard. Contractor is not incorporating debris into project.
8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities? Unknown-not available.
9. Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. No.
10. Have the concrete washout facilities been placed in such a location to be;
 - Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse? No.
 - Located outside of travel way or access areas? Yes.
 - Provide berming for secondary containment? No.
11. Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. Yes.

CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO. 25

Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138	PM: George Gipe, P.E.
Client: State of California DOT Division of Environmental Analysis	PM: Tim Sobelman, P.E.
DOT Project Name: Main St. Overcrossing I-15 EA No.: 08-370204 Project Location: South of Victorville, Main St. Bridge Crossing Resident Engineer: William Anderson Project Designer: Caltrans	Project description: New bridge at Main St. Observed pouring bridge abutment.
Contractor's Name: Yeager Skanska Home office address & phone number: 1995 Agua Mansa Rd. Riverside, CA 92509 (951) 684-5360 Field office address and phone number: Same as above. Project Superintendent: Bill Doherty	Applicable Subcontractors Rock Service Products (Concrete)
Project Cost Contract Award: \$8,537,829 Value of contract project concrete: \$2,170,000 Value of contract concrete washout facilities: Incidental to project	Applicable Change Orders None

PROJECT SITE CHECKLIST
SITE VISIT NO. 25

Completed by: Gretchen Prouty
Date: 5/19/2005

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation? Portions.

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.) Bridge abutment
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants.
- Slope protection, channel lining (shot crete)

Please describe the operation narratively; Trucks arrive onsite and back up to unload at the hopper. Concrete is pumped into forms. When truck is empty it pulls up to washout to wash and then leaves the site.

- b) What methods of concrete placement did you observe for each construction operation? Hopper/boom/pumped into forms.
- c) What concrete placement equipment was used for each operation?
Truck with hopper/boom/pump (Merli 32M).
- d) What volume of concrete was placed during the period of observation for each operation? Observed=70cy.
- e) What kind of concrete delivery equipment was used for each operation?
Truck.
2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- ___ Concrete wash out service (full turn key service by outside vendor).
- 2 Above grade washout facility (installed at designated location).
- 1 Below grade washout facilities (installed at designated locations)
- ___ Contractor supplied portable washout facilities
- ___ No washout facilities onsite

- Above ground plywood boxes (5'x3'x2') lined with plastic used to wash the first four trucks until below grade washout was completed.
- Below grade washout approximately 20'x15' with depth varying 2'-4'. Trucks parked at shallow end to wash.

- Embankment made of spoils from digging washout. Plastic lined but not secured.
3. Where were the concrete washout facilities located that were observed during the placement operation?
- X In the vicinity of the concrete pour. 500' down embankment
 - Near construction site exits / entrances.
 - Conveniently throughout the job site.
 - At the batch plant
4. For each concrete operation that was observed: (attach additional pages for each operation observed).

TRUCK #1

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Vicinity.
- c) How many gallons of water were used to wash out each truck?
Start 6 gal, end 36 gal, Total used 30 gal.
- d) What volume of concrete waste was generated during each truck washout?
5 gal concrete waste, rest was liquid.
- e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A.
- f) Washout facilities are not being used. Is there an obvious reason for such.
N/A.
- g) Other?
Washout built so truck could pull completely over, but truck didn't back up far enough to prevent spilling.

TRUCK #2

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Vicinity.
- c) How many gallons of water were used to wash out each truck?
Start 16 gal, end 32 gal, Total used 16 gal.
- d) What volume of concrete waste was generated during each truck washout?
5 gal concrete waste, rest was liquid.

- e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A.
- f) Washout facilities are not being used. Is there an obvious reason for such. N/A.
- g) Other?
Truck could have pulled farther back over plastic.

TRUCK #3

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Vicinity.
- c) How many gallons of water were used to wash out each truck?
Start 14 gal, end 36gal, Total used 22 gal.
- d) What volume of concrete waste was generated during each truck washout?
2 gal concrete waste, rest was liquid.
- e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A.
- f) Washout facilities are not being used. Is there an obvious reason for such N/A.
- g) Other?
Truck lowered chute as it back up and spilled concrete for 5-7'.

TRUCK #4

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Vicinity.
- c) How many gallons of water were used to wash out each truck?
Start 13 gal, end 25 gal, Total used 12 gal.
- d) What volume of concrete waste was generated during each truck washout?
5 gal concrete waste, rest was liquid.
- e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A.
- f) Washout facilities are not being used. Is there an obvious reason for such N/A.

- h) Other?
Truck could have pulled back further over plastic.

TRUCK #5

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Vicinity.
- c) How many gallons of water were used to wash out each truck?
Start 25 gal, end 54 gal, Total used 29 gal.
- d) What volume of concrete waste was generated during each truck washout?
<1 gal concrete waste, rest was liquid.
- e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A.
- f) Washout facilities are not being used. Is there an obvious reason for such
N/A.
- i) Other?
Chute looked clean upon arrival at washout.

TRUCK #6

- a) Did delivery trucks wash out between each load? Yes.
- b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Vicinity.
- c) How many gallons of water were used to wash out each truck?
Start 32 gal, end 45 gal, Total used 13 gal.
- d) What volume of concrete waste was generated during each truck washout?
3 gal concrete waste, rest was liquid.
- e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A.
- f) Washout facilities are not being used. Is there an obvious reason for such
N/A.
- j) Other?
Truck washed chute over washout then pulled truck forward to finish washing over bare ground.

TRUCK #7

- a) Did delivery trucks wash out between each load? Yes.
 - b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Vicinity.
 - c) How many gallons of water were used to wash out each truck?
Start 11 gal, end 39 gal, Total used 28 gal.
 - d) What volume of concrete waste was generated during each truck washout?
10 gal concrete waste, rest was liquid.
 - e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A.
 - f) Washout facilities are not being used. Is there an obvious reason for such
N/A.
 - k) Other?
Truck backed up completely over washout.
5. Maintenance;
- a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? As needed. Used plywood boxes until pit completed.
 - b)
 - c) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor?
General Contractor.
 - d) Is the contractor proactive with replacement facilities upon reaching 75% capacity?
Yes.
6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities?
Washouts are discussed at coordination meetings. General contractor make available for use by subs and monitors their use onsite.
7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? Used waste for fill on embankment.
8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities? No formal training, knowledge based on experience with SWPPP requirements.
9. Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. No.

10. Have the concrete washout facilities been placed in such a location to be;
- Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse? Yes.
 - Located outside of travel way or access areas? Yes.
 - Provide berming for secondary containment? Loose earth only. No secondary containment
11. Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. Yes, observed wheelbarrow cleaned at washout.

PHOTOS:





CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO. 26

Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138	PM: George Gipe, P.E.
Client: State of California DOT Division of Environmental Analysis	PM: Tim Sobelman, P.E.
DOT Project Name: In Placer County from Magra Overhead to 0.5KM west of Carpenter Flat Undercrossing EA No.: 03-1A8014 Project Location: 03-PLA-80-39.0/T55.7 Resident Engineer: Phil Zink Project Designer:	Project description: Pavement Rehabilitation
Contractor's Name: Brosamer Granite A Joint Venture Home office address & phone number: P. O. Box 238 Alamo CA 94507 (925) 837-5600 Field office address and phone number: Project Superintendent: Project Superintendent was not present	Applicable Subcontractors
Project Cost Contract Award: \$33,092,725.25 Value of contract project concrete: \$14,360,900 Value of contract concrete washout facilities: \$0	Applicable Change Orders

PROJECT SITE CHECKLIST

SITE VISIT NO. 26

Completed by: Ronald Wurz
Date: 7-01-05

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation?

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.)
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants
- Slope protection, channel lining (shotcrete)

Please describe the operation narratively; The Concrete is delivered in 10 yd Dump trucks. The truck dumps the concrete in the hopper of a mobile conveyor. The conveyor transports the concrete to the hopper of the median divider forming machine, which extrudes the median divider. The concrete is a very dry mixture. The Sub-Contractor MBI was placing the concrete barrier.

b) What methods of concrete placement did you observe for each construction operation? There was only one operation, and that was the extrusion of the median barrier

c) What concrete placement equipment was used for each operation? There were the delivery trucks, the mobile conveyor, and the median barrier extruder.

c) What volume of concrete was placed during the period of observation for each operation? 100 – 150 Cubic yards

d) What kind of concrete delivery equipment was used for each operation? 10 wheel dump trucks

2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- Concrete wash out service (full turn key service by outside vendor).
- Above grade washout facility (installed at designated location).
- Below grade washout facilities (installed at designated locations)
- Contractor supplied portable washout facilities
- No washout facilities onsite

3. Where were the concrete washout facilities located that were observed during the placement operation?
- In the vicinity of the concrete pour.
 - Near construction site exits / entrances.
 - Conveniently throughout the job site.
 - At the batch plant
4. For each concrete operation that was observed: (attach additional pages for each operation observed).
- a) Did delivery trucks wash out between each load? No
 - b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? N/A
 - c) How many gallons of water were used to wash out each truck? N/A
 - d) What volume of concrete waste was generated during each truck washout? N/A
 - e) What volume of concrete waste was generated during the cleanup of placement equipment? I did not stay for the Clean-up of the placement equipment, but asked about the clean-up. At the completion of the pour, the contractor constructs a washout facility using 2x12's and polyethylene sheeting. The Contractor places the equipment over the washout, and cleans it up
 - f) Washout facilities are not being used. Is there an obvious reason for such? The mix being used is very dry, and the batch plant is close by
 - g) Other?
5. Maintenance;
- a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? N/A
 - b) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor? General Contractor
 - c) Is the contractor proactive with replacement facilities upon reaching 75% capacity? N/A
6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities? The Contractors superintendent was not available
7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? No
8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities? N/A

- 9 Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. N/A
10. Have the concrete washout facilities been placed in such a location to be;
- Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse? Yes
 - Located outside of travel way or access areas? Yes
 - Provide berming for secondary containment? No
11. Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. Cleaning up of the trucks is done at the batch plant. The placing and forming equipment are being cleaned on site in a washout erected for each day





CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO.27

<p>Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138</p>	<p>PM: George Gipe, P.E.</p>
<p>Client: State of California DOT Division of Environmental Analysis</p>	<p>PM: Tim Sobelman, P.E.</p>
<p>DOT Project Name: In San Joaquin County in and near Stockton From 0.9 KM South to 1.1 KM North of Arch Road Overcrossing</p> <p>EA No.: 10-1A7004</p> <p>Project Location: 10-SJ-99-14.1/15.0</p> <p>Resident Engineer: Mario D. Castillo 445 W.WEBER AVE. STOCKTON, CA 95203 (209)941-1926 Project Designer:</p>	<p>Project description: Construct Interchange</p>
<p>Contractor's Name: Viking D. S. S. A Joint Venture</p> <p>Home office address & phone number: 11315 SUNRISE GOLD CIR. STE A RANCHO CORDOVA CA 95742-6534</p> <p>Field office address and phone number: 4739 South State Route 99 East Frontage Road Stockton CA 95206</p> <p>Project Superintendent: Jeff Herndon</p>	<p>Applicable Subcontractors</p>
<p>Project Cost</p> <p>Contract Award: \$ 23,617,183</p> <p>Value of contract project concrete: \$ 3,756,322</p> <p>Value of contract concrete washout facilities: Included in the \$20,000 Water Pollution Control Item.</p>	<p>Applicable Change Orders</p>

PROJECT SITE CHECKLIST

SITE VISIT NO. 27

Completed by: Ronald Wurz & Srinivas Muktevi

Date: 6/07/05

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation? The portion that involved the Concrete placement

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.)
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants
- Slope protection, channel lining (shotcrete)

Please describe the operation narratively; The Concrete was placed in the forms from the truck via the chute.

b) What methods of concrete placement did you observe for each construction operation? The placement of the concrete was the same for the entire procedure from the chute into the forms.

c) What concrete placement equipment was used for each operation? The Concrete truck with rotating drum.

c) What volume of concrete was placed during the period of observation for each operation?
18 Cubic yards

d) What kind of concrete delivery equipment was used for each operation? Concrete Truck with rotating drum.

2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- Concrete wash out service (full turn key service by outside vendor).
- Above grade washout facility (installed at designated location).
- Below grade washout facilities (installed at designated locations)
- Contractor supplied portable washout facilities
- No washout facilities onsite

3. Where were the concrete washout facilities located that were observed during the placement operation?
- In the vicinity of the concrete pour.
 - Near construction site exits / entrances.
 - Conveniently throughout the job site.
 - At the batch plant
4. For each concrete operation that was observed: (attach additional pages for each operation observed).
- a) Did delivery trucks wash out between each load? Yes
 - b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? Job Entrance / Exit
 - c) How many gallons of water were used to wash out each truck? 12 Gallons
 - d) What volume of concrete waste was generated during each truck washout? Approximately ½ cubic feet.
 - e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A
 - f) Washout facilities are not being used. Is there an obvious reason for such
 - g) Other?
5. Maintenance;
- a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? Yes
 - b) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor? The General Contractor
 - c) Is the contractor proactive with replacement facilities upon reaching 75% capacity? Yes
6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities?

7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? As per the Structures Rep, the contractor has eliminated the debris both ways. He has hauled some to a land fill, and when possible has incorporated it in the project.
8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities?
9. Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. Yes
10. Have the concrete washout facilities been placed in such a location to be;
 - Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse? Yes
 - Located outside of travel way or access areas? Yes
 - Provide berming for secondary containment? No
11. Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. Yes















CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO. 28

Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138	PM: George Gipe, P.E.
Client: State of California DOT Division of Environmental Analysis	PM: Tim Sobelman, P.E.
DOT Project Name: HWY 101 MARIN CREEK EA No.: 04-226134 Project Location: San Rafael Resident Engineer: Adam Soplop Project Designer:	Project description: Repair Deck on Highway 101 with grout mix
Contractor's Name: Balfour Beatty Construction, Inc. Home office address & phone number: One Harbor Center Ste. 350 Suisan CA 94585 Field office address and phone number: Project Superintendent::	Applicable Subcontractors
Project Cost: Contract Award: \$8,111,458 Value of contract project concrete: \$1,112,228 Value of contract concrete washout facilities: \$6,400	Applicable Change Orders

PROJECT SITE CHECKLIST
SITE VISIT NO. 28

Completed by Ronald Wurz

Date: 5/23/05

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation?

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.)
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants.
- Slope protection, channel lining (shot crete)

Please describe the operation narratively; Curb removed and chipped out below surface. Surface restored with grout material 1 – 2" thick.

b) What methods of concrete placement did you observe for each construction operation? The concrete placement was done by hand

c) What concrete placement equipment was used for each operation? a wheel barrow and shovel to place the concrete in the depression

d) What volume of concrete was placed during the period of observation for each operation? Approx. 2 C.Y.

e) What kind of concrete delivery equipment was used for each operation? A regular concrete truck with a rotating drum

2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- _____ Concrete wash out service (full turn key service by outside vendor).
- _____ Above grade washout facility (installed at designated location).
- _____ Below grade washout facilities (installed at designated locations)
- _X_ Contractor supplied portable washout facilities
- _____ No washout facilities onsite

3. Where were the concrete washout facilities located that were observed during the placement operation?
- X In the vicinity of the concrete pour.
 - X Near construction site exits / entrances.
 - Conveniently throughout the job site.
 - At the batch plant
4. For each concrete operation that was observed: (attach additional pages for each operation observed).
- a) Did delivery trucks wash out between each load? Yes
 - b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.?
Near the pour, and near the exit
 - c) How many gallons of water were used to wash out each truck? Approx. 41 Gal.
 - d) What volume of concrete waste was generated during each truck washout?
 $\frac{3}{4}$ - 1 C.F.
 - e) What volume of concrete waste was generated during the cleanup of placement equipment? N/A
 - f) Washout facilities are not being used. Is there an obvious reason for such
 - g) Other?
5. Maintenance;
- a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? Contractor is maintaining
 - b) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor? Primarily by the General Contractor
 - c) Is the contractor proactive with replacement facilities upon reaching 75% capacity? Yes
6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities?

7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? The Contractor is stock piling debris, and hauling off to Landfill.
8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities?
9. Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. Yes
10. Have the concrete washout facilities been placed in such a location to be;
 - Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse?
 - Located outside of travel way or access areas?
 - Provide berming for secondary containment?
11. Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. Yes

This particular washout was constructed of 1" thick steel, with sloping sides approximately 18" high. The washout was approximately 6' x 8'

CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO. 29

Consultant : Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138	PM: George Gipe, P.E.
Client: State of California DOT Division of Environmental Analysis	PM: Tim Sobelman, P.E.
DOT Project Name: EA No.: Project Location: Resident Engineer: Project Designer:	Project description:
Contractor's Name: Home office address & phone number: Field office address and phone number: Project Superintendent::	Applicable Subcontractors
Project Cost Contract Award: Value of contract project concrete: Value of contract concrete washout facilities:	Applicable Change Orders

SECTION "A" PROJECT SITE CHECKLIST

Completed by Charles Bell
Date: 11-16-05 _____

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation?

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.)
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete;
- Batch plants.
- Slope protection, channel lining (shot crete)

Please describe the operation narratively; Observed pouring of concrete wall barrier

b) What methods of concrete placement did you observe for each construction operation? CONCRETE PUMPING MACHINE

c) What concrete placement equipment was used for each operation?

d) PUMP AND BOOM

d) What volume of concrete was placed during the period of observation for each operation? 80 YDS

e) What kind of concrete delivery equipment was used for each operation? TRUCK

2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- Concrete wash out service (full turn key service by outside vendor).
- Above grade washout facility (installed at designated location).
- Below grade washout facilities (installed at designated locations)
- Contractor supplied portable washout facilities
- No washout facilities onsite

3. Where were the concrete washout facilities located that were observed during the placement operation?

- In the vicinity of the concrete pour.
- Near construction site exits / entrances.
- Conveniently throughout the job site.
- At the batch plant

4. For each concrete operation that was observed: (attach additional pages for each operation observed).
 - a) Did delivery trucks wash out between each load? YES
 - b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? JOB ENTRANCE/EXIT
 - c) How many gallons of water were used to wash out each truck? >5 gals
 - d) What volume of concrete waste was generated during each truck washout? > 2 gals
 - e) What volume of concrete waste was generated during the cleanup of placement equipment? >6 gals
 - f) Washout facilities are not being used. Is there an obvious reason for such
 - g) Other?
5. Maintenance;
 - a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? As needed
 - b) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor? The subcontractor
 - c) Is the contractor proactive with replacement facilities upon reaching 75% capacity? yes
6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities? Project superintendent informs all subcontractors in prior safety meetings.
7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? Portable washout taken to batch plant. (Subcontractor handling it.
8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities? No
9. Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. No

10. Have the concrete washout facilities been placed in such a location to be;
- Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse? Yes
 - Located outside of travel way or access areas? Yes
 - Provide berming for secondary containment? No
11. Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. Yes





CONSTRUCTION SITE INVESTIGATION
PROJECT REGISTRY-SITE VISIT NO.30

Consultant: Metcalf & Eddy - DMJM HARRIS Contract No: 43A0138	PM: George Gipe, P.E.
Client: State of California DOT Division of Environmental Analysis	PM: Tim Sobelman, P.E.
DOT Project Name: EA No.: Project Location: Resident Engineer: CONSTANTINE KONTAXIS Project Designer:	Project description:
Contractor's Name: Hanson SJH Home office address & phone number: P.O. Box 639069, S.D., CA 92163-9069 Field office address and phone number: 1800 MAXWELL RD., CHULA VISTA, CA. 91911 (619)397-6118 Project Superintendent:	Applicable Subcontractors
Project Cost Contract Award: Value of contract project concrete: Value of contract concrete washout facilities:	Applicable Change Orders

SECTION "A" PROJECT SITE CHECKLIST

Completed by CHARLES BELL

Date: 11-28-05

1. Did this observation visit include the entire job site or just those portions involved in the concrete placement during the period of observation?

a.) Indicate the types of construction operations that were observed for this project where concrete is being used.

- PCC paving
- Structure construction (bridges, ret. walls, etc.)
- Median barriers
- Mortar operations (sound wall)
- miscellaneous concrete
- Batch plants.
- Slope protection, channel lining (shot crete)

Please describe the operation narratively; Observed concrete pour for curb and sidewalk and intersection walkway.

b) What methods of concrete placement did you observe for each construction operation? Ready Mix Truck, Direct chute discharge

c) What concrete placement equipment was used for each operation?
Rear chute discharge

d) What volume of concrete was placed during the period of observation for each operation? 100 yds

e) What kind of concrete delivery equipment was used for each operation? Truck

2. Indicate the number and types of washout facilities that were found on-site and functional at the time of these investigations.

- Concrete wash out service (full turn key service by outside vendor).
- Above grade washout facility (installed at designated location).
- Below grade washout facilities (installed at designated locations)
- Contractor supplied portable washout facilities
- No washout facilities onsite

3. Where were the concrete washout facilities located that were observed during the placement operation?

- In the vicinity of the concrete pour.
- Near construction site exits / entrances.
- Conveniently throughout the job site.
- At the batch plant

4. For each concrete operation that was observed: (attach additional pages for each operation observed).
 - a) Did delivery trucks wash out between each load? Yes
 - b) If trucks washed out then where was the washout facility located? At batch plant, job entrance/exit, in the vicinity of the operation, etc.? At batch plant
 - c) How many gallons of water were used to wash out each truck? 25-30 gals
 - d) What volume of concrete waste was generated during each truck washout?
Minimal less than ½ gal
 - e) What volume of concrete waste was generated during the cleanup of placement?
equipment? About a gal
 - f) Washout facilities are not being used. Is there an obvious reason for such?
 - g) Other?
5. Maintenance;
 - a) Is the contractor maintaining or having the concrete washout facilities maintained on a scheduled basis or as needed? On a scheduled basis
 - b) Is the maintenance activity being carried out through partnership arrangements with DOT, the subcontractor or primarily by the general contractor? Primarily by the Contractor
 - c) Is the contractor proactive with replacement facilities upon reaching 75% capacity?
N/A
6. Does the contractor discuss concrete washout procedures with employees during their project safety and coordination meetings? How does the project superintendent ensure that all subcontractors are informed of the required use of the washout facilities? Yes, Contractor discusses washout procedures with employees at various meetings.
7. How is the Contractor dealing with washout debris? Is the contractor incorporating washout debris into the project? It gets recycled
8. Has the Contractor's superintendent received any formal training with regard to the preparation of concrete washout facilities and other storm water pollution prevention program activities? Yes

- 9 Has the Contractor placed informational signage onsite for individual concrete washout facilities in accordance with plans and specifications. N/A
10. Have the concrete washout facilities been placed in such a location to be; N/A
- Located a minimum of 15 feet from any storm drainage inlet, open drainage facility or watercourse?
 - Located outside of travel way or access areas?
 - Provide berming for secondary containment?
11. Are the washout facilities being used for cleaning chutes and pumping hose and apparatus? If not, indicate what method for containing rinsate from the cleaning operation for these items is used. Yes





Appendix B

Contractor Interviews

CONTRACTOR QUESTIONNAIRE NO. 1

Completed by: **Gretchen Prouty**

Date: **5/13/05**

1. Indicate the types of construction operations where concrete washout facilities have been routinely used in conjunction with placement operations.
 - X PCC paving
 - X Structure construction (bridge, box culvert, retaining walls, etc.)
 - X Median barriers
 - Mortar operations (sound wall) -Usually already in place as part of other construction.
 - X Miscellaneous concrete
 - X Batch plants -Not usually located on job site, but if on site-Yes.
 - X Slope protection, channel lining (shotcrete)

2. What methodologies for estimating costs for concrete washout facilities are used during the bidding process?
 - Subcontract service
 - X Direct time and material estimates
 - incidental to concrete unit pricing
 - X incidental to contract lump sum -Only Caltrans lump sum projects.

3. What criteria does the Contractor use to estimate the number of washout facilities to be used on any given project?
 - X Daily concrete placement volumes per type of operation
 - Simultaneous pours but for different subcontractors or operations
 - total concrete placed for the project
 - Admixtures or specific mix designs
 - Available water supply
 - Batch plant washout facility availability

4. Is each subcontractor given the responsibility to ensure their own compliance toward concrete washout or does the general contractor provide the service to all project subs? Does the general contractor impose penalties or restrictions upon the non use or abuse of the provided facilities?
 - General provide pit-sub is responsible to use it.
 - General maintains pit.
 - General would impose penalties but hasn't had to.

5. Who on each project is typically given responsibility for concrete washout facilities. The Project Foreman.

6. Does the contractor have a preference as how to bid concrete washout facilities (ie independent lump sum, increment to unit pricing for concrete , increment to project lump sum, increment to water pollution control plan, separate bid item, etc.)? Unit price for each facility constructed.

7. How does the contractor estimate the total quantity of concrete waste resulting from concrete operations? Doesn't consider volume. Contractor estimates how many time you have to clean the trucks out.

8. How does the contractor estimate sizing for each concrete washout facility. Contractor uses Caltrans BMP WM-8 standard.

9. Which operation from question no. 1 does the Contractor find most challenging in terms of meeting washout facility compliance? Structure construction.

10. Does the Association of General Contractors provide training and guidance to the contractor for storm water pollution prevention and more specifically, concrete washout facilities.
Unaware if AGC provides training, but the Contractor is aware of multiple consultants that provide training (Example-SCCA). A member from the Contractor's company takes the 24-hour course. They are responsible for training the foreman who then trains individual employees.
11. What criteria does the Contractor use for selecting locations for concrete washout facilities?
- Room onsite.
 - If possible locate as close to pour as possible.
 - If space is limited use available offsite space near project.
 - If no space is available, Contractor uses a portable trailer.
12. Does the contractor have any insights toward future concrete washout facilities that he would like to share with us at this time? No-Caltrans BMP is clear and they don't have a problem constructing and maintaining their facilities in accordance with it.
13. Is the contractor aware of any industry standard or practice that could result in minimizing the amount of concrete waste for any given project. No.
14. Does the contractor believe that separate washout facilities are necessary for placement equipment from delivery equipment? No.

CONTRACTOR QUESTIONNAIRE NO. 2

Completed by: **Gretchen Prouty**

Date: **5/16/05**

1. Indicate the types of construction operations where concrete washout facilities have been routinely used in conjunction with placement operations.
 - PCC paving
 - Structure construction (bridge, box culvert, retaining walls, etc.)
 - Median barriers
 - Mortar operations (sound wall)
 - Miscellaneous concrete
 - Batch plants
 - Slope protection, channel lining (shotcrete)

2. What methodologies for estimating costs for concrete washout facilities are used during the bidding process?
 - Subcontract service
 - Direct time and material estimates-Mostly unit pricing as part of water quality plan.
 - incidental to concrete unit pricing
 - incidental to contract lump sum

3. What criteria does the Contractor use to estimate the number of washout facilities to be used on any given project?
 - Daily concrete placement volumes per type of operation
 - Simultaneous pours but for different subcontractors or operations
 - total concrete placed for the project
 - Admixtures or specific mix designs
 - Available water supply
 - Batch plant washout facility availability

4. Is each subcontractor given the responsibility to ensure their own compliance toward concrete washout or does the general contractor provide the service to all project subs? Does the general contractor impose penalties or restrictions upon the non use or abuse of the provided facilities?

General provides service to subs and will penalize for misuse. Typical problem is washout used for excess concrete disposal instead of vehicle and equipment washout.

5. Who on each project is typically given responsibility for concrete washout facilities? The Project Superintendent responsible but Foreman ensures compliance.

6. Does the contractor have a preference as how to bid concrete washout facilities (ie independent lump sum, increment to unit pricing for concrete , increment to project lump sum, increment to water pollution control plan, separate bid item, etc.)? No preference, will bid however the document dictates.

7. How does the contractor estimate the total quantity of concrete waste resulting from concrete operations? Based on experience in waste amount (%) for type of construction. Example: structure construction estimate 3-5% waste (overage and loss).

8. How does the contractor estimate sizing for each concrete washout facility. Contractor uses 20 yard rolloff bins for waste. One bin holds waste from 30-35 trucks. One truck = 9cy concrete. (Total concrete ordered/9=Number of trucks) (Number of trucks/35= Number of bins needed.)

9. Which operation from question no. 1 does the Contractor find most challenging in terms of meeting washout facility compliance? No problems. Only have problems when facility is used for excess concrete disposal instead of washout for vehicles and equipment.
10. Does the Association of General Contractors provide training and guidance to the contractor for storm water pollution prevention and more specifically, concrete washout facilities?
Doesn't know about AGC but notes there are multiple publications available for use as information sources. They typically use the Caltrans manual.
11. What criteria does the Contractor use for selecting locations for concrete washout facilities?
Where it fits onsite.
12. Does the contractor have any insights toward future concrete washout facilities that he would like to share with us at this time? No.
13. Is the contractor aware of any industry standard or practice that could result in minimizing the amount of concrete waste for any given project. No.
14. Does the contractor believe that separate washout facilities are necessary for placement equipment from delivery equipment? No.

CONTRACTOR QUESTIONNAIRE NO. 3

Completed by: **Gretchen Prouty**

Date: **5/16/05**

1. Indicate the types of construction operations where concrete washout facilities have been routinely used in conjunction with placement operations.
 - PCC paving
 - Structure construction (bridge, box culvert, retaining walls, etc.)
 - Median barriers
 - Mortar operations (sound wall)
 - Miscellaneous concrete
 - Batch plants
 - Slope protection, channel lining (shotcrete)

2. What methodologies for estimating costs for concrete washout facilities are used during the bidding process?
 - Subcontract service
 - Direct time and material estimates
 - incidental to concrete unit pricing-General practice.
 - incidental to contract lump sumDoes estimate cost as unit cost for Caltrans projects.

3. What criteria does the Contractor use to estimate the number of washout facilities to be used on any given project?
 - Daily concrete placement volumes per type of operation
 - Simultaneous pours but for different subcontractors or operations
 - total concrete placed for the project
 - Admixtures or specific mix designs
 - Available water supply
 - Batch plant washout facility availability

4. Is each subcontractor given the responsibility to ensure their own compliance toward concrete washout or does the general contractor provide the service to all project subs? Does the general contractor impose penalties or restrictions upon the non-use or abuse of the provided facilities?
General Contractor provides. Will impose a penalty on subcontractor if frequency of abuse exceeds two times. However, this seldom happens.

5. Who on each project is typically given responsibility for concrete washout facilities? The Project Superintendent.

6. Does the contractor have a preference as how to bid concrete washout facilities (ie independent lump sum, increment to unit pricing for concrete, increment to project lump sum, increment to water pollution control plan, separate bid item, etc.)? No. It is a necessity on every project so they plan for it in the budget. Contractor lets the contract documents dictate how it is bid.

7. How does the contractor estimate the total quantity of concrete waste resulting from concrete operations? Contractor typically doesn't have large pours. Usually 1 shift. Estimates a minimum of 1 washout facility and 1 load disposal cost per shift required to complete work.

8. How does the contractor estimate sizing for each concrete washout facility. Uses two types:
 - Built of hay bales per Caltrans BMP WM-8.
 - Portable trailers-7' wide, 10' long, and 2' deep.

9. Which operation from question no. 1 does the Contractor find most challenging in terms of meeting washout facility compliance? PCC Paving- due to larger volume it is harder to manage.
10. Does the Association of General Contractors provide training and guidance to the contractor for storm water pollution prevention and more specifically, concrete washout facilities?
Doesn't know about AGC-not a member. Sends employees to 24-hours course (Storm Protection Program).
11. What criteria does the Contractor use for selecting locations for concrete washout facilities?
 - Access.
 - Proximity to pour.
12. Does the contractor have any insights toward future concrete washout facilities that he would like to share with us at this time? No.
13. Is the contractor aware of any industry standard or practice that could result in minimizing the amount of concrete waste for any given project? No.
14. Does the contractor believe that separate washout facilities are necessary for placement equipment from delivery equipment? Yes. There usually isn't enough room onsite to properly clean forms, screens, etc.

CONTRACTOR QUESTIONNAIRE NO. 4

Completed by: **Gretchen Prouty**

Date: **6/1/05**

1. Indicate the types of construction operations where concrete washout facilities have been routinely used in conjunction with placement operations.
 - PCC paving
 - Structure construction (bridge, box culvert, retaining walls, etc.)
 - Median barriers
 - Mortar operations (sound wall)
 - Miscellaneous concrete
 - Batch plants
 - Slope protection, channel lining (shotcrete)

2. What methodologies for estimating costs for concrete washout facilities are used during the bidding process?
 - Subcontract service
 - Direct time and material estimates – Adjust estimate every 6 month period based on completed work.
 - incidental to concrete unit pricing
 - incidental to contract lump sum

3. What criteria does the Contractor use to estimate the number of washout facilities to be used on any given project?
 - Number of washouts needed so one is available and near work /each area being poured (number of planned pours)
 - Daily concrete placement volumes per type of operation
 - Simultaneous pours but for different subcontractors or operations
 - total concrete placed for the project
 - Admixtures or specific mix designs
 - Available water supply
 - Batch plant washout facility availability

4. Is each subcontractor given the responsibility to ensure their own compliance toward concrete washout or does the general contractor provide the service to all project subs? Does the general contractor impose penalties or restrictions upon the non-use or abuse of the provided facilities?
In the contract, the subcontractor must agree to abide by stormwater plan but there is no set line item penalty.

5. Who on each project is typically given responsibility for concrete washout facilities? The Labor Foreman.

6. Does the contractor have a preference as how to bid concrete washout facilities (ie independent lump sum, increment to unit pricing for concrete, increment to project lump sum, increment to water pollution control plan, separate bid item, etc.)? Bid approximate quantity as a line item so it is easily negotiable if more is needed.

7. How does the contractor estimate the total quantity of concrete waste resulting from concrete operations? It is not estimated. Contractor should provide one/pour planned and monitor onsite and then adjust.

8. How does the contractor estimate sizing for each concrete washout facility. Contractor should use the standard 20' x 20' for each pour.

9. Which operation from question no. 1 does the Contractor find most challenging in terms of meeting washout facility compliance?
There is no problem when space is available. Contractor usually works on jobs large enough that it is rarely a problem.
10. Does the Association of General Contractors provide training and guidance to the contractor for storm water pollution prevention and more specifically, concrete washout facilities?
Not aware if they provide training. Usually there is someone on the job who has SWPPP training or experience in stormwater compliance.
11. What criteria does the Contractor use for selecting locations for concrete washout facilities?
- Proximity to pour.
12. Does the contractor have any insights toward future concrete washout facilities that he would like to share with us at this time?
Has heard that other Contractors swear by disposable systems (example – bag attaches to chute that can catch waste and be quickly disposed of once dry), but hasn't tried.
13. Is the contractor aware of any industry standard or practice that could result in minimizing the amount of concrete waste for any given project? More care is taken in properly estimating the number of trucks directly related to avoiding a spill or improper disposal of concrete. Feels estimator, superintendent and engineer are all responsible.
14. Does the contractor believe that separate washout facilities are necessary for placement equipment from delivery equipment?
A separate facility for priming pumping equipment especially if boom is extended (example – bridge deck).

CONTRACTOR QUESTIONNAIRE NO. 5

Completed by: **Faxed from Contractor**

Date: **5/31/05**

1. Indicate the types of construction operations where concrete washout facilities have been routinely used in conjunction with placement operations.
 - PCC paving
 - Structure construction (bridge, box culvert, retaining walls, etc.)
 - Median barriers
 - Mortar operations (sound wall)
 - Miscellaneous concrete
 - Batch plants
 - Slope protection, channel lining (shotcrete)

2. What methodologies for estimating costs for concrete washout facilities are used during the bidding process?
 - Subcontract service
 - Direct time and material estimates
 - incidental to concrete unit pricing
 - incidental to contract lump sum

3. What criteria does the Contractor use to estimate the number of washout facilities to be used on any given project?
 - Daily concrete placement volumes per type of operation
 - Simultaneous pours but for different subcontractors or operations
 - total concrete placed for the project
 - Admixtures or specific mix designs
 - Available water supply
 - Batch plant washout facility availability

4. Is each subcontractor given the responsibility to ensure their own compliance toward concrete washout or does the general contractor provide the service to all project subs? Does the general contractor impose penalties or restrictions upon the non-use or abuse of the provided facilities?
Subs are responsible for their own concrete washouts.

5. Who on each project is typically given responsibility for concrete washout facilities? Our Superintendent is responsible for monitoring concrete washouts.

6. Does the contractor have a preference as how to bid concrete washout facilities (ie independent lump sum, increment to unit pricing for concrete, increment to project lump sum, increment to water pollution control plan, separate bid item, etc.)? Include with unit price of concrete.

7. How does the contractor estimate the total quantity of concrete waste resulting from concrete operations? Typically estimate number of trucks/pours between clean-up and empty process.

8. How does the contractor estimate sizing for each concrete washout facility.
Use standard SWPPP BMP size.

9. Which operation from question no. 1 does the Contractor find most challenging in terms of meeting washout facility compliance? PCC Paving-Due to volume.

10. Does the Association of General Contractors provide training and guidance to the contractor for storm water pollution prevention and more specifically, concrete washout facilities?
We are unaware of it.
11. What criteria does the Contractor use for selecting locations for concrete washout facilities?
 - Locations adjacent to work areas, but away from direct conflict.
 - Room for multiple trucks.
 - Protection from traffic (Behind K-rail).
12. Does the contractor have any insights toward future concrete washout facilities that he would like to share with us at this time? No.
13. Is the contractor aware of any industry standard or practice that could result in minimizing the amount of concrete waste for any given project? Communication with the ready-mix company regarding SWPPP compliance sometimes fails.
14. Does the contractor believe that separate washout facilities are necessary for placement equipment from delivery equipment? No.

CONTRACTOR QUESTIONNAIRE NO. 6

Completed by: **Gretchen Prouty**

Date: **6/1/05**

1. Indicate the types of construction operations where concrete washout facilities have been routinely used in conjunction with placement operations.
 - PCC paving
 - X Structure construction (bridge, box culvert, retaining walls, etc.)
 - Median barriers
 - Mortar operations (sound wall)
 - Miscellaneous concrete
 - Batch plants
 - Slope protection, channel lining (shotcrete)

2. What methodologies for estimating costs for concrete washout facilities are used during the bidding process?
 - Subcontract service
 - X Direct time and material estimates-Adjusts estimate every 6mo period based on completed work.
 - incidental to concrete unit pricing
 - incidental to contract lump sum

3. What criteria does the Contractor use to estimate the number of washout facilities to be used on any given project?
 - X Daily concrete placement volumes per type of operation-# of washouts needed so one is available and near each work area for total number of pours planned.
 - Simultaneous pours but for different subcontractors or operations
 - total concrete placed for the project
 - Admixtures or specific mix designs
 - Available water supply
 - Batch plant washout facility availability

4. Is each subcontractor given the responsibility to ensure their own compliance toward concrete washout or does the general contractor provide the service to all project subs? Does the general contractor impose penalties or restrictions upon the non-use or abuse of the provided facilities?
General Contractor. In contract Sub must agree to abide by storm water plan, but there is not set line item penalty.

5. Who on each project is typically given responsibility for concrete washout facilities? Labor Foreman.

6. Does the contractor have a preference as how to bid concrete washout facilities (ie independent lump sum, increment to unit pricing for concrete, increment to project lump sum, increment to water pollution control plan, separate bid item, etc.)? Bid approximate quantity as a line item so if more are needed it is easily negotiable.

7. How does the contractor estimate the total quantity of concrete waste resulting from concrete operations?
Not estimated. Provide one per pour planned and monitor onsite and adjust accordingly.

8. How does the contractor estimate sizing for each concrete washout facility.
Standard 20'x20' for each pour.

9. Which operation from question no. 1 does the Contractor find most challenging in terms of meeting washout facility compliance? Not a problem when space is available, usually work on jobs large enough that is rarely a problem.
10. Does the Association of General Contractors provide training and guidance to the contractor for storm water pollution prevention and more specifically, concrete washout facilities?
Not aware of if they provide training. Usually someone on job has SWPPP training or experience in storm water compliance.
11. What criteria does the Contractor use for selecting locations for concrete washout facilities?
Proximity to pour.
12. Does the contractor have any insights toward future concrete washout facilities that he would like to share with us at this time? Has heard other Contractor's swear by disposable systems. (Example- bad attaches to chute than can catch waste and are quickly disposed of once dry.) But hasn't tried.
13. Is the contractor aware of any industry standard or practice that could result in minimizing the amount of concrete waste for any given project? The more care taken in properly estimating the number of trucks directly related to avoiding a spill or improper disposal of concrete. Feels estimator, superintendent, and engineer are all responsible.
14. Does the contractor believe that separate washout facilities are necessary for placement equipment from delivery equipment? A separate facility for priming pumping equipment, especially if boom is extended. (Example-bridge deck.)

CONTRACTOR QUESTIONNAIRE NO. 7

Completed by: **E-mailed from Contractor**

Date: **6/13/05**

1. Indicate the types of construction operations where concrete washout facilities have been routinely used in conjunction with placement operations.
 - X PCC paving
 - X Structure construction (bridge, box culvert, retaining walls, etc.)
 - X Median barriers
 - X Mortar operations (sound wall)
 - X Miscellaneous concrete
 - X Batch plants
 - X Slope protection, channel lining (shotcrete)

2. What methodologies for estimating costs for concrete washout facilities are used during the bidding process?
 - Subcontract service
 - X Direct time and material estimates
 - incidental to concrete unit pricing
 - incidental to contract lump sum

3. What criteria does the Contractor use to estimate the number of washout facilities to be used on any given project?
 - Daily concrete placement volumes per type of operation
 - Simultaneous pours but for different subcontractors or operations
 - X total concrete placed for the project
 - Admixtures or specific mix designs
 - Available water supply
 - Batch plant washout facility availability

4. Is each subcontractor given the responsibility to ensure their own compliance toward concrete washout or does the general contractor provide the service to all project subs? Does the general contractor impose penalties or restrictions upon the non-use or abuse of the provided facilities?
General provides all washouts to all Subs.

5. Who on each project is typically given responsibility for concrete washout facilities? Superintendent.

6. Does the contractor have a preference as how to bid concrete washout facilities (ie independent lump sum, increment to unit pricing for concrete, increment to project lump sum, increment to water pollution control plan, separate bid item, etc.)? Separate bid items.

7. How does the contractor estimate the total quantity of concrete waste resulting from concrete operations?
Will not disclose.

8. How does the contractor estimate sizing for each concrete washout facility.
Depends on space available.

9. Which operation from question no. 1 does the Contractor find most challenging in terms of meeting washout facility compliance? Night PCC slab replacement with short construction window.

10. Does the Association of General Contractors provide training and guidance to the contractor for storm water pollution prevention and more specifically, concrete washout facilities?

Not sure.

11. What criteria does the Contractor use for selecting locations for concrete washout facilities?
Ease of access and security.
12. Does the contractor have any insights toward future concrete washout facilities that he would like to share with us at this time? No.
13. Is the contractor aware of any industry standard or practice that could result in minimizing the amount of concrete waste for any given project? No.
14. Does the contractor believe that separate washout facilities are necessary for placement equipment from delivery equipment? Will depend on access.

CONTRACTOR QUESTIONNAIRE NO. 8

Completed by: **Faxed from Contractor**

Date: **6/8/05**

1. Indicate the types of construction operations where concrete washout facilities have been routinely used in conjunction with placement operations.
 - PCC paving
 - Structure construction (bridge, box culvert, retaining walls, etc.)
 - Median barriers
 - Mortar operations (sound wall)
 - Miscellaneous concrete
 - Batch plants
 - Slope protection, channel lining (shotcrete)

2. What methodologies for estimating costs for concrete washout facilities are used during the bidding process?
 - Subcontract service
 - Direct time and material estimates
 - incidental to concrete unit pricing
 - incidental to contract lump sum

3. What criteria does the Contractor use to estimate the number of washout facilities to be used on any given project?
 - Daily concrete placement volumes per type of operation
 - Simultaneous pours but for different subcontractors or operations
 - total concrete placed for the project
 - Admixtures or specific mix designs
 - Available water supply
 - Batch plant washout facility availability

4. Is each subcontractor given the responsibility to ensure their own compliance toward concrete washout or does the general contractor provide the service to all project subs? Does the general contractor impose penalties or restrictions upon the non-use or abuse of the provided facilities?
General provides. The contractor does not apply penalties yet.

5. Who on each project is typically given responsibility for concrete washout facilities? Concrete Division.

6. Does the contractor have a preference as how to bid concrete washout facilities (ie independent lump sum, increment to unit pricing for concrete, increment to project lump sum, increment to water pollution control plan, separate bid item, etc.)? Lump sum by cubic yard placed.

7. How does the contractor estimate the total quantity of concrete waste resulting from concrete operations?
Number of cubic yards placed.

8. How does the contractor estimate sizing for each concrete washout facility.

9. Which operation from question no. 1 does the Contractor find most challenging in terms of meeting washout facility compliance? Finding a place to place the facility.

10. Does the Association of General Contractors provide training and guidance to the contractor for storm water pollution prevention and more specifically, concrete washout facilities?

I don't know.

11. What criteria does the Contractor use for selecting locations for concrete washout facilities?
Ease of getting concrete trucks in and out.
12. Does the contractor have any insights toward future concrete washout facilities that he would like to share with us at this time? Not yet.
13. Is the contractor aware of any industry standard or practice that could result in minimizing the amount of concrete waste for any given project? No.
14. Does the contractor believe that separate washout facilities are necessary for placement equipment from delivery equipment?
